

ARIZONA WATER FACTSHEET Maricopa County

Get to know water in your county

December 17, 2021



THE UNIVERSITY OF ARIZONA
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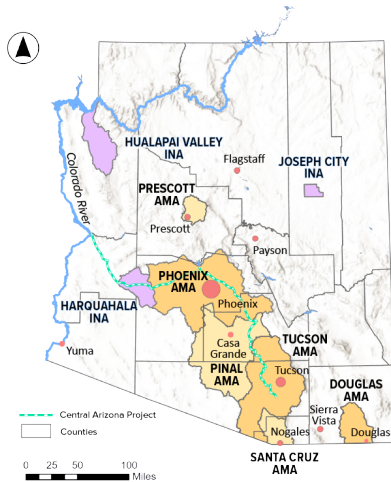
**WATER RESOURCES
RESEARCH CENTER**

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Water in Arizona

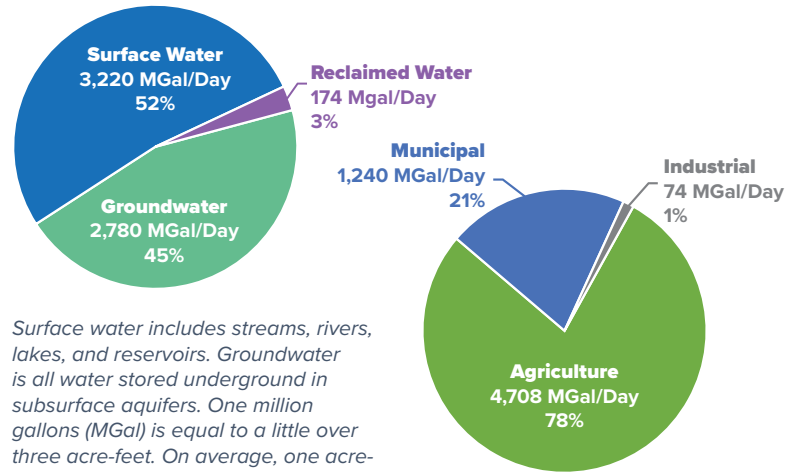
Arizona's future depends on sustainable water supplies, which in turn depend on vigilant and innovative management of those supplies. In our varied landscapes, from low deserts to high mountains, counties and communities face different water challenges and take different approaches to addressing those challenges, while conforming with regional, state, and federal requirements. The Arizona Department of Environmental Quality (ADEQ) is responsible for water quality and tasked with enforcing federal environmental standards. The Arizona Department of Water Resources (ADWR) oversees the use of surface water and groundwater, which are legally distinct though physically interconnected. In general, ADWR regulates groundwater more strictly in Active Management Areas (AMAs) than in the rest of the state.

Statewide Context



County and AMA boundaries (WRRC 2021).

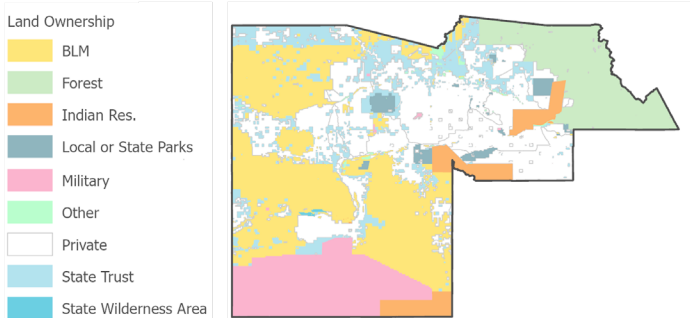
Arizona Water Supply and Demand



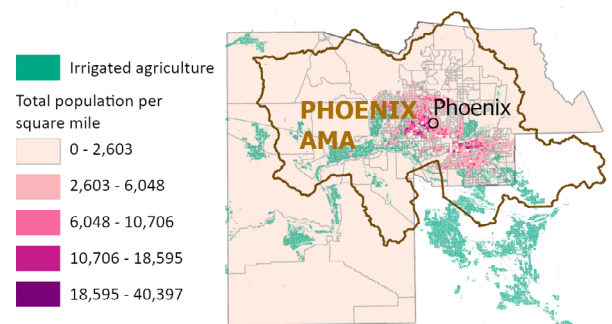
Surface water includes streams, rivers, lakes, and reservoirs. Groundwater is all water stored underground in subsurface aquifers. One million gallons (MGal) is equal to a little over three acre-feet. On average, one acre-foot of water serves three single-family homes in the Phoenix area for one year (ADWR 2021, USGS 2015).

Water in Maricopa County

Located in the Sonoran Desert, Maricopa County receives less than 11 inches of rain per year. Despite the dryness, more than half of the state's population - some 4.5 million people - live in the county. Water management in Maricopa County requires navigating a patchwork of jurisdictional and regulatory boundaries, including diverse land ownership (52% federal, 30% private, 13% state, and 4% Tribal), coupled with overlapping service areas of public and private water providers. Thus, water planning and management in Maricopa County relies on regional cooperation.



Land ownership in Maricopa County (Arizona State Land Department 2020).



Population density and agricultural lands in Maricopa County and Phoenix AMA (US Census Bureau 2020, USDA 2011).

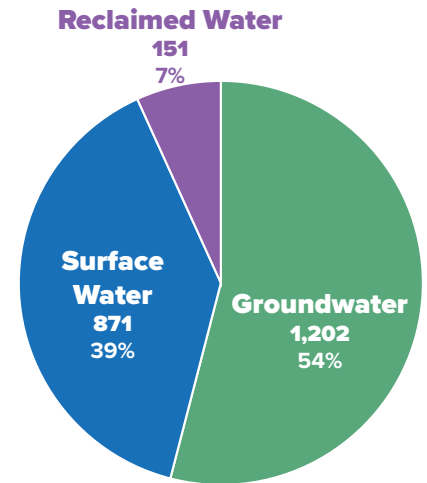
Frequently Asked Questions

Where Does Maricopa County's Water Come From?

The primary source of water in Maricopa County is groundwater.

Maricopa County includes parts of the Phoenix and Pinal AMAs and the Harquahala Irrigation Non-expansion Area (INA). ADWR regulates groundwater use within AMAs and INAs.

- The **Phoenix AMA's** management goal is **safe-yield** by 2025. To achieve safe-yield, the recharge of groundwater should balance groundwater pumping within the AMA.
- The **Pinal AMA's** goal is to maintain the agricultural economy while working to preserve groundwater for future non-irrigation uses
- Within the AMAs, the Assured Water Supply program requires new subdivisions to demonstrate in advance of development that a 100-year supply of good quality water is continuously and legally available.
- **Harquahala INA** regulations prohibit the expansion of irrigated acreage and requires irrigators to report their water use if they pump groundwater at a rate greater than 35 gallons per minute.
- In parts of Maricopa County outside of the AMAs and INA, groundwater pumping is not limited if the use is reasonable as defined by the Arizona Supreme Court's Reasonable Use Doctrine.



Sources (Million Gallons/Day) for Maricopa County's water (USGS 2015).

The Central Arizona Project (CAP) and the Salt River Project (SRP) supply surface water to Maricopa County.

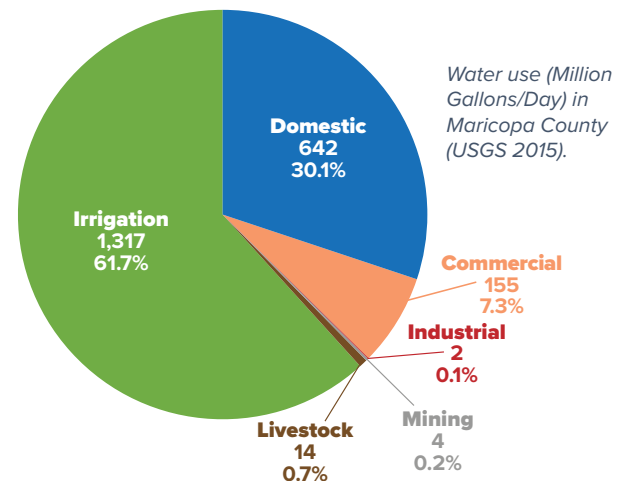
- These renewable supplies are the primary source of municipal drinking water.
- CAP transports water from the Colorado River through a 360-mile canal across central Arizona to supply Maricopa, Pinal, and Pima counties.
- SRP delivers water from the Salt and Verde River watersheds (covering 240,000 acres) to municipal, agricultural, and industrial users within its service area.

SRP delivers **244 billion gallons of water every year**

How Is Water Used in Maricopa County?

As urban development expands into agricultural lands, water demand is shifting from agricultural to municipal and industrial uses. Depending on the boundaries used to measure water use, the proportion of water demand shifts from predominantly municipal to agricultural. The map on Page 1 depicts the composition of agricultural lands and population hubs within the AMA and county boundaries.

- Until 1990, more water was used in the Phoenix AMA for agriculture than for cities. By 2019, half of all water was used by municipalities and only 30% was used for agriculture.
- In Maricopa County as a whole, irrigation accounted for 62% of the county's water use in 2015 (the last year these data were collected), while municipal use accounted for 37%.



Water use (Million Gallons/Day) in Maricopa County (USGS 2015).

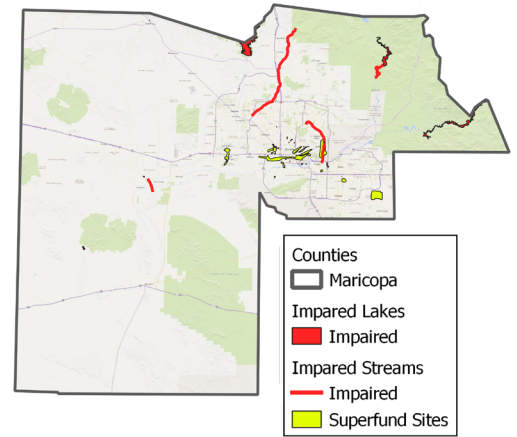
What Water Challenges Does Maricopa County Face?

Water Quantity Challenges

- The Phoenix AMA has not yet achieved safe yield. **Overdraft** (pumping more water from an aquifer than is recharged) can cause land subsidence, a sinking ground level that can cause damage to infrastructure.
- For decades, the Colorado River has been over-allocated (users are promised more water than nature can provide) and drought intensity is increasing. The first cut to Arizona's allocation will come in 2022.

Water Quality Challenges

- **Superfund Sites.** Maricopa County has five Superfund sites, which are federally designated areas contaminated by toxic materials. The sites are usually associated with landfills or industrial sites like mines and airports. Site cleanup is governed by the US Environmental Protection Agency and funded by federal and local entities.
- **Groundwater Contamination.** There are also 19 Water Quality Assurance Revolving Fund (WQARF) Registry sites in the county scheduled for or undergoing groundwater remediation. These sites are also associated with landfills and industry and most involve **chlorinated solvents** that are often used in degreasers, paint strippers, and dry cleaning. The cleanup is governed by ADEQ.
- **Surface Water Pollution.** Impaired waters are rivers, streams, and lakes that do not attain federal Clean Water Act or Arizona water quality standards. The ADEQ monitors surface water impairment. Maricopa County contains parts of three watersheds (the Salt River, Verde River, and Middle Gila) with areas of impaired surface water.
- **Emerging Contaminants.** Emerging contaminants, such as per- and polyfluoroalkyl substances (PFAS), are found throughout Arizona. They include ingredients found in pharmaceuticals, household items, and personal care products. Water quality standards for most of these substances do not exist.



Impaired streams, lakes, and Superfund sites (ADEQ 2020).

How Is Maricopa County Moving Toward Sustainable Water Management?

As water resources in the state become more strained, people continue to study ways to stretch or increase supplies. The county's largest water providers are primarily reliant on renewable supplies.

- **Groundwater Recharge.** CAP water has been replacing groundwater since the 1990s. Excess CAP and recycled water has been stored in aquifers for future use.

- **Irrigation Efficiency.** The agricultural industry continues to increase irrigation efficiency (producing more with the same amount of water).

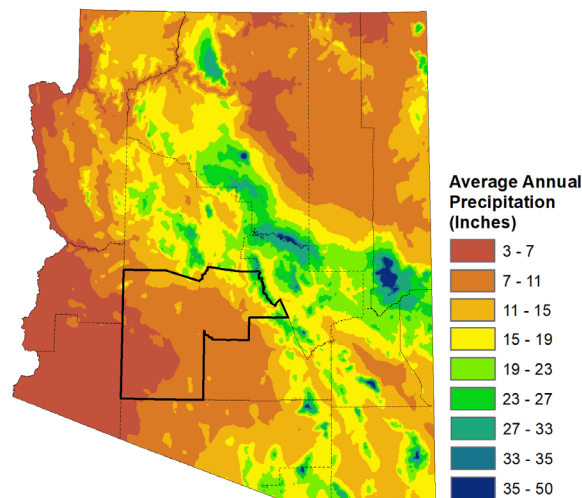
- **Water Reuse.** Reclaimed water use has increased four-fold in the Phoenix AMA since 1985. Reclaimed water uses include recharge, agricultural irrigation, landscape irrigation, and restoring aquatic and riparian habitat.

- **Rainwater Harvesting.** Urban landscaping with harvested rainwater (rain that is collected and directed to specific uses) can increase shade and reduce urban heat effects while reducing the use of potable water.

Since 1985, Maricopa County's population has increased by nearly 3 million people, but total water use in the Phoenix AMA is the same.

What Does Maricopa County's Future Water Situation Look Like?

- As temperatures rise and cities expand, Maricopa County will see more extreme heat days (which increase water demand) and a stronger **urban heat island effect**, raising heat stress unless countermeasures are taken.
- The state of Arizona has been in a drought for over 20 years. As temperatures rise, evaporation is expected to increase and reduce soil moisture. This increases the potential for even more intense droughts, putting the county's water resources at risk.
- The **Drought Contingency Plan (DCP)** was created to mitigate the impacts of shortages on the Colorado River. Under the DCP, low water levels in Lake Mead have triggered reduced CAP deliveries to agricultural users in Maricopa, Pima, and Pinal Counties. Maricopa County water users will likely see additional, sustained reductions in CAP supplies in the near-term.



Mean Precipitation 1981-2010 (PRISM Climate Group 2016).

Additional Resources

The WRRC has compiled and periodically updates a list of additional resources related to water in Arizona. These resources range from statewide information from ADWR to information available from local watershed groups and non-profits. Visit the **WRRC website** to see the complete list. The resources used for this factsheet are provided below.

WRRC Water Map

A reliable and concise visual representation of Arizona's water resources. This map includes information on land ownership, water use by groundwater basin, annual precipitation by planning area, subsidence and groundwater storage, annual water use by region, supply and demand, Colorado River apportionment, and more.

Map Info

Statewide Water Resources

- **ADEQ Emerging Contaminants Report:** An assessment of the emerging contaminants in Arizona's water supplies.
- **ADEQ Impaired Water Information:** Maps and information about the impaired surface waters in the state.
- **ADEQ WQARF Registry:** A list of WQARF sites across the state with descriptions of the individual sites.
- **ADEQ Superfund Sites:** An overview of Superfund sites and descriptions of the sites located in Arizona.
- **AZ State Maps:** A state population density map with county boundaries, used for the population density map of Maricopa County.
- **Cooperative Extension Save Water:** Information on water saving techniques for Arizona relating to irrigation, gray water, and rainwater harvesting.

- **Desert Water Harvesting Initiative:** Green infrastructure guidance and other resources for water harvesting in arid and semi-arid climates.
- **PRISM database:** Data on historic and current climate patterns, used for the precipitation map of Arizona.
- **USGS Ground Water Atlas of the United States:** Groundwater and aquifer basics and in-depth publications about aquifers throughout the US.

Regional Management and Planning

- **Active Management Areas:** Information about groundwater regulation in Arizona and the management of AMAs.
- **SRP Watershed Management:** Information on SRP's efforts to protect watersheds from degradation, including wildfires.
- **CAP:** Background information on the Central Arizona Project.
- **Drought Contingency Plan (DCP):** An overview of the Drought Contingency Plan and its implications for Arizona water users.

County Specific Water Resources

- **Maricopa County Comprehensive Plan:** Background information on statutory requirements for water in Maricopa County, plus a focus on future water planning.
- **Phoenix Drought Information:** Descriptions of the current drought in the county and the future of the water supply.