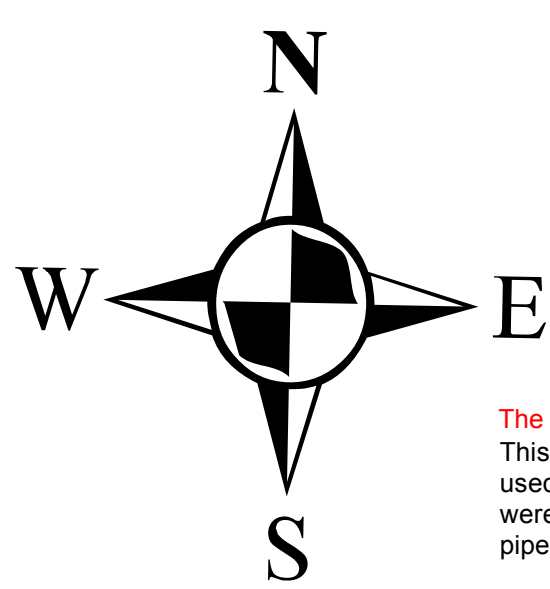
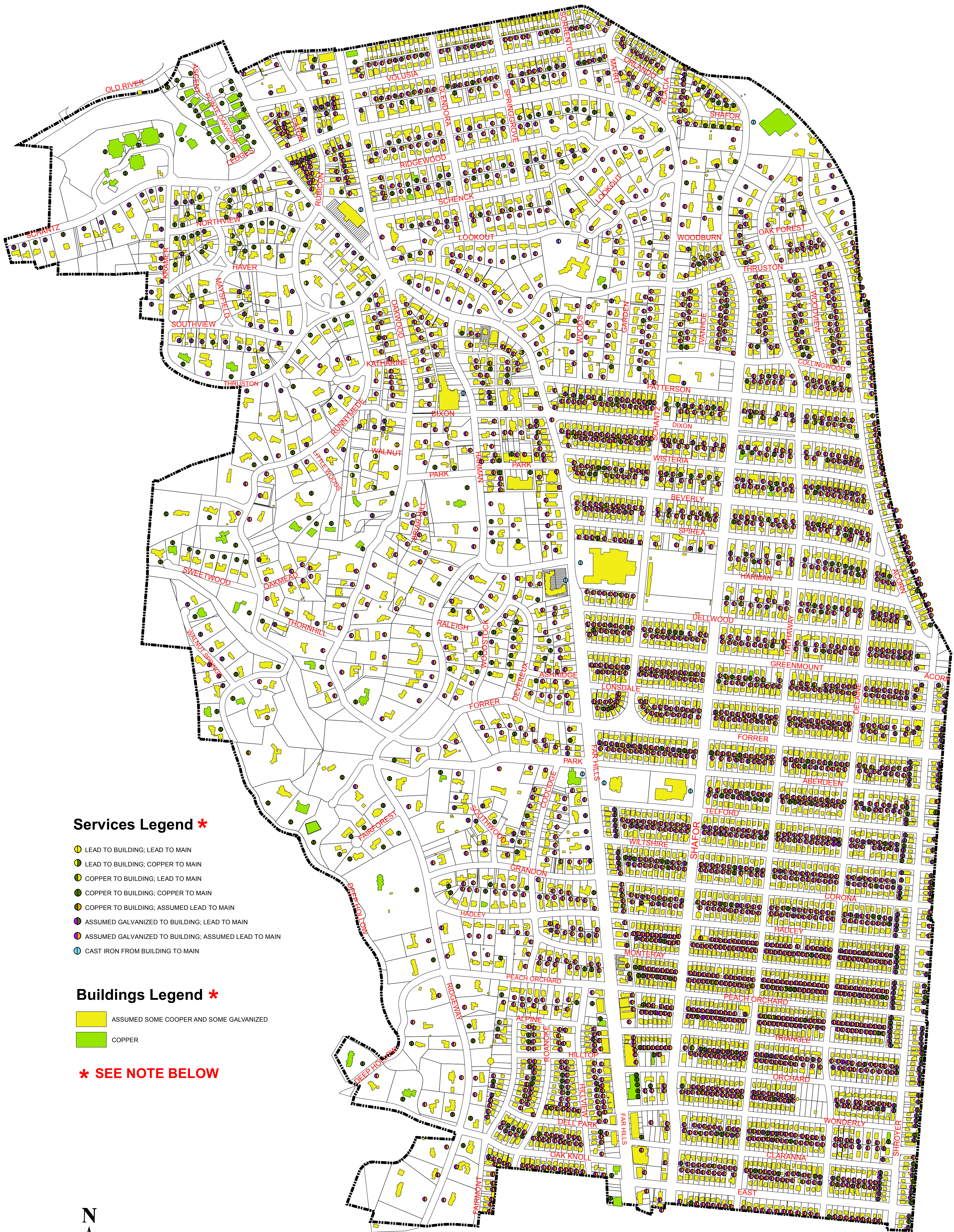


CITY OF OAKWOOD, OHIO

PIPE MATERIAL IN WATER DISTRIBUTION SYSTEM



1 inch = 400 feet

The information presented on this map is based solely on a review of available records. It is not based on a physical inspection of any facilities or on any excavating to verify actual pipe material. Actual verification of pipe material requires a physical inspection and excavating. This information, coupled with the accompanying narrative, should only be used to provide a general understanding of the water piping in Oakwood. Because it is practically impossible to determine the lead content of an installed fixture, fitting or pipe, the manufacture and/or installation date is used as the primary indicator of lead content. Buildings in Ohio constructed prior to 1998 or that used plumbing fixtures or solder manufactured before 1998 may include some materials with lead content greater than 18%. Buildings constructed with 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 drinking water. Because most buildings in Oakwood were constructed prior to 1950, it is reasonable to assume that there are a number of properties where some fixtures, fittings, solder and pipes contain certain amounts of lead. That said, many Oakwood homes have been upgraded over the years, so much of the lead containing material has been removed.

This map will be updated on a continuous basis as new information becomes available and as future water line infrastructure improvements are made.

CITY OF OAKWOOD

PWS ID# - OH5701915

NARRATIVE

PIPE MATERIAL IN WATER DISTRIBUTION SYSTEM

March 9, 2017

BACKGROUND:

The city of Oakwood is a bedroom community where approximately 98% of the land is zoned residential, with the remaining land zoned business. There are no industrial or agricultural land uses in Oakwood. The city was incorporated as a village in 1908 and by 1931 the population exceeded 5,000 and Oakwood became a city. Most of the homes in Oakwood were built between 1900 and 1950. The 2010 US Census reported Oakwood's population at 9,202. The city consists of approximately 2.2 square miles of land area and is completely landlocked, on the north and northeast by the city of Dayton, and on the southeast, south and west by the city of Kettering. The development of Oakwood was initially fueled by Dayton business leaders moving from the commercial areas of Dayton to a more rural setting. After the 1913 Dayton flood, the higher land elevations in Oakwood contributed to the increased interest in building homes there. Oakwood has not experienced any major development since around 1950. The last large undeveloped parcel of land in Oakwood was adjacent to the former NCR Sugar Camp property. This consisted of approximately 25 acres. In 2006, NCR Corporation sold the property to a developer and the land is now Pointe Oakwood, a mixed use residential housing development. Oakwood provides its own city water through eight production wells and three water treatment plants. The water production and treatment operations are managed by a fulltime Ohio licensed water operator and the distribution system by a fulltime Ohio licensed distribution operator.

WATER DISTRIBUTION SYSTEM:

As was the standard practice during the time period when Oakwood's water system infrastructure was built, the water main pipes were constructed using cast iron pipe with lead joints. Also following standard practice at the time, and based on field observations over the last 30 or so years, it appears that most of the water service lines initially consisted of short sections of lead pipe between the cast iron water mains and curb stops (shut-off valves), and galvanized pipe between the curb stops and homes/businesses. Over the past 30 years, the city replaced some of the old cast iron pipe, mostly old 4 inch lines. This was done primarily to address fire flow issues. The single largest project took place in the northwest corner of Oakwood, an area referred to as Hatcher's Plat. This included the following roadways: West Schantz Avenue, Kramer Road, Southview Road, Northview

Road, Maysfield Road, Haver Road, Rubicon Road and West Thruston Boulevard. In this area, the city installed new ductile iron water mains and replaced all lead service lines encountered between the water mains and curb stops with copper. Pointe Oakwood also consists of ductile pipe, as does the Shroyer Road corridor, where a water line upgrade project was completed in the 1960s.

Oakwood has 345 fire hydrants. Most of the original hydrants were manufactured by the Bourbon Copper & Brass Company. In the early 1990s, all of the Bourbon hydrants in Oakwood were replaced with a newer style fire hydrant manufactured by the Eddy Valve Company. The water system has approximately 675 underground mainline water valves. In the early 1990s, the city began replacing many of these old valves. The initial valve replacement projects included installation of approximately 300 new valves. The city continues to replace old valves as they fail, and adds additional valves from time to time to improve shut-off zones. In 2015, the city purchased a valve insertion machine. This greatly enhanced the city's in-house valve replacement capability. To date, nearly half of the total water main valves have been replaced. The city will continue replacing water valves as needed each year moving forward.

WATER SERVICE LINES:

There are 3,666 water service connections in the city of Oakwood. Based on a review of all the maintenance records available, it was determined that over 1,000 of the short lead service lines between the water mains and the curb stops have been replaced with copper pipe. These are lines that the city replaced over the years in response to pipe failures or in conjunction with other infrastructure improvements. Recognizing that some lines were likely replaced without a record being made, or before such records were kept, the total number is probably larger. From the curb stops to the homes/businesses, there are nearly 600 where the property owner installed new water lines, most of which are copper pipe. This number is also probably larger. As mentioned above, the water service lines in Pointe Oakwood are 100% copper from the water mains to the homes. Also, all of the water service lines in the Hatcher's Plat area are copper from the water mains to the curb stops. The other concentrated areas of copper lines are on streets where the city completed major roadway projects over the past 40 years.

Included with this narrative is the first draft of a map of the Oakwood water distribution system that provides information on the known and/or assumed water pipe conditions. Aside from the service lines known to be copper or iron, and because no other information is available, the map shows that service lines are assumed to be lead from the water mains to the curb stops, and galvanized from the curb stops to the homes. This assumption is made for two reasons: 1) The history of Oakwood's development shows that almost all of the homes were built in the time frame when use of lead service lines was the norm; and 2) Over the years, nearly all of the original service lines excavated by the city or by private contractors and viewed by the city have been found to be lead from the water mains to the curb stops, and galvanized from curb stops to the homes.

SCHOOL WATER LINES:

There are three public school buildings in Oakwood. Each building is served by a 4 inch ductile iron water service line. The interior of the buildings are believed to be mostly galvanized piping. In 2016, and at the request of the schools, the city collected water samples from the drinking fountains at each of these three school buildings and tested the water for lead content. Out of thirteen samples taken, none were found to be above the EPA Action Level. In fact, all but one sample were found non-detectable for lead. One sample was found with a lead concentration of 2.44 micrograms per liter (ug/L or parts per billion), which is well below the EPA Action Level.

BUILDING WATER LINES:

Because it is practically impossible to determine the lead content of an installed fixture, fitting or pipe, the manufacture and/or installation date is used as the primary indicator of lead content. Buildings in Ohio constructed prior to 1998 or that used plumbing fixtures or solder manufactured before 1998 may include some materials with lead content greater than 18%. Buildings constructed with 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 drinking water. Because most buildings in Oakwood were constructed prior to 1950, it is reasonable to assume that there are a number of properties where some fixtures, fittings, solder and pipes contain certain amounts of lead. That said, many Oakwood homes have been upgraded over the years, so much of the lead containing material has been removed. Since 1998, 42 new homes have been constructed in Oakwood. The Pointe Oakwood development includes 20 of these homes and the remaining 22 are scattered around the city. Some were built on in-fill lots and some replaced existing homes.

LEAD AND COPPER TESTING:

In Ohio and throughout the nation, the prescribed approach over the past 25 years in addressing water quality relating to lead service lines has been water quality testing. Oakwood is in full compliance with all requirements of the 1992 United States EPA Lead and Copper Rule, and the Ohio EPA lead and copper testing program. Oakwood has completed all required water sampling and testing since 1992 and the test results have never exceeded the EPA Action Levels that would have required additional testing or other actions.

SUMMARY:

The City of Oakwood maintains the public water system in compliance with all EPA regulations. Over the last several decades, the city has been systematically upgrading the system. The city will continue to comply with all EPA regulations and upgrade the water system as necessary and appropriate in the years to come.