Stoughton Utilities

600 South Fourth Street P.O. Box 383
Stoughton, WI 53589-0383

Serving Electric, Water & Wastewater Since 1886

Date: June 15, 2023

To: Stoughton Utilities Committee

From: Jill M. Weiss, P.E.
Stoughton Utilities Director

Subject: Presentation: Stoughton Water Quality: 2022-2023 Lead and Copper Sampling Results

In accordance with regulations set by the Wisconsin Department of Natural Resources (DNR), Stoughton Utilities collects water samples homes each year and tests those samples to determine the amount of lead and copper that is present in those homes' drinking water. These samples are taken from inside the homes at a faucet that provides drinking water.

Although no level of lead is considered completely safe, the Environmental Protection Agency (EPA) and DNR set a level of 0.015 mg/L (15 parts per billion).

In 2019, this water quality monitoring at 30 homes found elevated levels of lead that exceeded the action level in six of the 30 homes sampled. As a result, the Stoughton Municipal Water System's 90th percentile level (18 ppb) exceeded the EPA's action level, meaning that more than 10% of the samples tested contained a level of lead greater than 15 parts per billion (ppb) or 0.015 mg/L.

We are proud to announce that our 2022 and 2023 sampling and water quality monitoring did not find elevated levels of lead in any of the homes sampled. 60 homes were sampled in 2022 and again in 2023.

- In 2022, five of the homes sampled had no detect, 52 had lead levels between 0 and 5 parts per billion (ppb) or 0.000 - 0.005 mg/L, two had lead levels between 5 and 10 ppb or 0.005 - 0.010 mg/L, and one home had lead levels between 10 ppb and 15 ppb or 0.010 - 0.015 mg/L. No samples were above the 15 ppb or 0.015 mg/L 2019 exceedance level.
    - The 90th percentile level was 2.8 ppb.
- In 2023, eight of the homes sampled had no detect, 48 had lead levels between 0 and 5 parts per billion (ppb) or 0.000 - 0.005 mg/L, three had lead levels between 5 and 10 ppb or 0.005 - 0.010 mg/L, zero homes had lead levels between 10 ppb and 15 ppb or 0.010 - 0.015 mg/L, and one home had lead levels above the 15 ppb or 0.015 mg/L 2019 exceedance level.
    - The 90th percentile level was 4.2 ppb.

History:

As a result of the 2019 sampling results, Stoughton initiated the following actions:

- Engaged in additional community education and outreach,
- Conducted additional sampling,
- Engaged the Utilities Committee and Stoughton City Council to enact an ordinance requiring property owners to replace lead service lines present on the private side of the water system,
- Engaged the Utilities Committee and Stoughton City Council to formalize a lead service line replacement program and a mechanism for providing funding assistance to property owners, and
- Provided a water filtration pitcher at no cost to homes served by lead service lines where residents may be at a higher risk of the health impacts from lead, such as homes with young children or expectant mothers, and
- Collaborated with the DNR to achieve the requirements required of the utility following exceedance of the action level.

In 2021, Stoughton Utilities completed a project to replace all known lead service lines in the City of Stoughton. As part of the project, lead service lines were replaced at 703 parcels, including the replacement of 340 publicly owned and 653 privately owned lead service lines. Following the completion of this project, there are now zero known lead service lines remaining in the City of Stoughton.

Stoughton Utilities commemorated the project completion with a ceremonial removal of the last lead service line on October 21, 2021, with representatives from the utility, the project contractor, the Wisconsin Department of Natural Resources, engineering consultants, and the City of Stoughton in attendance, as well as media organizations and members of the public.

Ongoing Efforts

Since the removal of the last known lead service line, Stoughton Utilities has continued our public education and outreach programs, with topics consisting of how residents can flush their internal plumbing systems and clean their faucet aerators to help ensure no lead particulates remain, encouraging property owners to replace older faucet and other plumbing fixtures that may contain lead materials, and more.

Education and outreach efforts include statements on our monthly billing statements, press releases, direct mailings to key stakeholders including health facilities and day care centers, and presentations to stakeholders including the Stoughton Utilities Committee and Common council. Periodic reporting of our education and outreach efforts is submitted to the Wisconsin Department of Natural Resources (WDNR) in compliance with the requirements established following our 2019 exceedance.

Lead Free Stoughton

Stoughton Water Quality

- Lead and Copper Rule Sampling Results

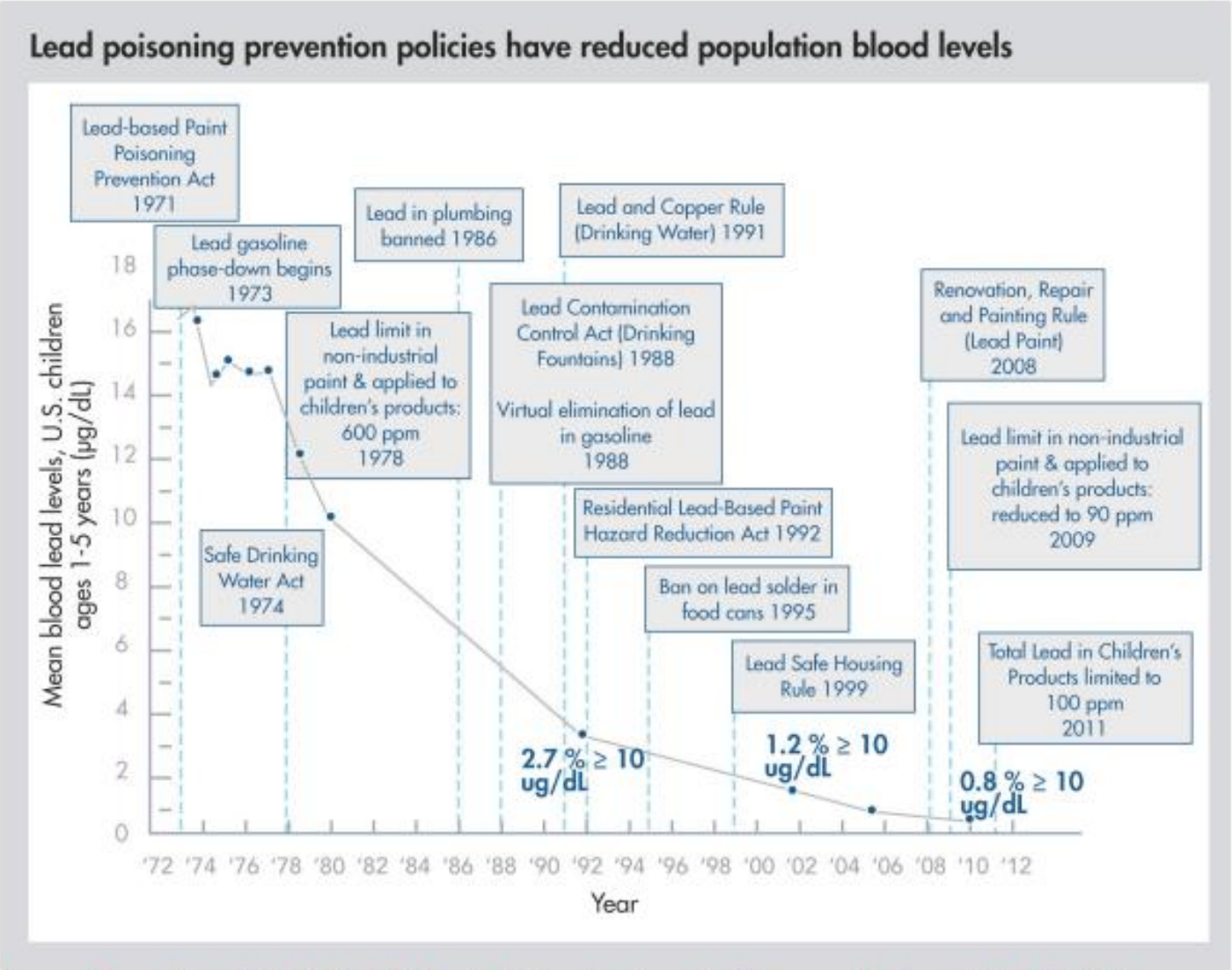
LEAD COMPLIANCE UPDATE

June 2023

Lead Usage

Increased Regulation Results in Reduced Health Risks

- **1973 – Lead in Gasoline Phased out**
- **1978 – Residential Lead Paint Ban**
- **1986 – Lead in Plumbing < 8%**
- **1995 – Ban on lead solder in food cans**
- **2014 – Lead Ban in all Plumbing (Fixtures/Meters)**



Source: Brown MJ and Falk H. Toolkit for establishing laws to control the use of lead paint. Module C.iii. Conducting blood lead prevalence studies. Global Alliance to Eliminate Lead Paint (2016).

"No level of lead is considered safe"

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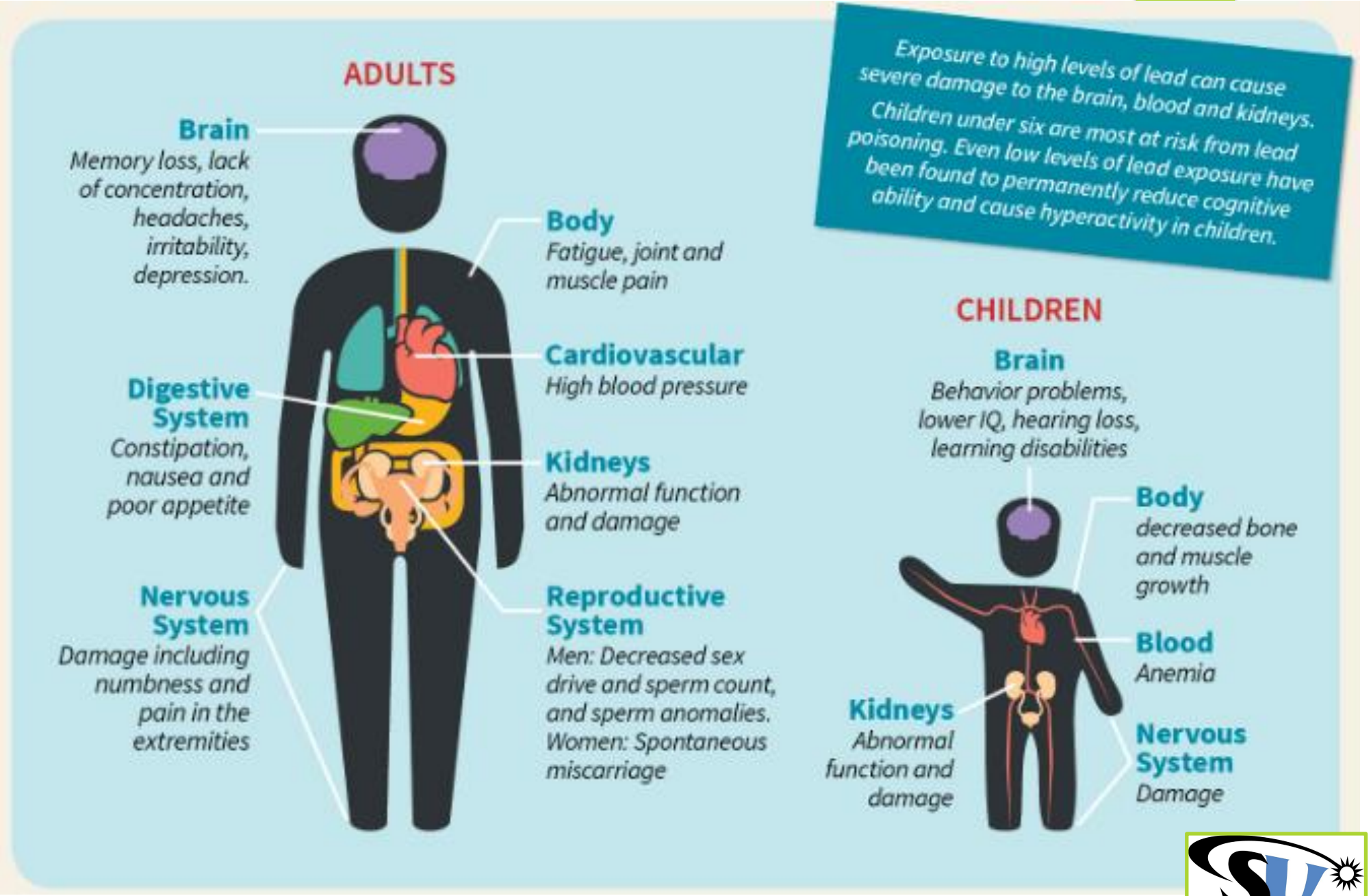
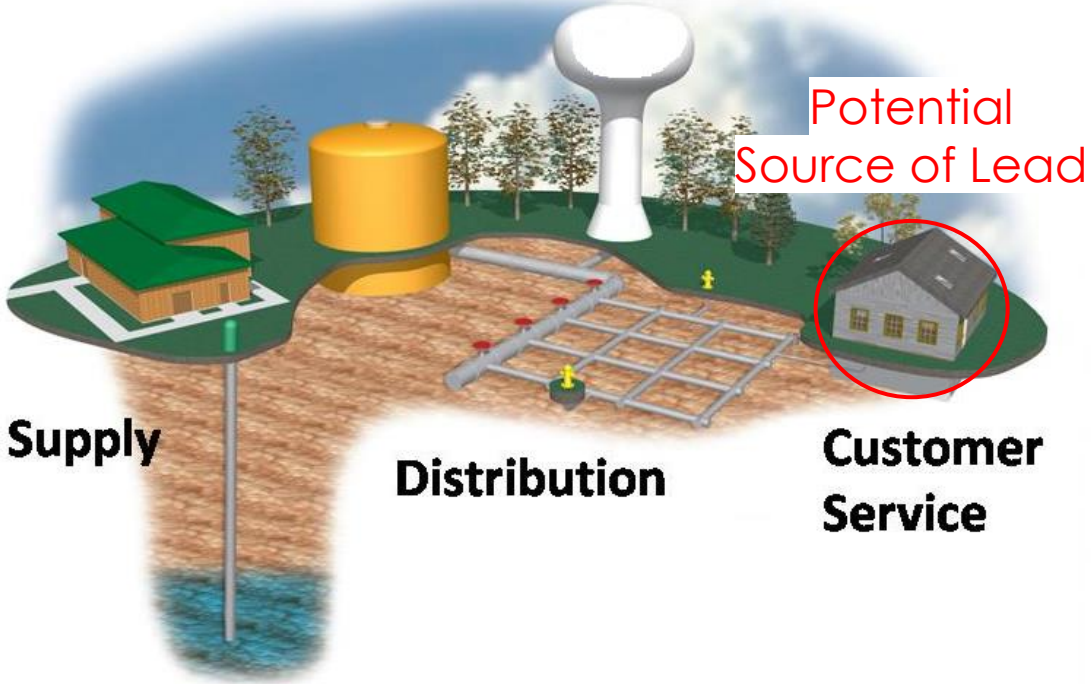
Lead

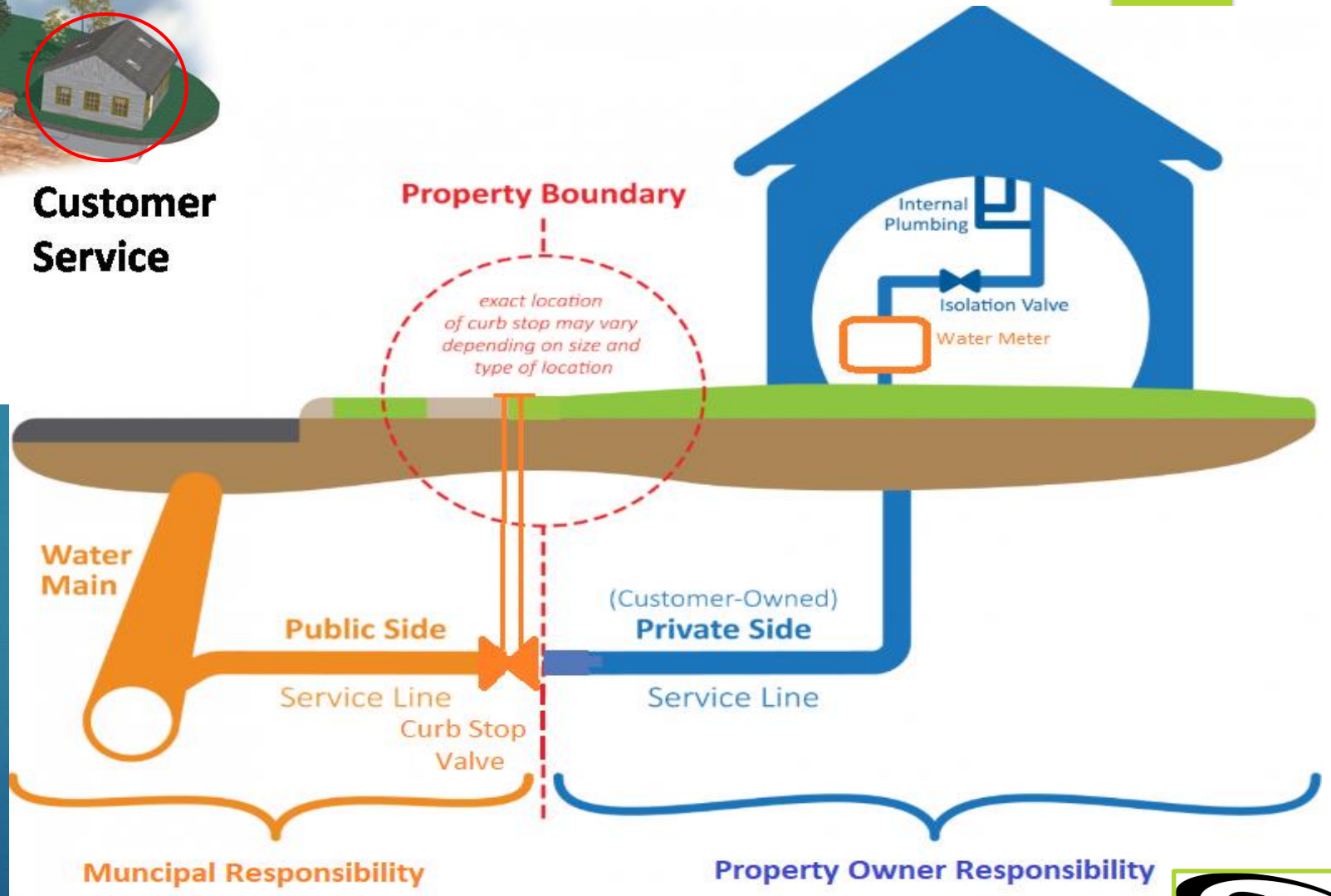
Health Impacts



"No level of lead is considered safe"



Municipal Drinking Water System



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Lead & Copper Rule

- 1991, EPA published a regulation to control lead and copper in drinking water – the Lead and Copper Rule (LCR)
  - Purpose: Protect public health by minimizing lead (Pb) and copper (Cu) levels in drinking water, primarily by reducing water corrosivity. Pb and Cu enter drinking water mainly from corrosion of Pb and Cu containing plumbing materials.
  - Establishes **action level (AL) of 0.015 mg/L for Pb and 1.3 mg/L for Cu based on 90th percentile level of tap water samples**. An **AL exceedance is not a violation** but can **trigger other requirements** that include water quality parameter (WQP) monitoring, corrosion control treatment (CCT), source water monitoring/treatment, public education, and lead service line replacement (LSLR).
    - New Regulation – additional requirements if 90th percentile level of tap samples **0.010 mg/L for Pb**
    - Inventory requirements are the focus of December 2021 rule revisions. Regulation seeks inventory work to be completed by October 16, 2024. Stoughton Utilities completed our inventory work as part of our lead service line replacement program.

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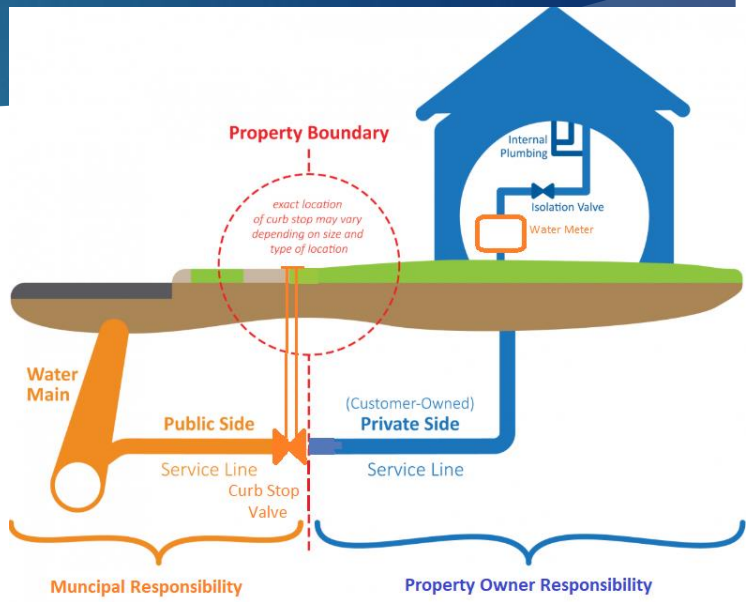
Sampling – Water Quality to the Tap

- Lead & Copper Sampling
  - Sampled at the tap (faucet)
  - Cold water
  - Unfiltered
  - No water use for at least 6 hours (stagnation)
    - Create contact between water and lead for a period of time
- Sample site – DNR approved sites (Greatest potential to have significant lead levels)
- Sampling taken from within homes
  - Utility has no control over private service materials and interior plumbing



2005 – 2019 Stoughton Lead & Copper Rule Lead Results

- Action Level – 15 ppb
- Samples sites – potential to have high lead levels
- - lead services
- - older homes

Lead Service Line - Approximately 1 in 7 homes

90th Percentile
- bold numbers

- Threat of exposure exists when water comes into contact with lead

	2005	2008	2011	2014	2015-1*	2015-2*	2016	2017	2018	2019
Average	*4.70*	*2.29*	*3.51*	*4.18*	*4.19*	*4.09*	*2.16*	*3.66*	*2.55*	*5.39*
1	30	54	20	33	30	41	29	25	77	26
2	15	40	12	24	27	22	28	22	19	26
3	13	11	11	20	21	18	26	17	16	18
4	**12**	**9.8**	**8.4**	**19**	21	15	**12**	**15**	**11**	**18**
5	9.9	9.7	8.4	13	21	**13**	8.3	14	5.6	17
6	8.9	8.6	8	12	16	10	5.2	11	5.5	16
7	7.7	8.6	7.3	11	**15**	8.9	4.2	8.6	4.9	14
8	7.4	6.1	5.8	8.7	11	8.9	3.9	7.4	4.8	10
9	6.8	5.4	5.7	7.5	10	7.7	3.6	6	4.8	12
10	5.6	4.8	5.4	7.3	9.6	7.0	2.9	5.8	4.3	8.9
11	5.5	4.7	4.4	5.4	9.1	7	2.9	4.7	4	6
12	4.7	2.9	4	4.2	7.2	5.8	2.7	4.2	3.6	5.7
13	4.7	3.7	4.1	4.9	7	5.1	2.3	4.1	3.4	5.7
14	4.6	2.3	3.3	3.9	6.8	4.6	2.2	3.6	3	5.4
15	4.6	2.8	3.9	4.2	6.5	4.5	2.1	3.6	2.9	4.1
16	4.5	0.0	3.3	3.6	6.3	4.5	2	3.6	2.6	3.9
17	4.4	0.0	2.8	3.6	5.5	4.5	1.7	3.3	2.3	3.7
18	4.2	0.0	2.6	3.4	5.1	4.1	1.4	2.7	1.9	3.4
19	4.1	0	2.5	1.9	5	3.9	1.3	2.5	1.7	3.3
20	4.1	0.0	2.5	2	4.9	3.8	1.2	2.4	1.6	3.3
21	3.7	0.0	2.4	1.8	4.4	3.3	1.1	2.4	1.4	2.9
22	3.5	0.0	2	1.5	4.3	3.2	1.1	2.1	1.4	2.9
23	3.5	0.0	2.2	1.5	4.3	3.0	1	1.9	1.1	2.4
24	3.3	0.0	1.7	1.1	4	2.2	0.99	1.8	1.1	2.5
25	3.3	0.0	1.8	1.5	3.7	2.1	0.91	1.6	0.96	1.9
26	3.2	0.0	1.7	1	3.3	1.8	0.9	1.6	0.89	1.3
27	2.8	0.0	1.6	0.91	3	1.8	0.73	1.5	0.8	1.3
28	2.7	0.0	1.6	0.71	3	1.7	0.57	1.4	0.67	1.1
29	2.3	0.0	1.2	0.65	3	1.6	0.5	1.1	0.6	1
30	2.2	0.0	1.1	1.4	2.9	1.6	0.39	1.1	0.59	0.47

* More than 30 samples taken – only highest 30 samples shown

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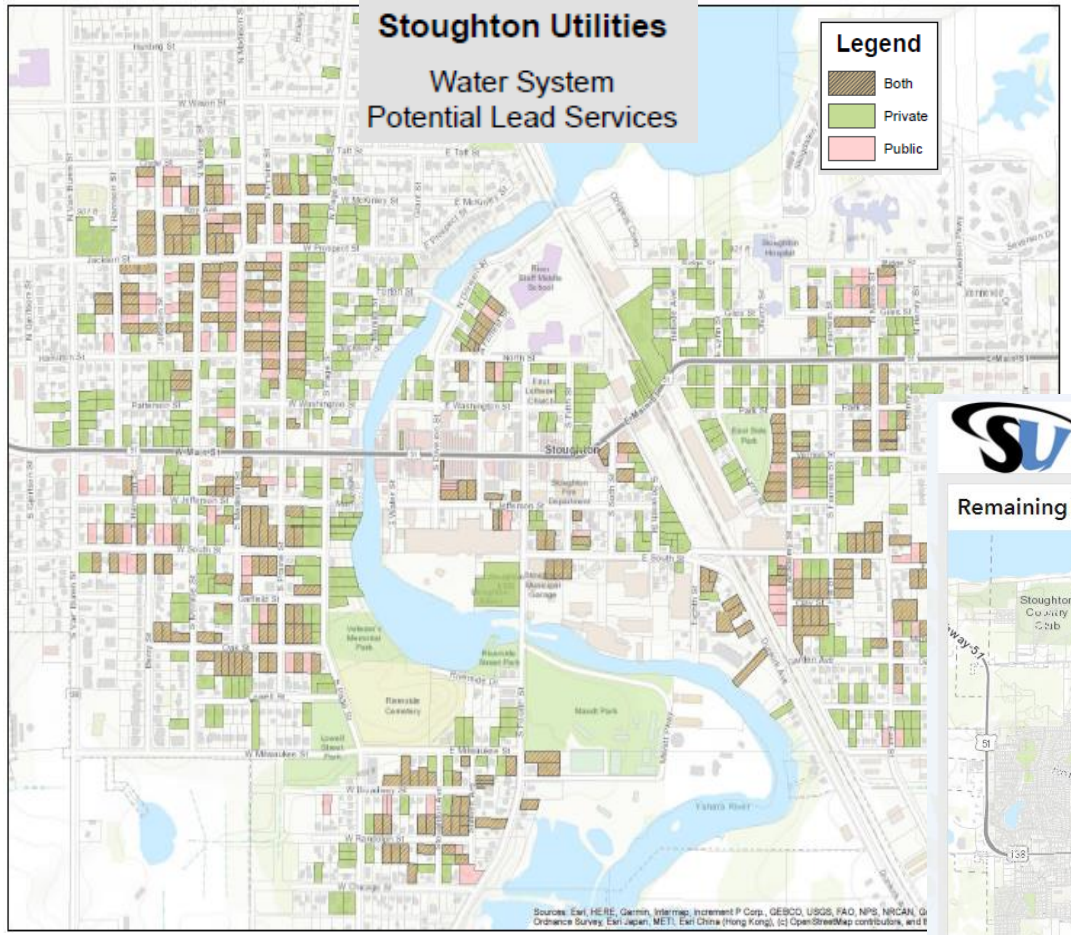
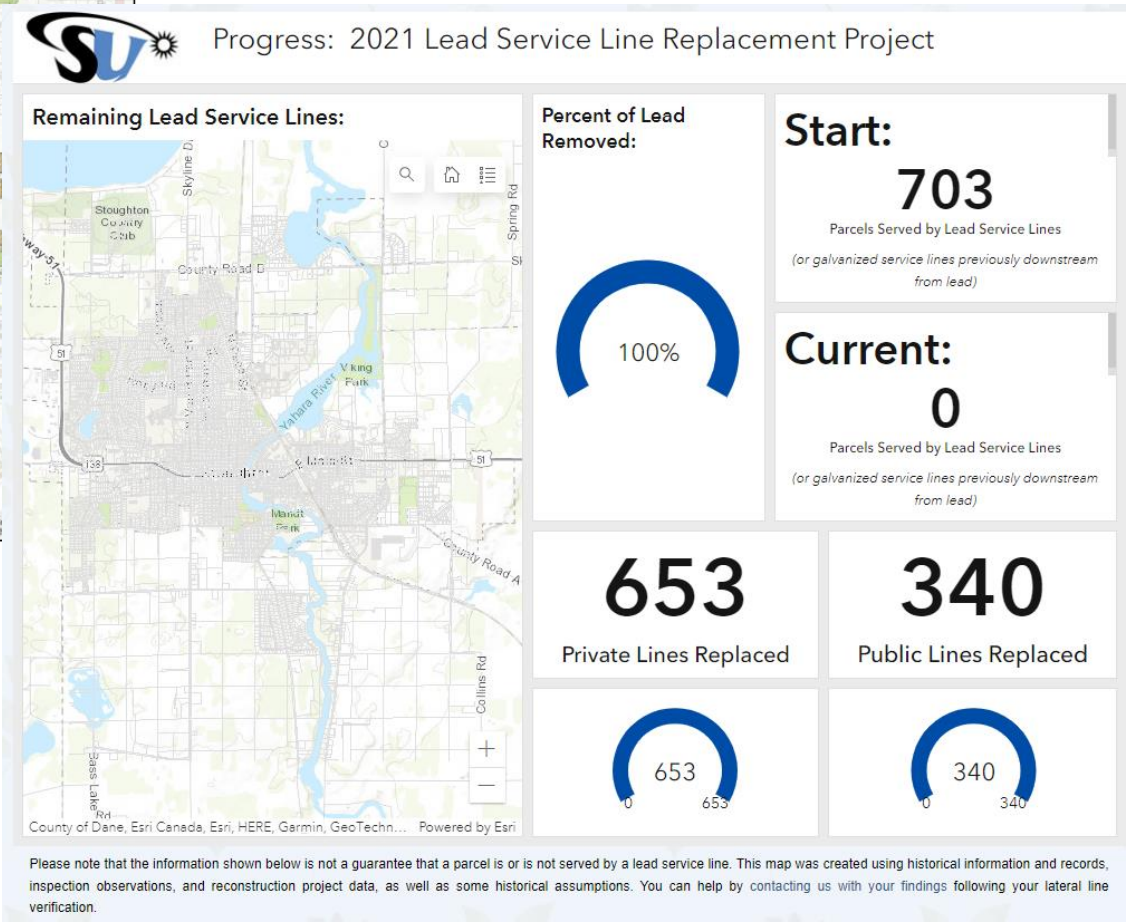
2021 LEAD SERVICE LINE REPLACEMENT





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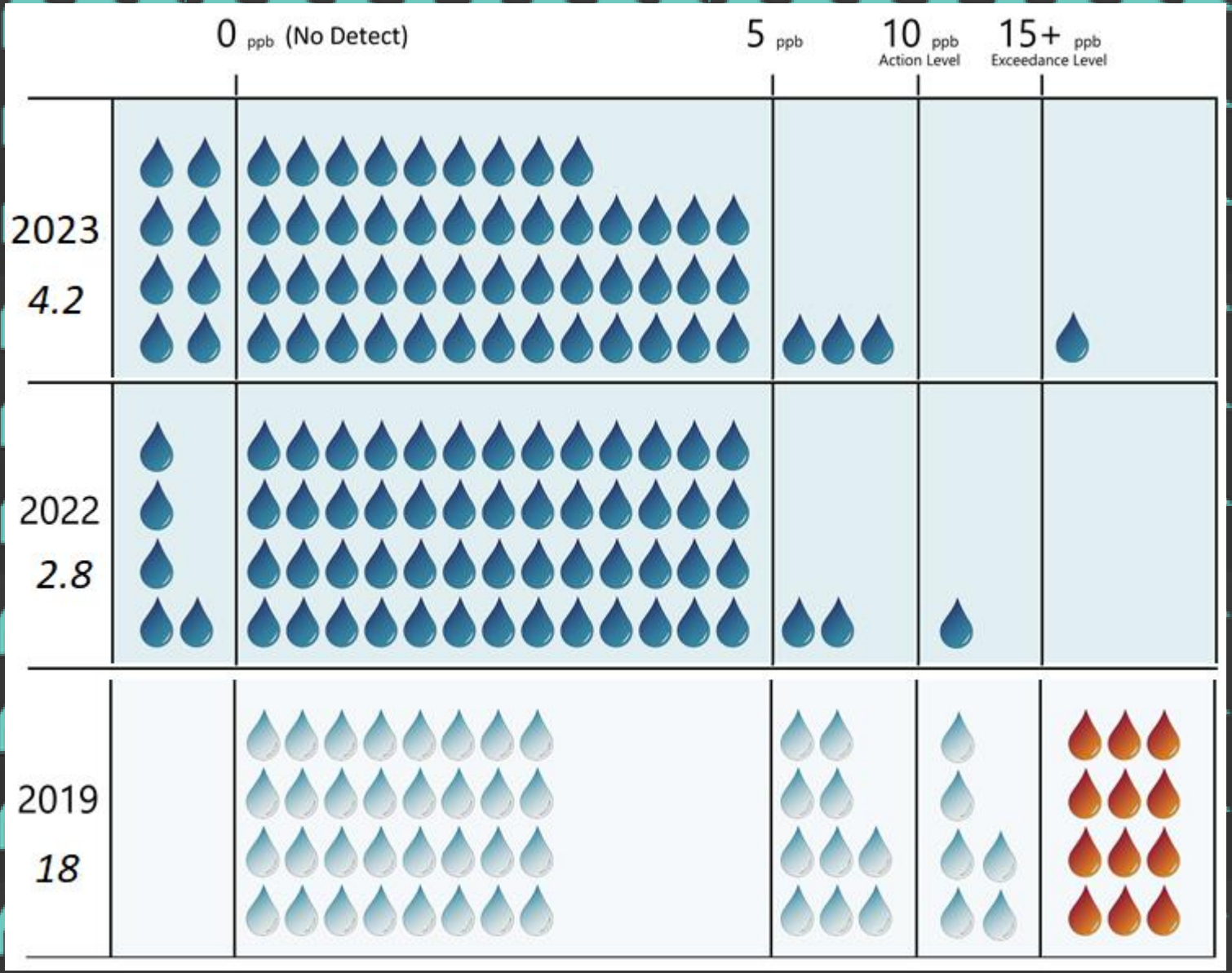
2019, 2022 & 2023 Stoughton Lead & Copper Rule Lead Results

- Sample Sites Change in 2022 - Representative of All Homes

	2005	2008	2011	2014	2015-1*	2015-2*	2016	2017	2018	2019	2022	2023
Average	*4.70*	*2.29*	*3.51*	*4.18*	*4.19*	*4.09*	*2.16*	*3.66*	*2.55*	*5.39*	*1.50*	1.68
1	30	54	20	33	30	41	29	25	77	26	12	15
2	15	40	12	24	27	22	28	22	19	26	7.9	7.4
3	13	11	11	20	21	18	26	17	16	18	5.1	6.5
4	**12**	**9.8**	**8.4**	**19**	21	15	**12**	**15**	**11**	**18**	4.7	5.3
5	9.9	9.7	8.4	13	21	**13**	8.3	14	5.6	17	4.6	5.0
6	8.9	8.6	8	12	16	10	5.2	11	5.5	16	3.0	4.4
7	7.7	8.6	7.3	11	**15**	8.9	4.2	8.6	4.9	14	**2.8**	**4.2**
8	7.4	6.1	5.8	8.7	11	8.9	3.9	7.4	4.8	10	2.7	3.9
9	6.8	5.4	5.7	7.5	10	7.7	3.6	6	4.8	12	2.60	3.7

- 30 samples taken except 2015, 2022 & 2023 – 60 samples
- 90th percentile – Larger font and bold
- Treat of exposure – water must come into contact with lead



100% LEAD FREE STOUGHTON – ALL KNOWN LEAD SERVICES REMOVED IN 2021

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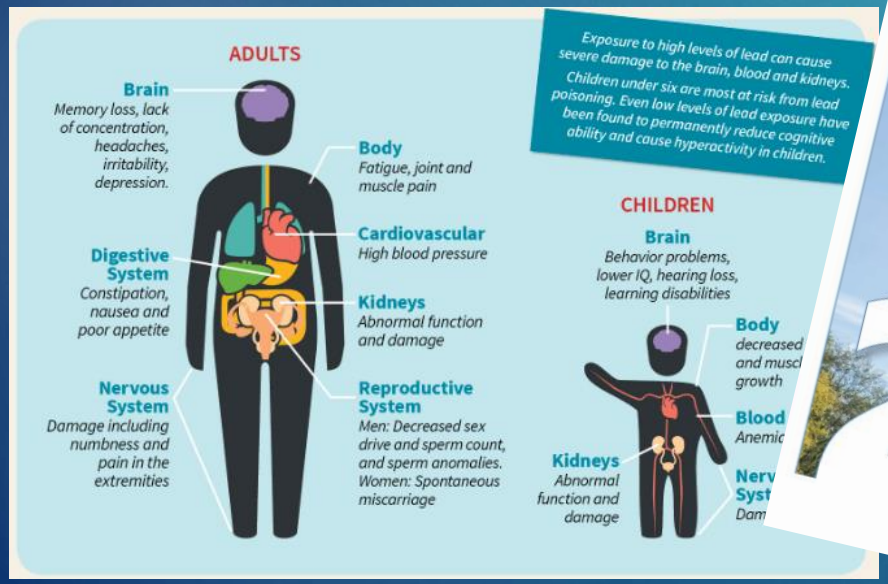
Lead Free Stoughton

Interior Plumbing May Contain Lead

1986 – Lead in Plumbing < 8%
2014 – Lead Ban in all Plumbing (Fixtures/Meters)



PUBLIC EDUCATION & OUTREACH

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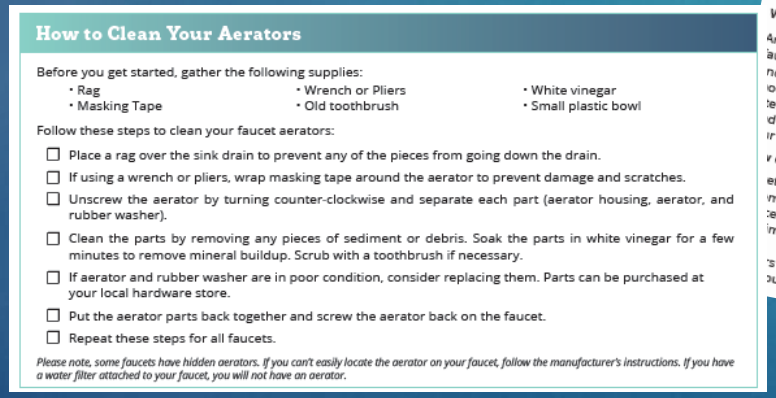
Protect Your Family

- Interior Lead Plumbing / Lead Solder (1986)
  - Replace All Lead Pipes
- 2014 and Prior – Lead Containing Fixtures
  - Replace Interior Fixtures

  - Flush Interior Plumbing
  - Clean/Replace Aerators



How to Clean Your Aerators

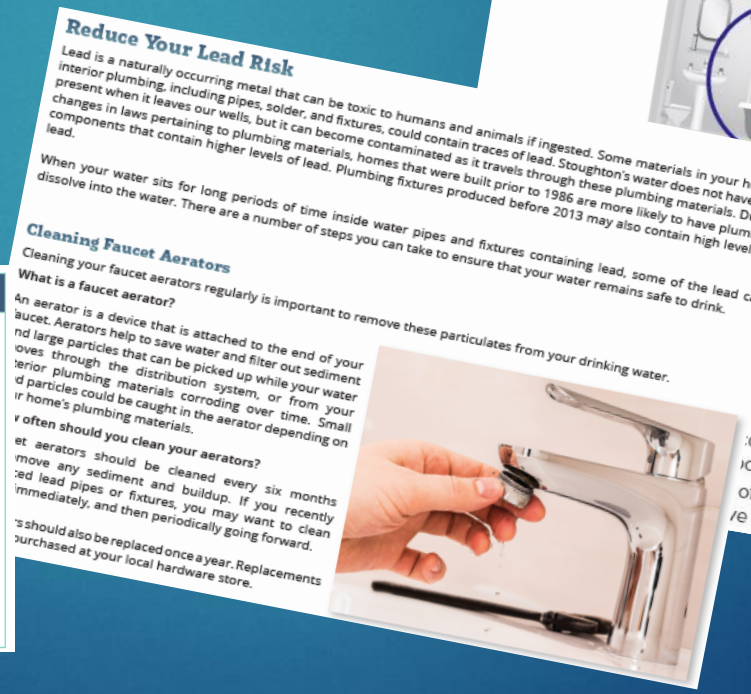
Before you get started, gather the following supplies:

- Rag
- Masking Tape
- Wrench or Pliers
- Old toothbrush
- White vinegar
- Small plastic bowl

Follow these steps to clean your faucet aerators:

- ☐ Place a rag over the sink drain to prevent any of the pieces from going down the drain.
- ☐ If using a wrench or pliers, wrap masking tape around the aerator to prevent damage and scratches.
- ☐ Unscrew the aerator by turning counter-clockwise and separate each part (aerator housing, aerator, and rubber washer).
- ☐ Clean the parts by removing any pieces of sediment or debris. Soak the parts in white vinegar for a few minutes to remove mineral buildup. Scrub with a toothbrush if necessary.
- ☐ If aerator and rubber washer are in poor condition, consider replacing them. Parts can be purchased at your local hardware store.
- ☐ Put the aerator parts back together and screw the aerator back on the faucet.
- ☐ Repeat these steps for all faucets.

Please note, some faucets have hidden aerators. If you can't easily locate the aerator on your faucet, follow the manufacturer's instructions. If you have a water filter attached to your faucet, you will not have an aerator.



Reduce Your Lead Risk

Lead is a naturally occurring metal that can be toxic to humans and animals if ingested. Some materials in your home's interior plumbing, including pipes, solder, and fixtures, could contain traces of lead. Stoughton's water does not have lead present when it leaves our wells, but it can become contaminated as it travels through these plumbing materials. Due to changes in laws pertaining to plumbing materials, homes that were built prior to 1986 are more likely to have plumbing components that contain higher levels of lead. Plumbing fixtures produced before 2013 may also contain high levels of lead.

When your water sits for long periods of time inside water pipes and fixtures containing lead, some of the lead can dissolve into the water. There are a number of steps you can take to ensure that your water remains safe to drink.

Cleaning Faucet Aerators

Cleaning your faucet aerators regularly is important to remove these particulates from your drinking water.

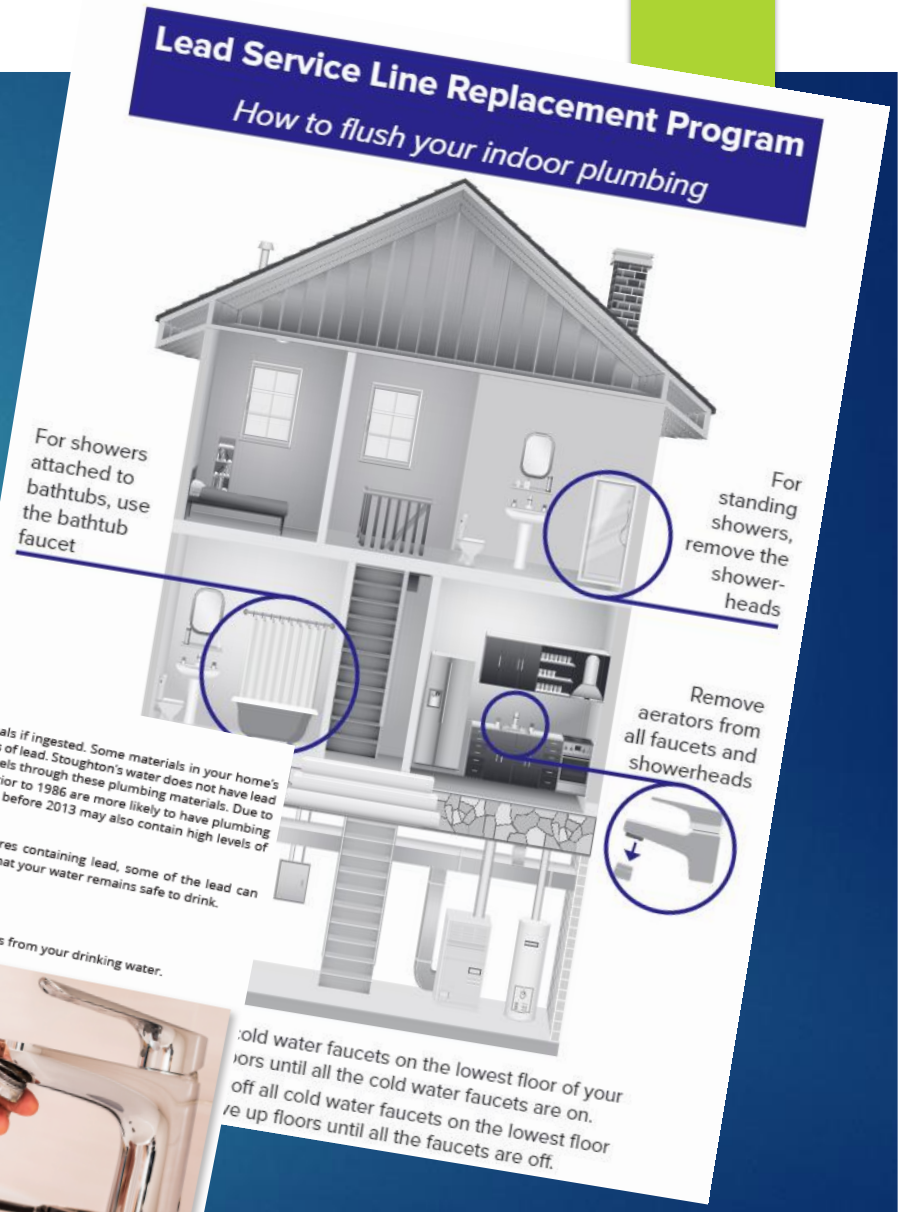
What is a faucet aerator?

An aerator is a device that is attached to the end of your faucet. Aerators help to save water and filter out sediment and large particles that can be picked up while your water moves through the distribution system, or from your interior plumbing materials corroding over time. Small and particles could be caught in the aerator depending on your home's plumbing materials.

v often should you clean your aerators?

et aerators should be cleaned every six months remove any sediment and buildup. If you recently ced lead pipes or fixtures, you may want to clean immediately, and then periodically going forward.

's should also be replaced once a year. Replacements purchased at your local hardware store.



Lead Service Line Replacement Program

How to flush your indoor plumbing

For showers attached to bathtubs, use the bathtub faucet

For standing showers, remove the shower-heads

Remove aerators from all faucets and showerheads

:old water faucets on the lowest floor of your ors until all the cold water faucets are on. off all cold water faucets on the lowest floor e up floors until all the faucets are off.

Stoughton Utilities

Lead Free Stoughton

- DNR Compliance

- Reduced monitoring – back to 2019 requirements
  - 30 lead and copper samples annually
- No mandate to do additional work (education, sampling, corrosion control)
- Stoughton Utilities will continue education campaign
- Future – Stoughton Utilities has noticed DNR of plans to seek future reduced monitoring
  - Formal request anticipated in 2026-2027

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Lead Compliance Update

Stoughton Water Quality

- Lead Service Line Replacement Program

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