

# THE IRRIGATION GUIDE

*Your guide to installing, maintaining, and operating an irrigation system in Walla Walla.*



## Find out about:

- Typical pressures and flow rates
- Backflow prevention requirements
- Getting a permit
- Passing inspection
- Suggested watering schedules
- Conserving water
- Identifying and preventing leaks
- Saving money



**FOR AN INSPECTION CALL 509.527.4387**

## *Before you begin...*

Everyone likes green grass, but maintaining a lawn can be expensive and time consuming. Irrigating efficiently can produce quality grass, conserve water, and reduce your utility bill, while freeing up time for the things you really want to do.

Underground irrigation systems have seen a rise in popularity in recent years, and with the proliferation of do-it-yourself books, websites, and television shows many homeowners are opting to install their own irrigation systems. As a consequence, many do-it-yourself installers are not aware of the code requirements.

The purpose of this document is to bring awareness of the code requirements and answer

some of the frequently asked questions the City receives from both professional and do-it-yourself installers. Whether you are interested in contracting with a professional installer to design and install your system or if you are thinking of designing and installing it yourself, please read this guide first to familiarize yourself with this information.

The choice is yours to do it yourself or contract with a professional. Our goal in producing this document is to promote design and installation practices that meet the code requirements and protect water quality while encouraging conservation of our community's drinking water supply.

# Installation



Installing an irrigation system can be a challenging but rewarding project. Whether you are a homeowner or a professional, there are a number of questions you will want to ask yourself before you begin. Understanding installation requirements before you start can save you time and money, and help you to create an irrigation system which will increase the value of your home or satisfy your customers. Here are some installation issues you will want to be aware of:

**New irrigation systems require a permit.** Permits are available from the Development Services office in the City Service Center at 55 Moore (off Second Avenue near the Hwy 12 overpass). If you install an irrigation system without a permit you may be charged a double permit fee and have to correct any work that was not completed to City specifications.

**Know the answers to the following questions** before applying for your permit. (you may want to call or visit for assistance)

1. Where do you intend to hook up to your water supply?
2. Where do you plan to install the backflow preventer?
3. What type of backflow preventer do you intend to install? Example: Atmospheric Vacuum Breaker (AVB), Pressure Vacuum Breaker Assembly (PVBA), Double Check Valve Assembly (DCVA), or Reduced Pressure Principle Backflow Assembly (RPBA).
4. Do you plan on using or having available any backup or additional water sources (creek, pond, irrigation district water, etc)?

## *(continued)*

5. Do you need a frost free hydrant for your garden or yard needs?

6. How do you intend to winterize your irrigation system (blowouts, drain valves, etc)?

**Backflow preventers are required** for all underground irrigation systems (connected to City water) to isolate the system from the City's distribution system. The installation standards are available at the City Service Center at 55 Moore Street.

**Irrigation systems that use or distribute chemicals** (or have the ability to use or distribute chemicals) are required to have a special type of backflow assembly called a reduced pressure principle backflow assembly (RPBA), specifically designed to prevent dangerous chemicals from contaminating the customer's plumbing system and/or the public water system.

**Water pressure can vary** throughout the City from 40 psi to 100 psi, depending on system conditions, so check your water pressure before designing your system. You can purchase a water pressure gauge, or call the water division at 509.527.4380 to have the pressure checked. Most people choose to hook up for irrigation somewhere between the meter and the house, and since most homes have a pressure regulating valve where the water enters the house to lower the water pressure inside the home, any pressure reading you get from a faucet on the house is likely to be lower than the pressure you will actually have to your irrigation system.

When you have finished installing the backflow preventer on your irrigation system, **you must call the City for an inspection.** At the time of inspection, the inspector will either:

1. approve the installation and give you a list of certified testers (unless of course you are using AVBs) to call to have the assembly tested after installation,
2. identify any problems with the installation and give you a notice to correct it and call for a re-inspection.

**Underground drain valves are allowed. Stop and**

**waste valves are not allowed.** If you choose to put in an underground drain valve, you will need to make sure it is not buried, and that it has a gravel drain field below it of at least six inches (deep).

## Checklist

- Plan where you are going to connect to your water.
- Decide if you are going to have any frost free hydrants (you will want to install them downstream of a backflow preventer).
- Determine what type of backflow preventer you intend to use.
- Design your system (there are numerous internet and local sources of information to properly design your system).
- Sketch your system showing the point of connection, location and type of backflow preventer(s), hose bibs or frost free hydrants, control valves, and any drains or blowouts for winterization.
- Visit the Development Services Office at the Service Center and obtain permit and installation standards (ask to meet with someone if you have questions).
- Install your irrigation system.
- Call for an inspection.
- Have the backflow preventer(s) tested if required (a list of testers is available from the inspector).
- Enjoy the benefits of having an irrigation system!

# Helpful hints



*Installing the blowout in the same box with a double check valve assembly can be an efficient use of space. Make sure to leave room for testing and maintenance.*

*“Y” style double check valve assemblies should be installed with the test cocks pointing up as shown here.*



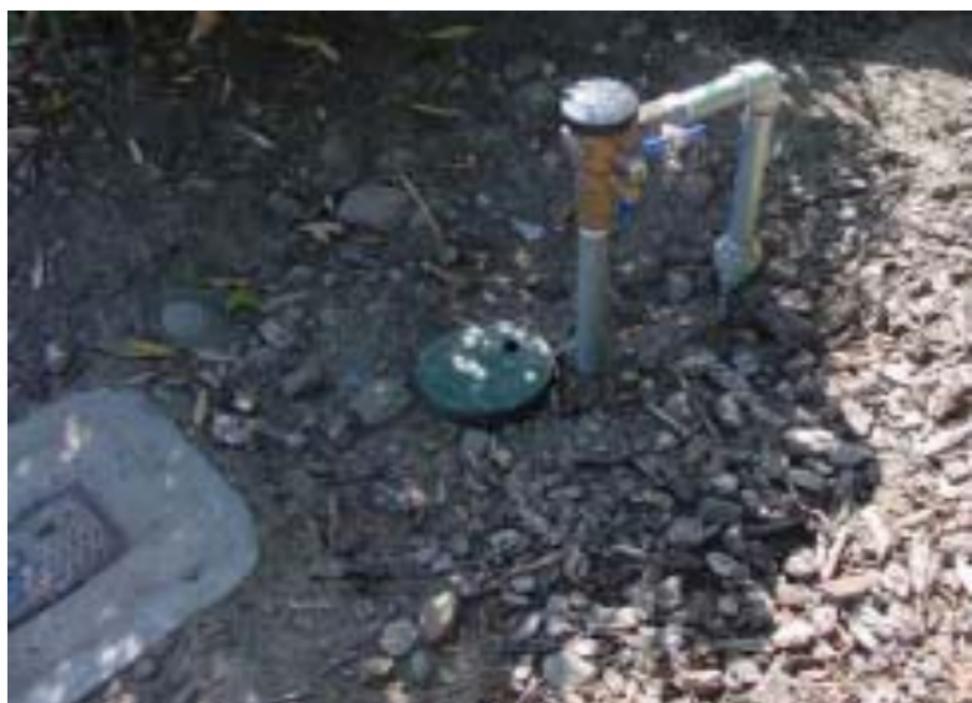
*Installing an additional meter box upside down below the meter box for your double check valve assembly provides the required clearance below the assembly, and keeps out dirt and rocks that interfere with testing and maintenance.*



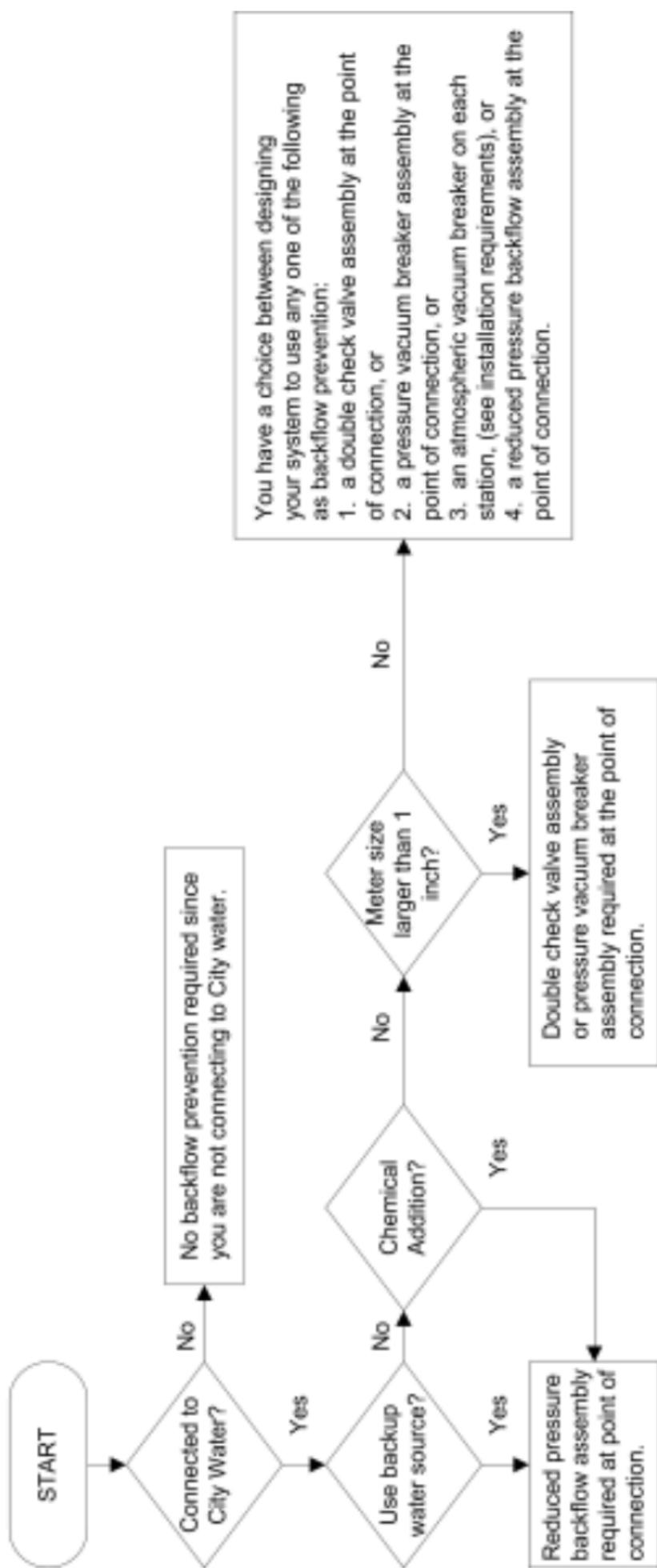


*Pressure vacuum breakers are much easier to remove for winterization or replacement if unions are used.*

*Backflow assemblies should be installed as close as possible to the point of connection. However, pressure vacuum breakers are less likely to be damaged or present a tripping hazard if placed out of the way. If these two issues conflict, it is best to call for approval of the location before you install the assembly.*



# Backflow preventer selection



For your information only. Determination of appropriate means of backflow prevention to be determined by the City.

# Maintenance

After your system is installed, you will need to protect it from damage and ensure that your home's drinking water does not become contaminated from it. With the proper design and maintenance of your irrigation system, you will enjoy years of benefits from having an underground irrigation system. Some things you should consider are:

1. Backflow assemblies have to be tested (and repaired or replaced if necessary) after installation and once per year after that. Depending on your installation the costs can vary. Irrigation contractors may provide winterization and backflow testing services in a package deal. Call around and check for prices and services. Atmospheric vacuum breakers (AVBs) are required to have an initial inspection, but are not required to be tested annually.
2. Do it right the first time. Take the time to use the right equipment and supplies to avoid costly repairs and water bills. Leaks in your plumbing system can be expensive, and the City cannot (as a matter of state law) provide refunds for leaks.
3. Irrigation systems will freeze if not properly winterized. This is usually accomplished by blowing out the system with compressed air or by draining the system. Properly winterizing a system is far cheaper than repairing it in the spring. If you plan to winterize by using compressed air, make sure you follow the City guidelines for winterizing an irrigation system to prevent contamination of your water or the distribution system (call the Water Division for a copy).
4. Fix leaks when you find them. The cost of water lost through leaks can quickly overcome any savings you would have realized with a properly sealed system. Periodically inspect your irrigation system for leaks. Leaks may be obvious such as a spout of water shooting up from the sprinkler head or out of the ground, but sometimes they are more subtle, such as a soft spot in your yard that appears to be sinking.



Proper operation of an irrigation system is necessary to reap the rewards of your hard work. A properly installed and operating irrigation system can result in a beautiful lawn or landscape, while saving money on your monthly utility bill, and you can take pride in the knowledge that you are helping to preserve our community's water supply for current and future generations. Here are some tips for watering times, frequencies, and periods to help you accomplish these goals:

- 1. Water at the right time of day.** Watering in the early morning between 2:00 a.m. and 6:00 a.m. is the best time. At that time of day, evaporation rates are low which will result in decreased watering time requirements. This allows the water to reach the roots where it can be utilized more efficiently while preventing or reducing fungus and moss which thrive in dark, warm, moist conditions in the evening.
- 2. Water at the right interval.** It is only necessary to water your lawn about three times a week in the early and late season. Watering more often may result in shallow rooting, leading to poor root structure and patchy areas. If you have an automated sprinkler control system, you may want to use multiple settings. For example, use one setting for most of the season with three watering cycles per week, and an additional setting for the hot months of July and August, where you may want to water for shorter periods but more frequently (e.g. daily) to help the vegetation survive the hot dry weather.
- 3. Water the correct amount.** There are a number of factors that determine the ideal amount of water to

apply. These include the type of grass or vegetation, weather conditions, degree of sun and shade, and soil types. Adjust your watering times down and inspect the grass and soil in the late afternoon. If the soil is dusty or the grass begins to turn a bluish hue or thin in comparison with the surrounding grass or vegetation, increase the watering time slightly for that area. By careful control of watering times, you should be able to determine and apply the optimal amount of water that will keep your landscape healthy while keeping your money in your pocket and conserving your community's water supply.

## Watering Tips

If your controller has a "Water Budget" option, you can set the irrigation run times on each station at summer (July) values and then adjusts them to the month. Average monthly demand in Walla Walla is as follows:

May	As Needed
June	70%
July	100%
August	80%
September	50%
October	As Needed

If the lawn gets too wet due to rain or cool temperatures, cancel a run day. If the lawn begins to stress due to hot weather, add a one-time run cycle with the "Manual" control option. Run times should be based on the type of sprinkler style and should be scheduled during the summer for three days a week as follows:

Spray Heads	20-30 minutes
Rotor Heads	60-90 minutes
MP Rotator Heads	60-90 minutes

*Note: These values vary due to zone location (shade vs. direct sun, north and east sides vs. south and west sides) and system nozzle selection. As a homeowner you may have to experiment with each zone to get it just right.*

# Frequently Asked Questions

**Question:** *Do I need to purchase a permit?*

**Answer:** Yes. Any time an irrigation system is installed, the owner must purchase a permit. The purpose of the permit is to protect the public health and the quality of our water by ensuring the proper installation of the irrigation system.

**Question:** *Where do I get a permit?*

**Answer:** Permits are available from the Development Services Office at the City Service Center at 55 Moore Street. To get there, drive North on Second Avenue from downtown until you drive under the highway 12 overpass. The first right after the overpass is Moore Street. The white building with the blue roof is the Service Center. The telephone number for permits is 509.527.4386.

**Question:** *Do I need to call for an inspection? What will the inspector be looking for?*

**Answer:** A final inspection will be required after construction. It is the owner's responsibility to call the City at 509.527.4387 to request a final inspection. The backflow preventer and any other possible water quality issues are the focus of the final inspection.

**Question:** *How do I know my design will pass inspection?*

**Answer:** If you wish, you may submit plans or a sketch to the City or stop by to discuss your project before starting construction. This will reduce the risk of having to modify your system after construction to bring it up to code. If you have concerns, you may call the Water Division at 527-4380 and ask to speak to someone about backflow prevention requirements on irrigation systems.

**Question:** *Is a backflow preventer always required?*

**Answer:** Yes, a backflow preventer is required for all underground irrigation systems connected to the City water system. This includes irrigation systems that use an alternative source but have City water available as a backup, whether or not it is turned off. The type of backflow preventer appropriate for each system will be determined by the City. This brochure includes a decision chart that may help you to understand how

your system design will influence backflow prevention requirements.

**Question:** *I know what backflow preventer I need, but how do I install it?*

**Answer:** There are different installation requirements for each type of backflow preventer. You will need to obtain a copy of the current installation standard from the City for the type of backflow preventer you are installing. Always feel free to call for clarification if you have questions.

**Question:** *I have heard some backflow preventers require annual testing. Do I need one of these?*

**Answer:** The City determines what backflow preventer type is required based on the degree of hazard and City requirements. Atmospheric vacuum breakers that are listed by the State of Washington Approved Assemblies List are allowed under certain conditions, and do not require annual testing.

**Question:** *The City came out and inspected my irrigation system. Do I still need to have someone test the backflow preventer(s)?*

**Answer:** Yes, unless your backflow preventers are atmospheric vacuum breakers. The City inspection is only to identify the backflow preventer(s) and verify the correct backflow preventer type has been used and installed correctly. A backflow assembly test confirms the backflow assembly is functioning properly, and must be conducted by a certified backflow assembly tester who is registered with the City of Walla Walla.

**Question:** *How much does a backflow assembly test cost, who does the test, and how do I know when I need to have a test performed?*

**Answer:** Costs vary considerably, so you will need to call around to get the price and service you want. The City provides a list of backflow assembly testers that are certified by the State and registered with the City to test backflow assemblies. Once a year you will receive a letter by mail notifying you that the test is due. A list of backflow assembly testers is included with the letter.

**Question:** *What if I don't want to have a backflow assembly installed or tested?*

## *(continued)*

**Answer:** If you have an underground irrigation system, and do not have a backflow preventer installed, the City will give you a period of time to have the backflow preventer installed, inspected, and tested (if applicable). If you refuse to install or test a backflow preventer after notification by the City, the City may refuse to serve you with water until you meet the requirements.

**Question:** *What if I don't get my backflow assembly tested by the due date?*

**Answer:** The City will send you a notice to test the assembly once a year. If you can't test it for some reason, you may request a reasonable extension (typically 10-14 days). A second (final) notice will be sent out after the due date if no test report is received. If you fail to test by the due date on that final notice, and fail to make alternative arrangements with the City to have it tested, the City may refuse to serve you with water.

**Question:** *How do I determine the static pressure for my calculations?*

**Answer:** Pressure varies throughout the City from about 40 psi to 100 psi, so to be sure, you should purchase a water pressure gauge, or you may call the Water Division to have your pressure tested.

**Question:** *How do I determine maximum flow for my calculations?*

**Answer:** Flow rates change according to meter model, service line size and length, and pressure.

Approximate maximum flow rates (for continuous flow) according to our meter manufacturer are as follows:

<u>Meter Size(inch)</u>	<u>Max Flow(gpm)</u>
3/4	15
1	25
1-1/2	50
2	80

# Notes



*For more information you may visit the City of Walla Walla Service Center at 55 Moore Street, or you may call the Water Division at 509.527.4380.*



**Service Center: 55 Moore Street**  
**Permits: 509.527.4386**  
**Inspections: 509.527.4387**  
**Water Division: 509.527.4380**