



Eliminating Lead from Drinking Water

Tannie Eshenaur
Water Policy Center

Environmental Health Division

February 15, 2022

Peter Calow, Ph.D
Lucy Levers, Ph.D



Legislative directive

- “Conduct an analysis to determine the scope of the lead problem in Minnesota's water and the cost to eliminate lead exposure in drinking water”
- Aspirational goal:
premise plumbing a challenge



[Lead in Minnesota Water \(state.mn.us\)](https://state.mn.us)

2/16/2022

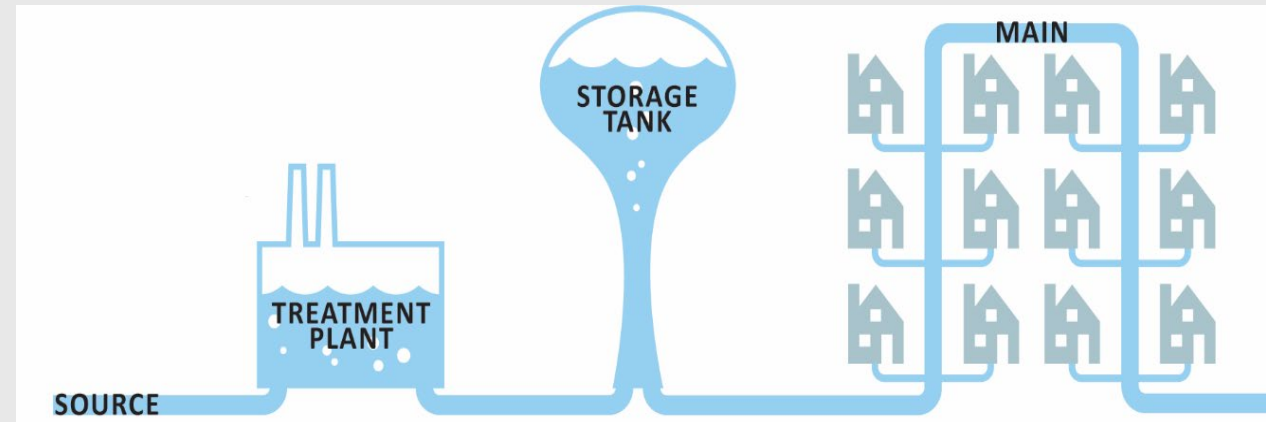


mn DEPARTMENT
OF HEALTH

Lead in Water: Source to Main

Almost no lead

- Very few direct sources
- High volumes of water traveling very fast
- Corrosion control implemented during treatment



Lead in Water: Main to Tap

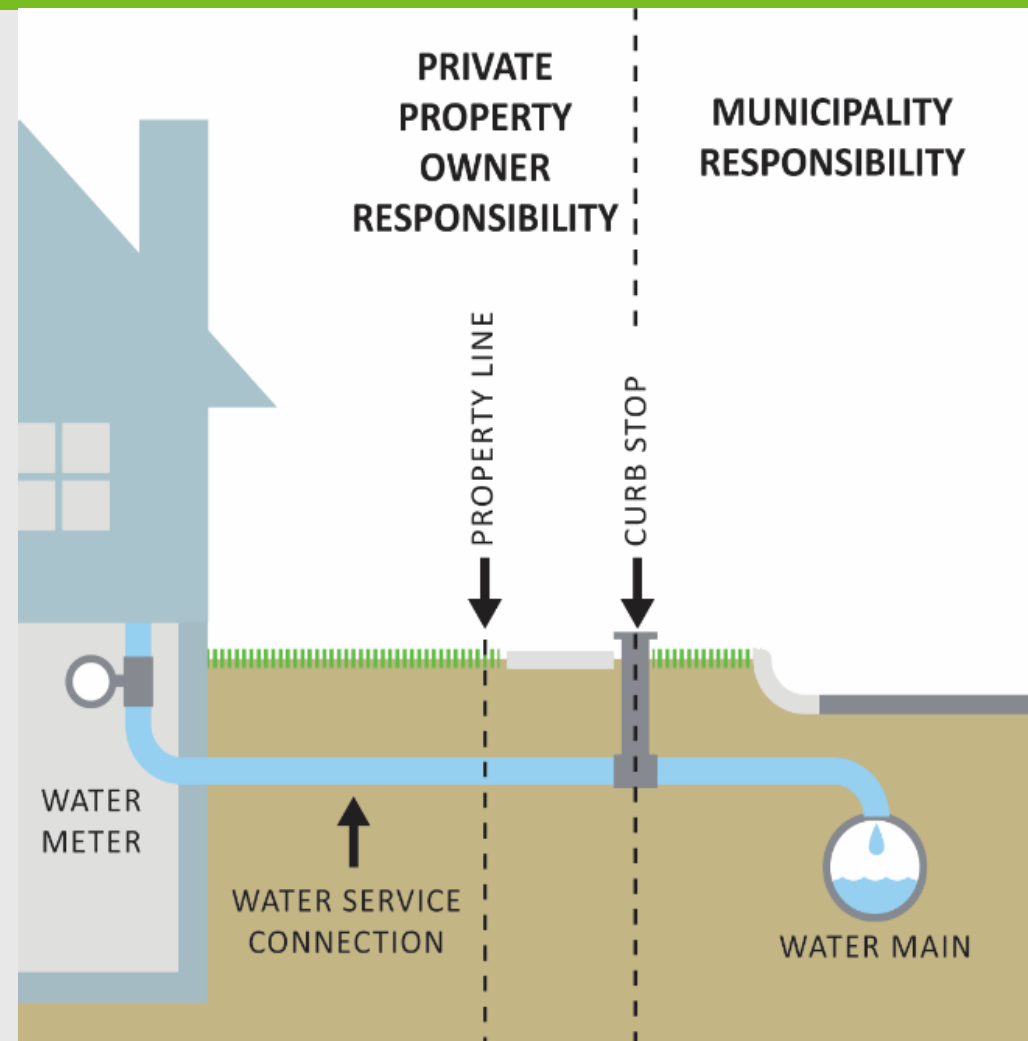
Two main sources of lead:

1. Lead service Lines

- ✓ Adds 50% of lead in drinking water
- ✓ Estimate 100,000 in MN
- ✓ Public/private ownership

2. Premise plumbing

- ✓ Pipes, solder, and fixtures
- ✓ After 1986 could be 8%; after 1996 no more than 0.25%
- ✓ Flushing can help, but not solve problem



Cost to Eliminate – over 20-year span

1. Lead Service Lines *(100,000 by estimate)*

- ✓ \$2,500 - \$8,000/line
- ✓ Discount rate = 3%; inflation = 2%
- ✓ \$0.23 billion to \$0.37 billion (now .5 billion)

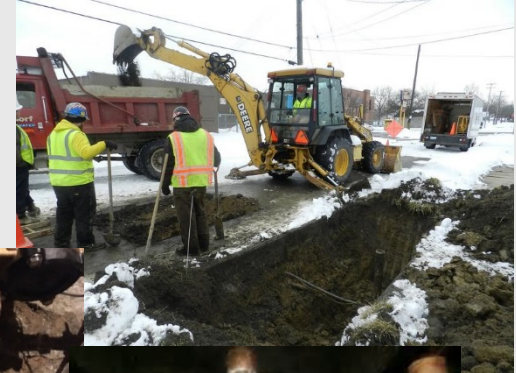
2. Fixtures and Solder

- ✓ \$2,000 - \$6,000/home
- ✓ Assume half of pre-1980 homes need work
- ✓ \$1.23 billion to \$3.70 billion

3. Technical Assistance

- ✓ Asset management, engineering
- ✓ \$0.06 billion

Total = \$1.5 billion to \$4.1 billion



IQ-Productivity:

- Market— Expected lifetime earnings
- Household— Replacement wage rate. Alternatives include opportunity cost, impacts on children in home.



\$1 investment = \$2 benefit to Minnesotans

\$1

Costs

	Low \$	High \$
Fixtures/Solder	1.2 B	3.7 B
LSL Replacement	0.2 B	0.4 B
Technical Assistance	0.06 B	0.06 B
TOTAL	1.5 B	4.1 B

\$2

Benefits

	Low \$	High \$
IQ/earning gain - fixtures	2.1 B	4.2 B
IQ/earning gain – LSL removal	2.1 B	4.2 B
TOTAL	4.2 B	8.5 B

Recommendations

- **Lead Service Lines**
 - ✓ Accurate inventories essential
 - ✓ Full removal at measured pace
- **Prevention/Awareness**
 - ✓ Notification of residents
 - ✓ Water testing in homes with infants
- **Focus on highest-risk populations**





DEPARTMENT
OF HEALTH

Drinking water
is safe for
everyone,
everywhere in
Minnesota.