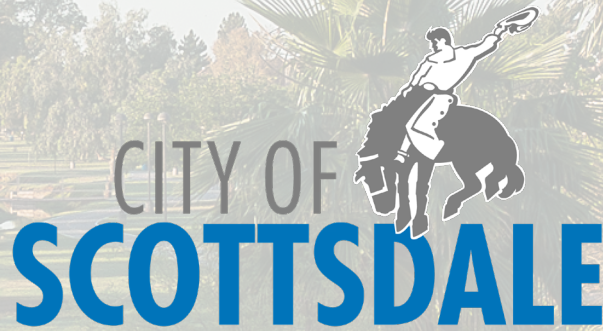


DRAFT

**IN ACCORDANCE WITH
NOVEMBER 13, 2023
CITY COUNCIL WORK STUDY SESSION**

PART ONE
INTRODUCTION
AIR QUALITY PRIORITY
WATER PRIORITY



COMMUNITY SUSTAINABILITY PLAN

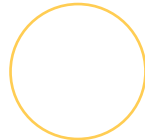
SCOTTSDALE COMMUNITY SUSTAINABILITY PLAN

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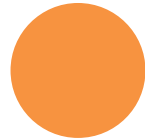
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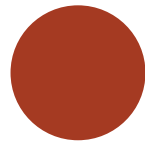
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SUSTAINABILITY TIMELINE

- ▲ **2024: Scottsdale Community Sustainability Plan**
- 2023: Solar infrastructure is added to the North Corporation Yard
- 2023: Natural grass in front yards of new single-family homes prohibited
- 2022: Adopted mandatory Green Construction Code for commercial and multifamily buildings
- 2021: 2035 General Plan approved by voters
- 2020: Began installing LED streetlights
- 2019: Water Campus is first in Arizona to be permitted for direct potable reuse
- 2019: Scottsdale received ASU inaugural Resilience Prize
- 2019: Preserve reaches current size of 30,500 acres
- 2017: Traffic signal coordination began
- 2016: First class of the Scottsdale Water Citizen Academy
- 2012: Adoption of voluntary incentivized green construction code
- 2011: Named a Gold Level Bicycle Friendly Community
- 2010: Began installing LED traffic signals
- 2009: Fire Station 602 – city’s first LEED Platinum certified building
- 2008: Xeriscape Garden, a 5.5-acre demonstration garden, opens
- 2008: Compressed natural gas fueling infrastructure is added to public works facilities
- 2007: Granite Reef Senior Center – city’s first LEED certified building (Gold)
- 2005: First city in the country to require new municipal buildings to be LEED Gold certified
- 2003: City’s first energy code adoption for residential and commercial construction
- 2000: Transportation Management Center became operational
- 2000: Establishment of Sensitive Design Principles for new development
- 1999: First Sustainability Indicators Report produced (“Scottsdale Seeks Sustainability”)
- 1998: Water Campus (the largest public works project in city history to date) started operations
- 1998: Green Building Program established as first in Arizona and fifth in the country
- 1996: Solid Waste Transfer Station is constructed
- 1996: Scottsdale begins curbside recycling collection program
- 1996: CityShape 2020 included guiding principle to “Seek Sustainability”
- 1995: Voters approved tax to fund expansion of Preserve
- 1994: McDowell Sonoran Preserve created
- 1993: First component of the city’s Intelligent Transportation System installed to reduce congestion
- 1993: Sustainability resident board created (now Scottsdale Environmental Advisory Commission)
- 1991: Environmentally Sensitive Lands Overlay District ordinance adopted
- 1982: Water Conservation Office is formed
- 1982: Scottsdale named a Tree City USA
- 1981: Native Plant Ordinance passes
- 1980: Scottsdale Trolley makes first run
- 1970s: Indian Bend Wash Greenbelt constructed
- 1969: First mechanical garbage truck constructed by city staff (Godzilla)
- 1967: Eldorado Park, Scottsdale’s first major park, is built.



WHY A SUSTAINABILITY PLAN?

Scottsdale is a special place with a reputation for livability, known for unparalleled leisure and world-class amenities. The diversity and natural beauty of Scottsdale’s landscapes are among its defining features, and the city has championed environmental stewardship while maintaining a high quality of life for residents, visitors and businesses. The public consistently agrees the “overall quality of natural environment in Scottsdale” is essential or very important.¹

“Sustainability is a condition of living that enables the present generation to enjoy social wellbeing, a vibrant economy and a healthy environment, without compromising the ability of future generations to enjoy the same.”

- [Scottsdale General Plan 2035](#),
page 280

As Scottsdale nears build-out, expanding our sustainability efforts will be even more important. The city understands that without thoughtful planning and stewardship, our environment and quality of life may be negatively impacted by long-standing and systemic trends – including drought, extreme heat, air pollution and economic and social inequities. The worsening impacts of climate change compel further action on sustainability by Scottsdale.

The benefits of planning for sustainability in Scottsdale are numerous. The plan’s key elements – energy, water, waste, air quality and extreme heat – all improve our natural environment. But the proposed solutions also bring other positive outcomes – including cost savings, health and safety improvements, equity and economic vitality. We know these benefits outweigh the upfront costs because we already see community members taking similar action.

The city will need to work in partnership with residents and businesses to succeed, so this plan will build on Scottsdale’s legacy of effective, resident-centered governance and sound economic management. The plan provides a roadmap and specific action steps for achieving long-term goals, and it will require cohesive implementation by both the city government and members of the community.



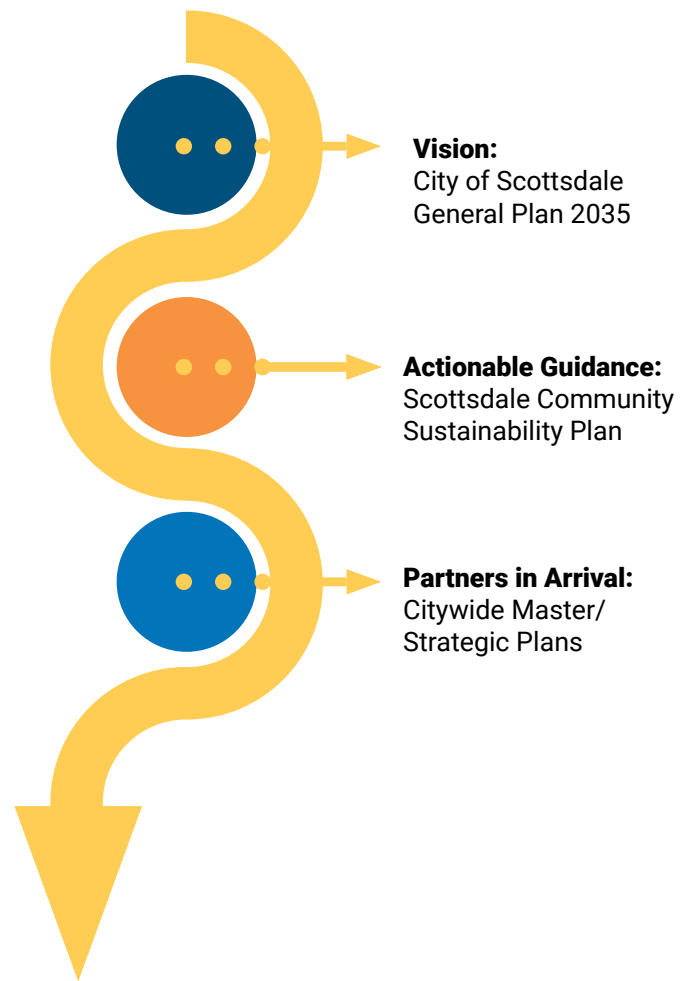
With this plan, Scottsdale embraces a comprehensive approach to achieving ambitious targets and commits to being held accountable for those actions. This Community Sustainability Plan – as imagined by City Council and by the voters who approved the 2035 General Plan – will enhance and expand the work already being done by city staff, residents and businesses. Starting from the ‘vision’ of the General Plan, the plan will complement others already in place to achieve targets and implement new programs.

Scottsdale may not be a large city, but our position as a respected tourist destination in a unique desert environment has always shaped our outsized commitment to being good stewards. This is not the end of our planning but rather a starting point for a continued sustainability journey -- join us!

“Sustainability can be summarized as our stewardship of natural capital for future generations, going well beyond economic and environmental development to embrace health care, urbanization, energy, materials, agriculture, business practices, social services and government... Sustainability is a concept with as much transformative potential as justice, liberty, and equality.”

- [Dr. Michael Crow, President, Arizona State University](#)

ROADMAP



SUSTAINABILITY IS NOT NEW TO SCOTTSDALE

Scottsdale's sustainability journey goes back decades and has fortified the city's legacy as a place of innovation. "Seek Sustainability" was one of the guiding principles in the 1996 CityShape General Plan. And Scottsdale's commitment to environmental stewardship was reaffirmed in the General Plan 2035, which identifies five core elements of sustainability and the environment – Open Space, Environmental Planning, Conservation, Water Resources and Energy. As part of a commitment to livability and quality of life, Scottsdale prioritizes services and facilities for residents, including 43 parks, four public libraries and eight resource centers.

"Keep Scottsdale safe, wild & beautiful. Maintain Scottsdale's small town feel."

"100% supportive of a Sustainability Plan for City of Scottsdale"

- [Resident feedback on the draft Sustainability Plan](#)

Over the years, Scottsdale has proactively found creative solutions to environmental challenges and committed to make life better for residents and visitors. The city responded to flooding problems by building the Indian Bend Wash Greenbelt, a series of parks and amenities covering 11 miles in the center of the city, which was also the first non-structural flood control solution in the country.

Over 30,000 acres of desert habitat has been permanently preserved through the McDowell Sonoran Preserve. Currently, 37% of Scottsdale's footprint is open space (public and private including the Preserve). Meaningful desert open space – whether actively or passively managed – is a fundamental part of Scottsdale's character and is created and maintained with the support of residents and for the benefit of the environment.



The city uses zoning and other requirements to guide development in desert and mountain areas, through policies like the Environmentally Sensitive Lands Overlay District (ESL). The ESL ordinance requires a percentage of each property be permanently preserved as Natural Area Open Space and that specific environmental features be protected through land use dedications and easements. Character Area Plans, like those for Desert Foothills and Dynamite Foothills, support these goals.

Scottsdale pioneered total wastewater reuse and water banking through advanced purification systems, recycling and storing water and reducing reliance on non-renewable surface water. The Scottsdale Water Campus is home to the Advanced Water Treatment Facility (AWT), one of the most sophisticated recycled water facilities in the world and the third permanent facility in the nation permitted as a pilot program for advanced water purification (AWP). The AWT is one of the largest potable water purification facilities in the world and can treat up to 20 million gallons of recycled water a day to a water quality standard that exceeds that of bottled water.

Launched in 1998, Scottsdale's first-in-the-state Green Building Program encourages a whole-systems approach through building design and construction to minimize environmental impacts, reduce energy use and improve occupant health. The program led to the construction of the first LEED Platinum certified fire station in the country – Scottsdale Fire Station 602. In 2022, Scottsdale became the first in the state and one of only a few nationwide to adopt mandatory 'green' building code requirements by mandating compliance with the International Green Construction Code (IgCC).

Achieving these large and difficult milestones has not kept the city from undertaking other projects and initiatives that reflect Scottsdale's forward-thinking approach to desert living. The city's Xeriscape Garden serves as an inspiration to residents and developers, demonstrating just how a beautiful a water-wise, natural desert landscape can be. The community science programs offered by the McDowell Sonoran Conservancy protect biodiversity, mitigate invasive plants and restore ecological balance. The Scottsdale Public Library even 'checks out' seeds and citizen science kits to make hands-on learning accessible to all.



Additionally, municipal operations model good stewardship practices for the whole city. The city partners with utilities to reduce our use of electricity on high-demand days and has installed solar panels at the North Corporation Yard complex. Solar installation will proceed under a master citywide solar plan for new covered parking lots with solar panels. LED installations continue throughout our facilities and low-consumption fixtures, flush valves, showerheads, metering faucets, cooling tower controllers and bottle fillers are used to conserve water.

In 2005, Scottsdale became the first city in the country to require all new city buildings to be certified at the LEED² Gold standard or higher.

Responding to a call to reduce water use by 5% between 2021 and 2022, the city saved 38 million gallons through conservation and turf removal, exceeding its goal with a 6% overall reduction.

Parks & Recreation increased their efforts, with use dropping to 25% below the allotment from the Arizona Department of Water Resources. Specifically in 2022, the city converted over 140,000 square feet of non-functional/non-recreational turf to xeriscape, saving more than 5.3 million gallons of water annually. The city also saved almost 4 million gallons of water from 40 city-maintained sites through irrigation controllers that shut off watering during summer monsoon rain events.

Two recent city events – the 2023 State of the City Address and the 2022 Employee Awards were zero waste functions, achieving more than 93% diversion from the landfill.

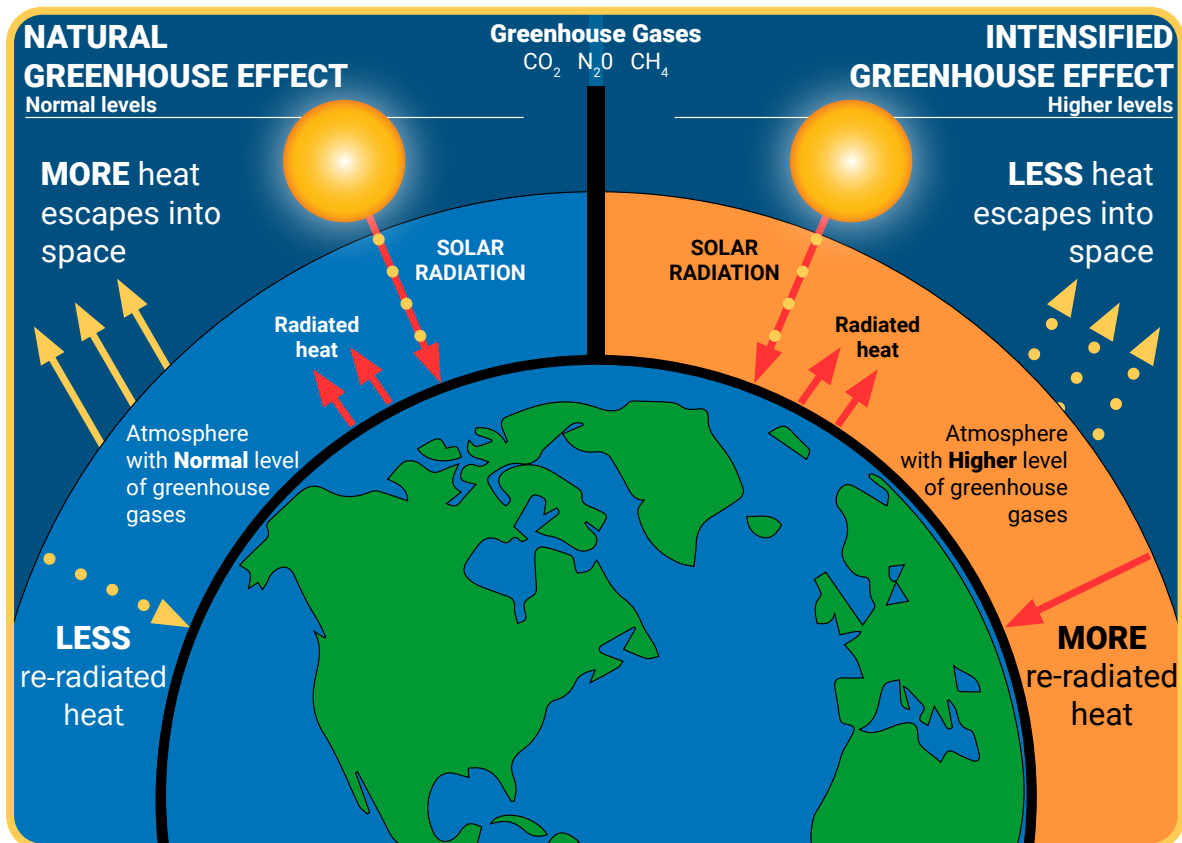


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THE SCIENCE OF SUSTAINABILITY

The science behind sustainability efforts is compelling. NASA's records and analysis confirm that the climate is warming and warming faster than any time in the past 10,000 years. Average temperatures are up two degrees Fahrenheit, mostly in the last 40 years, and driven by emissions of carbon dioxide and other human activities.³ Most of these emissions result from burning fossil fuels for electricity, heat and transportation. The result is an amplification of the natural greenhouse gas effect that is essential for the Earth to be habitable, resulting in more heat trapped in the atmosphere.

Models estimate that temperatures may increase another 4.5 to 8 degrees Fahrenheit by 2100,⁴ but other changes in our climate are occurring much faster and can already be seen. NASA has compiled datasets that show warming oceans, rising sea levels and more extreme weather events, among a long list of impacts. Extreme heat acts a threat multiplier, worsening air quality and making our climate more arid.



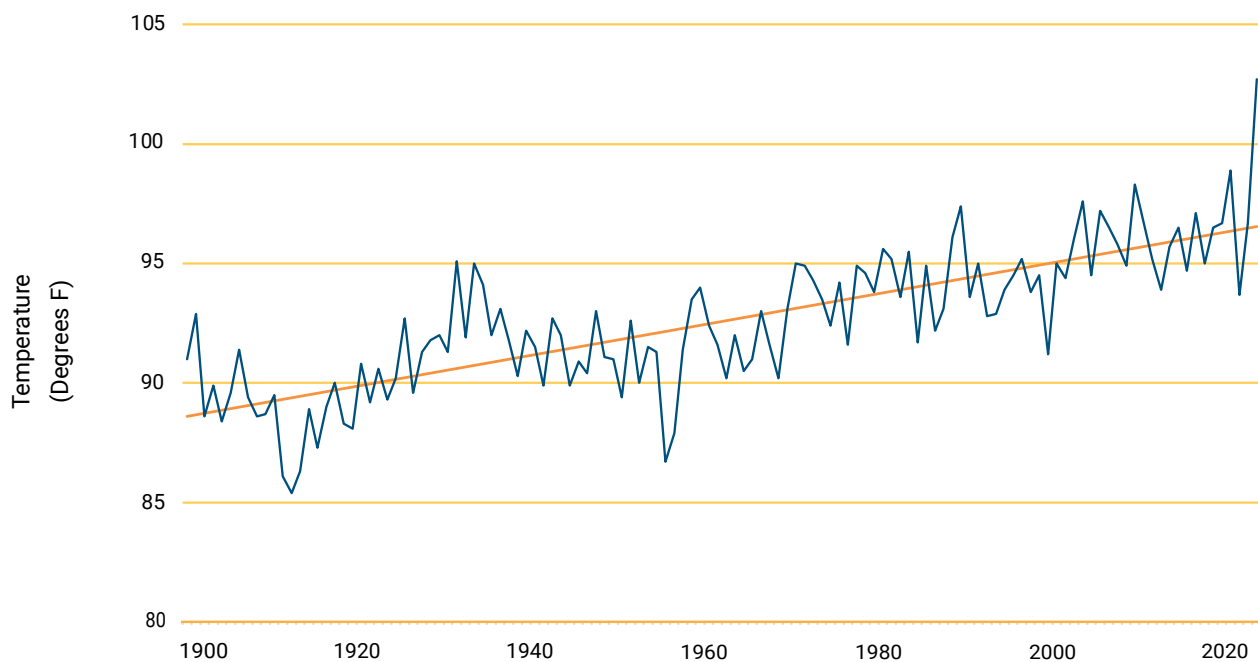
Source: [National Park Service](#)

"The implications of the science around climate change are alarmingly clear. The link between greenhouse gases and climate change is now well established, and scientists are gaining a greater understanding of what the Earth might look like if it were to warm by 1.5°C, 2°C [2.7°F, 3.6°F], or more."

- Deloitte, ["Act Now: Future Scenarios and the Case for Equitable Climate Action"](#)

Temperatures Valleywide in July 2023 made it the hottest month ever recorded in a U.S. city – a result of natural variability, the urban heat island effect and climate change.⁵ This new record continues a trend of increasing average temperatures going back over a century of data. But averages only tell some of the story, since the number and length of heat waves has also been increasing.⁶ The cumulative effect of multiple days of extreme daytime highs also means that nighttime temperatures were uncomfortably high, combining to create a deadly weather phenomenon.

AVERAGE JULY TEMPERATURE IN THE PHOENIX AREA (1900-2020)



Source: [National Weather Service NOWData, Phoenix Area, Monthly Summarized](#)

The desert southwest is also experiencing one of its worst droughts in 1,200 years. Insufficient rainfall and snowpacks have lowered lake levels, endangered water supplies and impacted soil moisture and vegetation. The [Arizona Department of Water Resources](#) monitors drought conditions using precipitation and streamflow data, compares annual data to a 40-year historical record and publishes weekly reports on the status and level of the drought. Similarly, both Scottsdale and the Central Arizona Project assess the impacts of the drought on predicted water supply and react accordingly. The over-allocation of Colorado River water supplies, coupled with trends of a hotter and drier climate make protecting water resources essential.

Scientific data helps us understand how our air quality is changing and the resulting health impacts. The region’s two biggest concerns are ozone and particulate matter (PM), as these exceed federal health-based standards most frequently. The causes of these pollutants are complex, especially given how far ozone, dust and smoke can travel in the air. Regional air quality has fluctuated in recent years, in part reflecting the influence of extremely hot summers on the number of unhealthy days. In 2022, almost 1 in 3 days exceeded federal air quality standards – 30% or 106 days (Figure 1). In 2020 and 2021, the air quality was in the ‘very unhealthy’ range for more than two months.

**DAILY AIR QUALITY INDEX (AQI) VALUES: OZONE
PHOENIX-MESA-SCOTTSDALE**

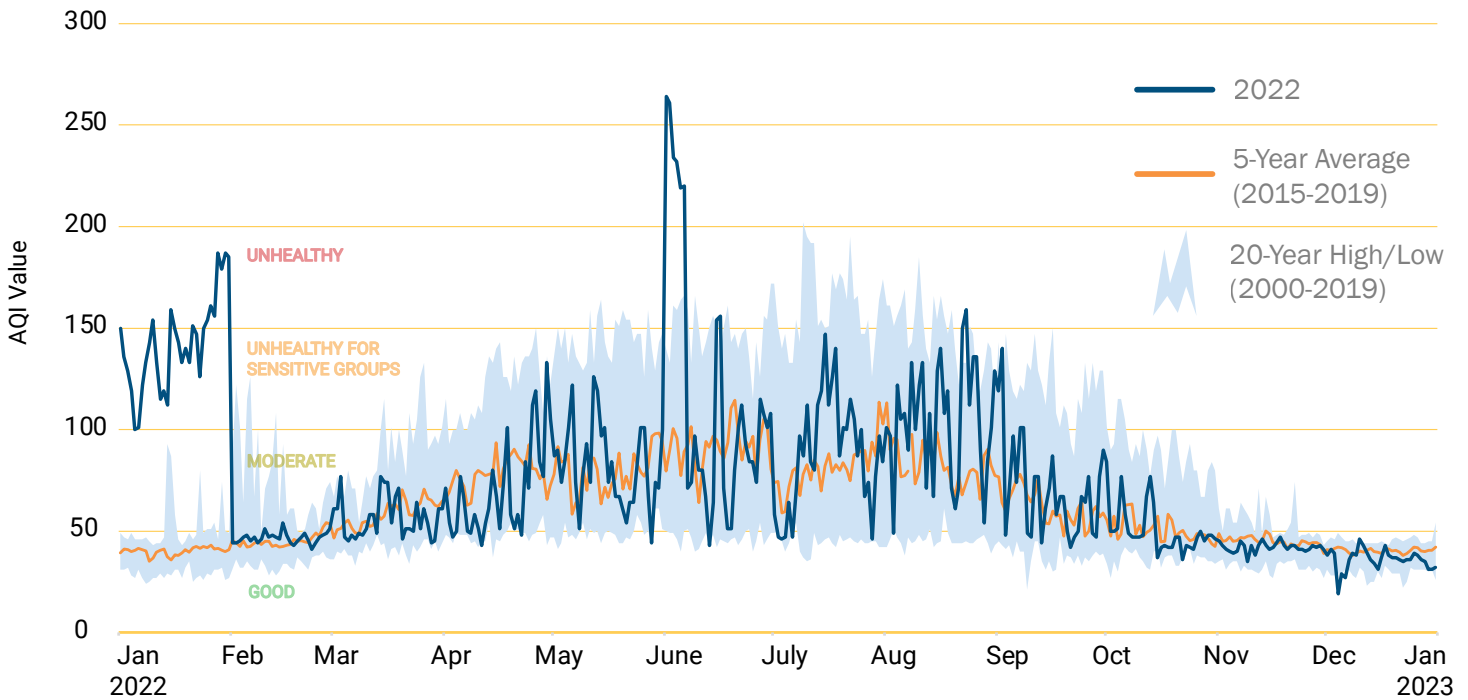


Figure 1. [Source: Air Data - Daily Air Quality Tracker](#)

Now is the time to act. NASA reports that 97 percent of climate scientists “agree that humans are causing global warming and climate change,”⁷ and almost 7 out of 10 people locally agree that global warming is happening.⁸ To preserve Scottsdale as a highly livable city that is environmentally and economically healthy, we are responding with mitigation and resiliency solutions to these challenges.

“Climate change will impact water prices, food prices, housing prices...energy prices, it will impact our quality of life, our health, our jobs and economy.”

- [Resident feedback on the draft Sustainability Plan](#)

THE ECONOMICS OF SUSTAINABILITY

Just as the science of sustainability motivates us to take action, the economics of sustainability can help us understand how to get started, guiding the efficient use of resources and the long-term response to climate change. The concept of the 'triple bottom line' means that financial, social and environmental performance should influence decision-making, highlighting how our ecosystem fuels the economy.

Safeguarding a sustainable future for Scottsdale will require investments, both by the city and by residents and businesses. Innovation and other factors have been driving down the costs of technology like photovoltaic systems (down 80% since 2010), and rebates and grants can also lower upfront costs. Similarly, the prices of renewable energy, electric vehicles and batteries have also dropped.

A case-by-case comparison of costs to benefits – including the cost of doing nothing – will identify projects that make financial sense. Reducing energy and water use often yields favorable cost-benefit ratios, meaning that the cumulative savings from lowered use can exceed the costs in a short period of time. Benefits to consumers can be quantified – like reduced utility bills and maintenance costs when utilizing longer-lasting lightbulbs – or be more subjective as when occupants are more comfortable. A seminal work by McKinsey identified numerous negative-cost options for improving energy efficiency in buildings and appliances, which are recommended as quick wins.⁹

Another way to assess the economics of policies is through life cycle analysis, by analyzing the costs and benefits of an item from production to end-of-life disposal. For solid waste, this involves different calculations for different efforts. Reusing items can save money by deferring expenditures. For recycling, there are tradeoffs like the environmental cost of mining for bauxite versus the collection and recycling costs of aluminum. Overall, the region-specific costs of transportation and maintenance of landfills should also influence sound decision-making.

Similarly, the utility staff in Gilbert commissioned a report to examine the overall impact on rates of reducing water demand. This analysis of avoided costs quantified the impacts of conservation over 20 years and found that water rates are 5.8% lower than they would have been without the per capita reductions. The conclusion was that by conserving water, customers avoided the higher costs of building new infrastructure to deliver and treat additional water supplies.¹⁰

Macerich [which owns and operates [Scottsdale Fashion Square](#) and [Kierland Commons](#)] "aims to set the bar for sustainability in the real estate industry by operating properties with purpose that "walk the walk" in stewarding resources for the shopping centers' guests, investors, tenants, industry partners, employees, communities and the planet."

Failing to act also has costs, highlighting the relationship between a healthy economy and the environment. Extreme heat, poor air quality and drought can affect the economy in a range of ways: health impacts, loss of business when people stay indoors or cut visits short and utility bills squeezing disposable income.

A recent study by The Nature Conservancy (TNC) evaluated the impacts of extreme heat in the Phoenix area across five indicators of human and economic wellbeing: mortality, morbidity, labor productivity, roadway infrastructure and energy demand. On the low end of the estimated range, the economic consequences of inaction would average \$1.9 billion between 2020 and 2059. The largest source of these costs was heat-related mortality (\$898 million) and labor productivity losses (\$855 million).¹¹

The TNC study also analyzed the return on investment for two solutions – adopting cool roofs for 100% of buildings in the area and increasing the urban tree canopy to 25% by 2050. For each, the accumulated benefits were estimated to exceed the upfront costs after 4-5 years, even without including benefits like reduction in air pollution or reduced stormwater runoff.¹²

Another study in the journal *Science* evaluated the economy-wide impacts of different future warming scenarios and found that Maricopa County would see a 5-10% drop in gross domestic product by the end of the century (Figure 2).¹³ The Atlantic Council similarly examined broad economic impacts and calculated that losses from decreased labor productivity would exceed \$5 million per year by 2050 in Maricopa County and that occupational injuries due to human heat stress could be as high as 15,000 per year.¹⁴

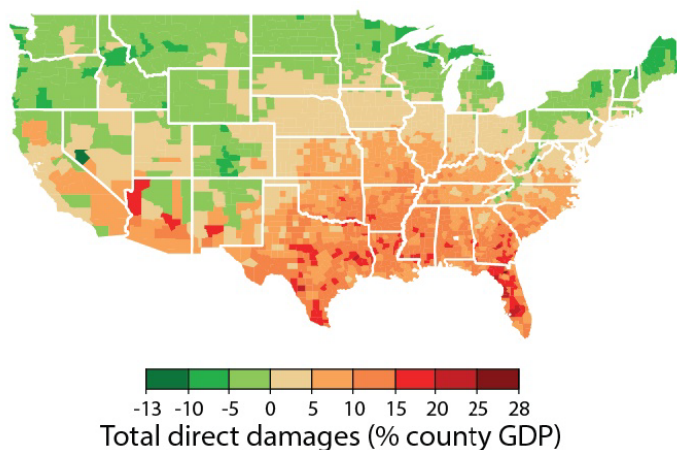


Figure 2. [Source: Estimating economic damage from climate change in the United States,” Science, Hsiang et al, June 2017](#)

- *33 percent of companies list improving operational efficiency and lowering costs as a top reason for addressing sustainability*
- *94 percent say their companies have integrated sustainability into strategic planning*
- *53 percent say company performance on sustainability is at least somewhat important to attracting and retaining employees*

- [McKinsey & Company survey](#)

Support for sustainability in Scottsdale is driven by many factors, including the economic benefits of action. As a city that thrives on innovation, collaboration and sustainable growth, Scottsdale already fosters a business-friendly climate that generates some of the world's most successful companies and entrepreneurs. The beauty and sustainability of the region's natural environment is integral to its economic vitality, with tourism alone having an estimated annual economic impact of \$2.5 billion.¹⁵ A recent study found that 64% of visitors to Scottsdale cited 'beautiful scenery' as a key factor in deciding to visit.¹⁶

As individual projects are identified to move the city closer to its goals, an analysis of costs and benefits will be used to set priorities. A greener future can also be one where residents, tourists and businesses continue to prosper. In order to sustain our economy, it is essential that we take actions to ensure that our ecosystem is healthy.

"The rapidly escalating costs of continuing greenhouse gas emissions continue to outpace the costs of mitigation (future citizens considered), and we bear responsibility to plan and implement aggressive mitigation."

- [Resident feedback on the draft Sustainability Plan](#)

OUR COMMUNITY VALUES

Scottsdale established Community Values to guide implementation of the goals of the 2035 General Plan. The Community Sustainability Plan will reflect these values as it stewards the natural environment, protects human health, and advances the social and economic well-being of the community for the present and future generations.



Respect Character and Culture

Enhance and protect Scottsdale's unique features, neighborhood identity, character, livability, southwestern heritage, and tourism through appropriate land uses and high standards for design. Create vibrant and attractive places that accommodate a variety of ages and incomes and support the arts and multicultural traditions.



Conserve and Preserve the Environment

Lead the region in the stewardship and sustainable management of the Sonoran Desert environment and conservation of natural resources and open spaces for the visual, physical, and personal enrichment of everyone.



Collaborate and Engage

Promote strong, visionary leadership that is transparent, responsive, and efficient; collaborates regionally; respects and honors our community values; recognizes the benefit of interactive community involvement and volunteerism; and embraces citizens as active partners in decisions that affect their neighborhoods and city.



Foster Well-Being

Promote a culture of lifelong physical and mental health, safety, and well-being for residents, visitors, employers, and employees. Foster social connectivity across cultural and generational boundaries by cultivating a welcoming environment; respecting human dignity; and recognizing and embracing citywide and regional diversity.



Connect the Community

Connect all community members within the city and to the region by striving for cost-effective, adaptable, innovative, safe, and efficient mobility options. Connectivity and mobility involve more than getting people from here to there, connectivity and mobility influence the form and comfort of urban communities.



Revitalize Responsibly

Vigorously evaluate the short- and long-term impacts of development and redevelopment decisions to ensure that public and private investment work collaboratively to support and maintain the unique features and local identity that make Scottsdale special, and contribute positively to the community's physical, fiscal, and economic needs and high quality of life.



Advance Innovation and Prosperity

Embrace a diverse and innovative economy to sustain our high quality of life through a variety of businesses, health and research institutions, and educational, technological, tourism and cultural elements.

HOW THE PLAN WAS DEVELOPED

The Scottsdale Community Sustainability Plan is an important part of the city's commitment to a more sustainable future; it implements creative solutions and solves environmental challenges. The City Council included adoption of a sustainability plan as part of the city's 2021 and 2022 Organization Strategic Plans, and it was identified as an element of the General Plan 2035 implementation.

GETTING STARTED

Work on the plan began in June 2021, with support of the Rob and Melani Walton Sustainability Solution Service (ASU) and with input from the Scottsdale Environmental Advisory Commission (SEAC) and other community members. ASU researchers interviewed city personnel, researched best practices and frameworks and collected ideas about possible actions at community meetings in May 2022, resulting in an initial draft plan.

CITY COUNCIL DIRECTION

Beyond driving the creation of the sustainability plan, City Council feedback at XX Work Study Sessions resulted in a sharp focus on the five priorities, a push to develop baseline metrics and set numeric targets, and the need to include the costs and benefits of action. The discussion at these sessions included a range of specific input on topics and requested the use of narratives to tell a story about why sustainability is important.

SCOTTSDALE ENVIRONMENTAL ADVISORY COMMISSION

SEAC has been involved in the plan development from the beginning, sharing their valuable expertise and reviewing plan drafts. Input from this seven-member public body has shaped the plan framework, its aspirations and its message, based on ideas generated at a number of meetings devoted to ensuring the plan reflects the character of Scottsdale – XX in all for 2021-2024.

COMMUNITY ENGAGEMENT

The city has been committed to a broad public input process with continued outreach to residents, boards and commissions and other stakeholders for their feedback. Staff and subject matter experts have provided their guidance and ideas along the way. Two sets of community meetings were held in 2022 in conjunction with a public questionnaire to elicit feedback on an early draft and on overall priorities.



COMMUNITY INPUT BY THE NUMBERS

May 2022 community meetings: More than 50 attendees; at least 450 actions identified

October 2022 community meetings: More than 40 individuals; 260 comments

November 2022 Questionnaire: Almost 300 responses, with over 220 individual comments

Outreach Spring 2024 (TBD)

Additional comments received by email

Presentations to and/or input from other Boards and Commissions

See Acknowledgments for more information on city departments and Boards and Commissions who contributed to the plan.

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FRAMEWORK & PRIORITIES

FOR A SUSTAINABLE, RESILIENT & THRIVING SCOTTSDALE

Scottsdale has established five priority areas for becoming a sustainable, resilient, and thriving community: **Energy**, **Water**, **Waste**, **Air Quality**, and **Extreme Heat**. This framework supports the protection of the Sonoran Desert ecosystem and will help attract residents and visitors, providing economic benefits and ensuring a high quality of life.

The starting point for this framework was the 2035 General Plan, which set goals and policies for sustainability and environment (see Appendix A for a detailed list). For each priority, targets will be set and strategies and actions identified that help achieve the target. The work builds on existing plans (see Appendix B), looking beyond what the city is doing and providing policy direction where efforts are newer or are now more urgent. The structure facilitates collaboration and reinforces the connections between the topics.

The Scottsdale Community Sustainability Plan helps us envision and realize our future as a sustainable, resilient, and thriving community. The five Priorities are Scottsdale's most pressing matters, and the section on each Priority includes Strategies, Indicators, Targets, and Actions.

Strategies are goal-oriented and provide general guidance to help us address the Priority. They are carried out through specific Actions.

Indicators allow baselines to be determined and progress to be measured. Indicators link Priorities and **Targets** – defining **where we are today** and **where we would like to be in the future**.

Actions provide specific direction to achieve the Targets.

Implementation sections for each Priority detail when work will be accomplished and who will lead the efforts.

In total, the XX strategies and more than XX actions in this plan reflect a comprehensive action plan for the next YY years. Some are extensions of programs and initiatives that are already well-developed, while others are completely new and need to be started from scratch.

ENERGY

Maximize the use of renewable energy resources, energy efficiency, and responses to climate challenges – **Energy**.

WATER

Conserve, protect, and deliver quality drinking water safely and reliably to the community, now and into the future – **Water**.

WASTE

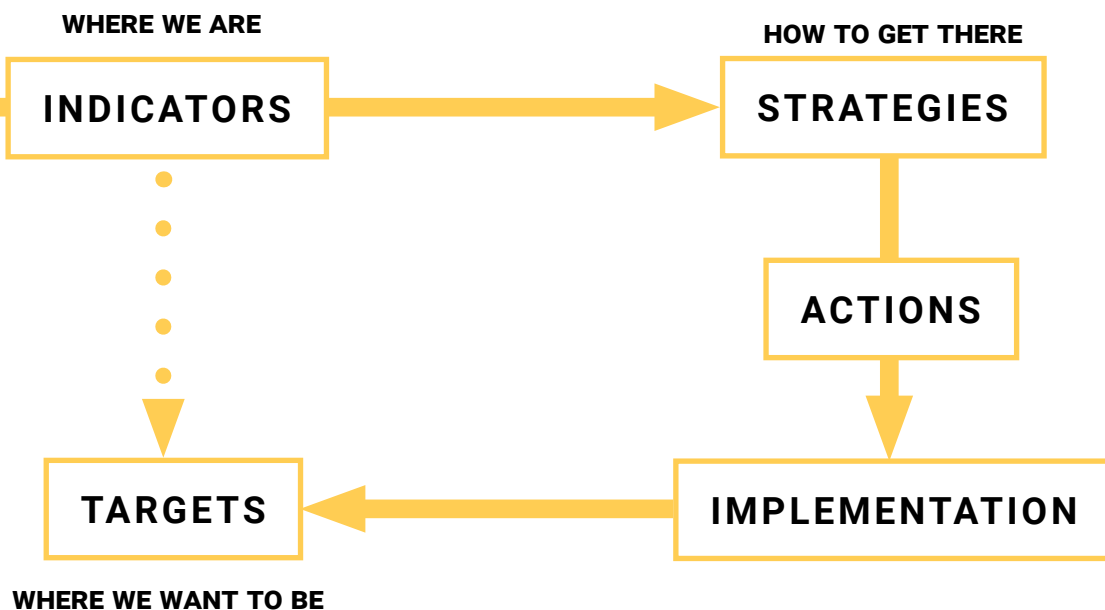
Develop a circular economy approach for materials management and effective citywide diversion of all waste streams – **Waste**.

AIR QUALITY

Reduce contaminants and pollutants to improve air quality and protect community health – **Air Quality**.

EXTREME HEAT

Ensure that the community prevents, is prepared for, responds to, and recovers from extreme heat and other natural hazards that diminish quality of life or impact the environment – **Extreme Heat**.



WHAT HAPPENS NEXT

IMPLEMENTATION

The city of Scottsdale will take the lead on implementation of this Community Sustainability Plan and be a catalyst for further action by the private sector, non-profits and community members. Achieving sustainability for Scottsdale requires a common vision and engagement from the whole community to prioritize effective solutions. Implementation of the plan will be strategic and strive to maximize the benefits for all Scottsdale residents and visitors. The plan is designed to be a living, working document that will focus our resources and collective action where it will be most impactful.

Of the XX strategies and XX actions, the implementation of some will begin immediately, while others will start later or evolve and be revised over time. Implementation will require that specific project plans be developed for each action, identifying costs, personnel needs, barriers and milestones. Timelines for completion of programs will vary, and the City Council may fund or not fund programs at any time. The city will seek funding for priority projects and identify possible City Code updates to address key strategies.

An implementation table for each priority shares four elements for each action:

Time Horizon: Quick Win, 1-3 years, 3-10 years or Ongoing

Lead Agencies & Partners: Additional partners will likely be added during project development

Costs: Costs are estimated and may change during project development or implementation

\$ -- **Low** (\$0 - \$50,000)

\$\$ -- **Moderate** (\$50,001 - \$250,000)

\$\$\$ -- **High** (Over \$250,000)

Benefits:



Environmental (air quality, carbon emissions, waste reduction, drought relief)



Economic (\$ savings, attracting businesses and tourism)



Social (health & safety, quality of life, equity)

City staff will also work to address capacity-building and cross-cutting efforts. Efforts are underway to identify staff and community champions for sustainability, increase awareness of sustainability solutions and expand community engagement. An employee Green Team is also working on specific projects to improve internal operations.

Implementation of the sustainability plan will focus on accountability and will be accomplished with a high level of transparency and stakeholder participation.

ADMINISTRATION

There will be three important ways the city administers the plan to ensure continuous evaluation and improvement:

1. Produce an annual report that includes updates on implementation of actions, progress toward sustainability goals including data on the indicators and a section specifically chronicling city achievements and data. The reports will be presented annually to City Council and will discuss possible amendments to the plan.
2. Formally update the Plan after every three years, providing an opportunity to include new strategies and actions and amend existing ones as well as update targets to reflect new opportunities and progress made.
3. Track operating and capital spending on sustainability-related work and operational savings and project rebates in partnership with the City Treasurer.

SCHEDULE OF ANNUAL REPORTS & PLAN UPDATES

YEAR 0	YEARS 1 & 2	YEAR 3	YEARS 4 & 5	YEAR 6
Adoption	Annual Reports	Annual Report	Annual Reports	Annual Report
		Plan Update		Plan Update



WHAT CAN YOU DO?

The city of Scottsdale hopes that residents, businesses and non-profits are also motivated to improve the world around them.

Work with us and support one of the actions in the plan or be innovative and start your own project! Here are some places to get started:

WHAT IS MY IMPACT?

The [CoolClimate Network](#) offers a simple tool to help you understand your personal environmental impact. They even have a [version for businesses](#). Use the calculators to see what kinds of changes you can make to your travel, buildings and shopping and make a pledge take action.

TALK ABOUT IT!

Engage your family, neighbors and co-workers about sustainability. Ask them questions about what concerns them the most and tell them what you're doing to make an impact. According to one source, conversations about the environment "can help people connect over shared values including family, community, health and religion."



LEARN MORE ABOUT WHAT SCOTTSDALE IS DOING

Go to ScottsdaleAZ.gov and search "sustainability" to find out more about the latest initiatives and how you can be part of the solution.

SUGGESTIONS FROM THE COMMUNITY

- Support farmers' markets
- Plant trees
- Use light colored roofs
- Replace non-porous pavement with porous pavement to absorb water
- Carpool or use alternative forms of transportation to get around the city
- Don't water lawns in the afternoon when most of it gets evaporated
- Install pool motor timers and variable speed pumps for pools
- Don't heat pools all winter long
- Donate to your favorite cause
- Volunteer in your neighborhood or for a city project

OTHER RESOURCES

[Tips from ASU](#)

[Sustainable travel tips](#)

[Eco-tourism in the desert](#)

[Sustainable books to read](#)

[Ways to reduce food waste](#)

[Hiking in the desert](#)

[Sustainability health tips](#)

[Another good list of simple tips](#)

[Sustainable fashion tips](#)

READ THE PLAN

The plan provides specific actions for achieving long-term goals and will require efforts by city government and members of the community. In each section, the “What Can You Do?” graphics will include more interesting tips and suggestions – check them out!

AIR QUALITY

Reduce greenhouse gases and pollutants to improve air quality and protect community health.

Like many metropolitan areas, Scottsdale and other cities in the Valley have been working for years to improve air quality. The region's two biggest concerns are ozone and particulate matter (PM), as these exceed federal health-based standards most frequently. The sources of these pollutants are complex, given the number of sources and how far both can travel in the air.

Particulate matter, classified as small (PM-2.5) or large (PM-10), usually occurs as blowing dust or smoke from fires or fireworks, but other sources can be particulates from car tires or complex reactions of chemicals like sulfur dioxide and nitrogen oxides. To reduce PM, Scottsdale makes extensive use of recycled asphalt millings and stabilizers for dust mitigation on unpaved lots and roads. It also uses a fleet of fleeted (PM-10) street sweepers to reduce traffic-generated dust.

Ground-level ozone is created when nitrogen oxides, volatile organic compounds (VOCs), and sunlight react, making ozone primarily a summer issue. Industrial facilities, motor vehicles and gasoline vapors are primary sources of these precursor chemicals. Interestingly, trees can be both a source of VOCs and a key strategy in filtering a wide range of pollutants from the air!

Scottsdale's air quality has varied in recent years, in part reflecting the influence of extremely hot summers on the number of unhealthy days. In 2022, almost 1 in 3 days exceeded federal air quality standards.

To signal when air quality is expected to be unhealthy, the state of Arizona projects High Pollution Advisory Days. This advance notice allows people to take steps to avoid exceeding federal standards for either ozone or PM.

In most recent years, there have been over 50 such advisories, with 2021 and 2022 each having more than 60 advisories closely related to ozone.

AIR QUALITY

levels). For these days, the city informs all its employees and contractors about leaf blowing, wood burning and off-road travel restrictions.

There are two air sampling monitors in Scottsdale taking hourly readings of ozone and one taking readings of PM-10 levels. Both pollutants often exceed federal standards during the summer, sometimes by substantial amounts. The graphs show how the ozone transport into higher elevations during summer afternoons and individual dust storms cause readings above healthy levels.

AIR QUALITY

STRATEGIES & ACTIONS

STRATEGY AQ 1
Clean Scottsdale's air.

ACTIONS

AQ 1.1 Participate in regional efforts to improve air quality and actively participate in regional AQ planning and policy conversations and councils (e.g., MAC, MCAQD).

AQ 1.2 Expand education/outreach to city employees, businesses and residents about air quality and High Pollution Advisory Days, including benefits of electric powered landscaping equipment and reduced single occupancy vehicle trips.

AQ 1.3 Encourage replacement of existing wood-burning fireplaces, wood stoves and fire pits with natural gas units.

AQ 1.4 Continue requirement of dust control plans for special events.

AQ 1.5 Promote Maricopa County program to convert gas to electric yard equipment.

AQ 1.6 Promote and enhance the municipal Travel Reduction Program.

AQ 1.7 Create education campaigns related to vehicle idling and parking on unpaved lots.

STRATEGY AQ 2
Support adoption of electric vehicles and other alternative fuel vehicles.

ACTIONS

AQ 2.1 Advertise locations of publicly available EV charging stations.

AQ 2.2 Develop a financially sustainable plan for purchasing additional electric and other alternate fuel vehicles for the city fleet.

AQ 2.3 Create an EV charging infrastructure plan identifying barriers, opportunities, and priorities.

AIR QUALITY

IMPLEMENTATION

ACTION	TIME HORIZON	LEAD AGENCIES/ & PARTNERS	COSTS	BENEFITS
STRATEGY AQ 1. Clean Scottsdale's air.				
AQ 1.1 Participate in regional efforts.	On-going	Lead: OE Partners; Maricopa County	\$	Health
AQ 1.2 Expand education/outreach about air quality.	Quick win	Lead: OE Partners; Businesses, employees	\$	Health
AQ 1.3 Encourage replacement of existing wood units.	1-3 years	Lead: OE Partners; Residents; developers	\$	Health
AQ 1.4 Continue requirement of dust control plans for special events.	On-going	Lead: Tourism Partners; Event planners	\$	Health
AQ 1.5 Promote Maricopa County program to convert gas to electric yard equipment.	Quick win	Lead: OE Partners; Maricopa County	\$	Health
AQ 1.6 Promote and enhance the municipal Travel Reduction Program.	On-going	Lead: Transportation & Streets Partners; Employees; Maricopa County; Valley Metro	\$	Health + Fuel savings
AQ 1.7 Create education campaigns related to vehicle idling and parking on unpaved lots.		Lead: OE; Transportation & Streets	\$	Health + Fuel savings
STRATEGY AQ 2. Support adoption of electric vehicles and other alternative fuel vehicle.				
AQ 2.1 Advertise locations of publicly available EV charging stations.	Quick win	Lead: OE	\$	Health + Fuel savings
AQ 2.2 Develop a plan for purchasing additional alternate fuel vehicles for the city fleet.	3-10 years	Lead: Fleet Partners; Other city departments	\$ \$\$\$	Health + Municipal savings

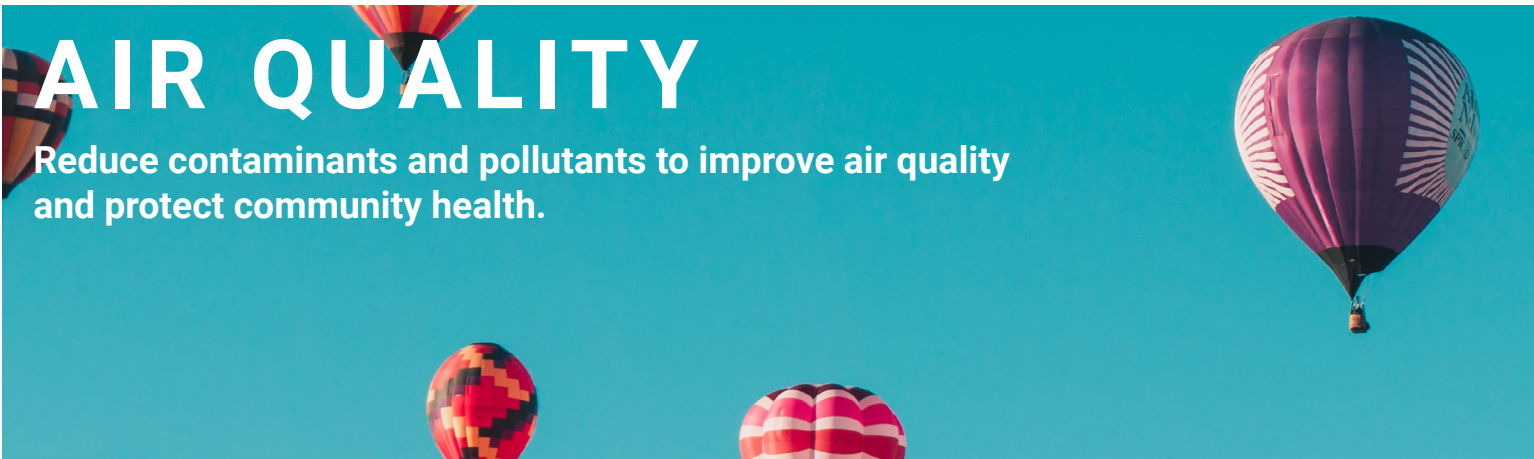
“Do all the good you can. By all the means you can. In all the ways you can. In all the places you can. At all the times you can. To all the people you can. As long as ever you can.”

- Anonymous

ENDNOTES

- 1 [“The National Community Survey: Scottsdale, AZ Report of Results 2023,”](#) p. 10; “essential” or “very important” responses = 85% in 2023.
- 2 [Leadership in Energy and Environmental Design](#)
- 3 [“How Do We Know Climate Change is Real?”](#) NASA Global Climate Change: Evidence..
- 4 [“Is it too late to prevent climate change?”](#) NASA Global Climate Change.
- 5 [“Phoenix just posted the hottest month ever observed in a U.S. city,”](#) Washington Post.
- 6 [“Arizona Then and Now: Summer heat,”](#) Arizona Republic.
- 7 [“Do scientists agree on climate change?”](#) NASA Global Climate Change, Questions.
- 8 [“Yale Climate Opinion Maps 2021,”](#) February 23, 2022; Estimated % of adults who think global warming is happening for Congressional District 6 = 68%.
- 9 [“Reducing US greenhouse gas emissions: How much at what cost?”](#) McKinsey, December 1, 2007.
- 10 [“Water Conservation Keeps Rates Low in Gilbert, Arizona,”](#) Alliance for Water Efficiency, June 2017.
- 11 [TNC, 2021: Economic Assessment of Heat in the Phoenix Metro Area](#) [deBoer, A. Schwimmer, E, McGregor, A. Adibi, S. Kapoor, A. Duong, S. Love, J. Bonham-Carter, C. Lindquist, J.] In Phoenix, AZ.
- 12 [TNC, 2021: Economic Assessment of Heat in the Phoenix Metro Area](#) [deBoer, A. Schwimmer, E, McGregor, A. Adibi, S. Kapoor, A. Duong, S. Love, J. Bonham-Carter, C. Lindquist, J.] In Phoenix, AZ.
- 13 [“Estimating economic damage from climate change in the United States,”](#) Science, Hsiang et al, June 2017.
- 14 [“Extreme heat: The economic and social consequences for the United States,”](#) Adrienne Arsht-Rockefeller Foundation Resilience Center, Atlantic Council, August 31, 2021.
- 15 [“Scottsdale Tourism Study - Visitor Statistics,”](#) City of Scottsdale, September 2022.
- 16 [“Longwoods Advertising Effectiveness Report,”](#) City of Scottsdale, May 2023.

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Like many metropolitan areas, Scottsdale and other cities in the Valley have been working for years to improve air quality. The region’s two biggest concerns are ozone and particulate matter (PM), as these exceed federal health-based standards most frequently. The causes of these pollutants are complex, given the number of sources and how far both can travel in the air.

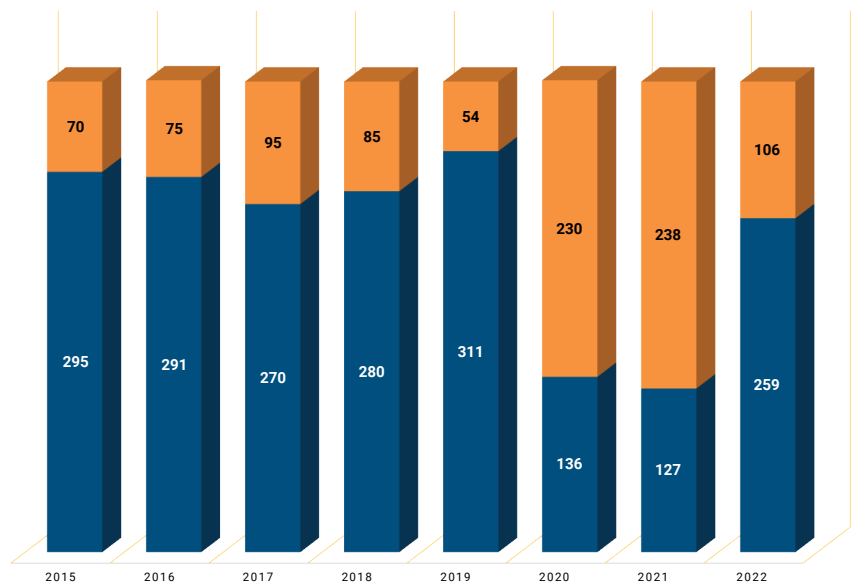
Particulate matter, classified as small (PM-2.5) or large (PM-10), usually occurs as blowing dust or smoke from fires or fireworks, but other sources can be particulates from car tires or complex reactions of chemicals like sulfur dioxide and nitrogen oxides. To reduce PM, Scottsdale makes extensive use of recycled asphalt millings and stabilizers for dust mitigation on unpaved lots and roads. It also uses a fleet of filtered (PM-10) street sweepers to reduce traffic-generated dust.

Ground-level ozone is created when nitrogen oxides, volatile organic compounds (VOCs), and sunlight react, making ozone primarily a summer issue. Industrial facilities, motor vehicles and gasoline vapors are primary sources of these precursor chemicals. Interestingly, trees can be both a source of VOCs and a key strategy in filtering a wide range of pollutants from the air.¹

Regional air quality has varied in recent years, in part reflecting the influence of extremely hot summers on the number of unhealthy days. In 2022, almost 1 in 3 days exceeded federal air quality standards.

**AIR QUALITY INDEX
(PHOENIX-MESA-SCOTTSDALE
CORE-BASED STATISTICAL AREA)**

- Good or Moderate Days (#)
- Unhealthy Days (#)

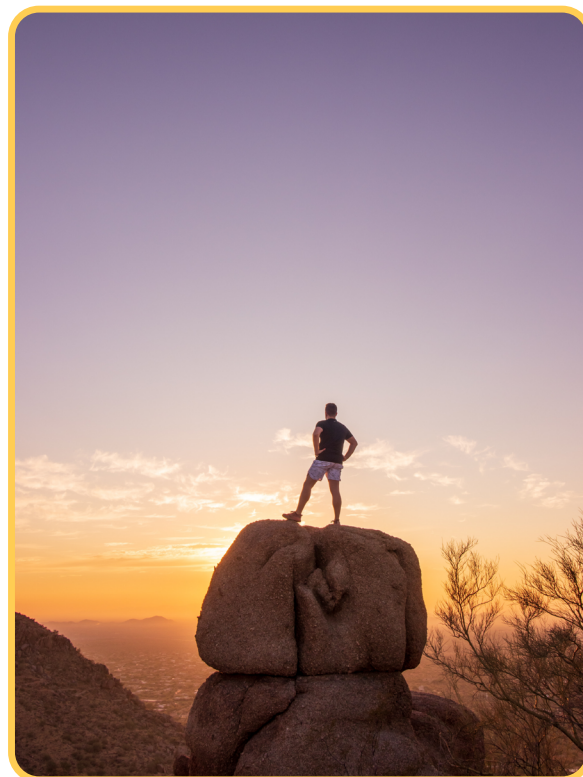


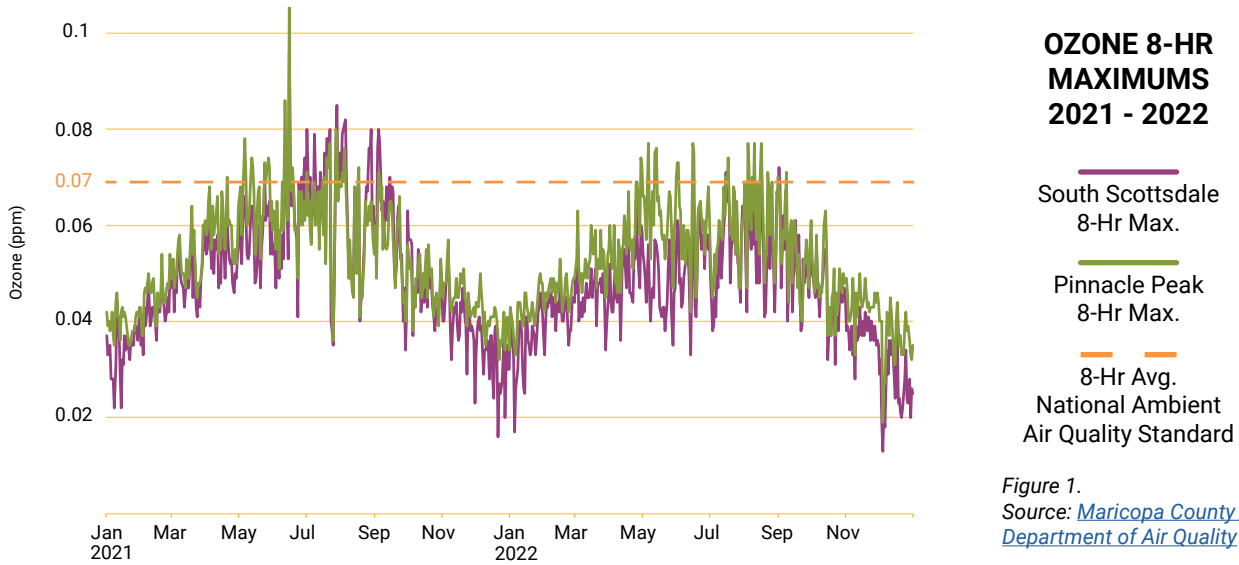
Source: EPA



To signal when air quality is expected to be unhealthy, the state of Arizona projects High Pollution Advisory Days. This advance notice allows people to take steps to avoid exceeding federal standards for either ozone or PM. In most recent years, there have been over 50 such advisories, with 2021 and 2022 each having more than 65 advisories (mostly related to ozone levels). For these days, the city informs all its employees and contractors about leaf blowing, wood burning and off-road travel restrictions.

There are two air sampling monitors in Scottsdale taking hourly readings of ozone and one taking readings of PM-10 levels. Both pollutants can exceed federal standards during the summer, sometimes by substantial amounts. There are also two monitors for PM-2.5 just outside Scottsdale boundaries. The graphs (Figures 1, 2 and 3) show how the ozone transport into higher elevations during summer afternoons, individual dust storms and holiday activities cause readings above healthy limits.



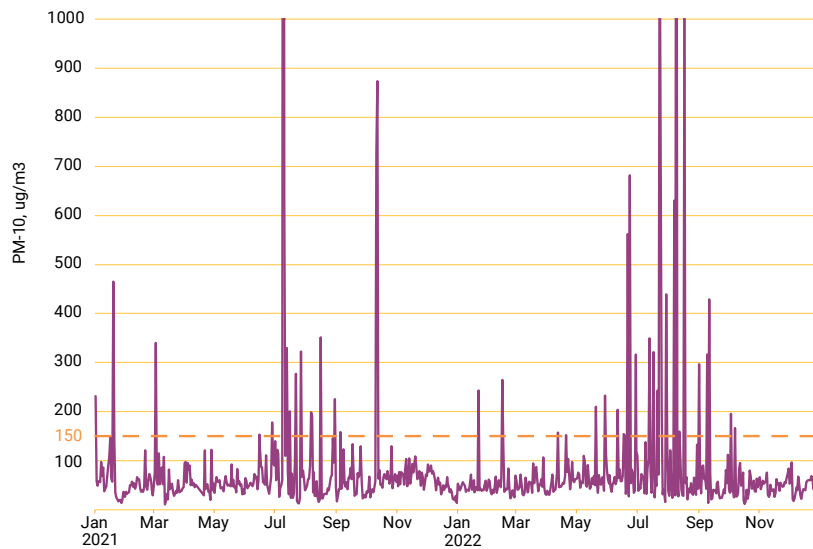


PM-10 DAILY MAXIMUMS 2021 - 2022

South Scottsdale PM-10 Daily Max.

24-Hr National Ambient Air Quality Standard

Figure 2.
Source: [Maricopa County Department of Air Quality](#)



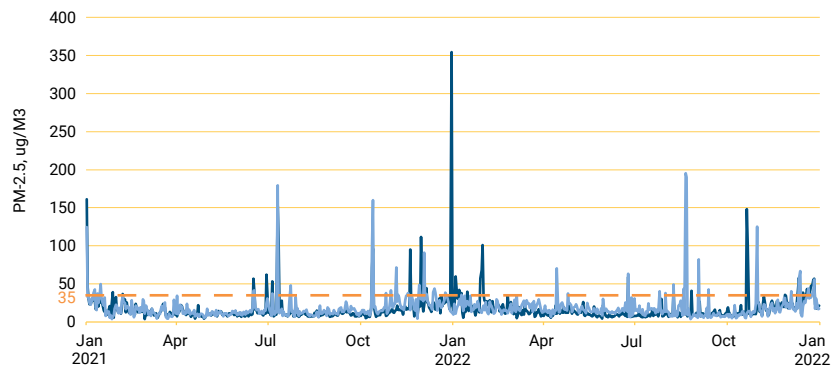
PM-2.5 DAILY MAXIMUMS 2021 - 2022

North Phoenix PM-2.5 Daily Max.

Tempe PM-2.5 Daily Max.

24-Hr National Ambient Air Quality Standard

Figure 3.
Source: [Maricopa County Department of Air Quality](#)



INDICATOR

TARGET

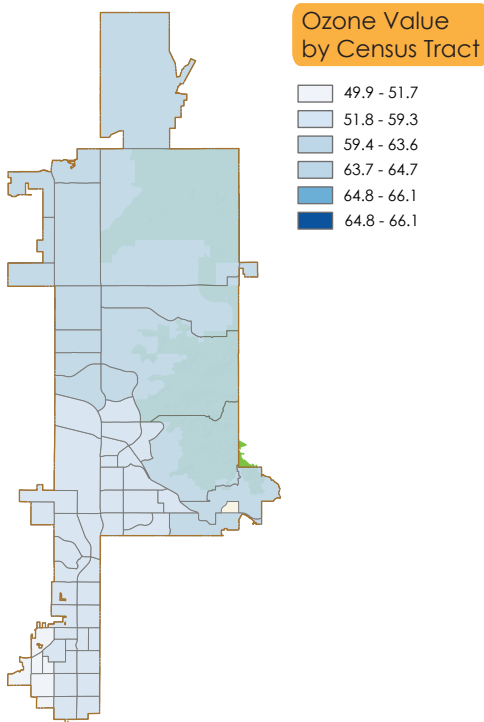
Regional good to moderate air days (#)
(2022 = 259 days)



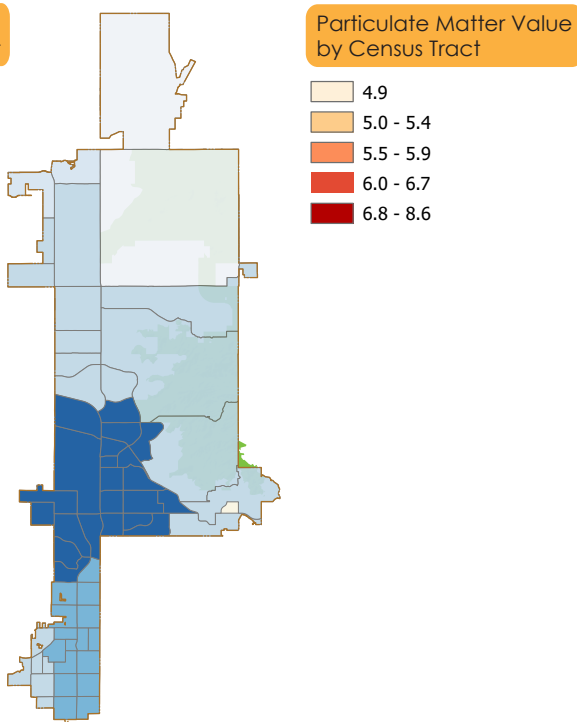
Reduce unhealthy air days in Scottsdale by 2030

Extensive modeling demonstrates that every part of the city can be exposed to poor air quality, although not always at the same time for the same pollutant.

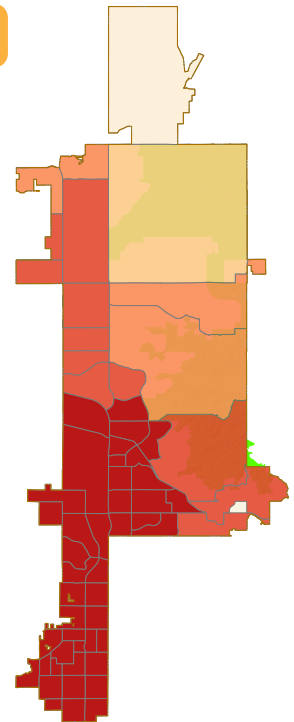
May 2022



August 2022



May 2022

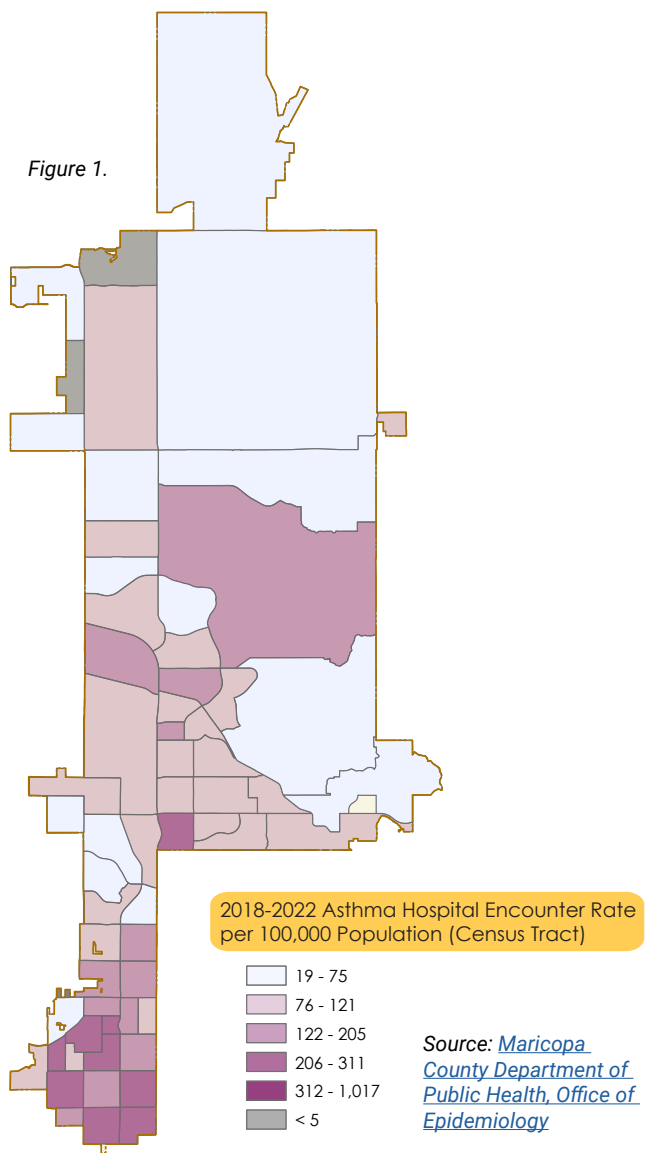


Source: [City Health Dashboard](#)

Ozone can aggravate a range of health issues, including asthma, COPD and heart disease, compounding how extreme heat can also influence their incidence and severity. **Maricopa County tracks illnesses and deaths for these disorders, which have fluctuated over time. Asthma illnesses in Scottsdale per 100,000 population are lower than in the rest of Maricopa County (Table 1), and hospital encounters (2018-2022) are concentrated in census tracts in south and central Scottsdale (Figure 1).**

Table 1. Incidents among Scottsdale residents, per 100,000 population

	2018	2019	2020	2021	2022
Asthma illnesses	210.1	196.7	115.3	121.6	156.1
COPD illnesses	335.7	287.7	185.5	148.2	163.5
COPD deaths	50.0	61.9	57.7	47.8	N/A
Heart disease illnesses	2,766.8	2,740.6	2,375.0	2,678.5	2,755.7
Heart disease deaths	217.5	224.3	231.0	251.0	N/A



Source: [Maricopa County Department of Public Health, Office of Epidemiology](#)

INDICATOR

Number of hospitalizations for pollution-related health events per 100,000 population in Scottsdale (2021 = 2,948.3)



TARGET

Pending Council Direction

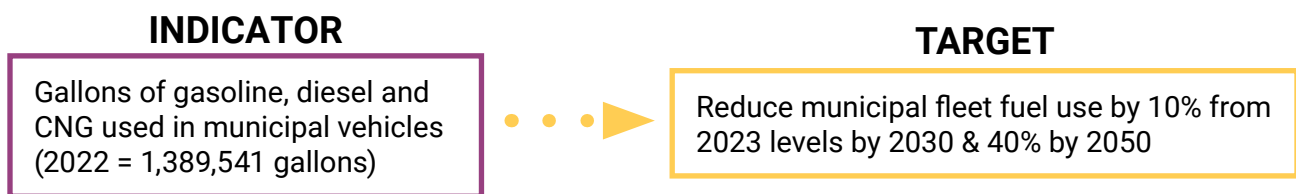
Cut hospitalizations for pollution-related health events in Scottsdale in half (*Staff Recommendation*)

Cut hospitalizations for pollution-related health events (per 100,000 population) in Scottsdale by 50% from 2022 levels by 2035 (*SEAC Recommendation*)

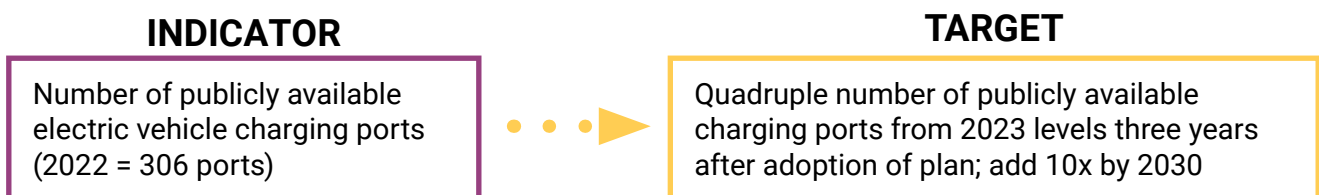
Scottsdale has been an active partner with Maricopa County and neighboring cities to formulate, adopt and implement laws and codes that have dramatically improved air quality Valleywide. Even as population and vehicle travel has increased, ozone levels have decreased by 13 parts per billion since 2000, and precursor emissions have decreased by over 50 percent from 2011 through 2020 according to the [Maricopa Association of Governments](#).

However, federal standards for ozone are tightening due to an improved understanding of the health effects, and Phoenix currently has the fifth-worst ozone levels in the country.² Because of the extended transport of air pollutants from outside the Valley, improving air quality requires regional cooperation and a long-term commitment to taking daily steps to reduce emissions. Failure to meet the Clean Air Act standards can have economic repercussions, since the tighter standards may trigger regulations that could discourage growth of new, large businesses.

The city follows and reinforces federal, state and county requirements. It also commits to additional steps to support cleaner air for residents and visitors related to vehicles. **Scottsdale has reduced the environmental impact of its municipal vehicles by switching to compressed natural gas (CNG) as a fuel source and by using less gasoline and diesel fuel. Total fleet fuel use is down 3% since 2016.** The Fleet and Solid Waste departments significantly reduce vehicle miles through sophisticated route optimizations. Relatedly, the Transportation and Streets Department champions the use of van pool and bus pass programs by employees.



Supporting the regional transition to electric and other alternate fuel vehicles can also improve air quality. **The number of publicly available electric vehicle charging ports in Scottsdale has increased dramatically, up 18% in just one year, reflecting residents and business interest in this technology.** This trend reflects the economics of electric vehicles, which can be \$50 less expensive for a full charge versus a tank of gasoline.³The city also plans to install electric vehicle (EV) charging stations in at least five locations.



BENEFITS**Environmental:**

Improved air quality reduces harm to plants and animals; more trees also provide shade and cooling

**Economic:**

Fewer bad air quality days aid business operations/development and attract tourists and lessens damage to buildings and infrastructure; electric vehicles can be less expensive to operate

**Social:**

The greatest impact of better air quality will be improved health and quality of life

WHAT CAN YOU DO?

- Switch to electric-powered blowers and other landscaping equipment
- Avoid idling unnecessarily and long drive-thru lines
- Fuel your vehicle after dark
- Eliminate or replace your wood-burning fireplace, wood stove or fire pit with natural gas units
- Plant a low-VOC emitting tree

For more tips, go to Maricopa.gov and search “air quality”

STRATEGIES & ACTIONS

STRATEGY AQ 1

Clean Scottsdale's air.

ACTIONS

- AQ 1.1** Participate in regional efforts to improve air quality and actively participate in regional AQ planning and policy committees and councils (e.g., MAG, MCAQD).
- AQ 1.2** Expand education/outreach to city employees, businesses and residents about air quality and High Pollution Advisory days, including benefits of electric-powered landscaping equipment and reduced single occupancy vehicle trips.
- AQ 1.3** Encourage replacement of existing wood-burning fireplaces, wood stoves and fire pits with cleaner options.
- AQ 1.4** Continue requirement of dust control plans for special event using unpaved parking.
- AQ 1.5** Promote Maricopa County program to convert gas to electric yard equipment.
- AQ 1.6** Promote and enhance the municipal Travel Reduction Program.
- AQ 1.7** Create education campaigns related to vehicle idling and parking on unpaved lots.










STRATEGY AQ 2







Support adoption of electric vehicles and other alternative fuel vehicle.

ACTIONS

- AQ 2.1** Advertise locations of publicly available EV charging stations.
- AQ 2.2** Develop a financially sustainable plan for purchasing additional electric and other alternate fuel vehicles for the city fleet.
- AQ 2.3** Create an EV charging infrastructure plan identifying barriers, opportunities, and priorities.



ACTION		TIME HORIZON	LEAD AGENCY(IES) & PARTNERS	COSTS	BENEFITS
STRATEGY AQ 1 Clean Scottsdale's air.					
AQ 1.1	Participate in regional efforts.	On-going	Lead: OEI Partners: Maricopa County	\$	 Health
AQ 1.2	Expand education/outreach about air quality.	Quick win	Lead: OEI Partners: Residents, businesses, employees	\$	 Health
AQ 1.3	Encourage replacement of existing wood-burning units.	1-3 years	Lead: OEI Partners: Residents, developers	\$	 Health
AQ 1.4	Continue requirement of dust control plans for special events.	On-going	Lead: Tourism Partners: Event planners	\$	 Health
AQ 1.5	Promote Maricopa County program to convert gas to electric yard equipment.	Quick win	Lead: OEI Partners: Maricopa County	\$	 Health
AQ 1.6	Promote and enhance the municipal Travel Reduction Program.	On-going	Lead: Transportation & Streets Partners: Employees, Maricopa County, Valley Metro	\$	 Health  Fuel savings
AQ 1.7	Create education campaigns related to vehicle idling and parking on unpaved lots.	On-going	Lead: OEI, Transportation & Streets	\$	 Health  Fuel savings

ACTION	TIME HORIZON	LEAD AGENCY(IES) & PARTNERS	COSTS	BENEFITS
STRATEGY AQ 2 Support adoption of electric vehicles and other alternative fuel vehicle.				
AQ 2.1 Advertise locations of publicly available EV charging stations.	Quick win	Lead: OEI	\$	 Health  Fuel savings
AQ 2.2 Develop a plan for purchasing additional alternate fuel vehicles.	3-10 years	Lead: Fleet Partners: Other city departments	\$-\$\$\$	 Health  Municipal savings
AQ 2.3 Create an EV charging infrastructure plan.	1-3 years	Lead: OEI Partners: Other city departments	\$-\$\$	 Health  Fuel savings

ENDNOTES

- 1 Read more about the benefits of trees and Scottsdale's strategies to increase tree canopy in the Heat section.
- 2 ["Phoenix ranks 5th in ozone pollution, but a new report finds fewer bad air days overall,"](#) Updated April 22, 2023, [Arizona Republic](#).
- 3 ["Is it cheaper to refuel your EV battery or gas tank? We did the math in all 50 states,"](#) Updated August 14, 2023, [Washington Post](#).

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WATER

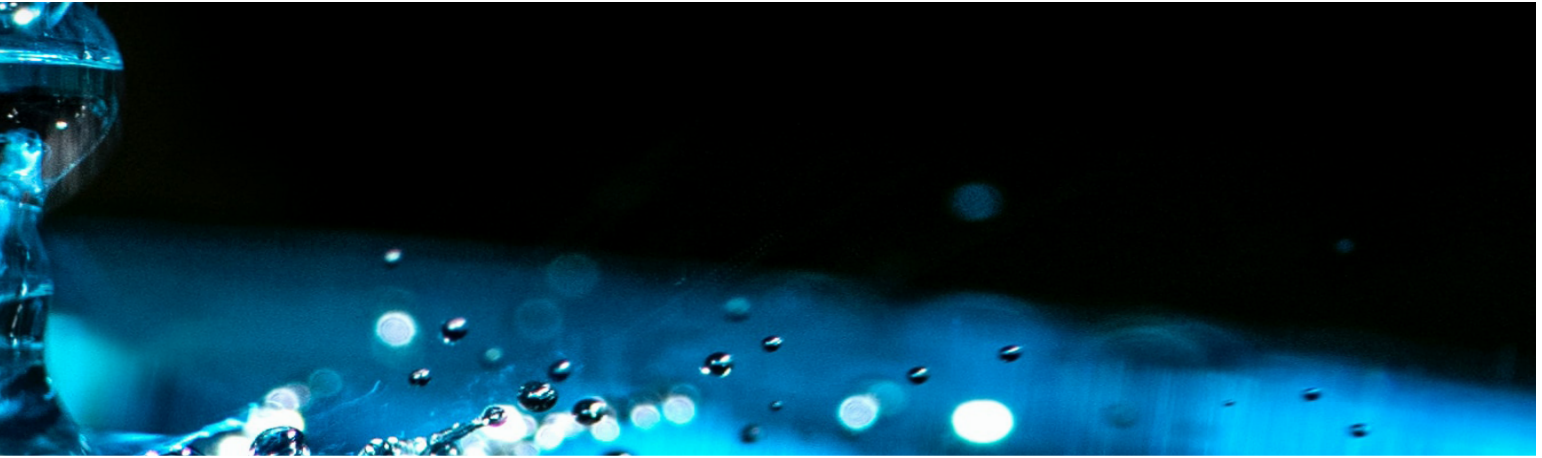
Conserve, protect and deliver quality drinking water safely and reliably to the community, now and into the future.

Providing quality drinking water and ensuring adequate water supplies has been a long-standing priority in Scottsdale. As reflected in the recently adopted “Sustainable Water Management Principles,” Scottsdale Water thinks and acts strategically with its water resources – from supply, quality, and conservation to recycling and recharge. Staff works around the clock to ensure your drinking water surpasses all federal, state and local water quality regulations. In fact, water from your tap must pass much more stringent standards than bottled water.

The city has a long record of substantial infrastructure investments and community water conservation programs. Staff administers several residential and commercial incentive rebate programs, offers residential outdoor efficiency checks, commercial audit program, manages ordinance compliance like water waste complaints, and offers water efficiency educational opportunities. Demand for these services has been growing since the activation of stage 1 of the city’s Drought Management Plan.

In fiscal year 2023 residential and commercial turf conversion rebates incentivized removal of 440,000 square feet of grass – an almost 425% increase from the previous year and a 250% increase over the five-year average. In the same year, participation by homeowner associations (HOAs) in consultations and recommendations grew by 175%. Residential outdoor water efficiency checks grew by 160% when compared to the previous five years, and HOA consultations have proven to yield significant water savings. With the large number of HOAs in Scottsdale, a target of 100% consultation is ambitious and prudent.





When looking at total potable water demand data over the last decade and a half, a steady slight decrease in total demand and an increase in the number of accounts tells the story of conservation and increased efficiency.

In 2021 the city enacted Stage 1 of its Drought Management Plan and in doing so also requested all customers to voluntarily reduce water consumption by at least 5%.¹ The conservation work has paid off. Even during the hottest month on record (July 2023), water use dropped in Scottsdale, saving 7% when compared to July 2022 and nearly 18 million gallons of water.²

While these accomplishments have placed the city in a positive position related to its water resources, addressing the challenges of the future will require an even more substantial effort. The over-allocation of Colorado River water supplies, coupled with trends of a hotter and drier climate make protecting water resources essential. The current megadrought, which started in 2000, is the worst in 1,200 years and has impacted reservoir levels on the Colorado River³ and Central Arizona Projects water supplies.

In 2022, Scottsdale Water delivered potable water of more than 70,000 acre-feet or 62 million gallons per day of safe, reliable drinking water to its customers. **Total water use is on a downward trend even as the number of connections has increased by 9% (Figure 1).**

SCOTTSDALE WATER TRENDS POTABLE WATER DELIVERIES (ACRE-FEET)

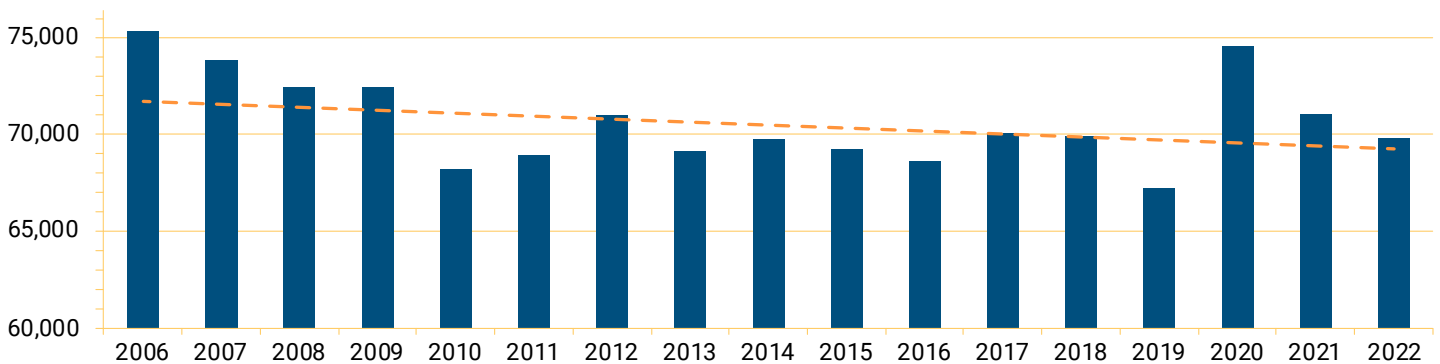


Figure 1. Source: Scottsdale Water

In 2022, the average residential customer (which comprise of almost 90 percent of the active water accounts) used 13% less water than in 2000 or 199 gallons per capita per day (gpcd) for residential water use (Figure 2).

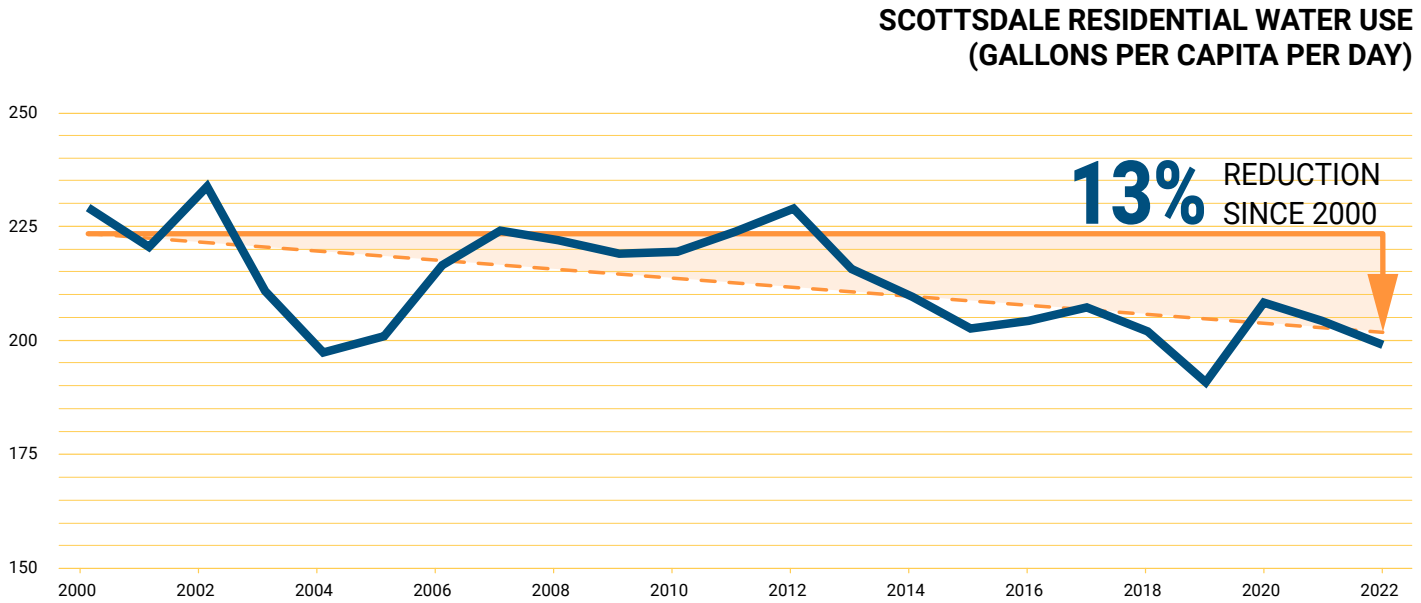


Figure 2. Source: Scottsdale Water

INDICATOR

Gallons per capita per day of residential water use (2022 = 199 gpcd)



TARGET

Reduce residential water use (gallons per capita per day) to 170 by 2033

Municipal water use represents around 2% of total potable city use and has dropped almost 10% since 2017. Scottsdale Facilities and Parks & Recreation have been proactively working to reach optimal and efficient water use in city-owned buildings and in the provision of services to the community.

INDICATOR

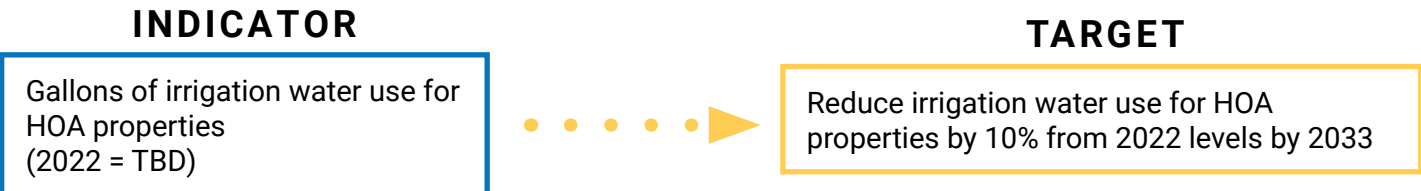
Gallons of municipal water use (2022 = 438,172,762 gallons)



TARGET

Reduce municipal potable water use by an additional 5% relative to 2022 by 2027

Scottsdale Water has targeted improvements in the amount of water used by homeowners' associations (HOAs) to irrigate their common areas with water-use budgets, rebates, and tips for overall water efficiency.



Commercial water use has been relatively stable even during periods of economic growth. Future efforts will focus on developing strategies for efficiencies for existing users without affecting the ability to build Scottsdale's economy.



This overall conservation trends hold no matter the size of the meter for the single-family homes. Average residential water use varies by meter size and by season. **The number of total customers has grown since 2014, but demand has decreased, showing that growth has not affected water use (Figure 3).**

AVERAGE WATER USE, SINGLE-FAMILY RESIDENTIAL (GALLONS USED PER METER SIZE)

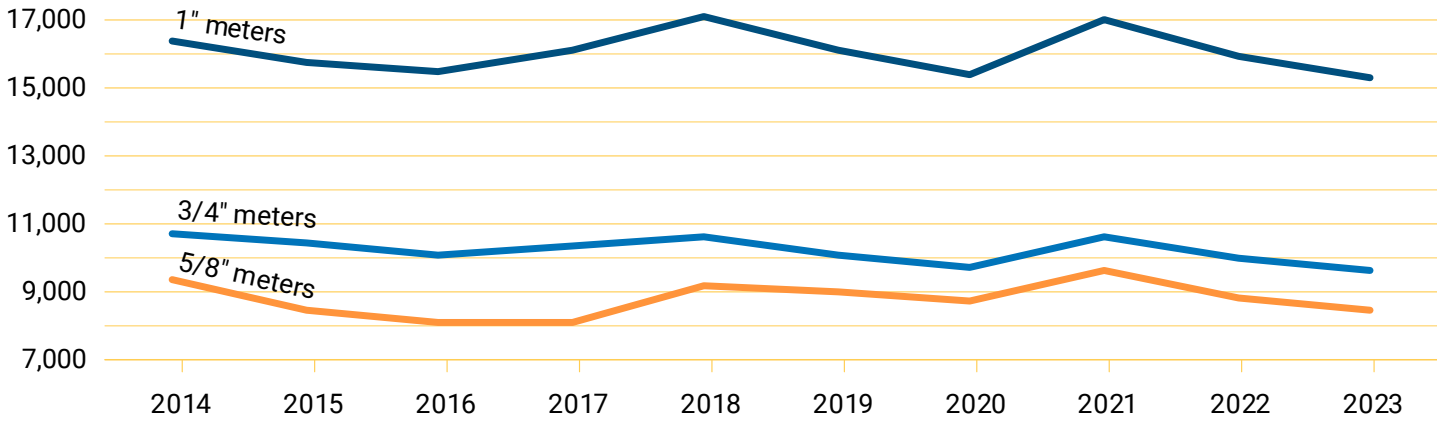
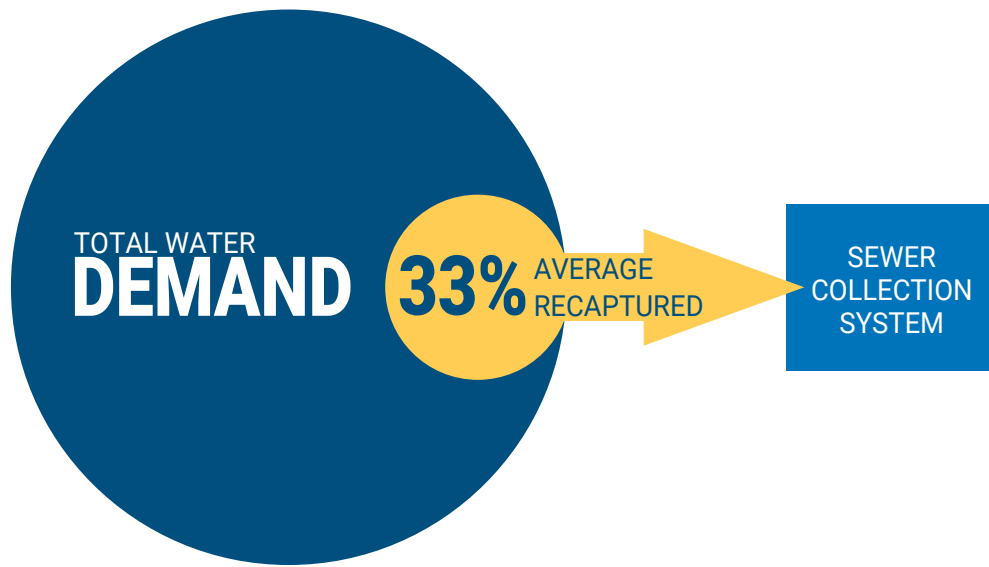


Figure 3. Source: Scottsdale Water

Scottsdale’s reclamation system has approximately 1,500 miles of sewer collection lines and over 40 lift stations. For decades, Scottsdale has used 100 percent of its recycled wastewater for beneficial, non-potable reuse or recharge. As a part of Scottsdale water resources portfolio, a portion of Advanced Water Purification (AWP) recycled water is recharged into the WTR aquifer as a kind of savings account to be able to recover it in groundwater wells in times of prolonged drought and shortage. Another portion of the AWP recycled water is delivered to turf facilities through the Reclaimed Water Distribution System (RWDS). A final portion is delivered to the 91st Avenue Wastewater Treatment where it is used for the cooling tower at Palo Verde Nuclear Generating station and the Tres Reos Wetlands.

Of the total amount of water that is delivered to customers, approximately 33% is currently “returned” to the sewer system. Future decreases in outdoor use and increases in irrigation efficiency would lead to a high percentage of overall “return” flow. As an indicator of conservation for all customers, the city seeks to increase the return flow percentage over what has been seen in the last 10 years.



INDICATOR

Return flow or wastewater captured in the sewer collection system (2022 = 33% of total potable water demand)



TARGET

Increase return flow percentage by 10% by 2033, capturing indoor/outdoor efficiency for both residential and commercial customers

Scottsdale has excelled at proactive long-range planning to ensure safe and adequate water supplies and best management practices on water conservation efforts, total wastewater reuse, and water banking. Scottsdale helps ensure quality water supplies by reclaiming or reusing water, recharging excess to the WTR aquifer, and treating groundwater. **The amount of groundwater treated has remained fairly constant and kept low, at approximately 5% of total water and kept to an internal target of Safe Yield.**

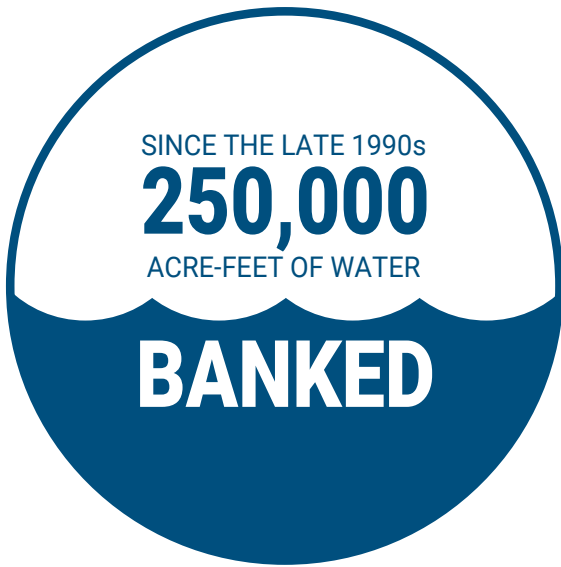
INDICATOR

Gallons of groundwater treated
(2022 = 1,823 million gallons)



TARGET

Maintain treated groundwater deliveries to Safe Yield levels



INDICATOR

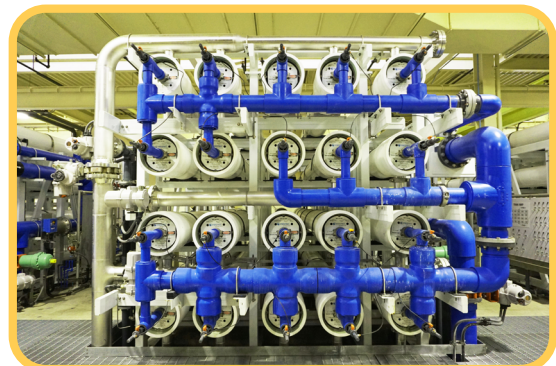
Gallons of water recharged in aquifer
(2022 = 250,000 acre feet)



TARGET

Maximize annual water banking

Scottsdale Water was the first Arizona water utility to implement indirect potable reuse with the Advanced Water Purification (AWP) at the treatment facility (AWT). The AWT is one of the largest and most sophisticated indirect potable reuse facilities in the world and, in 2019, became the third plant in the nation and the first in Arizona to be permitted for direct potable reuse.



BENEFITS



Environmental:

Using water efficiently brings a level of relief from the drought and reduced carbon emissions by using less energy to pump and treat water



Economic:

More secure water supplies aid business operations/development and attract tourists; conservation means lower water bills for customers



Social:

Clean and secure drinking water for all residents supports health & equity

WHAT CAN YOU DO?

- Use the WaterSmart app monitor use and leak notifications
- Convert non-function turf (grass) areas to desert adaptive landscapes
- Consider a WaterSense Smart Irrigation controller upgrade
- Understand your landscape water needs
- Plant native and drought tolerant plants
- Replace faucets, showerheads, and toilets with WaterSense labeled fixtures

For more tips, go to [ScottsdaleAZ.gov](https://www.scottsdaleaz.gov) and search “water”



STRATEGIES & ACTIONS

STRATEGY WTR 1

Ensure water system resiliency.

ACTIONS

- WTR 1.1** Communicate the leak detection benefits of registering for the online visualization portal and leak alerts (WaterSmart), aiming to double participation by 2025.
- WTR 1.2** Encourage removal of privately-owned non-functional/non-recreational turf through education and turf removal rebates.
- WTR 1.3** Promote improvements to irrigation equipment and plumbing fixtures for residential and commercial customers.
- WTR 1.4** Expand water conservation programs focused on homeowner associations.
- WTR 1.5** Review water use and conservation in development projects through the framework of the Scottsdale Sustainable Water Management Principles.
- WTR 1.6** Showcase and benchmark best practices of water efficient buildings & landscaping.
- WTR 1.7** Encourage site development strategies that incorporate green infrastructure, low impact development, and stormwater harvesting.
- WTR 1.8** Develop strategies to encourage commercial water efficient business practices.
- WTR 1.9** Ensure all water meters converted to Automatic Meter Infrastructure.
- WTR 1.10** Conduct water efficiency consultations with all HOAs by 2033.

STRATEGY WTR 2

Reduce municipal water use.

ACTIONS

- WTR 2.1** Remove non-functional/non-recreational turf at city facilities and retrofit municipal irrigation systems to smart controllers.
- WTR 2.2** Monitor leaks and implement advanced drip irrigation systems.
- WTR 2.3** Maintain high-efficiency toilets and faucets in city buildings.
- WTR 2.4** Install new cooling tower controllers in all municipal facilities by 2025.

ACTION	TIME HORIZON	LEAD AGENCY(IES) & PARTNERS	COSTS	BENEFITS
STRATEGY WTR 1 Ensure water system resiliency.				
WTR 1.1 Communicate the benefits of registering for WaterSmart.	On-going	Lead: Water Partners: Customers	\$	💰 Customer savings
WTR 1.2 Encourage removal of privately-owned turf.	On-going	Lead: Water Partners: Customers, HOAs, landscapers	\$-\$	💰 Customer savings
WTR 1.3 Promote improvements to irrigation equipment and plumbing fixtures.	On-going	Lead: Water Partners: Customers, HOAs, landscapers	\$	💰 Customer savings
WTR 1.4 Expand HOA water conservation programs.	On-going	Lead: Water Partners: HOAs	\$-\$	💰 Customer savings
WTR 1.5 Utilize Scottsdale Sustainable Water Management Principles in development review.	Quick win	Lead: Water Partners: Developers	\$	💰 Customer savings
WTR 1.6 Showcase and benchmark water efficient buildings & landscaping.	On-going	Lead: Water Partners: Customers, developers, landscapers	\$	💰 Customer savings
WTR 1.7 Encourage sustainable site development strategies.	On-going	Lead: Water, OEI Partners: Residents, developers	\$	🌱 Nature 👤 Reduced flooding
WTR 1.8 Develop commercial water efficient business practice.	1-3 years	Lead: Water Partners: Commercial customers	\$-\$	💰 Customer savings
WTR 1.9 Convert water meters to Automatic Meter Infrastructure.	On-going	Lead: Water Partners: Customers	\$	💰 Customer savings
WTR 1.10 Conduct HOA water efficiency consultations.	5-10 years	Lead: Water Partners: HOAs	\$	💰 Customer savings

ACTION	TIME HORIZON	LEAD AGENCY(IES) & PARTNERS	COSTS	BENEFITS
STRATEGY WTR 2 Reduce municipal water use.				
WTR 2.1 Remove non-functional/non-recreational turf at city facilities and retrofit municipal irrigation systems to smart controllers.	On-going	Lead: Parks & Rec	\$-\$\$	Ⓢ Municipal savings
WTR 2.2 Monitor leaks and implement advanced drip irrigation systems.	On-going	Lead: Parks & Rec	\$	Ⓢ Municipal savings
WTR 2.3 Maintain high-efficiency toilets and faucets in city buildings.	On-going	Lead: Facilities	\$	Ⓢ Municipal savings
WTR 2.4 Install new cooling tower controllers in municipal facilities.	Quick win	Lead: Facilities	\$	Ⓢ Municipal savings

ENDNOTES

- 1 ["Scottsdale asks residents to use five percent less water and conserve more,"](#) City of Scottsdale, January 11, 2022.
- 2 ["Scottsdale shows reduced water use during hottest month on record,"](#) City of Scottsdale, August 14, 2023.
- 3 ["Rapid intensification of the emerging southwestern North American megadrought in 2020–2021,"](#) Nature Climate Change, Williams, Cook and Smerdon, Vol 12, March 2022.

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