

THE CITY OF



Kalamazoo Water Quality Report 2017

The City of Kalamazoo provides its customers with information about the quality of our drinking water each year in a Water Quality Report (sometimes referred to as a Consumer Confidence Report). Much of the information provided in this report, along with the additional monitoring and testing conducted throughout the year, is beyond what is required by the Safe Drinking Water Act and is provided as an extra service to our customers.

The water quality data in this report shows that the water we provide to our customers exceeds the standards established by federal and state regulations.

Kalamazoo's Water Supply System

At less than a penny per gallon, the City of Kalamazoo provides safe, reliable and affordable water to our customers.

Kalamazoo's Public Water Supply System

The City of Kalamazoo Public Water Supply System is the second largest groundwater-based drinking water system in Michigan and is ranked one of the lowest for water rates out of the twelve largest systems within the state.

*Only 3% of the Earth's water is freshwater.
Approximately 30% of freshwater is groundwater.*

The City of Kalamazoo has a **Michigan Department of Environmental Quality (MDEQ) approved Wellhead Protection Program**, and has been awarded the national Exemplary Source Water Protection Award by the American Water Works Association. The City has also been a recipient of the Michigan Wellhead Protection Program Award multiple times and been awarded the Michigan "Richard Husby Public Awareness Award" for its Wellhead Protection Program education efforts. Kalamazoo has also been designated a Groundwater Guardian Community by the **Groundwater Foundation** every year since 1998.

Kalamazoo's water system provides 19 million gallons of water on an average day to 123,000 customers within 10 jurisdictions. The system includes approximately 823 miles of watermain and 5,970 hydrants. Our system utilizes limited treatment through chlorine, fluoride, and phosphate additives. Two stations are equipped with air strippers and iron removal capabilities.

THE REPORT summarizes our efforts and commitment to provide safe, reliable, and affordable drinking water. Our facilities operate 24 hours a day, 7 days a week and are monitored continuously both on and off site by qualified, trained and licensed personnel.



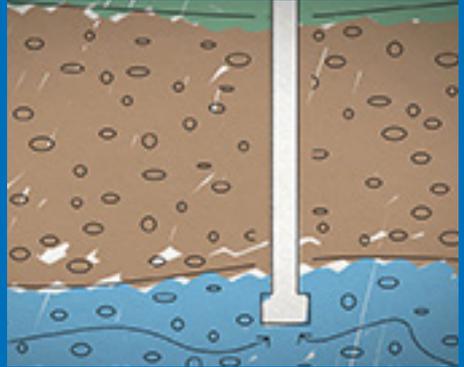
City Manager Jim Ritsema and Public Services Director James Baker at the site of a water infrastructure repair, Spring 2017

- 17 active wellfields
- 16 pumping stations
- 98 wells
- 19 million gallons per day produced on average
- 37 million gallons per day maximum in 2017
- 8 water storage facilities
- Approximately 123,000 customers
- Service in 10 jurisdictions
- ~823 miles of Water Main
- 5,970 hydrants
- 8 pressure service districts

Protecting Our Water

Kalamazoo's Groundwater

Groundwater is the source of drinking water for everyone in Kalamazoo County. Groundwater is located beneath the ground surface in the spaces between sand and gravel particles. Groundwater is preferred over surface water in this area since it is relatively abundant, easy to extract, and generally lacks harmful bacteria. However, groundwater can also be vulnerable to contamination if any spills, leaks, or dumping of harmful substances occur at or beneath the ground surface.



Wellhead Protection

The City of Kalamazoo has a Michigan Department of Environmental Quality (MDEQ) approved Wellhead Protection Program, and has been awarded the national Exemplary Source Water Protection Award by the American Water Works Association. The City has also been a recipient of the Michigan Wellhead Protection Program Award multiple times and been awarded the Michigan "Richard Husby Public Awareness Award" for its Wellhead Protection Program education efforts. Kalamazoo has also been designated a Groundwater Guardian Community by the Groundwater Foundation every year since 1998.

The City of Kalamazoo Wellhead Protection website www.protectyourwater.net has specific information about the City of Kalamazoo Water System, related ordinances, great links to other websites, and information about stormwater and other surface water issues.

The Michigan Department of Environmental Quality performed Source Water Assessments to assess the susceptibility of all public water supply sources to contamination. The susceptibility rating

is on a six-tiered scale from "very low" to "high" based primarily on geologic sensitivity, water chemistry, well construction and contaminant sources. The susceptibility rating of the city's (then) 19 wellfields was: Moderate (2 wellfields), Moderate High (12 wellfields) and High (5 wellfields).

For more information regarding these ratings or the WHPP, please contact the Water Resource Division Manager at (269) 337-8737 or visit www.protectyourwater.net.





Cross-Connections

As a City of Kalamazoo drinking water supply customer, you can help ensure that the water you are drinking within your home and business remains safe. Prevent cross-connections with the City of Kalamazoo's water supply by ensuring that all backflow prevention devices are installed, inspected and properly maintained by licensed and certified plumbers as required by state and local plumbing codes.

What is a "cross-connection"?

Cross-connections are arrangements of piping or appurtenances through which a backflow of undesirable material could enter the potable (drinking) water system.

Help prevent cross-connections:

- Do not submerge hoses in buckets, pools, tubs, sinks or process tanks.
- Do not use spray attachments without a backflow prevention device. The chemicals used on your lawn are toxic and can be fatal if ingested.
- Do buy and install backflow prevention devices (hose bib vacuum breakers) for all threaded faucets around your home or business. They are inexpensive and available at hardware stores and home-improvement centers.
- Never install sprinkler systems, fire suppression systems, or boilers with chemical additives without proper backflow prevention devices.
- Ensure that your softener drain line has an air gap between the drain line and the receiving drain.
- Residential and Commercial establishments connected to the municipal water system must properly abandon all water wells onsite and provide abandonment information to the City of Kalamazoo and the Kalamazoo Environmental Community Health Department.

What is a "backflow"?

Backflow is water flowing in the opposite direction of its normal flow. Backflow can allow contaminants to enter the drinking water system through cross-connections.

The undesirable material may come from sources connected to your own home or facility's internal or external plumbing. A backflow in the water system can be created in areas that experience a sudden loss of pressure. Pressure changes can occur as a result of water main breaks, fire department usage, or during times of hydrant flushing.

If any of these conditions occur in your area, you should flush your lines before using the water to minimize iron particles and other undesirable contaminants that may be present. Flush your taps by starting in your restroom facility or utility sink, and working out towards your food service area.

Stormwater Management

Stormwater is generally rainwater or snowmelt from streets and parking lots that is collected by open grated catch basins and inlets. The City of Kalamazoo has separate sewer systems for sanitary and stormwater. A portion of stormwater runoff is routed directly to the Kalamazoo River, creeks, lakes or ponds. Consequently, it is important to keep oils, grease, fuels, chemicals, lawn fertilizer, grass clippings, trash and other debris from getting to our streets.

“Remember– what gets to the street, gets to the creek!”



Since groundwater and surface water are generally interconnected, your efforts to protect one may positively impact the other. Visit www.protectyourwater.net for more information. Please contact the Water Resource Division Manager at (269) 337-8737 for additional information regarding stormwater quality.

It is important to keep oils, grease, fuels, chemicals, lawn fertilizer, grass clippings, trash and other debris from getting to our streets.

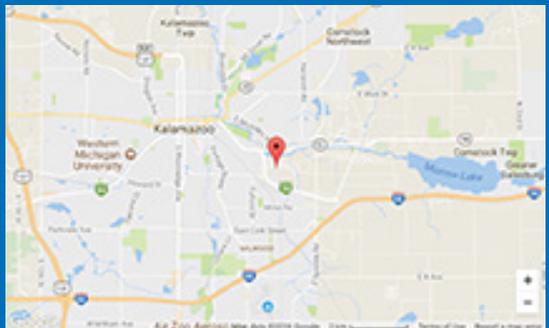
The City has Performance Standards for both groundwater and stormwater that can be found at www.kalamazoocity.org/environment and www.protectyourwater.net.

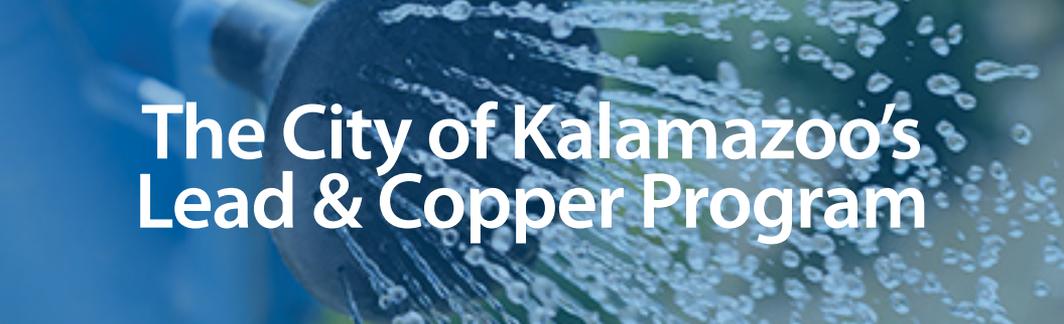
Hazardous Materials

Help prevent pollutants from getting into groundwater or surface water features by taking unused hazardous household chemicals to the Kalamazoo County Household Hazardous Waste Collection Center, located at 1301 Lamont Avenue, off of Lake Street next to the Kalamazoo County Fairgrounds.

Contact the center at (269) 373-5211 or view their website at www.kalcounty.com/hhw for more information. Unused prescription drug disposal locations and hours are listed at www.kalcounty.com/hhw/med-disposal.htm.

A toxic product dumped on the ground or down a storm drain can contaminate our drinking water and surface waters and is strictly prohibited by law.



A close-up photograph of water splashing into a glass, creating numerous white bubbles and droplets against a dark background. The water is captured in motion, with some droplets appearing to be falling or splashing upwards.

The City of Kalamazoo's Lead & Copper Program

The City of Kalamazoo is committed to providing safe and reliable drinking water to Kalamazoo and its surrounding communities, and has consistently been in compliance with the 1991 Safe Drinking Water Act Lead and Copper Rule and all revisions of the rule.

Effective and Safe Water Treatment

The City has utilized a corrosion control program since 1956 that works to reduce water corrosiveness to pipes, fittings and fixtures containing lead and copper. To ensure an optimized strategy, the City of Kalamazoo performs routine monitoring of corrosion control parameters within the water distribution system and testing for lead and copper in customers' homes. Our Public Services Department periodically evaluates the most effective corrosion control methods available and additional ways to further enhance this program.

Lead Service Replacement

A proactive annual capital improvement program has been in place for over twenty years to address lead service replacements. With support from the Foundation for Excellence, the City of Kalamazoo has been able to replace a greater number of lead services each year. Other potential funding sources are also being explored to replace lead service lines as quickly as possible until all have been replaced. Staff continue to update this program and stay current with any changes to the program by the State of Michigan.

Water Quality Monitoring

The City of Kalamazoo conducts a lead and copper monitoring program at least every three years to comply with federal and state lead and copper regulations. This program targets homes that are likely to have the highest concentrations of lead in their drinking water, and includes those with lead service lines as well as homes with copper plumbing built before lead solder was outlawed in the late 1980's.

2016 lead testing indicated that 90 percent of water samples contained less than 4 parts per billion.

The EPA action level for lead is 15 ppb at the 90th percentile, which means 90% of homes tested must have a lead concentration of 15 parts per billion or less. In 2014, a 90th percentile result of 13 parts per billion resulted in customer concerns regarding the lead concentrations in their drinking water. It was determined that the high result was partially due to improper sampling techniques and/or plumbing fixture selections, and was not representative of lead concentrations in the system. This led to a commitment by the City of Kalamazoo to perform the lead and copper monitoring a year ahead of schedule in 2016, and utilize only trained sampling staff. In 2016, testing determined that the 90th percentile result was 4 parts per billion.



City of Kalamazoo Public Services staff replacing water services along Westnedge Avenue, Spring 2018

Free Water Testing

The City of Kalamazoo has provided residents with FREE lead and copper sampling and testing for over 20 years. If you are concerned that you may have lead in your home's water, please contact Kalamazoo's Public Services Department at (269) 337-8550 to arrange for sampling. While waiting for your results, flushing your water lines for a few minutes or until you feel a temperature change before using will reduce any potential risk.

Contact (269) 337-8550 to arrange for free lead sampling

For help finding out if you have lead service lines in your home, you can contact the City's Department of Public Services Field Services Division at (269) 337-8729.

Health Effects

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Kalamazoo is responsible for providing high quality drinking water, but cannot control the variety of materials used in household plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes (until there is a significant temperature change in the water) before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Please contact the City of Kalamazoo Laboratory Supervisor at (269) 337-8550 for testing. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at www.epa.gov/safewater/lead.

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes (until there is a significant temperature change in the water) before using water for drinking or cooking.

2017 WATER QUALITY DATA



Regulated Contaminant	MCL	MCLG	Level Detected	Results Range	Violation Yes/No	Typical Source of Contamination
Nitrate (ppm)	10	10	1.7	ND - 1.7	No	Runoff from fertilizer use, leaching from septic tanks, sewage; erosion of natural deposits
Barium (ppm)(2014)	2	2	0.17	0.05-0.17	No	Discharge of drilling wastes; discharge from metal refineries and coal-burning factories; discharge from electrical aerospace, and defense industries

Regulated Contaminant	MCL	MCLG	Highest Running Annual Average	Results Range	Violation Yes/No	Typical Source of Contamination
Arsenic (ppb)	10	NA	7	ND - 7	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Fluoride (ppm)	4	4	0.61	ND - 1.09	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge; discharge from fertilizer and aluminum factories
Haloacetic Acids (HAA5) (ppb)	60	NA	10.3	4 - 15	No	By-product of drinking water disinfection
Total Trihalomethanes (ppb)	80	NA	22.5	9.8-22.5	No	By-product of drinking water chlorination
1,2-Dichloroethane (ppb)	5	0	0.9	ND-1.3	No	Discharge from industrial chemical factories
Cis-1,2- Dichloroethylene (ppb)	70	70	0.7	ND - 0.95	No	Discharge from industrial chemical factories

Regulated Contaminant	MRDL	MRDLG	Highest Running Annual Average	Results Range	Violation Yes/No	Typical Source of Contamination
Chlorine (ppm)	4	4	0.58	ND -2.3	No	Water additive used to control microbes

Special Monitoring and Unregulated Contaminant*	Highest Level Detected	Results Range	Average Result 2016	Typical Source of Contamination
Sodium (ppm)*	91	6 - 91	27	Erosion of natural deposits

Contaminant subject to AL	Action Level	90th Percentile	Sample Date	Number of Samples above AL	Typical Source of Contamination
Lead (ppb)**	15	4	2016	4	Corrosion of household plumbing systems; erosion of natural deposits
Copper (ppb)	1300	900	2016	2	Corrosion of household plumbing systems; erosion of natural deposits



Analyte	Units	Lowest	Highest	Average
Strontium	µg/L	80	220	126
Molybdenum	µg/L	1	1.6	1.26
Hexavalent Chromium (Dissolved)	µg/L	0.033	0.12	0.06
1,1-Dichloroethane	µg/L	34	36	35
1,4-Dioxane	µg/L	0.072	0.4	0.246
Vanadium	µg/L	0.25	0.36	0.3

Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

* Unregulated contaminants are those for which EPA has not established drinking water standards. Monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.

** A lead level of 2 ppb was detected at a pumping station in 2014

While your drinking water meets EPA's standards for arsenic, it does contain low levels. EPA's standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.





DEFINITIONS

Water Quality Data Table Abbreviations And Terms

According to federal and state laws the City of Kalamazoo monitors for contaminants in your drinking water. The table is based on analyses conducted in 2017 and those tests conducted less frequently than once per year. The Water Quality Data Table lists only the contaminants that were detected. If the test was not performed in 2017, then the most recent analysis is listed. The City of Kalamazoo's state certified laboratory analyzes for the absence of microorganisms and levels of limited treatment chemicals (Hexametaphosphate, Fluoride, and Residual Chlorine) in the City's water supply at several locations three to five days per week. All limited treatment chemicals are on automated feed control systems that are monitored 24/7 by City of Kalamazoo staff.

AL (Action Level) – The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

Contaminant – A biological, chemical, physical, or radiological substance or matter in water.

MCLG (Maximum Contaminant Level Goal) – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

MCL (Maximum Contaminant Level) – The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to MCLG's as feasible using the best available treatment technology.

MRDL (Maximum Residual Disinfectant Level) – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal) – The level of a drinking water disinfection below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

ND – Non-detected

pCi/L (Picocuries per Liter) – A measure of radioactivity.

PPB – Part per billion; the equivalent of one microgram per Liter.

PPM – Part per million; the equivalent of one milligram per Liter.

Trihalomethanes – Compounds formed during the chlorination (disinfection) of drinking water.

NA – Not Applicable

Monitoring for Unregulated Contaminants – The U.S. Environmental Protection Agency (EPA) federal regulations affecting monitoring of unregulated contaminants at public water systems are known as the Unregulated Contaminants Monitoring Rule (UCMR). The purpose of monitoring for unregulated contaminants in drinking water is to provide data to support the EPA administrator's decisions concerning whether or not to regulate these contaminants in the future for the protection of public health. The City conducted unregulated contaminant sampling in 2003 and UCMR2 sampling in 2009. The first portion of UCMR3 sampling was performed in December of 2013 and the second set of sampling was completed in June of 2014. Please contact the Public Services Programs Manager at (269) 337-8667, if you wish to have a copy of the results.



Additional Health Information

Sources of drinking water for both tap water and bottled water can include rivers, lakes, streams, pond reservoirs, springs and wells.

As water travels over the surface of the land or through the ground, it dissolves naturally – occurring minerals and, in some cases, radioactive material, and can pick-up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife
- Inorganic contaminants, such as salts, and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses health risks. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Water Quality Reports from previous years are available on the City of Kalamazoo's website at www.kalamazoo.org/waterqualityreport.



CONTACTS

Customer Views Welcome

If you are interested in learning more, have questions on the contents of the report or would like to comment on water issues, please feel free to contact the Environmental Services Programs Manager at (269) 337-8667. Contact information is listed below for issues related to water.

If you would like to address issues in a public forum, the City of Kalamazoo Commission meetings are held on the 1st and 3rd Monday of each month at 7:00 p.m. in City Hall at 241 West South Street, Kalamazoo, Michigan 49007. We will update this report annually and keep you informed of any new developments or significant issues that occur throughout the subject-reporting year.

Printed copies of this report are available upon request.

Utility Customer Service

(269) 337-8149

opening or closing accounts, billing, payments, meter readings, leaks, or other related questions

Water Testing for Lead & Copper

(269) 337-8550

arrange to have your home or businesses water tested for free

Environmental Programs Manager

(269) 337-8667

questions regarding the Water Quality Report and laboratory data pertaining to water quality

Field Services Section

(269) 337-8729

report a water main break, get assistance determining if your property has lead plumbing components, report clogged catch basins or inlets (call (269) 337-8148 after business hours)

24/7 Water/Sewer Emergency

(269) 337-8148

report an emergency outside of normal business hours

Illicit Discharge Elimination Hotline

(269) 337-8583

report illegal dumping of chemical or hazard materials

Water Operations

(269) 337-8756

report any issues with water quality (call 337-8148 after business hours)

EPA Safe Drinking Water Hotline

(800) 426-4791

information and guidelines from the Environmental Protection Agency