



BURLINGTON, MA

Final Report

OCTOBER 2024

Lead Service Line Inventory and Replacement Plan



Lead Service Line Inventory and Replacement Plan

BURLINGTON, MA

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List of Abbreviations

LCR	Lead and Copper Rule
LCRR	Lead and Copper Rule Revisions
LSLR	Lead Service Line Replacement
LCRI	Lead and Copper Rule Improvements
ULSL	Unknown lead service line(s)
SRF	State Revolving Fund
DWSRF	Drinking Water State Revolving Fund
USEPA	U.S. Environmental Protection Agency
CIP	Capital Improvement Plan
ALB	After lead ban
PLB	Pre-lead ban
WP	Wright-Pierce
LSLI	Lead Service Line Inventory
LSLRP	Lead Service Line Replacement Plan
PWS	Public Water System
MassDEP	Massachusetts Department of Environmental Protection
GRR	galvanized requiring replacement

Section 1 Introduction

The Lead and Copper Rule (“LCR”), first promulgated in 1991, was enacted by the USEPA to protect public health and reduce exposure to lead and copper in drinking water. The LCR requirements are applicable to community water systems, non-transient, non-community water systems and state and tribal agencies which are responsible for instituting drinking water regulations. In January 2021, the USEPA published the Lead and Copper Rule Revisions (“LCRR”), the first major overhaul of the LCR since its publication. The LCRR aims to better protect children at elementary schools and childcare facilities, get the lead out of the nation’s drinking water, and empower communities through information. Through the LCRR, the USEPA has instructed the nation to develop a Lead Service Line Inventory (LSLI) and a Lead Service Line Replacement (LSLR) plan. The LSLI and LSLR plan are intended to guide water utilities in the complete removal of lead products from drinking water systems. Water systems have until October 16, 2024, to develop and submit LSL inventories and replacement plans after which time LSL replacement will be required if water quality sampling results exceed a defined trigger level. EPA is in the process of providing additional guidance through a new rule, Lead and Copper Rule Improvements (LCRI), which is expected to be issued prior to the October 2024 deadline.

Lead and copper containing plumbing can corrode and leach particulates into drinking water, which poses a threat to human health. The most common sources of lead in drinking water are lead pipes and brass or bronze faucets and fixtures. Lead containing pipes are most commonly water service lines that convey water from a publicly owned water main to an individual property. The LCRR requires utilities create an inventory of the service lines in their water systems and identify which service lines contain lead. Subsequently, the LCRR requires utilities to develop an LSLR plan which details how the utility intends to remove identified lead containing service lines from their systems. The LCRR requires systems to remove the entire LSL, including both the portion of the service line on public property and the portion of the service line on the property owner’s private property. In many cases LSLs may terminate at the water meter requiring entry into a private residence to remove the entirety of the line.

Section 2 Background

2.1 System Background

The Town of Burlington Department of Public Works (the Town) maintains a water distribution system dating back to 1954, consisting of approximately 120 miles of distribution mains. The system serves approximately 26,500 people in Burlington and 0 wholesale customers. Customer types include residential, commercial, and municipal. The system has 7,196 known service line connections as summarized in [Table 2-1](#).

Table 2-1 System Overview

Oldest Water Main Age	Miles of Pipe in System	Population Served	Number of Towns Served	Number of Wholesale Customers	Customer Types	Total Service Line Connections
1954	120	26,581*	1 - Burlington	0	Residential Commercial Municipal Institutional	7,196

* Based on 2023 ASR

2.2 Proposed Scope of Work

The following scope outlines the proposed tasks to identify LSLs throughout Burlington's water system and reduce the number of unknown lead service lines (ULSL). The state has made DWSRF funding available to identify lead service lines from the municipal water system to the water meter and the purpose of this project and program is to identify locations and prioritize replacement of known lead service lines.

2.2.1 Task 1 – SRF Loan Application and Coordination

Under Task 1, we prepared and assisted with filing an SRF grant funding application for the Town and facilitated with payment requests and loan requirements.

2.2.2 Task 2 – Data Collection and Development of a Lead Service Line Inventory

Under Task 2, we coordinated with the Town who assisted with data collection and we developed an inventory of their water services to identify the locations of known lead service lines within the 7,196 water accounts. By going through the Town's data we were able to reduce the number of suspect lead service lines or service lines with an unknown status. Our efforts under Task 2 included:

- Coordinated a kickoff meeting with the Town
- A review of the Town's database of tie cards and create an Excel database for use in subsequent tasks.
- A review of the Town's assessor database and aerial photos to identify properties built after key lead service line dates to reduce potential buildings for follow up inspections. Key dates included; before 1940 when lead pipes were used in Massachusetts, before 1986 when lead solder was used. On a local level, the Burlington DPW took control of water services in 1986 and began the standard of putting in 1" copper pipe for any new residential service.
- A review of the Town's existing Assessor's and utility GIS databases.
- Collected and reviewed record files and work orders related to the repair or replacement of lead service lines.
- A review of the Town's water billing data, including material information and installation dates.
- Developed Screening Criteria.

- Development of GIS Database and Ranking including mapping of sensitive populations (including childcare facilities, schools, hospitals, and nursing homes and other elderly-care facilities) and overlay with the following items:
 - Collected existing GIS housing data from the Town consisting of building type and year of construction. Created a systemwide map based on data.
 - Plotted known LSLs and ULSL data on the system map.
 - A review of water main installation, housing, and service line data to see if a correlation between housing type and year of construction relates to LSLs.
 - Using the data above, identified potential homes that could have LSLs and homes that are unlikely to have LSLs.
 - Plotted lead and copper sampling data on system map to see if a correlation exists between higher lead and copper sampling data and location of known lead services.
- Updated the MassDEP lead service line inventory database.

2.2.3 Task 3 – Validation of Unknown Services

Under Task 3 water service material of suspect and unknown lead services identified in Task 1 were further explored. First, a review of available private water service materials using available data and photos from the most recent water meter replacement program was conducted as the Town changes out meters annually based on age, water usage, and condition. Service tie card records were reviewed and developed into a spreadsheet specifying service line material identified during meter replacement. Based on the data collection and review, an updated lead service inventory database was developed to include known homeowner service materials.

Service materials that are unable to be identified following this effort will be labeled as unknown. Future efforts to determine these unknown service materials will be conducted in the near term.

2.2.4 Task 4 – LSL Replacement Plan

Based on the data collected in the prior Tasks, a service line replacement priority list was developed and includes the following tasks:

1. Identify strategy to determine material of remaining unknown services.
2. Development of LSLR prioritization list. Prioritization criteria may include:
 - a. Lead and Copper Rule Revision's site selection criteria tiers.
 - b. Ability to replace entire LSL (customer buy-in/approval to remove portion of LSL on customer's property).
 - c. Prioritization of any LSL that may impact a childcare facility, school, elderly care facility, or hospital.
 - d. LSLs in areas of the highest rate of children under 18.
 - e. LSLs in areas with the highest density of LSLs.
 - f. Difficulty of replacement.
 - g. Cost of replacement.
 - h. Customer desire to replace LSL.
 - i. Compatibility of LSLR project with other planned local or state infrastructure projects which may interface with the LSLR program.
3. Incorporate projected water meter replacements.
4. Development of general procedure for replacing LSLs, including:
 - a. Property owner/resident notification, outreach, and education.
 - b. Scoping of replacement of LSL for a property.

- c. General service line replacement procedure.
- d. Providing pitcher filters or cartridge filters to customers for 6 months post-replacement (including instructions for use). Pitcher and/or cartridge filters will be provided by the Town.
- e. Action plan if post-replacement tap sample is above trigger level.

Section 3 Lead and Copper Rule

3.1 Existing Conditions under the Previous Lead and Copper Rule Revisions

The EPA created the original Lead and Copper Rule in 1991 to limit the volume of the two contaminants found in drinking water. The rule sets the Maximum Contaminant Level Goal (MCLG) for lead to non-detect and an action level for lead of 0.15 mg/L and 1.3 mg/L for copper. For a system to be in compliance, the concentration of lead and copper must be less than or equal to the action level in at least 90% of the samples (90th percentile sample). The number of samples taken is dependent on the size of the water system and samples are taken every six months. The sampling sites are chosen to be locations with higher likelihood of lead or copper detections. The number of samples taken can be reduced by half and the frequency can be reduced to annual, triannual, or every nine years if the criteria below is met.

Criteria to reduce to annual sampling:

- The system services under 50,000 people, and
- The lead and copper sample results are less than the action level for two consecutive 6-month monitoring periods; or
- The PWS meets optimal water quality parameters and lead sample results are less than the action level for two consecutive 6-month monitoring periods.

Criteria to reduce to triannual sampling:

- The Town must serve less than 50,000 people and the lead and copper action levels have not been exceeded in three years, or
- The lead concentration has been below the action level and the pH, alkalinity, calcium, and orthophosphate/silica have met their optimal water quality standard for the last three years of sampling, or
- Systems with 90th percentile concentrations of lead below 0.005 mg/L and copper below 0.65 mg/L for two consecutive 6-month sampling periods.

Criteria for sampling every nine years:

- N/A for Burlington since one of the requirements is that the system serves less than 3,300 people.

For 90th percentile exceedances of the action levels, the water supplier must then take samples within six months of the exceedance to determine the contribution of lead or copper from the source water. The water supplier has two years from the initial exceedance to implement source water treatment which may include corrosion control treatment. The state will set a maximum permissible level for the compound based on the concentration of the detected contaminant in the source water. Upon a lead exceedance a public education campaign must begin. This includes mailers sent to each bill paying customer, and a notice with each water bill. The system must also work with local agencies to target and reach out to at risk populations like the elderly and youth.

If lead exceedances continue after the implementation of source water and corrosion control treatment, lead service line replacements will be required to remove lead from the distribution system. The lead service line replacement will be required until the lead samples taken are below the action level for two consecutive 6-month samples. Seven percent of the lead service lines are expected to be replaced annually.

It is important to note that the Town adds corrosion control chemicals by adding 100% orthophosphate at their MWRA interconnection and adding a blended poly-orthophosphate product to the finish water of the Mill Pond water treatment plant.

3.1.1 Sampling Requirements

The Town serves approximately 26,500 people. A system of that size is required to have 30 sample taps included in the lead and copper testing. After the Town took the Vine Brook water treatment plant offline and connected to the MWRA in 2023, the Town updated their LCR sampling locations. The Town last sampled their system in 2023.

3.1.2 Past Results

The Town has tested below the action level for both lead and copper in all sampling events that have occurred as of 2023. The results of each lead sample are shown in **Table 3-1**.

Table 3-1 Historic Lead Sampling

Date	Number of Samples	Minimum	Maximum (mg/L)	90 th Percentile (mg/L)
9/8/2014	34	ND	0.030	0.002
9/1/2017	38	ND	0.004	0.001
12/28/2022	33	ND	0.005	0.001
12/14/2023	34	ND	0.004	0.002

Each result shows a 90th percentile lead concentration below the action level of 0.15 mg/L. Results from the last decade show that the 90th percentile has been between 0.001 mg/L and 0.002 mg/L. The highest result since 2014 has been 0.030 mg/L, below the action level.

3.2 Lead and Copper Rule Revisions

The Lead and Copper Rule Revisions (LCRR) changed several key components of the Lead and Copper Rule (LCR). Significant updates include:

- Defining a lead trigger level that initiates additional planning, monitoring, and treatment requirements.
- The original 90th percentile (P90) level above the action level requires more action than previously.
- Reprioritizes tap monitoring samples to focus more on LSLs and changes the tiering criteria. Also changes procedure for additional actions if individual samples exceed the trigger level.
- Changes collection procedure to fifth liter sampling.
- Changes monitoring frequency and corrosion control requirements for lead.
- Added a requirement to review sanitary surveys.
- If an individual sample exceeds 0.0015 mg/L, follow up samples and additional actions will be required.
- Added requirements for the lead service line inventory, replacement plan, and outreach.
- Allows systems falling into certain categories to select their approach to address lead with primacy agency approval.
- More information about these changes can be found at (https://www.epa.gov/sites/default/files/2020-12/documents/reference_guide_for_pwss_12.21.20.pdf).

3.3 Massachusetts Requirements

MassDEP follows the EPA LCRR requirements. However, MassDEP Drinking Water Program encourages PWSs to submit their draft inventories by April 1st, 2024, in order to give enough time to receive technical assistance if needed.

Additionally, MassDEP has developed the MA Lead Service Line Identification (MA-LSLI) Web App to help survey water customers on the material of their service line. The app conducts a survey which asks homeowners to provide information about their address, the year their home was built, what material they believe they have as their water service line and asks them to attach a picture of the service line at the meter. More information about the homeowner assessment app can be found in [Section 5](#).

MassDEP has also developed a variety of guidance regarding the LCRR and the LSLI. These include infographics, brochures, and outreach, as well as a unique template for the inventory. Additionally, MassDEP has made funding available for the service line inventory and the preparation of the lead service line replacement program.

Section 4 Inventory

4.1 Methods

Wright-Pierce worked with the Town to create a thorough inventory of their service lines. The methods used to create the inventory, including how the data was collected, organized, and what assumptions were made are summarized below.

4.1.1 Data Collection

Several methods of data collection were used to create the most accurate inventory with the data available. The methods of data collection; including the types of data used, their sources, and how data was organized; are summarized below.

4.1.1.1 Town Ordinances or Statutes

When consulting with the Town, they were asked if they had any historical ordinances, statutes, or codes in place from prior to the lead ban to determine if a standard for water services was used. The Town did not have any historical ordinances or statutes in place to this effect. However, it has been the policy of the Town to use 1" copper services on any new construction and to check that both sides are copper on reconstructions where the private side would be replaced. The Burlington Department of Public Works took over control of water services from the Building Department in 1986. The Building Department's records do not state if they had a standard similar to the Department of Public Works.

4.1.1.2 Meter Data

Wright-Pierce obtained data for the inventory through customer meter data, provided by the Town. The Town utilizes a database known as Workforce for their record keeping information. Data obtained through the Town's meter data included meter numbers, addresses, private side service line material, building type, and meter coordinates. This data was used to populate the site identification (ID) number, locational identifier, private service line material, and building type columns; columns A, B, J, and P respectively. It was also used to obtain a complete list of customers who are connected to water mains (as opposed to private wells). This information was inputted into the inventory as a record review.

4.1.1.3 Meter Replacement Program

When the Town went through their most recent meter replacements in 2010 by Neptune, data was collected from each water service. When replacing the meters, the contractor entered each home or business and photographed and tabulated the materials and sizes of the private side connections to the meter. Records included photos of meters, meter numbers, addresses, type of service, service line material, and service line size. This information was inputted into the inventory as record data. Lead services found during the meter replacement program were further investigated. Services found to be lead, after confirmed by a Town inspection, were replaced in full.

4.1.1.4 Geographic Information System (GIS) and Town Assessor

Wright-Pierce analyzed the Town's GIS data in order to obtain the dates for when water mains were installed. In 1986 Congress amended the Safe Drinking Water Act banning the use of pipes, solder or flux which were not "lead free" in plumbing for drinking water use. "Lead free" was defined at the time as solder or flux with no more than 0.2% lead and pipes with no more than 8%. Therefore, if GIS suggests that water mains have been repaired or replaced at any time from 1987 to now, it is determined that the public side of the water service line was also replaced as part of the water main installation and the public side of the water services is considered "lead free".

Similarly, the Town Assessor database includes building construction data. Any structures built after the lead ban are deemed as having non-lead services. This information was also inputted in the inventory as a record review.

4.1.1.5 Lead and Copper Sampling

Lead and copper sampling data from the Town provided up-to-date information of laboratory results of lead throughout the system. Information from the sampling data was used to populate column C in the inventory. Lead sampling results were used to identify neighborhoods with concentrations of lead hits where lead pipes may still remain. This information was used to inform the prioritization in Section 6. The Town is required as part of their Lead and Copper Sampling Plan to take thirty samples. In recent sampling cycles thirty-four samples have been taken.

Lead sampling results show that homes built in 1984 and 1985 were found to have the highest lead results. Prioritization for neighborhoods with large concentrations built during that time period will be included in future planning efforts.

4.1.1.6 General Records Review

The Town was able to provide general records such as water main repairs, water main materials and ages, recent main replacements plans, and recent main construction plans. Gooseneck material was used to populate columns D (connector currently present) and E (connector material). Recent water main repair information (post-lead ban date) was used to update public side service line information since water main repairs/replacement include water service replacement from the water main to curb stop. The ages and materials information of water mains identified water mains that were constructed after either the lead ban, or after the town adopted practices of only using copper services along with ductile-iron water mains. Construction plans were used to determine the material and installation year of the public sides of water services. Work permits from the town, from 1986 and on, were used to confirm water service line material and installation date. Wright-Pierce elicited the help of a subcontractor, Stacey DePasquale Engineering, to assist in processing this information. The subcontractor also fulfilled the SRF Disadvantaged Minority/Women Business Enterprise requirements.

4.1.1.7 Town Confirmation

After using the Town's records, only a handful of private side services were left unconfirmed. A representative from the Town reached out to the homeowners with unidentified private side materials and set up times to confirm the materials of those homes.

4.1.2 Data Organization

To organize the data collected, Wright-Pierce filled out the Service Line Inventory Excel Workbook as provided by MassDEP. The workbook was downloaded from the Mass.gov website and the start-up instructions were followed to characterize the system with its PSW ID # and the threshold number of multi-family residences in the PWS. The workbook is macro-enabled with dropdown options for many of its columns. Wright-Pierce was able to transfer information the Town provided directly into the inventory, then revise the data to follow MassDEP's guidelines. Any work that subcontractors performed for the project was able to be merged directly into one inventory. When all data was inventoried, Wright-Pierce used the Inventory Validation feature to ensure all inputs were valid. Finally, the workbook was exported to MassDEP through the workbook's export feature according to the directions provided by MassDEP. A summary of the results is described and included below.

4.1.3 Conclusions

While filling out the inventory, Wright-Pierce made a few conclusions to create the most thorough and complete inventory possible. A summary of the conclusions made are noted below.

- When the Town replaces a water main, they also replace the water services on the public side from the water main to and including the curb stop. If a water main was replaced ALB (after lead ban), the public side of the water services were also replaced ALB and therefore are non-lead.
 - Ductile-iron (DI) water mains are the Town's current standard. This standard was adopted after the copper service standard was adopted by the Town. Therefore any DI water main would have only copper services connected to it.
- The building-built year was obtained from the Town Assessor. If the building was built ALB, the services were also installed ALB (1986). Also ALB, the DPW took over the oversight of water services where they standardized the use of copper for all water services. Likewise, if the building was built PLB (pre-lead ban), the services were also installed PLB and therefore could potentially contain lead unless upgraded/replaced and documented in later work-orders.
- The building-built year was used for the house plumbing install date.
- Where no evidence of there being a previous lead line was found, the site was marked as having never had a lead line previously.
- Where the public side material was copper, plastic, or unknown non-lead, the site was marked as not having a gooseneck.
- Where the service material size was known to be $\frac{3}{4}$ " but the service material was unknown, the service material was marked as non-lead. $\frac{3}{4}$ " pipes are plastic or copper, but never lead or galvanized.
- When a service was replaced on the private side after the DPW took over service oversight, the Town required both sides of the curb stop to be confirmed to have copper, otherwise they would both be replaced. Therefore, any homes built or rebuilt after 1986 are assumed copper.

4.2 Results

Table 4-1 below summarizes the findings and [Appendix A](#) shows a map marking which parcels are indicated as each service line classification.

Table 4-1 Inventory Results

Category	Number of Services
Total Inventoried Services	7196
Known lead and galvanized requiring replacement (GRR) connections	2
Public side - not lead	2475
Public side – unknown, potentially lead	4721
Public side – galvanized	0

Category	Number of Services
Private side – not lead	7196
Private side – unknown, potentially lead	0
Private side - galvanized	2

Section 5 Homeowner Self-Assessment Program

The homeowner's self-assessment was not performed in Burlington. The 2010-meter replacement program left only 17 services without a confirmed private side non-lead service. All services constructed after this meter replacement project are copper as per a Town policy that began in 1986. The Town decided that instead of a homeowner's assessment, a representative from the Town contacted each of the homeowners and set up a time to manually check each of the homes for private side material. The homes were visited between February and March of 2024 and all confirmed to be non-lead.

Section 6 Replacement Plan

6.1 Verification of Remaining Unknowns

The Town will take steps to verify the remaining unknown service line materials. These steps may include but are not limited to:

- Test pits / hydroexcavation
- Water quality sampling
- Probe-based measurement of electrical resistance to verify material, i.e., ElectroScan
- Machine learning or predictive modeling
- Homeowner basement/meter pit inspections
- Identification and documentation during normal operations, such as:
 - Water meter reading, repair, or replacement
 - Service line repair or replacement
 - Water main repair or replacement
 - Blackflow prevention inspections
 - Any other capital improvement project or street repair project with excavation

These methods will be utilized based on funding availability and utility capacity.

6.2 Prioritization

Replacement of lead service lines will be prioritized for areas of the communities with higher concentrations of the most vulnerable populations. According to the EPA, states must prioritize schools and child care program in low-income areas (i.e. schools with at least 50% of the children receiving free and reduced lunch and Head Start facilities), elementary and childcare programs that primarily care for children 6 years and under, older facilities that are more likely to contain lead plumbing, and schools and childcare facilities built before 1988 that are more likely to have lead pipes, fixtures, and solder. Also EPA recommends to prioritize elderly care facilities, hospitals, and youth centers; as lead in drinking water affects the elderly and children under 6 years of age the most. Other vulnerable populations, such as people living at or below the poverty line and historically disadvantaged communities should be prioritized as well.

The Town contains several of the aforementioned facilities that will be targeted for lead service line replacement first. Also prioritized will be neighborhoods that were shown to have at least one elevated sample of lead during the Town's lead and copper sampling.

6.3 Procedure

The Town's lead service line removal plan incorporates the MassDEP goal of protecting public health by planning to remove all lead service lines in 5 years. This will be completed by verifying unknown materials during routine service line replacements, repairs, and meter replacements and readings.

Efforts to replace any lead service lines or GRR will commence upon final verification of said material in the field. If lead or GRR service lines are found during vacuum excavation, the Town will begin coordination with the homeowner for replacement of the water service from main line to the meters (as needed). Service lines with any amount of lead line or GRR lines will be replaced from main to the curb stop (by Town) and from the curb stop to

the meter (coordinated between the Town and homeowner), with 1" copper pipe. Lead goosenecks will be replaced if found.

6.4 Funding

The Bipartisan Infrastructure Law presents a historic opportunity to address lead challenges in communities across America. The Bipartisan Infrastructure Law provides \$15 billion through EPA's Drinking Water State Revolving Fund (DWSRF) in the form of grants and loans to water systems for lead service line replacement (LSLR). Forty-nine percent of this funding must be provided to disadvantaged communities (as defined by the state) as grants or principal forgiveness loans—which can provide a pathway for underserved communities that might not otherwise have access to funding for water infrastructure upgrades. Eligibility requirements and DWSRF application instructions can be found on the Mass.gov website.

Going through the Division of Municipal Services (DMS) and the Massachusetts Clean Water Trust (CWA) can take upwards of two years to acquire the funds needed to begin the work for LSLR projects. As such, it is recommended that towns stay proactive as opposed to reactive and apply for DWSRF assistance before LSLR becomes the town's top priority.

While the DWSRF is seen as the primary source of funding for LSLR related work, it is possible for municipalities to use money from other sources to pay for any LSLR projects. Private bank loans and dipping into the town's general fund are other options for payment, but these methods do not provide grant money or reduced interest rates that are given by DWSRF funds. It is highly recommended that all communities, particularly those that are identified as disadvantaged, take advantage of DWSRF funding where applicable.

Section 7 Lead Sampling Requirements

The Lead and Copper Rule Revisions (LCRR) were published by the EPA in December of 2021. The goal of the revisions is to begin a proactive approach to lead removal from drinking water. Lead in any concentration is known to have a negative effect on those exposed. The goal of the regulation is to remove all lead from drinking water before an exceedance of lead is discovered. Under the old LCR, only under an exceedance of 0.015 mg/L or greater dose any lead within a water system have to be replaced, if that concentration is not reached, the lead services were allowed to remain. Under the new LCRR, if the trigger level of 10 ppb is exceeded, the system will fully replace a goal % of service lines annually. The goal is set by the state and the system. If the action level if 15 ppb is exceeded, 3% of lines are required to be fully replaced annually. 20% of schools and childcare facilities must be tested annually. Additional Lead and Copper Rule Improvements (LCRI) are planned to be finalized by October 16, 2024.

The proposed LCRI requires mandatory full-service line replacement of lead and GRR service lines under a water system's control with limited exceptions, regardless of the system's 90th percentile lead level. The proposed LCRI would set a national minimum average annual service line replacement rate of at least 10%. The proposed LCRI is expected to require five liters of samples to be taken with lead testing being done of the first and fifth sample, with the higher of the two being used in the 90th percentile calculation. Additionally, samples are expected to be required in schools and childcare facilities. The sampling requirements are expected to be finalized before the October 16, 2024, deadline along with the LCLRP requirements so that distributors have time to prepare their replacement and sampling plans.

Section 8 Customer Notification

8.1 Education and Outreach

Within 30 days after submitting the service line inventories to MassDEP in 2024, the Town is required to inform all persons with a lead or unknown service line status that their service line may potentially contain lead. This notification must be repeated every year until there is no longer any lead, GRR, or lead status unknown service line in the PWS distribution system. The notice must include:

- A statement that the service line material is unknown but may be lead
- An explanation of the health effects of lead (this will meet requirements of section 141.85 (a)(1)(ii))
- Steps a person at the service connection can take to reduce exposure to lead in drinking water
- Information about the opportunities to verify the material of their service line

The Town will certify that they have delivered the initial and annual consumer notifications and lead service line informational materials to consumers that have a lead status unknown service line to MassDEP and provide a copy of the notification and informational materials by July 1st for the previous calendar year.

If the Town causes disturbance to a lead, GRR, or lead status unknown service line that results in the water to an individual service line being shut off or bypassed, such as operating a valve on a service line or meter setter, and without conducting a partial or full lead service line replacement, must provide the persons served by the water system at the service connection with information about the potential for elevated lead levels in drinking water as a result of the disturbance as well as instructions for a flushing procedure to remove particulate lead. The water system must comply with these requirements before the affected service line is returned to service.

If the disturbance of a lead, GRR, or lead status unknown service line results from the replacement of an inline water meter, a water meter setter, or gooseneck, pigtail, or connector, the water system must provide the person served by the water system at the service connection with:

1. Information about the potential for elevated lead levels in drinking water as a result of the disturbance,
2. Public education materials that meet the content requirements for lead Public Education (141.85(a)).
3. A pitcher filter or point-of-use device certified by an American National Standards Institute accredited certifier to reduce lead, instructions to use the filter, and six months of filter replacement cartridges.

The water system must comply with these requirements before the affected service line is returned to service.

8.2 Procedures

Following the award and allocation of funds from the DWSRF or other sources to update the system's service lines, the replacement of lead and unknown service lines does not happen overnight. While it is possible that water traveling through these outdated lines is not contaminated, customers with service lines marked for replacement should be alerted so they can take preventative measures to ensure the purity of their drinking water. The easiest steps that can be taken to reduce lead in drinking water include:

- If service line material is unknown, customers can contact the water utility to have their water tested. This will not reduce lead levels in drinking water, but it will give an indication of if further lead prevention measures need to be taken.

- Flush the home water system by doing laundry, washing the dishes, taking a shower, or other water intensive activities prior to water consumption.
- Regularly clean aerators in homes to prevent the buildup of sediment, debris, and lead on its screen. If left dirty, this particle build up can be responsible for clogging faucets and depositing lead into drinking water.
- Install a properly graded filter to remove lead from drinking water sources. This includes ensuring that any cartridge that comes with the filter is installed properly and replaced when required.

These preventative steps are recommended for customers of the system that have been identified as living in a residence with lead or unknown service line status to reduce the negative health impacts associated with lead consumption. It is important to note that these steps are temporary solutions for the customer prior to the replacement of their service lines.

Section 9 Sampling and Reporting Requirements

Once the funds are acquired and lead service line replacement begins, the Town will continually update its lead line service inventory (LSLI). The Town will provide MassDEP with updated versions of the inventory within 30 days of the end of each tap sampling monitoring period until the Town has no remaining lead status unknown service lines. As stated in the introduction, each PWS must update their inventory by October 16, 2024. PWS's are free to submit their LSLI prior to this date. If any lead, GRR, or unknown service lines are identified within the LSLI, the PWS is required by the EPA to send out a notification to the impacted customers informing them of their service line status. This notification must be sent to the customer within 30 days following the completion of the LSLI, per EPA guidelines.

As of September 2023, MassDEP is developing a tool to help PWSs share their inventories with the public. Once this statewide program is complete, all PWSs must upload the latest version of their inventory to the specified location. The LSLI is considered public knowledge, and the system should have it accessible to the public on their PWS website or other means that can be accessed by the public. PWSs who serve over 50,000 customers are required to host the LSLI online. The Town does not fall under this requirement.

The Town will begin LCRR monitoring by January 2025 as required. If the system exceeds the 90th percentile for lead or the lead trigger level and is serving a population over 10,000 people, the Town will conduct a full lead service line replacement program or a goal-based full lead service line replacement program at a rate approved by MassDEP. Notice will be sent to customers within 30 days of the end of the sampling period when the action level exceedance occurred. The notification will be repeated annually until sampling results are at or below the lead action level.

Section 10 Anticipated Schedule

The schedule below follows standards set forth by both the EPA and MassDEP to ensure the health and safety of the public regarding service lines requiring replacement.

Table 10-1 Anticipated Schedule

Milestone	Required Completion Date
Submit completed LSLI and LSLRP	10/16/2024
Notification of service lines requiring replacement	30 days after upload of LSLI
Compliance with LCRI	2027
Unknown service material identification	Ongoing through 2037
Finish LSL replacements	Ongoing through 2037

Appendix A

Water Service Line Classification





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