

Town of Tewksbury 2012 Consumer Confidence Report

Tewksbury Water Department (System ID#:3295000)

The purpose of this report is to educate all water users in the Town of Tewksbury about their water system; the drinking water quality, how the water is treated and the results of that treatment.



Water Billing: (978) 640-4350

Water Treatment Plant, Lewis Zediana: (978) 858-0345

Water /Sewer Division, George DeRoche: (978) 640-4440 ext. 5

Cross Connection Program: (978)-858-0345

Water is a precious resource, please conserve when possible.

A limited amount of Water Conservation Kits are available, at no cost, at the Department of Public Works.

Did you know? Irrigation metering is available to all water users. Water users who are interested in reducing sewer charges for irrigation water only, may install a secondary meter (at their own cost). The secondary meter may be used during the growing season and is subject to certain restrictions. Please contact us or check our website for more information.

Trying to establish a good lawn? Try this URL from the EPA. The webpage is loaded with advice and other links to make your lawn look good while practicing good water conservation.
<http://www.epa.gov/wastes/conservation/tools/greenscapes/owners.htm>

Water Production Statistics



- In 2012 the Town of Tewksbury consumed 862.39 million gallons of water.
- The water plant treated an average of 2.36 million gallons of water per day.
- The peak treatment rate was 4.483 million gallons (24 hours) which occurred on 7/14/12.
- Residents consumed 49 gallons per day per person on average.
- Commercial and Industrial facilities used 166.5 million gallons of water or 19.3 %.
- Residential water use amounted to 537.4 million gallons or 62.3%.
- The average residential water user consumed 56,000 gallons per year.
- The average commercial water user consumed 334,000 gallons per year.
- There are now 10,146 water connections to the distribution system.
- The unaccounted for water was 14.9 %

Why am I receiving this report?: This report is mandated by the Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MaDEP). Much of this report consists of required language which may or may not be relevant to the Tewksbury Water System. Please feel free to contact the Treatment Plant for further clarification. If English is not your first language please have this report translated.

Si Ingles no es su primer idioma, por favor traduzca el informe.

Where does my water come from?

In the graphic to the right, the entire Merrimack River Basin is outlined in light gray.

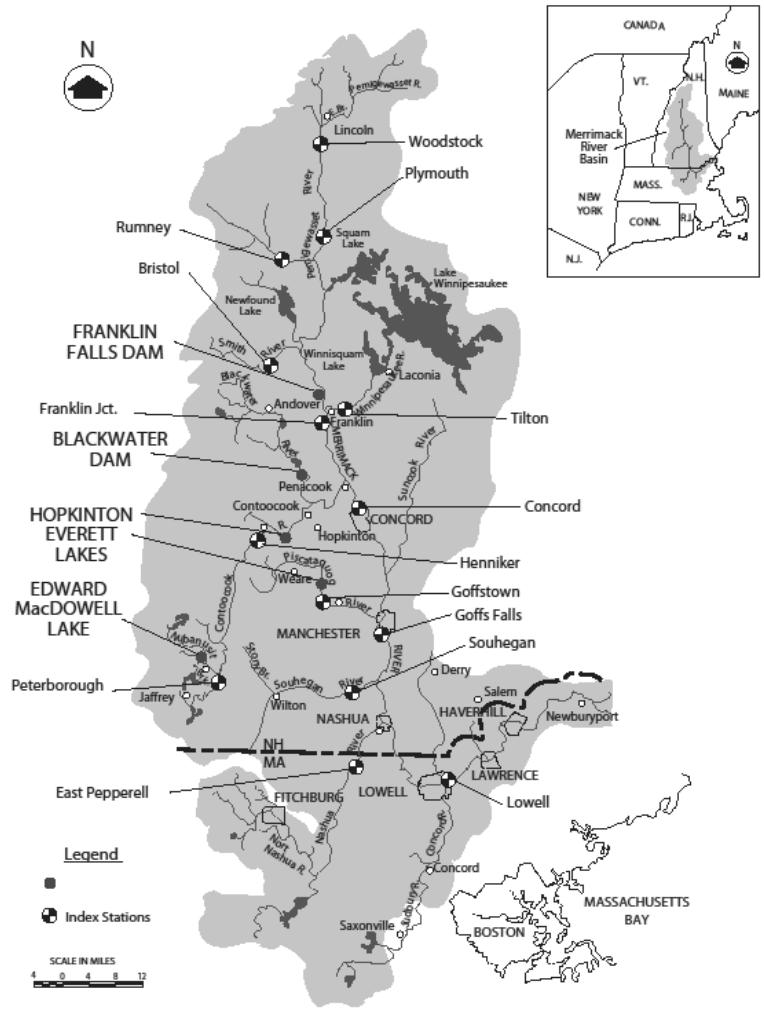
Most of the water originates from Lake Winnepesaukee and along with several other tributaries, forms the Merrimack River, which eventually exits into the Atlantic Ocean.

The river basin covers 4,672 square miles of area and is located in two different states. Because of this large basin area the Merrimack River always has water and is not considered a “stressed basin”.

Want to know how fast the river is flowing or how high it is? Try this URL:

waterdata.usgs.gov/usa/nwis/uv?site_no=01100000

This is the US Geological Survey website. You can find interesting data about the Merrimack River including flow rates and historical data back to 1923. Did you know? In 2006 the average flow rate was 14,590 cubic feet per second or 6.5 million gallons per minute. That’s over 3.4 trillion gallons of water per year. The wettest year since 1923



Lawn and Garden

- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Avoid application if the forecast calls for rain; otherwise, chemicals will be washed into your local stream.
- Select native plants and grasses that are drought and pest resistant. Native plants require less water, fertilizer, and pesticides.
- Sweep up yard debris, rather than hosing down areas. Compost or recycle yard waste when possible.
- Don't overwater your lawn. Water during the cool times of the day, and don't let water runoff into the storm drain.
- Cover piles of dirt and mulch being used in landscaping projects to prevent these pollutants from blowing or washing off your yard and into local water bodies. Vegetate bare spots in your yard to prevent soil erosion.

Tewksbury's Stormwater Message to our Residents

Healthy Household Habits for Clean Water

A Message from the Environmental Protection Agency



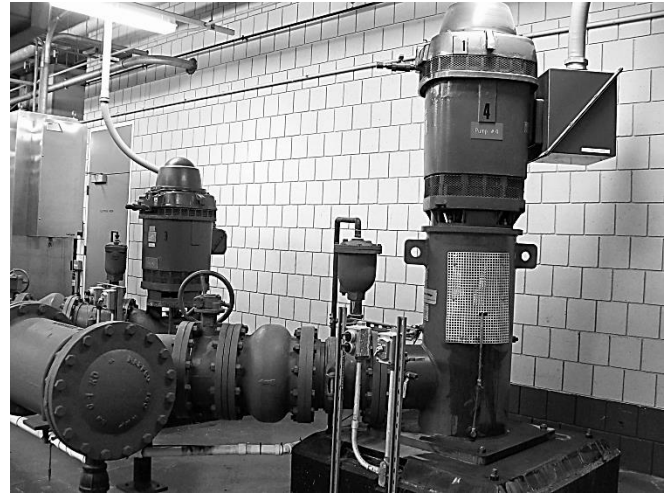
When you're fertilizing the lawn, remember you're not just fertilizing the lawn.

Image courtesy of stormwaterelkco.org

The Water Treatment Process and how it Works

1. **Screening:** The first and most unseen process is called screening. Several large screens shaped like torpedoes, are used to prevent debris, fish and other objects from entering the treatment process. Large stainless screens located on the bottom of the river allow water to pass through 1/8" slots therefore "screening out" any debris. Compressed air is used to occasionally clean the screen surface.
2. **Primary Disinfection:** Chlorine Dioxide (a compound related to chlorine) is used to disinfect and oxidize any material which may be found in the water. Typically all bacteria are destroyed and any Iron or Manganese is converted to an easier compound to remove later in the process. Chlorine Dioxide cannot be stored and is generated on site.
3. **Secondary Disinfection and Destruction of Ammonia:** Sodium Hypochlorite (bleach) is added along with Sodium Hydroxide. The bleach is added to help remove naturally occurring ammonia compounds which may impart taste and odor to the water and to help stabilize the chlorine content in the water. The added bleach also helps to disinfect the water a second time to help prevent any problems with cryptosporidium or giardia (protozoa's). The sodium hydroxide adds alkalinity to the water to help in the coagulation process.

4. **Aluminum Sulfate (aka Alum):** Is added to coagulate and coat tiny particles such as silt, plant debris and other microscopic material which causes the water to become cloudy (we call this turbidity). Over 80% of the turbidity is removed through the pre-treatment process, which takes over several hours to complete.



100 HP & 200 HP Finished Water Pumps

5. **Powered Activated Carbon (aka PAC):** A small amount of this finely powered material is added to help absorb a variety of materials that may be found in the water. The PAC can absorb Taste and Odor compounds, destroy Chlorine in the alum sludge and can help the floc particles to settle faster.
6. **Filtration:** All of the water is filtered through four (4) dual media filters. Dual media means that two different types of filter media are used in our filters. 36 inches of Granulated Activated Carbon (GAC) sits on top of 12 inches of fine filter sand. Our filters are automatic Backwash Filters (ABF) (see picture at right) which allows us to backwash (clean) the filters while still filtering water. Each filter contains over 35,000 lbs. of GAC which is replaced every two years with newly activated GAC. The water upon exiting the filter is monitored for turbidity on a continuous basis. It is not unusual for our facility to consistently produce water under 0.05 turbidity units. As a comparison, distilled water has a value of about 0.02 turbidity units.



Automatic Back Wash Filter

7. **Final Treatment:** The final or what we call "Post Treatment" includes adjusting the pH of the water to about 7.5 standard units using more sodium hydroxide, adding a fluoride compound for promoting good dental health, zinc ortho phosphate to reduce corrosion of pipe material (reduces leaching of lead and copper). Finally, another dose of bleach is added to maintain chlorine through-out the water distribution system.

Yearly Compilation of Detected Compounds & Maximum Allowable Limits

Contaminant	Highest Level	Range Detected	Average Detected	MCL MRDL	MCLG MRDLG	Violation Y/N	Possible Source
Perchlorate (PPB)	0.55	N/A	0.55	2	0	N	Oxygen additive for solid fuel rockets & missiles; Industrial waste
Fluoride (PPM)	1.0	N/A	0.8	4	4	N	Water additive which promotes strong teeth
Sodium (PPM)	37.4	N/A	37.4	N/A	N/A	N	Natural Sources; runoff from salt used on roadways; by-product of treatment process
Nitrate (PPM)	0.35	N/A	0.35	10	10	N	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits
Turbidity (NTU)	0.22	0.02-0.22	0.04	0.30	<5% over 0.3 NTU	N	Soil runoff
Sulfates (PPM)	40.0	N/A	40.0	N/A	N/A	N	Soil runoff and detergents; by-product of treatment process
TTHM's (PPB)	77.2	37.0-77.2	55.0	80 running average	N/A	N	By-product of drinking water chlorination
HAA's (PPB)	27.1	4.5-27.1	18	60 running average	N/A	N	By-product of drinking water chlorination
VOC's (PPB)	None Detected	None Detected	None Detected	Varies	0	N	Discharges from industrial chemical factories
Chlorite (PPM)	0.20	0.01-0.20	0.11	1	N/A	N	Disinfection by-product
Total Coliform	0	0	0	<5%	0	N	Naturally present in environment
Lead & Copper Program	90 th percentile	# of sites exceeded	# of samples sampled	Action Level	MCLG	Violation Y/N	Testing date: 2011 Next testing date: 2014
Lead (PPM)	0.009	0	31	0.015	0	N	Corrosion of household plumbing systems; erosion of natural deposits
Copper (PPM)	0.12	0	31	1.3	0	N	Corrosion of household plumbing systems; erosion of natural deposits

Thank you to our "Lead & Copper" volunteers, who assist us in this important program.

Terms and other related information required by the EPA in this document

1. **Maximum Contaminant Level (MCL)** – the highest level of a contaminant that is allowed in drinking water.
2. **Maximum Contaminant Level Goal (MCLG)** – the level of a contaminant in drinking water below which there is no known or expected risk to health.
3. **Maximum Residual Disinfectant Level (MRDL)** -- The highest level of a disinfectant (chlorine, chloramines, chlorine dioxide) allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
4. **Maximum Residual Disinfectant Level Goal (MRDLG)** -- The level of a drinking water disinfectant (chlorine, chloramines, chlorine dioxide) below which there is no known of expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.
5. **Treatment Technique (TT)** – A required process intended to reduce the level of a contaminant in drinking water.
6. **Action Level (AL)** – The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
7. **PPB** – Parts per billion or micrograms per liter ($\mu\text{g/L}$).
8. **PPM** – Parts per million or milligrams per liter (mg/L).

Substances found in tap 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. It 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, which can be naturally-occurring or result from urban storm-water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides -which may come from a variety of sources such as agricultural, urban storm-water runoff, and residential uses.

Organic chemical contaminants -including synthetic and volatile organic chemicals, which 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 U.S. Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) 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 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.

Important Information

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 at 800.426.4791.

Lead: Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline at 800.426.4791.

THM: Some people who drink water containing trihalomethanes in excess of the MCL over many years experience problems with their liver, kidneys, or central nervous systems, and may have increased risk of getting cancer.

Turbidity: Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease causing organisms. These organisms include bacteria, viruses and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

Do you want to know more? Try: WWW.EPA.gov & WWW.Mass.gov/DEP

Also try: WWW.Merrimack.org & WWW.Cleanriverproject.org

These organizations are volunteered supported and manned. If you want to help the Merrimack River check out these websites.

Our website is: Tewksbury-ma.gov CLICK on 'Departments' then the 'Water Treatment Plant'

Tewksbury Cross Connection Program

What is a Cross Connection?

A cross connection occurs when the potable drinking water system is physically connected to a possible source of contamination. A connection to a private well, an industrial process containing harmful chemicals or a fire water storage tank or even a hose left in a bucket of insecticide. In either case, if a sudden drop in pressure occurs, caused by a fire or a broken water main, someone may get hurt. Learn how to prevent this and other situations.

What is the Owners Responsibility?

Owners of any industrial, commercial, agricultural, municipal and/or private residence are required to eliminate any cross connections. In the simplest cases, a hose bib will protect a facility or house from most cross connections. If you install an irrigation system you will need to install (in most cases) a pressure vacuum breaker (PVB). A PVB is a backflow device that prevents water from reversing direction and siphoning debris and other pollutants like fertilizer or bacteria from your lawn into your household water supply. Not sure, call us for information (978) 858-0345.

If you have a private well there cannot be any physical connection between the well and the Towns water system!

Do you have one of these? Has it been tested?

Devices like these will protect your water if they are working right



Double Check Valve Assembly (DCVA)



Reduce Pressure Zone (RPZ)

Attention Industrial, Commercial, Institutional and Municipal Water Users FYI!

- The Town's backflow Tester/Surveyor will be surveying all non-residential facilities for Cross Connections and un-tested devices. There are over 438 facilities to survey in Tewksbury. Your cooperation in this inspection process is greatly appreciated.
- The Town's backflow Tester/Surveyor will assist facilities in either eliminating Cross Connections or by protecting the Town's water system by installing a backflow device.
- It is the responsibility of the backflow Tester/Surveyor to approve the type of device used (310 CMR 22.22).
- Installation of a backflow device requires a plumbing permit along with design data sheets to insure a proper installation. Design-data sheets may be found on our website (Tewksbury-ma.gov / Water Plant).
- Please remember! All facilities with backflow devices are required by law to keep a re-build kit on-hand.
- The backflow Tester/Surveyor will be testing all backflow devices on residential deduct meters.

PERMIT No. 33

**Resident
Postal Patron
Rural Route Patron**

**PRESORT
BULK RATE
U.S. POSTAGE
PAID**