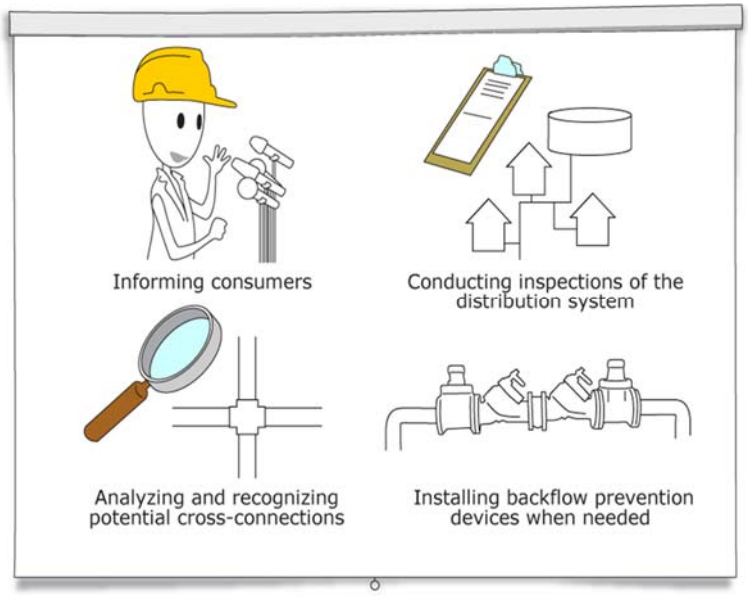
CASTLE ROCK water
Securing our future drop by drop

FEBRUARY 2017

Backflow Prevention / Cross Connection Control

By: Denise Lannan, Cross Connection Control Technician

The Town of Castle Rock Cross-Connection Control Program follows the spirit of the Colorado Department of Public Health and Environments' (CDPHE) Regulation 11.39. As a result, the Town's overall water quality program, providing high quality water, is greatly enhanced. The purpose of the program is to reduce the risk of contamination or pollution of the public water system through protective devices to prevent water from back flowing into the distribution system. This program addresses implementation of federal, state, and local drinking water regulations, which mandates that a public water system shall have no uncontrolled cross-connections.



In 1992, the Town adopted an ordinance and subsequently implemented a cross connection control program manual. From that time forward, all new service connections (residential and commercial) to the water distribution system have been required to install backflow prevention assemblies. The type of backflow device is commensurate to the degree of hazard presented to the system by the service connection.

In January of 2016, State Regulation 11.39, Backflow Prevention and Cross Connection Control Rule, went into effect. It states that all municipalities must have a written backflow program which outlines their processes for surveying, installing, maintaining and annual testing of devices installed within their water system. Municipalities will be given until 2020 to show 100 percent compliance over the next four years. As of December 31, 2016, Castle Rock Water is 100% compliant with our required annual testing and 95% compliant with the surveying of all commercial backflow devices.

Backflow testers have to be State certified and hold that certification for three years. Recertification is required every three years thereafter. They attend a strenuous 40 hour class learning hydraulics, assembly operation, rules and regulations and test procedures. The testers are required to pass a written and hands on exam showing they understand the devices they are testing. The Town of Castle Rock requires that anyone wanting to test backflow devices within the city

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OUR VISION

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

Backflow Prevention, continued

limits must be registered with us, proving they are State certified. Castle Rock Water currently has 12 employees who are State certified backflow technicians. Castle Rock Water also has over 150 private registered backflow testers that can perform backflow testing with our water district.

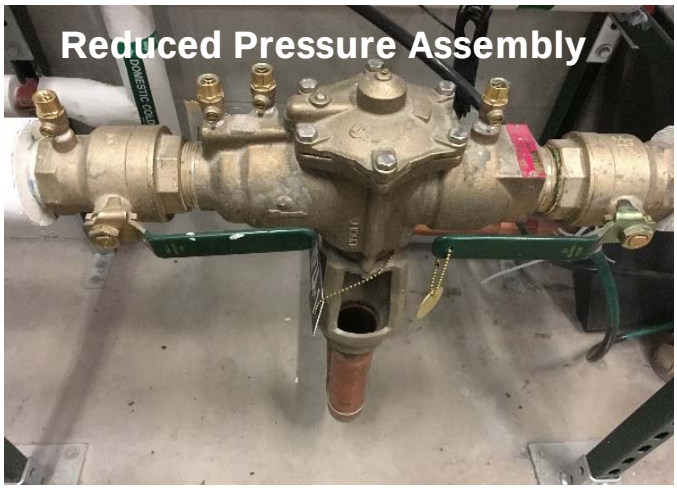
Commercial

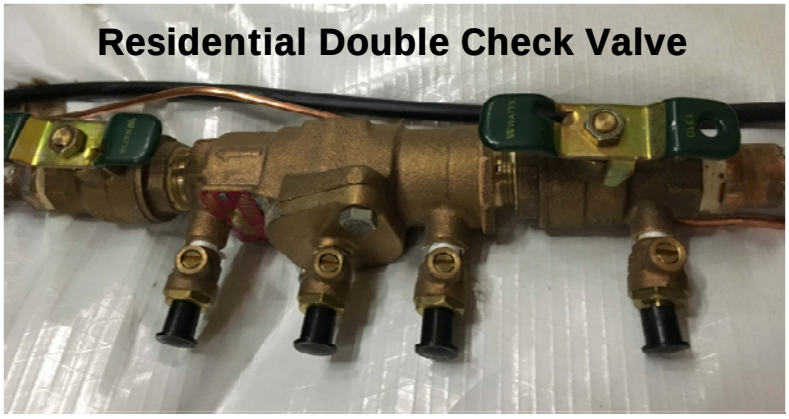
Commercial customers are considered a high degree of hazard due to the nature of their business and the activity that occurs within their walls. Commercial customers are required to have a Reduced Pressure Assembly at the service connection. This device provides the highest level of protection against contamination by preventing water from back flowing into the distribution system. Commercial customers could also have several internal devices, such as an isolation device on a soda machine, ice cream dispenser, and fire line. The devices are typically located in utility maintenance rooms inside the buildings. Examples of commercial customers are restaurants, shopping centers, multi-family units, veterinary clinics and grocery stores.

Residential

Residential customers are considered a low degree of hazard. Residential customers are required to have a Double Check installed inside their homes typically on the meter tree or where the water line enters the home. They will also have a Pressure Vacuum Breaker installed on the irrigation system, located on the side of the home.


Pressure Vacuum Breaker


Reduced Pressure Assembly


Residential Double Check Valve

Castle Rock Water will continue on this aggressive path to meet the State's standards in order to be a national leader in the area of Cross Connection.

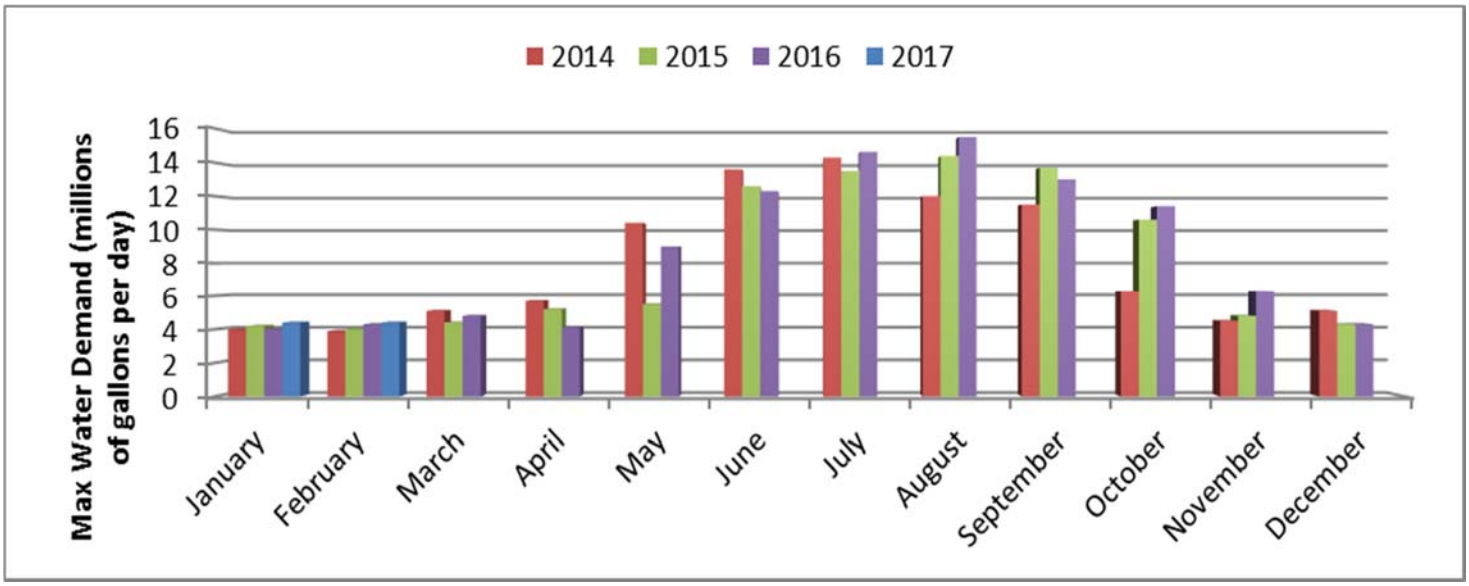
2017 Water Demands

By: Kurtis Cotten, Water Resources Program Analyst

The maximum daily water demands are plotted by month from 2014 to the current month. As observed by the data, the maximum demand for the month of February was 4.4 million gallons per day (MGD) which was about 7 percent 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 and infrastructure needs. The water demand total for February was 123.8 million gallons (MG), which was about a 1.6 percent decrease from the January 2017 total of 125.8 MG, and a 5.1 percent increase from the February 2016 demand of 117.8 MG.

CR-1, a new surface water diversion located near Plum Creek Water Purification Facility (PCWPF), came online on June 30, 2016, and is an important step in transitioning to a 75 percent renewable water supply. The temporary diversion was shut down on November 17, 2016, due to below freezing temperatures and may be started back up as weather permits. A more permanent solution is planned to be online in 2017. The Town's twelve alluvial wells produced a total of 24.7 MG of renewable water during February, which represents 21.2 percent of the total water supply for the month and 21 percent (52 MG or 159 acre-feet) of the water supply year to date. The total renewable water produced since the opening of the PCWPF has surpassed 1,097 MG, which represents 11.5 percent 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 completed last year and the additional projects the Town is currently working on, including a permanent surface diversion will help close this gap. The monthly alluvial well production graph on the next page shows increased productions already year-to-date. The Aquifer Storage and Recovery (ASR) Pilot Study started in November and will be wrapping up in Spring 2017. The ASR program will help us to store renewable water during the off peak season without evaporative losses and helps to maintain the Denver Basin aquifers. During the month of February, 3.7 MG was recharged into the Arapahoe and Denver aquifers.



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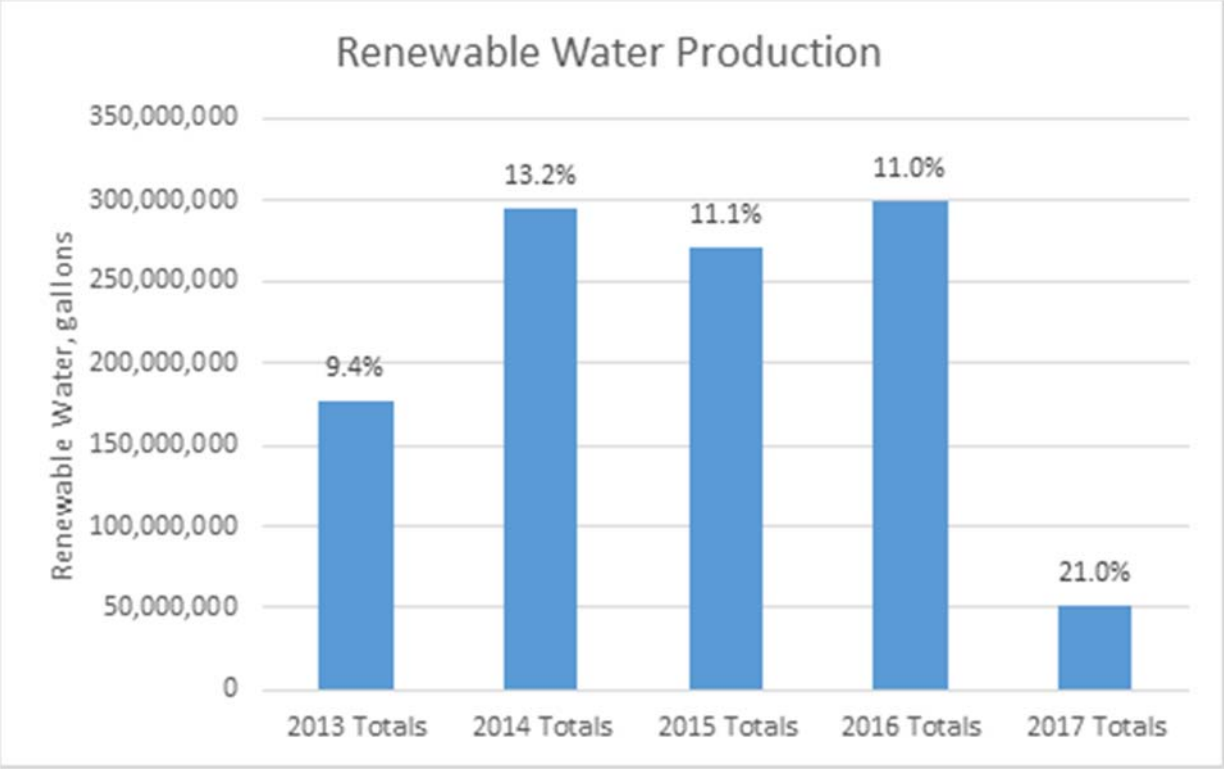
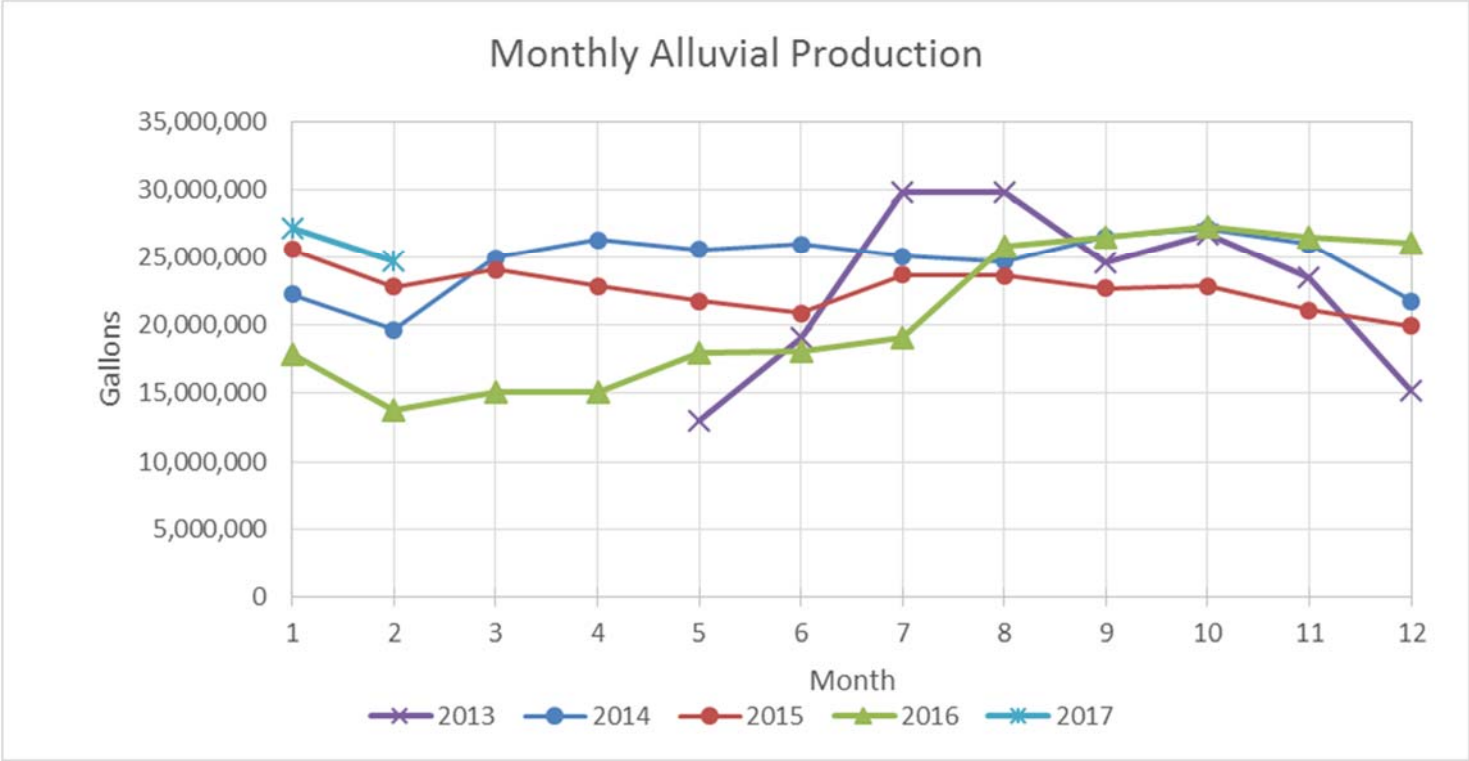
2017 Water Demands, continued



The percentage shown on top of the bars is the amount of renewable water relative to total water production.



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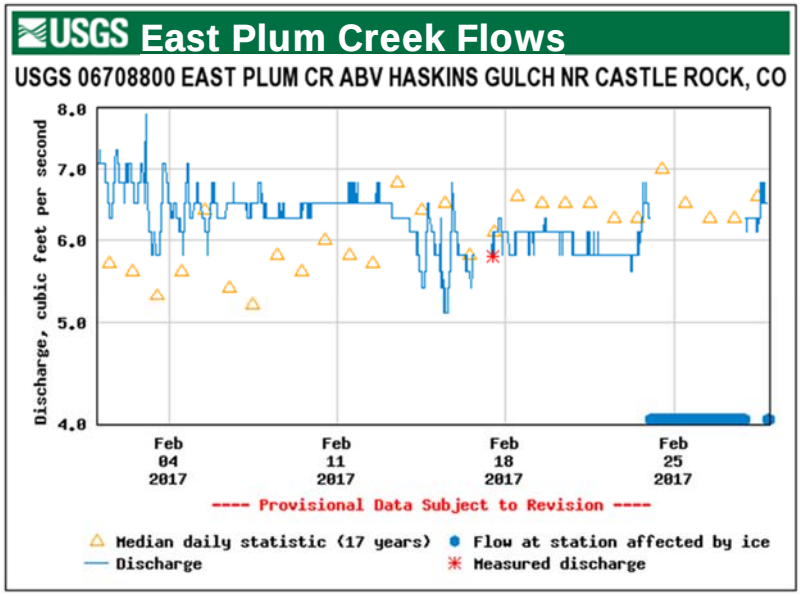
2017 Water Demands, continued



The flow hydrograph represents stream flows in East Plum Creek taken from the stream gauge located above Haskins Gulch. The hydrograph shows that flows in the East Plum Creek basin ranged between 5 to 8 cubic feet per second (cfs) during the month of February, with flows averaging around 6.5 cfs for the month. During February, there have been active calls on the South Platte River. The active calls 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 out-of-priority, so the stream depletions will 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 have slightly less reusable water going down Plum Creek during an active call. 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. According to the U.S. Drought Monitor from USDA, we are currently experiencing moderate drought conditions. The NRCS Colorado SNOTEL report for March 3, 2017 shows the snow/precipitation for the South Platte River Basin is at 129 percent of average for the 2017 water year.

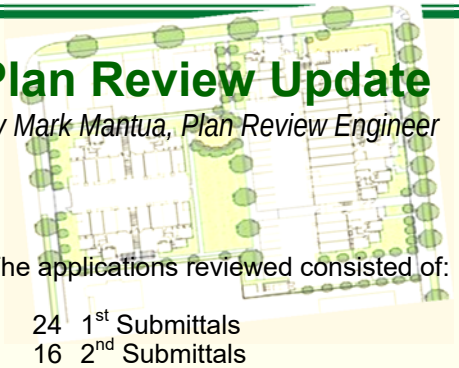
New Certifications

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:

Clayton Baker
Collections I

Plan Review Update

By Mark Mantua, Plan Review Engineer



The applications reviewed consisted of:

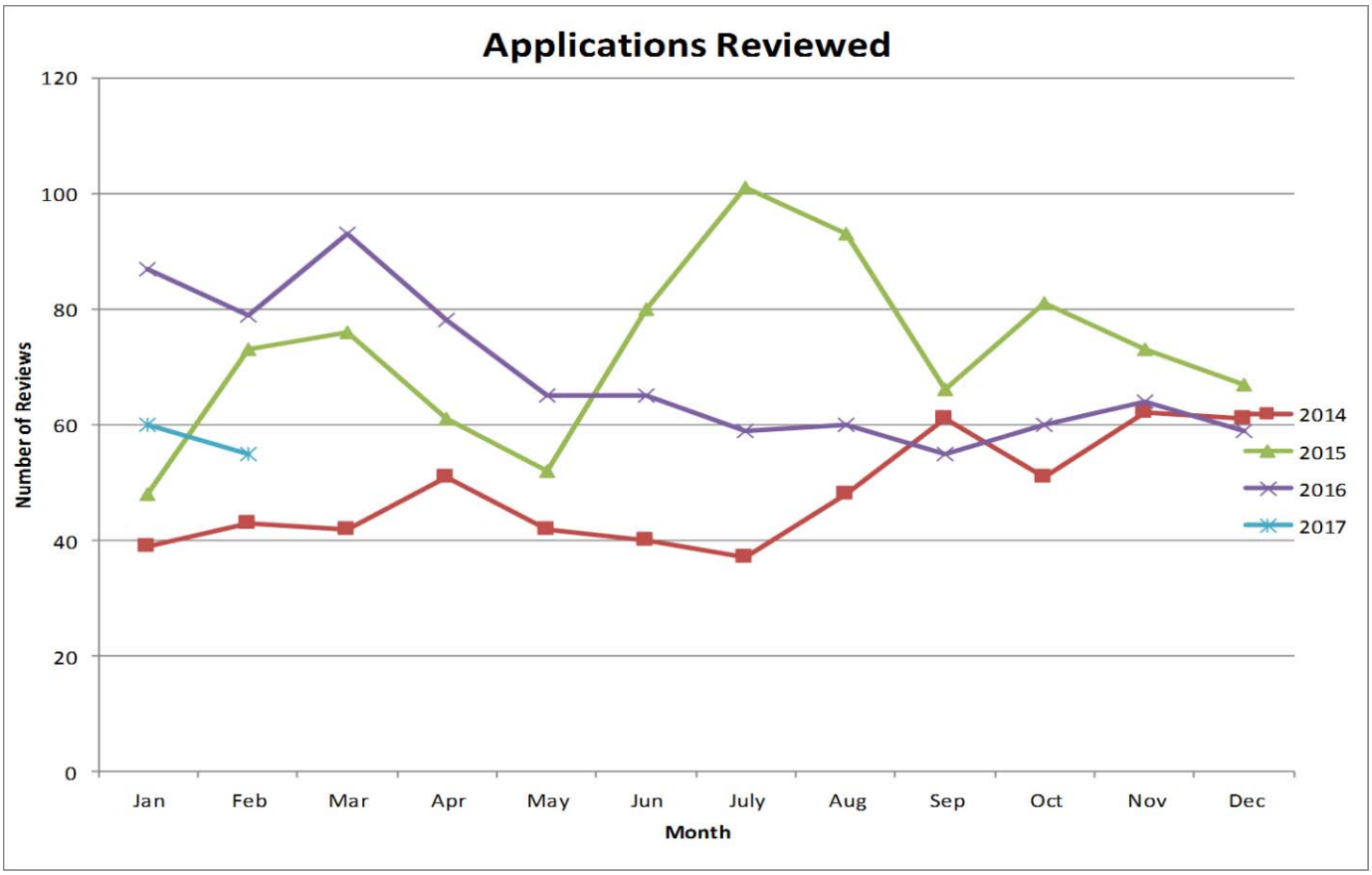
- 24 1st Submittals
- 16 2nd Submittals
- 15 Special reviews
- 4 Completed late
- 51 Completed on-time as scheduled

Castle Rock Water reviewed 55 applications this month which compares to 79 during the same time period in 2016. The average assigned due date by Development Services was five days, and we completed the reviews in an average of five days, which included:

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

In addition to completing the above listed applications as scheduled, Castle Rock Water completed 58 building permit reviews and associated system development fees.

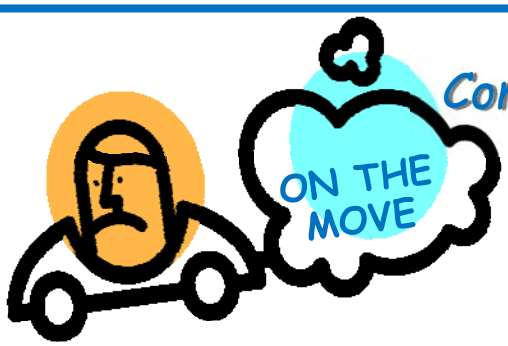
Castle Rock Water provides plan review for all water, wastewater and stormwater projects submitted through the development review process. The line graph (below) shows development activity data (by month and year) since 2014.



Welcome to our Team!

Chris Salazar
Sr. Collection System Operator

Jared Wagner
GIS Intern



Congratulations on your recent promotion!

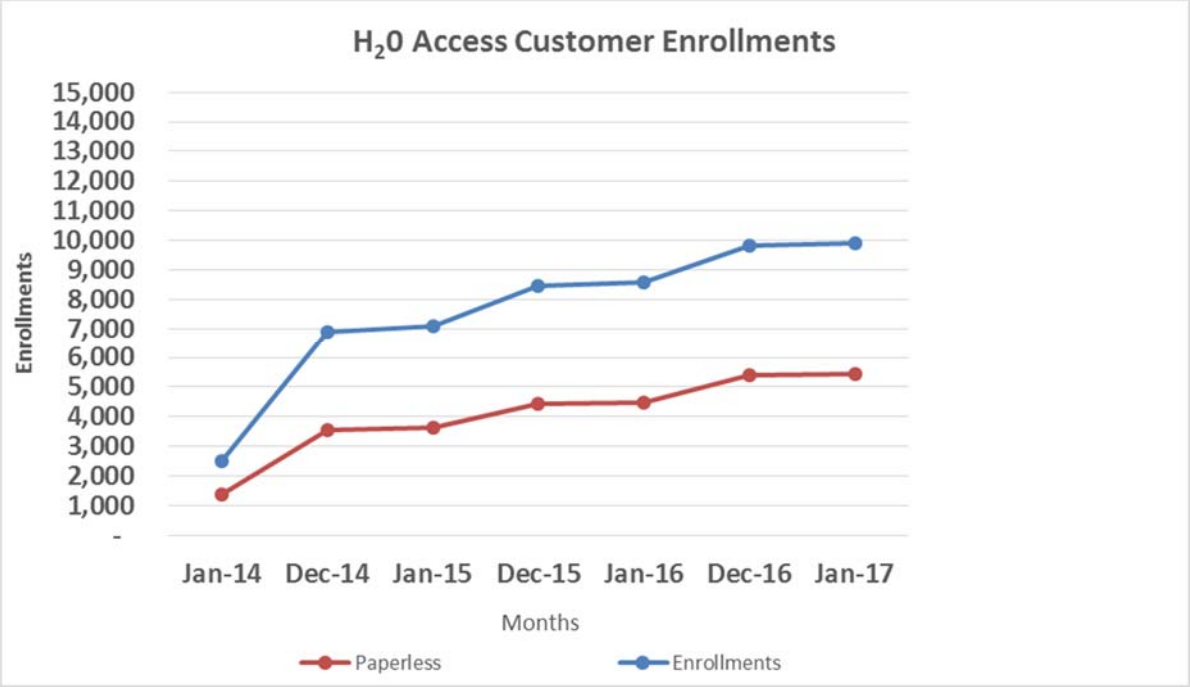
John Whitesel
Sr. Meter Services Technician

Business Solutions

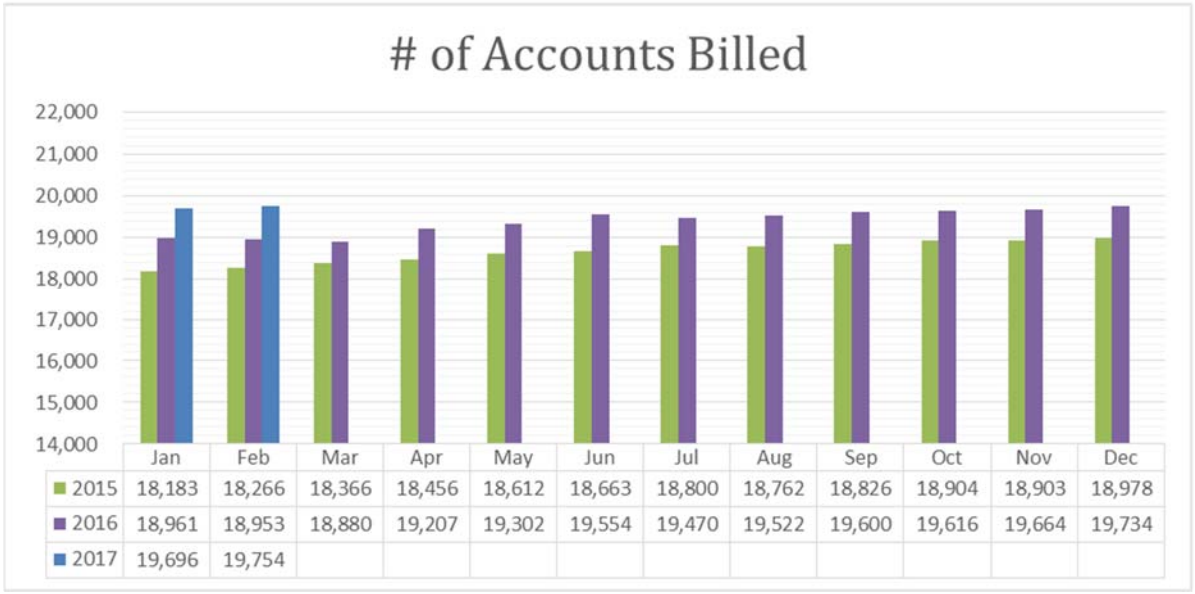
Customer Statistics

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.



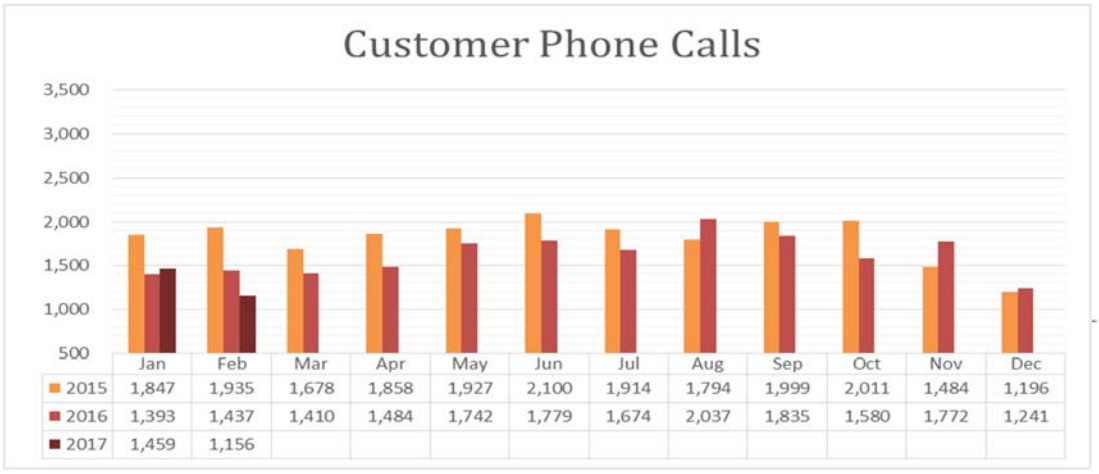
Fifty-five percent of the customers enrolled in H_20Access have also chosen to "Go Paperless."

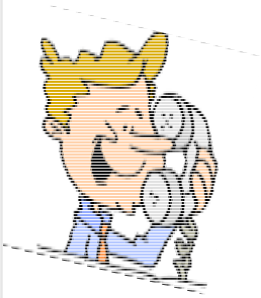


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	18,183	18,266	18,366	18,456	18,612	18,663	18,800	18,762	18,826	18,904	18,903	18,978
2016	18,961	18,953	18,880	19,207	19,302	19,554	19,470	19,522	19,600	19,616	19,664	19,734
2017	19,696	19,754										

The number of accounts billed continues to increase year over year due to new residential and commercial growth.

Walk-in customers continue to decline due to customers utilizing our online services.



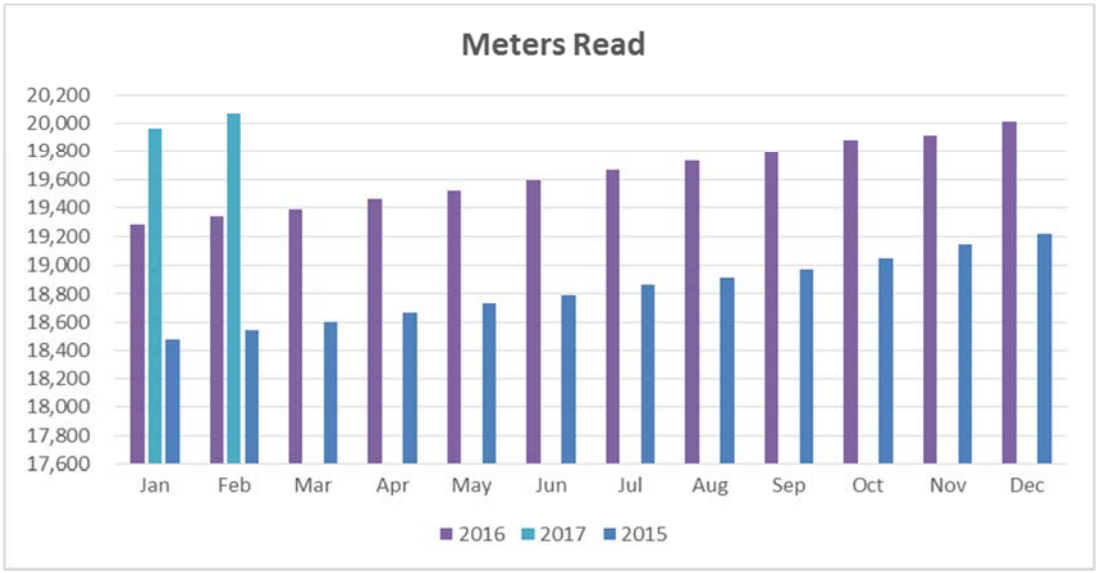


Customer phone calls continue to decline due to customers utilizing our online services.

METERS

Meter Sets

Month-to-Date 48
Year-to-date 776



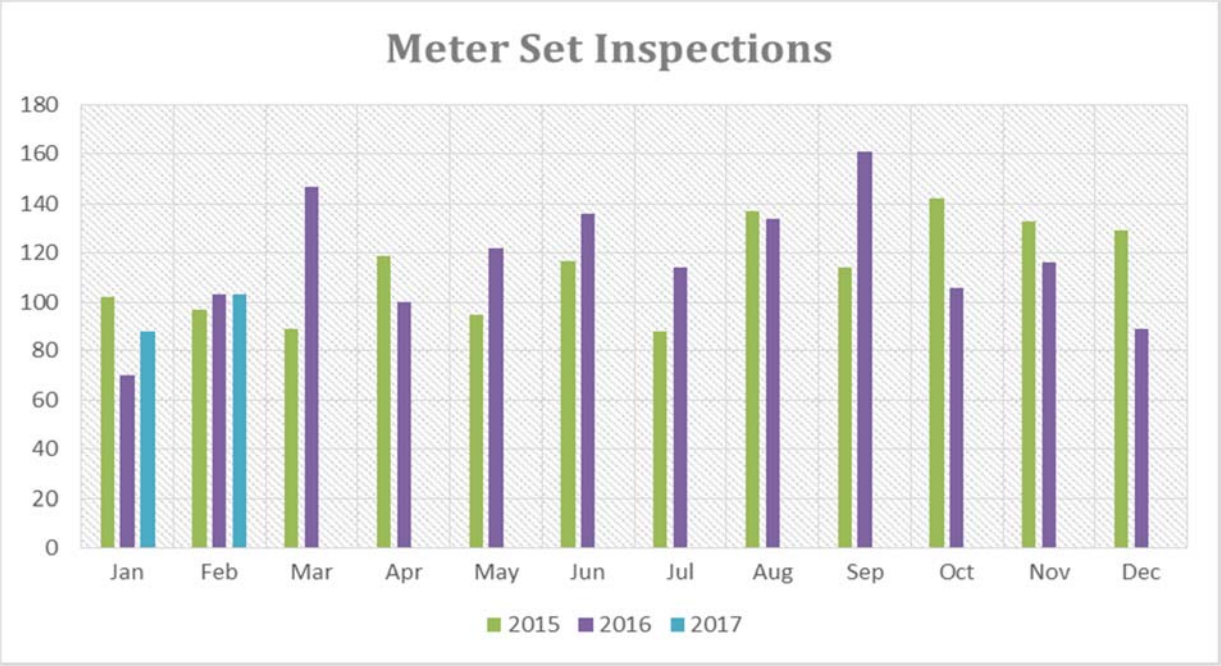
The meters read continues to increase month-to-month due to new residential and commercial accounts, with an increase year over year.

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 0.30 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 fairly consistent with prior years at this same time.

STORMWATER UPDATE

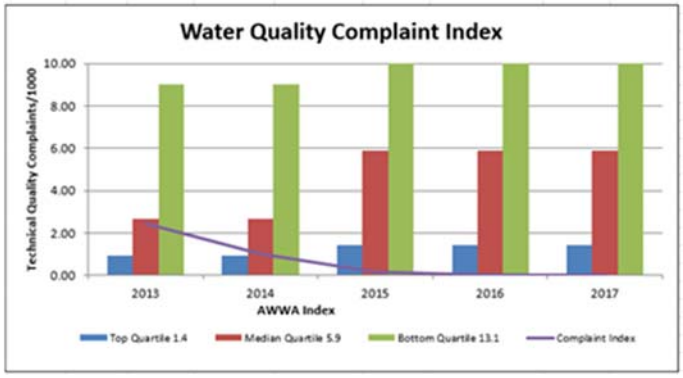
Our team of four "storm troopers" maintains over 138 miles of pipe and drainageways, 110 detention ponds and 4,439 inlets as well as completing special projects designed to improve water quality.

The access road to the Heckendorf Alluvial Wells was regraded and topped with 110 cu.yds. of asphalt millings. This will prevent further erosion and allow safe access to the well sites.

New excavator assists the storm troopers with detention pond repairs in Plum Creek.

Water Quality Complaints

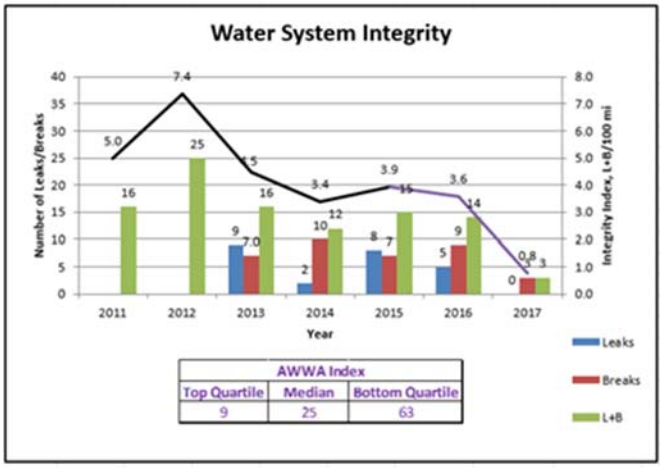
The Water Quality Complaint index shows that we are doing very well in this category; rating in the Top Quartile in 2015 according to the American Water Works Association. Our score was even better in 2016! There were no water quality complaints in February.



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

Water System Integrity

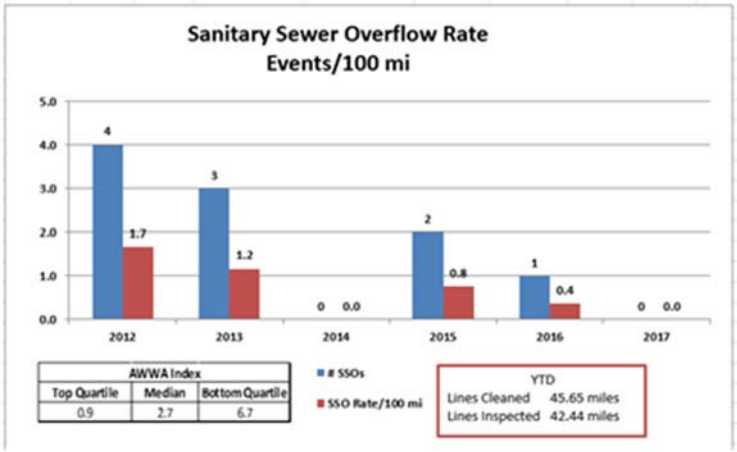
As the Water System Integrity chart indicates, our occurrence rate has generally decreased over the last four years. We have been in the top quartile, the top 25%, for water system integrity based on American Water Works Association benchmarking since 2011. There were two water system integrity issues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



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 no incidents in 2017.



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. In 2015 and 2016, we inspected and cleaned 42.44 and 45.65 miles, respectively.

February 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 February

Drinking Water Supply Outages

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

There were two line breaks in the Glovers subdivision. Water service was not interrupted to the homeowners during these repairs.