

# Town Of Needham

## Annual Water Quality Report 2021

### Public Water System ID# 3199000



As a service to our customers, The Needham Department Of Public Works (DPW) is pleased to present its 2021 Annual Water Quality Report. It's designed to inform you of your drinking water quality and the services we deliver to you every day. It's a continuous commitment on our part to provide the highest quality of drinking water and service that meets and exceeds all State and Federal drinking water standards and regulations. The Needham Water & Sewer Division continues to be proactive in managing challenges, including addressing national concerns over lead and PFAS. In addition, taking on numerous water infrastructure projects. This report is a requirement of Federal Safe Drinking Water Act (SDWA) that requires all water utilities to provide their customers with an annual water quality report and tap water related issues. Please take a few minutes to read this report and learn about Needham's water system.



The Massachusetts Department of Environmental Protection (MADEP) awarded a Public Water System award to the Needham Water Department recognizing Needham's continued excellent level of performance and compliance with all drinking water standards.

## Where does the Town's water come from?

The Town of Needham's primary source of water is the Charles River Wellfield. From this location, water is drawn from three groundwater wells and treated at the adjacent Charles River Water Treatment Facility. The Town's secondary source is the Massachusetts Water Resource Authority (MWRA). MWRA water is primarily utilized in the summer, when demand is at its highest. The MWRA supply is conveyed through a pipe from the MetroWest Tunnel in Weston to a booster pump station on St. Mary Street. The water distribution system includes 146 miles of water mains and two elevated water storage tanks (Dunster & Birds Hill) that have a combined capacity of 4 million gallons. In 2021 Needham averaged just under 3.250 million gallons per day. Of this amount, 73% was produced from its primary source, and 27% from its secondary source.



Filter Room at the Charles River Water Treatment Facility



Water & Sewer Foreman

## Source Water Protection

To ensure the highest quality of drinking water for residents, the Town of Needham has adopted by-laws and health regulations designed to preserve and protect existing and potential sources of drinking water supplies and to conserve natural resources. The Massachusetts Department of Environmental Protection (MassDEP) approved the Town's water source protection strategy based on land use and operational restrictions in areas of influence to the Town's drinking water wells. The information collected was incorporated into the Source Water Assessment Protection (SWAP) report. The report is a planning tool to support local and state efforts to improve water supply protection. The assessment helps focus protection efforts on appropriate best management practices and drinking water source protection measures. Residents can help protect sources by taking hazardous chemicals to hazardous material collection days and by limiting the use of pesticides and fertilizers. The Town has three drinking water wells located within one water supply protection area.

The complete SWAP report is available online at:

<https://www.mass.gov/lists/source-water-assessment-and-protection-documents>.

## Needham's Water Treatment Process

In order to maintain compliance with Federal and State drinking water standards, the Town of Needham's well water must be treated before it reaches consumers' taps. The Charles River Water Treatment Facility removes manganese by oxidation and filtration. The Division treats drinking water with the following processes:

- **Chlorine:** used as a disinfectant to prevent bacteria. Adding chlorine aids in the removal of iron and manganese during greensand filtration. Chlorine levels are continuously monitored and controlled to ensure that disinfection residuals are maintained at the facility and throughout the distribution system.
- **Sodium Hydroxide:** used to raise the natural pH and alkalinity of water to reduce the corrosion of lead and copper from household plumbing systems.
- **Ortho-polyphosphate:** a food-based additive to minimize calcium precipitating in hot water systems.
- **Fluoride:** added to prevent tooth decay/cavities. In the Town's system, the fluoride level is adjusted to an optimal level, averaging 0.7 parts per million (ppm) to improve oral health in children. At this level, it is safe, odorless, colorless, and tasteless.

All components of the water distribution and treatment processes are closely monitored by State certified operators through a computerized Supervisory Control and Data Acquisition (SCADA) system. According to the water quality results, shown on the following page, Needham's water complies with all State and Federal regulations. The table contains only the contaminants that were detected in Needham's water supply, although the compounds are below the Maximum Contaminant Level (MCL) set by the EPA. The Town understands how important it is for residents and businesses to be aware of what is in their water.



SCADA Trend Processes at the WTP

## Water Hardness Guide

This information is provided so that residents can adjust their appliance settings.

Needham's water is moderately hard, with approx 100 range of detection.

**NOTE: 1 Grain per gallon (gpg) = 17.1 ppm**

AMOUNT (PPM)	RATING
<60 ppm	Soft
61-120 ppm	Moderately hard
121-180 ppm	Hard
>181 ppm	Very hard

# Water Quality Results

Needham's water is monitored for many different kind of substances on a very strict DEP sampling schedule, which must meet specific health standards. Remember that detecting a contaminant does not mean that the water is unsafe to drink. Our goal is to keep all detects below the respective maximum allowed levels. We are pleased to report that your drinking water meets all State and Federal regulations.

## Tested After Treatment

Contaminant	Sample Date	MCL Highest Level Allowed	Amount Detected	Range of Detection	Violation	Sources in Drinking Water
Chlorine (ppm)	2021	4 MRDL	0.77 avg	0.63-0.90	No	Water additive used to control microbes
Fluoride (ppm)	2021	4 MRDL	0.71 avg	0.62-0.80	No	Water additive which promotes strong teeth
Manganese (ppm)	7/20/2021	0.05 SMCL	0	0	No	Naturally found mineral in the earth
Iron (ppm)	2021	0.3 SMCL	0.01	ND-0.01	No	Naturally found mineral in the earth

## Regulated Contaminants

(TTHM) Total Trihalomethanes	Quarterly	80 ppb	26.8 (LRAA)	6-50	No	Byproducts of water disinfection	
(HAA5) Haloacetic Acids	Quarterly	60 ppb	11.8 (LRAA)	3.3-30	No	Byproducts of water disinfection	
Nitrate	2/10/2021	10 ppm	0.51	0.45	No	Runoff from fertilizer use, leaching from septic tanks	
Perchlorate	8/24/2021	2 ppm	0.07	0.07	No	Rocket propellants, fireworks, flares, blasting agents	
Barium	9/8/2020	2 ppm	0.058	0.058	No	Discharge of drilling wastes and from metal refineries, erosion of natural deposits	
Contaminant	Sample Date	90th Percentile	AL	MCLG	# of Sites Sampled	Sites above the action level	Typical Source
Lead (ppb)	7/2020	3 ppb	15	0	30	0 (Residential)	Corrosion of household plumbing
Copper (ppm)	7/2020	0.03 ppm	1.3	0	30	0 (Residential)	

## (PFAS) Per-and Polyfluoroalkyl Substances

Regulated Contaminant	Detect result or range	Monthly Average	MCL	Possible Sources
PFAS 6 (ppt)	7-14	11	No	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture and oil-resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams.

On October 2 2020, Mass DEP published its PFAS public drinking water regulation standard, called a Massachusetts Maximum Contaminant Level (MMCL), of 20 nanograms per liter (ng/l) or parts per trillion (ppt) – individually or for the sum of the concentrations of six specific PFAS. This drinking water standard is set to be protective against adverse health effects for all people consuming the water.

## Total Coliform Sampling

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify any problems that were found during these assessments.

During the past year, we were required to conduct one level 1 assessment. One level 1 assessment was completed. In addition, Needham was required to take one corrective action and we completed that action.

During the past year one level 2 assessment was required to be completed for our water system. One level 2 assessment was completed. In addition, we were required to take one corrective action and we completed that action.

### **COMPLIANTS ARE ESSENTIAL TOO!**

Needham takes customer concerns seriously. Every call is investigated. Most complaints are related to discolored water (usually related to local construction or hydrant use) or conditions in a building's household plumbing. If you have any questions or concerns, please contact the Water & Sewer Division at 781-455-7550 or the Water Treatment Facility at 781-416-4071.



### Secondary Contaminants

Secondary Contaminants	Date Sampled	SMCL	MCLG	Detected Level	Violation	Typical Source
Chloride (ppm)	6/16/2020	250	N/A	82	No	Runoff/leaching from natural deposits
Hardness (ppm)	6/16/2020	No MCL	N/A	78	No	Presence of multivalent cations such as Calcium & Magnesium
Sodium (ppm)	9/8/2020	No MCL	N/A	68	No	Natural sources and runoff from use of salt on roadways

### Unregulated Contaminants

Unregulated Contaminants	Year Sampled	Amount Detected	Range of Detection (ppb)	UCMR: (Unregulated Contaminant Monitoring Rule)
Quinoline	2020	0.11	0.03-0.18	Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of monitoring unregulated contaminants is to assist the EPA in determining their occurrence in drinking water and whether future regulations are warranted. 4
Manganese	2020	7	4-10	
(HAA6Br) Haloacetic Acids	2020	7	1-13	
(HAA9) Haloacetic Acids	2020	14.5	10-19	

**ppm** = parts per million   **ppb** = parts per billion   **ppt** = parts per trillion

**ND** = non-detected   **NA** = non-applicable   **ng/l** = nanograms per liter

**90<sup>th</sup> Percentile** – Out of every 10 homes sampled, 9 were at or below the AL.

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

**Chlorine Residual** – Is the lowest level amount of chlorine remaining in the water after a certain period or contact time after its initial application. It constitutes an important safeguard against the risk of subsequent microbial contamination after treatment, a unique and significant benefit for public health.

**Environmental Protection Agency (EPA)** - The federal agency responsible for the development of SDWA regulations.

**Department of Environmental Protection (DEP)** - The Massachusetts state regulatory agency responsible for the implementation of the SDWA.

**Level 1 Assessment** – is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

**Level 2 Assessment** – is a very detailed study of the water system to identify potential problems and determine (if possible) why an E coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

**LRAA (Locational Running Annual Average)** - The average of analytical results for samples taken at a monitoring location during the previous four calendar quarters. Amount detected values for TTHM and HAA5 are reported as LRAA's.

**Maximum Contaminant Level (MCL)** -The highest allowable level of a contaminant in drinking water. MCL's are set as close to the MCLG's 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 not a known, or expected, risk to health.

**Massachusetts Office of Research Standard Guideline (ORSG)** – Provides recommended contaminant levels in drinking water and is set to be proactive against adverse health affects for all people consuming water over a lifetime.

**Public Water System (PWS)** – Provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year. PWS may be a publicly or privately owned.

**Safe Drinking Water Act (SDWA)** - The Federal Law that governs the regulation of public water supplies.

**SMCL (Secondary Maximum Contaminant Level)** - The highest level of a contaminant that is allowed in drinking water for the secondary contaminant. SMCL's are established to regulate the aesthetics of drinking water, such as appearance, taste, and odor.

**Treatment Technique (TT)** – Required treatment process intended to reduce the level of a contaminant in drinking water.

# Drinking Water & Public Health

To ensure that tap water is safe to drink, the Massachusetts Department of Environmental Protection (MassDEP) and the US Environmental Protection Agency (EPA) prescribe regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and the Massachusetts Department of Public Health have established regulations that limit contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may contain small amounts of contaminants. The presence of these contaminants does not necessarily indicate the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, reservoirs and wells. As water travels over the surface of land or through the ground, it dissolves naturally occurring minerals and other compounds.

## Compounds that may be present in source water include:

**Microbiological Contaminants:** such as viruses and bacteria that may come from sewage septic systems, agricultural livestock, and wildlife.

**Pesticides and Herbicides:** that may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

**Inorganic Contaminants:** such as salts and metals that can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

**Organic Contaminants:** synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, urban storm water runoff, and septic systems.

**Radioactive Contaminants:** can be naturally occurring or result from oil and gas production or mining activities.



Routine water testing is a standard operating procedure of the Needham Water Division.

Some people may be more vulnerable than others to contaminants in drinking water than the general population. Immunocompromised 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 from their health care providers.

Your drinking water is routinely tested for the substances in accordance with Federal and State drinking water regulations. These substances have not been detected or are significantly below the (MCL) maximum contaminant level allowed.

## Important Information from EPA about Lead

Under EPA regulations, the Town of Needham must test tap water in homes that are likely to have high lead levels. These are usually homes with lead service lines. The EPA requires that 90% of the sampled homes must have lead levels below the action level of 15 parts per billion (ppb).

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 old lead service lines and home plumbing. The Needham Water Department is responsible for providing high-quality water, but cannot control the variety of materials used in plumbing components. When water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking and cooking. If you are concerned about lead in your water, you may wish to have your water tested. Additional information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the **Safe Drinking Water Hotline** at 1-800-426-4791 or [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead)

## Ways To Reduce Exposure To Lead In Your Home

Lead can enter your drinking water through pipes in your home, or your water service line (that connects your home to the water main) Take these steps to reduce lead in your drinking water.



- Let the water run before using it: fresh water is better than stale. To save water, fill a pitcher with fresh water and place in the refrigerator for future use.
- Any time water has not been used for more than 6 hours, run any faucet used for drinking or cooking until after the water becomes cold.
- Never use hot water from the faucet for drinking or cooking, especially when making baby formula or other food for infants.
- Check your plumbing fixtures to see if they are lead-free. Be careful of places you may find lead in or near your home. Paint, soil, dust, and some pottery may contain lead.
- Remove loose lead solder and debris. Every few months remove the aerator from each faucet in your home and flush the pipes for 3 to 5 minutes.

Each part of the water system needs routine maintenance in order to maintain a safe and dependable water supply. Listed below are some of the projects undertaken by the Water Division in 2021:

- Replaced 385 older water meters
- Replaced 10 (lead or cast iron pipe) water service connections
- Repaired 8 water main breaks and 6 service leaks
- Replaced 12 older fire hydrants to ensure water supply for fire protection.
- Replaced 360 feet of 6-inch water main on Concord St.
- Replaced 200 feet of water main on Alder Brook Lane.
- Well #2 at the Charles River Water Treatment Facility was cleaned and re-developed to restore its original safe yield.
- Conducted sanitary and security inspection on water storage tanks.
- Developed and implemented a new Cross Connection software program to manage the backflow prevention device testing and surveying of all commercial, industrial, and municipal buildings.



## Water Conservation

As of May 2018, the Town is no longer mandated by MassDEP to enforce a mandatory water restriction. However, residents and businesses are still encouraged to conserve water.

Below are some helpful water conservation tips:

- Water your lawn only as needed. Too-frequent watering can actually weaken a lawn by encouraging shallow roots. The general rule of thumb is one inch per week, including rain.
- Avoid over-fertilizing your lawn. A soil test will show if phosphorus is needed. Fertilizer applications increase the need for water.
- Place a rain barrel under your gutter downspouts to collect rainwater for gardening or landscaping projects. Rain barrels can be purchased at the Needham Department of Public Works. To order, please call the DPW Administration Office at #781-455-7550.
- Timing is critical for lawn watering. Water your lawn overnight or between 5:00AM and 9:00AM. Mid-day watering will result in evaporation.
- Install mulch to keep roots cool and moist. Mulch serves as a ground cover that reduces water evaporation from the soil.
- Install low-flow shower heads and sink aerators to help conserve water inside your home.



## Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. Upon entering distribution mains, the water is very high quality, however, water quality can deteriorate in areas over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although they do not pose health concerns, they can affect the taste, clarity, and odor of the water. Flushing helps remove stagnant water and ensures the presence of fresh water with sufficient disinfectant (chlorine residual) levels.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water household uses at such times. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use.

Flushing operations in Needham typically commence at night in the spring. During this season and time of day, the demand for water tends to be at its lowest.

For additional information about flushing, please visit: [www.needhamma.gov/hydrantflushing](http://www.needhamma.gov/hydrantflushing).

## Cross Connection Control Program

### What is a cross connection?

A cross connection is an actual connection between the potable water supply and a source of contamination (sewage, chemicals, gas, etc.). This has the potential of becoming a hazardous situation if the contaminant source were to enter (backflow) into the potable water. Backflow occurs when the water flow is reversed due to a change in pressure, and water flows backwards into and through the system. Contamination can also occur when the pressure in the drinking water system drops due to occurrences such as water main breaks and heavy water demand, causing contaminants to be drawn (back-siphonage) into the potable water system.

### Where do I find cross connections?

Garden hoses connected to an outside water tap are the most common sources of cross connections in the home. The garden hose creates a hazard when submerged in non-potable water such as a swimming pool, or when attached to a chemical sprayer for weed control. Vacuum breakers can mitigate possible cross connections.

### Who protects public drinking water from cross connections?

Your public water supplier is required to survey all industrial, commercial, and municipal facilities to ensure that all cross connections are eliminated or protected by an appropriate backflow device. The water supplier is also responsible for inspecting and testing each backflow prevention device to ensure it is providing maximum protection.

## **Additional Resources**

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### **Environmental Protection**

[www.mass.gov/dep](http://www.mass.gov/dep)

617-292-5500

### **Massachusetts Dept. of Public Health**

[www.mass.gov/dph](http://www.mass.gov/dph)

617-624-6000

### **Massachusetts Water Resource Authority**

[www.mwra.com](http://www.mwra.com)

617-242-5323

### **Department of Conservation and Recreation**

[www.mass.gov/dcr/watersupply.htm](http://www.mass.gov/dcr/watersupply.htm)

617-626-1250

### **US Center for Disease Control and Prevention (CDC)**

[www.cdc.gov](http://www.cdc.gov)

800-232-4636

### **U.S. Environmental Protection Agency**

[www.epa.gov](http://www.epa.gov)

800-311-3435

### **List of State-Certified Water Quality Testing Labs**

[www.mwra.com/04water/html/testinglabs.html](http://www.mwra.com/04water/html/testinglabs.html)

617-242-5233

## **Questions?**

For more information about this report, or for any questions relating to your drinking water, please call Stephen Cusick, Water Treatment Facility Manager at 781-416-4071, or Michael Retzky, Water & Sewer and Drains Superintendent at 781-455-7550.

**Committed to Quality**  
Serving the Needham Community since 1889