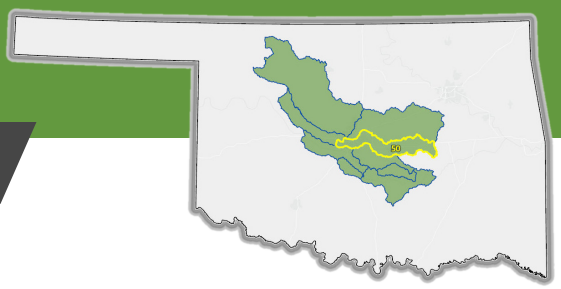
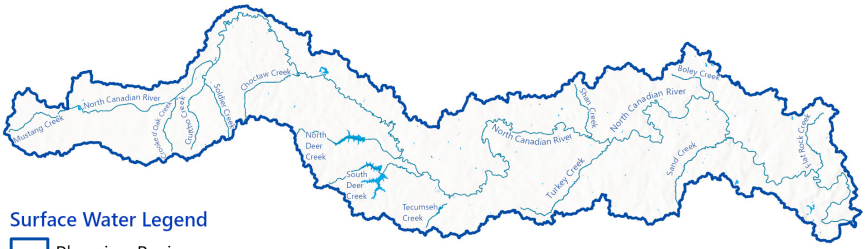
BASIN 50

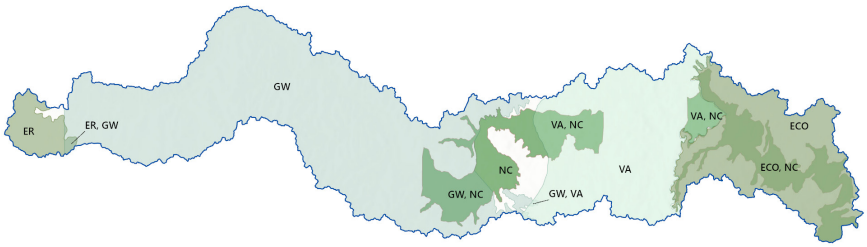
Lower North Canadian River / Central Region





Surface Water Legend

- Planning Basin
- OWRB Major Streams
- OWRB Lakes



Groundwater Legend

- Planning Basin

Major Bedrock Aquifer

- Garber-Wellington (GW)
- Vamoosa-Ada (VA)

Minor Bedrock Aquifer

- East-Central Oklahoma (ECO)
- El Reno (ER)

Major Alluvial Aquifer

- North Canadian River (NC)

*Interactive maps can be viewed through the OCWP dashboards, accessible at **oklahoma.gov/owrb/water-planning***

SUMMARY

- Basin 50 - Lower North Canadian River demands are supplied by a combination of surface water, groundwater, and out-of-basin supplies.
- Water demand (withdrawal) is projected to increase by 30,749 acre-feet per year (42%) between 2020 and 2075.
- Physical surface water gaps are projected in Basin 50 as early as 2030 and will continue through 2075.
- Physical alluvial groundwater depletions are projected in Basin 50 as early as 2030 and will continue through 2075.
- Physical bedrock groundwater depletions are projected in Basin 50 as early as 2030 and will continue through 2075.
- Basin 50 is projected to have surface water available for appropriation through 2075.
- Basin 50 is projected to have groundwater available for appropriation through 2075.
- To mitigate projected water supply shortages in this basin, the following strategies will typically be most effective:
  - Reduce water demand through conservation, water loss reduction, and other activities (PS, SSI, OG, TE). WSS
  - Reduce water demands through agricultural water saving options (CI, LS). WSS
  - Continue/increase reliance on in-basin surface water (all sectors). WSS WDI
  - Continue/increase reliance on in-basin groundwater (all sectors). WSS WDI

OWRB Water Planning Page
oklahoma.gov/owrb/water-planning

Refer to the **"Guide to Region and Basin Fact Sheets"** for a description of the types of information detailed in this fact sheet.

Water Demand Sectors: PS = Public Supply, SSI = Self-supplied Industrial, OG = Oil & Gas, TE = Thermoelectric Power, CI = Crop Irrigation, LS = Livestock, SSD = Self-supplied Domestic

OCWP Statewide Recommendations are designed to address current and anticipated water supply challenges and are noted throughout this fact sheet with the following icons: WIW Water Infrastructure & Workforce, WM Water Management, WSS Water Supplies & Storage, and WDI Water Data & Information

OKLAHOMA Water Resources Board

Population

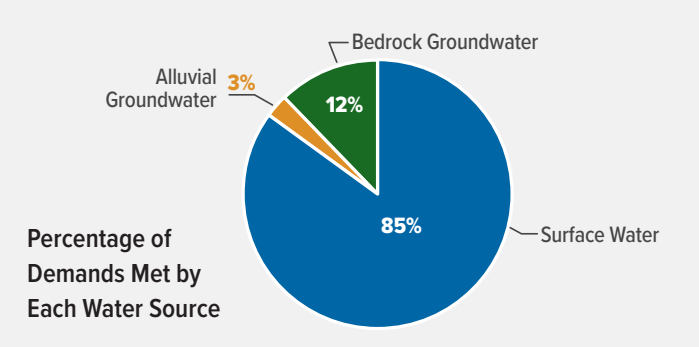
How is the population expected to change in the future?

2020	2030	2035	2045	2060	2075
374,448	399,941	413,265	441,403	490,456	533,627

Water Demand Projections

How much water is needed to meet Oklahomans' needs?

Basin 50 accounts for approximately 24% of the overall water demands of the Central Region.



Total Demand by Sector (AFY)

	2020	2030	2035	2045	2060	2075
Self-supplied Domestic	3,830	4,070	4,187	4,434	4,865	5,245
Self-supplied Industrial	-	-	-	-	-	-
Crop Irrigation	662	1,334	1,336	1,340	1,341	1,342
Livestock	927	906	605	889	864	846
Oil & Gas	569	569	569	569	569	569
Public Supply	64,672	69,209	71,624	76,687	85,452	93,200
Thermoelectric Power	2,299	1,562	1,481	1,909	2,228	2,505
Total	**72,958**	**77,650**	**80,103**	**85,828**	**95,319**	**103,707**

AFY = acre-feet per year; Small differences may result due to rounding.

Physical Water Shortages

Will there be enough "wet water" physically available to meet anticipated needs?

WIW WM WSS

	Magnitude (AFY)					Frequency[1]
	2030	2035	2045	2060	2075	2075
Surface Water Gap	1,060	1,728	3,133	5,681	11,377	83%
Alluvial Groundwater Depletion	10	15	98	183	312	14%
Bedrock Groundwater Depletion	96	99	105	117	127	N/A

1. Probability of a water shortage occurring in at least one month of the year.

Legal Water Availability

Will there be water available for permitting after meeting 2075 demands?

WM WSS

Estimated Surface Water available for appropriation in 2075 (AFY)	Inside 2016 Water Settlement Area? [1]	Is there a downstream mainstem restriction? [2]	Estimated Groundwater available for appropriation in 2075 (AFY)
127,300	No	No	1,307,400

1. If, yes – basin wholly or partially subject to the provisions of the 2016 Water Settlement Agreement.
2. If, yes – mainstem restriction may impact water available for appropriation within the basin.

Water Management Strategies

What approaches are most viable for meeting future needs and mitigating shortages?

WSS WDI WIW WM

Water Management Category	Demand Sector	Basin 50 Evaluation
Demand Management	PS, SSI, OG, TE	Effective at Meeting Future Demands
Agriculture Options	CI, LS	Effective at Meeting Future Demands
Increase Reliance on In-Basin Surface Water	All sectors	Effective When Paired with Demand Management/ Agriculture Options
Increase Reliance on In-Basin Groundwater	All sectors	Effective When Paired with Demand Management/ Agriculture Options
Stormwater Capture & Use	PS, SSI	No Shortage or Needs Met by Other Strategies
Reuse	PS, SSI	No Shortage or Needs Met by Other Strategies
Water Transfers	All sectors	No Shortage or Needs Met by Other Strategies

In addition to the water management strategies, water users need:

- Options to address water quality concerns, which could include expanding source water protection programs and expanding water quality studies.
- Ways to address infrastructure limitations, which could include additional water funding from the State, Federal, and/or public-private partnerships, and by providers setting water rates that fully fund system operation and maintenance.