

2019 ANNUAL DRINKING WATER QUALITY REPORT
Town of Andover, MA Department of Public Works Water Division
MassDEP Public Water Supply ID # 3009000

Dear Water Customer,

This water quality report provides information on the Town of Andover's water source and treated water quality for the 2019 calendar year. This publication is mandated by the Consumer Right-To-Know Provisions in the Safe Drinking Water Act, and requires community water suppliers to provide specific information regarding the quality of water provided to consumers. This document outlines where your water comes from, what substances it contains, and the treatment processes your water goes through to ensure that the purest drinking water is delivered to your tap every day. Our hardworking Water Department, including lab, treatment, and distribution staff, is committed to providing safe and clean quality drinking water that not only meets, but exceeds all primary and secondary health and safety standards. Our compliance and water testing protocols are routinely monitored by state and federal regulators to certify that safe drinking water is delivered to all residents. It is with great pleasure that I report to you that we are in good standing with all administrative authorities concerning our drinking water. We are also working to update our water distribution system with water main replacement projects that will improve the infrastructure of water delivery to your tap. This report also contains tips on water conservation, as well as contact information.

Sincerely,

*Christopher M. Cronin
Director of Public Works*

About This Report

This consumer confidence report (CCR) is the twenty-second publication to be issued under the Environmental Protection Agency (EPA) regulations requiring annual notification to all consumers about local drinking water sources and water quality information. It is available to all consumers, and delivered to the Andover Board of Health, the Massachusetts Department of Public Health (DPH), and the Massachusetts Department of Environmental Protection (DEP). Hard copies are available at the Memorial Library, Town Hall, and the Water Treatment Plant. You may also obtain an electronic copy on the town's website at <http://andoverma.gov/waterquality>. If you have any questions or comments about this report, you may contact the Water Treatment Plant at 978-623-8870, or by email at dpw-treatment@andoverma.gov. We encourage public participation on issues concerning the town's drinking water. Meeting information for the Select Board, Planning Department and Board of Health can be found on the town's website at <https://andoverma.gov>. We welcome your interest in the Andover water system.

Where Your Drinking Water Comes From

Andover's Drinking Water comes from Haggetts Pond (PWS3009000-01S) and the surrounding 1,422 acres of watershed area. The pond is also supplemented with additional waters from Fish Brook (PWS3009000-02S) and the Merrimack River (PWS3009000-03S). The Merrimack River is the fourth largest watershed in New England, encompassing over 5,000 square miles, or 3,200,000 acres. A combination of the three surface water sources is used to produce up to 18 million gallons of drinking water per day and approximately 2 billion gallons of drinking water per year. Andover retains 14 million gallons of water storage in the distribution system. This storage helps maintain consistent water pressure throughout the 250 miles of underground pipes that deliver drinking water to homes and businesses.

Sustainable Water Management Initiative

Every twenty (20) years, MassDEP issues new Water Withdrawal Permits to Public Water Supplies that limit the amount of water that can be withdrawn from vital resource ground and surface waters. The current permit term for Andover is coming to a close and our community's projected water needs and water usage will be reviewed in detail and the Sustainable Water Management Initiative (SWMI) will be incorporated into the renewed permit. The anticipated permit will include best management practices for water conservation measures such as limits for non-essential outdoor water use, and unaccounted-for-water metrics.

How Are These Sources Protected?

MassDEP prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving Andover's water system. The purpose of the assessment was to determine the susceptibility of drinking water sources to potential contaminant sources (PCS) so that we can focus protection efforts. The results of the assessment are available in the SWAP report which is available online at <http://www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3009000.pdf>.

Andover was assigned a high susceptibility ranking based on the presence of at least one high threat land use within the water supply protection areas. The high threat activities listed by DEP are those that typically use, produce, or store contaminants of concern, which if managed improperly, are potential sources of contamination. It is important to understand that a release may never occur from the potential source, and the actual risk may be lower than the relative threat ranking assigned to it. Additionally, all drinking water sources are protected under the National Pollutant Discharge Elimination System (NPDES) permit program enforced by the state and federal government. To learn more, visit: <https://www.epa.gov/npdes>

Protecting Our Water Resources: Andover Water Division's Surface Water Protection Plan

Andover has been an industry leader making continual improvements to its water system. The Water Treatment Plant continues to maintain a comprehensive Surface Water Supply Protection Plan, which was reviewed and approved by MassDEP, and includes recommendations for watershed monitoring, treatment plant operations, local road salting practices, emergency response planning and preparedness, educational programs and inter-community cooperation on water supply issues. We strive to implement proactive measures to ensure that drinking water delivered to our customers meets all federal and state drinking standards. This plan is reviewed every five years.

Contaminants that May Be Present In Drinking Water

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 human activity. Contaminants that may be present in source water include:

Microbial contaminants such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants such as salts and metals, which 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 which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants which can be naturally occurring or be the result of oil and gas production and mining activities.

What the EPA Says About Contaminants and Health Risks:

All 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. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Hotline at 800-426-4791.

In order to ensure that tap water is to drink, MassDEP and the EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and DPH regulations establish limits for contaminants in bottled water that must provide the same protection for public health. In order for the water plant to service residents, it must follow these limits that are constantly monitored by DEP.

Other Important Health Information

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 disorders, some elderly, and some infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 800-426-4791.

Water Treatment Process

We are proud of the exceptional quality of water that flows to your household or business daily. We treat it very carefully at our water treatment plant to enhance its quality. Source water transferred from Fish Brook and the Merrimack River into Haggetts Pond is drawn into the water treatment plant, which purifies millions of gallons of raw water daily. The water treatment plant process consists of a series of physical and chemical steps designed to produce a safe and consistent

quality product. Fluoride is added to the finished water to about 0.7 ppm to prevent tooth decay and cavities. At this level it is safe, odorless, colorless and tasteless. Visit <http://andoverma.gov/water-sewer> to view a virtual tour of the water treatment plant.

To ensure that we provide the highest quality of water available, your water system is operated by Massachusetts certified operators who oversee the routine operations of our system. The water quality of our system is constantly monitored by Water Division staff in our on-site laboratory, and by MassDEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required.

Water Quality Testing Results

During the year, we have taken hundreds of water samples to determine the presence of any biological, inorganic, volatile organic or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water. The values reported in the tables are the highest level of each detected contaminant as well as the range of levels detected for each contaminant. While Andover maintains a certified water quality laboratory at the treatment plant, some of the analysis is also performed by outside laboratories.

Chlorine

Chlorine is added to your drinking water for disinfection purposes. Chlorine residual is necessary to maintain disinfection throughout the distribution system. We are required to monitor the concentration of chlorine entering the distribution system. The use of chlorine and other disinfectants such as ozone reduces the risk of waterborne diseases. However, they also create compounds called disinfection by-products (DBPs). The EPA regulates DBPs because they are a potential health risk. Total Trihalomethanes (TTHMs) and Haloacetic acids (HAAs) are DBPs that form when chlorine is added to the water and contains naturally occurring organic matter.

Definitions

Maximum Contaminant Level (MCL):	The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible as possible 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.
Maximum Residual Disinfectant Level (MRDL):	The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant (i.e., chlorine, chloramines, chlorine dioxide) is necessary for control of microbial contaminants.
Maximum Residual Disinfectant Level Goal (MRDLG):	The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of disinfectants to control microbial contaminants.
Treatment Technique (TT):	The required process intended to reduce the level of a contaminant in drinking water.
ppm:	Parts per million, or milligrams per liter (mg/l).
ppb:	Parts per billion, or micrograms per liter (ug/l).
NTU:	Nephelometric Turbidity Units.
NA:	Not applicable
Secondary Maximum Contaminant Level (SMCL):	Standards developed to protect aesthetic qualities of drinking water and are not health based.
Office of Research and Standards Guidelines (ORSG):	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 for the potential need for further action.
Action Level (AL):	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. 90 th Percentile means that out of 10 homes, 9 were at or below the level.

The water quality information presented in the tables is from the most recent round of testing done in accordance with the regulations. All data shown was collected during calendar year 2019 unless otherwise noted in the following tables.

WATER QUALITY TEST RESULTS CALENDAR YEAR 2019

Regulated Substances

Parameter (units)	Date(s) Collected	Maximum Amount Detected ¹	Result or Range Detected ²	MCL	MCLG	Violation	Typical Source
Bromate (ppb)	Monthly	2.7	1.3 – 2.7	10	0	No	By-product of ozone disinfection
Fluoride (ppm)	Daily	0.86	0.23 – 0.86	4	4	No	Water additive which promotes strong teeth
Nitrate (ppm)	1/10/19	<1.0	NA	10	10	No	Run-off from fertilizer use, leaking septic tanks, erosion of natural deposits
Perchlorate (ppb)	7/2/19	0.07	NA	2	NA	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks and explosives
Turbidity ³	Daily	0.30	0.02 – 0.30	TT = 1.0 max TT <0.3, 95% of time	NA	No	Soil run-off

Bacteria Indicator Contaminants

Total Coliform (colonies/ml)	Weekly	0.4%	NA	<5% of samples in one month	0	No	Naturally present in the environment, human and animal waste
Heterotrophic Plate Count (cfu/ml)	Weekly	TNTC ⁴	0 – TNTC	500	NA	No	Naturally present in the environment
Total Organic Carbon	Monthly	1.986	1.49 -1.986	TT = 35-45% removal	NA	No	Naturally present in the environment

Disinfection Contaminants

Parameter (units)	Date(s) Collected	Highest Quarterly Running Average ⁵	Range Detected ⁶	MCL	MCLG	Violation	Typical Source
Haloacetic Acids (HAAs, ppb)	Quarterly	7.9	<2 – 9.7	60	NA	No	By-product of chlorination
Total Trihalo-methanes (TTHMs, ppb)	Quarterly	49	27 – 54	80	NA	No	By-product of chlorination

Chlorine

Parameter (units)	Date(s) Collected	Maximum Amount Detected	Result or Range Detected	MRDL	MRDLG	Violation	Typical Source
Chlorine (ppm)	Daily	1.12	0.01 – 1.12	4	4	No	Water additive to control microbes

¹ We are obligated to report the maximum value detected during the analyses of multiple samples of drinking water collected during the calendar year.

² The values listed are the overall range of results that were recorded during multiple tests of the drinking water conducted during the calendar year.

³ Turbidity is a measure of the cloudiness of the water. It is a good indicator of the effectiveness of the filtration system.

⁴ The maximum amount detected (Too Numerous to Count, or TNTC) is not a violation. A chlorine residual was detected in the sample and additional testing demonstrated no presence of E.coli bacteria.

⁵ This is the highest average value calculated for all the locations where TTHMs and HAAs were sampled during the calendar year.

⁶ The values in this range are based on individual numbers rather than averages.

Secondary Contaminants					
Parameter (units)	Date(s) Collected	Result or Range Detected	SMCL	ORSG or Health Advisory	Typical Source
Aluminum (ppm)	1/10/19	0.1	0.2	N/A	
Chloride (ppm)	1/10/19	98	250	N/A	
Manganese ⁷ (ppb)	1/10, 4/4, 7/2, 10/3/19	10 – 48	50	300	Naturally present in the environment
Sodium ⁸ (ppm)	1/10/19	56	20	N/A	Naturally present in the environment, Road salt
Sulfate (ppm)	1/10/19	21	250	N/A	Naturally present in the environment

⁷EPA has established a lifetime health advisory (LHA) of 300 ppb for manganese to protect against concerns of potential neurological effects, and a one-day and 10-day HA of 1000 ppb for acute exposure.

⁸Sodium is naturally present in the environment and the raw water treated for drinking water is at levels above the MassDEP Guideline of 20 ppm. This value is strictly a guideline and does not imply that a value greater than 20 ppm imposes a risk. The water treatment process does not remove sodium from the water.

Lead and Copper

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 Andover 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. The Water Division will notify homeowners when lead service lines are found during water main line work or regular maintenance. Also, periodically unscrew the aerator from kitchen and bathroom faucets and clean the debris that may have settled on the screens. 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>.

The Andover Water Division is required to conduct lead and copper testing of the distribution system on an annual basis. Thirty samples were collected from residential home faucets and analyzed for the presence of lead and copper during the summer 2019. The values reported in the table below represent the highest concentration found in 90% of the homes sampled. This means that of the 30 homes sampled, 27 were below 14.9 ppb for lead, and 27 homes were below 0.07 ppm for copper. MassDEP has required Andover to conduct the lead and copper sampling program during the summer 2020. The 30 residential sampling locations have been identified.

Contaminant	90 th % Result	USEPA Action Level	# Sites Above Action Level	Possible Source of Contamination
Lead (ppb)	14.9	15	3	Corrosion of household plumbing systems, Erosion of natural deposits
Copper (ppm)	0.07	1.3	0	Corrosion of household plumbing systems, Erosion of natural deposits; Leaching from wood preservatives

FAQ's

Is Andover's water considered "hard" or "soft"?

Andover's drinking water is considered "soft water", according to ranges set by the EPA. There is no standard for hardness, only set ranges to define the degree of hardness:

- 0-75 mg/l is "soft"
- 75-150 mg/l is "moderately soft"
- 150-300 mg/l is "hard"

Andover's treated water measures at 34 mg/l. Water hardness is defined as the total concentration of calcium and magnesium ions in the water.

How do I get my water tested?

If you are an Andover municipal water customer, you may have your water tested at the Water Treatment Plant Laboratory located at 397 Lowell Street. Please Contact the Laboratory Director, Karen Martin, at 978-623-8873 or at via email at kmartin@andoverma.gov for more information. We do not test well water or business regardless of location.

Cross Connections

Andover Water Division makes every effort to ensure that the water delivered to your home and business is clean, safe and free of contamination. Our staff works hard to protect the quality of the water delivered to our customers from the withdrawal point from Haggetts Pond throughout the entire treatment and distribution system. But what happens when the water reaches your home or business? Is there still a need to protect the water quality from contamination caused by a cross connection?

A cross connection occurs whenever the drinking water supply is or could be in contact with potential sources of pollution or contamination. Cross connections exist in piping arrangements or equipment that allows the drinking water to come in contact with non-potable liquids, solids, or hazardous gases in the event of a backflow.

Backflow is the undesired reverse of the water flow in the drinking water distribution lines. This backward flow of water can occur when the pressure created by equipment or a system such as a boiler or air-conditioning is higher than the water pressure inside the distribution line (back-pressure), or when the pressure in the distribution line drops due to routine occurrences such as water main breaks or heavy water demand causing the water to flow backward inside the water distribution system (back siphonage). Backflow is a problem that many water consumers are unaware of, a problem that each and every water client has a responsibility to help prevent.

Without the proper protection something as simple as a garden hose has the potential to contaminate or pollute the drinking water lines in your home. In fact over half the country's cross connection incidents involve unprotected garden hoses. There are simple steps you can take to prevent such hazards.

TIPS:

- ✓ NEVER submerge a hose in pools, tubs, soapy water buckets, pet watering containers, or chemicals.
- ✓ NEVER attach a hose to a garden sprayer without the proper backflow preventer.
- ✓ Buy and install a hose bib vacuum breaker in any 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 backflow preventers.
- ✓ Buy and install backflow prevention devices or assemblies for all high and moderate hazard connections.

Stormwater Management

Stormwater can pick up debris, chemicals, dirt and other pollutants and flow untreated directly into a stream, river, wetland or pond used for swimming, fishing, or for drinking water. Polluted stormwater runoff can have many adverse impacts on plants, animals and fish; and also affect your drinking water sources. Visit the Town's website for more information at <http://www.andoverma.gov/stormwater/>. Issues and concerns can be addressed to the Town Engineering Department at 978-623-8770.

TIPS:

- ✓ Use a commercial car wash or wash your car on your yard so water infiltrates into the ground.
- ✓ Repair vehicle leaks and dispose of auto fluids and batteries at designated drop-offs or recycling locations.
- ✓ Do not dispose of household hazardous waste in your toilets.
- ✓ Have your septic tank pumped and inspected at least every three years.
- ✓ Sweep up yard debris rather than hosing it down. Compost or recycle yard waste.
- ✓ Reduce the amount of paved areas in your yard and direct downspouts away from paved surfaces to increase infiltration and reduce pollutant runoff.

Pet waste can be a major source of bacteria and excess nutrients in local waters. When walking your pet, remember to pick up the waste and dispose of it properly. **Recycle** or dispose properly of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil. Dispose of these products at a household hazardous waste collection event. **Lawn care:** excess fertilizer and pesticides applied to lawns and gardens wash off and pollute streams. Use pesticides and fertilizers sparingly. Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.

Water Conservation

Water resources are vital for the functioning of our homes and our community. Andover residents and businesses use a significant amount of water for lawn irrigation during peak demand months. By consuming less water, you help preserve our resources. More efficient water use begins with individuals. Here are some ways to make your home and your habits more water efficient. For additional information visit the Town's website at <http://www.andoverma.gov/dpw/summerconservation.php>, or check out US EPA's website at www.epa.gov/watersense.

Andover is a sponsor of US EPA's WaterSense Program. As a partner we are committed to promoting indoor and outdoor water efficiency: from conserving water resources to promoting WaterSense certified products—some of which are offered free as explained below. For more information, follow the link above for the EPA's website.

Andover is a sponsor of Greenscapes North Shore. Check out their website at: www.greenscapes.org, where you will find valuable information on landscaping and lawn care practices to help promote water conservation and the protection of our natural resources. We also invite you to adhere by the tips listed below:

- TIPS:**
- ✓ Use native plants in your landscaping to reduce watering needs during a dry season.
 - ✓ Do not overwater your lawn. Consider using a soaker hose instead of a sprinkler.
 - ✓ Consider the use of a rain barrel to collect water for your lawn and garden.
 - ✓ Reduce evaporation by mulching around trees and plants. This controls weeds and promotes plant growth.
 - ✓ Water during the cool parts of the day. Early morning is best than dusk since it helps to prevent the growth of fungus.
 - ✓ Avoid lawn watering on windy days.

Free Indoor and Outdoor Water Conservation Kits

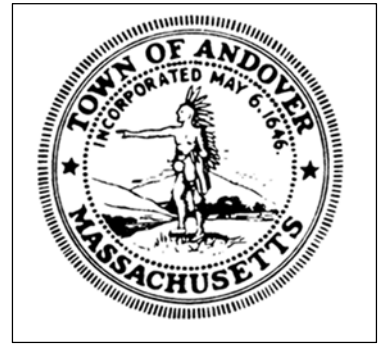
The town offers **FREE** indoor and outdoor conservation water conservation kits. Stop by the Water Treatment Plant during normal business hours to pick up these kits, which include EPA certified WaterSense products such as low flow shower head, dual spray faucet aerator, adjustable flow garden hose nozzle, garden hose timer, hose repair kit, and rain gauge.

Haggetts Pond—Your Drinking Water Reservoir

Andover's Water Division would like to remind the community that Haggetts Pond is your drinking water reservoir. While it may look inviting for recreational activity, there are some activities that are restricted in order to maintain a high quality resource water and to protect the health and safety of our community. We appreciate your cooperation.

Permissible Activities	Restricted Activities	
Passive Recreation: Walking, hiking, jogging, biking Fishing from shoreline or rowboat only* (*Must have valid state license) Boating: rowboats only.* No motors of any kind. Boats must be registered *Residents may obtain a boat registration from the Treasurer's Office at 36 Bartlet Street; but only after obtaining a Mass. State Fishing License. Street	No swimming, bathing, or wading	No wind surfers
	No dogs or other animals may enter the water	No sailboats
	No hip-waders shall be worn	No ice skating
	No ice fishing No paddleboards	No kayaks No kitesurfing/kiteboarding

Town of Andover
Department of Public Works
Water Division
5 Campanelli Drive
Andover, MA 01810
(978) 623-8700



Important Contact Information & Reference Guide

Town of Andover Public Works Department

5 Campanelli Drive
Andover, MA 01810
Hours: 8:00 AM – 4:00 PM

Christopher Cronin, Director
(978) 623-8700
dpw@andoverma.gov

Carlos Jaquez, Deputy Director
(978) 623-8800
dpw-highway@andoverma.gov

Water Distribution and Sewer Collection

Jeff Crane, Superintendent
(978) 623-8860
dpw-watersewer@andoverma.gov

Engineering Department

Art Martineau, Town Engineer
(978) 623-8770
dpw-engineering@andoverma.gov

Water Billing

36 Bartlet Street
Andover, MA 01810
(978) 623-8906
Hours: 8:30 AM – 4:30 PM

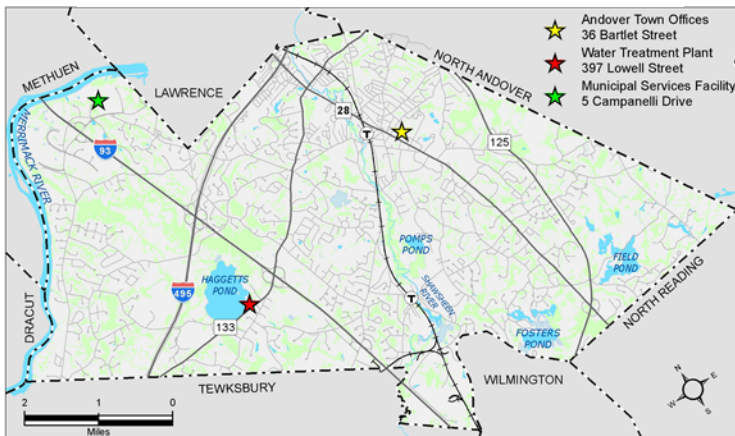
Water Treatment Plant

397 Lowell Street
Andover, MA 01810
Hours: 8:00 AM – 4:00 PM

Jim McSurdy, Superintendent
(978) 623-8870
dpw-treatment@andoverma.gov

Karen Martin, Lab Director/Env.Coordinator
(978) 623-8873
dpw-treatment@andoverma.gov

DEPARTMENT OF PUBLIC WORKS LOCATIONS



Contact the Water Treatment Plant at dpw-treatment@andoverma.gov for questions about:

- This Report
- Water Quality Testing
- Water Conservation
- Source Water Protection

Contact Water Distribution and Sewer at dpw-watersewer@andoverma.gov for questions about:

- Cross Connections
- Water Services
- Sewer Collection Issues

Contact the Engineering Department at dpw-engineering@andoverma.gov for questions and concerns about:

- Stormwater