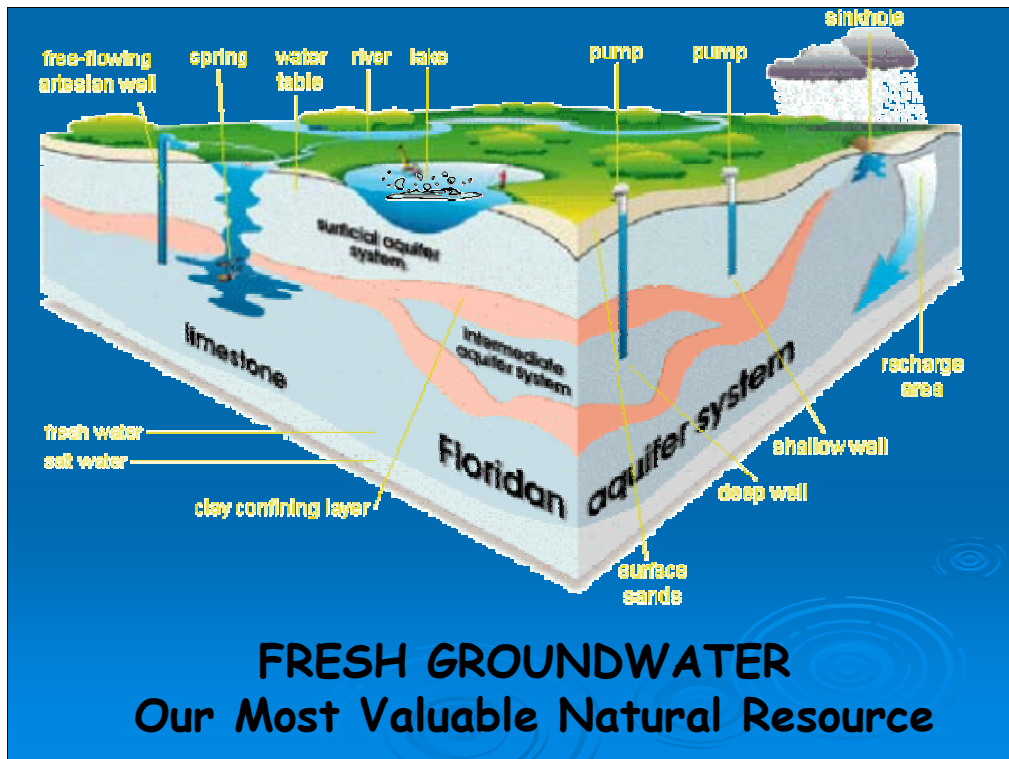


Environmental Services Department
Presents:

DOWN WITH THE WATER BILL

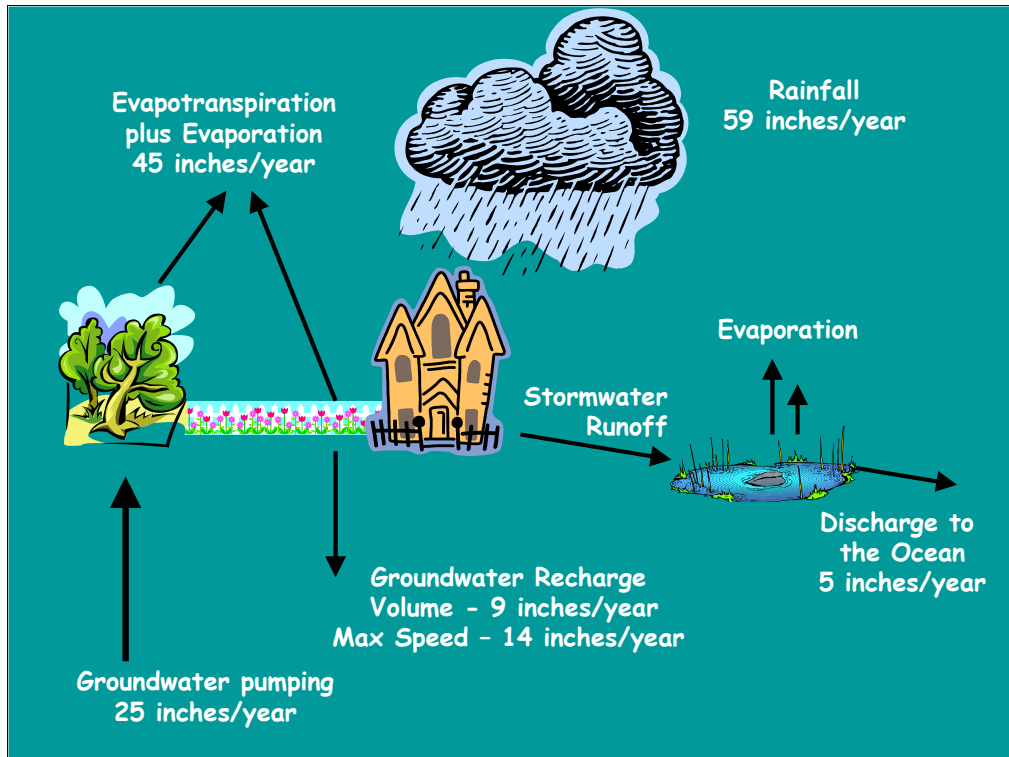
Eight Simple, Quick, and Effective Ways
To Use Less Water

This presentation was developed following the water rate increase in October, 2003. We provided the class five times in October and November, and it has also been taped and will be shown on SGTv (for a schedule, see the web site at www.seminolecountyfl.gov/it/cabsched.htm). For any other questions regarding this presentation or water conservation, contact the Water Conservation Coordinator, Liz Block, 407-665-2121 or lblock@seminolecountyfl.gov



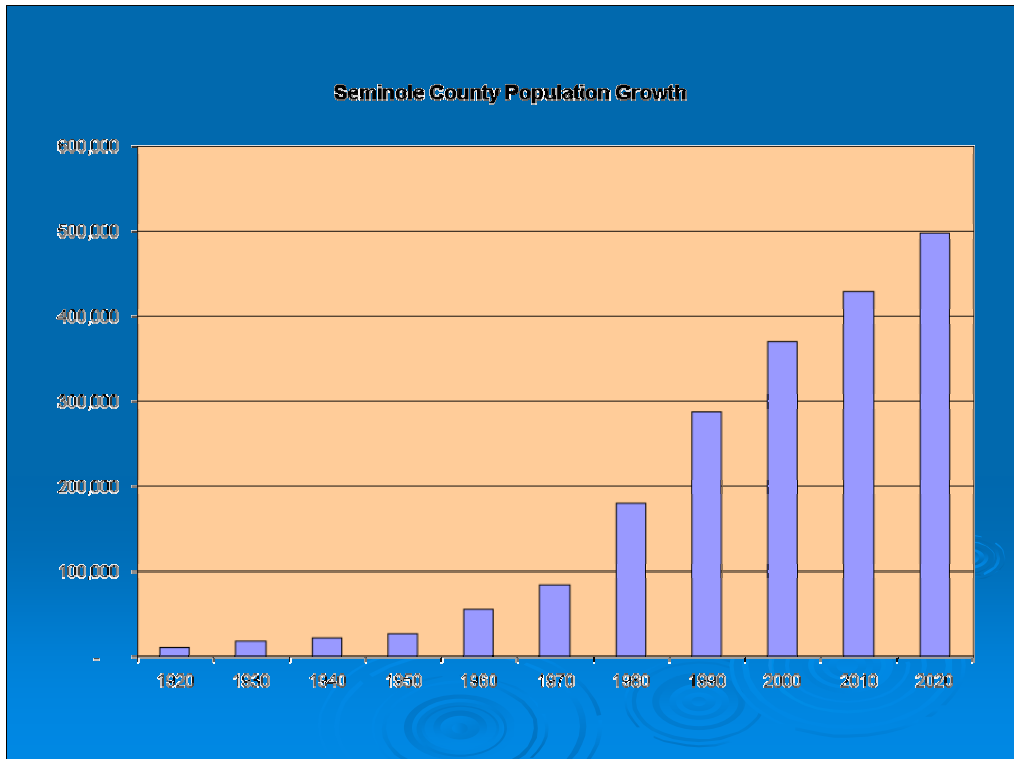
FRESH GROUNDWATER Our Most Valuable Natural Resource

Here in Central Florida, we are very fortunate to have such a high quality source of fresh water in the Floridan Aquifer. The Florida peninsula has been above and below sea level a number of times in geologic history. The sea level dropped about 26 thousand years ago, and the caves and cracks and holes in the limestone under our feet started to fill with fresh water, pushing the salt water lower into the aquifer. Some of the aquifer water is thousands of years old! The fresh water parts of the aquifer range from 100 to 2000 feet deep with a layer of salt water below. Our deepest well is 750 feet deep.



Well, the drought is over and we've been getting good rain, so why is everyone still so concerned about water? These next three slides show the three most important reasons.

1. Here's what really happens to the 59 inches of rain we receive on average every year. Most of it, 45 inches evaporates back into the air or is pumped by plants from their roots to leaves into the air (evapotranspiration, losing water from leaves, is the plant's pumping mechanism to transport water, nutrients, and minerals). Five inches a year drains to rivers and out to the ocean. That leaves 9 inches a year to soak down to the aquifer, and the water moves at a MAXIMUM speed of 14 inches a year. The Seminole County Water and Wastewater Division is pumping out 25 inches a year, and we are just one of 11 water utilities in Seminole County. Would you do this to your bank account?



2. Population in Seminole County continues to increase, and everybody needs water!



50-80% of a Household Water Budget is Used on Landscape Irrigation

3. Not only do we use the water for drinking, bathing, cooking, etc., but so many of us have lawns to water. Unfortunately, St Augustine grass needs a lot of water (it is classified as a wetland plant!) and it is by far the most common plant in our landscaping. We are the only country in the world that uses our drinking water to water landscaping. And with automatic irrigation controllers, it is too easy to set the irrigation system to run some time in the middle of the night and not think about it as long as the yard looks good.

Potential Impacts from Aquifer Overuse



- Wetlands
- Other Users
- Aquifer Compaction
- Saltwater Intrusion
- Higher Water Costs
- Economy
- Quality of Life

We are pumping out the aquifer much faster than nature can refill it, and water demands continue to grow. What will happen if we keep using the aquifer in a non-sustainable way? The Tampa Bay area is dealing with some major consequences of overdrawing their aquifer, so this is a real threat.

1. Wetlands: Overpumping steals the water from the wetlands and they dry up. Even if the water is returned, they are permanently destroyed.
2. Other Users: Wells dry up, springs flow less, lake levels go down.
3. Aquifer Compaction: When you remove water from the cracks and holes in the rocks that have been full of water for thousands of years, the geologic structure collapses. Here in Central Florida, the collapse can be dramatic, a sinkhole forms. The capacity of the aquifer to hold water is lost, permanently. In some areas in California, the land surface has dropped up to 10 feet. California has lost billions of gallons of aquifer capacity from aquifer compaction.
4. Saltwater Intrusion: When too much fresh water is pumped out of the aquifer, the salt water below or beside the fresh water is drawn in. We can't drink salt water without expensive treatment. The aquifer becomes permanently polluted with salt water.
5. Higher Water Costs: As demands for water continue to grow, we will have to look for alternative water sources. When was the last time you took a look at the water in the St Johns River? Imagine how much it would cost to treat that water to drinking water standards. Guess whose water bill goes up?
6. Economy: For a community to thrive economically, a secure and inexpensive source of fresh water is a must. Everything is linked to water one way or another. This can range all the way from the decision of a major industry to locate here, to those of us living paycheck to paycheck who have less spending money because we have to pay more for water.
7. Quality of Life: Do you want your children or grandchildren to grow up with the same quality of life we enjoy today? Yes? I thought so! What you do on a day to day basis DOES make a difference. Here's how to be part of the solution.

What's a Person to Do ?

1. Check for leaks and get them repaired
2. Follow the Watering Restrictions
3. Work with your Rain Sensor
4. Work with your Irrigation Controller
5. Water your lawn the RIGHT amount
6. Walk your Irrigation System monthly
7. Don't water what doesn't need to be watered
8. Get rid of some lawn



The rest of the slide show is about these 8 water saving methods

Check for Leaks and Get Them Repaired !

Fix your leaking faucets:
A slow drip wastes 20 gallons per day,
enough to fill up a bathtub!



Check your toilet for leaks.
A leaking toilet can waste up to
200 gallons per day!

Use your water meter to check for leaks

Toilet leaks can be silent. To check your toilet for leaks, remove the tank lid and color the water in the tank with food coloring (or just about anything that will color the water, some people have used coffee!). Let the toilet sit for 20 minutes without flushing. If the color shows up in the bowl, there is a leak.

Check for Leaks and Get Them Repaired !

Using Your Water Meter to Check for Leaks

1. Turn off all the water in the house
2. Grab a screwdriver or something to pry the meter box lid open
3. If the flow indicator is spinning, you have a leak

Flow Indicator



Your water meter is in an underground box, almost always between the sidewalk and the street. The box is open on the bottom and two sides, and is sometimes full of dirt. You may have to dig a bit to get to the meter dial. The flow indicator is usually a small triangle, but sometimes a dial or other shape. The flow indicator spins when water moves through the meter. If all the water in the house is off, nothing on the meter should be moving. If the flow indicator is spinning, and you're sure all the water in the house is off, there's a leak. If you can't find a leak, call the Water Conservation Coordinator for more ideas on how to locate a leak (407-665-2121).

Follow the Watering Restrictions

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Residential Even # Addresses		Non- Residential All Addresses	Residential Odd # Addresses	Residential Even # Addresses	Non- Residential All Addresses	Residential Odd # Addresses

University of Florida, researched based recommendations
For the **MAXIMUM** irrigation rate for
St Augustine sod:

2 times per week
 $\frac{3}{4}$ inch of water each time

(Maximum means most of the time your lawn
needs LESS than this!)

Did you know the Watering Restrictions are set at the **maximum** recommended watering rate for St Augustine sod? Overwatering your lawn can be just as damaging as not enough water. Overwatering increases the likelihood of pests, diseases, rot, and weeds.

Work With Your Rain Sensor

Does it work?

The artificial rain test method

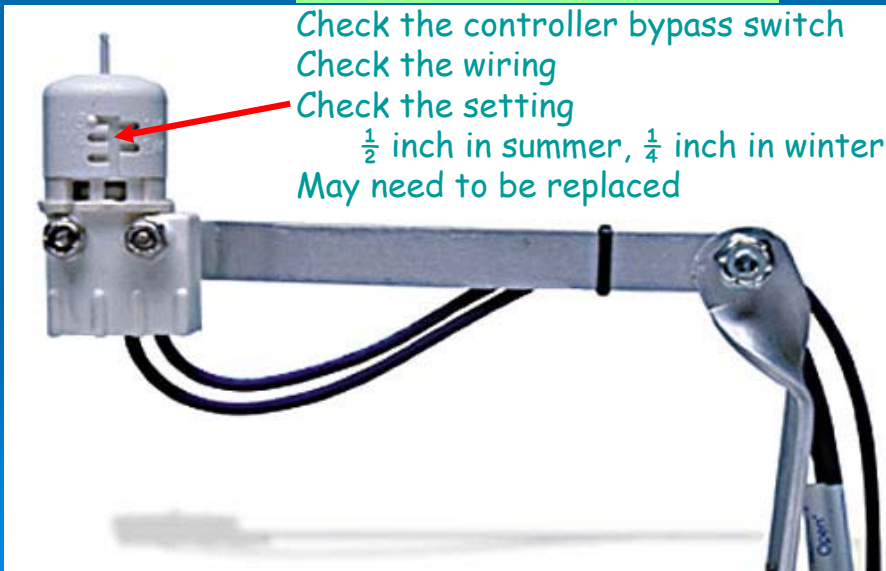
Check the controller bypass switch

Check the wiring

Check the setting

$\frac{1}{2}$ inch in summer, $\frac{1}{4}$ inch in winter

May need to be replaced



A functioning rain sensor will decrease your water use by about 20% in a year! Your rain sensor is usually attached to the eave near the irrigation controller. To find out if the rain sensor is working, turn the irrigation system on and squirt the hose at the sensor. The hose water should cause the sensor to turn off the irrigation. If the sensor is not working, do these quick checks:

1. Controller bypass switch: If you have a newer controller, you may have a bypass switch that allows the system to be run in spite of rain for maintenance purposes. Make sure the switch is set so the rain sensor is not being bypassed.
2. Wiring: Sometimes in new homes, the rain sensor was just never wired to the controller. Or there may be other wiring problems.
3. Setting: The rain sensor can be set for the amount of rainfall (inches) required to turn off the irrigation. If the rain sensor doesn't shut off the irrigation, it may be set too high. In most sensors, look for a set of slots that looks like the top of a telephone pole. The outer barrel of the sensor rotates and moves up and down. Move the outer barrel so that the peg attached to the inner barrel is at the right setting for the season.
4. Replace the sensor: A rain sensor is a \$30 piece of equipment that is exposed to the elements full time. After a few years, it can just wear out.

Work With Your Rain Sensor

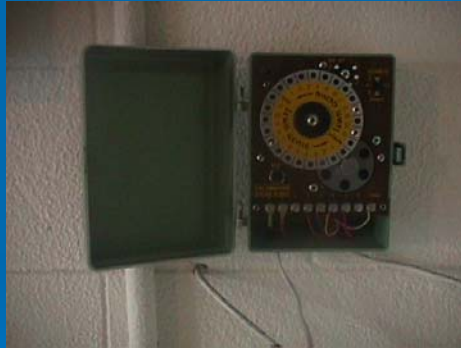
Prevent interference



If you stand under your rain sensor and look up, you should see nothing but sky. Tree branches, roof tiles, or taller parts of the building can all interfere with the sensor's accuracy. Do you need to trim some branches? get a longer support arm? move the sensor to a clearer location?

Work With Your Controller

Does it need to be replaced?



Can you tell when the system has run?

Newer controller technology allows much more flexibility to run the irrigation system in a water saving manner. If you have an older controller, consider upgrading.

Electrical problems (power outages, lightning) will reset the controller programming to a default setting, usually every day. Set your controller start time to run so you can keep an eye on it. For example, set it to run between 5 and 7 am so when you leave for work you will see that it ran. Then if something goes wrong, you will catch it before your water bill goes through the roof.

Work With Your Controller

Backup Battery

- Change your clocks
- Change your smoke detector battery
- Change your controller battery



Electrical problems (power outages, lightning) will reset the controller programming to a default setting, usually every day. Most controllers have a 9-volt battery behind the display board that will save the settings during a power outage. We recommend replacing the battery when you change the clocks twice a year. This will also remind you to change the clock in the controller.

Water Your Lawn the RIGHT Amount



1. Put out several same-sized containers in one zone on a watering day
2. The next morning, measure the amount of water
3. Adjust the zone run time
4. Repeat for each lawn zone

MAXIMUM:

$\frac{3}{4}$ inch twice a week



Summer: 2 times per week
WHEN NEEDED



Winter: 1 time per week
or less (Nov-Feb)



Remember, twice a week, $\frac{3}{4}$ inch each time is the MAXIMUM amount of water the lawn needs. If the cups contain a half inch of water the next morning and the lawn is doing fine, please don't increase the watering time.

Walk Your Irrigation System: Monthly



Check for:
Geysers, Leaks,
Puddles, Clogs,
Interference,
and Overspray



Combining lawn mowers with sprinkler systems seems to be a guaranteed formula for creating leaks. Once a month go through the irrigation system zone by zone and check all sprinkler heads. Tap your toe around the base of sprinklers in the grass and check for mushy spots. We recommend cement donuts to protect the sprinkler heads from damage and to prevent grass from interfering with the spray pattern. Trim back any bushes that are blocking the spray pattern. Puddling near the sprinkler head is either from interference or a leak.

Don't Water What Doesn't Need to be Watered

Most established bedding plants and hedges need
MUCH LESS water than lawn

Reducing Watering Frequency For Shrubs in Mulched Beds



1. Water once a week but double the zone run time for a month
2. Water every other week for a month
3. Water once a month for an hour
4. Turn off the zone except during the hot dry months

Lawn roots are usually 6-12 inches deep. Lawn needs water twice a week in the summertime because the roots only have 6-12 inches of soil moisture to draw from. Shrub roots can be 2-3 feet deep, and tree roots even deeper, so they have much more soil moisture to draw from. It is better to water zones with shrubs and trees much less frequently but longer, to soak the whole root zone. Also, the majority of landscape shrubs and trees are much more drought tolerant than lawn.

Zones that water shrubs and bedding plants often water some lawn. To be able to run the zone for the drought tolerant plants, consider making changes to the landscaping or the irrigation system to eliminate the lawn in that zone.

Don't Water What Doesn't Need To Be Watered

No matter how much you water them, mulch,
rocks, and cement are not going to grow!



Next time you walk your irrigation system, look for these opportunities to eliminate water waste by capping the sprinkler head. Caps are available at most home improvement stores. Check to see whether the PVC pipe is $\frac{1}{2}$ or $\frac{3}{4}$ inches in diameter before you go. Then just unscrew the sprayhead and screw the cap on. Instant water savings!

If you have an area where you plan to put plants in the future, you can close the sprayhead by tightening the screw on the top of the sprayhead until the plants go in. For a rotor, remove and cap until after planting.

Don't Water What Doesn't Need To Be Watered



Your yard may have several small opportunities to make minor changes to the landscaping that will save water. The sprayhead next to the wall was watering 7 small plants and lots of rock. The plants got moved to a better location and the sprayhead is capped.

Don't Water What Doesn't Need To Be Watered Microirrigate Instead



The sprayhead above is watering a lot of mulch and pavers, and two shrubs. This is a perfect opportunity for microirrigation!

Microirrigation uses small sprayheads or drip lines to put the water right where the plant needs it. The microirrigation retrofit head allows you to use microirrigation with your conventional irrigation system. Just unscrew the sprayhead and screw in the retrofit head. It contains a filter, a pressure reduction valve, and 9 ports, and is available from irrigation supply stores. Attach $\frac{1}{4}$ inch tubing to one of the ports, run it to a shrub or group of bedding plants, and attach a microirrigation sprayhead. Cap any ports you don't use. Tubing and micro-sprays are available from home improvement stores. Microirrigation retrofit is easy and inexpensive, and since you're not watering the mulch, there are fewer weeds to pull!

Don't Water What Doesn't Need To Be Watered

Sprinkler heads are adjustable

Sprinkler heads can be capped and uncapped
Sprayheads

1. Replace sprayhead to change spray pattern
2. Turn the screw in the top to adjust throw or even close the sprayhead

Rotors

1. Get a key and adjust spray pattern to prevent overspray
2. Exchange the nozzle inside the rotor head

Rotors are the ones that sweep back and forth, and sprayheads water the same area the whole time.

A sprayhead has a set spray pattern, like full circle, $\frac{1}{2}$ circle, $\frac{1}{4}$ circle, etc. If you had a $\frac{1}{2}$ circle sprayhead that is watering lots of sidewalk, get a $\frac{1}{4}$ circle sprayhead from your nearby home improvement store and replace it. The "throw" is irrigation jargon for how far from the sprayhead the water goes. The throw can be lengthened and shortened with the screw on top of the sprayhead. If a sprayhead is watering drought tolerant plants, you can close the sprayhead during winter or during rainy months, and open it again during hot dry months.

Although it doesn't look like it, sprayheads put out more water per square foot than rotors. If plant water needs are similar, zones with sprayheads should be run for about $\frac{1}{2}$ to $\frac{1}{3}$ the time as zones with rotors.

If your rotors are hitting the sidewalk or the house, you can adjust the spray pattern with a screw inset in the top of the rotor head under a flexible cover. But you have to have the key for the brand of rotor. Keys are available at home improvement stores or irrigation supply stores. Turn the zone on and turn the screw until the spray pattern is adjusted properly.

The nozzle is the colored part (often red) where the water comes out of the rotor head. The nozzle size controls the throw and amount of water emitted from the rotor. Nozzles can be exchanged, and having the proper nozzle sizes can save a lot of water in a year. Here's an example. If you had the same nozzle size on a rotor watering a full circle and a rotor watering $\frac{1}{4}$ circle, the lawn being watered by the $\frac{1}{4}$ circle rotor would be getting 4 times the water as the lawn in the full circle area. By exchanging the nozzle in the $\frac{1}{4}$ circle rotor, you just saved 500-1000 gallons per year.

Get Rid of Some Lawn



This homeowner is in the process of replacing the front lawn with a butterfly garden. Mowing what little grass remains takes 5 minutes. The use of fertilizers, pesticides, and weed killers has gone way down. The yard gets watered a few times a month in the hot dry part of the summer, and not at all for the rest of the year. And the butterflies are everywhere! Ok, you may not go to this extreme, but there will be opportunities to remove small areas of lawn that allow you to cap a sprinkler head or turn off a zone.

Get Rid of Some Lawn



Replace With:
Mulch,
Pavers,
or
Alternative
Groundcovers



Expand beds, but do it in a way that makes sense with the irrigation system. Because of its shape, the narrow strip of lawn between the sidewalk and the street is very difficult to water effectively, and it is often on a separate zone. Replacing the lawn with a drought tolerant ground cover will allow you to reduce or eliminate watering this area once new plants are established.

To get rid of lawn, you have several options. You can dig it up, but disturbed soil is an open invitation for a weed party. Killing the lawn and leaving it in place will provide a weed barrier and add organic material to the soil. Spray with an herbicide, or cover the lawn for two weeks to eliminate light. You can use plastic, or old carpet works great too. Cover the dead grass with mulch, then you can add plants as your schedule and finances allow.

Get Rid of Some Lawn

Replacing Lawn with Shrubs and Bedding Plants

- Newly planted trees and shrubs establish better with light, frequent irrigation
- Water about 3 months per inch of trunk diameter to fully establish a plant
- Water 2 times per week for the first few months
- Water weekly until plants are fully established
- Each time, apply 2-3 gallons of water per inch of trunk diameter
- Use microirrigation to efficiently establish new plants

Often, new shrubs, trees, or bedding plants die or fail to thrive because they are not given enough water in the beginning to get established. Here's how to avoid that problem.

Thanks for checking out our suggestions, and good luck with finding ways to use less water!