

# Frequently Asked Questions

## WHY DO I NEED BACKFLOW PROTECTION?

Irrigation systems are considered non-potable water systems. Backflow protection stops animal waste, fertilizers, herbicides and pesticides from entering your drinking water system.

## HOW CAN IRRIGATION WATER ENTER MY DRINKING WATER SYSTEM?

The most common way contaminated water enters a drinking water system is by back-siphonage. This can occur when water pressure is reduced during times of high volume use, i.e., a shower, clothes washer and dishwasher all operating at the same time.

## HOW DOES BACKFLOW PROTECTION STOP CONTAMINATION?

A properly installed and maintained backflow preventer will allow water to flow in only one direction.

## WHY MUST I HAVE MY BACKFLOW PREVENTER TESTED?

Backflow preventers, like cars, are mechanical assemblies that, if not maintained, will not perform properly.

## WHICH TYPE OF BACKFLOW PREVENTER IS BEST?

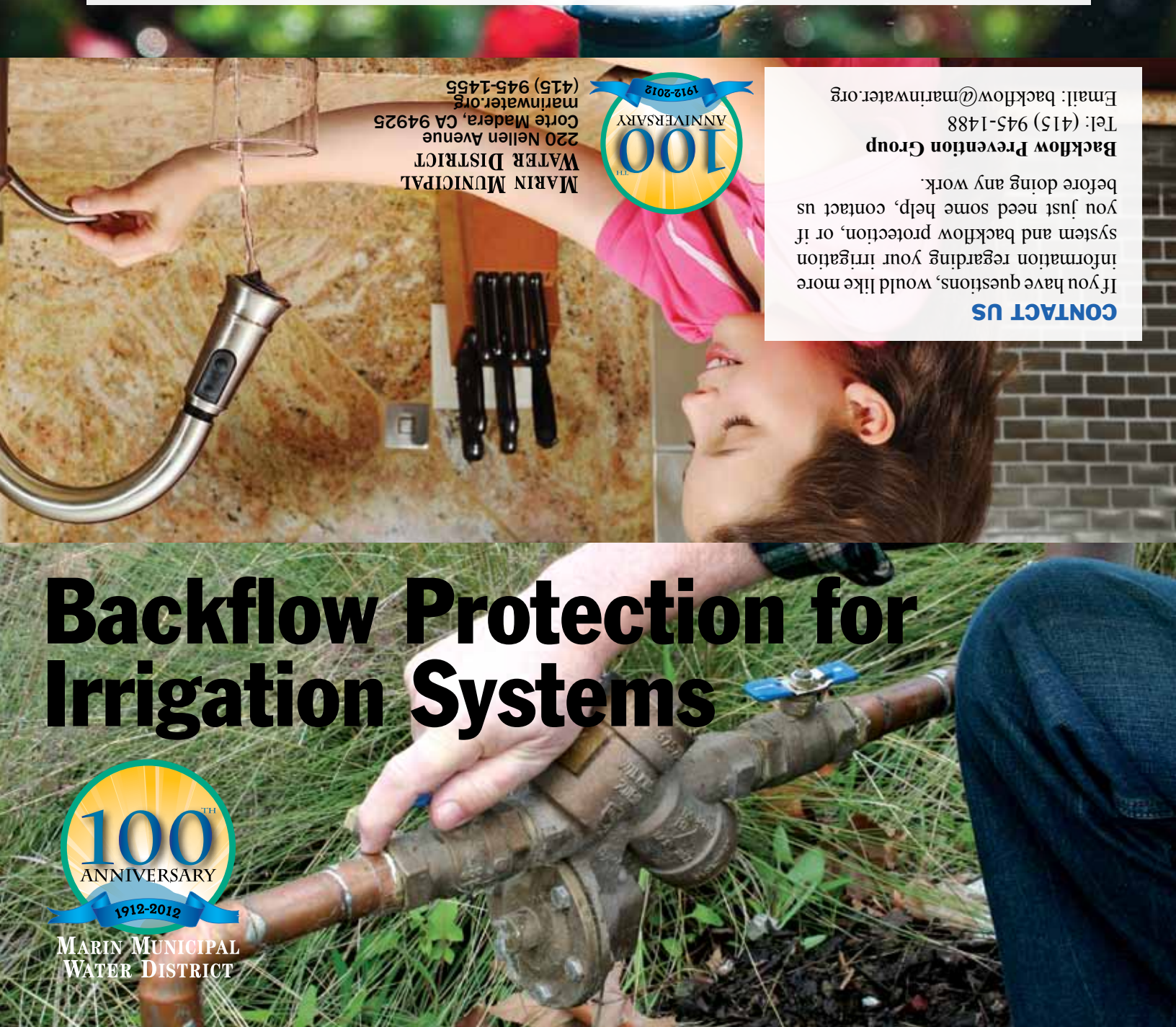
Each type of backflow preventer will protect from backflow if properly selected, installed and maintained. It is important that the right type of protection be used based on site conditions and elevations.

## HOW MUCH DOES A BACKFLOW PREVENTER COST?

Cost depends on the type of backflow preventer required and installation constraints.

## WHERE IS THE BACKFLOW PREVENTER INSTALLED?

MMWD will determine the best location for the backflow preventer based on the site conditions and elevations. Generally, protection is installed at the irrigation system's point of connection to the water supply.



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If you have questions, would like more information regarding your irrigation system and backflow protection, or if you just need some help, contact us before doing any work.

### CONTACT US

Backflow Prevention Group

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# Backflow Protection for Irrigation Systems



MARIN MUNICIPAL  
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# What is Backflow?

Backflow is the undesired reversal of the flow of liquids—such as irrigation water—into the drinking water system. The two forms of backflow are:

- ◆ Back-siphon – the action of flow reversal caused by a reduction in line pressure.
- ◆ Back-pressure – the increase of water pressure caused by elevation or mechanical pumping.

The installation of a backflow preventer will protect drinking water systems from possible contamination from irrigation systems.

## Types of Backflow Protection & Their Operation

There are three methods of backflow protection available to protect drinking water systems from possible contamination from irrigation systems. Those methods and their operation are shown below.

### 1. ATMOSPHERIC VACUUM BREAKER (AVB)

A properly installed AVB will prevent water from flowing backwards by introducing air into the water line and breaking the siphon action. It's like putting a hole in a straw; the incoming air will not allow water to be drawn through the straw. Siphoning occurs when water pressure in the service line is reduced, allowing irrigation water to flow backwards. The AVB does not require testing.



### 2. PRESSURE VACUUM BREAKER (PVB)

A properly installed PVB works in the same way as the AVB except that it has a spring to assist with the opening of the air inlet valve. When air is introduced into the water line, any reverse flow is stopped. This spring also means that valves can be located within the irrigation system (see Installation Requirements). The PVB requires annual testing.



### 3. REDUCED PRESSURE PRINCIPLE ASSEMBLY (RP)

The RP is a more sophisticated method of backflow protection suitable for back siphonage and back pressure and is appropriate for all irrigation systems. The RP has a relief valve located between two check valves. The relief valve will discharge water should either check valve fail. The RP is the only approved method of protection for dedicated irrigation services. The RP requires annual testing.



## General Installation Requirements

- ◆ Backflow assemblies must be accessible for testing and maintenance.
- ◆ Enclosures or freeze protection must be removable. Use only approved methods of protection.
- ◆ Selection is determined by MMWD based on site conditions.
- ◆ Must be installed at least 6 inches above all downstream piping and no more than 36 inches.
- ◆ No valves can be installed after the AVB.
- ◆ AVB must not be subject to back pressure at any time.
- ◆ Valve shall not operate continuously for more than 12 hours.
- ◆ Does not require annual testing.
- ◆ Not suitable for all irrigation systems.
- ◆ Requires MMWD approval to use.
- ◆ Must be installed at least 12 inches above all downstream piping and no more than 36 inches.
- ◆ May have valves located downstream.
- ◆ Shall not be subject to back pressure.
- ◆ Requires testing when installed, repaired or relocated and annually thereafter.

- ◆ Suitable for all irrigation systems.
- ◆ Must be installed horizontally, minimum 12 inches above finished grade and no more than 36 inches.
- ◆ Must have adequate clearance on all sides for testing and maintenance.
- ◆ Requires testing when installed, repaired or relocated and annually thereafter.

## Unacceptable Types of Backflow Protection Assemblies for Irrigation Systems

Double Check Valve Assembly (DCV)



Hose Bib Vacuum Breaker (HVB)



## Backflow Assembly Testing

State law requires annual testing of backflow assemblies by a Certified Backflow Assembly Tester. Contact the MMWD Backflow Prevention Group at [backflow@marinwater.org](mailto:backflow@marinwater.org) or (415) 945-1488 for a current list of certified testers.