

# Water Sustainability through Stewardship, Innovation and People



## 2018 Water Quality Report



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### **ScottsdaleAZ.gov/Water**

**480-312-5650**

**Water Quality: 480-312-8732**

#### **Additional Water Information Resources**

U.S. EPA's Safe Drinking Water Hotline  
800-426-4791, [epa.gov/safewater](http://epa.gov/safewater)

Arizona Department of Environmental Quality  
602-771-2300, [azdeq.gov/environ/water/dw](http://azdeq.gov/environ/water/dw)

Maricopa County Environmental Services Department  
602-506-6666, [maricopa.gov/EnvSvc/WaterWaste](http://maricopa.gov/EnvSvc/WaterWaste)

Water-related topics may be discussed at City Council meetings or other public forums and we welcome your attendance. Meeting notices and City Council agendas are posted on the city's website at [ScottsdaleAZ.gov](http://ScottsdaleAZ.gov), search "Council Agendas."

Este informe contiene informacion muy importante sobre su agua potable. Si desea una copia de este informe en español o tiene alguna pregunta sobre el, por favor llame a 480-312-8711.



# About This Report

Scottsdale Water is dedicated to providing you with safe, reliable drinking water each and every day of the year, whenever you need it. Our goal is to supply you with quality drinking water at an affordable price with outstanding service. Our commitment to that goal is summarized in this annual report.

Water is a precious resource for our community, especially in our desert environment. In addition to working to ensure your water is safe, we are also dedicated to ensuring a secure and sustainable water supply for today and the future.

Through innovative aquifer recharge programs and effective strategic planning and investment, Scottsdale was the first city in Arizona to meet safe yield – put more water in the aquifer than we take out – and has been doing so every year since 2006, nearly 20 years ahead of the state-mandated deadline to do so. We also work to actively educate and encourage our citizens to use water wisely and conserve whenever possible.

I encourage you to review this report and learn about the work and dedication that goes into providing you safe, reliable and affordable drinking water each and every day.

**Brian K. Biesemeyer, PE** • Scottsdale Water Director



## Definitions and Abbreviations

**Contaminant** – Any physical, chemical, biological or radiological substance or matter in the water.

**Maximum Contaminant Level Goal (MCLG)** – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**Maximum Contaminant Level (MCL)** – The highest level of a contaminant allowed by the EPA in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.

**Maximum Residual Disinfectant Level (MRDL)** – The highest level of a disinfectant (chlorine) allowed in drinking water. There is convincing scientific evidence that the addition of a disinfectant is necessary for the control of microbial contaminants.

**Maximum Residual Disinfectant Level Goal (MRDLG)** – The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

**Treatment Technique (TT)** – A required process intended to reduce the level of a contaminant in drinking water.

**Action Level (AL)** – The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water provider must follow.

**Part Per Million (ppm) / Part Per Billion (ppb)** – Equivalent to mg/L and µg/L respectively, describe the levels of detected substances.

**Picocuries Per Liter (pCi/L)** – A measure of the radioactivity in a liter of water.

**Non-detectable (ND)** – The substance was analyzed but not detected.

**Not Applicable (NA)** – A regulatory limit does not exist.

## A Note from the EPA

To ensure the water from your tap is safe to drink, the Environmental Protection Agency issues regulations limiting the amount of certain impurities allowed in drinking water and the water treatment process. You can expect all drinking water, including bottled water (which is regulated by the Food and Drug Administration), to contain at least small amounts of some contaminants. It's important to know that the presence (or detection) of impurities does not necessarily indicate a health risk.

Scottsdale's drinking water sources include rivers, lakes, reservoirs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring materials and can pick up substances from human or animal activity. Possible contaminants may include:

- **Microbial contaminants** including viruses, bacteria and parasites, which may come from sewage treatment plants, septic systems, agricultural or livestock operations and wildlife.
- **Inorganic contaminants** such as minerals, salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- **Radiochemical contaminants**, which occur naturally or result from oil and gas production and mining activities.
- **Pesticides and herbicides** that may come from a variety of sources such as agriculture, stormwater runoff and residential uses.
- **Organic chemical contaminants** including synthetic and volatile organic compounds, which are byproducts of industrial processes and petroleum production, and also can come from gas stations, urban stormwater runoff and septic systems.

# Scottsdale's Water Supply

Up until the early 1980s, Scottsdale was 100 percent reliant on groundwater for our water supply.

Today, 90 percent of our total water supply comes from renewable surface water sources and recycled water, helping us ensure a long-term water supply for future generations.

Scottsdale's total water supply includes surface water and groundwater sources, as well as an increasing amount of recycled water. Depending on the time of year, the weather and customer demand, it's possible you may receive water from a single source of water or from a combination of water sources.

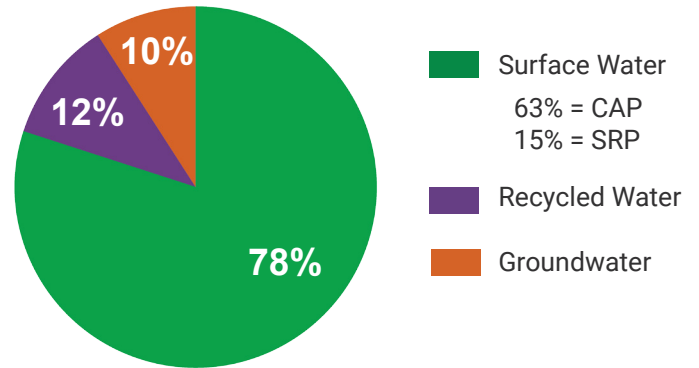
Scottsdale's main surface water supply is from the Colorado River. This water is transported through the Central Arizona Project canal to the Scottsdale CAP Water Treatment Plant.

We also receive surface water from the Salt River Project, which comes from the Verde and Salt rivers. Water is transported by SRP to the Chaparral Water Treatment Plant. Both facilities employ state-of-the-art technology to ensure superior water quality to our customers.

In addition to these two main surface water sources, your drinking water may also come from aquifers deep below ground. The water is pumped from the ground through one of the city's 23 active wells and then disinfected prior to entering the drinking water distribution system. The water from these wells may receive other forms of treatment prior to disinfection and distribution.

Scottsdale also uses underground aquifers to store surface water (so some groundwater was previously surface water) and highly treated, ultrapure recycled water.

## Scottsdale's Water Supply Portfolio



## DID YOU KNOW?

Scottsdale Water operates one of the most advanced recycled water treatment facilities in the world. Annually, we recycle over **2.5 billion gallons** of water for turf irrigation and recharge over **1.5 billion gallons** of ultrapure recycled water to Scottsdale's aquifer, which helps safeguard the long-term viability of our precious groundwater supplies.

## Water Hardness

As water makes its way to our treatment plants or through the aquifer, it picks up naturally occurring minerals that make the water "hard" and can also affect taste and other characteristics. Hardness is not a primary water quality standard and is not considered to be a health concern. Scottsdale is committed to providing you with the cleanest and safest drinking water possible, at an affordable price. We could implement additional treatment processes to address hardness, but concluded this is not cost effective, especially since the majority of residential water consumption is for outdoor use. There are varying levels of water hardness throughout Scottsdale as shown in the table to the right.

### Approximate Hardness Levels

Boundary	Hardness (Grains per Gallon)	Hardness (mg/L or ppm)
South of Indian School Road	17 - 24	300 - 410
Indian School Road to Chaparral Road	20 - 23	350 - 390
North of Chaparral Road	16 - 21	270 - 360

## Source Water Assessment Program

In 2004, Scottsdale worked with the Arizona Department of Environmental Quality to finalize an assessment on the wells and surface water sources we use to provide you with drinking water. This assessment looked at potential risks to our water sources, which include gas stations, landfills, dry cleaners, agricultural fields and wastewater treatment plants.

The assessment concluded that most of Scottsdale's groundwater wells have low to medium risk, with the exception of the wells linked to the North Indian Bend Wash Superfund Site. The water produced by these wells has a high risk of contamination, but is treated to meet or surpass drinking water standards and monitored closely by the city, ADEQ and the EPA.

All surface water sources are considered high risk due to their exposure to open air. These risks are addressed by the EPA through its increased monitoring requirements for surface water sources. The complete assessment is available at [azdeq.gov/environ/water/dw/swap.html](http://azdeq.gov/environ/water/dw/swap.html) or by calling Scottsdale Water at 480-312-8732.





CAP Water Treatment Plant

# Water Treatment Process

## Surface Water Treatment Plants

Most of Scottsdale's drinking water is treated at its surface water plants: the CAP Plant, which is three distinct facilities, and the Chaparral Water Treatment Plant.

All three CAP facilities are located on the Scottsdale Water Campus off Pima Road and treat water from the Central Arizona Project. They have a combined capacity to treat 70 million gallons a day. CAP I and II use a conventional water treatment process, which includes pretreatment, coagulation/flocculation, sedimentation, filtration and disinfection. Water at CAP III is treated with ultrafiltration membrane technology and disinfection. The entire CAP Plant also uses granular activated carbon to improve taste and odor and treat for disinfection byproducts.

The Chaparral WTP, located on McDonald Drive at Hayden Road, treats water from the Salt River Project. The plant has a very small footprint – using state-of-the-art ultrafiltration membrane technology and granular activated carbon – and a treatment capacity of 27 million gallons a day.

## North Indian Bend Wash Cleanup Commitment

In addition to the CAP and Chaparral surface water treatment plants, Scottsdale operates several groundwater treatment facilities, including the Central Groundwater Treatment Facility and the North Groundwater Treatment Facility, which treat groundwater from the North Indian Bend Wash, an EPA-designated Superfund site.

Both facilities were built by private companies that were deemed potentially responsible for contaminating the groundwater with Trichloroethylene. The private companies are responsible for the cost of operating and maintaining the facilities. The groundwater is treated to levels that exceed federal and state drinking water standards, with regulatory oversight by the EPA, ADEQ and Maricopa County. Water from these facilities makes up only a small portion of Scottsdale's total water supply.

For more information on the NIBW Superfund site, please call the EPA's message line (800-231-3075). For more information on the CGTF and the NGTF, please visit [ScottsdaleAZ.gov/Water](http://ScottsdaleAZ.gov/Water) or contact Scottsdale Water at 480-312-8732.



The CAP Water Treatment Plants are located at the Scottsdale Water Campus in north Scottsdale.

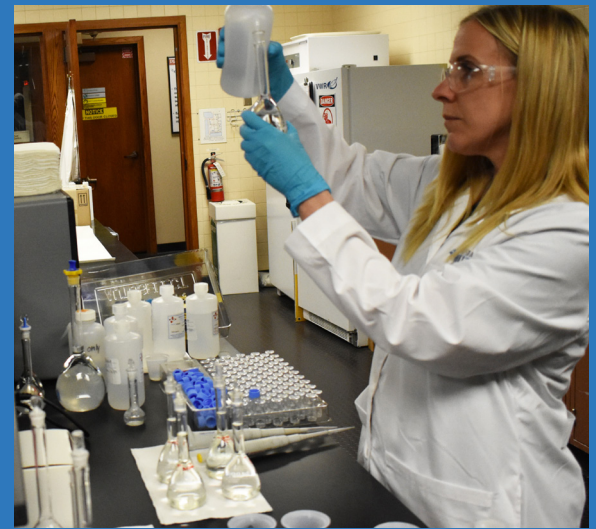


# 2017 Compliance Monitoring Results

Scottsdale is required to test for an assortment of contaminants at various locations throughout the city. Testing is done at 10 entry points to the distribution system that represent the treated source water. We also perform tests throughout the distribution system at 150 different locations to ensure the water entering your home or business remains safe and reliable.

We test for over 100 substances, but only the substances detected in the water during testing are listed in this report. The results shown are from testing performed in 2017 unless otherwise noted.

A few substances are discussed in detail below. If you would like more information about other substances or a complete list of all testing, please contact us at 480-312-8732. You can also find detailed information on the EPA's website, [epa.gov/dwstandardsregulations](http://epa.gov/dwstandardsregulations).



**Arsenic** is a naturally occurring mineral commonly found in water due to leaching from rocks and soil. The maximum contaminant level (MCL) for arsenic allowed in drinking water is 10 ppb (parts per billion), based on a running annual average.

While your drinking water meets or surpasses EPA's standard for arsenic, it does contain low levels of arsenic. EPA is continually researching the health effects of low levels of arsenic, which has been known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems. In 2017, the highest level of arsenic measured in Scottsdale's drinking water was 8 ppb.

**Nitrate** is an inorganic substance that is monitored due to run off from fertilizer use. Nitrate in drinking water at levels greater than 10 ppm (parts per million) is considered a health risk for infants younger than six months of age. (Nitrate levels above 10 ppm in drinking water can cause blue baby syndrome.) Nitrate levels in surface water supplies may rise quickly for short periods of time due to rainfall or agricultural activity. If you are caring for an infant you should seek advice from your health care provider. In 2017, the highest nitrate level detected in Scottsdale's drinking water was 5 ppm.

**Turbidity** is a measure of clarity in the water and is reported as Nephelometric Turbidity Units (NTU). Turbidity is caused by a variety of substances including sand, dirt and algae. Water is measured for turbidity to determine the effectiveness of the water treatment process. Scottsdale measures turbidity continuously at its surface water treatment plants.

**Microbiological Testing** is performed monthly at over 150 sites within the distribution system for Total Coliform and E. coli bacteria in order to verify the integrity of the distribution system as well as our water sources.

**Chlorine** is used as a disinfectant to ensure the treated water remains safe at all times. We continually monitor chlorine levels throughout the system to ensure that safe and adequate levels are maintained. Scottsdale's goal is to have a chlorine residual between 0.5 and 1.2 ppm in our drinking water system.

Byproducts of using chlorine as a disinfectant are trihalomethanes and haloacetic acids. These are formed as a result of a chemical reaction between chlorine and naturally occurring organic matter in the water. To minimize the formation of these disinfection byproducts (DBP), granular

activated carbon is used during the water treatment process to reduce levels of organic matter and subsequently reduce DBP levels.

**Lead and copper** are typically found in drinking water because of materials and components found in service lines and home plumbing. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Scottsdale is committed to providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800-426-4791) or at [epa.gov/safewater/lead](http://epa.gov/safewater/lead).

The most recent testing for lead and copper was performed in 2017. Lead and copper levels reported in the table are from water faucets inside 52 Scottsdale homes that were built before the lead ban. Results from all homes were below the action levels for lead and copper.

All residents participating in the lead and copper program are notified of their home's results. If the lead concentration in a home's water exceeds 15 ppb, the home is retested and the homeowner is contacted for follow-up guidance on ways to lessen the risk of exposure to lead from drinking water.

To further protect our customer's from lead in drinking water, Scottsdale uses caution when changing to a new water source or changing an existing treatment process. Additional monitoring is performed to ensure the water is not corrosive to home plumbing.

## Additional Monitoring

**Cryptosporidium** is a pathogen found in surface water throughout the United States and can be spread through other methods besides drinking water. Ingestion may cause a gastrointestinal illness. During periodic monitoring conducted in 2017, *Cryptosporidium* was not detected in our source waters. If present, this organism is removed during treatment through the use of multimedia filtration.

# Monitoring Results for Regulated Contaminants

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	System Average	Highest Running Annual Average	Likely Source in Drinking Water
Arsenic	ppb	10	0	1.2	8	4.3	7.6	Leaching of natural deposits
Barium	ppb	2,000	2,000	20.7	132	61	132	Leaching of natural deposits
Chromium	ppb	100	100	ND	5.9	2.3	5.8	Leaching of natural deposits
Fluoride	ppm	4	4	0.2	0.6	0.3	0.6	Leaching of natural deposits
Nickel	ppb	N/A	N/A	ND	1.8	ND	1.8	Leaching of natural deposits
Nitrate	ppm	10	10	ND	5	1.4	N/A	Leaching of natural deposits and septic systems; runoff from fertilizer use
Selenium	ppb	50	50	ND	2.5	1.6	2.5	Leaching of natural deposits; discharge from petroleum refineries and mining
Alpha Emitters	pCi/L	15	0	ND	2.3	1.3	N/A	Leaching of natural deposits
Uranium	ppb	30	0	0.9	3.5	1	N/A	Leaching of natural deposits
Radium (combined)	pCi/L	5	0	ND	ND	ND	N/A	Leaching of natural deposits
Total Organic Carbon	ppm	TT	N/A	0.9	1.5	1.3	N/A	Naturally present in the environment

Substance	Unit	MCL	TT Requirement	Highest Measurement	Treatment Technique Comparison	Likely Source in Drinking Water
Turbidity	NTU	1	95% less than 0.3 NTU	0.08	100% less than 0.3 NTU	Soil runoff

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	Average	Likely Source in Drinking Water
Total Coliform	%	5 (monthly)	0	0	1	0	Naturally present in the environment
Chlorine	ppm	4 (MRDL)	4 (MRDLG)	0.21	1.87	0.9	Water additive used to control microbial growth
Total Trihalomethanes (TTHMs)	ppb	80	N/A	11.7	71.9	65.3 <sup>1</sup>	Byproduct of water disinfection
Haloacetic Acids	ppb	60	N/A	1.8	21	15.6 <sup>1</sup>	Byproduct of water disinfection

Substance	Unit	MCL	MCLG	90 <sup>th</sup> Percentile Value	# of Homes Greater than AL	Levels in Treated Water	Likely Source in Drinking Water
Lead <sup>2</sup>	ppb	15	0	1.8	0 of 52	ND	Corrosion of household plumbing
Copper <sup>2</sup>	ppb	1,300	N/A	147	0 of 52	1.2 - 9	Corrosion of household plumbing

1. Reported value is the highest locational running annual average (LRAA) calculated on a quarterly basis.
2. Lead and Copper Standard: 90% of homes tested must have lead and copper levels below the alert level (AL).

Scottsdale is proud to partner with Tap Into Quality, an educational campaign aimed at increasing awareness about the safety, convenience and affordability of the region's tap water.

[TapIntoQuality.com](http://TapIntoQuality.com)



## Attention Immuno-Compromised Citizens

If you are a person with a compromised immune system (i.e. undergoing chemotherapy, have had an organ transplant or have HIV/AIDS or other immune system disorders) you may be particularly at risk of infections and more vulnerable to contaminants in drinking water. Some elderly persons and infants may also have increased risk. You are encouraged to seek advice about drinking water from your health care provider. More information including ways to lessen the risk of infection from microbial contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

# Monitoring Results for Unregulated Contaminants

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected
Alkalinity	ppm	NA	NA	118	245
Aluminum	ppm	NA	NA	ND	0.15
Calcium	ppm	NA	NA	33	117
Chloride	ppm	NA	NA	33	251
Iron	ppm	NA	NA	ND	0.29
Magnesium	ppm	NA	NA	13	57
Manganese	ppm	NA	NA	ND	0.03
pH	Std. Unit	NA	NA	7.3	8.3
Sodium	ppm	NA	NA	35	129
Sulfate	ppm	NA	NA	14	264
Temperature	°C	NA	NA	15	34
	°F	NA	NA	59	93
Total Dissolved Solids	ppm	NA	NA	292	832
Zinc	ppm	NA	NA	ND	ND



## Monitoring Results for Unregulated Contaminant Monitoring Rule (UCMR3)

In an ongoing effort to improve the safety of drinking water, the Unregulated Contaminant Monitoring Rule (UCMR), part of the Safe Drinking Water Act, requires the EPA and water systems to assess the occurrence of unregulated contaminants in drinking water across the country. A new list of contaminants is issued about every five years and can contain up to 30 contaminants. The EPA uses this occurrence data along with health effects studies to determine if additional regulations are needed to protect public health.

Monitoring is performed at every location where source water enters the distribution system and some contaminants are also measured at points within the distribution system, where the water is consumed. The table below shows results of the most recent testing conducted in 2015.

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	Average	Likely Source in Drinking Water
Chlorate	ppb	N/A	N/A	180	250	180 (250 <sup>1</sup> )	Byproduct of drinking water disinfection
Chromium, Hexavalent	ppb	N/A	N/A	4.8	5.2	5.2 (4.8 <sup>1</sup> )	Leaching of natural deposits
Molybdenum, Total	ppb	N/A	N/A	1.9	3	3 (1.9 <sup>1</sup> )	Leaching of natural deposits
Strontium, Total	ppb	N/A	N/A	1,100	1,300	1,300 (1,100 <sup>1</sup> )	Leaching of natural deposits
Vanadium, Total	ppb	N/A	N/A	9	9.9	9 (9.9 <sup>1</sup> )	Leaching of natural deposits
1,4-Dioxane	ppb	N/A	N/A	0.27	0.27	0.27	Used primarily as a solvent, or solvent stabilizer

1. The first value listed is the average concentration in the source water; the second value listed is the average in the distribution system.

## Citizen Academy

The Scottsdale Water Citizen Academy provides an inside look at your city's water utility, which happens to be one of the most advanced municipal water systems in the country! The multiweek course explains all facets of Scottsdale Water planning and policies and takes you inside our state-of-the-art facilities and daily operations.

**Space is limited! Visit [ScottsdaleAZ.gov](http://ScottsdaleAZ.gov) and search "Water Citizen Academy" for registration information.**





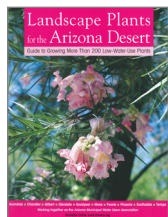
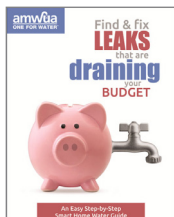
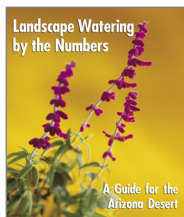
# Water Conservation

The Scottsdale Water Conservation Office has been helping Scottsdale residents and businesses be more water wise since 1982.

Today, it offers multiple programs – including rebates, landscape workshops, efficiency checks and classroom education programs – to encourage water efficiency and protect our desert’s most precious resource.

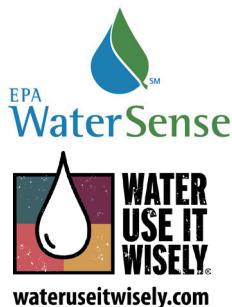


Leaky Loo and Wayne Drop get kids excited about saving water!



## Free Publications

Scottsdale Water offers a range of free publications to help you conserve water in and around your home. To view the publications online or request a printed copy, visit us at [ScottsdaleAZ.gov/Water](http://ScottsdaleAZ.gov/Water) or call 480-312-5650.



Identify water-efficient toilets, faucets and other plumbing fixtures by looking for the WaterSense label.

Scottsdale is one of 18 Arizona water partners in a water awareness campaign to promote easy tips for saving water.

## Landscape Tips for the Desert Southwest

**Up to 65 percent of residential water use in Scottsdale is OUTDOORS!**

When it's time to create a low-water-use, desert-friendly landscape at your home, use these tips to save water, energy and money:

- Choose native plants that require less water.
- Plant evergreen trees on the west and trees that drop leaves on the east side of your house to maximize shade and energy savings.
- Locate new plants where they have room to grow and mature without the need for constant pruning.
- Consider not overseeding for a winter lawn and save a lot of time and effort and help make Bermuda healthier.
- Ensure the irrigation system is installed and configured to optimize water use.
- Attend a water efficiency workshop on landscape care.



Scottsdale Xeriscape Garden at Chaparral Park

## Scottsdale Xeriscape Garden at Chaparral Park *Demonstrating the Beauty of Saving Water*

One of Scottsdale's hidden treasures, the Scottsdale Xeriscape Garden at Chaparral Park is a place to enjoy the natural beauty of the desert and learn how to bring this splendor to your yard.

Nestled on five and a half acres behind the dog park at Chaparral Park, this demonstration garden has over 7,000 plants that exemplify the beauty of the desert and require very little water.

Visit the garden at the southeast corner of McDonald Drive and Hayden Road.

[ScottsdaleAZ.gov/Water](http://ScottsdaleAZ.gov/Water)

480-312-5650

