

# Water Conservation In and Around the Home

Fact Sheet No. 9.952

Consumer Series | Housing

by R. Waskom and M. Neibauer\*

Colorado's semi-arid climate is punctuated with multi-year droughts, reminding us of the value of plentiful water supplies. Fortunately, most of our water supply is renewed annually as snowpack in the Rockies. Water supply planners estimate that a typical household needs 0.4 to 0.5 acre-feet of water per year (approximately 150,000 gal) to satisfy the typical demands of a home and lawn. However, we can get by on far less.

Outdoor water use accounts for about 55 percent of the residential water use in urban areas along the Front Range, most of which is used on turf. As a percentage of total water use in the urban Front Range, outdoor water accounts for about 40 percent of all urban water use. Many Colorado residents use over 200 gallons of water per capita per day. In contrast, residents in Arizona use 160 gallons per capita per day (20 percent less than most Colorado residents). Water conservation is vital to enhancing the efficiency of how we use water. This fact sheet describes ways to reduce water consumption in and around your home.

## Water Conservation in the Home

Home water use varies considerably, depending upon the number of people in a household, plumbing fixtures, appliances, and other factors. The largest water users in the home are toilets, clothes washers, faucets, and showers.

### Bathroom Water Efficiency

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 14,000 to 25,000 gal/yr by switching from conventional toilets to the newer, more

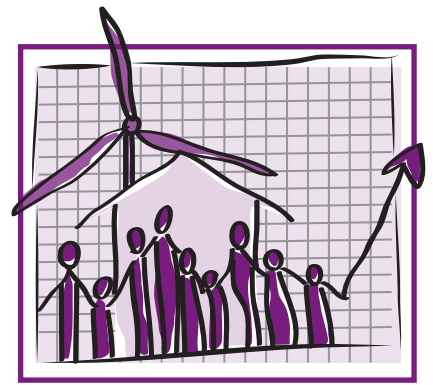
efficient ones. Your water utility may even offer rebates for replacing conventional toilets. Additional water savings can occur by making sure your toilet is not leaking and that the flapper is working properly. Here are other suggestions for increasing your toilet-use efficiency.

- Install vacuum assisted, low-volume toilets.
- Consider not flushing the toilet unless absolutely necessary.
- Regularly check for toilet leaks by placing food coloring in your toilet tank. Repairing leaking toilets can save more than 600 gallons of water per month.
- Do not use your toilet as a wastebasket.
- Make sure your toilet flapper does not remain open after flushing.
- Avoid using toilet bowl cleaners such as toilet tank tablets. These products affect the pH of water in your toilet tank and can cause leaks by damaging the rubber and plastic parts of your toilet.

### Showering Efficiency

Showerheads currently manufactured in the U.S. have a flow-rate of 2.5 gallons per minute (gpm) or less. Here are some suggestions for increasing shower-use efficiency.

- Install a low-flow showerhead if you do not already have one.
- Keep your showers brief. A shower that lasts for five minutes using a low-flow showerhead uses 12 gallons of water. If possible, use a watch to time yourself while you are in the shower.
- Turn off the water while you lather up with soap and shampoo.
- Irrigate your indoor plants by placing a bucket in the shower to collect the water while waiting for it to warm up.
- Check the flow rate of your showerhead by using a 5-gallon bucket and a clock. Turn the shower on full and place a 5-gallon bucket under the shower for two minutes. A 2.5 gpm showerhead will fill

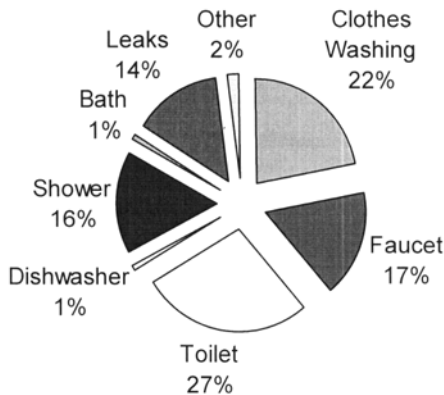


## Quick Facts

- Water supply planners estimate that a typical household needs 0.4 -0.5 acre feet of water per year (approximately 150,000 gal) to satisfy the demands of a home and landscape.
- The installation of low-flow plumbing fixtures can save up to 30 percent of indoor water use.
- Outdoor water use accounts for about 55 percent of the residential water use in the Front Range urban area, most of which is used on turf.
- During drought or times of restricted landscape watering, most lawns, including bluegrass, will withstand reduced watering regimes by going dormant.

\*R. Waskom, Colorado State University Director, Colorado Water Institute. 6/2010.





**Figure 1:** Average household water use.

the bucket up in that two-minute time frame.

- Check and repair leaks in the tub diverter valve.

### Faucet Efficiency

- Install low-flow faucet aerators on all your household faucets. Some aerators can restrict flow to less than 1.0 gpm.
- Do not run the faucet continuously while washing dishes and hands, shaving, or brushing your teeth.
- Checking and repairing faucet leaks can save up to 140 gallons of water per week.

### Estimated Facet Leakage Rates (# of drips)

60 drops/minute = 192 gallons/month

90 drops/minute = 210 gallons/month

120 drops/minute = 429 gallons/month

### Clothes Washing Efficiency

Conventional washing machines use between 35 to 50 gallons per load (gpl). The newer front-loading machines are more efficient and use between 18 to 20 gpl. Below are suggestions for reducing water use while clothes washing.

- Run the washing machine only when you have a full load of clothes.
- For lightly soiled laundry loads, use the shortest wash cycle.
- To avoid redundant washing, pre-treat stains on your clothes.
- Select the minimum water volume per load if your washer has a variable water volume setting.
- Regularly check washing machine hoses for leaks.

### Dishwasher Efficiency

- Install a high efficiency dishwasher machine.
- Running the dishwasher only when it's full can save 1,000 gallons of water per month.
- Running a full dishwasher usually uses less water than washing the same number of dishes by hand.
- Because the drying cycle of most dishwashing machines uses 1,500 watts per cycle, air or hand drying the dishes is more efficient and less expensive.

## Water Conservation Around the Home

### Improving Lawn Irrigation Efficiency

Urban lawn watering is the single largest water demand on most municipal supplies. However, there are many ways to conserve water on the home landscape.

First, create an irrigation schedule relative to the types of plants in your landscape. Second, learn the water requirements of your landscape plants and water accordingly, avoiding over-watering as much as possible. Over-watering is not only wasteful, it is also unhealthy for plants. Third, make a habit of manually operating your irrigation system and rely less on the automatic controller. Fourth, do not irrigate on a set schedule, since daily plant water use can vary greatly according to the weather. Finally, take into account recent rainfall amounts before watering your landscape.

During drought or times of restricted landscape watering, most lawns, including bluegrass, will withstand reduced watering regimes by going dormant. In these situations, adjust mowing, fertilizing, aeration, and weed control practices appropriately to the watering schedule. Most lawns can be revived with good management and care after the drought breaks. Changing landscape plants and lawn grass species during drought is not a good idea, as it generally takes more water to establish new plants than to keep old plants alive.

Keep in mind the variety of water needs among various landscape plants. For example, certain types of lawns may need water every three or four days during a hot, dry summer. However, trees and shrubs may only need water every few weeks, while flowerbeds may need to be watered once

a week. Trees, shrubs, and flowers may rot if you water them on the same watering schedule as your lawn.

### Additional Ways to Conserve Water for Landscaping

- Make sure the irrigation system is operating properly.
- Replace broken or missing sprinkler heads.
- Make sure the spray heads turn properly.
- Adjust heads so that water does not reach streets and driveways.
- Check nozzles for plugging.
- Renozzle/spray heads with MP Rotators.
- Place straight-sided containers (such as tuna fish cans) around the yard during irrigation and measure water depth so that you know how long it takes to apply  $\frac{1}{4}$  to  $\frac{1}{2}$  inch of water.

### Additional ways to conserve water in the home:

- Check your water meter and bill and talk to family members about setting water conservation goals for indoor water use.
- Use the garbage disposal less often. Compost organic matter from your kitchen.
- Collect the water you use for rinsing fruits and vegetables and reuse it to water houseplants and/or shrubs.
- When buying a new appliance, remember that certain models offer different cycles that are more water and energy-efficient.
- If you have an evaporative air conditioner, direct the water drain to a flower bed, tree, or your lawn.
- Collect warm up water in a bucket for watering indoor plants.
- If your local water utility offers incentives or in-home water audits, take advantage of these programs.
- Keep drinking water in the refrigerator during the summer instead of letting the faucet run until water is cool.

- Place containers on persistent dry spots to determine if poor sprinkler coverage is the problem.
- Never water if the soil is still wet.

### Managing the Water Needs of Plants

- Reset automatic controllers according to the seasonal needs of plants. Inspect controls at least once a month to adjust run times.
- Winter watering will minimize stress to trees, shrubs, flowers, and turf in areas receiving low winter precipitation. Apply water once a month during dry winter periods.
- Drip irrigation installed at the base of large transplanted trees will need to be moved as the tree root system expands. At maturity, tree roots spread outward two to three times the width of the tree canopy.
- Shaded plants use less water than plants in full sun.

### Guidelines for when to water:

- Irrigate when footprints or mower tracks become visible and/or large areas of the lawn become blue-gray in color.
- Slowly apply irrigation water at rates that replace evaporation (ET) so runoff and puddling do not occur. Water less in cool spring and fall weather and more (3/4 to 1 inch) during hot summer months.
- Move your sprinkler around the yard in cycles to let the water thoroughly and evenly soak in.
- Water dry spots instead of the entire lawn.
- Water between 9 p.m. and 9 a.m. to avoid evaporation losses from hot and windy weather conditions.

### Mulching for Water Conservation

Mulching reduces evaporation from the soil surface and reduces irrigation needs by approximately 50 percent. The following is a list of suggestions for using mulch in the home garden.

- Use an organic mulch to a depth of approximately 4 inches, depending upon the particle size of the mulching material.
- Grass clippings can be used as mulch in the vegetable garden. Do not use clippings from lawns treated with herbicides or other pesticides in the past month.
- For general landscape applications, use spun or woven permeable landscape fabrics rather than solid sheet plastics.
- Black or dark-colored plastic mulch conserves moisture and increases soil temperature in vegetable gardens.

### Conserving Water in the Vegetable Garden

- Plant in blocks instead of rows to create shade for the root systems and reduce evaporation.
- Group plants with similar water needs together.
- Check the soil for moisture before you water and do not water until the soil has dried out to a depth of at least 4 inches.
- Control weeds that compete with vegetables for water.
- Changing water use habits is easy, saves you money, and offers a way for your family to work together on conservation. For more ideas on water conservation, check your local water utility website or ask your local Colorado State University Extension office.

### Additional ways to conserve water around the home:

- Check your water meter and bill so you can set conservation goals for your family's outdoor water use.
- Have a family discussion on ways you can work together to reduce outdoor water consumption.
- Collect the water you use for rinsing fruits and vegetables and reuse it to water houseplants and/or shrubs.
- Use a broom instead of a hose to sweep your driveway and you can save between 50 and 80 gallons of water.
- Use porous materials for patios and walkways to reduce runoff.
- Accept having a dirty car and a brown lawn during drought.
- If you must wash your car, use a car wash that recycles water instead of washing your car in the driveway. If that is not possible, wash your car on the lawn so you can simultaneously water your grass.
- Set a kitchen timer when watering your lawn or garden, to keep track of the time.
- Direct downspouts or gutters toward shrubs or trees.

See Table 1,  
page 4.

**Table 1. Water used in normal home activities.**

Area	Activity	# of times	Circumstances	Water Used Total	
<b>BATHROOM</b>	Toilet	4 flushes/day	Conventional toilet	3.5 - 7.0 gal/flush	14-28 gal/day
			ULV toilet	1.6 gal/flush	6 gal/day
	Shower	5 min. once/day	Conventional showerhead	3-8 gal/minute	14-40 gal/day
			Low-flow showerhead	2.5 gal/minute	12 gal/day
	Bath	once/day	Full tub	30-45 gal	30-45 gal/day
			Tub ¼ to ⅓ full	9-12 gal	9-12 gal/day
	Shaving	once/day	Open tap	5-10 gal	5-10 gal/day
			One full basin of water	1 gal	1 gal/day
	Brushing teeth	twice/day	Open tap	2-5 gal	4-10 gal/day
			Brush and then rinse	¼ to ½ gal	½ to 1 gal/day
<b>KITCHEN</b>	Hand washing	4 times/day	Open tap	2 gal	4 gal/day
			Soap and then rinse	½ gal	1 gal/day
	Cooking	Washing produce once/day	Open tap	5-10 gal	5-10 gal/day
			One full kitchen basin	1-2 gal	1-2 gal/day
	Dishwasher	once/day full load	Standard cycle	10-15 gal	10-15 gal/day
			Short cycle	8-13 gal	8-13 gal/day
	Dishwashing by hand	once/day	Open tap	30 gal	30 gal/day
Full basin/wash and rinse			5 gal	5 gal/day	
Laundry	once every 3 days	Conventional top-loader	35-50 gal	70-100 gal/week	
		Front-loader	18-20 gal	36-40 gal/week	
<b>MISC.</b>	Car washing	twice/month	Hose w/shut-off nozzle	50 gal/wash	100 gal/month
			5 full, 2 gal. buckets	10 gal/wash	20 gal/month
<b>LAWNCARE</b>	Kentucky bluegrass	½" every third day	5000 sq. ft.	1,500 gal/watering	18,500 gal/month
	Turf-type tall fescue	½" twice/week	5000 sq. ft.	1,500 gal/watering	12,500 gal/month
	Buffalograss	½" every 2 weeks	5000 sq. ft.	1,500 gal/watering	3,000 gal/month

Source: Denver Water, 2003