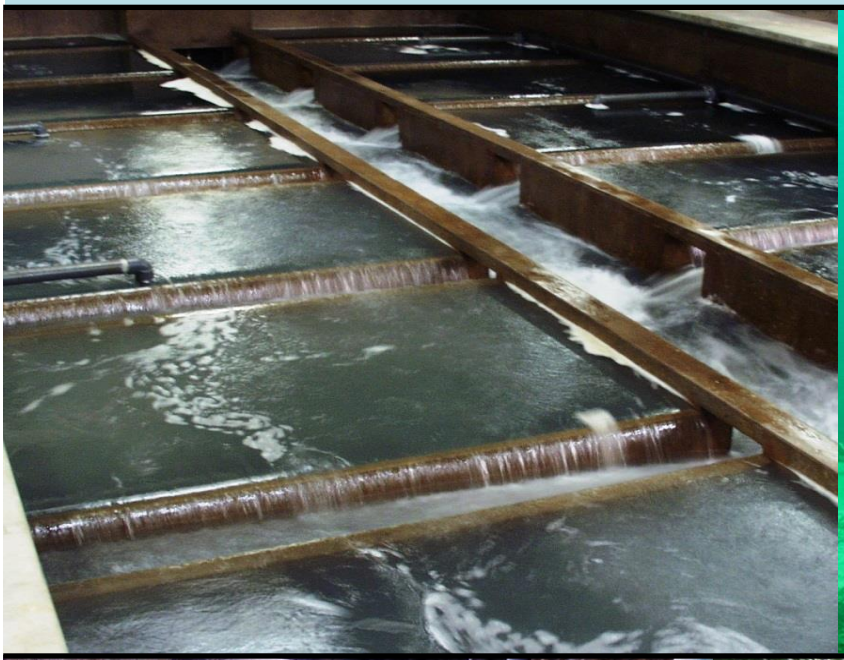
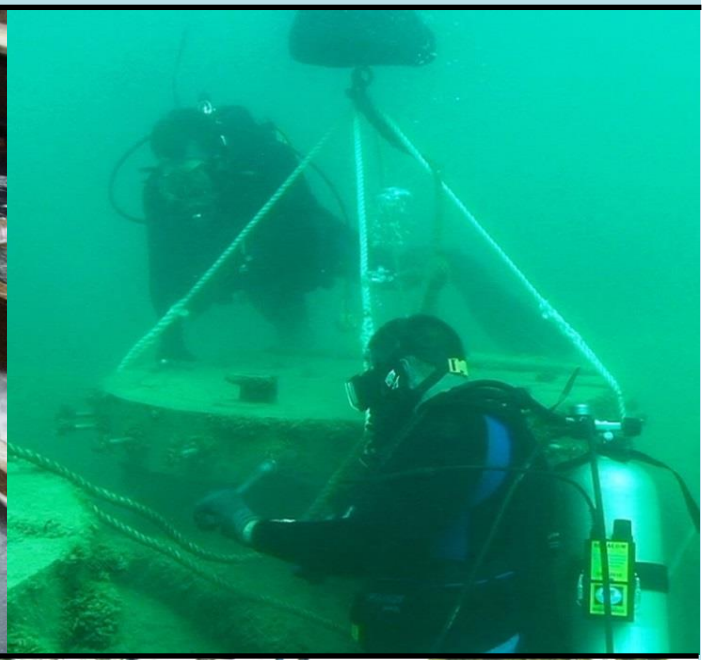
2013 Annual Report

Evanston Utilities Department

Serving the Community for 139 Years

City of Evanston™





Cover photos, clockwise from top left: cleaning the filters at the Evanston Water Treatment Plant; Evanston Utilities Department divers inspecting one of the City's water intakes in Lake Michigan; installation of a cured-in-place pipe (CIPP) liner in a City sewer main to rehabilitate the pipe; and installation of a 24" diameter water main under Davis Street in conjunction with the 2013 Davis Street reconstruction project.

City of Evanston™

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Utilities Department Annual Accomplishments and Performance Measures

Introduction

The Utilities Department manages water and sewer operations as well as overseeing other utilities provided to the City of Evanston. The Water Division is responsible for operation and maintenance of the Water Treatment Plant, which supplies water to over 360,000 people in Evanston and five other communities. The Water Division also operates and maintains more than 157 miles of water mains, 2,000 valves, and 1,400 fire hydrants in the Evanston distribution system.

The Sewer Division 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 200 miles of sewer mains ranging in size from 6-inch diameter to 120-inch diameter, including over 5,500 manhole structures and over 9,000 drainage structures.

The Utilities Department 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 FY 2013 budget was approximately $40.5 million ($21.2 million Water Fund and $19.3 million Sewer Fund). Utilities Department staff includes 55.5 full-time equivalents (FTEs).

Year-to-Year Utility Department Comparables

	2010	2011	2012	2013
Total Water Pumped (millions of gallons)	14,202	13,870	14,547	13,793
Fire Hydrants Repaired or Replaced	144	217	321	197
Fire Hydrants Repainted	0	0	284	325
Water Main Valves Repaired or Replaced	92	59	64	85
Water Main Installed (miles)	1.5	1.4	1.8	1.8
Large Diameter Sewer Rehabilitated (feet)	0	0	0	8,249
Small Diameter Sewer Rehabilitated (feet)	2,081	5,595	8,321	7,829
Sewer Mains Inspected (feet of pipe)	104,460	106,856	103,678	101,424
Sewer Mains Cleaned (feet of pipe)	275,781	264,738	248,311	187,966
Sewer Structures Repaired or Replaced	136	108	123	92

2013 Major Accomplishments

Major Water Treatment Facility Improvements
Replacement of the water plant supervisory, control, and data acquisition (SCADA) system moved ahead and was nearly complete by the end of 2013. The new SCADA system automates many facets of the water plant's process control system and provides many more options for capturing and tracking operational data to optimize plant performance. Filtration Division staff also installed new transmitters to measure flow rate and head loss through the filters, which will communicate with the new SCADA system to improve filter operation and efficiency.

Meter and Billing Improvements
The Utilities Department began a two-year project to upgrade the City's Automatic Meter Information (AMI) system. This is an electronic, remotely controlled system to read water meters and transmit the data to the Utilities Department for billing. As part of this upgrade project, all of the City's 14,400 water accounts will receive a new MIU (Meter Interface Unit), which is the equipment that transmits meter reading data to the AMI computer system. This project also includes replacement of approximately 10% of individual customer water meters due to their age, which should significantly improve metering and billing efficiency throughout the City.

Rehabilitation of Large Diameter Sewers
Contractors rehabilitated over 8,200 feet of large diameter sewers, ranging in size from 36-inch to 72-inch diameter. These pipelines are over 100 years old and are critical components of the combined sewer system. They were rehabilitated using the cured-in-place pipe (CIPP) lining process, to minimize surface disruption and complete the improvements as quickly and cost-effectively as possible.

Water Supply Expansion
Evanston completed a cost of service study to determine appropriate rates to supply potential new wholesale water customers. The City met with several communities and agencies throughout the year to communicate the proposed wholesale rates and outline anticipated savings for these communities as compared to continuing to receive water from Chicago.

Low Interest Loan Funding
The Utilities Department obtained a $1,388,290 low interest (2.295%) loan through the Illinois Environmental Protection Agency's State Revolving Fund to rehabilitate 5,365 feet of 100 year-old, large diameter brick sewer mains in 2014.

Safety Improvements
The Utilities Department completed a study of the electrical system within the water treatment facility. This study included a hazard risk assessment, labeling of equipment, recommendations to reduce arc flash hazards, and testing and maintenance of the main switchgear.

2014 Major Goals and Initiatives

Major Water Treatment Facility Improvements
Install a heating system on the 48" diameter lake water intake, which will prevent anchor ice accumulation in the winter. Anchor ice can completely block a water plant intake, and nearly led to full shutdown of Evanston's water plant in 2009. This project, along with a similar project completed for the 54" diameter intake in 2010, will ensure reliability of our water supply.

Meter and Billing Improvements
Ensure the reliability of the water meter reading system and water billing system by completing the Automated Meter Information (AMI) project. Additionally, a new feature of the billing software will be implemented allowing customers to review their water usage and billing history online.

Enhance the accuracy of finished water metering by replacing the 65-year-old Venturi meter on the primary feeder main to Evanston and Skokie with a more accurate mag meter. Combined with improvements on the customer metering side, this project should significantly improve water use accounting and aid in water loss reduction efforts.

Rehabilitation of Large Diameter Sewers
Rehabilitate 5,365 feet of large diameter sewers, ranging in size from 36-inch to 72-inch diameter, using the cured-in-place pipe (CIPP) lining process. This work is part of a multi-year project to renew aging trunk sewers throughout Evanston.

Water Supply Expansion
Continue meeting with potential wholesale water customers, and partner with Morton Grove, Niles, Park Ridge, and Glenview to jointly fund an updated water supply transmission main study. The report will develop an opinion of probable construction cost, define potential transmission main routes for this new potential set of wholesale customers, establish water demands, determine appropriate pipe diameters, and develop an allocation of costs among the partner communities and agencies.

Loans and Grants
Finalize and submit loan application documents for the 48-inch diameter intake rehabilitation project ($1.9 million) and for large diameter sewer rehabilitation ($1.9 million). Submit preliminary loan application documents for projects proposed in 2014, including water plant reliability improvements, replacement of the finished water reservoir, replacement of the 30-inch diameter water feeder main to downtown Evanston, and additional large diameter sewer rehabilitation.

Safety Improvements
Create an electrical safety operations and training program for all staff at the water treatment plant.

Treated Water Storage Study
Complete a long-term master plan for maintaining and replacing aging treated water storage tanks at the water treatment plant.

Water Treatment Plant Data

Intakes
36/42" – 5,946' long, 28' 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

Standpipes
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 – 8.01 mgd, 1,391 ft^2 each, surface loading rate of 4 gpm/ft^2
Total rated capacity of 134 mgd
Automatic surface and backwash system on all 24 filters

Underground Storage
8 clearwells beneath filters – 4.4 MG total
1 clearwell beneath NU parking lot – 5.0 MG
Total Plant Storage – 9.4 MG

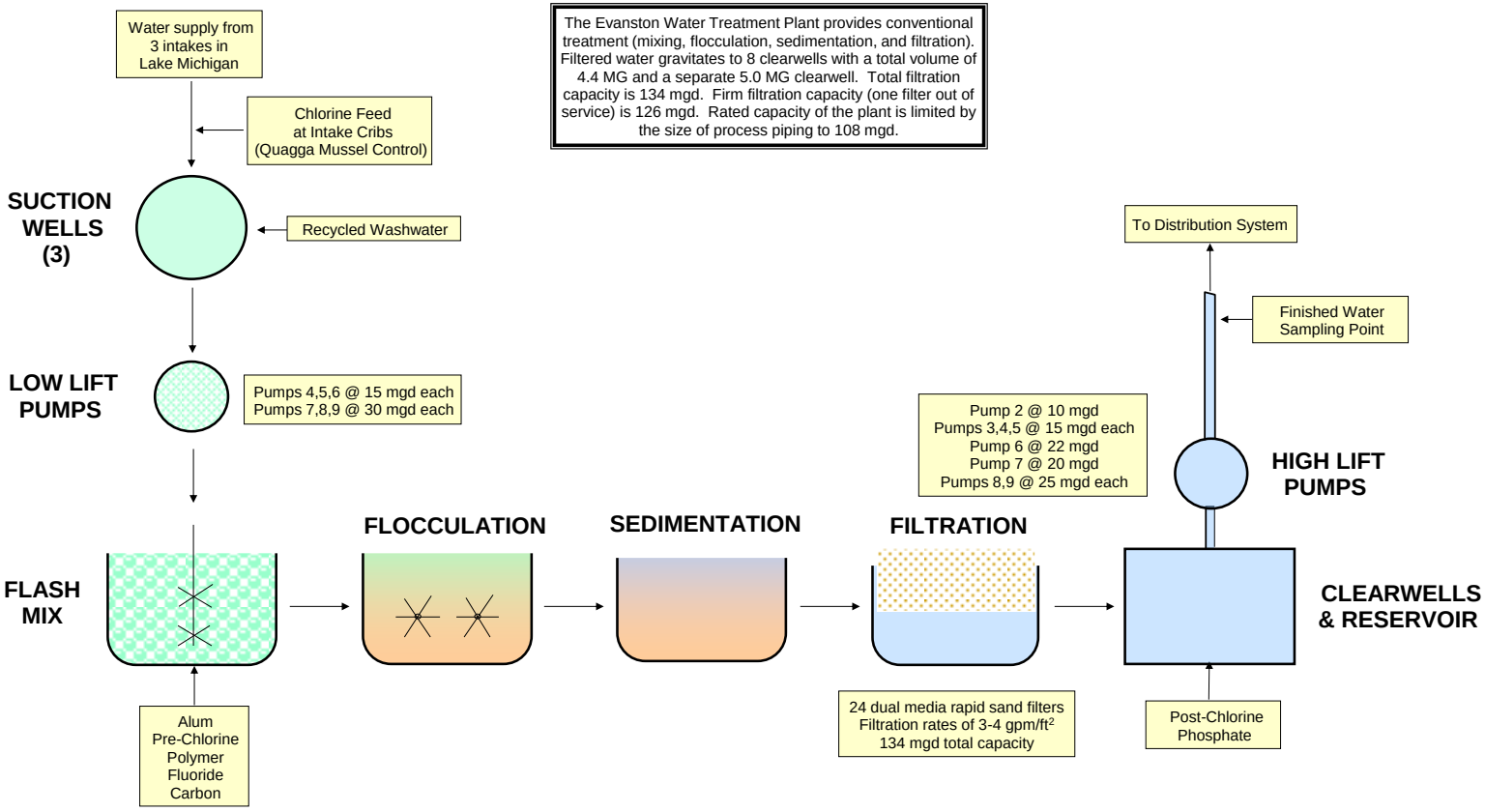
High Lift Pumps
1 – 15 mgd, electric motor driven
2 – 25 mgd, electric motor driven
1 – 10 mgd, dual drive, electric/natural gas
2 – 15 mgd, dual drive, electric/natural gas
1 – 22 mgd, dual drive, electric/natural gas
1 – 20 mgd, natural gas engine
Total capacity of 147 mgd
Emergency standby capacity 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



Volume (MG)	0.109	2.384	13.516	1.730	9.560*

Notes:
*based on 8.0' depth

Water Works Improvements (1874 to 2013)

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

1944 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 length

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

1994 Constructed new chemical storage and handling building

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 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

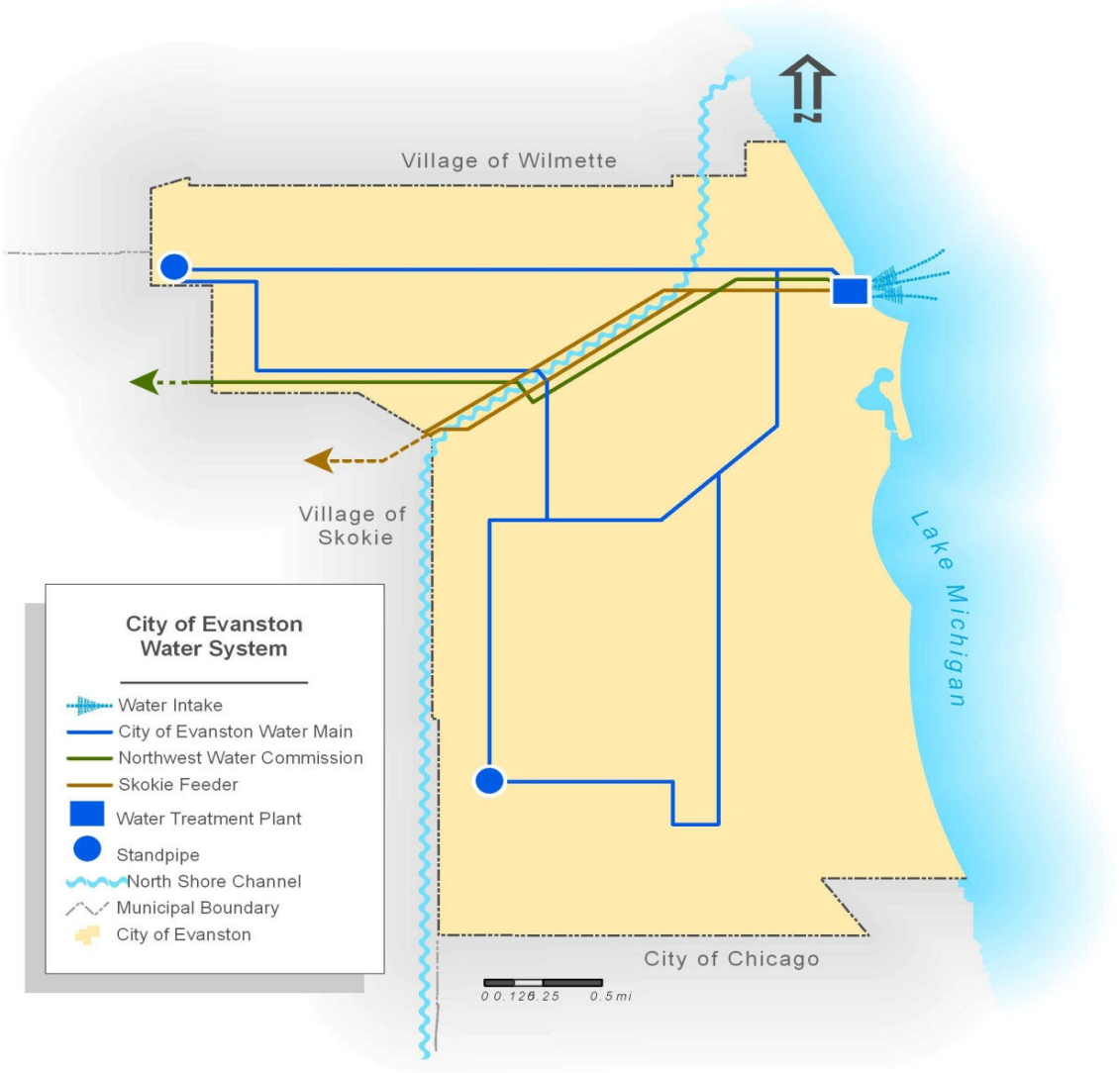
2013 Modified electrical distribution equipment and settings on protective devices throughout the water treatment plant to reduce arc flash hazards
Conducted comprehensive maintenance and evaluation of electrical switchgears

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

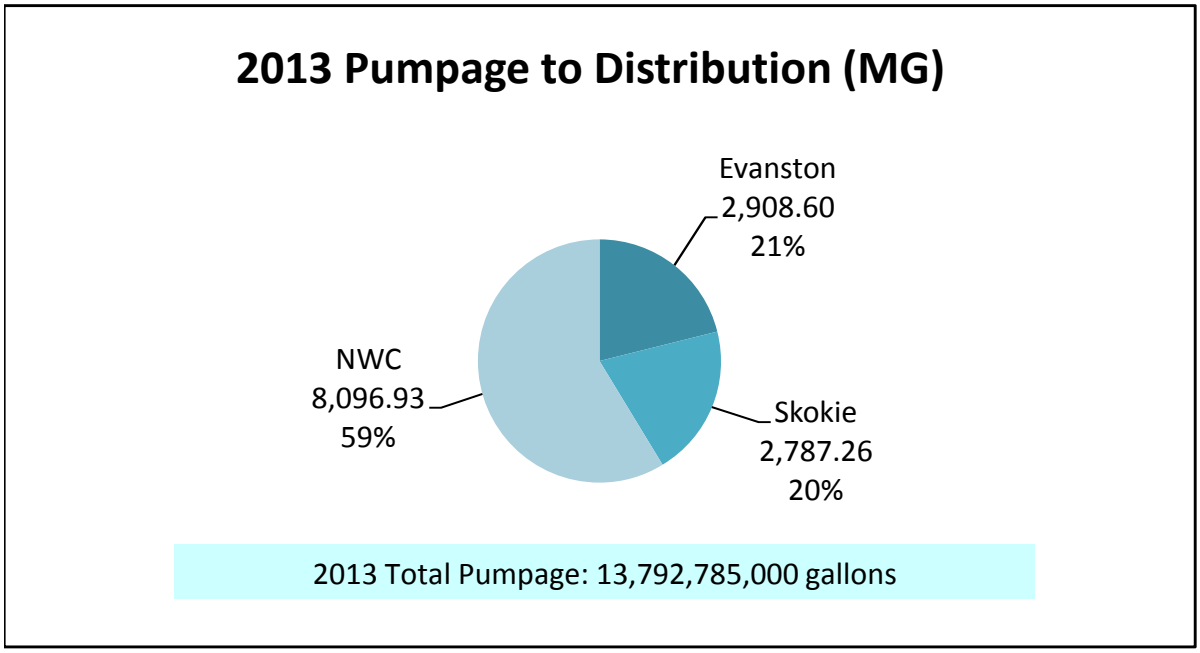
Service Area & Population

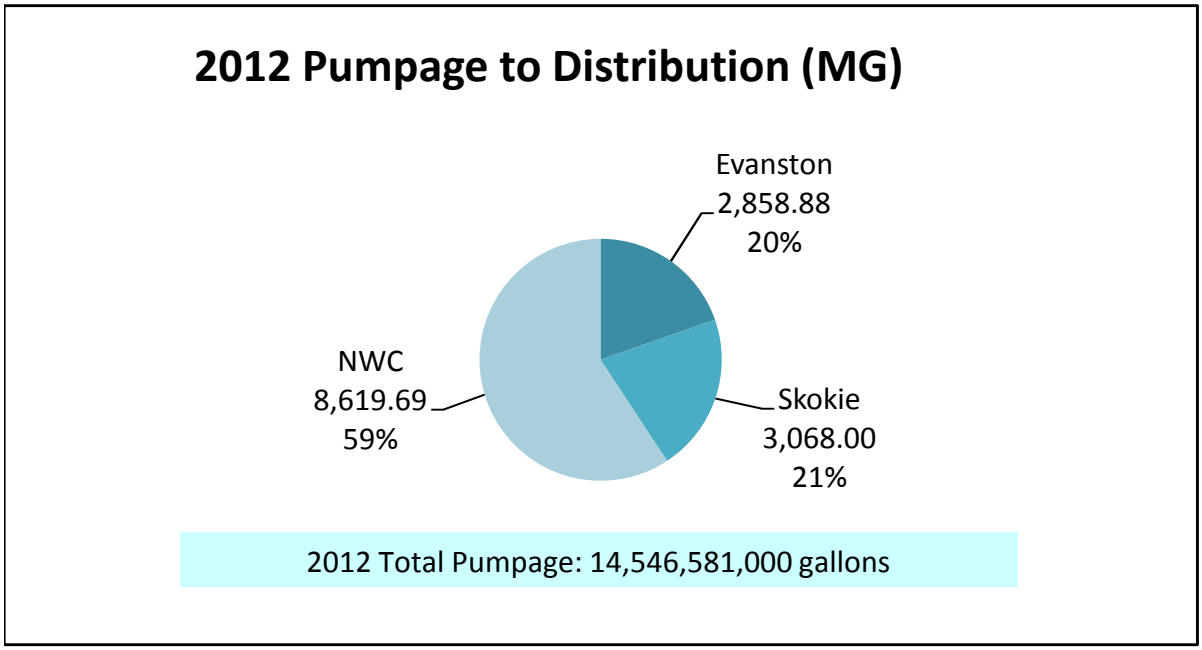
	Area (Square Miles)	2013 Persons*
Evanston	7.8	75,570
Skokie	10.5	65,176
NORTHWEST WATER COMMISSION		
Arlington Heights	15	75,994
Buffalo Grove	4.5	41,778
Palatine	9	69,350
Wheeling	7.5	38,015
Total Served	**54.3**	**365,883**

* U.S. Census Bureau, 2013 Estimate



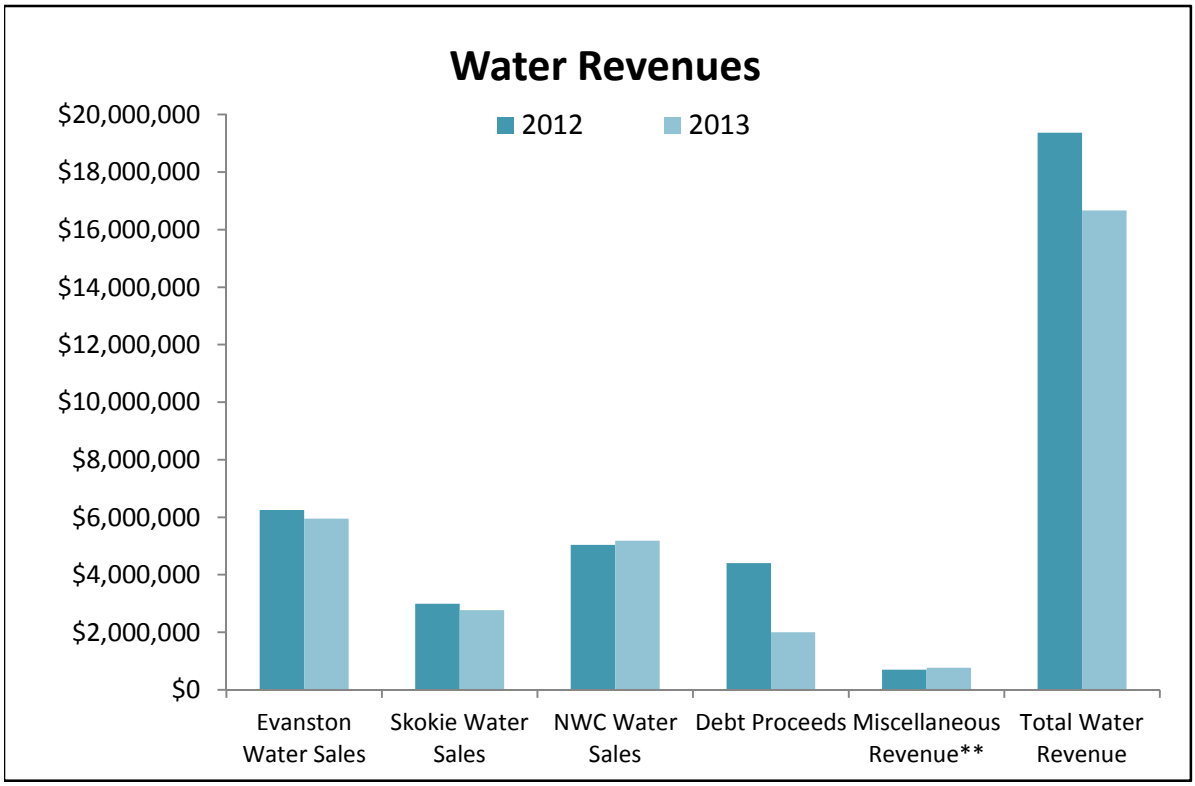
Pumpage to Distribution





Water Revenues*

	2012	2013
Evanston Water Sales	$6,248,329	$5,947,633
Skokie Water Sales	$2,989,109	$2,772,424
NWC Water Sales	$5,033,996	$5,183,425
Debt Proceeds	$4,400,000	$2,000,000
Miscellaneous Revenue**	$700,787	$766,522
Total Water Revenue	$19,372,222	$16,670,004

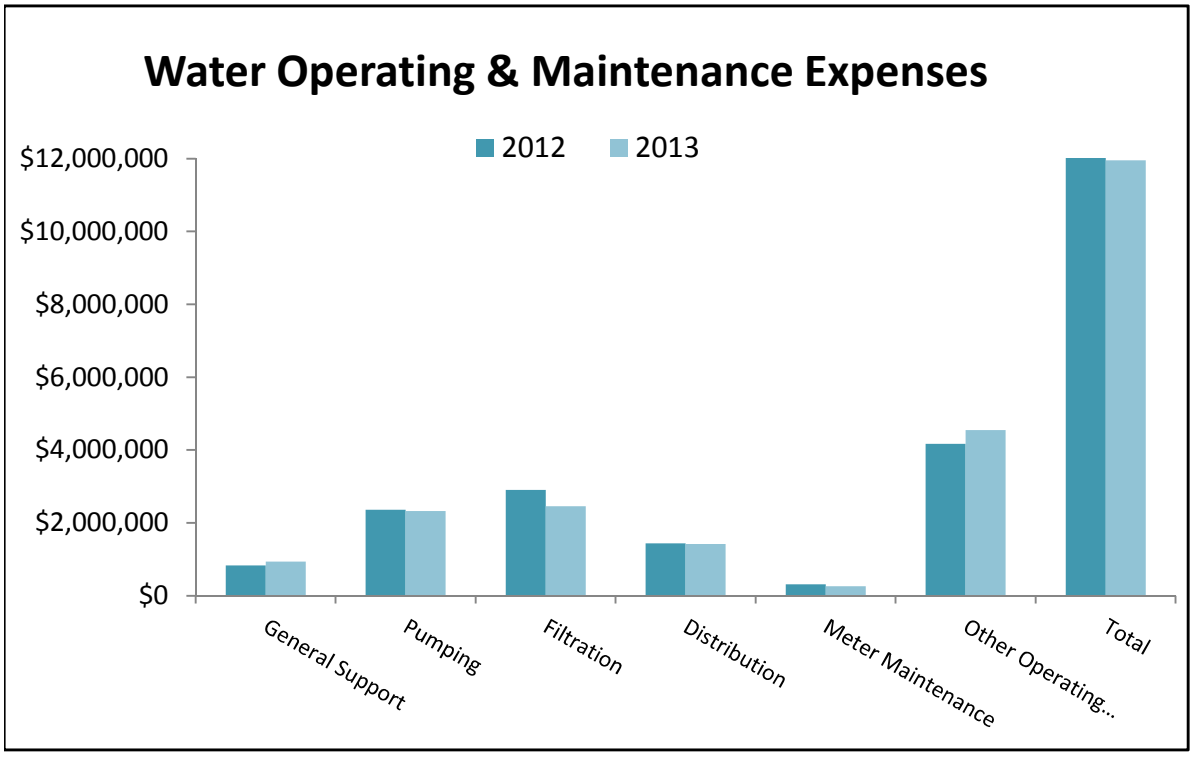


* Financial data are based on actual expenses and do not include audit adjustments such as depreciation and inventory. For audited financial records, see the Comprehensive Annual Financial Report for the City of Evanston, http://www.cityofevanston.org/transparency/budget-financial-reports/.

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

Water Operating & Maintenance Expenses*

	2012	2013
General Support	$832,831	$941,682
Pumping	$2,364,465	$2,322,648
Filtration	$2,902,021	$2,460,495
Distribution	$1,441,374	$1,423,105
Meter Maintenance	$313,841	$259,201
Other Operating Expenses**	$4,171,622	$4,546,816
Total	$12,028,166	$11,955,960



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**Other Operating Expenses include capital outlay, interfund transfers, and other operating expenses.

Employee Profile and Safety

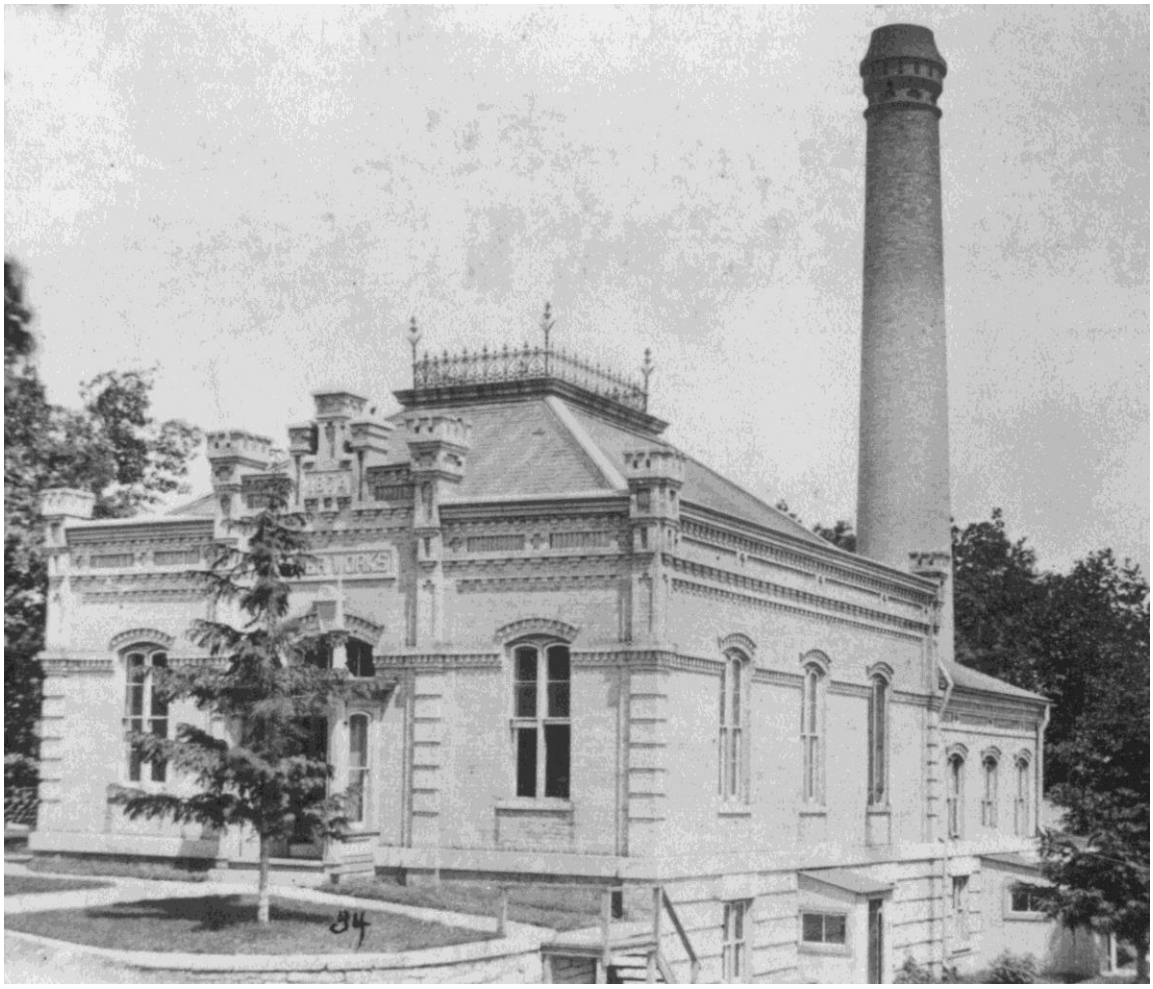
Section	Employee Full-Time Equivalents
Administration	5.0
Pumping	11.0
Filtration	14.0
Distribution*	10.5
Sewer	13.0
Meter	2.0
Total	**55.5**

Section	Number of AFMD** Beginning of Year	Number of Accidents	Highest consecutive AFMD achieved	Date Highest AFMD Achieved	Number of AFMD End of Year
Pumping	227.5	1	2,456.0	9/10/2013	394.0
Filtration	2,176.0	1	3,268.0	3/7/2013	2,071.5
Distribution & Sewer	3,025.5	1	3,785.5	1/27/2013	2,644.5

* Includes one Civil Engineer working in the Public Works Department.

** AFMD = Accident Free Man Days

Pumping



The original Water Works was built in 1874 to provide water for Evanston's 3,500 residents. The system consisted of a 16-inch intake pipe extending 1,200 feet into the lake, a small Holly steam engine capable of pumping 2 million gallons per day, a hand fired boiler, and a few miles of cast iron water main. The original cost of the steam engine and boiler was $24,000. During the first year of operation the plant pumped 95 million gallons of water.

2013 Monthly Pumpage (MG)

Month	Lake Water Pumpage	Wash Water Recycled	Net Raw Water Pumpage	Finished Water Pumpage	Pumpage To			
					Distribution	Evanston	Skokie	N.W.C.
Jan-13	1,107.455	23.542	1,130.997	1,099.643	1,094.500	242.958	227.784	623.758
Feb-13	1,028.019	16.835	1,044.854	1,017.931	1,014.861	176.603	207.447	630.811
Mar-13	1,066.409	19.530	1,085.939	1,064.242	1,059.277	223.635	211.516	624.126
Apr-13	1,052.096	19.348	1,071.444	1,044.845	1,039.738	235.181	190.216	614.341
May-13	1,230.328	20.994	1,251.322	1,209.006	1,209.420	275.072	214.328	720.020
Jun-13	1,193.089	18.085	1,211.174	1,178.601	1,178.034	258.697	229.677	689.660
Jul-13	1,337.949	24.511	1,362.460	1,326.909	1,327.293	279.050	259.219	789.024
Aug-13	1,417.370	29.043	1,446.413	1,414.055	1,411.911	286.767	297.072	828.072
Sep-13	1,257.341	22.479	1,279.820	1,252.816	1,251.606	249.875	268.462	733.269
Oct-13	1,127.452	19.927	1,147.379	1,102.623	1,101.016	209.147	236.286	655.583
Nov-13	1,020.070	16.411	1,036.481	1,015.941	1,016.663	224.487	213.690	578.486
Dec-13	1,087.524	16.904	1,104.428	1,087.849	1,088.466	247.130	231.559	609.777
Annual Total	**13,925.102**	**247.609**	**14,172.711**	**13,814.461**	**13,792.785**	**2,908.602**	**2,787.256**	**8,096.927**

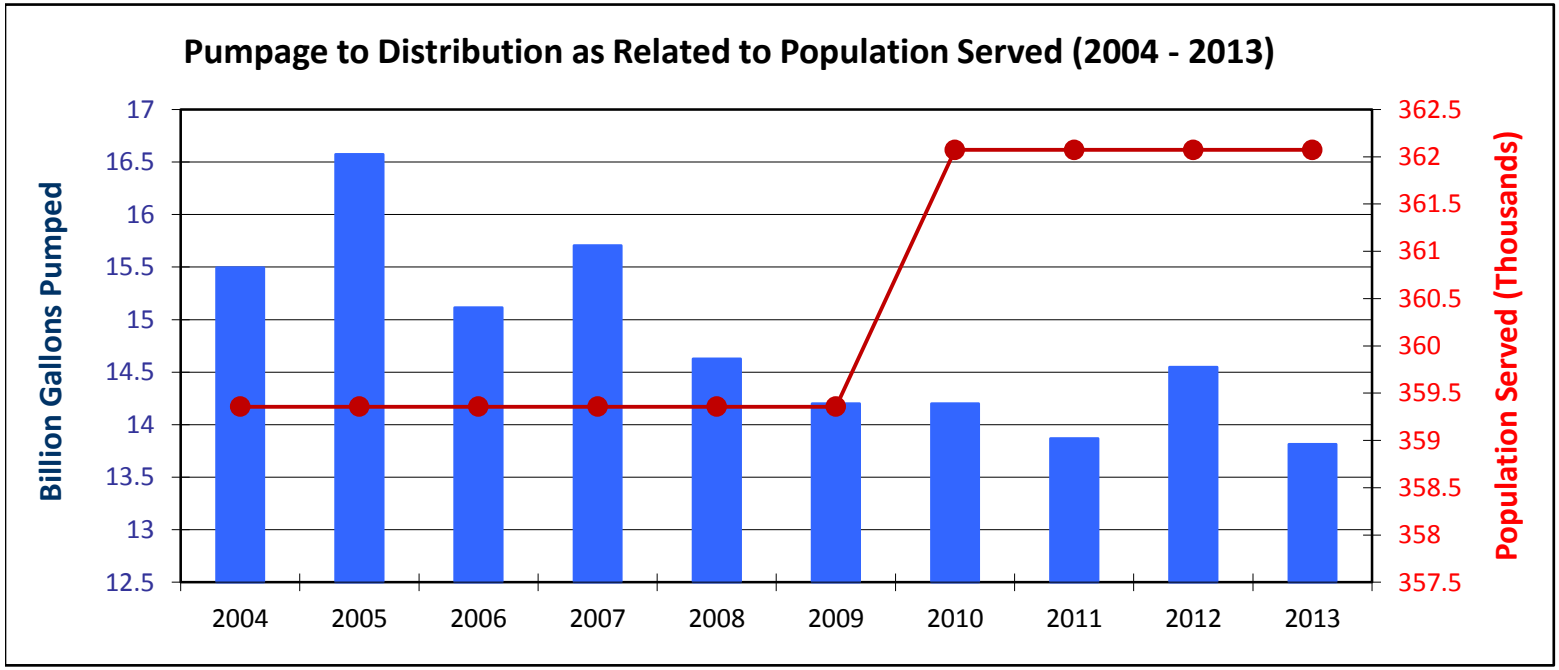
2013 Average Day Pumpage (MGD)

Month	Lake Water Pumpage*	Wash Water Recycled	Net Raw Water Pumpage	Finished Water Pumpage	Pumpage To			
					Distribution	Evanston	Skokie	N.W.C.
Jan-13	35.724	0.759	36.484	35.472	35.306	7.837	7.348	20.121
Feb-13	36.715	0.601	37.316	36.355	36.245	6.307	7.409	22.529
Mar-13	34.400	0.630	35.030	34.330	34.170	7.214	6.823	20.133
Apr-13	33.939	0.645	35.715	34.828	34.658	7.839	6.341	20.478
May-13	39.688	0.624	34.563	39.000	39.014	8.873	6.914	23.226
Jun-13	39.770	0.603	40.372	39.287	39.268	8.623	7.656	22.989
Jul-13	43.160	0.791	43.950	42.804	42.816	9.002	8.362	25.452
Aug-13	45.722	0.937	46.658	45.615	45.546	9.251	9.583	26.712
Sep-13	41.911	0.749	42.661	41.761	41.720	8.329	8.949	24.442
Oct-13	36.369	0.643	37.012	35.568	35.517	6.747	7.622	21.148
Nov-13	34.002	0.547	34.549	33.865	33.889	7.483	7.123	19.283
Dec-13	35.081	0.545	35.627	35.092	35.112	7.972	7.470	19.670
Annual Average	**38.151**	**0.678**	**38.829**	**37.848**	**37.788**	**7.969**	**7.636**	**22.183**

Note: The sum of metered pumpage to Evanston, Skokie, and NWC (totaled under Pumpage to Distribution) sometimes exceeds the master Finished Water Pumpage figure due to minor metering inaccuracies.

Annual Pumpage (MG)

Year	Lake Water Pumpage	Wash Water Recycled	Total Raw Water Pumpage	Finished Water Pumpage	Pumpage To			
					Distribution	Evanston	Skokie	N.W.C.
2013	13,925.102	247.609	14,172.711	13,814.461	13,792.785	2,908.602	2,787.256	8,096.927
2012	14,817.637	322.302	15,110.465	14,627.115	14,546.676	2,858.883	3,068.004	8,619.694
2011	13,939.618	212.426	14,152.042	13,941.167	13,869.954	2,920.633	2,866.652	8,082.667
2010	14,087.849	218.251	14,306.100	14,268.257	14,202.176	2,635.488	3,094.554	8,472.134
2009	14,363.047	193.841	14,556.888	14,350.335	14,199.531	2,990.094	2,829.824	8,379.613
2008	14,872.552	134.595	15,007.147	14,693.877	14,626.296	3,089.536	2,961.341	8,589.720
2007	15,905.381	192.088	16,097.469	15,771.451	15,704.746	3,140.717	3,564.781	8,999.248
2006	15,332.651	160.528	15,493.179	15,174.631	15,115.821	2,891.989	3,329.305	8,894.627
2005	16,823.362	184.937	17,008.299	16,634.025	16,572.712	3,303.763	3,544.779	9,724.170
2004	15,760.615	126.348	15,886.963	15,550.728	15,493.940	3,200.427	3,365.418	8,928.095



Average Daily per Capita Consumption

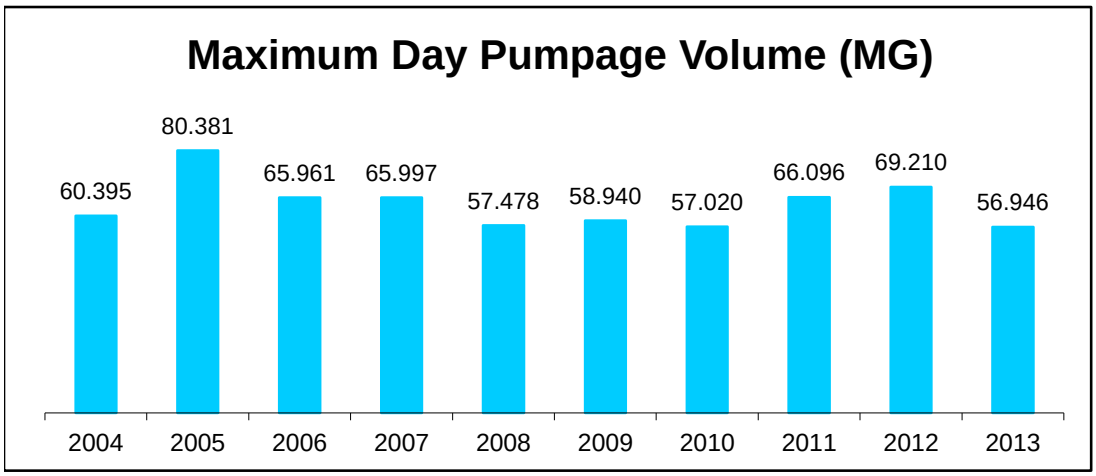
	Evanston		Skokie		NWC		Total	
Year	Population	Per Capita Use (gpcd)	Population	Per Capita Use (gpcd)	Population	Per Capita Use (gpcd)	Population	Per Capita Use (gpcd)
2013	74,486	107	64,784	118	222,802	100	362,072	104
2012	74,486	105	64,784	130	222,802	106	362,072	110
2011	74,486	107	64,784	121	222,802	99	362,072	105
2010	74,486	97	64,784	131	222,802	104	362,072	107
2009	74,360	110	63,333	122	221,364	104	359,057	108
2008	74,360	114	63,333	128	221,364	106	359,057	112
2007	74,360	116	63,333	154	221,364	111	359,057	120
2006	74,360	107	63,633	143	221,364	110	359,357	115
2005	74,360	122	63,633	153	221,364	120	359,357	126
2004	74,360	118	63,633	145	221,364	110	359,357	118

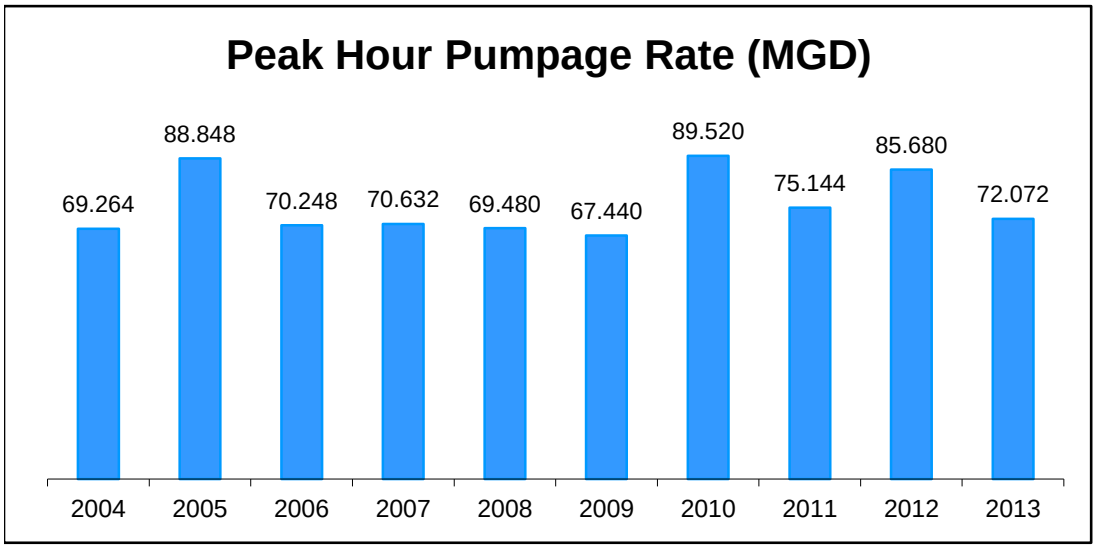
Maximum Pumpage to Distribution

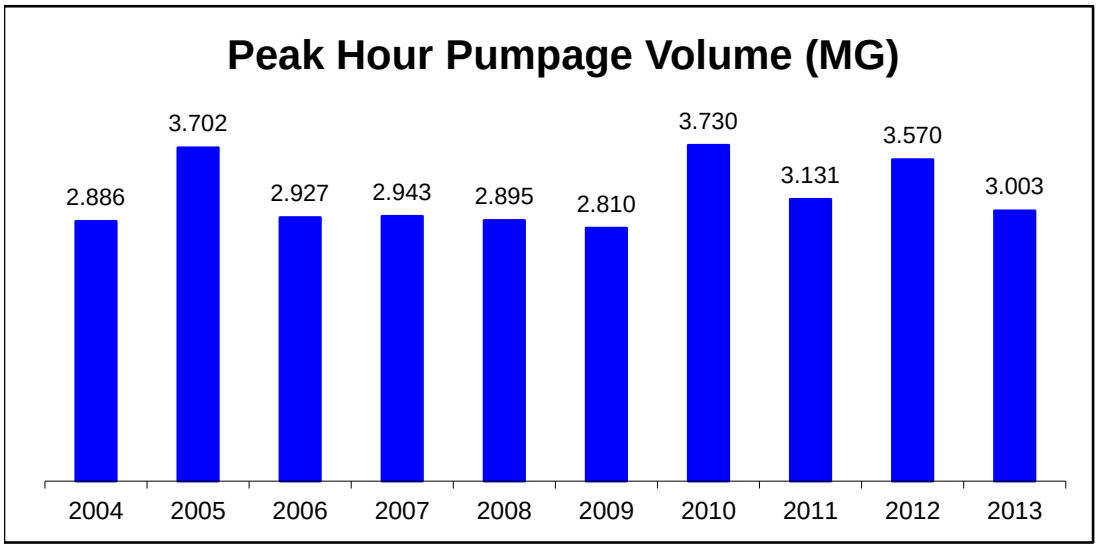
Year	*Max Day Pumpage Volume (MG)*	*Peak Hour Pumpage Rate (MGD)*	*Peak Hour Pumpage Volume (MG)*
2013	56.946	72.072	3.003
2012	69.210	85.680	3.570
2011	66.096	75.144	3.131
2010	57.020	89.520	3.730
2009	58.940	67.440	2.810
2008	57.478	69.480	2.895
2007	65.997	70.632	2.943
2006	65.961	70.248	2.927
2005	80.381	88.848	3.702
2004	60.395	69.264	2.886

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**
2013	August 28th	August 28th	August 28th	August 27th
	72.072	12.585	11.209	33.374
2012	July 17th	July 17th	July 17th	July 6th
	69.210	18.580	13.579	43.775
2011	July 18th	July 18th	July 18th	July 19th
	66.096	12.614	13.724	40.820
2010	July 17th	July 29th	August 20th	July 19th
	57.020	13.643	12.957	34.661
2009	August 14th	August 13th	August 14th	August 6th
	58.940	13.992	11.495	34.725
2008	July 30th	July 30th	July 30th	July 29th
	57.478	11.788	11.495	33.670
2007	August 2nd	August 2nd	June 11th	August 2nd
	65.997	17.774	16.493	35.946
2006	August 1st	July 29th	August 1st	August 1st
	65.961	14.127	15.236	37.221
2005	June 24th	July 17th	June 24th	June 24th
	80.381	16.926	17.268	47.233
2004	August 2nd	August 3rd	July 2nd	July 30th
	60.395	14.497	11.895	35.471

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 Cost $/kWh
2013	11,529,489	$779,226	$0.068
2012	13,706,324	$924,422	$0.067
2011	13,462,281	$841,245	$0.062
2010	12,009,162	$821,166	$0.068
2009	11,290,287	$829,181	$0.073

* 2012 cost is higher than usual due to increased pumpage during a drought.

Natural Gas Used for Pumping and Emergency Engines*

Year	Therms	Total Cost**	Average Cost $/Therm
2013	129,481	$86,926	$0.671
2012	124,954	$83,901	$0.671
2011	225,100	$116,272	$0.517
2010	51,552	$32,237	$0.625
2009	37,203	$28,274	$0.760

* Includes natural gas purchase and delivery charges.

** 2011 cost is elevated due to switchgear fire, which required extended emergency generator use.

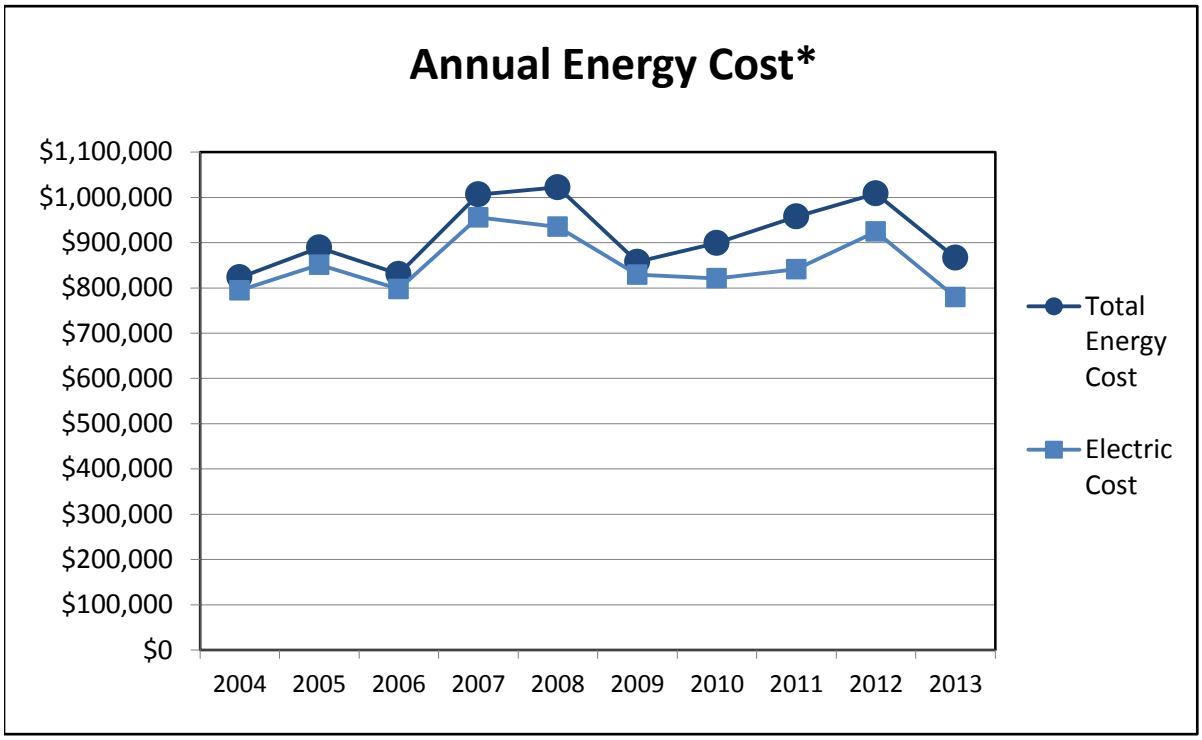
Total Energy Cost (Electric & Gas)

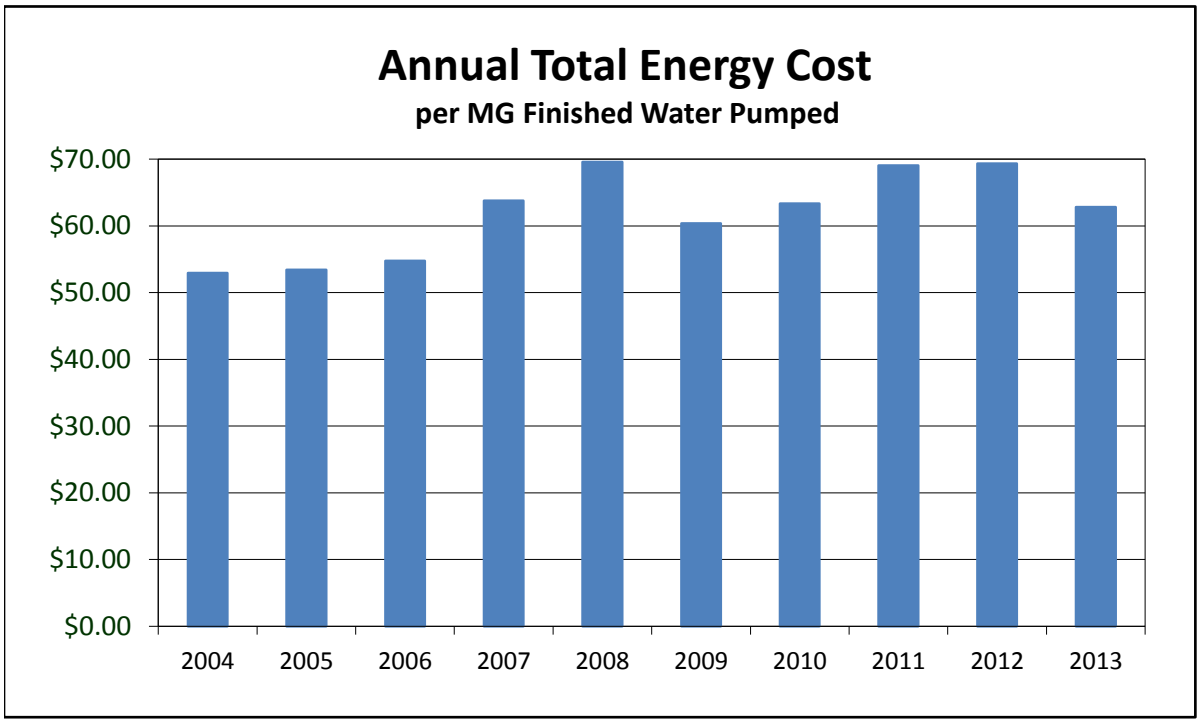
Year	Total
2013	$866,152
2012	$1,008,323
2011	$957,517
2010	$899,264
2009	$857,455

Total Energy Cost Per Million Gallons of Finished Water Pumped

2013	$62.80
2012	$69.32
2011	$69.04
2010	$63.32
2009	$60.38

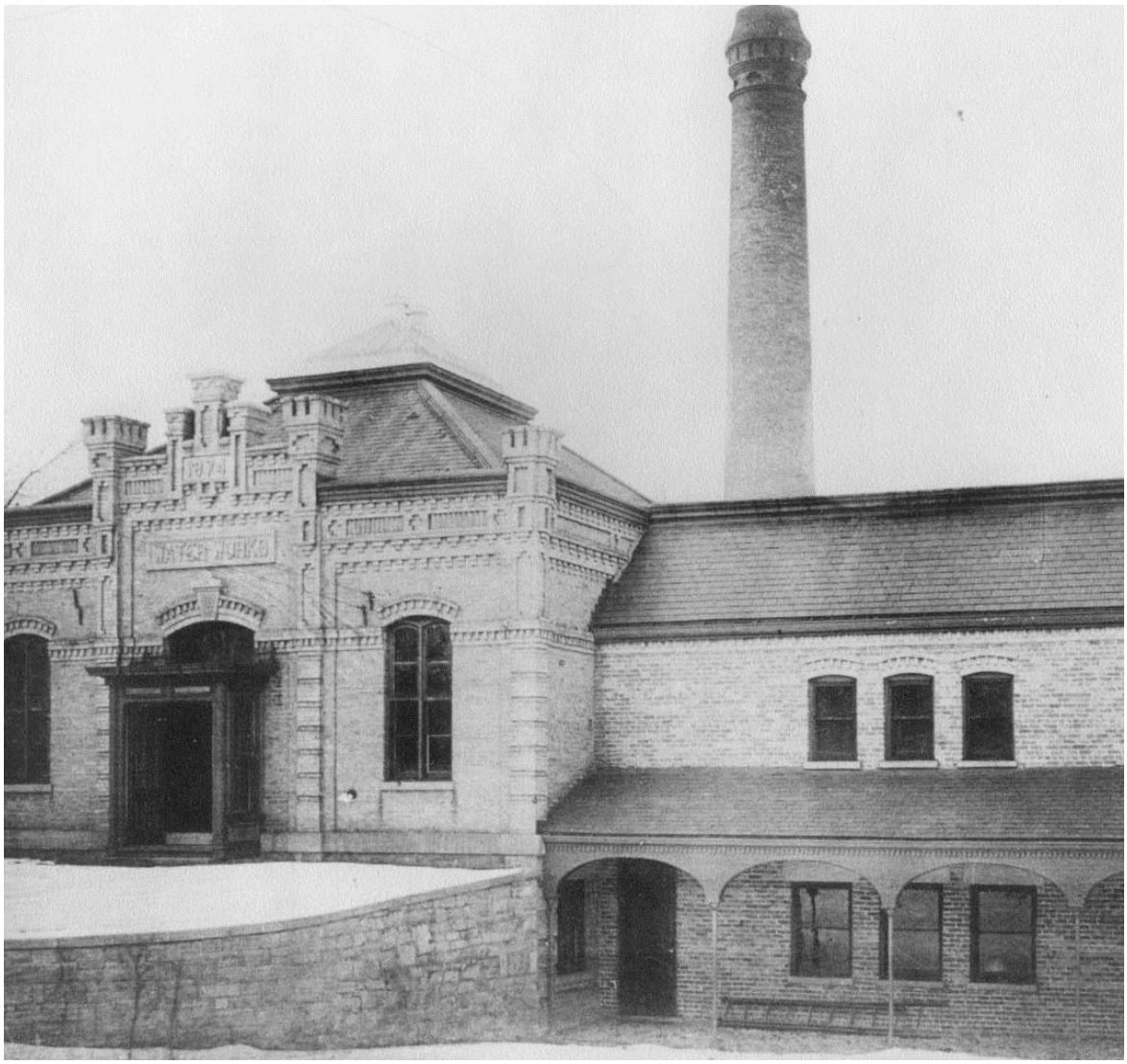
Energy Costs





* Energy costs increased in 2012 due to increased pumping during the summer drought.

Filtration



The original plant received an addition in 1888, allowing the installation of a second Holly engine. This was originally intended to replace the first engine, but growing demand kept both engines running. In 1892, the village of South Evanston was annexed, becoming a water user.

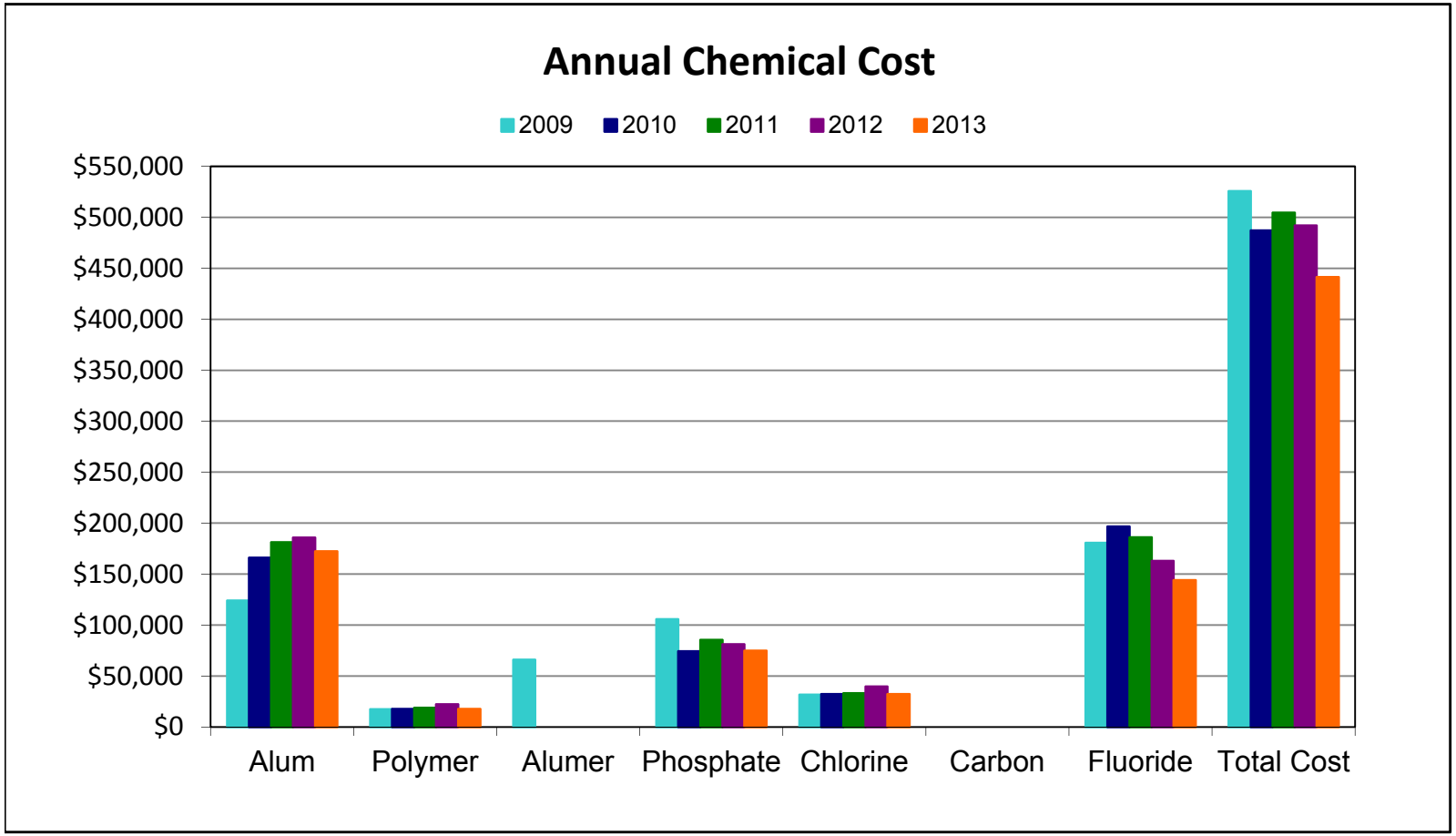
Chemical Treatment: Chemicals Used and Costs

	Chemical Feed (lbs/MG)						
	Avg Daily	Max Day	Min Day	Unit Cost	Pounds per Year	Total Cost	Cost per MG Treated
Aluminum Sulfate							
2013	54.8	97.2	39.5	$447.28 / dry ton	770,838	$172,390	$12.16
2012	55.9	101.6	30.2	$447.28 / dry ton	830,624	$185,761	$12.27
2011	63.0	103.8	39.6	$413.87 / dry ton	870,836	$181,138	$12.80
2010	59.0	103.8	39.3	$400.10 / dry ton	830,688	$166,179	$11.62
2009	53.6	100.5	31.7	$440.00 / dry ton	607,724	$124,161	$12.09
Alumer*							
2009	35.5	76.5	24.3	$420.00/ dry ton	146,180	$66,116	$15.93
2004	30.1	55.6	18.1	$122.00/ dry ton	476,768	$66,582	$4.19
Chlorine							
2013	12.2	17.9	7.6	$365.00 / ton	176,190	$32,155	$2.27
2012	12.0	20.0	7.0	$424.50 / ton	187,315	$39,758	$2.63
2011	12.7	18.8	8.4	$367.50 / ton	180,870	$33,235	$2.35
2010	12.3	16.2	8.8	$367.50 / ton	176,125	$32,363	$2.26
2009	11.9	17.6	7.3	$367.00 / ton	172,880	$31,767	$2.20
Activated Carbon**							
Hydrofluosilic Acid (Fluoride)							
2013	37.7	61.1	29.3	$539.00 / ton	534,550	$144,061	$10.16
2012	36.2	38.2	33.3	$596.00 / ton	547,011	$163,009	$10.77
2011	38.4	53.0	26.5	$685.00 / ton	542,886	$185,938	$13.14
2010	40.1	42.8	37.8	$685.00 / ton	574,004	$196,597	$13.75
2009	39.4	43.0	23.1	$635.00 / ton	568,907	$180,628	$12.51
Polymer							
2013	3.3	6.1	2.3	$760.00 / ton	46,584	$17,702	$1.25
2012	3.4	6.1	2.0	$870.00 / ton	51,318	$22,323	$1.47
2011	3.9	6.5	2.3	$700.00 / ton	53,499	$18,725	$1.32
2010	3.6	6.2	2.3	$700.00 / ton	50,316	$17,611	$1.23
2009	3.7	6.2	2.0	$660.00 / ton	52,801	$17,424	$1.21
Blended Phosphate							
2013	12.5	14.0	11.3	$4.98 / gallon	173,141	$74,978	$5.29
2012	12.3	18.5	11.0	$5.15 / gallon	181,034	$81,072	$5.35
2011	14.7	19.1	10.7	$4.83 / gallon	203,601	$85,512	$6.04
2010	12.5	18.4	10.7	$4.83 / gallon	176,954	$74,321	$5.20
2009	12.7	14.9	10.9	$6.71 / gallon	181,070	$105,650	$7.32

* Alumer is a mixture of aluminum sulfate and polymer that was tested in 2004, and used from 5/27/09 to 8/29/09.

** 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	8 MGD	3 MGD	8 MGD
2013	224.5	200.6	95,958	101,536
2012	208.7	171.5	96,000	92,402
2011	229.1	197.3	96,336	88,162
2010	229.2	198.8	96,286	100,046
2009	253.8	239.2	97,313	94,790
2008	266.7	228.5	97,050	100,601
2007	234.9	200.7	91,395	104,530
2006	245.4	226.9	105,043	105,059
2005	224.7	201.7	104,595	105,031
2004	266.7	249.5	105,965	105,110

Filter Washes

	Total Washes per Year		Max # of Washes per Day	
Year	3 MGD	8 MGD	3 MGD	8 MGD
2013	427	524	7	7
2012	476	611	7	9
2011	430	486	5	6
2010	452	559	7	7
2009	387	409	6	5
2008	369	460	6	6
2007	425	569	6	7
2006	453	503	5	6
2005	522	614	6	8
2004	404	419	6	7

Wash Water

Year	Total (MG)	Avg Daily %	Max Daily %
2013	248.996	1.78	6.20
2012	321.030	2.13	9.72
2011	211.546	1.49	5.14
2010	223.704	1.53	15.20
2009	149.063	1.02	4.54
2008	145.593	0.95	4.15
2007	192.135	1.15	4.86
2006	160.264	1.01	3.25
2005	184.088	1.03	3.45
2004	127.261	0.79	4.22

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. The EPA requires that no more than 5% of monthly samples from the City's water distribution system test positive for the presence of total coliform. Evanston is required to collect 80 water samples per month from the distribution system.

Distribution System		Positive for	Positive for
Year	Number Sampled	Total Coliform	Fecal Coliform
2013	981	1	0
2012	995	2	0
2011	993	4	0
2010	994	4	1
2009	965	2	0

Additional Bacteriological Samples Analyzed for the Village of Skokie

Year	Number Sampled
2013	899
2012	914
2011	900
2010	941
2009	918

Raw Water		Colony Count	
Year	Number Sampled	Average	Maximum
2013	730 (Twice Daily)	45	>200
2012	732 (Twice Daily)	41	>200
2011	730 (Twice Daily)	102	>200
2010	730 (Twice Daily)	96	>200
2009	730 (Twice Daily)	59	>200

After Primary Treatment		Colony Count	
Year	Number Sampled	Average	Maximum
2013	730 (Twice Daily)	0	0
2012	732 (Twice Daily)	0	0
2011	730 (Twice Daily)	0	0
2010	730 (Twice Daily)	0	0
2009	730 (Twice Daily)	0	0

Plant Tap A.M. and P.M. Samples		Colony Count	
Year	Number Sampled	Average	Maximum
2013	1460 (4 times Daily)	0	0
2012	1464 (4 times Daily)	0	0
2011	1460 (4 times Daily)	0	0
2010	1460 (4 times Daily)	0	0
2009	1460 (4 times Daily)	0	0

Taste & Odor, Turbidity, Temperature and Fluoride
Report of Water Quality Control Laboratory

Taste & Odor

Year	Number of Tests*
2013	508
2012	504
2011	756
2010	2,190
2009	2,190

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
2013	8.49	85.5	0.49	0.75	2.35	0.06	0.08	0.16	0.07
2012	9.59	124.0	0.55	0.74	2.71	0.25	0.08	0.18	0.06
2011	19.66	143.0	0.54	0.98	4.20	0.06	0.08	0.40	0.06
2010	13.50	127.0	0.51	0.79	2.60	0.27	0.09	0.23	0.06
2009	10.07	100.0	0.42	0.72	1.81	0.27	0.08	0.14	0.05

Raw Water Temperature

Year	Average	Maximum	Minimum
2013	11.2°C / 52.1°F	24.5°C / 76.1°F	0.08°C / 33.4°F
2012	12.9°C / 55.3°F	26.8°C / 80.2°F	2.1°C / 35.8°F
2011	11.3°C / 52.3°F	25.0°C / 77.0°F	0.8°C / 33.4°F
2010	10.6°C / 51.2°F	22.0°C / 71.6°F	0.8°C / 33.4°F
2009	10.3°C / 50.5°F	22.3°C / 72.1°F	0.8°C / 33.4°F

Fluoride Content (ppm)
E.P.A. standard is 0.9 to 1.2 ppm.

	Plant Tap			Distribution		
Year	Avg	Max	Min	Avg	Max	Min
2013	0.97	1.11	0.90	0.98	1.09	0.90
2012	0.98	1.09	0.90	0.98	1.08	0.90
2011	0.99	1.11	0.90	1.00	1.11	0.90
2010	0.98	1.11	0.90	0.98	1.09	0.90
2009	1.01	1.20	0.90	1.03	1.19	0.92

* Taste & Odor testing requirements changed in 2011 (fewer days per week and fewer samples per day)

Chlorine Residual (ppm)

Report of Water Quality Control Laboratory

Filter Influent

	Free Residual			Total Residual		
Year	Avg	Max	Min	Avg	Max	Min
2013	0.64	0.92	0.35	0.77	1.06	0.49
2012	0.68	1.04	0.44	0.81	1.19	0.54
2011	0.67	0.96	0.42	0.81	1.14	0.49
2010	0.63	0.94	0.26	0.78	1.11	0.36
2009	0.59	0.89	0.28	0.76	1.13	0.46

Filter Effluent

	Free Residual			Total Residual		
Year	Avg	Max	Min	Avg	Max	Min
2013	0.55	0.83	0.30	0.67	0.97	0.40
2012	0.59	0.92	0.40	0.71	1.04	0.51
2011	0.58	0.86	0.36	0.71	0.99	0.48
2010	0.55	0.85	0.23	0.70	0.96	0.48
2009	0.50	0.86	0.22	0.66	1.06	0.39

Plant Tap

	Free Residual			Total Residual		
Year	Avg	Max	Min	Avg	Max	Min
2013	0.66	0.88	0.46	0.80	1.07	0.60
2012	0.67	1.00	0.48	0.81	1.15	0.60
2011	0.67	0.94	0.49	0.81	1.17	0.62
2010	0.66	0.83	0.48	0.82	1.05	0.62
2009	0.65	0.89	0.48	0.82	1.11	0.56

Distribution Tap

	Free Residual			Total Residual		
Year	Avg	Max	Min	Avg	Max	Min
2013	0.45	0.78	0.18	0.61	0.99	0.34
2012	0.44	0.90	0.13	0.59	1.05	0.30
2011	0.43	0.94	0.15	0.59	0.86	0.28
2010	0.41	0.82	0.07	0.58	0.98	0.20
2009	0.42	0.71	0.10	0.59	0.87	0.23

pH, Alkalinity and Hardness

Report of Water Quality Control Laboratory

pH

EPA standard is 7.1 - 7.9

Year	Number of Tests	Raw Water Avg	Raw Water Max	Raw Water Min	Plant Tap Avg	Plant Tap Max	Plant Tap Min
2013	730	8.3	8.5	8.0	7.6	7.9	7.3
2012	732	8.3	8.5	8.1	7.6	7.9	7.6
2011	730	8.3	8.5	8.0	7.6	7.8	7.4
2010	730	8.3	8.6	7.9	7.6	7.8	7.3
2009	729	8.3	8.6	7.6	7.6	7.8	7.1

Alkalinity (ppm)

Year	Number of Tests	Raw Water Avg	Raw Water Max	Raw Water Min	Plant Tap Avg	Plant Tap Max	Plant Tap Min
2013	730	105	112	94	98	108	90
2012	732	105	112	92	98	108	84
2011	730	106	116	93	99	110	74
2010	730	103	115	85	97	111	84
2009	730	104	118	91	97	119	80

Hardness (ppm as $CaCo_3$)

Year	Number of Tests	Raw Water Avg	Raw Water Max	Raw Water Min	Finished Water Avg	Finished Water Max	Finished Water Min
2013	730	135	142	111	131	141	119
2012	732	136	149	124	132	149	134
2011	730	135	148	120	133	149	118
2010	730	133	151	122	132	151	120
2009	730	132	152	100	130	150	94

Detected Substances: 2013 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% of samples meet 0.3 NTU; 0.16 NTU Highest single measurement	0.07 - 0.16	NO	Soil runoff
Fluoride (ppm)	4	4	0.9	0.9 - 1.1	NO	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate [measured as Nitrogen](ppm)	10	10	0.4	single sample	NO	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium (ppm)	NA	NA	7.5	single sample	NO	Erosion from naturally occurring deposits
Barium (ppm)	2	2	0.02	single sample	NO	Discharge of drilling wastes; Discharge from metal refineries; Erosion of Natural deposits
Chromium, Total (ppm)	0.1	0.1	0.0003	0.0002 - 0.0003	NO	Discharge from steel and pulp mills; erosion of natural deposits
Total Coliform Bacteria	0	5% of Monthly Samples are Positive	1.2%	NA	NO	Naturally present in the environment
Combined Radium 226/228 (pCi/L)	0	5	0.82	single sample	NO	Erosion of natural deposits
Gross Alpha excluding Radon and Uranium (pCi/L)	0	15	3.9	single sample	NO	Erosion of natural deposits
Beta/Photon Emitters (mrem/yr)	0	50	7.3	single sample	NO	Decay of natural and man-made deposits
Cotinine (ppb)	NOT REGULATED	NOT REGULATED	0.002	Single Sample	NO	Nicotine metabolite/waste water discharge
Sulfate (ppm)	NOT REGULATED	USEPA National Secondary Standard of 250	25	Single Sample	NO	Naturally occurring, coagulant residual

Disinfectants and Disinfection By-Products	MCLG	Highest Allowed (MCL)	Highest Level Detected	Range of Levels Detected	Violation	Source of Contamination
Total Trihalomethanes (ppb)	NA	80	26	8.1 - 35.4	NO	By-product of drinking water chlorination
Total Haloacetic Acids (ppb)	NA	60	8	2.3 - 10.3	NO	By-product of drinking water chlorination
Chlorine (ppm)	4 MRLDG	4 MRDL	0.4	0.38 - 0.5	NO	Water additive used to control microbes

Detected Substances: 2013 Water Quality Data

Lead & Copper	*MCLG*	*Action Level (AL)*	*90th Percentile*	*Range of Levels Detected*	*Violation*	*Source of Contamination*
Lead (ppb)	0	15	4.2	<1 - 6.1	NO	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	1.3	1.3	0.18	0.0023-0.940	NO	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems

UCMR	*MCLG*	*Highest Allowed (MCL)*	*Average*	*Range of Levels Detected*	*Violation*	*Source of Contamination*
Chromium, Hexavalent (ppb)* (chromium-6	NOT REGULATED	NOT REGULATED	0.19	0.18 - 0.21	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.
Molybdenum (ppb)	NOT REGULATED	NOT REGULATED	1.1	1.0 - 1.1	NO	Naturally occurring element found in ores and present in plants, animals and bacteria; commonly used form molybdenum trioxide used as a chemical reagent.
Strontium (ppb)	NOT REGULATED	NOT REGULATED	115	110 - 120	NO	Naturally occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions.
Vanadium (ppb)	NOT REGULATED	NOT REGULATED	0.3	0.2 - 0.3	NO	Naturally occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst.

Additional Information About Your Water

Measured Parameter	*Evanston Minimum*	*Evanston Maximum*	*Measured Parameter*	*Evanston Result*
pH (0-14 pH units)	7.3	7.9	Calcium (ppm)	35
Hardness (as mg $CaCO_3$/L)	119	141	Chloride (ppm)	14
Hardness (gpg)	7.0	8.2	Dissolved Solids (ppm)	160
Alkalinity (ppm)	90	108	Magnesium (ppm)	12
Raw Water Temperature °F	33	76	Potassium (ppm)	1.5

Non-Detected Contaminants

2013 Water Quality Data

Inorganic Contaminants	MCLG	MCL	UL MRL	Level Found
ARSENIC (ppb)	none	50	1	nd
CADMIUM (ppb)	5	5	1	nd
CHROMIUM (ppb)	100	100	2.0	nd
CYANIDE (ppb)	200	200	0.02	nd
IRON (ppb)	n/a	1000	0.02	nd
MANGANESE (ppb)	n/a	150	2	nd
MERCURY (INORGANIC) (ppb)	2	2	0.1	nd
NICKEL	n/a	100	1	nd
SELENIUM (ppb)	50	50	2	nd
ANTIMONY (ppb)	6	6	1	nd
BERYLLIUM (ppb)	4	4	0.3	nd
THALLIUM (ppb)	0.5	2	0.4	nd
ZINC (ppb)	n/a	5000	5	nd
NITRITE (AS NITROGEN) (ppm)	1	1	0.01	nd
Synthetic Organic Contaminants				
ENDRIN (ppb)	2	2	0.1	nd
BHC- GAMMA (LINDANE)	200	200	0.1	nd
METHOXYCHLOR (ppb)	40	40	0.1	nd
TOXAPHENE (ppb)	0	3	1	nd
DIQUAT (ppb)	20	20	2	nd
DALAPON (ppb)	200	200	5	nd
ENDOTHALL (ppb)	100	100	9	nd
DI(2-ETHYLHEXYL)ADIPATE (ppb)	400	400	0.6	nd
OXAMYL (VYDATE) (ppb)	200	200	2	nd
SIMAZINE (ppb))	4	4	0.35	nd
DI(2-ETHYLHEXYL)PHTHALATE (ppb)	0	6	0.6	nd
PICHLORAM (ppb)	500	500	0.4	nd
DINOSEB (ppb)	7	7	1	nd
HEXACHLOROCYCLOPENTADIENE (ppb)	50	50	0.5	nd
ALDICARB SULFOXIDE	n/a	n/a	1	nd
ALDICARB SULFONE	n/a	n/a	1	nd
CARBOFURAN (ppb)	40	40	0.9	nd
ALDICARB	n/a	n/a	1	nd
ATRAZINE (ppb)	3	3	0.3	nd
ALACHLOR (LASSO)(ppb)	0	2	0.2	nd
HEPTACHLOR	0	100	0.04	nd
HEPTACHLOR EPOXIDE (ppt)	0	100	0.02	nd
DIELDRIN	n/a	1	0.05	nd
2,4-Dichloro-Phenoxyacetic Acid (2,4-D) (ppb)	10	10	1	nd
2,4,5-TP (SILVEX) (ppb)	50	50	1	nd
HEXACHLOROBENZENE (ppb)	0	1	0.1	nd
BENZO (A) PYRENE (ppb)	0	200	0.1	nd
PENTACHLOROPHENOL (PCP) (ppb)	0	1	0.4	nd
ALDRIN (ppb)	n/a	1	0.05	nd
POLYCHLORINATED BIPHENYLS (PCB) (ppb)	0	500		nd
TOTAL DDT (ppb)	n/a	50*	1	nd
1,2 DIBROMO3-CHLOROPROPANE (DBCP) (ppb)	0	0.2	0.02	nd
ETHYLENE DIBROMIDE (EDB) (ppb)	0	50	0.01	nd
CHLORDANE (ppb)	0	2	0.2	nd

Non-Detected Contaminants

2012 Water Quality Data

Radionuclides	MCLG	MCL	UL MRL	Level Found
COMBINED RADIUM - 226,228 (pCi/L)	0	5		nd

THM/HAAs	MCLG	MCL	UL MRL	Level Found
MONOCHLORACETIC ACID (ppb)	70	70	2.0	nd
MONOBROMOACETIC ACID (ppb)	na	na	1.0	nd
DIBROMOACETIC ACID (ppb)	na	na	1.0	nd

UCMR3 (ppb) collected 8/13 & 11/13	MCLG	MCL	UL MRL	Level Found
Chlorate	na	na	*20*	nd
1.4 Dioxane	na	na	*0.07*	nd
Bromochloromethane	na	na	*0.06*	nd
Bromomethane	na	na	*0.2*	nd
1,3- Butadiene	na	na	*0.1*	nd
Chlorodifluoromethane	na	na	*0.08*	nd
Chyloromethane	na	na	*0.2*	nd
1,1 Dichloroethane	na	na	*0.03*	nd
1,2,3, Trichloropropane	na	na	*0.03*	nd
Perfluorobutanesulfonic acid (PFBS)	na	na	*0.09*	nd
Perfluoroheptanoic acid (PFHpA)	na	na	*0.01*	nd
Perfluorohexanesulfonic acid (PFHxS)	na	na	*0.03*	nd
Perfluorononanoic acid (PFNA)	na	na	*0.02*	nd
Perfluorooctane sulfonate (PFOS)	na	na	*0.04*	nd
Perfluorooctanoic acid (PFOA)	na	na	*0.02*	nd
Cobalt	na	na	*1*	nd

Unregulated Contaminants	MCLG	MCL	UL MRL	Level Found
Bisphenol A (ppb)	na	na	0.1	nd
Nonylphenol, isomer mix (ppb)	na	na	0.5	nd
4-n-Octylphenol (ppb)	na	na	0.5	nd
4-tert-Octylphenol (ppb)	na	na	0.5	nd
Pentachlorophenol (ppb)	na	na	0.1	nd
Phenylphenol (ppb)	na	na	0.1	nd
Tetrabromobisphenol A (ppb)	na	na	0.1	nd
2,4,6-Trichlorophenol (ppb)	na	na	0.1	nd
Pharmaceutically Active Compounds Positive	na	na	varies	nd
Pharmaceutically Active Compounds Negative	na	na	varies	nd

MCL= Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal
UL MRL= Underwriters Laboratories Minimum Reporting Level
ND = Not Detected

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 three years in compliance with state law. In 2011, Evanston sampled water from 30 homes with lead service lines and analyzed them for lead and copper content. All results were below the action levels. The 90th percentile level for lead in these samples was 4.2 ppb. The 90th percentile level for copper was 0.18 ppm.

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 an optimal fluoride range of 0.9 to 1.2 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 90^{th} 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).

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).

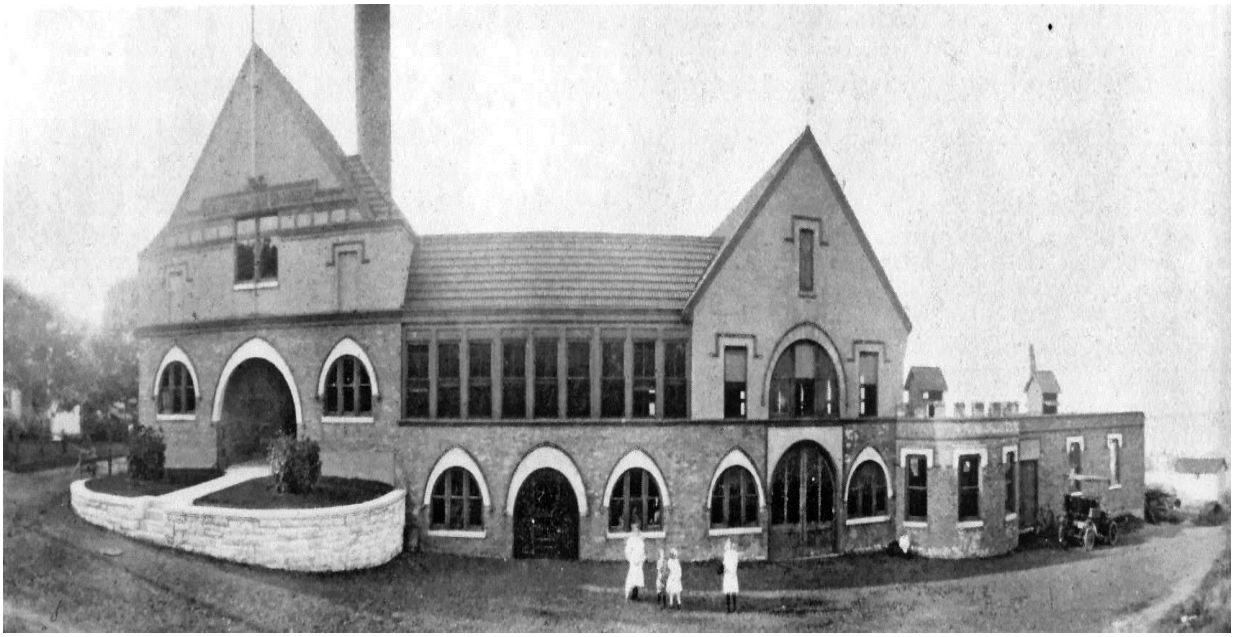
Sodium – There is not a state or federal MCL for sodium. Sodium levels below 20 mg/L (ppm) are not considered to be a public health issue.

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 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



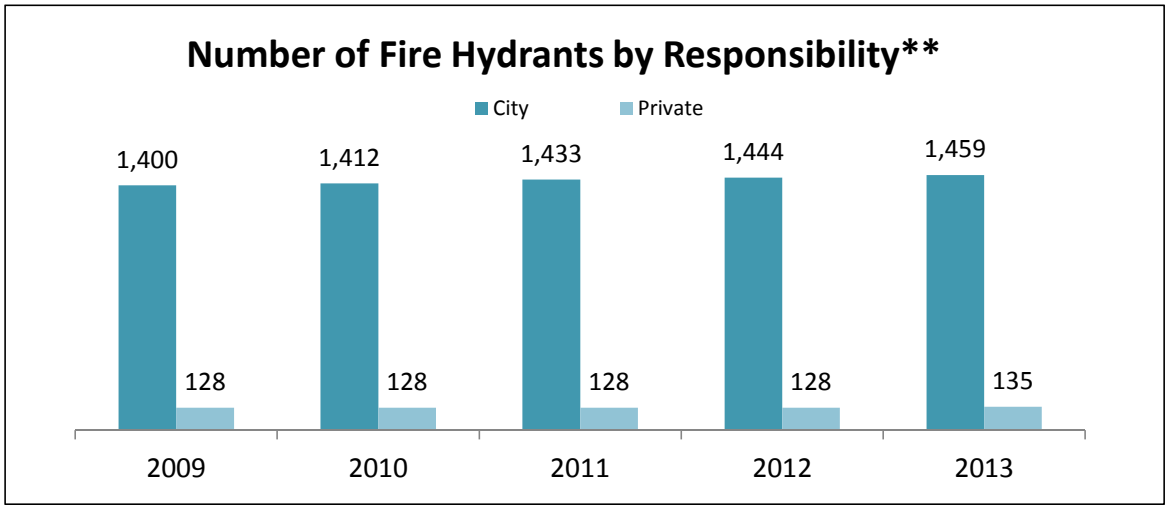
In 1897, the plant received a remodeling and enlargement, as well as a third Holly engine with a capacity of 12 million gallons a day. In 1914, a filter plant was built, making Evanston the first city along Lake Michigan with water treatment. The decline in typhoid and dysentery rates as a result of clean water helped spur Evanston's growth in the years to come.

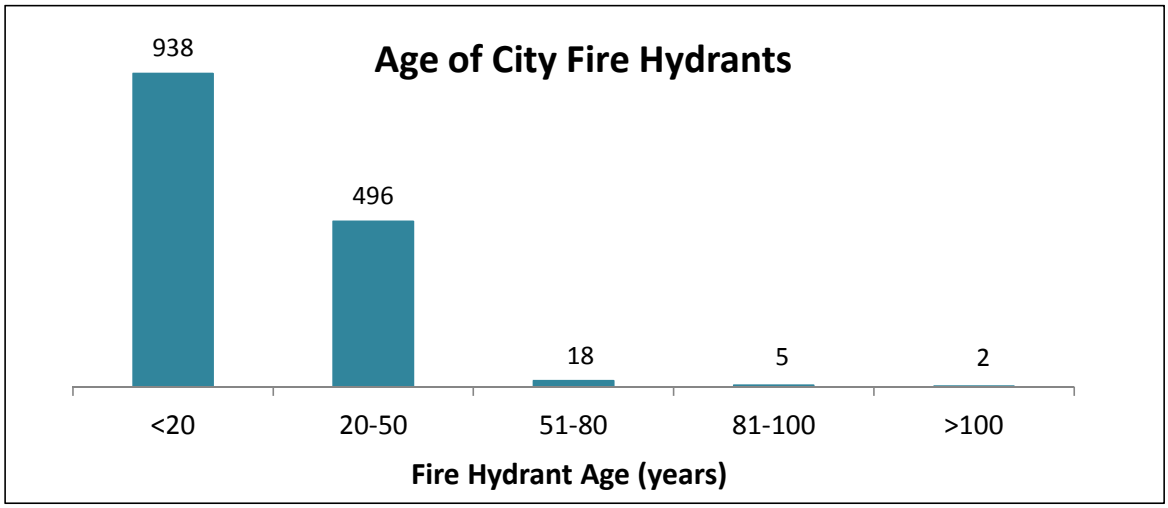
Fire Hydrants

System Data and Maintenance*

Hydrants Tested for Proper Operation	2009	2010	2011	2012	2013
Fire Department	1,630	1,394	1,410	1,400	1,417
Utilities Department	84	92	126	42	22

Hydrant Installation and Maintenance	2009	2010	2011	2012	2013
Installed (new)	6	11	19	10	18
Replaced	18	19	22	17	22
Repaired	119	114	176	73	175





* All work completed by Utilities Department staff unless otherwise noted.

** Changes from year to year are primarily due to removal/addition of hydrants during water main replacement projects, and GIS map corrections.

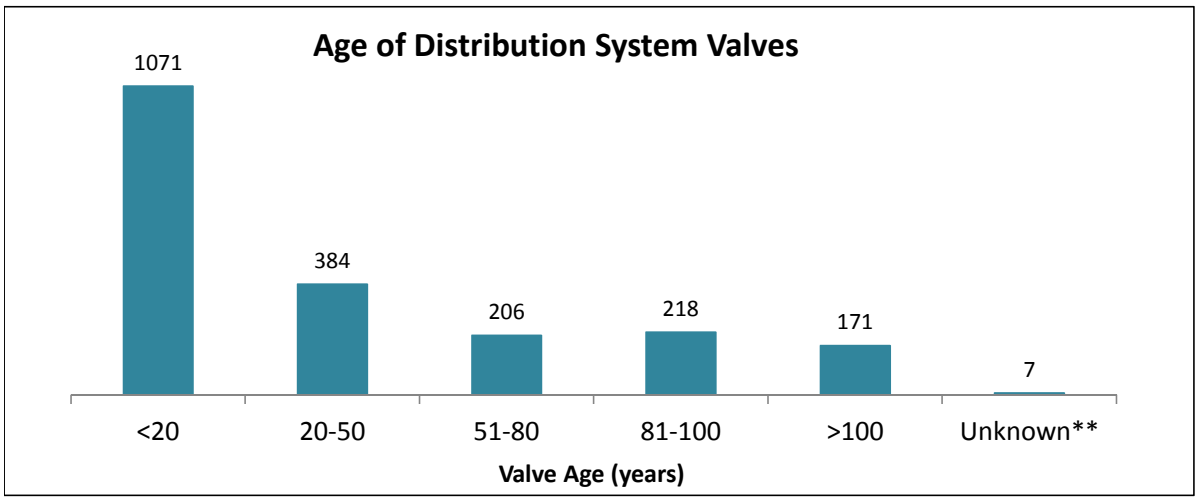
Valves

System Data and Maintenance*

Valves Turned for Proper Operation	2009	2010	2011	2012	2013
In-House	254	1,400	807	1,071	1,117
Contractor	0	0	0	0	0

Valve Installation and Maintenance	2009	2010	2011	2012	2013
Installed (new)	14	12	10	11	14
Replaced	20	36	25	26	44
Repaired	21	44	24	38	41

Number of Distribution Valves by Size	2009	2010	2011	2012	2013
3"	1	1	1	1	1
4"	34	30	30	29	27
6"	1050	1033	1,021	1,011	996
8"	435	452	469	484	492
10"	183	183	183	185	183
12"	211	222	227	235	243
14"	2	2	2	2	2
16"	49	49	49	49	46
18"	4	4	4	4	4
20"	2	1	1	2	2
24"	30	30	30	30	33
30"	11	11	11	11	12
36"	12	12	12	12	12
42"	2	2	2	2	2
48"	2	2	2	2	2
Total	2,028	2,034	2,044	2,059	2,057



* All work completed by Utilities Department staff unless otherwise noted.

** Valves are not accessible for field verification of age and other attributes because they are buried beneath paved surfaces. These valves are only accessible for operation from the surface.

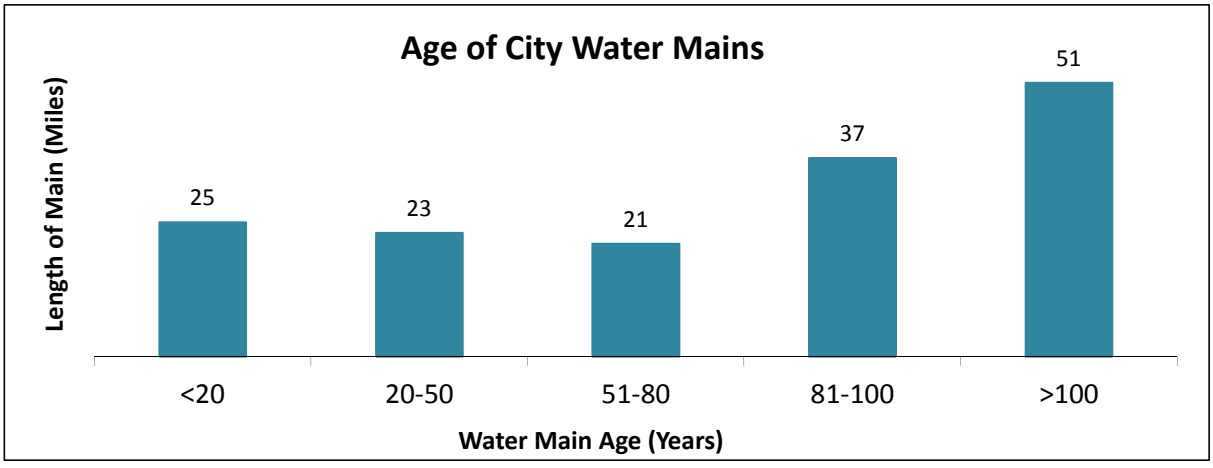
Water Mains

System Data and Maintenance*

Water Main Installation (lineal feet installed)	2009	2010	2011	2012	2013
In-House	7	0	0	181	50
Contractor	0	7,712	7,235	9,868	8,870

Water Main Break Repairs	2009	2010	2011	2012	2013
Blow-Out	17	26	16	56	21
Shear Break	10	10	11	8	30
Damage	0	0	0	2	3
Total	27	36	27	66	54

Water Main Sizes** (length in miles)	2009	2010	2011	2012	2013
3"	0.15	0.15	0.15	0.15	0.12
4"	2.38	1.95	1.95	1.68	1.55
6"	79.71	78.66	77.49	76.02	74.99
8"	29.06	25.72	26.69	27.62	28.35
10"	12.43	12.46	12.46	12.47	12.30
12"	16.05	16.55	16.88	17.42	17.73
14"	0.37	0.37	0.37	0.37	0.37
16"	6.35	6.35	6.35	6.51	6.25
18"	0.83	0.83	0.83	0.83	0.83
20"	0.56	0.49	0.56	0.56	0.56
24"	8.25	8.25	8.30	8.30	8.60
30"	1.69	1.69	1.69	1.69	1.69
36"	3.29	3.30	3.30	3.30	3.30
42"	0.04	0.04	0.04	0.04	0.04
48"	0.69	0.68	0.68	0.68	0.68
Total	161.85	157.48	157.73	157.63	157.35



* All work completed by Utilities Department staff unless otherwise noted.

** Changes from year to year are primarily due to removal/addition of water main during water main replacement projects and GIS map corrections.

Water Services

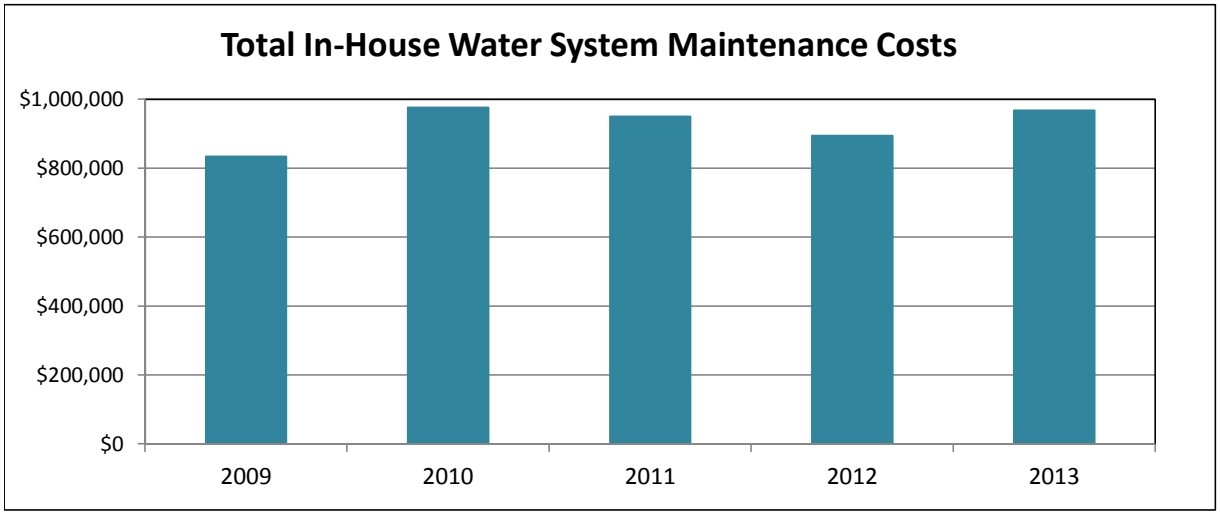
System Data and Maintenance*

Number of Water Service Accounts: 14,861**

Water Service Installation and Maintenance	2009	2010	2011	2012	2013
New Services Installed	48	31	19	4	2
Service Taps Replaced***	-	-	-	55	28
Services Replaced by Contractor	-	-	-	-	188
Service Leaks Repaired	26	26	22	14	34

Breakdown of In-House Maintenance Costs****

	2009	2010	2011	2012	2013
Water Mains	$166,657	$171,124	$145,934	$274,946	$213,075
Fire Hydrants	$194,376	$38,467	$207,625	$95,065	$109,048
Water Services	$127,230	$189,912	$211,007	$135,193	$159,592
Valves	$117,947	$202,871	$76,172	$102,763	$128,645
Snow & Ice Removal	$22,794	$70,745	$59,479	$24,085	$42,384
Assist Contractor	$40,067	$42,597	$43,969	$70,848	$69,516
JULIE Locates	$34,210	$34,560	$58,975	$62,845	$73,519
Equip/Facility Maint.	$55,004	$67,348	$85,559	$62,757	$85,631
Assist Other City Depts.	$29,180	$46,640	$21,390	$16,053	$11,364
Assist W&S Divisions	$25,583	$18,067	$11,433	$13,739	$10,811
Safety & Training	$9,595	$86,878	$19,270	$10,853	$18,883
Misc.	$11,984	$7,666	$10,337	$25,370	$45,422
Total	**$834,627**	**$976,874**	**$951,150**	**$894,518**	**$967,890**



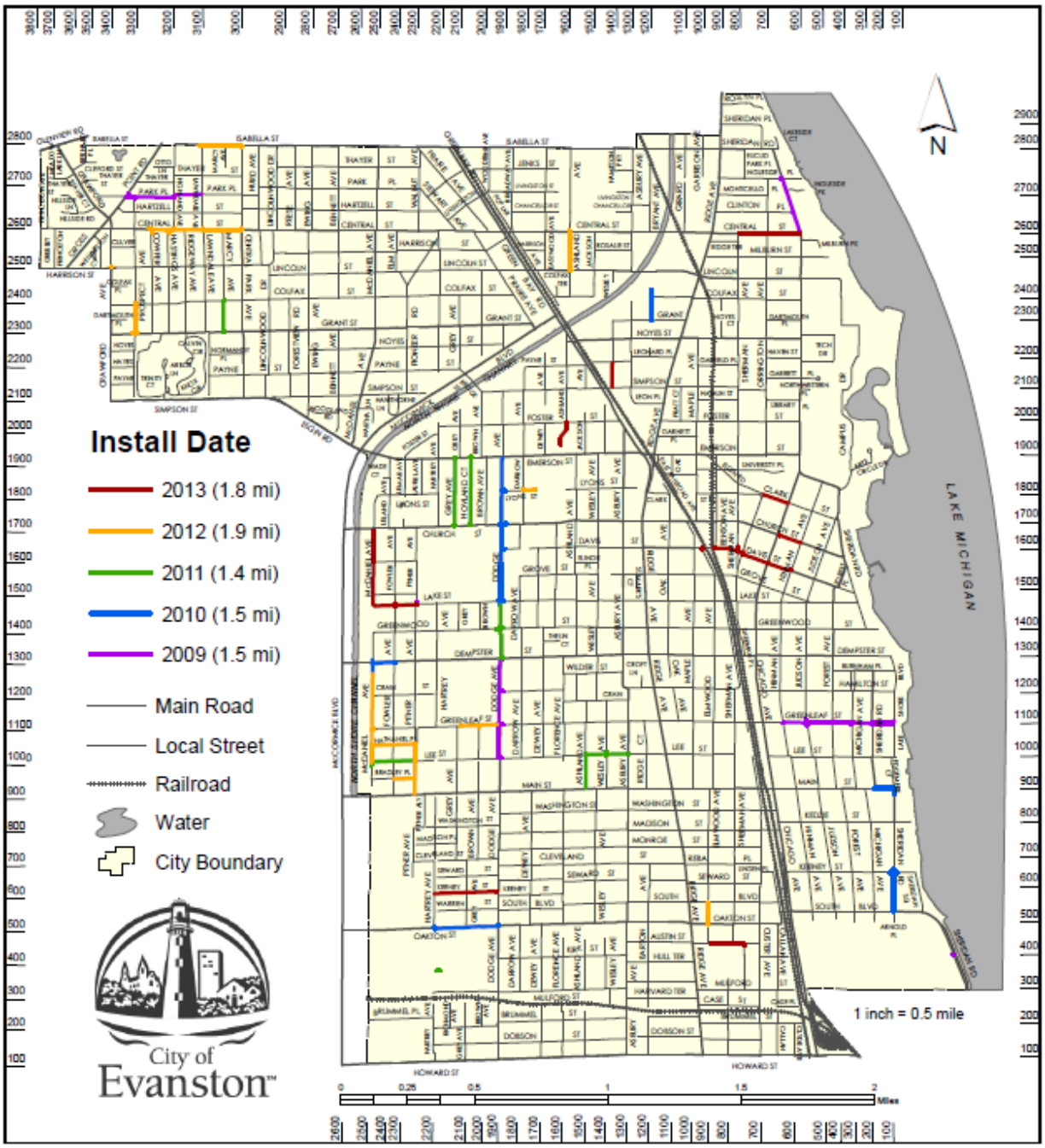
* All work completed by Utilities Department staff unless otherwise noted.

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

*** Differentiation of replacement of existing water services from new water service installations began in 2012.

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

Water Mains Installed



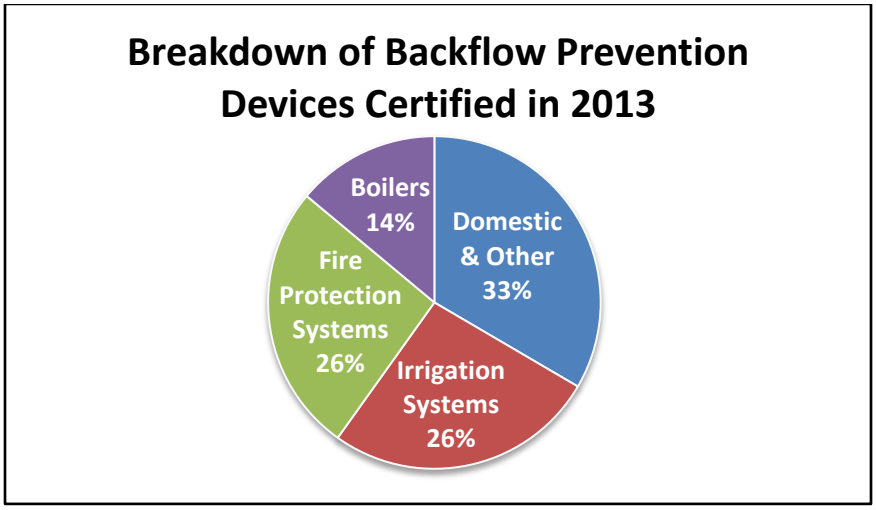
Cross Connection Control

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 Utilities Department hired a plumbing inspector to manage the City's cross connection control program. Since that time, over 2,000 backflow prevention devices have been added to the City's inventory and are now regularly inspected for compliance with State and City codes. An annual 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.

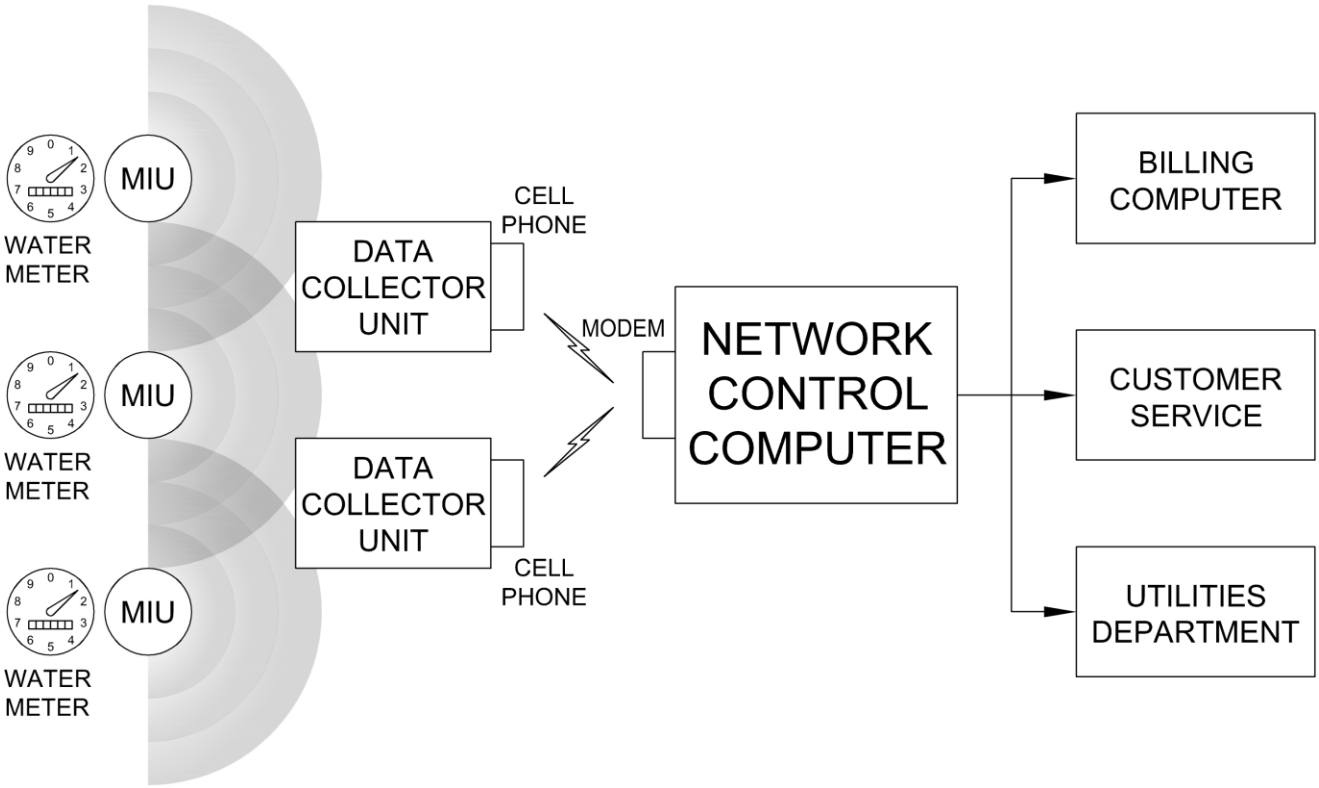
Year	Backflow Prevention Devices Certified Annually
Pre-2009	2,279
2009	2,061
2010	2,292
2011	2,609
2012	2,786
2013	3,356



Metering

In 1944, Skokie requested a direct water supply, which Evanston provided in the form of a direct pressure pipeline. By 1948, the growth of Skokie and Evanston made expanding the water plant a necessity. The expansion included a new all-electric high lift pumping station, new mixing and settling basins, a chemical building and laboratory, dry chemical feeders, and the addition of six 4 mgd filters, bringing the total filter capacity to 48 mgd. In 1950, the steam plant was shut down, giving way entirely to electric pumps with two backup gasoline engines.

Fixed Network Meter Reading System



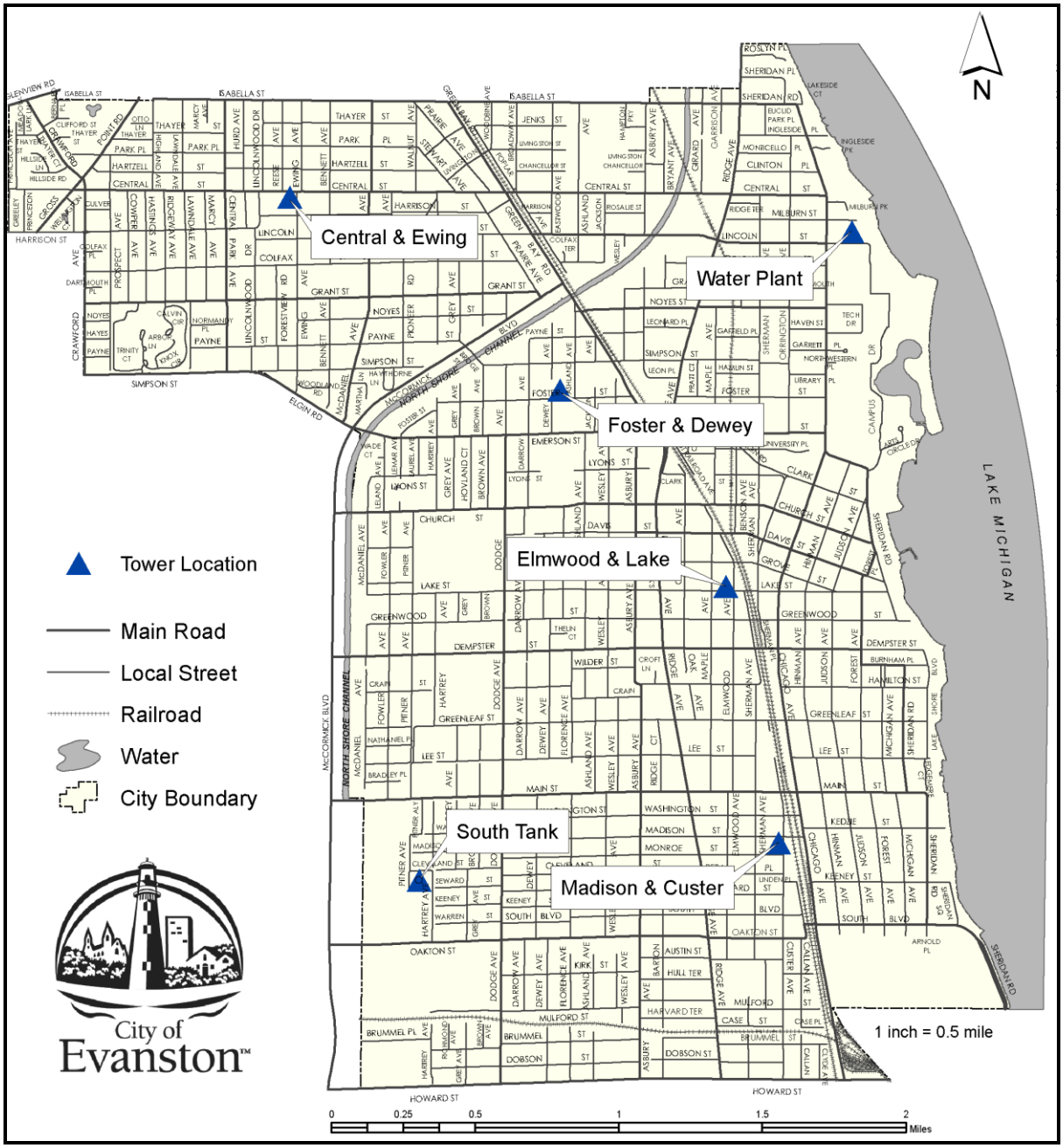
How it works:

- The Meter Information Unit (MIU) is attached to every water meter in Evanston. Each MTU contains a radio transmitter that, twice per day, broadcasts the meter reading.

- The Data Collector Unit (DCU) receives the meter readings from the MTUs and stores this data. Evanston currently has 6 DCUs located on various buildings throughout the community. Each DCU sends its meter reading information to the Network Control System at the Water Treatment Plant on a daily basis.

- The Network Control System supports customer service and system management activities and transfers the meter readings to the billing system.

Transmitter Tower Locations



Water Meter Inventory

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

Meter Size	Number of Meters
5/8”	11,796
¾”	807
1”	1,047
1.5”	251
2”	461
3”	55
4”	25
6”	3
8”	4
Total	14,449

Water Rates to Evanston Customers

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

Meter Size	Minimum Charge Effective 7/1/2013
5/8” & 3/4”	$6.43
1”	$12.84
1 ½”	$24.03
2”	$37.83
3”	$66.62
4”	$106.72
6”	$188.20
8”	$318.59

The minimum demand charge includes the first five hundred cubic feet (5 CCF) of water consumed every two months, which is roughly equivalent to 3,740 gallons of water.

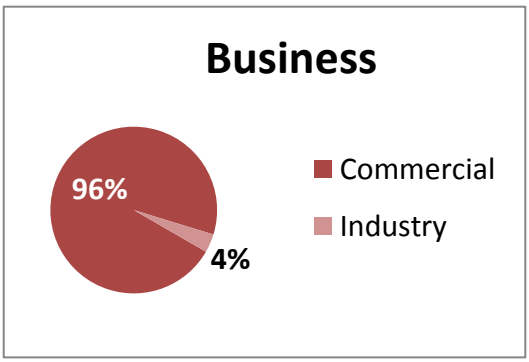
Water usage over the minimum is billed at $1.80 per CCF effective 7/1/2013. This is equivalent to a rate of $2.41 per 1,000 gallons.

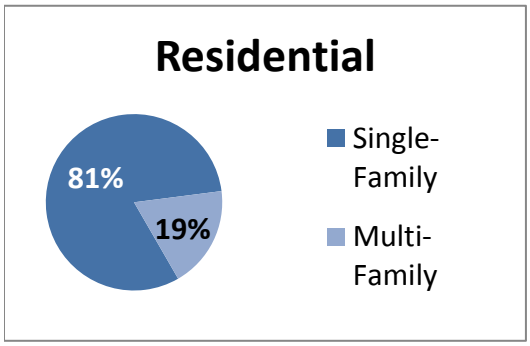
Water Service Accounts

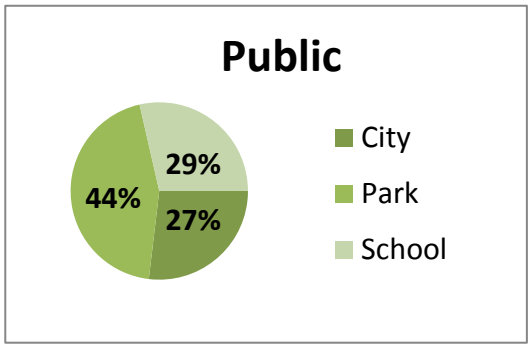
Billed by Category and Water Usage for 2013

Category	Number of Accounts	2013 Usage (CCF)*
Metered Water Services		
Single-Family	10,858	1,010,613
Multi-Family	2,497	1,178,975
Commercial	940	1,105,077
Industry	35	12,392
City	32	14,509
Park	53	4,407
School	34	42,992
Subtotal	14,449	3,368,965
Unmetered Water Services		
Fire Services**	453	-
Totals	**14,902**	**3,368,965**

Water Service Accounts by Category:



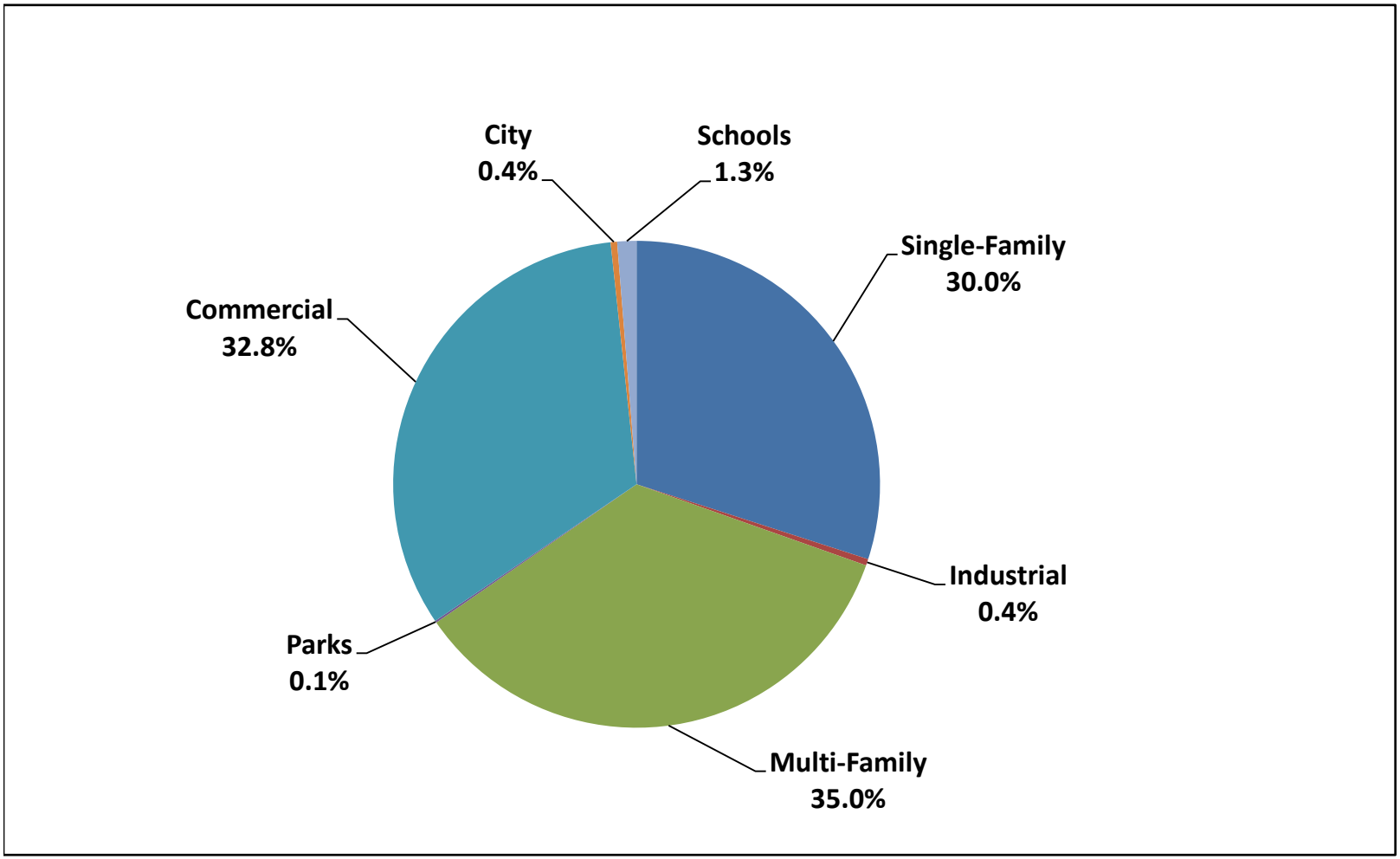




* Water usage is metered in units of 100 cubic feet (CCF). 1 CCF is approximately 748 gallons

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

2013 Water Usage by Evanston Customers

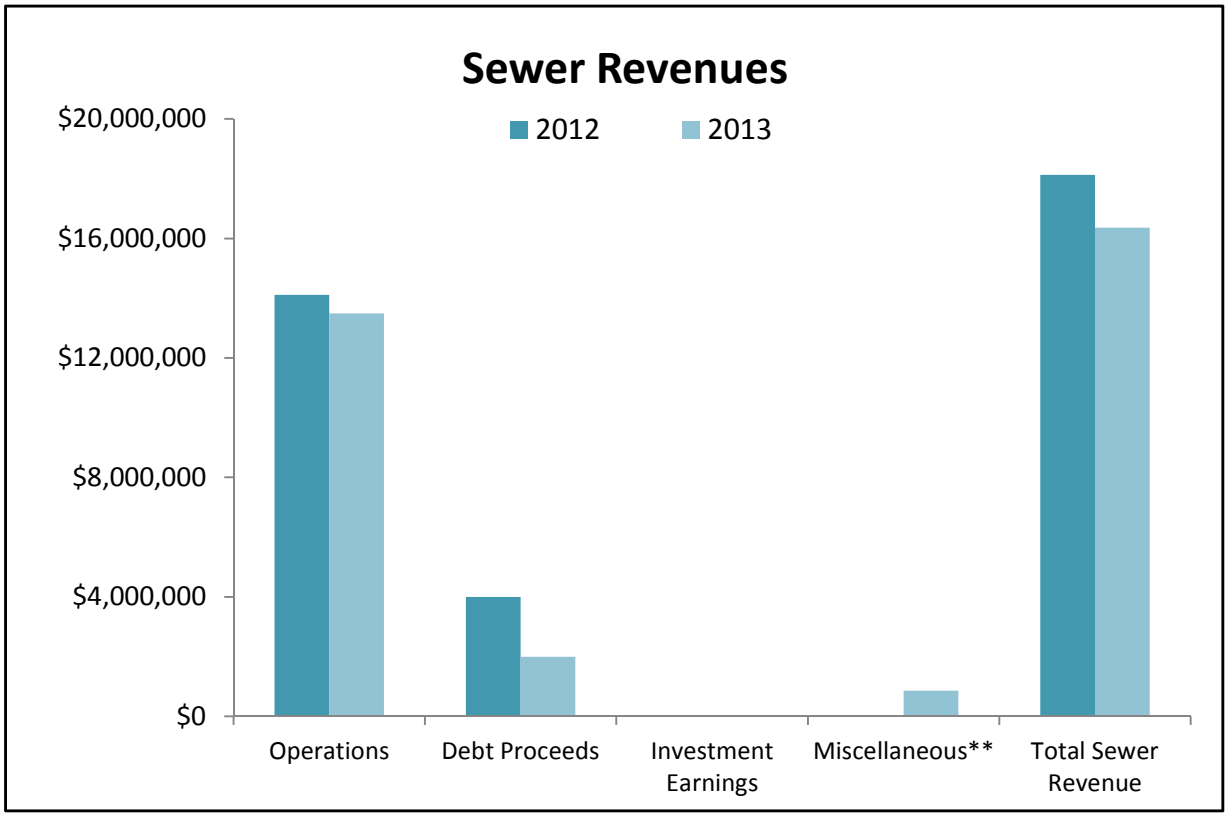


Sewer

More improvements occurred throughout the 1950s and 1960s, including eliminating all pollution to Lake Michigan from the water treatment plant and increasing the plant's total pumping capacity to 147 mgd. In 1980, Evanston signed a contract to provide water to the Northwest Water Commission, consisting of the municipalities of Arlington Heights, Buffalo Grove, Palatine, and Wheeling. From 1980 to 1985, the Evanston utilities underwent major capital improvements, updating many of the systems and building two standpipes for the northern and southern parts of Evanston.

Sewer Revenues*

	2012	2013
Operations	$14,115,210	$13,494,318
Debt Proceeds	$4,003,385	$2,000,000
Investment Earnings	$2,962	$1,271
Miscellaneous**	$0	$860,353
Total Sewer Revenue	$18,121,557	$16,355,942

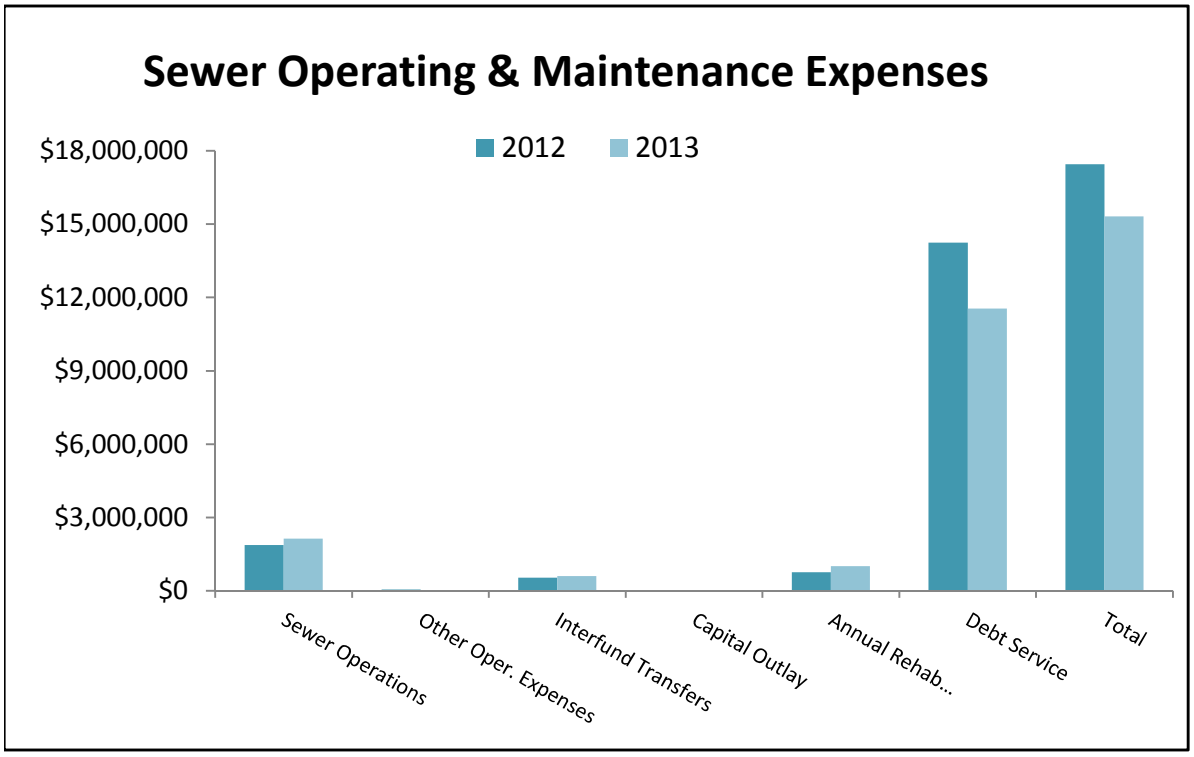


* Financial data are based on actual expenses and do not include audit adjustments such as depreciation and inventory. For audited financial records, see the Comprehensive Annual Financial Report for the City of Evanston, http://www.cityofevanston.org/transparency/budget-financial-reports/.

** Miscellaneous Revenue includes cross connection control fees, investment earnings, property rental, interest income, fees, grants, insurance reimbursement, phosphate sales, and merchandise sales. The

Sewer Operating & Maintenance Expenses*

	2012	2013
Sewer Operations	$1,866,650	$2,127,810
Other Oper. Expenses	$48,100	$23,300
Interfund Transfers	$529,403	$602,399
Capital Outlay	$18,000	$17,803
Annual Rehab Programs**	$753,000	$1,000,000
Debt Service	$14,242,252	$11,542,740
Total	$17,457,405	$15,314,052



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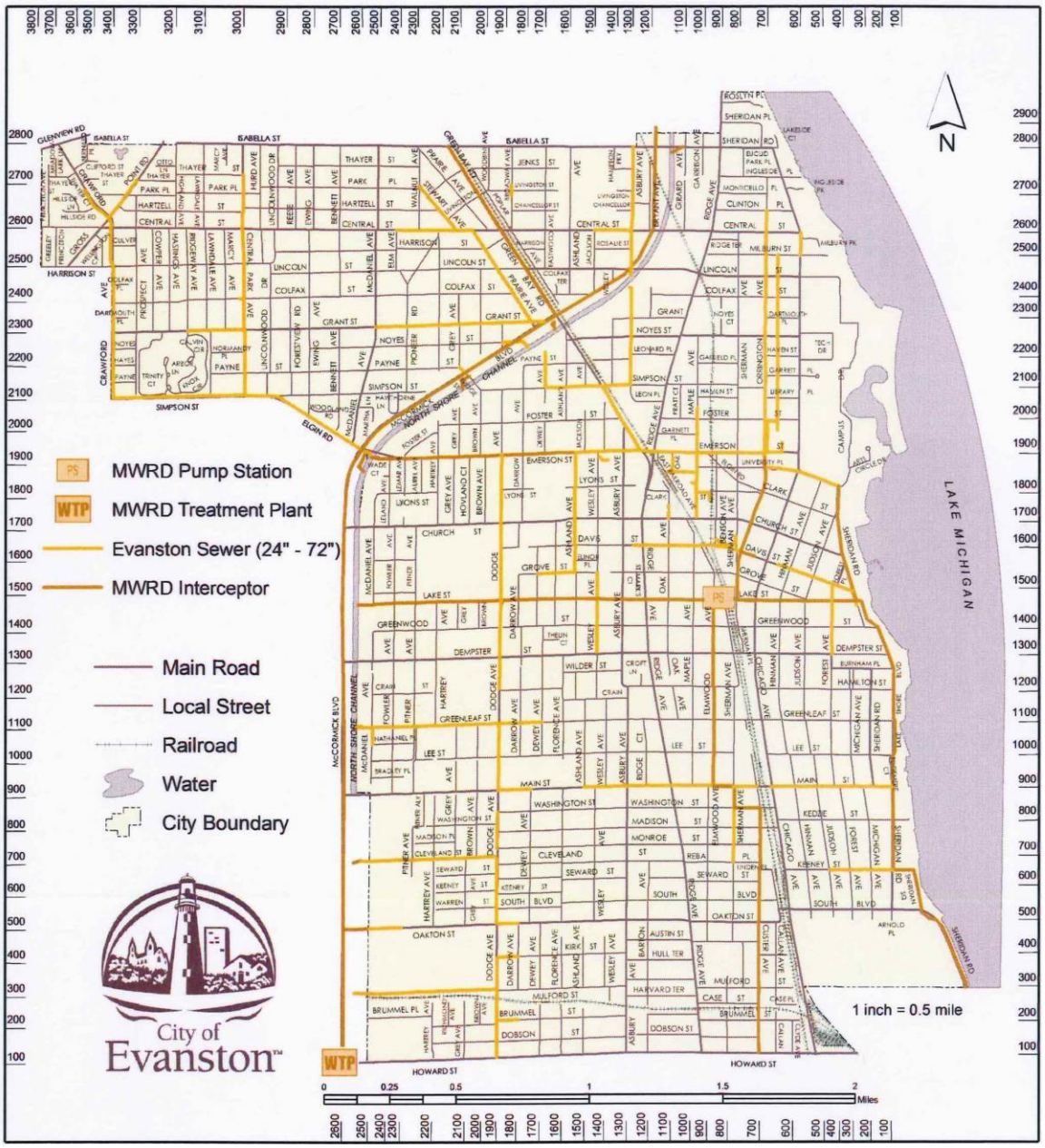
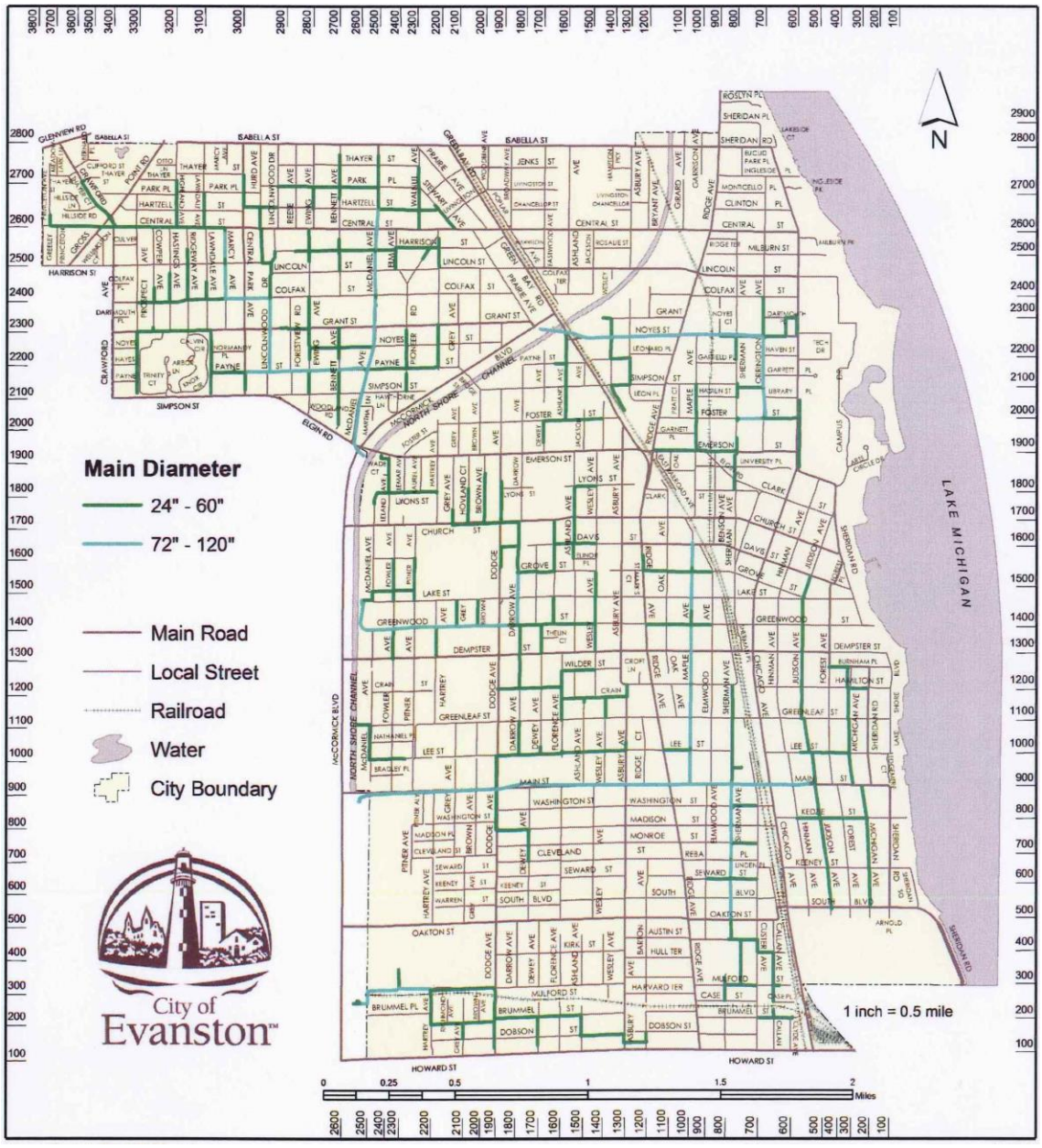
**Includes CIPP sewer rehabilitation, drainage structure replacement, stormwater management improvements, and emergency sewer repairs

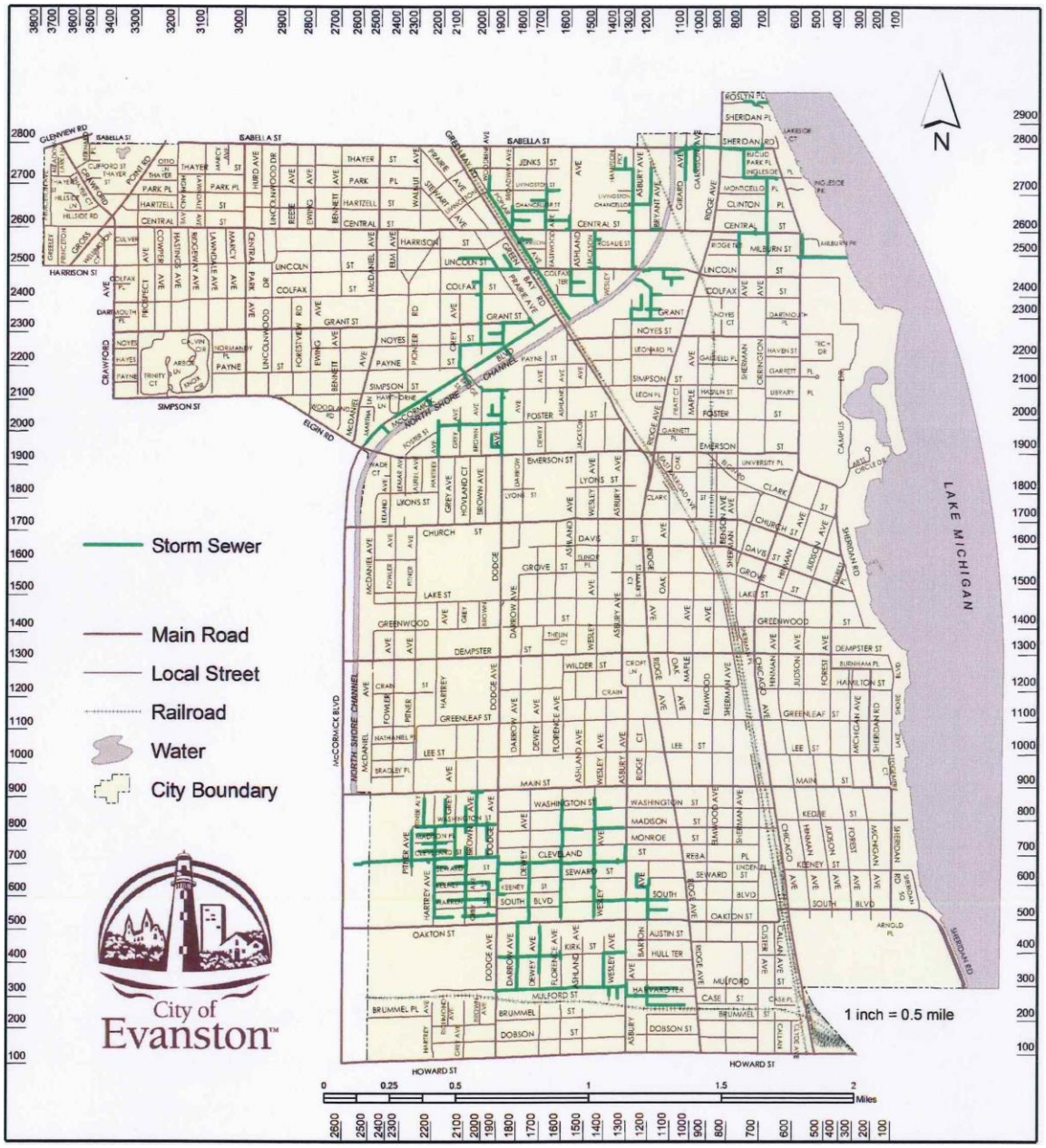
Major Combined Sewer System



Major Relief Sewer System



Major Storm Sewer System

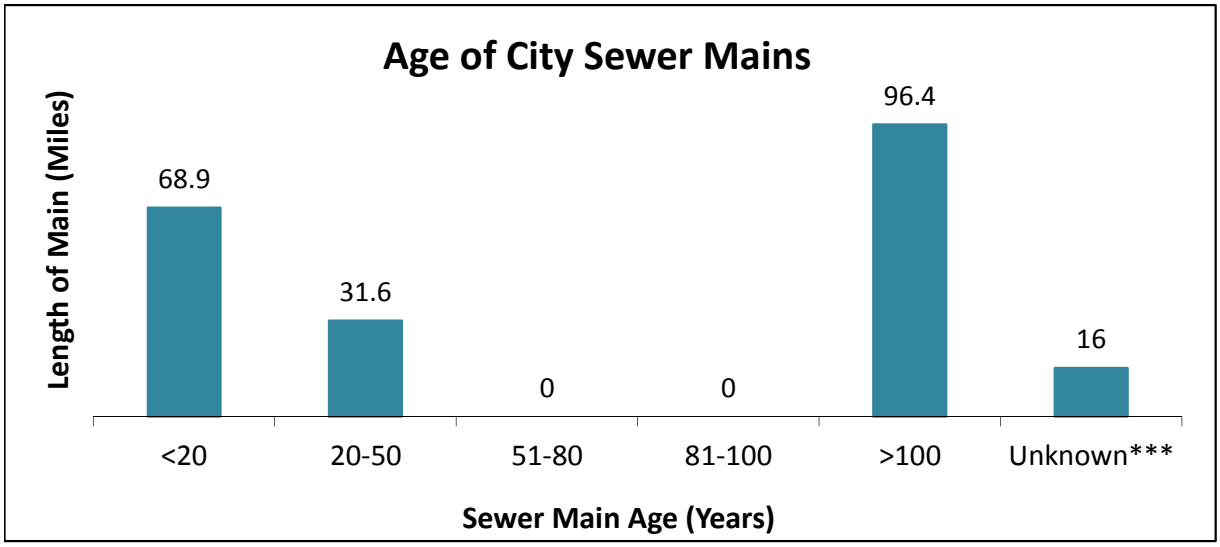


Sewer Mains

System Data and Maintenance*

	Pipe Length (miles)				
Sewer Length by Type	2009	2010	2011	2012	2013
Combined Sewer	143.08	142.91	143.60	143.78	143.93
Relief Sewer	48.10	50.51	51.51	51.78	52.65
Storm Sewer	18.48	16.11	16.21	16.21	16.31
Total Length	209.66	209.53	211.32	211.77	212.89

Sewer Installation	Pipe Length (feet)				
and Maintenance	2009	2010	2011	2012	2013
Installed (new)	28	430	424	239	1,682
Replaced	17	86	0	0	0
CIPP Rehabilitation (Lining)	7,741	2,081	6,997	8,850	15,995
Spot Repair	4,444	1,845	3,280	1,183	4,804
Clean - Hydroflush	125,505	262,451	247,195	242,791	180,309
Clean - Root Cut	2,252	13,330	17,543	5,372	7,657
Inspection - General	34,150	38,527	25,354	19,695	21,421
Inspection - Televised	59,654	65,933	81,502	83,942	78,022
Inspection - Storm-related**	33,394	4,043	2,070	0	1,981



* All work performed by Utilities Department except CIPP Rehabilitation (Lining).

** 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"	3,136	0.59	243	0.05	0	0.00
6"	296	0.06	0	0.00	0	0.00
8"	19,541	3.70	9,851	1.87	2,177	0.41
9"	123,331	23.36	7,229	1.37	1,229	0.23
10"	109,711	20.78	26,169	4.96	10,441	1.98
12"	226,233	42.85	24,894	4.71	9,883	1.87
14"	1,019	0.19	0	0.00	0	0.00
15"	92,731	17.56	5,649	1.07	5,249	0.99
16"	2,085	0.39	6,097	1.15	724	0.14
18"	60,979	11.55	16,511	3.13	7,695	1.46
20"	8,410	1.59	127	0.02	0	0.00
21"	15,046	2.85	2,747	0.52	1,910	0.36
22"	858	0.16	0	0.00	0	0.00
24"	20,674	3.92	46,353	8.78	15,959	3.02
27"	6,434	1.22	6,373	1.21	3,240	0.61
30"	6,973	1.32	19,107	3.62	3,913	0.74
33"	3,771	0.71	1,309	0.25	482	0.09
36"	19,769	3.74	18,386	3.48	6,730	1.27
39"	421	0.08	0	0.00	0	0.00
40"	377	0.07	0	0.00	0	0.00
42"	6,700	1.27	12,266	2.32	3,570	0.68
45"	1,029	0.19	0	0.00	0	0.00
48"	13,402	2.54	22,580	4.28	7,966	1.51
51"	1,104	0.21	0	0.00	0	0.00
54"	1,985	0.38	3,159	0.60	609	0.12
57"	784	0.15	0	0.00	0	0.00
60"	7,202	1.36	4,916	0.93	3,633	0.69
72"	4,114	0.78	11,661	2.21	0	0.00
78"	0	0.00	5,440	1.03	0	0.00
84"	0	0.00	88	0.02	0	0.00
96"	0	0.00	2,366	0.45	0	0.00
108"	0	0.00	5,025	0.95	0	0.00
113"	0	0.00	9,275	1.76	0	0.00
120"	0	0.00	7,340	1.39	0	0.00
Unknown	1,844	0.35	2,833	0.54	691	0.13
Totals	**759,955**	**143.93**	**277,992**	**52.65**	**86,102**	**16.31**

Total Sewer Main Length: 212.89 miles

Sewer Structures

System Data and Maintenance

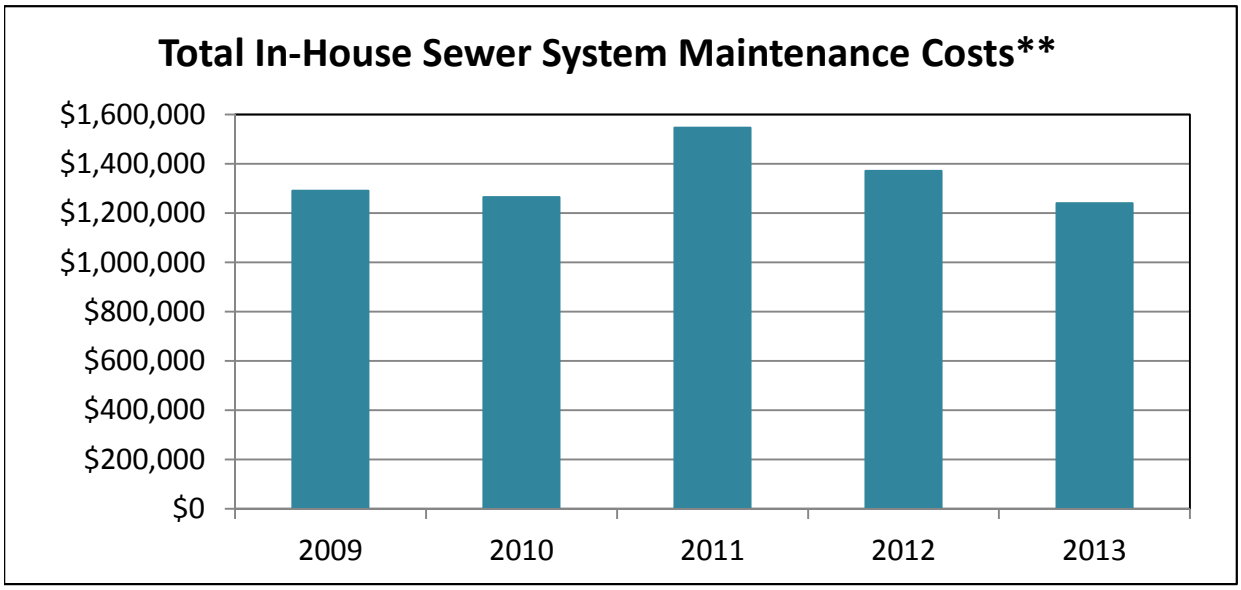
Number of Sewer Structures	2009	2010	2011	2012	2013
Manholes	5,540	5,453	5,507	5,532	5,561
Inlets	2,819	2,826	2,902	2,927	2,973
Catch Basins	6,214	6,217	6,159	6,179	6,203
Total	14,573	14,496	14,568	14,638	14,737

Sewer Structure Installation & Maintenance	2009	2010	2011	2012	2013
Installed (new)	4	3	7	2	16
Replaced	25	17	12	39	5
Repair	151	119	96	133	87
Clean	3,157	2,750	2,428	4,109	2,732
Inspect - General	208	325	286	411	327
Inspect - Storm-Related*	943	562	835	479	1,001

* 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	2009	2010	2011	2012	2013
Sewer Mains	$484,385	$414,913	$616,921	$413,919	$449,960
Sewer Structures	$506,297	$415,475	$474,164	$615,415	$423,665
Equip/Facility Maint.	$157,495	$164,813	$208,299	$161,460	$176,489
Assist W&S Divisions	$45,462	$62,576	$49,930	$45,855	$48,692
Snow & Ice Removal	$26,001	$149,395	$132,370	$31,396	$66,675
Assist Contractors	$3,401	$3,190	$8,847	$18,240	$39,542
Assist Other City Depts	$25,590	$29,250	$29,093	$57,269	$13,569
Safety & Training	$22,687	$10,973	$15,857	$21,321	$15,233
JULIE Locates	$2,394	$1,622	$2,155	$1,300	$135
Miscellaneous	$17,702	$12,598	$9,799	$5,966	$6,808
Total	**$1,291,413**	**$1,264,804**	**$1,547,437**	**$1,372,141**	**$1,240,768**



* All work completed by Utilities Department staff unless otherwise noted.

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

Sewer Mains Rehabilitated (Lined)