

# Annual Water Quality Report 2016

## TOWN OF LINCOLN, MASSACHUSETTS

### Introduction

This report describes Lincoln's drinking water sources, treated water quality, and how we maintain the high 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. We are proud to report that the water provided by the Lincoln Water Department (LWD) meets or exceeds established water-quality standards set forth by the U.S. Environmental Protection Agency (USEPA) and the Massachusetts Department of Environmental Protection (MaDEP).

### Lincoln's Drinking Water – A Well-Protected Source

The Town of Lincoln is supplied by both surface water and groundwater well. Flint's Pond, also known as Sandy Pond, is the primary year-round supply. Tower Road Well is a supplemental source used during peak periods 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 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 Your Health

In order to ensure that tap water is safe to drink, MaDEP 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.

### 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 MaDEP. You can download a copy of the SWAP Report from [www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3157000.pdf](http://www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3157000.pdf) or call LWD at (781) 259-1329.

### Information About 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*, 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.

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** 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.

### How Can I Learn More?

LWD's Superintendent, Gregory Woods, and staff are available **Monday - Friday**, from **7:00 A.M. - 3:30 P.M.**, and at **(781) 259-1329**. Water Commission meetings are held on the 2<sup>nd</sup> Wednesday of each month at 4:30 P.M. at 77 Sandy Pond Road. You can also check the Town's website at <http://www.lincolntown.org>. Lincoln's Public Water System I.D. # is: **3157000**.

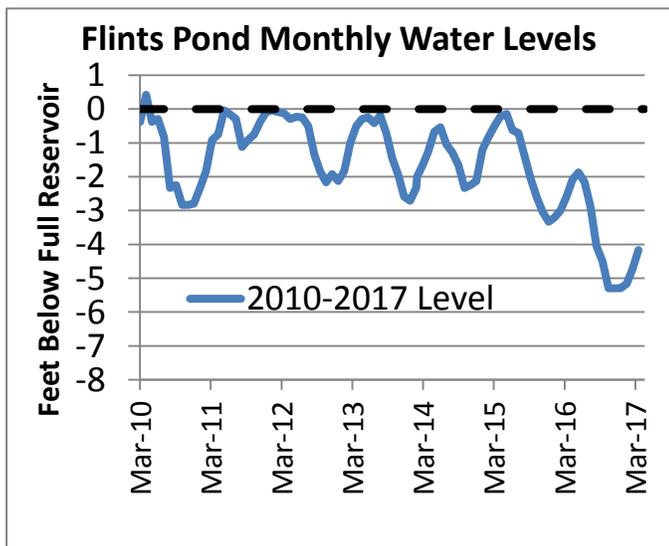
### Water Rates

**\$4.06** per 1,000 gal. for usage **under 20,000** gal.  
**\$8.57** per 1,000 gal. for usage **over 20,000** gal.  
**\$20.02** per 1,000 gal. for usage **over 40,000** gal.  
**\$20.02** per 1,000 gal. for **all irrigation only** meters.  
Rates based on a quarterly billing period.  
Base Charge + Usage = Total Amount Due  
Base charge = \$30 for water meter

## Mandatory Drought Restriction

Higher than normal precipitation in October and December, 2016 helped stabilize the pond and aquifer levels; however the yearly precipitation total ended 8.3-inches below the 30-year average. This is the second consecutive year with significantly below-average precipitation levels. Although the Office of Energy and Environmental Affairs recently downgraded the Drought Status for the northeast region of the State to a “*Drought Advisory*” and the US Drought Monitor downgraded its drought assessment for most of Middlesex (including Lincoln) and Essex Counties to “*Moderate Drought*”, the drought is far from over.

In Lincoln, water demands in 2015 and 2016 reached the highest totals ever recorded, primarily driven by lawn watering activities (presumably a reaction to the drought). Therefore, on August 22, 2016 the Lincoln Water Department instituted a **Mandatory Outdoor Water Ban** that prohibited all lawn and garden watering by means of automatic irrigation systems or manual sprinklers. The ban was effective in dramatically decreasing the amount of water the Department pumped in August and September; however the Flint’s Pond water level has only recovered one foot since the ban and is still significantly below normal, as shown in the graph below. Even if there is above average precipitation the next few months, the pond will still be close to three feet below normal levels. Therefore, the Water Commissioners have decided to continue the ban until further notice.



Restricted activities include irrigation of lawns via sprinklers or automatic irrigation systems, washing of vehicles, and washing of exterior building surfaces, parking lots, driveways or sidewalks. Sprinkle irrigation of lawns, gardens, flowers or ornamental plants by means of a hand held hose or bucket is permitted between 6:00 PM and 9:00 AM. The establishment of new lawns will not be permitted until drought conditions subside.

LWD staff will be monitoring water use in Town and will stop to remind residents of the policy. A second notice will result in a \$50 fine, and subsequent violations will warrant a \$100 fine.

## Potential Revenue Impacts

The Department has met with the Town’s Finance Director to discuss the potential impacts of a long-term drought on Department’s revenue and budget. Options include a transfer of funds from the Department’s Retained Earnings account and/or a rate increase to cover revenue shortfalls. A transfer of funds from Retained Earnings would require a vote at Town Meeting.

## Quarterly Water Bills

The Department changed from semi-annual to quarterly billing in 2014 to allow earlier discovery of leak conditions. Early leak detection reduces both lost water and the resultant high customer charges that leaks can cause. Rates were also reduced for lower tier users and raised for higher tier users. Finally, the fixed fee component was increased to reflect that most of the Department’s operating budget is fixed. The rate structure is available on the Department web site at [www.lincolntown.org/index.aspx?NID=222](http://www.lincolntown.org/index.aspx?NID=222).

## Water Treatment

Depending on the source location, LWD adds a very 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 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.

## Water Quality Data

Data presented in this table is for testing completed during the 2016 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
Nitrate (ppm)	2016	10	10	0.87	ND – 0.87	No	Runoff from fertilizer use; septic systems.
Turbidity (NTU)	2016	--	TT	0.12	0.01 – 0.12	No	Natural sediment; soil runoff.
TTHMs (ppb)	2016	--	80	73.7	55.9 – 92.2	No	By-product of drinking water chlorination.
HAA5s (ppb)	2016	--	60	27.9	4.99 – 45.0	No	By-product of drinking water chlorination.
Fluoride (ppm)	2016	4	4	1.2	0.6 – 1.2	No	Erosion of natural deposits; water additive that promotes strong teeth.
Chlorine - Total (ppm)	Monthly	4	4	0.82	0.00 – 0.82	No	Water additive used to control microbes.

### Unregulated Contaminants

Substance	Sample Date	SMCL	ORSG	Highest Detected	Range Detected	Violation	Possible Source(s) of Contamination
Sodium (ppm)	2016	--	20	24.3	9.5 - 24.3	No	Widely present in natural waters.

### Lead & Copper (Tap water was collected from homes in service area)

Substance	Sample Date	MCLG	MCL/ AL	No. of Sites Sampled	90th Percentile	Sites above AL	Possible Source(s) of Contamination
Lead (ppb)	2014	0	15	20	5	0	Corrosion of household plumbing systems.
Copper (ppm)	2014	1.3	1.3	20	0.31	0	Corrosion of household plumbing.

### Bacteria Sampling

Substance	Sample Date	MCLG	MCL/ AL	Highest Number Positive in Routine Monthly Samples	Violation	Possible Source(s) of Contamination
Total Coliform	2016	0	>1/mon.	0	No	Naturally present in the environment.
Fecal Coliform or E.Coli	2016	0	**	0	No	Human or animal fecal waste.

### Definitions

<b>ppm</b>	= Parts per million, or milligrams per liter (mg/l)	<b>NTU</b>	= Nephelometric Turbidity Units
<b>ppb</b>	= Parts per billion, or micrograms per liter (ug/l)	<b>MFL</b>	= Million of Fibers per Liter
<b>ND</b>	= Not detected above laboratory method detection limits	<b>--</b>	= No applicable standard
<b>TTHM</b>	= Total Trihalomethanes	<b>HAA5</b>	= Haloacetic acids
<b>**</b>	= Compliance with fecal coliform/E.coli MCL is determined upon additional repeat testing		
<b>MCL</b>	= Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.		
<b>MCLG</b>	= Maximum Contaminant Level Goal: 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.		
<b>AL</b>	= Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements, which a system must follow.		
<b>MRDL</b>	= Maximum Residual Disinfectant Level: 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.		
<b>MRDLG</b>	= Maximum Residual Disinfectant Level Goal: 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 contaminants.		
<b>TT</b>	= Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.		
<b>ORSG</b>	= MA Office of Research and Standards Guideline: 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.		
<b>90th Percentile</b>	= Out of every 10 homes, 9 were at or below this level.		