

Remembering Our Friend and Co-worker, Kevin Elliott



Kevin was hired by Castle Rock Water on December 29, 2014, and passed away unexpectedly at his home on April 23, 2018. Many of us had the pleasure and opportunity to work with Kevin on a day-to-day basis, and his presence will be truly missed.

During his time in Plan Review, Kevin could always be counted on to stand up for what was in the best interest of the Town and its residents. He was a true engineer, always concerned about sound planning and design, and eager to offer helpful solutions to the unique and challenging situations that arise during the development process.

In Kevin's honor, a memorial bench was placed along the Hangmans Gulch Trail (see map of the Hangmans Gulch Trail and bench location on next page.) He and his family walked this trail when they first moved to Castle Rock so it had special meaning to him. The bench is situated in a very peaceful location, with a backdrop of scrub oak, and a view to the west of Colorado's beautiful sunsets. We're sure Kevin would have been pleased with this spot.



Hangmans Gulch Channel Improvements

By: Barbara Horton, P.E., Project Manager

This project is located along the Hangmans Gulch Trail between I-25 and the confluence with East Plum Creek (EPC). The primary objective of this project was to address sediment deposits and scour along the trail system due to the incomplete infrastructure.

In accordance with the Stormwater Master Plan, Phase I and II Hangmans Gulch Channel Improvements were completed in 2011 and 2012 at the time the Hangmans Gulch Trail was constructed. Due to budget limitations, the first phases of improvements were understood to only partially stabilize the drainageway and future improvements would be required as budget became available. Phase III drainageway improvements generally included additional grade control structures to further stabilize the channel downstream of I-25, and reduce erosion and sedimentation along the Hangmans Gulch and EPC Trails.

Soils along the channel bottom and banks of Hangmans Gulch are highly erosive and regular channel maintenance has been necessary since completion of the trail in 2012 to protect the safety of trail users. In addition to grade control, Phase III improvements also included construction of a larger culvert under the EPC trail and modifications at the Union Pacific Railroad crossing to minimize flooding impacts,

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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.

Hangmans Gulch, continued

reduce trail closures and prolong the time period between required maintenance efforts. Hudick Excavating, Inc., dba HEI Civil was awarded the construction contract. Construction began in June and was substantially completed in September. The total construction cost for the project was approximately \$615,000, and was completed within budget and on-schedule.

BEFORE



Three 24-inch culverts following March 2015 maintenance effort.



Culverts completely filled in with sediment following the June 2015 storm event.

AFTER

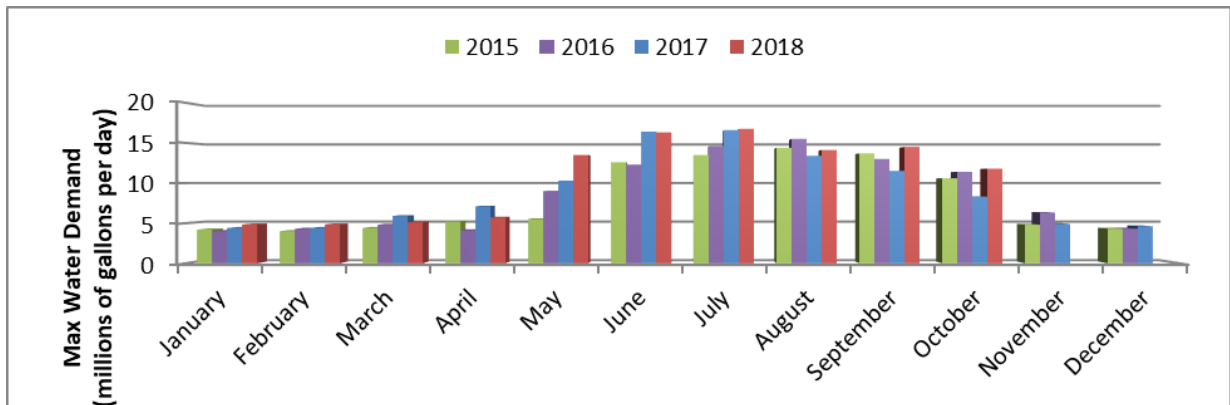
New 10'x6' box culvert at the EPC trail.



2018 Water Demands

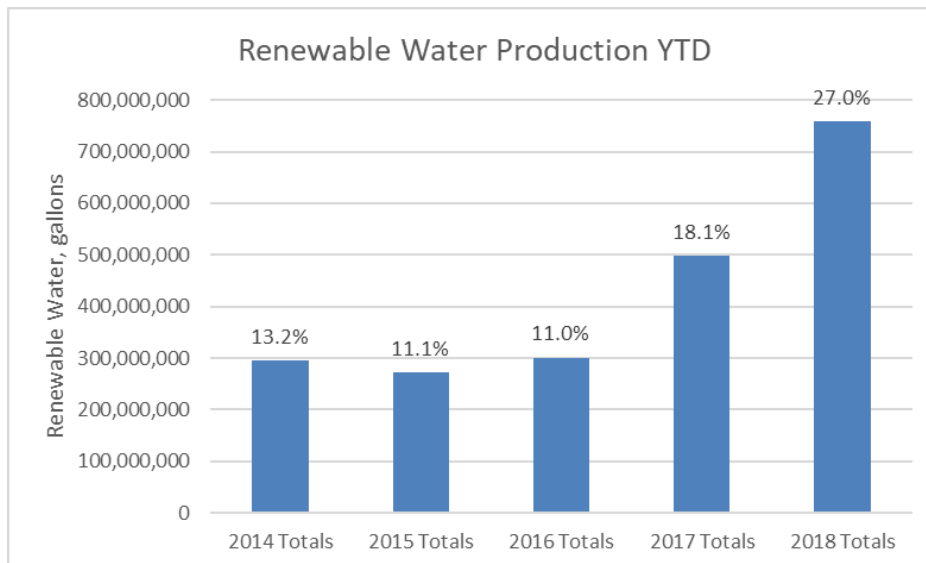
By: Lauren Moore, Water Resources Program Analyst

The maximum daily water demands are plotted by month from 2015 to the current month. As observed by the data, the maximum demand for the month of October was 11.8 million gallons per day (MGD) which was 22% greater 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 191.5 million gallons (MG), which was about a 48.9% decrease from the September 2018 total of 375.0 MG, and a 9.9% increase from the October 2017 demand of 174.2 MG.



The CR-1 diversion produced an average of 0.73 MGD for the month of October, supplemented by 28.0 AF (minus stream losses) from our Bell Mountain – Denver Well. The Town's thirteen alluvial wells and CR-1 produced a total of 45.1 MG of renewable water. In total, renewable supplies accounted for 12.2% of the total water supply for the month (369 MG or 1,133 acre-feet) and 27.0% of the annual water supply (2,812 MG or 8,630 acre-feet).

Renewable supplies are those water sources that are replenished by precipitation (think of our alluvial wells and CR-1), whereas reusable supplies are those waters that are either from the Denver Basin (deep wells) or imported supplies (such as WISE and RHR) that can be used over and over, to extinction. The average reusable supplies used by Castle Rock for 2018 through October is 37.9% with 20.1% of available reusable supplies being used in the month of October.



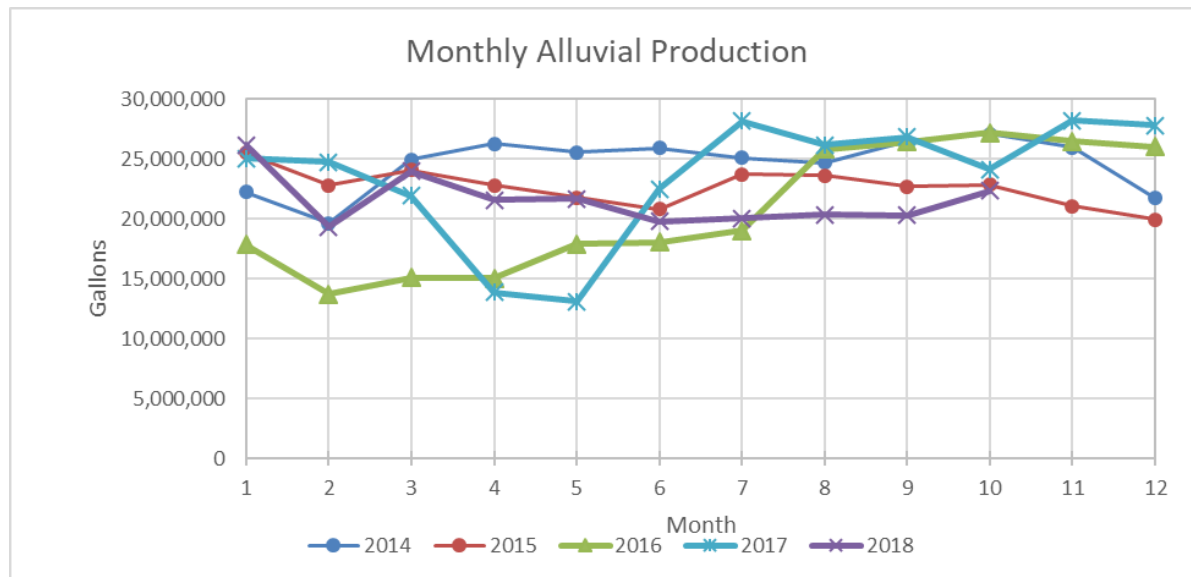
**2018 renewable production will vary as demand increases and additional sources are brought online.*

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

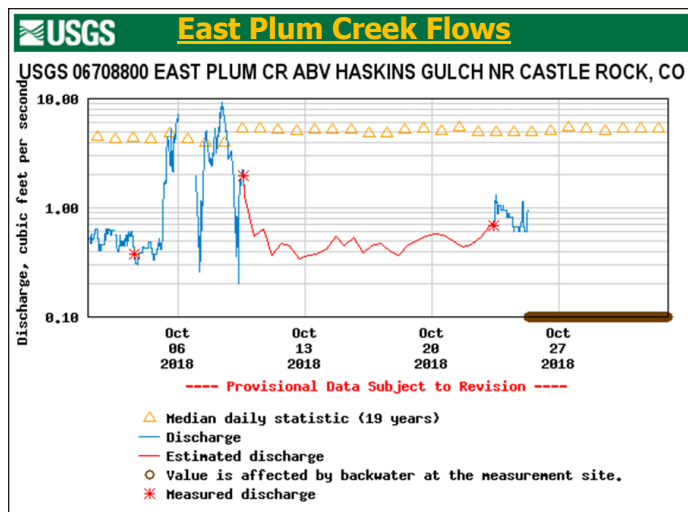
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Water Demands, continued

The following graph shows the monthly production of the Town's alluvial well system. The production from the alluvial wells in October 2018 was 22.4 MG, which is less than the second half of 2017. Lower production combined with decreasing water levels is primarily due to low stream flows in East Plum Creek. Well rehabilitation is scheduled for this fall.



The flow hydrograph represents stream flows in East Plum Creek taken from the stream gauge located above Haskins Gulch. As the graph illustrates, complete data for the month is not available due to backwater at the measurement site. From the available data, the hydrograph shows that flows in the East Plum Creek basin ranged between 0.20 and 9.34 cubic feet per second (cfs) during the month of October. We had two precipitation events this month at the beginning of October and one during the last two days of the month (not shown). This October, the average streamflow in East Plum Creek (EPC) was 1.57 cfs which is approximately 31% of the mean daily streamflow of 5 cfs. As a comparison, in October 2017 the average streamflow in EPC was 1.87 cfs, which is 37% of October's mean daily streamflow. Low streamflows in EPC correspond to a decrease in the amount of water that we can divert at CR-1, negatively impacting this surface water supply. We were, however, able to supplement East Plum Creek with 28.0 AF of water (minus stream losses) from our Bell Mountain – Denver Well upstream of CR-1.



There were active calls on the South Platte River in October. Some of the active calls have had a more senior water right than some of the Town's water rights. This means that those diversions are out-of-priority, so the stream depletions will be covered by non-tributary return flows. 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.

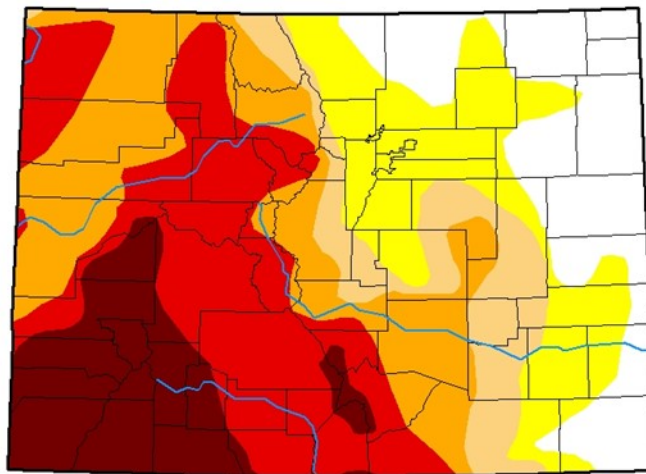
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Water Demands, continued

According to the U.S. Drought Monitor from USDA, Douglas County is abnormally dry, while roughly 70% of Colorado is experiencing Moderate to Exceptional drought. In April 2018, Town Council approved a Town of Castle Rock Drought Management Plan. This plan uses a Water Supply Index (WSI) for the Town that is similar to the U.S. Drought Monitor in that it provides us an indicator to drought level; however, the WSI accounts for local conditions relative to the Town's capability to address our water resources and daily water demands. The WSI is calculated by taking the sum of our supply (deep groundwater, alluvial wells, surface water, and WISE) and dividing that by our maximum daily demand. We generally want to see a WSI above 1.1, which means that we have enough resources to meet our demands. Anything below a 1.1 will trigger a drought stage relative to its severity. The average WSI for October was 2.7, above the 1.1 trigger level, which is considered "good."

U.S. Drought Monitor Colorado

October 30, 2018
(Released Thursday, Nov. 1, 2018)
Valid 8 a.m. EDT



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Deborah Bathke
National Drought Mitigation Center



<http://droughtmonitor.unl.edu/>



Plan Review Update

By Tina Close, Plan Review Supervisor

Castle Rock Water reviewed 82 applications (see below) this month which compares to 107 during the same time period in 2017. The average assigned due date by Development Services was 13.5 days, and Castle Rock Water completed the reviews in an average of 12.9 days.

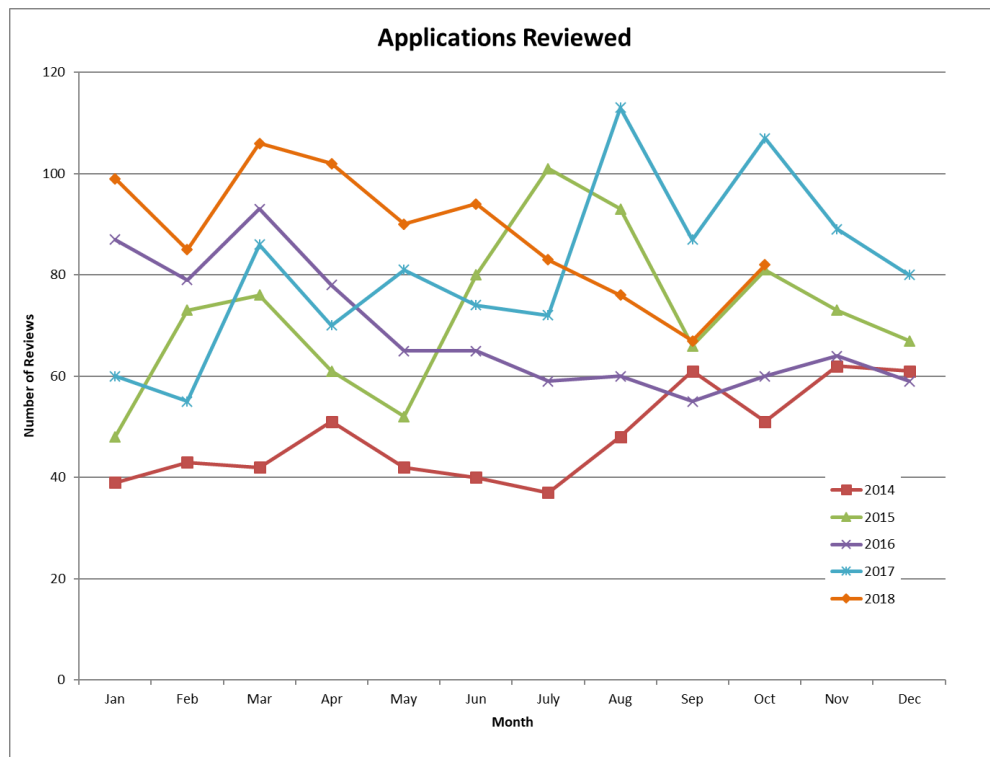
- 9 Agreements
- 18 Field Change Orders
- 6 Grading, Erosion, and Sediment Control (GESCC) Plans
- 1 Floodplain Development
- 1 County Referral
- 1 Planned Development Plan
- 5 Plats
- 5 Preliminary Project Applications
- 11 Construction Drawings
- 12 Site Development Plans
- 11 Technical Criteria Variances
- 1 Use by Special Review
- 1 Miscellaneous

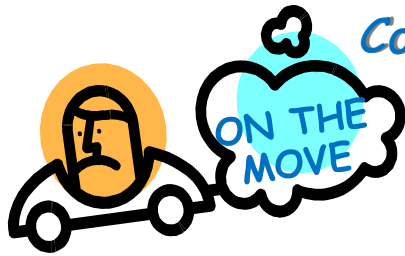
The applications reviewed consisted of:

- 56 1st submittals
- 16 2nd submittals
- 8 3rd submittals
- 2 Special reviews
- 10 Completed late
- 72 Completed on-time as scheduled

In addition, Castle Rock Water completed 68 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.





Congratulations on your recent promotion!



Lanre Ajayi
Water Treatment Operator B



Scott Berndt
Plant Maintenance
Supervisor

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:

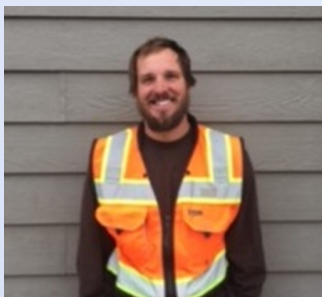
NEW CERTIFICATIONS



Avery Worland
Collections Operator I



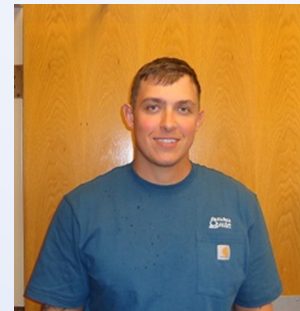
Jeff Lehman
Distribution I Operator



Jonathon Cornwell
Distribution I



Kristen Reaves
Water D Operator

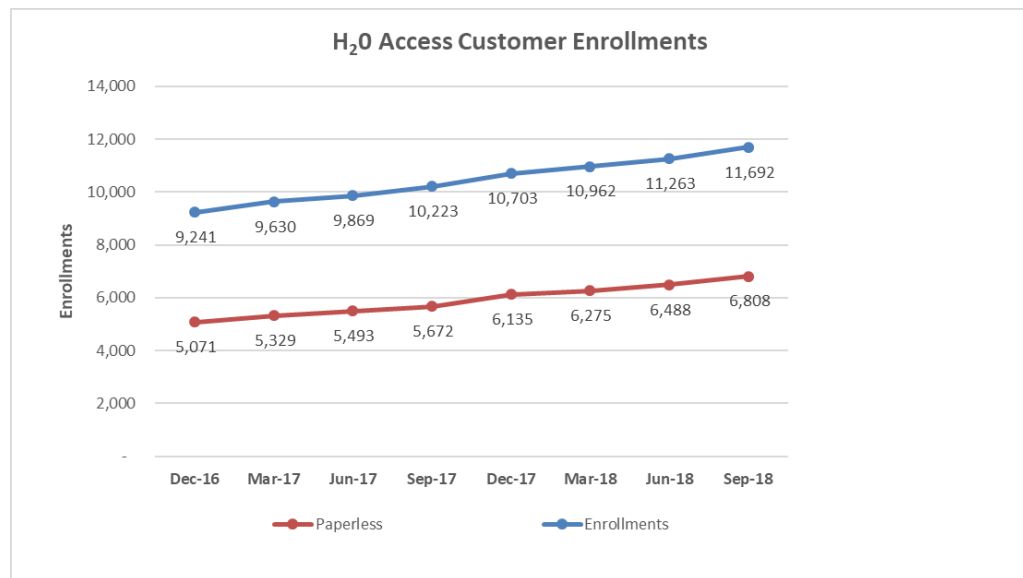


Brent Pickrell
Distribution III Operator

Customer Statistics

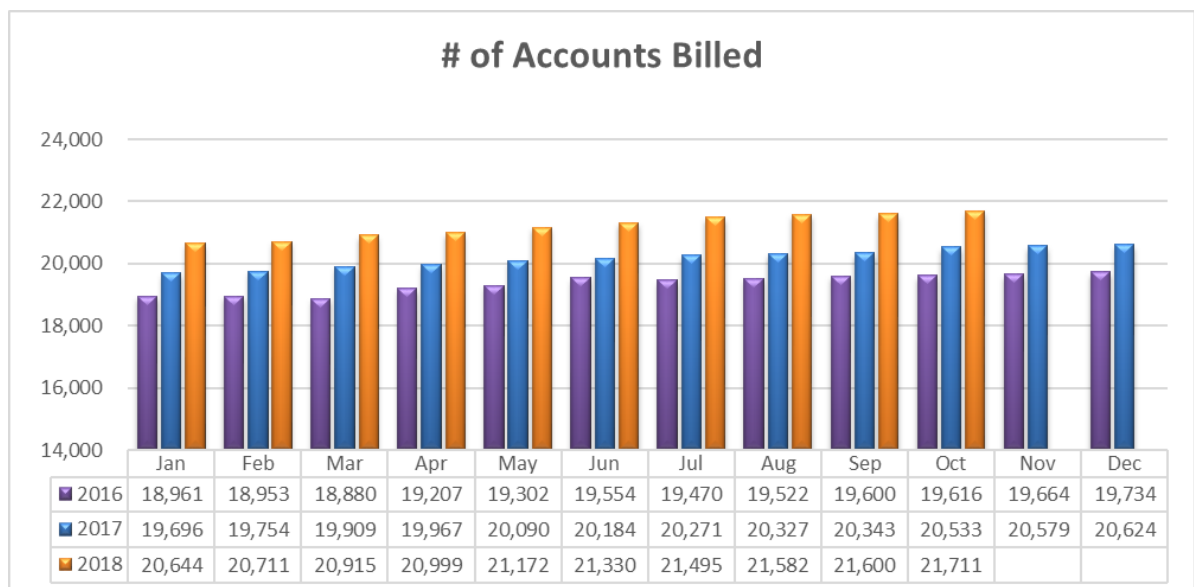
By: Anne Glassman, Business Solutions Manager

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.



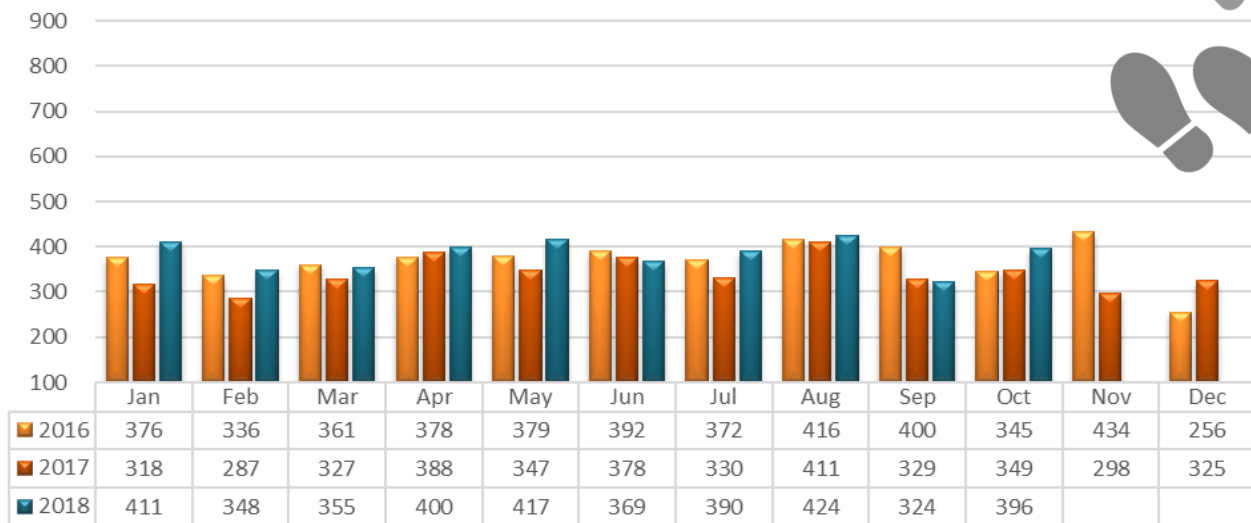
Updated quarterly - Data reported quarter ending 9/2018

The number of customers enrolled in paperless billing has remained steady at 57 percent over the last several months. We will be holding a contest through November to try and increase this percentage by doing a drawing amongst customers that go or have gone paperless for a \$50 credit on their water bill.



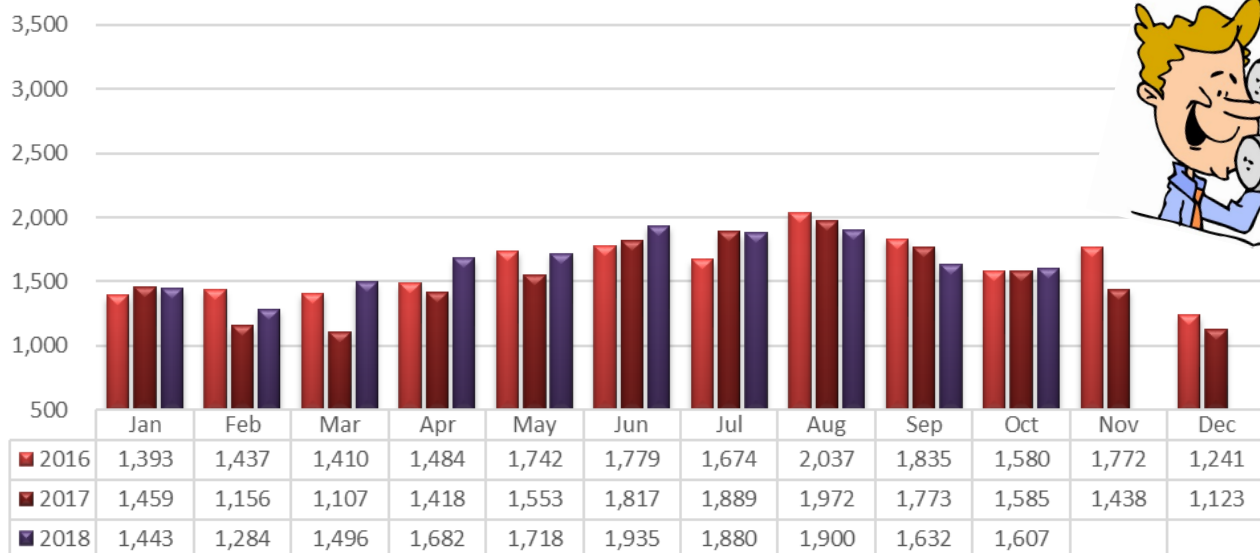
The number of accounts billed continues to increase year over year due to new residential and commercial growth.

Walk-In Customers



Walk-in customers are consistent with this time of year.

Customer Phone Calls

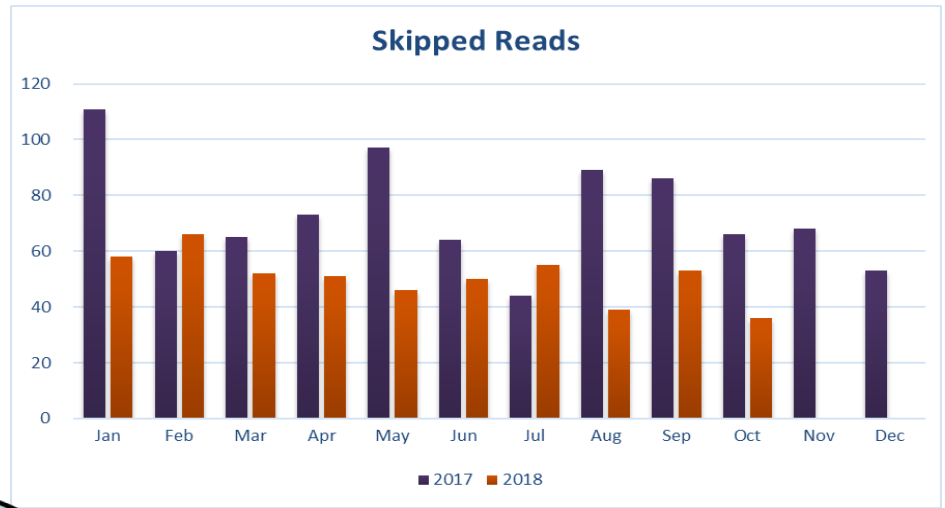


Customer phone calls are consistent with this time of year.

METERS

Skipped Reads

The American Water Works Association (AWWA) standard for skipped reads is 2 percent, so at 0.17 percent in October, we still continue to stay well below the industry average. This is a result of continued maintenance and repair efforts on meter infrastructure.



Another Record
Setting Month!
36 skipped reads
AN ALL-TIME LOW!

*How low can our meter
maintenance team go?*



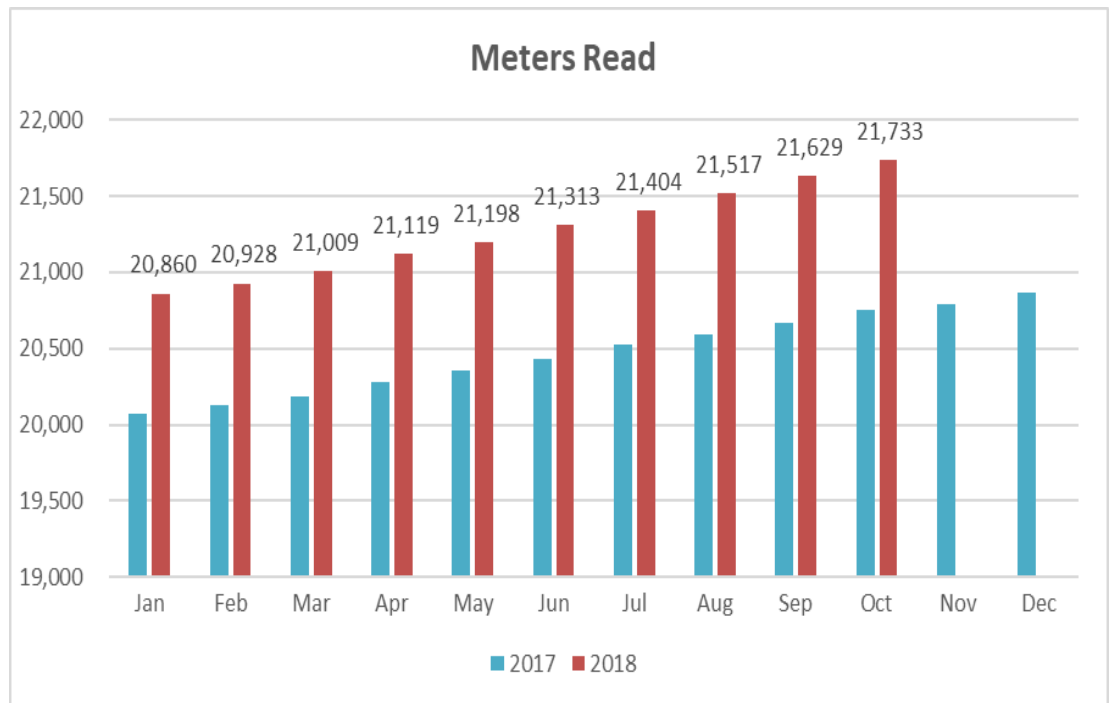
*(from left to right) - Rob Chrestensen, Steve Plattner, Kris Julseth,
Clayton Baker, Mike Wilder and Dominic Roybal*

WHY IS THIS IMPORTANT?

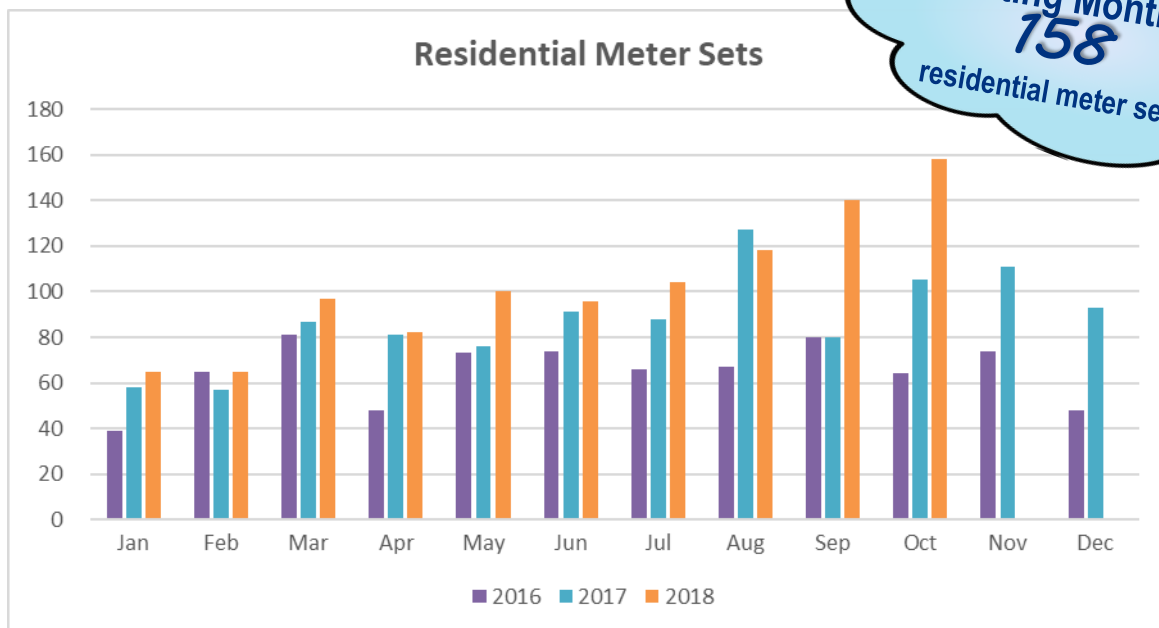
It is a strong indication of the level of preventative maintenance being done by our team. A skipped read is indicative of a problem with the metering infrastructure (i.e. battery, wiring, etc.). Fewer skipped reads means more properly working meters, which is good for all our customers.

Meter Sets

Month-to-Date 117
Year-to-date 967

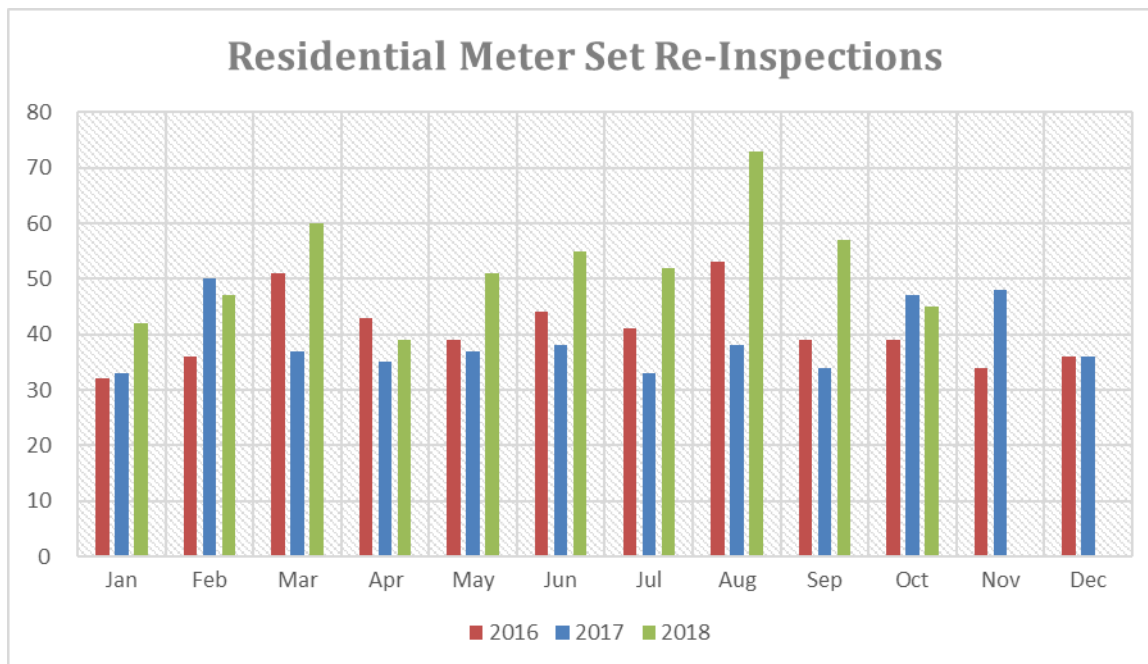


The meters read continues to increase month-to-month due to new residential and commercial accounts, with a significant increase year-over-year.

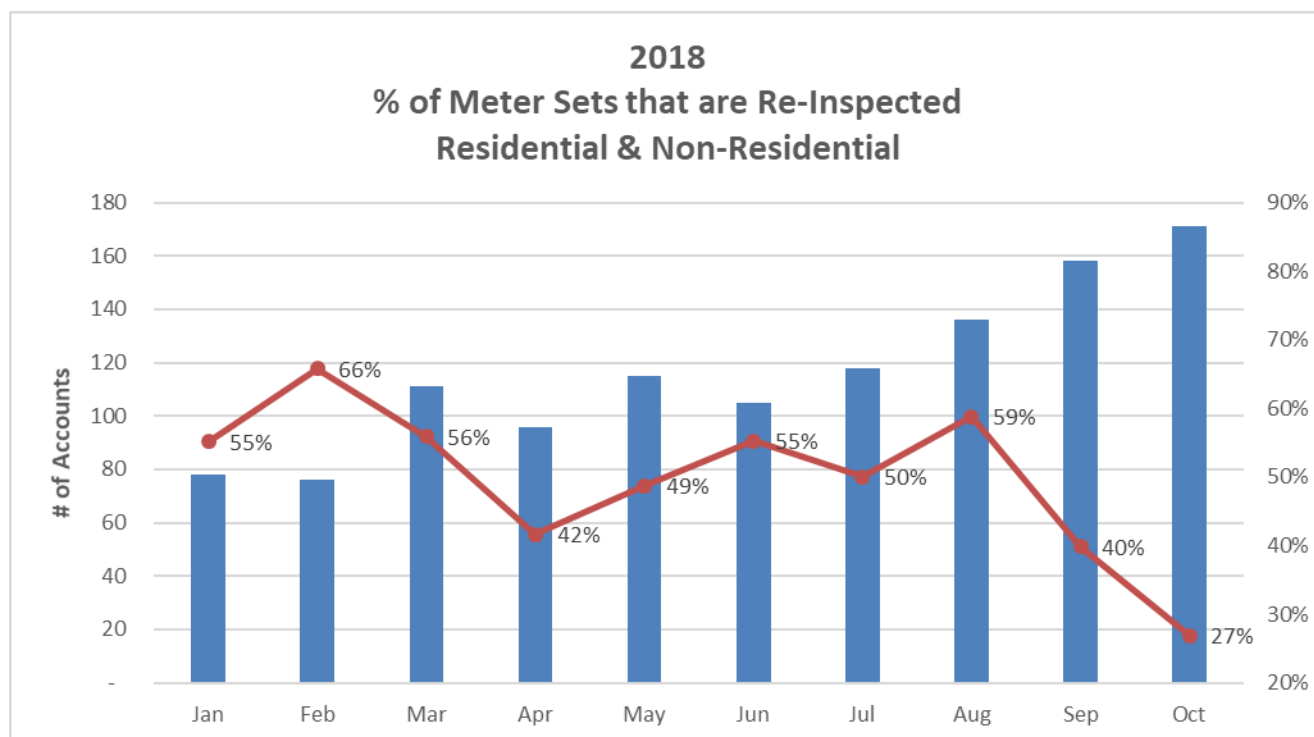


**Record
Setting Month!**
158
residential meter sets

Residential meter sets continue to remain high due to new residential development.

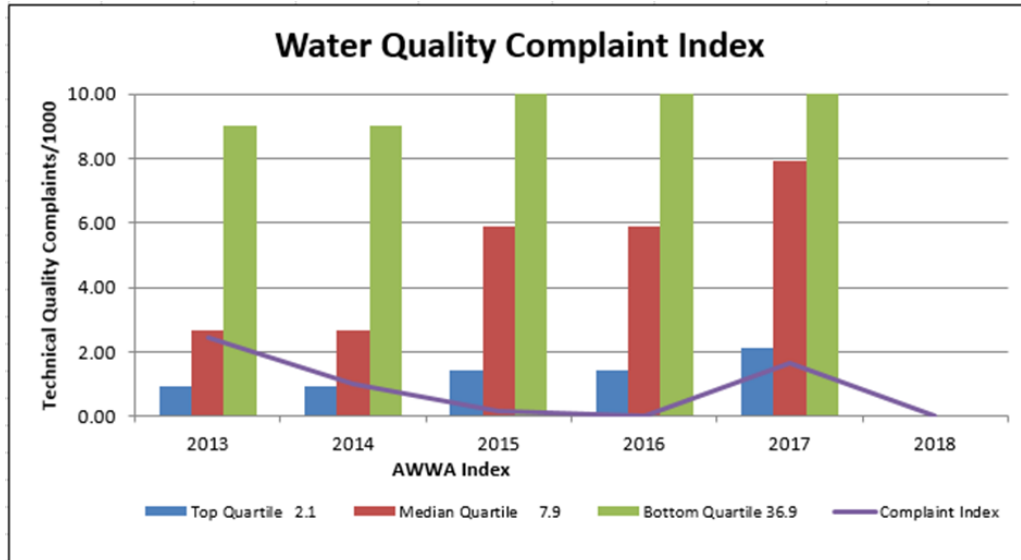


Residential meter set re-inspections are trending down over the last two months, which is a good indicator that more of the original inspections are passing.



Residential meter sets are up in October compared to September; however, meter set re-inspections are down. This is a good indicator that more of the meter sets are passing on the original inspection. In 2018, on average, 50% of the meter sets require at least one re-inspection from the initial inspection.

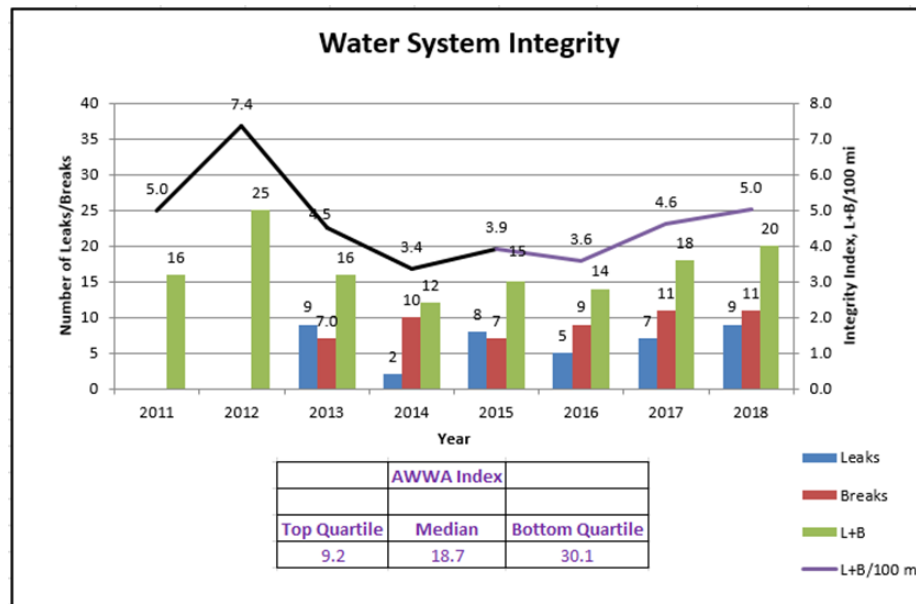
Water Quality Complaints



The Water Quality Complaint index shows that we are doing very well in this category; rating in the top quartile since 2015 according to the American Water Works Association. There were no water quality issues in October.

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

Water System Integrity



As the Water System Integrity chart indicates we have consistently remained in the top quartile for water system integrity based on American Water Works Association benchmarking since 2011. There were no water system integrity issues in October.

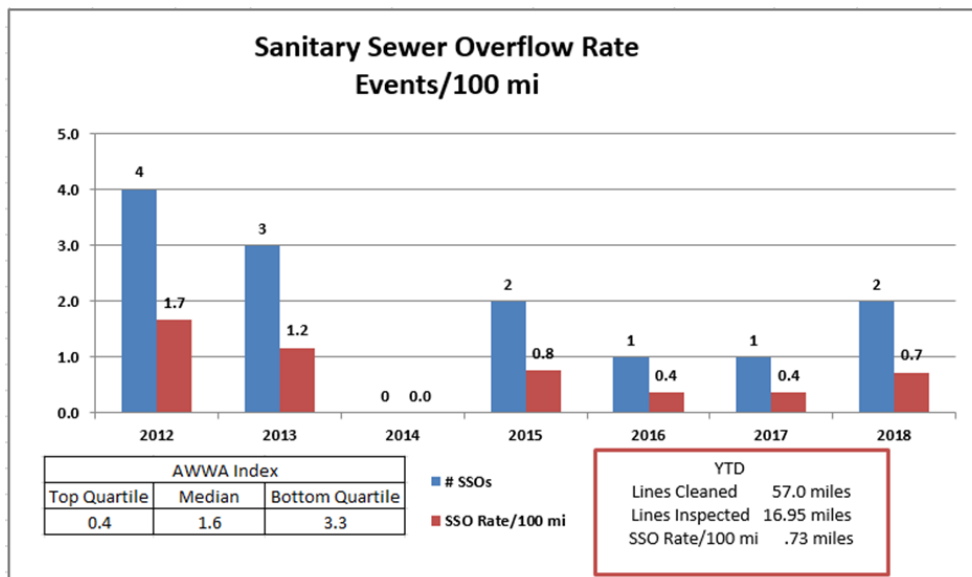
Sanitary Sewer Overflows

How do we avoid overflows?

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

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. So far, we have cleaned and inspected 51 and 17 miles, respectively.

The goal this year is to clean and inspect approximately 33 percent of the collection system or about 90 miles.



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.

Ninety routine samples were completed. All samples were within the parameters set forth by the Safe Drinking Water Act and Colorado Drinking Water Standards. Our annual Consumer Confidence Report is available to view at CRgov.com/waterquality.

Pressure Adequacy

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

There were no water pressure issues in October.

Sewer System Effectiveness

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

There were no sewer system issues 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.

- Twenty-two homes had reduced pressure for less than four hours while the line was being repaired in the South Street neighborhood.
- Forty homes were affected by a water main break in the Plum Creek neighborhood.
- McDonalds was without water overnight and through the next day during a scheduled meter replacement.
- A packing leak was repaired in the street in The Woodlands.



Before you start a project, call 811. Whether you are planning to do it yourself, or hiring a professional, we will help you do it safely. The local 811 Call Center will contact Castle Rock Water. We will schedule a time to come out to locate public water and wastewater lines in the road and in your project area.

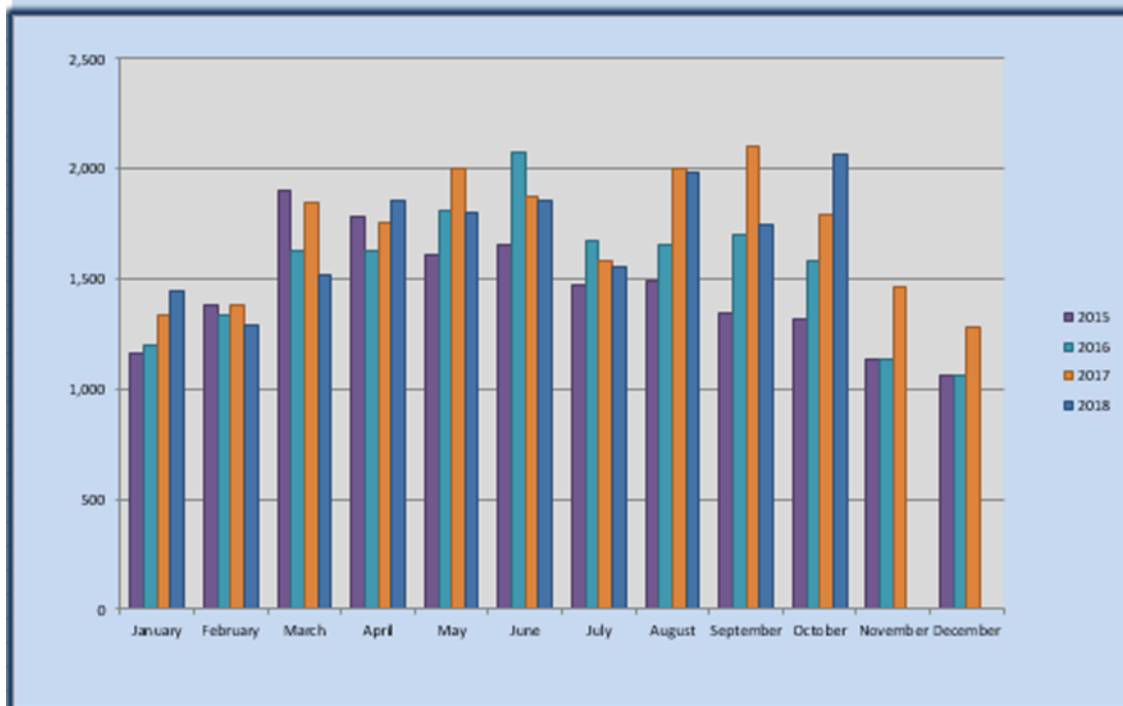
ANNUAL UTILITY LOCATES

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
January	577	475	617	1,190	1,289	1,162	1,199	1,334	1,442			
February	521	485	538	1,094	1,093	1,383	1,334	1,378	1,293			
March	660	552	818	1,437	1,349	1,906	1,625	1,851	1,514			
April	838	681	1,025	1,482	1,552	1,784	1,631	1,760	1,856			
May	853	863	985	1,541	1,531	1,609	1,809	2,002	1,801			
June	969	844	982	1,314	1,399	1,654	2,075	1,872	1,854			
July	680	582	859	1,350	1,392	1,477	1,675	1,582	1,556			
August	901	723	1,123	1,476	1,468	1,494	1,651	2,001	1,986			
September	880	723	1,029	1,240	1,373	1,343	1,701	2,102	1,747			
October	715	688	1,155	1,501	1,376	1,314	1,579	1,792	2,064			
November	536	518	1,041	1,072	866	1,134	1,131	1,460				
December	415	405	925	1,005	1,043	1,063	1,059	1,277				
Totals	8,545	7,539	11,097	15,702	15,731	17,323	18,469	20,411	17,113			



Know what's below.
Call before you dig.

4 Year Locate Trend



Castle Rock Water's locate requests from 811 have continued to rise, year over year. Our locating team has correctly marked all locate requests. To date, there has not been damage to lines as a result of incorrect locate marks.