



# Water Smart™

## Public Works - Water Conservation

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## PREVENT FROZEN PIPES

*Do not be caught by surprise when sub-freezing temperatures strike the City of Prescott. 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 a professional service to assist you.
- 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 the City of Prescott Utilities service line at 777-1118.

### A GUIDE TO WINTERIZING THE PRESSURIZED IRRIGATION SYSTEM

Each year, the pressurized irrigation system will be winterized sometime in late **October or November**. After that date, the system will be turned off until spring and watering should be done manually. The recommendation from the irrigation industry is that you leave your individual shut-off valve in the "open" position for a time to allow for proper drainage of the system.

If you "blow-out" your sprinkler system, you will need to close the shut-off valve to complete that process. Each irrigation system must be completely drained and dried to prevent damage to the system's components caused by frozen water inside the pipes, sprinklers and valves.

### Winterizing Your Lawn Sprinkler System

Every year, before the first freeze, the ritual of irrigation "blow out" becomes the priority for all irrigation systems that are in parts the country where the frost level extends below the depth of the installed piping. To minimize the risk of freeze damage to your irrigation system, you'll need to "winterize" your irrigation system.

Reference: [www.greetouchirrigation.com/Winterize\\_your\\_Sprinkler\\_system.html](http://www.greetouchirrigation.com/Winterize_your_Sprinkler_system.html)

- Even if you have drained some water out of the system, the remaining water can freeze, expand and crack the PVC piping (rigid, white pipe), usually from fitting to fitting.
- Polyethylene pipe (flexible, black pipe) is used in many freezing climates. Although polyethylene pipe is more flexible and can expand under pressure, water left inside could freeze and rupture the pipe walls.
- Freezing water in the backflow assembly will damage the internal components and could possibly crack the brass body.

Irrigation systems in areas where "winterization" is mandatory are installed using one of three types of water removal in mind: manual drain, auto drain, or blowout. If you don't know your system type, it would be best to use the blowout method.

### **Manual Drain Method**

Use when manual valves are located at the end and low points of the irrigation piping. To drain these systems:

1. Shut off the irrigation water supply (shut off will be located in the basement and will be either a gate/globe valve, ball valve or stop and waste valve - see drawings below) and
2. Open all the manual drain valves.
3. Once the water has drained out of the mainline, open the boiler drain valve or the drain cap on the stop and waste valve (whichever is used in your area) and
4. Drain all the remaining water that is between the irrigation water shut off valve and the backflow device.
5. Open the test cocks on the backflow device.

### **If your sprinklers have check valves you'll need to:**

1. Pull up on the sprinklers to allow the water to drain out the bottom of the sprinkler body.
2. Depending on the location of the drain valves, there could be some water left in the backflow, the piping and the sprinklers.
3. When all the water has drained out, close all the manual drain valves.

### **Automatic Drain Method**

Use when automatic drain valves are located at the end and low points of the irrigation piping. These will automatically open and drain water if the pressure in the piping is less than 10 PSI.

To activate these,

1. Shut off the irrigation water supply (shut off will be located in the basement and will be either a gate/globe valve, ball valve or stop and waste valve - see drawings below) .
2. Activate a station to relieve the system pressure.
3. Once the water has drained out of the mainline, open the boiler drain valve or the drain cap on the stop and waste valve (whichever is used in your area) and
4. Drain the remaining water that is between the irrigation water shut off valve and the backflow device.
5. Open the test cocks on the backflow device.

**If your sprinklers have, check valves you will need to pull up on the sprinklers to allow the water to drain out the bottom of the sprinkler body.**

1. Pull up on the sprinklers to allow the water to drain out the bottom of the sprinkler body.
2. Depending on the location of the drain valves, there could be some water left in the backflow, the piping and the sprinklers.
3. When all the water has drained out, close all the manual drain valves.
4. In some areas you might have a combination of the manual drain system on the mainline (the pipe between the irrigation water shut off valve and the valves) and auto drain system on the lateral lines (the pipe between the valves and the sprinklers).

### **"Blow Out" Method"**

*It is recommended that a qualified licensed contractor or plumber perform this type of "Winterization" method, The blow out method utilizes an air compressor with a Cubic Foot per Minute (CFM) rating of 125-185 for any mainline of 2" or less and a PSI of 50-80.*

These types of compressors can be rented at your local equipment rental yard. The compressor is attached to the mainline via a quick coupler, hose bib or other type connection, which is located before the backflow device.

### **To start the "blow out",**

1. open the Test Cocks on the vacuum breaker,
2. shut off the irrigation water supply and open the drain on the supply line.
3. Once the line is drained, close the drain and proceed to connect the air line.
4. With the compressor valve in the closed position, attach the air compressor hose to the fitting.
5. Activate the station on the controller that is the zone or sprinklers highest in elevation and the furthest from the compressor.
6. Do not close the backflow isolation or Test Cock valves.
7. Slowly open the valve on the compressor; this should gradually introduce air into the irrigation system.
8. **The air pressure should be constant at 50 PSI.**

**If the sprinkler heads do not pop up and seal, increase the air until the heads do pop up and seal. The air pressure should NEVER exceed 80 PSI.**

- Each station/zone should be activated starting from the furthest station/zone from the compressor slowly working your way to the closest station/zone to the compressor.
- Each station/zone should be activated until no water can be seen exiting the heads, this should take approximately two to four minutes per station/zone.
- It is better to use two or three short cycles per station/zone than to have one long cycle.
- Once the station/zone is dry, you should not continue to blow air through the pipe. Compressed air moving through dry pipes can cause friction, which will create heat and the heat could cause damage.

## Additional Steps

Once the water has been removed from the irrigation system, shut-down the air compressor and release any air pressure that may be present. Disconnect the airline. If your backflow device, the most common backflow installed is called a Pressure Vacuum Breaker, has ball valves, open and close the isolation valves on the backflow device numerous times to ensure that any trapped water has escaped from the upper areas. Leave the isolation valves open at a 45° angle (approximately 1/2 open) and leave the test cocks open.

### Outdoor mounted controllers

Leave the power on and the dial / switch in the "Off" position. The heat from the transformer will keep the enclosure warm enough to keep condensation from forming inside the controller enclosure. The dial in the "OFF" will keep the controller from activating the solenoids in the field.

### Indoor mounted controllers.

You may either leave the power on and the dial/switch in the "Off" position OR you may remove the battery backup and unplug the transformer.

### Rain Sensors.

There is not much to do to prepare the rain sensor for the winter months. If your sensor is the type with a cup or bowl that catches water, you might want to remove the water and place a plastic bag over the sensor. This will keep any water from accumulating and freezing in the cup or bowl area. If your sensor is the type that uses wafers or discs, you might want to remove the wafers and store them in the garage for the winter months. This will keep damp wafers from freezing.

### The Do NOT'S of "BLOW~OUT" Winterization

- DO NOT #1:** Allow the air pressure to exceed 80 PSI for systems with PVC piping and 50 PSI for systems with polyethylene piping.
- DO NOT #2:** Stand over component parts while the system is pressurized with air.
- DO NOT #3:** Leave the air compressor unattended.
- DO NOT #4:** Blow the system out through a pump. First blow out the system, then drain the pump.
- DO NOT #5:** Leave the manual drain valves open after the blow out.
- DO NOT #6:** Leave the indoor drain open during the blow out!

#### *The City of Prescott - Water Conservation Incentive*

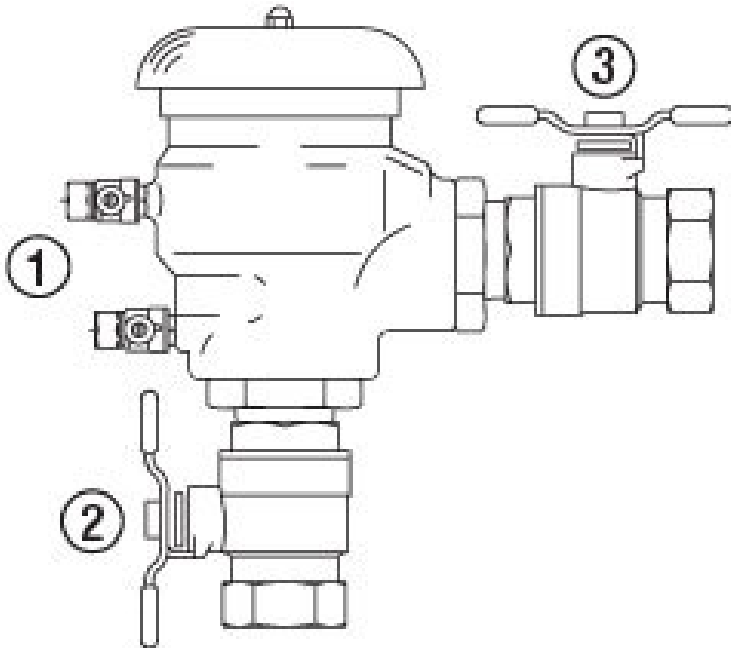
**WOW** save time, water and receive a utility bill credit. You may be eligible to apply for the turf removal or other water conservation credit. See application for more details and program conditions.

*A conservation program offers up to \$800 credit to remove all or portion of high water use lawn areas. Additionally, many other water efficient home and commercial improvements are eligible for a utility bill credit.*

*Application and program information is available at City hall, Public works department, by calling 777.1130 or go to the City of Prescott website: [www.cityofprescott.net](http://www.cityofprescott.net), link to water conservation.*

# Pressure Vacuum Breaker

Backflow Prevention Device



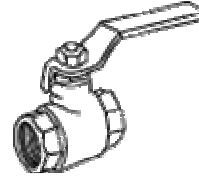
1. PVB Test Cocks
2. Isolation Ball Valve Inlet
3. Isolation Ball Valve Outlet

Want to know why we require a backflow device?

<http://www.treeo.ufl.edu/backflow/casehist.aspx#25>



A winterized insulation bag wrapped around a commercial backflow device.



Ball Valve



Gate Valve



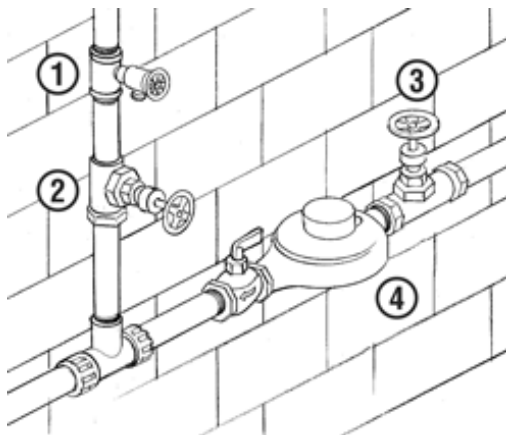
Stop & Waste Valve



Boiler Valve

## Types of Valves

Interior Point of Connection Freezing Climates



1. Boiler Valve/Drain
2. Irrigation Shut Off Valve
3. Main Water Shut Off Valve
4. Water Meter



Insulated box installed and locked to protect backflow device from freezing and tampering.

**8am to 8pm no outdoor watering- spray irrigation. Restrictions go into effect annually April 15<sup>th</sup> through November 1<sup>st</sup>.**

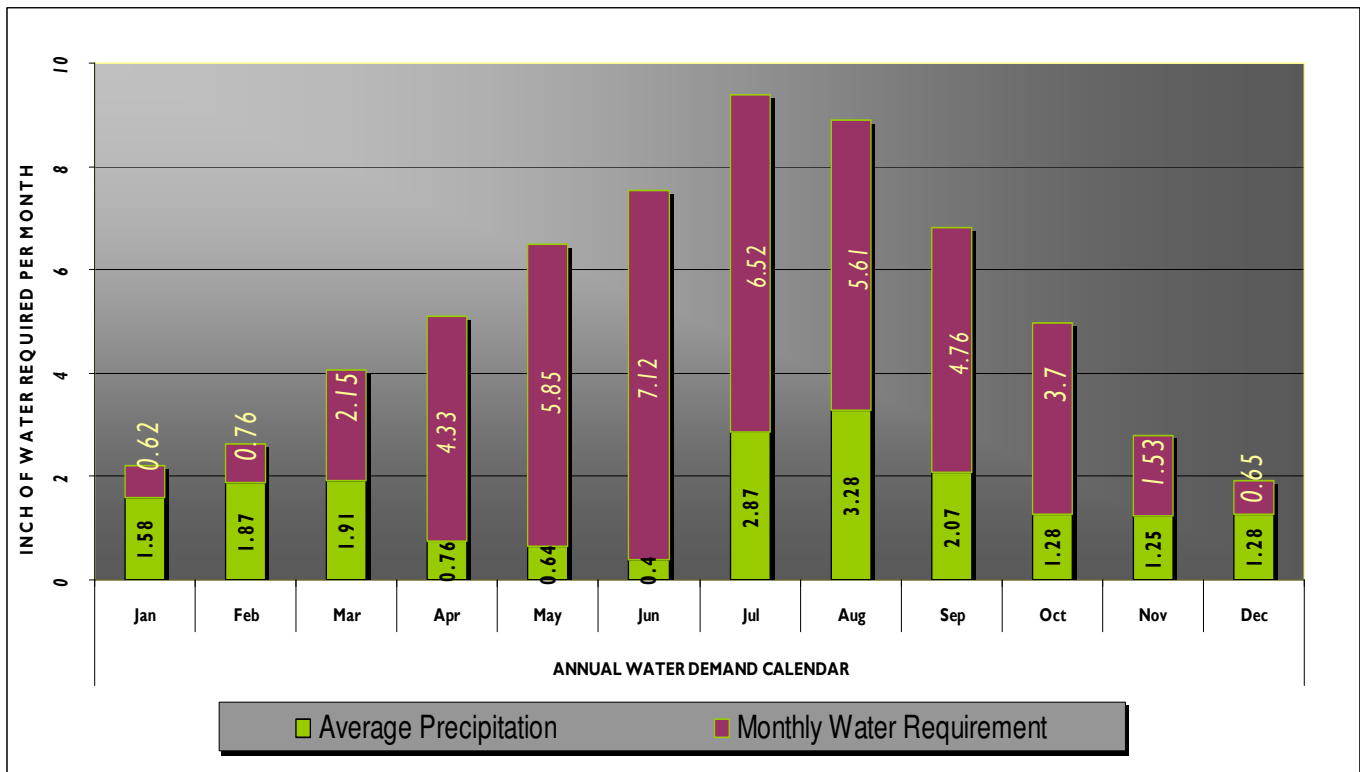
## Irrigation and Watering Guidelines

During the growing season May through October apply about one inch of water a week to maintaining a viable landscape in our Prescott and surrounding area Desert Highland. Water requirement in the winter and early spring are less. Install a rain shut off and a rain gauge to guide monthly review and support efficient water use.

<b>Water Smart Conversion Table</b>		
<i>rain or sunshine</i>		
<b>Area</b>	<b>Depth = Gallons</b>	<b>Pounds</b>
100 square feet	1 inch = 63	520
1000 square feet	1 inch = 624	52 hundred
One acre	1 inch = 27,154	200 thousand
Acre = 43,560 sq. ft.	12 inch = 325,851	23 million
Cubic Foot	7.48	62.4
Cubic yard	202 gallons	1685
-	One gallon	8.337

*Source- TPI Water Rights Guide*

### RAINFALL AND ADDITIONAL WATER REQUIREMENT - REFERENCE TABLE



Reference: University of Arizona, Cooperative Extension Turf irrigation management No. 7

<http://cals.arizona.edu/azmet/data/all-lwnh.htm>

Reference: [www.greetouchirrigation.com/Winterize\\_your\\_Sprinkler\\_system.html](http://www.greetouchirrigation.com/Winterize_your_Sprinkler_system.html)