




How OV Sustains

This section provides background information for context and understanding related to the following General Plan elements:


- **Water Resources.** Strives to effectively and efficiently maintain, protect, and preserve water resources.
- **Climate.** Aims to reduce greenhouse gas emissions and prepare for climate change.

10 Year Trends and Conditions



Oro Valley (OV) has reduced groundwater pumping to historic lows. Since 2005, groundwater pumping has been reduced by over 50%.

- Groundwater pumping has been offset through Central Arizona Project (CAP) water deliveries and use of reclaimed water for turf irrigation.



Because the Colorado River is over allocated, reductions in its use will be required by all Colorado River users. OV has anticipated and planned for a 25% reduction to OV's CAP water allocation.

- Approximately 25% of OV's CAP allocation is not delivered and is stored in nearby underground aquifer storage facilities for future use, if needed. This stored water is referred to as Long Term Storage Credits (LTSC's).

Importance to OV's Future


- Continue to reduce OV's reliance on groundwater by increasing the deliveries of other water resources such as CAP and reclaimed water.
- Collaborate with neighboring groundwater users on how to reduce their reliance on groundwater to further preserve the resource.
- A 25% reduction to OV's CAP allocation is sustainable, but could limit OV's annexation growth potential without changing how OV manages its water resources.

Join the conversation today!

Go to OVPathForward.com to discuss water and climate.




10 Year Trends and Conditions



Water conservation measures are required with all new developments. Residents and business owners are further encouraged to make small changes to reduce their use of potable (drinking) water.

- Reclaimed water is another resource the Town uses to reduce use of potable water. Reclaimed water is used for turf irrigation at some of OV's golf courses, street sweeping, construction and other non-potable uses.



OV's average high temperature is 84.6 degrees. However, June is the hottest month with triple digit temperatures.

- Heat islands are areas with a lot of impervious surfaces that increase OV's temperature, especially at night.

Importance to OV's Future

- Continue to educate the OV community and raise awareness about water consumption by following best use practices as well as utilizing new water consumption monitoring technologies.
- Consider expanding use of reclaimed water to all public golf courses.
- Explore the possibility of treating reclaimed water to be used as drinking water.
- Reduce the heat island effect through landscaping, minimizing paved areas, and encouraging energy efficient building designs, such as white roofs.

Sources and Additional Information

Please click on the links below for more information about the topics covered in this section.

- [How OV Sustains video](#)
- [2024 Annual Water Report](#)
- [Town of Oro Valley Water Utility](#)
- [Water Conservation Measures](#)



The Oro Valley Water Utility is the 2nd largest municipal water service provider in Southern Arizona. It is the primary water service provider for Oro Valley residents, however, some Oro Valley residents are served by Tucson Water and Metro Water. The Oro Valley Water Utility serves 21,300 customers through the following:

- 2 service areas totaling 33 Sq. miles
- 18 production wells
- 26 booster stations
- 12 reservoirs
- 381 miles of distribution mains
- 4 Central Arizona Project (CAP) water interconnects
- 2 water systems (potable & reclaimed)

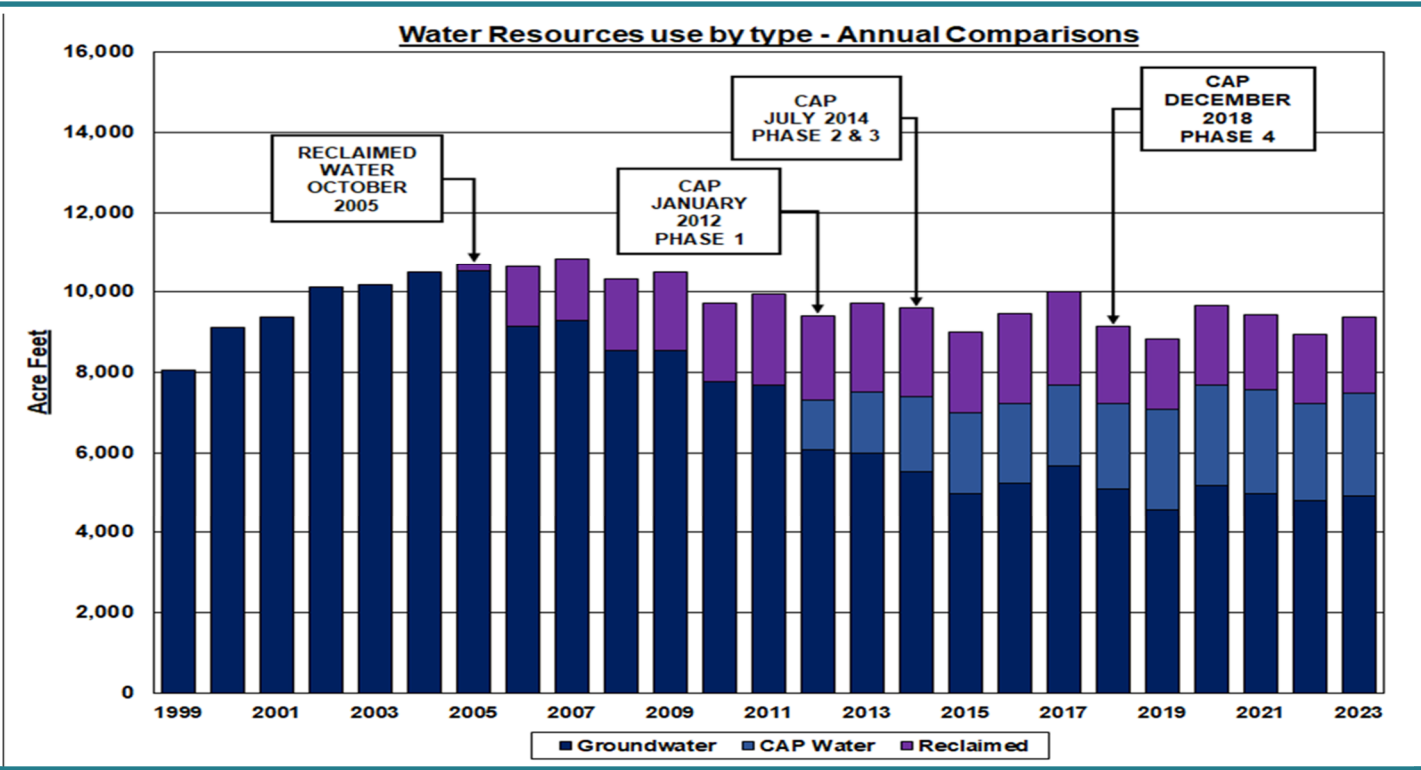
To support current and future residents the following improvements are planned in the next year for additional CAP delivery capacity, groundwater pumping reliability, and system reliability.

CAP Delivery Capacity	Northwest Recharge, Recovery and Delivery Systems (NWRRDS) Countryside Wheeling Station upgrades
Groundwater Pumping Reliability	Perpetual Well rehabilitations (1-2 wells a year) Replacement wells (La Posada and Steam Pump)
System Reliability	La Cañada design of "E" to "F" and "E" to "G" Zone Booster Palisades Redundancy 8-inch water main Pressure Vessel Replacements (1-2 per year) Supervisory Control & Data Acquisition Upgrades (SCADA)

In 2023, the OV Water Utility.....

- Took 2,661 water quality samples with all results meeting regulatory requirements.
- Added 186 new metered connections for an estimated total customer base of 21,300 connections.
- Developed and delivered four quarterly customer newsletters titled Behind the Meter.
- Completed the Potable Water Advanced Metering Infrastructure Data Analytics Evaluation Model which will allow the Water Utility to better measure and monitor conservation initiatives.
- Provided over 8,000 leak alerts through the WaterSmart customer portal, which has 7,300 registered users.
- Rehabilitated three groundwater production wells.
- Began construction of the Northwest Recharge Recovery and Delivery System (NWRRDS).
- Completed construction of water system improvements for Steam Pump Ranch and Naranja Park.

OV's Water Utility provides both potable, or drinking water and reclaimed water. OV's Water Utility delivered 3.1 billion gallons of water to 21,300 customers in 2023. The graph below shows the water resource usage by type for the past 25 years. The water volume shown is in units of acre-feet. An acre-foot of water equals 325,851 gallons. For context an acre-foot of water is enough water to cover a football field with 1-foot of water. Another way to think about it is 1- acre-foot is about how much water 3-4 residential homes use in a calendar year.



Groundwater:

- Exists in the ground approximately 300 feet below the land surface and extends over 1000 feet below the land surface.
- OV's primary potable (drinking) water resource.
- 18 wells produced 4,925 acre-feet or 53% of the Water Utility's total production in 2023.
- In 2023, the Water Utility pumped 37% of the groundwater that it was entitled to pump. This was the third lowest volume of groundwater pumped since 1996 (when the OV Water Utility was created).

CAP Water:

- Water from the Colorado River delivered through a 336-mile canal.
- OV's only other potable (drinking) water resource.
- 4 CAP wheeling (distribution) locations delivered 2,573 acre-feet or 27% of the Water Utility's total production in 2023.
- Utilized full allocation of 10,305 acre feet of CAP water for potable use, aquifer recharge and storage in the form of LTSC's.


Reclaimed Water:

- Produced from wastewater effluent from the sanitary sewer system and then treated for irrigation and other non-potable uses.
- Delivered 1,880 acre-feet or 20% of the Water Utility's total production in 2023.


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Ways OV Projects Water Demand


There are many challenges to Arizona’s water supplies as a result of climate change, a persistent drought and over allocation of the Colorado River System. **The Oro Valley Water Utility’s continued planning and conservation measures will provide for a reliable water future.**




Review all new development projects to maintain accurate water demand and supply information.




Maintain the Town’s 100-year Designation of Assured Water Supply for groundwater through an annual build-out analysis, which forecasts new water users based on the development of vacant land.



Monitor economic development and business recruitment strategies to identify water demand and supply.



Monitor potential annexations and the additional demand for water resources they will require.



Consider the benefit annexations could have on the aquifer if they can be supported with water resources other than groundwater.

Water Resource Projections

Potable Water Resources

It is projected at Town buildout the total potable water demand will increase 8.5% over the current total potable water demand. This is based on no rezonings or annexations. **OV has sufficient water supplies to serve the anticipated growth within our existing service area.** Additionally, all significant development proposals and rezonings are analyzed on a case-by-case basis to ensure adequate water supply.

- Could limit the Water Utility's ability to support annexations without changing how the Water Utility currently manages it's water resources.

The Arizona Water Banking Authority (AWBA) will firm 100% of any CAP reduction that creates demand shortfalls through the year 2026.

Groundwater

At the Water Utility’s 2023 groundwater pumping rate and with no local groundwater recharge, **the groundwater available to the Water Utility would last 250 years.** This is in accordance with the Assured Water Supply (AWS) designation the Water Utility has with the Arizona Department of Water Resources (ADWR).

CAP Water

Since the Town’s ability to reduce groundwater use is dependent on a reliable supply of Colorado River water, it is important to understand what the future might look like for the Water Utility's Central Arizona Project (CAP) allocation.

Shortfalls to the CAP allocation have been projected based on the results from the United States Bureau of Reclamation (BOR) study that was developed for the Tucson region.

For planning purposes, the Water Utility uses the highest risk climate scenario from the BOR study to project what the CAP allocation may be in the future. **It is assumed that a 25% reduction in the Water Utility’s CAP allocation will occur and will remain in perpetuity. A 25% reduction in CAP water:**

- Is sustainable with no modifications with how the Water Utility currently manages it's water resources.

Reclaimed Water

The supply of reclaimed water is dependent on the amount of potable water delivered to customers. In 2023 the Water Utility delivered 92% of the reclaimed water that it was entitled to use. The use of reclaimed water for irrigation purposes is expected to remain flat.

Reclaimed water that the Water Utility is entitled to, but does not deliver is stored in the Santa Cruz River effluent recharge project. Stored reclaimed water results in LTSC.

It is projected that as the potable demand for water resources increases, so will the availability of reclaimed water. Reclaimed water can either be delivered for non-potable uses or further treated to be made suitable for potable deliveries.

Recycled Water

If the Water Utility’s reclaimed water entitlement continues to be in excess of the amount delivered then recycled water is a viable new source of potable supply.

If the current reclaimed water demand remains constant, by Town buildout, then the delivery of recycled water could offset further CAP allocation reductions, or reduced groundwater pumping, or both. **By Town buildout recycled water could account for 5% of all potable water deliveries.**

Strategies for Water Sustainability



2023 BACKGROUND REPORT: A SNAPSHOT OF CURRENT CONDITIONS AND FUTURE TRENDS

To ensure the sustainability of our community and support community growth the Water Utility has developed a strategic water resource utilization plan that accommodates water shortages. For over two decades the Oro Valley Water Utility has been strategically planning for a warmer and dryer climate. Due to the Water Utility's strategic water resource utilization plan, **Oro Valley has never experienced a water shortage that required extreme conservation measures (i.e. pausing permits, draining pools, or reducing irrigation).**

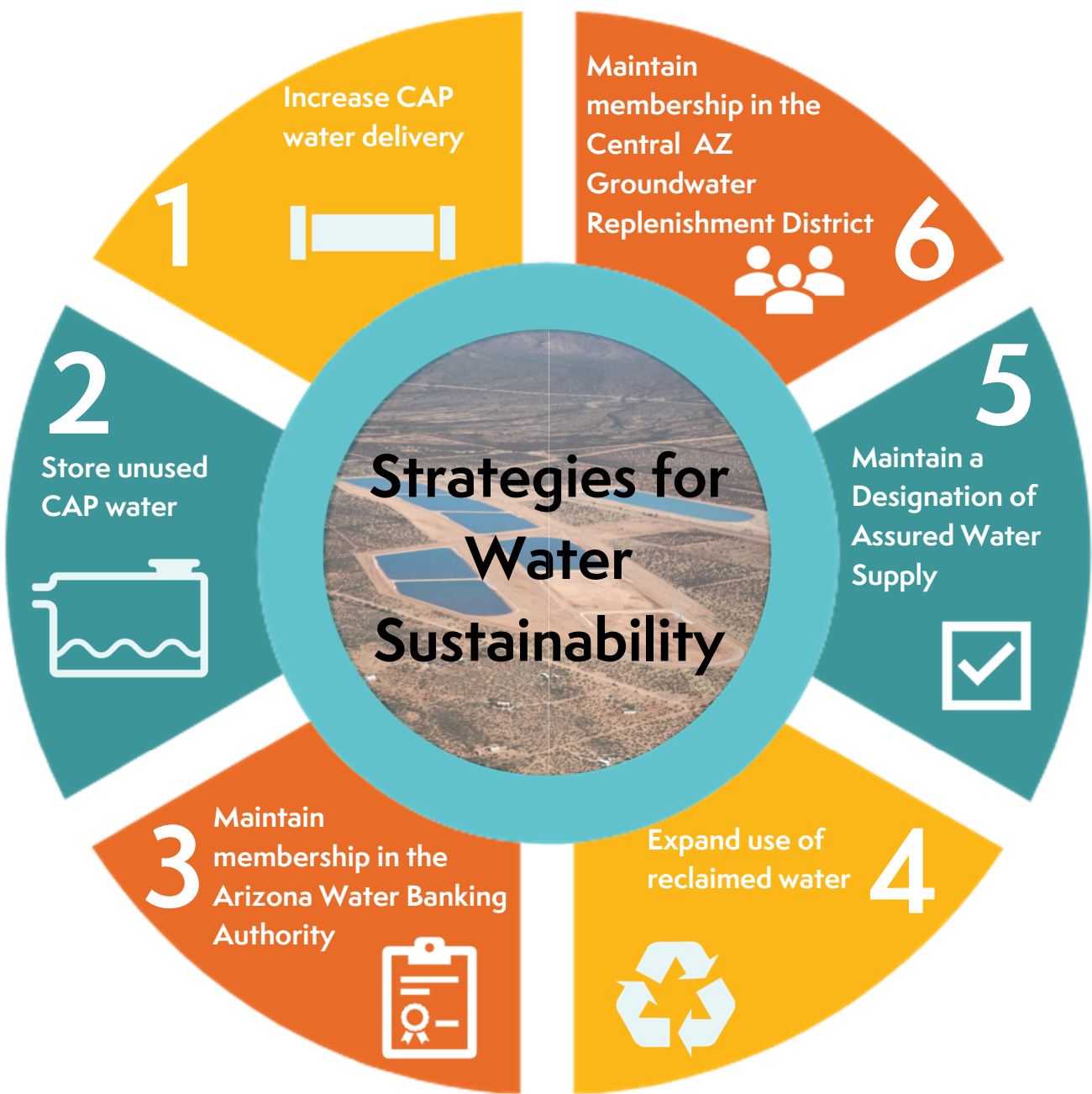
Deliver additional CAP water to the Water Utility's service area to support growth and further reduce the reliance on groundwater to meet the communities water resource needs. This is accomplished in the following way:

- CAP water is delivered to aquifer recharge basins to be stored underground and blended with existing groundwater to be recovered when needed. Nearby wells recover some of the stored CAP water to be delivered to the Oro Valley service areas.
- Construction of the Northwest Recharge Recovery and Delivery System (NWRDRS) will increase CAP Water deliveries up to 150 %.

Oro Valley only utilizes about 70 % of its CAP water allocation.

- Recharged groundwater, that is not utilized in any given year, accumulates in the form of Long-Term Storage Credits (LTSC). LTSC's can be recovered in the future in times of water shortage.
- **Approximately 25% of Oro Valley's CAP water allocation accumulates as LTSC's every year.**

The Water Utility is a member of the Arizona Water Banking Authority. This membership provides a means to utilize water that has been stored by the State in underground aquifer storage facilities since 1996.



Strategies for Water Sustainability



2023 BACKGROUND REPORT: A SNAPSHOT OF CURRENT CONDITIONS AND FUTURE TRENDS

The OV Water Utility will continue to partner with local, state, tribal and federal agencies to explore and discuss the feasibility of future water resource availability possibilities. These strategies result in the Oro Valley Water Utility being well positioned to provide continuous water service to the community.

The Water Utility is also a member of the Central Arizona Groundwater Replenishment District. This membership provides water resources that further firms the Water Utility's water resources.

The Water Utility maintains a Designation of Assured Water Supply (DAWS) with the Arizona Department of Water Resources. Understanding that groundwater supply is our community's ultimate backup water supply the DAWS ensures that our community has enough groundwater supply to last for at least 100-years.

Continue to utilize and look for ways of economically expanding the use of reclaimed water for non-potable uses, such as golf course irrigation. Unused reclaimed water entitlements are also accumulated in the form of LTSC's that can also be recovered in the future in times of water shortage.

Explore the possibility of treating reclaimed water to a potable standard and deliver as drinking water.

Water Conservation

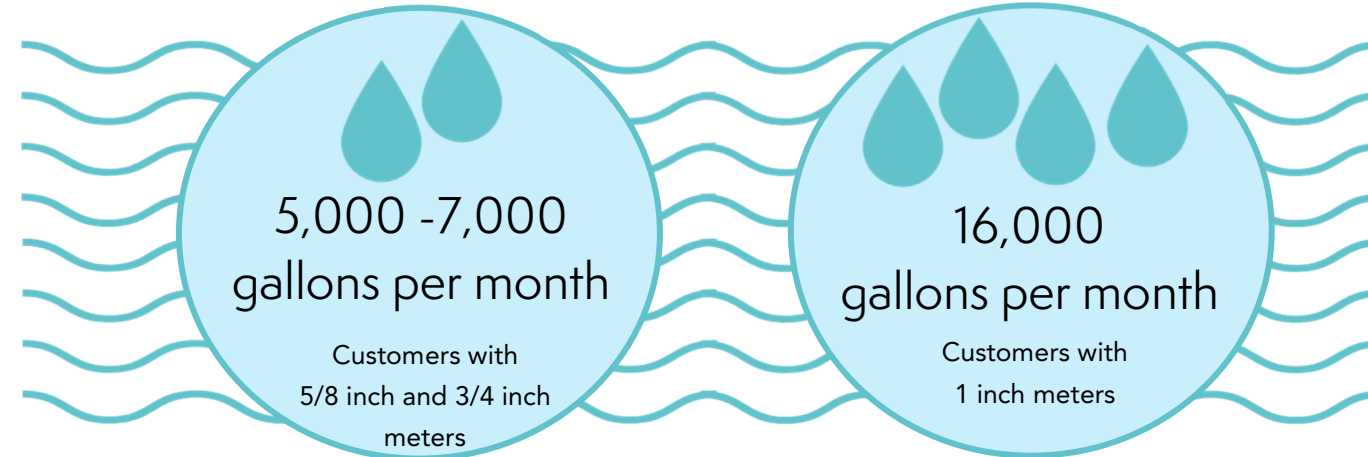


2023 BACKGROUND REPORT: A SNAPSHOT OF CURRENT CONDITIONS AND FUTURE TRENDS

Residential Water Use and Conservation

A key function of the Water Utility is protecting the Town's water supply through community awareness of water conservation measures. Nearly 90% of the 21,300 water meters serve residential customers. Oro Valley encourages water conservation through a tiered commodity rate. The Water Utility has an inclining block rate structure where the rate per block increases as water use increases. Eighty-seven (87%) of the Water Utility's customers fall within the lowest water use (Tier I) block of the commodity rate structure.

Average water use for residential customers



Individuals use about 100 gallons per day. Water use varies significantly and depends on many factors, such as the number of household members, water use practices, pools, and landscaping.

Water Smart Program

Utility customers can view near real-time information of water consumption using the WaterSmart Program. The convenient, self-service program also provides early leak detection and high use notifications to save water, reduce water waste and possibly save money on water bills.

- 7,300 registered accounts
- Approx. 8,500 automated alerts were sent in 2023 with water savings of over 12 million gallons.
- Over 3,900 visits to the WaterSmart customer portal in 2023.



Water Audits

Audits are a free educational and technical assistance service offered to residential, HOA and commercial customers to help conserve water at your home or business. Water use is evaluated both indoors and outdoors.

- Customers saved just over 500,000 gallons (2023)
- Over 2,300 audits have been completed since 2003



Did you know?

- AMI metering is used in OV. It provides a high level of accuracy and allows the Water Utility to collect hourly reads.

Water Conservation



2023 BACKGROUND REPORT: A SNAPSHOT OF CURRENT CONDITIONS AND FUTURE TRENDS

Water Conservation Programs and Policies



Residential customers use more than half of their total monthly water consumption outdoors. Water is wasted due to evaporation by pools and fountains, overwatering plants, and leaking irrigation systems.

42% of leaks confirmed by customers in the last year on the WaterSmart program, were related to irrigation. Ways to reduce water waste and outdoor water use include:

- Preventative maintenance, leak checks, and repairs are key to use water more efficiently and effectively.
- Choosing native, drought-tolerant plants
- Adjusting irrigation settings according to the season
- Capturing rainwater to supplement irrigation are also ways to reduce water use.
- Use pool covers to reduce the amount of water evaporated.

Mechanisms are in place to allow staff to identify water wasting, as well as implement corrective action and, if needed, impose fines for not complying with the water wasting code.

Water Conservation Resources:

- [Be A Leak Detector: Smart Home Water Guide](#)
- [Drain Your Pool](#)
- [Education Resources \(Grades 1-3\)](#)
- [High Water Use Action Plan](#)
- [Landscape Watering Guidelines](#)
- [Low Water Use Plant Ideas](#)
- [Rainwater Harvesting](#)
- [Oro Valley Approved Native Plant List](#)
- [Setting Your Irrigation Timer](#)
- [Watershed Management Group](#)
- [Ways To Save Water Indoors & Outdoors](#)
- [Water Wisdom Video Series](#)



Graywater use is allowed and encouraged to reduce water supply needs. Graywater is wastewater collected from washing machines, bathtubs, showers, or sinks (excluding kitchen sinks, dishwashers, or toilets). Graywater is most often used for irrigation.

Purchasing water and energy efficient appliances or installing low flow fixtures (faucets and showerheads) are also ways to significantly reduce water use.



Per Town code, OV can declare a potable water shortage and, if needed, impose additional water conservation measures depending on water resource availability. Fines for disobeying the level of water conservation required may also be imposed.



Conservation Kids is an interdisciplinary program that has been specifically designed for first through third grade learners and focuses on the water cycle. It is a 3-part program that is conducted at schools and includes fun activities, informative videos and lively discussions to raise the next water-smart generation.



Did you know?

Each year the Water Utility conducts thousands of tests on the drinking water system to make sure it is safe. The results of these tests are available on OV's website [HERE](#).

Water Conservation



2023 BACKGROUND REPORT: A SNAPSHOT OF CURRENT CONDITIONS AND FUTURE TRENDS

Development Related Water Conservation Requirements

Water conservation measures are required with all new developments. A brief overview of the building and zoning code requirements are below. Click [HERE](#) for a complete table of all the water conservation requirements and policies.

Building Codes

OV's adopted building codes support water conservation best practices through adoption of the International Plumbing Code regulations. Low flow rate fixtures are required in all new developments.

Golf Course & Car Washing

Car washing establishments must reduce consumption needs by recycling 70% of the water collected on site.

OV regulates the design and irrigation methods of golf courses. Use of natural turf is limited and drought tolerant landscaping must be used. Additionally, irrigation standards to maximize use of water resources other than potable ground water is required.

Landscape & Irrigation

Only drought tolerant, native vegetation is allowed in commercial and residential developments with higher water use plants being restricted to areas receiving shade to reduce the amount of irrigation needed. Plant types and locations are reviewed during the development review process.

Irrigation for landscaping placed around a site (buffer yard), in parking islands or medians must be turned off after five years, when plants reach maturity. Landscape water plans are required during the development review process to show the amount of water needed for landscaping and the reduction over time. Separate water meters are required for irrigation so water consumption can be monitored with real-time data.

Smart Growth

OV conducts an annual assessment to forecast water needs and maintain the Town's 100-year Designation of Assured Water Supply for groundwater.

Natural Turf & Ornamental Water Features

Natural turf is restricted to no more than 15% of the total recreation area for all single-family and multi-family residential projects. It can only be used for activity areas and not for ornamental purposes.

Ornamental water features, such as water fountains, are also prohibited in commercial developments or residential front yards.

Rainwater Harvesting

Utilizes rainwater harvesting to supplement or reduce potable water use for all commercial and residential developments.

- Small, dispersed water harvesting areas are required throughout a development to increase the number of capture points and maximize overall collection volumes.
- A minimum volume of rainwater collection is required for all commercial or multi-family developments based on project acreage and impervious surfaces.

Climate



2023 BACKGROUND REPORT: A SNAPSHOT OF CURRENT CONDITIONS AND FUTURE TRENDS

Weather

Oro Valley's climate delivers average high temperatures of 84.6 degrees and average lows of 48.0 degrees. Due to a slightly higher elevation and proximity to the Santa Catalina Mountain range, Oro Valley and the immediate surrounding area experience slightly lower temperatures and slightly more rainfall than experienced further south in Tucson.

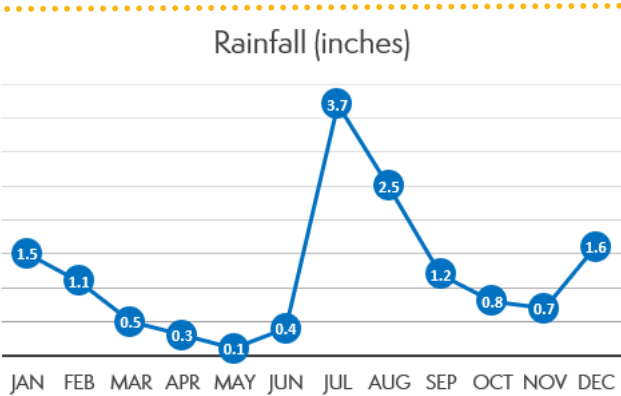
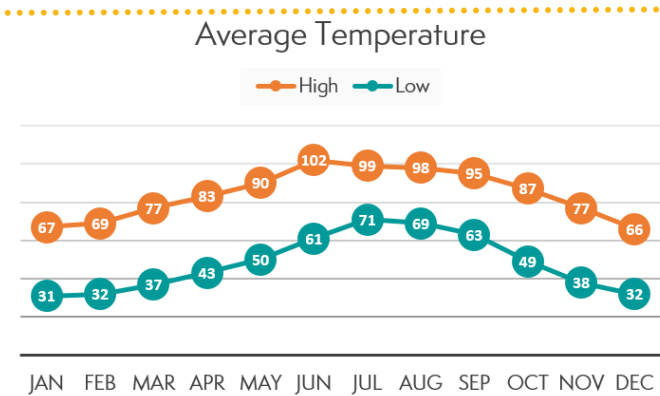
Typical of the southwest desert climate is a long, hot season, beginning in April and ending in October.

- Sunshine is abundant across Arizona with Oro Valley receiving, on average, over 300 days a year of sunshine.
- Nighttime temperatures begin to fall in November and on average, the first freeze occurs by the middle of November, with some potential for a hard freeze and/or snowfall throughout March.

Monsoon Season

Average annual precipitation is less than 20 inches with the summer thunderstorm season accounting for approximately 44% of the annual rainfall. The onset of the summer monsoon season begins in July, which typically lasts well into the month of September. September marks the end of the summer monsoons but heavy rainfall is possible during October due to tropical systems moving north along the Mexican coastline.

Oro Valley Climate	
Hottest Month	June
Coldest Month	Jan
Wettest Month	July
Average High Temp	84.6
Average Low Temp	48.0



Heat Islands

Impervious surfaces such as asphalt, concrete, and cement absorb heat and slowly releases it. This increases the nighttime temperatures of towns and cities in comparison to their more rural counterparts. Areas with significant areas of impervious surfaces are known as heat islands.

Reducing the amount of pavement covering a site to only what is necessary is critical. Trees are the most effective tool to mitigate and reduce heat island effects.

Other ways to reduce heat island effects:

- Plant trees along streets to make shade, especially over dark surfaces
- Add vegetation to urban spaces, including green roofs
- Implement cool surfaces on roofs, roads, and walls
- Vary the height of new buildings to increase airflow and create shade canyons