

# Water Conservation

## What is Water Conservation?

Water conservation can be defined as practices, techniques, and technologies that improve the efficiency of water use. Increased efficiency expands the use of the water resource, freeing up water supplies for other uses, such as population growth, new industry, and environmental needs. Water conservation, very simply, is doing more with less, not doing without.

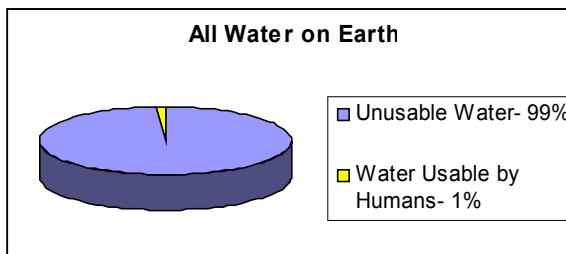


## Why Conserve Water?

Water is essential to all life on earth. We need water to grow food, to wash, to provide power, to control fires, and last but not least, we need it to survive. Water is constantly being recycled through the earth's water cycle, but people use up our planet's fresh water faster than it can naturally be replenished. Water conservation is an important tool in meeting long-term water supply needs while maintaining quality of life standards. Saving water is good for the earth, your family, and your community.

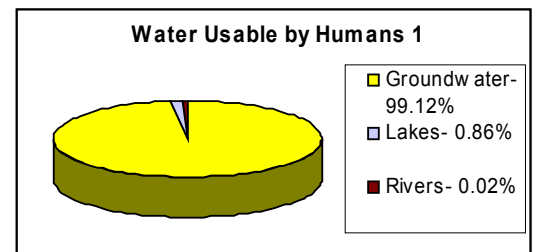
## Breaking Down the Water Supply

Water is the most abundant resource on the planet. About 1,460 trillion tons of water covers 71 percent of the earth's surface, but only a very small portion of that is suitable for consumption. The pie charts below give us a break down.



The pie chart to the left shows that 99 percent of all water on earth is not available for our use. It is made up of saltwater, ice, and atmospheric water.

Of the remaining 1 percent usable by humans, most of that is out of reach below ground.



**The majority of the water we use in everyday life comes from rivers, which is only .02% of the earth's fresh liquid water.**

To put that in perspective, imagine a bathtub filled with **58 gallons** of water.

- **56 gallons** of that bathwater is saltwater.
- About **10 pounds** (or just over one gallon) of ice is locked in polar ice caps and glaciers.
- About **one drop** of water is in the atmosphere as vapor, clouds and precipitation.
- For our drinking water sources:
  - Almost **one gallon** of water is below ground, three-fourths of which is polluted or otherwise unavailable to us.
  - About **four tablespoons** is in surface water in rivers and lakes.



Water on earth may be abundant, but **drinking water** is an extremely precious resource.

Protecting and conserving our water resources is imperative. You can protect our water by disposing of hazardous household waste properly, and always following the manufacturer's directions when applying or disposing of fertilizers or pesticides. Remember, anything disposed of or used outdoors will eventually reach our lakes and streams, contaminating our precious .02 % of usable, consumable water. You can conserve water by designing your landscaping to reduce irrigation demands, and by not wasting water at home, work, or school.



### Where Your Water Goes

Many Colorado residents use over 200 gallons of water per capita per day, but we can get by on far less. Our water use can be broken down into **outdoor** water use, such as watering your lawn, and **indoor** water use, such as showering, laundry, and toilet flushing.

### Outdoor Water Use

Outdoor water use accounts for about **half** of total residential water use in Arvada, most of which goes toward lawn irrigation. During the summer months, hundreds of thousands of gallons of water are wasted each day because of inefficient watering and/or poor landscaping. A little effort goes a long way in increasing the efficiency of outdoor

watering and reducing waste. You don't have to give up a beautiful yard to be water-conscious. The following is a list of simple tips to help you conserve:

- Water your lawn only when necessary and do not over water it. An easy way to check: walk across your lawn. If you look back and don't see any footprints, your lawn doesn't need any water.
- Adjust automatic timers at least once a month to correspond with suggested watering times and to adjust for precipitation. (See Watering Guidelines)
- Your lawn needs less water in the spring and fall. Adjust watering times accordingly.
- Irrigate your landscape at night when wind and evaporation losses are lowest.
- Never water between 10 am and 6 pm.
- Consider the **Cycle and Soak** watering method. Our soils contain a large amount of clay, making it tough for water to soak in. The Cycle and Soak technique is an efficient method for irrigating lawns. If you water your grass three times for four minutes each time, with an hour in between cycles, your lawn will actually **absorb more** water than if you let the sprinklers run for twelve minutes straight. Most automatic sprinkler systems can be set up for the Cycle and Soak method.
- Raise your mower so that it cuts to a 2½ to 3 inch height, and keep the mower blades sharp.
- Aerate your soil at least once a year. This will improve water penetration and help prevent runoff in the soils typical to our area.
- Don't allow water to spray on your street, driveway, or sidewalk. Position your sprinklers so water lands on your lawn and shrubs, not paved surfaces.
- Use a broom to clean leaves and other debris from these areas.
- Avoid over-fertilizing your lawn. The application of fertilizers increases the need for water.
- Mulch helps to retain moisture in the soil. Mulching also helps to control weeds that compete with plants for water.
- Consider adding a weather-based smart controller to your irrigation system, especially if you have a large lot. These systems use weather data and site information such as plant type and sprinkler system output to adjust watering times and frequency.
- If your lawn is doing well, try adjusting your watering time down by two minutes. Your lawn won't know the difference, and you'll save water and money.
- Most lawns do very well with a twice-a-week watering schedule, especially in the Spring and Fall.
- Redoing your yard? Consider Xeriscape, which uses low-water-use plants to create a landscape that's sustainable in Colorado's semi-arid climate. If designed properly, Xeriscape can be lush, colorful and easy to care for.





**Recommended Watering Guidelines** (per zone, based on three days per week)

<b>WATERING MONTHS</b>	<b>MINUTES TO WATER PER ZONE</b>		
	<b>Fixed Spray Heads</b>	<b>Rotor Heads</b>	<b>Manual Sprinklers</b>
<b>JAN – APRIL</b>	Water trees and shrubs only as needed		
<b>MAY</b>	<b>15</b>	<b>31</b>	<b>23</b>
<b>JUNE</b>	<b>17</b>	<b>38</b>	<b>26</b>
<b>JULY</b>	<b>19</b>	<b>42</b>	<b>29</b>
<b>AUGUST</b>	<b>15</b>	<b>33</b>	<b>24</b>
<b>SEPTEMBER</b>	<b>12</b>	<b>25</b>	<b>17</b>
<b>OCT – DEC</b>	Water trees and shrubs only as needed		

Please note that the above times are suggestions. Please adjust accordingly for weather conditions and precipitation.

**Conserve Water at the Car Wash**



Washing your car at home in the driveway, for only 10 minutes, wastes about 100 gallons of water. To top that off, the dirty water, soaps, detergents, oils, and sludge from your car seep directly into the environment via storm sewers, which are not intended for this type of use. Professional carwashes only use 8 to 45 gallons of water per car, depending on the type of carwash. The dirty water is either treated and reused or piped to wastewater treatment facilities; much better solutions for the environment. Unfortunately, nearly 40 percent of the motoring public washes their vehicles at home. If you're part of the 40 percent, follow these guidelines to help conserve water:

**Wash vehicles on grass, not on pavement.** Wash your vehicle over an unpaved area, such as an area covered with grass or gravel. Washing over an unpaved surface will allow the water to soak into the ground, be filtered, and eventually recharge the groundwater. If you have your own well, you should wash your vehicle at least 100 feet from the well head. Washing your vehicle on a paved surface allows the runoff to flow down the gutter and into a storm drain. The contaminated water then flows directly into the nearest lake or stream.

**Wash vehicles using a bucket with soapy water.** Soap and water usually work well. If you need a special cleaning product for vehicles, read the label carefully and be sure to use a non-toxic, biodegradable detergent. Do not use a product that says Poison, Harmful, or Danger. Be sure to turn the running water off while you are washing a vehicle. Keep in mind that non-toxic and biodegradable cleaners are still somewhat harmful to the environment and are illegal to discharge into the gutter and storm sewer system.

**Rinse vehicles with a hose equipped with an automatic shutoff nozzle.** A standard garden hose uses about 10 gallons per minute. When you use an automatic shutoff nozzle on your hose, water does not flow continuously while you wash your vehicle, saving as much as 70 gallons per wash. Using a power washer can conserve even more water; power washers use, on average, about 2 to 5 gallons per minute, with a potential savings of up to 80 gallons over using a standard hose without an automatic shutoff nozzle.

## Indoor Water Use

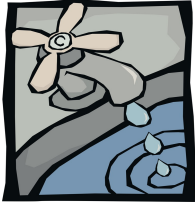
The largest indoor water use in most homes is toilet flushing. Showers and baths consume the next largest volume of water, and household laundry is the third largest consumer in most homes. To conserve water indoors, the following tips are suggested:

### In the bathroom:

- Replace your old toilet. Toilets made before 1993 use 3.5 to 8 gallons per flush (gpf). High efficiency toilets manufactured after 1993 use 1.6 gpf or less. (The date of manufacture of most toilets is on the underside of the tank lid.) A family of four can save up to 25,000 gal/yr by switching from conventional toilets to the newer, more efficient ones.
- Consider purchasing a **dual flush conversion kit** for your toilet. For about \$30 you can easily install one of these kits on your existing toilet, which allows you to choose a light flush or a full flush. These kits have shown a household water savings of nearly 12,000 gallons of water a year.
- Fix leaky toilets. To check your toilet for leaks, place a couple of drops of food coloring in the tank. After a few minutes, if you see color in the bowl then you have a leak, possibly caused by a faulty stopper.



- Fill a small plastic bottle (for example, a one-liter soda container) with water and put it in the corner of the toilet tank to displace water so that less water is used with each flush. Do not use a brick that might disintegrate and cause problems.



- Repair dripping faucets by replacing washers. A faucet dripping at a rate of one drop per second can waste 2,700 gallons of water per year.
- Retrofit all wasteful household faucets by installing aerators with flow restrictors.
- Use the trash can to dispose of trash instead of the toilet.
- Shorten the length of your showers. A five minute shower can use between 15 and 40 gallons of water. A full bath can use even more water. In the shower, consider turning off the water after getting wet; turning on after lathering up; and back off again after rinsing. Repeat when rinsing your hair.
- Consider installing low-flow shower heads in your bathrooms. It will save water and reduce your energy bill as well.
- Turn off the faucet when you are not using the water. Don't leave the water running when brushing your teeth, washing and shaving.

#### **In the kitchen:**

- When cooking most foods, use less water and put a lid on the pot. Plug the drain or use a pan of water when washing vegetables or dishes by hand. Wash dishes in a basin of soapy water, then quickly rinse under a slow-moving stream from the faucet.
- Do not use running water to thaw frozen foods. Instead, defrost food overnight in the refrigerator or before preparation in the microwave.



- Do not hand-wash your dishes. A dishwasher uses only half the energy and one-sixth of the water that hand washing does. It also uses less soap.
- Do not rinse dishes before washing. Just remove large particles of food into the trash then put the dishes in the dishwasher.
- Kitchen sink disposals require lots of water to operate properly. Compost the food waste instead, or simply dispose of food in the garbage.
- Reuse clean household water. Collect water wasted while waiting for hot water to reach the faucet or shower head. Use this water for your household plants or outdoor planters. Do the same with water that is used to boil eggs or steam vegetables.
- Instead of running the faucet to get cold water, fill a pitcher with water and place it in the refrigerator.
- Operate dishwashers only when full.

#### **In the laundry room:**

- When doing laundry, save up and do a full load, or use the water level control on your washing machine if you do wash a smaller load.
- When your washing machine does give out, consider replacing it with an energy-efficient front-loading machine. These machines use about half the water of conventional washing machines and require less detergent per load, reducing the potential amount of chemicals entering the wastewater system.
- Don't do more laundry than you need to. If it's not dirty, don't wash it.



By following these easy tips, you will not only be saving money on your water bill, you will be doing your part to help the environment. You are saving water for fish and animals, easing the burden on wastewater treatment plants, and helping to preserve drinking water supplies for your family and for future generations.