

Drinking Water Quality Report **2012**

To our Customers,

This report provides information about the drinking water supplied by the Cambridge Water Department in 2012. We have included details about where your water comes from, how it is treated, the quality of the water you receive, and how Cambridge water compares to state and federal drinking water standards.

We are often asked "Is Cambridge water safe to drink?" The answer is a resounding **YES!** Go ahead and give it a try – you will find that you like it.

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,

Stephen S. (Sam) Corda
Managing Director, Cambridge Water Department
617-349-4770

City of Cambridge Water Department

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24-Hour Emergency Customer
Service: 617-349-4770



Where Does Your Water Come 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. From Stony Brook, the water flows to the 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 the Fresh Pond Reservoir is completely within the City of Cambridge. Storm drainage modifications were implemented to divert street runoff away from Fresh Pond Reservoir. 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/cwd

Watershed Protection

As part of our ongoing commitment to protecting the resource water, 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 www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3049000.pdf 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 due to 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 taken the following actions to minimize contamination threats to our water supply:

- ◆ Work cooperatively with watershed towns on emergency response and storm water management
- ◆ Placed spill kits at strategic points within the watershed
- ◆ Actively monitor source water quality throughout the watersheds, using the data to target source protection
- ◆ Work cooperatively with businesses in the watersheds to encourage source protection
- ◆ Adopted the Fresh Pond Master Plan, which includes long-term protection measures for the Fresh Pond Reservation
- ◆ Dedicated staff resources to inspections, public education, and coordinating of source protection efforts

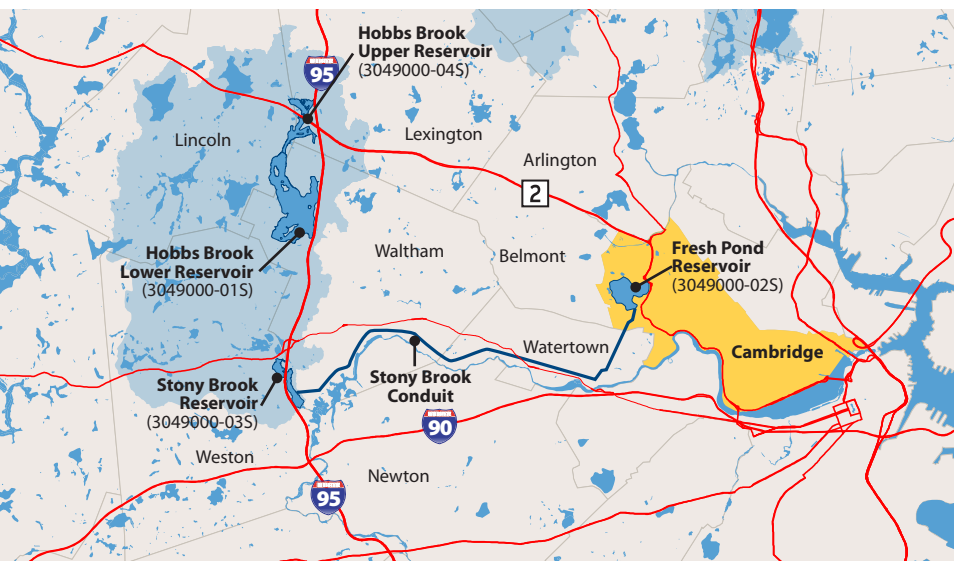
In 2011, the Watershed Division of the Cambridge Water Department updated its comprehensive Source Water Protection Program. The major components of the program to ensure a continuous supply of high quality water include:

1. **Extensive monitoring** – sampling and analysis of water chemistry
2. **Hazardous materials emergency response planning** – to reduce the potential for contamination in the watershed
3. **Partnership development – relationship-building** with other parties in the watershed with common goals
4. **Proactive site review and monitoring** – to minimize potential impacts on the watershed from construction
5. **Stormwater management** – insuring that Best Management Practices are implemented
6. **Community outreach** – public relations and education

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

10 things you can do to protect your water supply

- ◆ Do not dump oil or any other substances in street drains
- ◆ Use organic, low phosphorus fertilizers sparingly, and never before rain
- ◆ Wash your car at a commercial car wash where wastewater is treated
- ◆ Avoid using pesticide, herbicide or other chemical treatments in your landscape or garden
- ◆ Plant drought-tolerant native plants in your yard, not grass
- ◆ Pick up after your pet
- ◆ Do not flush old medication
- ◆ Use alternative deicers such as calcium magnesium acetate, and avoid table or rock salt
- ◆ Don't litter – and yes, this includes cigarette butts
- ◆ Spread the word – be a water advocate!



How Do We Treat Your Water?

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

(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.

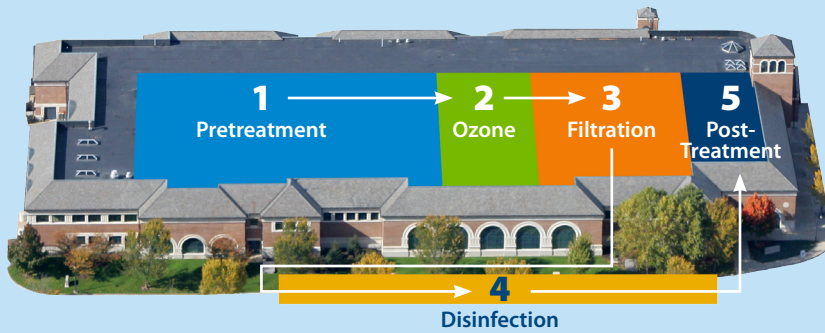
(2) Ozone: Fine bubbles of ozone are dissolved into the water to kill bacteria, viruses, and protozoa.

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

(4) Disinfection: Chlorine is used to provide 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.

The Cambridge Water Department's state-certified laboratory continuously monitors the effectiveness of the treatment process and makes adjustments to the treatment as required.



Let Our "High-Read" Notification Program Help You Find Leaks and Save Money

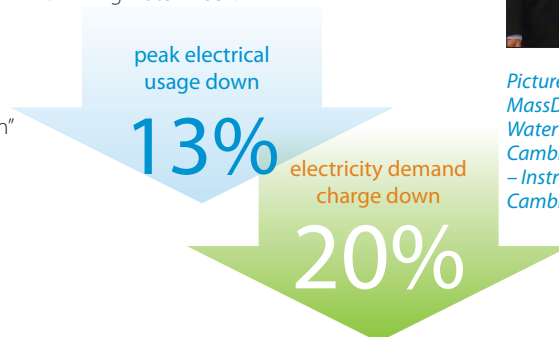
The Cambridge Water Department has a "High-Read" notification program where we will contact property owners soon after we detect a situation of unusually high water usage. Speedy notification allows property owners to quickly repair any leaks and minimize charges to your Water and Sewer Bill. In 2012, we issued 1,233 "High-Read" notifications to our customers. The Cambridge Water Department can also provide you with a Leak Detection Kit with instructions on how to perform a simple test that may save you money.

We need property owners to update their contact information so the Water Department can notify you as soon as a "High-Read" is detected. Please call Brian McCoy at 617-349-4737 or email him at HighReads@cambridgema.gov with your name, account number, phone number, mailing address, and email address.

Water and Electricity Don't Mix – Except for the Cambridge Water Department's "Go Green" Energy Savings Program!

The Cambridge Water Department undertook a comprehensive audit of the Water Treatment Facility in 2011, looking at hundreds of possible areas where energy savings could be found. Sam Corda, Managing Director, and Tim MacDonald, Director of Water Operations, told their team of operators and engineers that "all options are on the table", provided that the reliability and quality of the drinking water were not compromised in any way. In 2012, the most promising energy saving measures (called "ESMs") were adopted and the "Go Green" program was born. In its first year, "Go Green" has decreased electricity demand charges by 20% and saved over 5.4% in energy costs. The City is currently implementing several additional recommendations from the energy audit. This includes photovoltaic (solar) panels

on the roof of the treatment facility, new pumping equipment, and a second round of light fixture relamping and replacement. The Water Department was recently presented with the Public Water System Award for Energy Conservation by MassDEP in a ceremony during Drinking Water Week.



Pictured (L to R): Kenneth Kimmell – Commissioner, MassDEP; Brian Cornaglia – Team Leader, Cambridge Water Department; James Rita – Production Manager, Cambridge Water Department; Allan Cheung – Instrumentation and Maintenance Manager, Cambridge Water Department

Regulated Compounds							
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
Barium	ppb	33	33	2000	2000	NO	Erosion of natural mineral deposits
Chlorine (as monochloramine)	ppm	2.3	0.5 - 3.9	4	4	NO	Water disinfectant
Copper ^[1]	ppb	39	2 - 53 (no homes exceeded the AL)	AL = 1300	0	NO	Corrosion of household plumbing
Fluoride	ppm	1.3	0.8 - 1.3	4	4	NO	Added to water to promote strong teeth
Lead ^[1]	ppb	5	0 - 31 (2 of 61 homes exceeded the AL)	AL = 15	0	NO	Corrosion of household plumbing
Nitrate as Nitrogen	ppm	0.66	0.26 - 0.66	10	10	NO	Runoff from fertilizer use
Nitrite as Nitrogen	ppm	0.16	0.0 - 0.16	1	1	NO	Runoff from fertilizer use
Total Coliform	%	1	0 - 1	5	0	NO	Naturally present in the environment
Total Haloacetic Acids	ppb	5.8 ^[2]	2.9 - 11 ^[3]	60 ^[4]	0	NO	Byproduct of water disinfection
Total Trihalomethanes ^[7]	ppb	9.2 ^[2]	4.9 - 14 ^[3]	80 ^[4]	0	NO	Byproduct of water disinfection
Turbidity ^[5]	NTU	0.16	0.05 - 0.16	TT = 0.3 NTU	N/A	NO	Suspended matter from soil runoff
Secondary Compounds							
Sulfate	ppm	28	28	250	N/A	NO	Erosion of natural mineral deposits
Sodium	ppm	72	72	20 ^[6]	N/A	NO	Road salt

Notes

- 1: The Action Level (AL) and the highest level found are based on the 90th percentile of the samples. Most recent lead and copper results were obtained in 2011.
- 2: Highest level detected is based on average of four quarterly samples as required by regulation.
- 3: Highest value in range is based on individual samples, rather than averages.
- 4: Highest level allowed (MCL) for this substance is based on the average of four quarterly samples.
- 5: TT = Treatment Technique: Turbidity is a measure of treatment performance and is regulated as a treatment technique. 100% of samples met the TT requirement.
- 6: An 8 ounce glass of Cambridge water contains about 17 milligrams of sodium, well within the FDA's "very low sodium" category.
- 7: No other volatile organic compounds (VOCs) were detected other than trihalomethanes.

Terms & Abbreviations

- 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.
- pCi/L:** Picocuries per liter. A measure of radiation.
- ppb:** Parts per Billion or micrograms per liter (ug/L)
- ppm:** Parts per Million or milligrams per liter (mg/L)
- 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.
- 90th Percentile:** 9 out of every 10 homes were at or below this level.

2012 Water Department Accomplishments

- Provided dozens of school programs, tours, open houses, Friends of Fresh Pond Reservation events, as well as presentations to colleges and universities and international visitors.
- Implemented an energy savings program that reduced demand charges by 20% and total electrical costs by 5.4% in one year.
- Rehabilitated more than 11,000 feet of water main and removed 11,300 feet of old 6-inch cast iron pipe that was not being used.
- Replaced 63 lead water services and 119 distribution system valves.
- Maintained a 99.9% in-service rating for fire hydrants.
- The Fresh Pond Reservation and Volunteer Stewardship Programs coordinated over 900 hours of volunteer work.
- Performed more than 62,000 water quality tests (that averages 170 tests every day!)
- Updated the Cambridge Watershed Hazardous Materials Emergency Response Atlas for Interstate 95 and Route 2 to make it more useful during emergency situations.

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 storm water 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 storm water runoff, and residential uses.
- ◆ Organic chemical contaminants include synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- ◆ Radioactive contaminants 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 US EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. 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 (1-800-426-4791.)

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 health care providers. EPA/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 (1-800-426-4791).

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 www.epa.gov/safewater/lead. Home Lead Testing Kits are available at 250 Fresh Pond Parkway for Cambridge residents.

Cross Connection Information

A "cross connection" is a connection between a drinking water pipe and a polluted source. The pollution can come from your own home. For instance, you're going to spray fertilizer on your lawn. You hook up your hose 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. Over half of cross-connection incidents involve unprotected garden hoses.

Here are some simple steps that you can take to prevent cross-connection hazards:

- ◆ Never submerge a hose in soapy water buckets, pet watering containers, pools, tubs, sinks, drains, or chemicals.
- ◆ Install a hose bibb vacuum breaker on every threaded water fixture. This inexpensive device is available at most hardware stores and home-improvement centers, and the installation is as easy as attaching a garden hose to a spigot.
- ◆ Buy appliances and equipment that come with a built-in backflow preventer.

For additional information on cross connections and on the status of Cambridge's cross connection program, please contact John Blouin, Cross Connection Supervisor, at the Cambridge Water Department at 617 349-4025 or jblouin@cambridgema.gov





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Did you know?

- Water rates have not increased for three years in a row, demonstrating the City's commitment to controlling expenditures while still investing in our infrastructure
- You can pay your water bill online. Go to: cambridgema.munisselfservice.com/citizens/UtilityBilling/Default.aspx
- The City of Cambridge continues to offer the Senior Citizen Discount Program on water/sewer bills. All residents 65 years of age or older who own and occupy their one-, two- or three-family home are eligible for a 15% discount on water/ sewer charges, not to exceed \$90 per year. Contact the Finance Department at 617-349-4220 for more information or email treasurer@cambridgema.gov

Want to learn more?

Walter J. Sullivan Water Purification Facility Tour: Timothy MacDonald, Director of Water Operations, will lead tours of the City's beautiful treatment facility on the first Monday of most months (2nd Monday in September). Find out how water that falls as rain in the suburbs 10 miles west of Cambridge is transported to Fresh Pond and then tested, treated and delivered to the city.

Get involved!

Volunteer at the Fresh Pond Reservation: Contact the Watershed Assistant by phone at 617-349-6489 or fpr@cambridgema.gov and visit cambridgema.gov/cwd for more information.

If you have any additional questions about your water supply, please contact Timothy W.D. MacDonald, Director of Water Operations at 617-349-4773

Become a Friend of Fresh Pond:
www.friendsoffreshpond.org

Join us for a Water Board Meeting:
Usually on the 2nd Wednesday of each month, from 5-6:30 pm at the Walter J. Sullivan Water Purification Facility at 250 Fresh Pond Parkway. For more information about dates of upcoming meetings and to review minutes from previous meetings please visit the Water Department's website, cambridgema.gov/cwd

For a full list of events, click on the calendar of events at cambridgema.gov/cwd



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

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.

Este relatório contém informações muito importantes sobre seu que bebendo água. Por Favor traduzza-o, ou fala com alguém quem entende-o.

Questa relazione contiene delle informazioni molto importanti del suo che la bendo acqua. Per favore tradurirlo, o parlare con qualcuno che capisce esso.

이 보고서에는 귀하의 식수에 대한 중요한 내용 실려있습니다. 그러므로 이 보고서를 이해할 수 사람한테 번역해 달라고 부탁하시기 바랍니다.

Ce rapport contient des informations importantes à propos de votre eau potable. Demander à quelqu'un de traduire ces informations pour vous ou discuter avec une personne qui comprend ces informations.

此报告包含有关您的饮用水的重要信息。请人帮您翻译出来，或请看懂报告的人将内容说给您听。