

Chandler's Water Resources & Drought Preparedness



Public Works & Utilities | Water Resources
City Council Work Session – June 20, 2022



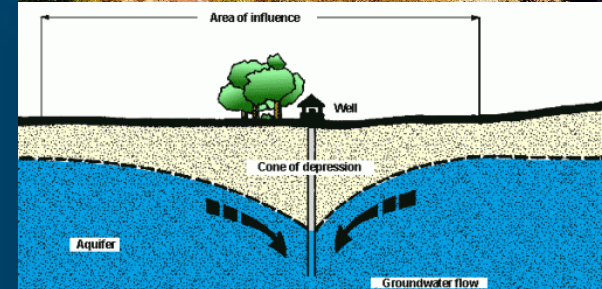


Agenda

- Introduction
- Chandler's Water Supplies
- Planning for Growth
- Colorado River Shortage & Impacts to Chandler
- Chandler's Drought Preparation
- Conservation Programs
- Next Steps

Where Does Our Water Come From?

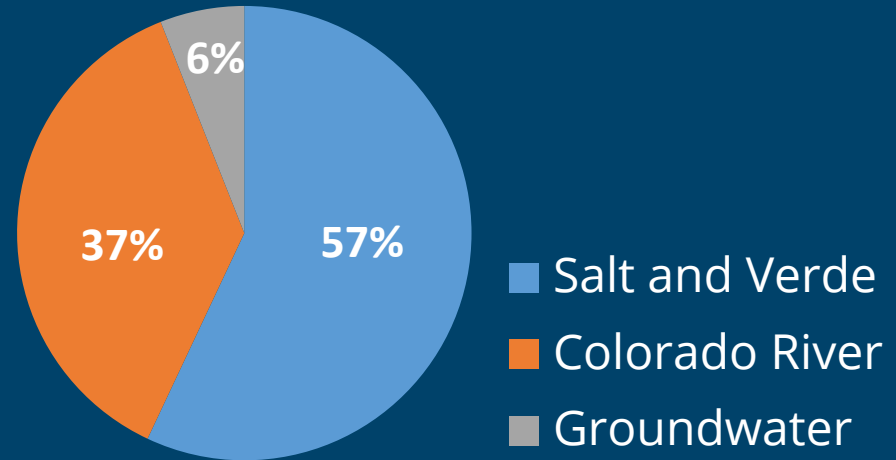
- **Surface Water**
 - Salt & Verde Rivers
 - Delivered by Salt River Project (SRP)
 - Roosevelt Water Conservation District (RWCD)
 - Colorado River
 - Delivered by Central Arizona Project (CAP)
- **Groundwater**
- **Treated Wastewater (Reclaimed Water)**



Chandler's Water Supplies

Allotment (AF)	Source Available at Build-out
59,530	Salt and Verde Water
38,755	CAP Water
6,346	Groundwater
104,631	Annual Drinking Water Supply
29,936	Annual Reclaimed Water Supply

Drinking Water Supply



Surface Water

Colorado
River

+

Salt River

+

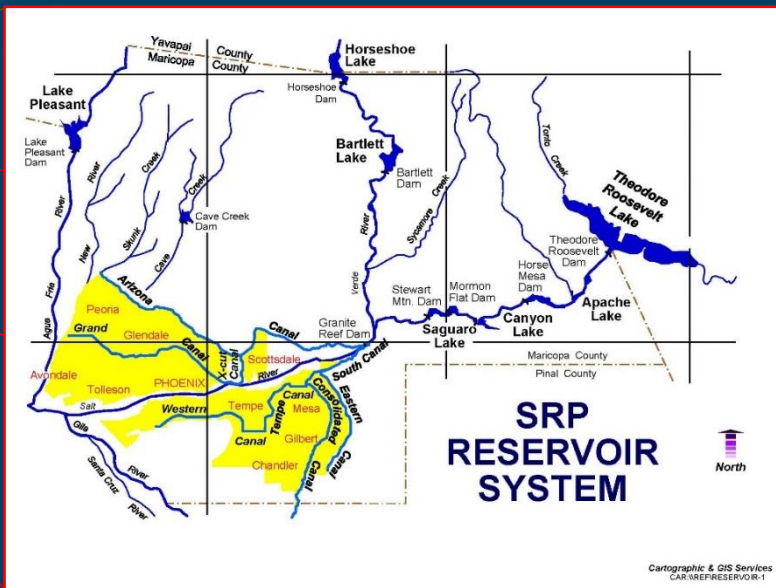
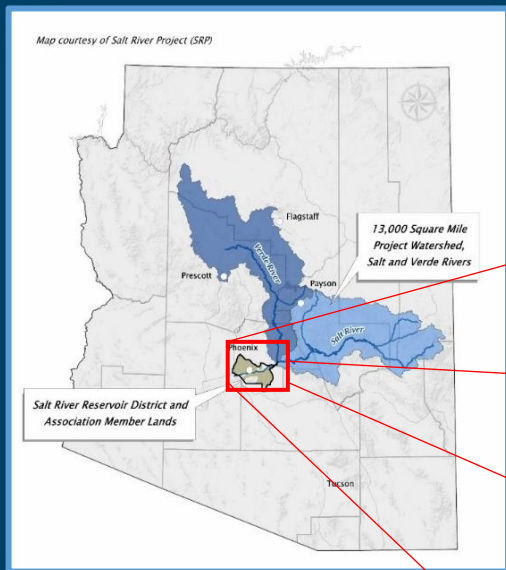
Verde
River

City of
Chandler

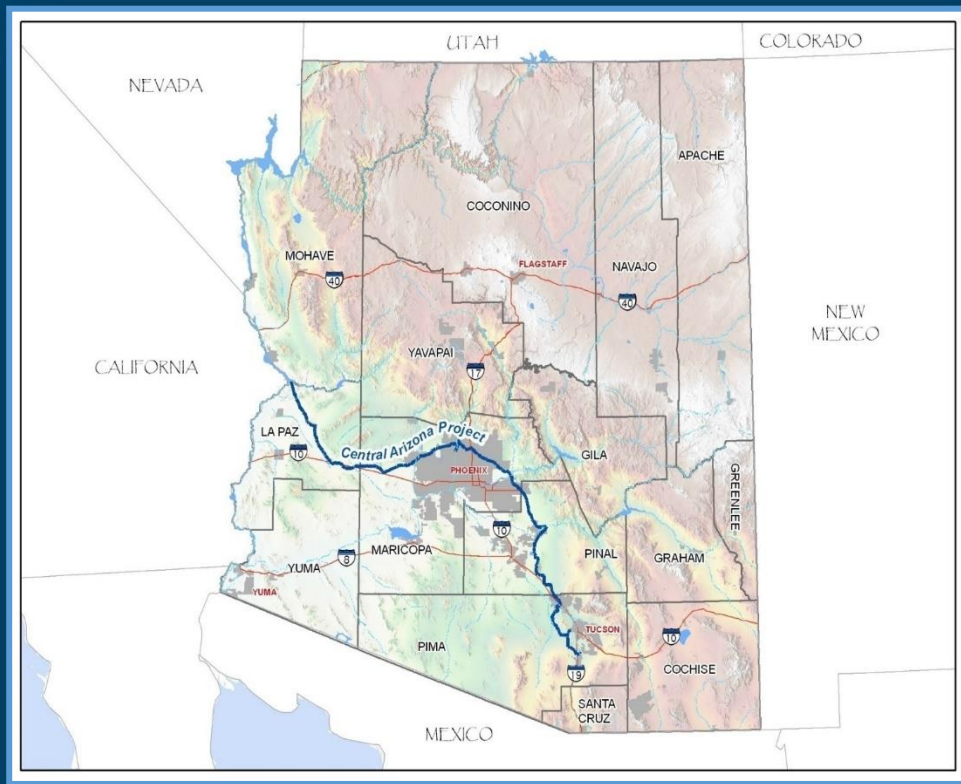


Salt and Verde River Systems

Chandler's primary water supply comes from the Salt & Verde Rivers, stored in SRP reservoirs.



SRP
reservoirs
are
currently
68% full



Colorado River water
is stored in **Lakes
Powell and Mead**

Pumped uphill from
Lake Havasu

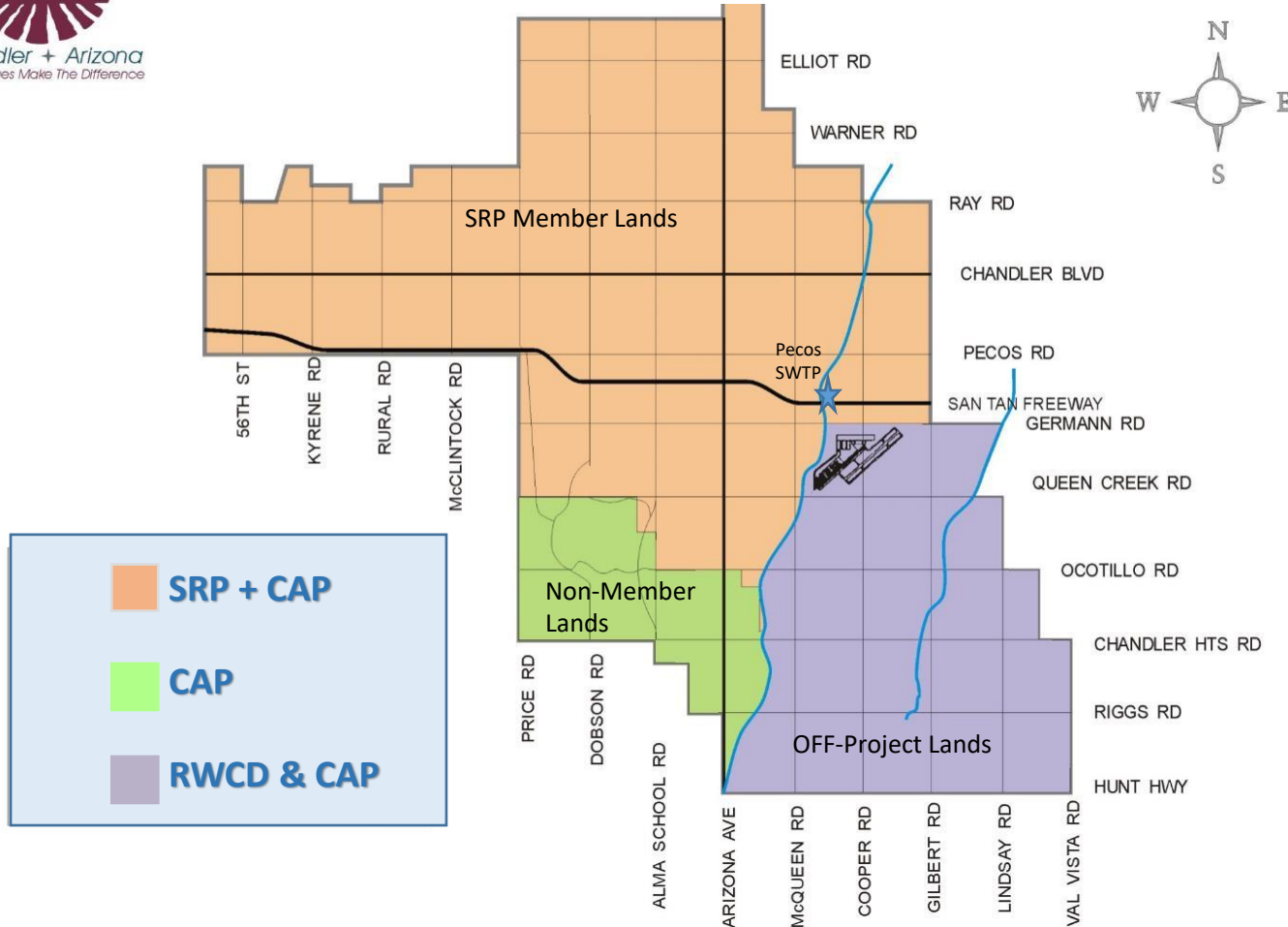
CAP Canal: 336 Miles

**Average Annual
Delivery:**
1.2 million AF/Year

Central Arizona Project Canal



Chandler Water Delivery Map

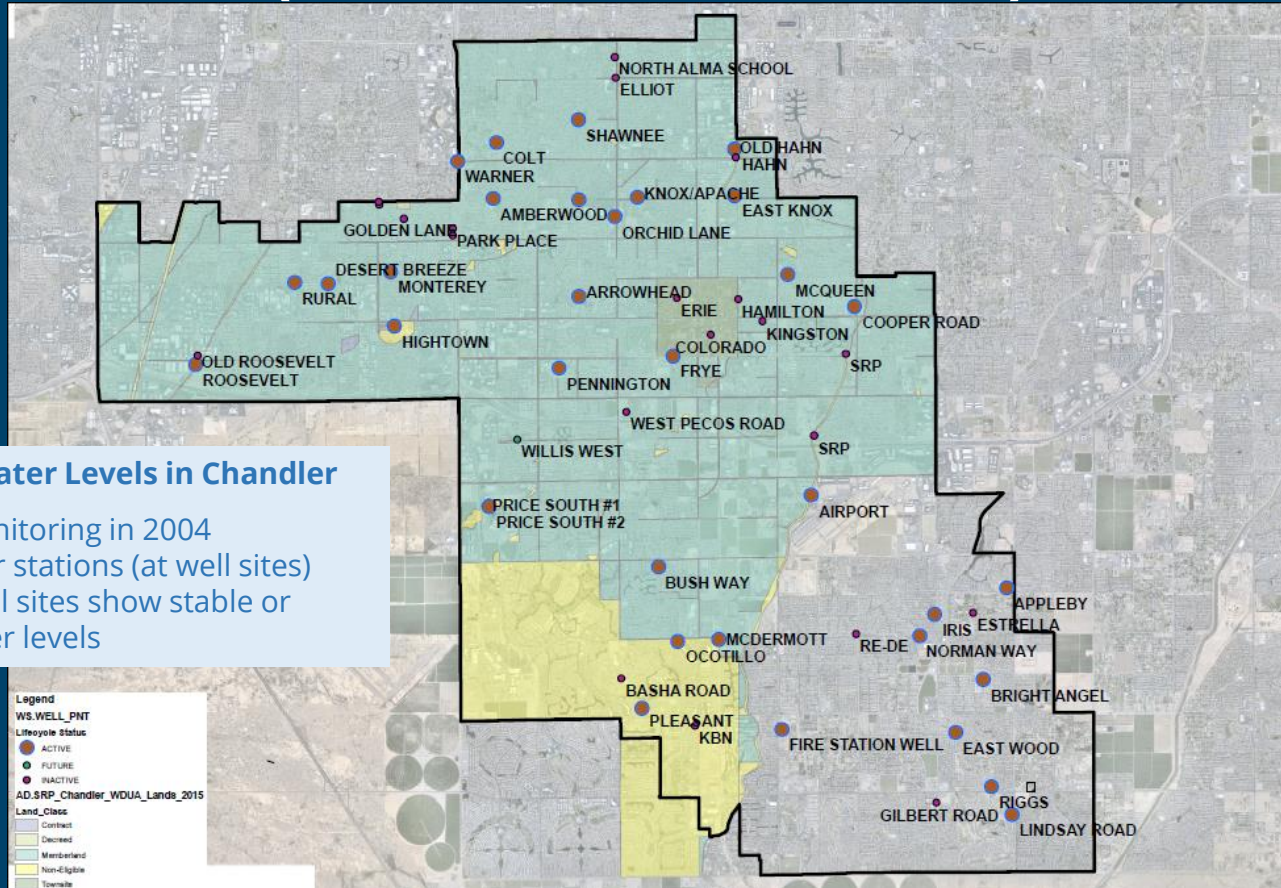


Groundwater Supplies

- Chandler will rely on groundwater reserves during surface water shortages
- 35 active wells provide redundancy (73 MGD)
- Well maintenance and careful planning
- Chandler has stored water in underground aquifers for recovery during surface water shortages.



35 City Wells – 73 MGD Capacity (12.6 MGD used in CY21)



Groundwater Levels in Chandler

- Began monitoring in 2004
- 35 monitor stations (at well sites)
- 94% of well sites show stable or rising water levels

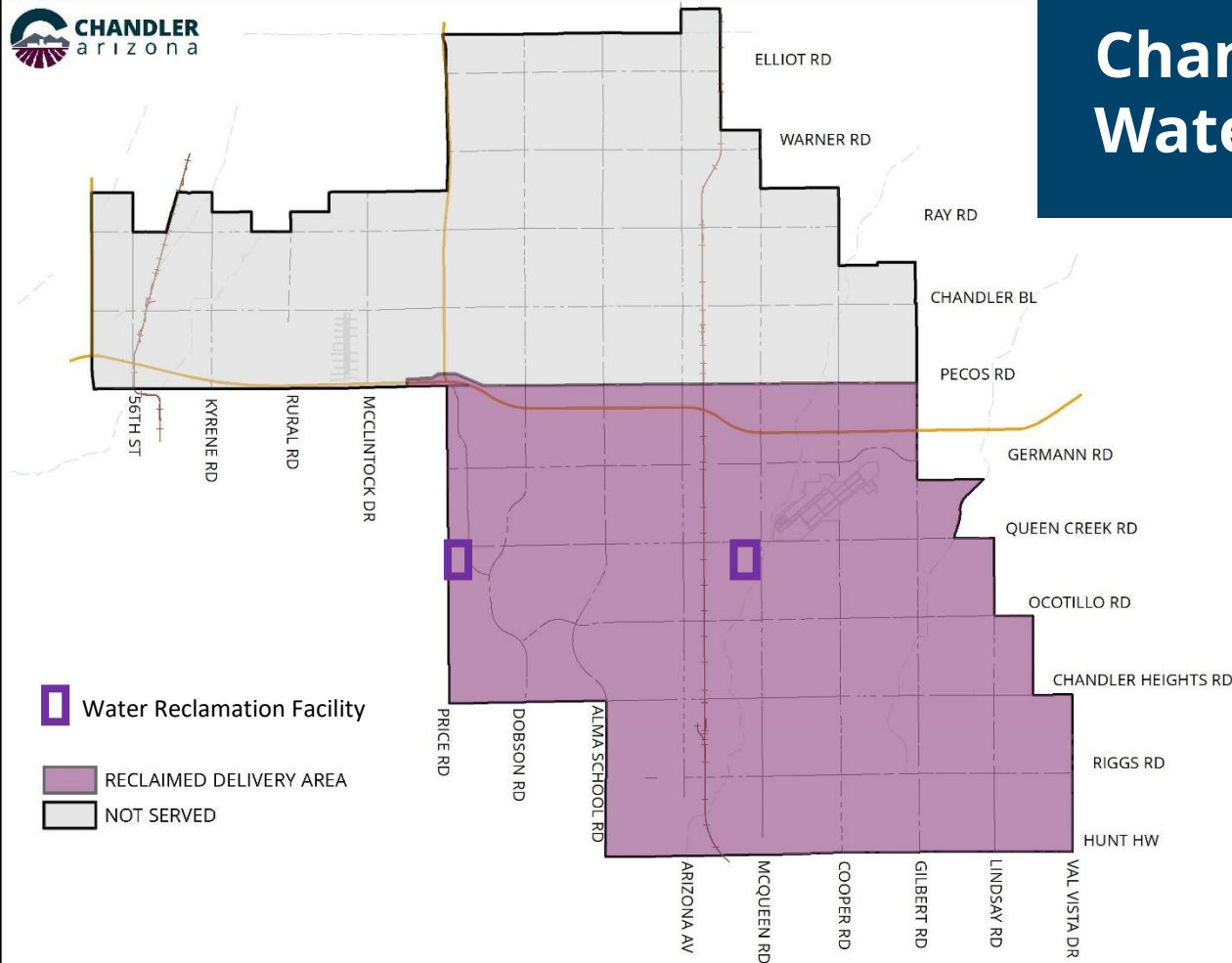
Chandler Reclaimed Water

- Infrastructure planning started in the 1980's
- Reclaimed distribution system adds a new water supply, reducing demand for other supplies
- Deliveries to over 360 customers (~30,000 AF)
 - HOA's, Golf Courses & Parks
 - Schools & Businesses
 - Aquifer Recharge Facilities (underground storage)



905 E. Queen Creek Rd.

Chandler Reclaimed Water Delivery Area



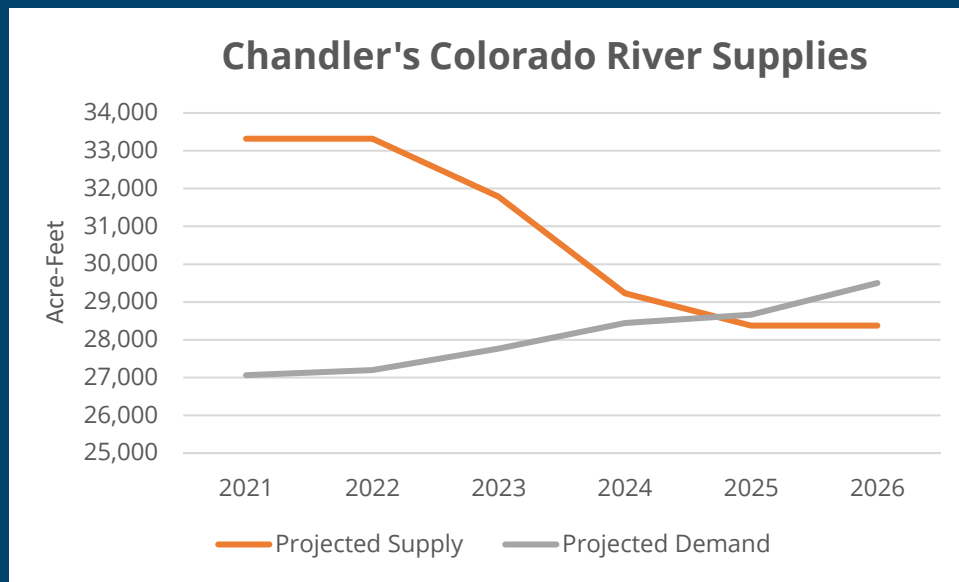
Planning for Growth

Careful long-term planning has Chandler well-positioned for continued growth

- ✓ General Plan - lays out a vision for future growth
- ✓ Utility Master Plan - ensures adequate infrastructure to meet the demands of future growth
- ✓ Water Supply Acquisition – water supplies were acquired to meet demand during both normal supply years and shortage years
- ✓ Water Policy - Staff continues to monitor future policy discussions with potential impacts to Chandler's water



Shortage – it's not a matter of if...it's a matter of when.

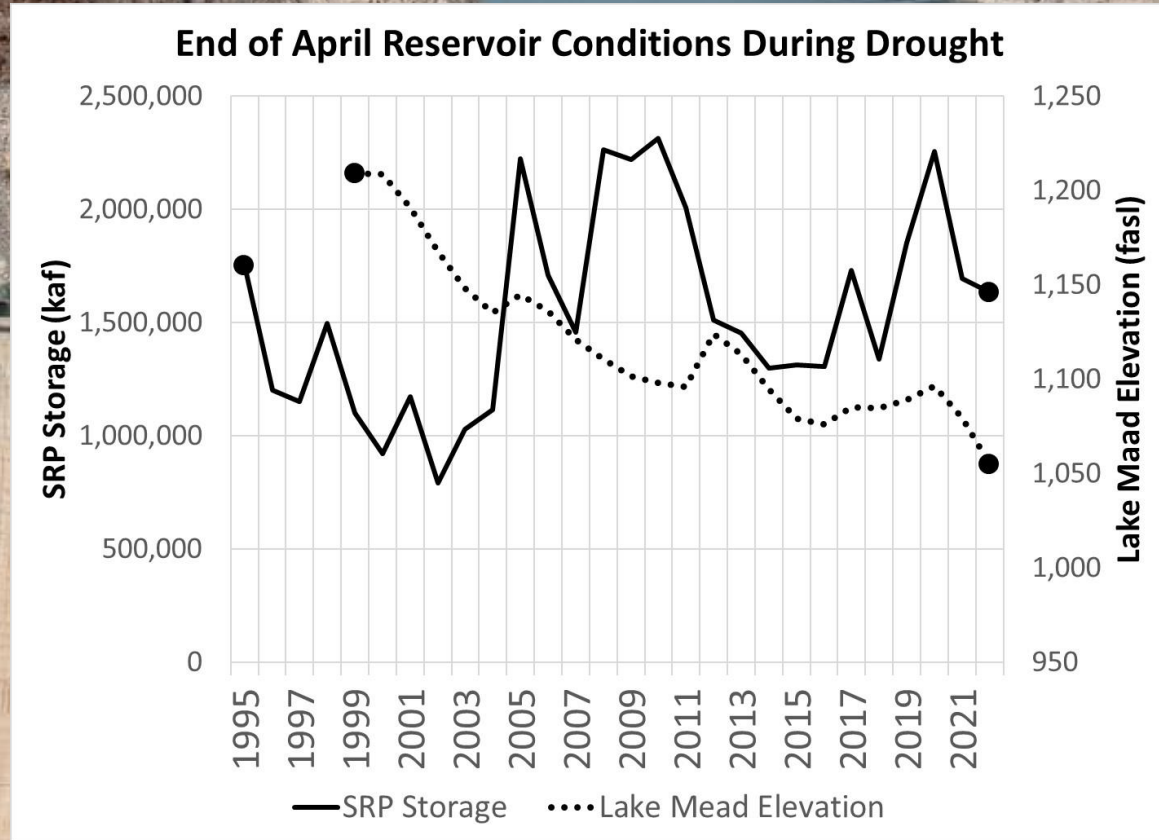


- 88% of Chandler's Colorado River supplies are high-priority contracts (impacted in Tier 3)
- Year 2023 – Tier 2 Shortage (3% to 6% reduction)
- Chandler off-project / non-member lands rely on Colorado River Water

Surface Water Shortages

Reservoir Storage

- Salt and Verde reservoirs are highly variable, but historically recover quickly (57% of Chandler's supply)
- Colorado River reservoirs have steadily declined



Chandler is Prepared for Drought

During surface water shortages, Chandler will rely on back-up supplies

- ✓ Diverse Supplies – Chandler has secured multiple sources of water
- ✓ Conservation Programs with demonstrated success
- ✓ Infrastructure investments
 - 1** Interconnected water distribution system, with flexibility to deliver multiple water sources to anywhere in Chandler
 - 2** Surface water treatment plants (access to SRP and CAP canals)
 - 35** City drinking water wells provide 100% back-up supply
 - 3** Water Reclamation Facilities – every drop is used again
 - 5** Recharge facilities to store water in underground aquifers

Chandleraz.gov/drought

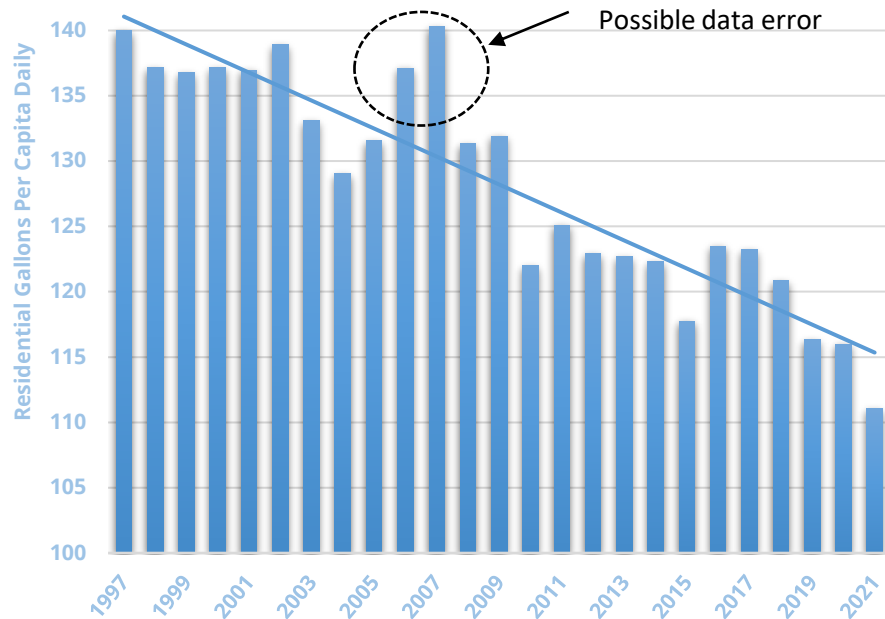
Chandler Conserves

25 years of declining water use - Chandler cares about conservation

- ↓ Chandler residents have reduced water use by 20%
- ✓ 29 gallons per person daily
 - ✓ 8.1 million gallons per day
 - ✓ 9,073 acre-feet per year
 - ✓ 111 – 2021 GPCD

Chandleraz.gov/SaveWater

Chandler Residential Per Capita Water Use



↓ Chandler's Programs

Saved 80 million gallons*

- ✓ 3,322 Chandler students educated
- ✓ 513 Adults attended workshops
- ✓ 917 Residential Water Audits
- ✓ 47 Landscape Consultations
- ✓ 250 Conservation Rebates

*based on 2021 conservation program results

Conservation Program	2021 Total	2021 Water Saved	Program Description
Water Audits (Residential)	917	53.3 million gal	Find and fix leaks, identify irrigation efficiencies
Water Audits (Commercial)	56	19.6 million gal	Find and fix leaks, assistance with irrigation efficiency
Landscape Consultation (Residential)	47	2.2 million gal	Assist with water smart landscaping.
Landscape Consultation (Commercial)	5	3.2 million gal	Assist with water smart landscaping.
Turf Removal Rebates	29	2.2 million gal	Convert turf to xeriscape.
Smart Irrigation Controller Rebates	221	0.3 million gal	Smart controllers adjust watering based on weather and soil

[Chandleraz.gov/SaveWater](https://chandleraz.gov/SaveWater)

Drought & Conservation Education

Updated information now available online

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EXPLORE RESIDENTS BUSINESS GOVERNMENT

Water Conservation in Action

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Chandler is committed to educating our community on the **best ways to save water** and ensure a sustainable water supply for our future. Here are some of the water conservation actions taken by our community in 2021, along with the water we saved.

3,332 Youth Reached Through Water Conservation Education	917 Water-Wise Site Visits	513 Water-Wise Workshop Attendees
221 Residents Installed Water Efficient Weather-Based Controllers	88 Water Conservation Kits Issued to Homes Built Prior to 1992	61 Non-Residential Site Visits
47 Landscape Consultations	29 Turf to Xeriscape Conversions	18 Large Landscape Water Efficiency Program Participants

80+ million gallons after 1 year**404 million gallons after 5 years**
when conservation measures are continued

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Drought Preparedness

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Chandler has been preparing for drought and surface water shortages for decades. Smart water management decisions and water policies help us maintain a reliable water supply. We have proactively invested in infrastructure, **diverse water supplies, water reuse, storing water underground and conservation programs.**

Due to historic drought, climate change and over-allocation, conditions on the Colorado River are worsening. Chandler recognizes the seriousness of the current Colorado River situation and will continue to plan for a future with less water. While shortages on the Colorado River may come quicker than anticipated, Chandler is well prepared. The City will continue to monitor the drought and evaluate its water supplies to determine if activating Chandler's **Drought Management Plan** is appropriate.



Did you know that only a portion of Chandler's water supplies come from the Colorado River? Approximately 57% of Chandler's drinking water supplies come from the Salt and Verde rivers. During a water shortage, the City can also rely on water stored underground over the past two decades. Chandler has enough water stored

[Chandleraz.gov/SaveWater](https://chandleraz.gov/SaveWater)

[Chandleraz.gov/Drought](https://chandleraz.gov/Drought)

Drought Awareness & Conservation Messages

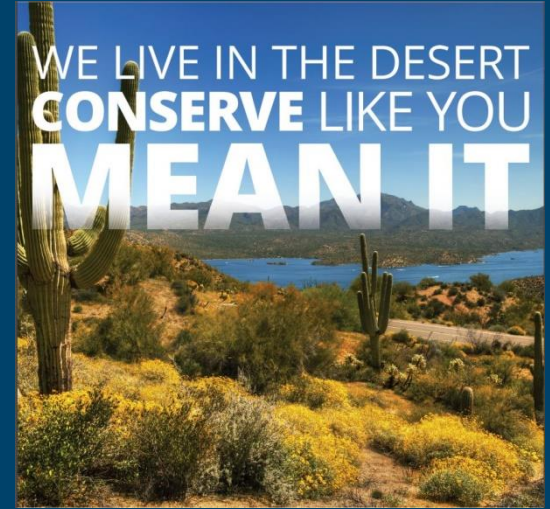
Chandler's Drought Plan includes expanded messaging

Current Efforts:

- Conserve Like You Mean It (video, posters, transit stops)
- Facebook, CityScope, blog posts, podcasts
- Water Use It Wisely
- Adult education, events, youth education, school visits

Expanded Efforts:

- New Digital Marketing Campaign (social media & targeted digital ads)
- Updated online resources
- Local media (print, online, email)
- DIY Video Series (leak detection)
- Large Landscape Efficiency Program
- City Drought Team & Dashboard Metrics
- Future AMI Implementation
- Blog posts & podcasts (increased frequency)



Chandler's Drought Plan

Drought stages evaluate supply and implement additional conservation

Drought Stages	Declared by	Trigger	Response
Stage 1	Water Resource Manager	A surface water shortage is predicted.	Drought public awareness campaign & expanded conservation messaging.
Stage 2	Public Works & Utilities Director	SRP Supplies reduced by > 40% and/or CAP Supplies reduced by > 10%	Mandatory outdoor water use restrictions for municipal operations.
Stage 3	City Manager	SRP Supplies reduced by > 50% and/or CAP Supplies reduced by > 15%	Voluntary outdoor water use reductions for businesses and residents and continuing mandatory reductions for municipal operations.
Stage 4	City Council	Conditions impacting the City's ability to meet water demands	Mandatory outdoor water use restrictions for businesses, residents and municipal operations.

Note: Triggers could change as Chandler acquires additional supplies and/or drills additional wells

Next Steps

- Declare Stage One of Chandler's Drought Management Plan and monitor Colorado River conditions.
- Expand drought public awareness campaign and increase water conservation outreach.
- Evaluate conservation opportunities within municipal programs and develop dashboard performance metrics.
- Renew 100-Year Assured Water Supply Designation

Questions?

