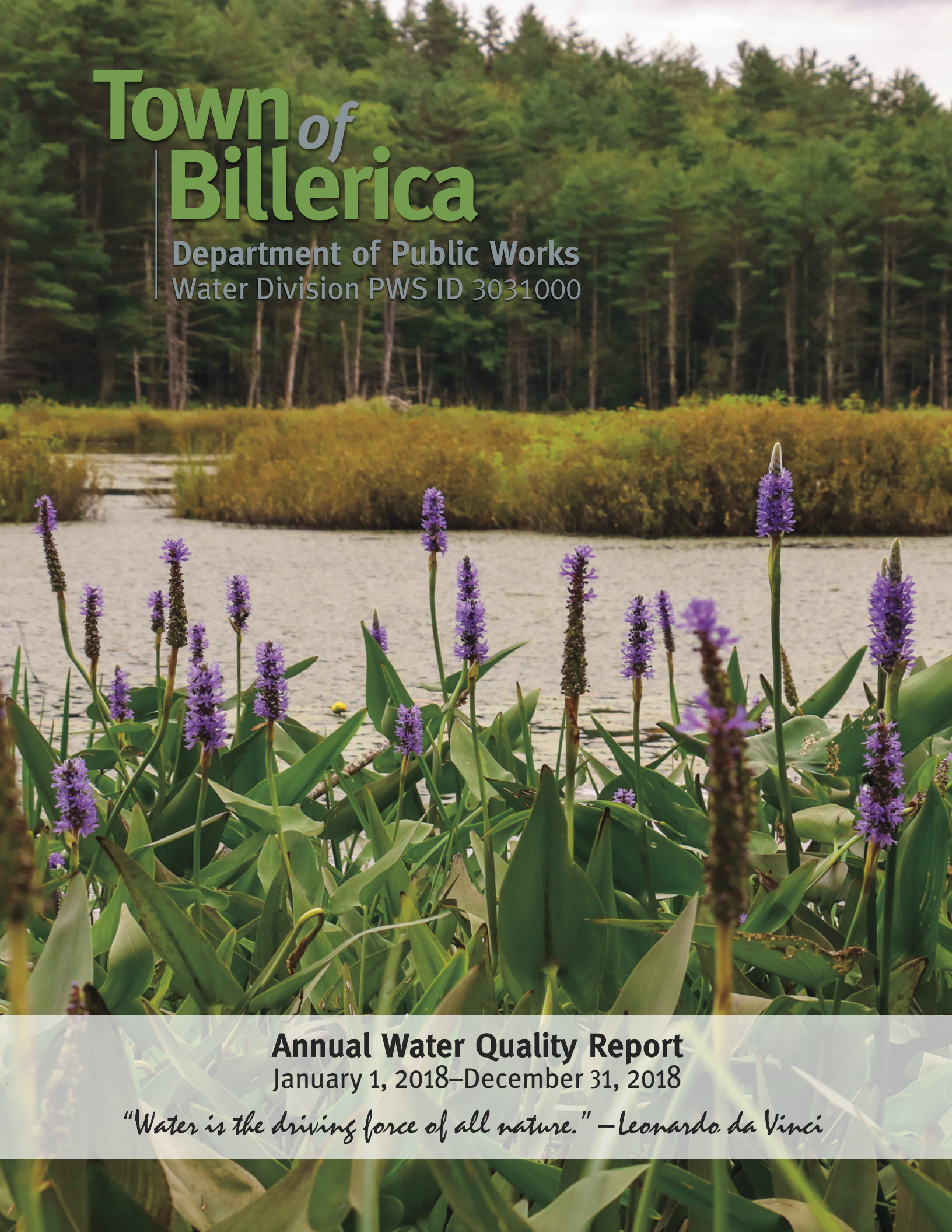

Town of Billerica

Department of Public Works

Water Division PWS ID 3031000

Annual Water Quality Report

January 1, 2018–December 31, 2018

"Water is the driving force of all nature." –Leonardo da Vinci

Town of Billerica
Department of Public Works
Water Division

WHO WE ARE AND HOW TO CONTACT US:

John McGovern, *Superintendent*
Gerard Garabedian, *Assistant Superintendent*
Richard Raworth, *Laboratory Director*
Robert Boulé, *Backflow/Cross Connection*
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(Select Public Works; Select Departments; Select Water Division)

OF SPECIAL NOTE:

We would like to introduce **Richard Raworth**, our new Laboratory Director! Richard has been an employee of the Water Division as an Operator for 4 years.

In November **John M. Sullivan** retired after 33 years with the Billerica Water Division, 24 of those years serving as the Treatment Chemist/Laboratory Director. Technology, analysis methods and regulations had many changes over the past 24 years and John guided the Treatment Laboratory through all of these changes with great success. During his tenure with the Water Division John was a mentor to many employees wishing to enter the drinking water profession. Thanks to his efforts several employees were able to attain Drinking Water Certification from the Drinking Water Licensure Board in Massachusetts. In October 2018 John was awarded the Paul F. Howard Award from the Massachusetts Water Works Association. This award merits special recognition for a MWWA member's knowledge and contributions to the drinking water profession. We all wish John a long happy, healthy retirement and thank him for his tireless service and dedication to the quality of Billerica's drinking water.

made in the u.s.a.

Written and compiled by: Carolyn Capodilupo
Design by: Christina Capobianco
Cover photo by: Paula Gentile

Welcome to the Annual Water Quality Report from your Award Winning Water Division!

The efforts of the Water Division were recognized and awarded by several State entities:

• For the past several years the Billerica Water Division has been awarded the Centers for Disease Control and Prevention (CDC) Water Fluoridation Quality Award. Billerica is one of approximately 70 Public Water Suppliers (PWS) in Massachusetts and one of 1500 Public Water Suppliers Nationwide to receive this award. This award is given to PWS that meet all required regulatory criteria and recognizes our investment in ensuring that our community receives the benefits of good dental health.

• The Billerica Water Division was also recognized at the 2018 Public Water System Awards Program for our consistently good efforts on corrosion control operating at a finished water pH consistent with EPA's optimal corrosion control recommendations. Billerica has done extensive lead in schools testing over a number of years, beyond the required Lead and Copper Rule school-testing, along with excellent follow up actions. This award stated "While most systems strive just to comply with the regulations, your system has put forth an extra effort."

• In May of 2018 the Billerica Water Division was presented with the Commonwealth of Massachusetts, Department of Environmental Protection, Drinking Water Program 2018 Regional Recognition Award for Outstanding Performance and Achievement in 2017. We were recognized by the Massachusetts House of Representatives which read in part "Your outstanding performance and achievement in 2017. Your commitment to the health and well-being of Billerica residents, having maintained a well-staffed operation and lab. You consistently do a good job with corrosion control, while continuing to stay in the 90th percentile for the past 17 years and going above and beyond with extensive lead testing in our schools."

The Massachusetts State Senate extended its congratulations by means of a proclamation signed by the Senate President, the Senate Clerk and our State Senator Cindy Friedman and given to us in recognition of receiving the 2018 Public Water Systems Beyond Compliance Regional Recognition Award. These awards were presented to the Billerica Board of Selectmen by State Rep Marc Lombardo.

It is gratifying to our Drinking Water Professionals to see our hard work recognized and appreciated. The Water Division hopes that our customers feel confident in the professionals who provide our drinking water for the Town of Billerica.

There were 54 water main breaks in 2018 with 17 of the breaks occurring in January. Our leak detection program detected 10 leaks in our system, 2 of which were water main leaks and 8 were hydrant leaks. All detected leaks were repaired.

The skills of our treatment and maintenance professionals were put to the test in August 2018 when our facility was struck by lightning. Read more on this inside our report.

Important to Know

How Is My Water Treated To Make It Safe?

In 2018 the Billerica Water Division treated and delivered 1,738,994,000 gallons of water.

Because our drinking water source is surface water, we require more treatment because we are directly exposed to the atmosphere and runoff from rain and melting snow. The Billerica Water Division uses a variety of treatment processes to remove contaminants from drinking water. Some of the methods used are described below:

- We add a disinfectant to protect you against microbial contaminants
- We filter the water to remove small particles and organisms such as sediment, algae and bacteria.
- We chemically treat the water to reduce lead and copper concentrations.
- We add fluoride to the water to aid in dental health and hygiene.
- We oxidize the water to reduce levels of iron and manganese.

**For persons who have fish or reptiles whether in a fish bowl or aquarium, Chloramines, which are used as a disinfectant, must be removed from the water to avoid fish kill. Please consult with your pet supplier for instructions on de-chlorinating the water.*

Where Does Our Drinking Water Come From?

The Town of Billerica uses water from the Concord River to provide our drinking water. The water that our system pumps and treats is known as surface water.

The Watershed above our point of intake is over 400 square miles and lies in all or part of 27 cities and towns. Within that watershed area there are several land use types that have been identified as potential sources of contamination in the source water:

Agricultural Land Uses include: Fertilizer Storage or Use, Landscaping, Nurseries, and Pesticide Storage or Use.

Commercial Land Uses include: Airports, Service Stations, Bus & Truck Terminals, Dry Cleaners, Medical Facilities, Printing Shops, and Research Laboratories.

Industrial Land Uses include: Electronic Manufacturers, Hazardous Materials Storage, and Machine/Metal Working Shops.

Residential Land Uses include: Fuel Storage, Lawn Care/Gardens, and Septic Systems.

Miscellaneous Land Uses include: Above Ground Storage Tanks, Oil or Hazardous Material Sites, Large, Small and Very Small Hazardous Waste Generators, Industrial Wastewater Treatment Facilities and Transportation Corridors.

How Are These Sources Protected?

Mass DEP has prepared a Source Water Assessment Program (SWAP) for the water source (Concord River) serving this water system. The SWAP Report assesses the susceptibility of public water supplies.

Residents can help protect our water source by:
- Practicing good septic system maintenance
- Limiting pesticide and fertilizer use
- Taking hazardous household chemicals to hazardous materials collection days

What is My System's Ranking?

A susceptibility ranking of high was assigned to this system using the information collected during the assessment by DEP. Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area. A source's susceptibility to contamination does not imply poor water quality.

The SWAP Report

The SWAP report for Billerica is available at: https://www.mass.gov/service-details/the-source-water-assessment-protection-swap-program

Understanding the Language in this Report

Throughout this report you will see the word contaminant used frequently. This DOES NOT mean the water is harmful; this term is used to describe the possibility of a contaminant being present in both source water and drinking water. Any substance detected in the drinking water is listed in the analysis table.

Photo by Paula Gentile

Important to Know

Sources of Drinking Water Contamination

Sources of drinking water (both tap 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.

Contaminants that may be present in source water include:
- **Microbial Contaminants**, such as viruses and bacteria, which 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 stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, farming and mining.
- **Pesticides and Herbicides**, which may come from a variety of sources such as agriculture, 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**, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the Department of Environmental Protection (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 (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

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 (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. The Billerica Water Division 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.

What Problems Can Occur?

Actual events of drinking water contamination are rare, and typically do not occur at levels likely to pose health concerns. However, as development in our modern society increases, there are growing numbers of activities that can contaminate our drinking water. Improperly disposed-of chemicals, animals and human wastes, wastes injected underground. And naturally occurring substances have the potential to contaminate drinking water. Likewise, drinking water that is not properly treated or disinfected, or that travels through an improperly maintained distribution system, may also pose a health risk. Greater vigilance by you, your water supplier, and your government can help prevent such events in your water supply.

Distribution Updates, Upgrades and Improvements

Service Lines and Water Meters — An unusually high number of service lines and curb valves were repaired or replaced during the year as a result of the meter replacement program being undertaken. The meters being installed are Badger meters with cellular end points. These new endpoints will allow routine reading of the meters which should greatly improve the billing by making the billing cycles uniform. It has been noted that many of the curb boxes were found under paved driveways, stone walls, bushes and trees. Customers should be aware that these valves serve as emergency shut offs when the valve at the meter in the house fails. Under emergency conditions when a cellar is flooding time is wasted looking for these valves or digging them out of an asphalt driveway. Every homeowner should maintain the cellar valve before the meter and keep clear access to it and also know where the curb valve is located near the street just as you would know where to shut off power or gas in the event of a problem.

Water Main Installations/Replacements — Collaboration between construction projects and water main replacements continued in Billerica for 2018. Water mains have been replaced in conjunction with Sewer Installation construction and major roadway construction. This allows us to upgrade deteriorating or under sized water mains while other construction is occurring which reduces costs and inconvenience to our customers.

Important to Know

As part of the Allen Road and Boston Road reconstruction the eight inch class 52 iron ductile pipe water main on Allen Road was extended 185 feet from the point where it was left off last year to the new sixteen inch main on Boston Road.

Water mains on Boston Road, as part of the Allen Road Reconstruction were replaced from Tremlett Road to the bridge at the Shawsheen River. The six inch (installed 1913) and twelve inch (installed 1967) on Boson Road and also the eight inch (installed 1940 by W.P.A) from Allen Road to the bridge were replaced by 1,280 feet of sixteen inch class 52 ductile iron pipe.

Also part of the Allen Road Reconstruction Phase II the six inch water main (installed 1925) on Shawsheen Road was replaced from Boston Road to the first hydrant with 448 feet of sixteen inch class 52 iron ductile pipe.

The following work was done in December as part of the sewer contract 36:

Kinder Place — One hundred forty nine feet of water main was installed from Tomahawk Drive to a terminal hydrant. This extension began with three gate valves at the tee providing greater control on Tomahawk Drive.

Strand Street — One hundred thirty six feet of water main was installed from Tomahawk Drive to a terminal hydrant. This extension began with three gate valves at the tee providing greater control on Tomahawk Drive.

Lilly Street — One hundred fifty seven feet of water main was installed from Tomahawk Drive to a terminal hydrant, this replaced the existing main. This extension began with three gate valves at the tee providing greater control on Tomahawk Drive.

Pink Street — two hundred seventeen feet of water main was installed from Tomahawk Drive to a terminal hydrant. This extension began with three gate valves at the tee providing greater control on Tomahawk Drive

Connolly Road — In August our staff replaced 210 feet of pipe from the intersection of Irene Ave, towards Shelburne Ave. This section of pipe has failed twelve times in fifteen years. We believe this is due to the corrosive nature of the soil which is organic muck. In an effort to compensate for this soil class 54 ductile iron pipe was used; this has a thicker wall than the class 52 which is the usual piping material. A three millimeter plastic wrap was also used on this pipe to slow the corrosion of the new pipe.

Lexington Road — In October a large culvert was replaced on Lexington Road near the Middlesex Turnpike. The water main was replaced at this culvert with gate valves added on each side.

Fieldstone Lane — The developer completed the loop of Fieldstone Lane beyond the culvert by installing 3,000 feet of ten inch ductile iron main.

Hydrant Installations — 34 hydrants were changed, out of these 9 were replaced by contractors.

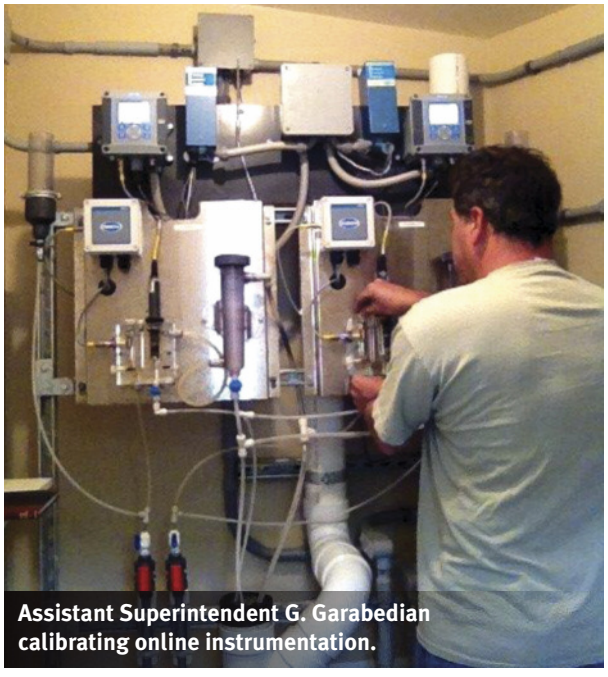
Water Treatment Facility

The process of treating drinking water is a complex one consisting of thousands of moving parts. There are hundreds of pumps, motors, valves and electronics of a great assortment of sizes and capacities. Each process of treatment involves equipment that it sized to the specific needs of that process.

For example chemical feed pumps vary from gallons per minute to hundreds of gallons per day depending on the chemical being added. In comparison our low lift pumps which pump water from the river to the treatment facility and our high lift pumps which pump treated water to the distribution system pump millions of gallons per day.

All of these thousands of moving parts require scheduled maintenance, repair and sometimes replacement. Most of these parts are in use 24 hours a day 365 days a year. We have strived to have back up equipment due to the critical need of some of this equipment, but with the constant use sometimes it is necessary to replace equipment.

For the pumps in our facility the replacement costs vary from hundreds of dollars to thousands of dollars. Preventative maintenance is an essential function for our facilities maintenance team.



Assistant Superintendent G. Garabedian calibrating online instrumentation.

Important to Know

In 2018 we replaced a variable 5 million gallon a day (MGD) raw water pump which is used to pump the water from the river to the treatment facility.

Other work performed included:
- Several heaters were replaced in the treatment facility.
- Check valves were replaced on high lifts numbers 2 and 4.
- The dryer was replaced on the compressor.
- New doplar meters were installed on the laboratory sample lines to account for the water used in the sampling process.
- A new inline upgraded chlorine analyzer was installed; this instrument requires no reagents and is more accurate than the instrument it replaced.
- New wiring was installed from the residual building to the main building and from the pretreatment building to the main building.
- The troughs in the filters which supply water to the filters were repaired. The high pressure and velocity of the water passing through the troughs loosened the supports over time and require repairs and upgrades to the supports.
- Five wastewater ejector perimeter pumps were replaced on the inside and outside of the residual and main building.
- As part of an annual program RPV – air pressure release valves were either repaired or replaced at manholes in the raw water lines at 12 locations in the distribution system.
- As part of the annual program anti-siphon valves on every feed pump were either repaired or replaced at all locations in the facility.
- Two wastewater backwash return pumps which pump 22,000 gallons an hour were repaired.

River Intake Station pump.

Efforts were ongoing to keep the ozone system operating with the ozone inductor being repaired and the valve where ozone enters the raw water main was replaced. The pressure reducing valve outside the ozone room was also replaced.

Due to the corrosive nature of the ozone process a twenty foot section of stainless steel pipe which is used for carrying ozone solution was replaced.

Lightning Strike

On Friday August 17, the Treatment Facility was hit by lightning. This strike caused considerable damage to multiple systems and equipment. Our plant is a SCADA – Supervisory Control and Data Acquisition facility. This means most of our equipment is controlled by a computer system which uses hundreds of signals to control the many pumps, motors and valves in our process. Some of the damage was to chemical feed electronic controllers, PLC analog modules, ultrasonic level controllers, scales for chemical tanks, switch gears and other equipment on our emergency generator, HVAC controls, flocculator system and various flow meters. An example of just one system is the Chemical tanks both the tank level and scale weight was inoperable as was the chemical feed pump speed and pressure. This was the case for five of our chemical systems.

In addition to the physical damage, this event took many hours to investigate and diagnose exactly what damage was sustained and what equipment was involved. While some electronic signals worked they were not sending complete information and each system and its signals had to be painstakingly checked and verified. It took weeks to diagnose, repair and/or replace destroyed equipment and test and calibrate all instrumentation.

In the aftermath of the strike it was necessary to operate the facility manually. This included the comprehensive collection and calculations of data that is required for our regulatory reporting which our employees were successful in doing. All of these efforts were undertaken while continuing to supply drinking water during our high volume season. It was an "all hands on deck" situation requiring the expertise of our employees, equipment manufacturers, and suppliers.

Laboratory News

Laboratory personnel were extremely busy and productive in 2018 conducting collections and analysis on thousands of samples of water from untreated source water to various stages of treated water and the water in the distribution system. A great amount of time is spent on collecting, analyzing and reporting on the quality of our drinking water. It is also necessary to maintain continuing education on regulatory updates and changes as well as technology requirements. There is a lot going on in the drinking water

Important to Know

world and it is imperative that we constantly keep updated so that we can remain in compliance with regulations and use effective treatment technologies. We are proud to say that in addition to staying in compliance, our Laboratory has also participated and conducted in several comprehensive studies on both our source water and our drinking water. We believe the efforts put into these studies are directly beneficial to the quality of our drinking water and the processes of keeping our water safe to drink. Over the years we have conducted studies to test every fixture at every school for Lead and Copper, a very labor intensive endeavor but one we were proud to have done especially for the health of our youngest customers. We have also taken part in studies of the Concord River with the EPA this was a comprehensive study to determine the impact on wastewater discharge into rivers and resulting residuals. The results of that study are being determined and decisions will be made by the EPA on whether any treatment changes are needed on a national level. It is our belief that cooperation in studies such as this, while very labor and time intensive for our Lab personnel, gives the Billerica Water Division beneficial data on our source water at no expense to our ratepayers. Working in partnership with the scientists from EPA is very rewarding for our Laboratory staff as well.

The Water Treatment Laboratory took part in several studies above and beyond routine monitoring required by Federal and State regulations. One of these studies was the Long Term 2 Enhanced Surface Water Treatment Rule. This is the second round of sampling and data collection for this study. Laboratory personnel collected source water samples each month from October 2016 through September 2018. Samples were collected from our source water, the Concord River before treatment. These samples were analyzed for Cryptosporidium, E. coli and Turbidity.

The Department of Environmental Protection (DEP) determines based on the results of these studies whether or not additional treatment is needed. Thus far the Treatment process at the Water Treatment facility has been appropriate and meets all regulatory requirements.

Under the Safe Drinking Water Act (SDWA) which was passed in 1974, Environmental Protection Agency (EPA) was authorized to set enforceable health standards for contaminants in drinking water. In 1986 the SDWA was amended to establish testing for unregulated contaminants with the Unregulated Contaminant Rule (UCMR). This was further amended to change the process of developing and reviewing the data collected.

The UCMR requires:

- Issuing a List of no more than 30 contaminants, once every 5 years
- Store analytical results in the National Occurrence Data base for Drinking Water (NCOD)

The objectives of these studies are to:

- Collect nationally representative occurrence data for unregulated contaminants that may require regulation under SDWA
- Consider data collected as part of future EPA decisions on actions to protect public health
- Provide data to States, local government and to the public for their use in decisions regarding public health protection.

As part of the current study, UCMR4, Billerica Water Division has been required to collect water samples to be analyzed for 10 Cyanotoxins and 20 additional contaminants comprised of Pesticides, Metals, Disinfection By-Products, Alcohols and Semi-Volatile Organics. Sample locations include multiple locations within the distribution system as well as the entry point from the water treatment facility to the distribution system after treatment is applied.

Decisions whether or not to regulate the contaminant in drinking water will continue to be made following the EPA's regulatory determination process. Posted below are detects from the study all within the limits set by our regulatory requirements where applicable.

SUBSTANCE	RANGE DETECTED		
METALS	**AVG PPB**	**LOW PPB**	**HIGH PPB**
Manganese	22.3	11.7	37.9
DISINFECTION BY-PRODUCTS / HALOACETIC ACIDS			
Bromochloroacetic Acid	5.2	3.06	7.56
Bromodichloroacetic Acid	3.49	2.67	4.84
Chlorodibromoacetic Acid	2.63	0.613	5.31
Dibromoacetic Acid	2.81	0.359	6.88
Dichloroacetic Acid HAA5	8.85	5.82	11.6
Monobromoacetic Acid HAA6	0.77	0.541	0.946
Monochloroacetic Acid	2.37	2.05	2.68
Tribromoacetic Acid	ND	ND	ND
Trichloroacetic Acid HAA9	3.23	1.14	5.87

Photo by Paula Gentile

Billerica Water Division Backflow /Cross Connection Program

The Massachusetts Drinking Water Regulations, 310 CMR 22.00, requires all public water systems to have an approved and fully implemented Cross-Connection Control Program (CCCP). The Town of Billerica Water Division Cross Connection Program was established and received official approval on August 31, 1989. By the mid 1990's the Town of Billerica completed the task of surveying all existing facilities.

Cross-Connection Control and Backflow Prevention

The Billerica Water Division makes every effort to ensure that the water delivered to your home and business is clean, safe and free of contamination. Our staff works very hard to protect the quality of the water delivered to our customers from the time the water is withdrawn from our source, throughout the entire treatment and distribution system. But what happens when the water reaches your home or business? There is still a need to protect the water quality from contamination caused by a cross-connection.

What is a cross-connection?

A cross-connection occurs whenever the drinking water supply is or could be in contact with potential sources of pollution or contamination. Cross-connections exist in piping arrangements or equipment that allows the drinking water to come in contact with non-potable liquids, solids, or gases (hazardous to humans) in event of a backflow.

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. And every water customer has a responsibility to help prevent them.

What you can do to help prevent a cross-connection

Without the proper protection something as simple as a garden hose has the potential to contaminate or pollute the drinking water lines in your house. In fact, over half of the country's cross-connection incidents involve unprotected garden hoses. There are very simple steps that you, as a drinking water user, can take to prevent such hazards:

- Never submerge a hose in soapy water buckets, pet watering containers, pools, tubs, sinks, drains or chemicals.
- Never attach a hose to a garden sprayer without the proper backflow preventer.
- Buy and install a hose bib vacuum breaker on every threaded water fixture. The installation can be as easy as attaching a garden hose to a spigot. This inexpensive device is available at most hardware stores and home improvement centers.
- Identify and be aware of potential cross-connections to your water line.
- Buy appliances and equipment with a backflow preventer.
- Buy and install backflow prevention devices or assemblies for all high and moderate hazard connections.

If you are the owner or manager of a property that is being used as a commercial, industrial, or institutional facility you must have your property's plumbing system surveyed for cross-connection. If your property HAS NOT been surveyed for cross-connection, contact Robert Boulé to schedule a cross-connection survey.

What is Stormwater?

Stormwater is the runoff water from rain and snowmelt and has been identified by the United States Environmental Protection Agency (EPA) as the number one contributor of pollution to our streams, ponds, wetlands, lakes, rivers, and oceans. Stormwater pollutants include litter, sand, bacteria, chemicals (such as fertilizer and herbicides from lawns), and oil and gas from cars.

Runoff from paved or impervious surfaces, such as roads, parking lots, driveways, and rooftops, can contribute large amounts of polluted stormwater. To prevent flooding, parking lots and streets are often lined with storm drains to quickly move stormwater off the pavement.

Since storm drains have underground pipes that channel the stormwater directly to a nearby water body, whatever flows down a storm drain comes out in the closest wetland, stream, or pond, usually with little or no treatment.

Scoop the Poop!

What's the Problem with Dog Waste? Besides being a neighborhood nuisance, dog waste can make people sick, especially children who are more likely to come into contact with it while playing. It's full of harmful bacteria and excess nutrients. Dog waste left in our yards, forest areas, and parks can have many adverse effects on the environment. During a rain storm, these pollutants can be washed into local rivers and ponds. How can you help?

BRING IT — Always bring a plastic bag when you walk your dog.

BAG IT — Use the bag as a glove to pick up the dog waste. Scoop it up and turn the bag inside out around the waste.

DISPOSE IT — Properly dispose of dog waste by flushing without the bag or putting it in a trash can. Never throw dog waste down a storm drain.

EPA's Stormwater Program

The EPA nationally regulates the discharge of stormwater runoff that is transported through municipal drainage systems into local waterbodies through the National Pollutant Discharge Elimination System (NPDES) stormwater program. The NPDES stormwater program includes the following components, called Minimum Control Measures (MCMs):

- Public education and outreach
- Public involvement and participation
- Illicit discharge detection and elimination
- Management of construction site stormwater runoff
- Management of post-construction stormwater runoff for new development and redevelopment
- Good housekeeping and pollution prevention in municipal operations

Billerica must implement specific policies and procedures for each MCM to help reduce pollution in local water bodies. The NPDES stormwater program also includes requirements to address specific pollutants found in stormwater where waters are not meeting water quality goals or designated uses (e.g., fishable, swimmable) under the Clean Water Act. In Billerica, this means reducing the levels of total phosphorus and bacteria in stormwater runoff.

Stormwater Management in Billerica

To comply with program requirements, Billerica has submitted a Notice of Intent (NOI) to EPA and MassDEP to request authorization to discharge stormwater. The NOI includes information about the Town's status of compliance with the NPDES stormwater program, a summary of water bodies within Town that receive stormwater discharges, and best management practices (BMPs) the Town will implement to address the six MCMs. A Stormwater Management Plan (SWMP) has also been developed, which summarizes the Town's stormwater program and the NOI in greater detail.

Additional Information

With your help and support, we can make the difference in keeping stormwater clean. For more information about the Town of Billerica's Stormwater Management Program and tips for keeping our waters clean, please visit the Stormwater Management website at: http://www.town.billerica.ma.us/214/Stormwater-Management.

**Pet waste information adapted from the Massachusetts Department of Environmental Protection and Department of Conservation and Recreation brochure, Dog Waste and Surface Water Quality. Image from the Environmental Protection Agency's NPS Outreach Toolbox, Clean Water Campaign: Pet Waste Mailer. URL: https://cfpub.epa.gov/npstbx/files/cwc_petwastefactsheet.pdf*

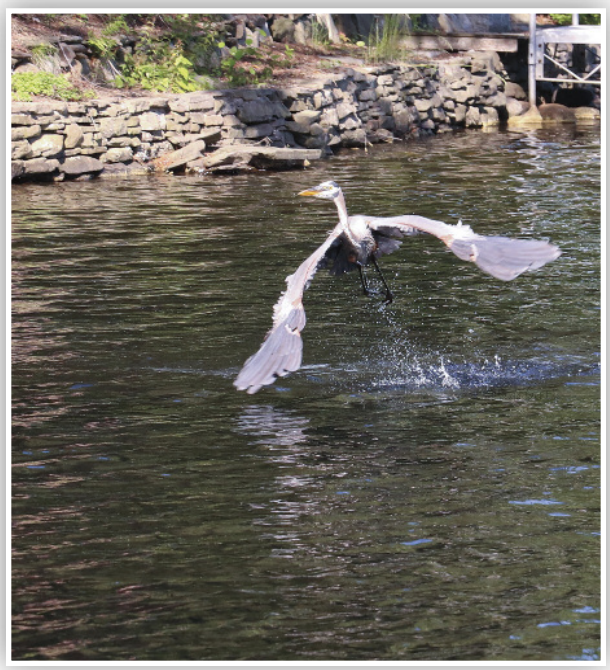


Photo by Paula Gentile

Water Quality Summary | Public Water Supplier ID #3031000

The water quality information presented in these table(s) is from the most recent round of testing done in accordance with the regulations. All data shown with the exception of Radionuclides, Lead and Copper was collected from January 1, 2018 through December 31, 2018.

Regulated Contaminants

SUBSTANCE	MCL (MRDL)	MCLG (MRDLG)	HIGHEST AMOUNT DETECTED	RANGE DETECTED LOW—HIGH	TYPICAL SOURCE
Fluoride (ppm)	4*	4	0.8	0.3–0.8	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (ppm)	10	10	0.78	ND–0.78	Runoff from fertilizer use; leaching from septic tanks, sewage, natural deposits
Nitrite (ppm)	1	1	0.009	ND–0.009	Runoff from fertilizer use; leaching from septic tanks, sewage, natural deposits
Barium (ppm)	2	2	0.029	NA	Discharge from drilling wastes; discharge from metal refineries; erosion of natural deposits
Perchlorate (ppb)	2	–	0.327	0.327	Rocket propellants, fireworks, munitions, flares, blasting agents.

** Fluoride also has a Secondary Maximum Contaminant Level (SMCL) of 2 ppm*

Radioactive Contaminants

RADIONUCLIDES*	MCL (MRDL)	RESULT	TYPICAL SOURCE
Gross Alpha pCi/l	15	3.02	Erosion of natural deposits
Radium 226 pCi/l	5	0.11	Erosion of natural deposits
Radium 228 pCi/l	5	-0.25	Erosion of natural deposits

**Testing for Radionuclides is on a 9 year cycle as past results show that the concentrations are not expected to vary significantly from cycle to cycle. Last sampled May 2014.*

TURBIDITY DAILY COMPLIANCE (NTU)	TT	LOWEST % OF SAMPLES	HIGHEST DETECTED DAILY VALUE	MONTHLY COMPLIANCE	TYPICAL SOURCE
1.0	1.0	100%	0.35	At least 95%	Soil Runoff

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 specific treatment techniques (TT).
Our system filters the water so at least 95% of our samples each month must be below the turbidity limits specified in the regulations.

Disinfectants and Disinfection By-Products

SUBSTANCE	MCL	HIGHEST ANNUAL RUNNING AVERAGE	RANGE DETECTED LOW—HIGH	TYPICAL SOURCE
Total Trihalomethanes TTHMs (ppb)	80	37	15–53	By-product of drinking water disinfection
Haloacetic Acids HAA5s (ppb)	60	21	7–33	By-product of drinking water disinfection
Chlorine (ppb)	4	1.8	0.27–2.64	Water additive to control microbes
Bromate (ppb)	10	3.2	1.1–7.3	By-product of drinking water chlorination

Disinfection Byproducts. Disinfection of drinking water is one of the major public health advances of the 20th century. However, sometimes the disinfectants can react with naturally occurring materials in the water to form unintended byproducts, which may pose health risks. EPA recognizes the importance of removing microbial contaminants while simultaneously protecting the public from disinfection byproducts, and has developed regulations to limit the presence of these byproducts. For more information, see http://www.epa.gov/safewater/mdbp.html.

Total Organic Carbon	TT Annual Average % Removed = 67%	Naturally present in the environment

Most of the data presented in these tables is from testing done January 1 – December 31 2018. We monitor for some contaminants less than once per year, because the concentrations for those contaminants are not expected to vary significantly from year to year. For those contaminants the date of the last sample is shown in the table.

Unregulated Volatile Organics*

SUBSTANCE	ORSG	LOWEST DETECTED	HIGHEST DETECTED	TYPICAL SOURCE
Chloroform (ppb)	70	ND	14.2	By-product of drinking water chlorination
Bromodichloromethane (ppb)	NA	4.3	16	By-product of drinking water chlorination
Chlorodibromomethane (ppb)	NA	4.1	13.5	By-product of drinking water chlorination
Bromoform (ppb)	NA	ND	1.9	By-product of drinking water chlorination

**EPA has not established drinking water standards for Unregulated Contaminants and as such they do not have a MCL. The purpose of Unregulated Contaminant monitoring is to assist the EPA in determining their occurrence in drinking water and whether future regulations are warranted.*

Unregulated and Secondary Contaminants

SUBSTANCE	SMCL	ORSG	LOWEST DETECTED	HIGHEST DETECTED	TYPICAL SOURCE
Sulfate (ppm)	250	NA	37	43	Runoff and leaching from natural deposits; industrial wastes
Manganese* (ppb)	50	300*	19	55	Erosion of natural deposits
Chloride (ppm)	NA	250	156	162	Runoff from road de-icing; leaching from natural deposits
Sodium** (ppm)	NA	20	76	156	Discharge from the use and improper storage of sodium containing de-icing compounds or in water softening agents
Total Dissolved Solids (TDS) (ppm)	500	–	388	396	Erosion of natural deposits

**EPA has established a lifetime health advisory (HA) value of 300ppb for manganese to protect against concerns of potential neurological effects, and a one-day and ten-day HA of 1000ppb for acute exposure.*

***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.*

Lead and Copper Study

SUBSTANCE	DATE(S) COLLECTED	90TH PERCENTILE	ACTION LEVEL	NUMBER OF SITES SAMPLED	NUMBER OF SITES ABOVE ACTION LEVEL	TYPICAL SOURCE
Lead (ppb)	6/2016	2	15	30	0	Corrosion of household plumbing; erosion of natural deposits.
Copper (ppb)	6/2016	20	1300	30	0	Corrosion of household plumbing

90th Percentile: Out of every 10 homes, 9 were at or below this level. This number is compared to the Action Level to determine lead and copper compliance.

DEFINITIONS AND NOTES:

ACTION LEVEL The concentration of a contaminant which if exceeded triggers treatment or other requirements that a water system must follow.

MCL Maximum Contaminant Level. MCLs are the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to MCLG's as feasible, using the best available treatment technology.

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

NA Not Applicable

ND Not Detected

NTU Nephelometric Turbidity Units

ORSG Massachusetts Office of Research and Standards Guidelines. This is 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.

pCi/l picocuries per liter (a measure of radioactivity)

ppb parts per billion

ppm parts per million

SMCL Secondary Maximum Contaminant level. These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

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

TOWN OF BILLERICA
DEPARTMENT OF PUBLIC WORKS
WATER DIVISION
270 TREBLE COVE ROAD
BILLERICA, MA 01862

POSTAL CUSTOMER

View Your Water Usage

The Town of Billerica is in the process of changing out water meters to new Badger meters. One of the benefits of these meters is that you can view your water use. You can follow the steps posted below to access your "eye on water" account by computer or by using your phone.

How to access your water use in a few easy steps:

- Visit: **https://eyeonwater.com/signup** on your computer using a supported web browser
- Enter your service area zip code [i.e. – 01821 - 01862]
- Enter your customer billing number [i.e – 13658]
- Enter your email address
- Create and confirm a password
- You will get a confirmation email from BEACON. You must verify your email address by clicking on this link. Once you do, you can sign in using your email and password.

Phone / iPad App Instructions:

1. Go to the App Store on your Android or iPhone and search for "eye on water"
2. Download the free app on your Android or iPhone
3. Open the app
4. Tap on the Register button
5. Tap on "Enter your customer billing information manually"
6. Enter your Zip Code
7. Select your water provider
8. Enter your Account ID
9. Tap on the Next button
10. Enter a valid email address
11. Create and confirm a password
12. Verify that you have read the Terms of Service
13. Tap on the Next button
14. An email will be sent to the address you provided
15. Click or tap on the link in the email to verify it is valid
16. You can now sign into your account