

Water Service Lines & Lead

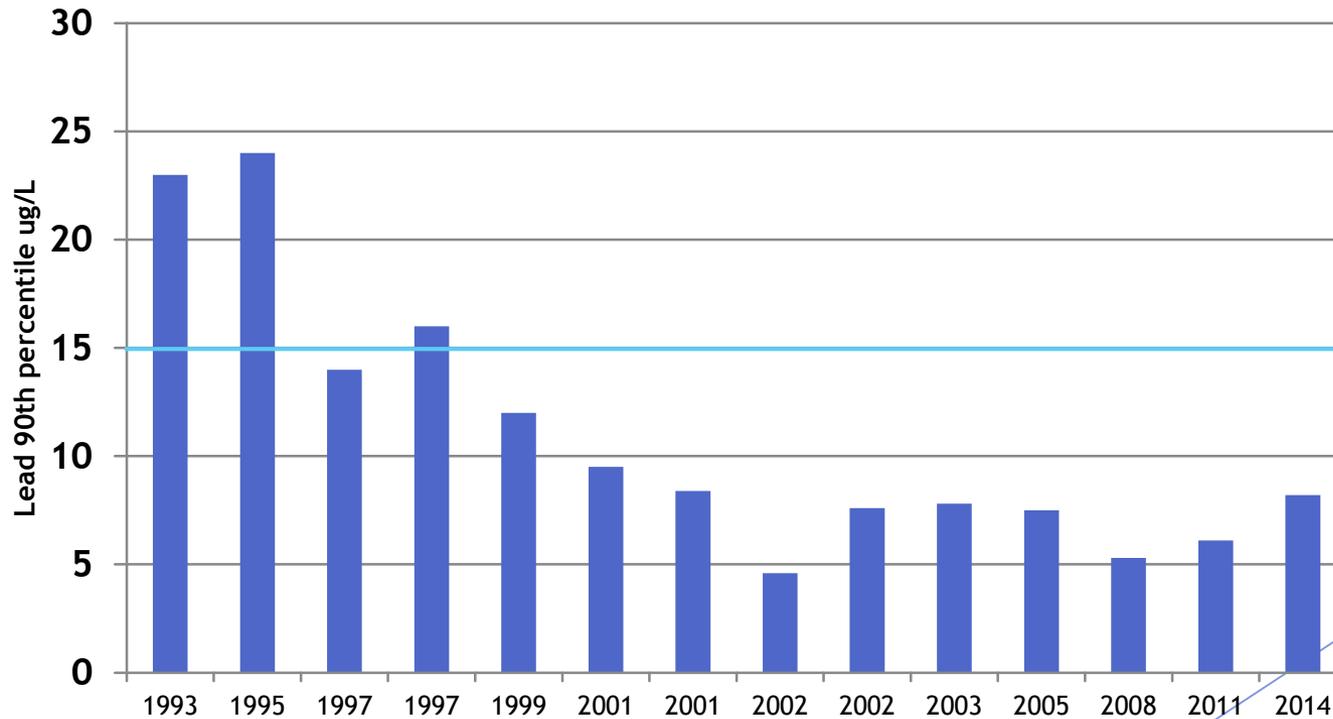
Steering & Rules Committee Jan 28 2016

Milwaukee's Water Quality

- ▶ **Milwaukee's drinking water has been and remains SAFE**
- ▶ Lake Michigan source water DOES NOT have lead
- ▶ Water leaving plants DOES NOT have lead
- ▶ Milwaukee has long met EPA standards for lead in drinking water
- ▶ The EPA lead test is based on water from the tap at the "end of the line"
- ▶ Milwaukee has treated water with phosphorus since 1996
- ▶ Phosphorus "lines" pipes to prevent lead from dissolving or flaking into water

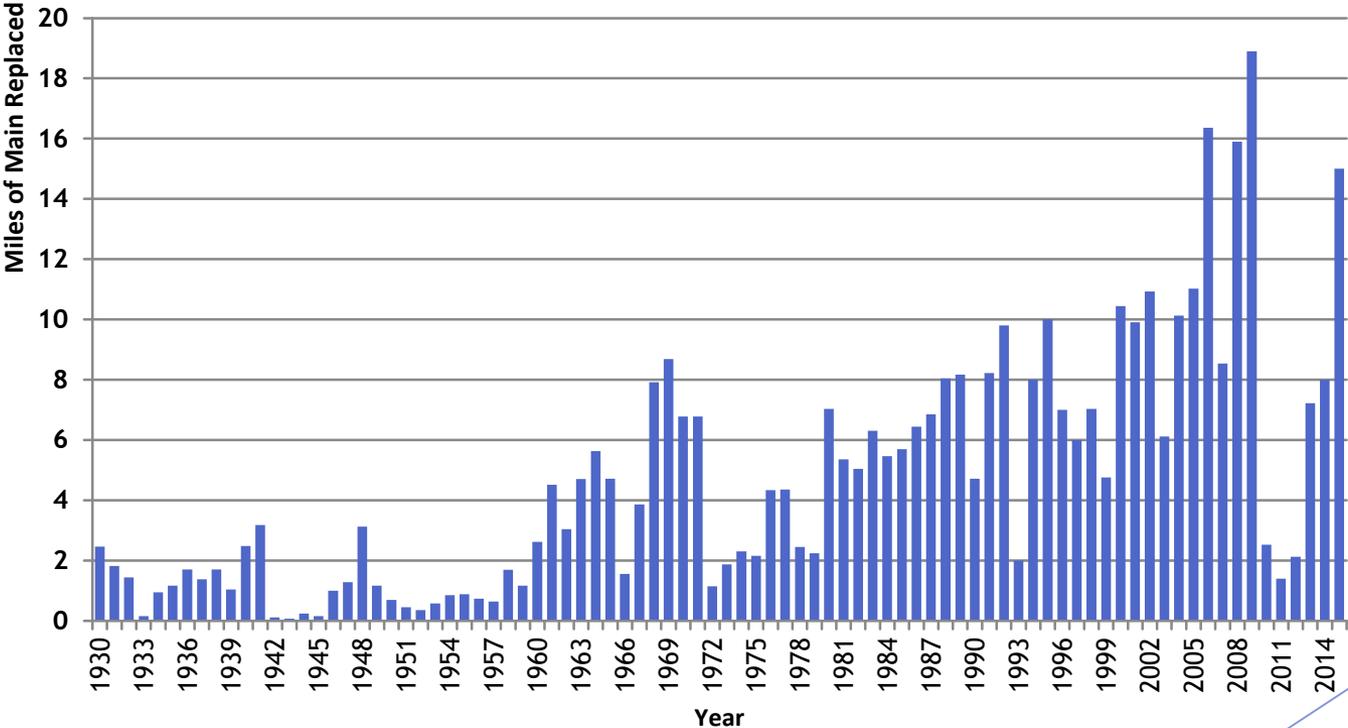
EPA Tap Sample Results

Results of MWW Samples
Collected in Compliance with US EPA Lead & Copper Rule



Main Replacement

Water Main Replacement

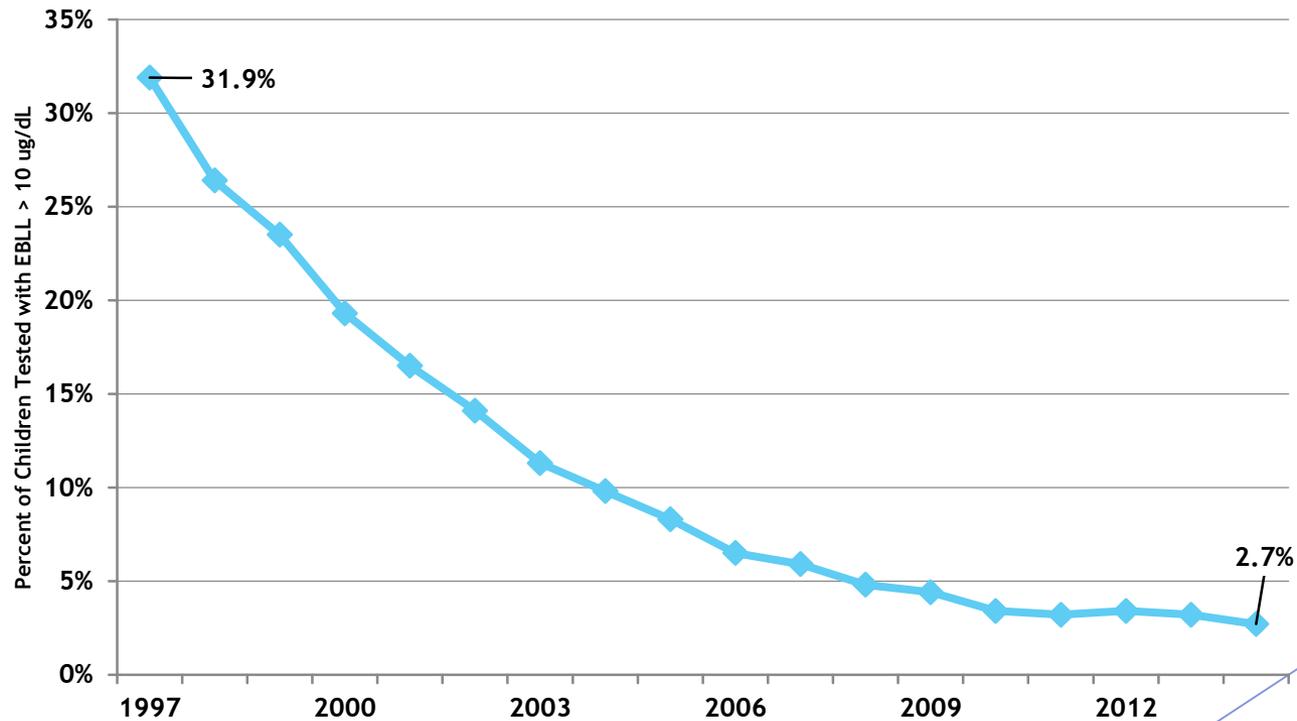


Milwaukee's Lead Risk Reduction Strategy

- ▶ Primary source of lead exposure is paint in older housing stock
 - ▶ Critical populations: children <6, nursing and pregnant mothers
- ▶ Milwaukee Health Dept. has abated 17,000+ units in high-risk areas since 1998
- ▶ Children tested w/ elevated blood lead levels:
 - ▶ Down from 31.9% in 1997 to 2.7% in 2014

Blood Lead Prevalence

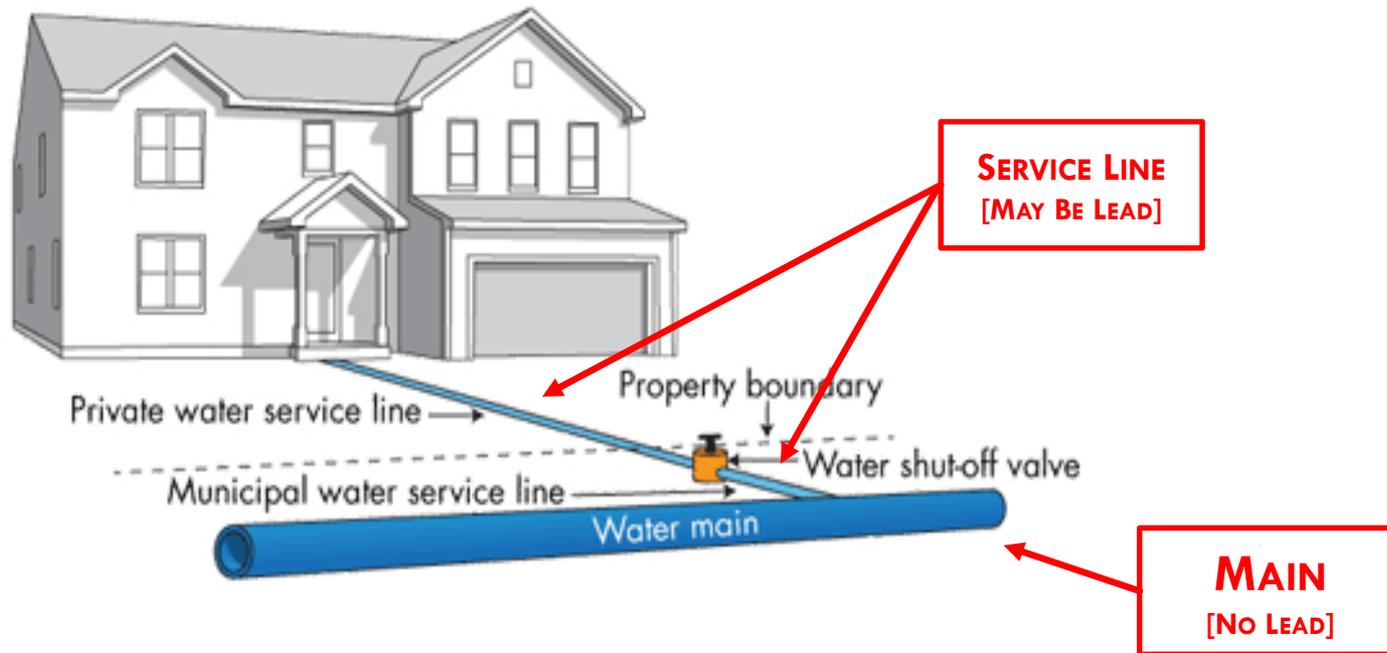
City of Milwaukee Health Department
Prevalence of Elevated Blood Lead Levels for Children Under 6 Years Old
1997-2014



Lead in Water Service Lines

- ▶ Water is a secondary source of lead exposure
- ▶ There are no lead mains or distribution lines in MWW system
- ▶ Water service lines are likely made of lead in homes built before 1951
- ▶ Service line is 100% owned by the property owner, City maintains from main to curb valve
- ▶ WI utility regulations do not support utility-funded work on private property

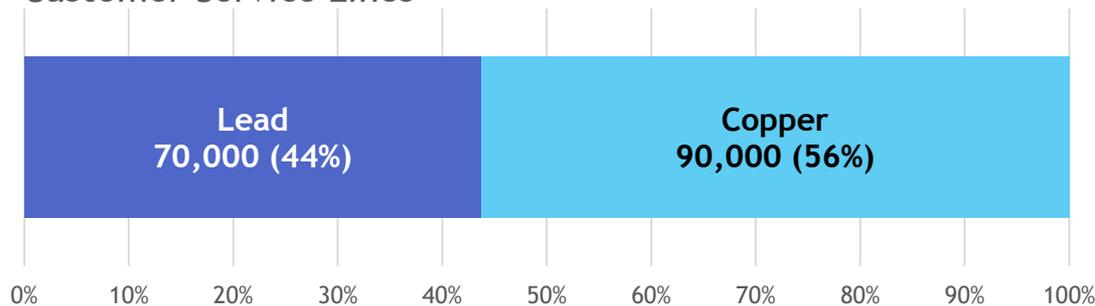
Service Line Diagram



Lead Service Lines

- ▶ Properties built before 1951 are *very likely* to have lead water service lines
- ▶ Other plumbing components in older homes may also have lead content
- ▶ Lead service lines are common throughout the city, not in any one area

Milwaukee Water Works
Customer Service Lines



Lead Service Lines

- ▶ Pre-1951 housing stock throughout the city has lead service lines.
- ▶ Not isolated to any one Milwaukee neighborhood.
- ▶ Other communities surveyed have significant numbers of lead service lines

City	Lead Services (%)
Milwaukee	70,000 (44%)
Shorewood	3,300 (95%)
West Allis	8,100 (41%)
Chicago, IL	494,000 (78%)
Boston, MA (residential only)	40,000 (53%)
Dayton, OH (residential only)	35,000 (70%)

EPA Review of Lead Service Lines

- ▶ US EPA is reviewing current national rules on lead water service lines
- ▶ Likely revisions to existing Lead & Copper Rule by 2020
- ▶ MWW Superintendent participated in US EPA Drinking Water Advisory Group since 2014
- ▶ Key policy questions for Milwaukee and other major cities:
 - ▶ Will EPA mandate *full* lead service line replacement?
 - ▶ Will owners be required to remove their portion when the city replaces mains?
 - ▶ How do utilities finance replacements?
 - ▶ How do owners finance replacements?

Understanding Lead Risk

- ▶ The scientific research is unanimous that full service line replacement has the most long-term benefit
- ▶ Many local utilities are proactively replacing their half of the service with copper
- ▶ The health impact of that practice is not clear
- ▶ Disrupting lead lines does create short-term hazards

Pilot & Results

- ▶ MWW designed pilot in 2015 to answer the question: **do existing mains practices affect lead levels at the tap in Milwaukee?**
- ▶ Pilot designed and reviewed with:
 - ▶ MHD
 - ▶ US EPA
 - ▶ WI DHS
- ▶ For 2015, 21 single-family properties with lead service lines were invited to participate:
 - ▶ 6 chose to participate
 - ▶ All 36 properties with lead services received advisories, regardless of participation

Pilot & Results

- ▶ Participants captured 13 samples of tap water on 3 occasions:
 - ▶ Pre-project
 - ▶ After re-connection to the main
 - ▶ 4 weeks after re-connection
- ▶ In most homes there was a temporary increase in lead levels after re-connection of the main
- ▶ Level returned to previous level after 4-6 weeks

# Samples	Detected Lead
105 (31%)	None
186 (56%)	< 15 ug/L
43 (13%)	> 15 ug/L*

* 27 of 43 samples over action level from 1 property

Pilot & Results

- ▶ Results reviewed January with WI DNR, DHS, and US EPA
- ▶ Additional 26 properties contacted in January out of abundance of caution
 - ▶ 2 commercial
 - ▶ 24 residential
 - ▶ Through Jan. 26, only 4 residential properties requested testing

Next Steps

- ▶ MWW has suspended work for main replacements with lead services for 2016, out of an abundance of caution
- ▶ Replacement of mains w/ copper service lines will continue
- ▶ MWW and MHD are crafting new protocol and communication for customers who:
 - ▶ Have a lead service and a main that needs emergency repair
 - ▶ Have a leak in the existing lead service, either on the City or customer side
- ▶ Letter to all 70,000 lead service line customers advising on projects, emergency work, and steps to reduce hazards

Next Steps

- ▶ MWW, MHD, and Budget are developing a plan to proactively address lead services in 2016 and beyond
 - ▶ Public & customer communication on risk
 - ▶ Replacement levels & financing strategy
- ▶ MWW and MHD will continue working with State and Federal partners on:
 - ▶ Remaining in compliance with EPA Lead & Copper Rule
 - ▶ Developing model approach for other WI communities and major US cities

