

City of Berea, Ohio

Service Line Map March 2017

Brook Park

Olmsted Township

Olmsted Township

Olmsted Falls

Lead Public and Private

Lead Private Only

Cuyahoga County

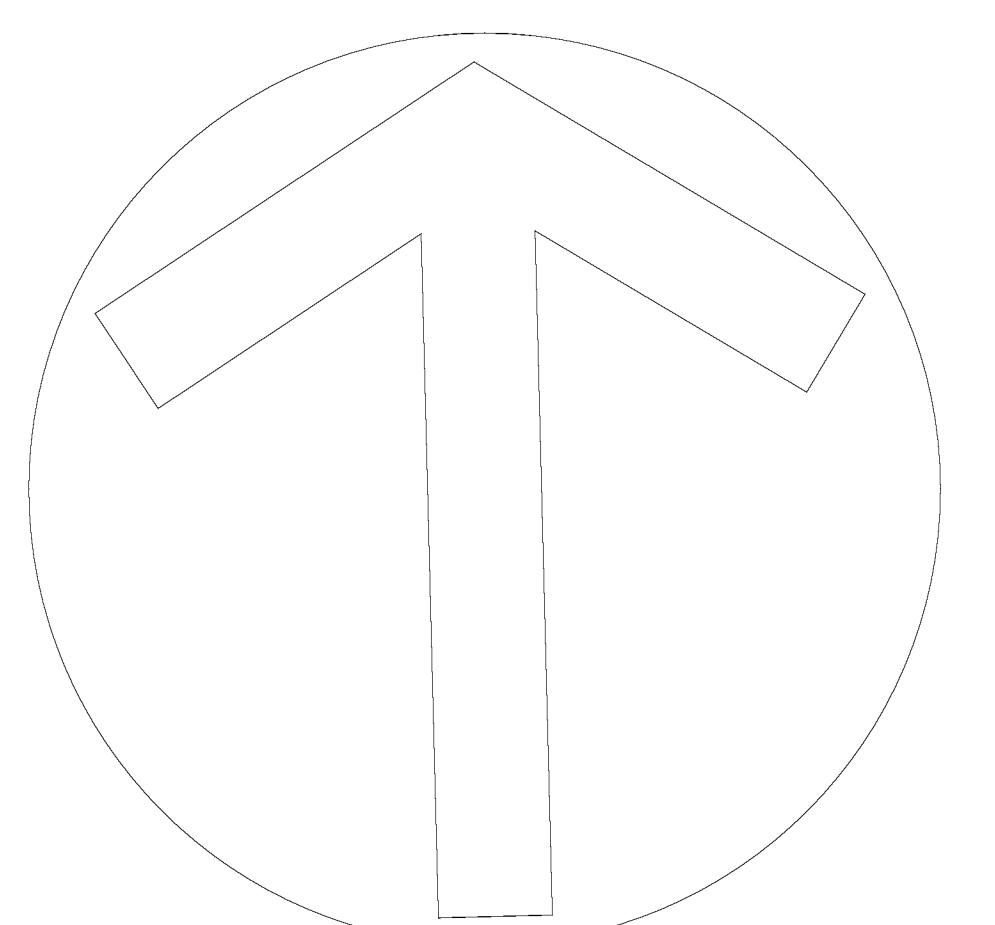
Lorain County

Columbia Township

Strongsville

Middleburg Heights

Antonio C. Armagno, P.E.
City Engineer





City of Berea PWS: OH 18000111

Lead Mapping Requirements In Distribution Systems

for

ORC Section 6109.121

Submitted to the Ohio EPA

Due: March 9, 2017

Prepared and Submitted by:

Sandra O. Vozar, P.E. WS4 1018626-07

Utility Engineer, City of Berea

11 Berea Commons

Berea OH 44017

Ph: 440-234-5652 x 6225

March 2017 Submission to the EPA Lead Service Line Mapping

City of Berea Identification of areas with Lead Service Lines

The City of Berea has been proactive about the removal of lead service lines since the lead and copper rules became effective in 1992. Lead service lines had never been prevalent in Berea. Locations which had them were anomalies and it appears that Berea has never had a material requirement for lead service lines in their building code at any time. There are no areas of the City in which numerous houses or entire streets had lead service lines, nor did a particular builder or area. Baker St. and French St. are the only two streets that had multiple lead lines (city side which have since been replaced.) Therefore, it was an easier task to replace the scattering of lines that existed throughout the City. Today, only 3 structures with lead service lines exist to the best of our knowledge and investigation.

Berea has a relatively accurate record of service line installations known as “tap cards”. Two duplicate sets of tap cards exist- 1 set at the service garage (for the water distribution crew) and 1 set at the water plant (for the meter service technicians.) These tap cards originate back to almost the beginning of the water system dating back to the 1920’s. They not only contain shut off/curb stop measurements, but also service line material, date of tap install, and size of water main tapped. The tap card file is mostly complete, and only on rare occasions can a card for a property not be located. This system of documentation has been well maintained over the years. These tap cards were reviewed not only back in 1992 but again this past year to look for any possible oversights or omissions.

In addition to the tap cards, there are also meter cards that the billing clerk keeps. The meter cards were also referenced to double check dates of commencement of water service via the public water system. If a tap card was missing the meter cards can be referenced for a possible date of construction, and is another source of valuable information about water service provided to a property.

In researching service line material, all lead lines documented in the Berea water system were installed in the 30’s and early 40’s. Therefore, records for structures built prior to 1950 were more closely scrutinized for lead services. The City of Berea had a huge housing boom starting at the end of World War II (1945) which continued into the 60’s. At the commencement of this housing boom, Berea Building code required all service lines installed to be copper through present day. Prior to this time, brass, galvanized iron, and lead were used as well as copper. The galvanized lines have not held up well with many replacements over the years and the City has begun to proactively replace galvanized service lines with hopes to eliminate them within the next couple of years.

The City of Berea has expanded over the years as the original City was surrounded by farmland and township. After World War II, areas to the west and to the south were converted from open farmland and fields into housing developments. There was farmland to the north but intermixed with older neighborhoods as well. The older original structures in the City of Berea start at the northern corp. limit (which borders City of Cleveland) down thru the center of town, especially South Rocky River Drive area, east of the center of town and the main roads of Prospect St., Sprague Rd. West St., and adjacent streets which were close to the west bank of the Rocky River.

Tacit knowledge also played a large role in further confirming and identifying lead services. The water distribution superintendent who worked in the water system for over 30 years had great knowledge of the system and replaced lead lines proactively. He was onsite for most water breaks and repair work. Other water distribution crew workers have many years and solid knowledge of the system and they were consulted as well.

Another recent benefit which aided in identification of service line material was the Meter Replacement Project during 2016. The City of Berea replaced approximately 4,000 meters between June 2016 and March 2017. The contractor installing these meters was required to document the service line material up to the meter and those records were checked for lead lines. Accounts that were questionable were followed up and verified for material. There are a total of 7,000 service connections. About 3,000 meters were installed between 2006 and present by the City personnel. During meter replacements, only 1 additional lead service line was discovered (91 Baker St.) that had not been documented prior. Additionally, due to the meter replacement project, the majority of water meters installed in the system are lead free.

Buildings Served by Berea Water System Likely to contain lead solder

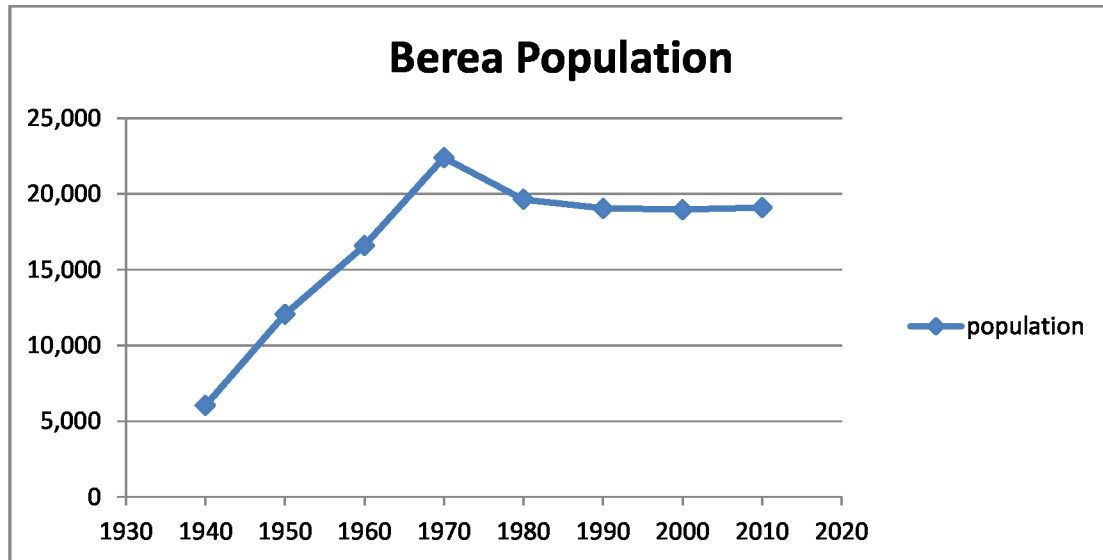
Tier 1 sites are single family residences that contain copper pipes with lead solder installed after 1982 and up to 1988 (when lead solder was banned in July 1987.) The City of Berea still has the plumbing permit books from this time period, and the permits were reviewed to find plumbing work permits issued during this time and used to determine the tier 1 sites.

Most of Berea was developed prior to 1988, and therefore copper plumbing with lead solder was utilized. "Attachment A" shows the population boom after World War II in the City of Berea -almost tripling between 1940 and 1960. Berea reached its peak population in the 1970 census. Attached to this summary is a street listing (Attachment B) of all streets in Berea with date the street was developed. Most streets with no date are original City streets which may have a variety of construction dates from new to old. These streets would have construction before the 1950 standard of copper service line requirements and therefore lead lines could be possible. These areas will continue to be looked at closely to determine if lead pipes are present.

New Construction

Berea has some residential construction after the 1988 no lead standard. Old Reservoir Road (16 SFH), Loriann Drive (20 SFH) and Park Place (29 SFH) are areas developed in 1988 or later. The Sandstone Ridge Development in the upper northwest portion of the City began construction in 2004 and includes 569 SFH (56 planned for future development). Much of the industrial area on West Bagley Road was constructed after it was annexed to the City of Berea and city water and sewer were provided in 1988.

YEAR	population	change
1940	6,025	
1950	12,051	100.0%
1960	16,592	37.7%
1970	22,396	35.0%
1980	19,636	-12.3%
1990	19,051	-3.0%
2000	18,970	-0.4%
2010	19,093	0.6%



Sandstone Ridge Development- 2004 to present

516 Single family homes

153 Town homes

56 additional homes planned

CITY OF BEREA

<u>STREET LISTING</u>	<u>YEAR</u>	<u>STREET LISTING</u>	<u>YEAR</u>	<u>STREET LISTING</u>	<u>YEAR</u>	<u>STREET LISTING</u>	<u>YEAR</u>
Aaron Street	1955			Longfellow Drive	20's/50's	Shelley Parkway	1929
Abbyshire Drive	1955	Edgewood Drive	1950	Loriann Drive	1993	Sherry Lane	1959
Adams Street		Edwards Drive	1960	Lou Groza Blvd		Shetland Circle	1961
Adalbert Street		Ellen Drive	1989	Louis Drive	1959	Side Saddle Lane	after 2004
Adrian Drive	1954	Ellen Park	1989	Lyme Circle	after 2004	Slate Drive	after 2004
Albert E. Baesel Drive		Elmwood Drive	1945	Lynn Drive	1953	Sonora Court	1967
American Legion Pkwy		Emerald	no record	Main Street		Southham Circle	1963
Andrew Street	1948	Emerson Drive	1960	Manning Drive	1950	South Point Trail	1991
Anne Drive	1955	Ensenada Court	1967	Maple Avenue	1957	S Rocky River Dr	
Arden Avenue		Fairpark Drive	1953	Maplelawn Drive	1960	Sprague Road	
Austin Street		Fair Street		Marble Court	after 2004	Spring Street	
Bagley Road		Fairwood Circle	1956	Marian Lane	1990	Stanford Drive	
Baker Street		Fallingrock Way	after 2004	Meadow Circle	1968	Stanmary Drive	1946
Baldwin Drive	1958	Fern Drive	1971	Meadow Drive	1858	Starlite Drive	1961
Barberry Drive	1958	Fifth Avenue (west)		Merrimak Drive	1965	Sterling Circle	1963
Barrett Road		Fillier Street		Miles Lane	1954	Stone Ridge Way	after 2004
Bedrock Court	after 2004	Firestone Drive	after 2004	Milton Street	1954	Stonefield Drive	after 2004
Beech Street		Fournier Street	1949	Monroe Street	20's/50's	Stonepoint Drive	after 2004
Beeler Drive	1955	Fourth Avenue		Morse Drive		Stoneridge Circle	after 2004
Berea Commons		Fowles Road		Mulberry Street		Stonethrow Drive	after 2004
Berea Industrial Pkwy		Franklin Drive		Murphy Street		Stonewater Court	after 2004
Berea Street		Franklin Street	1948	Nancy Drive	1954	Sunset Drive	1956
Best Drive	1956	French Street	1930	Nobottom Road	1955	Surrey Circle	1962
Bevans Street		Front Street		N Rocky River Dr		Tamarack Drive	1956
Birchwood Drive	1959	Fuller Street		Oakdale Road	1951	Tampico Court	1967
Bishop Place	1992	Geiger Street		Old Reservoir	1988	Tauton Drive	1966
Blaze Industrial Pkwy	1997	Gibson Street		Olde towne Trail	1982	Thacker Street	no main
Bonds Parkway	1990	Girard Drive	1955	Orchard Grove		The Burns	
Boulder Drive	after 2004	Glen Oaks Lane	1981	Paddock Circle	1961	The Mall	
Bridle Lane	1962	Glenwood Circle	1967	Park Place	1990	Third Avenue	
Brighton Drive	1965	Granite Court	after 2004	Park Street		Trailhead Lane	after 2004
Brockton Circle	1963	Grayton Road		Parkview Drive	1951	Tressel Street	
Bronson street		Greenfield Court	1961	Parkway Drive		Trotter Lane	1961
Bryant Avenue	1962	Hamilton Street		Parkwood Drive		University Street	
Buckeye Drive	1960	Harnagy Street		Pattie Drive	1955	Vivian Drive	1960
Butternut Lane	1971	Hartman Street		Pearl Street		Wallace Drive	1963
Canter Circle	1961	Haverhill Circle	1964	Pebble Court	after 2004	Walleyford Drive	1965
Carteret Court	1961	Hazel Drive	1959	Pecan Drive	1958	Walnut Drive	1971
Caxton Circle	1957	Helwig Street		Pelret Street	1988	Walwick Court	1961
Chapel Circle	1963	Hemlock Drive	1959	Perham Drive	1966	Waterbury Drive	1964
Chestnut Drive	1957	Henry Street		Pineview Circle	1956	Waverly Street	
Church Street		Hickory Drive	1957	Pineview Drive	1956	Wayne Drive	1955
Clark Street		High Street		Poertner Drive	1998	Weatherstone Drive	after 2004
Clay Court	after 2004	Holly Drive	1959	Prospect Street		Wellington Street	
Cobblestone Court	after 2004	Ingleside Drive	1949	Pulaski Street		Wesley Drive	1931
Coe Street		Jacob Street		Putney Drive	1966	West Bagley Road	
Concord Circle	1965	Jacqueline Drive	1946	Pyrite Court	after 2004	West Bridge Street	
Cranston Circle	1964	Jananna Drive	1959	Quarry Stone Lane	after 2004	West Fifth Avnue	
Cranston Drive	1964	Janice Drive	1961	Race Street	1954	West Grand Street	
Crescent Drive	1955	Karelyn Drive	1958	Redwood Drive	1959	West Street	
Crocker Street		Karen Drive	1954	Reynosa Court	1967	Westbridge Drive	
Crosby Street		Karl Street		Ridgestone Court	after 2004	Westmoor Lane	
Crossbrook Drive	1964	Kaye Street	1960	Riveredge Pkwy		White Street	1955
Daisy Avenue		Kempton Drive	1969	River Rock Way	after 2004	Whitehall Drive	1961
Depot Street		Kraft Street	30's/50's	Riverside Drive		Willow Lane	1956
Dorland Avenue	1957	Kurtz Street	1955	Robin Drive	1959	Woodlawn Circle	1961
Downing Court	1961	Larchwood Drive	1957	Rose Drive	1958	Woodmere Road	1953
Duxbury Drive	1966	Laurel Drive	1959	Rowan Drive	1955	Woodridge Circle	1964
East Bagley Road		Ledgestone Court	after 2004	Runn Street		Wyleswood Drive	1950
East Bridge Street		Lee Road		Sandstone Ridge Way	after 2004	Yearling Drive	1961
East Center Street		Lewis Road		Savage Street	1958	Yellowstone Court	after 2004
East Fifth Avenue		Liberty Street	1970	Second Avenue		Zeller Court	1928
East Fourth Avenue		Limestone Court	after 2004	Seminary Street		wendy	1959
East Grand Street		Lincoln Avenue	1960	Shakespeare Drive	1931	westlawn	1955
Eastland Road		Lindberg Blvd	1928	Shale Court	after 2004		
Edgewood Circle	1964	Lombardy Drive	1956	Sheldon road			

Attachment B