

## **Six-Inch Backflow Preventers Replaced**

The Meter Services/Cross Connection team, along with help from Operations replaced two more six-inch irrigation main line backflow preventers in the Founders area. During this past irrigation season, three backflows were identified as needing to be replaced due to failing devices. In order to make sure that Castle Rock Water met the 2020 deadline for the Cross Connection regulations with the Colorado Department of Public Health and Environment (CDPHE), these devices needed some attention. After a cost analysis, it was determined that it would cost less and take less time to replace the devices rather than rebuild them. This was the first year Castle Rock Water has ever replaced a backflow of this size. Great work and thanks to the team!



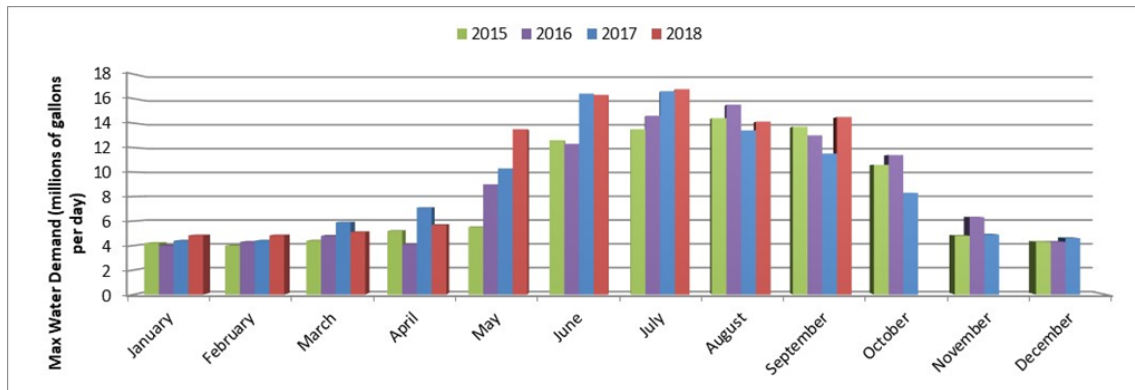
### **OUR VISION**

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

# 2018 Water Demands

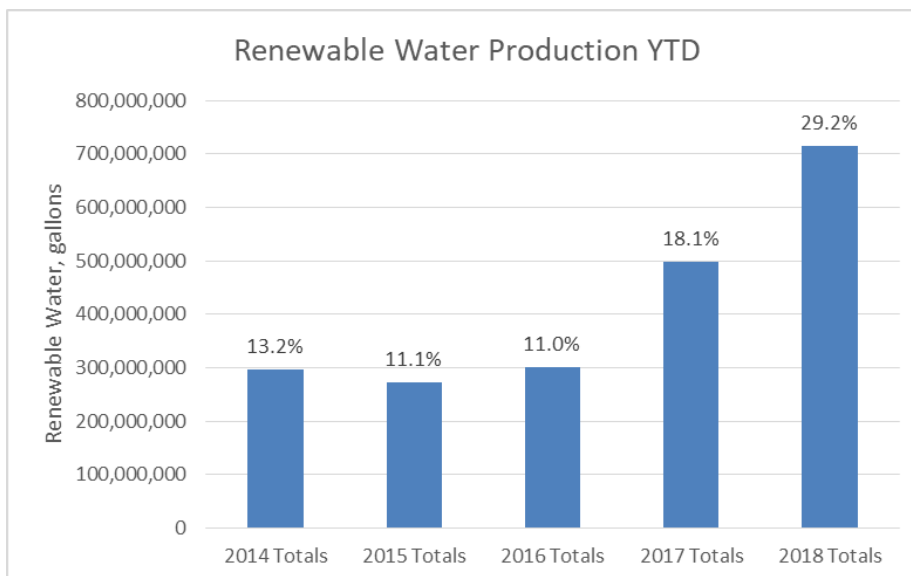
By: Angie Brown, Water Resources Program Analyst

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 September was 14.5 million gallons per day (MGD) which was 13% 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 September was 375.0 million gallons (MG), which was about a 1.3% decrease from the August 2018 total of 379.9 MG, and a 5.1% increase from the September 2017 demand of 356.8 MG.



The CR-1 diversion produced an average of 0.77 MGD for the month of September, supplemented by 91.1 AF (minus stream losses) from our Bell Mountain – Denver Well during September. The Town's thirteen alluvial wells and CR-1 produced a total of 43.0 MG of renewable water, and imported deliveries- which included stored water from Rueter Hess Reservoir (RHR) - totaled 2.2 MG during September. In total, renewable supplies accounted for 12.1% of the total water supply for the month (376 MG or 1,154 acre-feet) and 29.2% of the annual water supply (2,443 MG or 7,497 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 September is 39.9% with 15.7% of available reusable supplies being used in the month of September.



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

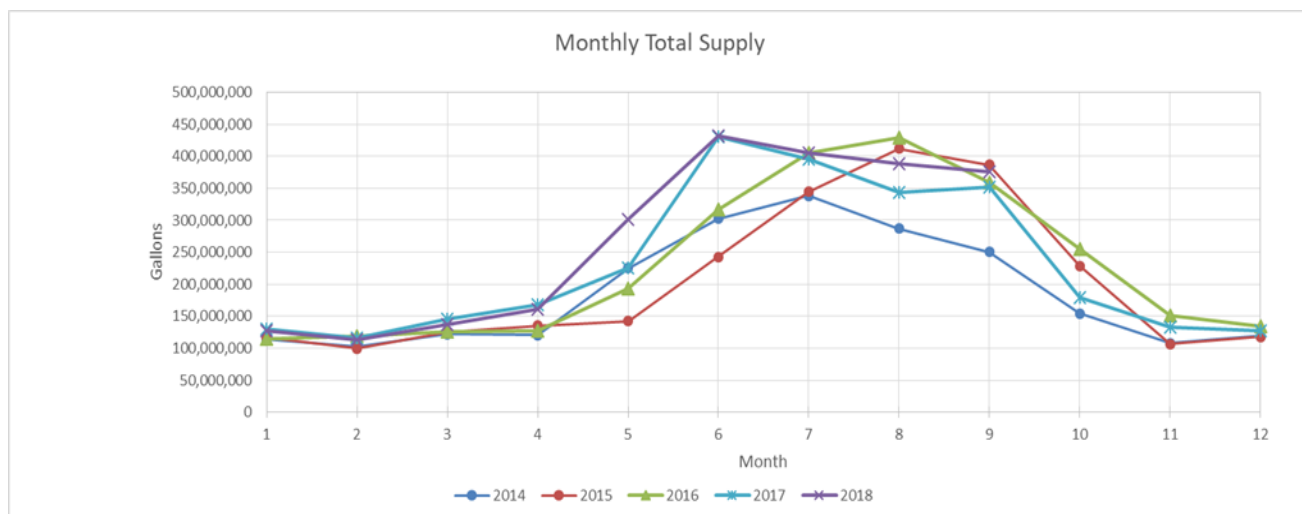
*The percentage shown on top of the bars is the amount of renewable water relative to total water production.*

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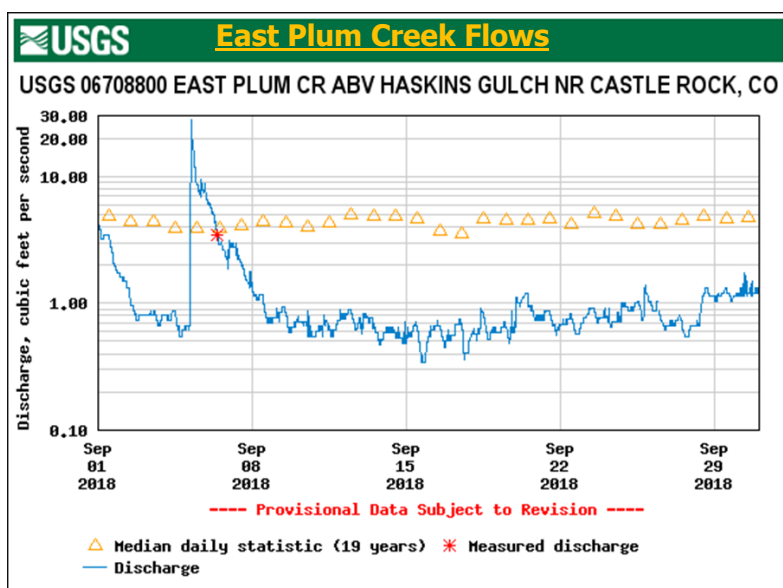


## Water Demands, continued

The following graph shows the monthly production of the Town's alluvial well system. The production from the alluvial wells in September 2018 was 20.3 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. The hydrograph shows that flows in the East Plum Creek basin ranged between 0.34 and 27.6 cubic feet per second (cfs) during the month of September. We had two significant precipitation events at the beginning of September. This September, the average streamflow in East Plum Creek (EPC) was 1.24 cfs which is approximately 14% of the mean daily streamflow of 9 cfs for the month of September for the last 18 years. As a comparison, in September 2017 the average streamflow in EPC was 5 cfs, which is 56% of September'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 91.1 AF of water (minus stream losses) from our Bell Mountain – Denver Well upstream of CR-1.



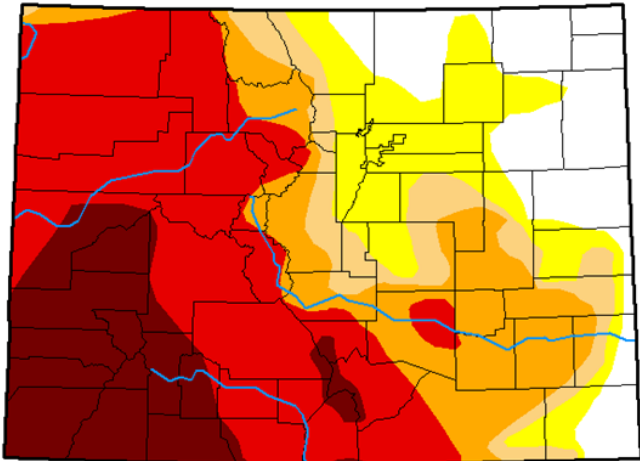
There were active calls on the South Platte River in September. Some of the active calls have had a more senior water right than some of the Town's water rights. This means that those diversions are out-of-priority, so the stream depletions will be covered by non-tributary return flows. This also means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

*Continued on next page*

# 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 September was 1.3, above the 1.1 trigger level, which is considered “good.”

## U.S. Drought Monitor Colorado



September 25, 2018  
(Released Thursday, Sep. 27, 2018)  
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	14.19	85.81	72.30	64.41	48.47	16.21
Last Week 09-18-2018	16.89	83.11	71.59	63.93	44.29	12.62
3 Months Ago 06-26-2018	21.33	78.67	66.90	52.31	36.46	8.81
Start of Calendar Year 01-02-2018	6.57	93.43	33.53	7.27	0.00	0.00
Start of Water Year 09-26-2017	67.63	32.37	3.72	0.00	0.00	0.00
One Year Ago 09-26-2017	67.63	32.37	3.72	0.00	0.00	0.00

Intensity:

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

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

Author:  
Jessica Blunden  
NCEI/NOAA



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



# Plan Review Update

*By Tina Close, Plan Review Supervisor*

Castle Rock Water reviewed 67 applications (see below) this month which compares to 87 during the same time period in 2017. The average assigned due date by Development Services was nine days, and Castle Rock Water completed the reviews in an average of nine days.

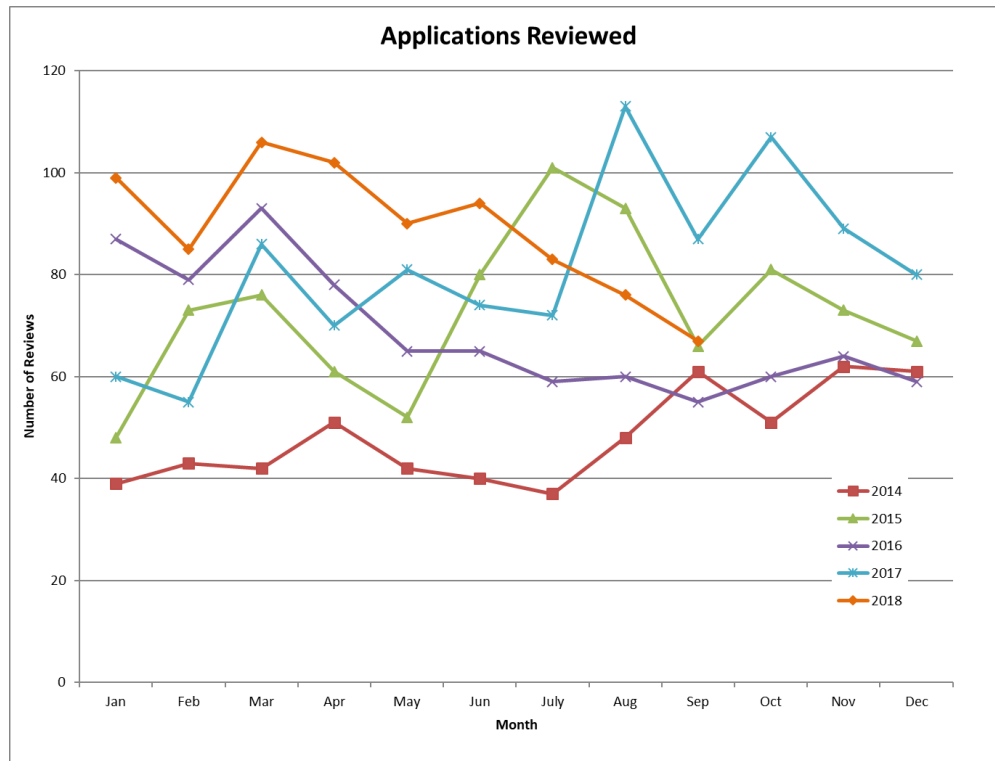
- 7 Agreements
- 5 Field Change Orders
- 4 Grading, Erosion, and Sediment Control (GESC) Plans
- 2 Floodplain Developments
- 2 County Referrals
- 1 Planned Development Plans
- 5 Plats
- 5 Preliminary Project Applications
- 7 Construction Drawings
- 13 Site Development Plans
- 11 Technical Criteria Variances
- 1 Use by Special Review
- 4 Miscellaneous

The applications reviewed consisted of:

- 33 1<sup>st</sup> submittals
- 16 2<sup>nd</sup> submittals
- 5 3<sup>rd</sup> submittals
- 13 Special reviews
- 10 Completed late
- 57 Completed on-time as scheduled

In addition, Castle Rock Water completed 24 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.



# NEW CERTIFICATIONS

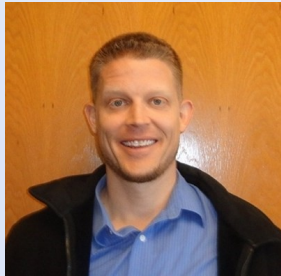
*The water, wastewater and stormwater utility business is highly technical and regulated. As such, Castle Rock Water has to maintain an extensive staff of professionally licensed individuals. Most of these licenses require specialized education and the passing of state testing, as well as proof of continuing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



**Thomas Hecker**  
Distribution IV Operator



**John Ferguson**  
Distribution IV Operator



**Josh Hansen**  
Cured-in-Place Pipe  
Inspector



**Lanre Ajayi**  
Water B Operator

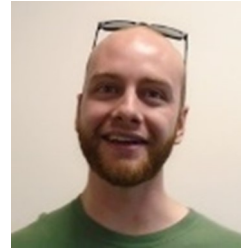


**Dominic Roybal**  
Distribution I and  
Collection I

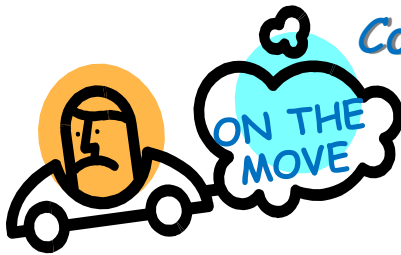
**Welcome to  
our Team!**



**Angie Brown**  
Water Resources  
Program Analyst



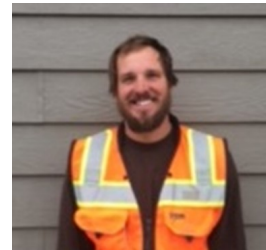
**Nicholas Murphy**  
SCADA Instrument  
Technician



***Congratulations on your recent promotion!***



**Cory Williamson**  
SCADA Supervisor

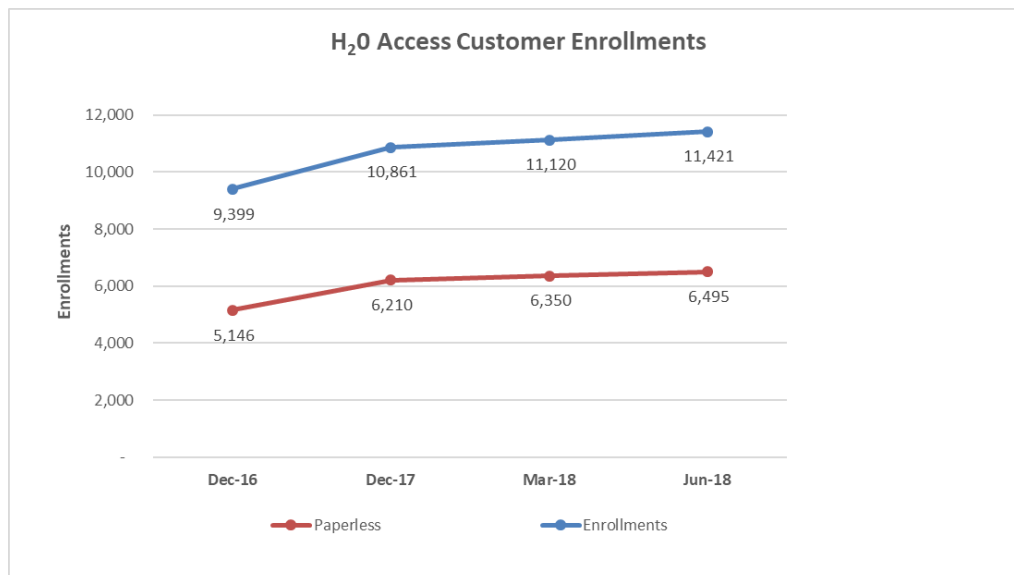


**Jonathon Cornwell**  
Water Distribution  
System Operator II

## Customer Statistics

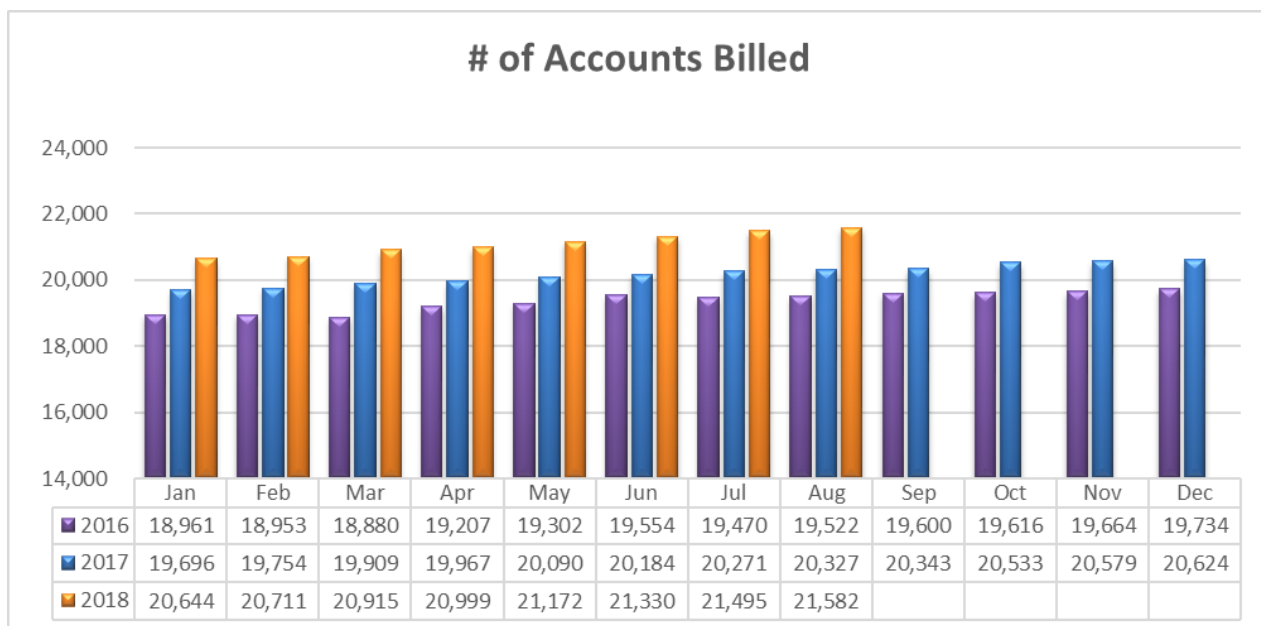
By: Anne Glassman, Business Solutions Manager

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 6/2018

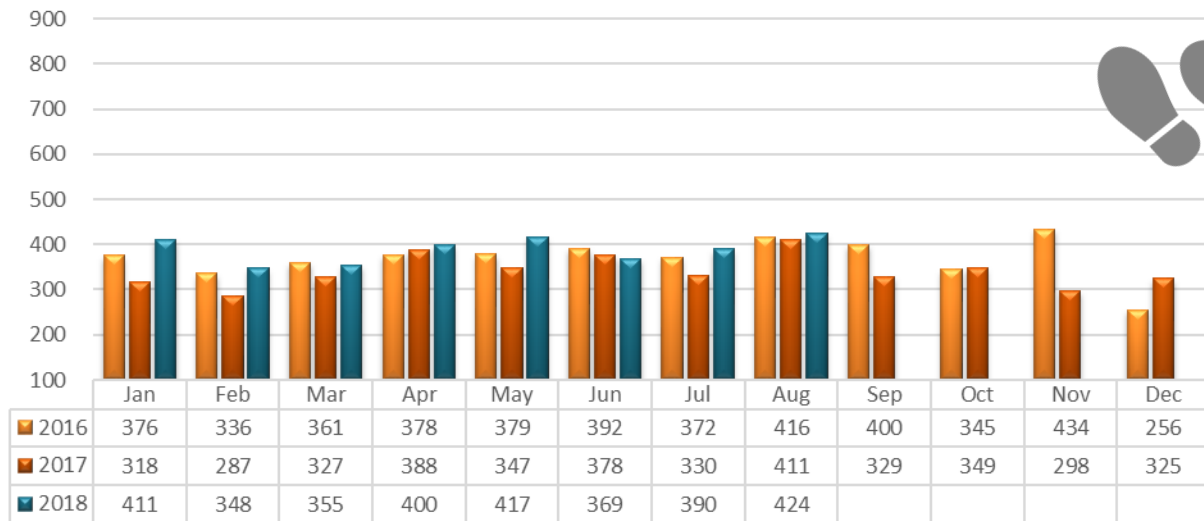
The number of customers enrolled in paperless billing has remained steady at 57 percent over the last several months.



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

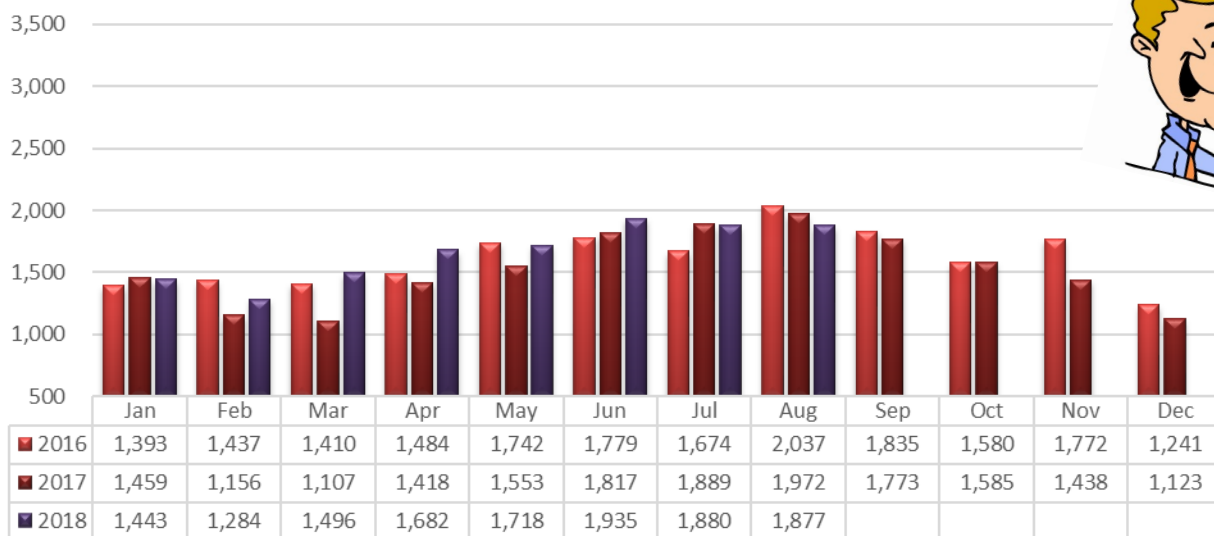


## Walk-In Customers



Walk-in customers are higher this time of year due to the irrigation season, specifically watering restrictions, water wiser workshops, and overall general water conservation questions.

## Customer Phone Calls



Customer phone calls are higher this time of year due to the irrigation season, specifically watering restrictions, water wiser workshops, and overall general water conservation questions.

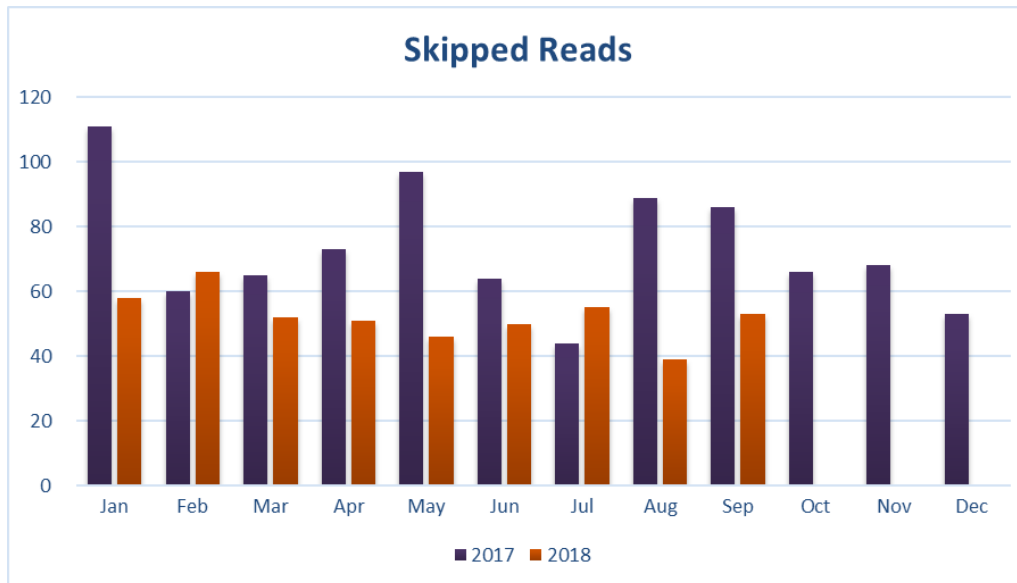
# METERS

## Skipped Reads

## *WHY IS THIS IMPORTANT?*

The American Water Works Association (AWWA) standard for skipped reads is 2 percent, so at 0.24 percent in August, we still continue to stay well below the industry average. This is a result of continued maintenance and repair efforts on meter infrastructure.

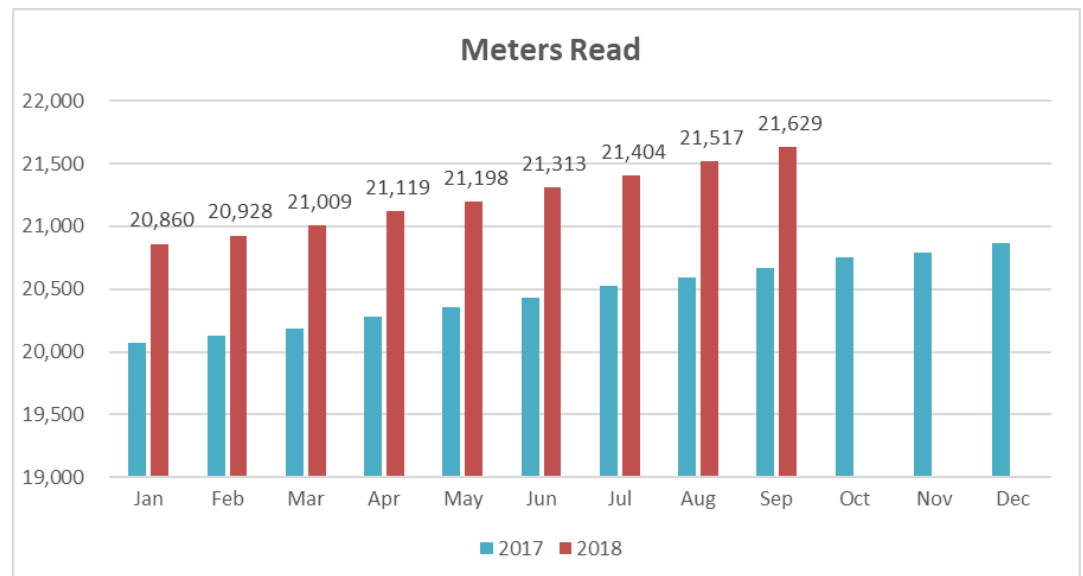
It is a strong indication of the level of preventative maintenance being done by our team. A skipped read is indicative of a problem with the metering infrastructure (i.e. battery, wiring, etc.). Fewer skipped reads means more properly working meters, which is good for all our customers.



## Meter Sets

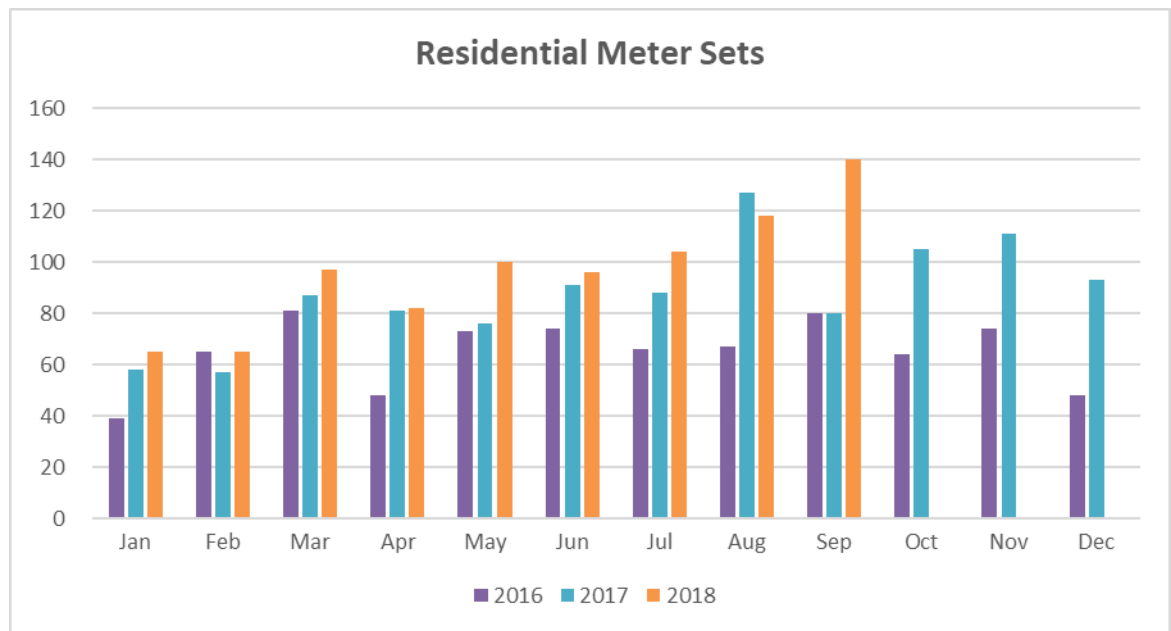


**Month-to-Date 93**  
**Year-to-date 850**

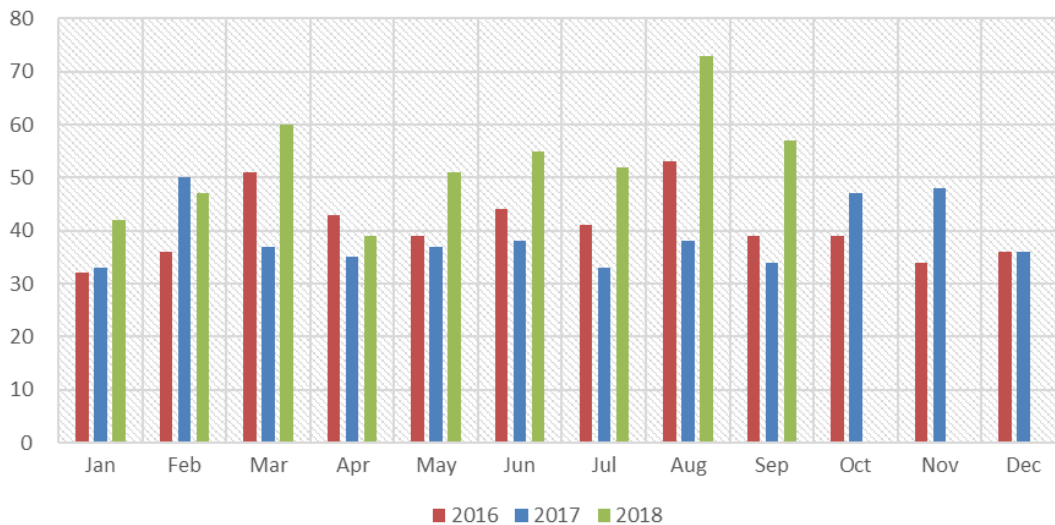


The meters read continues to increase month-to-month due to new residential and commercial accounts, with a significant increase year-over-year.

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

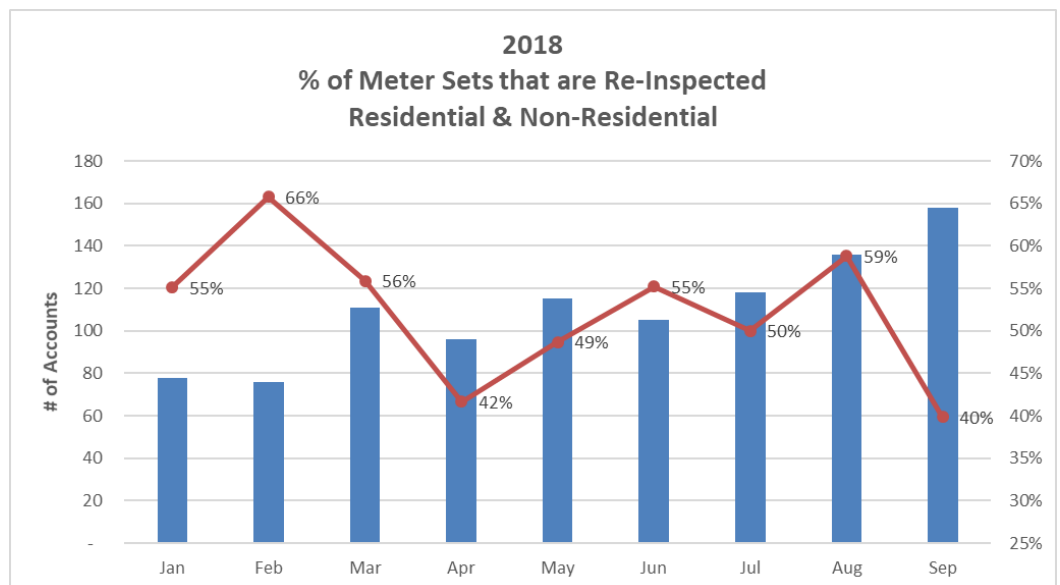


### Residential Meter Set Re-Inspections

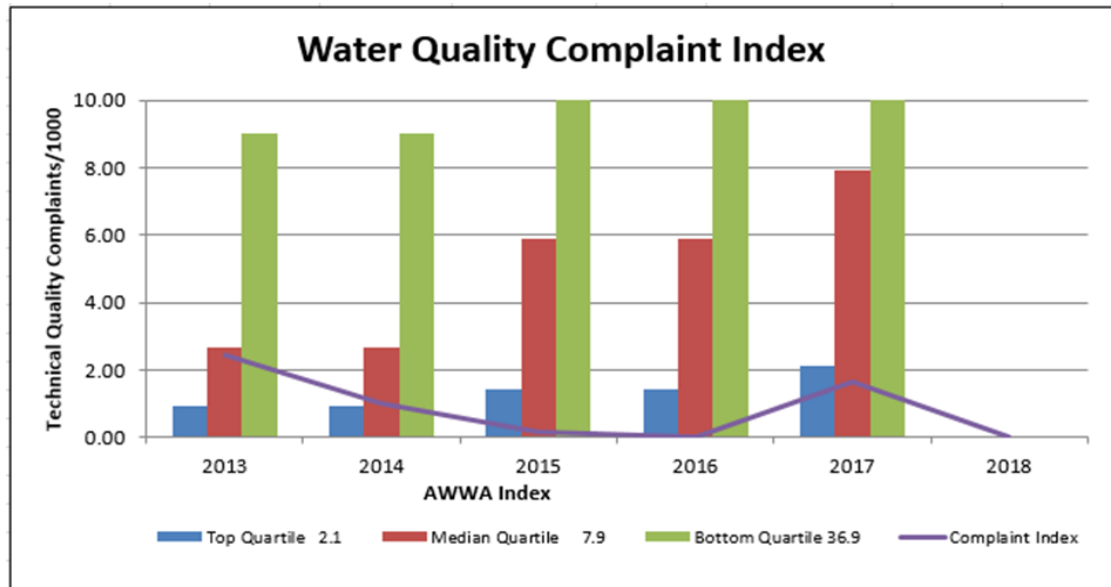


Residential meter set re-inspections are trending down this month which is a good indicator that the original inspections are passing.

Residential meter sets are up in September compared to August; however, meter set re-inspections are down. This is a good indicator that more of the meter sets are passing on the original inspection. On average, 51% of the meter sets require at least one re-inspection from the initial inspection. This is down from 54% in August.



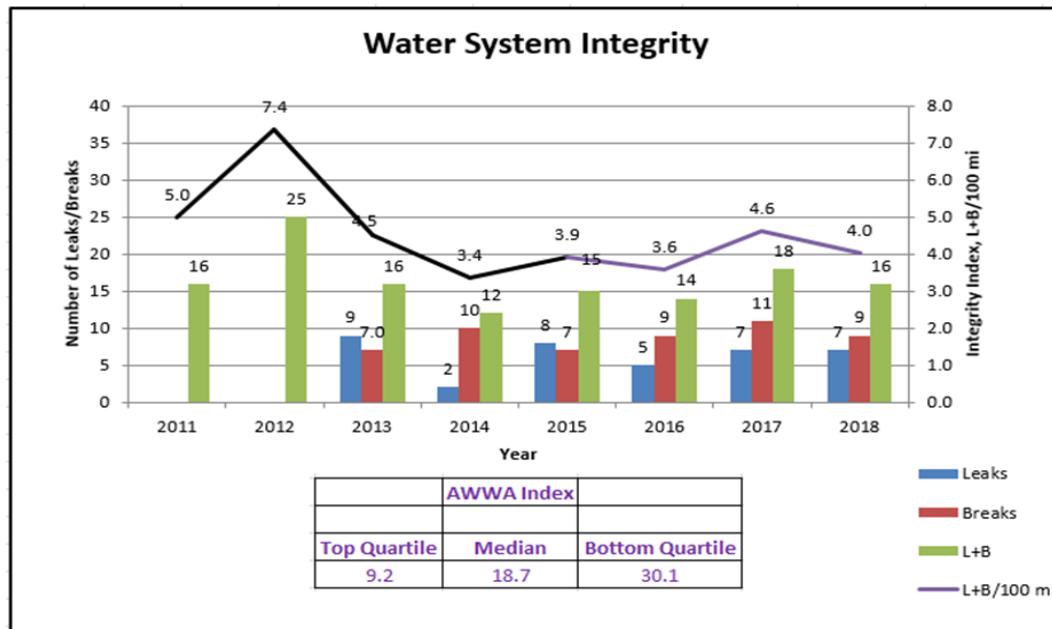
## Water Quality Complaints



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 complaints in September. .

*For more information, view the current water quality report at [CRgov.com/waterqualityreport](http://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 was one water system integrity issues in September.



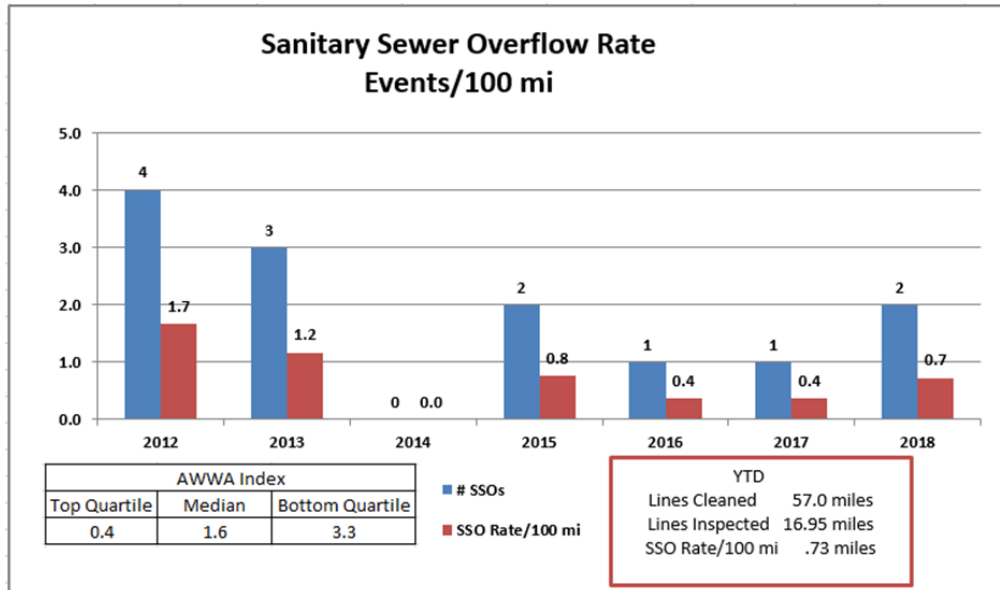
# Sanitary Sewer Overflows

## How do we avoid overflows?

We are 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 was one sanitary sewer issue in September.

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 46.4 and 15.31 miles, respectively.

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



## SEPTEMBER 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 Safe Drinking Water Act and Colorado Drinking Water Standards. Our annual Consumer Confidence Report is available to view at [CRgov.com/waterquality](http://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 September.*

### Sewer System Effectiveness

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

*There was one sewer system issue in September. An overflow occurred in the Plum Creek area near the fairgrounds. A root ball caused a blockage which was cleared and cleanup was done.*

### Drinking Water Supply Outages

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

*A contractor accidentally dug up a water service line, resulting in the need to replace the saddle on a main in the Plum Creek neighborhood. Seven homes experienced reduced pressure for less than four hours.*

*Three homes were out of water for less than three hours when a leak was discovered in a service line in The Meadows.*



Before you start a project, call 811. Whether you are planning to do it yourself, or hiring a professional, we'll 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.

The graphs below show our monthly utility locates and a chart showing the year-to-year comparison

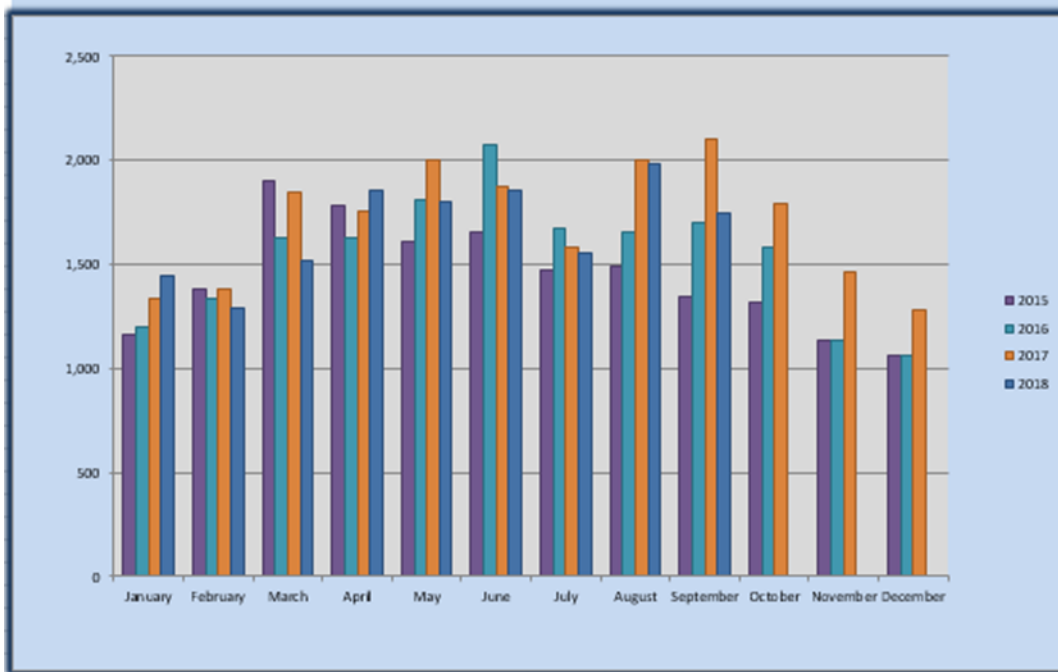
## ANNUAL UTILITY LOCATES

	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				
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				
<b>Totals</b>	<b>8,545</b>	<b>7,539</b>	<b>11,097</b>	<b>15,702</b>	<b>15,731</b>	<b>17,323</b>	<b>18,469</b>	<b>20,411</b>	<b>15,049</b>			



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.