LITTLETON LWD WATER DEPARTMENT

2019 ANNUAL Drinking Water Quality Report

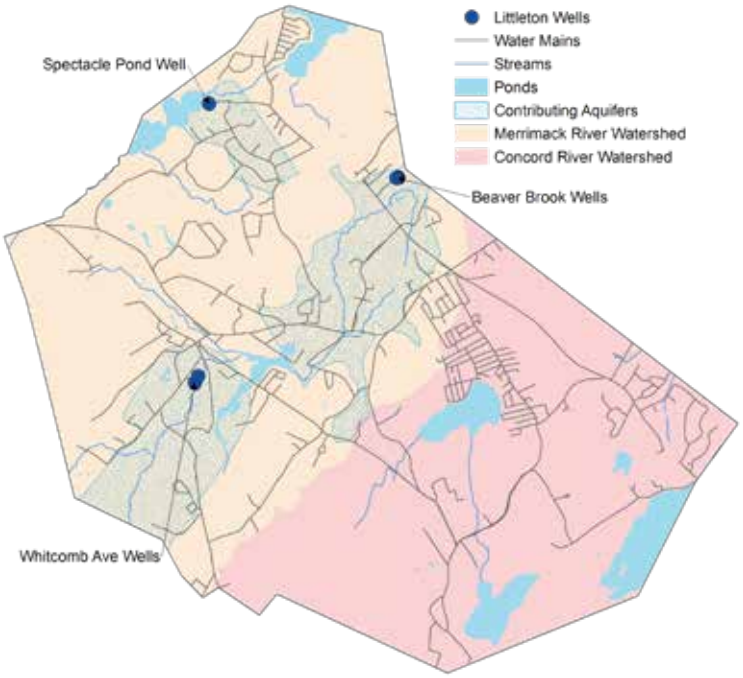
LITTLETON, MASSACHUSETTS

MASSDEP PWSID# 2158000

This report is a snapshot of the drinking water quality that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards. We are committed to keeping you informed about the quality of your drinking water.

Water System Improvements

Our water system is routinely inspected by the Massachusetts Department of Environmental Protection (MassDEP). MassDEP inspects our system for its technical, financial, and managerial capacity to provide safe drinking water to you. To ensure that we provide the highest quality of water available, your water system is operated by a Massachusetts certified operator who oversees the routine operations of our system. As part of our ongoing commitment to you, last year we began the following improvements to our system:



- Continued the design and permitting of the Whitcomb Ave Water Treatment Plant, which will result in 100% of Littleton's water being filtered to remove iron and manganese.
- Initiated the design and permitting of 1) a temporary blending pipeline to immediately reduce levels of Per- and PolyFluoroAlkyl Substances (PFAS), and 2) a permanent treatment system to remove PFAS.
- Continued engineering and permitting of the Cobb's Wells, which are expected to expand Littleton's water supply capacity by 30%.

Your Drinking Water Source

Where Does My Drinking Water Come From?

Your water is provided by the following sources listed below:

SOURCE NAME	MASSDEP SOURCE ID#	SOURCE TYPE	LOCATION OF SOURCE
Spectacle Pond Well	2158000-04G	Groundwater	686 Great Road
Whitcomb Ave Wells	2158000-01G, 02G	Groundwater	76 Whitcomb Ave
Beaver Brook Wells	2158000-05G, 06G, 07G	Groundwater	519 Great Road

Opportunities for Public Participation

If you would like to participate in discussions regarding your water quality, you may attend one of our monthly Commissioners' Meetings, held on the first Wednesday of each month in the LELWD Operations Center at 39 Ayer Road.

Public Water System Information

Address: 39 Ayer Road, Littleton, MA, 01460

Contact Person: Corey Godfrey, Environmental Analyst, 978-540-2222 | www.lelwd.com

Source Water Protection

The Town of Littleton integrates land-use planning, environmental audits, and groundwater monitoring in an aggressive and comprehensive aquifer and watershed protection program. Begun in 1981, much of the success of the program is due to a cooperative relationship between community planners and industrial and commercial developments.

One important factor in the program's success has been the water department's effort to foster a cooperative partnership with the business community. Through communication, assistance, and non-adversarial monitoring, the program has become a close environmental partner and consultant to local industries and businesses.

Because of its effectiveness, the program has been recognized as a model for the development of wellhead protection strategies in many New England communities. As part of this program, more than 100 groundwater-monitoring stations are located at over 30 properties within the community, and are maintained and sampled by the water department. All compliance - monitoring costs are borne by the regulated bodies.

In addition, LWD environmental personnel conduct environmental audits of regulated facilities to ensure compliance with Littleton's Aquifer and Water Resource Protection Bylaws and other state and federal regulations. This typically consists of a walk through inspection to assess the environmental liability of products at the site, with recommendations offered for safe storage and handling procedures.

Residents can assist in protecting the groundwater by practicing good septic system maintenance, such as pumping out their septic tank every two years, and not using the septic system to dispose of solvents and paints. Limiting the use of pesticides, herbicides and fertilizers on the lawns will also help. Participating in hazardous waste collection will also help reduce the potential improper disposal of hazardous materials.

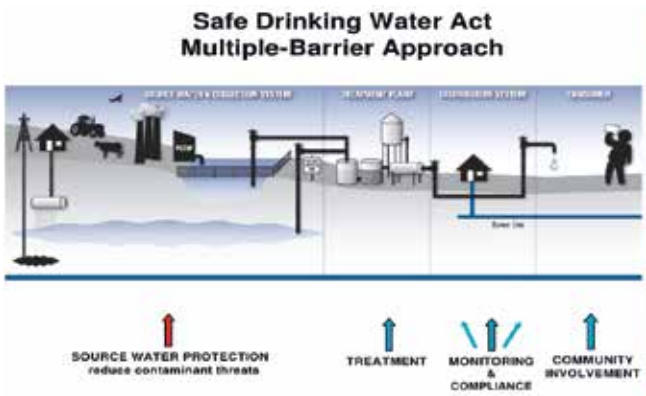
Is My Water Treated?

Our water system makes every effort to provide you with safe and pure drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants.

- We add a disinfectant to protect you against microbial contaminants.
- We filter the water to remove small particles and organisms such as sediment, algae and bacteria.
- We chemically treat the water to reduce lead and copper concentrations.
- We chemically treat the water to reduce levels of iron and manganese.

The water quality of our system is constantly monitored by us and MassDEP to determine the effectiveness of existing water treatment and to determine if any additional treatment is required.

The use of chlorine in drinking water treatment has saved millions of American lives since it was first introduced in 1908 to combat waterborne diseases like cholera, typhoid fever, and dysentery. Today, the vast majority of public water systems in the United States use chlorine to ensure that their customers are protected from these and other waterborne diseases. Here in Littleton, we add low doses of chlorine to the water at all of our well sites to ensure that the water delivered to your tap is free from bacteria and other potential disease - causing organisms.



In addition to its disinfection abilities, chlorine also oxidizes many contaminants from their dissolved to particulate forms, making it easier for them to be removed. For example, at our new Beaver Brook Treatment Facility, we use chlorine to convert dissolved iron and manganese to their particulate forms, which can then be removed through a filtration process to further purify your water.

As part of a multi-barrier approach to ensuring safe drinking water, chlorine treatment is the critical second line of defense after our award-winning source water protection program that minimizes the potential for contamination of our wells from surrounding land uses.

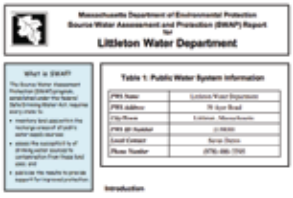
How Are These Sources Protected?

MassDEP has prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving this water system. The SWAP Report assesses the susceptibility of public water supplies.

What is My System's Ranking?

A susceptibility ranking of high was assigned to this system using the information collected during the assessment by MassDEP. The growth of industrial, commercial and residential development in Littleton is the main cause for this ranking. As stated in the sidebar, we have a comprehensive source water protection program to ensure LWD water sources meet safe drinking water standards.

Where Can I See The SWAP Report?


Littleton Water Department

The complete SWAP report is available at the Littleton Water Department and online at http://bitly.com/LittletonSWAP

For more information, call Corey Godfrey at 978-540-2222.

Important Definitions

Maximum Contaminant Level (MCL) - 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.

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 (chlorine, chloramines, chlorine dioxide) allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) - The level of a drinking water disinfectant (chlorine, chloramines, chlorine dioxide) below which there is no known of expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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

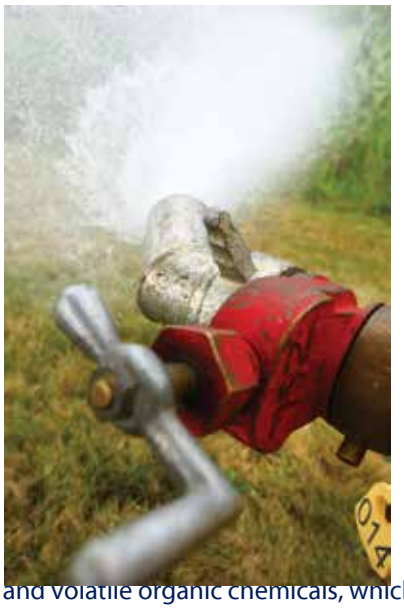
90TH Percentile - Out of every 10 homes sampled, 9 were at or below this level.
ppm = parts per million, or milligrams per liter (mg/l)
ppb = parts per billion, or micrograms per liter (ug/l)
ppt = parts per trillion, or nanograms per liter (ng/l)
pCi/l = picocuries per liter (a measure of radioactivity)
N/A = Not Applicable
mrem/year = millimrems per year (a measure of radiation absorbed by the body)

Secondary Maximum Contaminant Level (SMCL) – These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

Health Advisory (HA) - Health advisories provide information on contaminants that can cause human health effects and are

Substances Found in Tap 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 from 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.

In order to ensure that tap water is safe to drink, the Department of Environmental Protection (MassDEP) and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. 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 Water Hotline (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 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 (800-426-4791).

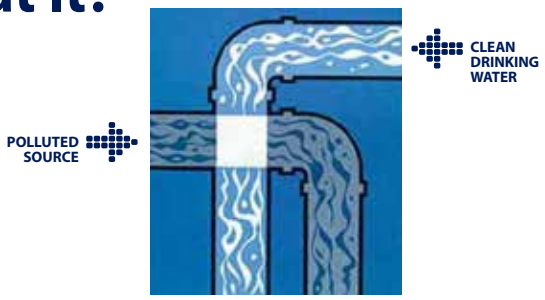
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. LWD is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

Important Definitions
(continued)

known or anticipated to occur in drinking water. EPA's health advisories are non-enforceable and non-regulatory and provide technical information to states agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination.

Massachusetts Office of Research and Standards Guideline (ORSG) – This is the concentration of a chemical in drinking water, at or below which, adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

What Is a Cross Connection? What Can I Do about It?



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, a lawn fertilizer sprayer connected to a hose can cause fertilizer to be pulled into the home's water pipes and into the water system if the pressure suddenly drops, which could happen with the use of a fire hydrant. Using a backflow prevention device can prevent this problem.

LWD recommends the installation of backflow prevention devices, such as a low cost hose bib vacuum breaker, for all inside and outside hose connections. They are available at hardware or plumbing supply stores. This is a great way for you to help protect the water in your home as well as the drinking water system in your town.

For additional information on cross connections and on the status of your water system's cross connection program, please contact Kevin Hunt at 978-540-2222.

Does My Drinking Water Meet Current Health Standards?

We are committed to providing you with the best water quality available. We are proud to report that last year your drinking water met all applicable health standards regulated by the state and federal government.

Do I Need To Be Concerned About Certain Contaminants Detected?

Sodium sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the sodium levels where exposures are being carefully controlled.

Water Conservation

Notification of any mandatory outdoor water use restrictions, should they occur, will be provided via our Community Notification System, our website, and sandwich boards around town. Please visit www.lelwd.com and enroll in our Community Notification System now to ensure you receive the latest information on water use restrictions, water main breaks, power outages, and other emergency situations.

We ask that all residents limit outdoor water use on Mondays in order for the system to recover from higher weekend water usage and apply sound conservation practices throughout the season in order to help us meet the 65 gallon per person per day residential consumption requirement imposed by MassDEP. If this level is exceeded, the state will require a 6 day per week watering ban next summer.

Please do your part by following outdoor water conservation tips:

- **Lawn watering –** Daytime watering is costly and wasteful. Water in the early morning or evening when evaporation rates are lowest. One inch of water per week is all that is generally necessary to maintain your lawn. Avoid over-watering by using a rain gauge or coffee can to measure the volume of water being applied. As a general rule, lawns only need watering every five to seven days in the summer. A hearty rain eliminates the need for watering for as long as two weeks.
- **Lawn care** – Allow your grass to grow taller in hot dry weather. Longer grass means less evaporation and will encourage roots to grow deeper leaving your lawn more drought-tolerant.
- **Car washing** – Use a bucket to wash. Keep a nozzle on your hose. Do not let water run when not in use.
- **Pool** – Use a pool cover to keep water clean and reduce evaporation.
- **General Maintenance** – Use a broom instead of a water hose to clear debris from patios, driveways, and sidewalks.
- **Landscaping** – Plant trees to provide shade; decrease lawn area; use drought-resistant shrubs; increase areas of ground cover; spread mulch.
- **Valves and hoses** – Check outdoor pipes, hoses, and faucets for leaks.

What Does This Data Represent?

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 the last calendar year unless otherwise noted in the tables. MassDEP has reduced the monitoring requirements for asbestos, inorganic contaminants, synthetic organic contaminants, nitrite, and radionuclides because the source is not at risk of contamination.

Water Quality Testing Results

	Date(s) Collected	90TH Percentile	Action Level	MCLG	# of Sites Sampled	# of Sites Above Action Level	Possible Source of Contamination
Lead (ppb)	2019	3	15	0	20	0	Corrosion of household plumbing systems
Copper (ppm)	2019	0.44	1.3	1.3	20	0	Corrosion of household plumbing systems

Regulated Contaminant	Date(s) Collected	Highest Result or Running AVG Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Inorganic Contaminants							
Arsenic (ppb)	2019	1	N/A	10	----	N	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	2018	0.046	N/A	1	2	N	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Nitrate (ppm)	2019	1.1	0.48 - 1.1	10	10	N	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Perchlorate (ppb)	2019	0.17	N/A	2	N/A	N	Rocket propellants, fireworks, munitions, flares, blasting agents
Volatile Organic Contaminants							
Tetrachloroethylene (PCE) (ppb)	2019	0.79	N/A	5	0	N	Discharge from factories and dry cleaners; residual of vinyl-lined water mains
Radioactive Contaminants							
Gross Alpha (pCi/l)	2018	3.2	N/A	15	0	N	Erosion of natural deposits
Radium 226 & 228 (pCi/L) (combined values)	2018	3.9	N/A	5	0	N	Erosion of natural deposits
Disinfectants and Disinfection By-Products							
Total Trihalomethanes (TTHMs) (ppb)	2019	18.9	N/A	80	----	N	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	2017	1.07	N/A	60	----	N	Byproduct of drinking water disinfection
Chlorine (ppm) (free)	Monthly in 2019	0.13	0.02 - 0.43	4	4	N	Water additive used to control microbes

Unregulated contaminants are those for which there are no established drinking water standards. The purpose of unregulated contaminant monitoring is to assist regulatory agencies in determining their occurrence in drinking water and whether future regulation is warranted.

Unregulated and Secondary Contaminants	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source(s) of Contamination
Inorganic Contaminants						
Sodium (ppm)	2018	41.4 - 55.9	49.7	----	10	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Nickel (ppb)	2014	N/A	22	----	100	Discharge from industrial processes
Other Organic Contaminants - When detected at treatment plant as VOC residuals, not TTHM compliance						
Bromodichloromethane (ppb)	2019	1.1	N/A	----	----	By-product of drinking water chlorination
Bromoform (ppb)	2019	0.51 - 0.8	0.66	----	----	By-product of drinking water chlorination
Chlorodibromomethane (ppb)	2019	1.6	N/A	----	----	By-product of drinking water chlorination
Chloroform (ppb)	2019	.5	N/A	----	----	By-product of drinking water chlorination
Secondary Contaminants						
Iron (ppb)	2019	86 - 157	117.5	300	----	Naturally occurring
Manganese* (ppb)	2019	23 - 110	59.8	50	Health Advisory of 300 ppb	Erosion of natural deposits
Radioactive Contaminants						
Radon (pCi/l)	2018	975	N/A	----	10,000	Natural Sources

* US EPA has established a lifetime health advisory (HA) value 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.

Unregulated Contaminants	Date(s) Collected	Result or Range Detected	Average Detected	ORSG	Possible Source(s) of Contamination	Health Effects
PFOS, PFOA, PFNA, PFHxS, PFHpA (combined) (ppt)	2019	5.3 – 25	14	70*	Man-made chemicals. Used as surfactants to make products stain or water resistant, in fire- fighting foam, for industrial purposes, and as a pesticide. Used in fluoropolymers (such as Teflon), cosmetics, greases and lubricants, paints, adhesives and photographic films.	Long-term exposure to PFAS in drinking water may affect the liver, cholesterol levels, development, immune function, neurological function and may be associated with cancer. PFHpA and PFNA not well studied, but are structurally very similar to the other PFAS here and may have similar effects.
PFOS, PFOA, PFNA, PFHxS, PFHpA (combined) (ppt)	2019	1 - 2.8	2	--	Manmade chemical; used in products to make them stain, grease, heat and water resistant.	Based on studies of laboratory animals, people exposed to elevated levels of PFBS for several years could experience effects on the liver, blood and kidneys. Various lines of evidence indicate PFBS is less toxic than the other PFAS considered here.
PFOS, PFOA, PFNA, PFHxS, PFHpA (combined) (ppt)	2019	2.2 - 4.9	4.1	--	Directly emitted to the environment or are formed indirectly from the environmental degradation or metabolism of precursor substances. Some are or have been used in a wide variety of industrial and consumer applications.	Not well studied. Insufficient information to assess effects but maybe similar to those of PFOS and PFOA. Potencies may differ.

***PFAS contaminants.** Our system, out of an abundance of caution and the location of potential sources of Per- and PolyFluoroAlkyl Substances (PFAS) in proximity to one or more of our sources sampled for PFAS compounds during 2019. PFAS are unregulated contaminants for which there are no established drinking water standards. The purpose of unregulated contaminant monitoring is to assist regulatory agencies in determining their occurrence in drinking water and whether future regulation is warranted. However, US EPA has set a Health Advisory (HA) of 70 parts per trillion (ppt) for PFOS and PFOA and in 2018 MassDEP's Office of Research and Standards set an Office of Research and Standards Guideline (ORSG) of 70 ppt for five PFAS compounds: PFOS, PFOA, PFNA, PFHxS and PFHpA individually or as a group. In 2019 our system's reported PFAS results were less than the 70 ppt US EPA HA and MassDEP's ORSG. On January 27, 2020, MassDEP issued an updated (ORSG) for drinking water of 20 ppt for six PFAS compounds, PFOS, PFOA, PFNA, PFHxS, PFHpA, and PFDA. Our system was aware of this pending update and issued a notice to consumers when it learned that the Spectacle Pond well's PFAS levels exceeded 20 ppt and subsequently removed the well from service on September 31, 2019. Since the well was removed from service, our system's reported PFAS results have been less than MassDEP's updated ORSG of 20 ppt.

If you are a sensitive consumer (pregnant women, nursing mothers, and infants) you can minimize your exposure by using bottled water that has been tested for PFAS for drinking, for making infant formula and cooking foods that absorb water. Please consult your health practitioner if you have any health related questions. For a consumer factsheet on PFAS see https://www.mass.gov/doc/massdep-fact-sheet-pfas-in-drinking-water-questions-and-answers-for-consumers/download

LWD Takes Action to Address PFAS

LWD took immediate action to reduce PFAS in Littleton's water supply by removing the well from service, then rapidly building a pipeline to blend water from the Beaver Brook wells with water from the Spectacle Pond well in order to reduce PFAS levels below 20 ppt. In addition, we are currently designing a permanent PFAS treatment and removal system to be included in the new Whitcomb Ave Treatment Plant. This new facility will ensure that PFAS is removed from both the Spectacle Pond well and the Whitcomb Ave wells, in addition to iron, manganese, and arsenic being removed from all of these wells. For more information on the steps LWD has taken to address PFAS, visit https://www.lelwd.com/pfas

In November 2019, crews completed the removal of the old town highway garage on Whitcomb Avenue, as shown in these before and after photos. The property is being restored to a natural state to protect the nearby drinking water wells. Removal of the garage and impervious surfaces is important because they were located within the Zone 1 aquifer protection area and wetland resource areas. The new treatment plant will be built in the field across the street.

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