

NOVEMBER 2016

Meadows 5 Lift Station Pump Upgrade Project

By: Rich Platt, Maintenance Supervisor - Wastewater and Jeanne Stevens, Engineering Manager

The Meadows 5 Lift Station is approximately 27 years old and was originally constructed with a Gorman Rupp pumping system. The original pumps were replaced long ago with Wemco pumps. In 2015, staff replaced the WEMCO sanitary lift pump #1, which was failing, with a Flygt submersible chopper pump, which has been operating exceptionally well since. The lift pump #2 and mounting hardware was also worn out and failing. The existing Wemco pump would not seal against the mounting base due to wear and this reduced the pump's ability to efficiently move wastewater. The existing Wemco pump #2 was installed in 2006 and due to a lack of available parts, had exceeded its useful life. Additionally, the Wemco pump has had a history of plugging and failing seals. Staff chose to replace the aging Wemco pump #2 with a second matching Flygt pump, to have uniformity of systems and reduce disparate spare parts.

The Town selected Water Technology Group, the Flygt vendor, for the pump replacement. The project team developed a plan to keep residents in service by using contract vactor truck services overnight, which required Town Council concurrence. The total cost for this project was \$39,134. The work was completed on time and under budget.



OUR VISION

We will be a national leader among water utilities focused on customer satisfaction and delivering outstanding quality and value.

Your Opinion Matters - Take the Survey

CRgov.com/WaterMasterPlan

Your opinion matters!

Take the survey at
CRgov.com/WaterMasterPlan

It is important to us for our customers to:

understand
endorse
invest

The 2016 Water Resources Strategic Master Plan applied extensive financial modeling to explore several future scenarios.

A rates and fees study is conducted annually, of which this long-term plan affects. With the expected growth providing economies of scale, Castle Rock Water is working to ensure rates and fees are balanced among current and future customers.

Give us your opinion at
CRgov.com/WaterMasterPlan

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water@CRgov.com

Visit us online:
CRgov.com/Water

Mission:

We provide our community with exceptional service that protects public health and balances social, environmental and fiscal responsibilities in a sustainable manner.



CASTLE ROCK
Water
Securing our future drop by drop

It's your
water

Tell us what
you think

Your opinion is important!
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Securing water for the future

How is Castle Rock Water planning the Town's water future?

The Water Resources Strategic Master Plan outlines how Castle Rock Water is ensuring the community's water future.

Right now, a large portion of the Town's water is nonrenewable groundwater that comes from 1,000 or more feet below ground.

In the future, groundwater will become more difficult and expensive to extract. For the past 10 years, Castle Rock Water has been working on a plan to secure a long-term renewable water supply.

The draft 2016 Water Resources Strategic Master Plan updates and outlines the huge strides Castle Rock Water has made toward ensuring the Town's water future and details ongoing program plans.

Here's a sneak peek at what the plan entails:

Pump

Sources including the water in East Plum Creek can be reused or recycled. The creek contains treated water discharged from the wastewater treatment plant. Castle Rock Water plans to recapture water from the creek, purify it at the Plum Creek Water Purification Facility, and then redistribute to homes.

Reusing water could meet approximately 35 percent of projected future demands.



Store

The plan outlines storage programs for reservoirs and aquifers. Current storage space includes both the Rueter-Hess and Chatfield reservoirs.

Additional storage would entail pumping water back into the underground aquifers within the Denver Basin.

Partner

Continue to develop partnerships with regional entities to share costs and resources thus reducing the cost impact to customers.

The Town has been a member of the South Metro Water Supply Authority since 2004 which established the WISE water project.

The group works together to develop key pieces of infrastructure, purchase and import water from northern sources and cost-share in projects.

Conserve

Castle Rock residents have embraced conservation.

The plan details additional conservation measures that could help the Town realize a per capita demand of 100 gallons per person per day.

This would account for an additional savings of 18 percent in water use and would essentially act as a new water source. Additional conservation measures would require less water to be purchased in the future.

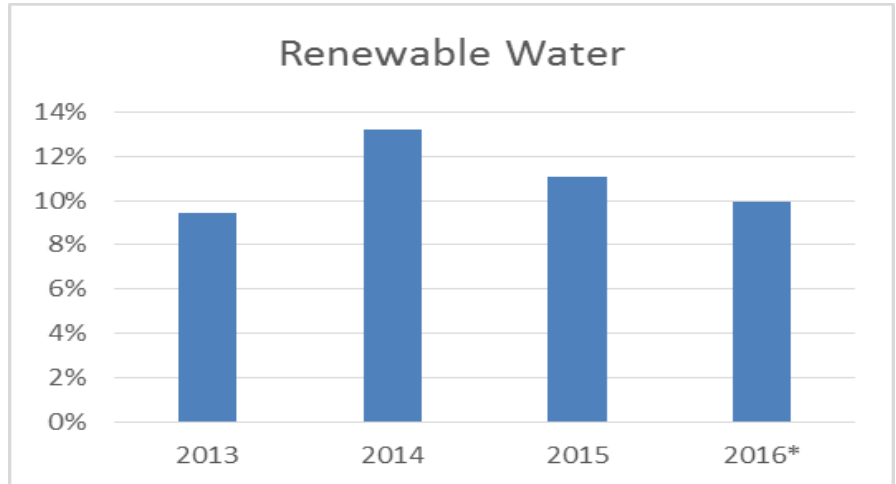


2016 Water Demands

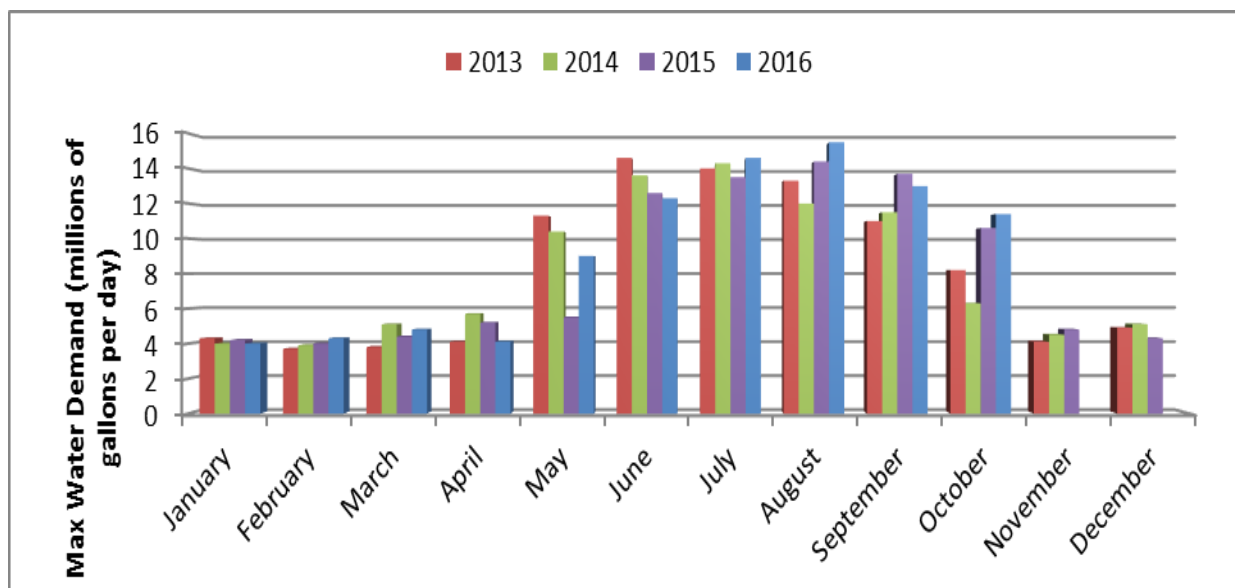
By: Heather Justus, Water Resources Program Analyst

The maximum daily water demands are plotted by month from 2013 to the current month. As observed by the data, the maximum demand for the month of October was 11.4 million gallons per day (MGD) which was about 31% more than the 5-year average maximum daily demand for the month. Summer time maximum demands inform us of the size of the infrastructure necessary to provide water service over short periods of time and help us to plan future water resources needs. The water demand total for October was 249.9 million gallons (MG), which was about a 28.2% decrease from the September 2016 total of 348.0 MG, and a 15.2% increase from the October 2015 demand of 217.0 MG.

CR-1, a new surface water diversion located near Plum Creek Water Purification Facility (PCWPF), came online on June 30 and is an important step in transitioning to a 75% renewable water supply. In October, 18.4 MG of renewable water was diverted from East Plum Creek to PCWPF by CR-1. The Town's ten alluvial wells and CR-1 produced a total of 45.6 MG of renewable water during October, which represents 18.7% of the total water supply for the month and 8.3% (238.1 MG or 731 acre-feet) of the water supply year to date. The total renewable water produced since the opening of the PCWPF has surpassed 983 MG, which represents 10.9% of the Town's total water supply since the alluvial wells began pumping in May 2013. Currently, the Town's renewable water rights surpass the capacity of the alluvial wells. The alluvial well projects the Town as completed as well as the CR-1 diversion. is currently working on will help close this gap. Monthly alluvial well production is shown in the graph on the next page.

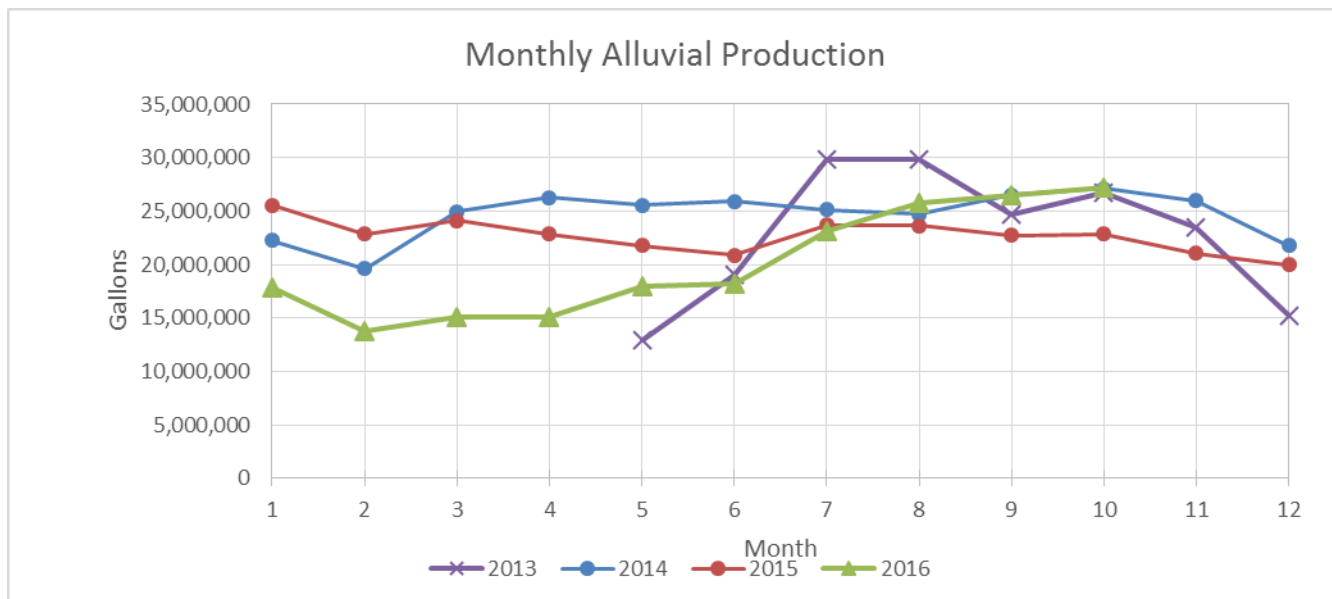


2016 percentage will finish much higher as the winter season progresses as new alluvial wells and diversion are in service

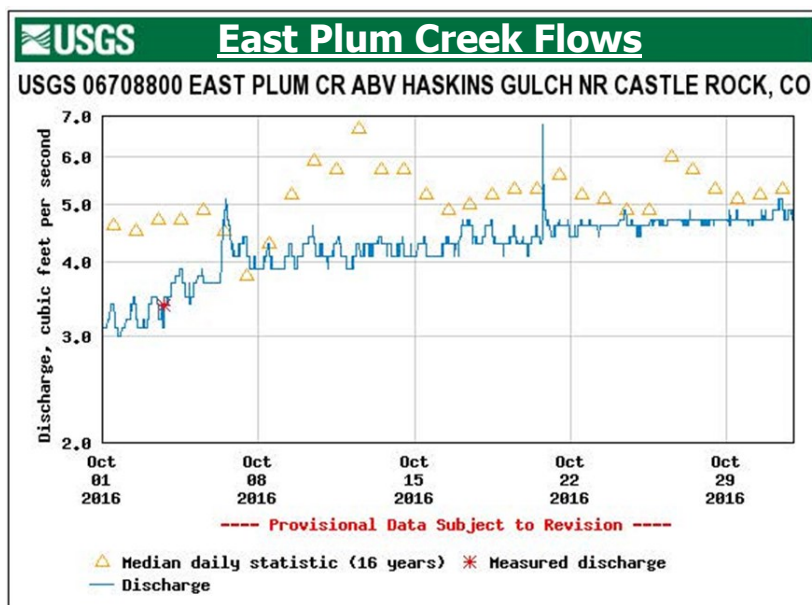


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2016 Water Demands, continued



The flow hydrograph (below) represents stream flows in East Plum Creek taken from the stream gauge located at Haskins Gulch. The hydrograph shows that flows in the East Plum Creek basin ranged between 3.0 to 6.8 cubic feet per second (cfs) during the month of October, with flows averaging around 4.5 cfs toward the middle to the end of the month. Since June 27, the call on the main stem of the South Platte River was changed from free river to active calls. These calls on the South Platte River have a more senior water right than our Meadows Alluvial Wells located in our Central Well Field and the Castle Rock Surface Diversion #1. This means that those diversions are now out-of-priority, so the stream depletions will now be covered by non-tributary return flows and/or more senior native water rights along East and West Plum Creek. This also means that the Town will now have slightly less reusable water going down Plum Creek. The priority date on a river call may change each day depending on the stream flow available and the seniority of the diversions that need water on that day. Our area experienced higher than normal temperatures for the month. According to the U.S. Drought Monitor from USDA, we are currently experiencing abnormally dry conditions.





ALL ABOUT CONSERVA-

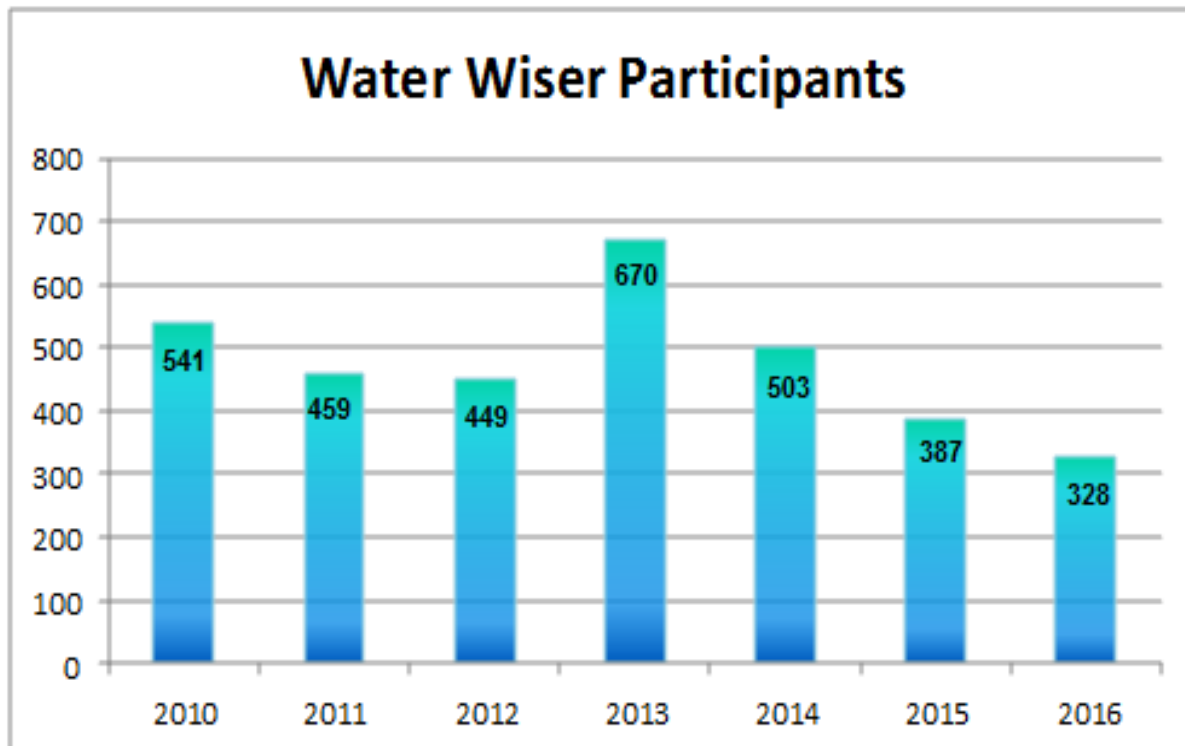
Our customers are taking advantage of our conservation programs. Find out how in this section.

Smartscape Solutions for Your Lawn and Home

Water wiser workshops continue to be popular with our customers. These workshops focus on how to apply water by taking advantage of the “7 Steps of Xeriscape”; how to detect water waste in your yard and homes; and how your irrigation system can be improved.

An evaluation of program participants indicates that almost 60% are able to lower their water usage after attending the workshop.

We have completed all of the workshops in 2016. Check back in early 2017 for a workshop schedule.



Update on Rebate Programs

The 2016 season saw an increase in rebate applications submitted, with the heaviest activity in the SmartScapes. SmartScapes continue to be the most popular with 59 applications being submitted versus 22 in 2015. Evaluations of past customers taking part in these programs indicate a water savings of approximately 19 percent.

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ALL ABOUT CONSERVA-

The information below details the rebates given out in each category, as compared to previous seasons.

Program Category	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual
SmartScape Renovation	\$51,142	\$50,392	\$54,152	\$23,400	\$21,407	\$14,649	\$24,192
Rotary Nozzle Retrofit	\$3,699	\$2,309	\$794	\$1,200	\$2,461	\$1,538	\$1,669
Rain Sensor	\$112	\$131	\$34	\$150	\$183	\$115	\$93
Smart Irrigation Controller	\$2,876	\$1,262	\$584	\$750	\$2,995	\$4,261	\$5,989
Slow the Flow Irrigation Audits	\$17,502	\$9,372	\$4,318	\$4,500	\$3,500	\$1,980	\$2,088
Total, All Programs	\$75,331	\$63,466	\$59,882	\$29,774	\$30,546	\$22,543	\$34,031

Plan Review Update

By Mark Mantua, Plan Review Engineer

The applications reviewed consisted of:

- 31 1st Submittals
- 15 2nd Submittals
- 11 Special reviews
- 2 Completed one week early
- 4 Completed late
- 51 Completed on-time as scheduled

Castle Rock Water reviewed 57 applications this month which compares to 81 during the same time period in 2015. The average assigned due date by Development Services was 1.5 weeks, and we completed the reviews in 1.5 weeks, which included:

- 2 Agreements
- 11 Construction Drawings
- 1 County Referral
- 1 Preliminary Planned Development Site Plan
- 4 Preliminary Project Applications
- 8 Field Change Orders
- 8 Grading, Erosion and Sediment Control (GESC) Plans
- 1 GESC Permit
- 2 Straight Zoning Application
- 2 Planned Development Plan
- 2 Plats
- 9 Technical Criteria Variances
- 6 Site Development Plans

In addition to completing the above listed applications as scheduled, Castle Rock Water completed 82 building permit reviews and associated system development fees.

NEW CERTIFICATIONS

The water, wastewater and stormwater utility business is highly technical and regulated. As such, Castle Rock Water has to maintain an extensive staff of professionally licensed individuals. Most of these licenses require specialized education and the passing of state testing, as well as proof of continuing education. Below is a list of those passing various certifications this month:



Casey Devol
Class 2 Operator



Chrystal Ruby-Carillo
Water Treatment B



Ross Stanley
Collections III

Customer Statistics

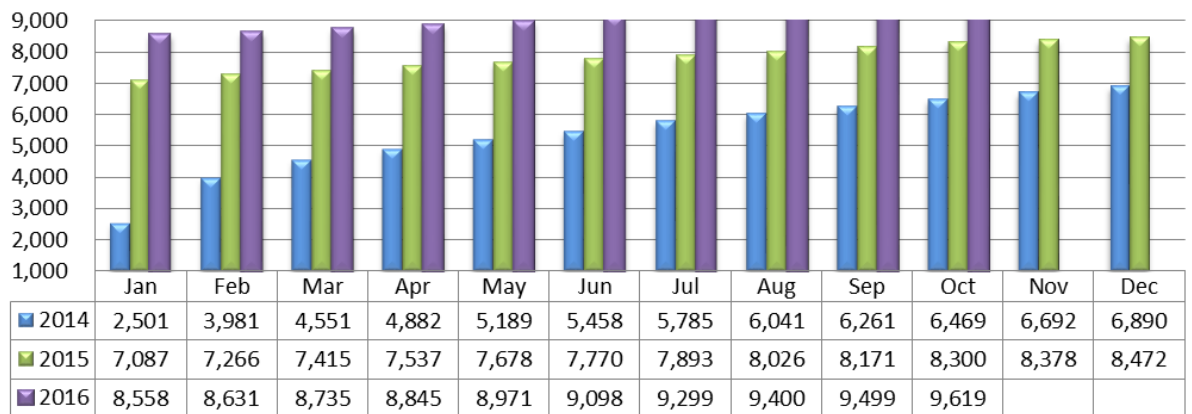
By: Anne Glassman, Business Solutions Manager

Our Business Solutions Team continues to track a host of statistics and data as we continue to evaluate our levels of service and look for efficient ways to improve on these levels.

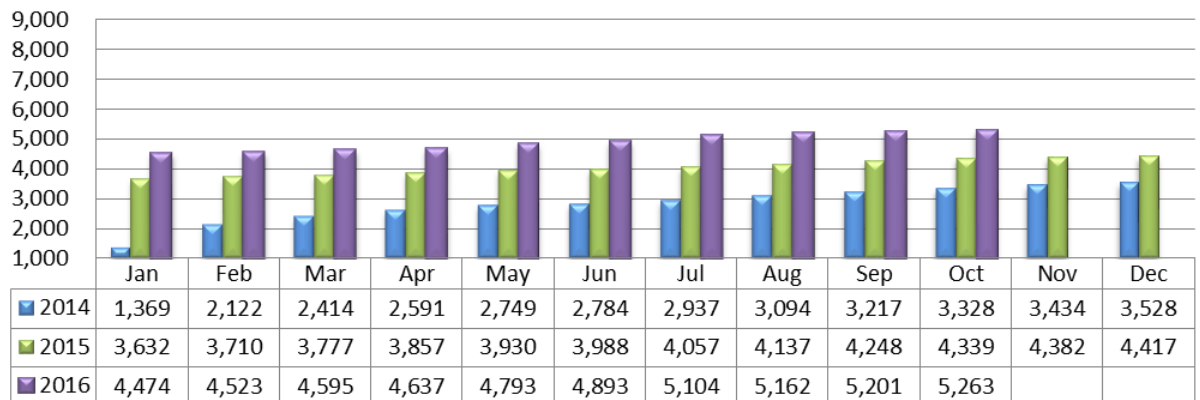
It's been nearly three years since launching the H₂O Access Online Billing Solution, and customer enrollments have continued to increase. The number of customers enrolled choosing paperless billing remains steady at 55 percent, with 49 percent of all customers we serve enrolled with an online account.

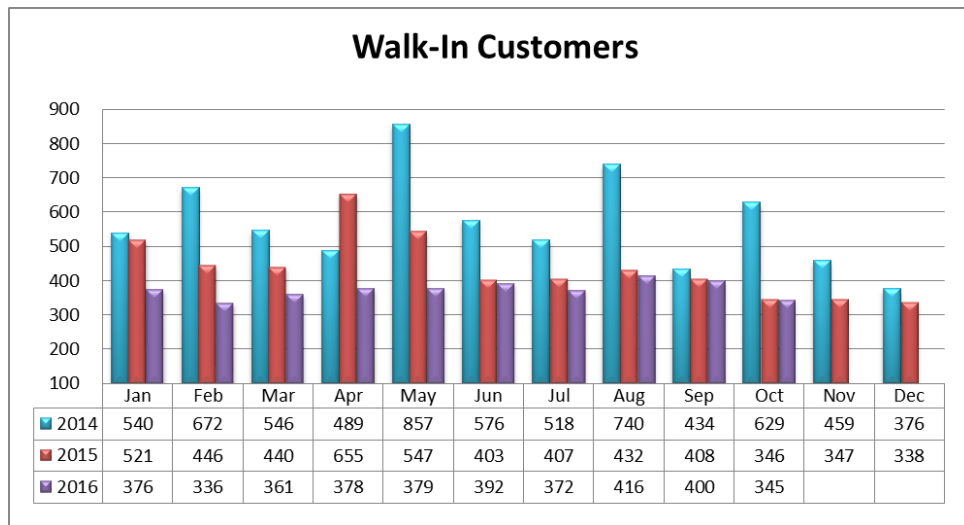


H₂O Access Online Billing Solution Customer Enrollments

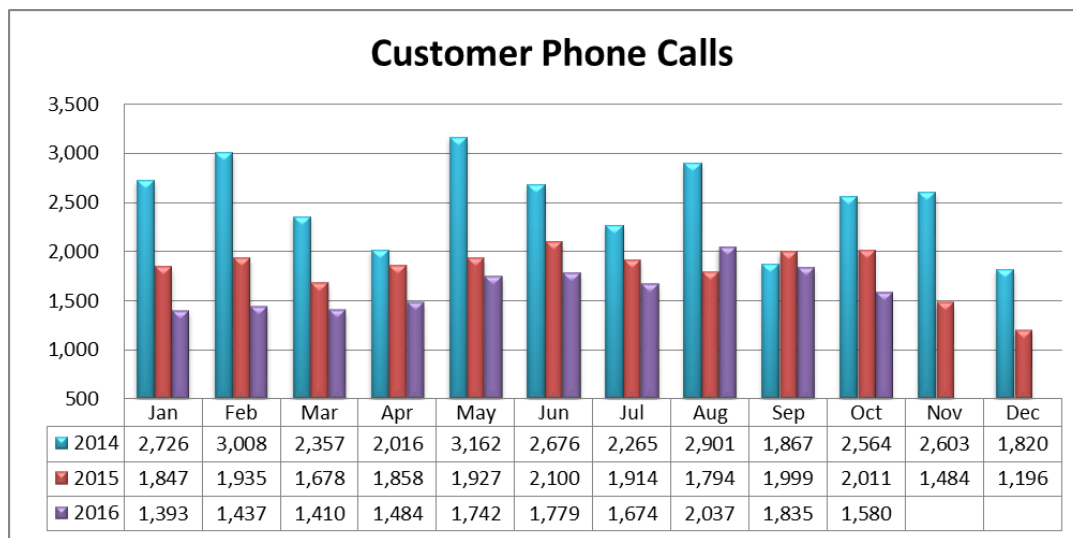


H₂O Access Online Billing Solution Paperless Adoption

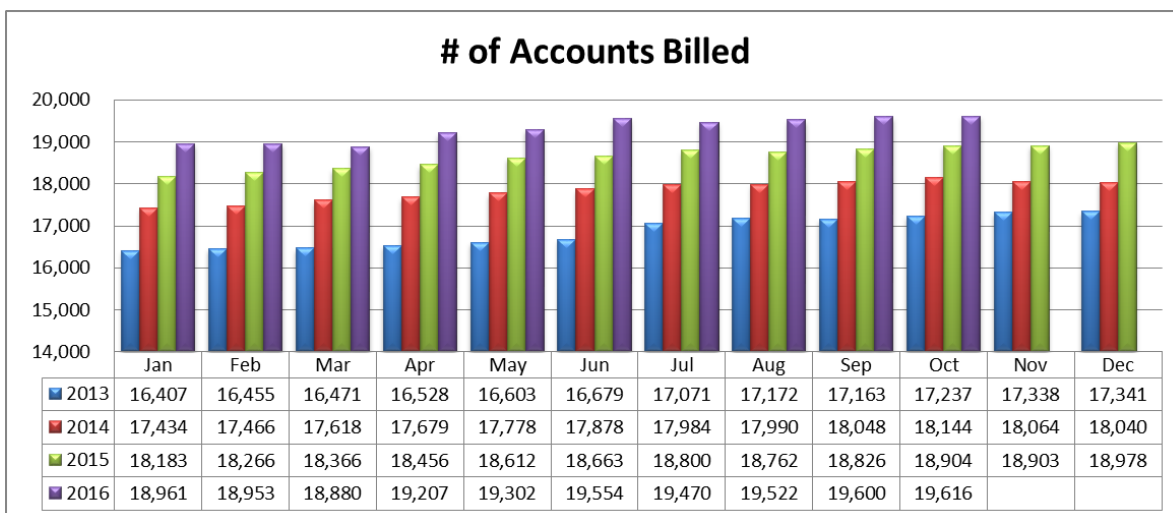




The number of walk-in customers has been consistent in 2016.



The number of customer phone calls has been consistent in 2016.



The number of accounts billed has increased month-to-month due to new residential and commercial growth.

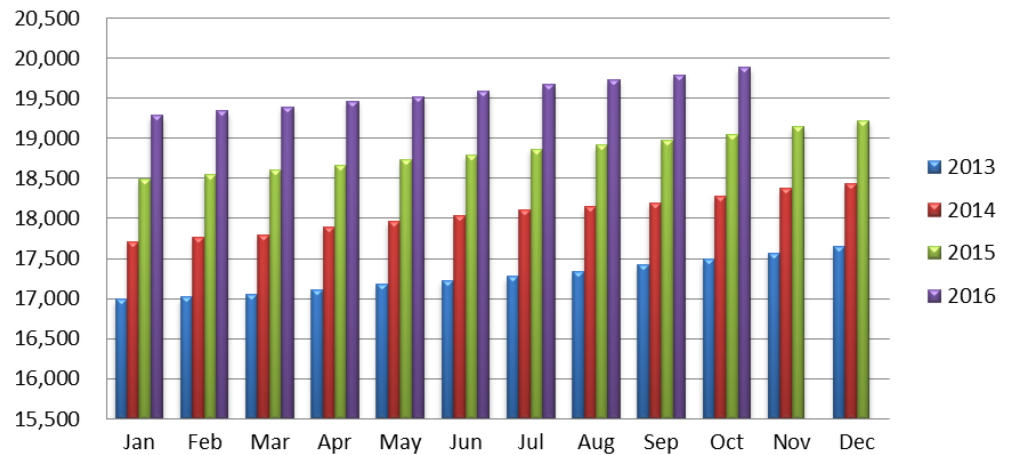
METERS



Meter Sets

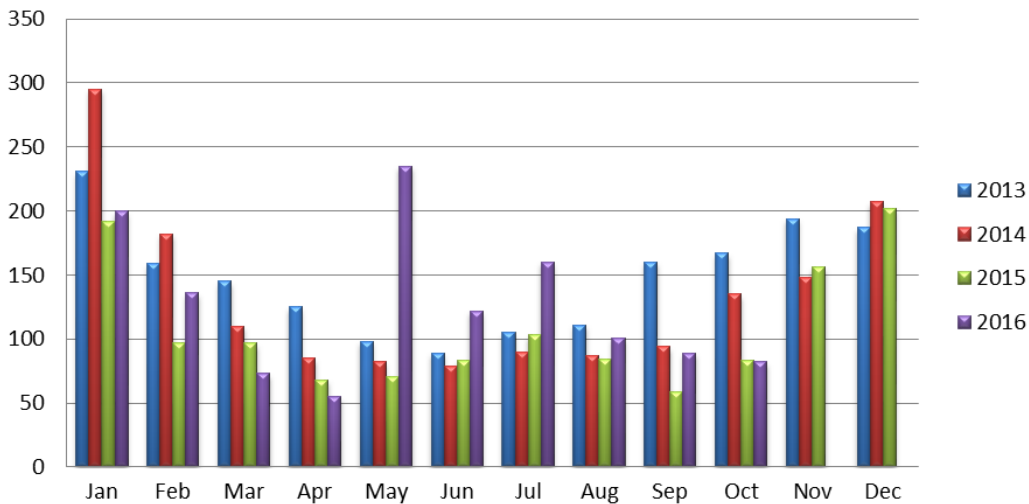
Month-to-Date 64
Year-to-date 654

Meters Read



The meters read continues to increase month-to-month due to new residential and commercial accounts, with an increase year over year.

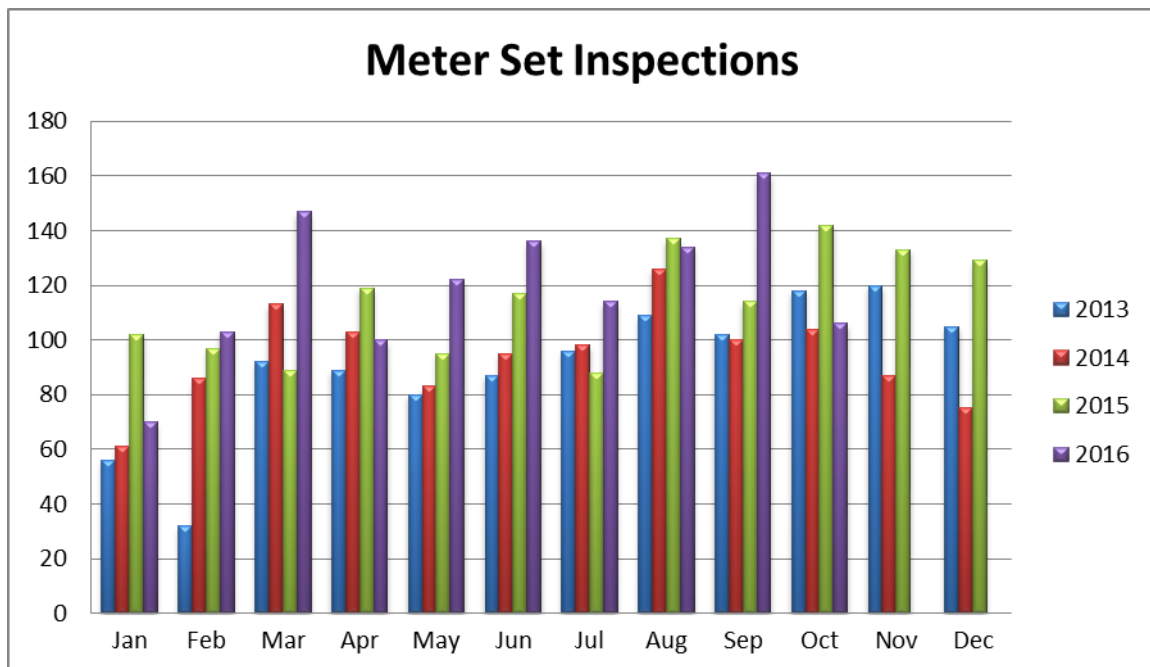
Skipped Reads



WHY IS THIS IMPORTANT?

It is a strong indication of the level of preventative maintenance being done by our team. A skipped read is indicative of a problem with the meter. Less skipped reads means more properly working meters, which is good for all our customers.

The American Water Works Association (AWWA) standard is 2 percent, so at 0.41 percent, we continue to stay below the industry average. This is a result of continued maintenance and repair efforts on meter infrastructure.



Meter set inspections are lower in October but consistent with prior years at this same time.

OCTOBER LEVELS OF SERVICE

Drinking Water Compliance

Castle Rock Water will deliver water that meets or exceeds both Primary Drinking Water Regulations and Secondary Maximum Contaminant Levels 100% of the time.

Seventy routine samples were completed. All samples were within the parameters set forth by the Federal Safe Drinking Water Act and Colorado Drinking Water Standards.

Pressure Adequacy

< 1% of our customers will experience less than 43 pounds per square inch (psi) of pressure at the meter during normal operations.

Pressure has been maintained at or above 43 psi throughout the distribution system.

Sewer System Effectiveness

<1% of our customers will experience a sewer backup caused by the utility's sewer system per year.

There were no system issues impacting customers in October.

Drinking Water Supply Outages

<5% of our customers will experience water outages for one or more events totaling more than 30 hours/year.

A service line leak occurred on a fitting that had been originally installed incorrectly (sweated copper fitting underground). The restaurant near the Outlet Mall had good water pressure, so the repair was delayed until 11 p.m. Friday night, when the line could be shut down without affecting the restaurant. The team worked on this issue until 8 a.m. and restored water to this customer before they opened for business the next day.

Stormwater Update

Our team of four “storm troopers” maintains over 138 miles of pipe and drainage-ways, 110 detention ponds and 4,439 inlets as well as completing special projects designed to improve water quality.

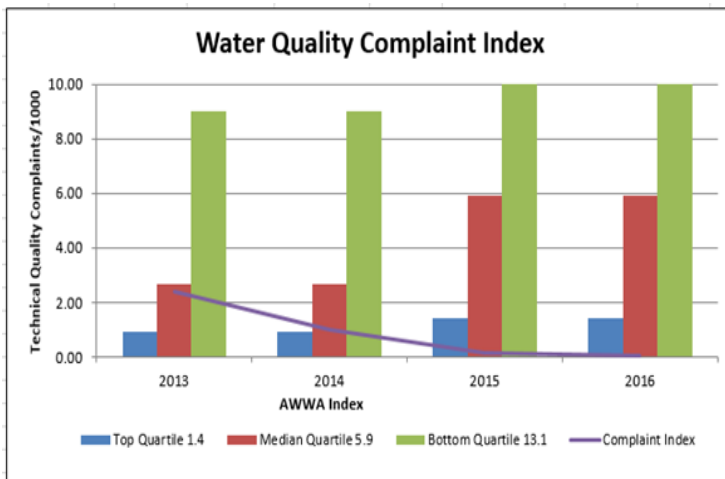


Storm troopers (left to right) Rob Daniels, John Grahn, and Jon Stapp, Stormwater Conveyance System Supervisor. Not pictured Casey Stevenson

Water Quality Complaints

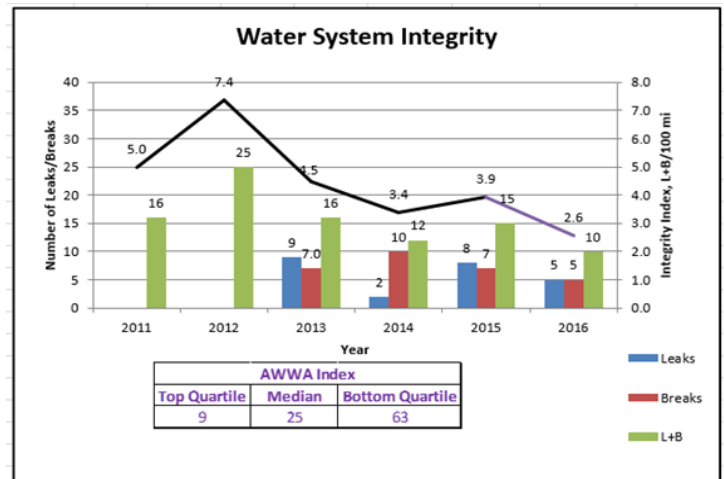
The Water Quality Complaint index shows that we are doing very well in this category; rating in the Top Quartile in 2015 according to the American Water Works Association. We did not have any Water Quality Complaints in October.

For more information, view the current water quality report at CRgov.com/waterquality.



Water System Integrity

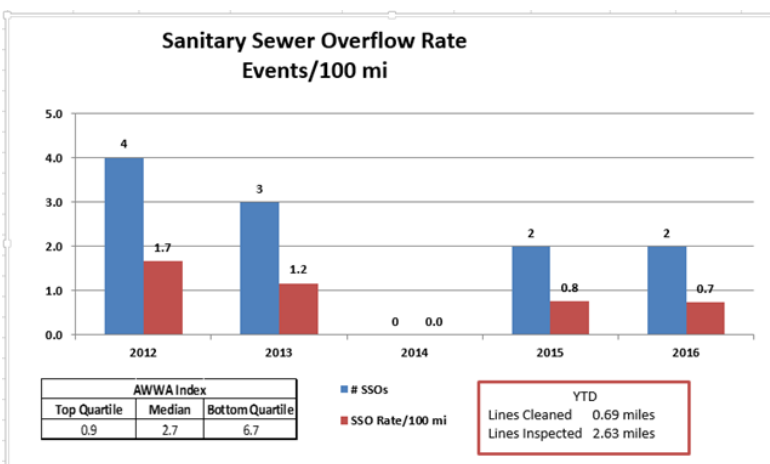
As the Water System Integrity chart indicates, our occurrence rate has generally decreased over the last four years. We have been in the top quartile, the top 25%, for water system integrity based on American Water Works Association benchmarking since 2011. There was one water system integrity issue in October.



Our team maintains about 780 miles of water, wastewater and stormwater pipeline, enough to run from Castle Rock to Las Vegas, Nevada.

Sanitary Sewer Overflows

We are also tracking in the Top Quartile in the Sanitary Sewer Overflow Rate since 2014, according to the American Water Works Association, showing two incidents for the year. There were no issues in October.



How do we avoid overflows?

Our team runs a camera through the sewer mains to look for problems. When problems are identified they are cleared with a high pressure water jet.