

D.C. Lead Line Task Fforce Council Report

Style Definition: Heading 2

Style Definition: Heading 4

Style Definition: Heading 5

Style Definition: TOC 1: Tab stops: 6.99",
Right,Leader: ...

Formatted: Font: 55 pt

Commented [BV1]: Many thanks to Apera for providing this formatting. Layout is not my forte, but I tried to provide a fairly uniform document for us to work with. I edited format of documents that went out to the group (and tracked changes when I edited content).

It might make sense to reorder some of these things

Formatted: Font: 55 pt

Table of Contents

D.C. Lead Line Task Force Council Report.....	1
Introduction:.....	3
A. Agency Roles	6
B. Barriers and Solutions.....	26
C. Interagency Coordination.....	44
D. Interagency Spending Proposal.....	46
E. Recommended Changes or Clarifications to DC Water's Lead Service Line Replacement Plan....	53
F. Funding Sources.....	72
G. Recommendations.....	86
H. Other Considerations	87

A. Introduction:

The Lead Service Line Planning Task Force was ~~created~~ established in October 2021 to ~~to~~ develop an interagency plan for the removal and replacement of all lead water service lines by 2030.” DC Code Section 34-2162(a). The Task Force consists of one representative each from the District Department of Energy and the Environment (DOEE), the District Department of ~~Transortation~~ Transportation (DDOT), the Department of Consumer and Regulatory Affairs (DCRA), and DC Water, and two public representatives appointed by the Council committee with oversight of DC Water. The Task Force held its first meeting on November 4, 2021, and generally met every two weeks through June 2022. All meetings ~~Task Force meetings~~ were open to the public ~~and the recordings, agendas, and minutes can be found on DOEE’s website.~~¹

~~Per the legislation, the Plan shall include:~~The Task Force was directed to address the following topics:

~~A~~. An account of ~~agency responsibility for the total removal of lead in The District by 2030~~the role of each District agency, including agencies not part of the Task Force, in the removal and

¹ <https://doee.dc.gov/node/1567416>

Commented [BV2]: We need to update this to include a TOC, the mandate from Council etc...

Formatted: Indent: Left: 1.5"

~~replacement of all lead water service lines by 2030, referred to below as “Agency Roles”;~~

Formatted: Hyperlink, Font: 14 pt, Bold

~~HB. Identified barriers and recommendations for lead removal by 2030An account of identified barriers to the District removing and replacing all lead water services lines by 2030, and proposed solutions to reduce or eliminate those barriers, referred to below as “Barriers and Solutions”;~~

Formatted: Hyperlink, Font: 14 pt, Bold

~~HIC. Opportunities for interagency coordination and cooperation to accelerate lead removal by 2030An account of opportunities for interagency coordination or cooperation to accelerate or improve the efficiency and cost effectiveness of lead water service line replacements, referred to below as “Interagency Coordination”;~~

Formatted: Hyperlink, Font: 14 pt, Bold

~~IWD. Interagency Spending ProposalAn interagency spending proposal, referred to below as the “Interagency Spending Proposal”;~~

Formatted: Hyperlink, Font: 14 pt, Bold

~~V-E. Recommended Changes or Clarifications tofor DC Water’s Lead Service Line Replacement Plan, released on in June 14, 2021, referred to below as “Recommended Changes or Clarifications to DC Water’s Plan”;~~

Formatted: Hyperlink, Font: 14 pt, Bold

~~VIF. A list of potential funding sources to support lead service line replacements, referred to below as “Funding Sources”;~~ and

Formatted: Hyperlink, Font: 14 pt, Bold

~~VHG. A list of regulatory, legislative, regulatory, and policy changes to complete and fund lead line replacement work by 2030 effectively and efficiently, including draft language, when appropriate, referred to below as “Recommendations”. necessary to effectively, equitably, and efficiently, complete lead line replacement~~

Formatted: Hyperlink, Font: 14 pt, Bold

Commented [GU3]: The text of the report needs to be reorganized to follow this sequence, which is the same sequence in the statute creating the Task Force.

~~Requirements (D) above, also shall include:~~

- ~~(i) Costs for recommendations identified for (B) “Barriers and Solutions” and (C) “Interagency Coordination”, above;~~
- ~~(ii) A separate list of unfunded agency costs identified in the spending proposal, including the number of unfunded FTEs, by agency and the FTEs’ anticipated responsibilities.~~

An additional section "**H. Other Considerations**" is included in this Report for considerations that are relevant but do not necessarily fall within the scope of sections A-G, including variables that affect the overall program cost.

Formatted: Font: Bold

The Task Force was required to make a draft report available to the Mayor, the Council, and the public by June 23, 2022. After a public comment period of at least four weeks, the Task Force is required to present its final report by August 23, 2022.

Note: This is a draft document that has not been approved in its entirety by the organizations and agencies of individual Task Force members. The Task Force has reached a general consensus on many significant recommendations highlighted in this report:

Formatted: Font: Bold, Underline, Highlight

Formatted: Font: Bold

- Incentivizing homeowner participation and addressing homeowner refusal with a **District mandate for public and private lead service line replacement by 2030**, a coordinated education campaign with equitable, timely outreach, etc (see pgs 5-6)

Formatted: Highlight

- **Simplifying project prioritization criteria** to better address priority communities and vulnerable populations (see pg 9)

Formatted: Font: Bold

Formatted: Highlight

- Funding and **minimizing costs for homeowner** (see pg 25)

Formatted: Font: Bold

Formatted: Highlight

- Ensuring transparency and public participation as the District and DC Water implement the program, and also maintaining enough flexibility to adapt to evolving regulatory conditions and program needs

The Task Force requests public comment and feedback on all areas of the report but specifically around:

- Equitable enforcement actions for a mandate

- Framework to ensure transparency and public participation during implementation and execution of the 2030 goal

Formatted: Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

~~Closing of Narrative: This is the wrap-up of the introduction & re-intro of substance of report. This section should also include the disclaimer section. While this report is the collective input of the taskforce membership, any considerations of any of the recommendations should be weighted with the understanding that each agency/member of the taskforce has independent process or review and adoption~~

Formatted: Heading 2

~~Closing of Narrative: This is the wrap-up of the introduction & re-intro of substance of report. This section should also include the disclaimer section. While this report is the collective input of the taskforce membership, any considerations of any of the recommendations should be weighted with the understanding that each agency/member of the taskforce has independent process or review and adoption~~

A. Agency Roles Preamble

Commented [BV4]: Lead draft: LEAD (Yanna); first circulated with this draft

District agencies will be involved in the planning, design, permitting, inspection, outreach and all other aspects of replacing lead services lines by 2030. Table 1 below provides a high level overview of these agencies and their level of involvement at different stages of this work. DC Water, DOEE, and DDOT have drafted Memorandums of Agreement (provided in the Appendix) this year to facilitate ongoing work.

DC Water is also working with other agencies and utilities like DC Health, DCPS, LAB @ DC, Pepco, and Washington Gas to share data and work plans to improve the selection and prioritization of projects and leverage overlap of planned work.

Table 1. Overview of Agencies Involvement During Construction Process

Agency	Planning, Design, Project Selection	Permitting	Inspection	Inventory Data Collection	Education & Outreach
DC Water					
DOEE					
DDOT					
DCRA					
PEPCO					
Others?					

Level of Involvement
HIGHEST
LOWEST
NONE

Level of Involvement
HIGHEST
LOWEST
NONE

Additional groups and agencies will need to be involved in this work. The Task Force recommends feedback from community groups about how best they can be involved in aspects of workforce development, community canvassing, outreach and education.

~~Like many buildings in cities across the US, thousands of District homes and commercial properties get their drinking water through lead service lines (LSLs) pipes that carry water to individual buildings from water mains underneath the streets. LSLs are typically one hundred percent lead and are usually so durable that they can last many decades without need for replacement. In its interaction with water, the lead from these lines (like the lead from other plumbing materials inside individual buildings) can dislodge, contaminate the water, and expose water users to chronic low and/or sporadic high concentrations of lead.~~

Formatted: Heading 2, Indent: Left: 0"

Commented [FK(5)]: This section is outside of the four corners of the mandate. My suggestion is for L.E.A.D. to capture the full scope of background or other comments/input in their public comments, which can be posted on the website.

~~Lead is a neurotoxin so potent that scientists cannot identify any concentration at which it is safe for human consumption. It has been linked to miscarriage, stillbirth, decreased IQ, ADHD, delinquent behavior, and increased rates of arrests for violent offenses. It has also been associated with hematological, cardiovascular, immunological, and endocrine system harm (Error! Hyperlink reference not valid.⁷ Error! Hyperlink reference not valid.)~~

~~In 1991, the US Environmental Protection Agency (EPA) promulgated a regulation—the Lead and Copper Rule (LCR)—requiring water utilities to use corrosion control treatment (CCT) in order to decrease their water’s corrosivity and reduce the amount of lead dispensed at individual city taps. CCT is more of an imperfect art than a precise science, however. Although it can help reduce lead in water levels across a water distribution system, it can never eliminate lead’s release from plumbing.² In other words, even when CCT is optimal and a water utility meets LCR requirements, lead can release from plumbing for multiple reasons (e.g., aging infrastructure, physical disturbance of plumbing materials, prolonged periods of water stagnation), posing a significant health risk to water users, and especially to fetuses, infants, and young children.~~

~~Lead in water in the District~~

~~The 1980s and the 2001–2004 crisis~~

Formatted: Heading 2

²The Lead and Copper Rule’s Maximum Contaminant Level Goal (MCLG) is zero.

~~Washington, DC has been grappling with lead in water contamination and documented health harm since at least the 1980s (e.g., Engel 1986).³ In 2001-2004, the District experienced the nation's most severe lead in water crisis that has been documented to date. It was later [Error! Hyperlink reference not valid.](#) that during this two-and-a-half-year period, the DC water utility's public communication to residents appeared "to be designed to minimize the significance of the [Lead and Copper Rule's Lead Action Level] exceedance or of the health effects of lead in the water supply" and to be attempting "to minimize the impact" of the utility's messaging on residents. Referring to three of the agencies involved in the crisis—DC WASA, the Washington Aqueduct, and the Environmental Protection Agency (EPA)⁴—DC Delegate Eleanor Holmes Norton observed that any one of them "could have caught the problem much earlier. All deferred to one another, creating an appearance of collusion and suppression of information."⁵ The~~

Commented [BV6]: I don't dispute the truthfulness of this, but Yanna, I think it's going to be a hard sell to get this to stay in

DRAFT

³ M. Engel, "Fear of Lead in DC Water Spurs Requests for Tests," *Washington Post*, December 6, 1986.

⁴ ~~The fourth~~ **Error! Hyperlink reference not valid.** that was directly involved was the DC Department of Health (DOH).

⁵ C. D. Leonnig and A. Goldstein, "Response to Lead Blasted on Hill," *Washington Post*, March 7, 2004.

~~severity and extent of the contamination was made public to all DC residents on January 31, 2004 through a historic front-page article in the *Washington Post* (Error! Hyperlink reference not valid.).~~

~~Since then, peer-reviewed scientific research has shown that DC's lead-in-water crisis resulted in over 800—and possibly up to 42,000—cases of elevated blood lead levels in young children, and that the city's fetal death rate rose by 37 percent (Error! Hyperlink reference not valid.; Error! Hyperlink reference not valid.). Zip codes that posed the highest relative risk of exposure to elevated lead-in-water levels were 20011 (Ward 8), 20010 (Ward 4), 20018 (Ward 5), 20003 (Ward 6) (Edwards, Triantafyllidou, Best 2009).~~

~~DC WASA's 2004–2008 accelerated partial LSL replacement program~~

~~For four years after the *Washington Post* exposé of 2004, Washington, DC conducted the nation's most extensive-to-date partial LSL replacement program. Celebrated as a health protective intervention that went above and beyond federal requirements, this program was designed with the goal of replacing all of DC's estimated 35,000 known LSLs in public space by 2016 at a cost of approximately \$400 million (Error! Hyperlink reference not valid.; Error! Hyperlink reference not valid.). A minority (18%) of homeowners who were willing and able to pay for private-side LSL replacement, achieved a full replacement. The majority (82%) of homeowners were left with a partial LSL replacement.~~

Commented [BV7]: Yanna, we ought to explain what this is off the bat

Formatted: Heading 2, Indent: Left: 0"

- ~~There was never evidence, however, to suggest that replacing LSLs partially provides increased health protection over leaving LSLs intact. In 2008—four years and over 14,000 partial LSL replacements later—the utility’s accelerated LSL replacement program was prematurely terminated after lead-in-water testing at home taps raised “concerns that the \$93-million effort may have at times aggravated the problem for some residents” (Leonnig 2008).⁶~~
- ~~We now know that the physical disturbance of the portion of the LSL that this type of replacement leaves in place can cause significant lead release in the short and long term, and that the point of contact between old LSLs and new (usually) copper lines can create a “battery effect” that, under certain circumstances, can accelerate lead corrosion (Error! Hyperlink reference not valid.; Error! Hyperlink reference not valid.).~~

Formatted: Heading 2

⁶C. D. Leonnig, “Spikes in Lead Levels Raise Doubts About Water Line Work,” *Washington Post*, February 23, 2008.

- ~~— Indeed, in 2011, the Centers for Disease Control and Prevention (CDC) published a study showing that District children in homes with a partially replaced LSL were over three times as likely to have levels of lead above 10 mcg/dL in their blood (the blood lead level that was considered “elevated” at the time) as children who did not have a LSL (Error! Hyperlink reference not valid.). Based on this finding, the American Academy of Pediatrics (AAP) issued a call for an immediate moratorium on partial LSL replacement in a policy recommendation to EPA.⁷~~
- ~~— DC WASA’s 2009–2018 LSL replacement program~~

⁷ American Academy of Pediatrics, Letter to Mr. Aaron Yeow, Designated Federal Officer, Science Advisory Board, Drinking Water Committee, Environmental Protection Agency, March 22, 2011.

~~In the 10-year period between 2009-2018, the DC water utility conducted a total of 3,419 LSL replacements. Of these, 2,247 (65.7%) were full and 1,172 (34.3%) were partial replacements (Error! Hyperlink reference not valid.). The majority of the full LSL replacements (60%) were customer-initiated—that is, they were organized by homeowners. These individuals paid an average of \$3,200 for the replacement of the portion of the LSL on private property. All the partial LSL replacements (100%) were utility-initiated—that is, they were organized by the city’s water utility, which asked homeowners to cover the cost of private-side LSL replacement and proceeded to conduct a partial replacement when homeowners did not respond/agree to the arrangement. Baehler et al. 2022 found that wealthier homeowners were more likely to achieve a full LSL replacement, “leaving low-income households (which are disproportionately Black) with increased risk of harm from drinking water.” The~~

~~study concluded that “household income is a major predictor of full replacement prevalence, with race also showing significance in some analyses.”~~

~~— DC WASA’s post-2018 LSL replacement program~~

~~— Since the passage of the “[Error! Hyperlink reference not valid.](#),” utility-initiated replacements have been paid entirely through public funds—specifically, under the Capital Improvement Project and Emergency Repair Replacement (CIPERR), the cost of the public-side LSL replacement is covered by DC Water and that of the private-side LSL replacement is covered by the District. In customer-initiated replacements:~~

~~— Under the Lead Pipe Replacement Assistance Program (LPRAP), the District has been paying 50-100% of the cost of the replacement when only the private side is lead (i.e., in those cases where the water utility conducted a partial LSL replacement in the past and placed residents at increased risk of exposure), and~~

Formatted: Heading 2, No bullets or numbering

- ~~Under the Voluntary Full Replacement Program (VFRP), DC Water has been paying for 100% of public-side LSL replacement and customers for 100% of private-side LSL replacement when the entire service line is lead.~~
- ~~Once again, DC Water's numbers (Lead Free DC fact sheet, "DC Water plans to remove all lead service lines in the District of Columbia by 2030") revealed that the largest number of full LSL replacements between Oct 1, 2019-Jan 31, 2021 took place under the VFRP— which requires homeowners to pay 100% of the private-side replacement costs, rather than the CIPERR or LPRAP — which utilize funds from DC Water and/or the City to carry out some portion or the entire private-side LSL replacement.~~
- ~~Summary~~

Formatted: Heading 2

~~— Washington, DC's lead-in-water problem first made national news in the mid-1980s and continues to this day despite DC Water's regulatory compliance with the LGR (Error! Hyperlink reference not valid.). Since 2001, Washington, DC has experienced two waves of large-scale lead-in-water contamination: the first came during the coverup of 2001-2004 and the second, during the city's 2004-2008 accelerated LSL replacement program—a program which was presented to residents as DC WASA's "Community Water Pledge" "to do more for its customers than what is called for under current regulatory requirements" (Error! Hyperlink reference not valid.).~~

~~— In contrast to the Flint, Michigan water crisis, which:~~

~~1. Was measurably less severe than the District's in terms of the duration of residents' exposure, the levels of lead dispensed at city taps, and the resulting documented health harm, and~~

Formatted: Heading 2, No bullets or numbering

- 2. ~~Prompted the development of the nation's most health-protective, state-specific LGR that~~ [Error! Hyperlink reference not valid.](#) ~~all Michigan water utilities to conduct publicly funded, proactive, and systematic full LSL replacement, Washington, DC 21 years after the start of its lead-in-water crisis has still not:~~
 - ~~Disclosed to residents the harm done or the environmental equity and justice implications of the 2001-2004 crisis and DC WASA's 2004-2008 accelerated LSL replacement program,~~
 - ~~Provided assistance to families with affected children,~~
 - ~~Fully replaced all partial LSLs at no cost to homeowners, or~~
 - ~~Implemented a proactive and systematic program to replace all remaining LSLs with the use of public funds.~~
- ~~Since 2009, DC Water's relative number of partial LSL replacements has decreased dramatically. Specifically:~~
 - ~~In the 5-year period between 2004-2008, the utility conducted:~~
 - ~~14,139 (82%) partial LSL replacements~~

Formatted: Heading 2, Indent: Left: 0"

Formatted: Heading 2, No bullets or numbering

Commented [BV8]: Same comment as above.

Formatted: Heading 2

Formatted: Heading 2, No bullets or numbering

- ~~• 3,090 (18%) full LSL replacements~~
- ~~• 17,229 LSL replacements in total (5.2.2012 email from DC Water to Yanna Lambrinidou)~~
- ~~— In the 10-year period between 2009-2018, the utility conducted:~~
 - ~~• 1,172 (34.3%) partial LSL replacements~~
 - ~~• 2,247 (65.7%) full LSL replacements~~
 - ~~• 3,419 LSL replacements in total (Error! Hyperlink reference not valid.).~~
- ~~— However, in both time periods, the water utility's LSL replacement program disadvantaged (disproportionately Black) low-income households by leaving them with increased risk of achieving only a partial LSL replacement and experiencing the health risks associated with such replacement.~~
- ~~— Considering this history, the Task Force believes that it is imperative that DC Water's LSL replacement program from here on ensures environmental equity and justice.~~

Formatted: Heading 2

~~DC Water is committed to replacing all remaining LSLs in the District by 2030 (“DC Water Lead Service Line Replacement Plan” 2021). This project involves:~~

- ~~Replacement of an estimated 22,600 known LSLs (intact and partial), and~~
- ~~Identification and replacement (when appropriate) of an estimated 14,700+ service lines with unknown material, which could potentially prove to be lead,~~
- ~~Verify the material of 48,163 public side service lines that were historically identified as copper but may contain lead.~~

~~Environmental equity and justice principles necessitate that DC Water’s program places DC residents’ health front and center by:~~

- ~~1. Declaring LSLs a public health and safety hazard,~~
- ~~2. Providing point-of-use or pitcher filters certified for lead removal for homes served by known or possible lead service lines and encouraging use of such filters in all buildings, regardless of service line material,~~

Formatted: Heading 2, No bullets or numbering

Formatted: Heading 2

Formatted: Heading 2, No bullets or numbering

- ~~3. Eliminating socioeconomic, racial, and informational barriers to full LSL replacement,~~
- ~~4. Requiring that DC Water and the District fully fund complete LSL replacement, including connectors (e.g., goosenecks or pigtails) and any portion of the LSL that may be under private property,~~
- ~~5. Prioritizing for full LSL replacement neighborhoods that have been the most harmed from lead in water and that are underserved and disadvantaged, including those with the most partial LSL replacements and greatest exposures to non-water sources of lead,~~
- ~~6. Providing, in a Public Trust event and subsequent outreach communications:~~

- a. ~~Clear, complete, and accurate information about the health risks from lead in water, the prevalence of lead in water in the District, the inherent variability in lead release, the limitations of one-time water testing for determining if individual taps are "safe," and the need for precautions at all times, especially for high-risk residents, such as pregnant people and families with infants or young children,~~
- b. ~~Prior harm from the 2001-2004 crisis and the 2004-2008 accelerated LSL replacement program, as per peer-reviewed scientific research,~~
- c. ~~The inequitable implementation of the utility's LSL replacement program to date, as per peer-reviewed scientific research,~~
- d. ~~The public health benefits of full LSL replacement,~~

- ~~7. Hiring union labor from all wards, paying prevailing wage, and utilizing apprenticeship programs to open employment opportunities—as coordinators, facilitators, and educators—to historically underserved and disadvantaged residents,~~
- ~~8. Developing clear, transparent, accessible, and accountable public input processes for potentially necessary adjustments of and improvements to the LSL replacement program as it unfolds.~~

B. DC Water’s Lead Free DC Plan Barriers and Solutions

Introduction

Barrier 1: High rate of customer refusal to Low Rate of Participation for Full-consent to LSL Lead Service Line Replacement (LSLR) Program

With sufficient funding secured to replace all of the lead service lines in the District,⁹ the most significant remaining barrier to achieving the Lead Free DC goal to replace all lead service lines by 2030 is the low participation rate in the program. —even— Though individual customers are not charged for the replacement as because DC Water is initiating block-by-block lead service line replacements —which is more efficient and less costly—; the participation rate during this first year of block-by-block projects has not surpassed 8075% where full lead service lines exist. —DC Water is only ingfullreplacing full lead service lines where it has obtained affirmative, written consent from the property owner has been

⁹ DC Water reports that as of July 2022, the proposed Capital Improvement Plan fully funds the Lead Free DC program. If the Board of Directors approves this plan, this will necessitate a rate increase in addition to any external funding. DC Water reports as of ** [date] that the LSLR program is fully funded. The Board of Directors approved this plan, including a possible rate increase, based on the planning-level cost estimate.

Formatted: Heading 2

received because of the need to replace the service line in public and private space (full replacement). To date, ~~26~~ about 25% of property owners do not participate in the block-by-block program even though the replacement is free for the property owner. This is based on data from DC Water's first year of block-by-block projects. Blocks under construction have had a range of participation rate from 65%-75% which translates to a 35%-25% refusal rate. Although DC Water staff implement an outreach process with a minimum of thirteen touchpoints (including ~~go door-to-door~~ engagements multiple times, mail notifications, ~~call~~ phone calls, ~~use~~ social media promotions, yard signs, and ~~work~~ presentations with with ANCs and various other community groups, etc.) 20% of all property owners do not respond or engage in communication. In analysis of this first year of block-by-block projects, about 80% of premises are owner-occupied, and 20% are tenant-occupied. There is a gap of participation for those that return signed agreements to participate: about 70% of owner-occupied premises participate, and 60% of tenant-occupied premises participate. More analysis needs to be done to identify demographic factors related to participation, but tenant-occupied premises are less likely to return agreements signed by the property owner during work than owner-occupied premises. Further evaluation of this non-respondent group shows X% are tenant-occupied buildings. This has left a patchwork of lead, copper, and unknown pipe materials even in the areas where DC Water has conducted its block-by-block program. Addressing this barrier will secure the highest return.

Commented [BV9]: I want to get DC Water to fill this in more.

Solution 1a: Mandate for lead service line replacement

- o Mandate lead service line replacements: DC Water The District must follow in the footsteps of Newark and other jurisdictions and mandate that the District's LSLs be replaced by 2030. Please see the recommended legislative language for specific wording in "Recommendations" section. We recommend that Council require that by a date certain property owners either demonstrate they are not served by a LSL, or (1) replace the LSL on their own or (2) participate in the DC Water block-by-block program. Customers who do not wish to participate in the public block-by-block program should have the option to replace the LSL at their own expense within a designated, expedited timeline and an obligation to provide proof of a completed LSLR. ~~(2) opt into the DC Water block-by-block program. Customers who do not wish to opt into the public block-by-block program should have the option to replace the LSL at their own expense within a designated, expedited timeline and an obligation to provide proof of a completed LSLR.~~
- o Expand opportunities to give or affirm consent to access the property.
 - Make it a condition of signing up for a new DC Water account
 - Allow tenants to provide consent

Formatted: Font: (Default) +Body (Tahoma), 14 pt, Not Bold, Italic

Formatted: Font: 14 pt, Italic

Commented [3g10]: Do we want to suggest an "opt-out" program instead of "opt-in"?

Commented [vb11R10]: I think we do, but let's keep it neutral here--see if my edit achieves that

- Expand opportunities to consent including by involving public health practitioners (such as identifying opportunities when customers may be educated about lead harms, such as ensuring that pipe replacement is available when a child's bloodwork shows the presence of lead) (such as when a child

Solution 1b: DC Water, DC government, the private sector, and advocates must engage in a serious-continue to elevate public education campaign about lead

Outreach from DC Water is not enough. There is a lack of understanding in the general public about the dangers of lead and the urgency for lead service line replacement. Other DC Agencies and community groups must support, engage and amplify also engage in the communication of risks of lead-in-water. The Taskforce recommends public education on a whole-of-government approach. DC Water, advocates, and other government capacities must work together to elevate this issue in the public eye.

Solution 1c: Simplify communications materials

Simplify the materials and test with representative focus groups. Some best practices to consider:

- Following the District's language access protocols
- Using simple (maximum 5th grade reading level) language when possible
- Including a cover sheet that summarizes the material in plain language
- Shows before and after pictures of replacements
- Being clear about the health damages of lead

~~Use this section to identify DC Water's 2030 goal. Indicate progress made, as well as a quick pathway for completion as noted in DC Water's Lead Free DC Plan. This section should quickly highlight/identify the "all hands on deck" needed by District agencies (be specific) as well as other notable coordination needs LSL Inventory~~

Barrier 2: Identification of all lead services lines in the District

An accurate inventory is necessary to complete the replacement of LSLs in the District by the deadline. An accurate understanding of the pipe materials is necessary for an efficient block-by-block replacement program (this can be done contemporaneously, so long as it is complete).

Commented [3g12]: Something's missing.

Commented [MS13]: DC Water to provide comments on this section.

Commented [AN14]: Solution 1: DC Water does not have the authority to mandate. The recommendation can be that the City/Council mandate a District wide goal. This goal could align with DC Water's 2018 goal and should address all aspects of lead programming in The District.

Commented [GU15]: How does this overlap with what Paul is drafting on Community Outreach and Education?

Commented [BV16R15]: Paul will have to edit for consistency.

Formatted: Normal

Formatted: Heading 4

Commented [BV17]: From Apera

Commented [BV18]: L.E.A.D.

Solution: Lead Service Line Inventory

In order to ensure all LSLs are equitably replaced, DC Water must have an accurate inventory of all LSLs in the District. The Task Force understands that the current inventory contains inaccuracies and is incomplete. Accordingly, the inventory, and its corresponding online map, will need to be updated and completed as soon as possible, to ensure efficient block-by-block replacements and equitable prioritization.

Definition of LSL

In order for the inventory to fully capture all LSLs, the District and DC Water must base the inventory on a common, comprehensive definition of a LSL. The Task Force used ~~proposes~~ the following definition from the District Law of a LSL:

A water service line containing any lead, including lead goosenecks or pigtails, and including brass water service lines or galvanized water service lines.

DC Water notes that replacing all brass service lines was not included in the June 2021 Lead Replacement Plan and, therefore, the inclusion of brass replacements requires an engineering plan to determine feasibility, cost, and DDOT coordination to determine the achievable timeline.

Current and Historic LSL Data

There is substantial uncertainty regarding the number of remaining LSLs in the District, and the numbers have changed substantially in recent years. DC Water's June 2021 Lead Service Line Replacement Plan ~~currently~~ estimates that approximately 21,600 service lines are made of lead, but ~~its inventory~~ also identifies about 14,700 service lines with unknown material and assumes that approximately half of those are lead.⁹ DC Water is also concerned that some LSLs that have previously been identified as copper or brass may actually contain lead. For example, DC Water's 2022 Cost Estimate¹⁰ added an additional cost for test pits to verify the material on 48,163 public-side service lines that were historically identified as copper or brass but may contain lead ~~(e.g., brass or galvanized pipe)~~. DC Water roughly estimated ~~s~~ that at least less than 10% of those lines could contain lead pipe, ~~may need to be added to the LSL inventory and replaced, but the true figure is unknown. The Task Force recommends that DC Water treat the 48,163 public-side service lines that were historically identified as copper as unknowns, given the uncertainty about these historic identifications. Adding~~

⁹ Plan at 2.

¹⁰ See section F. "Funding Sources" of this Report.

Formatted: Heading 5

Commented [MS19]: Suggest moving Solution to after the Barrier is discussed.

Commented [MS20]: Agree with definition, however, given the lower risk of lead exposure from brass service lines, the lead and galvanized iron should drive prioritization for planning and funding used for replacement. Currently brass is replaced during capital projects to prevent new partial replacements. Need to confirm that Federal Funds for LSRs can be used to replace brass service lines.

Commented [as21R20]: I believe that listing specific places where lead could occur in the definition is useful so that our meaning is clear.

~~together the historically labeled copper lines with the lines of unknown material, DC Water's current estimates total approximately 62,863 service lines of uncertain material.~~

Beginning in the early 1900s, developers and DC Water would document the location of some service line taps, and sometimes pipe material, on a "tap card." In the late 1980s, DC Water initiated a study that evaluated plumbers' records and practices, home build dates, and other information to identify known and likely locations of lead service lines. This research, combined with tap card information and other engineering project data, comprise DC Water's historic service line data. Since the early 2000s, DC Water has documented the service line materials when replacing, repairing, or observing service lines. These practices provide more accurate material data. When replacing, repairing, or observing service lines, DC Water has found that some of its historic data is inaccurate. Possible reasons for the inaccuracies could be incorrect material recorded on the tap card, such as cases where the meter setter pipe was recorded instead of the service line, data entry errors, past research estimates, and undocumented service line replacements. The ~~current~~ inventory is roughly 50% historic data and 50% current information based on updated records.

The service line pipe material inventory is a "living dataset" and continually updated monthly. The EPA Revised LCR requires water systems to submit a service line inventory and make it publicly available on their website by January 2024 and submit annual reports to EPA. DC Water's current website Map displays all the pipe material information that DC Water has, is routinely updated, and meets these new EPA requirements.

Commented [MS22]: Deleting "current" because we are citing 1-yr old data. Current data are different.

Resources for Updating LSL Inventory

Because the inventory update will require substantial resources, the Task Force recommends that DC Water create a team of staff (engineers, technicians, administrative staff, and interns) dedicated solely to updating the inventory. In its educational outreach on this topic, EPA has used the example of a LSL inventory in Montreal, Canada with a target completion date of 2023. In Montreal, a team of seven full-time staff (engineers, technicians and administrative staff), six telephone operators, and seventy-five summer interns worked solely on the LSL inventory, while other teams worked on LSL inspections and replacements.¹¹ ~~The Task Force believes a similar level of effort team of at least this approximate size~~

¹¹ EPA, Free Small Drinking Water Systems Monthly Webinar Series, "Lead Service Lines" (May 24, 2022) (citing "Service Line Material Identification Strategies: Experiences From North American Water Systems," Liggett, J., Baribeau, H., Deshommes, E., Lytle, D., Masters, S., Muylwyk, Q., Triantafyllidou, S. JAWWA 114 (1):8-19, 2022, <https://awwa.onlinelibrary.wiley.com/doi/abs/10.1002/awwa.1841>).

is needed to complete the critical inventory work. DC Water will have a Program Management contract that will be responsible for efficiently executing the service line identification to meet the 2030 goal. Many tasks can be completed synergistically by working geographically or by project areas (e.g., replacing lead lines block-by-block while also identifying service lines of unknown materials on that block).

Commented [MS23]: The Program Management Team is charged with efficiently executing the service line identification and will staff to achieve the 2030 goal. Many tasks could be completed by working geographically or by project area vs by task.

Barrier: Project Prioritization

Formatted: Heading 5

Solution: Inventory Prioritization

Commented [MS24]: The inventory is all part of #1 Barrier, I suggest deleting this header.

With approximately 62,863 service lines of unknown material to identify, the Task Force recommends that DC Water prioritize inventorying certain wards. Because Wards 7 and 8 have the highest percentages of services lines with unknown material, and material and have predominantly BIPOC residents who have greater cumulative lead and toxics exposures, the inventory in those wards should be prioritized. Service Line Material Verification Methods and Four-Step Protocol for Verification

Formatted: Heading 5

Commented [MS25]: See service line inventory by ward data submitted on 6/23 - Wards 7 & 8 are not the highest.

In addition to non-physical identification methods such as using historical records, the primary physical verification methods are:

- o Basic/visual
 - scratch test
 - magnet test
 - lead test (surface swab) kit
- o Tap sampling
 - flushed
 - sequential
 - targeted
- o Excavation
 - traditional
 - vacuum¹²

Alternative LSL identification methods are in various stages of development. Electrical resistance, acoustic wave, and eddy current technologies are in laboratory or field evaluation, and metal detectors and electrical conductivity are being explored. Cumulative passive samplers, using tap filters, are also being researched.¹³ However, these methods are not yet ready for field deployment.

As seen in the below table Figure 2 below comparing the benefits and drawbacks of currently available service line identification methods, relevant factors DC Water can consider when evaluating methods

¹² “Tools for Lead Service Line Identification,” Region 4 Lead and Copper Rule Workgroup Monthly Meeting, August 25, 2021.

¹³ *Id.*

include cost, accuracy, time, the amount of disturbance to the street and to homeowners, and the amount of skill and labor required.

Figure 2. Tools for Lead Service Line Identification

LSL ID Method	Utility Cost			Disturbance		Impact to Homeowner			Utility Skills Required			Overall	
	Financial	Onsite time	Pre-/Post-time	Service line	Traffic flow	Water service disruption	Property damage	Homeowner involvement (includes pre-/post-time)	Technical interpretation	Labor	Time	Accuracy	
Community Records Review	L or M (if digitized)	NA	M to H (L if digitized)	None	None	None	None	None	L to M	None	M	L to H	
Basic/Visual Observations (on private-side)	L	L	L to M	None	None	None	None	L	L	L	L	M to H	
Water Quality Sampling-Flushed	L	L	M to H	None	None	None	None	L	M	L	M	L to M	
Water Quality Sampling-Sequential	M	L	M to H	None	None	M	None	M to H	M	L to M	M	L to H	
Water Quality Sampling-Targeted	L	L	M to H	None	None	M	None	M to H	M	L to M	M	M	
Excavation-Mechanical	H	H	M to H	H	M to H	H	H	L	L to M	H	H	H	
Excavation-Vacuum	M to H	L to M	M to H	M	L to M	M to H	M to H	L	M	M to H	M	M to H	

Source: "Tools for Lead Service Line Identification," Region 4 Lead and Copper Rule Workgroup Monthly Meeting, August 25, 2021 (citing Hensley, Bosscher, Triantafyllidou, Lytle, 2021, AWWA Water Science)

Visual observations based on homeowner scratch tests, magnet tests, or surface swab tests, are cheap and easy to conduct if service lines are accessible.¹⁴ However, these tests are limited to the point-of-entry pipe being accessible and recognizing the pipe material could be different outside the building. Due to these limitations, the Task Force does not recommend that the point-of-entry pipe identification alone be used to rule out the presence of LSLs. However, these tests have limitations. For example, magnets do not stick to lead, but they also do not stick to copper.¹⁵ Accordingly, a magnet test will not definitively determine whether a service line contains lead. Moreover, none of these tests would detect iron lines that are lined with lead.¹⁶ Due to these limitations, the Task Force does not recommend that visual methods be used to rule out the presence of LSLs.

While individual water sampling techniques vary in accuracy, researchers describe a water sampling protocol that combines community-specific data with both flushed and sequential samples from homes

¹⁴ ~~Id.~~
¹⁵ ~~Id.~~
¹⁶ ~~Id.~~

Formatted: Centered

Commented [MS26]: Magnet is used to identify iron pipe and is very good. If you see a dark gray pipe and can't see the bulb, then first try the magnet. If the magnet does not stick, then try to scratch it. If the magnet does stick, don't worry about the scratch test (which is difficult on iron pipe).

with LSLs and homes with service lines of unknown material, has been found to be very accurate.¹⁷ The Task Force recommends that water sampling be used to only identify the presence of lead pipe and not the absence of lead pipe due to factors such as the possibility of the water not stagnating as required. This 2021 study recommends the following four steps:

(1) establish baseline threshold lead concentrations for fully flushed and sequential sample sets from homes that have never had LSLs, (2) collect fully flushed samples and sequential samples from homes with known LSLs, (3) collect fully flushed samples from homes with unknown and suspected LSLs, and (4) collect sequential profiles from homes with unknown or suspected LSLs if fully flushed samples do not clearly indicate the presence of an LSL.¹⁸

DC Water's current water sampling program utilizes a similar approach but using only the EPA LCR standard water stagnation protocol for collecting samples. Homes without pipe material information and built prior to 1970 are offered the sequential sampling study that includes ten 1-liter sample bottles. DC Water began the program in 2016 and has identified 226 of 578 to have lead pipe through the process. The Task Force recommends that DC Water continue this process until a more efficient method is identified. Due to the possibility of the water not stagnating as required, the Task Force recommends that water sampling be used to only identify the presence of lead pipe and not the absence of lead pipe.

Commented [as27]: We had recommended that DC Water adopt the four-step method identified in the above 2021 paper, so I believe this is a place of disagreement

Due to the drawbacks and benefits associated with each identification method, EPA recommends that utilities use a combination of methods to complete their inventories.¹⁹ The Task Force agrees that a combination of methods will be required.

Solution 2a: Inventory Prioritization

The Task Force recommends that DC Water prioritize inventorying the approximately 62,863 service lines needing confirmation of pipe material by equity and areas with higher numbers of elevated blood level cases, but also recognizing the identification process will be integrated with the LFDC program. For example, a block planned for water main replacement in 2026 will have all services identified as part of that project, so not considered for prioritized identification.

Commented [MS28]: See service line inventory by ward data submitted on 6/23 - Wards 7 & 8 are not the highest.

¹⁷ Schock, et al., "Rapid and Simple Lead Service Line Detection Screening Protocol Using Water Sampling," AWWA Water Science (Sept. 2021).

¹⁸ *Id.*

¹⁹ EPA, Free Small Drinking Water Systems Monthly Webinar Series, "Lead Service Lines" (May 24, 2022).

The Task Force recommends that DC Water adopt this four-step water sampling protocol for all of its inventory sampling. Due to remaining limits on the accuracy of any sampling protocol though, the Task Force does not recommend that water sampling be used to rule out the presence of LSLs.

Mechanical excavation, in which an excavator digs a test pit to the service line to expose up to ten feet of a service line, is the most accurate (and most expensive) method.²⁰ Due to its consistently high level of accuracy, the Task Force recommends that mechanical excavation be used for all unknown service lines where other methods have not revealed the presence of lead. If mechanical excavation does not find a LSL, using the LSL definition recommended by the Task Force, the service line should not need to be replaced. Vacuum excavation, while cheaper and less disruptive, may miss lead segments in heterogenous service lines. Due to this potential for false negatives, the Task Force does not recommend that vacuum excavation be used to rule out the presence of LSLs.

Due to the drawbacks and benefits associated with each identification method, EPA recommends that utilities use a combination of methods to complete their inventories.²¹ The Task Force agrees that a combination of methods will be required. For the District, the Task Force recommends that DC Water proceed from the less expensive and less reliable methods to the more expensive, reliable methods. Specifically, the Task Force recommends the following verification protocol:

1. If historical records label a service line as containing lead (approximately 21,600 service lines according to DC Water's most recent estimate), that line is deemed a LSL and must be replaced. All service lines that are currently of unknown material (approximately 14,700 service lines) and lines that were historically labeled as copper (approximately 48,163 service lines), must be further assessed using the below steps.
2. All unknown and historically copper service lines (approximately 62,863 service lines according to DC Water's most recent estimates) must be assessed using the four-point water sampling protocol outlined above. If the water sampling reveals lead, a line is deemed a LSL and must be replaced. All service lines that are not deemed lead based on water sampling, including all negative and inconclusive results, must be further assessed using the below steps.
3. All remaining unknown and historically copper service lines that have not been deemed lead must be assessed using vacuum excavation. If the vacuum excavation reveals lead, a line is deemed a LSL and must be replaced. All service lines that are not deemed lead based on vacuum excavation, including all negative and inconclusive results, must be further assessed using the below step.

²⁰ *Id.*

²¹ EPA, Free Small Drinking Water Systems Monthly Webinar Series, "Lead Service Lines" (May 24, 2022).

Formatted: Heading 5

Commented [MS29]: The Program Management Team will implement a program to identify service lines. DC Water does not prescribe the means and methods in the contract.

Commented [3g30R29]: Will there be any opportunity for DC Water or the public to review what the program management team decide to do?

Commented [as31]: We continue to believe this recommended protocol would be most efficient and accurate and have concerns about not including any protocol or making any changes to the current method(s).

Formatted: Heading 5, No bullets or numbering

4. All remaining unknown and historically copper service lines that have not been deemed lead must be assessed using mechanical excavation. If the mechanical excavation reveals lead, a line is deemed a LSL and must be replaced. All service lines that are not deemed lead based on mechanical excavation may be considered not to contain lead and need not be replaced.

Any forms of the above verification methods utilized by DC Water should be approved by DOEE and an independent third party assessor.

Solution 2b: Updating LSL Map

The current Service Line Material Map on DC Water's website has three color indicators for pipe material—green (copper, brass, and galvanized iron), gray (lead and galvanized iron preceded lead), and white (unknown). The Task Force recommends improving the color and/or symbol indicators of pipe materials to better alert customers to service lines that have greater potential of containing lead, which would include brass, galvanized iron, and the Unknowns. The Task Force recommends notifying customers and homeowners when there is a change of pipe material in DC Water's inventory. DC Water should update its public LSL inventory map as frequently as possible, and at least once per month until all LSLs in the District are identified.

Barrier 3: Confusing and inefficient patchwork of LSLR programs

DC Water's June 2021 Lead Service Line Replacement Plan (the LSLR Plan) utilizes three programs, running in parallel, to execute LSRs (see: Figure 3): 1) Capital Improve Project and Emergency Repair Replacement (CIPERR), where DC Water initiates service replacements under planned project work such as water main replacements and emergency repairs and District funds cover 100% of private-side costs; 2) the Lead Pipe Replacement Assistance Program (LPRAP), where customers with lead service lines on the private-side only initiate the replacement and the District funds cover 50-100% of the private-side costs; and (3) the Voluntary Full Replacement Program (VFRP), where customers with lead service lines on the public and private sides initiate the replacement and DC Water covers 100% of the public side LSL replacement cost and homeowners cover 100% of the private-side LSL

Formatted: Heading 5

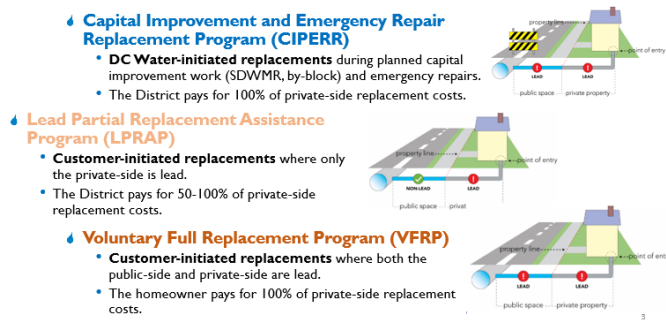
Commented [MS32]: The Program Management Team will address this task as part of communications and service line material identification.

Commented [MS33]: The website is live and updates daily. We update the construction data from Operations and CIP monthly. Customer service and POE updates occur as processed/received.

Commented [MS34]: Properties with partial lead service lines should continue having a means to initiate replacement as the utility cannot initiate replacement on the private property. Properties with full lead service lines can still initiate the replacement as the Revised LCR requires utilities to replace the public side if the customer replaces the private side. As the programs are designed to run in parallel, having dedicated funding and contracting capacity, customer initiated replacements are not jumping the line.

replacement cost.²² As discussed elsewhere in this Report,²³ these customer-initiated programs are significantly more expensive than the new block-by-block LSR program under CIPERR.

Figure 3. DC Water's Lead Service Line Replacement Programs under Lead Free DC



Formatted: Centered

~~The Taskforce agrees the private-side only lead service lines could be more efficiently replaced during the By-Block projects than through the LPRAP. However, to accomplish the replacement of lead pipe that is only on private property under the By-Block projects, a policy/legislative change is needed. Currently the law only allows the use of District funds for the private side replacement when DC Water is repairing or replacing the water service line in public space. Therefore, we recommend adding a policy recommendation to accompany the change in the use of District funding, which would then authorize DC Water to include these properties in the By-Block LSRs.~~

The EPA's Revised LCR requires water utilities to replace the portion of lead pipe in public space if the property owner replaces the portion in private property. The Voluntary Program fulfills this need for DC Water to comply and in a manner that avoids a partial LSR.

Solution 3: Streamline programs and implement policy to facilitate DC Water-initiated replacements

The Taskforce agrees the private-side only lead service lines could be more efficiently replaced during the By-Block projects than through the LPRAP. However, to accomplish the replacement of lead pipe

²² See LSLR Plan, page 8 (of 28,000 total LSLs to be replaced by 2030, 10,800 will be replaced under the VFRP and LPRAP programs).

²³ [Citation to Cost Estimate Section]

that is only on private property under the By-Block projects, a policy/legislative change is needed. Currently the law only allows the use of District funds for the private side replacement when DC Water is repairing or replacing the water service line in public space. Therefore, we recommend adding a policy recommendation to accompany the change in the use of District funding, which would then authorize DC Water to include these properties in the By-Block LSRs completed through CIPERR, see Section G. "Recommendations".

DC Water anticipates additional recommendations from the team under the new Program Management contract regarding additional ways to structure the lead service line replacement programs to most efficiently and cost-effectively carry out the 2030 goal.

Barrier 4a: Customer lack of understanding of the risk of lead pipes

Barrier 4b: Customer acknowledging the risk of lead pipes and continuing to refuse replacement

Barrier 4: Homeowners' unwillingness to prioritize the risk of lead in water

Lead is a neurotoxin so potent that there is no known safe quantity. Experts estimate that it is the first lead exposure that has the greatest impact on lifetime earnings of the individual. However, many people are choosing to keep their lead water service line instead of having it replaced with copper pipe for free. This could be due to a lack in understanding lead-in-water exposure (e.g. take false comfort in a single sample event that shows low or no lead; although lead particles could release into the water and get trapped on the faucet aerator at any time) or complacency with their exposure they had to date without noticeable problems. Many senior residents communicate a hesitancy to disrupt their front yard or basement when they have not observed any issues related to lead risk despite using the water for decades in some instances.

Solution 4: Public education

In addition the coordinated education efforts the Task Force recommends in Solution 1b, the Task Force would like public feedback about additional ways to address this barrier.

Barrier 5: Concerns about property restoration

DC Water and other Task Force participants are finding that especially given the lack of understanding of the health damage of lead, customers are also reluctant to authorize any disturbance of their yards or inside the home which is necessary to replace the water service line to the first connection in the

Commented [MS35]: Many people past child-rearing years see no need to disrupt their front yard when they have observed no problems of their health risk. We might want to rephrase or elaborate on my edits.

home. For example, some homes have finished basements with expensive finishings (e.g., paneling) that need to be disturbed for replacing the lead service line, and are beyond the scope of simple restoration, e.g., drywall repair.

Solution 5: TBD

The Task Force would like public feedback about ways to best address this barrier.

Barrier 6: The consent agreement is complex and intimidating

When the Task Force examined the reasons given for customer refusals as well as the materials that DC Water was sharing, it revealed a need for a simple-language document.

Additionally, tenant-occupied premises show a lower rate of participation than homeowner-occupied premises, which the Task Force addresses in Section G. "Recommendations".

Solution 6: TBD

The Task Force would like public feedback about ways to best address this barrier.

Solution

Formatted: Font: 14 pt, Italic

Formatted: Font: 14 pt, Italic

Commented [MS36]: Delete because it is currently very accessible, so focus on the need for simple language.

Commented [vb37R36]: Maureen, I am not sure what you mean by accessible?

~~In addition to updating the map to address the 14,700 service lines with unknown material, and to correct inaccurate historical records for the 48,163 public-side service lines that were historically identified as copper but may contain lead, DC Water should immediately correct the below examples of misleading information in its current map:~~

Formatted: Heading 2

~~First, some lines that are colored green, indicating that the lines are free of lead, are lines that have seemingly not been assessed at all. For example, some green lines have no material listed, and other green lines are "assumed" to be a certain material based only on the material of an adjoining line that has been assessed. Other green lines have information that is apparently unreliable, indicated by a description that notes a need to "assess further for confirmation." All currently green lines that have not been assessed at all should be relabeled as white, indicating that no information exists. All currently green lines with unreliable information should be labeled a new color such as yellow, to indicate that information may not be accurate. Without these revisions, residents may improperly assume their home does not contain a LSL. The misleading green labels for private side lines are especially concerning for properties where the public side line has been determined to contain lead. There are even some properties with mixed copper and lead~~

Commented [MS39]: This would be coding error, unless you are referring to "nonlead". Please send me the addresses so I can fix it. Thanks!

~~public-side lines that label the private-side line as copper and color the lines green because the private-side line is “assumed to be same as public side,” even though the public-side line also contains lead. Such misleading and inaccurate information must immediately be corrected on DC Water’s map.~~

~~— Second, properties with brass lines are colored green, indicating that they are free of lead. Yet, brass service lines are considered to be lead service lines under the DC Code (see § 34-2158(d)(1)), and DC Water’s own website admits that brass lines may contain lead.²⁴ Properties with brass lines should immediately be changed to the color grey, to indicate the presence of lead.~~

²⁴ See DC Water, <https://www.dewater.com/do-you-have-lead-pipes-let-us-help-you-find-out>.

~~—Third, the map labels private-side lines as the “property owner’s responsibility.” Setting aside the question of ownership of private-side lines, this label is misleading because either financial assistance or complete replacement funding is available for property owners in two of the three current DC Water LSL replacement programs. Further, DC Water has more recently committed to fully fund the costs to replace all LSLs in the District by 2030, either through federal and District appropriations²⁵ or by customers through increases in DC Water’s rates,²⁶ and the Task Force has recommended that DC Water replace all lines free of charge under the new LSL replacement program. DC Water should accordingly remove the “property owner’s responsibility” label from all private-side lines.~~

²⁵ See Section ___ of this report on federal and District funding sources.

²⁶ See DC Water Board of Directors, Budget and Finance Committee Meeting, [Error! Hyperlink reference not valid.](#) February 24, 2022, at 54.

~~— Lastly, for properties with unreliable information that need further assessment, the map does not provide a mechanism for residents to request that further assessment. The map does include a link entitled “learn more on Service Pipe Materials,” and this linked document provides an email for residents to use to submit photos of their pipes. However, most residents likely will not follow a link that invites them to learn more, and the request for photos is not clear. Moreover, the information requested in this linked document is different from the information on DC Water’s webpage devoted to identifying service line material. On that webpage, DC Water requests that residents submit additional identifying information beyond photos, and also explains that if a resident is not able to identify their service line material they can request an evaluation.²⁷ DC Water should make clear on the map itself that residents with no information about their material or with unreliable material information may request an evaluation from DC~~

~~Water. Such evaluations should follow the four-step verification protocol recommended above.~~

C. Interagency Coordination

~~RECOMMENDATIONS~~To date, DC Water, DDOT, DOEE, and DCRA, with support from the Deputy Mayor of Operations and Infrastructure, have made tremendous headway to best plan and coordinate the execution of block-by-block lead replacement work this year. Many of these efficiencies can be reviewed in the draft Memorandums of Agreement (MOAs) for DC Water's three lead service line replacement programs in the Appendix of this Report. ²⁷

The Task Force has reviewed these MOAs and provided comment which were incorporated into the final draft (still in the process of signature). Below are additional recommendations the Task Force has developed related to efficient interagency coordination.

~~*Recommendation 1: Review and execute annually a Memorandum of Agreement (MOA) outlining the roles, responsibilities, and program specific coordination efforts between District agencies and DC Water.*~~

~~*Recommendation 2: Implement annual review process of planned work to coordinate overlap. District utilities (including Pepco & Washington Gas), and District permitting agencies (DDOT, DCRA, DOEE). Review facilitated by Deputy Mayor of Operations and Infrastructure.*~~

~~*Recommendation 3: Streamlined permitting and inspections of work. See MOAs in Appendix.*~~

Formatted: Font: 14 pt

Formatted: Heading 4

Formatted: Font: Not Italic

Formatted: Font:

Formatted: Normal, No bullets or numbering

Formatted: Font:

Formatted: Normal, No bullets or numbering

²⁷ ~~<https://www.dewater.com/do-you-have-lead-pipes-let-us-help-you-find-out>~~

Recommendation 4: Coordinate and share responsibility of work related-restoration. A significant cost identified for execution of this work is street repaving (as much as 25% of program costs). Without adequate controls, funding that could be used for lead replacement will instead be used for repaving.

Recommendation 5: Identify funding sources e.g. Bipartisan Infrastructure Law funding for street restoration, not specific to lead service line replacement that can achieve parallel goals. See specific transportation-related funding sources examples in the "Recommendations for Funding Sources" subsection of IV. Funding Sources.

Recommendation 6: To the extent that other funding is not available to cover District agencies' planning, inspection, and completion of lead service line replacement work, these costs should be funded from the District's budget.

Appendix X & Y contain FY22 MOAs for DC Water's three lead service line replacement programs:

Implement annual review process of planned work to coordinate overlap. District utilities (including Pepco & Washington Gas), and District permitting agencies (DDOT, DCRA, DOEE). Review facilitated by Deputy Mayor of Operations and Infrastructure:

Streamlined permitting and inspections of work:

More than 150,000 excavations

To the extent that other funding is not available to cover, these costs Coordinate and share responsibility of work related-restoration. A significant cost identified for execution of this work is street repaving (as much as 25% of program costs). Without adequate controls, a constraint of this program will be

Identify funding sources e.g. BIL funding for street restoration, not specific to lead service line replacement that can achieve parallel goals:

Formatted: Font:

Formatted: Normal, No bullets or numbering

Formatted: Normal

Formatted: Heading 4, No bullets or numbering

Commented [JD40]: Randy - please reword

Commented [3g41R40]: Done.

Formatted: Default Paragraph Font

Formatted: Font:

Formatted: Font: 14 pt, Italic

Commented [JD42]: Randy - please reword

Commented [3g43R42]: Done.

D. Interagency Spending Proposal

~~This section should include a proposed spending outline from each agency identified in Section 1 & # of the report. Again, this can be general, but the thought here is to think about where each agency can propose to have a concentrate "lead removal effort". DC Water should lead the section with the identification of our most updated spending report.~~

~~This section should also note the independent spending report as being conducted and note that this report was only done on DC Water's proposed spend and did not highlight or require the identification of other areas of interagency spend and coordination. Lead service line replacement activities require staging of construction equipment and excavation pits to access the service line. Sometimes, staging the equipment and/or performing the excavation will require the use of public space. In February 2015, Mayor Bowser launched Vision Zero, joining with mayors across the country in response to U.S. Transportation Secretary Anthony Foxx's Mayors 'Challenge for Safer People and Safer Streets. The goal of Vision Zero is zero fatalities or serious injuries on our roads. In order to support this goal, lead service line replacements that impact the public right of way must acquire approval from DDOT to ensure these replacements are performed in a manner that is not hazardous to walkers and bikers in the District. District laws and regulations require excavations of public space to be restored in accordance with DDOT's Standard Specifications for Highways and Structures and other adopted regulations and standards. Therefore, restoration of public space must be completed in adherence to these standards.~~

~~Additionally, the construction staging and excavation pits to complete lead service line replacements may impact the District's tree canopy. Urban tree cover provides dozens of environmental, economic, and aesthetic benefits to the District. Therefore, lead service line replacements must ensure adequate protection of the District's trees.~~

~~*Figure 4. Estimated Construction Quantities per LSL Program and Estimated Number of Permits Required*~~

Formatted: Normal

Formatted: Font: Italic, Underline

Formatted: Font: Italic, Underline

Formatted: Centered

Program Area	Quantities								
	Number of Lead Service	Historic Copper to be Verified	Number of Test Pits*	Number of Blocks	Number of Premises	DDOT Construction Permit	DDOT Occupancy Permits	DOEE ESC Permits	DCRA Postcard Permits
CIP									
BBB (Block-by-block)	10,086	48,163	116,498	1,096	62,236	1,096	1,096	1,096	62,236
Emergency/Vulnerable Pop	3,208	-	6,416	NA	3,208	3,208	3,208	NA	3,208
SDWMR Program	3,830	-	7,660	not in LFDC	3,830	not in LFDC	not in LFDC	NA	3,830
VFRP	1,997	-	3,993	NA	1,997	1,997	1,997	NA	1,997
LPRAP	8,854	-	17,708	NA	8,854	2,214	8,854	NA	8,854
TOTAL	27,975	48,163	152,275	1,096	80,125	8,515	15,155	1,096	80,125

Program Area	Quantities									
	Number of Lead Service Lines	Historic Copper to be Verified	Number of Test Pits*	Number of Blocks	Number of Premises	DDOT Construction Permit	DDOT Occupancy Permits - Replacement	DDOT Occupancy Permits - Restoration	DOEE ESC Permits	DCRA Postcard Permits
CIP										
BBB (Block-by-block)	10,086	48,163	116,498	1,096	10,086	1,096	1,096	1,096	1,096	10,086
Emergency/Vulnerable Pop	3,208	-	6,416	NA	3,208	3,208	3,208	3,208	NA	3,208
SDWMR Program	3,830	-	7,660	not in LFDC	3,830	not in LFDC	not in LFDC	not in LFDC	NA	3,830
VFRP	1,997	-	3,993	NA	1,997	1,997	1,997	1,997	NA	1,997
LPRAP	8,854	-	8,854	NA	8,854	2,214	8,854	8,854	NA	8,854
TOTAL	27,975	48,163	143,421	1,096	27,975	8,515	15,155	15,155	1,096	27,975

Required Permits & Inspections:

- DDOT Construction Permit** = whenever there is a public-side excavation

Work will require 8,515 DDOT Construction Permits (assuming one Construction permit per block in CIPERR block-by-block project, one Construction permit for each CIPERR Emergency Replacement and VFRP replacement, assuming one Construction permit for 25% of LPRAP replacements that will require some public-side excavation).

The cost of a DDOT Construction Permit is \$150 per each excavation in public space and private property = number of test pits. Currently DDOT waives permit fees for LPRAP. Thus, as the programs stand today, the cost of DDOT Construction Permits = CIP and VFRP test pits * \$150 = 134,567 * \$150 = \$20,185,050.

- DDOT Occupancy Permit** – whenever a contractor is mobilized in an area for work

Work will require 15,155 DDOT Occupancy Permits for replacement (assuming one Occupancy permit per block in CIPERR block-by-block program, one Construction permit for each CIPERR Emergency Replacement, VFRP replacement, and LPRAP replacement) and 15,155 DDOT Occupancy Permits for restoration = 30,310 DDOT Occupancy Permits.

The cost of a DDOT Occupancy Permit is \$75 = 30,310 * \$75 = \$2,273,250.

Formatted: Heading 4

Formatted: Font: Bold

Formatted: Font: Bold

Commented [JD44]: Double check

- **DDOT Inspections** – during and after active construction

See DDOT cost estimate below.

- **DCRA Postcard Permit** – whenever there is a private-side installation connecting a new service to the shut-off valve at the point-of-entry

Work will require 27,975 DCRA Postcard Permits (for each lead service line replacement).

The cost of DCRA Postcard Permits is \$55 each = 27,975 * \$55 = \$1,538,625.

- **DCRA Inspections** – for every new connection to private-side premise plumbing

Per DCRA recommendation detailed below, DCRA approved Third Party Inspectors cost about \$400 per inspection (based on experience from DC Water’s LSR programs). Each replacement will require a DCRA certified inspection = 27,975 * \$400 = \$11,190,000.

- **DOEE Erosion and Sediment Control Permit (ESC)** – when a certain threshold of excavation occurs (block-level projects)

Work will require 1,096 DOEE Erosion and Sediment Control Permits (assuming one ESC permit per CIPERR block-by-block project).

DDOT Spending Plan

The Task Force continues to evaluate the spending plan as follows with an emphasis on capitalizing on economies of scale over subsequent fiscal years.

CONSTRUCTION PERMIT TECHNICIANS: 3

PSRD (Public Space Resource Division) estimates it will need **3 construction permit technicians** to process the volume of construction permits DC Water expects to submit to support its lead line replacement program.

CONSTRUCTION PERMIT TECHNICIANS: 3

PSRD estimates it will need **3 construction permit technicians** to process the volume of construction permits DC Water expects to submit to support its lead line replacement program.

Formatted: Font: Bold

Formatted: Not Highlight

Formatted: Not Highlight

Formatted: Font: Not Bold, No underline, Font color: Text 2

Formatted: Heading 4

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

In CY21, PSRD processed approximately **11,801 construction permit applications** of the type expected to be submitted with the lead line replacement programs as identified by DC Water (i.e., new applications for excavation and similar underground utility infrastructure work).

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

These applications were processed by **7 technicians**.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

Therefore, **1 technician processes approximately 1,686 construction permit applications annually**.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

Therefore, based on the numbers provided by DC Water (approximately 50-100 applications weekly = 3,000 to 5,000 applications annually), DDQT would need **3 construction permit technicians** to process these applications.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

OCCUPANCY PERMIT TECHNICIANS: 5

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

~~PSRD estimates it will need **5 occupancy permit technicians** to process the volume of construction permits DC Water expects to submit to support its lead line replacement program. PSRD estimates it will need **5 occupancy permit technicians** to process the volume of construction permits DC Water expects to submit to support its lead line replacement program.~~

Formatted: Font: (Default) +Body (Tahoma)

DC Water will need **construction staging area occupancy permits** as well. DC Water will need a minimum of 2 occupancy permits for every 1 construction permit (1 each for excavation and for restoration). (We are excluding **renewals** since those typically can be processed much more quickly than the original permits, though they do take some time to process.)

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

Therefore, DC Water will require at least **6,000 - 10,000 construction staging area occupancy permits annually**.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

In CY21, PSRD processed approximately **16,802 construction staging area permit applications.**

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

These applications were processed by **9 technicians.**

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

Therefore, **1 technician processes approximately 1,867 construction staging area permit applications annually.**

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

Therefore, extrapolating from the numbers provided by DC Water, DDOT will need **5 occupancy permit technicians** to process these applications.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

PLAN REVIEWERS: 5

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

~~PSRD estimates it will need **5 Traffic Work Zone Technicians.** PSRD estimates it will need **5 Traffic Work Zone Technicians.**~~

Formatted: Font: (Default) +Body (Tahoma)

Every construction permit application will require review by a Traffic Work Zone Technician (TWZT), resulting in approximately 5,000 reviews. In addition, the Traffic Work Zone technician will need to review the additional restoration construction staging area occupancy permit applications, requiring another 5,000 reviews for a total of **10,000 traffic work zone reviews.**

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

The **8 TWZTs** reviewed **16,522 applications** in CY21. Therefore, each TWZT reviewed **2,065 application last year.**

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

To perform 10,000 reviews, DDOT will need **5 TWZTs.**

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

PUBLIC SPACE INSPECTORS: 10

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

PSRD estimates it will need **10 Public Space Inspectors**.

Formatted: Font: (Default) +Body (Tahoma)

Each of the 3,000 to 5,000 applications annually will require a minimum of 5 public space inspections. These include at least 1 inspection during the application review process; 1 inspection prior to the start of construction; 1 inspection while construction is underway; 1 inspection to establish the extent of restoration; and 1 inspection to confirm restoration was completed properly.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

Therefore, there will be approximately **25,000 public space inspections**.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

These inspections will be performed by Capital Improvement Projects inspectors within the Public Space Inspections team. These inspectors averaged a little over 2,000 permit inspections in CY21. Therefore, DDOT will need at least **10 Public Space Inspectors** to perform the required inspections annually to support this program.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

DCRA Spending Plan

Formatted: Font: 14 pt

Formatted: Heading 4

Formatted: Not Highlight

DCRA cannot accommodate the expected expanded program inspection-wise. It would require a full time inspector which is not feasible. **It is highly recommended that DC Water use the Third-Party Inspection Program** (see cost estimate above). The same day inspections are difficult to achieve, as ~~it is~~ the inspections themselves are sometimes scheduled late and utilize a lot of administrative time to manually schedule. DCRA

Formatted: Font: Bold

Commented [JD47]: DCW provide estimate

~~DCRA cannot accommodate the expected expanded program inspection wise. It would require a full time inspector which is not feasible. It is highly recommended that DC Water use the Third-Party Inspection Program. The same day inspections are difficult, as it is sometimes scheduled late and utilize a lot of admin time to manually schedule.~~

Formatted: Font: (Default) +Body (Tahoma)

As of now the inspections that are being called-in require around 2.5 hours/day to accommodate their needs. DCRA ~~We~~ currently ~~have to~~ use between 1 and 2 inspectors, as ~~they work are~~ spreading out.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

ThereIf DCRA/DOB bring inspections in-house, this will require ~~has been a suggestion that DCRA/DOB will need~~ a NTE for the years of the program, which will require funding and we would suggest it be paid for by DC Water.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

Regarding the staffing hourly wage, DCRA/DOB believes ~~it would be~~ an hourly rate from the agency is \$140 ~~with fringes~~- aka fully loaded. A DCRA inspection is required for each private side replacement = 27,875 replacements * 2.5 hours inspection = 69,688 hrs/8 years = 8711 hrs per year/2080 hrs per FTE =4.2 FTEs each year. Cost per FTE is \$140/hr *2080 = \$291,200 * 4.2 FTE = \$1,223,040 per year. By comparison, DC Water's estimate of Third Party Inspections = \$1,398,750 per year.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

Apologies for sending another email, but wanted to just flag that ~~two~~Two additional types of properties take more time for inspections due to their complexities: historic district and flood hazard area properties. DC Water and DCRA will conduct an analysis of estimated work in these areas, though it should not be a significant impact to cost.

Formatted: Font: (Default) +Body (Tahoma), 11 pt

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

DOEE and other Agency Spending Planies

Per the FY23 budget, DOEE's cost proposal is two Grade 11 FTEs (\$68,870) x ~23% fringe rate = ~\$170K. These are union positions, so there will likely be a cost of living increase each year.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) Times New Roman, Font color: Custom Color(RGB(35,31,32)), Not Highlight

Formatted: Not Highlight

Formatted: Heading 4

The stormwater permit team is paid for by permit fees and will not require additional funding.

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

Formatted: Font: (Default) +Body (Tahoma)

E. Recommended Changes or Clarifications to DC Water’s Lead Service Line Replacement Plan
Recommended Changes or Clarifications to DC Water’s Lead Service Line ReplacementFree DC Plan

Formatted: No bullets or numbering

The following section details recommendations related to planning and prioritization of lead service line projects to achieve the 2030 Lead Free goal. The Task Force members share goals around transparency, public participation, and flexibility to allow potentially changes prioritization in response to evolving regulatory conditions and program needs. **The Task Force is interested in comments and feedback from the public around how best to achieve these shared goals.**

Formatted: Font: Bold

DC Water’s LSLR Plan uses a multi-tiered process to schedule LSL replacements. First, it assigns blocks various values based on measures of economic need (using an “Area Deprivation Index”), elevated health risks for customers with children, coordination with water main replacement, water quality issues related to water mains, and the service line material (i.e., whether lead is on the public and/or private side).²⁸ DC Water gives each of these elements a percentage weight from 5% to 27% of the total and scores each factor from one (negligible) to ten (extreme). Second, it uses this prioritization algorithm to schedule block-by-block replacement within three groups: (1) block-by-block primarily targeting old water mains in very poor condition; (2) block-by-block where the water main is not considered a high risk of failure; and (3) by-premise LSLs under the VFRP and LPRAP programs.²⁹ Third, DC Water divides the replacement work into four phases: (1) the current programs through FY 2021; (2) block-by-block replacement of service lines only where little or no design work is required for water mains (FY 2022 through FY 2024); (3) LSLs replaced in conjunction with water main

²⁸ LSLR Plan, page 7.

²⁹ LSLR Plan, page 8.

replacement (FY 2024 through FY 2029); and (4) service lines with unknown material not already included in block projects.³⁰

The Task Force recognizes DC Water's prioritization efforts were a commendable step towards incorporating equity while planning the first year of block-by-block projects, and DC Water recognized that this planning process would be iterative and built a prioritization model that can be modified with improved inventory data and evolving equity factors.

Figure 5 below summarizes the Task Force recommendations laid out in this section and how they can be reflected in DC Water's prioritization model.

Figure 5. Task Force Recommendations to Improve DC Water's June 2021 Lead Free DC Prioritization Model

Formatted: Underline

Formatted: Centered

Current Prioritization Criteria (June 2021)			
Category	Criteria	Weight %	Data source
Physical Condition	Main Breaks	5%	DC Water's Asset Data
Water Quality	Iron Concentration	14%	DC Water's Water Testing Data
	Chlorine Concentration	5%	DC Water's Water Testing Data
	Service Line Pipe Material	27%	DC Water's Service Line Inventory
Health and Social Equity	Area Deprivation Index	30%	U.Wisconsin
Vulnerable Population	Children under 18	10%	US Census American Community :
	Daycares	10%	US Census American Community :
Proposed Prioritization Criteria			
Category	Criteria	Weight %**	Data source
Water Quality	Service Line Pipe Material	40%	DC Water's Service Line Inventory
Vulnerable Population	Children under 5	15%	US Census American Community :
	Blood Lead Levels*	15%	From DOEE/DOH
Health and Social Equity	Black/African-American Households	15%	US Census American Community :
	Median Income	15%	US Census American Community :
		100%	

*DC Water does not currently have access to this data but is working with DOEE on a Memorandum of Understanding to obtain available data set on blood lead levels.

**Sensitivity analyses have not been conducted because not all of this data is currently available. The percentage weights in the proposed prioritization may change.

³⁰ LSLR Plan, page 8.

The Task Force also notes that it is important to consider other factors related to planning and implementing projects like the White House Council of Environmental Quality's Climate and Economic Justice Screening Tool (CEJST) that defines "Disadvantaged Areas" that can be used to prioritize the allocation of funding to meet the Justice40 goal wherein 40% of spending or project impact fall within those defined "Disadvantaged Areas."

DRAFT

Recommendation #1: LSR ProgramsPrioritization of LSLR
DC Water's June 2021 Lead Service Line Replacement Plan (the **Error! Hyperlink reference not valid.**) utilizes three programs, running in parallel, to execute LSRs: 1) Capital Improve Project and Emergency Repair Replacement (CIPERR), where DC Water initiates service replacements under planned project work such as water main replacements and emergency repairs; 2)) the Lead Pipe Replacement Assistance Program (LPRAP), where customers with lead service lines on the private side only initiate the replacement and the District funds cover 50-100% of the cost; and (3) the Voluntary Full Replacement Program (VFRP), where customers with lead service lines on the public and private sides initiate the replacement and DC Water covers 100% of the public side LSL replacement cost and homeowners cover 100% of the private side LSL replacement cost.³⁴
The Taskforce recommends eliminating the or phasing out the LRPAP program and instead DC Water replaces these service lines on private side only using the Block by-Block approach. However, to accomplish the replacement of lead pipe that is only on private property under the By-Block projects, a policy/legislative change is needed. Currently the law only allows the use of District funds for the private side replacement when DC Water is repairing or replacing the water service line in public space. Therefore, we recommend adding a policy recommendation to accompany the change in the use of District funding, which would then authorize DC Water to include these properties in the By-Block LSRs.

Introduction

DC Water's June 2021 Lead Service Line Replacement Plan (the **Error! Hyperlink reference not valid.**) is based on the premise that almost 40% of LSLs will be replaced under the two existing piecemeal programs: (1) the Lead Pipe Replacement Assistance Program (LPRAP) (where District funds cover 50-100% of the cost of private side LSL replacement), and (2) the Voluntary Full Replacement Program (VFRP) (where DC Water covers 100% of the cost of public side LSL replacement and homeowners cover 100% of the cost of private side LSL replacement).³² As discussed elsewhere in this Report,³³ these programs are significantly more expensive than the block-by-block Capital Improvement Plan and Emergency Repair Replacement (CIPERR) program. In addition, voluntary, homeowner-initiated programs that rely in whole or in part on homeowner funding allow homeowners with means to skip the line, exacerbating existing inequities in LSL replacement. If there is a legislated mandate to replace LSLs, as the Task Force recommends, and if the costs of replacement are fully funded in the CIPERR program, as DC Water has committed, there will be no need to continue replacements under the less efficient and less equitable LPRAP and VFRP programs that also entail more street closures and inconveniences for neighborhoods.

Formatted: Heading 4

Commented [JD48]: This section is verbatim repeated from Section B. Barrier 3. Removing from this section.

Formatted: Heading 4

DRAFT

³¹ ~~See Error! Hyperlink reference not valid., page 8 (of 28,000 total LSLs to be replaced by 2030, 10,800 will be replaced under the VFRP and LPRAP programs).~~

³² ~~See Error! Hyperlink reference not valid., page 8 (of 28,000 total LSLs to be replaced by 2030, 10,800 will be replaced under the VFRP and LPRAP programs).~~

³³ ~~[Citation to Cost Estimate Section]~~

Moreover, a block by block program can be targeted better to protect public health and to assure racial, socioeconomic, and health equity while improving administrative/logistical efficiency—which should be hallmarks of DC Water’s Plan. The Plan should prioritize blocks with residents who have been historically underserved, who are low-income, and who are most at risk due to (1) a DC Water/DC WASA-initiated partially-replaced LSL, (2) pregnancy and/or presence of young children in the home, and/or (3) lead in water contamination during past sampling events, while also taking advantage of economies that can be achieved from coordinating work with DC Water’s water main replacement projects and DDOT’s street repaving projects. Scheduling LSL replacements must also consider the need to create a complete and reliable inventory that identifies all LSLs accurately.³⁴ DC Water should consider all of these factors in scheduling LSL replacements. DC Water’s LSLR Plan uses a multi-tiered process to schedule LSL replacements. First, it assigns blocks various values based on measures of economic need (using an “Area Deprivation Index”), elevated health risks for customers with children, coordination with water main replacement, water quality issues related to water mains, and the service line material (i.e., whether lead is on the public and/or private side).³⁵ DC Water gives each of these elements a percentage weight from 5% to 27% of the total and scores each factor from one (negligible) to ten (extreme). Second, it uses this prioritization algorithm to schedule block by block replacement within three groups: (1) block by block primarily targeting old water mains in poor condition; (2) block by block where there is no evidence of poor water mains; and (3) by premise LSLs under the VFRP and LPRAP programs,³⁶ which the Task Force recommends be phased out. Third, DC Water divides the replacement work into four phases: (1) the current programs through FY 2021; (2) block by block replacement of service lines only where little or no design work is required for water mains (FY 2022 through FY 2024); (3) LSLs replaced in conjunction with water main replacement (FY 2024 through FY 2029); and (4) service lines with unknown material not already included in block projects.³⁷ The Task Force believes that this complex prioritization process can and should be simplified and improved to place greater emphasis on racial, socioeconomic, and health equity.

Recommendation #2: DC Water’s Prioritization for Lanning Model Factors Social Equity

³⁴As noted elsewhere in this Report, DC Water has indicated that about 15,000 service lines have unknown materials, and another 48,000 service lines that were historically identified as copper need to be verified. Further, many of the materials identified in DC Water’s map are based on tap cards and other estimates from historic records. These can serve to prioritize blocks, but are not always reliable indicators of the exact pipe material at an individual residence.

Commented [MS49]: Move to another section

Commented [3g50R49]: Where do you proposed to put it? It seems appropriate in the discussion of DC Water’s plan.

DC Water's LSLR Plan uses a multi-tiered process to schedule LSL replacements. First, it assigns blocks various values based on measures of economic need (using an "Area Deprivation Index"), elevated health risks for customers with children, coordination with water main replacement, water quality issues related to water mains, and the service line material (i.e., whether lead is on the public and/or private side).³⁵ DC Water gives each of these elements a percentage weight from 5% to 27% of the total and scores each factor from one (negligible) to ten (extreme). Second, it uses this prioritization algorithm to schedule block by block replacement within three groups: (1) block by block primarily targeting old water mains in very poor condition; (2) block by block where the water main is not considered a high risk of failure; and (3) by premise LSLs under the VFRP and LPRAP programs.³⁶ Third, DC Water divides the replacement work into four phases: (1) the current programs through FY 2021; (2) block by block replacement of service lines only where little or no design work is required for water mains (FY 2022 through FY 2024); (3) LSLs replaced in conjunction with water main replacement (FY 2024 through FY 2029); and (4) service lines with unknown material not already included in block projects.³⁷ DC Water appropriately seeks to give preference to LSL replacements that will reduce the health hazard for those most at risk and focus on those populations that research has shown bear a disproportionate burden of lead and other environmental hazards, i.e., poor communities and Black, Indigenous, and people of color communities (BIPOC). Several aspects of DC Water's model, however, work at cross purposes to those goals and should be modified.

Formatted: Heading 4

Use of the Area Deprivation Index (ADI)

The Area Deprivation Index (ADI) is based on a measure created by the Health Resources & Services Administration (HRSA) and was refined, adapted, and validated to the Census Block Group neighborhood level by University of Wisconsin-Madison. It allows for rankings of neighborhoods by

Commented [MS51]: DC Water used the ADI index until more meaning data could be sourced.

DC Water agrees that the we should use datasets more directly applicable to the objective. We know have the 2020 Census data available to for race and equity data.

Commented [3g52R51]: We don't need an extended explanation of the ADI if we are proposing that we use better data.

³⁵Error! Hyperlink reference not valid.—page 7.

³⁶Error! Hyperlink reference not valid.—page 8.

³⁷Error! Hyperlink reference not valid.—page 8.

³⁸Error! Hyperlink reference not valid.—page 7.

³⁹Error! Hyperlink reference not valid.—page 8.

⁴⁰Error! Hyperlink reference not valid.—page 8.

~~socioeconomic disadvantage including factors for the theoretical domains of income, education, employment, and housing quality with 17 socioeconomic and demographic factors drawn from 2014-2018 US census data.⁴¹ Although this tool focuses properly on equity, but it uses too many inputs that are might not meaningful or strongly associated with the lead in water issue in this context (and some that distract) to be the right indicator going forward. To address equity concerns, DC Water uses an ADI that includes 17 socioeconomic and demographic factors drawn from 2014-2018 US census data.⁴² Each factor in the ADI is given a score to identify “least disadvantaged block groups” and “most disadvantaged block groups.” While this methodology appears to have a degree of precision, a close examination identifies several weaknesses:~~

~~A number of the ADI’s constituent elements — e.g., median family income, median monthly mortgage, percent of population below 150% of the poverty threshold, percent of families below the poverty level, and income disparity — are simply various ways of measuring income and provide little or no incremental information, particularly when they are based on outdated data. The ADI also includes factors that are not directly relevant in the DC LSL replacement context and could add noise to the model. For instance, the percent of occupied housing units without a telephone, the percent of housing units without a motor vehicle, crowding in the home, and the percent of occupied housing units without complete plumbing all indicate income disparity but might not be as relevant of an indicator for the District of Columbia could add noise to the model and reduce its utility for this purpose. Finally, the ADI does not expressly consider the impact of historical disadvantages and systemic racism faced by communities of color, particularly Black residents. We know that Black Americans have the highest mean blood lead levels and that Black children are more likely than others to experience elevated lead~~

~~⁴¹-Error! Hyperlink reference not valid., page 7. The use of data from 2014-2018 may be questionable given the recent growth of the District and the changes in demographics as a result of gentrification.~~

~~⁴²-Error! Hyperlink reference not valid., page 7. The use of data from 2014-2018 may be questionable given the recent growth of the District and the changes in demographics as a result of gentrification.~~

levels.⁴³ The past voluntary programs have not produced racially equitable results,⁴⁴ and race is an appropriate consideration in the LSL replacement program.

Including these most relevant metrics directly, rather than relying on the ADI, would allow for a more efficient modeling scheme that will be more equitable and transparent to stakeholders. For this metric, the Task Force recommends that DC Water simply focus its priorities on the most overlooked sections of the District. The most service lines with unknown material are in Wards 7 and 8, and DC Water should expeditiously identify and replace LSLs there. For known LSLs, it should concentrate efforts in Wards 4 and 5. Any further refinement is not likely to provide a commensurate benefit.

Recommendation 1: Replace the Area Deprivation Index with other specific demographic data to better prioritize social equity

The Area Deprivation Index (ADI) is based on a measure created by the Health Resources & Services Administration (HRSA) and was refined, adapted, and validated to the Census Block Group neighborhood level by University of Wisconsin-Madison. It allows for rankings of neighborhoods by socioeconomic disadvantage including factors for the theoretical domains of income, education, employment, and housing quality with 17 socioeconomic and demographic factors drawn from 2014-2018 US census data.⁴⁵ Although this tool focuses on equity, it uses too many inputs that might not be meaningful or strongly associated with the lead in water issue. Each factor in the ADI is given a score to identify “least disadvantaged block groups” and “most disadvantaged block groups.” While this methodology appears to have a degree of precision, a close examination identifies several weaknesses.

A number of the ADI’s constituent elements — e.g., median family income, median monthly mortgage, percent of population below 150% of the poverty threshold, percent of families below the poverty level, and income disparity — are simply various ways of measuring income and provide little or no incremental information, particularly when they are based on outdated data. The ADI also includes factors that are not directly relevant in the DC LSL replacement context and could add noise to the model. For instance, the percent of occupied housing units without a telephone, the percent of housing

⁴³ White, B. M., Bonilha, H. S., & Ellis, C. (2016), **Error! Hyperlink reference not valid.** *Journal of Racial and Ethnic Health Disparities*, 3(1), 145–153.

⁴⁴ Bachler, K. J., McGraw, M., Aquino, M. J., Heslin, R., McCormick, L., & Neltner, T. (2022), **Error! Hyperlink reference not valid.** *Sustainability*, 14(1), 352.

⁴⁵ LSLR Plan, page 7. The use of data from 2014-2018 may be questionable given the recent growth of the District and the changes in demographics as a result of gentrification.

units without a motor vehicle, crowding in the home, and the percent of occupied housing units without complete plumbing all indicate income disparity but might not be as relevant of an indicator for the District of Columbia. Finally, the ADI does not expressly consider the impact of historical disadvantages and systemic racism faced by communities of color, particularly Black residents. We know that Black Americans have the highest mean blood lead levels and that Black children are more likely than others to experience elevated lead levels.⁴⁶ The past voluntary programs have not produced racially equitable results,⁴⁷ and race is an appropriate consideration in the LSL replacement program.

Including these most relevant metrics directly, rather than relying on the ADI, would allow for a more efficient modeling scheme that will be more equitable and transparent to stakeholders.

Recommendation 2#3: Prioritization for Vulnerable Populations Update children dataset, remove daycare centers, and explore using blood lead levels to better prioritize vulnerable populations

Vulnerable Populations

In an effort to prioritize vulnerable populations, DC Water's model considered the number of children ages 18 or younger and whether there is a licensed daycare facility within 200 feet of a block. It is certainly appropriate to give greater weight to LSLs that provide drinking water to children at a developmental stage, typically under age 5, but DC Water's approach to identifying this vulnerable population should be improved.

DC Water concluded that "the Census data of children under 5 ~~does not~~ provide sufficient variation across the District," and instead, it used data for children under 18, which it "considered representative of where families live in the District."⁴⁸ Specifically, DC Water was concerned about the accurate representation at the census block level, not the ward level. Census data for children under age 5 is

⁴⁶ White, B. M., Bonilha, H. S., & Ellis, C. (2016), "Racial/Ethnic Differences in Childhood Blood Lead Levels Among Children <72 Months of Age in the United States: A Systematic Review of the Literature," *Journal of Racial and Ethnic Health Disparities*, 3(1), 145–153.

⁴⁷ Baehler, K. J., McGraw, M., Aquino, M. J., Heslin, R., McCormick, L., & Neltner, T. (2022), "Full Lead Service Line Replacement: A Case Study of Equity in Environmental Remediation," *Sustainability*, 14(1), 352.

⁴⁸ LSLR Plan, page 5.

Formatted: Normal

Commented [MS53]: DC Water is working with DOH to obtain their children-health data they developed for 51 delineated areas of the District. We are working with DOEE to obtain blood lead level data to include as a prioritization factor. If a geographic area has higher blood lead levels, then removing a source of lead for that group should be prioritized. We will review these datasets and the Children under 5 for quality and applicability to LSR prioritization model. We also agree with removing the presence of daycares from the prioritization. We also need to consider the Justice 40 Initiative.

certainly available,⁴⁹ however, and it shows a significant variation between wards. For instance, children under 5 represent 2.9% of the total population in Ward 2 compared to 9.7% in Ward 8. Moreover, the data indicates that there is not a direct correlation between the number of children under 18 and the number of children under 5. It is also unclear when the data on children were collected, and given demographic shifts throughout the District, whether the data are currently representative of where children live.

DC Water's use of proximity to daycare centers as a measure of vulnerable populations is also likely to skew the priority toward more affluent neighborhoods where daycare is more readily available and produce inequitable results. Comparing the number of children under 5 in each ward⁵⁰ with the number of spaces for pre-school children in licensed daycare centers⁵¹ demonstrates this disparity: Ward 1 — spaces for 23.4% of the under 5 population; Ward 2 — 68.9%; Ward 3 — 41.5%; Ward 4 — 25.6%; Ward 5 — 14.8%; Ward 6 — 22.3%; Ward 7 — 14.5%; Ward 8 — 21.3%. Thus, using proximity to daycare facilities as a factor in setting LSL replacements priorities will give an unwarranted advantage to residents in Wards 2 and 3 and will disadvantage Wards 7 and 5, which have among the highest concentrations of children under age 5. The Task Force recommends that DC Water use only the number of children under age 5 in its prioritization model, not proximity to a daycare facility.

DC Water's LSLR Plan also contemplates that "high risk homes, such as those with pregnant people and children under six . . . will be addressed individually at the time of notification."⁵² While these groups certainly warrant special consideration, it may not be feasible or desirable to replace them ahead of the planned work, at the head of the queue, independently of other prioritization metrics, for LSL replacement. Rather than scheduling one-off replacements on a piecemeal basis, it would be preferable to provide outreach and filters to every home with a LSL so that residents can protect themselves until they can be scheduled for block-by-block replacement. DC Water should also communicate with prenatal care providers and offer filters through a collaboration with them, as

Commented [MS54]: Apples and oranges comparison. DC Water was concerned about the accurate representation at the census block level, not the Ward level. (Children under 5 data needs review at the census block level and can likely be adjusted if needed in statistically sound methods to use appropriately in the model).

Commented [3g55R54]: The point is that it is not appropriate to use children under 18 as a proxy for children under 5 because there is not a clear correlation between these two sets of data.

⁴⁹ See "Population by Age Group by Ward in the District of Columbia," Anne E. Casey Foundation, Kids Count Data Center. DC Water uses data from census tract level, not the individual block level. LSLR Plan, page 7.

⁵⁰ "Population by Age Group by Ward in the District of Columbia."

⁵¹ Office of the State Superintendent of Education, District of Columbia, April 2022 "Child Development Facility Report."

⁵² LSLR Plan, page 8.

pregnant people should be especially cautious about lead exposure. Further evaluation of options to enable full and private-side only replacements for this critical population is needed.

DC Water is working with DOH to obtain their children-health data they developed for 51 delineated areas of the District. DC Water is also currently working with DOEE to obtain blood lead level data to begin analysis in how available data can be used in prioritization model. If a geographic area has higher blood lead levels, then removing a source of lead for that group should be prioritized.

Recommendation 3#34: Water Main Failures and Water Quality Remove water quality and water main factors in prioritization model

DC Water gives a relatively small preference to replacing LSLs where there have been historic water main failures. It is reasonable and efficient to replace all LSLs connected to a water main that is in poor condition. This priority would apply only when all other factors are equal.⁵³

DC Water's LSLR Plan gives a larger preference, however, where its water testing identifies a water quality risk based on iron or chlorine concentrations that are markers for deterioration of unlined cast iron water mains. DC Water justified using these criteria in the prioritization because low chlorine and elevated iron in water can increase lead release. The TaskforceTask Force recommends removing these criteria to focus on the equity and vulnerable populations with more directly related datasets than the potential for chlorine or iron to cause increase lead release (e.g., elevated blood lead level case data could be considered a primary indicator while chlorine and iron are secondary and influence blood lead levels). If these water mains require replacement as part of DC Water's capital improvement plan due to water quality concerns, it is reasonable to replace LSLs concurrently. It is not clear, however, that this consideration warrants a separate priority in DC Water's LSLR planning mode. DC Water will presumably schedule its capital improvements to water mains based on water quality issues independently from LSL priorities. The Task Force recommends that block-by-block LSL replacements be prioritized separately from water main improvements. There is no persuasive need to include water main replacement considerations in the planning model for LSL replacement, particularly when DC Water proposes to apply the priorities separately for LSLs with poor condition water mains and without.

Formatted: Heading 4

⁵³ LSLR Plan, page 7.

Recommendation 4#45: Score private-only lead service lines the same as full lead service lines in prioritization model Service Line Material

Once DC Water has a reliable, comprehensive inventory of service line material, that factor should play a prominent role in scheduling block-by-block LSL replacement. DC Water's LSLR Plan gives greatest weight to blocks with the highest concentrations of LSLs.⁵⁴

The Plan gives greater weight, however, to replacing public side LSLs and lesser weight to replacing "partials" private-side only lead service lines — i.e., replacement of the private side where DC Water has previously replaced only the public side LSL. The Task Force agrees that the presence of lead pipe poses a risk and, in consideration to improving LSR efficiencies, recommends that all service lines with any amount of lead pipe be given the same score for prioritization model. By only replacing the public side LSLs, DC Water increased the risk of lead release, and studies indicate that these partials continue to pose a greater risk.⁵⁵ Thus, DC Water's Plan has the priorities backward. It should give greater weight to private side only LSLs so that they will be replaced in preference to replacing both the private and public side LSLs. This is appropriate both from a public health standpoint and from an equity standpoint since those customers who have been exposed to the increased risk of lead release from partials should be relieved of that risk ahead of others. However, DC Water should continue to do replacements on a block by block basis rather than focusing only on specific homes.

Recommendation #56: Relative Weights in the Prioritization Model Redistribute relative weights of each factor in prioritization model

DC Water assigned the following weights to each of the factors in its model based on its "engineering judgment" rather than any objective, quantifiable criteria: (1) ADI — 25%; (2) children under 18 — 10%; (3) licensed daycare facility — 15%; (4) water main failures — 5%; iron concentration — 14%; (5) chlorine concentration — 5%; and (6) service line material — 27%.⁵⁶ Based on the previous analysis, the Task Force recommends several changes.

First, instead of the ADI, DC Water should use a simpler metric based on ward and racial/socioeconomic concentrations. For both public health protection and equity, the Taskforce Task Force recommends the following three factors should be prioritized with example weights. The model

⁵⁴ LSLR Plan, page 7.

⁵⁵ [Yanna to provide citations]

⁵⁶ LSLR Plan, page 7. (The Plan does not explain why these weighting factors add up to 101%.)

Formatted: Heading 4

Commented [MS56]: DC Water agrees the private-side only lead service lines could be more efficiently replaced during the By-Block projects than through the LPRAP. Should the District law allow for District funds be used to replace these service lines during the By-Block project, then prioritization would be adjusted to reflect the efficient program execution (for example, a separate contract for Partial LSL blocks could be used). The Revised LCR requires water utilities to replace the portion of lead pipe in public space if the property owner replaces the portion in private property. The Voluntary Program fulfills this need to for DC Water to comply and in a manner that avoids a partial LSR.

Commented [MS57]: The CDC studies Yanna Lambrinidou provided indicated no increased risk from past-partials. Response was emailed on 1/29/22 citing 3 more resources, one being a peer-reviewed study that did not analyze water or blood lead levels of past-partials vs full LSLs. The second was a letter from American Pediatrics Academy to EPA supporting elimination of Partial LSRs (no study or data identified in letter). The third was a memo to EPA by a researcher that was not peer reviewed.

Commented [MS58]: The District's full lead service lines release more lead into the water than partial lead service lines. See information sent via email on 1/29/2022.

Commented [FK(59): We seems to switch between the inventory and the model - could we consolidate these into subject-based sections?

Formatted: Heading 4

will change over time, so analysis of data inputs and outputs to achieve the desired prioritization will be executed. The Task Force recommends DC Water to publicize the prioritization model with each planning year in advance of execution.

- 1) ~~his factor~~ Presence of lead service lines to give priority to areas with a high density of LSLs. The Taskforce suggests evaluating a weight of 40%.
- 2) Social equity – The Task Force suggests evaluating a weight of ~~should be given more substantial weight — e.g., 35~~35%.
- Vulnerable population – The Task Force suggests evaluating a weight of 25%. ~~Second, to recognize the impact of lead exposure on vulnerable populations, the Plan should use available data on children under age 5 and should give it a weight of 25%. Third, there should be no consideration in the planning model for water main condition since water main replacement will be handled as part of DC Water’s ongoing capital improvements program based separately on water quality considerations. Fourth, the service line material factor should give priority to replacing pipes in areas with a high density of partials over public LSLs, and this factor should be given a weight of 45%.~~
- 3)

Project Group LSL Replacement Methodology

Phases for LSL Replacements

DC Water proposes to focus at the beginning of the program on LSL replacements that do not require significant design and water main replacement and to defer work on LSLs associated with water main replacement until up-front design can be completed. The Task Force agrees with this approach in principle. Nevertheless, the Auditor should monitor implementation of this phasing to ensure that design work for high priority blocks is scheduled first and completed at the beginning of Phase III.

Commented [MS60]: DC Water agrees with considering the allocation or similar, but will need to evaluate with the model runs.

Commented [MS61]: Percentages add to 105%.

Formatted: Numbered + Level: 1 + Numbering Style: 1, 2, 3, ... + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Indent at: 0.5"

Commented [MS62]: DC Water agrees with considering the allocation or similar, but will need to evaluate with the model runs.

Commented [MS63]: Percentages add to 105%.

Formatted: Normal

Formatted: Normal, Centered

Commented [MS66]: DC Water provides information to our Board, ratepayers, and other stakeholders as part of our budget and ratemaking process. See [dcwater.com/ratemaking-process](https://www.dwater.com/ratemaking-process) for more information. We have also report on our Environmental, Social, and Governance (ESG) initiatives, and produced the first ESG report by a public utility

<https://www.dwater.com/esg-reporting>

Our finances and forecasts are regularly monitored by the rating agencies because we have nearly \$4 billion in debt outstanding. Our high ratings (AAA from Standard and Poor’s) reflect our strong financial management.

As an independent authority, DC Water reports our financial results to our Board of Directors. The Board regularly reviews our financial performance, including progress o...

Formatted: Centered

Commented [MS67]: Suggest this discussion be a Barrier related to participation rate. The Phases are driven by construction needs (need to design and ...

~~DC Water plans to leave until Phase IV — FY 2026 through FY 2029 — work on “unknown service lines not already identified in block projects.”⁵⁷ This plan has significant equity implications because most unknown service lines are in Wards 7 and 8. That means that LSL replacement in those wards — where the need for lead removal is greatest — could be postponed until the end of the program regardless of how those blocks rank in the prioritization model. Given that these wards have historically not received adequate public resources and the populations in those wards are most likely to bear other burdens, including other lead burdens, it would be inappropriate to leave those wards until last. However, given the research that shows even within one neighborhood BIPOC and poor people are most likely to have a disproportionate impact from lead, this report would be incomplete without mentioning effective outreach and lowering refusals. If we do not find a way to reduce refusals, especially among historically marginalized populations (who often have been given many well-founded reasons to mistrust officials) prioritization will not be meaningful. DC Water must take steps to identify all LSLs, especially in Wards 7 and 8, so that they can be included in earlier phases of the program.~~

Commented [MS68]: The identification of Unknowns will continue through the project due to the inherent challenge of identifying service pipe in both private and public space. For example, challenges with digging around large trees, not being able to find the service line during excavation, and point-of-entry pipes not visible all contribute to a small percentage that will be delayed. DC Water is being transparent about the field challenges we encounter and suspect will delay some identification and replacements to the later years.

Commented [JD69]: There is no clear recommendation here. Deleting from clean draft - this needs to be reworded for inclusion in the next draft.

~~With sufficient funding secured to replace all of the lead service lines in the District,⁵⁸ the most significant remaining barrier to achieving the Lead Free DC goal by 2030 is the low participation rate in the program, even though individual customers are not charged for the replacement. DC Water is only replacing lead pipes where it has obtained affirmative, written consent from the property owner, and based on experience to date, a very large percentage of customers do not provide that consent, sometimes DC Water is only able to obtain consent from a small fraction of contacts. This has left a patchwork of lead, copper, and unknown pipe materials even in the areas where DC Water has conducted its block-by-block program. Addressing this barrier will secure the highest return.~~

Commented [BV70]: I want to get DC Water to fill this in more.

~~Although the homeowner consent is far and away the largest barrier to full LSLR in the District, there are other barriers that policymakers and other stakeholders can address to improve the program's overall chance of success. Customer confusion on a wide range of topics is the next most urgent barrier that requires multi stakeholder cooperation to address. Many District residents are either unaware that there has ever been a lead problem in our water or erroneously believe that it is solved. Many more mistrust the local government, the water utility, or both. There are many reasons that customers may not be concerned. For example, many lack an accurate understanding of the harms of lead exposure (especially the well-studied impacts of low-level lead exposure), or believe DC Water's~~

⁵⁷~~Error! Hyperlink reference not valid.~~, page 8.

⁵⁸~~DC Water reports as of ** [date] that the LSLR program is fully funded. The Board of Directors approved this plan, including a possible rate increase, based on the planning level cost estimate.~~

statement that because it complies with federal regulations, the water is safe to drink (it doesn't). The Task Force has presented Council with model legislation and a breakdown of how that approach compares with a successful program in Newark, NJ as well as proposed legislation in the District. In addition, in this section the Task Force identifies the most critical barriers to full LSLR and proposed solutions:

Barriers to full LSLR

The following barriers represent the most significant opportunities to improve LSLR in the District and reach the 2030 Lead Free DC goal:

Barrier 1: High rate of customer refusal to consent to LSLR

In many areas there are remarkably low participation rates in the LSLR programs, with as little as 30% consent obtained. There are many reasons that are given by customers who are skeptical. Some common examples include people do not believe there is a problem because they either always drink the water without perceived impact or already distrust the water sufficiently to rely mostly on bottled water. Some people simply never respond (particularly problematic in the case of tenants), and some are concerned about damage to their yards or homes. Whatever the reasons given, there is a significant gap difference between the District and other cities that have been able to remove their lead pipes successfully.

Barrier 2: Need to verify LSLs with an updated inventory

As discussed in section ** of this report, although DC Water's lead pipe map (<https://geo.dewater.com/Lead/>) made strides towards fully identifying the presence of lead in our drinking water system, when it comes to formulating an action plan to remove the lead pipes, the map alone is insufficient. Many homes on the map are inaccurately listed, and many more are unknown. This is especially challenging in Wards 7 and 8, where less information about pipe material is available. This information asymmetry can fuel inequity and can make it difficult to convey urgency while also allowing people to plan for the pipe replacement. DC Water needs to conduct a more complete inventory as discussed elsewhere in this report.

Barrier 3: Confusing and inefficient patchwork of LSLR programs

There are multiple different LSLR programs in the District, and at the time each was created there was a logic for it that is no longer relevant in this context where federal funding and DC Water's commitment to fund replacement through rates provides the opportunity to replace all the lead pipes rapidly. As discussed in section **, the LPRAP program covers costs where there was a DC Water-installed partial replacement in the past, but not where there is a full lead service line. The DC Water

Commented [MS71]: This section does not lead to Recommendation and is not an introduction to the next section. We also do not have data to back up the statements about customers' understanding.

Commented [MS72]: Repeated content. Deleted or moved to "Barriers and Solutions" section.

Commented [GU73]: Should this be deleted? It doesn't seem to belong.

Commented [BV74R73]: Updated.

Commented [BV75]: I'm going to need to collaborate with DC Water on this section. I recommend I just set up a call with John to go through some numbers and see how far we can get.

Commented [MS76]: Properties with partial lead service lines should continue having a means to initiate replacement as the utility cannot initiate replacement on the private property. Properties with full lead service lines can still initiate the replacement as the Revised LCR requires utilities to replace the public side if the customer replaces the private side. As the programs are designed to run in parallel, having dedicated funding and contracting capacity, customer initiated replacements are not jumping the line.

block by block program covers the full cost of the pipe replacement when a particular block is “up” for their replacements, and the voluntary program puts the cost of the replacement that runs through private property on the customer/property owner, but DC Water covers the LSL that runs through public property. This is confusing to customers and inefficient. A single block-by-block program would provide the greatest efficiency and the most equitable approach by no longer allowing customers who can pay (voluntary) or who can self-initiate the replacement (LPRAP) to “jump the line.”

Barrier 4: Lack of common understanding of the dangers of lead in drinking water

As discussed elsewhere in this report, lead is a neurotoxin so potent that there is no known safe quantity. In fact, experts estimate that it is the first lead exposure that has the greatest impact on lifetime earnings of the individual. But people are not aware of this, nor are people aware that a lead pipe can leach at any time (e.g. take false comfort in a single sample that shows low or no lead). But our experience on the Task Force is that our neighbors and customers do not understand accurately the risks of lead exposure from drinking water.

Barrier 5: Concerns about property restoration

DC Water and other Task Force participants are finding that especially given the lack of understanding of the health damage of lead, customers are also reluctant to authorize any disturbance of their yards.

Barrier 6: The consent agreement is complex and intimidating

When the Task Force examined the reasons given for customer refusals as well as the materials that DC Water was sharing, it revealed a need for a simple language, accessible document.

Recommendations:

Recommendations 1 (customer refusals) policy recommendations:

Mandate lead service line replacements: DC Water must follow in the footsteps of Newark and other jurisdictions and mandate that the District’s LSLs be replaced by 2030. Please see the recommended legislative language for specific wording. We recommend that Council require that by a date certain property owners either demonstrate they are not served by a LSL, or (1) replace the LSL on their own or (2) opt into the DC Water block-by-block program. Customers who do not wish to opt into the public block-by-block program should have the option to replace the LSL at their own expense within a designated, expedited timeline and an obligation to provide proof of a completed LSLR.

Expand opportunities to give or affirm consent to access the property:

Make it a condition of signing up for a new DC Water account

Commented [MS77]: Suggest my rephrasing as I don't think we have data to support this statement (ex. people are well aware that smoking cigarettes is bad but still do it).

Commented [MS78]: Delete because it is currently very accessible, so focus on the need for simple language.

Formatted: Normal, Centered, No bullets or numbering

Allow tenants to provide consent

Expand opportunities to consent including by involving public health practitioners (such as when a child

Recommendation 2: DC Water must refresh its inventory and update and refresh the map

Formatted: Normal, Centered

In order to ensure all LSLs are equitably replaced, DC Water must have an accurate inventory of all LSLs in the District. The Task Force understands that the current inventory contains inaccuracies and is incomplete. Accordingly, the inventory, and its corresponding online map, will need to be updated and completed as soon as possible, to ensure efficient block by block replacements and equitable prioritization.

Formatted: Centered, Indent: Left: 0"

Recommendation 3: consolidate lead replacement programs and focus on the block by block program

To achieve maximum cost efficiency and ensure equity, there needs to be a single, block by block program that has an equity and costs efficiency driven prioritization model. Multiple programs allow people to jump the line and get a replacement sooner. Filtration should be available to anyone waiting for their LSLR, but everyone should have to wait their turn.

Formatted: Normal, Centered

Recommendation 4: DC Water, DC government, the private sector, and advocates must engage in a serious public education campaign about lead

Outreach from DC Water is not enough, although the utility must more directly acknowledge the dangers of lead. But to achieve the necessary public education requires a whole-of-government approach. DC Water, advocates, and other government capacities must work together to elevate this issue in the public eye.

Recommendation 5: addressing concerns about property restoration

Commented [GU79]: How does this overlap with what Paul is drafting on Community Outreach and Education?

With guidance from opinion research, and if necessary investment in restoration from Council, DC Water must find a way to allay concerns about property restoration. People have concerns that their whole yard will be disrupted, but for the most part open trench replacements (digging up the whole pipe) is an outdated methodology. We recommend opinion research if possible, but in any circumstance DC Water must show clearly how minimal the disruption should be, and property is restored.

Commented [BV80R79]: We will need to see and reference that section. While initially this section was focused mostly on the policy recommendations and fleshing them out, it now reflects the highest priority recommendations while other sections will provide detail when it is prudent. Paul, please edit for consistency.

Recommendation 6: simplify communications materials

Commented [GU81]: How does this overlap with what Paul is drafting on Community Outreach and Education?

Commented [BV82R81]: Paul will have to edit for consistency.

There must be a simplified cover sheet that is accessible. The materials should be tested with representative focus groups. Some best practices include:

Following the District's language access protocols

Using simple (maximum 5th-grade reading level) language when possible

Including a cover sheet that summarizes the material in plain language

Shows before and after pictures of replacements

Being clear about the health damages of lead

Other considerations

In addition, there are sound policies reflected in the draft legislative language that the Task Force wishes to note here:

Materials: lead, brass, and galvanized pipes (or pipe components such as pigtails and goosenecks) ought to remain eligible for replacement and ought to be included within the definition of "lead"

Safety protocol: DC Water must use the best flushing and filtration protocol available.

Finally, although they are not raised as barriers in this report, two additional barriers to lead service line replacement are worth noting here. First, funding lead service line replacement without raising water rates has been a barrier in the past. This highlights the urgency to accelerate, where possible, LSLR to match the timeline of the largest federal funding streams to obviate the need for DC Water to raise rates (although its board has already consented to future rate increases for this purpose) and to ensure that the District realizes the full benefit of the time limited federal funds available to conduct full LSLR. Second, it is a challenge to communicate to customers that existing federal regulations are not designed to be fully health protective, and are insufficient to protect human health.

Formatted: Normal, Centered, No bullets or numbering

Formatted: Normal, Centered

Formatted: Normal, Centered, No bullets or numbering

Commented [MS83]: DC Water does follows (and goes beyond) best practices on flushing and provides filter kits after service line replacements.

Formatted: Centered

Commented [MS84]: The new items here do not fall into the Report sections. Materials is already addressed.

Commented [3g85R84]: Does DC Water still intend to use these phases from the June 2021 Plan as part of the prioritization going forward?

~~VII. Funding Sources Cost Estimate~~

~~G.~~

F. Funding Sources Introduction

Formatted: Heading 2

Formatted: Heading 2

Available federal funding opportunities will vary over time, and it is DC Water’s obligation to stay current on potential funding sources each year. The Task Force has identified a sampling of some currently available sources of federal and private funding for LSL replacements.

Recommendation 1: Pursue Federal Funding

First, two recent federal acts provide the best funding opportunities for LSL replacement in the District, American Rescue Plan Act of 2021 (ARP), Public Law No: 117-2, 117th Congress (2021-22)

Funds can be used “to make necessary investments to water, sewer, or broadband infrastructure.” H.R. 1319 9901 § (c)(1)(D). The District will receive at least \$3.3 billion in direct federal relief funds, including nearly \$2.4 billion in flexible relief funds. These flexible funds include \$107 million for capital projects—including construction or other durable infrastructure—and can be used in fiscal years 2021 through 2024. The District should make available and DC Water should use available ARP funds for LSL replacement.

Infrastructure Investment and Jobs Act of 2021 (IIJA), Public Law No: 117-58

The District will expect to receive \$355 million over five years to improve water infrastructure across the District, including but not limited to the replacement of LSLs. The amount dedicated to LSL removal in the District is unclear at this time. The District should make available and DC Water should use available IIJA funds for LSL replacement.

It is clear that both Acts can be used for LSL replacement, and the Mayor is responsible for allocating the funds. These Acts can and should be used to cover the entire project, making the use of rates unnecessary.

Second, the White House recently prepared a “Lead Pipe Replacement Funding Inventory” with an incomplete list of currently available federal agency programs that could be used to fund the replacement of LSLs. This inventory is available at: <https://www.whitehouse.gov/wp->

[content/uploads/2022/03/lead_pipe_funding_fy2023.xlsx](#), and a list of the federal agency programs is copied below here:

[EPA: Drinking Water State Revolving Fund – Base Program](#)

[EPA: Drinking Water State Revolving Fund - IJA Enacted "General Supplemental" Funds](#)

[EPA: Drinking Water State Revolving Fund - IJA Enacted "Lead Service Line Replacement and Associated Activities Supplemental" Funds](#)

[EPA: Water Infrastructure Finance and Innovation Act \(WIFIA\)](#)

[EPA: Small and Disadvantaged Communities Program Grants](#)

[EPA: Lead Testing in Schools and Childcare Facilities Drinking Water Grants](#)

[EPA: Reducing Lead in Drinking Water Grant](#)

[USDA: Water & Environmental Programs \(WEP\)](#)

[USDA: Rural Housing Repair Loans and Grants](#)

[HHS/CMS: Children's Health Insurance Program Health Services Initiatives - Lead Abatement](#)

[HHS/ACF: Head Start Program](#)

[Denali Commission: Sanitation](#)

[BIA: Other Program Construction, Water Safety and Sanitation](#)

[BIA: Water Sanitation](#)

[BIA: Facilities Infrastructure and Repair: Environmental Projects](#)

[NPS: Federal Lands Enhancement Recreation Act fees](#)

[NPS: Line Item Construction](#)

[NPS: Asset Management](#)

[HUD: Lead Hazard Reduction Healthy Homes Supplements](#)

[HUD: Healthy Homes Production Grant Program](#)

HUD: Section 202 Housing for the Elderly Capital Advance

HUD: Section 811 Housing for the Persons with Disabilities Capital Advance

HUD: Housing Trust Fund (HTF)

HUD: Community Development Block Grant (CDBG)

HUD: HOME Investment Partnerships Program (HOME)

HUD: Public Housing Fund – Healthy Homes Set-Aside

HUD: Capital Fund Formula Grants

The Task Force recommends that DC Water review all of these potential federal funding sources and identify which programs could be used to fund LSL replacement in the District. While the CDBG, DWSRF, and WIFIA funds are likely the most well-known of the funding programs listed above, many of the other named programs also present promising sources of funding for the District and should not be overlooked.

In addition to the above-listed programs, two other federal agency programs could be used to fund LSL replacement in the District:

EPA’s Water Infrastructure Improvements for the Nation Act (WIIN Act)

This program assists disadvantaged communities with removing sources of lead in drinking water from drinking water systems and schools. Reduction in Lead Exposure via Drinking Water grants, a subtype of WIIN grant, funds LSL replacement. The District Department of Energy and Environment (DOEE) received \$2.3 million in Fiscal Year 2021 to support their child care center and school lead reduction program.

U.S. Department of Commerce’s Economic Development Administration (EDA), Public Works and Economic Development Program

The U.S. Department of Commerce Economic Development Administration (EDA) provides strategic investments to support economic development, foster job creation, and attract private investment in economically distressed areas of the country. The Public Works Program supports physical infrastructure improvements, including water system improvements, in economically distressed communities. Funding ranges from \$600,000 to \$3,000,000, with an average of \$1,400,000. Applications are accepted on a rolling basis.

Formatted: Font: Not Bold

DC Water should work with the District to apply for all available federal funds utilizing the above programs during each federal funding cycle until all lead service lines in the District are replaced.

DDOT should investigate additional funding sources that are available for transportation projects that can be used to fund restoration and street repaving costs in conjunction with LSL replacement so that funding available for LSL replacement is used for that purpose. See examples below:

Roads, Bridges and Major Projects	National Highway Performance Program	Department of Transportation	\$ 148,000,000,000.00
Roads, Bridges and Major Projects	Surface Transportation Block Grant Program	Department of Transportation	\$ 72,000,000,000.00
Roads, Bridges and Major Projects	Local and Regional Project Assistance Grants (RAISE)	Department of Transportation	\$ 7,500,000,000.00
Roads, Bridges and Major Projects	Grants for Planning, Feasibility Analysis, and Revenue Forecasting (Bridge Investment Program Set-aside)	Department of Transportation	\$ 100,000,000.00
Roads, Bridges and Major Projects	On-the-Job Training Program	Department of Transportation	\$ 50,000,000.00

Recommendation 2: Pursue Private Funding

Finally, if federal funding does not cover all LSL replacement costs (which it should), DC Water should seek funding from private foundations. For example, DC Water has previously named the following foundations as potential sources of LSL replacement funds: Walton Foundation, Rockefeller Foundation, Lilly Foundation, and Bloomberg Foundation. For LSL replacement in schools and child care centers, DC Water should apply for funding from programs recommended by EPA in a 2019 report, available at: https://www.epa.gov/sites/default/files/2019-10/documents/3ts_funding_document_2019.pdf. This report includes state-specific recommendations, and EPA recommends that the District pursue funding from Kaiser Permanente Foundation, the Greater Washington Community Foundation, and the Morris and Gwendolyn Cafritz Foundation.

Recommendation 3: Continue to monitor costs and update cost estimate

Any cost estimate at this early stage in a multi-year project will be subject to multiple uncertainties. The function of a prudent cost budget, however, is to gather data on comparable, well-managed projects that can be used as benchmarks, to specify necessary assumptions that may be subject to change, to identify efficiencies that can reduce costs, and to provide a baseline to measure performance during the project. Not surprisingly, DC Water's cost estimate has evolved and will undoubtedly be refined as the agency learns more and gains actual field experience. This section of the Report examines the two estimates that DC Water has provided to the Task Force and the variables

Formatted: Heading 4

that will impact actual costs. The Task Force then provides recommendations for refining and using the estimate going forward.

DC Water's June 2021 Lead Service Line Replacement Plan (the LSLR Plan) includes a "planning level" cost estimate of between \$944 million and \$1.139 billion to replace all LSLs in the District by 2030 (the 2021 Estimate).¹ The 2021 estimate was based on DC Water's historic costs "adjusted to reflect the faster pace and some more difficult-to-construct areas remaining." This estimate assumed that LSLs will continue to be replaced through the three existing programs: (1) the Lead Pipe Replacement Assistance Program (LPRAP) (wherein District funds cover 50-100% of the cost of private side LSL replacement), (2) the Voluntary Full Replacement Program (VFRP) (wherein DC Water covers 100% of the cost of public side LSL replacement), and (3) the Capital Improvement Plan and Emergency Repair Replacement (CIPERR) program (wherein DC Water/District funds cover 100% of the cost of public and private side LSL replacement). The Plan separately estimated costs for the public side and private side and identified costs that were currently funded and currently unfunded.

In the spring of 2022, DC Water revised its cost estimate to incorporate the latest bid information from its contractors, updated information about the scope of the work, and provided more detailed information about permitting and restoration work (the 2022 Estimate). After calculating the quantities and expected unit costs, the 2022 Estimate added a 10% contingency to account for uncertainties and a percentage factor for additional non-construction costs — 3% for planning and permitting, 10% for design, 10% for program management, 10% for outreach and stakeholder engagement, 5% for construction management, and 5% for data management. After all of these adjustments, DC Water's 2022 Estimate of total costs is \$598 million.²

In reviewing the cost estimate, the Task Force has considered DC Water's recent commitment to fully fund the costs to replace all LSLs (i.e., including the public and private sides) by 2030, either through federal and District appropriations³ or by customers through DC Water's rates.⁴ While the accuracy of DC Water's cost estimates remain a concern,⁵ the Task Force defers to the detailed review commissioned by the District Council and conducted by Safe Water Engineering.⁶ Instead of trying to improve the accuracy of the estimate, the Task Force focused its cost review on how actual costs can be reduced so that federal and District funds are used effectively and customers pay only the minimum amount required in rates for LSL replacement.

For purposes of this report, the Task Force uses the 2022 Estimate as DC Water's most recent and most comprehensive estimate of costs.⁷ As DC Water compiled it, this estimate depends on a number of key variables that will determine the actual costs that will be required for LSL replacement. By managing and controlling those variables, DC Water can reduce the actual costs that will be incurred.

Variables Affecting Costs

The number of LSLs

DC Water relies on its current service line inventory to estimate the number of LSLs that must be replaced, but errors will be discovered as the program proceeds. In addition to about 22,600 service lines that DC Water currently believes are lead, its inventory identifies about 14,700 service lines with unknown material and assumes that half of those are lead.⁹ Actual costs will depend on the final number of service lines that are determined to be lead.

As noted in Section ___ of this Report, it will be important to complete an accurate inventory as soon as possible so that the block-by-block replacement program can be optimized. Inaccuracies in the inventory or delays in completing it will cause inefficiencies in planning replacements and will increase costs.

The number of service lines that require material identification or verification

The 2022 Estimate added an additional cost for test pits to verify the material on 48,163 public-side service lines that were historically identified as copper but may contain lead (e.g., brass or galvanized pipe). DC Water believes that less than 10% of those lines may need to be added to the LSL inventory and replaced. As with the overall inventory, it will be important to complete these verifications quickly so that they can be included in the block-by-block planning.

The methodology used to determine service line materials

The 2022 Estimate assumes that each service line in the VFRP and the CIPERR programs will require two test pits to identify or verify the material and one test pit for the private-side-only LFRAP program. Test pits require digging to expose five to ten feet of the service line to physically verify the material used. The 2022 Estimate includes more than \$66 million for material verification, assuming that this test pit methodology will be used.

Other water utilities face a similar problem identifying the service line material, and the Environmental Protection Agency (EPA) reviewed alternative methodologies in an August 2021 paper.⁹ According to this paper, the test pit methodology is considered reliable but is “costly,” requires more time, and creates disturbance to dig up service lines that are not lead. One currently available alternative is vacuum excavation, i.e., a hydro-vacuum truck uses a high-pressure water jet and industrial vacuum to loosen the soil while a vacuum removes it into a holding tank until the service line is exposed. This methodology creates a smaller hole, is less expensive, and causes less disturbance, but for a

heterogeneous service line, it may miss lead segments. Due to this potential for false negatives, the Task Force does not recommend vacuum excavation as a cost-saving measure at this time.

Alternative LSL identification methods are in various stages of development. Electrical resistance, acoustic wave, and eddy current technologies are in laboratory or field evaluation, and metal detectors and electrical conductivity are being explored. Given the estimated \$66 million for test pits, it would be a sound investment for the DC Water to consider one of these less costly methodologies should it become mature, provided they prove capable of accurately detecting any lead segments in service lines and the costs of developing such methodologies does not exceed the savings expected from their use.

The amount of street restoration work that will be required

DC Water's estimate assumes that the block-by-block replacement program will require "curb to curb restoration" of every street where public-side LSLs are replaced. DDOT's regulations require a street to be completely repaved if the cumulative cuts in the pavement exceed 30 linear feet on a block.¹⁶ DC Water has assumed that every street in the CIPERR block-by-block program will have to be fully repaved, and the 2022 Estimate includes \$83 million in these restoration costs.

The Memorandum of Agreement between DC Water and DDOT¹¹ provides that "[i]f there are streets that overlap with DC Water CIPERR, DDOT's annual Paving Plan or other similar projects, coordination should be conducted, to the extent reasonably practical and based on both parties' independent priorities, to mobilize DDOT paving crews after DC Water CIPERR crews."¹² This coordination will reduce restoration costs, and both parties should take full advantage of such overlaps. In addition, DDOT could consider modifications to its regulations that could reduce the instances when LSL replacements will necessitate curb-to-curb restoration without jeopardizing the integrity of the street. For instance, DDOT's moratorium on non-emergency excavation on streets that were reconstructed or resurfaced within the previous five years should be waived for LSL replacements.¹³

The amount of small diameter water mains that will require replacement because of LSL replacement

The 2022 Estimate assumes that the block-by-block LSL replacement will affect the integrity of about 21 miles of poor-condition small diameter water mains that will need to be replaced. Another 152 miles of small diameter water mains will be replaced as part of DC Water's ongoing water main replacement program, not attributable to LSL replacement. LSLs connected to those small diameter water mains will be replaced in connection with that separate program.

Funds that are earmarked for LSL replacement should not be used to replace small diameter water mains (or any water mains, for that matter), regardless of whether they are planned as part of DC

Commented [MS87]: Delete section because the Report does not contain a cost evaluation. Many sections are repeated elsewhere, so suggest copying any points in these sections that are not elsewhere.

Commented [vb88R87]: Cost is a relevant factor in prioritization and efficiency, which are squarely within the report. If you find that confusing, we could add something to the title of the section. There are repeating themes, but I don't see any actual repeat content, but please feel free to identify specific things that I may be missing.

Commented [MS89]: Move point to Interagency coordination

Commented [3g90R89]: Street restoration is a variable for costs that can be controlled. It may also be discussed in connection with interagency coordination, but both DDOT and DC Water can task steps to reduce restoration costs. It should be included here.

Water's ongoing water main replacement program or incidental to the LSL replacement program. In either case, the water mains are part of DC Water's capital infrastructure that it must maintain, regardless of any LSL replacements. The Task Force agrees that poor-condition water mains will have to be replaced to assure water quality, but that work should not be attributed or charged to LSL replacement since it would be required in any case. Similarly, it may make sense to upgrade water mains at the same time as LSLR, but that does not make water mains a LSL cost, and it should not be counted as such.—

The efficiencies that can be achieved where a backlog of approved replacements can be secured

The block-by-block LSL replacement program is the least-cost and most equitable option. The current customer-initiated LPRAP and VFRP programs are performed by smaller businesses/plumbers at a higher unit cost than the DC Water-initiated CIPERR block-by-block program. The block-by-block program will realize the greatest efficiency when all LSLs on a block or group of blocks have been definitively identified in advance and DC Water has all required authorizations — e.g., permits and authorizations for work on the private side. Costs will increase if all of the LSLs on a block cannot be replaced together and some must be handled as one-offs at a later time.—

Lower costs can accordingly be achieved by focusing on the block-by-block program and expeditiously phasing out the more expensive and less equitable LPRAP and VFRP programs. These separate resident-initiated programs, which in many cases rely at least partially on resident funding of LSL replacement, were developed before the influx of federal funding that enabled DC Water's recent commitment to fully fund the costs to replace all LSLs by 2030 (through federal and District appropriations¹⁴ or, if needed, by customers through DC Water's rates).¹⁵ DC Water's Memoranda of Understanding with DDOT and DCRA (DOB) should facilitate the timely permits and inspections that will be essential on the block-by-block program.¹⁶—

Moreover, an effective mandate to replace private-side LSLs is also essential to minimize costs and to complete all LSL replacements by 2030.¹⁷ Any delays in obtaining authorization to conduct work on private property will lead directly to increased costs.¹⁸ A mandate that explicitly requires LSLR and, among other things, allows for entry on private property will avoid these delays and the associated increased costs. This mandate will further facilitate the phasing out of the more expensive LPRAP and VFRP programs because such resident-initiated programs would be obsolete after DC Water has explicit statutory authority to enter private property to replace private-side LSLs.—

The impact of inflation on the costs of materials and labor

The 2022 Estimate does not include an express allowance for expected inflation, though the costs of materials and labor will increase over the eight years of the LSL replacement project. It would be prudent to include an inflation allowance of about 3% for each year of the estimate. Because materials and labor costs are continuing to rise, all other things being equal, costs will be lower if the project can be completed sooner. Thus, earlier completion is not only important from a health and safety standpoint, but it could help to reduce costs by avoiding some price inflation and taking advantage of federally available funds that will expire before 2030.

Commented [MS91]: Outside scope of report, suggest deleting.

The ability of program management to control and reduce costs

The 2022 Estimate includes 10% of construction costs — about \$34 million — for “program management.” DC Water has indicated that it is in the process of contracting with a program manager for the entire project. The program manager can and should take steps to meet or exceed cost expectations. In addition to overall management of the project to assure efficient execution of the Plan, the program manager should apply value engineering techniques to reduce costs. Value engineering “is a creative, organized effort, which analyzes the requirements of a project for the purpose of achieving the essential functions at the lowest total costs (capital, staffing, energy, maintenance) over the life of the project.”¹⁹

Commented [3g92R91]: This is a variable affecting costs that can be controlled by shortening the time for LSL replacement and should be included here.

The program manager should have incentives to control and reduce costs consistent with maintaining quality and schedule requirements. Financial incentives are typically included in the project manager’s contract in the form of bonuses or penalties related to cost and schedule.

Commented [MS93]: Outside scope of report, suggest deleting.

The economies that should be realized over time as a result of experience

The 2022 Estimate is based on a combination of limited experience in replacing LSLs on a piecemeal basis and bids from construction contractors for the initial phases of the block-by-block program. Experience in other cities has shown, however, that “even if LSLR costs start high with the launch of a new program, they are likely to reduce quickly as cost-efficient strategies become apparent.”²⁰ The 2022 Estimate does not account for any improved efficiency over time. If properly managed to take advantage of the learning process and as contractors and inspectors become accustomed to LSL replacement on a block-by-block basis, the actual costs should be less than the current estimate.

Commented [3g94R93]: This is not outside the scope since it is another way to reduce costs so that the project can achieve its objectives.

Commented [JD95]: Where is this citation

Cost Data and Transparency

Because any cost estimate will be subject to change and cannot always accurately predict actual costs, DC Water will need to collect data on costs actually incurred to update the estimate, to assess the efficiency of the LSL replacement work, and to identify ways to reduce costs. In order to keep the Council and the public informed about the progress of the project, DC Water will need to make its cost data available and transparent on a dedicated website. The cost data should be broken out in sufficient detail so it can be analyzed to determine how cost performance compares with the cost estimates and the causes for costs that deviate from the cost estimate.

Cost Estimate Conclusions and Recommendations

If DC Water's inventory is a reasonable approximation of the number of LSLs in the District, the 2022 Estimate may be higher than the actual cost for a well-managed LSL replacement program. Lower costs are dependent, however, on implementation of steps that will make the program more efficient. The Task Force makes the following recommendations to use federal and District appropriated funds effectively and to mitigate the need for rate increases to cover LSL replacement costs.

1. DOEE or an independent audit committee (the Auditor)²¹ should require DC Water to prepare a detailed control budget and schedule that will be used as the baseline for assessing performance. The 2022 Estimate may be the starting point for developing that baseline, but it will need to be modified to address the issues discussed above — e.g., excluding small diameter water main replacement (and any other water main replacement), consolidating all the programs under the CIPERR block by block program, and planning for improved efficiency over time. Beginning no later than October 1, 2022, DC Water should prepare monthly reports for the Auditor that show performance compared with the control budget and schedule. DC Water should explain variances from the budget and schedule and propose steps that can be taken to improve performance. The Auditor will provide at least annual reports (with more frequent reports during the initial stages of the program) evaluating DC Water's performance on cost and schedule. All of these reports should be publicly available on a dedicated website.
2. DC Water, perhaps in coordination with the EPA, other water utilities, or industry associations, should develop a less costly methodology than test pits to identify service line materials. Given the high cost of test pits and the common interest of water utilities across the country, there should be a powerful incentive to find a more cost-

Formatted: Heading 5

Formatted: Font: +Body (Tahoma), 11 pt, Bold

effective alternative. While this alternative may not be available at the beginning of the project, DC Water should consider whether it may pay substantial dividends if currently experimental techniques can be field tested and adopted on a broad scale.

3. DC Water and DDOT should make every effort to coordinate street repaving and restoration, as provided in their Memorandum of Agreement. In addition, they should identify regulatory changes that will reduce the number of instances when streets must be restored curb to curb after block by block LSL replacement. In particular, DDOT regulations should be clarified to provide a waiver of the five-year moratorium for LSL replacement restoration after a street has been resurfaced.
4. The only realistic way to manage the block by block replacement program cost effectively is to require property owners to replace LSLs. As described in Section ___ of this Report, the Council should pass legislation mandating LSL replacement by no later than 2030.²² With such a mandate and LSL replacement at no cost to the property owner, there is no need to continue the more expensive LPRAP and VFRP programs, and they should be phased out and consolidated under the GIPERR block by block program, thus reducing the overall costs for the Plan. The policy recommendations section of this report addresses this further.
5. DC Water's Plan sets a goal to remove all LSLs by 2030, but that may not be the most cost-effective schedule. DC Water should evaluate whether a shorter schedule is feasible both to remove the health hazard posed by the continued presence of LSLs and to complete the project before material and labor costs increase even more. Inflation is a real cost of an unnecessarily protracted schedule.
6. DC Water should include in its program manager's contract a requirement to conduct value engineering to identify areas for cost savings without jeopardizing project goals. The program manager's contract should also include financial incentives to meet or improve upon the baseline budget and schedule objectives. Similarly, construction contracts should include incentives to improve performance. Such incentives are particularly important when contractual unit prices are based on insufficient experience with an efficient block by block replacement program.
- DC Water's Plan should be based on reducing unit costs over the course of the project, as has been proven the case in other jurisdictions. It should closely monitor trends in contractors' unit cost performance. It may be advantageous to begin the project with shorter term unit price construction contracts based on an expectation that experience will yield lower unit prices as the program proceeds. If unit prices do not decline over time, DC Water should explain why greater efficiencies were not achieved, including data on refusal rates and the effectiveness of community outreach.

Introduction

Formatted: Font: (Default) +Body (Tahoma),
11 pt

DC Water has recently committed to fully fund the costs to replace all LSLs in the District by 2030, either through federal and District appropriations⁵⁹ or by customers through increases in DC Water's rates.⁶⁰ DC Water expects rates to increase by approximately 77% between now and 2030, with approximately 8% of those increases attributable to replacing LSLs. Such an increase would burden District residents, especially low-income residents, and should be unnecessary given the substantial available federal funding and potential private funding, provided costs are kept to a minimum. In order to avoid the burden to DC Water ratepayers, DC Water must aggressively seek and utilize all available federal and private foundation funding for LSL replacement.

DOEE or an independent audit committee (the Auditor), should be responsible for ensuring that DC Water is prioritizing federal funding and private funding, rather than rate increases. In each report,⁶¹ the Auditor should include its recommendations for federal funding opportunities and other fundraising opportunities, and report on any rate increases proposed by DC Water that are attributable to LSL replacement. The Auditor's report should also include all actions DC Water has taken and actions it has not taken but should take to secure federal and private funding.

Commented [MS99]: See previous comment on Auditor.

⁵⁹ See Section ___ of this report on federal and District funding sources.

⁶⁰ See DC Water Board of Directors, Budget and Finance Committee Meeting, **Error! Hyperlink reference not valid.** February 24, 2022, at 54.

⁶¹ See section ___ of this Report.

Task Force Recommendations for Funding Opportunities

Available federal funding opportunities will vary over time, and it is DC Water's obligation to stay current on potential funding sources each year. The Task Force has identified a sampling of some currently available sources of federal and private funding for LSL replacements.

Federal Funding

First, two recent federal acts provide the best funding opportunities for LSL replacement in the District.

American Rescue Plan Act of 2021 (ARP), Public Law No: 117-2, 117th Congress (2021-22)

Funds can be used "to make necessary investments to water, sewer, or broadband infrastructure." H.R. 1319-9901 § (c)(1)(D). The District will receive at least \$3.3 billion in direct federal relief funds, including nearly \$2.4 billion in flexible relief funds. These flexible funds include \$107 million for capital projects including construction or other durable infrastructure and can be used in fiscal years 2021 through 2024. The District should make available and DC Water should use available ARP funds for LSL replacement.

Infrastructure Investment and Jobs Act of 2021 (IIJA), Public Law No: 117-58

The District will expect to receive \$355 million over five years to improve water infrastructure across the District, including but not limited to the replacement of LSLs. The amount dedicated to LSL removal in the District is unclear at this time. The District should make available and DC Water should use available IIJA funds for LSL replacement.

It is clear that both Acts can be used for LSL replacement, and the Mayor is responsible for allocating the funds. These Acts can and should be used to cover the entire project, making the use of rates unnecessary.

Second, the White House recently prepared a "Lead Pipe Replacement Funding Inventory" with an incomplete list of currently available federal agency programs that could be used to fund the replacement of LSLs. This inventory is available at:

Error! Hyperlink reference not valid. and a list of the federal agency programs is copied below here:

EPA: Drinking Water State Revolving Fund—Base Program

Formatted: Heading 2

Formatted: None, Font: (Default) Times New Roman, 11 pt, Underline color: Custom Color(RGB(35,31,32)), Font color: Custom Color(RGB(35,31,32))

Formatted: Heading 2, Indent: First line: 0"

Formatted: Heading 2

Formatted: Heading 2, Indent: Left: 0"

Formatted: Heading 2

Formatted: Heading 2, No bullets or numbering

- EPA: Drinking Water State Revolving Fund—HJA Enacted "General Supplemental" Funds
- EPA: Drinking Water State Revolving Fund—HJA Enacted "Lead Service Line Replacement and Associated Activities Supplemental" Funds
- EPA: Water Infrastructure Finance and Innovation Act (WIFIA)
- EPA: Small and Disadvantaged Communities Program Grants
- EPA: Lead Testing in Schools and Childcare Facilities Drinking Water Grants
- EPA: Reducing Lead in Drinking Water Grant
- USDA: Water & Environmental Programs (WEP)
- USDA: Rural Housing Repair Loans and Grants
- HHS/CMS: Children's Health Insurance Program Health Services Initiatives—Lead Abatement
- HHS/ACF: Head Start Program
- Denali Commission: Sanitation
- BIA: Other Program Construction, Water Safety and Sanitation
- BIA: Water Sanitation
- BIA: Facilities Infrastructure and Repair: Environmental Projects
- NPS: Federal Lands Enhancement Recreation Act fees
- NPS: Line Item Construction
- NPS: Asset Management
- HUD: Lead Hazard Reduction Healthy Homes Supplements
- HUD: Healthy Homes Production Grant Program
- HUD: Section 202 Housing for the Elderly Capital Advance
- HUD: Section 811 Housing for the Persons with Disabilities Capital Advance
- HUD: Housing Trust Fund (HTF)
- HUD: Community Development Block Grant (CDBG)
- HUD: HOME Investment Partnerships Program (HOME)
- HUD: Public Housing Fund—Healthy Homes Set Aside
- HUD: Capital Fund Formula Grants
- The Task Force recommends that DC Water review all of these potential federal funding sources and identify which programs could be used to fund LSL replacement in the District. While the CDBG, DWSRF, and WIFIA funds are likely the most well-known of the funding programs listed above, many of the other named programs also present promising sources of funding for the District and should not be overlooked.
- In addition to the above-listed programs, two other federal agency programs could be used to fund LSL replacement in the District:
- EPA's Water Infrastructure Improvements for the Nation Act (WIIN Act)
- This program assists disadvantaged communities with removing sources of lead in drinking water from drinking water systems and schools. Reduction in Lead Exposure via Drinking Water grants, a subtype of WIIN grant, funds LSL replacement. The District Department of Energy and Environment (DOEE) received \$2.3 million in Fiscal Year 2021 to support their child care center and school lead reduction program.

Formatted: Heading 2

U.S. Department of Commerce's Economic Development Administration (EDA), Public Works and Economic Development Program

The U.S. Department of Commerce Economic Development Administration (EDA) provides strategic investments to support economic development, foster job creation, and attract private investment in economically distressed areas of the country. The Public Works Program supports physical infrastructure improvements, including water system improvements, in economically distressed communities. Funding ranges from \$600,000 to \$3,000,000, with an average of \$1,400,000. Applications are accepted on a rolling basis.

DC Water should work with the District to apply for all available federal funds utilizing the above programs during each federal funding cycle until all lead service lines in the District are replaced.

Private Funding

Finally, if federal funding does not cover all LSL replacement costs (which it should), DC Water should seek funding from private foundations. For example, DC Water has previously named the following foundations as potential sources of LSL replacement funds: Walton Foundation, Rockefeller Foundation, Lilly Foundation, and Bloomberg Foundation. For LSL replacement in schools and child care centers, DC Water should apply for funding from programs recommended by EPA in a 2019 report, available at:

Error! Hyperlink reference not valid. This report includes state specific recommendations, and EPA recommends that the District pursue funding from Kaiser Permanente Foundation, the Greater Washington Community Foundation, and the Morris and Gwendolyn Cafritz Foundation.

G. Recommendations

This section includes recommended legislative and policy language. The Task Force has reached consensus on many important themes (e.g., mandate for replacement).

See files:

- "20220708 Legislative Language draft.docx"
- "20220708 Legislation chart draft.docx"

Formatted: Heading 2, No bullets or numbering

Formatted: Normal

Recommendation #1: Community Outreach and Education

Commented [GU100]: Paul to add this section.

H. Other Considerations

Formatted: No bullets or numbering

This section contains additional items to consider that did not fit into the scope of the sections as they were defined in the BSA.

Other Considerations

Formatted: Font: Bold

In addition, there are sound policies reflected in the draft legislative language that the Task Force wishes to note here.

- Materials: lead, brass, and galvanized pipes (or pipe components such as pigtails and goosenecks) ought to remain eligible for replacement and ought to be included within the definition of "lead"
- Safety protocol: DC Water must use the best flushing and filtration protocol available.

Finally, although they are not raised as barriers in this report, two additional barriers to lead service line replacement are worth noting here. First, funding lead service line replacement without raising water rates has been a barrier in the past. This highlights the urgency to accelerate, where possible, LSLR to match the timeline of the largest federal funding streams to obviate the need for DC Water to raise rates (although its board has already consented to future rate increases for this purpose) and to ensure that the District realizes the full benefit of the time-limited federal funds available to conduct full LSLR. Second, it is a challenge to communicate to customers that existing federal regulations are not designed to be fully health protective, and are insufficient to protect human health.

Variables Affecting Costs

The number of LSLs

DC Water relies on its current service line inventory to estimate the number of LSLs that must be replaced, but errors will be discovered as the program proceeds. In addition to about 22,600 service lines that DC Water currently believes are lead, its inventory identifies about 14,700 service lines with unknown material and assumes that half of those are lead.⁸ Actual costs will depend on the final number of service lines that are determined to be lead.

As noted in Section of this Report, it will be important to complete an accurate inventory as soon as possible so that the block-by-block replacement program can be optimized. Inaccuracies in the inventory or delays in completing it will cause inefficiencies in planning replacements and will increase costs.

The number of service lines that require material identification or verification

The 2022 Estimate added an additional cost for test pits to verify the material on 48,163 public-side service lines that were historically identified as copper but may contain lead (e.g., brass or galvanized pipe). DC Water believes that less than 10% of those lines may need to be added to the LSL inventory and replaced. As with the overall inventory, it will be important to complete these verifications quickly so that they can be included in the block-by-block planning.

The methodology used to determine service line materials

The 2022 Estimate assumes that each service line in the VFRP and the CIPERR programs will require two test pits to identify or verify the material and one test pit for the private-side only LFRAP program. Test pits require digging to expose five to ten feet of the service line to physically verify the material used. The 2022 Estimate includes more than \$66 million for material verification, assuming that this test pit methodology will be used.

Other water utilities face a similar problem identifying the service line material, and the Environmental Protection Agency (EPA) reviewed alternative methodologies in an August 2021 paper.⁹ According to this paper, the test pit methodology is considered reliable but is “costly,” requires more time, and creates disturbance to dig up service lines that are not lead. One currently available alternative is vacuum excavation, i.e., a hydro-vacuum truck uses a high-pressure water jet and industrial vacuum to loosen the soil while a vacuum removes it into a holding tank until the service line is exposed. This methodology creates a smaller hole, is less expensive, and causes less disturbance, but for a heterogeneous service line, it may miss lead segments. Due to this potential for false negatives, the Task Force does not recommend vacuum excavation as a cost-saving measure at this time.

Alternative LSL identification methods are in various stages of development. Electrical resistance, acoustic wave, and eddy current technologies are in laboratory or field evaluation, and metal detectors and electrical conductivity are being explored. Given the estimated \$66 million for test pits, it would be a sound investment for the DC Water to consider one of these less costly methodologies should it become mature, provided they prove capable of accurately detecting any lead segments in service lines and the costs of developing such methodologies does not exceed the savings expected from their use.

Commented [MS101]: Delete section because the Report does not contain a cost evaluation. Many sections are repeated elsewhere, so suggest copying any points in these sections that are not elsewhere.

Commented [vb102R101]: Cost is a relevant factor in prioritization and efficiency, which are squarely within the report. If you find that confusing, we could add something to the title of the section. There are repeating themes, but I don't see any actual repeat content, but please feel free to identify specific things that I may be missing.

The amount of street restoration work that will be required

DC Water's estimate assumes that the block-by-block replacement program will require "curb-to-curb restoration" of every street where public-side LSLs are replaced. DDOT's regulations require a street to be completely repaved if the cumulative cuts in the pavement exceed 30 linear feet on a block.¹⁰ DC Water has assumed that every street in the CIPERR block-by-block program will have to be fully repaved, and the 2022 Estimate includes \$83 million in these restoration costs.

The Memorandum of Agreement between DC Water and DDOT¹¹ provides that "[i]f there are streets that overlap with DC Water CIPERR, DDOT's annual Paving Plan or other similar projects, coordination should be conducted, to the extent reasonably practical and based on both parties' independent priorities, to mobilize DDOT paving crews after DC Water CIPERR crews."¹² This coordination will reduce restoration costs, and both parties should take full advantage of such overlaps. In addition, DDOT could consider modifications to its regulations that could reduce the instances when LSL replacements will necessitate curb-to-curb restoration without jeopardizing the integrity of the street. For instance, DDOT's moratorium on non-emergency excavation on streets that were reconstructed or resurfaced within the previous five years should be waived for LSL replacements.¹³

The amount of small diameter water mains that will require replacement because of LSL replacement

The 2022 Estimate assumes that the block-by-block LSL replacement will affect the integrity of about 21 miles of poor-condition small diameter water mains that will need to be replaced. Another 152 miles of small diameter water mains will be replaced as part of DC Water's ongoing water main replacement program, not attributable to LSL replacement. LSLs connected to those small diameter water mains will be replaced in connection with that separate program.

Funds that are earmarked for LSL replacement should not be used to replace small diameter water mains (or any water mains, for that matter), regardless of whether they are planned as part of DC Water's ongoing water main replacement program or incidental to the LSL replacement program. In either case, the water mains are part of DC Water's capital infrastructure that it must maintain, regardless of any LSL replacements. The Task Force agrees that poor-condition water mains will have to be replaced to assure water quality, but that work should not be attributed or charged to LSL replacement since it would be required in any case. Similarly, it may make sense to upgrade water mains at the same time as LSLR, but that does not make water mains a LSL cost, and it should not be counted as such.

Commented [MS103]: Move point to Interagency coordination

Commented [3g104R103]: Street restoration is a variable for costs that can be controlled. It may also be discussed in connection with interagency coordination, but both DDOT and DC Water can task steps to reduce restoration costs. It should be included here.

The efficiencies that can be achieved where a backlog of approved replacements can be secured

The block-by-block LSL replacement program is the least-cost and most equitable option. The current customer-initiated LPRAP and VFRP programs are performed by smaller businesses/plumbers at a higher unit cost than the DC Water-initiated CIPERR block-by-block program. The block-by-block program will realize the greatest efficiency when all LSLs on a block or group of blocks have been definitively identified in advance and DC Water has all required authorizations — e.g., permits and authorizations for work on the private side. Costs will increase if all of the LSLs on a block cannot be replaced together and some must be handled as one-offs at a later time.

Lower costs can accordingly be achieved by focusing on the block-by-block program and expeditiously phasing out the more expensive and less equitable LPRAP and VFRP programs. These separate resident-initiated programs, which in many cases rely at least partially on resident funding of LSL replacement, were developed before the influx of federal funding that enabled DC Water's recent commitment to fully fund the costs to replace all LSLs by 2030 (through federal and District appropriations¹⁴ or, if needed, by customers through DC Water's rates).¹⁵ DC Water's Memoranda of Understanding with DDOT and DCRA (DOB) should facilitate the timely permits and inspections that will be essential on the block-by-block program.¹⁶

Moreover, an effective mandate to replace private-side LSLs is also essential to minimize costs and to complete all LSL replacements by 2030.¹⁷ Any delays in obtaining authorization to conduct work on private property will lead directly to increased costs.¹⁸ A mandate that explicitly requires LSLR and, among other things, allows for entry on private property will avoid these delays and the associated increased costs. This mandate will further facilitate the phasing out of the more expensive LPRAP and VFRP programs because such resident-initiated programs would be obsolete after DC Water has explicit statutory authority to enter private property to replace private-side LSLs.

The impact of inflation on the costs of materials and labor

The 2022 Estimate does not include an express allowance for expected inflation, though the costs of materials and labor will increase over the eight years of the LSL replacement project. It would be prudent to include an inflation allowance of about 3% for each year of the estimate. Because materials and labor costs are continuing to rise, all other things being equal, costs will be lower if the project can be completed sooner. Thus, earlier completion is not only important from a health and safety standpoint, but it could help to reduce costs by avoiding some price inflation and taking advantage of federally available funds that will expire before 2030.

Commented [MS105]: Outside scope of report, suggest deleting.

Commented [3g106R105]: This is a variable affecting costs that can be controlled by shortening the time for LSL replacement and should be included here.

The ability of program management to control and reduce costs

The 2022 Estimate includes 10% of construction costs — about \$34 million — for “program management.” DC Water has indicated that it is in the process of contracting with a program manager for the entire project. The program manager can and should take steps to meet or exceed cost expectations. In addition to overall management of the project to assure efficient execution of the Plan, the program manager should apply value engineering techniques to reduce costs. Value engineering “is a creative, organized effort, which analyzes the requirements of a project for the purpose of achieving the essential functions at the lowest total costs (capital, staffing, energy, maintenance) over the life of the project.”¹⁹

The program manager should have incentives to control and reduce costs consistent with maintaining quality and schedule requirements. Financial incentives are typically included in the project manager’s contract in the form of bonuses or penalties related to cost and schedule.

The economies that should be realized over time as a result of experience

The 2022 Estimate is based on a combination of limited experience in replacing LSLs on a piecemeal basis and bids from construction contractors for the initial phases of the block-by-block program. Experience in other cities has shown, however, that “even if LSLR costs start high with the lau a new program, they are likely to reduce quickly as cost-efficient strategies become apparent.”²⁰ The 2022 Estimate does not account for any improved efficiency over time. If properly managed to take advantage of the learning process and as contractors and inspectors become accustomed to LSL replacement on a block-by-block basis, the actual costs should be less than the current estimate

7. —

Commented [MS107]: Outside scope of report, suggest deleting.

Commented [3g108R107]: This is not outside the scope since it is another way to reduce costs so that the project can achieve its objectives.

Commented [JD109]: Where is this citation

Formatted: Heading 4, No bullets or numbering

Recommendations on Communications and Outreach

DC Water presented to the Task Force the Communications and Outreach Playbook detailing tactics and processes from this first year of block-by-block projects. See Appendix file ""17 – 20220525 LFDC By-Block Communication and Outreach Playbook DRAFT.pdf." The Task Force encourages public feedback.

Note: the draft section below was provided 7/14 and most Task Force members have not reviewed and provided comments or feedback.

STAKEHOLDER ENGAGEMENT AND COMMUNITY OUTREACH

The Task Force believes that complete, accurate, thorough, and transparent communications as well as equitable and robust community partnership are essential for the successful implementation of the Lead Service Line Replacement (LSLR) Program. Such implementation requires that:

- Residents appreciate the health benefits of full LSLR and recognize the importance of the LSLR Program, and
- Have ongoing opportunities to shape and reshape the LSLR Program, as the program unfolds and areas for improvement become clear.

Central to achieving the above requirements will be a justice-centered LSLR Program that ensures, with continuous resident input:

- **Equitable LSLR** (i.e., that prioritizes historically disadvantaged neighborhoods and neighborhoods living with partially replaced LSLs)
- **Recognition of the diversity of knowledges, concerns, experiences, and needs among District residents** and mechanisms for addressing these knowledges, concerns, experiences, and needs
- **Equitable and robust resident participation in the LSLR program**, including at a minimum a) the creation of key focus groups for initial information gathering and guidance on the LSLR Program design, and b) paid resident ambassadors from every Ward who will serve as liaisons between residents and DC Water for the duration of the LSLR Program.

The stakeholder engagement and community outreach strategy should include focus groups, paid resident ambassadors, advertising to publicize the program, regular public meetings, educational materials, filter distribution programs, and mechanisms to collect customer feedback throughout the implementation of the LSLR.

Outreach Objectives and Best Practices

- Inform customers about the history of lead in water in the District - including the history of scientifically documented health harm and the scientifically documented health risks of the District's LSLs, as well as the public health benefits of lead service line replacement.

- Inform customers about the LSLR Program and conduct multiple focus groups, centering key stakeholders (e.g., residents in disadvantaged neighborhoods, members of neighborhoods with historic problems with lead in water, members of neighborhoods with a high concentration of partial LSLs, tenants, landlords) to understand resident questions, concerns, and recommendation and, by extension, how best to design/improve the LSLR Program.
- Inform customers about their service line material(s) as well as all uncertainties/limitations pertaining to the identification of those materials and any potential components that may contain lead but that do not meet DC Water's LSL definition and will not be replaced.
- Develop a Q&A document that is posted online and distributed to customers addressing key elements of the LSLR Program and common resident questions and concerns (e.g., parking disruptions, property disturbances, repair/restoration of yards, fences, landscaping).
- Inform customers of their service line replacement options and rights under the law.
- Publicize information that is reviewed and approved by focus group members, Ward-specific ambassadors, and ANC commissioners spelling out in a complete, accurate, and user-friendly way all components of the LSLR Program (e.g., assistance funding, service line map, service line materials identification guides, water filtration program, etc.). For all written materials, follow the District's language access protocols.

Outreach Tactics

Stakeholder Engagement

First, the Task Force recommends that DC Water work with external stakeholders to report on the progress of the LSLR Program and solicit guidance on how to improve program outcomes. Deliverables from DC Water must include:

- Equity Plan to prioritize vulnerable/at-risk residents in the planning, communication, and implementation of LSLR Program activities.
- Improved outreach materials about lead risk mitigation, flushing and filtering.
- Tailored outreach activities to promote lead replacement including door-to-door canvassing, faith-based outreach, and ANC representation.
- Improved coordination and communication between residents, elected officials, advocacy groups, District agencies (holistic approach to addressing lead and lead inspections).
 - Feasible outside funding sources.
 - Identified opportunities for community and workforce development.
 - Identified ideas and champions for lead replacement/disclosure legislation and policy.

DC Water is also encouraged to work with external partners in other capacities including:

- Industry groups.
- Plumbers and contractors.
- Faith-based organizations and other non-profits, such as the Greater Washington Urban League and AARP, to distribute information and to co-host workshops to share information with customers and help them apply.

- DC Office on Religious Affairs, DC Office on Aging and other District government agencies to help reach customers and disseminate information.

Second, the Task Force recommends that DC Water and DOEE schedule biannual public meetings to update the public on the progress of the Lead Service Line Replacement Program and to solicit public input on needed program modifications. These public hearings should be held in-person with a virtual/web-access component and should be advertised in local newspapers, on DC Water's and DOEE's websites, and in all written educational materials that are distributed to the public. In addition, DC Water should attend ANC meetings to provide updates on the LSLR program, and advertise the biannual LSLR program public hearings at these ANC meetings.

Direct Engagement

First, the Task Force recommends that DC Water and the District implement a Filter Program, pursuant to the terms of the draft legislative language we are concurrently proposing. As specified in the draft legislative language, the District should supply pitcher-style or point-of-use filters to all buildings with lead or unknown service line materials within fourteen days of providing notice to those properties regarding the presence of a lead service line or a service line with unknown material.

Second, the Task Force recommends that DC Water improve its educational materials in the following ways.

- DC Water must provide written notice to all buildings with a lead service line or a line of unknown material within six months of the effective date of the Task Force's proposed legislation, or within six months of DC Water's determination that a building is serviced by a lead service line.
- As recommended in part X of this report, DC Water must make improvements to its online map of service lines, including updating the information on the map and correcting confusing and misleading color codes for buildings. The Task Force's specific recommendations regarding the map improvements are made in section X of this report.
- DC Water must edit all of its written handouts, brochures, flyers, emails, letters, and webpage materials to better explain the health threats posed by any amount of lead in service lines, even when DC Water is in compliance with all lead regulatory requirements. This science-based health information must include the risks to all age groups, as well as the risks from taps that have previously tested negative for lead. All written materials must be reviewed and approved by focus group members, Ward-specific ambassadors, and ANC commissioners.
- DC Water must also address disruptions to street parking and damage to lawns, landscaping, fences, and other property concerns in all of its written educational materials. Based on preliminary, informal survey data, the Task Force believes that property damage and inconveniences are major barriers to current LSLR program participation. DC Water must make all reasonable assurances regarding the minimization of disruptions and property damage, as well as repairs to damaged property and landscaping.

- DC Water must also target property owners, as opposed to tenants, in its outreach about the LSLR program. This is especially critical because property owners will be the individuals receiving notice of the lead service line or service line of unknown material and will be responsible for signing the right of entry form, pursuant to the Task Force's proposed legislative language.
- DC Water must abide by all language access protocols in the district and provide educational materials in multiple languages. DC Water must also use simple language that is at a maximum fifth-grade reading level whenever possible.
- Finally, DC Water should implement a complaint system that provides an outlet for the public to comment and raise concerns. This complaint system should be accessible on DC Water's website, and advertised in all written materials about the LSLR program.

DC Water should leverage engagement activities that have proven effective and successful in previous authority outreach campaigns like the promotion of the Customer Assistance Programs (CAP). This includes attending community meetings, hosting and participating in outreach events, and creating other opportunities to engage directly with customers, disseminate information and help eligible customers sign up for the programs.

Specifically, to promote the LSLR program DC Water should:

- Continue to staff a lead hotline and designated email inbox for lead inquiries.
- Distribute lead test kits and provide 10-L bottle sampling.
- Host public pop-ups such as outside Metro stations or other high-traffic public locations in the District to hand out information and engage with customers.
- Engage in door-to-door canvassing in targeted neighborhoods.
- Visit Senior Wellness Centers to hand out information about programs and engage with seniors who are DC Water customers.
- Attend Advisory Neighborhood Commission and Civic Association Meetings to offer presentations to share information and explain the application process. DC Water will also continue its practice of outreach before planned projects to ensure participation for free replacements.
- Coordinate with EOM and Council Offices to distribute information to constituents.
- Provide bill inserts and Lead Free DC bill envelopes and create and distribute semiannual bill inserts about programs.
- Distribute email blasts and engage community listservs.
- Expand website and digital resources.
- Implement social media campaigns.
- Create "hubs" for information about lead at DC libraries and recreation centers.
- Produce captioned video resources in multiple languages.

Promotion

In addition to the above stakeholder and direct engagement recommendations, DC Water and our partners should, in partnership with focus group members, Ward-specific ambassadors, and ANC commissioners, pursue traditional means of promotion and advertising to disseminate Lead Free DC messaging and initiatives.

- Media campaign: Paid exposure to broader audiences, creating high visibility messaging to customers and stakeholders.
- Outdoor advertising: Use transit shelter ads along select bus routes and outdoor placement at Metrorail stations and on Metrobuses.
- Digital advertising: Use targeted digital advertising to reach customers with known lead service lines and vulnerable populations.
- Print advertising: Place large advertisements in local print publications including the Hill Rag, Informer, etc.
- Earned media: Press releases and announcement of media-related events; contact local
- TV and radio news outlets, blogs and DC TV to generate news stories and on-set interviews to publicize opportunities.

I. Appendix

Files include:

- "C1 – 20220624 CIPERR MOA Addendum – For Signature.docx"
- "C1 – 20220624 LPRAP VFRP MOA – For Signature.docx"
- "17 – 20220525 LFDC By-Block Communication and Outreach Playbook DRAFT.pdf
Barriers to 2030 Goal and Policy Recommendations

With sufficient funding secured to replace all of the lead service lines in the District,⁶² the most significant remaining barrier to achieving the Lead Free DC goal by 2030 is the low participation rate in the program, even though individual customers are not charged for the replacement. DC Water is only replacing lead pipes where it has obtained affirmative, written consent from the property owner, and, based on experience to date, a very large percentage of customers do not provide that consent, sometimes DC Water is only able to obtain consent from a small fraction of contacts. This has left a patchwork of lead, copper, and unknown pipe materials even in the areas where DC Water has conducted its block-by-block program. Addressing this barrier will secure the highest return.

⁶² DC Water reports as of ** [date] that the LSLR program is fully funded. The Board of Directors approved this plan, including a possible rate increase, based on the planning level cost estimate.

Formatted: List Paragraph, Bulleted + Level: 1 + Aligned at: 0.25" + Indent at: 0.5"

Commented [BV110]: Is this placed in the right spot? It seems like this is more of a summary

The formatting of this document is so wonky that I think we should keep the legislative chart separate for now.

I will put in the legislative language when Sage is through with the next draft.

Commented [GU111R110]: I would make the draft legislation and the chart appendices and not a part of the text of the report.

Commented [FK(112R110): Moved to section above.

Formatted: List Paragraph, Indent: Left: 0"

Formatted: List Paragraph

Although the homeowner consent is far and away the largest barrier to full LSLR in the District, there are other barriers that policymakers and other stakeholders can address to improve the program's overall chance of success. Customer confusion on a wide range of topics is the next most urgent barrier that requires multi-stakeholder cooperation to address. Many District residents are either unaware that there has ever been a lead problem in our water or erroneously believe that it is solved. Many more mistrust the local government, the water utility, or both. There are many reasons that customers may not be concerned. For example, many lack an accurate understanding of the harms of lead exposure (especially the well-studied impacts of low-level lead exposure), or believe DC Water's statement that because it complies with federal regulations, the water is safe to drink (it doesn't). The Task Force has presented Council with model legislation and a breakdown of how that approach compares with a successful program in Newark, NJ as well as proposed legislation in the District. In addition, in this section the Task Force identifies the most critical barriers to full LSLR and proposed solutions:

Barriers to full LSLR

The following barriers represent the most significant opportunities to improve LSLR in the District and reach the 2030 Lead-Free DC goal.

Barrier 1: High rate of customer refusal to consent to LSLR

In many areas there are remarkably low participation rates in the LSLR programs, with as little as 30% consent obtained. There are many reasons that are given by customers who are skeptical. Some common examples include people do not believe there is a problem because they either always drink the water without perceived impact or already distrust the water sufficiently to rely mostly on bottled water. Some people simply never respond (particularly problematic in the case of tenants), and some are concerned about damage to their yards or homes. Whatever the reasons given, there is a significant gap difference between the District and other cities that have been able to remove their lead pipes successfully.

Barrier 2: Need to verify LSLs with an updated inventory

As discussed in section ** of this report, although DC Water's lead pipe map (**Error! Hyperlink reference not valid.**) made strides towards fully identifying the presence of lead in our drinking water system, when it comes to formulating an action plan to remove the lead pipes, the map alone is insufficient. Many homes on the map are inaccurately listed, and many more are unknown. This is especially challenging in Wards 7 and 8, where less information about pipe material is available. This information asymmetry can fuel inequity and can make it difficult to convey urgency while also allowing people to plan for the pipe replacement. DC Water needs to conduct a more complete inventory as discussed elsewhere in this report.

Barrier 3: Confusing and inefficient patchwork of LSLR programs

Commented [GU113]: Should this be deleted? It doesn't seem to belong.

Commented [BV114R113]: Updated.

There are multiple different LSLR programs in the District, and at the time each was created there was a logic for it that is no longer relevant in this context where federal funding and DC Water's commitment to fund replacement through rates provides the opportunity to replace all the lead pipes rapidly. As discussed in section **, the LPRAP program covers costs where there was a DC Water-installed partial replacement in the past, but not where there is a full lead service line. The DC Water block-by-block program covers the full cost of the pipe replacement when a particular block is "up" for their replacements, and the voluntary program puts the cost of the replacement that runs through private property on the customer/property owner, but DC Water covers the LSL that runs through public property. This is confusing to customers and inefficient. A single block-by-block program would provide the greatest efficiency and the most equitable approach by no longer allowing customers who can pay (voluntary) or who can self-initiate the replacement (LPRAP) to "jump the line."

Barrier 4: Lack of common understanding of the dangers of lead in drinking water

As discussed elsewhere in this report, lead is a neurotoxin so potent that there is no known safe quantity. In fact, experts estimate that it is the first lead exposure that has the greatest impact on lifetime earnings of the individual. But people are not aware of this, nor are people aware that a lead pipe can leach at any time (e.g. take false comfort in a single sample that shows low or no lead). But our experience on the Task Force is that our neighbors and customers do not understand accurately the risks of lead exposure from drinking water.

Barrier 5: Concerns about property restoration

DC Water and other Task Force participants are finding that especially given the lack of understanding of the health damage of lead, customers are also reluctant to authorize any disturbance of their yards.

Barrier 6: The consent agreement is complex and intimidating

When the Task Force examined the reasons given for customer refusals as well as the materials that DC Water was sharing, it revealed a need for a simple language, accessible document.

Recommendations:

Recommendations 1 (customer refusals) policy recommendations:

○ Mandate lead service line replacements: DC Water must follow in the footsteps of Newark and other jurisdictions and mandate that the District's LSLs be replaced by 2030. Please see the recommended legislative language for specific wording. We recommend that Council require that by a date certain property owners either demonstrate they are not served by a LSL, or (1) replace the LSL on their own or (2) opt into the DC Water block-by-block program. Customers who do not wish to opt into the public block-by-block program should have the option to replace the LSL at their own expense within a designated, expedited timeline and an obligation to provide proof of a completed LSLR.

Formatted: Indent: Left: 0.5", No bullets or numbering

- Expand opportunities to give or affirm consent to access the property.
- Make it a condition of signing up for a new DC Water account
- Allow tenants to provide consent
- Expand opportunities to consent including by involving public health practitioners (such as when a child

Recommendation 2: DC Water must refresh its inventory and update and refresh the map In order to ensure all LSLs are equitably replaced, DC Water must have an accurate inventory of all LSLs in the District. The Task Force understands that the current inventory contains inaccuracies and is incomplete. Accordingly, the inventory, and its corresponding online map, will need to be updated and completed as soon as possible, to ensure efficient block-by-block replacements and equitable prioritization.

Recommendation 3: consolidate lead replacement programs and focus on the block-by-block program

To achieve maximum cost efficiency and ensure equity, there needs to be a single, block-by-block program that has an equity and costs efficiency driven prioritization model. Multiple programs allow people to jump the line and get a replacement sooner. Filtration should be available to anyone waiting for their LSLR, but everyone should have to wait their turn.

Recommendation 4: DC Water, DC government, the private sector, and advocates must engage in a serious public education campaign about lead

Outreach from DC Water is not enough, although the utility must more directly acknowledge the dangers of lead. But to achieve the necessary public education requires a whole of government approach. DC Water, advocates, and other government capacities must work together to elevate this issue in the public eye.

Recommendation 5: addressing concerns about property restoration

With guidance from opinion research, and if necessary investment in restoration from Council, DC Water must find a way to allay concerns about property restoration. People have concerns that their whole yard will be disrupted, but for the most part open trench replacements (digging up the whole pipe) is an outdated methodology. We recommend opinion research if possible, but in any circumstance DC Water must show clearly how minimal the disruption should be, and property is restored.

Recommendation 6: simplify communications materials

There must be a simplified cover sheet that is accessible. The materials should be tested with representative focus groups. Some best practices include:

- Following the District's language access protocols
- Using simple (maximum 5th grade reading level) language when possible

Formatted: List Paragraph

Formatted: List Paragraph, Indent: Left: 0"

Formatted: List Paragraph

Commented [GU115]: How does this overlap with what Paul is drafting on Community Outreach and Education?

Commented [BV116R115]: We will need to see and reference that section. While initially this section was focused mostly on the policy recommendations and fleshing them out, it now reflects the highest priority recommendations while other sections will provide detail when it is prudent. Paul, please edit for consistency.

Commented [GU117]: How does this overlap with what Paul is drafting on Community Outreach and Education?

Commented [BV118R117]: Paul will have to edit for consistency.

Formatted: Indent: Left: 0.5", No bullets or numbering

- Including a cover sheet that summarizes the material in plain language
- Shows before and after pictures of replacements
- Being clear about the health damages of lead

Other considerations

In addition, there are sound policies reflected in the draft legislative language that the Task Force wishes to note here:

- **Materials:** lead, brass, and galvanized pipes (or pipe components such as pigtails and goosenecks) ought to remain eligible for replacement and ought to be included within the definition of "lead"
- **Safety protocol:** DC Water must use the best flushing and filtration protocol available. Finally, although they are not raised as barriers in this report, two additional barriers to lead service line replacement are worth noting here. First, funding lead service line replacement without raising water rates has been a barrier in the past. This highlights the urgency to accelerate, where possible, LSLR to match the timeline of the largest federal funding streams to obviate the need for DC Water to raise rates (although its board has already consented to future rate increases for this purpose) and to ensure that the District realizes the full benefit of the time-limited federal funds available to conduct full LSLR. Second, it is a challenge to communicate to customers that existing federal regulations are not designed to be fully health protective, and are insufficient to protect human health.

D. —

Opportunities for interagency coordination and cooperation to accelerate lead removal by 2030:

E. — Take time to highlight notable process thus far. Include thoughts such as what has been happening in the DMOI Coordination meetings as well as the independent meetings with DDOT and DCRA. Also highlight the points identified in Section I of the report.

F. —

G. — This section should also highlight the cooperation not only needed at the interagency level, but in household participation. Highlight at least (3) areas of opportunity to enhance both:

H. —

I. — Interagency Coordination:

- Opportunity 1:
- Opportunity 2:
- Opportunity 3:

Formatted: List Paragraph

Formatted: Indent: Left: 0.5", No bullets or numbering

Formatted: List Paragraph

Formatted: List Paragraph, Indent: Left: 0"

Formatted: List Paragraph

Formatted: Indent: Left: 0.5", No bullets or numbering

Summary Statement:

Stakeholder Opportunity:

- Opportunity 1:
- Opportunity 2:
- Opportunity 3:

Closing statement for this section of the report:

I. Interagency Spending Proposal

This section should include a proposed spending outline from each agency identified in Section 1 & # of the report. Again, this can be general, but the thought here is to think about where each agency can propose to have a concentrate "lead removal effort". DC Water should lead the section with the identification of our most updated spending report. This section should also note the independent spending report as being conducted and note that this report was only done on DC Water's proposed spend and did not highlight or require the identification of other areas of interagency spend and coordination.

II. Funding Opportunities

Introduction

DC Water has recently committed to fully fund the costs to replace all LSLs in the District by 2030, either through federal and District appropriations⁶³ or by customers through increases in DC Water's rates.⁶⁴ DC Water expects rates to increase by approximately 77% between now and 2030, with approximately 8% of those increases attributable to replacing LSLs. Such an increase would burden District residents, especially low-income residents, and should be unnecessary given the substantial available federal funding and potential private funding, provided costs are kept to a minimum. In order to avoid the burden to DC Water ratepayers, DC Water must aggressively seek and utilize all available federal and private foundation funding for LSL replacement.

DOEE or an independent audit committee (the Auditor), should be responsible for ensuring that DC Water is prioritizing federal funding and private funding, rather than rate increases. In each

Formatted: Indent: Left: 0.5", No bullets or numbering

Formatted: List Paragraph

Formatted: List Paragraph, No bullets or numbering

Formatted: List Paragraph

Commented [BV119]: I could not get the formatting to cooperate here. It needs to be cleaned up before it gets circulated.

Formatted: List Paragraph, No bullets or numbering

Formatted: List Paragraph

⁶³ See Section ___ of this report on federal and District funding sources.

⁶⁴ See DC Water Board of Directors, Budget and Finance Committee Meeting, **Error! Hyperlink reference not valid.** February 24, 2022, at 54.

report,⁶⁵ the Auditor should include its recommendations for federal funding opportunities and other fundraising opportunities, and report on any rate increases proposed by DC Water that are attributable to LSL replacement. The Auditor's report should also include all actions DC Water has taken and actions it has not taken but should take to secure federal and private funding.

Task Force Recommendations for Funding Opportunities

Available federal funding opportunities will vary over time, and it is DC Water's obligation to stay current on potential funding sources each year. The Task Force has identified a sampling of some currently available sources of federal and private funding for LSL replacements.

— Federal Funding

First, two recent federal acts provide the best funding opportunities for LSL replacement in the District.

American Rescue Plan Act of 2021 (ARP), Public Law No: 117-2, 117th Congress (2021-22)

Funds can be used "to make necessary investments to water, sewer, or broadband infrastructure." H.R. 1319-9901 § (e)(1)(D). The District will receive at least \$3.3 billion in direct federal relief funds, including nearly \$2.4 billion in flexible relief funds. These flexible funds include \$107 million for capital projects—including construction or other durable infrastructure—and can be used in fiscal years 2021 through 2024. The District should make available and DC Water should use available ARP funds for LSL replacement.

Infrastructure Investment and Jobs Act of 2021 (IIJA), Public Law No: 117-58

The District will expect to receive \$355 million over five years to improve water infrastructure across the District, including but not limited to the replacement of LSLs. The amount dedicated to LSL removal in the District is unclear at this time. The District should make available and DC Water should use available IIJA funds for LSL replacement.

It is clear that both Acts can be used for LSL replacement, and the Mayor is responsible for allocating the funds. These Acts can and should be used to cover the entire project, making the use of rates unnecessary.

Second, the White House recently prepared a "Lead Pipe Replacement Funding Inventory" with an incomplete list of currently available federal agency programs that could be used to fund the

Formatted: List Paragraph, Indent: First line: 0"

Formatted: List Paragraph

Formatted: List Paragraph, Indent: Left: 0"

Formatted: List Paragraph

⁶⁵ See section ___ of this Report.

replacement of LSLs. This inventory is available at: [Error! Hyperlink reference not valid.](#), and a list of the federal agency programs is copied below here:

- ~~EPA: Drinking Water State Revolving Fund—Base Program~~
- ~~EPA: Drinking Water State Revolving Fund—IIJA Enacted "General Supplemental" Funds~~
- ~~EPA: Drinking Water State Revolving Fund—IIJA Enacted "Lead Service Line Replacement and Associated Activities Supplemental" Funds~~
- ~~EPA: Water Infrastructure Finance and Innovation Act (WIFIA)~~
- ~~EPA: Small and Disadvantaged Communities Program Grants~~
- ~~EPA: Lead Testing in Schools and Childcare Facilities Drinking Water Grants~~
- ~~EPA: Reducing Lead in Drinking Water Grant~~
- ~~USDA: Water & Environmental Programs (WEP)~~
- ~~USDA: Rural Housing Repair Loans and Grants~~
- ~~HHS/CMS: Children's Health Insurance Program Health Services Initiatives—Lead Abatement~~
- ~~HHS/ACF: Head Start Program~~
- ~~Denali Commission: Sanitation~~
- ~~BIA: Other Program Construction, Water Safety and Sanitation~~
- ~~BIA: Water Sanitation~~
- ~~BIA: Facilities Infrastructure and Repair: Environmental Projects~~
- ~~NPS: Federal Lands Enhancement Recreation Act fees~~
- ~~NPS: Line Item Construction~~
- ~~NPS: Asset Management~~
- ~~HUD: Lead Hazard Reduction Healthy Homes Supplements~~
- ~~HUD: Healthy Homes Production Grant Program~~
- ~~HUD: Section 202 Housing for the Elderly Capital Advance~~
- ~~HUD: Section 811 Housing for the Persons with Disabilities Capital Advance~~
- ~~HUD: Housing Trust Fund (HTF)~~
- ~~HUD: Community Development Block Grant (CDBG)~~
- ~~HUD: HOME Investment Partnerships Program (HOME)~~
- ~~HUD: Public Housing Fund—Healthy Homes Set Aside~~
- ~~HUD: Capital Fund Formula Grants~~

Formatted: Indent: Left: 0.5", No bullets or numbering

The Task Force recommends that DC Water review all of these potential federal funding sources and identify which programs could be used to fund LSL replacement in the District. While the CDBG, DWSRF, and WIFIA funds are likely the most well known of the funding programs listed above, many of the other named programs also present promising sources of funding for the District and should not be overlooked.

In addition to the above-listed programs, two other federal agency programs could be used to fund LSL replacement in the District:

EPA's Water Infrastructure Improvements for the Nation Act (WIIN Act)

This program assists disadvantaged communities with removing sources of lead in drinking water from drinking water systems and schools. Reduction in Lead Exposure via Drinking Water grants, a subtype of WIIN grant, funds LSL replacement. The District Department of Energy and Environment (DOEE) received \$2.3 million in Fiscal Year 2021 to support their child care center and school lead reduction program.

U.S. Department of Commerce's Economic Development Administration (EDA), Public Works and Economic Development Program

The U.S. Department of Commerce Economic Development Administration (EDA) provides strategic investments to support economic development, foster job creation, and attract private investment in economically distressed areas of the country. The Public Works Program supports physical infrastructure improvements, including water system improvements, in economically distressed communities. Funding ranges from \$600,000 to \$3,000,000, with an average of \$1,400,000. Applications are accepted on a rolling basis.

DC Water should work with the District to apply for all available federal funds utilizing the above programs during each federal funding cycle until all lead service lines in the District are replaced.

—— Private Funding

Finally, if federal funding does not cover all LSL replacement costs (which it should), DC Water should seek funding from private foundations. For example, DC Water has previously named the following foundations as potential sources of LSL replacement funds: Walton Foundation, Rockefeller Foundation, Lilly Foundation, and Bloomberg Foundation. For LSL replacement in schools and child care centers, DC Water should apply for funding from programs recommended by EPA in a 2019 report, available at: [Error! Hyperlink reference not valid.](#) This report includes state-specific recommendations, and EPA recommends that the District pursue funding

Formatted: List Paragraph

~~from Kaiser Permanente Foundation, the Greater Washington Community Foundation, and the Morris and Gwendolyn Cafritz Foundation.~~

~~J. VI: Conclusion:
This is the wrap up.~~

Formatted: List Paragraph, Indent: Left: 0"

Formatted: List Paragraph

DRAFT