

**CITY
OF
NORTHFIELD**

PUBLIC WORKS DEPARTMENT

**WATER
DIVISION
2014**

YEAR-END REPORT



**STRIVING FOR EXCELLENCE
COMMITTED TO SERVICE**

City of Northfield

Vision Statement

STRIVING FOR EXCELLENCE, COMMITTED TO SERVICE

Mission Statement

The City of Northfield is dedicated to providing effective and responsive public services to develop and enhance a livable, vibrant community.



Water Division Mission Statement

The Northfield Water Division was created in 1895 with the primary purpose of supplying a high quality of water for the public's well being. Also to provide a high quality of customer services in an efficient, cost effective and dependable manner; a safe, potable and adequate supply of water to customers in the service area for domestic, commercial, industrial and fire fighting purposes with reasonable development of water supplies including the promotion of conservation of those supplies.



MEMO

Public Works Department
Water Division

TO: David Bennett, Public Works Director

FROM: Doug Lien, Water Division Superintendent
Justin Wagner, Utilities Supervisor

DATE: February 17, 2015

SUBJECT: Water Division Year-End Report

Attached to this memo is a copy of the year-end report compiled by the Water Division personnel. It is based on our day-to-day and monthly records.

The information provided by this report allows us the opportunity to compare month-to-month readings on each individual well site along with a year-end total for comparisons. This data allows us to see any discrepancy or abnormal usage that may occur without having to refer back to page after page of hand written information. This information includes water usage, electrical usage, and chemicals used.

The first few pages of the report are retrieved from basic data entry. The data is compiled from daily readings automatically entered into the database or manually entered on a daily or monthly level. This data gives us a comparative reading on any portion of the water records to show us averages or any abnormalities in water pumpages.

All this information provides us with an overview of information used at the Water Division. This data is also used for reports submitted to the Minnesota Department of Health and other agencies. This data was also used to process the graphs, which are included in this report.

The final pages of this report deal with year-end statistics compiled by the Water Division and an overview of the general operation of the division and the water supply system. This includes meters sold and replaced, the Water Division history, and general water supply information.

This report is to be considered as a general overview of our previous year. Additional materials and information will be included in our Annual Report to Consumers on Water Quality which will come out mid-year.

2014 WATER DIVISION DATA

GENERAL ACTIVITY DESCRIPTION:

Provide safe potable drinking water for the citizens of Northfield, maintain the distribution system, and fire hydrants for fire protection. The Water Division also provides locating for the Gopher One-Call locations.

GENERAL PUMPING DATA:

Water for the City of Northfield is pumped from the Jordan Water Aquifer.

In 2014, the City of Northfield pumped a total of 763,503,000 gallons.

The daily average in 2014 was 2,091,789 gallons.

The largest single day pumpage for the year was 4,100,000 on August 7, 2014.

Water accountability in 2014 (Water pumped vs. sold) – Because of corrections and adjustments on billing errors, hydrant flushing and well house pumped meter maintenance, the records will show we pumped approximately 3.06% more water than we sold. This number is slightly higher this year due to the water used to clean the sewers was not metered.

Industrial water usage is about 30.3% of our yearly pumpage.

In 2014, the City pumped 2,609,000 less gallons than it did in 2013.

The City of Northfield has pumped **35,089,603,158** gallons since 1895 when the Water Division was created.

CITY WELL PUMPAGE / COLLEGE WATER USAGE:

#2 Well	182,304,000 gallons in 2014
#3 Well	215,982,000 gallons in 2014
#4 Well	177,709,000 gallons in 2014
#5 Well	187,508,000 gallons in 2014
City Wells - Total	763,503,000 gallons in 2014
Carleton	4,015,185 cu ft
St. Olaf	<u>6,657,400 cu ft.</u>
Total Colleges	10,672,585 cu ft.
Total Gallons by the Colleges (Cu. ft. X 7.48)	79,830,936 gallons
Total Gallons Pumped by the City and Carleton	793,536,584 gallons

CITY OF NORTHFIELD AND COLLEGES

	Carleton	St. Olaf	CuFt Total	Gallons	City of Nfld	Total *
January	455,815	514,300	970,115	7,256,460	55,861,000	59,270,496
February	504,528	469,600	974,128	7,286,477	50,015,000	53,788,869
March	330,067	518,700	848,767	6,348,777	53,724,000	56,192,901
April	435,772	580,600	1,016,372	7,602,463	55,199,000	58,458,575
May	414,929	584,200	999,129	7,473,485	63,759,000	66,862,669
June	231,795	316,000	547,795	4,097,507	64,587,000	66,320,827
July	159,457	576,000	735,457	5,501,218	89,554,000	90,746,738
August	85,825	632,400	718,225	5,372,323	90,233,000	90,874,971
September	447,295	842,000	1,289,295	9,643,927	72,407,000	75,752,767
October	477,519	596,100	1,073,619	8,030,670	64,088,000	67,659,842
November	341,481	593,300	934,781	6,992,162	52,726,000	55,280,278
December	130,702	434,200	564,902	4,225,467	51,350,000	52,327,651
Total	4,015,185	6,657,400	10,672,585	79,830,936	763,503,000	793,536,584
Average	334,599	554,783	889,382	6,652,578	63,625,250	66,128,049

*Carleton has their own well, distribution system, and sewer collection system. St. Olaf switched to City water in March 2001, although they still have their own distribution and sewer collection system. These amounts would be used as usage and infiltration figures. St. Olaf College shows more water usage because they take water from the City and all the water usage is reported. Carleton College only reports sewage (domestic water use) because they still have their own water wells and do not take water from the City of Northfield, other than emergency usage.

CHEMICAL COSTS:

Fluoride, Chlorine and Polyphosphates are fed into the water system at each individual well site as the water is pumped from the wells into the water distribution system.

Hydrofluosilicic Acid	4,129 gal. X (10.3lbs/gal X \$0.3620)	=	\$15,395.39
Chlorine	8,294 lbs. X \$.6130	=	\$5,084.22
Polyphosphate	1,382gal. X \$11.8000	=	<u>\$16,307.60</u>
Total Costs for Chemicals			\$36,787.21

MISC. WATER SYSTEM INFORMATION:

Water hardness:	18 grains per gal. 320 ppm
Fluoride is fed at a rate of:	1.2 M/L
Chlorine is fed at a rate of:	1.2 M/L
Polyphosphate is fed at a rate of	0.5 M/L
Iron content:	0.2 M/L
Manganese content:	0.11 M/L
P.H.:	7.4

METERS:

At the end of 2014, The City of Northfield has the following amount of service connections:

Residential (single family & townhomes)	5,043
Commercial	303
Industrial	74
Other (apts, gov., churches, schools, golf, cemeteries)	<u>289</u>
TOTAL SERVICES	5,709

INVENTORY-RESALE JANUARY 2014 (LESS %):

18 – 5/8X3/4 T10 ecoder i @ \$244.50 = \$4,401

GOPHER ONE-CALL LOCATES 1998 – PRESENT:

1998	1860	1999	1945	2000	2027	2001	2582	2002	2635
2003	2833	2004	3020	2005	3232	2006	3560	2007	3338
2008	2189	2009	1905	2010	1856	2011	1972	2012	2078
2013	1865	2014	2042						

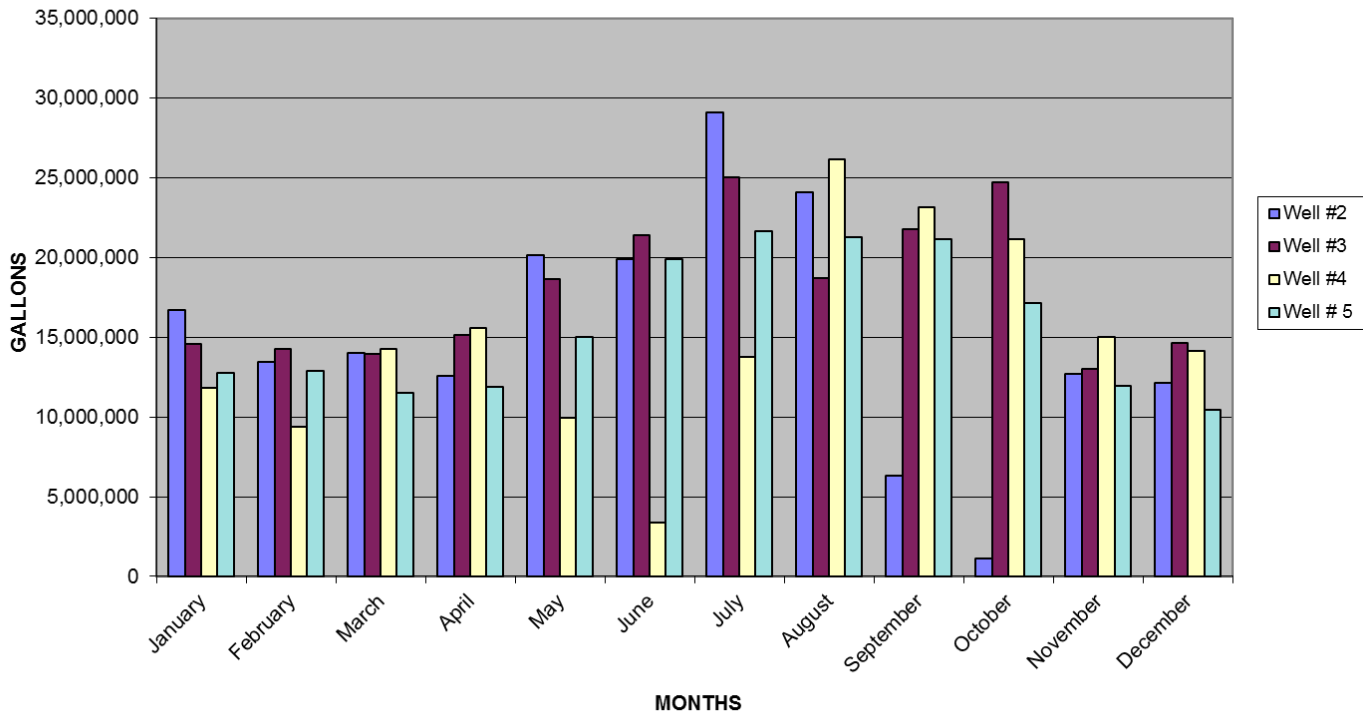
NORTHFIELD'S TOP 5 WATER USERS IN 2013:

Malt-O-Meal	15,175,623 cu ft.	113,513,660 gallons
Multek	10,779,980 cu ft.	80,634,250 gallons
St. Olaf	6,686,500 cu ft.	50,015,020 gallons
Viking Terrace Trailer Park	2,576,246 cu ft.	19,270,320 gallons
All Flex	1,166,330 cu ft.	8,724,148 gallons

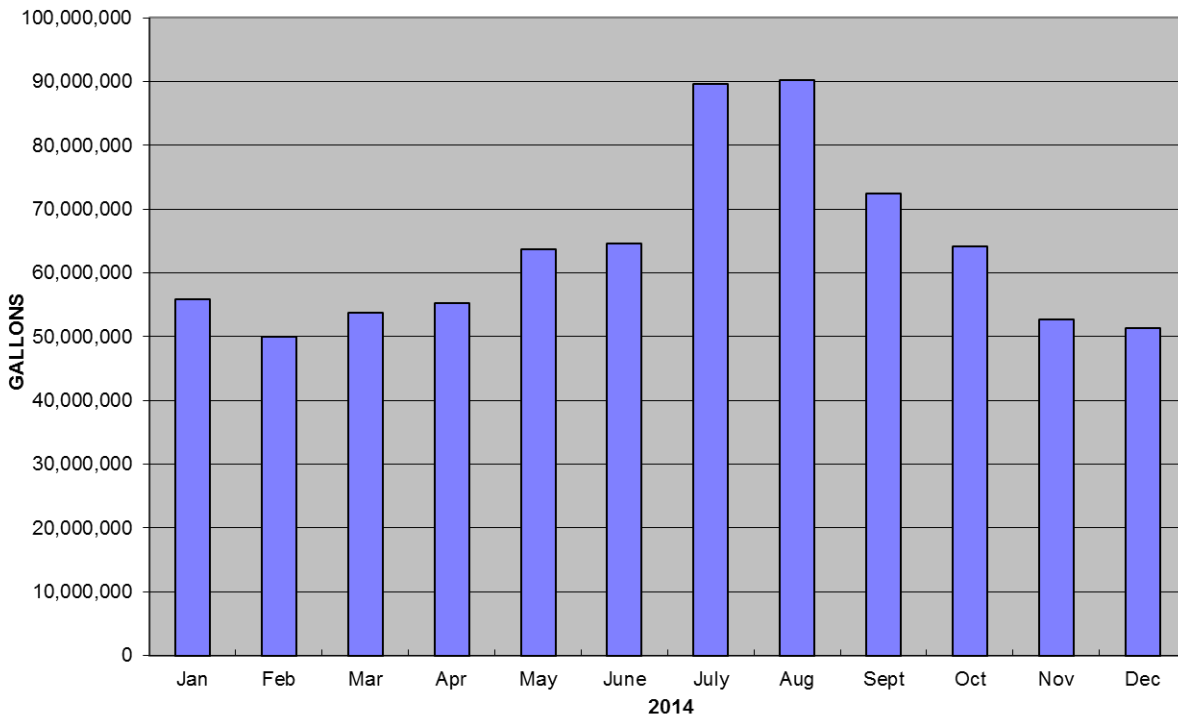
WELL SITE AND WATER INFORMATION:

	PUMPING INFORMATION						Time Daily Ave.
	Gallons Well #2	Gallons Well #3	Gallons Well #4	Gallons Well # 5	Gallons 2,3,4,5 Total	Gallons Daily Ave.	
January	16,686,000	14,606,000	11,831,000	12,738,000	55,861,000	1,801,968	23.9
February	13,445,000	14,283,000	9,413,000	12,874,000	50,015,000	1,786,250	23.8
March	14,029,000	13,951,000	14,236,000	11,508,000	53,724,000	1,733,032	23.3
April	12,602,000	15,167,000	15,557,000	11,873,000	55,199,000	1,839,967	24.2
May	20,151,000	18,646,000	9,960,000	15,002,000	63,759,000	2,056,742	26.9
June	19,902,000	21,402,000	3,365,000	19,918,000	64,587,000	2,152,900	28.4
July	29,126,000	25,024,000	13,751,000	21,653,000	89,554,000	2,888,839	37.4
August	24,085,000	18,721,000	26,139,000	21,288,000	90,233,000	2,910,742	40.9
September	6,330,000	21,768,000	23,179,000	21,130,000	72,407,000	2,413,567	31.9
October	1,107,000	24,723,000	21,141,000	17,117,000	64,088,000	2,067,355	31.2
November	12,729,000	13,037,000	15,013,000	11,947,000	52,726,000	1,757,533	22.5
December	12,112,000	14,654,000	14,124,000	10,460,000	51,350,000	1,656,452	22.1
Total	182,304,000	215,982,000	177,709,000	187,508,000	763,503,000	25,065,346	336.5
Average	15,192,000	17,998,500	14,809,083	15,625,667	63,625,250	2,091,789	28.0

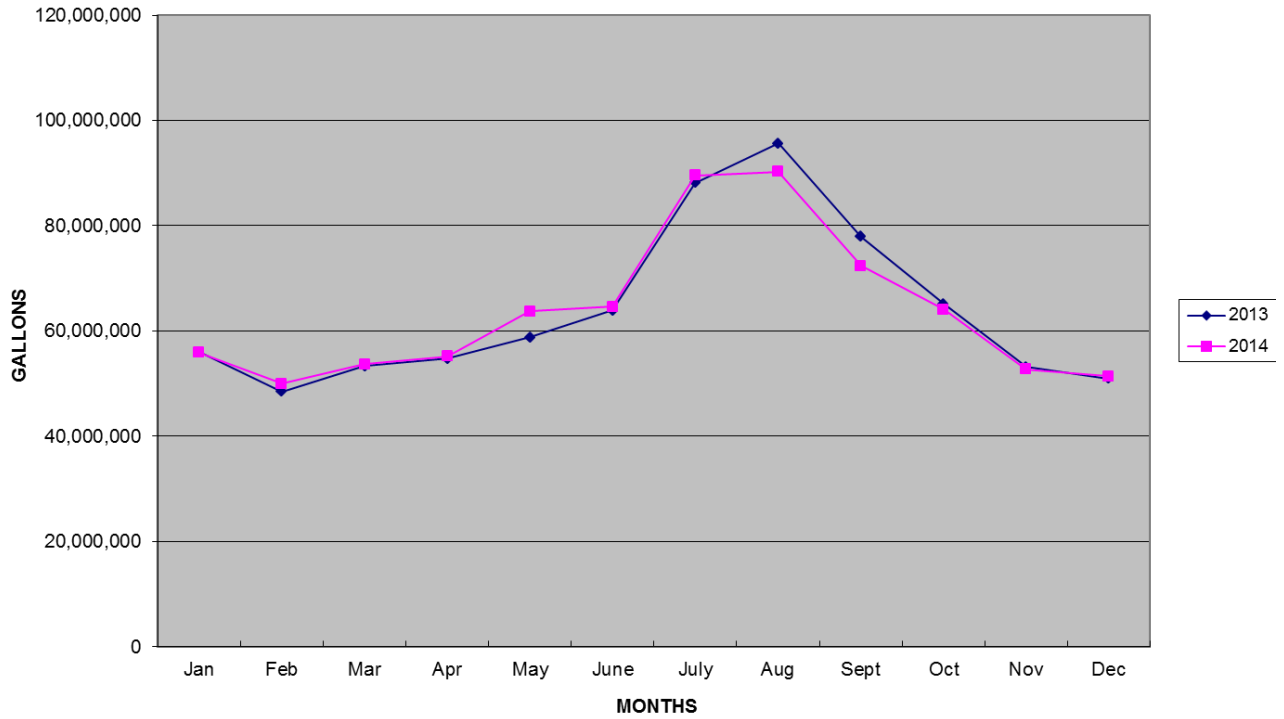
WELL SITE PUMPAGE - 2014



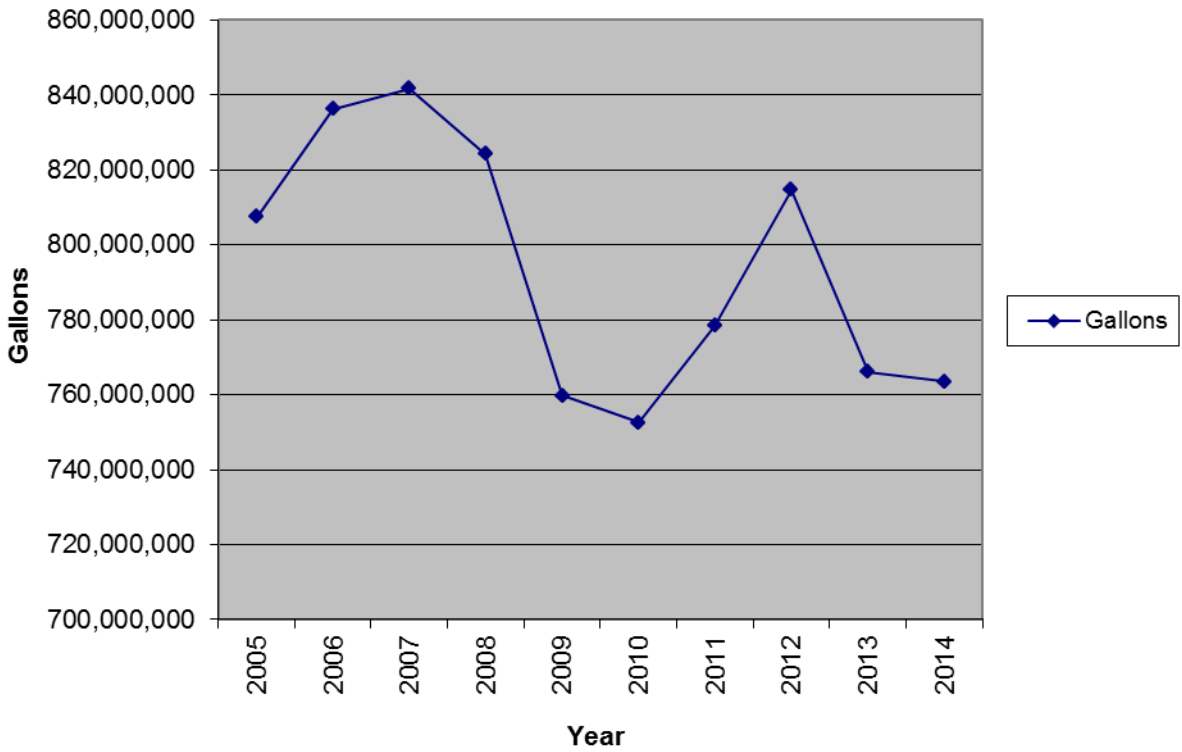
2014 MONTHLY COMPARISON - TOTAL PUMPAGE



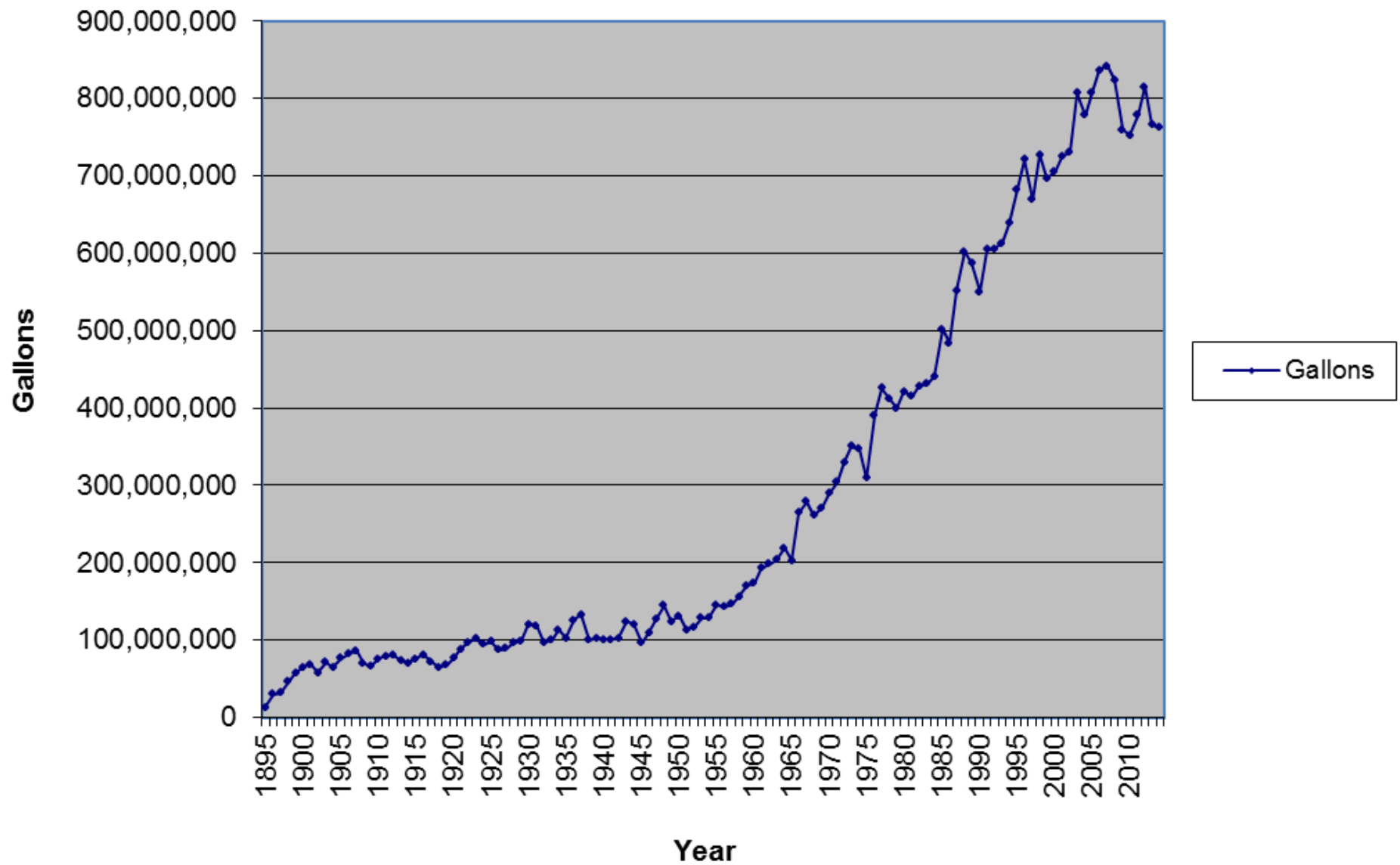
WATER USAGE COMPARISON - 2013 VS 2014



Most Recent 10 Year Pumpage



Northfield Water Division Yearly Pumpage



CHLORINE						
	Well #2	Well #3	Well #4	Well #5	Total	Cost
January	185	121	50	113	468	\$286.95
February	156	130	105	142	533	\$326.62
March	161	132	199	123	615	\$376.71
April	135	145	178	128	586	\$358.97
May	205	134	100	135	575	\$352.35
June	173	204	51	216	644	\$394.85
July	338	255	141	231	965	\$591.30
August	284	169	304	292	1050	\$643.36
September	69	253	318	262	902	\$553.17
October	15	271	245	196	727	\$445.71
November	177	140	192	124	634	\$388.40
December	157	164	168	108	597	\$365.65
Total	2,055	2,119	2,050	2,070	8,294	\$5,084.04
Average	171	177	171	172	691	\$423.67

POLYPHOSPHATE						
	Well #2	Well #3	Well #4	Well #5	Total	Cost
January	29	25	21	24	99	\$1,168.20
February	28	24	17	25	94	\$1,109.20
March	27	24	27	22	100	\$1,180.00
April	22	26	31	25	104	\$1,221.30
May	41	31	18	25	115	\$1,357.00
June	37	65	7	38	147	\$1,734.60
July	49	43	21	39	152	\$1,793.60
August	44	31	54	45	173	\$2,046.12
September	11	35	45	35	127	\$1,492.70
October	14	27	26	25	92	\$1,085.60
November	26	21	26	21	94	\$1,108.02
December	21	24	20	21	86	\$1,014.80
Total	349	376	313	345	1,382	\$16,311.14
Average	29	31	26	29	115	\$1,359.26

HYDROFLUOSILICIC ACID						
	Well #2	Well #3	Well #4	Well #5	Total	Cost
January	93	78	64	66	301	\$1,089.62
February	79	78	52	71	280	\$1,043.28
March	83	75	81	63	302	\$1,125.25
April	71	82	84	68	305	\$1,136.43
May	107	101	49	88	345	\$1,285.47
June	107	107	22	111	347	\$1,292.92
July	157	137	63	116	473	\$1,762.40
August	139	93	138	125	495	\$1,845.86
September	33	109	114	120	376	\$1,401.94
October	9	125	104	97	335	\$1,248.58
November	83	66	79	69	297	\$1,104.76
December	72	73	69	59	273	\$1,017.20
Total	1032	1124	920	1053	4129	\$15,353.72
Average	86	94	77	88	344	\$1,279.48

ELECTRIC (kW)					
	Well #2	Well #3	Well #4	Well #5	Total
January	21,600	17,427	16,821	17,795	73,643
February	24,920	21,230	15,426	19,410	80,986
March	21,000	18,846	20,445	18,334	78,625
April	15,640	17,753	17,376	14,755	65,524
May	23,800	23,419	14,098	15,121	76,438
June	22,000	28,055	5,559	23,012	78,626
July	32,800	28,265	11,850	21,569	94,484
August	31,360	25,036	31,081	24,715	112,192
September	12,600	30,454	28,204	22,317	93,575
October	2,880	29,334	23,924	23,200	79,338
November	15,200	19,438	19,215	15,216	69,069
December	20,800	20,897	20,494	19,192	81,383
Total	244,600	280,154	224,493	234,636	983,883
Average	20,383	23,346	18,708	19,553	81,990

CHEMICAL USAGE - 2014

