2024

ANNUAL REPORT





Evanston Public Works Agency

Water Production Bureau

Water and Sewer Utilities

Committed to serving the community for 150 years

2024 Executive Summary

Evanston Water Production Bureau of the **Public Works Agency** manages **Water** and **Sewer** operations for the City of Evanston. The Public Works Agency also coordinates with ComEd, Nicor, AT&T, and other private utilities on behalf of Evanston residents and businesses to help resolve service issues and improvement needs.



WATER UTILITY

491,742 Residents supplied
61,146 Businesses supplied
in Evanston and 9 other communities



SEWER UTILITY

Responsible for operation and maintenance of:
Combined, Relief, and Storm sewer systems



BUDGET

$87.6 million - Water Fund
$11.4 million - Sewer Fund
71 full-time equivalents (FTE) staff

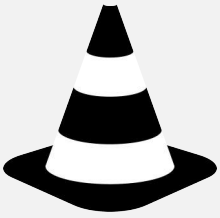
General Information



17,355 Million Gallons – Total Water Pumped in 2024
63 Million Gallons – Maximum Pumpage in One Day
June 19th – Day When the Maximum Pumpage occurred

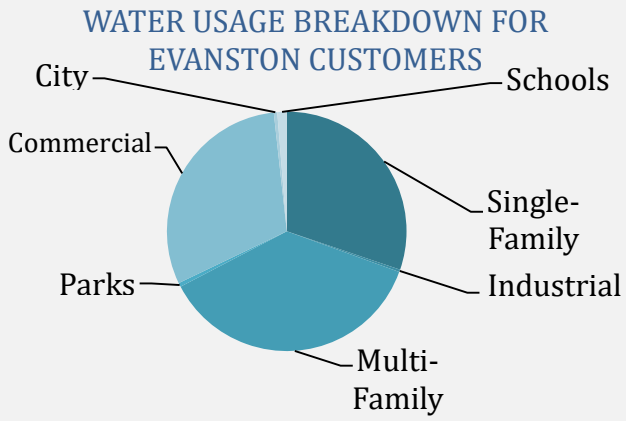


49 Fire Hydrants Replaced/Repaired



1.3 Miles of Water Main Installed/Replaced/Rehabilitated
41 Water Main Valves Installed/Replaced/Rehabilitated
3.0 Miles of Sewer Main Installed/Replaced/Rehabilitated
8.8 Miles of Sewer Main Inspected
8.0 Miles of Sewer Main Cleaned
143 Sewer Structures Installed/Replaced/Repaired
2,959 Sewer Structures Cleaned

General Information



13.6 Million kWh of Electric Power Used

120,770 Therms of Natural Gas Used

$86.98 per Million Gallon Pumped – Total Energy Cost (Electric & Gas)

CROSS CONNECTION CONTROL

4,990 Backflow Prevention Devices Certified in 2024

Programs and Initiatives

Water Quality – Lead and Copper Tested in Drinking Fountains

Continued the seasonal drinking fountain start-up plan which included sampling water, high flow flushing, and replacing drinking fountain components known to contain lead. Sampled water from 58 park drinking fountains.

Leak Detection Program Continued to Catch Leaks and Minimize Loss

134 miles of water main were surveyed, three (3) water service leaks and two (2) water main break was found. This resulted in 9.90 million gallons/year of water savings.

First Responder

1,367 hours Distribution division spent on First Responder events

728 hours Sewer division spent on First Responder events

Capital Projects

Each year the City conducts millions of dollars of infrastructure projects as part of their **Capital Improvement Program or (CIP)**. Below are the Water and Sewer Capital Improvements completed in 2024.



- **Water Main Replacement:** Custer Avenue – Mulford Street to Oakton Street, Leon Place – Simpson Street to Ridge Avenue, Prairie Avenue – Central Street to Walnut Avenue, Girard Avenue – Isabella Street to City Limits
- **Combined Sewer:** CIPP Rehabilitation, Sewer Root Treatment
- **Water Treatment Facility Improvements:** Completed the installation of three (3) 30" Valves and Actuators.

Accomplishments and Goals

2024 MAJOR ACCOMPLISHMENTS

Private Lead Service Line Replacement

The City has continued to replace the private portion of any water service lines at no additional cost to the homeowner, if the material is lead and the property is eligible to participate.

Electrical Reliability Improvements Project

Completed the engineering phase of the Medium Voltage Switchgear Reliability and Generator Replacement Project, which includes replacement of outdated medium voltage switchgear and generators.

2025 MAJOR GOALS AND INITIATIVES

Lead Service Line Replacement Program

Continue the development of a citywide lead service line replacement plans as a result of the enactment of Public Act 102-0613 as well as well as a corrosion control optimization study.

Raw Water Intake Improvement Project

Complete construction on the replacement of the City's 42"/36" Lake Michigan Raw Water Intake installed in 1909 to address diminished flow capacities.

Electrical Reliability Improvements Project

Begin construction of the Medium Voltage Switchgear Reliability and Generator Replacement Project, which includes replacement of outdated medium voltage switchgear and generators. This project is expected to be completed in 2029.

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Evanston Water and Sewer Utilities Annual Accomplishments and Performance Measures

Introduction

The Evanston Public Works Agency manages water and sewer operations for the City of Evanston. The Water Utility is responsible for operation and maintenance of the Water Treatment Plant, which supplies water to over 490,000 people and 61,000 businesses in Evanston and nine other communities. The Water Utility also operates and maintains more than 156 miles of water mains, 2,200 valves, and 1,500 fire hydrants in the Evanston distribution system. This division also manages leak detection and cross connection control programs to minimize water loss and ensure the safety of the community's water supply.

The Sewer Utility is responsible for operation and maintenance of the sewer conveyance systems in Evanston, including a combined sewer system, a relief combined sewer system, and a storm sewer system. These systems are comprised of over 217 miles of sewer mains ranging in size from less than 6-inch diameter to 120-inch diameter, including over 5,700 manhole structures and over 9,400 drainage structures.

The Public Works Agency also coordinates with ComEd, Nicor, AT&T, and other private utilities on behalf of Evanston residents and businesses to help resolve service issues and improvement needs.

The Department's total FY 2024 adopted budget was approximately $99.0 million ($87.6 million Water Fund and $11.4 million Sewer Fund). Public Works Agency staff includes 71 full-time equivalents (FTEs).

Year-to-Year Public Works Agency Metrics

	2022	2023	2024
Total Water Pumped (millions of gallons)	16,800	16,820	17,355
Fire Hydrants Repaired or Replaced	51	146	49
Water Main Valves Repaired or Replaced	55	70	41
Water Main Replaced or Rehabilitated (miles)	3.0	1.5	1.3
Large Diameter Sewer Rehabilitated (feet)	3,600	0	0
Small Diameter Sewer Rehabilitated (feet)	11,174	6,013	11,599
Sewer Mains Inspected (feet of pipe)	87,683	129,601	46,540
Sewer Mains Cleaned (feet of pipe)	213,942	282,951	42,442
Sewer Structures Repaired or Replaced	152	74	87

2024 Major Accomplishments

Maintained High Quality of Service

Became a leader in the public drinking water industry by providing high quality service to over 490,000 customers in nine communities, including vigilantly monitoring the quality and quantity of water provided to our customers.

Water Distribution and Expansion

Improved water distribution system reliability and reduced water loss by continuing the water main replacement and water main leak detection programs. Water main replacement was supplemented with water main lining where feasible. The entire distribution system was also surveyed for leaks.

Coordination for Efficient Project Funding

Coordinated capital improvement projects with the Street Resurfacing Program and with TIF District improvement projects to ensure cost-effective and efficient use of capital improvement funding.

Continue Small Diameter Sewer Rehabilitation

Continued the annual small diameter sewer CIPP rehabilitation program for the combined, small diameter sewer system.

Coordination with Street Resurfacing Program

Continued to coordinate the inspection and repair of sewer mains and drainage structures in advance of the street resurfacing program.

Preventative Measures for Sewer Mains

Continued preventative maintenance cleaning and inspection of sewer mains and drainage structures.

Combined and Storm Sewer Regulatory Inspections

Continued to perform inspection of combined and storm sewer outfalls in accordance with IEPA requirements.

Electrical Improvements Projects

Completed the engineering phase of the Medium Voltage Switchgear Reliability and Generator Replacement Project, which includes replacement of outdated medium voltage switchgear and generators.

Raw Water Intake Improvement Project

Continued construction on the replacement of the City's 42"/36" Lake Michigan Raw Water Intake installed in 1909 to address diminished flow capacity.

Lead Service Line Replacement Program

Continued to develop a citywide lead service line replacement plans as a result of the enactment of Public Act 102-0613 as well as well as a corrosion control optimization study. The corrosion control optimization study includes a desktop analysis, laboratory pipe scale analysis, and harvested pipe loop study analyzing water quality through a variety of chemical doses and pipe materials.

Lead Service Line Replacement Pilot Project

Continued construction on the Lead Service Line Replacement Pilot Project, which focuses on the replacement of private-side lead services in low-to-moderate income areas within the City on a first-come first-serve basis.

Plant Security Improvements

Continued water treatment plant security improvements based on the recommendations from the Risk and Resilience Assessment.

Combined Sewer Overflow Repair

Continued the engineering phase of the Combined Sewer Overflow sewer repair project.

Sewer Extension Program

Continued to perform an annual sewer extension program in conjunction with alley improvements.

PFAS Treatment Study

Began the PFAS treatment technique study, which is evaluating various water treatment technologies and processes of removing PFAS and other "forever chemicals".

Filter 30" Valve and Actuator Replacements

Removed and replaced 3-30" valves and actuators within the Water Plant filters. These valves and actuators were beginning to degrade and could no longer be services.

Corrosion Control Optimization Study

Continue with the water plant's treatment process study to optimize corrosion control. The study includes a desktop analysis, laboratory pipe scale analysis, and harvested pipe loop study analyzing water quality through a variety of chemical doses and pipe materials.

Water Plant Revetment Rehabilitation

Begun design of improvements to the revetment seawall at the Evanston Water Plant. This steel sheet pile wall protects the shoreline at the Water Plant and protects critical infrastructure.

Pumping Station and Filtration Plant Dehumidification

Installation of a desiccant dehumidification system in the pumping station and in the filtration plant.

2025 Major Goals and Initiatives

Maintain a High Quality of Service

Continue to be a leader in the public drinking water industry by providing high quality service to over 490,000 customers in ten communities, including vigilantly monitoring the quality and quantity of water provided to our customers.

Water Distribution System Improvements

Improve water distribution system reliability and reduce water loss by continuing the water main replacement and water main leak detection programs. Goals are to supplement water main replacement with water main lining where feasible, to improve upon our historical 1% annual water main renewal rate, and to survey the entire distribution system for leaks on an annual cycle.

Coordination for Efficient Project Funding

Continue to coordinate capital improvement projects with the Street Resurfacing Program and with TIF District improvement projects to ensure cost-effective and efficient use of capital improvement funding.

Continue Small Diameter Sewer Rehabilitation

Continue the annual small diameter sewer CIPP rehabilitation program at a rate of at least 1% (1.34 miles) of the combined, small diameter sewer system rehabilitated per year.

Continue Coordination with Street Resurfacing Program

Continue to coordinate the inspection and repair of sewer mains and drainage structures in advance of the street resurfacing program.

Continue Preventative Measures for Sewer Mains

Continue preventative maintenance cleaning and inspection of sewer mains and drainage structures.

Combined and Storm Sewer Inspections

Continue to perform inspection of combined and storm sewer outfalls in accordance with IEPA requirements.

Raw Water Intake Improvement Project

Complete replacement of the City's 42"/36" Lake Michigan Raw Water Intake installed in 1909 to address diminished flow capacity.

Lead Service Line Replacement Program

Complete the development of a citywide lead service line replacement plan as a result of the enactment Public Act 102-0613 as well as a corrosion control optimization study.

Meter Replacement Project

Begin the Phase II citywide meter replacement project whereby approximately 1,000 meters and metering interface units will be replaced.

Electrical Improvements Projects

Begin construction of the Medium Voltage Electrical Reliability project to address electrical system reliability improvements, including replacement of outdated medium voltage switchgear and generator.

Corrosion Control Optimization Study

Continue with the water plant's treatment process study to optimize corrosion control. The study includes a desktop analysis, laboratory pipe scale analysis, and harvested pipe loop study analyzing water quality through a variety of chemical doses and pipe materials.

Plant Security Improvements

Continue water treatment plant security improvements based on the recommendations from the Risk and Resilience Assessment.

Lead Service Line Replacement Pilot Project

Continuing with the Lead Service Line Replacement (LSLR) Pilot Project established to focus on the replacement of private-side lead services in low-to-moderate income areas within the City on a "first-come" basis.

Water Plant Revetment Rehabilitation

Construct rehabilitation improvements to the revetment seawall at the Evanston Water Plant. This steel sheet pile wall protects the shoreline at the Water Plant and protects critical infrastructure.

Sewer Extension Program

Continue to perform an annual sewer extension program in conjunction with alley improvements.

Sewer Overflow Evaluation and Preliminary Design

Begin the engineering phase of the Sewer Overflow repair project, which will evaluate the condition of and prepare design improvements for sewer outfalls in the North Shore Channel.

Water Treatment Plant Data

Intakes
60" – 5,600' long, 35' deep
48" – 5,300' long, 28' deep
54" – 5,340' long, 28' deep

Suction Wells
2 – 22' diameter x 74' deep with traveling screens
1 – 20' diameter x 52.5' deep

Low Lift Pumps
2 – 30 mgd, electric motor driven
3 – 15 mgd, dual drive, electric/natural gas
1 – 30 mgd, dual drive, electric/natural gas
Total capacity of 135 mgd
Emergency standby capacity of 75 mgd

Flash Mix Basin
14.75' x 14.75' x 31.58' deep
Single vertical shaft mixer
Counter-flow rotation
Application point for alum, chlorine, fluoride, polymer, and carbon
Rated capacity 108 mgd w/ partial bypass

Slow Mix/Settling Basins
Four double-deck basins with series flow
2 – 2.865 MG capacity, five 60' shafts per basin, 4 paddle wheel sections
2 – 4.3 MG capacity, eight 60' shafts per basin, 4 paddle wheel sections
Retention time at 108 mgd (flash mix capacity) is 3 hours and 11 minutes

Treated Water Elevated Storage
South – 5.0 MG, 640 Hartrey Avenue
North – 7.5 MG, 2536 Gross Point Road

Filters
Anthracite-capped rapid sand filters
12 – 3.19 mgd, 738 ft^2 each, surface loading rate of 3 gpm/ft^s
12 – 10.0 mgd, 1,391 ft^2 each, surface loading rate of 5 gpm/ft^2
Total rated capacity of 134 mgd
Automatic surface and backwash system on all 24 filters

Treated Water Ground Storage
8 clearwells beneath filters – 4.4 MG total
1 clearwell beneath NU green space – 5.0 MG
Total Plant Storage – 9.4 MG

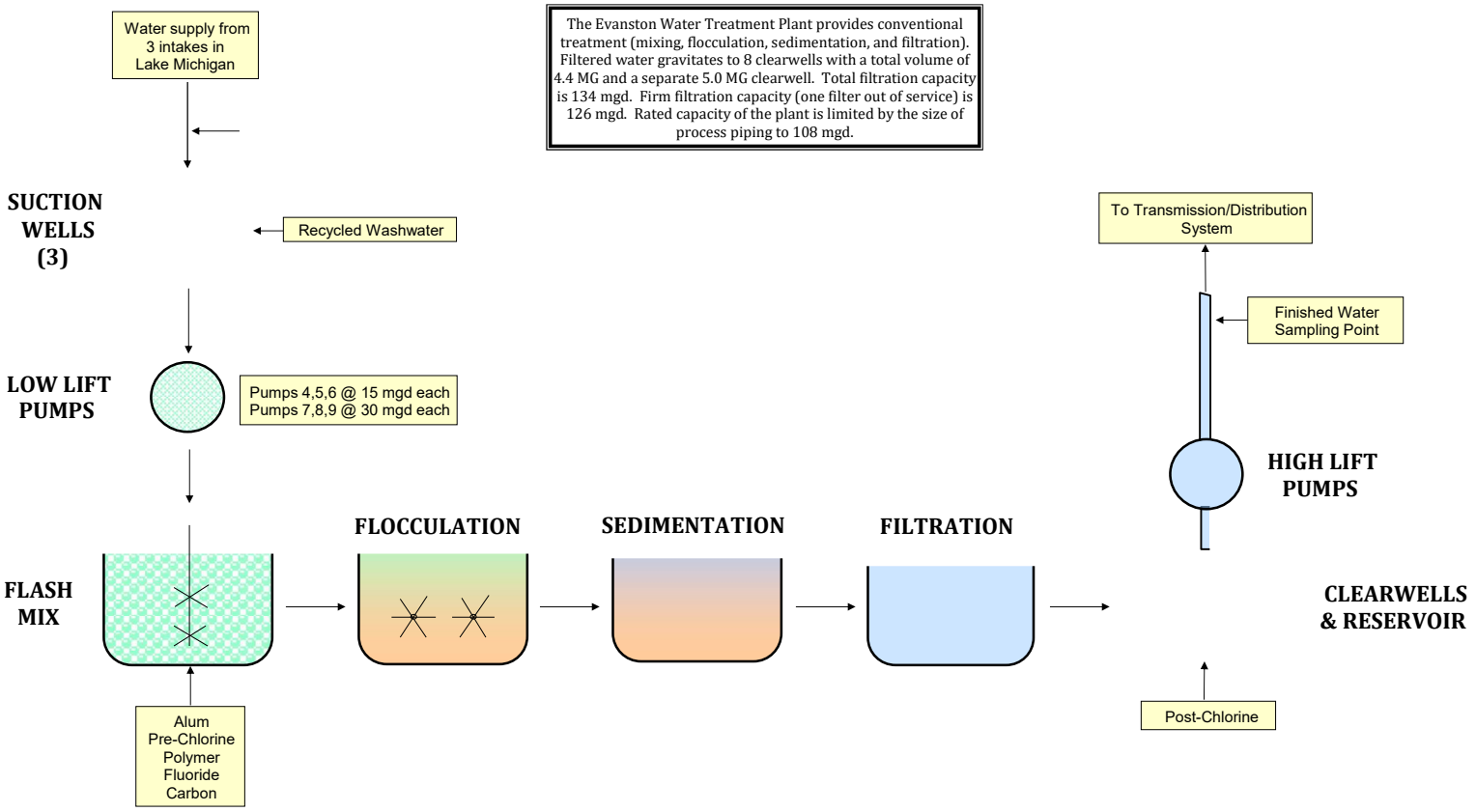
High Lift Pumps
1 – 10 mgd, submersible, electric motor driven
1 – 15 mgd, electric motor driven
2 – 25 mgd, electric motor driven
1 – 10 mgd, dual drive, electric/natural gas
2 – 15 mgd, dual drive, electric/natural gas
1 – 22 mgd, dual drive, electric/natural gas
1 – 20 mgd, natural gas engine
Total capacity of 157 mgd
Emergency standby capacity of 82 mgd

Wash Water Pumps
2 – 20 mgd
2 – 10 mgd

Detention Tank
80' x 192' x 12' deep, divided in 2 sections
Total capacity of 1.1 MG
1 – submersible sludge pump at 700 gpm

Legend: MG = million gallons; mgd = million gallons per day; gpm = gallons per minute

Water Treatment Schematic



Water Works Improvements (1874 to 2024)

1874

- Evanston Community Water System established.

1913

- Constructed 12 mgd filter plant.

1923

- Expanded filter plant to 24 mgd.

1934

- Constructed 5.0 million gallon underground reservoir at plant site.

1941

- Contracted to supply water to Skokie.

1949

- Constructed high lift (finished water) pumping station.
- Expanded filter plant to 48 mgd.
- Constructed slow mix basins 1 and 2.

1956

- Constructed 48” intake and low lift (raw water) pump station.
- Constructed 36” feeder main to Skokie.

1964

- Expanded filter plant to 72 mgd.
- Constructed additional 36” feeder main to Skokie.
- Constructed slow mix basins 3 and 4.

1971

- Installed 20 mgd high lift pump and natural gas engine.

1974

- Constructed filter wash water detention basin, 1.1 MG capacity.

1976

- Constructed 54” intake, 5,340 feet in length.
- Extended 48” intake to 5,300 feet in lengt.h

1981

- Constructed material storage building at south water tank yard.
- Installed 3 new boilers (2 – 50 HP and 1 – 20 HP).
- Replaced 5 kV switchgear and motor starter equipment for low lift pumps.
- Upgraded slow mix equipment in basins 1 and 2.

1982

- Installed two 30 mgd low lift pumps.

- Replaced 5 kV motor starter center for high lift pumps.

1983

- Constructed new chemical building and chemical feed system.
- Installed a 500 kW emergency generator.
- Rehabilitated six 1914 and six 1924 filters to increase rate to 3 MGD per filter.

1984

- Constructed 5 MG standpipe with booster station to replace the 1.5 MG elevated tank in southwest Evanston.

1985

- Began selling water to Northwest Water Commission at the rate of 10 MGD.
- Installed dual drive 22 MGD high lift pump and new piping.
- Installed two 48" diameter pipes from reservoir to east side of high lift suction tunnel.
- Completed system automation which provided a microprocessor-based digital control system to perform control and supervisory functions.

1986

- Constructed a 7.5 MG standpipe with booster station to replace the 1.0 MG elevated tank in northwest Evanston.
- Began pumping to Northwest Water Commission reservoir in Des Plaines.

1988

- Installed two 700 gpm sludge pumps with automatic samplers in the settling basins along with 3,400 feet of 8" diameter sludge main from the Filtration Plant to the MWRD interceptor at Lincoln Street and Asbury Ave.

1989

- Completed filter control upgrade to microprocessors.

1990

- Turndown and extension of 48" raw water intake lines into North and South suction wells.
- Upgraded west filter influent valves from 16" to 24".

1991

- Upgraded electrical substation and switchgear to 3,750 kVA.
- Upgraded west filter effluent piping.

1992

- Installed chlorine feed system to intakes for zebra/quagga mussel control.
- Installed a 15 MGD high lift pump to replace one 8 MGD pump and one 6 MGD pump.
- Installed two 48" diameter butterfly valves on suction piping from reservoir to high lift suction wells.
- Installed hydrofluosilicic acid tank and feed system in garage #6.
- Installed 60" diameter flash mix bypass pipe to influent duct of settling basins.
- Replaced slow mix equipment and flushing system in basins 3 and 4.
- Replaced 480 V filter plant switchgear.

- Installed blended phosphate system and initiated blended phosphate treatment for corrosion control.

1995

- Replaced Low Lift Pump #6 gasoline engine with natural gas engine.

1996

- Replaced 1949 filter building roof.
- Constructed loading dock on 1913 filter building.

1997

- Replaced High Lift Pump #2 gasoline with a natural gas engine.

1998

- Replaced Low Lift Pump #5 and #7 dual drive gasoline engines with natural gas fueled engines.

2000

- Installed individual effluent turbidimeters on all 24 filters.

2001

- Converted High Lift Pump #3 to dual drive.
- Replaced filter bottoms and rehabbed six filters in 1948 filter addition.

2002

- Completed installation of automatic fixed radio meter reading system.
- Replaced effluent settling basin sluice gates with rectangular butterfly valves.

2003

- Installed uninterruptible power supply to filtration and pumping equipment.

2004

- Constructed garages east of the settling basins.
- Constructed an access way to the chemical building from filtration division.
- Installed a chlorine scrubber.

2005

- Replaced Low Lift Pump #4 gasoline engine with natural gas engine.

2006

- Replaced Low Lift Pump #7.

2008

- Renovated administrative offices.
- Expanded filter shop area.

2009

- Implemented AQUAS (Harris) Utility Billing System.
- Installed anchor ice and zebra mussel control systems in 54” intake.

2010

- Installed a 25 kW solar energy facility on the high lift pump station roof.

2012

- Rehabilitated Filters 19-24 with new media, underdrains, and backwash equipment.
- Rehabilitated the 1963 filter building structure and roof.
- Replaced all windows in the high lift pump station.
- Replaced electrical switchgear in high lift pump station.

2013

- Modified electrical distribution equipment and settings on protective devices throughout the water treatment plant to reduce arc flash hazards.
- Conducted comprehensive maintenance and evaluation of electrical Switchgears.

2014

- Replaced five roofs: Boiler Room, Low Lift Pumping Station, Chemical Building, and 1948 Filter Building (2 roofs).
- Replaced master flow meter on the 48" diameter feeder main to Evanston and Skokie.

2015

- Improvements to one of the water plant intakes.
- Upgrade/replacement of the City's automatic meter reading and billing system
- Chlorination equipment replacement.

2016

- Completed standpipe painting and replaced four roofs (1964 Filter Building Clerestory, 1948 Filter Building Clerestory, Filter Cross Corridor & Chlorine Building).

2017

- Water treatment plant reliability improvements completed to address reliability and redundancy issues at the water treatment plant. Improvements included rehabilitating shorewells, installing a high lift influent valve vault, installing additional electrical panels for the intake heaters, upgrading filter valves, installing a new phosphate feed system, installing settling basin influent conduit connections, and upgrading the yard piping that feeds the washwater detention basin clean out lines and shorewell screens.

2018

- Completed exterior door improvements.
- Replaced alum feed pumps.
- Installation of new flushing water system in Settling Basin 1.

2019

- Completed South Standpipe pump station new electrical room and maintenance building improvements.
- Replacement of various doors at the water plant.
- Installed Plant Service Water Supply Booster Pump.
- Installed West Filter Rate Controller with Master Meter.

- Improved flushing water supply to Settling Basin 1.
- Completed Milburn gate automation.

2020

- Replaced the City's five (5) MG finished water clearwell, which is located on Northwestern University's campus, to address structural deterioration.

2021

- Completed the modernization of the Water Quality Laboratory.
- Completed the modernization of the filter plant freight elevator.
- Replaced the 54" Intake Heater Cable (installed in 2009).

2022

- Completed several roof improvements: Filter Head House and Roof 22 (West Filter Building)
- Completed several masonry improvements: Filter Head House, West Filter Building, Corridor between East and West Filter Building, Filtration Garage, Filtration Project Room, and Pump House

2023

- Completed several roof improvements: Roofs 2 and 4 (Pumping Building), 7 (Service Building), 14, 19, and 20 (Filtration Offices), and 21 (West Filter Building).

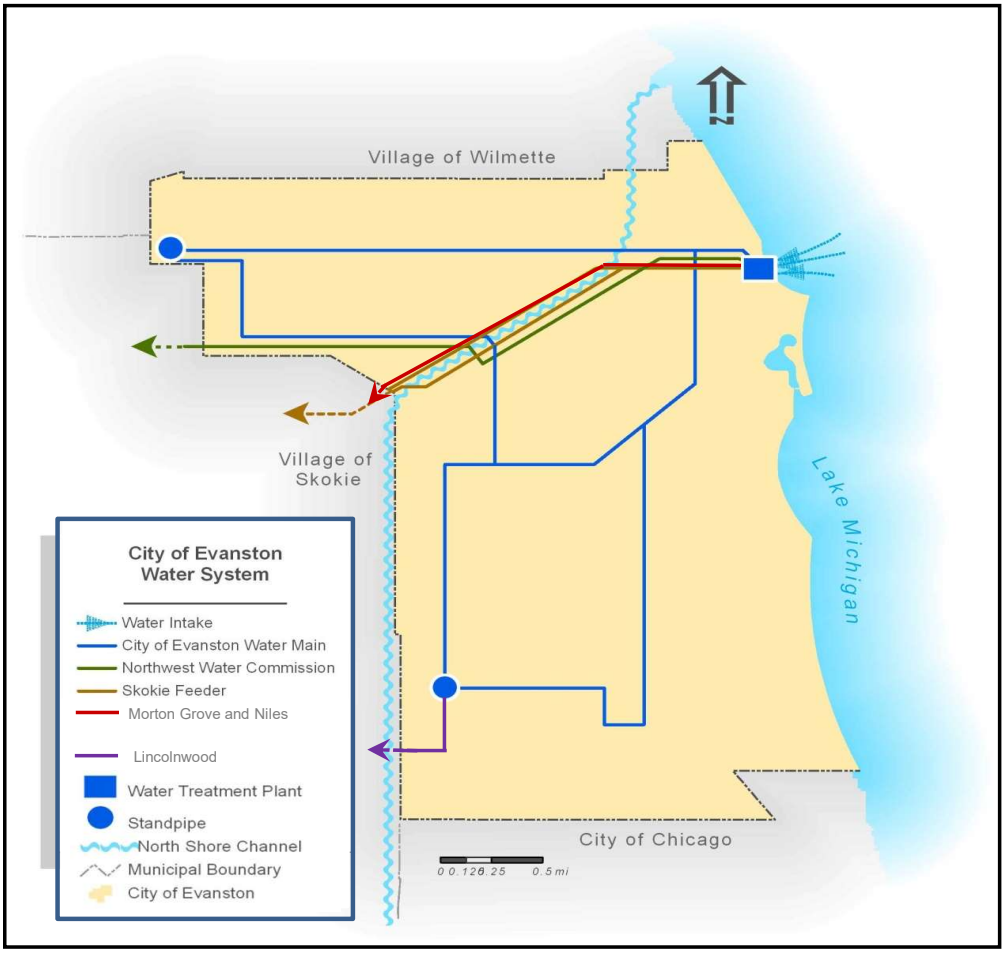
Notes: MG = million gallons
HP = horsepower
kW = kilowatt
mgd = million gallons per day
kV = kilovolt
kVA = kilovolt-ampere

Service Area & Customers

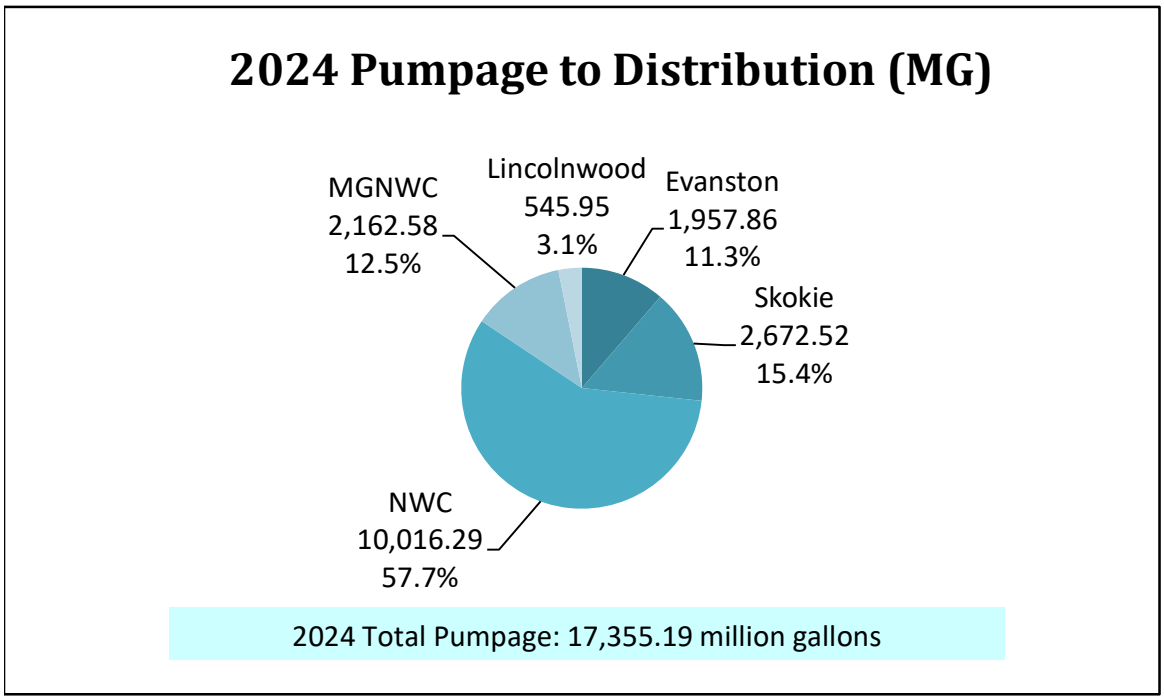
	Area (Square Miles)	2024 Persons*	2024 Businesses**
Evanston	7.8	75,073	8,459
Skokie	10.1	64,939	10,120
Linclonwood	2.7	13,179	2,208
MORTON GROVE - NILES WATER COMMISSION			
Morton Grove	5.1	24,687	3,237
Niles	5.9	30,262	3,957
NORTHWEST WATER COMMISSION			
Arlington Heights	16.6	77,699	8,255
Buffalo Grove	9.5	42,824	5,266
Palatine	13.6	65,176	6,867
Wheeling	8.7	38,495	4,611
Des Plaines	14.3	59,408	8,166
Total Served	**94.3**	**491,742**	**61,146**

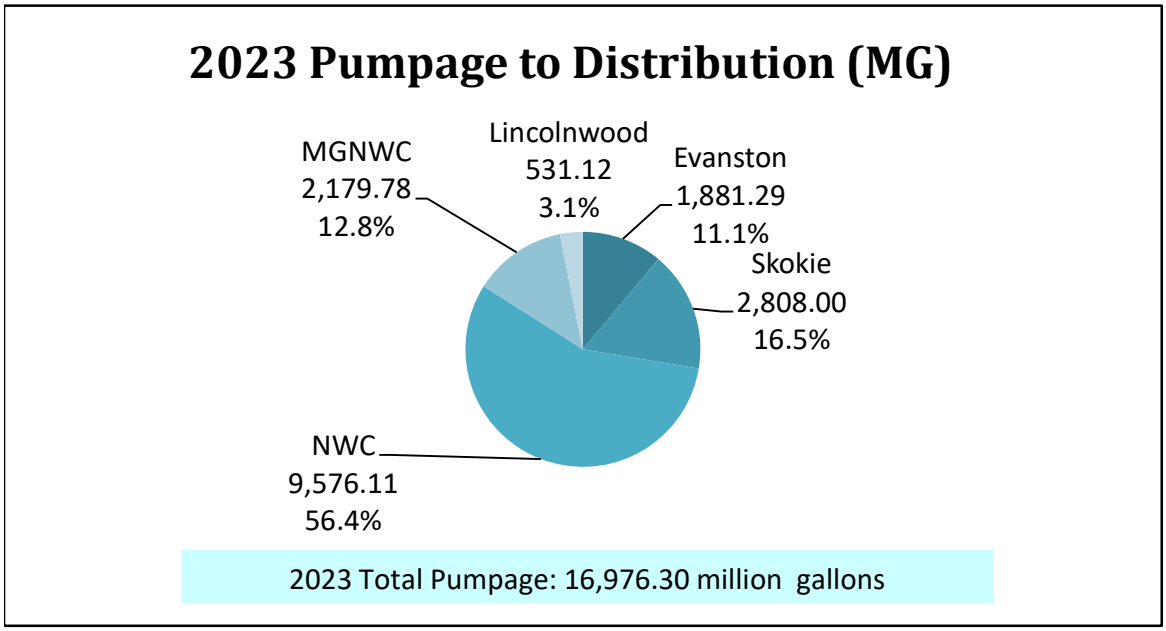
* U.S. Census Bureau, 2023

** U.S. Census Bureau, 2012 Estimate



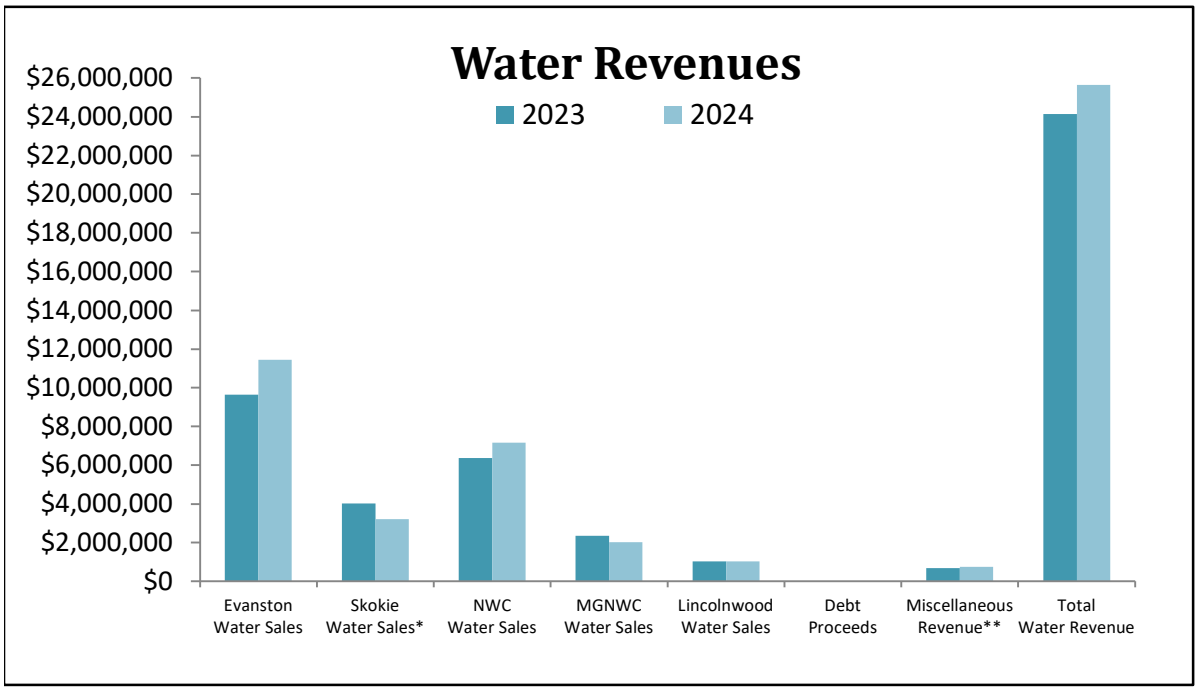
Pumpage to Distribution





Water Revenues

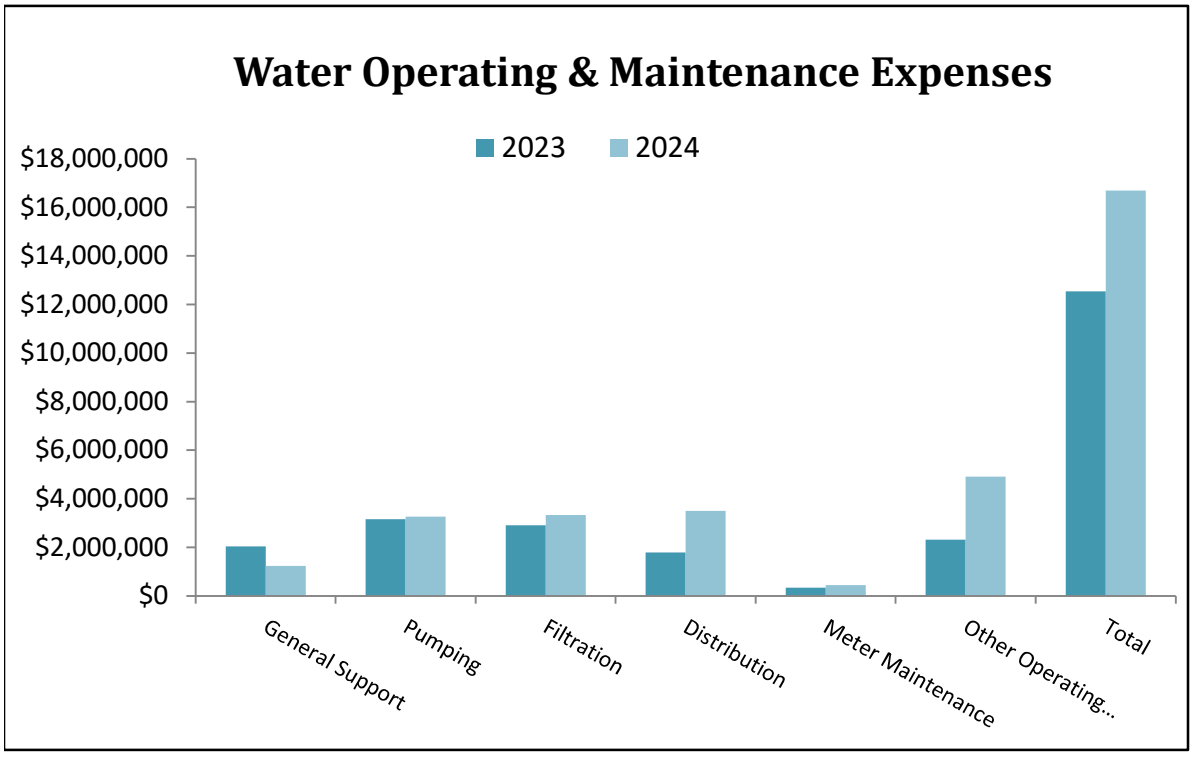
	2023	2024
Evanston Water Sales	$9,638,911	$11,444,806
Skokie Water Sales*	$4,028,342	$3,215,905
NWC Water Sales	$6,373,899	$7,164,185
MGNWC Water Sales	$2,364,095	$2,024,170
Lincolnwood Water Sales	$1,033,042	$1,033,869
Debt Proceeds	$0	$0
Miscellaneous Revenue*	$693,573	$757,344
Total Water Revenue	$24,131,862	$25,640,279



* Miscellaneous Revenue includes cross connection control fees, investment earnings, property sales and rentals, fees, outside work, grants, development fees, phosphate sales, and merchandise sales.

Water Operating & Maintenance Expenses*

	2023	2024
General Support	$2,033,258	$1,234,941
Pumping	$3,153,356	$3,264,196
Filtration	$2,902,666	$3,325,961
Distribution	$1,789,017	$3,503,390
Meter Maintenance	$345,659	$449,442
Other Operating Expenses**	$2,320,390	$4,914,447
Total	$12,544,346	$16,692,377



* Financial data are based on actual expenses and do not include audit adjustments such as depreciation and inventory. For audited financial records, see the Comprehensive Annual Financial Report for the City of Evanston, http://www.cityofevanston.org/transparency/budget-financial-reports/. Data presented on this page is based on preliminary information as the audited information is not yet available at the time the Annual Report has been published.

**Other Operating Expenses include capital outlay, interfund transfers (general and insurance), and other operating expenses.

First Responder

A first responder is defined as a person with specialized training who is among the first to arrive and provide assistance at the scene of an emergency such as an accident, natural disaster, or act of terrorism. First responders are responsible for the protection and preservation of life, property, evidence and the environment.



The "Public Works First Responder" symbol is used to identify public works personnel and acknowledge their federally-mandated role as first responders.

President George W. Bush issued Homeland Security Presidential Directive 5 (HSPD-5), Management of Domestic Incidents, in 2003, in which a public works response to emergencies and disasters were officially recognized as an absolute necessity, and the federal government was directed to include public works in all planning and response efforts.



Fixing water main breaks is one way the Distribution Division ensures the safety of residents and protects both private and City property.

The City of Evanston Distribution and Sewer divisions have annual emergency preparedness training which includes confined space training and certification. These divisions also respond to varied emergency events in the community such as snow and ice control, water main breaks, sewer main collapses, hydrant repairs, and sinkholes. They respond to utility outages and emergencies that occur at any time and in any weather to maintain water and sewer service for residents of Evanston.

Distribution - First Responder Hours

Activity	Hours	Labor Cost	Equipment Cost	Inventory Cost	Total Cost
Water Main Breaks	993	$50,720	$33,241	$3,092	$87,052
Snow & Ice Control	237	$12,016	$7,398	$0	$19,414
Hydrant - Inspect	4	$208	$28	$0	$236
Hydrant - Repair	2	$101	$17	$0	$118
Meter/MIU - Inspect	3	$175	$28	$0	$203
Meter/MIU - Repair	1	$44	$11	$39	$94
Meter/MIU - Replace	5	$186	$42	$243	$470
Service - Inspect	23	$1,669	$205		$1,874
Water Main - Check For Leaks	20	$955	$149	$0	$1,105
Water Main - Maintenance	28	$1,283	$376	$0	$1,659
Dist - Assist Other Utilities	2	$101	$17	$0	$118
Dist - Assist W&S Contractor	38	$2,251	$334	$0	$2,585
Dist - Assist W&S Divisions	8	$541	$405	$0	$945
Dist - JULIE Locates	6	$387	$67	$0	$455
Total	**1,367**	**$70,636**	**$42,319**	**$3,374**	**$116,329**

Sewer - First Responder Hours

Activity	Hours	Labor Cost	Equipment Cost	Inventory Cost	Total Cost
Basement Backups	198	$9,025	$5,080	$0	$14,105
Basement Flooding	30	$1,254	$882	$0	$2,135
Snow & Ice Control	237	$12,016	$7,398	$0	$19,414
Sinkholes	237	$9,300	$7,923	$0	$17,223
Sewer Structure - Inspect	15	$898	$163	$0	$1,061
Sewer Structure - Clean	12	$477	$275	$0	$752
Total	**728**	**$32,970**	**$21,721**	**$0**	**$54,690**

Pumping

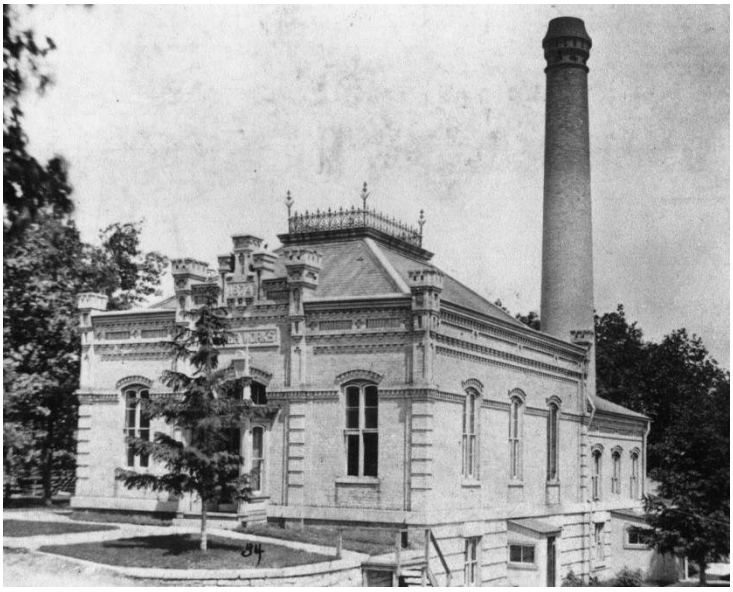
Evanston's Pumping Division manages the City's three Lake Michigan water supply intakes, pumping of raw water to the start of the water treatment process; pumping of treated water to retail customers in Evanston as well as wholesale customers; and operation and maintenance of Evanston's treated water storage facilities and remote water pumping stations. This division also monitors water storage tanks in the Village of Skokie, as well as controlling the rate of water supply to the Northwest Water Commission and Morton Grove and Niles Water Commission.



High Lift Pumping Station at the Evanston Water Treatment Plant

There is at least one pump operating at the Evanston Water Treatment Plant at all times, to ensure that a sufficient quantity of water is always available for public consumption and firefighting. There is always at least one water operator present at the Pumping Station to control water supply and pressure and respond to emergencies.

Evanston has been pumping water from the site of the existing water treatment plant on Lincoln Street since 1874. The original "water works" consisted of a coal-fired steam engine and a single pump with a capacity of 2 million gallons per day. Construction of a pumping station to serve the entire City drastically improved Evanston's ability to fight fires and allowed the City to reliably deliver Lake Michigan water to homes and businesses on demand for the first time.



Evanston's original pumping station in 1874

2024 Monthly Pumpage (MG)

Month	Lake Water Pumpage	Wash Water Recycled	Net Raw Water Pumpage	Finished Water Pumpage	Pumpage To				
					Evanston	Skokie	N.W.C.	M.G.N.W.C	Lincolnwood
Jan-24	1,362.743	18.480	1,381.223	1,376.013	158.261	221.649	773.702	172.554	37.668
Feb-24	1,250.971	17.696	1,268.667	1,265.871	145.133	194.253	735.450	165.849	36.567
Mar-24	1,302.371	17.912	1,320.283	1,318.443	145.952	202.757	770.060	168.414	38.763
Apr-24	1,294.097	18.606	1,312.703	1,296.784	151.478	292.805	717.191	170.057	39.405
May-24	1,440.939	21.569	1,462.508	1,445.108	168.495	204.163	846.962	178.700	44.816
Jun-24	1,534.446	25.356	1,559.802	1,544.492	178.961	242.138	893.970	203.865	55.939
Jul-24	1,536.646	25.511	1,562.157	1,543.705	174.004	239.512	839.760	197.336	53.865
Aug-24	1,587.609	25.464	1,613.073	1,598.234	191.054	227.547	929.277	190.945	53.635
Sep-24	1,536.009	29.459	1,565.468	1,548.754	187.332	252.082	990.036	201.251	63.259
Oct-24	1,460.539	24.092	1,484.631	1,456.473	176.128	214.908	887.868	183.520	46.539
Nov-24	1,265.473	20.385	1,285.858	1,280.316	131.839	193.342	792.296	164.783	38.881
Dec-24	1,345.697	20.688	1,366.385	1,361.289	149.224	187.361	839.716	165.301	36.615
Total	**16,917.540**	**265.218**	**17,182.758**	**17,035.482**	**1,957.861**	**2,672.517**	**10,016.288**	**2,162.575**	**545.952**

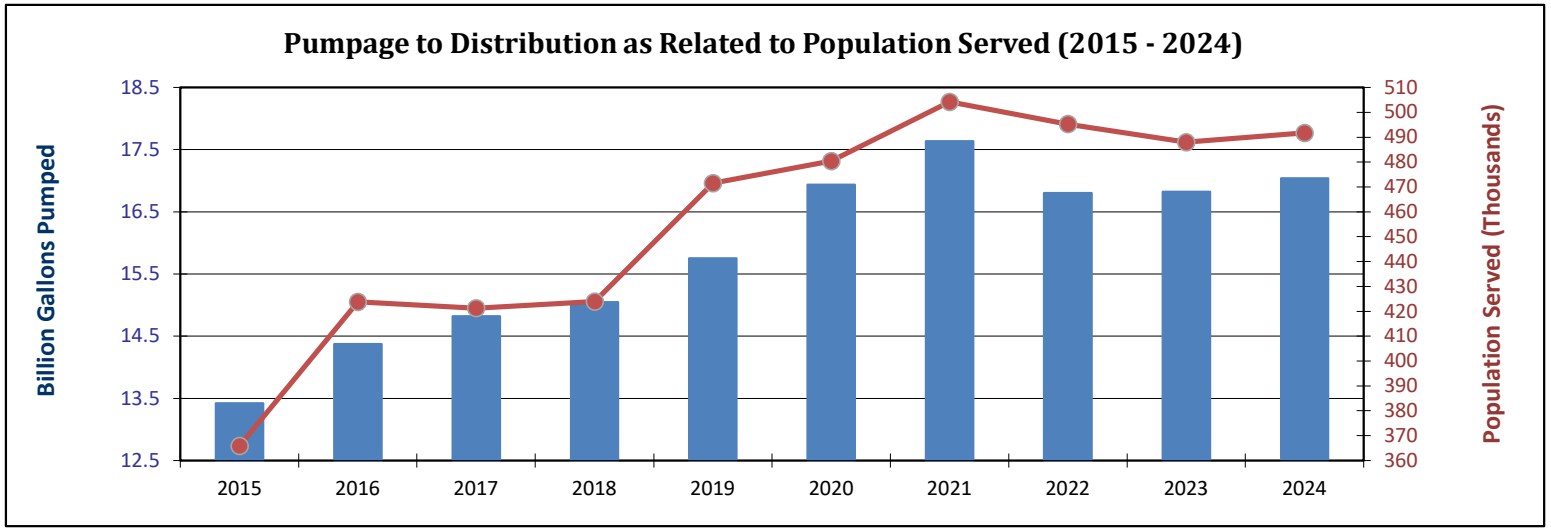
2024 Average Day Pumpage (MGD)

Month	Lake Water Pumpage*	Wash Water Recycled	Net Raw Water Pumpage	Finished Water Pumpage	Pumpage To				
					Evanston	Skokie	N.W.C.	M.G.N.W.C	Lincolnwood
Jan-24	43.959	0.596	44.556	44.388	5.105	7.150	24.958	5.566	1.215
Feb-24	44.678	0.632	45.310	45.210	5.183	6.938	26.266	5.923	1.306
Mar-24	42.012	0.578	42.590	42.530	4.708	6.541	24.841	5.433	1.250
Apr-24	43.137	0.620	43.757	43.226	5.049	9.760	23.906	5.669	1.314
May-24	46.482	0.696	47.178	46.616	5.435	6.586	27.321	5.765	1.446
Jun-24	51.148	0.845	51.993	51.483	5.965	8.071	29.799	6.796	1.865
Jul-24	49.569	0.823	50.392	49.797	5.613	7.726	27.089	6.366	1.738
Aug-24	51.213	0.821	52.035	51.556	6.163	7.340	29.977	6.160	1.730
Sep-24	51.200	0.982	52.182	51.625	6.244	8.403	33.001	6.708	2.109
Oct-24	47.114	0.777	47.891	46.983	5.682	6.933	28.641	5.920	1.501
Nov-24	42.182	0.680	42.862	42.677	4.395	6.445	26.410	5.493	1.296
Dec-24	43.410	0.667	44.077	43.913	4.814	6.044	27.088	5.332	1.181
Average	**46.349**	**0.727**	**47.076**	**46.673**	**5.364**	**7.322**	**27.442**	**5.925**	**1.496**

Note: "Pumpage to Evanston" includes process and domestic water uses at the water treatment plant.

Annual Pumpage (MG)

Year	Lake Water Pumpage	Wash Water Recycled	Total Raw Water Pumpage	Finished Water Pumpage	Pumpage To				
					Evanston	Skokie	N.W.C.	M.G.N.W.C	Lincolnwood
2024	16,917.540	265.218	17,182.758	17,035.482	1,957.861	2,672.517	10,016.288	2,162.575	545.952
2023	17,355.903	257.124	17,613.027	16,819.684	1,881.285	2,808.000	9,576.111	2,179.775	531.124
2022	17,156.174	276.881	17,433.055	16,799.720	1,896.049	2,903.701	8,958.481	2,250.383	509.211
2021	17,447.814	263.208	17,711.022	17,634.799	2,116.239	2,922.386	9,427.219	2,345.277	531.534
2020	17,531.059	335.632	17,866.691	16,933.859	2,397.887	2,700.980	9,223.791	2,446.004	219.580
2019	15,471.453	405.958	15,877.411	15,750.251	2,875.905	2,719.820	8,883.870	1,229.601	0.000
2018	14,793.326	337.586	15,130.912	15,049.406	2,958.411	2,996.604	9,032.250	38.749	0.000
2017	14,493.663	252.747	14,746.410	14,821.364	2,891.174	2,816.778	9,087.366	0.000	0.000
2016	14,201.170	231.020	14,432.190	14,375.415	3,059.358	2,795.396	8,664.097	0.000	0.000
2015	13,471.823	200.285	13,672.108	13,423.806	2,790.010	2,786.896	7,846.900	0.000	0.000



Average Daily Per Capita Consumption

	Evanston		Skokie		NWC		MGNWC		Lincolnwood		Total	
Year	Population	Per Capita Use (gpcd)	Population	Per Capita Use (gpcd)	Population	Per Capita Use (gpcd)*	Population	Per Capita Use (gpcd)	Population	Per Capita Use (gpcd)	Population	Per Capita Use (gpcd)
2024	75,073	1957.861	64,939	2672.517	283,602	10016.288	54,949	2162.575	13,179	545.952	491,742	17355.193
2023	75,544	68	65,497	117	279,779	94	54,176	110	12,989	112	487,985	95
2022	77,517	67	66,422	120	283,073	87	55,057	112	13,191	106	495,260	91
2021	78,110	74	67,824	118	288,608	89	56,209	114	13,463	108	504,214	94
2020	73,473	89	62,700	118	280,281	90	51,734	130	12,245	NA	480,433	97
2019	74,106	106	63,280	118	281,992	86	52,127	NA	-	NA	471,505	91
2018	75,557	107	64,773	127	283,630	87	53,214	NA	-	NA	477,174	86
2017	74,895	106	64,270	120	282,093	88	-	0	-	0	421,258	96
2016	75,527	111	64,821	118	283,493	84	-	0	-	0	423,841	94
2015	75,570	101	65,176	117	225,137	95	-	0	-	0	365,883	101

*In 2016 NWC began providing water to Des Plaines. Only a portion of the total population of Des Plaines consumes water provided by the City of Evanston.

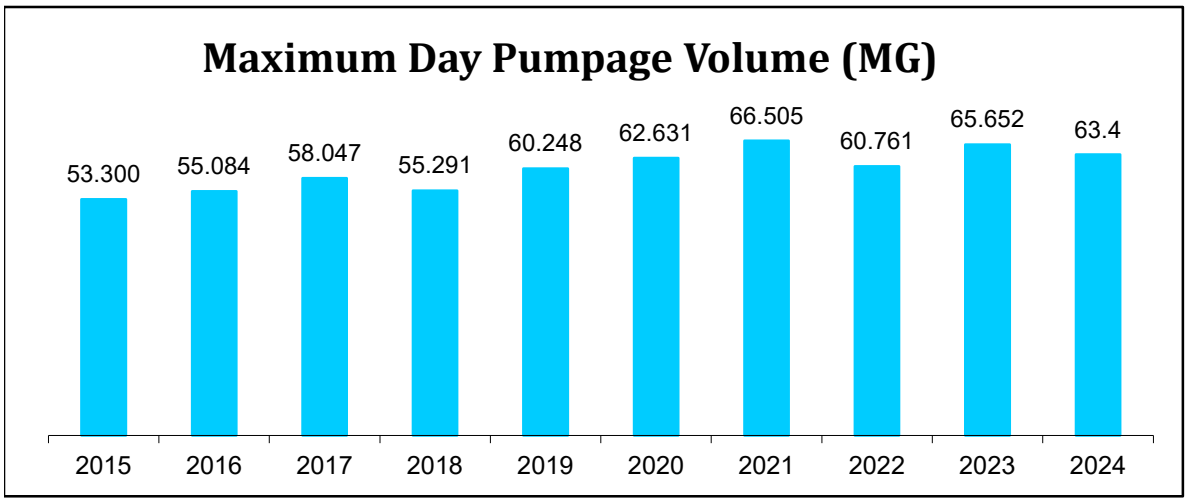
*In 2020, the City of Evanston began providing water to Lincolnwood starting in July.

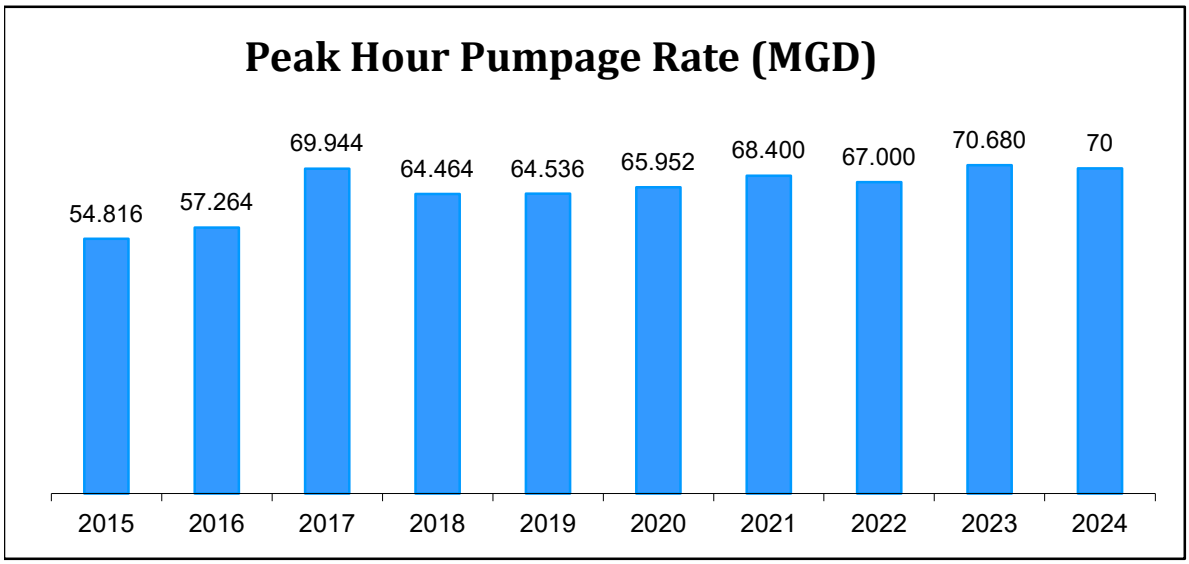
Maximum Pumpage to Distribution

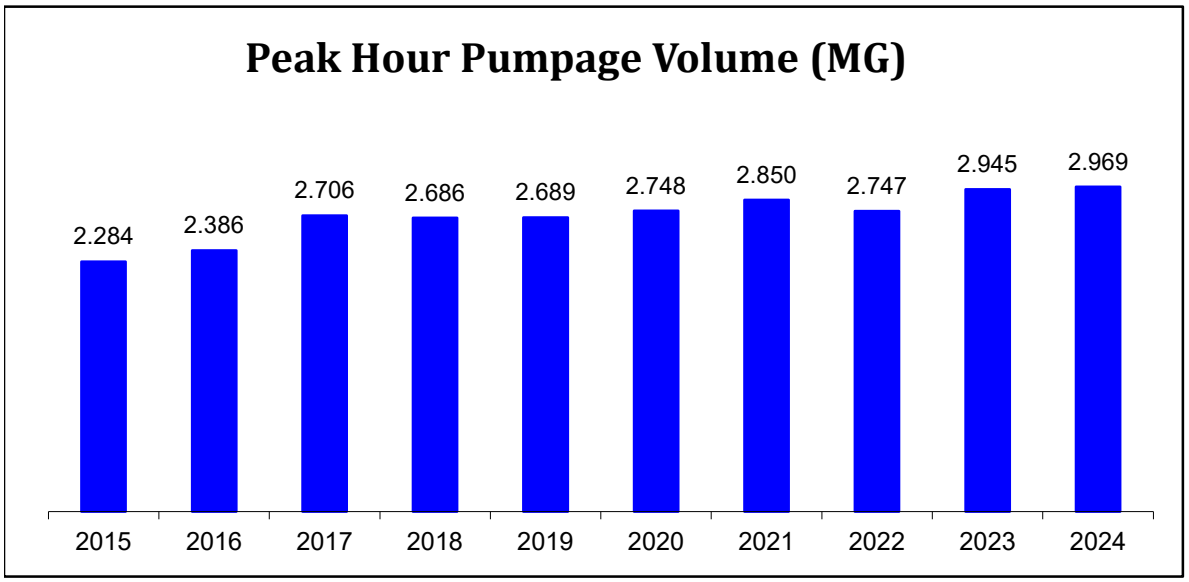
Year	*Max Day Pumpage Volume (MG)*	*Peak Hour Pumpage Rate (MGD)*	*Peak Hour Pumpage Volume (MG)*
2024	63.400	70.000	2.969
2023	65.652	70.680	2.945
2022	60.761	67.000	2.747
2021	66.505	68.400	2.850
2020	62.631	65.952	2.748
2019	60.248	64.536	2.689
2018	55.291	64.464	2.686
2017	58.047	69.944	2.706
2016	55.084	57.264	2.386
2015	53.300	54.816	2.284

Historical Maximum Day Pumpage: 95.154 MG on July 7, 1989

Maximum Day and Peak Hour Pumpage







Maximum Pumpage Days (MGD)

	Maximum Day Pumpage To					
Year	**Distribution**	**Evanston**	**Skokie**	**NWC**	**MGNWC**	**Lincolnwood**
2024	June 19th	August 26th	July 17th	June 19th	June 19th	August 26th
	70.000	9.155	17.899	34.972	8.027	2.652
2023	June 2nd	June 3rd	June 2nd	June 5th	June 2nd	June 9th
	65.652	7.445	11.925	35.01	8.441	2.342
2022	July 1st	June 22nd	July 2nd	July 1st	June 30th	June 26th
	60.538	19.842	10.839	31.383	8.349	2.580
2021	June 11th	May 25th	June 11th	June 9th	June 11th	June 11th
	65.178	7.971	12.258	36.751	8.883	2.373
2020	August 21st	August 18th	August 21st	August 23rd	March 26th	August 21st
	62.631	9.814	10.047	33.727	10.587	2.338
2019	July 15th	July 14th	July 15th	July 15th	Dec. 2nd	-
	60.248	11.368	10.930	33.829	7.707	-
2018	June 13th	June 13th	June 13th	June 30th	-	-
	55.372	13.575	9.609	33.989	-	-
2017	June 13th	June 13th	June 12th	June 14th	-	-
	58.047	11.931	10.927	39.371	-	-
2016	July 20th	July 20th	August 10th	July 22nd	-	-
	55.084	12.561	10.370	32.593	-	-
2015	August 14th	August 6th	August 14th	August 2nd	-	-
	53.300	11.852	10.950	30.414	-	-

Historical Maximum Day Pumpage to Distribution: 95.154 MG on July 7, 1989

Energy Costs

Electric Power - Kilowatt Hours (kWh) Used

Year	Total kWh	Total Cost	Average Unit Cost per kWh	kWh Per Million Gallons Pumped
2024	13,595,120	$1,411,428	$0.104	798
2023	13,548,690	$1,155,739	$0.085	806
2022	13,575,693	$792,084	$0.058	770
2021	13,248,501	$1,011,347	$0.076	782
2020	12,640,104	$995,122	$0.079	803

Natural Gas Used for Pumping and Emergency Engines

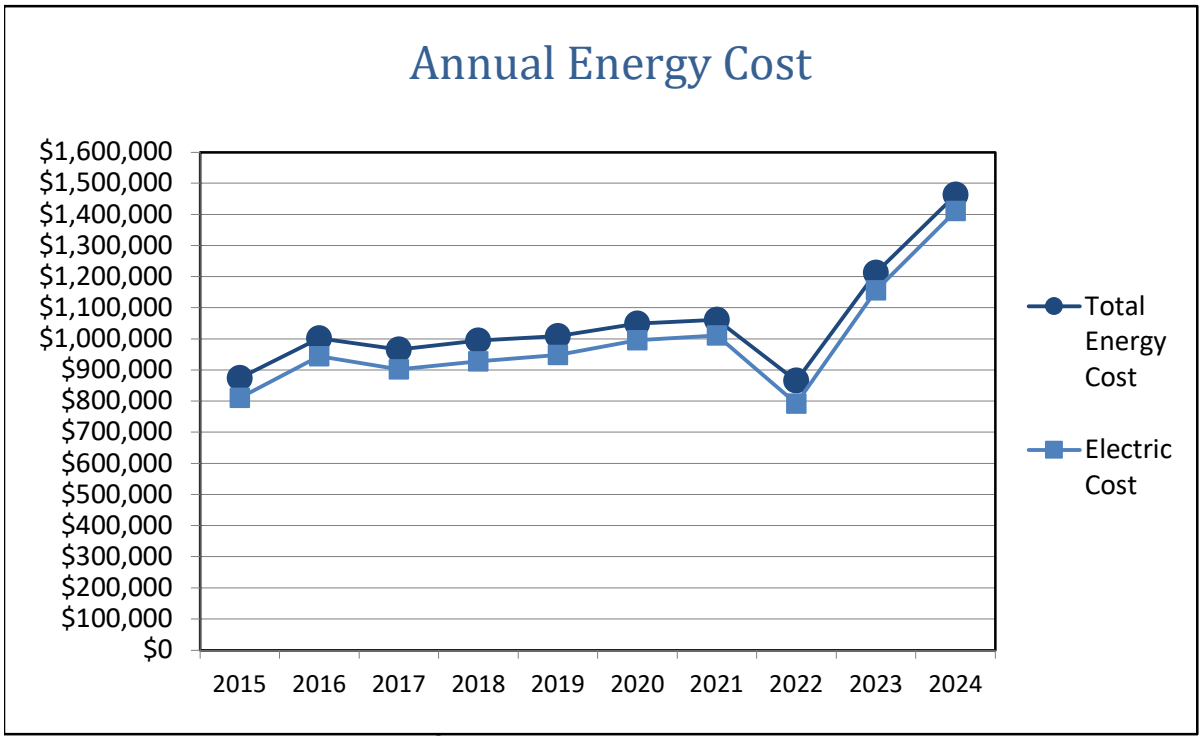
Year	Therms	Total Cost*	Average Unit Cost per Therm
2024	120,770	$51,627	$0.427
2023	123,833	$56,725	$0.458
2022	124,522	$73,623	$0.591
2021	131,460	$49,803	$0.379
2020	127,891	$53,586	$0.419

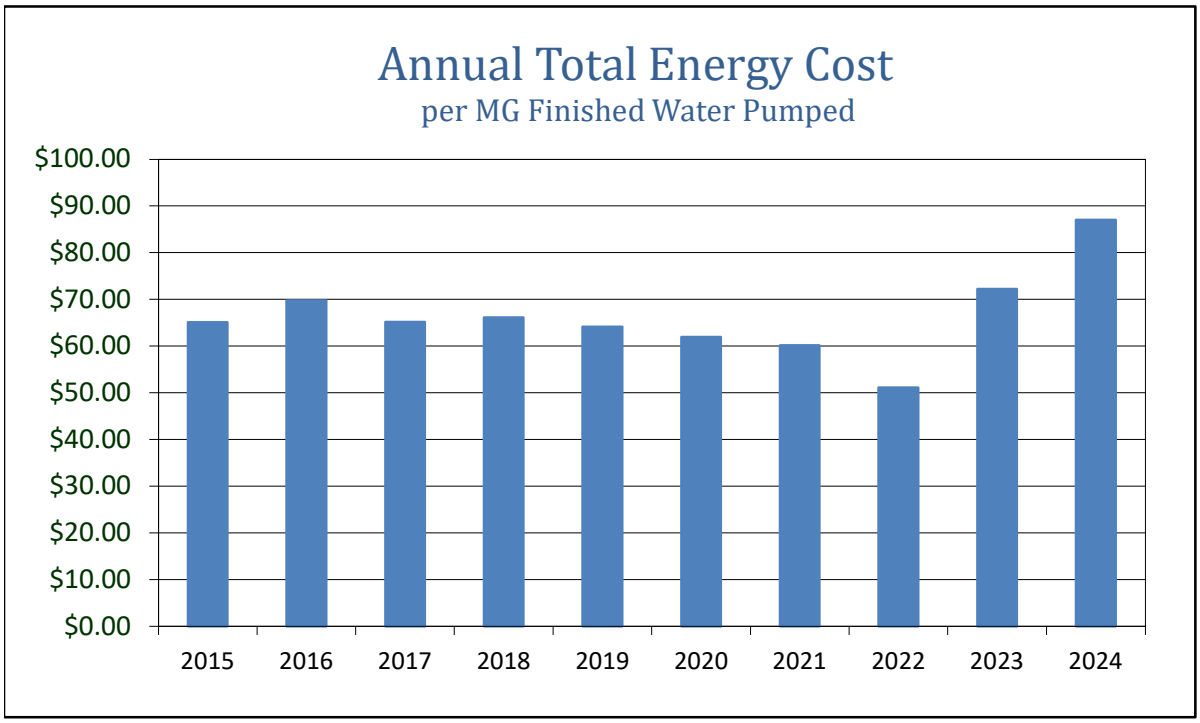
* Includes natural gas purchase and delivery charges.

Total Energy Cost (Electric & Gas)

Year	Total Cost	Cost Per Million Gallons Pumped
2024	$1,463,055	$86.98
2023	$1,212,464	$72.17
2022	$865,706	$51.12
2021	$1,061,150	$67.37
2020	$1,048,708	$69.68

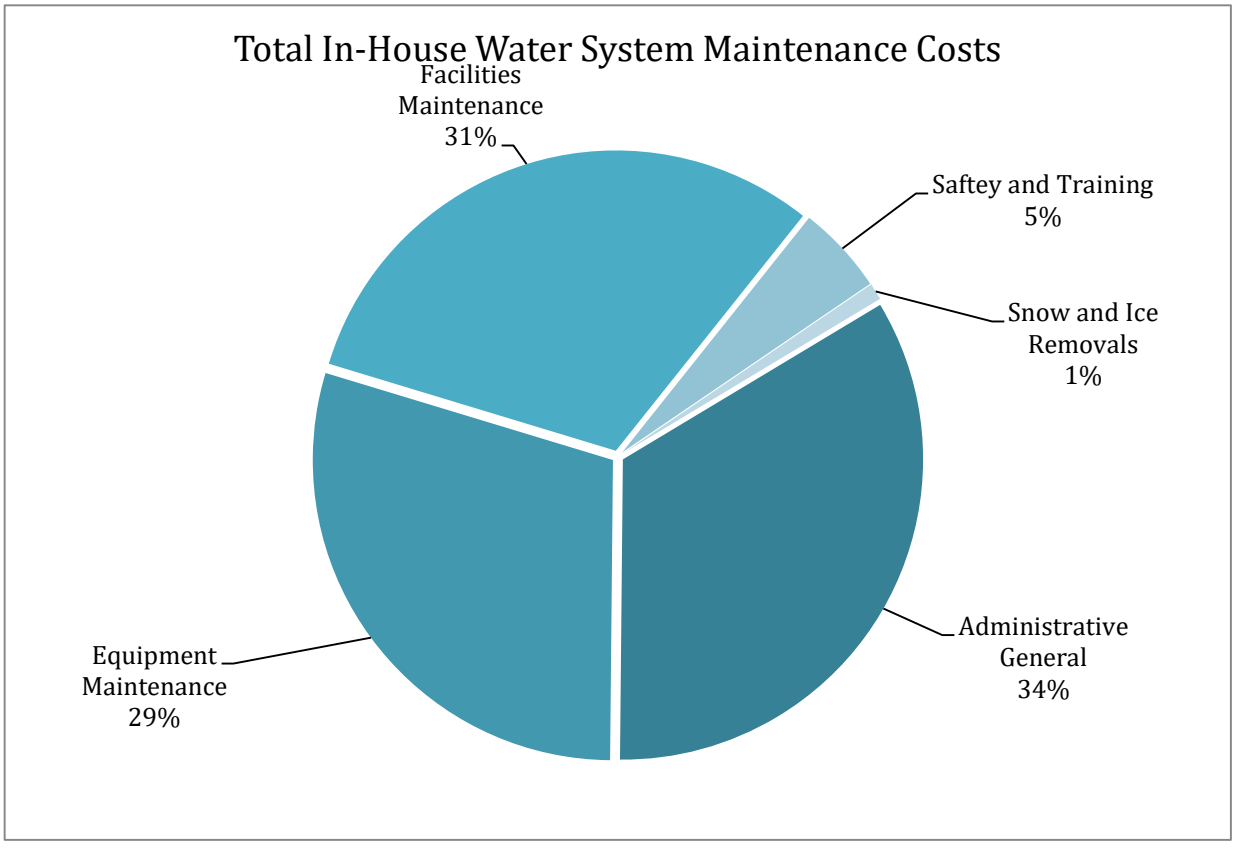
Energy Costs





Breakdown of In-House Maintenance Costs

Description	2023	2024
Administrative General	$55,649	$46,807
Assist Public Works	$62	$20,102
Assist Other Departments	$0	$6,109
Assist Contractor	$553	$8,855
Equipment Maintenance	$64,046	$40,939
Facilities Maintenance	$12,130	$43,023
JULIE Locates	$0	$0
Miscellaneous	$602	$12,640
Saftey and Training	$1,575	$6,637
Snow and Ice Removals	$800	$1,232
Total	**$135,417**	**$186,344**



Filtration

The Filtration Division manages the water treatment process, including chemical addition, sedimentation, filtration, and disinfection. This involves operation and maintenance of 5 chemical feed systems, 4 settling basins, 24 filters, and numerous pipes, valves, and instrumentation systems. There is always at least one state-certified water treatment operator at the filtration plant at all times, who monitors instrumentation and water quality testing results to ensure that the water is always safe to drink.



Filters 1 – 12 in operation at the Evanston Water Treatment Plant

This division also includes the City's Water Quality Laboratory, which monitors Evanston's drinking water for compliance with state and federal water quality regulations and completes regular reporting to the public and the Illinois Environmental Protection Agency to certify the quality of Evanston's water.

Full-scale water treatment began in Evanston in 1914. The process included settling basins with chemical addition to allow larger contaminants to drop out of the water by gravity, filtration to remove smaller contaminants, and disinfection with chlorine. The new treatment process virtually eliminated waterborne disease in Evanston. This process was state-of-the-art at the time, and Evanston was one of the first communities in the region to adopt full-scale water treatment with rapid sand filtration. Though only the filters from the 1914 treatment plant survive to this day, Evanston's water treatment process still follows the same steps.



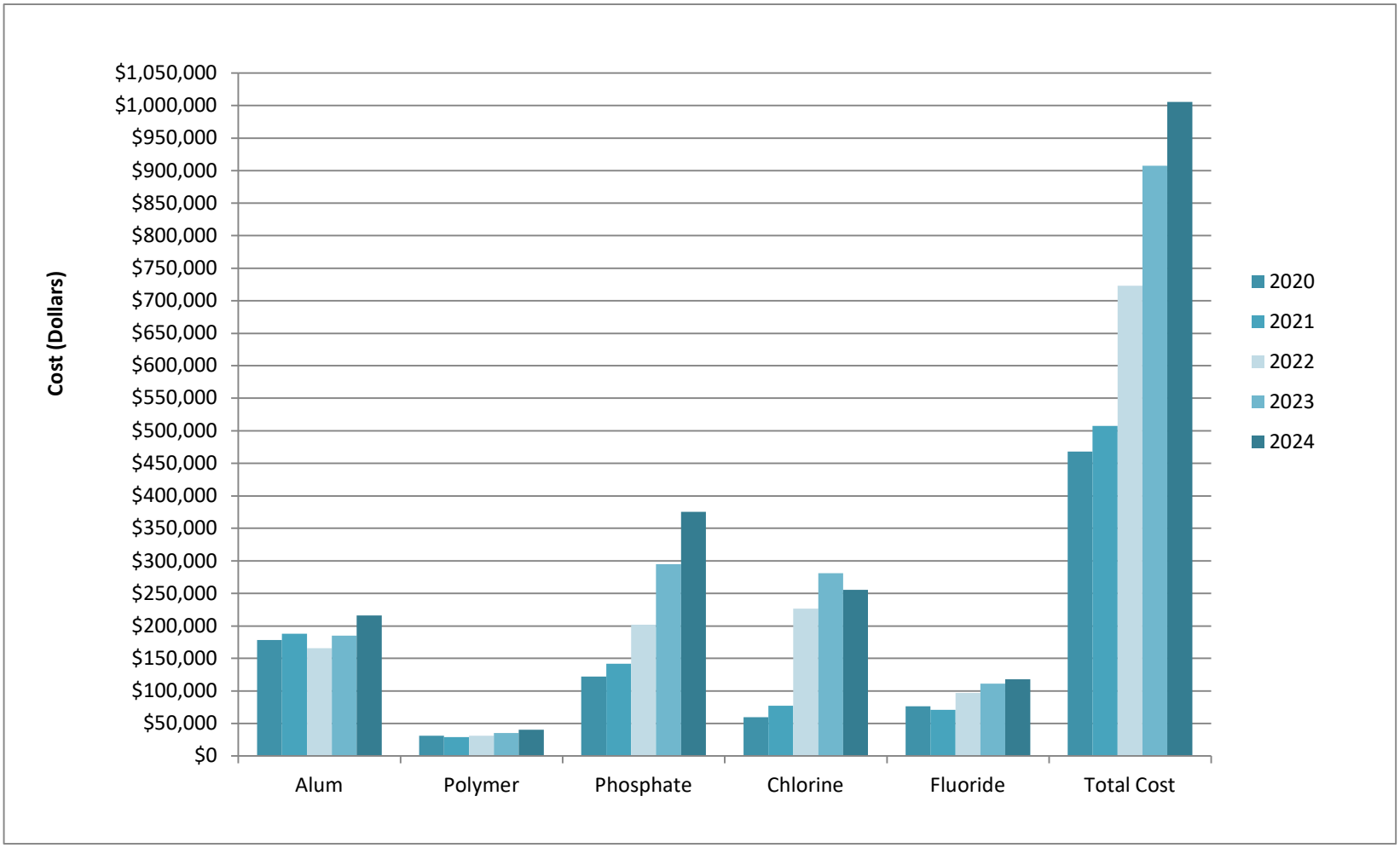
Filters 1 – 12, photo taken in 1924

Chemical Treatment: Chemicals Used and Costs

	Chemical Feed (lbs/MG)						
	Avg Daily	Max Day	Min Day	Unit Cost	Pounds per Year	Total Cost	Cost per MG Treated
Aluminum Sulfate							
2024	63.4	105.6	48.0	$400.00 / dry ton	1,080,929	$216,186	$12.69
2023	60.3	97.6	47.1	$356.00 / dry ton	1,038,544	$184,861	$10.85
2022	57.5	99.0	47.8	$332.00 / dry ton	1,000,100	$166,017	$9.75
2021	64.0	100.8	49.1	$296.00 / dry ton	1,270,234	$187,995	$10.78
2020	69.0	130.1	49.0	$300.00 / dry ton	1,187,180	$178,077	$10.31
Chlorine							
2024	15.9	26.6	11.1	$1859.00 / ton	274,901	$255,520	$15.00
2023	15.5	22.3	5.0	$2,078.00 / ton	270,655	$281,211	$16.51
2022	15.5	20.9	11.9	$1,285.00 / ton	352,628	$226,564	$13.30
2021	15.9	21.1	8.8	$439.00 / ton	352,784	$77,436	$4.44
2020	15.9	20.8	12.5	$430.00 / ton	276,160	$59,374	$3.44
Activated Carbon*							
Hydrofluosilicic Acid (Fluoride)							
2024	26.5	27.7	24.7	$519.00 / ton	454,646	$117,981	$6.93
2023	25.5	27.7	10.2	$502.00 / ton	443,674	$111,362	$6.54
2022	26.5	28.5	23.9	$410.00 / ton	471,940	$96,748	$5.68
2021	23.0	34.9	0.0	$353.00 / ton	403,100	$71,147	$4.08
2020	27.2	28.7	24.9	$326.20 / ton	468,955	$76,487	$4.43
Polymer							
2024	3.0	6.2	2.0	$1,580.00 / ton	51,462	$40,655	$2.39
2023	2.9	7.9	1.9	$1,430.00 / ton	49,697	$35,533	$2.09
2022	2.4	5.6	1.6	$1,400.00 / ton	45,000	$31,500	$1.85
2021	2.8	5.3	1.8	$1,296.00 / ton	44,880	$29,082	$1.67
2020	3.0	5.7	1.8	$1,220.00 / ton	51,715	$31,546	$1.83
Blended Phosphate							
2024	20.3	24.8	17.5	$11.87 / gallon	344,610	$375,277	$22.03
2023	21.4	22.1	16.9	$9.721 / gallon	330,501	$294,752	$17.30
2022	19.0	16.2	15.1	$6.496 / gallon	339,030	$202,049	$11.86
2021	16.6	18.6	15.0	$4.872 / gallon	317,237	$141,796	$8.13
2020	16.2	19.0	14.6	$4.816 / gallon	276,994	$122,386	$7.09

* Carbon can be fed for taste and odor control, though this has not been necessary since 2005.

Annual Chemical Costs



Filter Operations

Filter Runs

	Avg Hours per Filter Run		Total Hours per Year	
Year	3 MGD	6 MGD	3 MGD	6 MGD
2024	174.4	167.0	102,112	91,850
2023	176.2	164.3	104,609	87,120
2022	158.2	148.7	105,113	92,119
2021	181.2	170.1	104,693	92,880
2020	119.2	114.3	64,901	102,652
2019	113.5	95.3	52,899	103,710
2018	156.3	160	89,721	99,625
2017	208.9	191.8	102,660	93,663
2016	237.5	223.6	93,948	103,703
2015	238.6	229.0	80,514	103,404

Filter Washes*

	Total Washes per Year		Max # of Washes per Day	
Year	3 MGD	6 MGD	3 MGD	6 MGD
2024	579	546	6	6
2023	589	550	5	5
2022	626	591	6	6
2021	586	556	5	6
2020	549	977	8	8
2019	498	1066	6	8
2018	647	760	7	7
2017	525	519	6	6
2016	429	513	6	6
2015	347	462	5	5

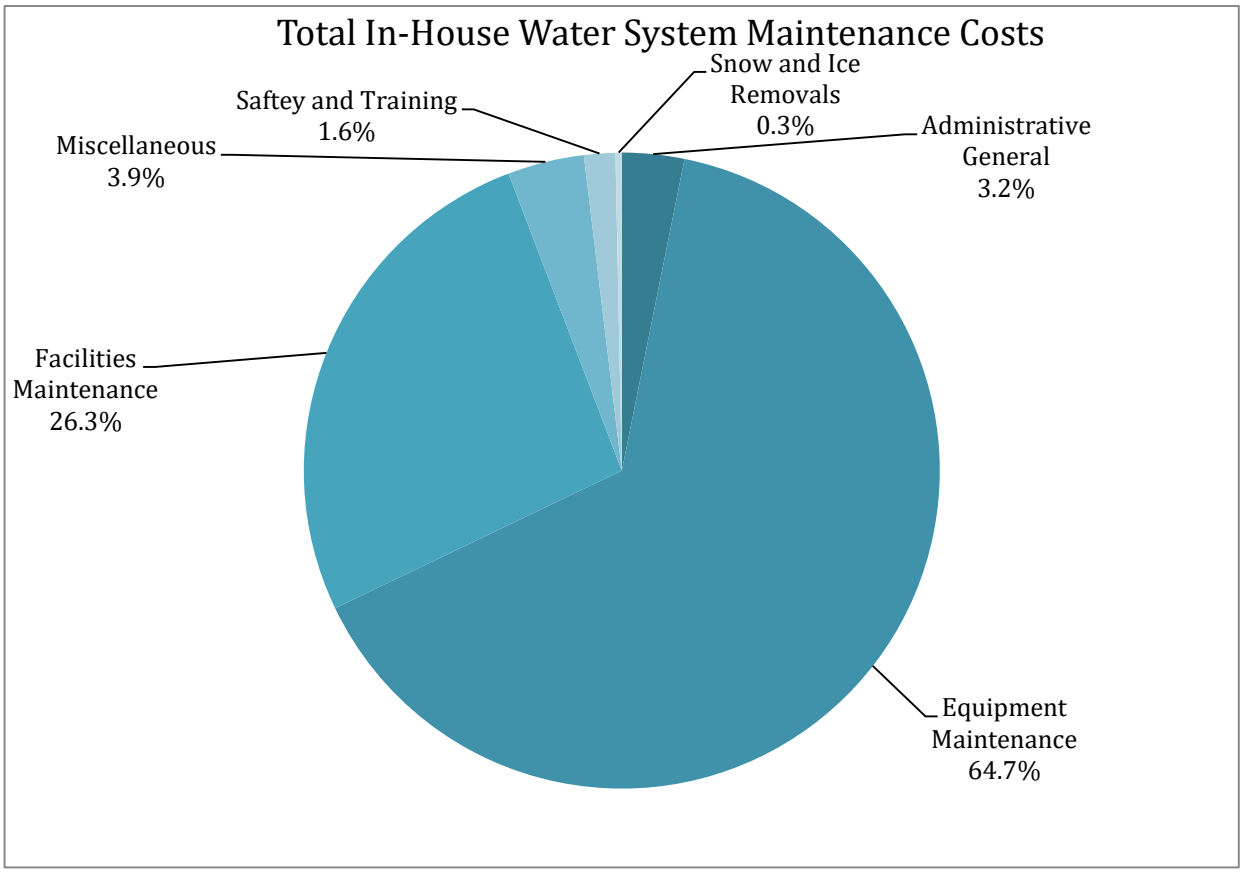
*In 2018, the filter run hours between washes were reduced from 300 hours to 100 hours in an effort to minimize mudball formation in the filter media

Wash Water

Year	Total (MG)	Avg Daily %	Max Daily %
2024	265.963	1.55	4.71
2023	267.179	1.53	4.94
2022	278.147	1.64	4.83
2021	261.751	1.49	4.89
2020	377.241	2.22	6.25
2019	408.744	2.61	6.13
2018	339.444	2.23	7.11
2017	254.37	1.70	5.84
2016	239.545	1.60	9.65
2015	200.285	1.49	5.31

Breakdown of In-House Maintenance Costs

Description	2023	2024
Administrative General	$9,287	$10,342
Assist Public Works	$0	$0
Assist Other Departments	$0	$0
Assist Contractor	$0	$6,774
Equipment Maintenance	$191,541	$212,145
Facilities Maintenance	$64,825	$86,273
JULIE Locates	$0	$0
Miscellaneous	$6,857	$12,732
Saftey and Training	$2,741	$5,237
Snow and Ice Removals	$1,220	$1,040
Total	**$276,471**	**$334,543**



Bacteriological Water Analysis (Membrane Filter Method)

Report of Evanston Water Quality Control Laboratory

The U.S. Environmental Protection Agency (EPA) standard is based on the presence or absence of total coliform bacteria in a water sample. Evanston is required to collect 80 water samples per month from the distribution system. The EPA requires that no more than 5% of these monthly samples test positive for the presence of total coliform.

Distribution System (Colilert Method)		Positive for	Positive for
Year	Number Sampled	Total Coliform	E. coli
2024	960	0	0
2023	975	3	0
2022	981	3	0
2021	962	4	0
2020	960	0	0

Raw Water		Colony Count	
Year	Number Sampled	Average	Maximum
2024	732 (Twice Daily)	48	396
2023	730 (Twice Daily)	66	>200
2022	730 (Twice Daily)	74	>200
2021	730 (Twice Daily)	119	>200
2020	732 (Twice Daily)	63	>200

After Primary Treatment		Colony Count	
Year	Number Sampled	Average	Maximum
2024	732 (Twice Daily)	0	0
2023	730 (Twice Daily)	0	0
2022	732 (Twice Daily)	0	0
2021	730 (Twice Daily)	0	0
2020	730 (Twice Daily)	0	0

Plant Tap A.M. and P.M. Samples		Colony Count	
Year	Number Sampled	Average	Maximum
2024	1460 (4 times Daily)	0	0
2023	1460 (4 times Daily)	0	0
2022	1464 (4 times Daily)	0	0
2021	1460 (4 times Daily)	0	0
2020	1460 (4 times Daily)	0	0

Odor, Turbidity, Temperature and Fluoride

Report of Evanston Water Quality Control Laboratory

Odor*

Year	Number of Tests
2024	1
2023	0
2022	0
2021	0
2020	371

*Testing was discontinued in 2021. Testing will resume if taste and/or odor problems arise.

Turbidity (Expressed in Nephelometric Turbidity Units or NTU)

EPA standard is <0.3 NTU in 95% of samples and never >1 NTU in any single sample of finished water.

	Raw Water			After Primary Treatment			Plant Tap		
Year	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min
2024	4.81	48.0	0.38	0.56	3.31	0.21	0.08	0.24	0.04
2023	5.57	53.4	0.23	0.58	1.45	0.1	0.08	0.73	0.05
2022	3.95	43.0	0.28	0.55	1.58	0.14	0.09	0.15	0.05
2021	5.92	60.2	0.36	0.60	1.60	0.22	0.11	0.17	0.07
2020	8.23	74.8	0.46	0.76	1.94	0.23	0.11	0.18	0.09

Raw Water Temperature

Year	Average	Maximum	Minimum
2024	13.0°C / 55.3°F	25.1°C / 77.24°F	2.3°C / 36.1°F
2023	11.9°C / 53.4°F	24.1°C / 75.4°F	1.7°C / 35.1°F
2022	11.1°C / 52.0°F	23.4°C / 74.1°F	1.7°C / 35.1°F
2021	11.6°C / 52.8°F	23.7°C / 74.7°F	0.2°C / 32.4°F
2020	10.8°C / 51.5°F	24.9°C / 76.8°F	1.4°C / 34.5°F

Fluoride Content (EPA target is 0.7 ppm)

	Plant Tap			Distribution		
Year	Avg	Max	Min	Avg	Max	Min
2024	0.69	0.80	0.60	0.69	0.79	0.62
2023	0.72	0.79	0.30	0.72	0.77	0.62
2022	0.69	0.78	0.61	0.70	0.74	0.62
2021	0.66	0.76	0.00	0.67	0.75	0.00
2020	0.71	0.81	0.59	0.69	0.78	0.60

Chlorine Residual (ppm)

Report of Evanston Water Quality Control Laboratory

Filter Influent

	Free Residual			Total Residual		
Year	Avg	Max	Min	Avg	Max	Min
2024	1.09	1.39	0.89	*	*	*
2023	1.05	1.34	0.88	*	*	*
2022	1.07	1.38	0.79	1.21	1.62	0.99
2021	1.05	1.29	0.70	1.19	1.49	0.81
2020	1.09	1.40	0.80	1.24	1.52	0.94

Filter Effluent

	Free Residual			Total Residual		
Year	Avg	Max	Min	Avg	Max	Min
2024	0.97	1.19	0.69	*	*	*
2023	0.96	1.20	0.30	*	*	*
2022	0.99	1.94	0.77	1.11	1.40	0.87
2021	0.96	1.19	0.78	1.09	1.37	0.87
2020	1.00	1.30	0.80	1.14	1.49	0.95

Plant Tap

	Free Residual			Total Residual		
Year	Avg	Max	Min	Avg	Max	Min
2024	1.04	1.22	0.79	1.25	1.46	1.04
2023	1.02	1.26	0.91	1.22	1.50	1.06
2022	1.02	1.41	0.87	1.21	1.64	1.02
2021	1.02	1.24	0.87	1.20	1.42	0.87
2020	1.07	1.29	0.75	1.23	1.54	0.91

Distribution Tap

	Free Residual			Total Residual		
Year	Avg	Max	Min	Avg	Max	Min
2024	0.80	1.08	0.00	*	*	*
2023	0.82	1.11	0.52	*	*	*
2022	0.85	1.16	0.61	0.95	1.30	0.71
2021	0.82	1.20	0.61	0.92	1.30	0.71
2020	0.80	1.12	0.47	0.96	1.32	0.55

*As of 2023, Total Residual Chlorine is only tested within the Plant Tap. Total Residual Chlroine is not tested in the Filter Influent, Filter Effluent, nor the Distribution Tap.

Phosphate, pH, Alkalinity and Hardness

Report of Evanston Water Quality Control Laboratory

Phosphate (EPA standard is 0.15 - 0.50 ppm)

Year	Number of Tests	Plant Tap Avg	Max	Min
2024	366	0.33	0.40	0.28
2023	365	0.30	0.33	0.28
2022	365	0.29	0.36	0.25
2021	365	0.28	0.37	0.23
2020	365	0.28	0.35	0.22

pH (EPA standard is 7.1 - 7.9)

Year	Number of Tests	Raw Water Avg	Max	Min	Plant Tap Avg	Max	Min
2024	732	8.3	8.6	8.0	7.7	7.9	7.4
2023	730	8.2	8.5	7.8	7.6	7.7	7.3
2022	730	8.3	8.4	8.0	7.6	7.9	7.4
2021	730	8.3	8.4	8.0	7.6	7.9	7.4
2020	730	8.3	8.4	8.0	7.6	7.9	7.4

Alkalinity (ppm)

Year	Number of Tests	Raw Water Avg	Max	Min	Plant Tap Avg	Max	Min
2024	732	109	120	97	102	116	90
2023	730	109	121	94	102	114	85
2022	730	104	128	87	96	110	84
2021	730	107	126	89	99	114	74
2020	732	108	119	95	100	114	85

Hardness (ppm as $CaCo_3$)

Year	Number of Tests	Raw Water Avg	Max	Min	Finished Water Avg	Max	Min
2024	732	137	150	126	135	145	126
2023	730	139	158	126	136	152	124
2022	730	142	155	134	139	149	128
2021	730	139	150	122	137	149	120
2020	732	136	147	121	134	149	120

Detected Substances: 2024 Water Quality Data

Substance	*MCLG*	*Highest Allowed (MCL)*	*Highest Level Detected*	*Range of Levels Detected*	*Violation*	*Source of Contamination*
Turbidity (NTU) (Cloudiness)	NA	TT=Monitored by % exceeding 0.3 NTU and max allowed is 1 NTU	100.0% of samples meet 0.3 NTU; 0.15 NTU Highest single measurement	0.04 - 0.24	NO	Soil runoff
Total Coliform Bacteria	0	5% of Monthly Samples are Positive	NA	NA	NO	Naturally present in the environment
E. Coli Bacteria	0	A routine sample & a repeat sample are total coliform positive and one is also E. coli positive.	1.0%	NA	NO	Human and animal fecal waste
Fluoride (ppm)	4	4	0.6	0.58 - 0.79	NO	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate [measured as Nitrogen](ppm)	10	10	0.41	single sample	NO	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Sodium (ppm)	NA[1]	NA[1]	8.3	single sample	NO	Erosion from naturally occurring deposits
Barium (ppm)	2	2	0.021	single sample	NO	Discharge of drilling wastes; Discharge from metal refineries; Erosion of Natural deposits
Sulfate (ppm)	NOT REGULATED	USEPA National Secondary Standard of 250	28	single sample	NO	Naturally occurring, coagulant residual
Combined Radium 226/228 (pCi/L)[2]	0	5	1.02	single sample	NO	Erosion of natural deposits
Gross Alpha excluding Radon and Uranium (pCi/L)[2]	0	15	0.72	single sample	NO	Erosion of natural deposits
Hexavalent Chromium (ppb)	NOT REGULATED	NOT REGULATED	0.14	single sample	NO	Naturally-occurring element; used in making steel or other alloys. Chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning and wood preservation.
Cotinine (ppb)	NOT REGULATED	NOT REGULATED	0.0015	Single Sample	NO	Nicotine metabolite/waste water discharge
Sucralose (ppb)	NOT REGULATED	NOT REGULATED	0.15	Single Sample	NO	Artificial sweetener
Acesulfame-K (ppb)	NOT REGULATED	NOT REGULATED	0.041	Single Sample	NO	Artificial sweetener
Perfluorooctanesulfonic acid (PFOS)[3] (ppt)	14.0	4	2	1.7 - 2.0	NO	Surfactant for fire-fighting foam, mist suppressant for metal-plating baths, grease and water resistance to materials such as textiles, carpets, and paper. Production ceased in 2002.
Perfluorooctanoic acid (PFOA)[3] (ppt)	2	4	2.1	1.7 - 2.1	NO	Surfactant for fire-fighting foam, mist suppressant for metal-plating baths, grease and water resistance to materials such as textiles, carpets, and paper. Production ceased in 2015.

1. There is no state or federal MCL for Sodium. Sodium levels below 20 mg/l (ppm) are not considered to be a health issue.

2. Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Radiation is everywhere; from the sun, from the earth and even in our bodies. The amounts detected in Evanston's water are well below the maximum contaminant level; so low in fact, that Evanston is on a reduced monitoring schedule and is only required to sample every 6 years.

3. In 2021,our PWS was sampled as part of the State of Illinois PFAS Statewide Investigation. Results from this sampling indicated PFAS were detected in our drinking water. PFOA was detected above the health advisory level and PFOS was detected below the health advisory level established by the Illinois EPA. Follow up monitoring is being conducted. Results can be found https://www.cityofevanston.org/government/departments/public-works/public-outreach/historical-pfsa-results

Detected Substances: 2024 Water Quality Data

Disinfectants and Disinfection By-Products	*MCLG*	*Highest Allowed (MCL)*	*Highest Level Detected*	*Range of Levels Detected*	*Violation*	*Source of Contamination*
Total Trihalomethanes (ppb)	NA[1]	80	27 [2]	14.2 - 46.1	NO	By-product of drinking water chlorination
Total Haloacetic Acids (ppb)	NA[1]	60	16 [2]	8.52 - 34.6	NO	By-product of drinking water chlorination
Chlorine (ppm)	4 MRLDG	4 MRDL	1.0 [3]	0.5 - 1.0	NO	Water additive used to control microbes

Lead & Copper	*MCLG*	*Action Level (AL)*	*90th Percentile*	*# of Sites Over AL*	*Violation*	*Source of Contamination*
Lead (ppb)	0	15	5	0	NO	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	1.3	1.3	0.12	0	NO	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems

Additional Information About Your Water

Measured Parameter	*Evanston Average*	*Evanston Minimum*	*Evanston Maximum*
pH (0-14 pH units)	7.7	7.4	7.9
Hardness (as mg $CaCO_3$//L)	135	126	145
Hardness (gpg)	7.9	7.4	8.5
Alkalinity (ppm)	102	90	116
Raw Water Temperature °F	55	36	77

Measured Parameter	*Evanston Result*
Calcium (ppm)	34
Chloride (ppm)	16
Dissolved Solids (ppm)	150
Magnesium (ppm)	12
Potassium (ppm)	1.5
Aluminum (ppb)	130

1. Although there is no collective MCLG for this contaminant group, there are individual contaminant MCL's: Trihalomethanes: bromodichloromethane(zero); bromoform(zero); dibromochloromethane(0.06 mg/L) Haloacetic acids: dichloroacetic acid(zero); trichloracetic acid (0.3 mg/L).

2. Highest Running Annual Average (quarterly) (RAA). RAA quarterly is calculated by adding the most recent quarter plus the three previous quarters and dividing by four. The highest RAA during the year is reported.

3. Running Annual Average (monthly) (RAA). RAA monthly is based on the monthly averages of all samples.

Non-Detected Contaminants

2024 Water Quality Data

Inorganic Contaminants	MCLG	MCL	EEA MRL	Level Found
ARSENIC (ppb)	10	10	1.0	nd
CADMIUM (ppb)	5	5	1.0	nd
CHROMIUM (ppb)	100	100	0.9	nd
CYANIDE (ppm)	200	200	0.02	nd
IRON (ppm)	n/a	1000	0.02	nd
MANGANESE (ppb)	n/a	150	2.0	nd
MERCURY (INORGANIC) (ppb)	2	2	0.1	nd
NICKEL (ppb)	n/a	100	1.0	nd
SELENIUM (ppb)	50	50	2.0	nd
ANTIMONY (ppb)	6	6	1.0	nd
BERYLLIUM (ppb)	4	4	0.3	nd
THALLIUM (ppb)	0.5	2	0.3	nd
ZINC (ppb)	n/a	5000	5.0	nd
NITRITE (AS NITROGEN) (ppm)	1	1	0.15	nd
Synthetic Organic Contaminants				
ENDRIN (ppb)	2	2	0.01	nd
BHC- GAMMA (LINDANE)	200	200	0.02	nd
METHOXYCHLOR (ppb)	40	40	0.1	nd
TOXAPHENE (ppb)	0	3	1.0	nd
DALAPON (ppb)	200	200	1.0	nd
DIQUAT (ppb)	20	20	0.4	nd
ENDOTHALL (ppb)	100	100	5.0	nd
DI(2-ETHYLHEXYL)ADIPATE (ppb)	400	400	0.6	nd
OXAMYL (VYDATE) (ppb)	200	200	1.0	nd
SIMAZINE (ppb))	4	4	0.07	nd
DI(2-ETHYLHEXYL)PHTHALATE (ppb)	0	6	0.6	nd
PICHLORAM (ppb)	500	500	0.1	nd
DINOSEB (ppb)	7	7	0.1	nd
HEXACHLOROCYCLOPENTADIENE (ppb)	50	50	0.1	nd
ALDICARB SULFOXIDE	n/a	n/a	0.5	nd
ALDICARB SULFONE	n/a	n/a	0.7	nd
CARBOFURAN (ppb)	40	40	0.9	nd
ALDICARB	n/a	n/a	0.5	nd
ATRAZINE (ppb)	3	3	0.1	nd
ALACHLOR (LASSO)(ppb)	0	2	0.1	nd
HEPTACHLOR	0	100	0.04	nd
HEPTACHLOR EPOXIDE (ppb)	0	100	0.02	nd
DIELDRIN	n/a	1	0.05	nd
2,4-Dichloro-Phenoxyacetic Acid (2,4-D) (ppb)	10	10	0.1	nd
2,4,5-TP (SILVEX) (ppb)	50	50	0.1	nd
HEXACHLOROBENZENE (ppb)	0	1	0.1	nd
BENZO (A) PYRENE (ppb)	0	200	0.02	nd
PENTACHLOROPHENOL (PCP) (ppb)	0	1	0.04	nd
ALDRIN (ppb)	n/a	1	0.25	nd
POLYCHLORINATED BIPHENYLS (PCB) (ppb)	0	500	varies (0.26)	nd
TOTAL DDT (ppb)	n/a	50*	0.1	nd
1,2 DIBROMO3-CHLOROPROPANE (DBCP) (ppb)	0	0.2	0.01	nd
ETHYLENE DIBROMIDE (EDB) (ppb)	0	50	0.01	nd
CHLORDANE (ppb)	0	2	0.1	nd

Non-Detected Contaminants

2024 Water Quality Data

Volatile Organic Contamintants (VOCs)	MCLG	MCL	EEA MRL	Level Found
METHYL TERT-BUTYL ETHER (MTBE) (ppb)	n/a	n/a	0.5	nd
1,2,4-TRICHLOROBENZENE (ppb)	70	70	0.5	nd
CIS-1,2-DICHLOROETHYLENE (ppb)	70	70	0.5	nd
XYLENES(ppm)	10	10	0.5	nd
DICHLOROMETHANE (ppb)	0	5	0.5	nd
O-DICHLOROBENZENE (ppb)	600	600	0.5	nd
P-DICHLOROBENZENE (ppb)	75	75	0.5	nd
1,1-DICHLOROETHYLENE (ppb)	7	7	0.5	nd
TRANS-1,2-DICHLOROETHYLENE (ppb)	100	100	0.5	nd
1,2-DICHLOROETHANE (ppb)	0	5	0.5	nd
1,1,1-TRICHLOROETHANE (ppb)	200	200	0.5	nd
CARBON TETRACHLORIDE (ppb)	0	5	0.5	nd
1,2-DICHLOROPROPANE (ppb)	0	5	0.25	nd
TRICHLOROETHYLENE (ppb)	0	5	0.5	nd
1,1,2-TRICHLOROETHANE (ppb)	3	5	0.5	nd
TETRACHLOROETHYLENE (ppb)	0	5	0.5	nd
MONOCHLOROBENZENE (ppb)same as CHLOROBENZENE	100	100	0.5	nd
BENZENE (ppb)	0	5	0.5	nd
TOLUENE (ppm)	1	1	0.5	nd
ETHYLBENZENE (ppb)	700	700	0.5	nd
STYRENE(ppb)	100	100	0.5	nd
VINYL CHLORIDE(ppb)	0	2	0.2	nd

THM/HAAs	MCLG	MCL	EEA MRL	Level Found
MONOBROMOACETIC ACID (ppb)	n/a	n/a	1.0	nd

Per and Polyfluoroalkyl Substances (PFASs)	MCLG	MCL	EEA MRL	Level Found
11Cl-PF3OUdS/F-53B Minor	na	na	2	nd
9Cl-PF3ONS/F-53B Major	na	na	2	nd
ADONA	na	na	2	nd
HFPO-DA/GenX	na	na	2	nd
N-ethyl Perfluorooctanesulfonamidoacetic acid	na	na	2	nd
N-methyl Perfluorooctanesulfonamidoacetic acid	na	na	2	nd
Perfluorobutanesulfonic acid (PFBS)	na	na	2	nd
Perfluorodecanoic acid (PFDA)	na	na	2	nd
Perfluorododecanoic acid (PFDoA)	na	na	2	nd
Perfluorononanoic acid (PFNA)	na	na	2	nd

Lead and Copper Statement

Report of Water Quality Control Laboratory

There is no detectable lead in the water produced by the City of Evanston's water treatment plant. Lead enters the water from lead solder and/or lead pipes in water services, or through plumbing fixtures. To minimize contamination resulting from corrosion, the EPA established a lead action level of 15 parts per billion (ppb) in 1992. The 90th percentile result of samples analyzed for lead and copper content in homes with lead pipes must be less than the action levels of 15 ppb and 1.3 ppm, respectively.

Lead and copper sampling is performed every year in compliance with state law. The most recent compliance samples were taken in June, July, August, and September of 2024. Water was sampled from 40 homes with full lead service lines. The 90th percentile level for lead in these samples is 5.0 ppb. The 90th percentile level for copper in these samples is 0.21 ppm. The EPA requires 30 samples to be collected. Beginning in 2020, Evanston began voluntarily collecting 10 additional samples. This allowed for a better geographical sampling and for each ward to contain at least three samples.

In 2024, Evanston continued the seasonal drinking fountain start-up plan which included sampling water, high flow flushing, and replacing drinking fountain components known to contain lead. Evanston sampled water from 58 park drinking fountains.

PFAS Statement

City of Evanston

Water Production Bureau

555 Lincoln Street
Evanston, Illinois 60201

T 847.448.8198
F 847.475.8851
www.cityofevanston.org

January 31, 2022

Re: IL EPA Drinking Water Sampling (PFAS)

Dear Water System Customer,

The Illinois Environmental Protection Agency (Illinois EPA) recently tested our water system for compounds known as Per- and Polyfluoroalkyl Substances (PFAS) as part of a statewide investigation of community water supplies. PFAS are a group of thousands of manmade substances that have been produced in the United States since the 1940s and utilized for a variety of applications ranging from water and stain-proofing to firefighting. Some PFAS have been phased out of production due to environmental and human health concerns, yet they persist in the environment and may contaminate surface and ground waters.

Neither the Illinois EPA nor the U.S. EPA have yet developed enforceable drinking water standards for PFAS. In the interim, Illinois EPA has developed health-based guidance levels for the small number of PFAS for which there is appropriate information to do so. The health-based guidance levels are intended to be protective of all people consuming the water over a lifetime of exposure. **It is important to understand that health-based guidance levels are not regulatory limits for drinking water.** Rather, the health-based guidance levels are benchmarks against which sampling results are compared to determine if additional investigation or other response action is necessary.

PFAS IN EVANSTON

Illinois EPA testing has determined that one PFAS chemical was detected in the City's drinking water just above the Illinois EPA Health-Based Guidance Level of 2.0 ppt for PFOA (The lowest concentration the laboratory can reliably detect is 2.0 ppt). **As a frame of reference, one part per trillion is roughly the equivalent of one drop in 20 Olympic-sized swimming pools.** The levels detected for PFOA were 2.2 ppt (9/2/2021), 2.3 ppt (11/16/2021), and 2.2 ppt (11/16/2021).

Communities along the west shore of Lake Michigan are seeing similar results at about 2 ppt on average.

City of Evanston PFAS Testing Results		
Date	City of Evanston Drinking Water	
	PFOS IEPA Guidance Level 14.0 (ppt) US EPA Guidance Level 70.0 (ppt)	PFOA IEPA Guidance Level 2.0 (ppt) US EPA Guidance Level 70.0 (ppt)
9/2/2021	2.4 ppt	**2.2 ppt**
11/16/2021	*2.3 ppt	***2.3 ppt**
11/16/2021	**2.2 ppt	****2.2 ppt**

*indicates confirmation sample results, **indicates duplicate confirmation sample results

The concentrations detected in City water are well below the US EPA published Lifetime Health Advisory Level of 70 parts per trillion (ppt). Notably, both the US EPA Lifetime Health Advisory Levels and Illinois EPA Health-Based Guidance Levels are measured in ppt, where many drinking water compounds are measured in parts per billion (ppb).

Our water may contain other PFAS at concentrations greater than or equal to the lowest concentration the laboratory can reliably detect, known as the minimum reporting level. However, neither the Illinois EPA nor the U.S. EPA currently have health-based guidance levels for these additional compounds. Results can also be found on the PFAS Investigation Network Interactive Map webpage: https://illinois-epa.maps.arcgis.com/apps/opsdashboard/index.html#/d304b513b53941c4bc1be2c2730e75cf.

PFAS are present in many consumer goods, including food packaging and personal care products, and scientists have found values of PFAS in blood of nearly all individuals tested. Exposure to high levels of PFAS may cause adverse health effects such as increased cholesterol levels, increased risk for thyroid disease, low infant birth weights, reduced response to vaccines, pregnancy-induced hypertension and increased risk of liver and kidney cancer as seen in studies of laboratory animals. **Exposure to PFAS above the recommended health-based guidance levels does not necessarily mean that a person will get sick or an adverse health effect will occur.** Health-based guidance levels are conservative estimates. The possible health effects from PFAS are dependent on how much a person is exposed to and how long they are exposed to it. Exposure to PFAS above recommended health-based guidance levels for periods of time may mean that a person is at a greater risk of experiencing these adverse effects.

2

NEXT STEPS

The City is following recommendations from the Illinois EPA and closely monitoring the latest health-based guidance. We will continue monitoring PFAS values through quarterly sampling at the direction of the Illinois EPA. The most recent test results will be added to the above chart on the City's PFAS webpage once available.

We will begin evaluating treatment options to reduce public exposure to PFAS in potable water provided by the Evanston Water Utility. The City will continue to closely monitor the situation and ensure information is communicated with community members and wholesale water customers.

Based on these initial results, Evanston will perform additional sampling beginning January 2022 and will keep the community updated and informed.

Additional information regarding PFAS, the statewide PFAS investigation network, and the impact to public health can be found in the attached fact sheet as well as on the Illinois EPA PFAS webpage: https://www2.illinois.gov/epa/topics/water-quality/pfas/Pages/default.aspx.

The confirmed sampling results for the Evanston Water Utilityare also available on Illinois EPA's Drinking Water Watch system at http://water.epa.state.il.us/dww/index.jsp.

If you have questions, please contact:

Darrell A. King, Water Production Bureau Chief, at dking@cityofevanston.org or 847.448.4311.

Illinois Environmental Protection Agency
Barb Lieberoff, Office of Community Relations
epa.pfas@illinois.gov
217-524-3038

Illinois Department of Public Health
Brian Koch, Division of Environmental Health
Brian.Koch@illinois.gov
217-782-5830

3

Definitions and General Explanations

Action Level – The concentration of a contaminant, which, if exceeded, triggers treatment or other required actions by the water supply.

Disinfection By-Products – Total Trihalomethanes and Total Haloacetic Acids are used to regulate the amount of allowable by-products of chlorination.

EPA – Environmental Protection Agency

Fluoride – The Illinois Department of Public Health recommends a target of 0.7 ppm.

Lead and Copper – There is no detectable lead in the water provided to the Evanston community. Lead enters the water from lead solder, lead pipes, or plumbing fixtures. To minimize contamination resulting from corrosion, the EPA established a lead action level of 15 parts per billion (ppb) in 1992. The 90th percentile result of samples analyzed for lead and copper content in homes with lead pipes must be less than the action level of 15 ppb and 1.3 ppm respectively.

MCL – Maximum Contaminant Level, the highest level of a contaminant that is allowed in drinking water. A MCL is set as close to a MCLG as feasible using the best available treatment technology.

MCLG – Maximum Contaminant Level Goal, 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.

mg $CaCO_3$/L – milligrams of calcium carbonate per liter.

mrem/yr – Millirems Per Year. A measure of radiation absorbed by the body.

MRDL – Maximum Residual Disinfection Level. 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.

MRDLG – Maximum Residual Disinfection Level Goal. The level of disinfectant in drinking water 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 contaminants.

NA – Not applicable.

NTU – Nephelometric Turbidity Units. A measure of the cloudiness of water.

pCi/L – Picocuries per liter. A measure of radioactivity.

ppm – Parts per million. A measure of the concentration of a substance in water. An equivalent unit of measurement is milligrams per liter (mg/L).

ppt - Parts per trillion. A measure of the concentration of a substance in water. An equivalent unit of measurement is nanograms per liter (ng/L).

ppb – Parts per billion. A measure of the concentration of a substance in water. An equivalent unit of measurement is micrograms per liter (µg/L).

PFAS – Per- and Polyfluorinated Substances.

Sodium – There is not a state or federal MCL for sodium. Sodium levels below 20 mg/L (ppm) are not considered to be a public health issue.

TT – Treatment Technique. A required process to reduce the level of a contaminant.

Turbidity – A measurement of the cloudiness of the water caused by suspended particles. This is monitored because it is a good indicator of water quality as well as the effectiveness of the filtration and disinfection processes.

TOC – Total Organic Carbon. The Evanston Water Supply monitored the percentage of TOC removal quarterly and met all TOC removal requirements set by the EPA.

Distribution

The Distribution Division manages operation, maintenance, and repair of Evanston's water mains, valves, fire hydrants, and the City's portion of water service lines. This includes repairing water main breaks and water service leaks; and installing new valves, hydrants, and water mains to improve the operation and efficiency of Evanston's water distribution system. Annual maintenance programs administered by this division include water main leak surveying, valve exercising, and fire hydrant testing. The Distribution Division also performs routine water quality sampling in buildings throughout Evanston, and administers the City's cross connection control program. These two programs ensure that water remains safe to drink after leaving the water treatment plant.



A Distribution Division field crew installing a new fire hydrant connection on a 24" diameter water main, to improve the City's ability to clean and test this main.

Evanston has had a water distribution system since the 1870s, longer than most communities in the Chicago area. The original water mains were made of wood, with a transition to cast iron water mains by the 1890s. After completion of the water treatment plant in 1914, the plentiful supply of safe drinking water drew many new residents and businesses to Evanston. The distribution system underwent significant expansion over the next few years, and many of those 90 to 100+ year-old water mains are still in operation today. Evanston manages an annual water main renewal program to replace and rehabilitate old water mains as they develop maintenance problems.



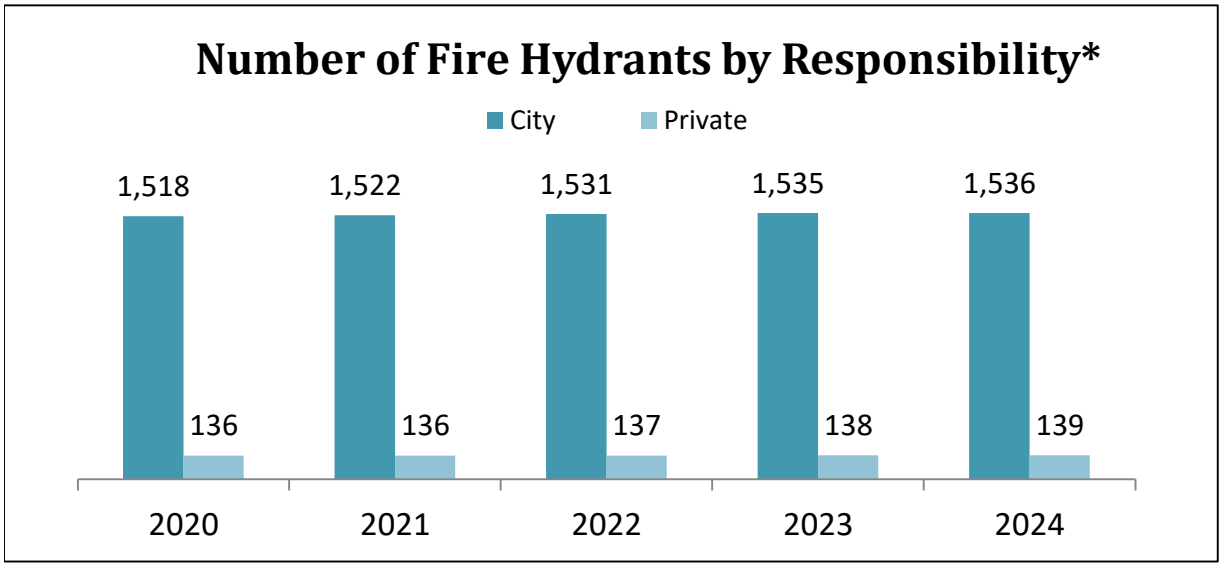
Pieces of wood water main from Evanston's original water distribution system.

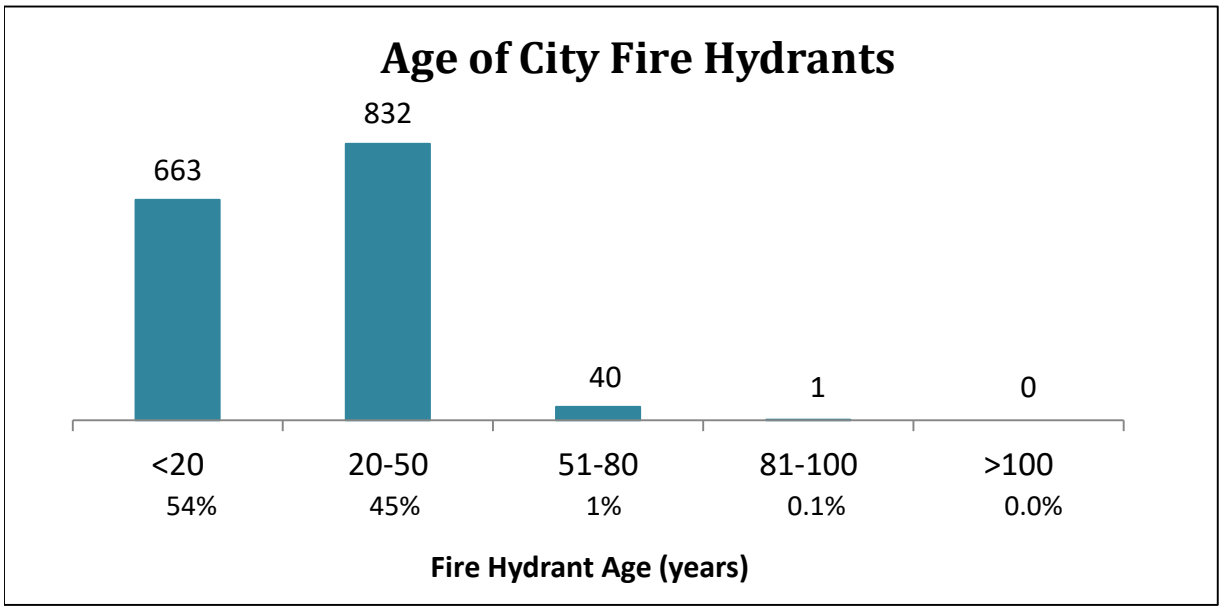
Fire Hydrants

System Data and Maintenance

Fire Flow Testing	2020	2021	2022	2023	2024
Fire Department	1,485	1,482	1,486	1,498	0
Public Works Agency	13	19	22	15	1,525

Installation & Maintenance	2020	2021	2022	2023	2024
Installed (new)	6	4	11	5	3
Replaced	23	14	16	21	21
Repaired	36	41	35	125	28





* Changes due to hydrant removal/addition during water main improvements and utility atlas updates.

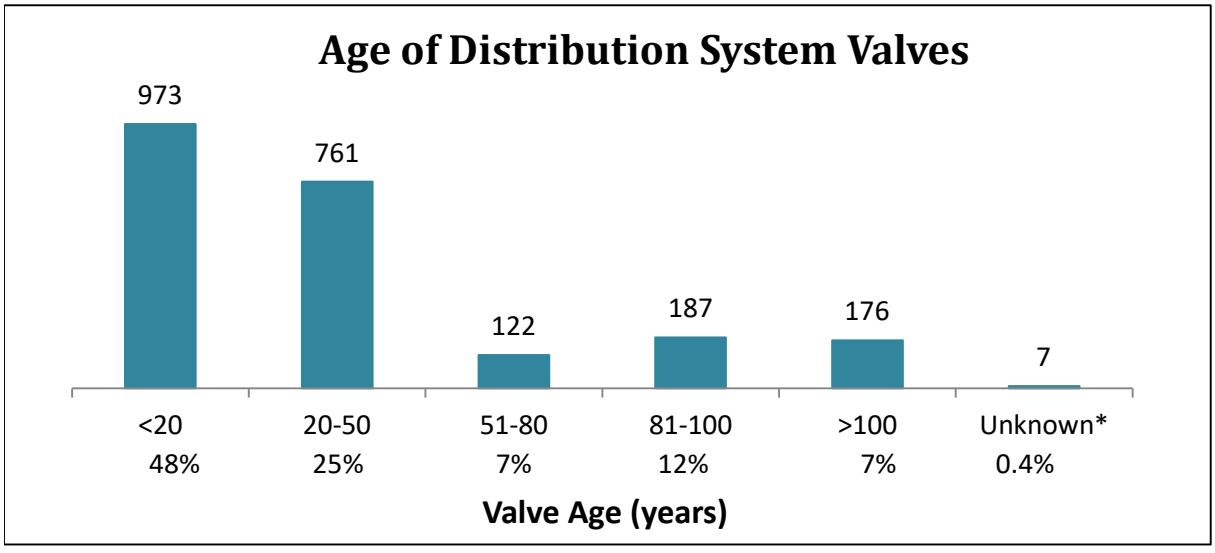
Water Distribution System Valves

System Data and Maintenance

Testing & Inspection	2020	2021	2022	2023	2024
In-House	537	826	595	583	101
Contractor	0	0	0	0	0

Installation & Maintenance	2020	2021	2022	2023	2024
Installed (new)	19	28	38	31	19
Replaced	20	31	50	43	18
Repaired	27	9	5	27	4

Number of Valves by Size	2020	2021	2022	2023	2024
4" or smaller	23	23	23	23	16
6"	958	971	981	981	982
8"	557	564	569	578	591
10"	204	210	214	221	225
12"	257	258	264	270	271
14"	2	2	2	2	2
16"	53	49	52	55	55
18"	6	6	6	6	6
20"	2	2	2	2	2
24"	34	34	35	40	40
30"	13	13	19	19	19
36"	13	13	13	13	13
42"	2	2	2	2	2
48"	2	2	2	2	2
Total	2,126	2,149	2,184	2,214	2,226



* Valves are buried beneath paved surfaces and are not accessible for field verification of age.

Water Mains

System Data and Maintenance

Improvements (lineal feet)	2020	2021	2022	2023	2024
Replaced by City	0	0	0	0	0
Replaced by Contractor	6,692	6,401	12,891	7,826	6,407
Installed New by Contractor	2,485	2,059	736	0	417
Rehabilitated by Contractor	0	0	2,834	0	0

Water Main Break Repairs	2020	2021	2022	2023	2024
Blow-Out	29	24	24	24	25
Shear Break	3	14	14	10	6
Damage	0	2	1	0	0
Total	32	40	39	34	31

Pipe Sizes (length in miles)*	2020	2021	2022	2023	2024
4" or smaller	1.37	1.41	1.41	1.41	0.97
6"	70.00	69.93	69.81	69.13	68.82
8"	30.71	30.77	30.95	31.21	32.03
10"	12.94	13.31	13.28	13.65	13.66
12"	17.95	17.96	18.01	18.07	18.07
14"	0.37	0.37	0.37	0.37	0.37
16"	6.27	6.26	6.26	6.27	6.27
18"	0.83	0.83	0.82	0.81	0.81
20"	0.56	0.56	0.56	0.56	0.56
24"	9.10	8.92	8.92	8.92	8.92
30"	1.69	1.69	1.66	1.66	1.66
36"	3.30	3.30	3.32	3.32	3.32
42"	0.04	0.04	0.04	0.04	0.04
48"	0.68	0.68	0.68	0.68	0.68
Total	155.78	156.00	156.09	156.10	156.17

* Changes due to water main removal/addition during improvement projects and utility atlas updates.

Water Services

System Data and Maintenance

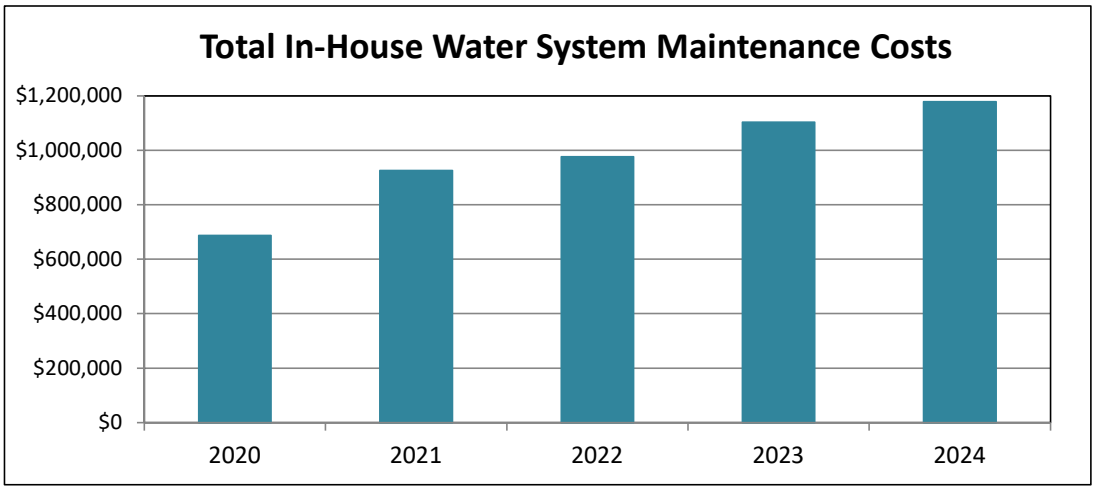
Water Service Accounts: 15,318

Installation & Maintenance	2020	2021	2022	2023	2024
New Services Installed	7	10	7	11	0
Service Taps Replaced	75	72	60	97	157
Services Replaced by Contractor	82	189	191	97	227
Service Leaks Repaired	11	6	10	7	8

Breakdown of In-House Maintenance Costs

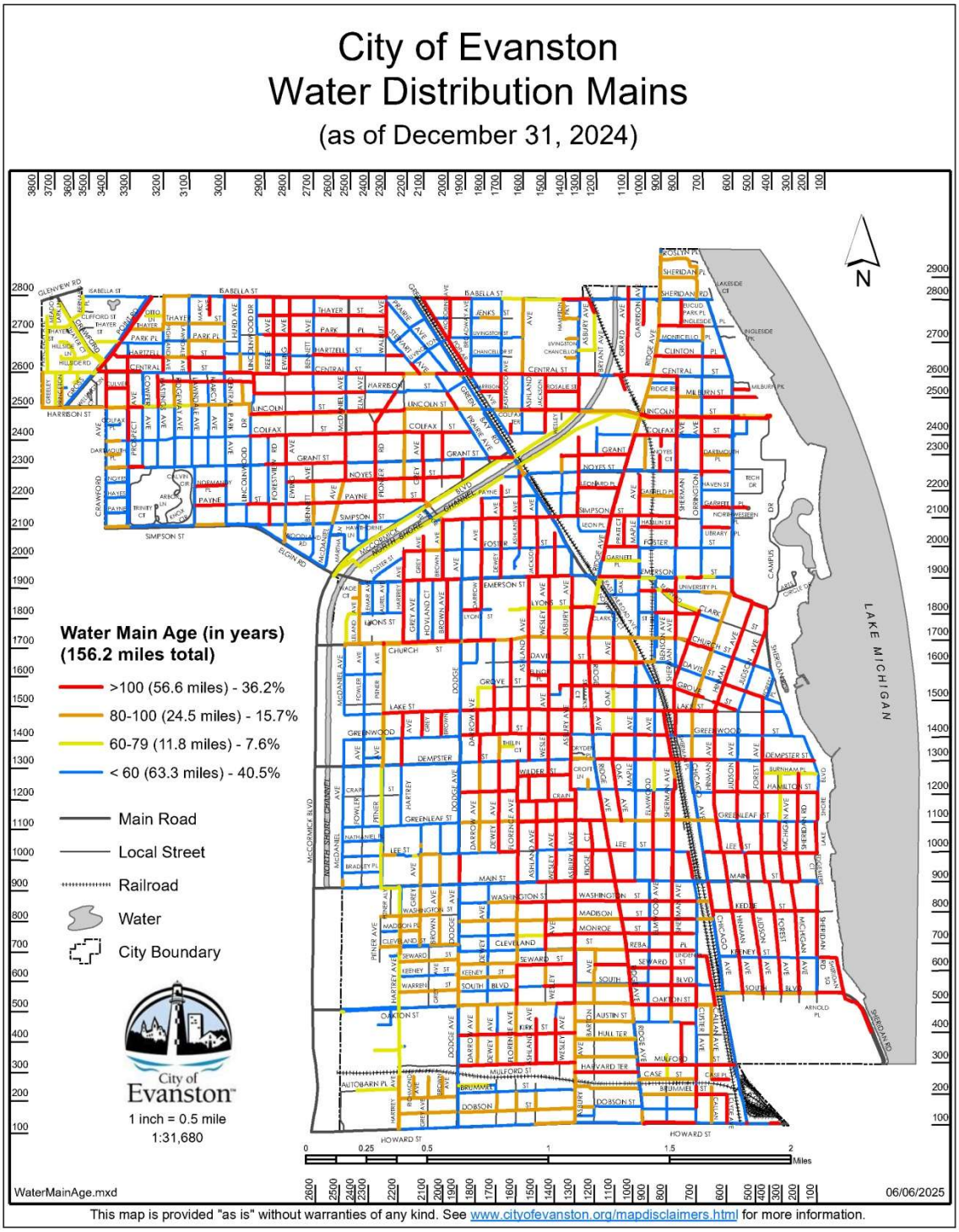
	2020	2021	2022	2023	2024
Water Mains*	$72,920	$148,054	$174,272	$137,077	$122,416
Fire Hydrants	$24,782	$35,965	$26,407	$66,874	$75,412
Water Services	$128,266	$286,098	$250,628	$323,825	$517,537
Valves	$17,578	$51,509	$28,645	$58,495	$8,386
Drinking Fountains	$6,849	$12,604	$5,520	$8,663	$4,905
Water Meters	$85,809	$92,897	$103,757	$123,833	$156,542
Water Quality	$24,328	$19,775	$19,995	$26,580	$22,950
Snow & Ice Removal	$13,757	$23,681	$55,422	$24,764	$19,414
Assist Contractor	$62,695	$52,794	$73,826	$62,885	$57,381
JULIE Locates	$80,832	$66,709	$81,226	$82,270	$60,066
Equip/Facility Maint.	$117,705	$58,735	$74,497	$57,383	$61,707
Assist Other City Depts.	$8,866	$3,279	$7,722	$7,273	$2,000
Assist W&S Divisions	$3,620	$2,140	$1,425	$3,271	$7,588
Assist Public Works	$0	$3,470	$3,169	$2,780	$55
Safety & Training	$7,406	$14,385	$11,595	$25,680	$11,768
Administrative General	$31,633	$53,426	$59,069	$92,172	$49,913
Total	**$687,044**	**$925,521**	**$977,175**	**$1,103,825**	**$1,178,040**

*Water Main includes Leak Detection In-House Maintenance Cost of $15,959



* Includes metered domestic water service accounts and unmetered fire service accounts.

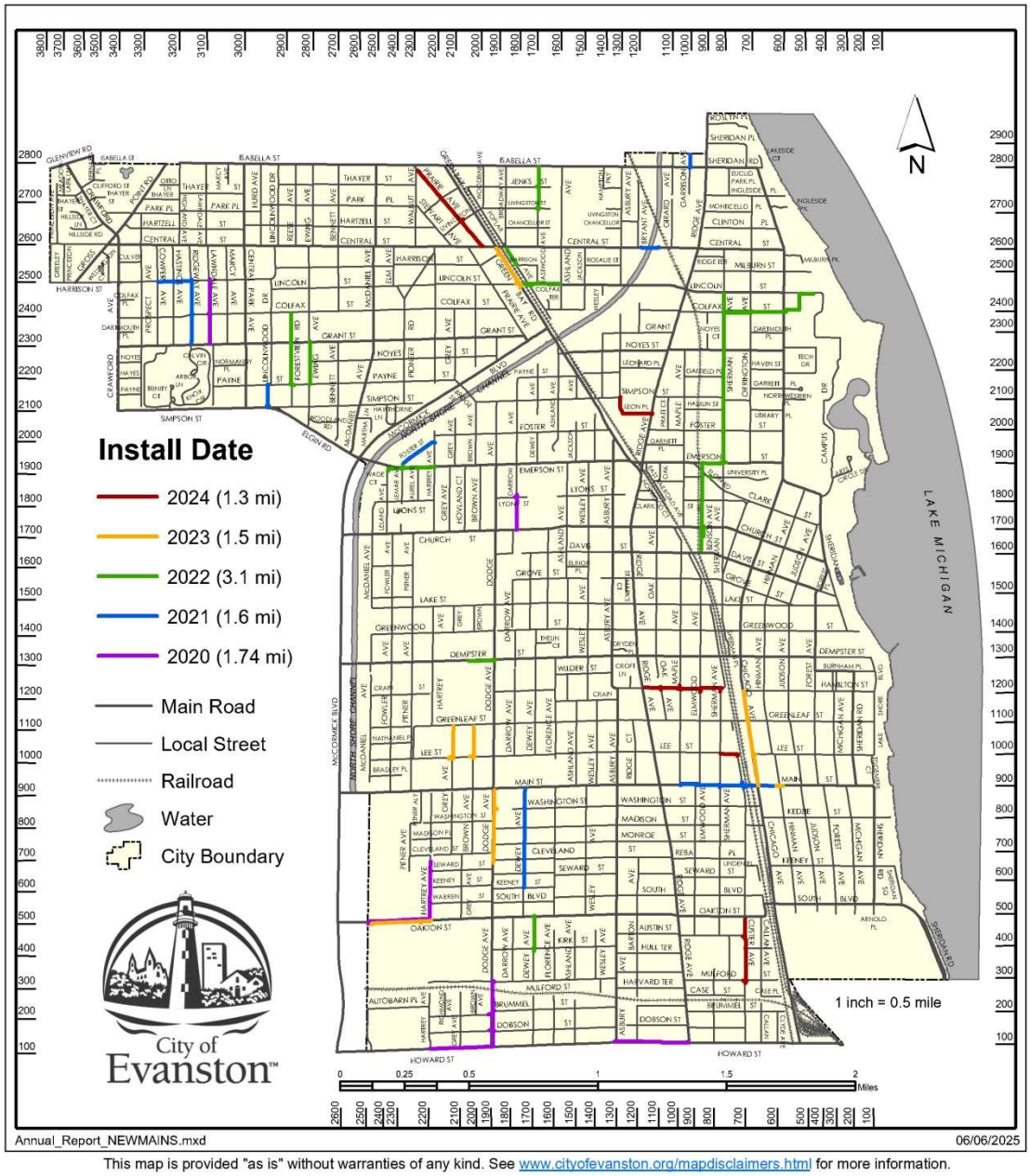
Water Main Age



Water Main Improvements

The Public Works Agency manages an annual water main improvement program, with the goal of renewing at least 1.5 miles of water mains annually (1% annual system-wide renewal rate). This program addresses water mains that have developed maintenance problems due to their age, as well as water mains that need to be enlarged to satisfy current fire flow requirements.

Water Mains Installed or Rehabilitated

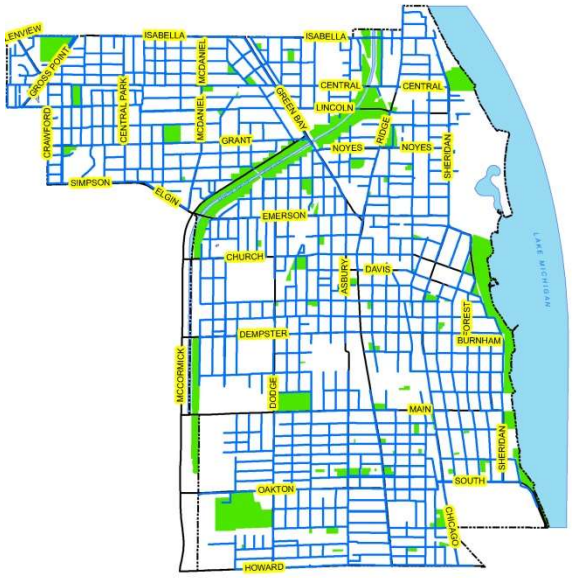


This map is provided "as is" without warranties of any kind. See www.cityofevanston.org/mapdisclaimers.html for more information.

Leak Detection Program

In 2013, the Public Works Agency developed a City-wide surveying program to catch water main leaks early and minimize our water loss. This saves operating costs to produce the water, conserves a vital natural resource, and allows more water mains to be repaired proactively rather than on an emergency basis.

The Public Works Agency uses leak noise loggers, small transmitters that sense the sound waves created by water escaping through a hole in a water main, to test water mains for leaks throughout the year. This proactive leak surveying program began in 2013, and water distribution crews were able to survey all 156 miles of Evanston's water mains in 2013-2014.



The 2024 survey found three leaks on a building water service pipe and two breaks on water mains. These defects were all successfully repaired, and the resulting estimated water savings for 2024 were over 9.90 Million Gallons (MG).

Year	Miles of Water Main Surveyed	Water Service Leaks Found	Water Main Breaks Found	Water Savings After Repairs
2020	141	2	3	13.53 MG/Year
2021	139	3	1	5.74 MG/Year
2022	156	2	2	9.37 MG/Year
2023	147	2	1	5.21 MG/Year
2024	134	3	2	9.90 MG/Year
Totals	**717**	**12**	**9**	**43.75 MG/Year**

In 2022 and future years, the Public Works Agency anticipates being able to survey most of, if not all 156 miles of water mains in Evanston every year. This frequency is important since water main breaks and leaks can develop at any time; a water main that shows no signs of leakage one year can develop a large leak by the next year.

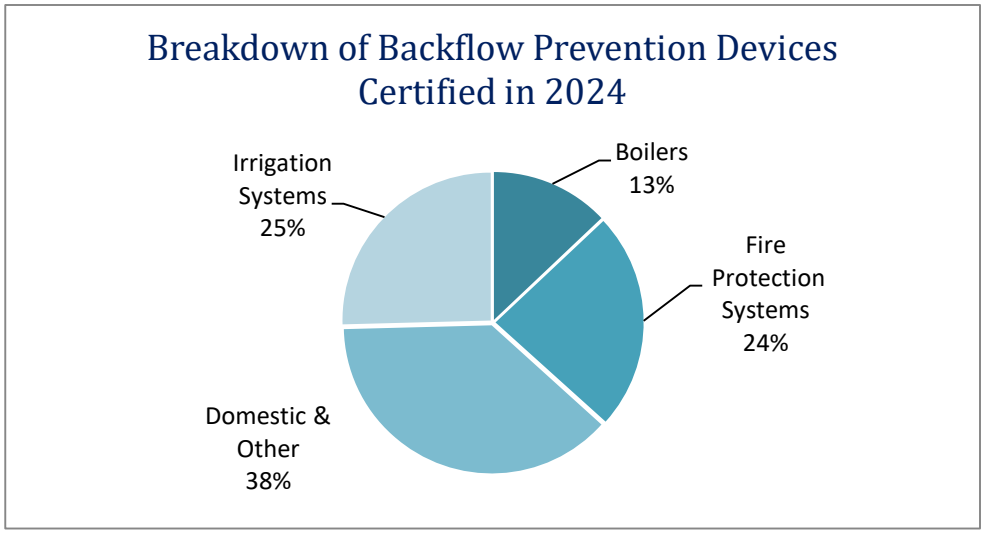
Cross Connection Control

A cross connection is a point in a plumbing system where the potable (safe, drinkable) water supply is connected to a non-potable (polluted or untreated) source. A cross connection exists whenever the drinking water system is or could be connected to any non-potable source. If cross connections are not properly protected and there is a drop in pressure, untreated sources and dirt can be pulled into household plumbing systems.

The State of Illinois and the City of Evanston require mandatory backflow protection on certain households and facilities where high health-hazard-type cross connections are normally found. Underground lawn sprinkling systems, fire protection systems, hospitals and health clinics, mortuaries, laboratories, food and beverage processing and car washes are just a few of the locations where backflow prevention is necessary to protect the quality of our public water supply.

In 2008, the Public Works Agency hired a plumbing inspector to manage the City's cross connection control program. Since that time, over 4,000 backflow prevention devices have been added to the City's inventory and are now regularly inspected for compliance with State and City codes. In 2020, the City implemented a web-based software application, created by BSI, to manage its cross connection control program. This tracking system enables the City to ensure these devices are properly maintained throughout their life cycle. This helps keep the high quality drinking water produced by the City's water treatment plant safe to drink after entering the water distribution system.

Year	Backflow Prevention Devices Certified Annually
2020	4,742
2021	4,782
2022	4,867
2023	3,347
2024	4,990



Metering

The Meter Division manages water meter reading and billing for Evanston's 14,662 retail water and sewer customers, working with the City's Collector's Office to process water/sewer bill payments and cross connection control fees. The Meter Division also coordinates with the Distribution Division to manage replacement of damaged and obsolete water meters, accuracy testing for large water meters, and water service shutoff and restoration.

In 2013-2014, the Meter Division managed Evanston's migration to a new Advanced Metering Infrastructure (AMI) system, which has improved accuracy and efficiency of the water metering and billing processes. The AMI system also generates automated hourly meter reads and leak alerts for customers to help reduce water loss. In 2020, the AMI software was upgraded to a Cloud-Based Management Platform, the new Neptune 360. Current technology allows automatic system updates and meter readings to be taken automatically every hour, with once-daily, wireless upload of readings to a computerized billing system.

In 2017 a contractor was hired to exchange and replace out 5,732 old meters that are 20 years old and to obtain better resolution of the meter reading.

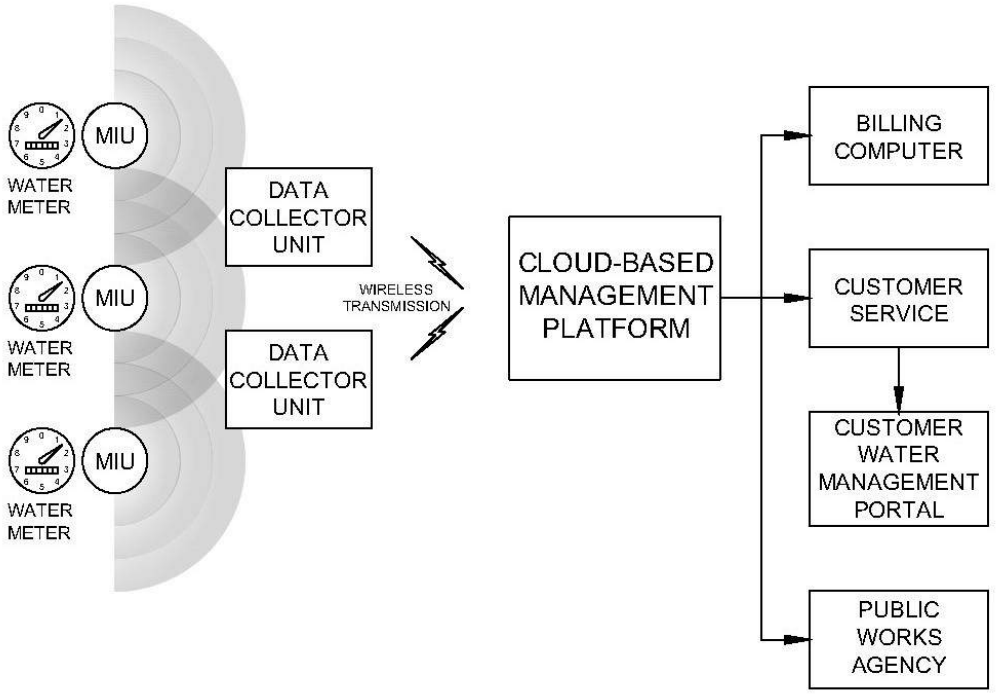


A Public Works Agency employee installs a new remote water meter reading unit on the exterior of a home as part of the Advanced Metering Infrastructure (AMI) software. This unit makes it possible for meter readings to be transmitted via wireless network without City staff having to visit each property to manually read the meters.

Introduced to our customers in 2018 and currently 2024 with over 11,174 customers in the Customer portal, WaterSmart allows customers to monitor and receive alerts of their water usage. Customers can set their usage alerts to trigger between 1X and 5X of normal usage. Customers in the portal are notified or tracking hourly, daily or monthly usage.

In 2023, we updated WaterSmart with our payment vendor Invoice Cloud. Customers can now pay and view their bills while tracking water usage. We also accept more payment methods and billing and payments are now in real time.

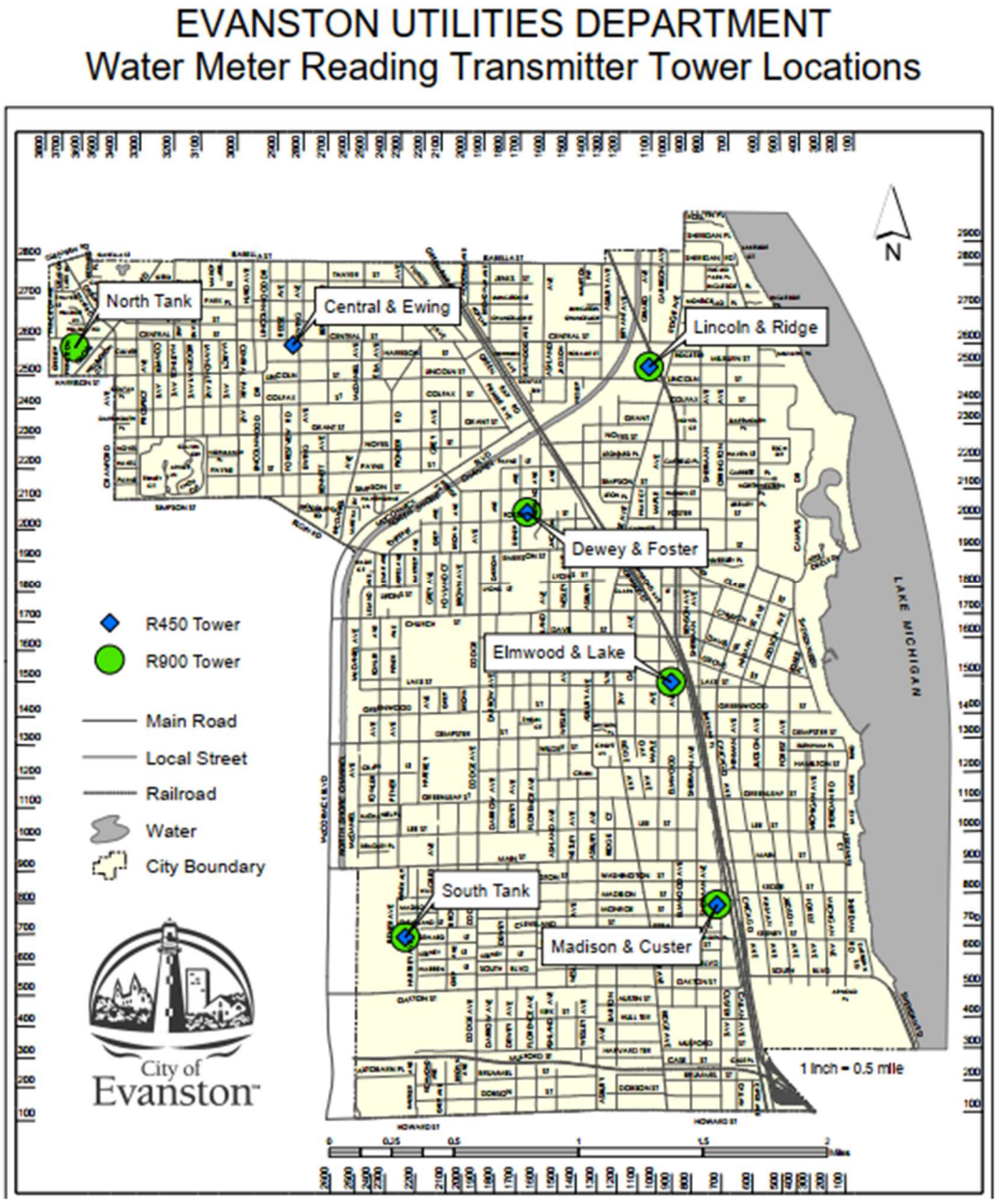
Automatic Metering Infrastructure (AMI) System



How it works:

- A Meter Information Unit (MIU) is attached to every water meter in Evanston. The MIU takes a meter reading once an hour and stores these readings for a full day. Each MIU broadcasts the readings once a day using a wireless transmitter.
- The Data Collector Unit (DCU) receives the meter readings from the MIUs. Evanston currently has a total of 6 DCUs located on various buildings throughout the community. We have added 6 additional DCU's to handle the new upgraded R900 MIU. Each DCU sends its meter reading information to the Neptune Cloud-Based Management Platform System on a daily basis. The system receives updates automatically and is accessible anytime, anywhere through an internet connections and critical information is always available with just a few clicks.
- The Cloud-Based Management Platform supports customer service and system management activities. It transfers the meter readings to the billing system to generate bi-monthly water and sewer bills for Evanston customers.
- The Cloud-Based Management Platform monitors fluctuations in water usage, and sends leak alerts to the network administrator if a customer's real-time meter readings are significantly higher than historical trends.
- The AMI system includes an online portal where Evanston customers can monitor their water usage, compare usage trends under various weather conditions, and set up leak alerts of their own. They can also view and pay their bills and set up auto-pay.

Transmitter Tower Locations



Water Meter Inventory

Water is billed bi-monthly in units of 100 cubic feet (CF). The minimum service charge every two months is based on water meter size as follows:

Meter Size	Number of Meters
5/8”	10,700
3/4"	1,831
1”	1,279
1.5”	260
2”	491
3”	63
4”	28
6”	4
8”	6
Total	14,662

Water Rates for Evanston Customers

Water is billed bi-monthly in units of 100 cubic feet (CF). The minimum service charge every two months is based on water meter size as follows:

Meter Size	Minimum Charge Effective 1/1/2024
5/8” & 3/4”	$13.96
1”	$27.85
1 ½”	$52.13
2”	$82.09
3”	$144.05
4”	$231.55
6”	$408.34
8”	$691.25

The minimum demand charge includes the first five hundred cubic feet (500 CF) of water consumed every two months, which is roughly equivalent to 3,740 gallons of water.

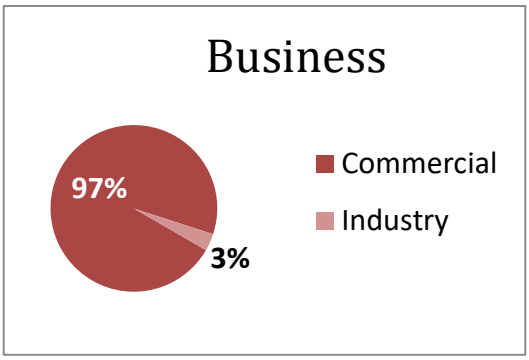
Water usage over the minimum is billed at $3.91 per 100 CF effective 1/1/2024. This is equivalent to a rate of $5.22 per 1,000 gallons.

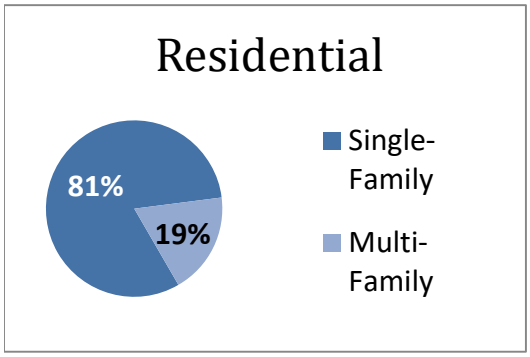
Water Customer Classes and Metered Usage

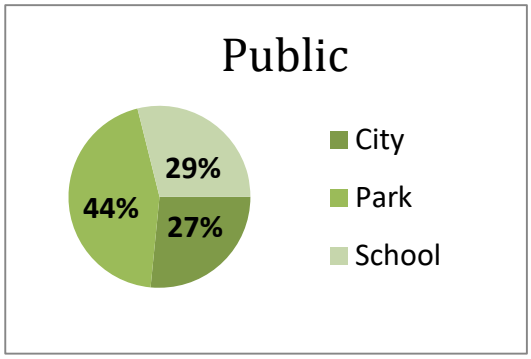
Billed by Category and Water Usage for 2024

Category	Number of Accounts	2024 usage (100 CF)*
Metered Water Services		
Single-Family	10,966	837,026
Multi-Family	2,521	1,021,350
Commercial	992	841,895
Industry	34	8,707
City	34	13,684
Park	57	14,222
School	37	34,865
Subtotal	14,641	2,771,749
Unmetered Water Services		
Fire Services**	677	
Totals	**15,318**	**2,771,749**

Water Service Accounts by Category:



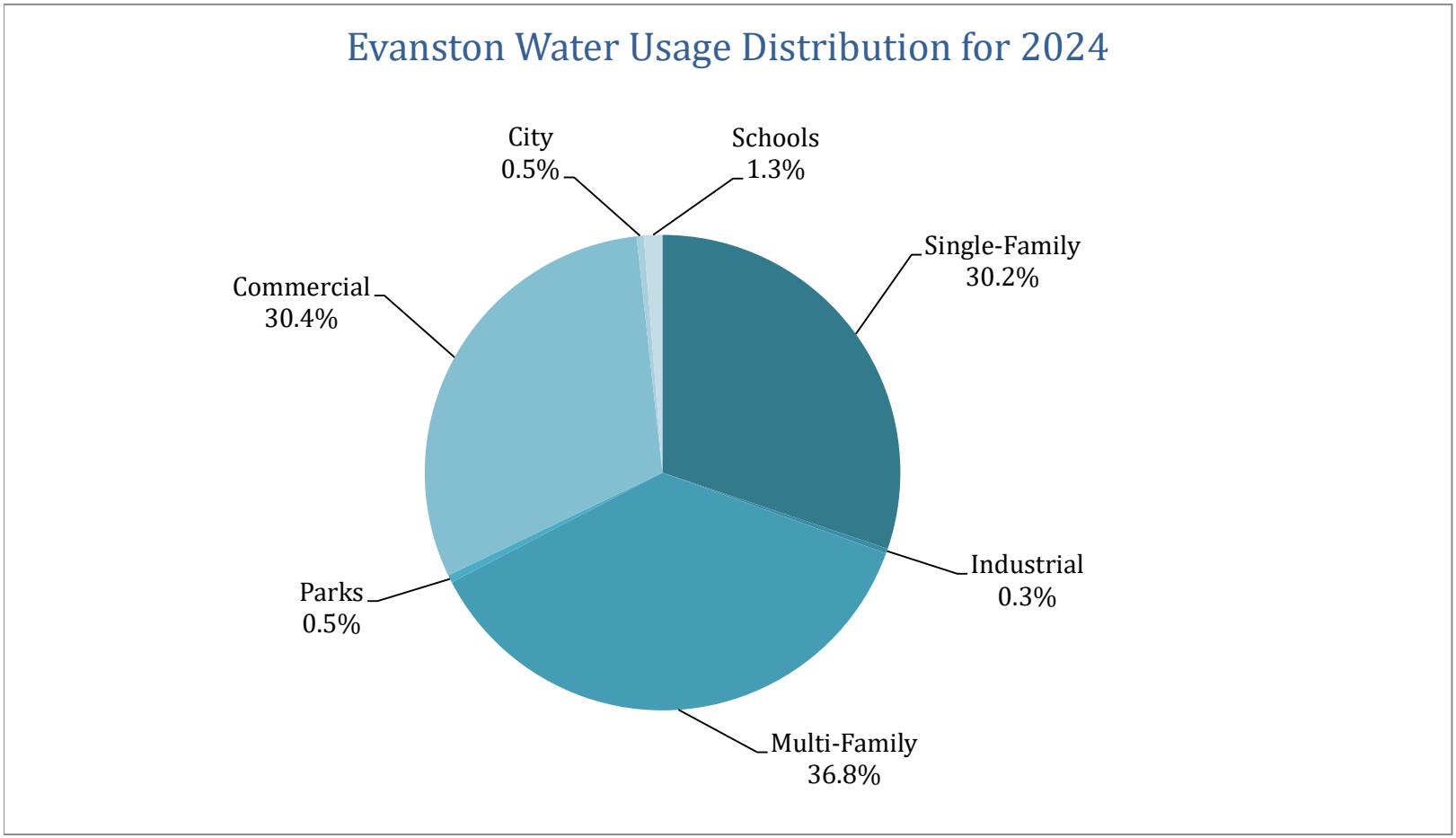




* Water usage is metered in units of 100 cubic feet (CF). 100 CF is approximately 748 gallons

** Fire services are not metered. They are billed a flat charge twice per year.

Water Usage Breakdown for Evanston Customers



Sewer

The Sewer Division manages the operation, inspection, maintenance, and repair of the City's sewer mains and structures (sewer manholes, catch basins, and stormwater inlets). This includes proactive programs such as sewer main and drainage structure cleaning, root cutting, and televised internal sewer main inspection; as well as responding to all reports of sewer backups and flooding. This division also inspects work done by contractors including sewer main lining and manhole rehabilitation. Sewer Division staff conduct regular inspection of sewer outfalls and other facilities throughout Evanston for compliance with the City's sewer system operating permits with the Illinois Environmental Protection Agency.



Sewer Division staff operate a sewer cleaning truck to remove debris from a catch basin.

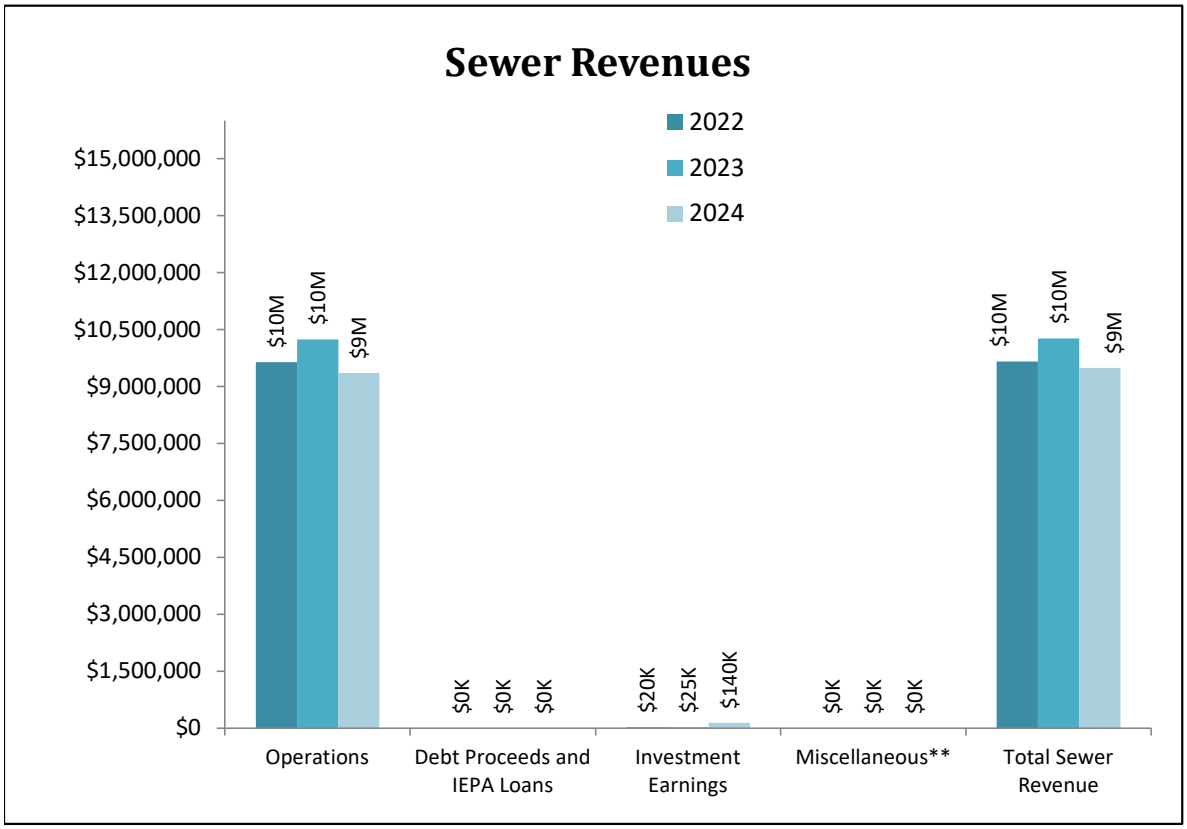
Much of Evanston's sewer system was constructed in the late 1800s to early 1900s. These pipes are far too small to convey both domestic sewage and stormwater runoff as they were intended to do. Beginning in the early 1990s, Evanston constructed a network of relief sewers, which are much larger and deeper than the original combined sewers. The relief sewers now convey most of the stormwater runoff, to avoid overwhelming the combined sewers during rain events. The relief sewers run to a number of drop shafts located along the North Shore Channel, where they discharge directly to the Metropolitan Water Reclamation District's (MWRD) deep tunnel system.



This drop shaft was one of the starting points for a tunneling machine that installed Evanston's relief sewers as a part of the Long Range Sewer Program in 1992 – 2008. Relief sewers are installed at depths of up to 60 feet to efficiently collect and transport large volumes of stormwater without impacting customers and other utilities.

Sewer Revenues*

	2022	2023	2024
Operations	$9,638,057	$10,240,424	$9,348,315
Debt Proceeds and IEPA Loans	$0	$0	$0
Investment Earnings	$20,366	$25,000	$139,970
Miscellaneous**	$0	$0	$0
Total Sewer Revenue	$9,658,422	$10,265,424	$9,488,285

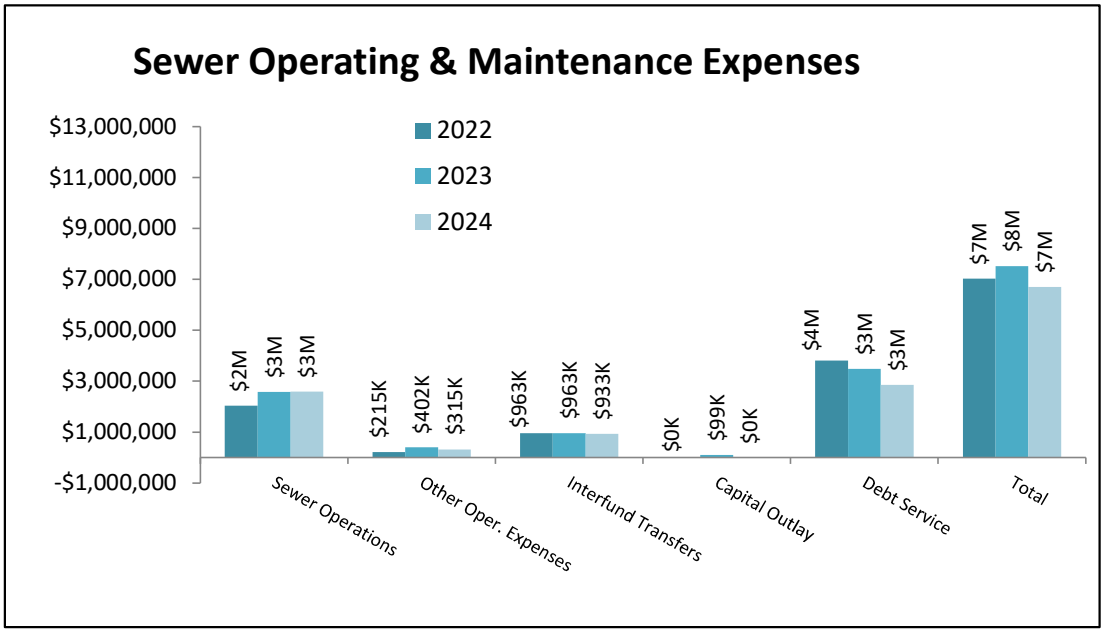


* Financial data are based on actual expenses and do not include audit adjustments such as depreciation and inventory. For audited financial records, see the Comprehensive Annual Financial Report for the City of Evanston, https://www.cityofevanston.org/government/transparency/budget-financial-reports/. Data presented on this page is based on preliminary information as the audited information is not yet available at the time the Annual Report has been published.

** Miscellaneous Revenue includes fees, grants, and merchandise sales.

Sewer Operating & Maintenance Expenses*

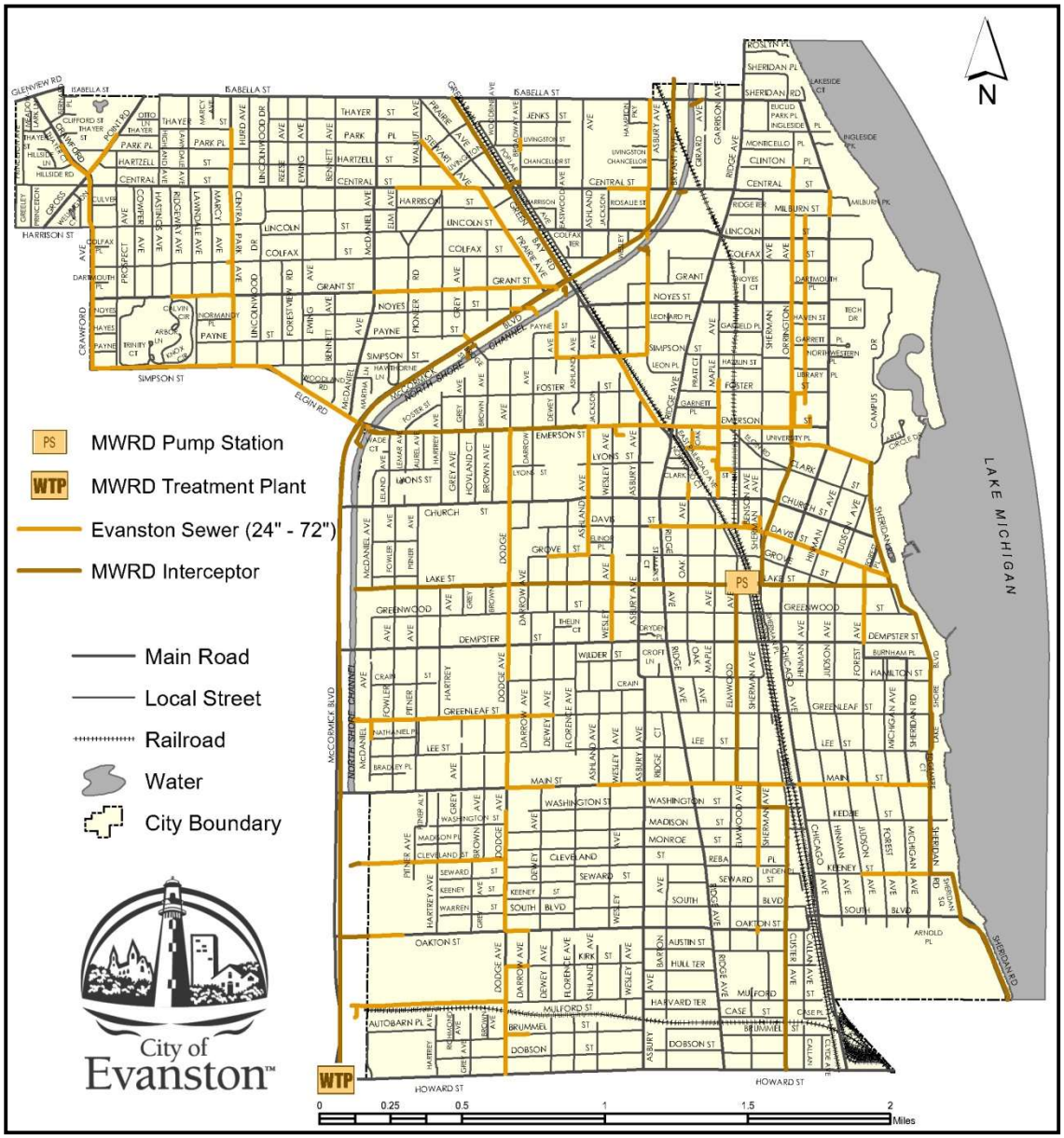
	2022	2023	2024
Sewer Operations	$2,041,943	$2,569,088	$2,595,894
Other Oper. Expenses	$215,045	$401,808	$314,798
Interfund Transfers	$963,354	$963,354	$933,312
Capital Outlay	$45	$98,952	$0
Debt Service	$3,806,551	$3,476,421	$2,853,634
Total	$7,026,939	$7,509,623	$6,697,638



* Financial data are based on actual expenses and do not include audit adjustments such as depreciation and inventory. For audited financial records, see the Comprehensive Annual Financial Report for the City of Evanston, https://www.cityofevanston.org/government/transparency/budget-financial-reports. Data presented on this page is based on preliminary information as the audited information is not yet available at the time the Annual Report has been published.

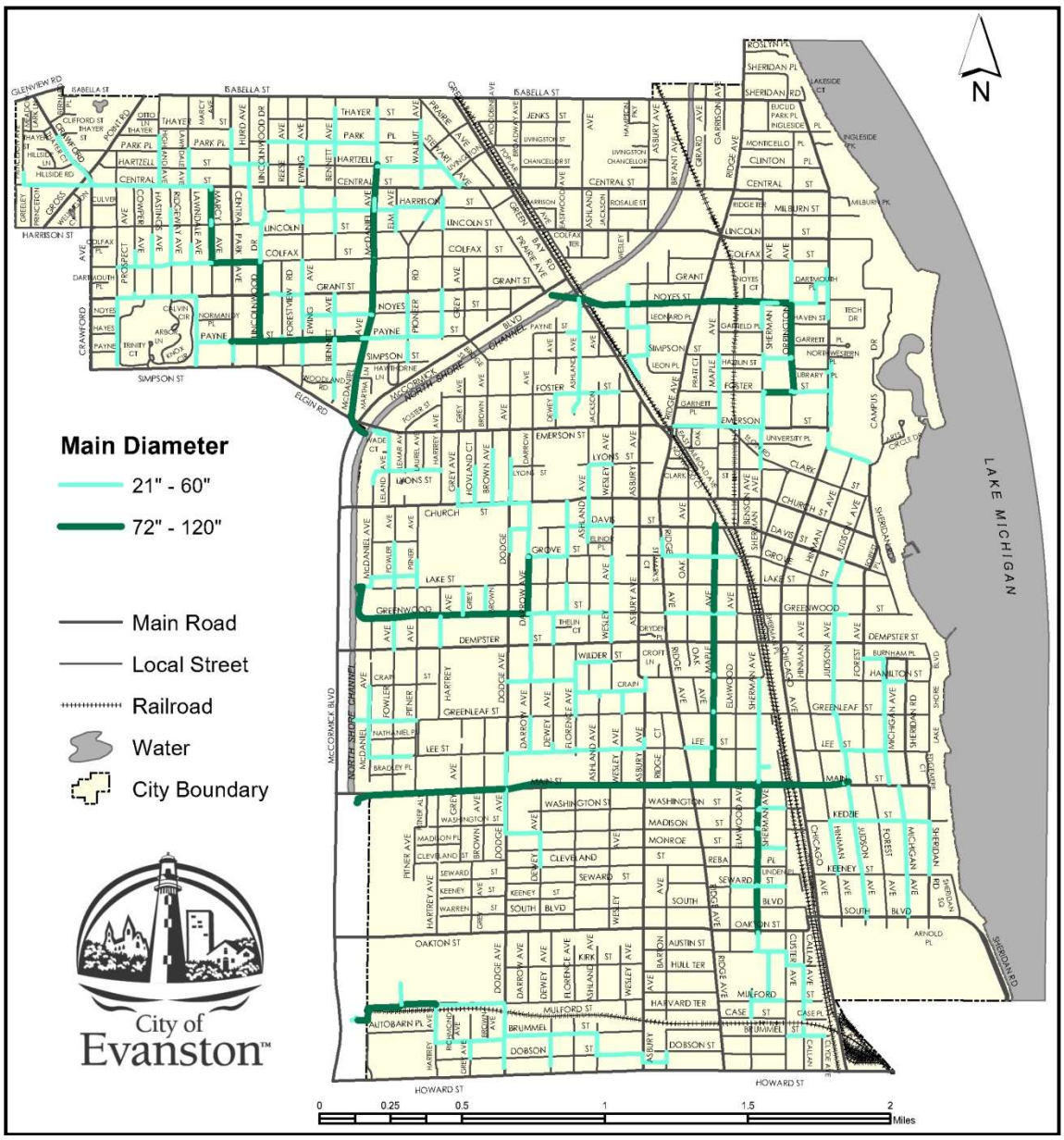
Major Combined Sewer System

The combined sewer system is Evanston's original sewage collection system. Much of this system was constructed in the late 1800s to early 1900s. The system was intended to capture and convey both domestic sewage and stormwater runoff, though as early as the early 1900s the City experienced flooding and basement backups during rain storms because the combined sewer pipes were not large enough to handle stormwater. In the early 1990s, Evanston began constructing a relief sewer system to convey the majority of the stormwater runoff and lessen the risk of basement backups.



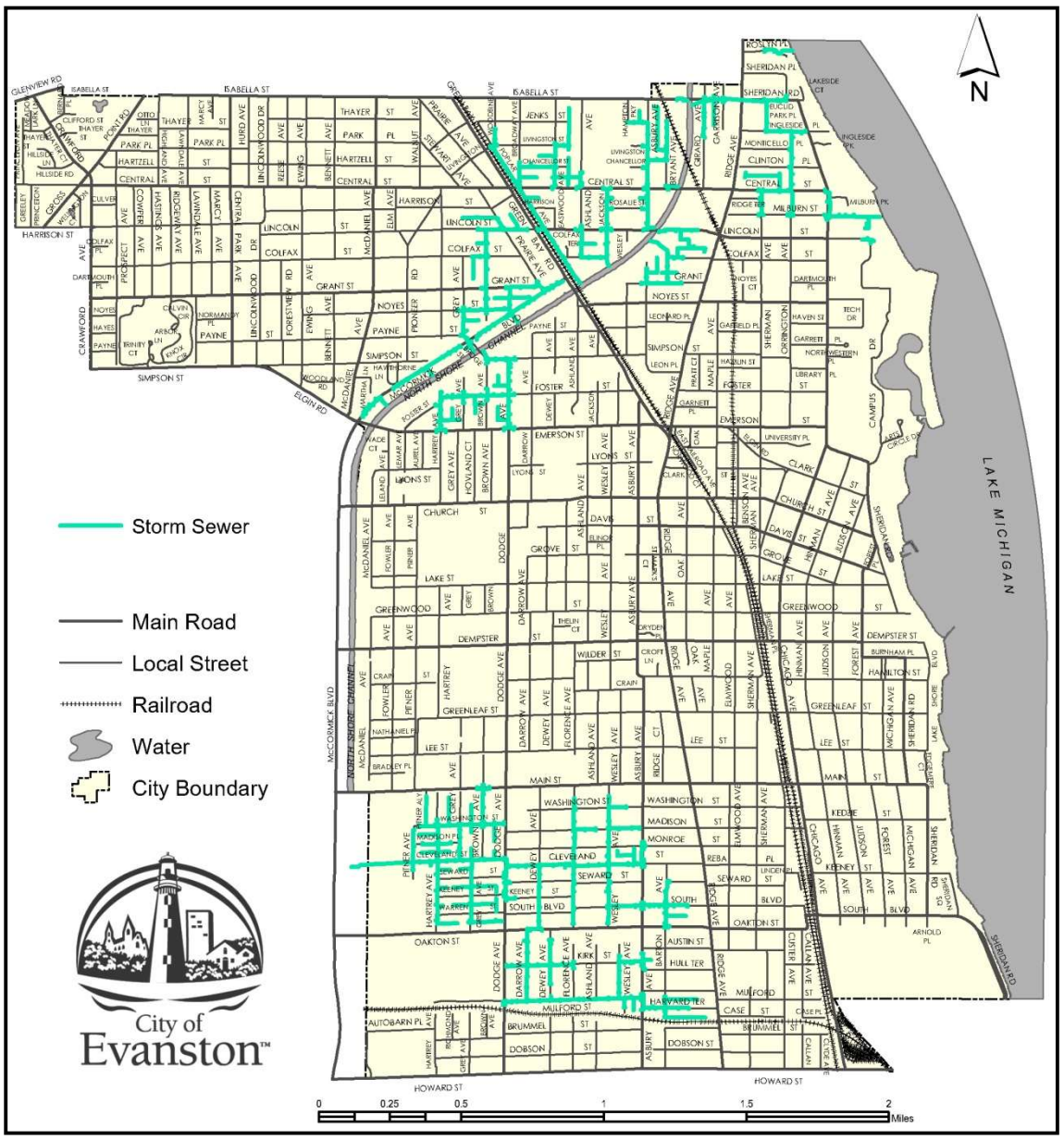
Major Relief Sewer System

Starting as long ago as 1902, property owners in Evanston experienced sewage backing up into their basements during significant rain events. In 1990, the City Council approved a Long Range Sewer Improvement Program to mitigate property damage caused by basement backups. As part of this program, a network of large diameter relief sewers was constructed between 1991 – 2008 at a cost of $210 million. These pipes are larger and deeper than the combined sewers, and convey stormwater runoff and sewage overflows to avoid overwhelming the combined sewers.



Major Storm Sewer System

The storm sewer system discharges directly to the North Shore Channel and Lake Michigan. It is only utilized during rain events to convey stormwater from the streets to the channel or the lake. Most of the storm sewers in southwest Evanston were installed in the late 1970s to early 1980s. The remainder of storm sewers in this area, as well as the storm sewers in north central and northeast Evanston, were installed between 1991-2008 as part of the Long Range Sewer Improvement Program. Evanston operates the storm sewer system under a special permit issued by the Illinois Environmental Protection Agency.

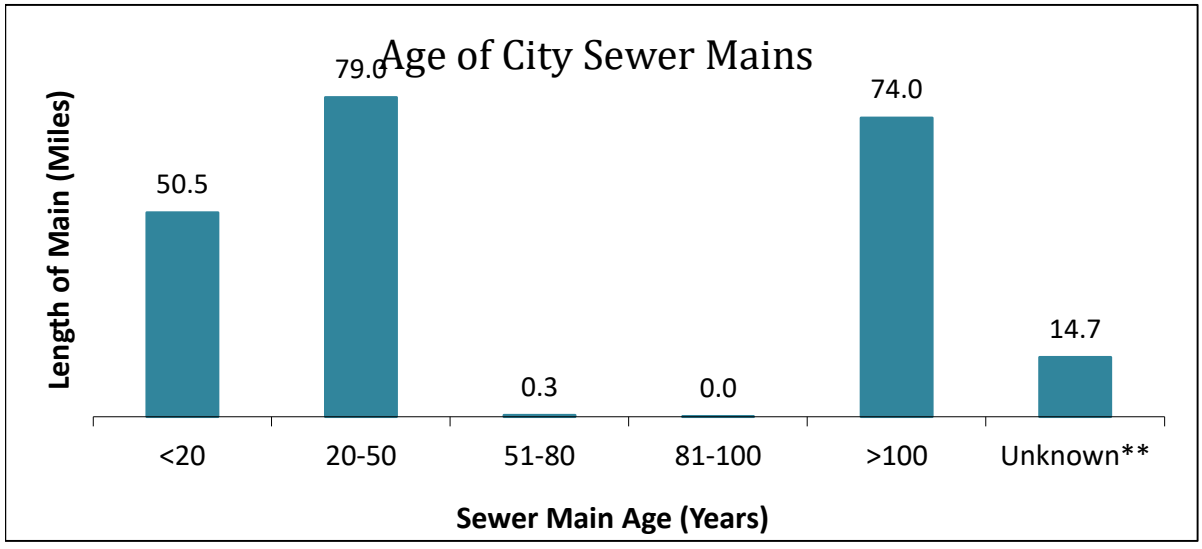


Sewer Mains

System Data and Maintenance

	Pipe Length (miles)				
Sewer Length by Type	2020	2021	2022	2023	2024
Combined Sewer	144.23	144.28	144.48	144.66	144.54
Relief Sewer	55.54	55.72	55.87	56.14	56.49
Storm Sewer	16.65	16.72	17.16	17.47	17.53
Total Length	216.42	216.72	217.51	218.27	218.56

Sewer Installation and Maintenance	Pipe Length (feet)				
	2020	2021	2022	2023	2024
Installed (new)	2,896	1,023	1,486	3,636	3,885
Replaced	84	287	55	39	179
CIPP Rehabilitation (Lining)	15,191	14,301	14,826	6,013	11,599
Spot Repair	3,219	4,480	3,046	2,016	2,906
Clean - Hydroflush	56,603	95,900	201,476	265,449	38,176
Clean - Root Cut	4,149	13,557	12,466	17,502	4,266
Inspection - General	7,154	3,387	3,506	4,071	3,866
Inspection - Televised	56,985	74,876	84,177	125,530	42,674
Inspection - Storm-related*	1,446	0	0	0	0



* Inspection of City sewer mains as a result of sewer surcharge during or after a wet weather event, and inspection of storm sewer outfalls into the North Shore Channel.

** Mains of unknown age were installed prior to detailed record keeping on sewer installations.

Length of Sewer Mains

By Type and Diameter

	Combined Sewer		Relief Sewer		Storm Sewer	
Diameter	Feet	Miles	Feet	Miles	Feet	Miles
<6"	3,092	0.59	256	0.05	0	0.00
6"	2,515	0.48	340	0.06	540	0.10
8"	20,908	3.96	12,256	2.32	1,778	0.34
9"	126,344	23.93	7,334	1.39	905	0.17
10"	111,102	21.04	33,557	6.36	12,411	2.35
12"	221,064	41.87	32,337	6.12	14,739	2.79
14"	231	0.04		0.00		0.00
15"	91,978	17.42	6,605	1.25	5,250	0.99
16"	2,244	0.43	7,146	1.35	881	0.17
18"	63,628	12.05	16,607	3.15	7,849	1.49
20"	8,095	1.53	132	0.03		0.00
21"	14,631	2.77	2,612	0.49	1,912	0.36
22"	867	0.16		0.00		0.00
24"	21,912	4.15	47,692	9.03	16,527	3.13
27"	6,015	1.14	6,372	1.21	2,857	0.54
30"	6,975	1.32	19,087	3.61	3,906	0.74
33"	3,965	0.75	1,309	0.25	476	0.09
36"	19,588	3.71	18,238	3.45	6,731	1.27
39"	420	0.08		0.00		0.00
40"	377	0.07		0.00		0.00
42"	6,709	1.27	12,297	2.33	3,570	0.68
45"	1,029	0.19		0.00		0.00
48"	12,542	2.38	22,266	4.22	7,969	1.51
51"	1,104	0.21		0.00		0.00
54"	1,700	0.32	3,190	0.60	609	0.12
57"	784	0.15		0.00		0.00
60"	7,660	1.45	5,214	0.99	3,633	0.69
72"	4,050	0.77	11,660	2.21		0.00
78"	778	0.15	5,452	1.03		0.00
84"	54	0.01	88	0.02		0.00
96"	0	0.00	2,366	0.45		0.00
108"	0	0.00	9,499	1.80		0.00
113"	0	0.00	9,276	1.76		0.00
120"	0	0.00	2,837	0.54		0.00
Unknown	831	0.16	2,232	0.42	20	0.00
Totals	**763,192**	**144.54**	**298,256**	**56.49**	**92,562**	**17.53**

Total Sewer Main Length: 218.56 miles

Sewer Structures

System Data and Maintenance

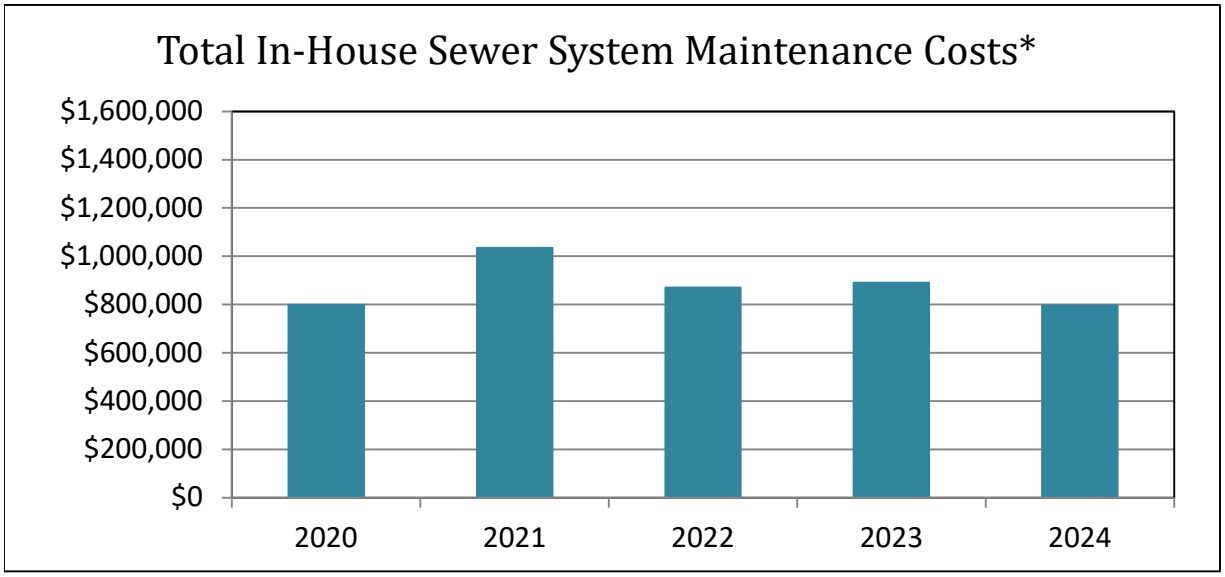
Number of Sewer Structures	2020	2021	2022	2023	2024
Manholes	5,644	5,652	5,657	5,684	5,684
Inlets	3,137	3,147	3,171	3,202	3,223
Catch Basins	6,217	6,229	6,241	6,260	6,280
Total	14,998	15,028	15,069	15,146	15,187

Sewer Structure Installation & Maintenance	2020	2021	2022	2023	2024
Installed (new)	23	21	37	57	56
Replaced	13	22	31	3	15
Repair	113	97	121	71	72
Clean	2,921	2,749	2,635	1,775	2,959
Inspect - General	252	475	121	180	109
Inspect - Storm-Related*	385	368	323	219	505

* Inspection of City drainage structures as a result of street or alley flooding during or after a wet weather event.

Breakdown of In-House Maintenance Costs

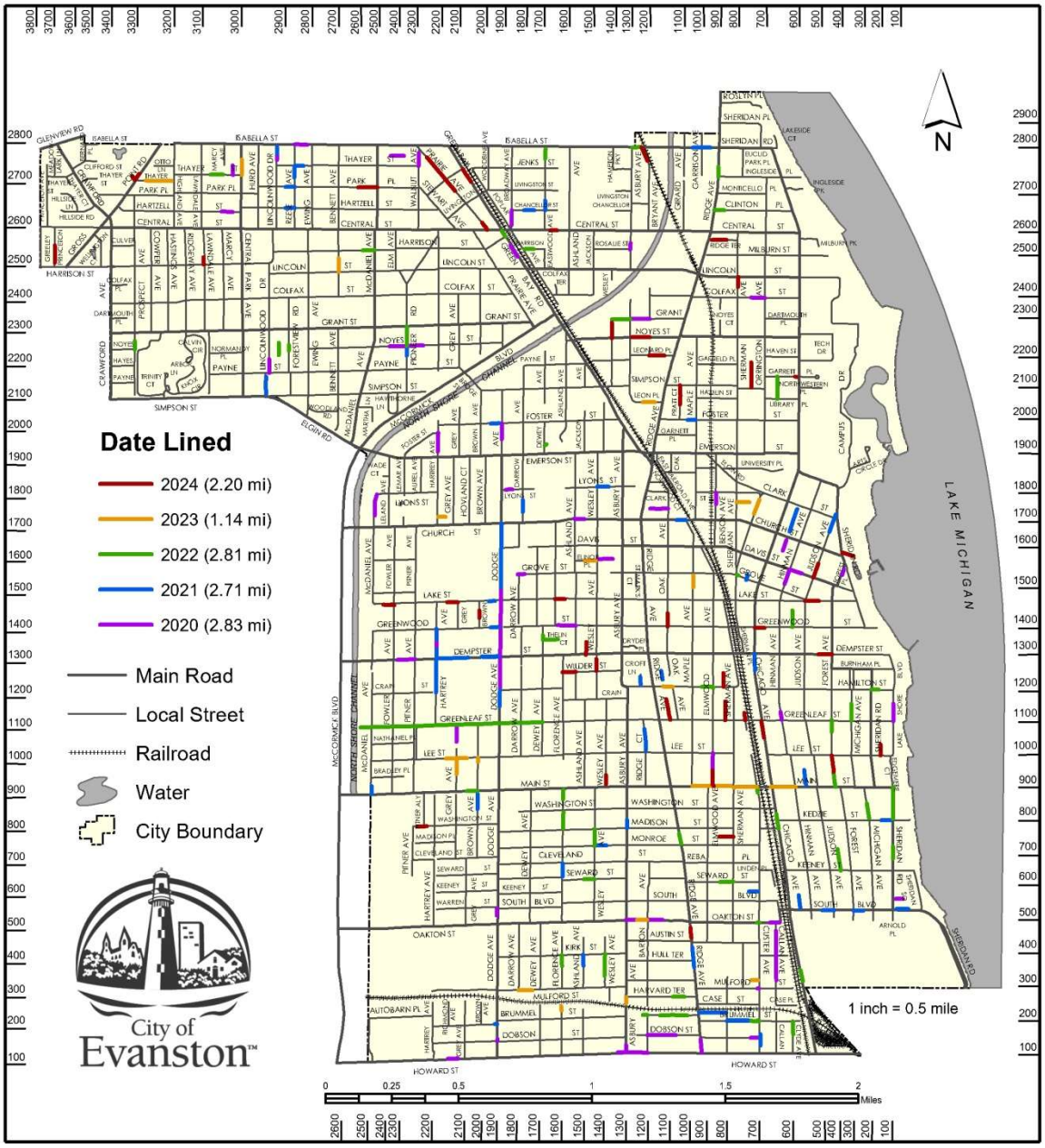
Description	2020	2021	2022	2023	2024
Sewer Mains	$253,462	$290,247	$358,479	$459,137	$274,833
Sewer Structures	$297,034	$425,842	$265,244	$195,536	$269,395
Equip/Facility Maint.	$117,714	$86,502	$102,324	$80,820	$76,945
Assist W&S Divisions	$20,069	$23,813	$15,926	$11,963	$22,905
Snow & Ice Removal	$19,419	$114,898	$32,253	$29,410	$37,440
Assist Contractors	$26,010	$22,039	$25,108	$24,444	$37,097
Assist Other City Depts.	$28,378	$26,789	$33,893	$39,011	$35,553
Assist Public Works	$0	$5,394	$1,567	$2,911	$3,342
Safety & Training	$8,298	$23,465	$14,662	$25,314	$7,719
Administrative General	$26,988	$14,793	$20,937	$22,377	$30,352
JULIE Locates	$1,270	$1,412	$556	$114	$787
Total	**$798,642**	**$1,035,194**	**$870,949**	**$891,037**	**$796,368**



* Costs fluctuate from year to year due to changes in maintenance needs and prioritization of repair projects.

Sewer Mains Rehabilitated (Lined)

The Public Works Agency manages an annual sewer improvement program, with the goal of rehabilitating at least 1.5 miles of combined sewer mains annually (minimum 1% annual system-wide renewal rate).



Green Infrastructure

Green infrastructure is an approach to managing precipitation by reducing and treating stormwater at its source while delivering environmental, social and economic benefits. In terms of green infrastructure, the City primarily uses porous pavement and rain gardens.

Component	Contractor Maintenance Cost	In-House Maintenance Cost	Total Cost
Porous Pavement	$1,350.00	$1,867.00	$3,217.00
Rain Gardens	$15,310.00	$0	$15,310.00
Totals	**$16,660.00**	**$1,867.00**	**$18,527.00**

