2022
Drinking Water Quality Report
City of Cambridge Water Department

Distributed June 2023 – PWS ID# 3049000
For 24-Hour Emergency Customer Service, Call 617-349-4770
Water Quality Information From 2022
Cover Photo is Stony Brook Gate House

To Our Customers,

The mission of the Cambridge Water Department is to provide a safe and uninterrupted water supply of the highest quality to the citizens of Cambridge. This is of paramount importance when addressing new regulatory challenges – such as providing an efficient and resilient solution to reduce per- and polyfluoroalkyl substances (also known as PFAS) in Cambridge's water. In 2022, we proactively made changes at our treatment facility to remove PFAS without the need for expensive and time-consuming major construction. Read all the details inside!

This report provides information on your drinking water supplied by the Cambridge Water Department, how it is treated, the quality of the water you receive, and how Cambridge water meets and surpasses all state and federal drinking water standards. It also contains key information on how you can learn more about our system – from source water to the service to your home.

I encourage you to contact the Water Department with questions, comments, or suggestions about any aspect of the City of Cambridge's drinking water.

Sincerely,

Mark Gallagher, Acting Managing Director
Cambridge Water Department | 617-349-4770

How Is Your Water Purified?

Before drinking water is delivered to your home or business, the source waters of the Cambridge reservoir system undergo extensive treatment at the Walter J. Sullivan Water Purification Facility (WPF) at Fresh Pond Reservation. The water is treated to meet and surpass all state and federal drinking water standards.

The Cambridge Water Department's state-certified laboratory continuously monitors the effectiveness of the treatment process and makes adjustments throughout the five treatment stages, as needed, to ensure the highest quality water.

1. Pretreatment: The first steps in the treatment process combine preoxidation with ozone, coagulation, and dissolved air flotation (DAF) to remove manganese, natural color, sediment and particles, algae, protozoa, viruses, and bacteria.

2. Ozone: Fine bubbles of ozone are dissolved into the water to kill bacteria, viruses, and protozoa.

3. Filtration: The water passes through granular activated carbon (GAC) to remove organic compounds, including PFAS. Filtration also acts as a "polishing step" to remove additional particles, color, and protozoa.

4. Disinfection: Chlorine is used to provide the second step of disinfection for redundancy in the overall process, and monochloramine is added to maintain a disinfectant residual throughout the distribution system.

5. Post Treatment: The pH of the water is adjusted for corrosion control and fluoride is added for dental health.

Water Conservation: Time to Take Action!

Let's Play

WATER Jeopardy

Answer: **Places we think of when we hear the word drought.**

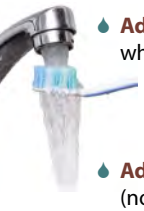
Question: **What is California, Arizona, and Nevada?**

Did you know that in 2022, Massachusetts experienced historic drought conditions for the 4th time in a period of less than 25 years!

Whether that is attributable to cyclic weather patterns or direct effects of climate change, water conservation is becoming an everyday concern even in "water-rich" regions such as the Northeast.

Because drought occurrences have increased, public water suppliers are developing more stringent and proactive water conservation efforts including public education so that everyone can do their part in conserving this precious resource.

Actions you can take around your home and garden to contribute to water conservation, especially in times of drought:



- **Adopt good indoor water use practices.** Just turning off the water while brushing your teeth or shaving will save 1 to 2 gallons per minute, which really adds up – each year, this will save an average of 2,200 gallons per person or 8,800 gallons for a family of 4!
- **Adopt good outdoor watering practices.** Water the roots (not the leaves). Water in short intervals with a break in between to prevent runoff. Water in early morning. A general rule of thumb is 1 inch of water per week including rainfall, with some sites needing less and some needing more.
- **Use an insulating layer of organic mulch around plants,** such as chopped or shredded leaves, straw, compost, salt hay, shredded newspaper, or grass clippings (not chemically treated). This can reduce water needs by up to half by blocking thirsty weeds and reducing evaporation.

- **Use drip irrigation to deliver water directly to the root zone.** With a soaker hose, up to 90% of the water is available to plants (in comparison to hand watering and sprinklers, which are typically only 50% to 70% efficient).
- **The biggest source of water leaks in the home is the toilet.** Stop by the Water Department for a dye tablet, or use food coloring to identify toilet leaks in the tank.

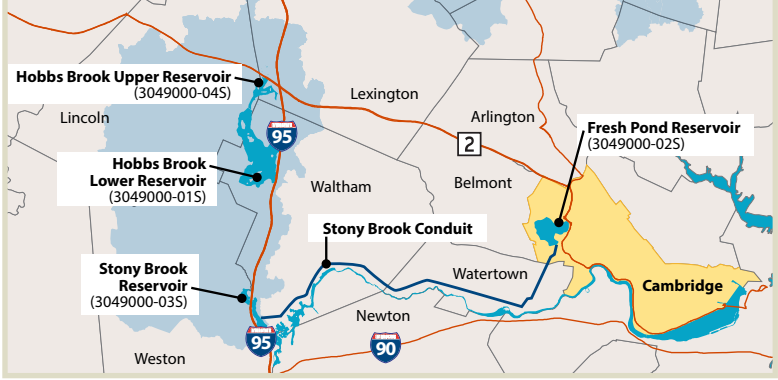
Watch this 5-minute video!
youtube.com/watch?v=yT8FYDB43a0

For more information, check out:
epa.gov/watersense/fix-leak-week#Toilet%20Leaks

Where Your Water Comes From

Reservoirs – The Cambridge Water System extends across four towns and includes four bodies of water. The Hobbs Brook Upper Reservoir flows into the Hobbs Brook Lower Reservoir and connects with the Stony Brook Reservoir. The water then flows to Fresh Pond Reservoir through an underground aqueduct. The Stony Brook Reservoir watershed extends from Weston, north into the Town of Lincoln. The watershed for the Hobbs Brook Reservoirs includes areas of Waltham, Lexington, and Lincoln. The watershed for Fresh Pond Reservoir is completely within the City of Cambridge. The combined capacity of the Hobbs Brook and Stony Brook reservoir system is 3.1 billion gallons; an additional 1.3 billion gallons of water is stored in Fresh Pond Reservoir. Our water supply is backed up by interconnections to the Massachusetts Water Resources Authority (MWRA) system. For a more detailed map of our water sources and their protection areas, please visit *cambridgema.gov/water*.

Watershed Protection – As part of our ongoing commitment to protecting the water supply, we participated with the Massachusetts Department of Environmental Protection (MassDEP) in preparing a Source Water Assessment Program (SWAP) Report, completed in 2003. The SWAP Report assesses the susceptibility of our public water supply and notes the key land use and protection issues, including Zone A Land Uses, Residential Land Uses, Transportation Corridors, Hazardous Material Storage and Use, and Presence of Oil or Hazardous Materials Contamination Sites.



A copy of the *Cambridge SWAP Report* can be found on the MassDEP website at *mass.gov/doc/cambridge-water-department-swap-report/download* or at the Cambridge Water Department.

Because of the developed nature and types of land uses within the Cambridge watershed, our source waters are considered as having "high" susceptibility to contamination. Susceptibility is a measure of a water supply's potential to become contaminated by land uses and activities within its recharge (watershed) area. If a source is susceptible to contamination, it does not necessarily mean the source has poor water quality. The Cambridge Water Department has developed a MassDEP-approved Surface Water Supply Protection Plan to minimize contamination threats to our water supply. We are committed to implementing the major components of the program, which include:

- **Water Quality Monitoring** – an extensive, state-of-the-art water quality monitoring program in close coordination with the United States Geological Survey identifies threats in near real-time, and guides management decisions.
- **Site Monitoring Program** – to minimize potential impacts from activities in the watershed, regular site inspections and site plan review helps ensure compliance with relevant Massachusetts standards and regulations.
- **Emergency Response Planning** – ensuring dam safety and preventing the release of hazardous materials, maintain water supply security, help prevent emergencies, and guide rapid response.
- **Natural Resources Restoration** – restoring City-owned lands using natural systems based approaches helps to preserve water quality, improves recreational open and natural green spaces, provides wildlife habitat, and offers a much-needed refuge from hectic urban life.
- **Partnership Development** – relationship-building with other parties in the watershed is crucial for successfully executing innovative watershed management in our urbanized watershed with limited City ownership.

Our Partnership with the MWRA

Cambridge and the Massachusetts Water Resources Authority (MWRA) have collaborated since 2013 to accomplish projects important to both, through the supply of MWRA water to Cambridge from emergency/back-up interconnections. Battling supply chain challenges, in 2022 we used our back-up supply from MWRA to continue an uninterrupted supply to Cambridge during completion of key media replacement in our filters for PFAS removal (see *Staying Ahead of PFAS in Our Water Supply* for more information).

The MWRA (PWS# 6000000) supplies wholesale water to local water departments in 50 cities and towns in greater Boston and MetroWest, and three in Western Massachusetts. MWRA water comes from the Quabbin Reservoir, about 65 miles west of Boston, and the Wachusett Reservoir, about 35 miles west of Boston. The reservoirs provide about 200 million gallons of high-quality water to consumers each day. For the MWRA Water Quality Report that includes test results for 2022 and other important information follow this link: *cambridgema.gov/Water/WaterOperationsDivision/Watertreatment/WaterQualityReport/2022AnnualDrinkingWaterQualityreport*

If you would like to learn more about MWRA activities, projects, or meetings that are open to the public, please visit the website at *mwra.com* or call 617-242-5323.

For questions about our source water and our protection efforts, please contact **Watershed Manager David Kaplan** at *dkaplan@cambridgema.gov* or 617-349-4799.

You can find the details of our award-winning **Source Water Protection Program** here: *cambridgema.gov/Water/WatershedManagementDivision/SourceWaterProtectionProgram*

Important Information from EPA & MassDEP about Sources of Drinking Water and Drinking Water Contaminants

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, 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, 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, mining, and farming.
- Pesticides and herbicides may come from a variety of sources, such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants include synthetic and volatile organic chemicals (VOCs) that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants 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, MassDEP and the U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration (FDA) and the Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contamination.

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**.

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 infants, can be particularly at risk from infections. These people should seek advice from their healthcare providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen 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 Cambridge Water Department 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 for free. 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 ***epa.gov/safewater/lead*.**

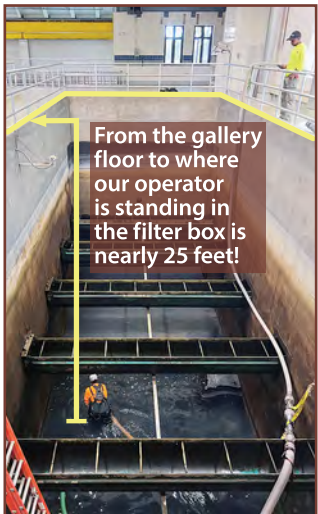
Staying Ahead of PFAS in Our Water Supply

Awareness about contaminants known as PFAS (per- and polyfluoroalkyl substances) has increased as more testing and studies are undertaken to evaluate their effects on our environment. These chemicals are commonly found in a wide range of consumer goods and household products that are resistant to water, grease, or stains. The PFAS family of chemicals are often referred to as "forever chemicals" because they degrade very slowly in the environment.

The Cambridge Water Department began monitoring for PFAS in our drinking water supply more than a year before Massachusetts enacted standards. Even though PFAS levels in Cambridge's water supply did not exceed the standards, we conducted an engineering study to determine the best way to reduce levels of PFAS to provide the safest water for our customers. The study showed that we could remove PFAS by replacing our filter media at significantly less cost than expanding or upgrading our treatment facility. Our filter media–made from GAC–is one of the best available technologies for removing PFAS. However, new media is most effective, and our media was approaching 20 years old. Thus, the Water Department, with approval from MassDEP, began the process of procuring new GAC filter media.

While the contract for the new GAC filter media was signed in the spring, supply chain struggles delayed delivery of the new media until October. To be proactive, the City temporarily switched to the MWRA supply in August, until the new media could be installed. In October, the old GAC was removed and new media installed – 2 filters at a time. By mid-November, we were able to put our treatment facility back into service. The last 2 of the 6 filters were completed in January 2023.

MassDEP recognized Julie Greenwood-Torelli, Director of Water Operations, with the 2023 Distinguished Operators Award for her efforts during the media changeout.



	Compound	Units	Highest Level Found	Range of Detections (low–high)	Highest Level Allowed (MCL or MRDL)	Ideal Goal (MCLG or MRDLG)	Violation	How It Gets In The Water
Regulated Compounds	**Barium**	ppm	0.035	0.035	2	2	NO	Erosion of natural deposits
	Chlorine (as monochloramine)	ppm	3.1 [1]	2.1 – 3.1 [2]	4	4	NO	Water disinfectant
	Copper [3, 4]	ppb	40	1 – 53 (No homes exceeded the AL)	AL = 1,300	1,300	NO	Corrosion of household plumbing systems
	Fluoride	ppm	0.87	0.56 – 0.87	4	4	NO	Added to water to promote strong teeth
	Lead [3, 4]	ppb	4	0 – 12 (No homes exceeded the AL)	AL = 15	0	NO	Corrosion of household plumbing systems
	Nitrate as Nitrogen	ppm	0.63	0.23 – 0.63	10	10	NO	Naturally present in the environment
	Nitrite as Nitrogen	ppb	10	1 – 10	1,000	1,000	NO	Runoff from fertilizer use
	PFAS6 [5]	ppt	17	ND – 21.6	20	N/A	NO	Human-made chemicals. ‡Full details below
	Total Haloacetic Acids	ppb	10.5 [7]	3.2 – 13.4 [2]	60 [7]	0	NO	Byproduct of water disinfection
	Total Trihalomethanes	ppb	16.7 [7]	3.2 – 13.4 [2]	80 [7]	0	NO	Byproduct of water disinfection
	Turbidity [8]	NTU	0.35	0.05 – 0.35 99.6% of samples <0.3	TT = 95% of samples <0.3	N/A	NO	Suspended matter from soil runoff

	Compound	Units	Highest Level Found	Range of Detections (low–high)	Highest Guidance Level (SMCL or ORSG)	Ideal Goal (MCLG or MRDLG)	Violation	How It Gets In The Water
Secondary/Guidance Compounds	**Calcium**	ppm	21	No range, 1 sample required	–	–	NO	Naturally occurring minerals
	Chloride	ppm	150	No range, 1 sample required	250	–	NO	Erosion of natural mineral deposits and road salting activities
	Chloroform	ppb	15.6	ND - 15.6	70	–	NO	Byproduct of water disinfection
	Magnesium	ppm	4.5	No range, 1 sample required	–	–	NO	Naturally occurring minerals
	Manganese	ppm	0.002	No range, 1 sample required	0.05	–	NO	Naturally occurring in the environment
	Sodium [9]	ppm	97	No range, 1 sample required	20	–	NO	Road salt
	Sulfate	ppm	29	No range, 1 sample required	250	–	NO	Erosion of natural mineral deposits
	Total Dissolved Solids	ppm	290	No range, 1 sample required	500	–	NO	Naturally occurring minerals

Unregulated Contaminant	Units	Average Detected (Range Detected, low–high)	Possible Sources
Perfluorohexanesulfonic acid (PFHxA)	ppt	3.4 (ND - 5.2)	‡ Human-made chemicals. Used as surfactants: to make products stain- or water-resistant, in firefighting foam, for industrial purposes, and as a pesticide. Used in fluoropolymers (such as Teflon), cosmetics, greases and lubricants, paints, adhesives, and photographic films.
Perfluorobutanesulfonic acid (PFBS)		2.4 (ND - 3.4)	

Notes

[1] Highest level detected is based on running annual average of monthly samples.
[2] Highest value in range is based on individual samples, rather than averages.
[3] The Action Level (AL) and the highest level found are based on the 90th percentile of the samples.
[4] Data presented is from 2020 sampling period.
[5] The highest level detected is based on a quarterly average of monthly samples. The range is based on individual monthly results.
[6] No other volatile organic compounds (VOCs) were detected other than trihalomethanes.
[7] Highest level allowed (MCL) for this substance is based on the running annual average of four quarterly samples.
[8] Turbidity is a measure of treatment performance and is regulated as a treatment technique (TT); 99.6% of samples met the TT requirement.
[9] An 8-ounce glass of Cambridge water contains approximately 23 milligrams of sodium, well within the FDA's "very low sodium" category.

Terms & Abbreviations

90th Percentile – Nine out of every 10 homes were at or below this level.

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

MCL: Maximum Contaminant Level – 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.

MCLG: 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.

MRDL: 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.

MRDLG: 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.

N/A: Not Available – An ideal goal has not been established by EPA or MassDEP for this compound.

ND: Not Detected

NTU: Nephelometric Turbidity Unit – A measure of the turbidity (or clarity) of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

ORSG: Massachusetts Office of Research and Standards Guideline – Guidance values developed by MassDEP ORS in absence of any other federal standards or guidance.

ppb: Parts per Billion or micrograms per liter – (µg/L).
One part per billion is the equivalent of $1 in $1,000,000,000.

ppm: Parts per Million or milligrams per liter – (mg/L).
One part per billion is the equivalent of $1 in $1,000,000.

ppt: Parts per Trillion or nanograms per liter – (ng/L).
One part per billion is the equivalent of $1 in $1,000,000,000,000.

SMCL: Secondary Maximum Contaminant Level – Concentration limit for a contaminant which may have aesthetic effects such as taste, odor, or staining.

TT: Treatment Technique – A required process intended to reduce the level of a contaminant in drinking water. Turbidity is a measure of treatment performance and is regulated as a treatment technique. 95% of our turbidity readings each month must be below 0.3 NTU.

Be Prepared!

When Having Plumbing Work Done…

Cambridge has the good fortune of having its own water supply and state-of-the-art water purification facility. The water we supply to homes, institutions, and businesses meets and surpasses all state and federal requirements for drinking water quality.

While Cambridge water is similar to water supplied to surrounding communities by the MWRA, there are some differences due to the nature of the watersheds. Cambridge's water has somewhat higher levels of hardness and chlorides, which can influence the type of plumbing fixtures and components that should be installed and/or maintained per manufacturer's recommendations. If you are planning on changing or adding components in your plumbing system, we have provided a link for you and your licensed plumber with helpful information for addressing these potential issues.

For details, please see our website at:
cambridgema.gov/Water/WaterOperationsDivision/WaterChemistryInformationForPlumbers

Cambridge Water Department
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Distinguished Operator Award

The MassDEP recognized our Director of Operations, Julie Greenwood-Torelli, as one of only four Distinguished Operators in Massachusetts to receive the 2023 Public Water Systems Award for going above and beyond the call of duty. Julie's leadership during the GAC exchange project for PFAS was instrumental in maintaining compliance and providing all Cambridge customers with high-quality water, despite severe supply chain issues She was cited for her conscientious approach, proactive communication with MassDEP, and comprehensive public outreach.

Congratulations, Julie!

This report contains very important information about your drinking water. Please translate it, or speak with someone who understands it.

本报告含有关于您所在社区的水质的重要信息.
请您找人翻译一下或请能看懂这份报告的朋友给您解释一下.

Este informe contiene información muy importante acerca de su agua potable. Pídale a alguien que traduzca esta información a usted o hablar con alguien que entiende esta información.

Ce rapport contient des renseignements très importants sur votre eau potable. Demander à quelqu'un pour traduire cette information à vous ou à parler avec quelqu'un qui comprend cette information.

Protect Your Drinking Water at Home!

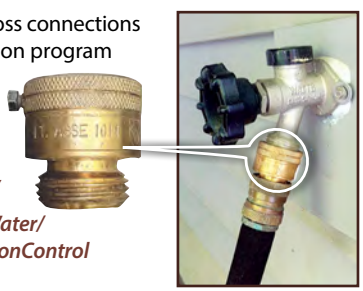
A "cross connection" is a connection between a drinking water pipe and a polluted source. The pollution can come from your own home. For example, to spray fertilizer on your lawn, you hook your hose up to the sprayer that contains the fertilizer. If the water pressure drops (say, because of fire hydrant use in the City) when the hose is connected to the fertilizer, the fertilizer may be sucked back into the drinking water pipes through the hose. You can find inexpensive hose bibb vacuum breakers at your local hardware store and easily install them.

For additional information on cross connections and Cambridge's cross-connection program status, please contact us:

Call: 617-349-6887

Email:
backflow@cambridgema.gov

Online: *cambridgema.gov/Water/Administration/CrossConnectionControl*



Free Lead and Copper Water Sampling Kit

Tap water sampling kits are available at the self-service kiosk located in the Water Treatment Plant lobby.

Call 617-349-4770 or visit *cambridgema.gov/Water/WaterOperationsDivision/TestMyWater* to learn more.

If you have any additional questions about your water supply, please contact Julie Greenwood-Torelli, Director of Water Operations, at 617-349-4773.