

**2018 Annual Drinking Water Quality Report for  
Westford Water Department  
Westford, Massachusetts  
DEP PWS ID # 3330000**

This report is a snapshot of drinking water quality over the past year. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards.

**I. PUBLIC WATER SYSTEM INFORMATION**

Superintendent: Stephen Cronin

Address: 60 Forge Village Road, Westford, MA 01886

Contact Person: Mark Warren, Environmental Compliance Manager

Telephone #: 978-399-2457

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**Opportunities for Public Participation**

Our office hours are Monday through Friday, 8am to 4pm. For emergencies after hours, please call the Police Dispatcher at 978-692-2161. If you would like to participate in discussions regarding your service or water quality issues, the Board of Water Commissioners meets at 60 Forge Village Road once a month at 5:30 pm or 8:00 am, unless otherwise posted. If you need to request a meeting with the commissioners about a particular issue, please submit your request in writing to Larry Panaro, Water Department Business Manager, to have your topic added to the agenda. For additional information or questions about this report contact Mark Warren, Environmental Compliance Manager.

**Water System Management and Improvements**

To ensure that we provide the highest quality water available, a Massachusetts-certified operator oversees the routine operations of our system. In addition, the Massachusetts Department of Environmental Protection (MassDEP) inspects our system periodically for its technical, financial, and managerial capacity to provide safe drinking water to you. The Vinebrook Estates neighborhood was connected to town water in 2018 adding 78 new customers. Construction of the new Prospect Hill Storage Tank project started in 2018, and is anticipated to be in service in the spring of 2019. Approximately 1,600 linear feet of 2" deteriorated galvanized steel water main was replaced with 8" PVC plastic pipe in the Nabnasset neighborhood as part of an emergency project. The Westford Water Department added a total of 23 new hydrants, added 89 new service connections/accounts, renewed or repaired 19 service connections, added 1.6 miles of water main, replaced 0.23 of water main, and repaired 4 water main breaks. For 2018, this brings the system to a total of 1,077 hydrants, 5,486 service connections/accounts, approximately 137.8 miles of water main, storage capacity of 4.85 million gallons, and a total of 507 million gallons of drinking water produced (compared to 497 million gallons produced in 2017).

**II. YOUR DRINKING WATER SOURCE**

**Where Does My Drinking Water Come From?**

Your water source is from groundwater supplied by two major aquifers in the area, Stony Brook and Beaver Brook.

Source Name	DEP Source ID#	Location of Source
Forge Village Well Field	3330000-01G	Forge Village Road
Nutting Road Well	3330000-02G	Nutting Road
Depot Road Well	3330000-03G	Depot Road
Country Road II Well	3330000-19G	Country Road
Forge Village II Well	3330000-05G	Forge Village Road
Howard Road Well Field	3330000-06G	Howard Road
Cote Well	3330000-07G	Beacon Street
Fletcher Well	3330000-08G	Concord Road
Stepinski Well	3330000-20G	River Street

**Is My Water Treated?**

We make every effort to provide you with safe and pure drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants.

- Disinfectant is added to protect you against microbial contaminants.
- The water is filtered to remove iron and manganese, small particles, and organisms such as algae, parasites, and bacteria.
- The water is chemically treated to reduce lead and copper concentrations at your tap.
- Fluoride is added to aid in dental health and hygiene (0.68 ppm annual average in distribution system).
- The water is aerated to reduce radon amounts, raise the pH, and remove volatile organic compounds.
- Ultraviolet light is used as an additional guard to protect you against pathogens.

The water quality of our system is constantly monitored by us and the MassDEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required.

### **How Are These Sources Protected?**

MassDEP has prepared a Source Water Assessment and Protection (SWAP) Report, which assesses the susceptibility of public water supplies to potential contamination. The key protection issues noted for Westford include the necessity for continued monitoring of roads and other non-water supply activities in Zone I areas and working with neighboring communities to protect the Zone IIs in the water supply protection area. A Zone I is defined as the protective radius required around a public water supply well or wellfield. For public water system wells with approved yields of 100,000 gallons per day or greater, the protective radius is 400 feet. Zone II means that area of an aquifer that contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at approved yield, with no recharge from precipitation). Susceptibility ratings of low to high were assigned to the Zone II protection areas for the Town wells. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of any hydrogeologic barriers (i.e. clay or bedrock), which can prevent contaminant migration. The Water Department was commended for working with the Highway Department to ensure that highway runoff is directed away from Zone IIs, acquiring land to protect the wells within Zone IIs, and working with schools to improve management of athletic field runoff. Outreach efforts are ongoing to increase public understanding of the hydrologic cycle, how pesticides and other contaminants can influence water supplies, organic lawn care, and ways residents can help protect our drinking water resources.

**What is My System's Ranking?** A susceptibility ranking of high was assigned to this system using the information collected during the assessment by MassDEP.

### **Where Can I See The SWAP Report?**

The complete SWAP report is available at the Westford Water Department and on the MassDEP website, <http://www.mass.gov/eea/docs/dep/water/drinking/swap/nero/2330000.pdf>. For more information, contact Mark Warren at 978-399-2457.

## **III. SUBSTANCES FOUND IN DRINKING WATER**

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791). Contaminants that may be present in source water include:

**Microbial contaminants**, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. **Inorganic contaminants**, such as salts and metals, can be naturally-occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and farming. **Pesticides and herbicides** may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses. **Organic chemical contaminants** include synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems. **Radioactive contaminants** can be naturally-occurring or the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, MassDEP and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and some infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Westford Water Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

## **IV. IMPORTANT DEFINITIONS**

**ppm** = parts per million or milligrams per liter (mg/L)

**ppb** = parts per billion or micrograms per liter (µg/L)  
**pCi/L** = picocuries per liter (a measure of radioactivity)  
**ND** = not detected  
**N/A** = not applicable  
**NTU** = Nephelometric Turbidity Units

**Maximum Contaminant Level (MCL)** – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**Maximum Contaminant Level Goal (MCLG)** – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**Maximum Residual Disinfectant Level (MRDL)** – The highest level of a disinfectant (*i.e.*, chlorine, chloramines, chlorine dioxide) allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**Maximum Residual Disinfectant Level Goal (MRDLG)** – The level of a drinking water disinfectant (*i.e.*, chlorine, chloramines, chlorine dioxide) below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**Treatment Technique (TT)** – A required process intended to reduce the level of a contaminant in drinking water.

**Action Level (AL)** – The concentration of a contaminant that, if exceeded, triggers treatment or other requirements which a water system must follow.

**90<sup>th</sup> Percentile** – Out of every 10 homes sampled, 9 were at or below this level.

**Massachusetts Office of Research and Standards Guideline (ORSG)** – The concentration of a chemical in drinking water, at or below which, adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

**Secondary Maximum Contaminant Level (SMCL)** – These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

**Unregulated Contaminants** – Contaminants for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.

**Running Annual Average (RAA)** – The average of four consecutive quarters of data.

## V. WATER QUALITY TESTING RESULTS

### What Does This Data Represent?

The water quality information presented in the following tables is from the most recent round of testing done in accordance with MassDEP regulations. All data shown were collected during the last calendar year unless otherwise noted in the tables.

Regulated Contaminants	Date(s) Collected	Highest Detect	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Inorganics</b>							
Barium (ppm)	5/15/2018 5/16/2018	0.022	0.011 – 0.022	2	2	No	Discharge of drilling wastes or from metal refineries; erosion of natural deposits
Fluoride (ppm)	Monthly (2018)	0.8	0.5 – 0.8	4*	4	No	Erosion of natural deposits; water additive which promotes strong teeth**; discharge from fertilizer and aluminum factories
Nitrate (ppm)	5/15/2018 5/16/2018	2.0	1.1 – 2.0	10	10	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Regulated Contaminants	Date(s) Collected	Highest Detect	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Inorganics (cont.)</b>							
Perchlorate (ppb)	Monthly (2018)	0.130	0.057 – 0.130	2	----	No	Rocket propellants, fireworks, munitions, flares, blasting agents
* Fluoride also has a secondary contaminant level of 2 ppm. **We have treated the water with fluoride since 1994. Fluoride in drinking water at levels of approximately 0.7 ppm prevents tooth decay/cavities in both children and adults (new optimal level of 0.7 ppm instituted in 2015).							

Regulated Contaminants	Date(s) Collected	*Highest LRAA	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
<b>Disinfection Contaminants</b>							
Chlorine (ppm)	Monthly (2018)	0.57	0.02 – 1.46	4	4	No	Water additive used to control microbes
Haloacetic Acids (HAA5s) (ppb)	Quarterly (2018)	22	6.9 – 26	60	----	No	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)	Quarterly (2018)	71	21 - 86	80	----	No	Byproduct of drinking water chlorination
* Highest LRAA = highest locational running annual average of four consecutive quarters. Compliance is based on the locational RAAs. Chlorine is reported as the highest RAA of four consecutive quarters.							

Lead & Copper	Date(s) Collected	90 <sup>TH</sup> percentile	Action Level	MCLG	No. Sites Sampled	Sites Above Action Level	Possible Source of Contamination
Lead (ppb)	3 <sup>rd</sup> Quarter 2018	3	15	0	30	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	3 <sup>rd</sup> Quarter 2018	0.14	1.3	1.3	30	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Refer to the discussion about lead in water under the Substances in Water Found in Drinking Water Section for more details.

Turbidity	Treatment Technique	Lowest Monthly % of Samples	Highest Detected Daily Value	Violation (Y/N)	Possible Source of Contamination
Daily Compliance (NTU)	1	----	0.28	No	Soil runoff. Turbidity has no health effects but it can interfere with disinfection and provide a medium for bacterial growth and indicate the presence of disease-causing organisms.
Monthly Compliance*	0.30	100	----	No	

Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality.

\*Monthly turbidity compliance is related to a specific treatment technique. Our system filters the water so at least 95% of our samples each month must be below the turbidity limits specified in the regulations.

Unregulated and Secondary Contaminants	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source(s)
Chloroform (ppb)	5/15/2018 5/16/2018	1.8 – 9.0	5.4	----	----	Trihalomethane; byproduct of drinking water chlorination
Bromoform (ppb)	5/15/2018 5/16/2018	ND – 1.9	1.9	----	----	Trihalomethane; byproduct of drinking water chlorination
Bromodichloromethane (ppb)	5/15/2018 5/16/2018	3.6 – 9.7	6.65	----	----	Trihalomethane; byproduct of drinking water chlorination
Chlorodibromomethane (ppb)	5/15/2018 5/16/2018	5.8 – 6.1	5.95	----	----	Trihalomethane; byproduct of drinking water chlorination
Iron (ppb)	5/15/2018 5/16/2018	ND – 5	5	300	----	Erosion of natural deposits
Copper (ppm)	5/15/2018 5/16/2018	0.009 – 0.014	0.012	1.0	----	Erosion of natural deposits; leaching from wood preservatives
Zinc (ppm)	5/15/2018 5/16/2018	0.012 – 0.015	0.0135	5	----	Erosion of natural deposits; leaching from plumbing materials
Sodium (ppm)	5/15/2018 5/16/2018	70 – 76.3	73.2	----	20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Sulfate (ppm)	5/15/2018 5/16/2018	11.5 – 14.2	12.85	250	----	Natural sources
Chloride (ppm)	5/15/2018 5/16/2018	148 - 154	151	250	----	Runoff from road de-icing, use of inorganic fertilizers, landfill leachates, septic tank effluents, animal feeds, industrial effluents, irrigation drainage, and seawater intrusion in coastal areas.
Odor (T.O.N.)	5/15/2018 5/16/2018	1 - 3	2	3	----	Erosion of natural deposits; leaching from wood preservatives
Total Dissolved Solids (ppm)	5/15/2018 5/16/2018	334 - 352	343	500	----	Erosion of natural deposits
pH (s.u.)	5/15/2018 5/16/2018	7.2 – 7.5	7.35	6.5-8.5	----	----
Hardness (ppm)	5/15/2018 5/16/2018	93 - 95	94	----	----	Natural sources

Unregulated Contaminants (UCMR4) <sup>2</sup>	Date(s) Collected	Result or Range Detected	Average Detected	USEPA Reference Conc.	Possible Source(s)
Manganese (ppb)	1/24, 4/25, 7/17, 10/10/2018	1.3 – 25.1	5.22	50/300**	Erosion of natural deposits
Bromochloroacetic Acid (ppb)	4/25, 7/17, 9/5, 10/10/2018	1.6 – 7.6	4.76	60***	Byproduct of drinking water disinfection
Bromodichloroacetic Acid (ppb)	4/25, 7/17, 9/5, 10/10/2018	<0.50 – 7.2	6.23	60***	Byproduct of drinking water disinfection
Chlorodibromoacetic Acid (ppb)	4/25, 7/17, 9/5, 10/10/2018	<0.30 – 2.5	1.67	60***	Byproduct of drinking water disinfection
Dibromoacetic Acid (ppb)	4/25, 7/17, 9/5, 10/10/2018	0.5 – 3.2	1.63	60***	Byproduct of drinking water disinfection
Dichloroacetic Acid (ppb)	4/25, 7/17, 9/5, 10/10/2018	3.1 – 12.9	8.11	60***	Byproduct of drinking water disinfection
Monobromoacetic Acid (ppb)	4/25, 7/17, 9/5, 10/10/2018	<0.30 – 0.58	0.44	60***	Byproduct of drinking water disinfection
Trichloroacetic Acid (ppb)	4/25, 7/17, 9/5, 10/10/2018	0.91 – 16.1	11.37	60***	Byproduct of drinking water disinfection

\*MassDEP ORS Guideline for 1,4-Dioxane is 0.3 ppb

<sup>1</sup>We monitor for some contaminants less than once per year, because the concentration for those contaminants are not expected to vary significantly from year to year. As a result, some of our data though representative is more than a year old. For those contaminants, the date of the last sample is shown in the table.

ND = Not Detected

<sup>2</sup>Fourth Unregulated Compounds Monitoring Rule (UCMR4)

\*\*50 ug/L is the Secondary Maximum Contaminant Level/300 ug/L is the ORSG Health Advisory level

\*\*\*Maximum Contaminant Level as total HAA

## VI. COMPLIANCE WITH DRINKING WATER REGULATIONS

### Does My Drinking Water Meet Current Health Standards?

We are committed to providing you with the best water quality available. We are proud to report that in 2018 your drinking water met all applicable health standards regulated by the state and federal government.

## VII. EDUCATIONAL INFORMATION

### Do I Need To Be Concerned About Certain Contaminants Detected In My Water?

*Sodium*- Sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the sodium levels where exposures are being carefully controlled.

*Perchlorate*- Perchlorate may cause adverse effects on the thyroid gland. Sensitive individuals, such as women who are pregnant or nursing, infants, children under 12, or those with hypothyroidism should be aware of perchlorate levels in water and food sources that could contain perchlorate. If you have concerns about exposure to perchlorate please consult your physician.

*Lead*- If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Westford Water Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Lead Reduction Act - The Reduction of Lead in Drinking Water Act (Lead Reduction Act) was signed into law by President Barack Obama in January of 2011. This Act changed the definition of “lead free” from a maximum of 8.0 percent to 0.25 percent (for flux and solder, the new definition of “lead-free” is not containing more than 0.2% lead). The Lead Reduction Act took effect on January 4, 2014, and requires new pipes, fittings, plumbing fittings, and fixtures to meet the new definition of “lead free”. Keep in mind that the lead-free requirements only apply to potable water supplies, and items used for non-potable uses (such as manufacturing or industrial processing, irrigation, etc.) are exempt from these requirements.

The Lead Reduction Act also applies to any household fixture (say a kitchen faucet) that will be used for human consumption (i.e. potable water). Any such faucet or fixture for sale after January 4, 2014 must meet the new definition of “lead-free”. This also applies to items such as hot water heaters and any other item that is integrated into the plumbing system. By contrast, a stand-alone appliance such as a coffee maker which is not plumbed does not fall under the Lead Reduction Act. However, if the coffee maker were plumbed into the public water supply then it would fall under the requirements of the Lead Reduction Act.

## VIII. ADDITIONAL INFORMATION

### Cross-Connection Control

#### What is a cross-connection?

A cross connection is defined as any actual or potential connection between the public water supply and a source of contamination or pollution. Cross connections can exist both in residential homes and non-residential facilities.

The Westford Water Department maintains a robust **Cross-Connection Control Program Plan (CCCPP)** as required by the MassDEP. This program consists of several components including surveying all facilities serviced by the Department for cross-connections, regular inspection of all testable backflow prevention devices, and educational outreach to residential and non-residential customers regarding the importance of cross-connection elimination and protection. Some important highlights of Westford’s CCCPP:

- The Westford Water Department requires that all facilities served by public water are equipped with appropriate backflow prevention devices where cross-connections exist. Unprotected cross connections are strictly prohibited by the Westford Water Department.
- The Westford Department has a Total Containment Policy which means that all facilities served by town water must have appropriate backflow protection at the meter to isolate that facility from the public water supply.
- The Westford Water Department is required to survey all facilities connected to the public water supply for cross connections.
- Failure to allow Westford Water Department personnel access to a facility to perform a cross-connection survey or backflow prevention device inspection will result in termination of water service to that facility.
- Backflow prevention devices must be approved by the Westford Water Department prior to installation. A completed

Design Data Sheet and attached plan must be submitted to the Westford Water Department for review and approval prior to installation. A plumbing permit is required for installation of all testable backflow prevention devices.

- The installed backflow prevention device must be inspected by the Westford Water Department within 14 days of installation. A defective backflow prevention device must be repaired or replaced within 14 days of the failure date.
- Testable backflow prevention devices are inspected by the Westford Water Department on a regular basis. The Westford Water Department has MassDEP certified cross connection surveyors and backflow prevention device inspectors on staff.
- Where applicable, backflow prevention devices must meet the new definition of “lead free” as described by The Reduction of Lead in Drinking Water Act.

#### **Backflow Prevention Device Owner responsibilities**

- The owner of any cross connection protected by a testable backflow prevention device must notify the Westford Water Department of all of these protected cross connections.
- Have suitable arrangements made so that inspections of backflow prevention devices and cross connection surveys can be made during regular business hours.
- Repair or replace within 14 days of the initial inspection date and retest pursuant to 310 CMR 22.22(13)(e), any device which fails a test or is found defective.
- Inspection of backflow prevention devices must be performed by a Massachusetts-certified backflow device inspector.

#### **Where would a residential customer find a cross-connection?**

Let's say you're going to spray fertilizer on your lawn. You hook up your hose (potable water supply) to the sprayer containing fertilizer (non-potable source). This establishes a direct connection from the non-potable source (fertilizer) to the public water supply. If the water pressure drops (say because of fire hydrant use nearby) when the hose is connected to the fertilizer, the fertilizer may be siphoned back into your drinking water pipes through the hose. Using an attachment on your hose called a backflow prevention device can prevent this problem. The Westford Water Department recommends the installation of backflow prevention devices, such as a low cost hose bibb vacuum breaker, for all inside and outside hose connections. You can purchase this at a hardware store or plumbing supply store. This is a great way for you to help protect the water in your home as well as the drinking water system in your town. Other examples of where residential cross connections may be found are: *lawn irrigation systems, submerged hoses, auxiliary wells, boilers, solar heat systems, and fire sprinkler systems.*

#### **What can residential customers do?**

Provide Water Department personnel access to your residence during regular business hours (when requested) to perform required cross-connection surveys and backflow prevention device inspections (normally, surveys and inspections of residences are only needed if there is a fire sprinkler system installed). Make sure there are no cross connections in your house – especially if you have an auxiliary private well, irrigation system, solar heat system, fire sprinkler system, or boiler. Comply with Massachusetts Plumbing Codes to ensure all cross-connections are protected with the appropriate device (a licensed plumber should be able to provide assistance). ***Any connection between the public water supply and a private well is strictly prohibited.*** If you have any questions do not hesitate to contact the Water Department at 978-692-5529. A simple and inexpensive way for residential customers to protect against back siphonage from their garden hose is to install the hose bibb vacuum breaker described above. Installation is as easy as screwing on to the hose bibb. The peace of mind in protecting your drinking water is worth a few dollars.

#### **Where can I get more information?**

- Westford Water Department: Mark Warren, Environmental Compliance Manager/Cross Connection Control Coordinator 978-399-2457 or Westford Water Department website: [www.westfordma.gov/water](http://www.westfordma.gov/water)
- MassDEP: Otavio DePaula-Santos 617-556-1085; MassDEP: Sean Griffin 978-694-3404

#### **Type of Testable Backflow Prevention Devices:**

Reduced Pressure Zone Backflow Device (RPZ). This type of device utilizes two check valves and a relief valve, and is designed for high-hazard uses.

Double Check Valve (DC): This type of device utilizes two check valves, but no relief valve, and is designed for low hazard uses such as for a fire sprinkler line.

Pressure Vacuum Breaker (PVB): This type of device utilizes one check valve, and is typically used in irrigation systems.

Air Gap. This is not a device, but a physical separation (of twice the diameter of the supply pipe and never less than 1 inch) between the potable water supply and the non-potable supply. Although not strictly a device, it is measurable. The air gap is extremely effective but limited to uses where downstream system pressure is not required.

#### **Type of Non-Testable Backflow Prevention Devices:**

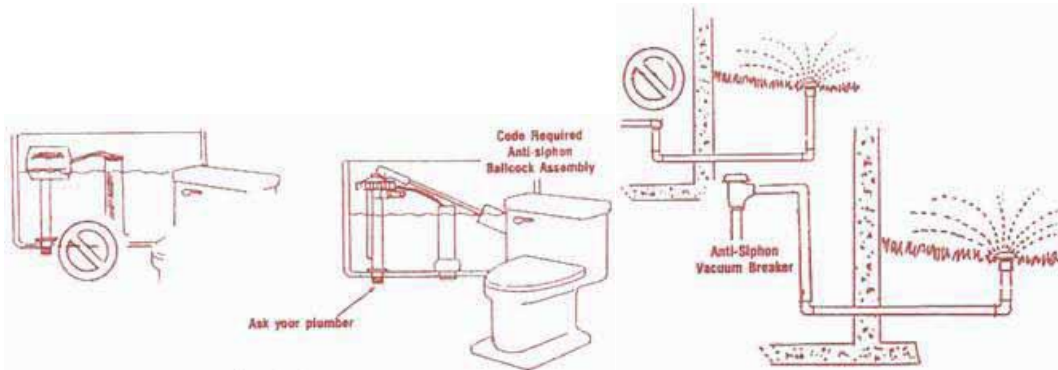
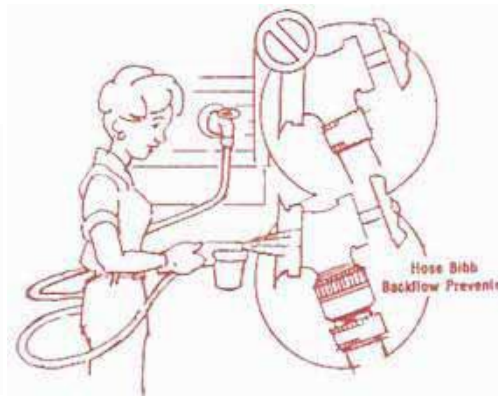
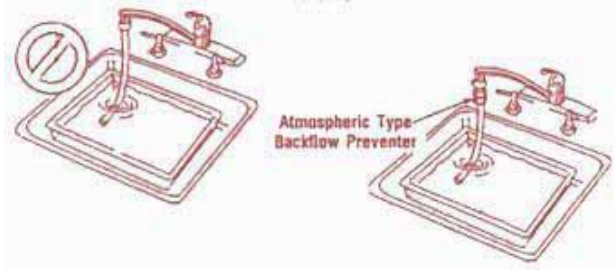
Hose Bibb Vacuum Breaker: This is a small, inexpensive device available at most hardware stores that can be easily attached to your outside tap before the garden hose. It's used to prevent back siphonage, and is a simple way to protect garden hose cross-connections.

Residential Dual-Check: This device is installed after the meter, and offers reliable protection against back siphonage and backpressure. As the name implies, it is used for residential applications.

Dual-Check Valve with Intermediate Atmospheric Vent: Similar to the Residential Dual-Check but equipped with an intermediate atmospheric vent, and can be used for commercial applications.

Residential Fire Sprinkler Dual Check Backflow Preventer: This device can be used for single or two-family detached home fire sprinkler systems that do not use any chemicals.

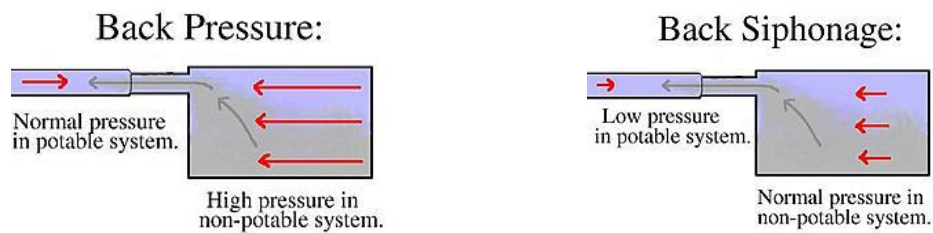
#### **Some examples of cross connections:**



### What is a backflow?

Backflow is the undesired reverse of the water flow in the drinking water distribution lines. This backward flow of water can occur when the pressure created by equipment or a system such as a boiler or air-conditioning is higher than the water pressure inside the water distribution line (back pressure), or when the pressure in the distribution line drops due to routine occurrences such as water main breaks or heavy water demand causing the water to flow backward inside the water distribution system (back siphonage).

Backflow is a problem that many water consumers are unaware of, a problem that each and every water customer has a responsibility to help prevent.



### Iron & Manganese Removal (oxidation and filtration)

Iron and manganese are often present in groundwater at levels that can discolor the water, or cause it to take on unpleasant odors or tastes. Even though the water may still be safe to drink, it is preferable that the iron and manganese be removed. Iron and manganese are removed through a two-step process of oxidation and filtration. Oxidation is accomplished by pH adjustment and adding potassium permanganate to the water. This causes the iron and manganese to form tiny particles. Once this happens, the water passes through special filters consisting of material that is specifically designed to capture iron and manganese particles. Over time, filters start to clog and need to be cleaned using a high-flow backwash process.

### Primary Disinfection with MIOX or Calcium Hypochlorite (Chlorine with filtration)

All reservoirs and some ground water sources contain numerous microorganisms, some of which can cause people to become sick. To eliminate disease-carrying organisms, it is necessary to disinfect the water. Disinfection does not sterilize the water; it removes harmful organisms. Sterilization is too costly and kills all microorganisms, even though most are not harmful. The Westford Water Department uses MIOX generated sodium hypochlorite or calcium hypochlorite as its primary disinfectant. MIOX and calcium hypochlorite destroy organisms by penetrating cell walls and reacting with enzymes. When combined with proper filtration, disinfection with MIOX or calcium hypochlorite has been proven effective at ensuring that water is free of harmful organisms and safe to drink. Primary disinfection with MIOX is supplemented with further disinfection using calcium hypochlorite.



### **Corrosion Control Through pH Adjustment**

Many drinking water sources in New England are naturally corrosive (i.e. they have a pH of less than 7.0). So, the water they supply has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also add harmful metals, such as lead and copper, to the water. For this reason it is beneficial to add chemicals that make the water neutral or slightly alkaline. This is done by adding any one, or a combination of several, approved chemicals. The Westford Water Department adds potassium hydroxide to its water. This adjusts the water to a non-corrosive pH. Testing throughout the water system has shown that this treatment has been effective at reducing lead and copper concentrations.

### **Water Conservation and Protection Bylaws**

The Town has a voluntary even/odd water conservation policy in effect every year from May 1 through October 31. Homeowners with even-numbered addresses may water lawns on even numbered days of the month and those with odd-numbered addresses may water on odd numbered days. Drought conditions or excessive water usage may force the Town to institute mandatory water use restrictions. The Town has also adopted water resource protection overlay districts in the Zoning Bylaws to ensure an adequate quality and quantity of drinking water for the residents, institutions, and businesses, and to preserve and protect drinking water supplies. You can play a role in conserving water and saving yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. Visit the Water Department website at [www.westfordma.gov/water](http://www.westfordma.gov/water) for water conservation tips.

### **Water Treatment Chemicals**

All water treatment chemicals are approved for water treatment by one of the following organizations: National Sanitation Foundation (now known as NSF International), or UL – both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association (AWWA).



**Visit Our Website!**

<http://www.westfordma.gov/water>

#### **Hours of Operation:**

7am to 4pm Monday through Friday  
(Except Holidays)

#### **Numbers at a Glance:**

Main Phone Line (978) 692-5529  
Accounts Payable (978) 692-5529  
Billing and Property Transfers (978) 692-5529  
Business Manager (978) 399-2453  
Environmental Compliance Manager (978) 399-2457  
Superintendent (978) 399-2455  
Operations Manager (978) 399-2456