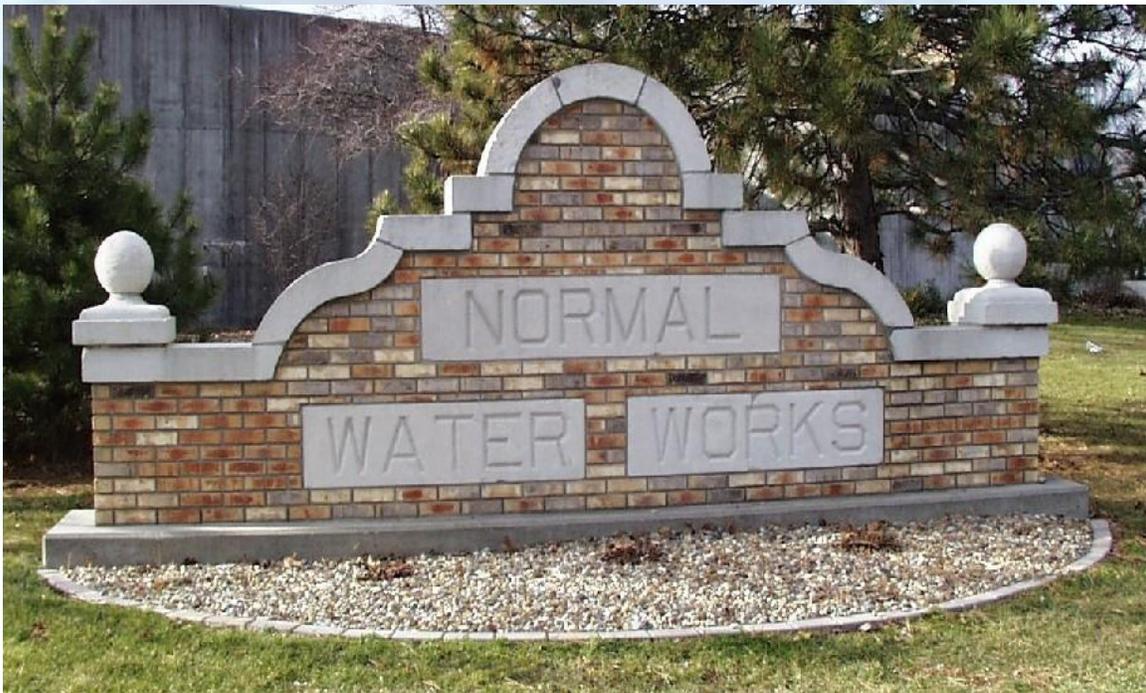




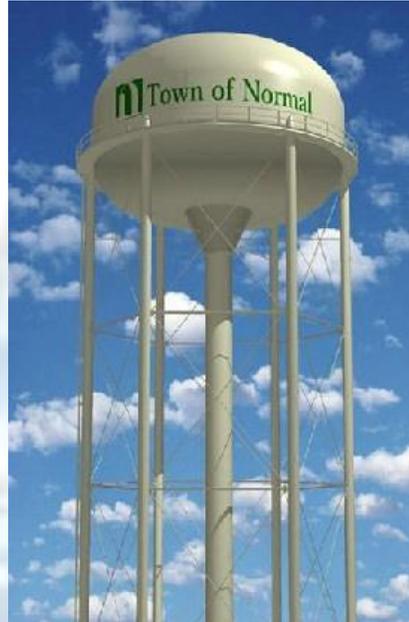
WATER DEPARTMENT ANNUAL REPORT 2015



WATER DEPARTMENT OVERVIEW

The Water Department is responsible for providing a safe and reliable supply of water for the citizens of the Town of Normal. In addition, adequate pressure and volume must be maintained for fire protection purposes. The Department has three main divisions: Treatment, Distribution, and Administration/Billing.

The Treatment Division's responsibilities include the operation and maintenance of fifteen wells, a lime softening treatment plant, three booster pump stations, four elevated tanks, and one ground storage reservoir. Activities of this division include the operation of the Water Treatment Plant on a 24 hour per day, 7 day per week basis, as well as the repair and maintenance of all wells, treatment plant equipment, elevated tanks, booster pump stations, and telemetry equipment. Also included in the Treatment Division is the Laboratory, which performs the sampling and testing required by the Illinois Environmental Protection Agency and provides quality control and quality assurance testing. During 2015, over 1.3 billion gallons of water were pumped to the citizens of Normal.



The Distribution Division is charged with operating and maintaining more than 200 miles of water mains, reading and maintaining more than 17,366 services and meters, and providing customer service. These activities include the maintenance and repair of water mains, valves and hydrants on a 24/7 basis, as well as the installation and repair of services and curb stops, installation and repair of all water meters and reading devices, hydrant flushing, various customer service activities, and the supervision of the installation of new water mains. New meter installations for 2015 totaled 115. A total of 16,523 work orders and service requests were completed during 2015. Additionally, a total of 7,656 JULIE requests were received, and JULIE locates totaled 3,773.

The Administrative/Billing Division performs the billing and collection functions for water, sewer, garbage, bulky waste collection, storm water, and sewage treatment (performed by the Bloomington/Normal Water Reclamation District). This division also provides support services for the Water Department. Over 107,698 bills were prepared and mailed, 4,606 electronic bills were prepared and sent, and 3,640 finals and special readings were processed in 2015.



The Water Department is regulated by the Illinois Environmental Protection Agency (IEPA) and the United States Environmental Protection Agency (USEPA). The Water Department will continue to face new and changing water quality standards proposed by regulators. Regulations covering issues such as disinfectant levels, additional contaminant monitoring, and source protection will be taking effect soon.

The Water Department provides service with a skilled and dedicated staff of 32 full time employees who are committed to providing a continuous supply of the highest quality drinking water possible to the citizens of the Town of Normal.

THE YEAR 2015 IN REVIEW

The Water Department continued its growth trend in 2015 in terms of area served. Water use trends remained relatively stable, with a decrease in consumption of 4.8 percent for the past year. Figure 1 illustrates the monthly water use for 2015 and Figure 2 illustrates the comparisons to previous years.

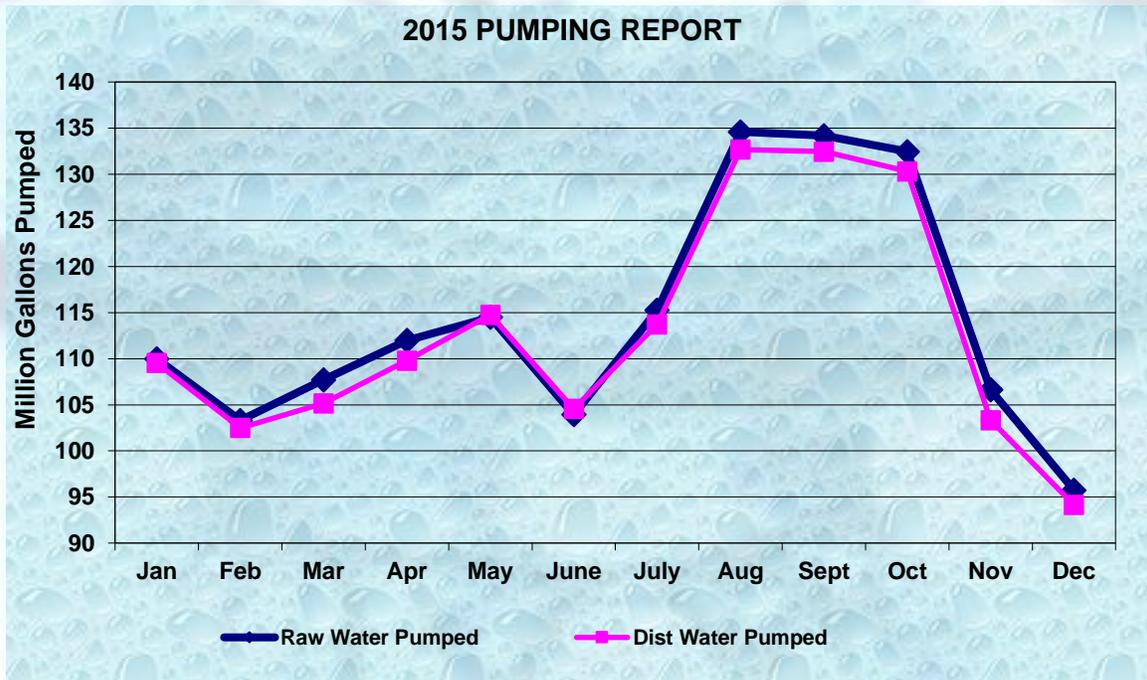


Figure 1

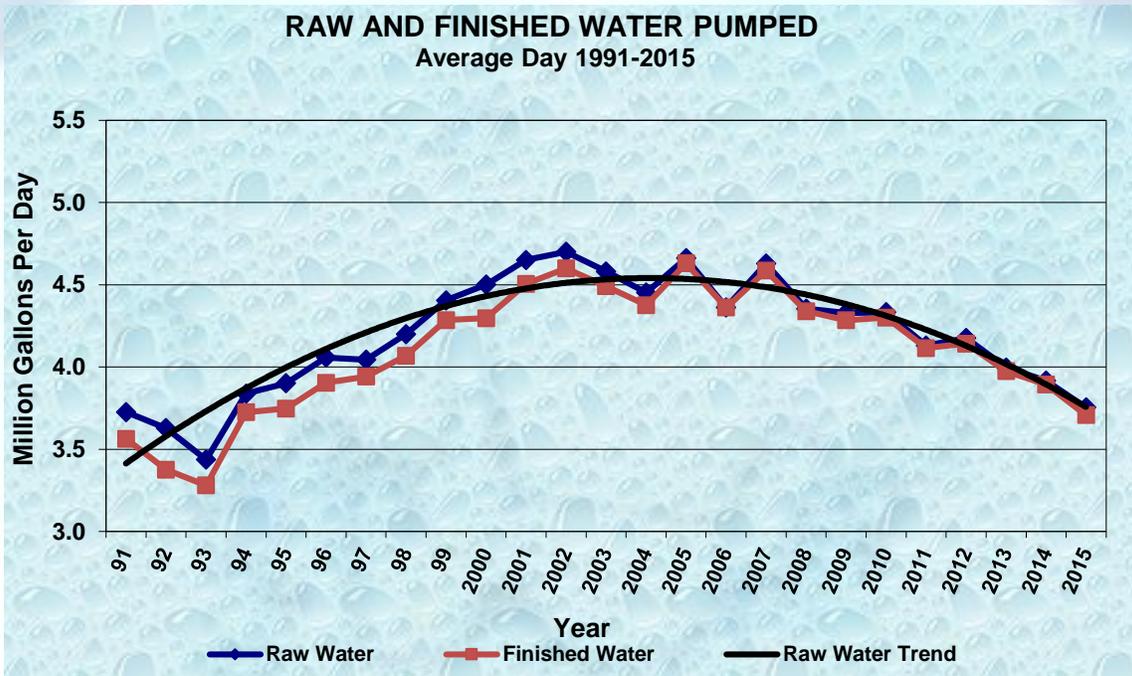


Figure 2

The highest recorded daily consumption in 2015 was 5.37 million gallons, which is the lowest maximum day since 1993. On campus water use by Illinois State University increased 2.2 percent in 2015. Figures 3 and 4 illustrate the water consumption by Illinois State University.

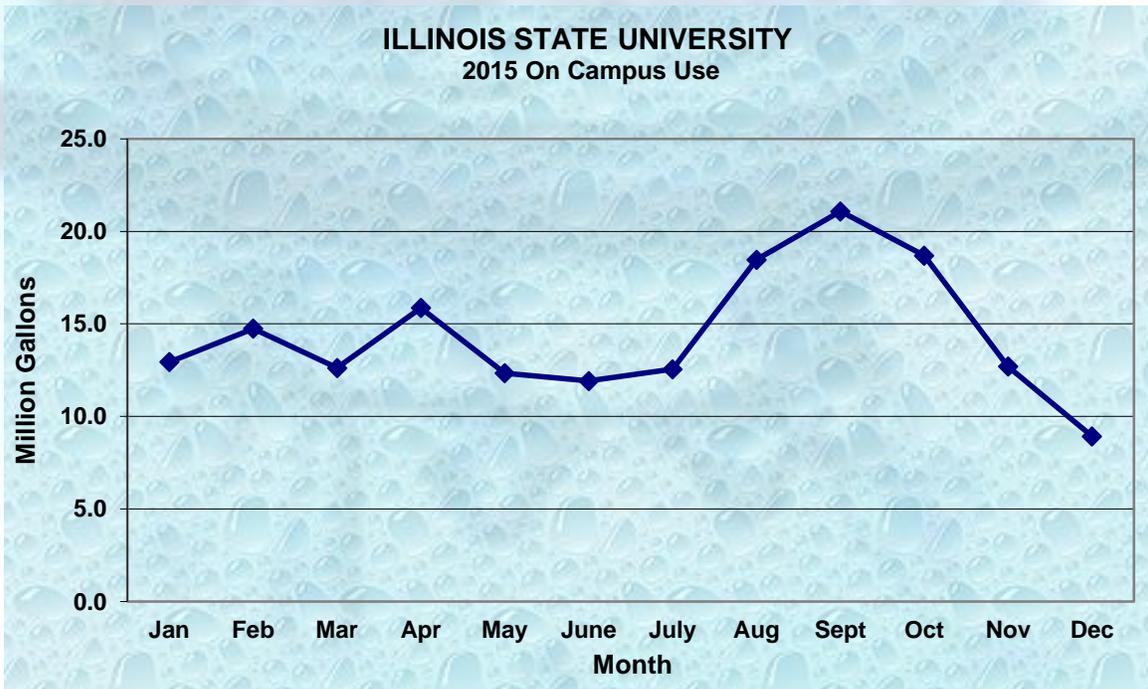


Figure 3

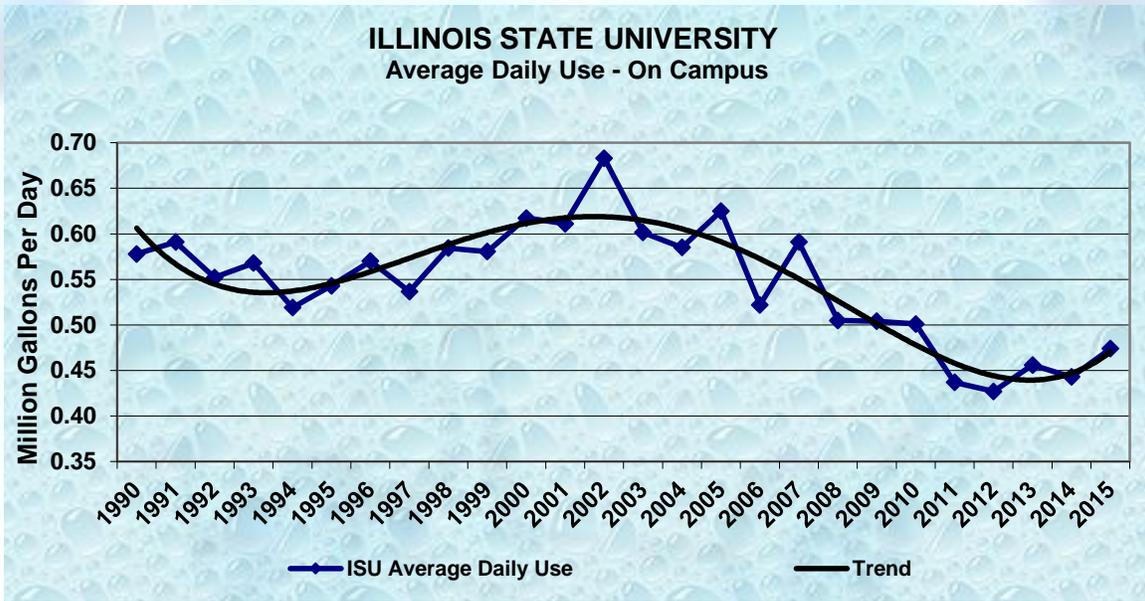


Figure 4

The Water Treatment Plant has a design rate of 9.6 million gallons per day. The source of supply for the short term is capable of producing 11.0 million gallons per day. Treatment and well capacities are sufficient for our average daily water use for more than 30 years according to statistical analysis; however, growth projections can significantly impact the analysis. The growth trends and projections in water consumption are further illustrated in Figure 5.

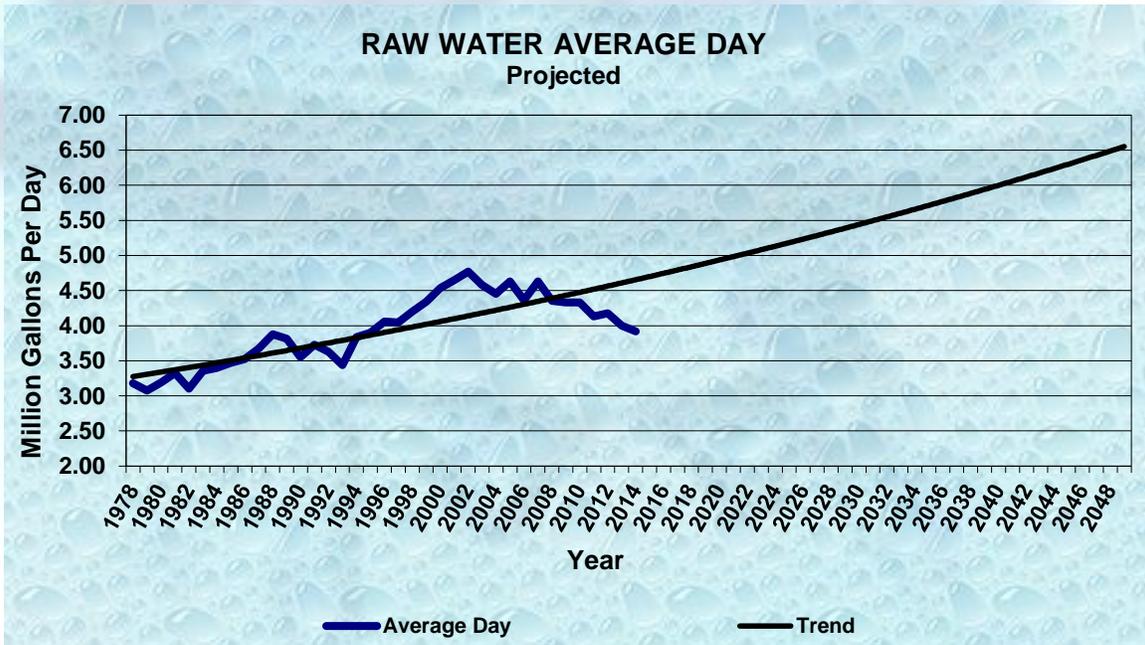


Figure 5

The projected maximum day figures indicate that maximum day demands should not exceed our current well and treatment plant production abilities for many years. However, these projections can be significantly impacted by growth rate forecasts and the addition of any new industrial users requiring significant amounts of water. Current growth in consumption projections have been greatly influenced by five previous years of decreased consumption. Higher growth rates coupled with drier climatic conditions could cause demand to exceed supply much sooner than projected. The Town of Normal continues to be involved in discussions regarding a regional water supply, which would supply ground water to several local governmental agencies. Figure 6 illustrates maximum day projections.

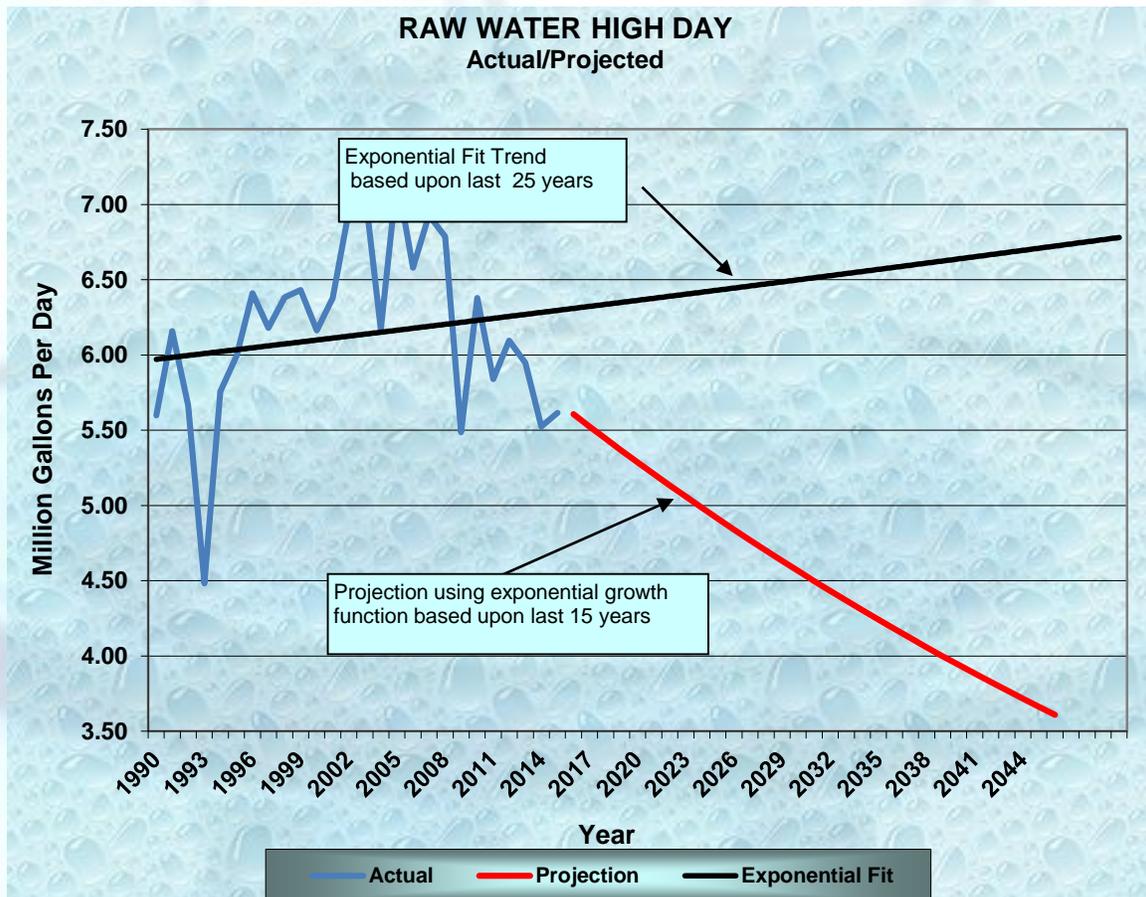


Figure 6

Well rehabilitation efforts continued in 2015 with work on Well #16 and Well #100. Further rehabilitation on other wells will continue annually in an effort to maintain or improve current production levels.

This year, 115 new accounts were added and 1,756 meters were replaced. Figure 7 illustrates the comparison of this year's meter activity with previous years, as well as the growth in the number of metered accounts since 1990.

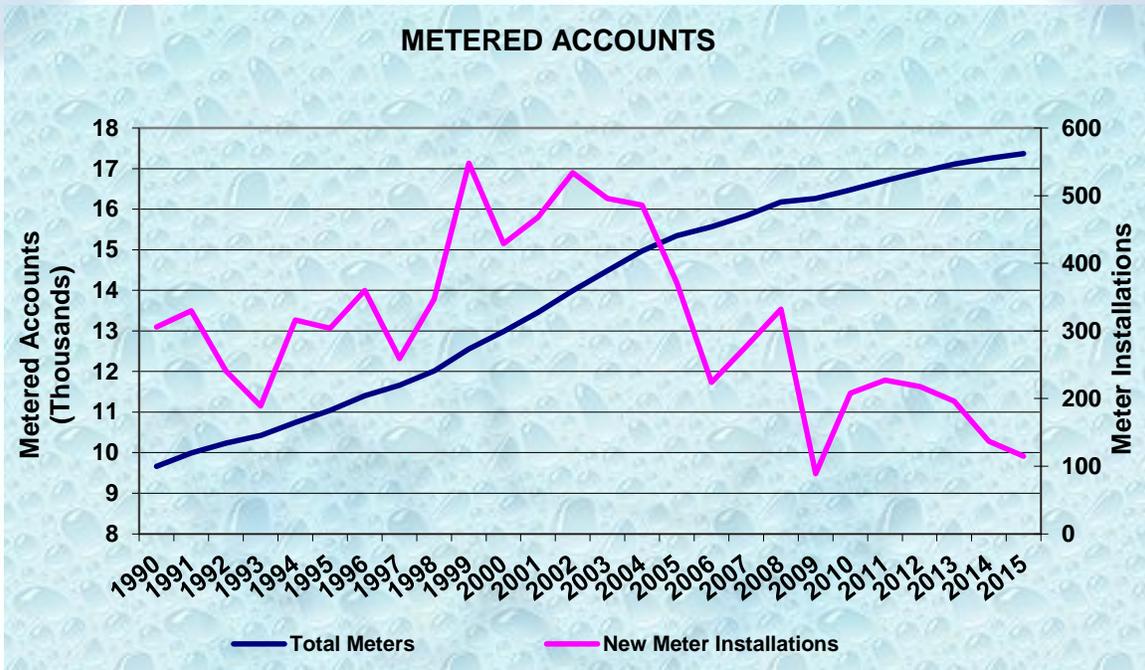


Figure 7

Figure 8 illustrates the relative number of metered accounts by type and Figure 9 illustrates the number of gallons sold by type.

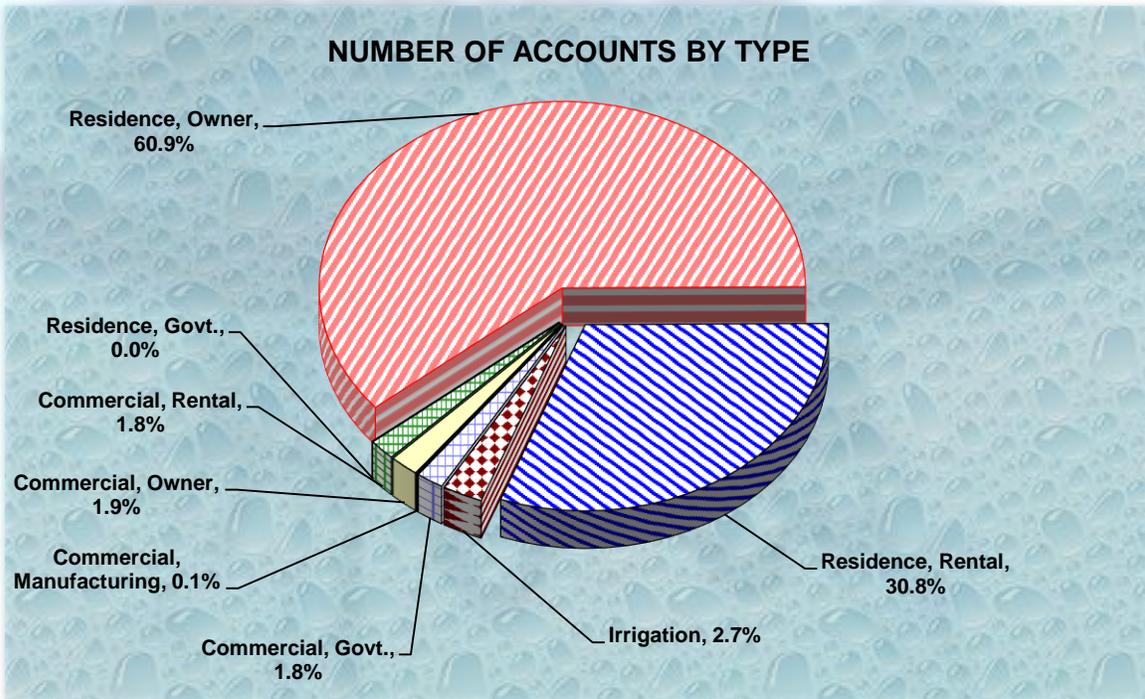


Figure 8

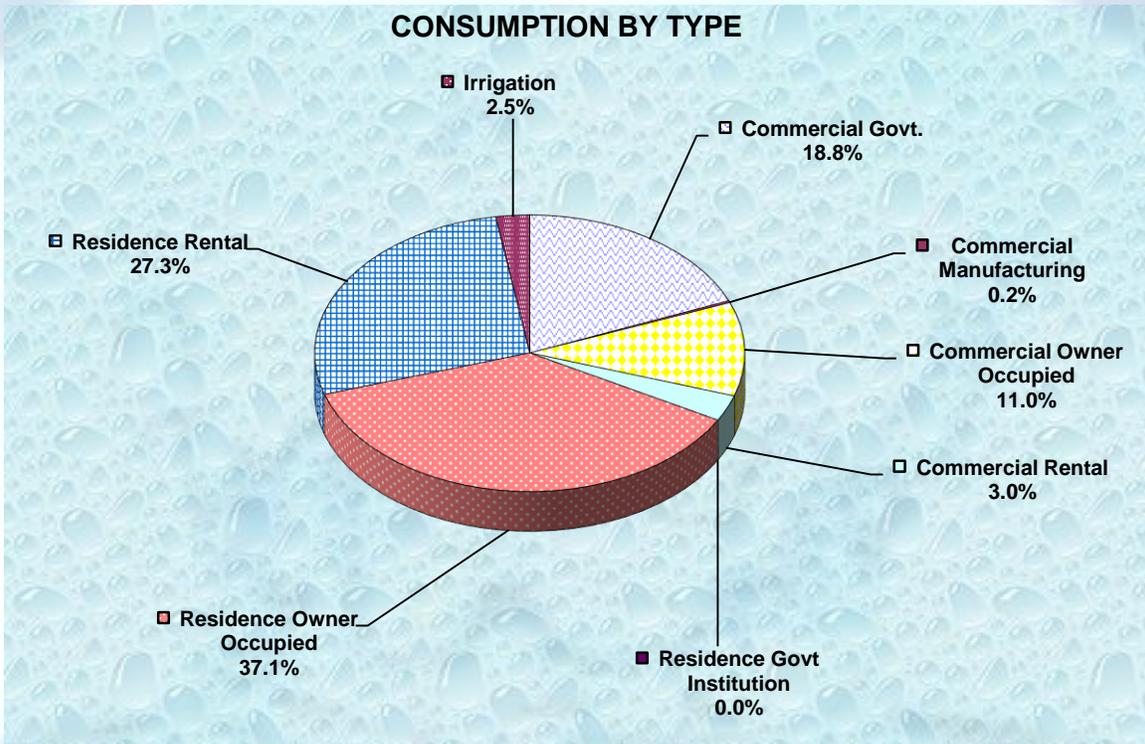


Figure 9

Figure 10 depicts the number of meters by size for the period of 1988 to 2015.

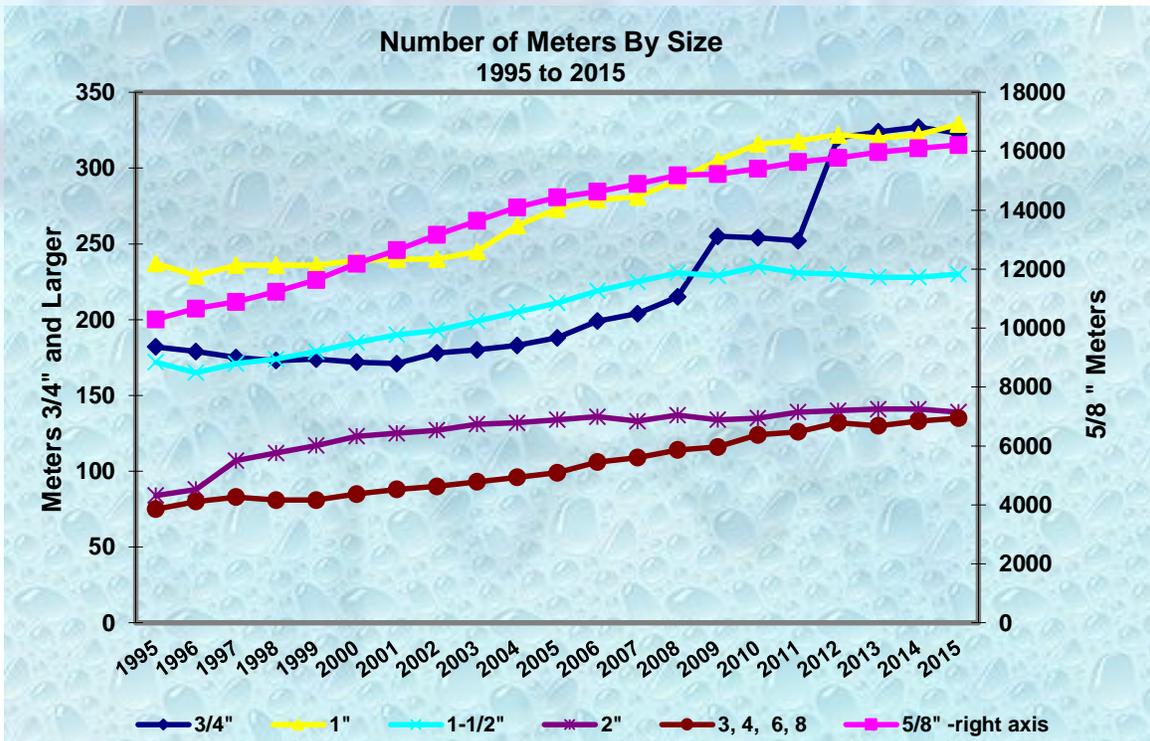


Figure 10

A net total of 1775 feet (0.3 miles) of new water main was added to the distribution system in 2015. Figure 11 illustrates the total number of miles of water main in the system over the last 20 years and Figure 12 illustrates the total number of feet added each year over the last 20 years.

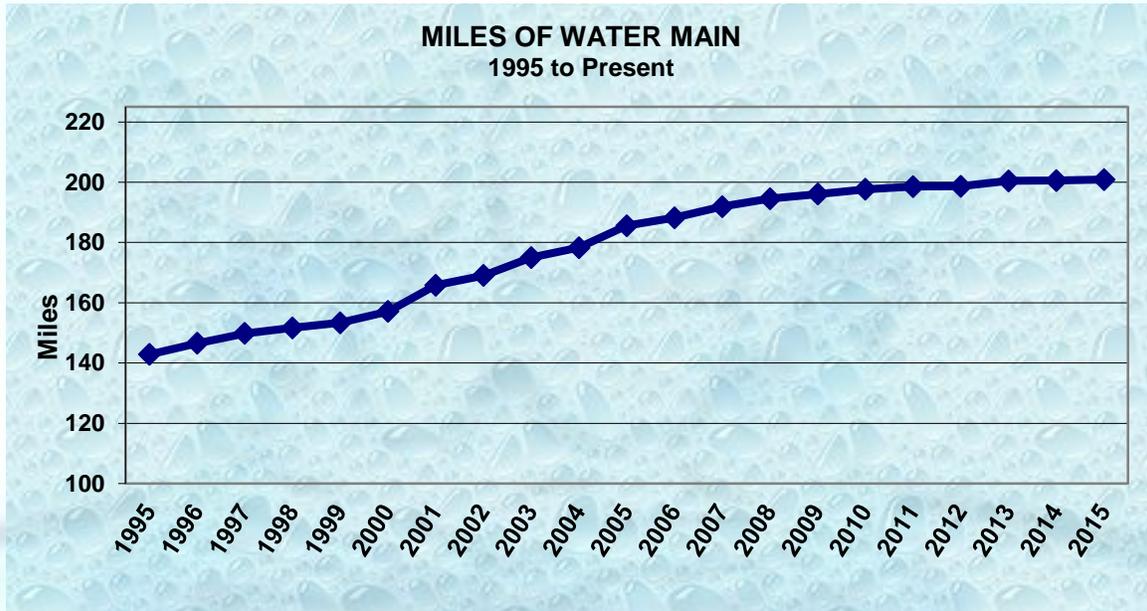


Figure 11

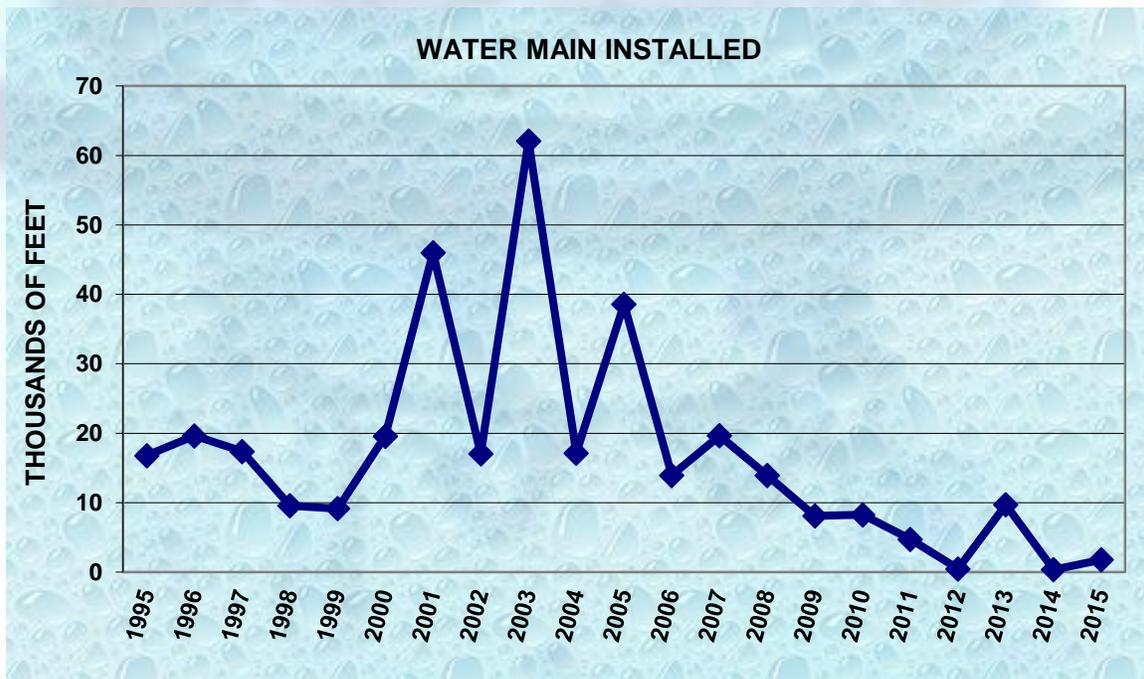


Figure 12

Figure 13 illustrates the chemical and electrical costs per million gallons for the last 12 years.

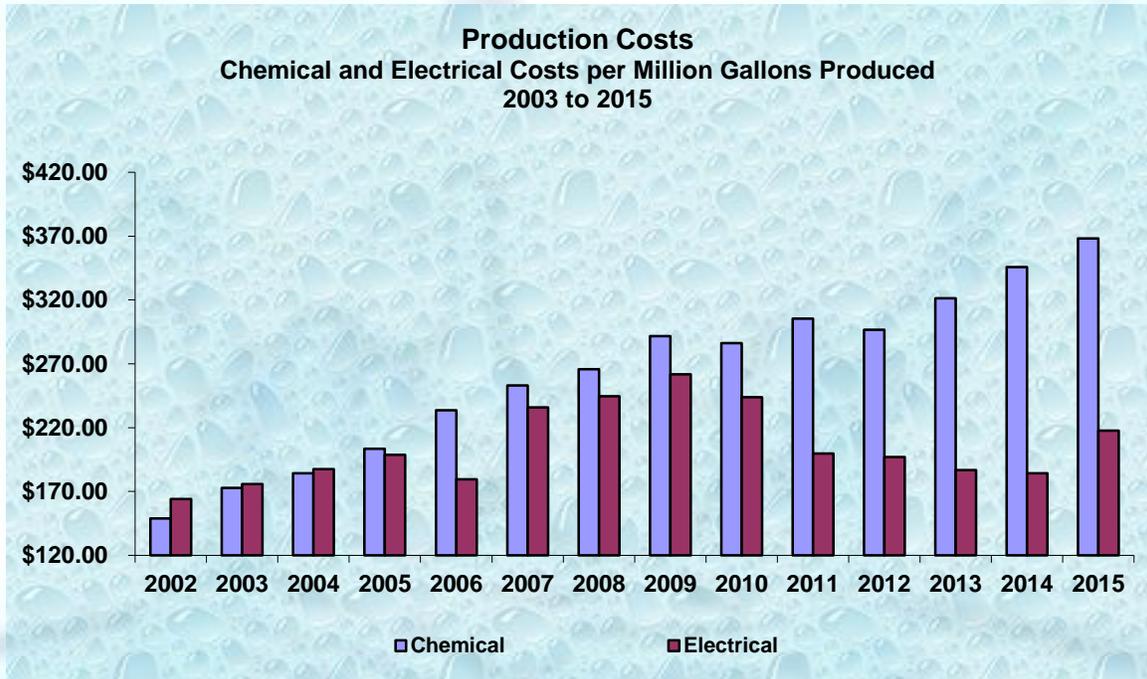


Figure 13

DISTRIBUTION REPORT

ROUTINE WORK ORDERS

Check for leaks	67
Check low usage	141
Check reads	57
Code Compliance	12
Curb box repair	96
Excavation site restore	138
Final reads	3483
Flow test service line	1
Frozen meter	27
Initial read	3475
Initial read and turn on	-
Install replacement meter	77
Install replacement meter & MTU	2
Install replacement meter & MIU	1664
Leaking meter – replace?	9
Meter stuck?	871
Miscellaneous	228
Meter install and get CBL	119
Noisy meter - replace?	-
Notify customer of high use	1447
Post notice for non-pay	-
Prewire for new install	0
Pressure test at meter	13
Put meter back in - meter ok	-
Remove meter and turn off	21
Replace/Change MTU	955
Replace/Cange MIU	418
Replace register	50
Reprogram MTU	743
Test meter	43
Verify after final and read	32
Verify still off	365
Verify New Key	3

Category Total **14,556**

IMMEDIATE WORK ORDERS

Acct # doesn't come up	-
Check/Repair MTU	1
Check for service leak	4
Check for hydrant leak	-
Dashes in rdg/repair	-
Fix meter error	48
Fix wiring error	174
Gate frozen	-
Install MTU	1
Install MIU	-
Lock frozen	-
Misc. ARB repair	-
Move ARB/MTU	22
Possible Main Break	-
Post Notice for Non Pay	89
Re-read meter no access	-
Re-read meter mean dog	-
Re-read/blocked	-
Re-read/can't find	-
Re-read/fence	-
Re-read/locked	-
Re-read/ need key	-
Re-read/obstacle	-
Re-read/key doesn't work	-
Repair cable	-
Repair / Replace lid	-
Replace ARB box	-
Shut off at customer request	53
Shut off – Legal	5
Shut off/Non-Pay	787
Shut off Need new name	3
Turn on paid	730
Turn H ₂ O on at customer req.	17
Water quality complaint	33

Category Total **1,967**

HYDRANTS

Hydrants Exercised	110
Hydrants flushed	2,488
Hydrants flow tested	2
Hydrants repaired	159
Hydrants painted	8
Hydrants replaced	33

LOCATES

Locate all water related	3,773
Locate curb box	-
Category Total	3,773

METERS REPLACED

5/8"	36
5/8"x3/4"	1,681
3/4"	2
1"	7
1 1/2"	19
2"	10
3"	1
4"	-
6"	1
8"	-
Larger	-
Category Total	1757

SIDE TAPS

4"	2
6"	7
8"	7
10"	-
12"	-
Larger	-
Category Total	16

HYDRA STOPS

4"	3
6"	22
8"	2
10"	-
12"	1
Category Total	28

VALVE MAINTENANCE/REPAIR

Valves Exercised	327
Valves Repaired	17
Valves Replaced	4
Valves Found	1

Remove Lead Service	2
---------------------	---

METERS IN SERVICE

5/8"	8,814
5/8" x 3/4"	7,396
3/4"	323
1"	329
1 1/2"	230
2"	139
3"	62
4"	41
6"	27
8"	5
Larger	-
Category Total	17,366

HYDRANTS IN SERVICE	2,544
VALVES IN SERVICE	3,217
HYDRANT GPS	-
VALVE GPS	-
CURB BOX GPS	-

TOTAL LINEAL FEET IN SYSTEM

4"	35,953
6"	379,129
8"	335,264
10"	19,584
12"	145,927
16"	45,746
Larger	99,088
Category Total	1,060,691

SERVICE TAPS

	<u>Added</u>
3/4"	-
1"	11
1 1/2"	1
2"	2
Category Total	14

MAIN BREAKS

4"	2
6"	15
8"	1
10"	-
12"	-
Larger	1
Other – Valves, corps, etc.	11
Category Total	30

Number of Bills Printed	107,698
-------------------------	---------

OPERATIONS REPORT

	THIS YEAR	ONE YEAR AGO	FIVE YEARS AGO
TOTAL WATER TREATED/MG	1370.477	1459.880	1581.966
Average Water Treated Daily	3.755	3.917	4.334
Maximum Water Treated Daily	5.616	5.525	6.380
Minimum Water Treated Daily	2.480	2.006	2.280
TOTAL DISTRIBUTION WATER PUMPED	1353.438	1421.483	1570.646
Average Water Pumped Daily	3.708	3.894	4.303
Maximum Water Pumped Daily	5.373	5.585	6.480
Minimum Water Pumped Daily	2.105	2.097	2.360
Maximum Hour on Maximum Day	8.290	6.620	7.990
TOTAL PLANT USE	27.833	25.215	37.598
Filter Wash	13.539	12.955	21.143
Plant Service	14.294	12.260	16.255
TOTAL COMBINED WELL OUTPUT FOR YEAR – 2015			<u>1,362,922,000</u>

	GALLONS BILLED	AMOUNT BILLED
TOTAL METERED SALES	1,257,202,569	\$8,811,207.92
I.S.U. USAGE	154,173,460	\$1,008,307.57

WEATHER

TEMPERATURE		PRECIPITATION	
Average (degrees F)	55	Days	111108
High (degrees F)	98	High (in.)	2.90
Low (degrees F)	-8	Total (in.)	49.05

	UNITS	COST THIS YEAR	COST/MG
ELECTRICAL (KWH)			
Pumping & Power	1,910,600	\$159,534.84	\$116.41
Lighting	62,010	\$5,544.90	\$4.05
Wells	1,681,348	\$132,035.54	\$96.34
Total	3,653,958	\$297,115.28	\$216.80

NATURAL GAS (cu. ft.)			
Plant	8,700	\$6,029.35	\$4.40
Other	8,369	\$3,977.10	\$2.90
Total	17,069	\$10,006.45	\$7.30

PROPANE (gals)			
West Wells	705	\$979.50	\$0.71

CHEMICAL USE AND COST			
Lime	4,621,536	\$354,564.24	\$258.72
Alum	135,046	\$14,990.11	\$10.94
Chlorine	142,300	\$27,853.42	\$20.32
Fluoride	50,162	\$11,179.51	\$8.19
CO2	546,513	\$23,131.88	\$16.87
Polyphosphate	8,094	\$4,608.69	\$3.36
Phosphate blend	22,911	\$11,269.27	\$8.22
Sodium Chlorite solution	47,888	\$46,140.77	\$33.6
TOTAL CHEMICAL	5,574,450	\$493,719.88	\$360.25

Electrical (KWH) Cost Per MG Treated in 2015	\$216.80
Natural Gas (Cu. Ft.) Cost Per MG Treated in 2015	\$7.30
Propane (gals) Cost Per MG Treated in 2015	\$0.71
Chemical Cost Per MG Treated in 2015	\$360.25

	<u>2015</u>	<u>2014</u>	<u>2013</u>
Average Hardness of Raw Water	431	429	421
Average Hardness of Tap Water	123	119	117
Average Alkalinity of Raw Water	412	417	423
Average Alkalinity of Tap Water	78	79	80
Average pH of Tap Water	9.21	9.21	9.30
Softening Efficiency	93%	94%	97%

NORMAL WATER DEPARTMENT

2015 ACCOMPLISHMENTS

Added 115 new water accounts and processed a total of 112,304 utility bills.

Received 7,656 JULIE locate requests and performed 3,773 locates.



Supervised the installation of over 2,234 feet of new water main for the Ninth Addition to the Vineyards and the Tenth Addition to the Vineyards

Installed a total of 7,583 feet of replacement water main on Coolidge Street, Hoover Drive, Truman Drive, Cherry Street, and Maple Street



Completed 16,523 work orders and service requests.

Repaired 30 water main breaks and leaks.

Completed a SCADA software upgrade.

Rehabilitated Well #16 and Well #100.



Completed large meter testing.

Continued to install replacement meters and upgrade of meter reading equipment.

Exercised 327 valves.

Completed the rehabilitation of Elevated Tank #2.



2016 GOALS

- Continue the well rehabilitation program.
- Continue the large meter testing and repair program.
- Complete a leak detection survey.
- Complete construction of water main replacements on Jacobsen Drive, Johnson Drive, Taft Drive, and University Street.



- Continue meter reading equipment updates.
- Complete the railroad casing pipe extensions for the High Speed Rail Project.
- Complete water main crossing replacements for the High Speed Rail Project.
- Continue the fire hydrant replacement program.
- Complete the North Normal TIF water main construction.
- Replace air release valves on the West Wellfield Transmission main.
- Replace the Treatment Plant standby generator.
- Sandblast and paint the interior of the West Reservoir.

