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## WATER HOME

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## Water conservation

Our water experts can help you with a variety of products, services and advice for managing your water consumption wisely and efficiently. Here are some ways to save water and lower your water bills.

[Know your water budget](#)

Calculate the average water usage for your home or multi-unit housing facility, and your outdoor landscape.

[Green Grass Gauge](#)

Learn how to use a Green Grass Gauge in combination with our weekly watering recommendation to maintain a healthy garden and conserve water.

[Finding and fixing leaks](#)

A leaky toilet can use 200 gallons of water a day. Learn how to test for, and fix, leaky faucets, toilets and irrigation systems.

[Meter access](#)

Make sure your water meter is accessible.

[Sprinkler timer rebate](#)

Take advantage of EWEB's water savings rebate to install certain outdoor watering timers.

[Tips for saving water](#)

Get ideas for saving water inside and outside at both home and work.

[Water-Efficient Plants for the Willamette Valley](#)

Discover trees, shrubs, bulbs, perennials, ground covers and ornamental grasses that are suited to the Mediterranean-type climate of Western Oregon in an online guide produced by Clackamas Community College.

[Water dispensing station](#)

Learn how to use EWEB's water dispensing station.

[Prevent frozen pipes](#)

Avoid costly repairs during the winter by taking steps to protect your water pipes from freezing.

[Call EWEB's Water Experts](#)

If you have any additional questions about managing your water consumption, please call EWEB's Water Management Services Department at (541) 685-7000 or [email EWEB Water Management Services](#).



# Know your water budget



## INDOOR WATER BUDGET

The typical household in Eugene uses just under 3,000 gallons (kgals) per person each month.

### For example:

Family of 2 – 5 to 6 kgal/month

Family of 4 – 8 – 12 kgal/month

### Calculate your indoor water budget:

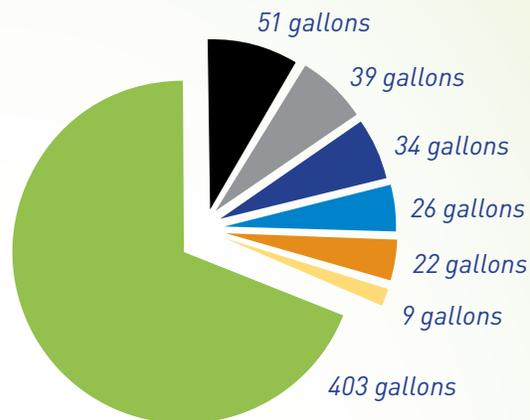
$$\underline{\hspace{2cm}} \times 3 \text{ kgals} = \underline{\hspace{2cm}}$$

number of people in household                      indoor water budget

*If your bill indicates higher usage you may have a hidden leak.*

### Average Residential Water Use

(gallons per day)



- Toilet - **51 gallons**
- Clothes Washer - **39 gallons**
- Shower - **34 gallons**
- Faucet - **26 gallons**
- Leaks - **22 gallons**
- Other Indoor Uses - **9 gallons**
- Yard Watering - **403 gallons**

## OUTDOOR WATER BUDGET

Yard watering is the highest water use in the home. How much water is enough? Since 1996 EWEB has tracked weather in Eugene. In the hottest month of summer the average lawn needs about 4,000 gallons (or 4 kgals) per 1,000 square feet of lawn. *Shrubs will need half this amount.*



### Calculate your July/August water budget:

$$\underline{\hspace{2cm}} \times 4 \text{ kgals} = \underline{\hspace{2cm}}$$

1,000 square feet of lawn                      water budget lawn

$$\underline{\hspace{2cm}} \times 2 \text{ kgals} = \underline{\hspace{2cm}}$$

1,000 square feet of shrubs                      water budget shrubs

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

water budget lawn                      water budget shrubs                      **total water budget**

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For more information, visit [www.eweb.org](http://www.eweb.org) or call EWEB Water Management Services at 541-685-7000

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**Facilities Managers: It Pays To Know Your Water Budget.**

Facility Address:

<b>Estimated Water Budget Worksheet</b>		Total Gallons
# Residents	X 2,400 gallons per month if older toilet in unit (includes laundry use)	
# Residents	X 1,900 gallons per month if 1.6 gallon per flush toilet (w/ laundry)	
# 1000 ft <sup>2</sup> of lawn or annual bed	X 4,000 gallons Estimate of water needed in July and August only, somewhat less in May, June and September	
# 1000 ft <sup>2</sup> of shrubs or perennials	X 2000 gallons Estimate of water needed in July and August only, somewhat less in May, June and September	
If common laundry facilities use resource efficient washers subtract 197 gallons per month per resident.		
<b>Other Water Uses</b>		
Estimated monthly gallons for pool or spa fill/refill:		
Estimated monthly gallons for ice machine, cooler or other water-cooled compressors on site:		
Estimated monthly gallons for water feature fill/refill:		
Estimated monthly gallons for walkway wash down:		
Other water use:		
Other water use:		
Total water budget:		

All use numbers are averages for the purpose of estimating. Actual use may vary.

**For further assistance developing a water budget contact EWEB Water Management Services at 984-4747.**



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## How to use the Green Grass Gauge

The best way to determine your sprinkler system output is to use a Green Grass Gauge. You may also use a tuna can and a ruler to conduct the following test:

- Place the Green Grass Gauge in an area of the lawn where it receives a typical amount of water.
- Move the gauge around the lawn area between each watering cycle to help identify dry spots.
- Do not place it under trees, shrubs, or other plantings.
- If you want to water twice a week, use the two-day a week watering recommendation. If you want to water three times a week, use the three-day a week watering recommendation.
- Run the sprinklers until the Green Grass Gauge is filled to the watering recommendation. Emptying the gauge between each watering cycle will help you to know if you are watering the recommended amount each time the sprinklers run.

### Water budget sprinkler timers

Water budget sprinkler timers can help you to easily follow this watering recommendation throughout the season. Learn more about:

- [How to use the Green Grass Gauge with your water budget sprinkler timer](#)
- [EWEB's 2010 rebate for water budget sprinkler timers](#)
- [EWEB's 2011 rebate for water budget sprinkler timers](#)

### Subscribe to our weekly email

Enter your email address to receive an email each week with EWEB's recommendations for watering your lawn.



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## Where to get your Green Grass Gauge

Get your own free Green Grass Gauge at convenient locations throughout Eugene and Springfield.

Down to Earth	532 Olive Street, Eugene 2498 Willamette Street, Eugene
Eugene True Value Hardware	2825 Willamette Street, Eugene
EWEB's Administrative Headquarters	500 East Fourth Avenue, Eugene
Gray's Garden Centers	777 West Sixth Avenue, Eugene 4441 Main Street, Springfield
Home Depot	1045 Green Acres Road, Eugene 808 Seneca Road, Eugene
Jerry's Home Improvement Centers	2600 Highway 99N, Eugene 2525 Olympic Street, Springfield
Lowe's Home Improvement Center	3595 West 11th Avenue, Eugene
KEZI (Local TV Station)	2975 Chad Drive, Eugene
KMTR (Local TV Station)	3825 International Court, Springfield
KVAL (Local TV Station)	4575 Blanton Road, Eugene



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## Finding and fixing leaks

A leaky toilet can increase your water usage by 200 gallons a day and a dripping faucet can send 168 gallons of water down the drain every month. Leaks can run up your water bill and increase your City of Eugene wastewater charges.

Usually, a leaky faucet, showerhead or toilet is easy to fix. Leaking faucets usually are caused by worn washers, while toilet leaks often can be traced to the flush or fill valves.

The Eugene Water & Electric Board offers homeowners advice on finding and fixing the following common plumbing problems:

## Toilets

Check all of your toilets for leaks. Sometimes a toilet can leak without making any sound or movement of water in the bowl.

- Drop two dye tablets or one teaspoon of food coloring in the tank of each toilet.
- Do not flush the toilet. Wait for 15 minutes.
- If color appears in the bowl after 15 minutes, there is a leak in the toilet that you should fix. Contact Water Management Services at (541) 685-7000 to obtain home toilet repair information or visit [flapper replacement](#) and [valve replacement](#).
- If you find a leak at your toilet, you should turn the valve off under the toilet while you continue checking your system.

## Faucets

Repair any outside or inside water faucet leaks. This type of water usage can add up over time. Repair information for these fixtures and more water savings tips can be found at:

## Sinks

[Washer-type faucet](#)  
[Washerless faucet](#)

## Showers

[Washer-type faucet](#)  
[Ball-type faucet](#)

## Water service line

The water service line between the water meter and the house may also leak. Once the toilets have been eliminated for leaks, do a meter test.

## Meter test

- Locate the water meter, which is usually located near the street.
- Write down the numerical reading. If the meter cannot be read because there is too much water, call EWEB's Water Operations at (541) 685-7000.
- Wait 1.5 hours without using water (flushing toilets, running the dishwasher, doing laundry) and re-read the meter.
- If the numbers have changed, water has passed through the meter indicating there is a leak.

## Irrigation systems (underground sprinklers)

- Turn the irrigation valve off. Do a meter test (see above). If the meter moves during this time, the leak is in the household plumbing. If the meter does not move, do a meter test with the irrigation valve on.
- Turn the irrigation valve on. Do another meter test. If the meter moves, the leak is in your irrigation and needs to be fixed.
- Learn how to [calculate your water budget](#).

After you have completed all of the leak checks and found that the leak is not in the toilets, faucets or irrigation, call EWEB's Water Operations at (541) 685-7000 for further assistance with locating the leak. If a leak is detected between the water meter and the premises, it is your responsibility to make the necessary repairs.



Please direct any questions regarding wastewater and storm water to the City of Eugene's Wastewater and Storm Water Departments at (541) 682-4900.

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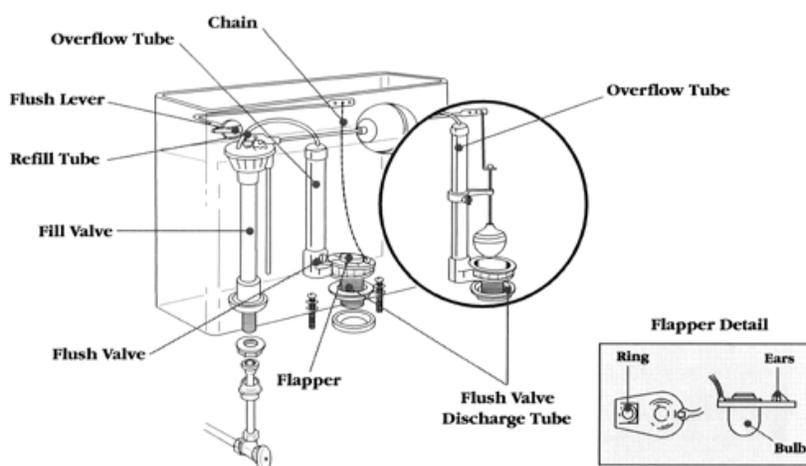
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## How to replace your toilet flapper

Find out whether your leak is in the flapper or fill valve. To do this turn off your water supply valve, then put one teaspoon of food coloring or a dye tab into your toilet tank. Wait about 15 minutes. If you have color in the toilet bowl, you have a flapper valve leak. If color did not appear in the bowl you have a [fill valve leak](#). Sometimes both valves leak.



### Step-by-step

1. Turn off water supply valve and flush toilet to empty tank. Sponge out excess water, then remove refill tube from overflow tube.
2. Remove chain from flush lever. Remove old flapper by sliding it up and off the overflow tube. For new plastic flush valves you may bend flapper ears out and off pins on the flush valve.
3. Install new flapper by sliding it down over overflow tube until ring touches bottom of tank and then adjusting flapper bulb so that it centers on the valve opening. For plastic valves cut ring off flapper along lines marked "cut" and slip ears of flapper over pins on flush valves.
4. Reattach chain to flush lever, adjusting length as necessary.
5. Turn water supply valve on. Fill tank and check that the flapper works properly.

For a more complete toilet repair guide, see your local plumbing store or home improvement center.

### Questions?

Contact EWEB's Water Management Services Department at (541) 685-7000 or [e-mail EWEB Water Management Services](#) for more information.

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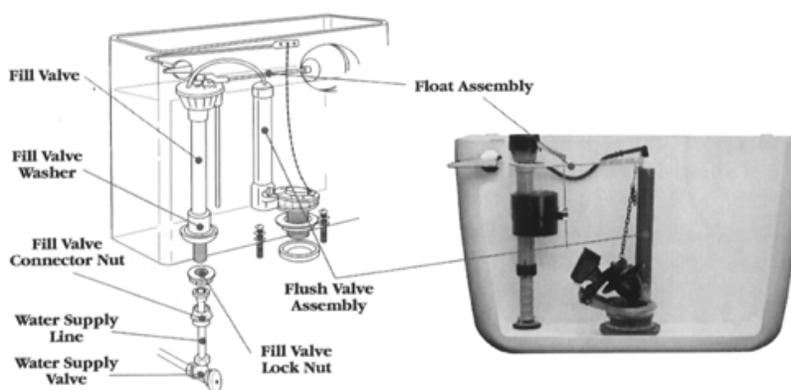
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## How to replace the toilet fill valve

Find out whether your leak is in the flapper or fill valve. To do this turn off your water supply valve, then put one teaspoon of food coloring or a dye tab into your toilet tank. Wait about 15 minutes. If you have color in the toilet bowl, you have a [flapper leak](#). If color did not appear in the bowl you have a fill valve leak. Sometimes both valves leak.



## Step-by-step

1. Turn off water supply valve and flush toilet to empty tank. Sponge out excess water, then remove refill tube from flush valve assembly.
2. Unscrew fill valve connector nut and fill valve lock nut. Lift entire fill valve and float assembly from tank.
3. Clean tank bottom where fill valve washer seats to be sure of a good seal.
4. Insert new fill valve and tighten lock nut. Make sure float assembly faces the right direction.
5. Attach water supply line with connector nut. Screw float assembly into place and reattach refill tube.
6. Turn water supply valve on. Fill tank and check for leaks. Tighten fill valve lock nut if necessary.

## Tools you'll need

- 10" adjustable wrench

For a more complete toilet repair guide, see your local plumbing store or home improvement center.

## Questions?

Contact EWEB's Water Management Services Department at (541) 685-7000 or [e-mail EWEB Water Management Services](#) for more information.



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## How to repair your washer-type faucet

### Step-by-step

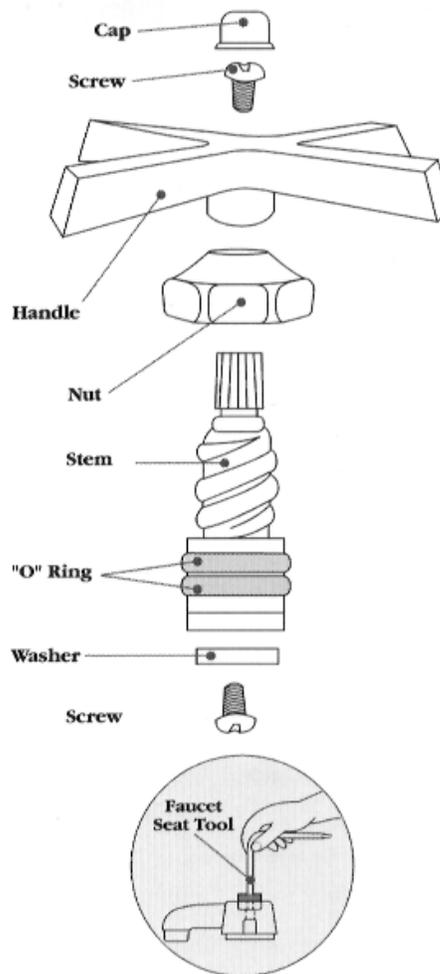
First shut off the water supply to the faucet you are repairing. The faucet shut-off is located under the sink. Remove the cap on the faucet handle. Remove exposed screw by turning counter clockwise (brass screws are soft so be careful not to strip the slots), then pull handle off. Use an adjustable wrench or end wrench to remove nut (put a cloth between the wrench and nut to prevent scratching.) Loosen stem with pliers, then remove by hand.

Replace the rubber washer which pushes against the brass seat inside the faucet to stop the flow of water. If you are replacing faucet washers often (every few months), you may need to replace the valve seat. The brass seat can be removed with a valve seat tool.

### Tools you'll need

- Screwdriver
- Adjustable wrench
- Pliers
- Faucet seat tool

For a more complete faucet repair guide, see your local plumbing store or home improvement center.





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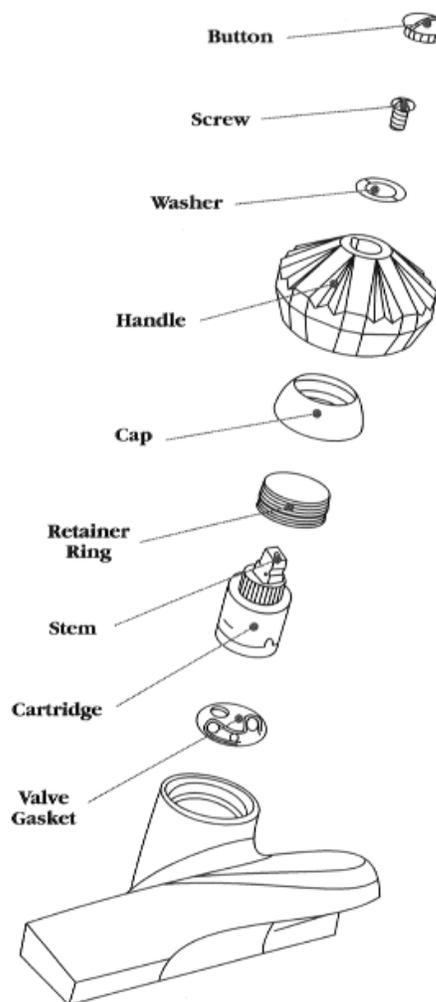
## How to repair your washerless-type faucet

### Step-by-step

1. First shut off the water supply to the faucet you are repairing. The faucet shut-off is located under the sink.
2. Remove the decorative button and loosen exposed screw by turning counter clockwise, then pull handle off.
3. Cover the dome-shaped cap with tape to protect the finish and unscrew counter clockwise.
4. Using pliers, unscrew the retainer ring.
5. Carefully remove cartridge by pulling straight on the stem with pliers.
6. Replace valve gasket and reassemble by reversing steps.

### Tools you'll need

- Screwdriver
- Masking tape
- Adjustable pliers



For a more complete faucet repair guide, see your local plumbing store or home improvement center.





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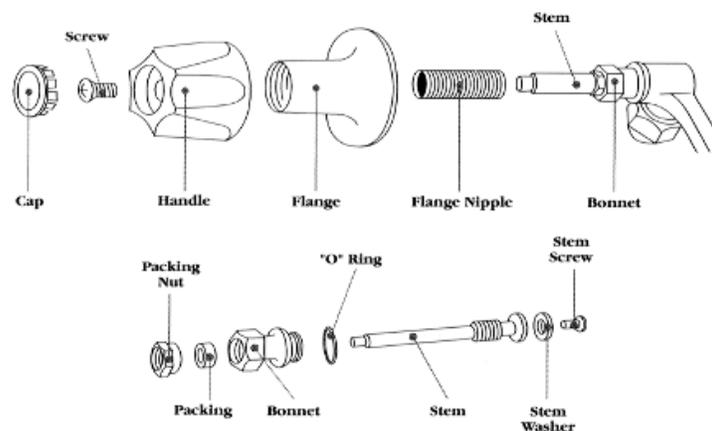
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## How to repair your washer-type faucet

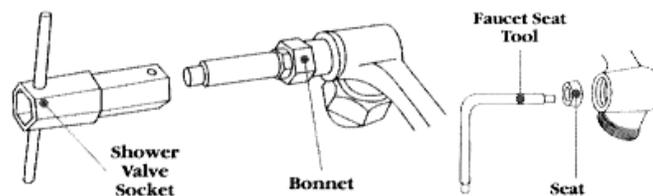


## Step-by-step

1. Turn off water supply. Next, drain lines by turning on faucet handles.
2. Remove cap and then remove screws holding handles to stems and pry handle off (you may need to use a faucet puller if handle is corroded.)
3. Wrap tape around flange and, using pliers, turn counter clockwise to remove. Remove the flange nipple in the same manner.
4. After removing flange and nipple, stem and bonnet can be removed by using shower socket.
5. Remove packing nut from bonnet. Remove packing from inside the bonnet and replace.
6. Replace stem washer at the bottom of the stem.
7. Use a faucet seat tool to remove and replace faucet seat. Reassemble the valve and turn water on.

## Tools you'll need

- Screwdriver
- Faucet puller
- Masking tape
- Pliers
- Shower socket
- Faucet seat tool



For a more complete faucet repair guide, see your local plumbing store or home improvement center.

## Questions?

Contact EWEB's Water Management Services Department at (541) 685-7000 or [e-mail EWEB Water Management Services](#) for more information.



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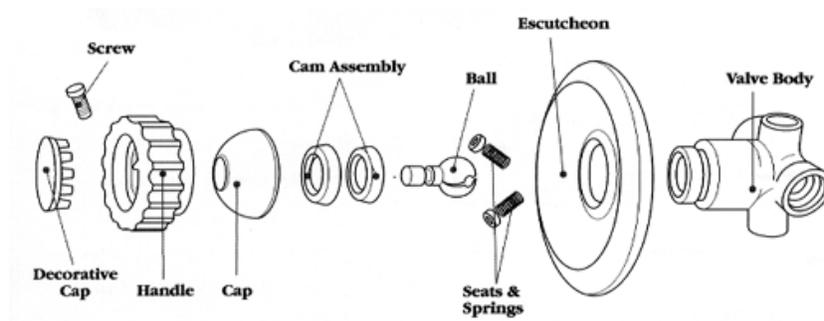
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## How to repair your ball-type faucet



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### Step-by-step

1. Turn off water supply. Drain lines by turning on faucet handle.
2. For lever-style handles, locate and loosen screw holding handle, then carefully pry handle off stem or use a faucet handle puller. For round-style handles, remove the decorative cap to locate screw.
3. Cover the cap with tape to protect the finish. Using pliers, unscrew counter-clockwise.
4. Lift out cam assembly and ball.
5. Using a pencil or sharp tool, lift out seats and springs.
6. Check all parts for wear and damage. Replace where necessary.
7. When reassembling, be sure that slot in ball slips into pin in valve body and that lug on cam assembly slides into slot on valve body.
8. Screw cap on clockwise and replace handle. Tighten cap further if leaks develop right after repair.

### Tools you'll need

- Screwdriver
- Pliers
- Pencil or sharp tool

For a more complete faucet repair guide, see your local plumbing store or home improvement center.

### Questions?

Contact EWEB's Water Management Services Department at (541) 685-7000 or [e-mail EWEB Water Management Services](#) for more information.

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## WATER RATES

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## Prevent frozen pipes

Don't be caught by surprise when sub-freezing temperatures strike the Willamette Valley. A lengthy cold snap of temperatures in the teens or 20s can cause pipes to freeze and burst.

## Prevent costly repairs by following these tips:

- Insulate all pipes located in unheated areas, such as the garage and garden areas. Inexpensive foam insulation is available at most home-improvement centers.
- Disconnect outside hoses, wrap faucets and cover them with plastic or faucet covers.
- Cover crawl space vents when temperatures dip to 20 or below. Remember to uncover vents when the weather warms up.
- At 20 degrees or less, turn on a small but steady stream of cold water at the inside faucet farthest from the water meter.
- If your pipes freeze and you know where the frozen spot is, wrap the pipe with warm towels, or call EWEB with more tips.
- Never use a flame or hair dryer to thaw frozen pipes.
- If your pipes break, shut off your water using the hand valve. If you cannot get the water turned off, call EWEB's emergency line at (541) 685-7000.

## Get your sprinkler system ready for winter:

- Turn off the system's main valve, usually located near the water meter.
- Drain and wrap the backflow preventer to avoid freeze damage to the device and any above-ground piping. Leave the ball valves half-open to permit expansion within the valve.
- Open the drain valves. One usually is located near the backflow preventer; others are at low areas in your system. Close the drains after water is discharged to prevent infiltration by rainwater.
- Open the zone valves manually or run the controller at least five minutes per zone to vent the pipes.
- If your backflow prevention device is in a plastic valve box underground, spray the inside of the lid with spray foam insulation to protect it from freezing temperatures.

See [EWEB's brochure on preventing frozen and broken pipes](#)


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Meter access

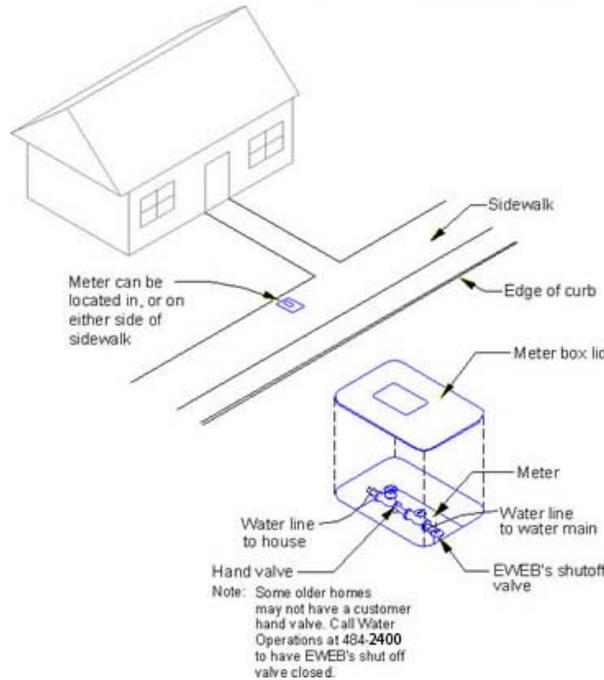
You are responsible for making sure your water meter is accessible. When access to one of EWEB's water meters is impaired by a tree, shrub, fence or other obstruction, we will contact you to request that you remove the object. Otherwise, EWEB will charge you to remove any objects preventing access.

In case of emergency you may need to shut off the water supply for your entire house quickly. Use the hand valve on the house side of the meter to shut off the water supply – do not use the EWEB valve (see diagram below). EWEB recommends installing a hand valve if one does not already exist on your meter. EWEB will shut off your water meter at no charge during business hours to enable you to install a hand valve. If need an emergency shut off and cannot find the hand valve, call EWEB's Water Emergency line at (541) 685-7000.

It is important to know where your meter is located before an emergency occurs. Call EWEB for assistance if you are unable to find your water meter.



Your water meter should be located in front of your house near the street.  
If your house is located on a corner lot, your water meter could be either on the front or side street location.





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## Sprinkler timer rebates

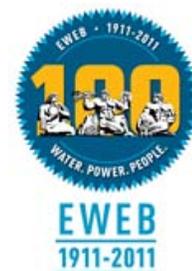
A watering system that shuts itself off automatically is convenient and efficient, whether you water with an underground sprinkler system, a drip-irrigation system or a hose-end sprinkler. EWEB customers can get cash rebates for certain types of timers.

To request a rebate, download the appropriate Timer Rebate Application below:

- [Timers purchased in 2010](#)
- [Timers purchased in 2011](#)

### Ask EWEB's Water Experts

If you have any additional questions about managing your water consumption, please call EWEB's Water Management Services Department at (541) 685-7000 or [email EWEB Water Management Services](#).


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## Tips for saving water

Using water wisely can lower your monthly water bill, keep your lawn and landscape healthy and help the environment by keeping more water in our rivers.

## Outdoors at home

Landscape watering accounts for nearly all the increase in water usage during the spring and summer growing season. But by taking a few simple steps, you can use water more efficiently without changing your lifestyle.

- Don't automatically increase water usage when a hot spell hits. Lawns and gardens that have had regular, deep soaks can weather short periods of extreme heat.
- Use timers to avoid over watering your yard and garden. Learn about EWEB's [sprinkler timer rebate](#).
- If you have an automatic watering system, reducing the watering time for each automatic sprinkler zone by one minute can save 60 gallons of water each time the sprinkler system comes on.
- Use a [Green Grass Gauge](#) and follow EWEB's weekly watering recommendations.
- Mulch plants generously to retain moisture in the root zone.
- Consider soaker hoses or a drip irrigation system for your vegetable garden, shrubs and flower beds.
- Aerate your lawn in the spring or fall, top dress with compost and apply a healthy compost tea. This promotes deep root growth, improves water infiltration rates and water holding capacity of soils, and improves overall soil health.
- Plant native or water-wise species.

## Inside at home

- Repair water drips and leaks immediately. An average of 11% of home indoor water use is attributable to leaks. To discover unknown leaks, turn off every water use in your home (including the ice-maker in your freezer), and then look at your water meter to see if water is flowing. If the slow-flow indicator (a triangle or small bar located on the dial above the numbers) is spinning, then look for a dripping faucet or silent toilet leak. A leaking toilet can add \$20-30 to your water bill month after month. [Learn more about finding and fixing leaks](#).
- [Learn your water budget](#), and then compare it to your actual bill.
- Replace old toilets with new, low-flow models.
- Install efficient shower heads and faucet aerators. These can save up to 10% on your water heating costs, in addition to the water that they save.
- Turn faucets off when not using the water, such as while brushing your teeth or shaving.
- Run your dishwasher and washing machine only when you have full loads.
- Scrape dirty dishes instead of hand-rinsing before loading into the dishwasher. Most modern dishwashers have a quick-rinse option that can be used if a partial load will sit for more than a day, and this option uses significantly less water than rinsing by hand.
- Replace a worn-out clothes washer or dishwasher with a more efficient Energy Star model. In addition to energy savings, newer models use less water. EWEB offers rebates for [qualifying appliances](#).

## At work

- Call EWEB's water experts at (541) 685-7000 for advice on how you can use water more efficiently in your business, industrial facility, school or other workplace.
- Increase employee awareness of water conservation.
- Install motion-activated faucets, other flow reducers or aerators in all plumbing fixtures.
- Use timers on all outdoor sprinkler systems.
- Assign an employee to monitor water use and make suggestions for using water more efficiently.



- Check your water system, toilets, faucets or manufacturing processes for leaks.
- Wash vehicles less often.
- Use brooms to clean sidewalks and steps instead of hosing them down.

### Questions?

For more tips on how to save water and lower your bill, call (541) 685-7000.

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## Water Smart with the Green Grass Gauge



For the week of 08/27/2011 - 09/02/2011 water your lawn: 0.79.

### Historical Green Grass Gauge Numbers

This recommended watering can either be split into two applications on two watering days, for example:

Day	1	2	3	4	5	6	7
		0.4"			0.4"		

Or split into three applications on three watering days:

Day	1	2	3	4	5	6	7
		0.3"		0.3"		0.2"	

The soil conditions in your yard will determine which of these suggested schedules works best for you. Remember, required water may also be replaced by rainfall during this week.

The right amount of water is a key ingredient for a healthy landscape, especially during the hottest months of the summer. However, many homeowners tend to overwater, not knowing how much water is needed. To keep your lawn green and healthy all summer long, use the Green Grass Gauge to measure the output of your sprinklers to match the weekly suggested watering amount listed above.

This watering recommendation is for a lawn in full sun. A shaded lawn only needs about 60 percent of the above recommendation. Shrubs and perennials use approximately 50 percent.

Water Budget Timers can help you to easily follow this watering recommendation throughout the season. [Find out how to use the Green Grass Gauge with your Water Budget Timer.](#)

EWEB offers cash rebates for Water Budget Timers. See the [Timer Rebate Form](#) for complete details.

For more information, including tips on improving your soil reservoir, contact EWEB Water Management Services at (541) 685-7000.



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## Water dispensing station

EWEB provides a water dispensing station for the convenience of contractors, street sweeping companies and people trucking water for domestic use.



EWEB's water dispensing station is located at 3402 W. 1st Avenue in Eugene (between Seneca and Wallis). It is available seven days a week, 24 hours a day.



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### How to use the station

- Purchase a Smart Card (debit card) and an access key at EWEB's main office, 500 E. 4th Avenue in Eugene.
- The cost is \$4 per 1,000 gallons.
- A \$15 deposit for the card and access key is required.
- There is a minimum purchase of \$10 each time you add money to your Smart Card. You must "refill" your Smart Card at EWEB's main office. Contact EWEB's Cash Accounting Department for more information at (541) 685-7000.
- To disinfect the fitting between users, spray the fitting with a 50 percent water/50 percent bleach solution.
- When running for 30 seconds, a 2.5-inch hose connection will yield 150 gallons.
- When running for 30 seconds, a .75-inch hose connection will yield 50 gallons.

Contact EWEB's Water Operations at (541) 685-7000 to assist in troubleshooting any problems with the station.

Please note that the Springfield Utility Board also has a dispensing Station at 202 S. 18th in Springfield.

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# WATER-EFFICIENT PLANTS

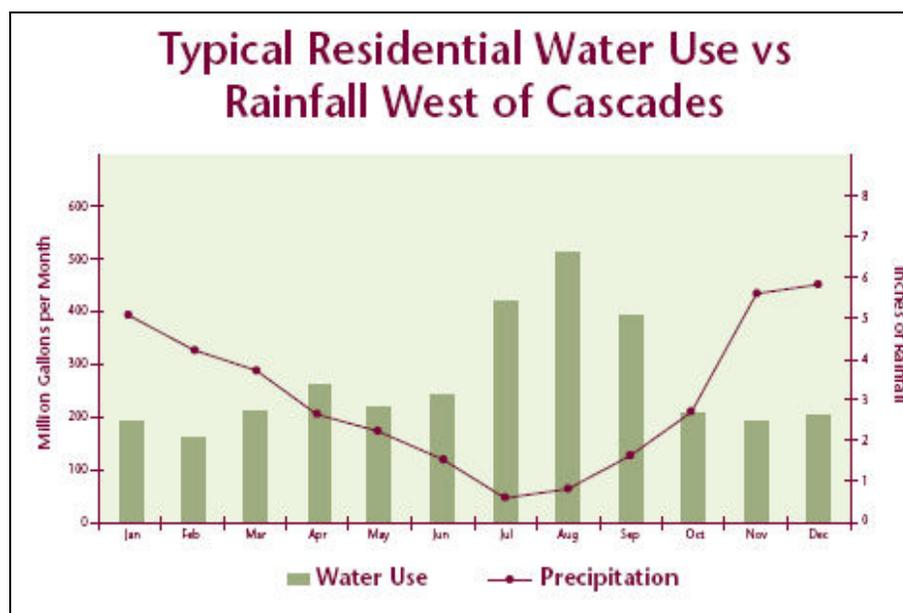
for the

# WILLAMETTE VALLEY



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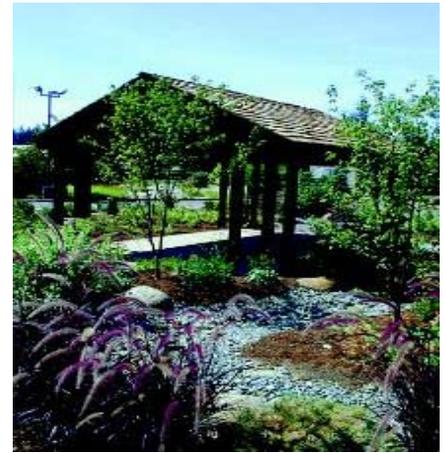
Western Oregon has a Mediterranean-type climate, which is characterized by mild, wet winters and dry, warm summers. Our dry period typically lasts 3 months (July through September), and daytime temperatures may exceed 90° F. This combination of dry days and summer heat will cause stress to many landscape plants if they are not irrigated regularly. As a result, municipal water use in the Willamette Valley frequently doubles or triples during the summer months due to outdoor watering. As population in our region grows, meeting our summer watering needs is becoming more challenging.



When we draw water from our reservoirs faster than we can keep them filled, we threaten the supply of water needed for drinking, irrigation, manufacturing, fish habitat, and emergencies such as firefighting. In addition to seasonal peaks, daily water use patterns can add stress to already stressed water distribution systems. Most automatic irrigation timers are set to go off early in the mornings (5 a.m. - 7 a.m.) certain days of the week; therefore utilities must often super-size their facilities to meet early morning demands that may or may not occur in any given year based on weather conditions. If customers set irrigation timers at other times of the morning or at night (11 p.m. - 5 a.m.), water utilities would be assured of making the most of existing facilities before building new expensive structures.

Water conservation measures can enable water providers to delay building costly new facilities or seeking new water sources, thus helping keep water rates down. While conservation alone will not eliminate the need to increase our water supply, it can make a substantial impact and balance the effect of population growth.

This guide was created by horticulture and conservation experts as a tool to assist the general gardener in making decisions about how to use water more efficiently in their landscapes. In addition to the water savings you will see, there are a number of other benefits that come with water-efficient landscaping. They include reduced fertilizer and chemical use, less weed growth, less energy use, less water runoff, and reduced maintenance.



Landscapes add value, beauty and livability to our homes, and keeping them water-efficient is a critical part of being a good steward. Whether you are redoing an existing landscape or landscaping a new home or business, consider this guide as a place to begin your efforts.

By following the [seven basic steps](#) of water-efficient landscaping, and by using this Water-efficient Plants for the Willamette Valley guide, you will discover trees, shrubs, bulbs, perennials, ground covers, and ornamental grasses that were chosen because they are suited to our Mediterranean-type climate and require less water, fertilizer, maintenance or other special care once they are established. These plants will also allow you to continue to achieve color, diversity, texture, and beauty in your landscape.

*(c) Smith and Jones, Clackamas Community College, 2007*

# WATER-EFFICIENT PLANTS for the WILLAMETTE VALLEY



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4. [The Right Plant in the Right Place](#) | 5. [Water Wisely](#) | 6. [The Use of Mulch](#) | 7. [Keep up the Maintenance](#)

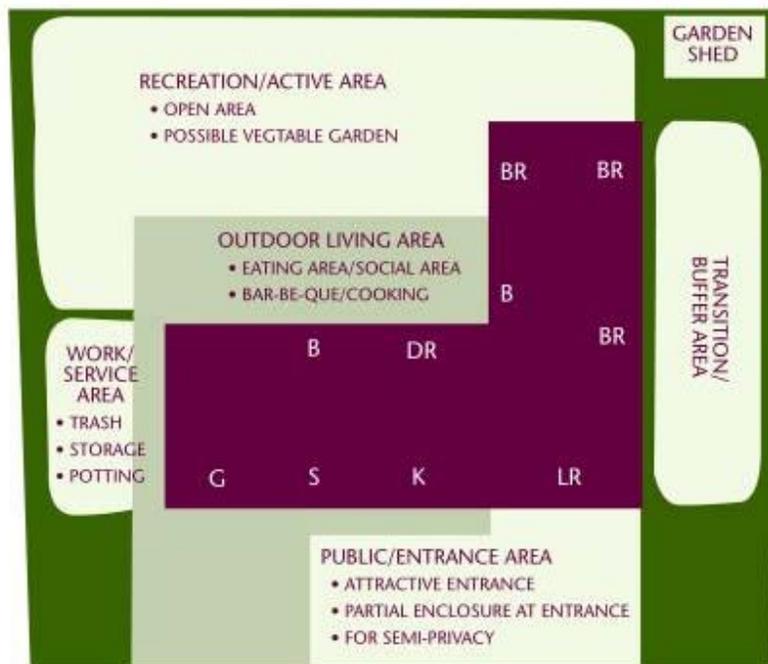
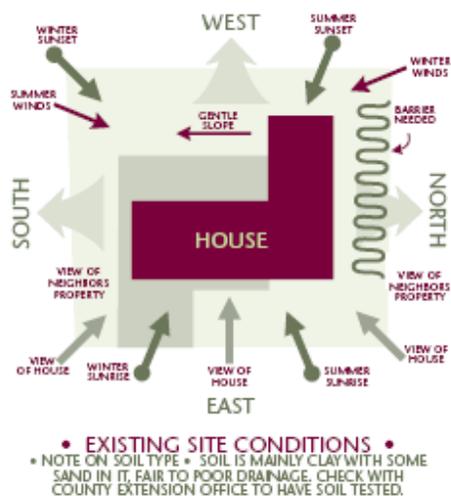
Water-efficient landscaping uses simple, common sense gardening practices. Many of these principles have been used in traditional landscaping for years as separate or partially combined principles. The seven basic steps incorporate all of them into one holistic method resulting in a unique landscaping approach that combines all the necessary elements to achieve a water-conserving landscape.

## 1: Planning and Design.

The planning and design of your landscape is one of the most important steps. Whether you are starting from scratch or changing your existing landscape, begin by creating a plan. Your plan can range from a drawn sketch to a professional survey. A thoughtful design can allow you to install your landscape in phases and avoid costly mistakes. Be sure to include the location of existing structures, trees, shrubs, paths or walkways, and important views you want to keep (or eliminate), as well as the sun orientation and the direction of the wind.

Your yard is made up of numerous microclimates. A microclimate is the climate of a small area that is different from the areas around it. It may be wetter or drier, warmer or colder, or more or less prone to frost than other areas of your yard. Microclimates in your yard can be influenced by your house, balconies, rooftops, fences, walls, large rocks or trees, and paved surfaces. It is important to note these areas in your plan.

You may want to begin by dividing your yard into four different light exposures - north, south, east, and west. What kind of light is available during various parts of the day - bright sunlight, filtered sunlight or shade? Remember, morning sunlight is cooler than afternoon sunlight. You can then identify specific types of plants you want to incorporate into your landscape. For example, a shade tree planted in the southeast section of your property will provide cooling for your home and landscape.



• DIAGRAM SPACE NEEDS •

By identifying and understanding microclimates, you have the ability to put the right plant in the right place, creating a healthier, water-efficient landscape. If you need help with your landscape layout, consult with a garden center or landscape professional. For more information, refer to the resource section of this guide.

**NOTE:** Before selecting a tree, take the time to look over your site for things such as overhead utility lines as well as underground utility lines. Think about how the tree will look at maturity and how that will work within the location you are thinking about. Work with your local nursery to select the right tree. For more help in planting the right tree in the right place visit [www.treesaregood.com](http://www.treesaregood.com).

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## 2. Compost and Cultivate

Soil improvements are very important to water-efficient landscaping. Understanding the basic characteristics of your soil is key for plant selection and watering practices. A productive soil provides physical support, water, air and nutrients to plants as well as soil-dwelling organisms. Roots and soil organisms breathe just as we do and require sufficient air and water to live. As a result, a good soil is not "solid," instead between 40 and 60% of the soil volume is pores. The pores may be filled with either water or air, which makes both available to plants. The largest pores in the soil control aeration and movement of water through the soil and are largely the result of animal and earthworm burrowing or root growth. The smaller pores can store water.

Native, undisturbed soils in the Willamette Valley are usually silt loam or clay loam and are suitable for the growth of most plants. However, the soil that remains after construction of homes are usually dramatically modified from the native soil that existed prior to construction. This soil is often composed of subsoil material excavated during road or foundation construction. This subsoil overlays the native soil and is compacted during construction by machinery. The result is low in organic matter and nutrient content. Compaction also prevents root growth and water percolation into the soil, reducing plant growth and water availability.



**Dwarf Strawberry Tree**

In disturbed and compacted sites, consider testing the soil before planting to find out what it requires. Soil issues requiring particular attention include soil compaction and soil pH, but also organic matter content and nutrient availability. Many companies will test soil for homeowners. For a list of these, check with your local OSU Extension office for a copy of [EM 8677](#), *A list of analytical laboratories serving Oregon*.

One of the easiest ways to improve the soil and create a better environment for your plants is to amend your soil with compost and organic matter. Working amendments into soil will help to alleviate compaction problems and improve the ability of the soil to accept and store water. Amending your soil often means that you can reduce the amount of water a newly planted garden requires. Adding organic matter will also increase the activity and the number of soil organisms.



Spanish Fir

Over time, a well-amended soil will supply more of the nutrients your plants require, which will reduce fertilizer requirements. Soils amended with organic matter are a better sponge for water, allowing more water to go into the soil, and less water to run off the surface. Because surface runoff is reduced, pesticides and fertilizers are retained in the soil and prevented from washing off into nearby rivers and lakes. A well-balanced soil is key to maintaining healthy plants and lawn. For more information on the benefits and use of various soil amendments, check with your local OSU Extension office for a copy of [EC 1561](#), *Improving garden soils with organic matter*.

- |   |
|---|
| <p>1. <a href="#">Planning and Design</a>   2. <a href="#">Compost and Cultivate</a>   3. <a href="#">Create Functional Turf Areas</a><br/>4. <a href="#">The Right Plant in the Right Place</a>   5. <a href="#">Water Wisely</a>   6. <a href="#">The Use of Mulch</a>   7. <a href="#">Keep up the Maintenance</a></p> |
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(c) Smith and Jones, Clackamas Community College, 2007

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for the

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### 3. Create Functional Turf Area.

Grass requires more water and maintenance than most other plants, so it is important to evaluate your landscape to see where grass is practical and functional. A lawn should be designed to serve multiple purposes - for play areas, picnics, and pets. In many cases, grass can be replaced with other, less-thirsty seed mixtures like ecoturf or materials such as groundcovers, low-water-use plants, mulches, or hardscape features.

Steep slopes, sharp angles, and narrow driveways or sidewalk strips are difficult to water efficiently and are usually hard to mow. Consider ground covers, low-water-use plants, and mulches for these areas, or where foot traffic is infrequent or undesirable. Ground covers offer much of the lawn's neatness and uniformity with less maintenance. Hardscape features are another way to enhance the functionality of your yard while helping you rely less on irrigation. In high use areas consider putting in pathways or patios made of wood, rock or gravel that allows water to drain through them and into the soil beneath.



**Japanese Red Pine**

***Keep these water-saving guidelines in mind when evaluating your lawn area;***

- Place the lawn where it will be the most useful.
- Keep the physical layout of the grass area in easy-to-irrigate shapes.
- Edge the lawns perimeter so that it is easier to mow.
- Don't plant grass on steep slopes.
- Consider placing beds of water-thirsty plants near the lawn so they benefit from the additional water.
- Consider letting your lawn go dormant; it will turn green again with the autumn rains.

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# WATER-EFFICIENT PLANTS for the WILLAMETTE VALLEY



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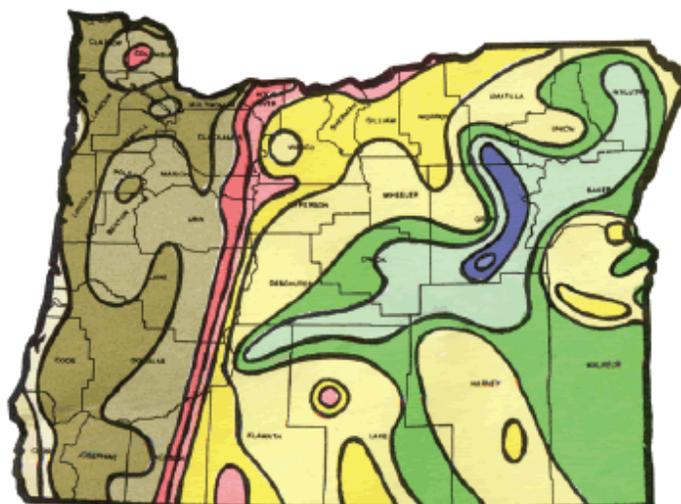
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## 4. The Right Plant in the Right Place.

Different plants need different amounts of water, sun, and shade to survive. Once you have identified your microclimates you can select plants suited to these specific areas of your landscape. How will you fit the appropriate plants into the microclimates you have identified? Are the plants you want actually suited to the weather conditions of the Willamette Valley? To help answer these questions, the USDA developed a rating system that divides the United States and Southern Canada into eleven zones. Each zone is based on a 10 degree Fahrenheit different in the average annual minimum (i.e. winter) temperature and will help you match plants with appropriate hardiness to the low winter temperatures. The Willamette Valley, including the Portland Metro area, is rated as zone 8 (10 to 20 degrees Fahrenheit). The USDA Hardiness Zones are not the same as the Sunset Climate Zones. The Sunset Climate Zone for the Willamette Valley is 6.

In addition to managing your yard's microclimates, look at creating watering zones in your landscape. Within each watering zone, all of the plants should have the same general watering needs, allowing you to give each plant only the amount of water it needs. Matching water requirements helps prevent over or under watering which can cause stress and promote disease. Watering zones help you avoid wasting water, while reducing the amount of time, effort, and natural resources needed to maintain your garden. Consider dividing your landscape into three watering zones: high, moderate and low watering zones.

## USDA Plant Hardiness Zone Map Oregon



### Average Annual Minimum Temperature

Temperature (°C)	Zone	Temperature (°F)
-45.6 and Below	1	Below -50
42.8 to -45.5	2a	-45 to -50
-40.0 to -42.7	2b	-40 to -45
-37.3 to -40.0	3a	-35 to -40
-34.5 to -37.2	3b	-30 to -35
-31.7 to -34.4	4a	-25 to -30
-28.9 to -31.6	4b	-20 to -25
-26.2 to -28.8	5a	-15 to -20
-23.4 to -26.1	5b	-10 to -15
-20.6 to -23.3	6a	-5 to -10
-17.8 to -20.5	6b	0 to -5
-15.0 to -17.7	7a	5 to 0
-12.3 to -15.0	7b	10 to 5
-9.5 to -12.2	8a	15 to 10
-6.7 to -9.4	8b	20 to 15
-3.9 to -6.6	9a	25 to 20
-1.2 to -3.8	9b	30 to 25
1.6 to -1.1	10a	35 to 30
4.4 to 1.7	10b	40 to 35
4.5 and Above	11	40 and Above

High watering zones may be small, visible, highly maintained areas such as home entrances or lawn areas. This is where your thirstiest plant should be planted. These areas are typically located near the water source so they are easy to water. Moderate watering zones may need occasional watering in addition to natural rainfall to maintain healthy plants. Plants in low watering zones can typically survive on natural rainfall once they are established. These plants are typically located in the outer areas of the yard.

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## 5. Water Wisely.

The most common problem in home landscape is over watering. When this is combined with poor soil quality it can reduce plant growth or even cause plant death, but more importantly, it's wasteful. A well-planned, well-designed, well-timed irrigation system saves money and promotes plant health by applying the right amount of water without excess. Soaker hoses or drip irrigation are the most water-efficient systems for trees and planting beds.

The amount you water should be based on soil conditions and plant needs. Watering thoroughly, but infrequently, will help roots grow deeper, so that more stored water is accessible to the plant from the soil reservoir. Generally, turf requires more water than other plants, so irrigate turf areas separately from other plant areas. Typically, trees, shrub beds, and perennials don't need as much water as lawns. Water needs vary according to specific weather conditions, so it is important to adjust your watering schedule to compensate for changes in the weather. Learn how to set your controller so that you can adjust the watering time up as weather warms and down based on cooler weather and autumn rains.



**Hairy Manzanita**

- During the summer an established lawn needs about 1 inch of water each week (including rainfall), and up to 1.5 inches per week during long hot, dry spells. To figure out how to measure 1 inch of water, try this:
- Set out five empty straight sided cans (such as tuna or pet food cans) throughout the lawn.
- Turn on the sprinkler for exactly 15 minutes.
- Measure the depth of the water in each can, then add up the numbers and divide by five. This gives the average depth of all the cans.
- Find the average water depth on the chart below. The box to the right of the number is the total weekly watering time needed from your sprinkler.

Average Water Depth in the Cans ( <i>In Inches</i> ) After 15 minutes	Number of Minutes Needed to Water 1 Inch
1/8	120
3/16	80
1/4	60
5/16	46
3/8	40
1/2	30
5/8	24
3/4	20
1	15
1 1/4	12

If water puddles or runs off to another part of the landscape, the soil may have a lot of clay and/or your irrigation system is applying water too fast. To manage this condition, spread the total watering time out over multiple days with a one to two hour break between short watering periods. For example, if the chart recommends watering 40 minutes per week, then run the sprinklers for ten minutes, wait an hour, then water for another ten minutes, and do this on two days of the week about three days apart from each other.

ET - Water to the weather. Plants transpire water into the air and water is evaporated from the soil. This process is called evapotranspiration or ET. Replacing this transpired and evaporated water is the most efficient way to water. *For local information on ET go to:*  
[http://www.conserveh2o.org/outdoors\\_irrigation\\_watersmart.html](http://www.conserveh2o.org/outdoors_irrigation_watersmart.html).

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## 6. The Use of Mulch.

Mulch comes in two forms, organic and inorganic. Both provide a protective layer of material that covers the soil surface. Unlike a soil amendment, mulch is not tilled into the soil. Organic mulches include aged manure, compost, bark, or wood chips. Inorganic mulches include gravel and river rock, or landscape cloth. Mulches are available in many shapes, sizes and colors, so the kind of mulch you choose really depends on your preference. There are a number of benefits to using mulch, including the following:

- Evaporation is a major source of water loss from the soil, and occurs because of the combined action of sun and wind on the soil surface. A layer of mulch can significantly reduce the amount of evaporation taking place and increase water available in the soil.
- A mulch layer will reduce the impact of raindrops on the soil surface, decreasing the likelihood of a compacted layer, and allow water to infiltrate the soil to a greater depth, reducing soil erosion and runoff.
- Mulch provides some control of weeds in landscapes or gardens. Management of weeds is desirable for aesthetic reasons, but it also will improve plant growth by decreasing competition for water.
- Organic mulches reduce soil absorption of heat by reflecting sunlight. Soils mulched with organic matter tend to maintain a more consistent temperature throughout the day, and year, compared with bare soil. By contrast, plastic mulches have a tendency to increase soil temperatures.
- Mulching can also improve the soil structure and biology. The use of organic mulches stimulates the activity of beneficial soil organisms, and provides habitat or cover for these organisms including earthworms.
- As mulch decomposes, nutrients are slowly released to the soil for plant use.



**Cheddar Pink**

Mulch should be applied annually or as needed in the spring to conserve moisture and prevent

weed seeds from sprouting or in the winter to protect soil from erosion and help plant roots retain warmth. Use 1 to 2 inches of compost, leaves, sawdust, or 2 to 4 inches of coarsely shredded bark or wood chips. If the mulch is too deep, water will have a difficult time reaching the plant roots.

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## 7. Keep Up the Maintenance

Routine maintenance such as pruning, pest control, and fertilization will keep your plants healthy and your landscape at its peak. A healthy landscape is more resistant to summer heat, freezing, insects and disease. The following are a number of maintenance tips.

Aerate your lawn annually and de-thatch as needed to ensure that the roots are receiving the right amount of water and oxygen. Weeds compete with plants for nutrients, light and water, so weed frequently by hoeing or pulling them by hand. Remember, a good layer of mulch will definitely help with weed suppression. Make every drop count - check your irrigation system regularly to make sure it provides the right amount of water, at the right place, at the right time. Also check for leaks and broken sprinkler heads. Don't water your sidewalk or driveway - they won't grow no matter how much you water them!



**Bluebeard**

If you need help with your water-efficient landscape, consult a landscape professional, seek advice from your local garden center, or consult with an OSU Master Gardener. For more information, refer to the resource section of this guide. Most of all enjoy your time in your yard and the benefits from reducing your water usage.

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**Water Management Services**

Your Name:

Your E-mail Address: \*

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Type your message in the space provided below:



You have 5000 characters remaining for your message.  
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