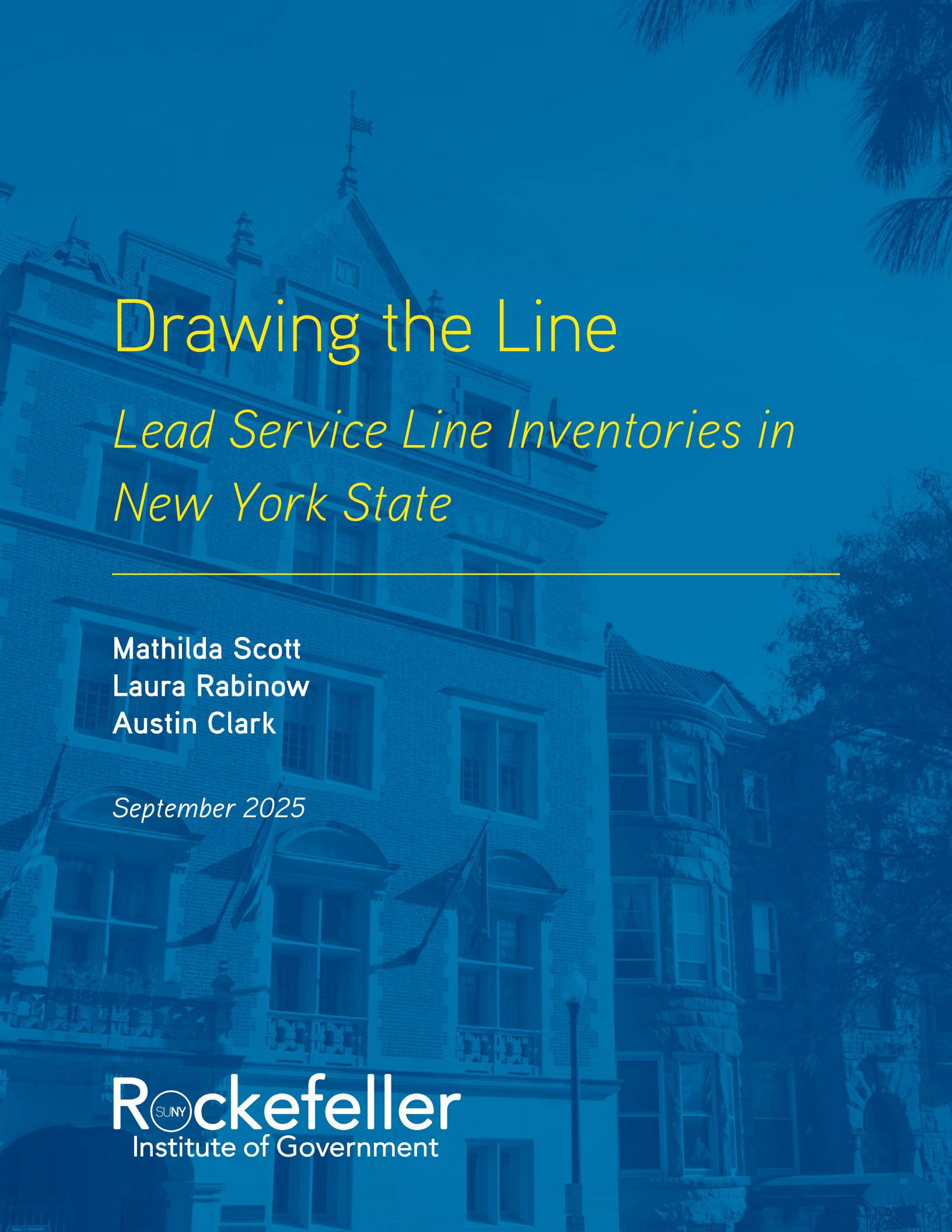

Drawing the Line

Lead Service Line Inventories in New York State

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Drawing the Line

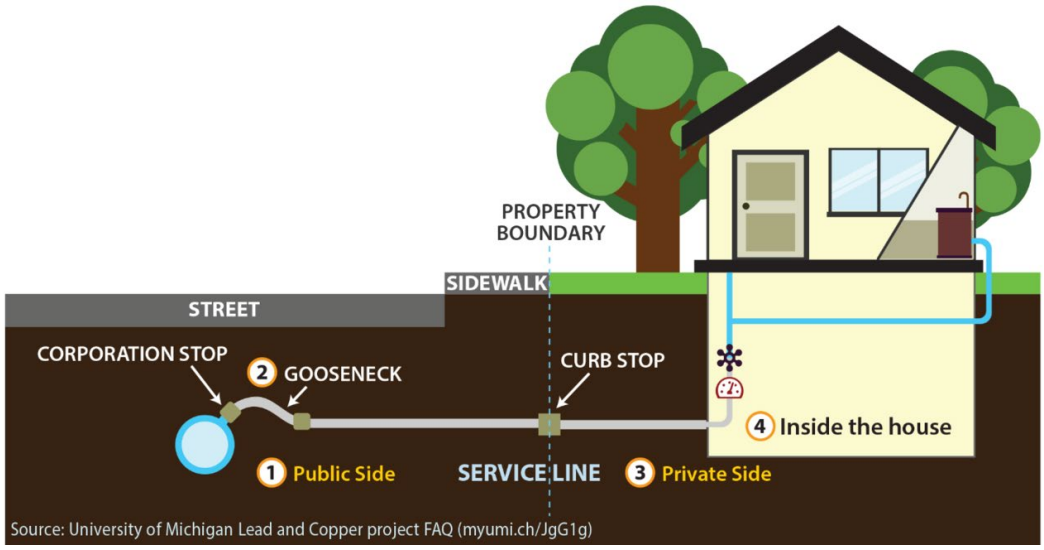
Introduction

As discussed in our earlier report, the harms of lead exposure have been well-documented for many decades, including at very low levels and particularly for children.[1] The federal health-based goal for lead in drinking water is 0 µg/dL (i.e., none).[2] Service lines—pipes that connect homes and buildings to municipal water systems—that are made of lead are known to be a common source of exposure when they corrode and lead enters the drinking water supply.

Over the last few years, federal rulemaking has established new requirements for water systems aimed at identifying and removing lead service lines. One of those new requirements was for drinking water systems to produce an initial lead service line material inventory by October 16, 2024.[3]

Exactly how many lead service lines (LSLs) exist in New York or other states and, as importantly, where they exist in each state has remained a very incomplete picture, as documentation of this infrastructure has varied widely by water system and over time. While estimates have ranged considerably, the Environmental Protection Agency's (EPA) most recent (2023) estimate of the number of lead service lines in use across the United States was 9.2 million.[4] This includes nearly 500,000 (494,007) LSLs in New York State, which is the sixth highest estimate among states, representing 5.38 percent of the national total. While this is generally consistent with the state's large population, it also indicates the relative and potentially significant work and resources needed to remove lead service lines in the state.

FIGURE 1 | Service Line Diagram



SOURCE: Elin Betanzo, "How Can I Find Out If I Have a Lead Service Line?," Graham Sustainability Institute, University of Michigan, November 3, 2020, https://graham.umich.edu/news/how-can-i-find-out-if-i-have-lead-service-line.

Now that the due date has passed for systems to submit initial inventories of LSLs, we can delve more deeply into what those inventories do and, importantly, don't yet tell us in the context of lead service line replacement in New York. This brief provides an analysis of those initial inventories submitted by water systems in New York, the progress and challenges towards submitting inventories, identifying what each service line is made of, and how many of those identified so far are made of lead or other materials that will need to be replaced.

As will be discussed below, at this early stage, the incompleteness of inventories (which was expected) and the number of missing inventories prohibit us from meaningfully observing and accurately sketching out the landscape of lead service lines in New York. The current inventories reflect a very uneven terrain of data and therein highlight the underlying challenges that water systems, state and local public health staff, and the public face in their collective efforts to meet regulatory requirements and protect public health. While the full picture of the LSL landscape in New York remains somewhat opaque, analyzing this limited data can help us better understand existing hurdles to completing service line inventories in the short term, achieve further regulatory requirements over the next decade, and better protect public health in the long run.

Federal Regulatory Requirements

In 2021, the EPA first published proposed revisions to the 1991 Lead and Copper Rule, known as the Lead and Copper Rule Revisions (LCRR).[5] It then issued further guidance in 2022 directing water systems to develop an initial lead service line material inventory by October 16, 2024, at which time further regulatory actions were anticipated.[6] At the time, we discussed the anticipated opportunities and challenges with respect to implementing the guidance and further potential rulemaking at our November 2023 symposium with stakeholders and policymakers across New York State.[7] While perspectives varied, most stakeholders then agreed on the importance of removing lead service lines, but were concerned about the necessary resources and authority it would take to accomplish that goal.

When the subsequent Lead and Copper Rule Improvements (LCRI)[8] was proposed in late 2023, our report *Leading on Lead* discussed what these regulatory changes would look like, the history of the rule and of lead service lines more broadly, and the rule's basis in medical, environmental, and public health science.[9] We also made policy recommendations for New York and other states, based both on what was and was not yet known about the distribution of lead service lines and how the rule would ultimately be implemented. Among other recommendations, we noted that policymakers and state departments of health should:

> … make data on lead testing for drinking water and LSL material inventories publicly accessible in ways that allow for data to be easily analyzed and to facilitate continually updated projections of progress and resource needs at the local and state levels.

As will be discussed later in this report, New York State shortly thereafter made further efforts to do just that through enacting the Lead Pipe Right to Know Act (LPRKA).

In 2023, the EPA then proposed further changes to the LCRI,[10] which were finalized in 2024.[11] Those improvements, among other key provisions, further directed most water systems to begin replacing lead service lines by 2027 and to replace all lead service lines under their control over the subsequent 10-year period (unless they are required to sooner by their state or have a deferred deadline).[12] It also maintained the requirement for initial lead service line inventories to be completed by October 16, 2024.

As referenced above, the rules required that *covered systems*—those federally defined Community Water Systems and Non-Transient Non-Community Water Systems—submit their "initial inventory" to the state (Department of Health), including all service lines regardless of ownership by that date and update their inventory annually thereafter. Additionally, by November 2027, systems are required to complete a "baseline inventory" that includes updated and further data, such as the material of connectors that join parts of service lines.

Water Systems Required to Submit Inventories

COMMUNITY	NON-TRANSIENT NON-COMMUNITY
A public water system that (a) serves at least 15 service connections used by year-round residents of the area served by the system; or (b) regularly serves at least 25 year-round residents.	A non-community water system that serves the same people more than six months per year, but not year-round. Schools, colleges, hospitals, and factories with their own water supplies are examples of non-transient non-community water systems.

SOURCE: "Drinking Water Program: Frequently Asked Questions," New York State Department of Health, updated May 2024, https://www.health.ny.gov/environmental/water/drinking/faq_def.htm.

Water systems are required to make their inventories publicly accessible, which may be accomplished in a variety of ways, but those serving over 50,000 people are required to make theirs available online (as we'll discuss below, New York State law has expanded that requirement). Thus, for many smaller systems, only the summary level information outlined below (see text box) is accessible online, as required federally. The EPA has further issued guidance and technical documents,[13] templates, and fact sheets[14] for states and systems that outline these requirements, how to communicate them with stakeholders, and how to submit them to regulatory authorities.

There are two levels of data that water systems are required to provide to regulators: (1) the full inventory of data for each specific service line, and (2) the high-level or summary data for the water system with the totals for each data point collected across the system.

The full inventories are required to provide location information for each service line and categorize service lines or portions of the service lines (be they privately or publicly owned) in particular ways with respect to their material composition.[15] This is required regardless of a system's size and whether or not the inventory itself needs to be made available online or can be made publicly accessible in some other way.

The material categories for service lines level data (or portions of service lines) in the full inventory include:

- Lead
- Galvanized Requiring Replacement (GSLRR). A galvanized service line designated as GLSRR is one that is or ever was downstream of an LSL or is currently downstream of an unknown service line.
- Non-Lead. The rule specifies that a service line is non-lead when "The service line is determined through an evidence-based record, method, or technique not to be a lead or galvanized requiring replacement service line. Water systems are not required to identify the specific material of a non-lead service line; however, they may use the material (e.g., plastic or copper) as an alternative to categorizing it as "Non-Lead."
- Lead Status Unknown or Unknown

And, for connectors that join service lines or parts of service lines, they include:

- Lead
- Non-Lead
- Unknown
- No connector present

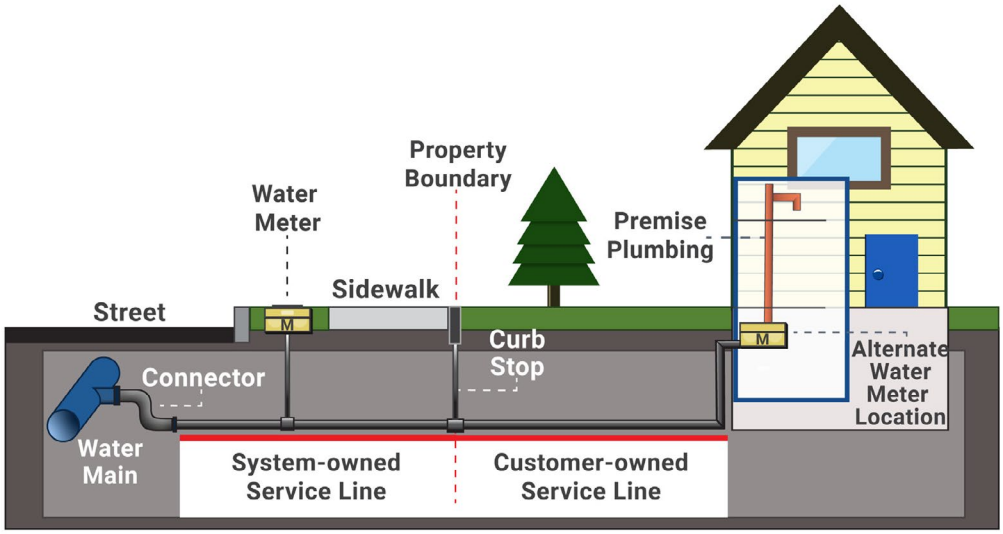
The classification of a service line as a whole is determined by the presence of lead in service lines or any service lines of unknown material. As such, if any portion of the service line is determined to be lead or GSLRR, the classification for the entire service line is lead. Likewise, if any portion is lead status unknown, even if the rest of the service line is non-lead, the classification for the entire service line is lead status unknown.

With respect to the summary level data, each inventory and its updates must include the total number of:[16]

- lead service lines in the inventory;
- service lines that are GSLRR;
- lead status unknown service lines in the inventory;
- non-lead service lines in the inventory;
- lead connectors between lines in the inventory;
- connectors of unknown material in the inventory;
- replacements for full lead service lines and full galvanized requiring replacement service lines that have been conducted in each preceding program year; and
- partial lead service line replacements and partial galvanized requiring replacement service line replacements that have been conducted in each preceding program year.

Only if a system has no lead, GSLRR, or lead status unknown service lines, as well as no lead or unknown connectors, may it comply with the rule by issuing a written statement of service line composition instead of making their inventory data publicly available, though such submissions require later validation. In our analysis below, these inventories are not counted as missing, since they are in compliance.

FIGURE 2 | EPA Fact Sheet for Developing and Maintaining a Service Line Inventory



SOURCE: Fact Sheet for Developing and Maintaining a Service Line Inventory (Washington, DC: US Environmental Protection Agency, June 2023), https://www.epa.gov/system/files/documents/2023-06/EPA-Factsheet-Combined-06072023%20508-final.pdf.

New York State Law and Legislation

In 2023, the New York State Legislature and Governor Kathy Hochul enacted the Lead Pipe Right to Know Act (LPRKA).[17] The Act required water systems to submit service line inventories and inventory summary forms (that the Department of Health was charged with developing) by October 16, 2024—the same date as federally required for the initial inventories—and to provide subsequent annual updates. The state reporting requirements were more expansive than the federal requirements for that date. New York required the inventories to include connectors or "goosenecks" at this earlier date and required more systems to make their inventories available online—specifically, all systems serving 10,000 or more people, compared to the federal threshold of 50,000, *and* any water system that operates its own website. Local health departments were also required to link to the state Department of Health's (DOH) website for the inventories and their summaries.

These service line inventories were further required to be available to the public on the DOH website in the form of an interactive map or maps for systems serving over 10,000 and less than 2 million (New York City has its own map). The mapping, which is required of DOH by October 2026,[18] must include the material classification (including both public and customer-owned portions of the service line), street address, verification method, and the map must be color-coded to designate material classification. Additionally, the maps must be updated at least once per year.

Our 2023 report and symposium also examined questions and concerns from systems in New York about potential legal and logistical challenges to funding and implementing LSL replacements. During and since that time, there has been further clarification by state officials and lawmakers related to those questions. In 2023, as part of the budget, the Legislature and Governor enacted a provision establishing a period of probable usefulness for localities bonding for LSL replacement of 30 years, further enabling the use of funds from the federal Bipartisan Infrastructure Law at that time. The period of probable usefulness is the maximum amount of time for which an entity—a water system in this case—can finance something by issuing debt to ensure it is paid off during the time in which the thing being financed is still useful. This period is specified in state law for a number of items that are commonly bonded for locally, like bridges, sewers, vehicles, and other water system projects.

In 2024, the Office of the State Comptroller also issued an opinion with respect to funding LSL replacements in Troy, New York, through the Environmental Facilities Corporation (EFC) with monies from the Bipartisan Infrastructure Law.[19, 20] The opinion concluded that the city's bond issuance for such purposes was constitutional (with respect to the gift and loan clause as detailed in our prior report).

In the recent context of uncertain and proposed federal funding and policy shifts, state lawmakers are also considering solidifying LCRI provisions in state statute. In January and February 2025, Republican congressional representatives introduced H.J. Res. 18[21] and H.J. Res. 44,[22] respectively, aimed at voiding the Lead and Copper Improvement Rule. In March 2025, the Trump administration delayed more than $50 million in funding that was appropriated to replace lead service lines in Massachusetts.[23] This funding was from the Bipartisan Infrastructure Law and was announced in May 2024.[24] Advocacy groups and Massachusetts elected officials have voiced their opposition to this delay and stated that this hold-up is unnecessary, puts public health at risk, and will make it hard to comply with the 10-year replacement timeline.[25, 26] Relatedly, in April 2025, the federal Centers for Disease Control (CDC) also fired the staff of the Childhood Lead Poisoning Prevention Program who work on source detection and exposure response.[27] The state attorney general of Massachusetts, along with 21 other states' attorneys general, co-led by New York Attorney General Letitia James, have filed suit challenging related funding cuts by the Trump administration, including funding to protect clean drinking water in their suit.[28]

In the context of this uncertainty of federal funding and regulation, lawmakers have been working to solidify LCRI provisions in state law. New York State lawmakers have introduced a bill entitled the Lead Pipe Replacement Act (S6892/A7878 of 2025) to codify the requirement to replace all lead service lines by 2037.[29] The bill would require replacement regardless of ownership, authorize water systems to access all service lines for the purposes of identifying and replacing those lines, and require the replacement "at no direct charge to any customer with a lead service line" (not including revenue raised through increasing the water rate).

The legislation provides customers with the option of facilitating the system's replacement of the line or replacing their privately-owned portion at their own expense within 45 days while the system replaces the rest of the line. If they don't notify the

system of their intent to do either, the system is then directed to seek access to the property from any noncustomer occupant (so, for example, another family member in the same household or a tenant) in order to replace all portions of the lead service line. In the case where such an occupant can't be identified, the bill provides that the water system entering the property in good faith shall be held harmless and is not liable for any resulting damages. This provision appears to be modeled after existing local laws like that of Newark, New Jersey,[30] which successfully replaced all of its 23,000 lead service lines in a three-year period.[31]

Methodology and Challenges

There are significant challenges to using the publicly available service line inventories to create a holistic portrait of New York's total number and distribution of LSLs. This is partly due to the disparate and incomplete manner in which the data is made available. Each inventory's summary data is located on a separate webpage, which then includes further information about how to access the inventory itself. A list of the inventories with links to each summary page does appear on a single site,[32] but the link to that site is not prominently displayed elsewhere and users must navigate from the Drinking Water Protection Program to New York's Public Water System's page, then open a drop down section on Drinking Water Data and click a subsequent link to Explore Public Water System Lead Service Line Inventories.[33] This structure silos information for each system, making higher-level analysis very challenging for most users.

To remedy this limitation, we scraped the data from each individual system's page and then combined that data into a larger spreadsheet using RStudio. The summary data can be analyzed at the system, county, and state level, with further inventory data available for those large systems serving over 50,000—but not for most of those serving over 10,000 at this time. It should be noted that while the Department of Health did provide a combined mapped version of inventories with downloadable data,[34] which included only service line level data and omitted which water system each service line was a part of—this unfortunately does not enable a water systems level analysis. The map also appeared to have data linked to locations out of state, though it wasn't clear why. In light of these challenges, we focus primarily on the system-level inventory summaries in our analysis. In addition to this data analysis, we spoke with stakeholder groups related to water systems, public and environmental health advocacy, and service line inventory research efforts. These conversations were aimed at understanding the challenges surrounding inventory completion and the process of producing the inventories. Their perspectives helped us formulate recommendations to best address the challenges observed in the initial inventory analysis.

FIGURE 3 | Partial Example of LSL Inventory on DOH Website

Summary of Lead Service Line Inventory - Liberty NY Water- Merrick (NY2902840)

I. System Information

Water System Name	Liberty NY Water- Merrick
PWS ID Number	NY2902840

II. Contact Information for Owner / Licensed Operator of Record Completing the Form

Contact Name	Natasha Niola, Water Quality Manager
Contact Phone Number	516-273-5670
Contact Email Address	natasha.niola@libertyutilities.com

III. Summary of Inventory

Total Number of Service Lines in the Distribution System	**45999**
Total Number of Identified Service Lines	45746
Total Number of Lead Service Lines	32
Total Number of GSLRR	16
Total Number of Non-LSL	45698
Total Number of Unknown Service Lines	253

Service Lines	Lead	GSL or GSLRR	Non-Lead	Unknown
PWS - Side Service Lines	1	50 GSL	45864	84
Customer - Side Service Lines	32	567 GSL	45179	221
Total Number of Service Lines in the Distribution System	32	16 GSLRR	45698	253

Service Line Identification Methods

Identification Methods	PWS- Side SLs	Customer-Side SLs
Historical Records	45999	45999
Field Inspection	0	0
Customer Identification with Photo or other Verification	NA	0
Excavation	0	0
Sequential Sampling	0	0
Statistical Analysis/Predictive Model	0	0

SOURCE: New York State Department of Health, "Summary of Lead Service Line Inventory - Liberty NY Water- Merrick (NY2902840)," Accessed August 21, 2025, https://health.ny.gov/environmental/water/drinking/service_line/NY2902840.htm.

New York State Inventories So Far…

Statewide Data

As of July 2025, in DOH's list of inventories, there are 2,938 water systems,[35] including both those listed with links to their inventories and those missing their inventories (without a link).[36] This list also includes both community systems, which are used by year-round residents, and non-transient non-community (NTNC) systems, which serve locations like schools, hospitals, and worksites. Of those systems listed by DOH, 243 are missing links to their inventory summary, leaving 2,695 with working links. Of those working links, 656 are for NTNC systems and 2,039 are for community systems.

Of the water systems that have a linked inventory, across the state, there are 31 community systems that serve 50,000 or more customers, and 114 community systems and two NTNC systems that serve between 10,000 and 50,000 customers. The remaining 1,894 community and 654 NTNC systems serve less than 10,000 customers each. There are 19 systems out of those referenced above with a public water system identification number that do not match the community contact or non-community contact lists publicly posted on DOH. We manually sorted these systems into NTNC or community classifications, and because of their small service line numbers, we sorted them as small systems except for Rotterdam Water District 5, which we classified as a medium-sized water system.

Across the 2,039 community water systems that are listed with working links to inventories, there are 3,753,883 service lines reported to exist. Across the 656 NTNC systems, there are 2,974 service lines. Out of both those, a total of 2,817,987 service lines have been "identified" in community and NTNC systems, meaning that their material has been identified as lead, GSLRR, or non-lead. When subtracted from the total service lines reported to exist, this leaves 935,896 lines left to be identified as lead, GSLRR, or non-lead in community and NTNC water systems that have an inventory.[37]

Out of those 2,817,987 service lines in the inventories for community and NTNC that have been identified already, there are 251,160 (8.9 percent) that have been identified as lead (with NTNC systems reporting zero lead service lines) and 36,841 (1.3 percent) that have been identified as GSLRR across community and NTNC systems. Thus, in total, there are 288,001 service lines that are in need of replacement as of July 2025, with 935,896 lines still needing to be identified, and 243 systems for which there is not yet an inventory.

FIGURE 4 | Water Systems In DOH Inventory List

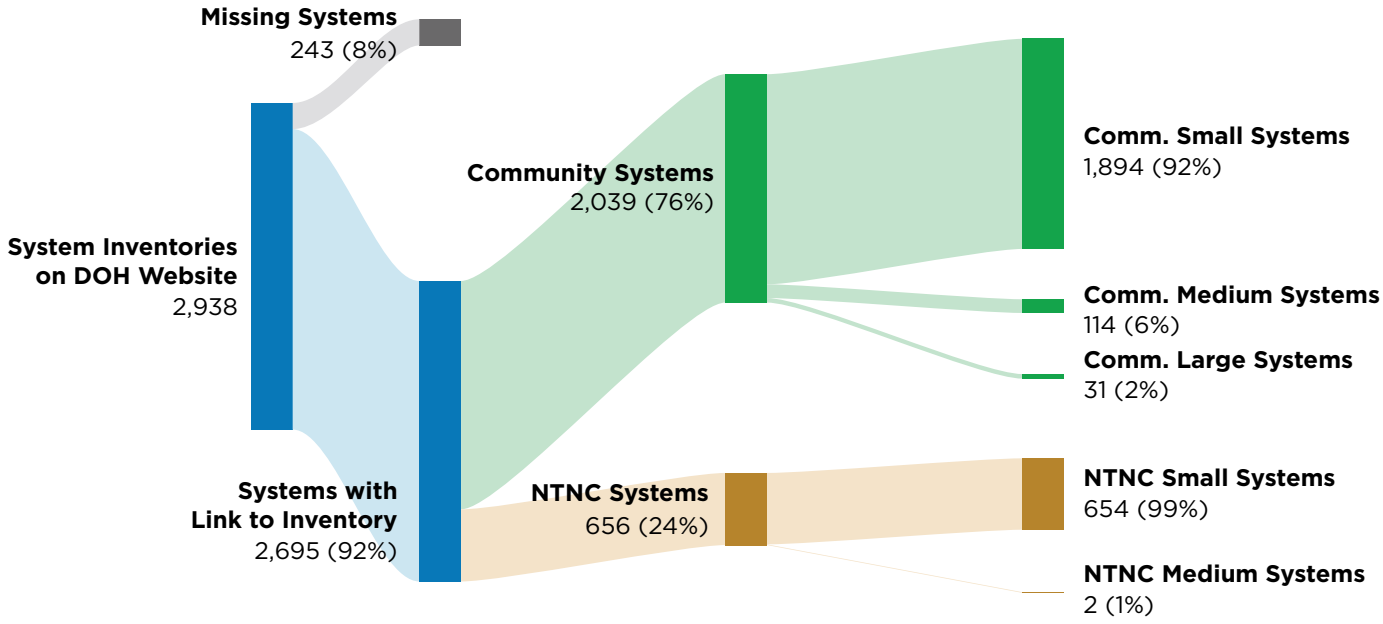


FIGURE 5 | Community Drinking Water System Inventories, as of July 2025

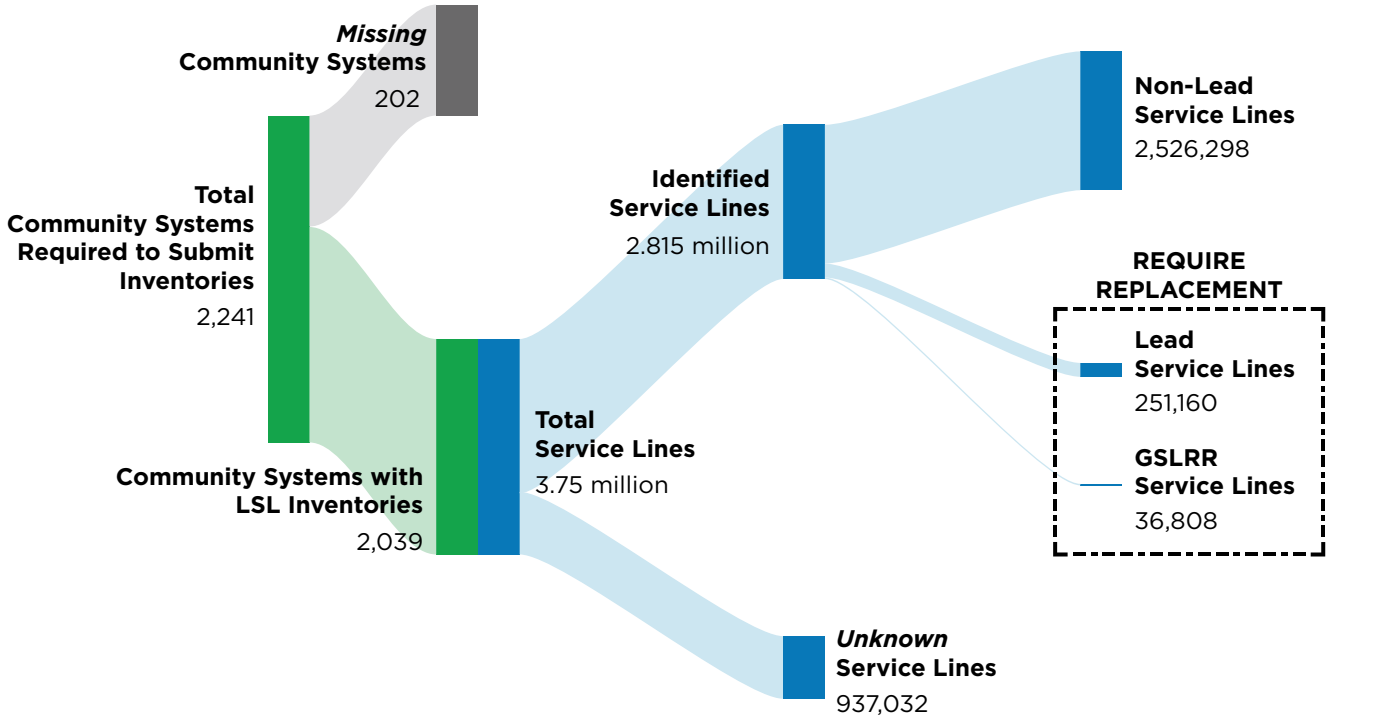
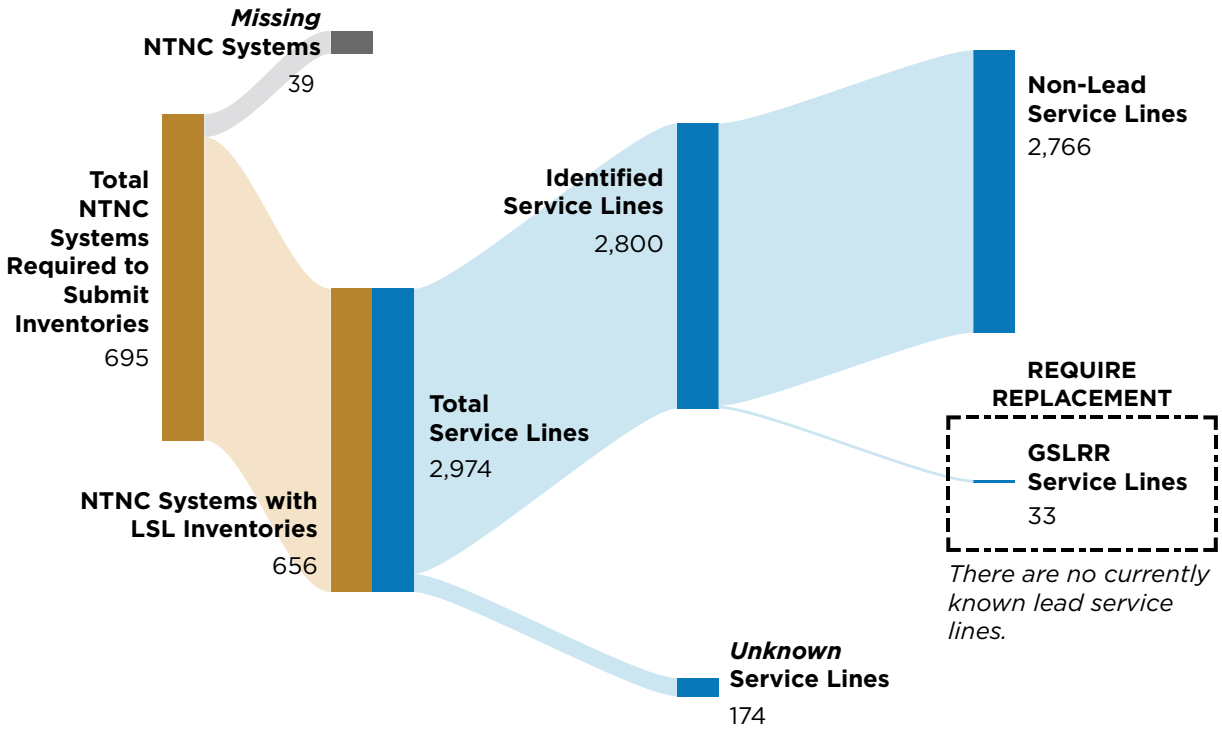


FIGURE 6 | Non-Transient Non-Community Drinking Water System Inventories, as of July



NOTE: Because of variations in DOH data, number of missing systems may also vary.

Small Water Systems

While the Lead and Copper Rule Revisions requires that each system's service line material inventories be made publicly available, as noted above, only systems serving over 50,000 people are required to provide their inventories online under the federal rule, and those serving 10,000 and up or with their own website are required to do so under the state's Lead Pipe Right to Know Act. There are 1,894 community systems and 654 NTNC systems, or 2,548 in total, that serve under 10,000 customers. This accounts for about 86 percent of systems serving 10.22 percent of New Yorkers. Across such smaller systems, there is a wide range in the percentage of identified service lines and a large variance in the number of service lines that will need to be replaced. Ninety-two community and 21 NTNC systems, or about 3 percent of systems, have less than 2 percent of service lines identified. Comparatively, 1,234 community and 597 NTNC systems, or around 70 percent of systems, have all service lines identified.

Out of the total 2,549 small systems, there are 334 community systems and 31 NTNC systems that have reported no lead or GSLRR service lines so far but are reporting some amount of unknown service lines yet to be identified as lead, GSLRR, or non-lead. Additionally, there are 1,195 community and 613 NTNC systems that have reported no lead, GSLRR, and no unknown lines, meaning they have completely identified all lines and (pending further validation per regulations) have none that are required to

be replaced. At the other extreme, 23 community and eight NTNC systems reported 90 percent or above lead or GSLRR service lines out of their total identified service lines.

Smaller systems have made their inventories available in a variety of ways, including at physical locations, by providing different forms of contact information to reach out to an individual or entity, online inventories, and, in some cases, blank/missing information on how to access the inventory. These include, for example:

- A system at a church that put their inventory for five service lines online.[38]
- A system that said to contact the village and gave a phone number and address.[39]
- A village that left the answer for how to access their inventory blank.[40]
- A village that stated the inventory was "available at Village DPW."[41]
- A system that stated their inventory was "Available at Town Hall."[42]
- A system owned by an LLC, seemingly of premanufactured homes, that listed the inventory as available on the "Community Board."[43]
- And, a state park that listed it as "available upon request from Park Manager."[44]

These examples reflect the patchwork of ways that systems are maintaining their inventories and making them available to the public. Having different ways to access inventory information may reflect the available resources and technical capacity of systems and could be tailored to resident and user needs; however, the lack of consistency may also present challenges in accessing the information.

As noted above, the only systems that do not need to provide some form of public inventory to comply with the rule are those with no lead, GSLRR, or lead status unknown service lines, as well as no lead or unknown connectors. For example, a system for manufactured homes in Broome County complied with the rule by stating in writing that the "PWS [public water system] has visually confirmed no LSL, GSLRR, or unknown SLs. Public LSLI is not required."[45]

Other systems that similarly had no lead, galvanized, or unknown materials responded with less direct written statements of service line composition. For example, some systems linked back to the Department of Health's general website,[46] or linked back to their own town's website[47]; stated "TBD/Give to school admin,"[48] "via crawlspace under each home,"[49] or "Main Office bulletin board, staff break room"[50]; gave a name and email to contact[51] or listed a phone number to call[52]; or left their answer blank.[53] Given that there were no lines in need of replacement identified in these systems (pending any necessary verification), these particular instances of data variation are not of great concern. However, they do serve to further illustrate the broader need for communication or technical support to clarify the reporting process and requirements for systems and conduct data validation for accuracy and consistency.

Across these systems, there was considerable variation in the percent and number of unknown (unidentified) service line materials, as well as those identified that were lead or GSLRR and therefore in need of replacement. As reflected in the statewide

data, there were sometimes discrepancies within systems between the total numbers of service lines and the sum of those identified and those unknown. For example, the Village of Theresa reported identifying 239 service lines but stated that there were 334 non-lead service lines. Other systems report values in the breakdown for public-side service lines and customer service lines, which in sum do not equal the total given (as in Benton Water District #3 in Yates County, which stated there were 91 identified service lines but indicated that there were zero in each of the categories of materials, including unknown). Some systems further had an error message displayed on the DOH service line inventory (like the Town of Carlton). While others reported different total numbers of service lines on different portions of the inventory form (such as the Community at Bells Pond, which stated that there were 133 identified lines but indicated that there were zero in each of the categories of materials, including unknown, and later in the summary stated there are 151 total service lines. These discrepancies may, in some cases, reflect simple data entry errors or the need for further technical support and resources at the system level. Taken together, they further highlight underlying challenges for data management and validation at the state level that, likewise, may benefit from further support and technical capacity.

Medium Systems (Serving 10,000-50,000)

Across the state, there are 116 systems that serve between 10,000 and 50,000 customers. Two of these systems are NTNC systems, and the remaining 114 systems are community water systems. Similar to small systems, there is a wide range in the percentage of service lines identified, from just over 2 percent in Long Beach City to 100 percent reported identified in 21 of the medium systems. There are also significant differences in the composition of identified lines. Of the fully identified systems, all except Cornell University,[54] City of Cohoes,[55] and Westbury Water District,[56] have zero lead or GSLRR service lines; these three systems each have less than 1 percent lead or GSLRR reported. This is, however, in contrast to other systems like the City of Poughkeepsie, which has over 99 percent of service lines identified, and over 80 percent of these identified lines are lead or GSLRR. According to the NYS Lead Right to Know Act, for all systems serving 10,000 or more customers, DOH must make the information from the service line inventories available to the public on the department's website in the form of an interactive map or maps by October 2026, unless a system maintains its own map. Currently, 30 such systems provide interactive maps; of the remaining systems, 14 post the full lead service line inventory or a spreadsheet listing all addresses and the service line materials, 15 are blank, and the remaining 57 have written-in responses as to how to access their inventory (in some other way).

These written explanations for how to access service line inventories varied substantially across the 72 systems that have not yet provided an inventory online. Of the systems that noted that their inventories would be posted on the town/local government website, the inventory was not available where indicated for 18 of them (at least not at the time we looked). Other systems provided a physical address where the public could access a printed copy, and still others reported unique forms of access, including being "accessible by visiting the public computer on the second floor of City Hall,"[57] (City of Lockport) and through "a dedicated phone number and email to be utilized for service

material inquiries" (City of Poughkeepsie),[58] though the contact information for the latter was not yet provided.

These medium systems thus reflect considerable variability in their inventories, their forms, and their progress towards making them accessible to the public—though this may continue to shift as the deadline next October approaches. This variability may in part reflect the availability of resources, personnel, and technical capacity of systems, and other areas where further support may be helpful.

Large Water Systems (Serving over 50,000)

We have more closely examined the large water systems that serve more than 50,000 people, given the requirement for them to have an online inventory available and the extent to which they have already complied.

There are 31 large public water systems in New York and, as of July 2025, 27 had a publicly available map of their service lines. Two systems, Jericho Water District and City of White Plains, did not yet have a map and reported zero or near-zero lead or GSLRR lines—with 99 percent and 70 percent of service lines identified, respectively. Further, two additional systems, City of Yonkers and Latham Water District, provided datasets of addresses and associated service line materials that were not mapped.

With respect to the wide variation in the percent and number of lines whose material has been identified or is unknown, some large systems had both a relatively high percent of service line materials that were already identified, and a relatively low percent of those identified that were lead or GSLRR, and therefore in need of replacement. Seven systems had less than 10 percent unknown, and of those, only one had a rate of lead

and GSLRR above 2 percent. For example, the Jericho Water District on Long Island has reported over 99 percent of its service lines as identified and less than 1 percent of those that are lead or GSLRR. Similarly, ECWA Amherst in western New York has reportedly identified nearly 95 percent of service lines, less than 0.3 percent of which are lead or GSLRR.

Other large systems had a relatively large percentage of unknown service line materials yet to be identified as lead, GSLRR, or non-lead. The Niagara Falls Water Board, for example, had a reported 18,175 total service lines, over 95 percent which are unknown. Similarly, Schenectady City Water Works, with 21,130 service lines, had over 96 percent unknown.

Still, other large systems had both identified a significant percentage of their service lines and found a relatively high percentage of those that were lead or GSLRR. Mount Vernon Water Department in Westchester County, for example, identified approximately 53 percent of its service lines, roughly 93 percent of which were lead or GSLRR. Buffalo Water Authority also identified approximately 53 percent of its service lines, of which approximately 84 percent were lead or GSLRR. Similarly, the City of Syracuse's system identified over 58 percent of service lines, with nearly 77 percent lead or GSLRR.

Generally, the large municipal water systems required to provide a public map used similar mapping methodologies, though there was some variation. Municipal water systems, like Suffolk County Water Authority[59] and Liberty Utilities-New York Merrick,[60] for example, only included lead, non-lead, and unknown as categories for their lines; they did not include GSLRR. Suffolk County Water Authority reported no GSLRR service lines in their summary of lead service line inventory, whereas Liberty Utilities-New York Merrick reported 16 GSLRR service lines, but it is unclear how those were mapped. Municipal water systems also slightly varied in the symbology used and how they specified between public and customer-owned service lines or portions of service lines. These variations, while not unreconcilable, exemplify the broader issues with respect to data reporting that has not been uniform and may make it more difficult to compare systems, identify issues, and target resources.

TABLE 1 | Overview of Large Public Water Systems

Water System Name	Population Served	Mapped/ Brief Findings	Total Service Lines	Total Identified Service Lines	Percent Identified	Number of Lead Lines
Niagara Falls Water Board	50,193	Publicly Available Map	18,587	517	2.78	179
Troy City PWS	51,401	Publicly Available Map	12,637	4,860	38.46	1,564
Elmira Water Board	54,000	Publicly Available Map	19,830	16,609	83.76	1,045
Hempstead	56,000	Publicly Available Map	9,383	3,920	41.78	119
Veolia Water New York, Inc. RD-2	57,301	Publicly Available Map	12,443	3,425	27.53	922
Jericho WD	58,000	No Publicly Available Map	19,246	19,173	99.62	2
White Plains City	59,559	No Publicly Available Map	10,130	7,130	70.38	-
Westchester Joint Water Works	59,629	Publicly Available Map	15,001	5,622	37.48	635
Schenectady City Water Works	61821	Publicly Available Map	21,130	720	3.41	9
Tonawanda, Town Water Dept	72,571	No Map	23,821	12,395	52.03	5
Mount Vernon Water Department	73,893	Publicly Available Map	10,474	5,550	52.99	5,144
ECWA Amherst	80,228	Publicly Available Map	24,233	22,719	93.75	3
South Huntington Water District	81,760	Publicly Available Map	17,524	17,064	97.38	-
Latham Water District	85,590	Publicly Available PDF of Addresses	26,058	23,136	88.79	6
Albany City	98,000	Publicly Available Map	24,680	5,572	22.58	2,199
Town of Hepstead Water Department	110,000	Publicly Available Map Combined with Hepstead's Map	36,662	6,129	16.72	20
WA of Western Nassau	120,000	Publicly Available Map	27,817	27,334	98.27	4,459
MVWA- Mohawk	126,250	Publicly Available Map	44,415	10,832	24.39	6,445
Liberty Utilities-New York Merrick	135,000	Publicly Available Map	45,999	45,746	99.45	32
Veolia Water New York RD 1	146,732	Publicly Available Map (only include lead, nonlead, or unknown)	32,470	26,180	80.63	8,008
Syracuse City	192,000	Publicly Available Map (specifies lead/copper/ other)	38,601	22,503	58.30	17,239
Yonkers City	211,569	Publicly Available Excel Sheet of Addresses	29,626	2,400	8.10	65
Rochester City	214,000	Publicly Available Map	59,501	43,359	72.87	14,648
Liberty Utilities-Lynbrook	220,000	Publicly Available Map (only identifies non-lead or lead)	78,223	55,615	71.10	4,078
Veolia Water New York	270,000	Publicly Available Map (only identifies non-lead or lead)	76,437	54,277	71.00	487
Buffalo Water Authority	276,000	Publicly Available Map	76,593	40,754	53.21	34,208
ECWA Direct	335,000	Publicly Available Map	111,731	96,348	86.23	248
OCWA	350,000	Publicly Available Map	116,509	44,410	38.12	400
MCWA	496,753	Publicly Available Map	181,821	171,834	94.51	107
Suffolk County Water Authority	1,100,000	Publicly Available Map (only identifies non-lead or lead)	396,459	396,405	99.99	11
New York City System	8,271,000	Publicly Available Map	820,465	695,548	84.77	120,931

TABLE 2 | Large Public Water Systems Lead Service Line Inventory Details

Water System Name	Percent Lead Out of Identified	Percent GSLRR Out of Identified	Total Number Lead and GSLRR	Percent Lead and GSLRR Out of Identified	Non-Lead	Percent Non-Lead Identified
Niagara Falls Water Board	34.62	9.09	226	43.71	291	56.29
Troy City PWS	32.18	1.58	16,418	33.77	3,219	66.23
Elmira Water Board	6.29	11.01	28,730	17.30	13,736	82.70
Hempstead	3.04	15.66	733	18.70	3,187	81.30
Veolia Water New York, Inc. RD-2	26.92	2.54	1,009	29.46	2,416	70.54
Jericho WD	0.01	0.02	5	0.03	19,168	99.97
White Plains City	0.00	0.01	1	0.01	7,129	99.99
Westchester Joint Water Works	11.29	0.69	674	11.99	4,948	88.01
Schenectady City Water Works	1.25	5.69	50	6.94	670	93.06
Tonawanda, Town Water Dept	0.04	0.06	12	0.10	12,383	99.90
Mount Vernon Water Department	92.68	0.22	5,156	92.90	394	7.10
ECWA Amherst	0.01	0.25	59	0.26	22,660	99.74
South Huntington Water District	0.00	0.00	-	0.00	17,064	100.00
Latham Water District	0.03	0.15	40	0.17	23,096	99.83
Albany City	39.47	0.83	2,245	40.29	3,327	59.71
Town of Hempstead Water Department	0.33	0.23	3,400	0.55	6,095	99.45
WA of Western Nassau	16.31	0.01	4,463	16.33	22,871	83.67
MVWA-Mohawk	59.50	0.18	64,649	59.68	4,368	40.32
Liberty Utilities-New York Merrick	0.07	0.03	48	0.10	45,698	99.90
Veolia Water New York RD 1	30.59	0.28	8,082	30.87	18,098	69.13
Syracuse City	76.61	0.21	17,287	76.82	5,216	23.18
Yonkers City	2.71	0.25	71	2.96	2,329	97.04
Rochester City	33.78	4.59	16,640	38.38	26,719	61.62
Liberty Utilities-Lynbrook	7.33	0.35	4,271	7.68	51,344	92.32
Veolia Water New York	0.90	0.07	525	0.97	53,752	99.03
Buffalo Water Authority	83.94	0.27	34,318	84.21	6,436	15.79
ECWA Direct	0.26	4.98	5,046	5.24	91,302	94.76
OCWA	0.90	7.87	3,895	8.77	40,515	91.23
MCWA	0.06	1.90	3,371	1.96	168,463	98.04
Suffolk County Water Authority	0.00	0.00	11	0.00	396,394	100.00
New York City System	17.39	0.47	124,197	17.86	571,351	82.14

County Level Data

We have also aggregated individual water system data to create a county-level dataset, including percentages of total identified service lines, lead service lines, and GSLRR based on the data available in the inventories currently. The percentage of service lines identified ranges from about 25 percent in Schenectady County to over 99 percent in Schuyler County. Additionally, the percentage of lead and GSLRR service lines out of identified service lines ranges from less than 1 percent in eight counties (Schuyler, Sullivan, Suffolk, Putnam, Seneca, Tioga, Hamilton, and Livingston Counties) to over 38 percent in Oneida County. We also observed a large range in the number of missing systems between each county. Thirteen counties and New York City had no missing community or NTNC systems. On the higher end, Ulster County has 21 missing systems and Chautauqua County is missing 16 systems. Identifying the counties that are missing a large number of systems or have a large amount of unidentified service line data may be useful so that the Department of Health and other stakeholders can target further outreach and technical support.

TABLE 3 | Inventory Data by County, as of July 2025

County	Total Population Served	Total Service Lines	Total Identified Service Lines	Percent Identified	Total Lead	Percent Lead out of Identified	Total GSLRR	Percent GSLRR	Total Lead and GSLRR	Percent Lead and GSLRR Out of Identified	Total Non-Lead	Percent Non-Lead Out of Identified	Number of Missing or Broken Systems
Albany	300,748	76,015	42,255	55.59	2,290	5.42	286	0.68	2,576	6.10	39,679	93.79	4
Allegany	21,215	6,839	4,611	67.42	2	0.00	191	4.14	193	4.14	4,417	95.79	7
Broome	167,638	53,599	25,442	47.46	64	0.25	1,303	5.14	1,367	5.39	24,075	94.62	7
Cattaraugus	41,125	12,172	9,726	79.90	28	0.29	479	5.03	507	5.03	9,219	94.78	11
Cayuga	48,775	17,363	10,694	61.59	8	0.08	256	2.43	264	2.43	10,430	97.49	6
Chautauqua	87,691	28,926	24,731	85.50	832	3.36	103	0.42	935	3.78	23,807	96.26	16
Chemung	83,028	26,712	22,206	83.12	1,046	4.71	1,982	8.93	3,028	13.60	19,178	86.36	0
Chenango	23,256	5,745	4,105	71.40	8	0.20	185	4.52	193	4.71	3,912	95.29	0
Cliton	60,972	8,482	7,302	86.09	3	0.03	468	6.42	471	6.45	6,806	93.55	7
Columbia	32,024	6,468	3,715	57.44	287	7.72	75	20.20	362	9.74	3,220	86.67	8
Cortland	35,695	9,190	8,417	91.58	0	0.00	164	1.95	164	1.95	8,252	98.04	2
Delaware	22,393	6,636	3,757	56.55	89	2.37	35	0.09	124	3.31	3,633	96.69	2
Dutchess	216,565	52,595	43,411	82.54	6,773	15.60	331	0.76	7,104	17.14	36,307	83.64	19
Erie	972,435	299,565	223,492	74.61	34,530	15.45	5,315	2.38	39,845	17.82	183,647	82.17	3
Essex	34,441	13,901	9,622	69.20	27	0.28	462	4.80	489	5.08	9,133	94.91	0
Franklin	32,130	8,488	6,983	82.25	13	0.18	233	3.33	246	3.52	6,737	96.47	0
Fulton	34,119	7,391	6,448	87.16	1,305	20.15	510	7.95	1,807	28.05	4,640	71.95	7
Genesee	43,184	17,899	11,798	65.91	30	0.27	255	2.27	285	2.54	11,513	97.58	1
Greene	29,075	8,646	5,977	69.13	368	6.16	38	0.64	406	6.79	5,571	93.21	3
Hamilton	4,753	2,393	1,332	55.61	0	0.00	8	0.60	8	0.60	1,324	99.40	0
Herkimer	34957	12,429	5,352	43.06	1,157	21.62	673	12.57	1,730	34.19	3,522	65.80	5

TABLE 3 | Inventory Data by County, as of July 2025 *(continued)*

County	Total Population Served	Total Service Lines	Total Identified Service Lines	Percent Identified	Total Lead	Percent Lead out of Identified	Total GSLRR	Percent GSLRR	Total Lead and GSLRR	Percent Lead and GSLRR Out of Identified	Total Non-Lead	Percent Non-Lead Out of Identified	Number of Missing or Broken Systems
Jefferson	111,931	27,360	23,654	86.45	6	0.03	410	1.73	416	1.76	23,333	98.64	1
Lewis	11,767	4,245	3,069	72.30	3	0.09	86	2.80	89	2.90	2,989	97.10	0
Livingston	53,445	14,418	12,699	88.08	41	0.32	59	0.46	100	0.79	12,599	99.21	0
Madison	17,117	7,287	3,895	85.28	463	7.45	307	4.94	305	12.39	5,444	87.61	2
Monroe	748,880	248,143	216,644	87.31	14,755	6.81	5,431	2.51	20,186	9.31	196,458	90.68	1
Montgomery	33,780	9,344	4,379	46.86	301	6.86	610	13.93	911	20.80	3,468	79.19	5
Nassau	1,439,102	415,345	307,789	74.10	11,447	3.72	1,881	0.61	13,328	4.33	294,461	95.67	1
New York City	8,271,000	820,465	695,548	84.77	120,931	17.38	3,266	0.47	124,197	17.85	571,351	82.14	0
Niagara	217,617	73,484	27,131	36.92	1,617	5.96	81	0.30	1,698	6.26	25,433	93.74	1
Oneida	196,308	66,742	120,053	29.98	7,477	37.28	205	1.02	7,682	38.30	12,371	61.69	14
Onondaga	610,806	179,122	80,424	44.90	17,640	21.93	3,722	4.63	21,362	26.56	59,062	73.43	1
Ontario	79,216	34,110	26,864	78.75	179	0.66	1,003	3.73	1,182	3.74	25,682	96.26	7
Orange	335,656	69,177	47,189	68.21	2,438	5.17	286	0.61	2,724	5.77	44,465	94.48	14
Orleans	36,256	15,225	12,001	78.82	0	0.00	732	6.47	732	6.47	11,098	92.47	0
Oswego	75,299	23,112	14,759	63.58	2,863	19.40	350	2.37	3,213	21.76	11,546	78.23	3
Otsego	34,176	8,995	6,235	69.32	306	4.91	166	2.66	472	7.57	5,763	92.42	3
Putnam	38,713	10,098	6,049	59.90	2	0.03	9	0.15	11	0.18	5,983	99.81	6
Rensselaer	304,736	33,010	20,451	61.95	1,638	8.01	262	1.28	1,900	9.29	18,551	90.70	2
Rockland	304,736	82,429	57,831	70.15	489	0.85	139	0.25	628	1.08	57,203	98.91	2
Saratoga	170,754	51,398	40,777	69.34	89	0.22	366	0.90	455	1.12	40,294	98.88	12
Schenectady	115,827	51,359	12,981	25.28	147	1.13	328	2.53	475	3.66	12,506	96.34	0
Schoharie	13,487	2,847	2,246	78.88	197	8.85	57	2.57	254	11.32	1,992	88.68	0
Schuyler	7,321	1,108	1,102	99.45	0	0.00	0	0.00	0	0.00	1,102	100.00	0
Seneca	24,510	8,989	2,342	26.02	1	0.004	6	0.26	7	0.27	2,335	99.70	5
St Lawrence	68,288	19,532	10,968	56.15	15	0.13	143	1.27	158	1.40	10,810	98.55	1
Steuben	53,854	18,168	10,760	59.14	15	0.14	935	8.72	950	8.86	9,810	91.14	3
Suffolk	1,368,604	467,506	461,379	98.69	11	0.001	5	0.001	16	0.001	461,363	99.99	0
Sullivan	42,934	10,470	7,121	68.01	0	0.00	10	0.001	10	0.001	7,111	99.86	11
Tioga	33,464	7,515	6,765	90.02	0	0.00	23	0.34	23	0.34	6,742	99.66	3
Tompkins	93,684	15,735	14,550	92.46	465	3.20	339	2.33	804	5.52	13,746	94.48	12
Ulster	96,675	25,449	19,826	77.90	2,712	13.68	45	0.23	2,757	13.91	17,069	86.09	21
Warren	51,225	20,369	14,369	70.54	15	0.10	272	1.89	287	1.99	14,082	98.01	5
Washington	27,855	8,678	4,834	55.70	18	0.37	114	2.36	132	2.73	4,702	97.27	3
Wayne	82,114	31,287	24,611	78.66	8	0.03	798	3.24	806	3.27	23,805	96.72	0
Westchester	937,588	179,307	102,830	57.35	15,783	15.35	433	0.42	16,216	15.77	85,930	83.56	3
Wyoming	22,327	7,687	5,826	75.79	179	3.07	419	7.19	598	10.14	5,228	89.74	1
Yates	14,073	5,700	4,159	73.78	57	1.37	180	4.32	237	5.69	3,880	93.29	0

Analysis and Conclusions

A complete accounting of service lines across all covered water systems in New York is not only required under federal and state regulations, but it is needed to construct an accurate picture of which service lines require replacement, to track and measure progress of completed inventories and replacements, and to determine what resources are necessary and where they should be directed. Data reporting, particularly when under new regulatory requirements and across different levels of government, is often challenging. However, the frequency of missing, incomplete, or inconsistent information in the initial service line inventories for New York reflects underlying challenges that, if unaddressed, may undermine and delay the state's ability to fully implement existing regulations protecting public health.

In our analysis of the existing data and our initial conversations with stakeholders from utilities, localities, environmental health research, policy, and advocacy, we have identified several specific factors that may have more directly contributed to missing, contradictory, and incomplete data for the initial service line inventories. These factors include, but are not limited to:

- preexisting issues with and limitations in data maintenance and records keeping that may go back decades at the water system level;
- a lack of familiarity with new reporting templates and processes;
- the broader availability of technical assistance, personnel, and resources that can support systems in constructing and maintaining their inventories;
- as well as related outreach and communications efforts to clarify and help meet reporting requirements; and,
- the need for further data validation efforts by the state.

Some stakeholders noted the underlying challenges associated with identifying the unknown service line materials when completing inventories. They highlighted the very uneven historical records of water infrastructure across systems and the challenges in getting property owners to participate in updating those records through new outreach efforts. They also noted concerns with respect to legal and logistical challenges to gaining access to customers' homes to both identify and replace a service line, particularly the privately owned portion. As noted above, recent legislation, such as the Lead Pipe Replacement Act introduced in New York, or similar legislation, could help address these issues in completing inventories and replacing service lines. This legislation would enact similar language to a number of municipalities, authorizing access and holding systems harmless under certain conditions, as was further explored in our report.

Stakeholders also frequently noted issues with inventory submission. In particular, in our conversations with stakeholders about the missing inventories, they more consistently highlighted the possibility that some systems incorrectly input their ID number and therefore didn't have their inventory submission accepted, or that certain systems with multiple water districts may have submitted their inventories as one (collectively) instead of separately.

The reporting forms themselves may also challenge water systems staff who are not yet familiar with their process and format. The EPA[61] and New York State[62] both released templates for water systems to create and submit their inventories. Despite these attempts at standardization and further support for some systems, a number of data issues still exist. Staffing capacity and technical challenges may especially affect smaller community water systems and NTNC systems, which sometimes have only one or a few full-time staff with limited bandwidth. Stakeholders did note that, at the state level, efforts had taken place to provide technical support for some of these systems through contracted support and guidance. New York also recently began implementing a Get the Lead Out Initiative, thus far providing funding to 12 communities,[63] including Albany,[64] whose lead service line replacement project costs were not fully covered by funds from the Bipartisan Infrastructure Law. Likewise, the EPA has provided technical assistance to a handful of communities in New York through its Get the Lead Out Initiative,[65] including Amsterdam, Fonda, Herkimer, Ilion, and Scotia. Given the existing status of the inventories, however, further resources, technical assistance, and engagement appear to be necessary for other systems, including for the purposes of completing inventories.

One commonly identified limitation to reporting was staffing capacity, both with respect to water systems and the state. Some stakeholders partially attributed inventory submission and data issues to a lack of training or noted that the typical ways in which public health offices have worked and communicated with systems over the last few decades might not be congruent with the more robust needs related to implementing these new requirements. Similarly, others highlighted ways in which more direct engagement through partnerships with trusted community organizations and leaders has worked well in other states (for example, New Jersey[66]). Researchers have more broadly found a nationwide staffing shortage in both state and local health departments.[67] Multiple stakeholders in this vein noted that they understood there to be just one staff member at DOH who was working on the inventories. Increasing staff levels and funding to oversee the LCRR and Lead Pipe Right to Know Act provisions may help facilitate further technical support and engagement efforts, as well as stronger data standardization and validation moving forward.

New York State is receiving roughly $115 million annually under the Bipartisan Infrastructure Law for lead service line replacement over a five-year period. However, as noted in our 2023 report, "given the more recent EPA estimates of the number of LSLs in the state at 494,007 and assuming the same cost per LSL, the total cost for New York State to conduct full replacements for 100 percent of LSLs would be an estimated $3.7 billion; $1 billion more than previously estimated in 2019." This means, given the total state and federal funding committed for LSL replacements in New York thus far, of approximately $700 million, that roughly $3 billion more may be needed

to fully replace all lead service lines in New York between now and 2037. While some portion of this may likely end up being supported through water rate increases, local bonding, and federal funds, relying on these resources to make up the remainder is likely to be insufficient and may result in further disproportionate financial and environmental health burdens to already overburdened communities. Given the uneven and incomplete landscape of information described above, in order to appropriately direct the necessary resources to achieve full replacement of service lines over the next 12 years as required, New York will need to ensure there is adequate investment in and support for systems to accurately complete inventories in the near term.

ENDNOTES

Endnotes

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