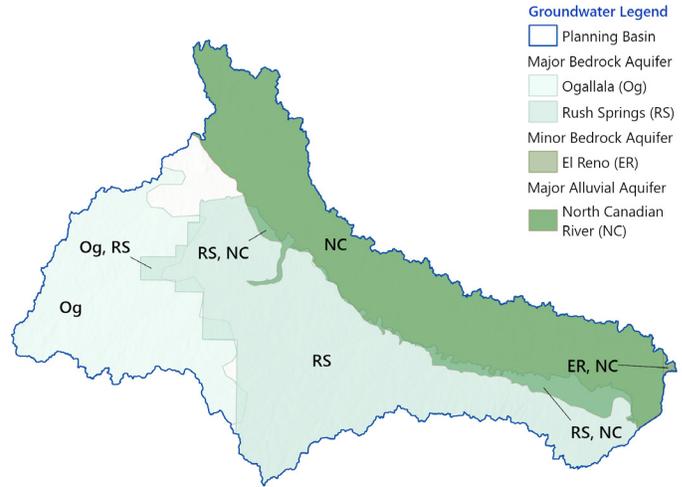
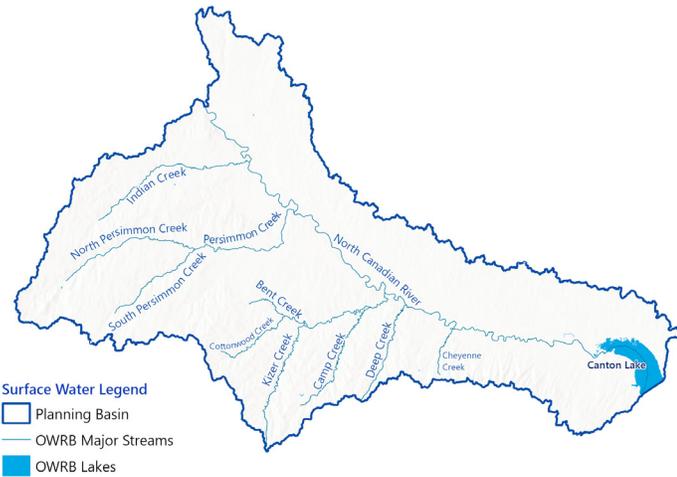


BASIN 52

Upper North Canadian River - 1 Northwest Region



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

SUMMARY

- Basin 52 - Upper North Canadian River - 1 demands are supplied by a combination of surface water and groundwater.
- Water demand (withdrawal) is projected to increase by 2,956 acre-feet per year (23%) between 2020 and 2075.
- Physical surface water gaps are projected in Basin 52 as early as 2030 and will continue through 2075.
- Physical alluvial groundwater depletions are projected in Basin 52 as early as 2030 and will continue through 2075.
- Physical bedrock groundwater depletions are projected in Basin 52 as early as 2030 and will continue through 2075.
- Surface water is fully allocated, limiting diversions to existing permitted amounts.
- Basin 52 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**
 - Water reuse (PS, SSI). **WM WSS**
 - Water transfers (all sectors). **WM WSS**



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



Population

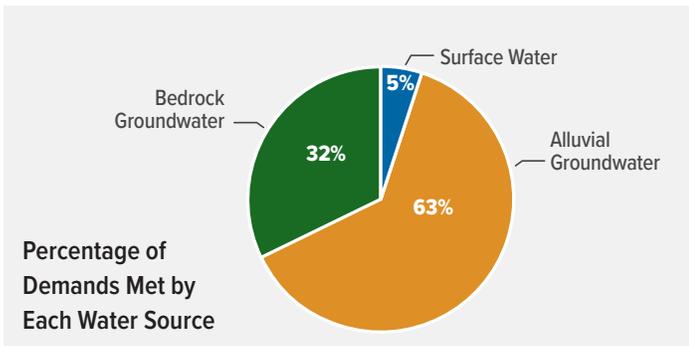
How is the population expected to change in the future?

| 2020 | 2030 | 2035 | 2045 | 2060 | 2075 |
|--------|--------|--------|--------|--------|--------|
| 10,790 | 11,054 | 11,175 | 11,585 | 12,590 | 13,222 |

Water Demand Projections

How much water is needed to meet Oklahomans' needs?

Basin 52 accounts for approximately 2% of the overall water demands of the Northwest Region.



Total Demand by Sector (AFY)

| | 2020 | 2030 | 2035 | 2045 | 2060 | 2075 |
|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Self-supplied Domestic | 110 | 116 | 118 | 126 | 143 | 155 |
| Self-supplied Industrial | - | - | - | - | - | - |
| Crop Irrigation | 10,124 | 12,022 | 12,104 | 12,283 | 12,579 | 12,893 |
| Livestock | 1,164 | 1,158 | 1,165 | 1,163 | 1,163 | 1,170 |
| Oil & Gas | 624 | 624 | 624 | 624 | 624 | 624 |
| Public Supply | 755 | 768 | 773 | 793 | 847 | 877 |
| Thermoelectric Power | 164 | 111 | 106 | 136 | 159 | 179 |
| Total | 12,942 | 14,798 | 14,890 | 15,126 | 15,515 | 15,898 |

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 | 8 | 8 | 6 | 6 | 6 | 7% |
| Alluvial Groundwater Depletion | 784 | 823 | 699 | 665 | 733 | 42% |
| Bedrock Groundwater Depletion | 2,836 | 2,865 | 2,938 | 3,058 | 3,180 | 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) |
|---|---|--|---|
| - | No | No | 785,180 |

1. Yes – basin wholly or partially subject to the provisions of the 2016 Water Settlement Agreement.

2. 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 52 Evaluation |
|---|-----------------|--|
| Demand Management | PS, SSI, OG, TE | Partially Effective - Shortages Remain |
| Agriculture Options | CI, LS | Partially Effective - Shortages Remain |
| Increase Reliance on In-Basin Surface Water | All sectors | Ineffective at Meeting Future Demands |
| Increase Reliance on In-Basin Groundwater | All sectors | May Increase Shortages - Use with Other Strategies |
| Stormwater Capture & Use | PS, SSI | Ineffective at Meeting Future Demands |
| Reuse | PS, SSI | Partially Effective - Shortages Remain |
| Water Transfers | All sectors | Effective at Meeting Future Demands |

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.