



## Annual Water Quality Report 2015

### Marshfield DPW - Water Division - PWS ID # 4171000

The Town of Marshfield Department of Public Works - Water Division has prepared this annual drinking water Consumer Confidence Report (CCR) to provide you with information regarding your drinking water. This report includes detected contaminants found in your drinking water, compliance issues related to the water quality, operational matters, and general education information regarding the condition of your drinking water.

#### HIGHLIGHTS

##### Inside this issue:

Do You Know Where Your Water Comes From?	1
How Marshfield Is Working to Protect Our Drinking Water	2
More About Your Water System 2015	3
Points of Interest	4
Water Analytical Tests for 2014	5
Water Tests Conducted in 2015	6
Special Health Information & Facts	7
Low & High Zone Streets	8

## Do You Know Where Your Water Comes From?

The Town of Marshfield's municipal drinking water supply consists of six aquifers and fifteen active gravel-packed wells, with a sixteenth well coming on-line in June 2016.

The Marshfield water supply is obtained entirely from underground sources within the Town's borders. All of the drinking water that is pumped into the distribution system receives some form of treatment at the individual pump stations. Each well has its own pump station and a pH (our water is naturally acidic) adjustment treatment process. Water from eleven of the fifteen wells, after this pH adjustment, is pumped directly into the distribution system's water mains.

Three of the five wells in the Furnace Brook Aquifer require additional treatment in the form of activated carbon filtration or aeration due to the presence of some volatile organic contaminants (VOCs). This filtration effectively removes all of the VOC contaminants. The water from these wells must be disinfected before entering the distribution system. Two stations use ultraviolet light (UV) disinfection and one station uses chlorination. In the Little's Creek Aquifer one well is also equipped with and uses UV disinfection.

In general, Marshfield's water is classified as "soft" with low manganese and iron content. Marshfield water has a trace amount of naturally occurring fluoride. The Town of Marshfield does not add fluoride to this water supply.

## QUESTIONS ABOUT THE WATER SYSTEM?

The sources of drinking water (both bottled and tap 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 also pick up substances resulting from the presence of animals or from human activity.

If you have any questions about the water system, you can call the DPW—Water Division at 781-834-5589 or 781-834-5592. Also, the Environmental Protection Agency (EPA) has the following Safe Drinking Water Hotline that consumers can call at 1-800-426-4791.

## Newly Constructed Fairgrounds Pump Station



**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 water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 800-426-4791.**



## How Marshfield Is Working To Protect Our Drinking Water

The Board of Public Works and the DPW are protecting your drinking water, first by source protection efforts, second by upgrades to the water delivery systems (distribution and well/pump station) and third by proposing changes to the current bylaws to enhance source protection. Source Protection is achieved by increasing the control of the land from development within the water resources recharge areas. Land acquisition, conservation easements, and town bylaws are the main focus of the town efforts to achieve source protection. Funding for these efforts is achieved through Community Preservation Act (CPA) funds, Water Enterprise retained earnings and State drinking water resource protection grants.

**LAND** The DPW, with guidance from the elected Board of Public Works, continues to seek out land opportunities to protect our Town's water supply. These land opportunities are exercised by direct purchase of the land parcels and by conservation easements which keep the land in a natural state and provide the land owner with significant tax incentives.

**SYSTEM** The DPW Water Division continued its program in the protection of the Town's drinking water is by maintaining and upgrading the water production and delivery system. During the 2015 calendar year, eighteen (18) new services were added to the system.

**BYLAWS** It is important that the Town's bylaws restricting the use of specific activities within the recharge (Zone II) areas be strictly enforced. The Marshfield Water Division, DPW is in the process of renewing their 20-year permit with MassDEP. One of the requirements is the implementation of outdoor water restrictions. The Town is proposing that outdoor watering for property owners would be for even-numbered properties on even number calendar days and odd-numbered properties would be on odd number calendar days. Outdoor watering is not permitted between the hours of 9AM to 5PM. *These restrictions will be in place from May 1st through September 30th each year.*

### **LAWN & GARDEN WATERING CAN TRIPLE, EVEN QUADRUPLE, THE SUMMER UTILITY BILL FOR ANY HOMEOWNER**



#### **Marshfield's Stormwater Management Plan**

Stormwater management is an important component of providing clean safe drinking water to our customers. Stormwater recharges the well fields. The federal and state regulators require municipalities to have plans and programs to manage storm water to minimize contamination. Good stormwater management is especially realized during times where water recharge is stressed such as drought condition and peak summer demand. Of the assessed water bodies in Massachusetts, a majority of these water bodies have been impaired from stormwater and during low recharge times (summer and droughts) and half of all water bodies are impacted by stormwater.

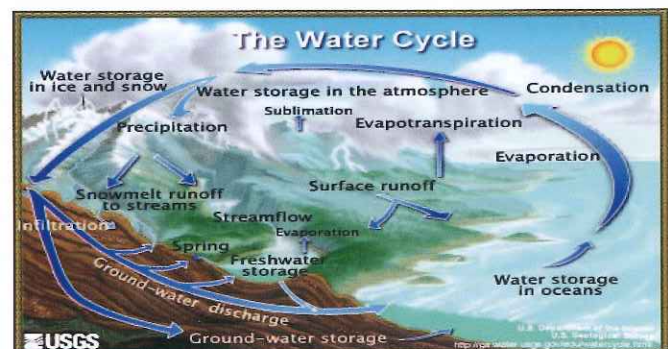
The Town of Marshfield DPW has developed a Stormwater Management Plan, which is intended to protect the Town's water bodies and groundwater. As a requirement for the Town to renew its NPDES Municipal Separate Storm Sewer System permit [MS4 permit], which is issued jointly by MassDEP and USEPA, the Town is required to continue its efforts to eliminate illicit discharges, utilize best management practices to treat stormwater by utilizing Low Impact Development [LID] techniques, complete drainage system mapping and to continue to meet other objectives outlined in the Town's stormwater management plan. To get a general overview of stormwater - see the following link from the North & South River Watershed partnership.

[https://drive.google.com/file/d/0B\\_44sSjWybIuZVJEMmowX3dhVTA/view](https://drive.google.com/file/d/0B_44sSjWybIuZVJEMmowX3dhVTA/view)

The plan consists of the following:

- ◆ Illicit discharge detection and elimination
- ◆ Construction site runoff and post construction runoff control
- ◆ Pollution prevention and promote good housekeeping practices
- ◆ Public education and outreach on stormwater impacts

In addition to the Town's efforts, MassDEP is proposing a new comprehensive approach to stormwater management. In general, private owners of developed properties with large impervious surfaces will be required to control their stormwater, add treatment, and provide recharge opportunities where feasible. Developments in areas where the State has established maximum loading levels [TMDL] for impaired receiving waters will be required to provide treatment to the stormwater and will have to meet new water quality standards. In redevelopments, where meeting on-site stormwater standards are impracticable, off-site mitigation will be allowed.





## MORE ABOUT YOUR WATER SYSTEM FOR 2015

### Source Water Assessment & Protection (SWAP)

The source water assessment and protection program developed by the Mass DEP Water Division and adopted by the Board of Public Works and DPW, assesses the susceptibility of the Marshfield public water supplies to potential contamination by microbiological pathogens and chemicals.

The final report includes:

- (1) A description and discussion of land uses in the water supply protection areas;
- (2) Protection recommendations;
- (3) A Geographical information map;
- (4) Attachments, including protection fact sheets, and brochures.

The SWAP report is available for review at the Marshfield Water Division, at the office of the DPW located in Town Hall.

### Hazardous Activities Can Be Controlled

#### Rx—Pharmaceuticals and OTC Drugs

Never dispose of unused or expired prescription drugs (Rx) or other over the counter (OTC) medications into the toilet. Dispose of these drugs by crushing them and placing them in the trash. Or contact DEA for drug drop off days. Website: [www.deadiversion.usdoj.gov/drug\\_disposal/takeback](http://www.deadiversion.usdoj.gov/drug_disposal/takeback)

Pharmaceutical and personal care products (PPCPs) include medicines, insect repellents, sunscreens, perfumes, soaps, fragrances, and lotions. These products, which can be found in any drugstore, have the potential to enter the environment through domestic sewage.

For additional information on the proper disposal of RX or OTC products contact the Marshfield Police website at [www.marshfieldpolice.org](http://www.marshfieldpolice.org) or visit the Mass DEP website at <http://mass.gov/eea/agencies/massdep/toxics/sources/disposal-of-waste-medications-at-private-residences.html>

#### Used Motor Oil

Never dispose of oil in storm drains. Used oil is accepted at the Transfer Station (2nd Saturday each month, May through October) or it can be also returned under Mass Law to the store where you bought it from which is required to accept.

#### Reminder on Fireworks Fallout

Don't shoot off fireworks near water aquifer recharge areas. Perchlorate, which is associated with fireworks, was found in the Town of Marshfield's South River Street Well a couple years ago. Since the fireworks displays in this area have ceased, the test results for Perchlorate are no longer increasing and are showing signs of improvement.

### PROTECT YOUR DRINKING WATER!

#### You can help preserve our drinking water

What is the greatest threat to Marshfield's drinking water?

It is harmful behaviors in contributing (Zone 2 recharge) areas of the drinking water aquifers. Careful product selection and proper use and disposal practices are critical to the quality of Marshfield's drinking water. Everyone can make a difference, careful selection of lawn fertilization materials and the disposal of materials will make a positive difference to our drinking water quality. Local growth is also a key issue. Residential and commercial septic systems contribute to elevated nitrate levels in our groundwater. Please review the hazardous activities listed so that any hazards to our drinking water can be minimized; listed below in left hand column.

### ABOUT LEAD & COPPER

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.

The Marshfield Water Division, DPW 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 and 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/safe-water/lead>.

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

When your water has been sitting for several hours, you can minimize the potential for lead and copper exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking and cooking.

### ABOUT RADON IN DRINKING WATER

Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the United States. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source in indoor air. The levels that have been detected in the Marshfield Water supplies have been below the maximum contaminant level allowed. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may cause an increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in the air is 4 picocuries/liter (pCi/L) or higher. There are simple ways to fix a radon problem that are not too costly. For additional information, call the state radon program or call the EPA Radon Hotline -(800) SOS-RADON.



## POINTS OF INTEREST

### LAWN AND GARDEN WATERING - STORM WATER RUNOFF

You can utilize storm water runoff for outside water use by purchasing a 50 gallon rain barrel. Barrels can be purchased at The Marshfield Town Hall, Department of Public Works. Please call 781-834-5589. Barrels can also be purchased through the North and South River Watershed Association (NSRWA) in Norwell by calling 781-367-0626.

### WATER SAVINGS - STOP LEAKS

Promptly repair any toilet or faucet that needs fixing. A leaking toilet can waste 200 gallons of water per day. Add several drops of food coloring to the toilet tank. If it's leaking, the coloring will appear in the toilet without flushing. A leaking faucet can waste up to 200 gallons per month.

Check for hidden leaks by reading your water meter at night when the days' water use has ended and read again in the morning before water use begins. Subtract the night reading from the morning reading to tell how much water (if any) leaked out overnight.

### STORM DRAINS—THREAT TO WATERWAYS

As rain lands on our rooftops, lawns and pavement, the water picks up whatever debris and pollutants that may reside there: pesticides, animal wastes, salts, oil and litter. This storm water runoff flows into storm drains where it travels through underground pipes that lead directly into ponds, streams and the ocean. Never dispose of any oil or anything into storm drains.



The Town of Marshfield DPW Water Division is an active participant in the **GreenScapes** program, which is part of the Massachusetts multi-partnered outreach program. Download the new **GreenScapes** guide and other materials today at their website at

<http://www.nsrwa.org>.

**Michelle Cavilla is the local Marshfield liaison.**

### Who to Call...

For water or meter problems, leaks, fire hydrants, water billing, and miscellaneous questions - call the Marshfield DPW - Water Division at 781-834-5589 or 781-834-5592

Fax: 781-837-7163

Hours: 8:00AM - 7:00PM, Mondays  
8:00AM-4:00PM, Tuesday -Thursday  
8:00AM - 12:30pm, Fridays

### AFTER HOURS EMERGENCY CALLS

Please call the Police Station Business Line

781-834-6655

### ADDITIONAL CONTACT INFO:

EPA Safe Drinking Water Hotline  
1-800-426-4791

U.S. EPA—Massachusetts Office:  
1-617-918-1111

Department of Telecommunications:  
& Energy: 800-392-6066  
Mass DEP: 800-462-0444

### DON'T FORGET

### HAZARDOUS WASTE COLLECTION

### DAY....

Saturday, September 17, 2016

9:00 AM - 1:00 PM

Furnace Brook School



## Table Definitions

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

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

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

**NA:** Not applicable.

**ND:** Not detected.

**NTU (Nephelometric Turbidity Units):** Measurement of the clarity, or turbidity, of water.

**ppb (parts per billion):** One part substance per billion parts of water.

**ppm (parts per million):** One part substance per million parts water.

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

**UNREGULATED:** Contaminants for which EPA requires monitoring, but has not established an MCL.

**mg/L:** milligram per liter (ppm).

**ug/L:** micrograms per liter. (ppb).

**pCi/L:** picocuries per liter.

## Water Analytical Tests Conducted by the Marshfield DPW—Water Division in 2015

### Number of samples taken

1  
750  
24  
5  
26  
4  
6  
37  
4  
1  
4  
8  
2  
2

### Analytical Test

Sodium  
Bacteriological tests;  
Nitrate/ Nitrite tests;  
PCE Tetrachloroethylene tests;  
Volatile Organic Contaminant (VOC) tests;  
Haloacetic Acid tests;  
Perchlorate tests;  
Lead & Copper tests;(sampling done 3rd Qtr 2015)  
Trihalomethanes  
Arsenic  
Synthetic Organic Contaminant  
Manganese  
Total Coliform  
IOC's

## Water Quality Testing

The table on [page 6](#) lists all of the drinking water contaminants that were detected during the 2015 calendar year.

The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is for testing done during the period of January 1st through December 31, 2015.

One of the contaminants, Perchlorate, was first detected at the South River Well which is down gradient of the Fair Grounds in 2004 and the concentration increased through 2005. The Fair was requested to cease fire works in August of 2005 and they complied starting 2006. Concentrations continued to increase into early 2006 to 2.20 ppb and then declined through 2009 when stability at about 0.5 - 0.31 ppb through the present was reached.

The Massachusetts Department of Environmental Protection (MassDEP) has approved the Town of Marshfield's analytical testing frequency schedule with some required analytical testing being waived for certain contaminants and some testing to be performed only on an annual basis or for longer intervals. The longer testing duration is allowed because the concentrations of these contaminants are not expected to vary significantly from year to year. As the result of these frequency waivers, some of the data being presented is more than one year old, and does indicate the good representation of the water quality.

### YOUR WATER TREATMENT STAFF

Paul Duross, III  
Water Supervisor

John McCue  
Lead Pump Operator

Steven Joyce  
Michael W. McKay  
Pump Operators



## Annual Water Quality Report 2015

During the past year the Town of Marshfield DPW—Water Division has taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic compounds. The table below shows only those contaminants that were detected in the drinking water.

### REGULATED SUBSTANCES

SUBSTANCE (Units)	Year	Action Level	MCLG Amount	Highest Amount Detected	Range of Detection	Violation	Typical Source
Nitrate (ppm)	2015	10	10	6.45	ND- 6.45	No	Runoff from fertilizer use; Leaching from septic tanks; sewage; erosion of natural deposits
Tetrachloroethylene (ug/L)	2015	5	5	4.5	.8 - 1.2	No	Dry cleaning and vinyl-lined pipes
TTHMs (ppb) (Total Trihalomethanes)	2015	80	NA	1.7	ND - 1.7	No	By-product of drinking water disinfection
Total Coliform Bacteria	Daily, 2015	>5% of monthly Samples	0	2.0		No	Coliform are bacteria that are naturally present in the Environment and are used as an indicator that other potentially harmful bacteria are present. The presence of this bacterial form in drinking water is a concern because it indicates that the water may be contaminated with other organisms that can cause disease.
Perchlorate (ug/L)	2015		2.0	0.31	0.05 - 0.31	No	Found in blasting agents—fireworks

### REGULATED SUBSTANCES - RADIONUCLIDES

SUBSTANCE (Units)	Year Sampled	MCL	MDL	Highest Amount	Range of	Violation	Typical Source
Gross Alpha (pCi/L)	2012	15		1.23	0.063 - 1.23	No	Erosion of natural deposits
Radium 226 (pCi/L)	2012			0.676	0.043 - 0.676	No	Erosion of natural deposits
Radium 228 (pCi/L)	2012			0.32	0.00286 - 0.32	No	Erosion of natural deposits

SUBSTANCE (Units)	Year Sampled	Action Level	MCLG ( 90th %tile)	Highest Amount	Homes Above Action	Violation	Typical Source
Copper (ppm)	2015	1.3	0.470	0.37	0	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from Wood Preservatives
Lead (ppm)	2015	.015	0.003	.011	0	No	

### UNREGULATED SUBSTANCES

SUBSTANCE (Units)	Year Sampled	Action Level	Range Low-High	Typical Source
Flouride	2015		0.25 - 0.38	Naturally present
Sodium (ppm)	2015	20.0	11.8 - 31.4	Naturally occurring—road salt

### UNREGULATED SUBSTANCES - VOCs (ug/L)

SUBSTANCE (Units)	Year	Action Level	MCLG Amount	Highest Amount Detected	Range of Detection	Violation	Typical Source
Chloroform (ppb)	2015			0.5	ND- 0.5	No	Naturally present in the environment
Bromoform	2015			1.7	0.8 - 1.7	No	
Methyl Tertiary Butyl Ether	2015			1.8	1.0 - 1.8	No	
Bromodichloromethane	2015			1.6	0.5 - 1.6	No	
Chlorodibromomethane	2015			0.7	0.6 - 0.7	No	



## SPECIAL HEALTH INFORMATION

Some people may be more vulnerable to contaminants in drinking water than the general public. 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 infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/ CDC (Centers for Disease Control & Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791. As a precautionary measure, all customers are urged to flush their cold water taps each morning 30 seconds to 2 minutes to remove lead and copper contaminants that may come from house water lines.

### ABOUT ARSENIC IN DRINKING WATER

While your drinking water meets US EPA's standard for arsenic, it may contain low levels of arsenic. US EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. US EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

The Marshfield DPW Water Division reports that no arsenic was detected in any of its wells.

### WHO REGULATES....

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Federal Food & Drug Administration (FDA) regulations establish the limits for contaminants in bottled water that must provide the same protection for public health.

### If you think you are not getting enough water, these tips may help:



- Carry a water bottle for easy access when you are at work or running errands.
- Freeze some freezer safe water bottles. Take one with you for ice-cold water all day long.
- Choose water instead of sugar-sweetened beverages. This can also help with weight management. Substituting water for one 20-ounce sugar sweetened soda will save you about 240 calories. For example, during the school day students should have access to drinking water (<http://www.cdc.gov/healthyyouth/npao/wateraccess.htm>), giving them a healthy alternative to sugar-sweetened beverages.
- Choose water when eating out. Generally, you will save money and reduce calories. Add a wedge of lime or lemon to your water. This can help improve the taste and help you drink more water than you usually do.

## Substances That May Be Present

**Microbial Contaminants**—Such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations or wildlife.

**Inorganic Contaminants**—Such as salts and metals, which can be naturally occurring or may result from stormwater run off, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

**Organic Chemical Contaminants**—including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may also come from gas stations, stormwater runoff, and septic systems.

**Radioactive Contaminant**—which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at 1-800-426-4791.

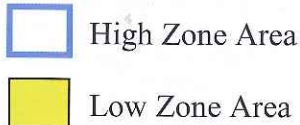
### Chemicals Added

The Marshfield Water Division, DPW adds the following chemicals to its water supply:

**CALCIUM HYDROXIDE** - (more commonly known as hydrated lime) - used for pH and corrosion control.

**SODIUM HYPOCHLORITE** - (a common disinfectant known as chlorine bleach) is added at two of the Furnace Brook wells after the filtration process which removes volatile organic contaminants (VOCs) from the ground water.





### MARSHFIELD WELL SITES & TREATMENT

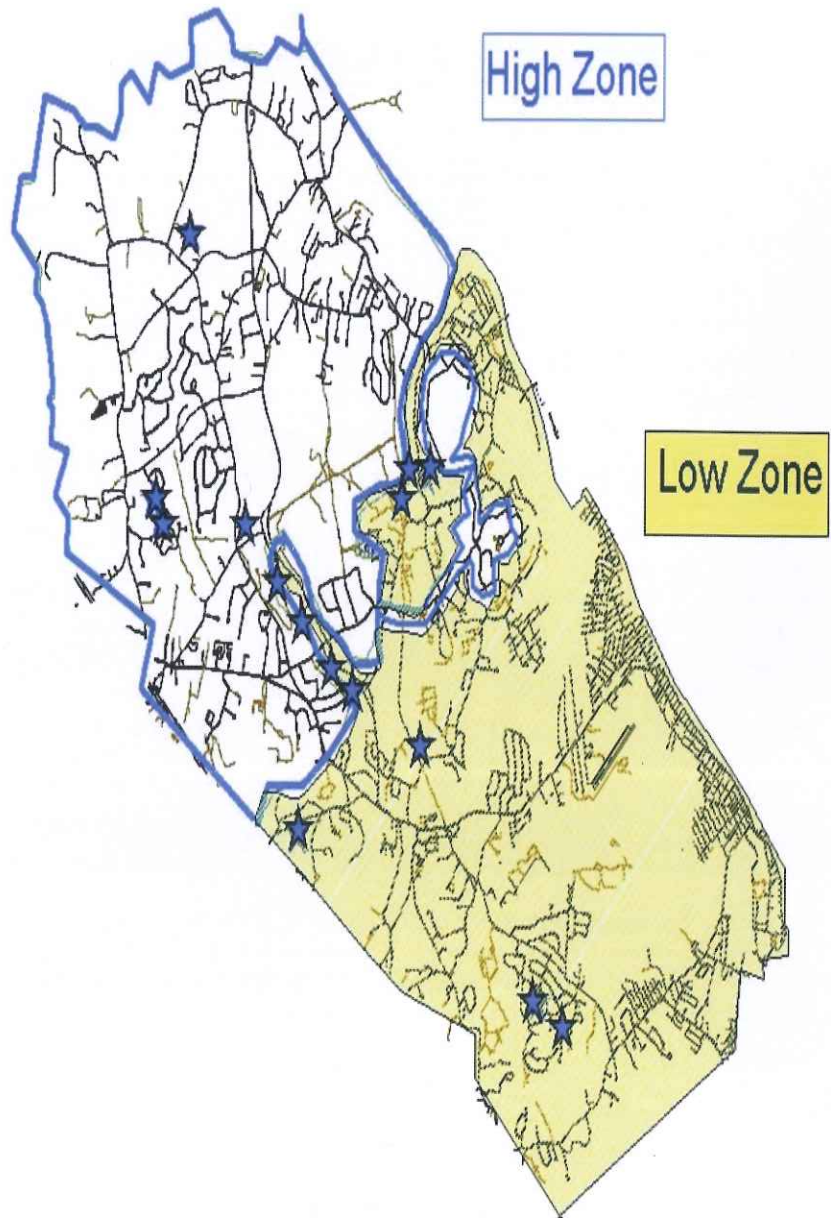
#### HIGH ZONE STATIONS:

Union #1  
 Union #2  
 School Street  
 Furnace Brook #2  
 Spring Street  
 Church Street

#### LOW ZONE STATIONS:

Ferry Street  
 Ferry #2  
 Furnace Brook #1  
 Furnace Brook #3  
 Furnace Brook #4  
 Mount Skirgo  
 South River Street  
 Webster # 1  
 Webster # 2

All wells have pH adjustments for corrosion control. Three of the four Furnace Brook wells have additional VOC filtration with disinfection.



### **2015 FACTS AND FIGURES**

#### GALLONS PRODUCED:

Jan.	61,883,940
Feb.	60,560,560
Mar.	62,882,750
Apr.	59,867,140
May	104,519,150
June	92,433,990
July	117,932,250
Aug.	116,641,330
Sep.	102,117,380
Oct.	70,747,200
Nov.	58,232,220
Dec.	61,883,940

**TOTAL** 1,002,268,730

#### OTHER STATISTICS

Average Daily System Use	2.65 Million Gallons
Max Daily Use (8/4/15)	4.62 Million Gallons
Population Served	27,500
Accounts	10,112

Avg. Annual Residential Water Bill	\$313.00
Miles Of Water Main	201 Miles
Number Of Hydrants	1,426

### INTERCONNECTIONS

The Town of Marshfield supplies water to sections of the towns of Scituate (Humarock section), Pembroke, and Duxbury. There are no interconnections to either Pembroke or Scituate. There is an emergency connection to Duxbury (hydrant-to-hydrant) if needed.

Marshfield has approved the Water Restriction Bylaw to provide local control during water shortages and emergencies, and to provide sufficient water for fire protection.



## OUR CROSS-CONNECTION PROGRAM

Mass DEP drinking water regulations require the water purveyor to have a distribution protection program which consist of a survey, assessment, and correction of any potential cross contamination activity within commercial, institutional, industrial, and homeowners with irrigation systems.

For industrial, commercial and institutional premises that have potential backflow connection, the installation of and annual testing of both containment and in-flow backflow devices is mandated. The public water purveyor has the responsibility of surveying premises for cross-connections and identifying necessary installations to be made. Violation letters are sent to those in violation of this regulation. It would be remiss of any water supplier to neglect protecting consumers against the hazards of backflow to its distribution system.

If you have any questions concerning cross-connections management (also known as backflow) in the Town of Marshfield, feel free to call the Marshfield DPW Water Division and ask for an appointment to speak with **Edward Banzi, Meter Technician/ Backflow Inspector at 781-834-5561.**

### What is a Residential Cross-Connection?

The most common source of residential cross-connection is your garden hose which has a fertilizer/weed killer sprayer attached. If the water system's pressure should drop while using your hose, the fertilizer may be sucked back into the drinking water pipes through the hose. This situation could pose a risk to your family and you. Similar situations are hoses left submerged in swimming pools, placed in elevated locations (above the sillcock) or left inside of a bucket of car wash.

### Some Tips to Protect Your Household Water

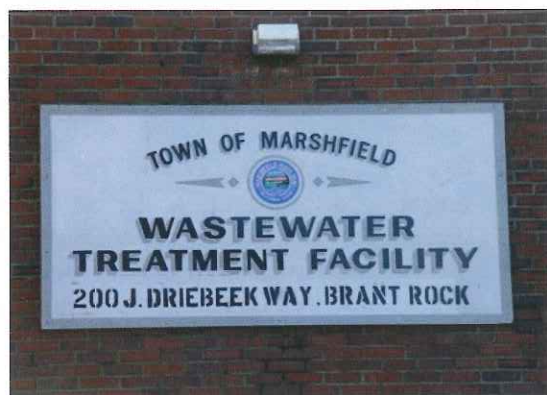
- DO** keep the ends of hoses off the ground and clear of all possible contaminants.
- DO** install an approved backflow prevention device on all underground lawn irrigation systems.
- DO** contact your local water department if you have seen any irregular or unauthorized use of a fire hydrant.
- DO** install vacuum breakers on all hose bibs in and outside your home.



The ***Safe Drinking Water Act (SDWA)*** is the federal law that protects public drinking water supplies throughout the nation. Under the SDWA, EPA sets standards for drinking water quality and with its partners implements various technical and financial programs to ensure drinking water safety.



## Important Things You Should Know About Your Wastewater Treatment Facility



The current Marshfield Wastewater Treatment Facility (WWTF), built in 1978 is designed to process an average daily flow of 2.1 mgd and a peak hourly flow of 5.6 MGD. The facility is located in the Brant Rock section of Town and receives sewage from 3000 + homes and businesses and septage from homes on septic systems. The facility is an activated sludge plant and can be operated in extended aeration and/or contact stabilization mode. The facility provides collected wastewater and septage with secondary levels of treatment. The facility has an efficient removal rate in excess of 85 percent of the pollutants in the wastewater and septage it receives. A collection system consist of 40 miles of separate sanitary sewers, and seven pumping stations, collects and delivers waste water to the plant for treatment. Treated sewage is discharged to the ocean .

### Have you driven by the Avon Street and Central Street Pump Stations? Have you seen the construction? What's new?

Last year we reported on the completed rehabilitation of the main facility wastewater pump station, and the newly-constructed screenings and grit removal facility, housed in the new building at the WWTF. Significant amounts of rags, debris and grit are now removed here, at the head of the plant, before they can cause downstream maintenance problems.

In 2015 we turned our attention to upgrading the Avon Street and Central Street wastewater pump stations. Both stations date from the late 1970's. Both contain original pumps that are no longer manufactured; replacement parts have needed custom fabrication. The condition of the Central Street station was critical; it flooded and failed in the blizzard of late January 2015. A construction contract to upgrade both stations was signed in May 2015. The Central Street station is at subgrade and the Avon Street station is below the grade of a small gray house-like enclosure. In both cases, the new work is mainly mechanical and electrical, with new dry-pit submersible pumps that can run if the station floods. Work is to be completed in 2016.

We also received a new five-year discharge permit from the USEPA, which became effective in March 2015. The Federal government has transitioned to *enterococci* limits for water quality at public saltwater beaches. Therefore, the permit contains new limits for *enterococci* bacteria, while keeping the *fecal coliform* limits, and a compliance schedule for meeting the *enterococci* limits. WWTF Operators and Engineering conducted a study for long-term compliance with these new limits, including process adjustments which enabled WWTF staff to meet the new limits, and alternatives to the current UV disinfection system, which is nearing the end of its useful life and has proven expensive to operate and maintain.

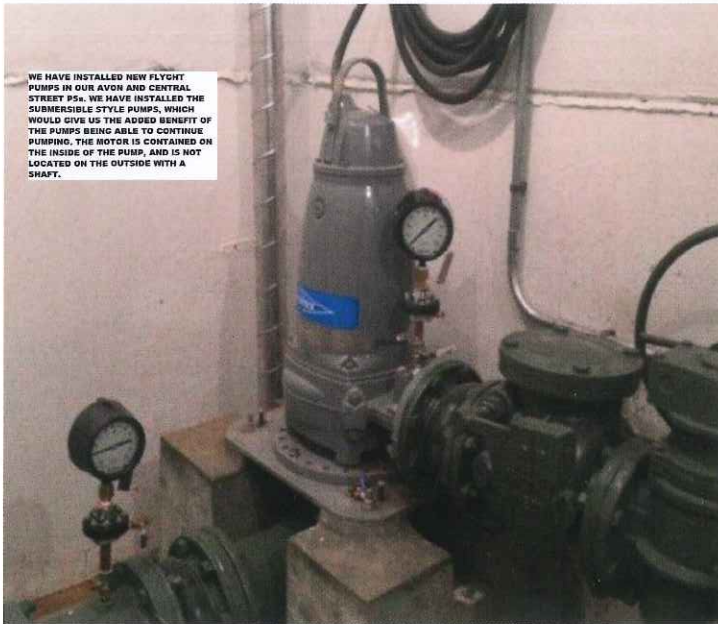
*Modern convenience products, like disinfecting wipes, baby wipes and "Swiffer" type refills are strong and resistant to breakdown. They are clogging pumps and wastewater equipment everywhere. Some have estimated the additional maintenance costs they impose on the USA is in the \$billions annually. So put them in the trash.....don't flush them down the toilet!*

### **DO NOT FLUSH RAGS, SWIFFERS, OR WIPES!!**

Sump pump discharges and foreign materials are prohibited from the sewer system, as noted in the following excerpts from the Department of Public Works Wastewater Treatment Facility Bylaws, Regulations, Policies, Procedures and Specifications documents:

- ♦ No person(s) shall make connection of roof downspouts, sump pump, foundation drains, area way drains, or other sources of surface runoff of groundwater to a building sewer or building drain which in turn is connected directly or indirectly to a public sanitary sewer.
- ♦ No person(s) shall discharge or cause to be discharged any of the following described waters or wastes to any public sewers:
  - a. any gasoline, benzene, naphtha, fuel oil, or other flammable or explosive liquid, solid or gas.
  - b. any waters containing toxic or poisonous solids, liquids, or gasses in sufficient quantity either singly or by interaction with other wastes, to injure or interfere with any waste treatment process, constitute a hazard to humans or animals, create a public nuisance, or create any hazard in the receiving water of the Wastewater Treatment Plant.
  - c. any waters or wastes having a pH lower than 5.5 or having any other corrosive property capable of causing damage or hazard to structures, equipment or personnel of the wastewater works.
  - d. solid or viscous substances in quantities or such size capable to causing obstruction to the flow in the sewers, or other interference with the proper operation of the waste water facilities such as, but not limited to, ashes, bones, cinders, sand, mud, clay, "cat litter", "speedy dry" type products, straw, shavings, metal, glass, rags, feathers, tar, plastic, wood, unground garbage, whole blood, paunch manure, hair and fleshings, entrails, and paper dishes, cups, milk containers, rags, "Swiffer" type products, etc., either whole or ground by garbage grinders.





New Flygt Pumps

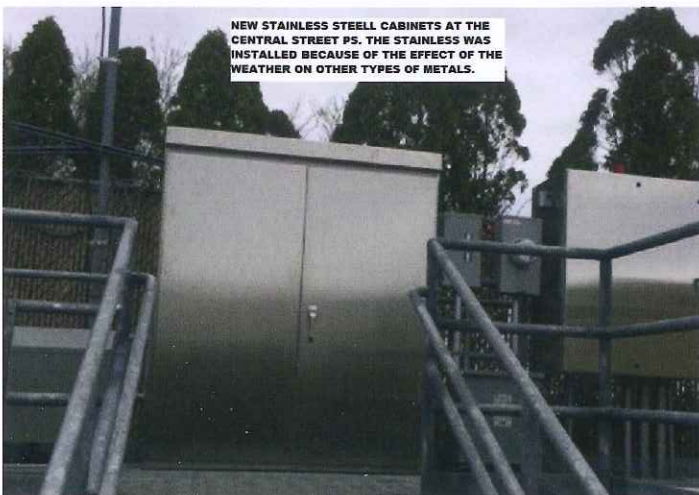


Newly Upgraded Flowmeters



Piping Upgrades

## OTHER SCENES FROM THE AVON STREET AND CENTRAL STREET PUMPING STATION UPGRADES



Installation of Stainless Steel Cabinets at Central Street



Newly Upgraded Avon Street Wet Well