

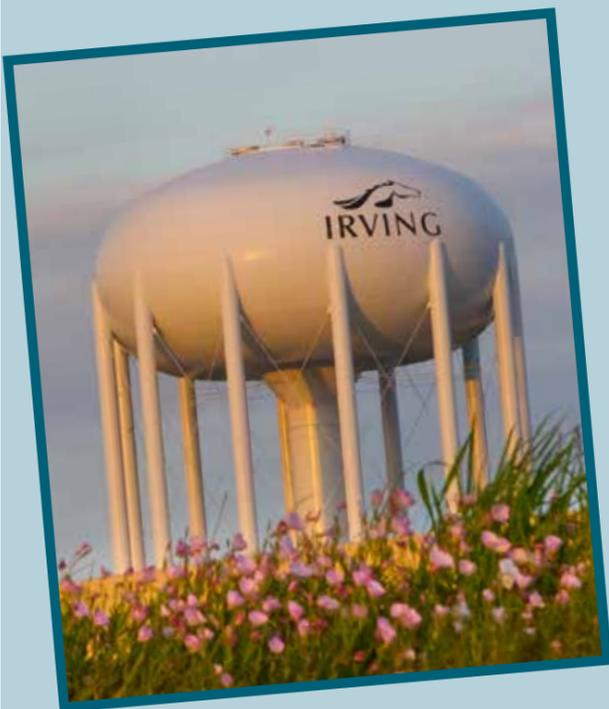
City of Irving Water Quality Report

Mark of Excellence

Essential to a thriving society is an abundant, reliable and safe water supply. Irving Water Utilities plays an integral role in meeting the ever-growing needs of the community. The city provides some of the highest quality, safest drinking water in the world to businesses and to more than 228,610 residents. Irving's water rates also are among the lowest of any major city in the area.

In 1996, Congress amended the Safe Drinking Water Act requiring community systems to provide customers with an annual report on the quality of their drinking water. The City of Irving strongly supported the legislation and is pleased to provide detailed information about the city's drinking water. Irving's drinking water meets or exceeds all standards set by the Environmental Protection Agency (EPA). Water is processed by the City of Dallas and delivered to Irving ready for distribution to residents.

"The Water Utilities Department focuses on public health as employees work 24-hours a day to deliver water to our customers that is thoroughly tested and safe to drink," said Water Utilities Director Todd Reck. "Water is a vital resource, critical to all aspects of daily life, and water utility employees have made service and product quality their highest priority."



Este reporte incluye informacion importante sobre el agua para tomar. Para asistencia en espanol, favor de llamar al telefono (972) 721-2281.

The City of Irving is proud to present its Water Quality Report for 2015. Each year, the Texas Commission on Environmental Quality (TCEQ) and the City of Dallas provide water quality data from the previous year. Once all of this data is received, it is compiled into this report and made available to Irving residents and businesses by July 1. Over the years, staff has been dedicated to delivering drinking water that meets or exceeds all state and federal drinking water standards. The City of Irving strives to adopt new and better methods of delivering the best quality drinking water to its residents. As regulations and drinking water standards change, it is the city's commitment to incorporate these changes systemwide in an expeditious and cost-effective manner. In complying with legislation, this report has been developed to provide valuable information about the city's drinking water.

Conservation is Still Important Despite Record Rainfall

Once again, the City of Irving has an ample water supply as warm summer months approach. Lake Chapman, the city's primary water source, filled completely in 2015 and with recent rains, the lake remains full. While there are no drought restrictions, year-round efficient irrigation measures are now in effect, which means all residents and businesses still must adhere to some irrigation limitations. The conservation plan focuses on irrigation because, as the largest category of domestic water use, it is often over-used when customer irrigation controllers are not monitored on an on going basis.

The "set it and forget it" approach to irrigation may lead to water wasting. Water Utilities recommends leaving irrigation controllers turned off. Then, weather conditions and watering guidelines should be monitored to determine when an irrigation system should be turned on. This can be accomplished easily using Irving's handy weather stations that are linked to Watermyyard.org (see related article below) and the Texas ET network. An informed approach is always best to ensure water conservation and to save on monthly water bills.

In 2014, the city updated its Water Management Plan as required by the Texas Commission on Environmental Quality. The plan employs proactive water saving measures through the Water Conservation Plan and reactive measures through the Drought Contingency Plan. In addition, the city works constantly to educate the public and enforce ordinances related to effective and efficient water use. By maintaining an informed approach which employs ongoing conservation mixed with appropriate responses to drought conditions as well as planning for possible water emergencies, the city can maximize available water resources as it works to ensure the availability of Irving's future water supply. For those who would like to better understand how water can best be managed, many resources, including a copy of the Water Management Plan, are posted on the Water Utilities page of the city's website at cityofirving.org.

Twice-per-Week Watering Still in Effect for 2016

The Water Conservation Plan allows watering twice-per-week. No irrigation on Monday, Thursday or Friday.

Sunday	Tuesday	Wednesday	Saturday
Odd address	Even address	Odd address	Even address

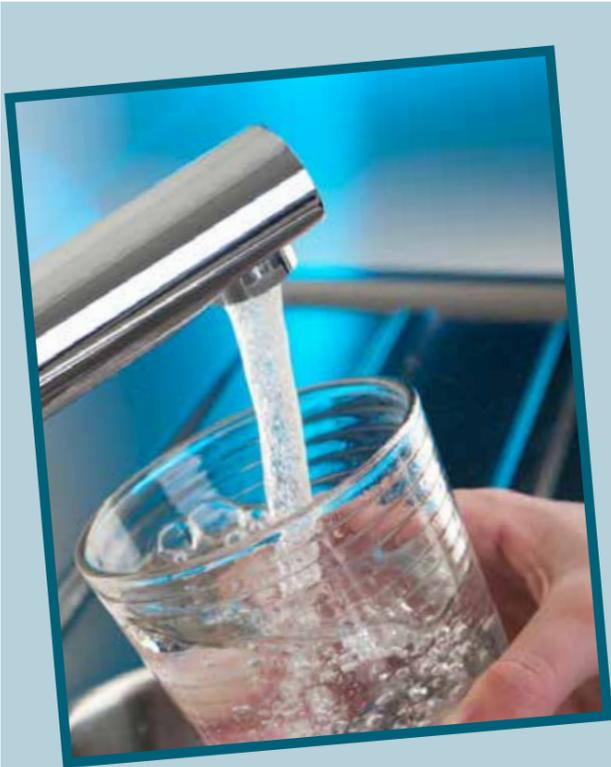
Odd-numbered addresses end in 1, 3, 5, 7 or 9 and even-numbered addresses end in 0, 2, 4, 6 or 8. No watering on any day between 10 a.m. and 6 p.m.

Stay up to date with watermyyard.org. The city is promoting a great tool to help determine irrigation needed to supplement rainfall. Residents and businesses often set irrigation controllers and fail to adjust for changing weather. However, controllers are not able to determine when to irrigate. To assist with decisions about when to water, the city has installed weather stations.

The best irrigation approach is to turn the sprinkler system controller off. Then, register for weekly information about how long to run sprinklers at watermyyard.org and run only as needed. Simply go to the site, select the City of Irving and confirm property location. Then, choose a precipitation rate using one of the following methods:

- Use the instructions shown to run a catch-can test and type in the resulting number.
- Use the automated settings for the type of irrigation system at the property.
- Use the rate listed on system plans by the licensed irrigator that installed it.
- Use the number .75 (derived from a catch-can test on city property).

After pressing enter, the number of minutes needed for irrigation will be shown. At that point, a prompt will be provided to register for a weekly email with irrigation run times. Watermyyard.org was designed to ensure that users are able to water appropriately and preserve landscaping while saving water and money.



Safe Drinking Water Act

Under the Safe Drinking Water Act (SDWA), the EPA is responsible for setting national limits for hundreds of substances in drinking water and also specifies various treatments that water systems must use to remove these substances. Similarly, Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Each system continually monitors for these substances and reports directly to the EPA if they are detected in the drinking water. The EPA uses this data to ensure that consumers are receiving clean water and verifies that states are enforcing the laws that regulate drinking water.

This publication conforms to the federal regulation under SDWA requiring water utilities to provide detailed water quality information to each of their customers annually. For more information about this report, to request additional copies, or for any questions or concerns relating to drinking water, contact Environmental Compliance at (972) 721-2281 or email tmoore@cityofirving.org.

Notice for High Health Risk Groups

Certain groups may be more vulnerable to contaminants in drinking water, such as cryptosporidium, than the general population. Infants; some elderly or immunocompromised persons such as those undergoing chemotherapy for cancer; those who have undergone organ transplants; those who are undergoing treatment with steroids; and people with HIV/AIDS or other immune system disorders can be particularly at risk of contracting infections. Those who fall under these categories should seek advice about drinking water from a physician or health care provider.

Additional guidelines on appropriate means to reduce the risk of infection by cryptosporidium are available from the Safe Drinking Water Hotline at (800) 426-4791.

Substances Expected to be in Drinking Water

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, 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 byproducts of industrial processes and petroleum production, and also can 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.

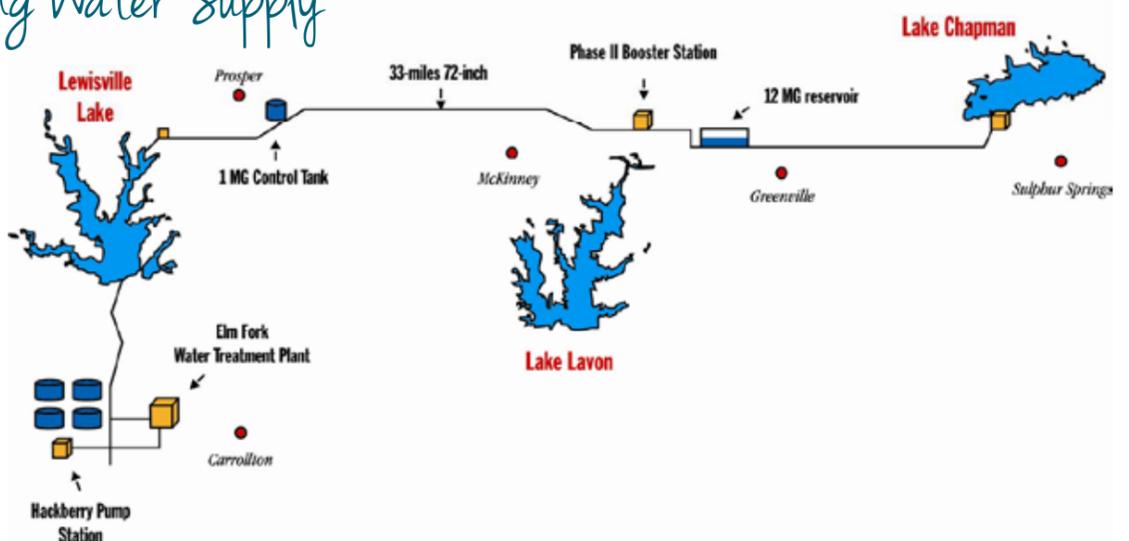
To ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Many constituents (such as calcium, sodium or iron), which are often found in drinking water, can cause taste, color and odor problems. The taste and odor constituents are called secondary constituents and are regulated by the State of Texas, not the EPA. These constituents are not causes for health concern. Therefore, secondaries are not required to be reported in this document, but may greatly affect the appearance and taste of the water.

When drinking water meets federal standards, there may not be any health benefits to purchasing bottled water. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791.

Where Does the City Get its Drinking Water?

Most of Irving's water travels from Lake Chapman to Lewisville Lake and is then treated by the City of Dallas. Irving owns water rights for water in Lake Chapman, which was previously known as Cooper Reservoir. Some of the City of Irving's water is purchased directly from the City of Dallas to supplement the Lake Chapman water. The City of Dallas uses surface water from the following sources: Lake Ray Hubbard, Lake Tawakoni, Lake Grapevine, Lewisville Lake and Lake Ray Roberts. The TCEQ has completed a Source Water Susceptibility Report for all drinking water systems that own their sources. This report describes the susceptibility and types of contaminants that may come into contact with the drinking water source based on human activities and natural conditions. For more information on source water assessments and protection efforts, call (972) 721-2281.

Irving Water Supply



What's in the Water?

Irving Water Utilities is pleased to report that during the past year the water delivered to Irving homes and businesses complied with, or exceeded, all state and federal drinking water requirements. The table on the next page lists the substances that were detected in the city's drinking water during 2015. Although all of the substances listed are under the Maximum Contaminant Level (MCL) set by the EPA, and therefore not expected to cause any health risks, it is important that residents know exactly what was detected and how much of the substance was present in the water.

What are coliforms?

Total coliform bacteria are used as indicators of microbial contamination of drinking water because testing for them is easy. While these organisms do not cause disease, they are often found in association with other microbes that are capable of causing disease. Coliform bacteria are more hardy than many disease-causing organisms; therefore, their absence from water is a good indication that the water is microbiologically safe for human consumption.

How does the city determine if there's a problem with drinking water?

If the amount of a contaminant exceeds a predetermined safe level in drinking water (MCL, Action Level, etc.), residents will be notified via newspapers, radio, television, the city's iALERT system and other means within 24 hours of receiving test results. With the notification, there will be instructions on the appropriate actions to take to prevent health risks.

Irving's High-Quality Water is Thoroughly Tested and Meets All Drinking Water Standards

Drinking Water Test Data

Inorganic Contaminants

Year	Contaminant	Average Level	Minimum Level	Maximum Level	MCL	MCLG	Unit of Measure	Source of Contaminant
2015	Fluoride	0.529	0.521	0.536	4	4	ppm	Erosion of natural deposits; water additive that promotes strong teeth
2015	Nitrate (as N)	0.771	0.304	1.01	10	10	ppm	Runoff from fertilizer use; leaching from septic tanks, sewage, erosion of natural deposits
2015	Cyanide	77.2	23.0	155.0	200	200	ppb	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
2015	Bromate	<0.3	<0.03	<0.3	10	0	ppb	Byproduct of drinking water disinfection
2015	Barium	0.023	0.013	0.041	2	2	ppm	Discharge of drilling wastes from metal refineries; erosion of natural deposits
2015	Antimony	0.21	<0.200	0.32	6	6	ppb	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
2015	Arsenic	0.32	<0.700	0.95	10	0	ppb	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
2015	Chromium (total)	0.82	0.78	0.86	100	100	ppb	Discharge from steel and pulp mills; erosion of natural deposits
2015	Selenium	1.57	<1.00	2.8	50	50	ppb	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines

Source: City of Dallas

Organic Contaminants

Year	Contaminant	Average Level	Minimum Level	Maximum Level	MCL	MCLG	Unit of Measure	Source of Contaminant
2015	Atrazine	0.11	<0.08	0.30	3	3	ppb	Runoff from herbicide used on row crops
2015	Simazine	0.04	<0.05	0.25	4	4	ppb	Herbicide runoff

Source: City of Dallas

Radioactive Contaminants

Year	Contaminant	Average Level	Minimum Level	Maximum Level	MCL	MCLG	Unit of Measure	Source of Contaminant
2011	Combined Radium (226 & 228)	1.0	1.0	1.0	5	0	pCi/L*	Erosion of natural deposits
2011	Gross beta particle activity	5.3	4	7.2	50	0	pCi/L*	Decay of natural or man-made deposits

*50 pCi/L - 4 mrem/yr Source: City of Dallas

Maximum Residual Disinfectant Level

Year	Disinfectant	Average Level	Minimum Level	Maximum Level	MRDL	MRDLG	Unit of Measure	Source of Disinfectant
2015	Chloramine Residual	3.01	0.80	4.0	4*	4*	ppm	Disinfectant used to control microbes

*As annual average Source: City of Irving

Disinfection Byproducts

Year	Contaminant	Average Level	Minimum Level	Maximum Level	MCL	Unit of Measure	Source of Contaminant
2015	Total Haloacetic Acids	16.91	8.2	30.7	60	ppb	Byproduct of drinking water disinfection
2015	Total Trihalomethanes	14.79	9.6	27.6	80	ppb	Byproduct of drinking water disinfection

Source: City of Irving

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. Any unregulated contaminants detected are reported in the following table. For additional information, call the Safe Drinking Water Hotline at (800) 426-4791.

Unregulated Contaminants

Year	Contaminant	Average Level	Minimum Level	Maximum Level	MCLG	Unit of Measure	Source of Contaminant
2015	Chloroform	7.31	5.25	11.2	70	ppb	Byproduct of drinking water disinfection
2015	Bromodichloromethane	4.84	3.49	6.80	0	ppb	Byproduct of drinking water disinfection
2015	Dibromochloromethane	1.86	1.31	2.26	60	ppb	Byproduct of drinking water disinfection

Source: City of Dallas

Unregulated Contaminants Monitoring Rule 3 (UCMR 3)

The UCMR program was developed in coordination with the Contaminant Candidate List (CCL). The CCL is a list of contaminants that are not regulated by the National Primary Drinking Water Regulations, are known or anticipated to occur at public water systems and may warrant regulation under the Safe Drinking Water Act. Data collected through UCMR are stored in the National Contaminant Occurrence Database (NCOD) to support analysis and review of contaminant occurrence, to guide the CCL selection process and to support the administrator's determination of whether to regulate a contaminant in the interest of protecting public health. For additional information, visit <http://www.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/index.cfm>.

Year	Contaminant	Average Level	Minimum Level	Maximum Level	Unit of Measure	Source of Contaminant
2014	Chromium Total	0.45	0.30	0.62	ppb	Discharge from steel and pulp mills; Erosion of natural deposits
2014	Molybdenum	2.2	1.4	3.0	ppb	Naturally-occurring element and is commonly used as molybdenum trioxide as a chemical reagent
2014	Strontium	320	220	460	ppb	Naturally-occurring element used as strontium carbonate in pyrotechnics, in steel production, as a catalyst and as a lead scavenger
2014	Vanadium	0.19	<0.20	0.69	ppb	Naturally-occurring element commonly used as vanadium pentoxide in the production of other substances and as a catalyst
2014	Chromium-6	0.30	0.19	0.410	ppb	Naturally-occurring element; used in making steel and other alloys; used for chrome plating, dyes, pigments, leather tanning, and wood preservation
2014	Chlorate	34.5	<20	80	ppb	Chlorate compounds are used in agriculture as defoliant or desiccants and may occur in drinking water related to use of disinfectants such as chlorine dioxide

Source: City of Irving

Total Organic Carbon

Year	Contaminant	Average Level	Minimum Level	Maximum Level	MCL	Unit of Measure	Source of Contaminant
2015	Total Organic Carbon	4.11	2.71	5.03	Treated Water Alkalinity <60 mg/L as CaCO3	ppm	Naturally present in environment; no health effects

Source: City of Dallas

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. This water supply is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When water has been sitting for several hours, minimize the potential for lead exposure by flushing the tap for 30 seconds to two minutes before using water for drinking or cooking. If concerned about lead in the water, have the water tested. Information on lead in drinking water, testing methods and steps that can be taken to minimize exposure is available from the Safe Drinking Water Hotline or at <http://water.epa.gov/drink/info/lead/index.cfm>.

Lead and Copper

Year	Contaminant	90th Percentile	No. of Sites Exceeding Action Level	Action Level	Unit of Measure	Source of Contaminant
2015	Lead	2.0	0	15	ppb	Corrosion of household plumbing systems; erosion of natural deposits
2015	Copper	0.302	0	1.3	ppm	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

Source: City of Irving

Turbidity

Year	Contaminant	Highest Single Measurement	Lowest Monthly % of Samples Meeting Limits	Turbidity Limits	Unit of Measure	Source of Contaminant
2015	Turbidity	0.22	100%	0.3	NTU	Soil runoff

All samples met regulatory requirements. Source: City of Dallas

Coliforms

Year	Contaminant	Highest Monthly % of Positive Samples	MCL	Unit of Measure	Source of Contaminant
2015	Total Coliform Bacteria	1.9	*	Presence	Naturally present in environment

*Presence of coliform bacteria in 5 percent or more of the monthly samples. Fecal coliform - Reported monthly tests found no fecal coliform bacteria.

Source: City of Irving

Table Definitions

- Action Level (AL)** - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
- Maximum Contaminant Level (MCL)** - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible, using the best available treatment technology.
- Maximum Contaminant Level Goal (MCLG)** - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- Maximum Residual Disinfectant Level (MRDL)** - The highest level of

- disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Maximum Residual Disinfectant Level Goal (MRDLG)** - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
- Millirems per year (mrem/year)** - Measure of radiation absorbed by the body.
- ND** - Not detected.
- Nephelometric Turbidity Units (NTU)** - Measurement of turbidity in water.
- Picocuries per liter (pCi/L)** - A measure of radioactivity.

- Point of Entry (POE)** - Point of entry.
- Treatment Technique (TT)** - A required process intended to reduce the level of a contaminant in drinking water.
- Turbidity** - A measure of clarity of drinking water. The lower the turbidity the better.
- mfl** - million fibers per liter (a measure of asbestos)
- ppt** - parts per trillion, or nanograms per liter
- ppq** - parts per quadrillion, or picograms per liter
- ppb** - parts per billion
- ppm** - parts per million

Source: Texas Commission on Environmental Quality

Water Quality Flushing

Why do city workers flush water out of the fire hydrants that appear to be perfectly fine when residents and businesses are asked to conserve?

This question comes to the forefront when residents see a hydrant being flushed. What is important to know is that state and federal agencies require that the water in the distribution system continuously meet specific standards of quality. A minimum level of chlorine must be present in the line at all times to kill any bacteria that may try to grow. Flushing ensures public safety as it disposes of water that fails to meet this standard.

Water is flushed from the system each week through fire hydrants or flushing valves. Typically, more flushing occurs in the warmer months as higher temperatures cause chlorine to dissipate more quickly. Certain types of pipe and areas that are further away from pump stations also require more flushing. While there are limits on what can be used, the city works to preserve the usefulness of this water by collecting it in water trucks for application to landscaping at parks and for contractors to use at newly developed properties.



Providing safe drinking water to the community is a complex business. This report provides residents with information that is comprehensive and explained as simply as possible. For more details, call Water Utilities at (972) 721-2281. Residents can voice any concerns about drinking water.

For inquiries about public participation and policy decisions, call (972) 721-2493.

For information about drinking water, call the EPA's Safe Drinking Water Hotline at (800) 426-4791.

Value of Tap Water

Drinking water systems are critical to public health, fire protection, economic development and quality of life. Service disruptions can endanger the public and result in significant economic loss. To provide safe and reliable drinking water to customers, city staff operates and maintains six pump stations, eight elevated tanks, 10 ground-storage tanks, and just over 700 miles of water mains. Irving has more than 100 miles of both cast iron and fiber cement pipe that is at, or near, the end of its expected life. Due to corrosion, multiple pipe breaks and associated maintenance, new pipes are needed to replace old cast iron pipes.

High-quality water is delivered to customers' homes and businesses at less than a penny a gallon. Water rates help provide revenue to maintain high-quality water service, reduce service interruptions due to aging infrastructure and expand system capacity for future needs. Irving water customers, even with past adjustments, have some of the lowest water and sewer rates among Dallas' member cities. Revenues generated from water sales help continue upgrades to the city's water and wastewater system.



In addition, water rates address failing infrastructure, fixed expenses and regulatory obligations.

- **Failing Infrastructure** – Pipes need to be replaced each year to avoid water loss, unhealthy sewer leaks, loss of service and fines due to not meeting regulatory standards. Line replacements are critical to maintain water quality, and to prevent outages and property damage due to line breaks and sewer backups. Replacements are expensive and costs increase over time.
- **Fixed Expenses** – Regardless of the time of year or amount of rainfall, Water Utilities must have the infrastructure to deliver an ample, high-quality supply of water for its customers. Water Utilities fixed expenses make up a majority of the budget and must be paid no matter how much water is sold.
- **Regulatory Obligations** – The TCEQ requires water utilities to meet regulatory standards by completing water study projects and paying water quality fees. TCEQ fees increase over time. In addition, existing agreements with the TCEQ require the city to replace a designated amount of infrastructure each year. The city must pay for the regulatory costs of these studies, fees and line replacements.

To decrease the financial and operational impacts placed on customers, innovative approaches to water and wastewater system maintenance are being embraced by the city. Through increased coordination between the Capital Improvements Program Team and the Water Utilities Department, a closer look is being given to the existing condition of both the water and wastewater systems, which can result in their simultaneous replacement.

A list of completed, in-progress and upcoming projects is available at cityofirving.org/131/capital-improvement-program. For more information, contact Water Utilities at (972) 721-2281.

Water Loss

While the city works diligently to upgrade and maintain the water distribution system, line breaks and leaks result in a loss of water over time. In the water loss audit submitted to the Texas Water Development Board for the time period of January through December 2015, the City of Irving water distribution system lost an estimated 1,214,844,677 gallons of water. This is 9.06 percent of the water pumped during the calendar year and is well below the industry standard of 10 percent loss for effective water systems. For any questions about the water loss audit, call (972) 721-2281.

Responsible Irrigation

The City of Irving has an irrigation ordinance in place that complies with requirements established by the state. This ordinance is designed to encourage effective and responsible maintenance and use of irrigation systems. Every business and residence in Irving, that has an irrigation system, is required to have a rain/freeze sensor. A sensor must operate effectively and prevent activation of the system during precipitation or when temperatures drop to levels approaching the freezing point. While having a properly operating sensor is important, the city's irrigation ordinance also prohibits the wasting of water through the following:

- Allowing irrigation water to spray onto artificial surfaces such as fences and walls.
- Failing to ensure system maintenance resulting in wasting of water.
- Irrigating during any type of precipitation.
- Irrigating with broken, misdirected or missing sprinkler parts.
- Watering non-landscaped surfaces such as sidewalks and streets.



City ordinances prohibit irrigation between 10 a.m. and 6 p.m. from April 1 through Oct. 31. Avoiding mid-day watering reduces the potential for evaporation. It also is best not to water during windy conditions. Water Utilities, Code Enforcement and Police personnel are all involved in patrol and enforcement. A single-incident may violate multiple portions of the irrigation ordinance, and each violation may be subject to a fine of up to \$2,000. Given the importance of using water wisely and the severity of the fines, it is a good idea to monitor irrigation systems for proper operation.

When watering by hand, use positive shutoff hose nozzles or buckets. Harvesting rainwater by collection in barrels also is encouraged in order to meet watering needs. For more information, call (972) 721-2281 or visit cityofirving.org/water-utilities.