



Town of Lincoln Water Department Annual Water Quality Report 2019

PWS ID# 3157000

Introduction

This report describes Lincoln's drinking water sources, treated water quality, and how we maintain the quality of your water. This report is issued annually to you, the consumer, to keep you updated on your drinking water quality. The report also provides information on where your water comes from, how we treat it, and answers to questions you may have about Lincoln's water system.

Established in 1874, the Lincoln Water Department (LWD) provides drinking water and fire flow protection throughout the Town. The drinking water source of supply consists of Flint's Pond and the Tower Road Well. Pond water is pumped to the micro-filtration plant where the water is treated and filtered. The distribution system consists of the Bedford Road water storage tank, 58 miles of water main and approximately 300 fire hydrants.

How Can I Learn More?

The Water Department Administrative office is located at 77 Sandy Pond Road. Water Commission meetings are held on the 1st Tuesday of each month at 8:00 A.M. in the Donaldson Room at Town Offices, 16 Lincoln Road. You can also visit our website at <http://www.lincolntown.org/219/Water-Department>. **PLEASE NOTE WE HAVE A NEW PHONE NUMBER 781-259-2669.**

Office hours effective January 1, 2020

Monday thru Friday 7:00am to 3:30pm
Closed for lunch daily from 12:00pm to 12:30pm

Summer Hours (July-August)

Monday thru Thursday 7:00am to 5:00pm
Closed Fridays
Closed for lunch daily from 12:00pm to 1:00pm

VISIT OUR WEBSITE FOR.....

Water Department Rules and Regulations:

<https://www.lincolntown.org/DocumentCenter/View/27642/Rules-and-Regs-2016a?bidId=>

How to update information for your account:

<https://www.lincolntown.org/DocumentCenter/View/44767/Request-for-Account-Update-Information>

Application form to request water shut off:

<https://www.lincolntown.org/DocumentCenter/View/10208/Water-Shut-Off-Request-Form?bidId=>

Abatement Application:

<https://www.lincolntown.org/DocumentCenter/View/44750/Abatement-Application>

Request a final read:

<https://www.lincolntown.org/DocumentCenter/View/44749/Final-Water-Bill-Request-Form>

Find the time, location, and agenda for the Water Commission Meetings (posted 4 days in advance)

<http://www.lincolntown.org/AgendaCenter>

Water Rates

Governed by three elected Commissioners and managed by the Water Department Superintendent, the Department is funded entirely by user fees. We operate as an Enterprise Fund, meaning that revenues are expected to meet or exceed expenditures on a year-to-year basis, with the difference held in reserve to fund emergency repairs, capital expenditures, and system improvements (Retained Earnings). Our budget and capital expenditures and system improvements are approved by residents at the annual Town Meeting. We receive accounting, insurance, and personnel services from the general Town government, for which we are billed. LWD maintains liaisons with various Town entities, including Town Administration and the Finance Committee.

The Board of Water Commissioners is committed to providing safe, reliable and high-quality water service for our customers. To meet this commitment, the Board has developed a long-term financial and capital improvement program to ensure there are adequate funds available to make necessary investments in infrastructure and personnel. This plan required a rate increase to meet the demands of the FY21 budget, and the Commission held a Public Hearing on February 25, 2020 to discuss possible water rate and/or fee increases for water services. The last rate increase was in January 2019.

At the Hearing, the Commission voted to increase water rates effective April 1, 2020 and to change both the charge and the structure of meter fees. The new water rates are shown in the table below. There are two changes to the meter fees: 1) The quarterly base fee/meter has been raised from \$35 to \$50; and 2) For multi-unit dwellings that have multiple residences on one meter, each residence will now be charged the base fee of \$50/quarter. Multi-bed facilities such as skilled-nursing units will be charged a base fee for every 2.9 beds (this represents the average number of residents per household in Lincoln). Changing the base fee shares the fixed infrastructure/operating costs among all users.

Because the Lincoln Water Department is totally funded from user fees; the increase in operating budget will have no impact on Lincoln property taxes. All funds collected will be reinvested in the LWD water system to improve system reliability and water quality. If you have questions about the rate changes, please contact Customer Service at 781-259-2669 Monday through Friday, 7:00 A.M.to 3:30 P.M. or email the Water Superintendent, MaryBeth Wisner at wiserm@lincolntown.org.

New Quarterly Rates effective April 1, 2020

Tier One	0-20,000 gallons	\$6.52 per 1000 gallons
Tier Two	20,001-40,000 gallons	\$13.75 per 1000 gallons
Tier Three	40,001 gallons and over	\$32.13 per 1000 gallons
Agricultural rate		\$6.52 per 1000 gallons
Irrigation rate		\$32.13 per 1000 gallons
Municipal rate		\$6.52 per 1000 gallons
Condominium rate		\$6.52 per 1000 gallons
Base Charge	per meter or dwelling*	\$50.00 per unit

*Please see the Lincoln Water Department's 2020 Rules and Regulations

Lincoln's Drinking Water – A Well-Protected Source

The Town of Lincoln is supplied by both surface water and groundwater well. Flint's Pond is the primary year-round supply and the Tower Road Well is a secondary source used as needed and when Flint's pond is off-line for servicing.

Since 1874, when the system was known as the Lincoln Water Works, the Town has recognized the need to protect its watershed. The watershed consists of 465 acres of land surrounding Flint's Pond, which is approximately 92 percent owned and/or controlled by the Town. The Town also owns the land around the Tower Road Well within the Zone I border defined by Mass DEP regulations. The Town has in place a Watershed Protection Plan designed to limit access to the water and protect the land from any development that would endanger the water supply. One of the biggest threats to the Town's water supply is improperly maintained septic systems. You can help protect your drinking water quality by pumping out your septic system every two years. Never dump hazardous substances down septic or storm drains. Do not use septic system cleaners. For more information on how to maintain your septic system visit <https://www.mass.gov/guides/caring-for-your-septic-system>.

Source Water Assessment Program

The Source Water Assessment & Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to: inventory land uses within the recharge areas of all public water supply sources; assess the susceptibility of drinking water sources to contamination from these land uses; and publicize the results to provide support for improved protection. A susceptibility ranking of moderate for Flint's Pond and ranking of high for Tower Road well were assigned using the information collected during the assessment by Mass DEP. You can download a copy of the SWAP Report from www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3157000.pdf

Information About Your Drinking Water

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. However, some people may be more vulnerable to contaminants 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 infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care provider. More information about contaminants and potential health effects, including EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants can be obtained by calling the USEPA's Safe Drinking Water Hotline 1-800-426-4791.

The sources of drinking water generally include rivers, lakes, streams, ponds, reservoirs, springs and wells. Because water is the universal solvent, 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 as it travels over the surface of the land or through the ground. Contaminants that can be present include:

- **Microbial contaminants**, such as viruses and bacteria, which may come from septic systems 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.
- **Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban storm water runoff and residential uses.
- **Radioactive contaminants**, which may be naturally occurring or be the result of oil and gas production and mining activities.
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

Lead and Copper: Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. 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. The next Round of lead and copper sampling is March 2020.

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. LWD 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 want 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>.

Turbidity itself 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. **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.

For Your Health

In order to ensure that tap water is safe to drink, Mass DEP and USEPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration and the Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Regulated contaminants are those substances for which the USEPA has established drinking water standards to protect human health. Unregulated contaminants are those for which USEPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist USEPA in determining their occurrence in drinking water and whether future regulation is warranted.

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS, GenX, and many other chemicals. PFAS have been manufactured and used in a variety of industries around the globe, including in the United States since the 1940s. PFOA and PFOS have been the most extensively produced and studied of these chemicals. Both chemicals are very persistent in the environment and in the human body – meaning they don't break down and they can accumulate over time. There is evidence that exposure to PFAS can lead to adverse human health effects. PFAS can be found in:

- Food packaged in PFAS-containing materials, processed with equipment that used PFAS, or grown in PFAS-contaminated soil or water.
- Commercial household products, including stain- and water-repellent fabrics, nonstick products (e.g., Teflon), polishes, waxes, paints, cleaning products, and fire-fighting foams (a major source of groundwater contamination at airports and military bases where firefighting training occurs).
- Workplace, including production facilities or industries (e.g., chrome plating, electronics manufacturing or oil recovery) that use PFAS. • Drinking water typically localized and associated with a specific facility (e.g., manufacturer, landfill, wastewater treatment plant, firefighter training facility).
- Living organisms, including fish, animals and humans, where PFAS have the ability to build up and persist over time.

Lincoln's water is highly unlikely to be contaminated with PFAS. In 2016 the EPA required several neighboring towns to test for PFAS as part of a random sampling program. Lexington, Waltham, Wayland, Concord, and Sudbury all tested negative. Moreover, Lincoln has carefully controlled the watershed that supplies water to Flint's Pond and the Tower Road Well, currently our only two active water sources. Our watersheds are far from any military bases or industrial activities. The Water Department tested for the presence of PFAS in March of 2019. The results were none detected.

Water Conservation

The water levels in Flint's Pond have returned to normal levels after the drought of 2016-17. Because Lincoln exceeds the DEP withdrawal permit, the Department is required to enact water conservation regulations from May 1 to September 30 each year. The Department restricts outdoor watering to two days per week. The full text of the regulation can be found at <http://www.lincolntown.org/DocumentCenter/View/44777/Revised-Restrictions-April-2019>.

The DEP issued the Town's current water withdrawal permit in 2013. There are two major permit provisions with respect to water consumption: that we achieve the state-wide goal of 65 gallons per person per day residential use, and that our total annual withdrawal, including non-residential users and unaccounted for (lost) water not exceed 182 million gallons per year. We have achieved the residential water use goal four times in the last eight years, one of which was the result of the mandatory watering ban. We are delighted to report that our 2019 gallons per person per day residential use was 63. Unfortunately, we are still exceeding the total annual withdrawal limit. The LWD urges our customers to take advantage of our rebate programs and to strive to reduce their water consumption.

The Department continued its aggressive efforts to reduce leaks in the mains and service lines in an effort to reach the DEP mandate of less than 10% unaccounted for or lost water (UAW). We are happy to report that Lincoln's 2019 UAW is 18.8%, a significant decrease from the 24.6% reported for 2018. The leak detection program will continue annually as we attempt to further reduce our water use by minimizing lost water.

Water Treatment

Depending on the source location, LWD adds low concentration of either potassium hydroxide or sodium hydroxide to the drinking water in order to increase the pH (reduce the acidity) of the water to reduce its natural corrosiveness. Chlorine is added as a disinfectant at the Flint's Pond filtration facility and fluoride is added at both the treatment plant and the Tower Road well to aid in dental health and hygiene. Zinc orthophosphate is also added at both sites for corrosion control and to reduce levels of iron and manganese.

Monitoring and reporting Violations: We routinely monitor our water system for the presence of drinking water contaminants. During the past year, our water system violated two drinking water standards. "NON" stands for Notice of Noncompliance.

NON #1 Failure to report to Mass DEP completed Chemical Addition Reports within 10 days of the reporting month

The January and February 2019 monthly C-ADD forms have been revised and were submitted to DEP on April 9, 2019 on the new forms. The March 2019 monthly C-ADD forms were submitted to DEP on April 10, 2019 on the new forms via email and USPS mail. The Water Department has fixed the reporting issues and will submit to DEP on time and on the correct forms going forward.

NON #2 Failure to ensure that pH and chlorine are within range of the NPDES potable water Treatment Facilities General Permit (PWTFGP)

Coming into compliance with pH and chlorine residuals for permit MAG640051 was noted as Survey Item #13 during the 2018 Sanitary Survey. The compliance due date was January 31, 2019. The Town of Lincoln requested an extension to comply in the response letter to DEP dated January 22, 2019. The Town has hired Tata and Howard to provide engineering assistance for compliance. The funds were approved at the March 23, 2019 Annual Town meeting for this project.

In December 2019 our system slightly exceeded the standard or maximum contaminant level (MCL), for Total Trihalomethanes (TTHM) at the two sampling locations. The MCL for TTHM is based on the locational running annual average (LRAA), which is determined by averaging the quarterly results for all samples collected at a particular sampling location for the previous four calendar quarters. The LRAA standard for TTHM is **80 parts per billion (ppb)**. Based on the 2019 4th quarter (October, November, and December) sampling results, the calculated LRAA was **81.8 ppb** at our Lincoln North (55 Old Bedford Road) sampling location and **82.1 ppb** at our Sam Brooks (1175 Lexington Road) sampling location.

When chlorine is added to water with organic material, such as algae, or decaying leaves, TTHMs are formed. In our best effort to try to resolve this issue, the LWD conducted bench scale testing of various coagulants. The results of the bench-scale testing indicated that coagulant addition can be a beneficial and cost-effective method for removal of organic/DBP precursors. Pilot testing will commence this summer as part of the program funded through bonding at the November 2, 2019 Special Town Meeting.

Cross Connection Prevention

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. The purposes of the Cross-Connection Prevention Program are:

- To protect the public potable water supply from the possibility of contamination or pollution by isolating such contaminants or pollutants which could backflow or back-siphon into the public water system.
- To promote the elimination or control of existing cross connections, actual or potential between its customer's potable water system, and non-potable systems.
- To provide for the maintenance of a continuing program of cross connection control which will effectively prevent the contamination or pollution of all potable water systems by cross connection. For information regarding our program please contact the Lincoln Water Department at 781-259-2669.

What you can do to help prevent a cross-connection: 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, pool, tubs, sinks, drains, or chemicals.
- Never attached a hose to a garden sprayer without the proper backflow preventer.
- Buy and install a hose bibb 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.

**Town of Lincoln Public Drinking Water Supply
Flint's Pond
Public Water Supply Protection Area
Please help us protect this resource
24-hour video surveillance**

- **NO Trespassing**
- **NO Shore Access – Please keep back 20 feet**
- **NO Parking – Violators will be towed at owner's expense**
- **NO Pets in the Water**
- **NO Swimming or Wading**
- **NO Boating, Kayaking, or Stand-Up Paddleboard**
- **NO Fishing or Ice Fishing**
- **NO Picnicking**
- **NO Dumping**
- **NO Throwing Rocks or Other Materials into the Pond**
- **NO Ice Skating or Walking on the ice**

Violators punishable by fine, per the Lincoln Board of Water Commissioners

Water Quality Data

Data presented in this table is for testing completed during the 2019 calendar year. 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. In these cases, the most recent sample information and the year the sample was collected, are included in the table.

Regulated Contaminants

Substance	Sample Date	MCLG/ MRDLG	MCL/ MRDL	Highest Detected or Running Average	Range Detected	Violation	Possible Source(s) of Contamination and Health Language
Nitrate (ppm)	2019	10	10	0.69	0.06-0.69	No	Runoff from fertilizer use; leaching from septic tanks; natural deposits.
Turbidity (NTU)	2019	--	TT	0.25	0.01-0.25	No	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.
TTHM (ppb)	2019	--	80	83	52-107	Yes	By-product of drinking water chlorination.
HAA5 (ppb)	2019	--	60	14	ND-26	No	By-product of drinking water chlorination.
Fluoride (ppm)	2019	4	4	0.60	0.20-0.60	No	Erosion of natural deposits; water additive that promotes strong teeth.
Chlorine - Total (ppm)	Monthly	4	4	1.27	0.00-1.27	No	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess.

Unregulated Contaminants

Substance	Sample Date	SMCL	ORSG	Highest Detected	Range Detected	Violation	Possible Source(s) of Contamination and Health Language
Sodium (ppm)	2019	--	20	47.4	0.0-47.4	NA	Some people who drink water containing sodium at high concentrations for many years could experience an increase in blood pressure. Discharge from the use and improper storage of sodium containing de-icing compounds or in water-softening agent.

Bacteria Sampling

Substance	Sample Date	MCLG	MCL/ AL	Highest Number Positive in Routine Monthly Samples	Violation	Possible Source(s) of Contamination
Total Coliform	2019	0	>1/mon.	0.0	No	Naturally present in the environment.
Fecal Coliform or E.coli	2019	0	**	0.0	No	Human or animal fecal waste.

Lead & Copper (Samples collected from homes in the service area)

Substance	Sample Date	MCLG	MCL/ AL	No. of Sites Sampled	90th %	Sites above AL	Possible Source(s) of Contamination
Lead (ppb)	2017	0	15	20	2.0	0	Corrosion of household plumbing systems.
Copper (ppm)	2017	1.3	1.3	20	0.19	0	Corrosion of household plumbing.

Definitions

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

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

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

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

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

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

Office of Research and Standards Guideline (ORSG): 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.

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

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

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

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

ppb: parts per billion or micrograms per liter ($\mu\text{g}/\text{l}$)

pCi/L: picocuries per liter (a measure of radioactivity)

NTU: Nephelometric Turbidity Units