

**WATER DISTRIBUTION SYSTEM
LEAD MAPPING SUBMITTAL**

**PREPARED FOR:
CITY OF PIQUA
PUBLIC WATER SYSTEM ID: OH5501211
9300 NORTH STATE ROUTE 66
PIQUA, OH 45356**

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LEAD MAPPING NARRATIVE FOR CITY OF PIQUA

9300 North State Route 66, Piqua, Miami County, Ohio
PWS ID: OH5501211

Introduction

In June 2016, House Bill (HB) 512 was passed to enact section 6109.121 of the Ohio Revised Code to create requirements governing lead and copper testing for community and non-transient non-community public water systems and to revise law governing lead contamination from plumbing and fixtures. The new law also requires community water systems to identify and map areas of their distribution systems that are known or likely to contain lead service lines. The community water systems must also identify and provide a description of the characteristics of buildings served by the system that may contain lead solder, fixtures or pipes.

In accordance with HB 512, the City of Piqua (City), Public Water System ID# OH5501211, worked with engineering consultant, Hull & Associates (Hull), to produce an overall water system map. The map shows the approximate location of the distribution system and identifies areas of the City that are known or likely to contain lead service lines. For this submittal, the map depicts areas of general service line information and only indicates the likelihood of lead in the publicly owned portion of the service lines (the portion from the water main to the water meter). At this time, information on the lead content of the private side of the service lines are unknown. A list of lead and copper sampling site locations is also included in this submittal, as required under OAC 3745-81-86 and as reported to Ohio Environmental Protection Agency (EPA) under the monitoring requirements therein. There has been no action level exceedance for lead in the City of Piqua during the regular required sampling reported to Ohio EPA. Lead sampling test results are included in the Annual Water Quality Report sent to all customers annually.

Mapping Areas with Lead Service Lines

To develop the map, Hull interviewed City officials knowledgeable of the water distribution system, reviewed historic water main and service line design standards, reviewed "tap cards" and as-built drawings, and determined approximate dates of construction for developed areas. The City currently has design standards in place dated 2008 that specify the use of "type 'K' copper tube with compression or flared type fittings" for all water service lines. The City believes that this standard was in place long before 2008 (possibly as far back as 1970), but documentation of such standards was not located. Lead service lines are most likely present in the oldest part of the City (constructed before 1940), while the period between 1940 and 1970 represents a transition from the use of lead to the use of copper for water service lines. Therefore, Hull categorized areas of the map based on the following dates of construction:

- Before 1940 – High likelihood that service lines contain lead;
- From 1940 to 1969 – Moderate likelihood that service lines contain lead;
- From 1970 to present – Low likelihood that service lines contain lead.

This categorization is generally consistent with the information obtained from the City's "tap card" records. Hull delineated the boundaries between the areas based on information obtained during interviews with City officials, from "tap cards", and from the Miami County Auditor's website.

When a water service is confirmed to contain lead pipe and/or fittings, it is the City's policy to replace the publicly owned components with new copper tubing and non-lead brass hardware. The City abandons the existing lead pipe and installs a new type "K" copper service line, creating a new tap in the water main. All existing brass hardware up to and inside the meter pit is replaced with non-lead brass hardware. The

City is not responsible for replacing the privately owned portion of the water service line, but recommends that the owner consider replacement.

The materials of water main pipe installed in the City include concrete, cast iron, and ductile iron. Cast iron water main pipes are likely present in the High and Moderate shaded areas of the City (pre 1970's) and may contain lead-oakum joints. The current City standard material for water mains is ductile iron pipe with push-on joints and rubber gaskets.

City personnel will collect additional service line and water main information during repairs, replacements, service requests, etc. As information is gathered and organized, the map will be updated accordingly.

Characteristics of Buildings with Lead Piping, Solder, or Fixtures

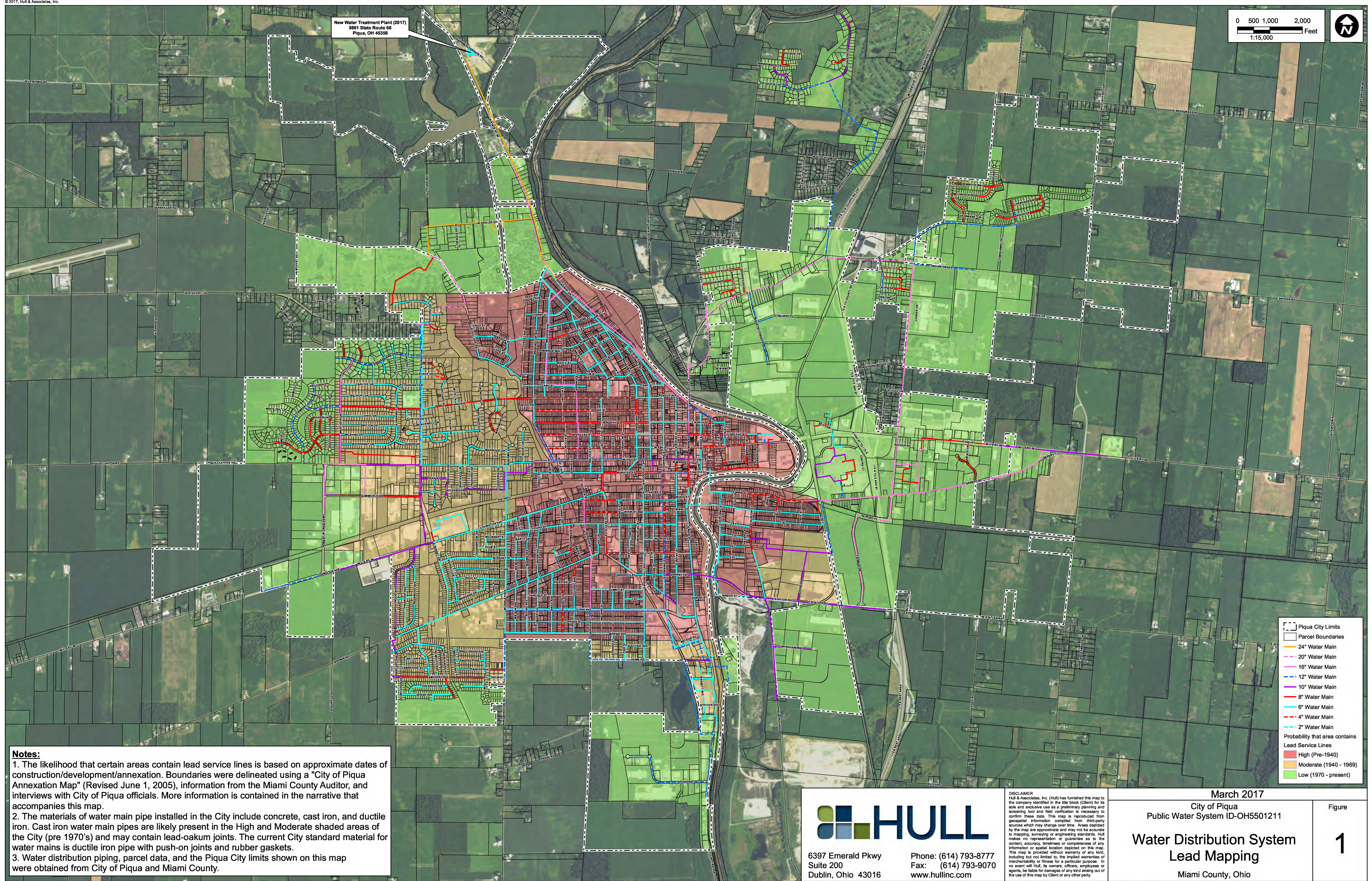
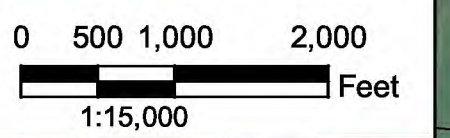
Regarding the requirement to identify characteristics of buildings with lead piping, solder or fixtures, the Ohio EPA guidance provides the following:

“Because it is practically impossible to determine the lead content of an installed fixture, fitting or pipe, it should be assumed that the manufacture or installation date is the primary indicator of the lead content. Therefore, the characteristics of buildings and piping solder or fixtures would be **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 risk 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 have the lowest risk for contributing lead to the drinking water. It should be noted however that, although prohibited, some use of leaded solder or leaded components may have occurred after the prohibitions.”**

Since most of the City was developed prior to 1998, it is likely that plumbing materials inside the buildings (the private customer side) contain components that exceed 8% lead. Some recent residential developments at the edge of town were constructed between 1998 and 2014 and may contain valves and fixtures that could contain between 0.25% and 8% lead. No significant development has occurred post 2014. The City will continue to collect information during repairs, replacements, and service requests, and will update the lead map and narrative description in the future.

It should be noted that the City has replaced the service lines and plumbing fixtures for each of the three City elementary schools: Springcreek Elementary, Piqua Central Intermediate School, and Washington Primary School. The City is also currently performing a corrosion study to document the quality of the City's drinking water and confirm that adequate corrosion protection of distribution piping is occurring. The study will continue throughout the transition to the new water treatment plant to ensure that drinking water quality is maintained or improved during and after the new plant is brought on line.

New Water Treatment Plant (2017)
9801 State Route 66
Piqua, OH 45356



Notes:

1. The likelihood that certain areas contain lead service lines is based on approximate dates of construction/development/annexation. Boundaries were delineated using a "City of Piqua Annexation Map" (Revised June 1, 2005), information from the Miami County Auditor, and interviews with City of Piqua officials. More information is contained in the narrative that accompanies this map.
2. The materials of water main pipe installed in the City include concrete, cast iron, and ductile iron. Cast iron water main pipes are likely present in the High and Moderate shaded areas of the City (pre 1970's) and may contain lead-oakum joints. The current City standard material for water mains is ductile iron pipe with push-on joints and rubber gaskets.
3. Water distribution piping, parcel data, and the Piqua City limits shown on this map were obtained from City of Piqua and Miami County.

- Piqua City Limits
- Parcel Boundaries
- 24" Water Main
- 20" Water Main
- 16" Water Main
- 12" Water Main
- 10" Water Main
- 8" Water Main
- 6" Water Main
- 4" Water Main
- 2" Water Main
- Probability that area contains Lead Service Lines
- High (Pre-1940)
- Moderate (1940 - 1969)
- Low (1970 - present)

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March 2017
City of Piqua
Public Water System ID-OH5501211

**Water Distribution System
Lead Mapping**

Miami County, Ohio

Figure
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