



Buildings in Ohio built prior to 1998 or that use plumbing material or solder manufactured before 1998 may have materials with greater than 8% lead and are at a higher likelihood of contributing lead to the drinking water than materials manufactured after 1998. In addition, buildings built and plumbing materials manufactured after 2014 were required to have less than 0.25% lead by weight and are unlikely for contributing lead to the drinking water. It should be noted however that, although prohibited, some use of lead solder or leaded components may have occurred after the prohibitions became effective.

- City of Youngstown Water Service Area
- Construction Date Unknown/Vacant Parcels
- Lead Almost Certain (pre 1954)
- Lead Likely (1954-1997)
- Lead Possible (1998-2013)
- Lead Unlikely (2014 to Present Day)

Lead Likelihood by Construction Date



# CITY OF YOUNGSTOWN

MAYOR JOHN A. MCNALLY



WATER DEPARTMENT  
HARRY L. JOHNSON, III - WATER COMMISSIONER  
EUGENE J. LESON - CHIEF ENGINEER

March 7, 2017 \*

Ohio Environmental Protection Agency  
Northeast District Office  
Division of Drinking and Ground Waters (DDAGW)  
2110 E. Aurora Rd.  
Twinsburg, OH 44087

RE: Guidelines for Lead Mapping in Distribution Systems

To Whom It May Concern:

Please find enclosed the City of Youngstown Lead Likelihood Map, the City lead and copper monitoring site list and a narrative description of the process used to develop the map as required by Ohio EPA under the recently passed House Bill 512.

Sincerely,

Eugene J. Leson  
Chief Engineer

Encl: as stated

Cc: Mr. Harry Johnson, Water Commissioner

## I. Lead Likelihood Map Synopsis

This report supports the City of Youngstown Lead Likelihood Map that categorizes buildings/parcels within the City of Youngstown's water distribution network into five specific color-coded categories based upon year of construction:

- Lead Almost Certain (pre 1954)
- Lead Likely (1954-1997)
- Lead Possible (1998-2013)
- Lead Unlikely (2014 to Present Day)
- Construction Date Unknown/Vacant Parcels

The milestone dates of each lead likelihood rating are based on our research on the history of lead usage in water networks and conversations with experienced professionals on City staff and industry experts outside the City.

## II. Characteristics of Buildings with Lead Piping, Solder or Fixtures

During development of the City of Youngstown's Lead Likelihood Map, research was conducted to approximate when buildings transitioned from lead to copper installation within the City's distribution system. This research consisted of a review of available historical records that included as-built drawings, tap cards and geospatial databases. The research also included collaborating with experts in the water industry, and a local pipe manufacturer, assumed regional similarities, and the Ohio EPA's direction for identifying buildings with lead piping, solder and fixtures.

### *A. Historical Research*

As-built drawings and tap cards dating back to the 1940s were reviewed extensively to help approximate the date for which the use of lead pipe was discontinued in water services and mains. Most of the available information did not specify the piping materials used, unfortunately. Although the research did not yield a specific date of transition from lead to copper pipe in water services, it did indicate that the transition occurred between 1950 and 1960.

The Mahoning County Auditor GIS Office and the Trumbull County Auditor GIS/Tax Map provided several mapping datasets including parcels, street centerlines, and year of construction information for over 100,000 parcels in Mahoning County, and more in Trumbull County. They did not have data available regarding the City of Youngstown's water services nor did the data provided by Mahoning County have any building information for construction activities after 2013.

### *B. Collaboration with Local and Technical Experts*

In an effort to narrow down the dates associated with each category, technical experts from the American Water Works Association (AWWA) were contacted to assist in ascertaining a date when copper pipe replaced lead in water distribution networks. In addition, a 30-year employee of Trumbull Industries – a local plumbing and pipe supplier that has been in business since 1922 was interviewed. The conversations coincided with historical research that the use of lead pipe in plumbing and water services ceased around 1950.

Research into similar Northeast Ohio urban water distribution networks helped to make a final determination of the cutoff date for lead water services. In October 2016, Cleveland water released

information about lead water services within their distribution network. As part of the comprehensive analysis, they used January 1954 as their cutoff date for lead water services. The assumption is that the City of Youngstown stopped using lead water service pipe around 1954 as part of the transition to copper pipe as well.

*C. Ohio EPA's Guidelines for Lead Mapping in Distribution Systems*

Section V of the Ohio EPA's *Guidelines for Lead Mapping in Distribution Systems* assumes that the manufacture or installation date is the primary indicator of the lead content in buildings. It continues in stating that the Ohio Plumbing Code adopted the Safe Drinking Water Act (SDWA) ban on use of lead solders containing more than 0.2% lead in 1998, and in 2014, the SDWA changed the definition of lead-free to 0.25%.

III. Assigning a Likelihood Rating for Lead

A likelihood rating was assigned based on the construction date of buildings using the research conducted and in accordance with the amendments of the SDWA. That is:

- Any building constructed prior to 1954 is almost certain to contain lead;
- Any building constructed between 1954 and 1997 is likely to contain lead;
- Any building constructed between 1998 and 2013 is possible to contain lead, and
- Any building constructed after 2014 is unlikely to contain lead.

Construction Date Unknown/Vacant Parcel category characterizes parcels where no information was available or if the parcel was an open space (e.g. park, cemetery, agricultural site). Very few parcels marked as construction date unknown are believed to have older buildings constructed on them with high probabilities of lead occurrence.