

NOVEMBER 2017

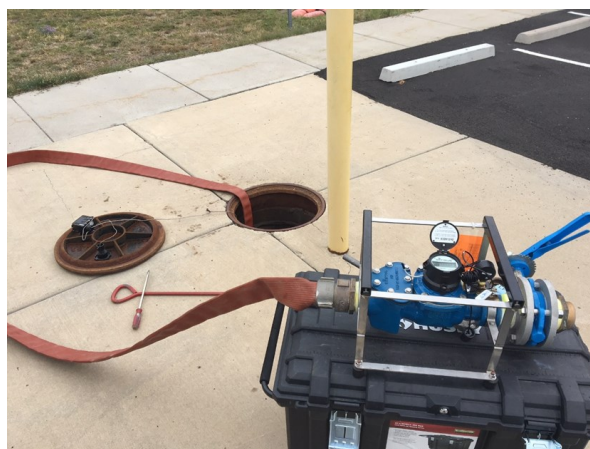
Six-Inch Replacement at the Justice Center

By: Rob Chrestensen, Meters Supervisor

A recent large meter audit revealed that the 6-inch meter at the Justice Center was in need of replacement. The results of a bench test conducted in May 2016 indicated that the low flows were zero percent accurate, while the medium and high flows were within the industry standards range. In October 2017, another bench test was conducted to see how urgent the replacement was needed. This test indicated that the low flows were still at zero percent accuracy, but the medium and high flows were now below industry standards and a significant revenue stream was being lost.

Because the water service needed to be shut off for safety purposes in the vault and repairs were also needed by the Justice Center, the plan to move forward with the replacement was set for November 7. It just so happens that November 7 was a cold and snowy night. Much planning and coordination with the Justice Center was needed to make sure a contingency plan and the timing of the water shut-down would not impact the jail as well as the overall operations.

The water was shut down at 11 p.m. to start the replacement. Many of the bolts had to be cut due to the corrosion and wear on the infrastructure over time. Because this meter was in a vault, a crane was needed to lift it out of the vault.



Mobile meter bench tester



Meter pit opening was 24-inches wide which created a small opening to remove the meter given its size and weight



Meter in position to be removed by the crane

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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.

6-Inch Meter, continued



Crane removal of the old 6-inch meter

All new parts were disinfected and the new 6-inch Omni C2 meter was lowered into the vault and put into place. Water was fully restored by 4 a.m. which was within the timeframe requested and expected of the Justice Center to prepare for the morning operations.



Old 6-inch compound meter that was removed



New 6" Omni C2 meter installed

United Deal Closed!

In the summer of 2016, Castle Rock Water presented to Town Council a proposal to purchase United Water & Sanitation District's assets in Douglas County. After over a year of discussions, hours of meetings and phone calls, reams and reams of paper, as well as months of preparation and due diligence, we are now the proud owners of \$22.5 million of water-related assets, as well as most of the water rights underlying Bell Mountain Ranch and Cherokee Ranch. The assets purchased included:

- The Plum Creek Diversion which is an existing, permitted structure along the main stem of Plum Creek with a 40 cubic feet per second (cfs) capacity.
- An existing 240 acre-foot water storage reservoir, which is expandable to 1,710 acre-feet.
- The Ravenna pipeline which is a 12.5 mile long pipeline that could potentially be extended another 1,000 feet to serve as a point of diversion from the South Platte River prior to the river entering Chatfield Reservoir.
- Approximately 5,292 acre-feet of groundwater rights that could be leased to other entities, or be used to protect the Town's deep aquifer supplies.



Diversion on the main stem of Plum Creek



Newly named "Castle Rock Reservoir"

Castle Rock Water reviewed 89 applications (see below) this month which compares to 64 during the same time period in 2016. The average assigned due date by Development Services was six days, and we completed the reviews in an average of five days.

- 5 Agreements
- 2 Planned Development Plan
- 14 Field Change Orders
- 12 Grading, Erosion, and Sediment Control (GESC) Plans
- 1 Miscellaneous
- 8 Plats
- 6 Preliminary Project Applications
- 15 Construction Drawings
- 15 Site Development Plans
- 11 Technical Criteria Variances

The applications reviewed consisted of:

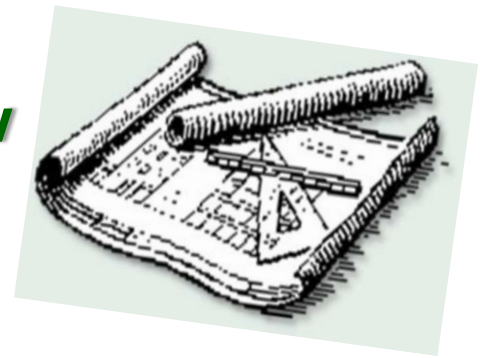
- 31 1st Submittals
- 20 2nd Submittals
- 33 Special reviews
- 35 Completed late*
- 67 Completed on-time as scheduled*

* Total late/on-time applications are greater than the total number of projects, due to some projects being reviewed by multiple reviewers, so it was both late and on-time, depending on reviewers work load.

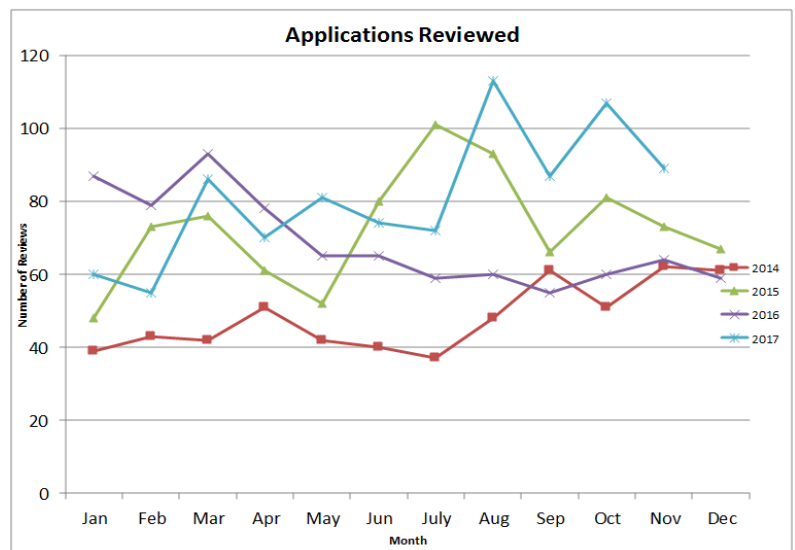
In addition, Castle Rock Water completed 75 building permit reviews and associated system development fees.

Plan Review Update

*By Tina Close
Plan Review Engineer*



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.



2017 Water Demands

By: Kurtis Cotten, Water Resources Program Analyst

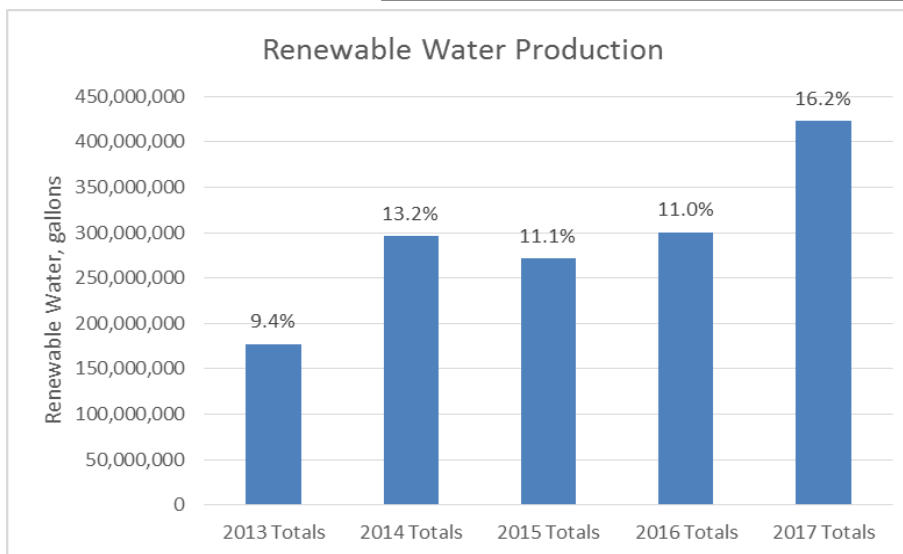
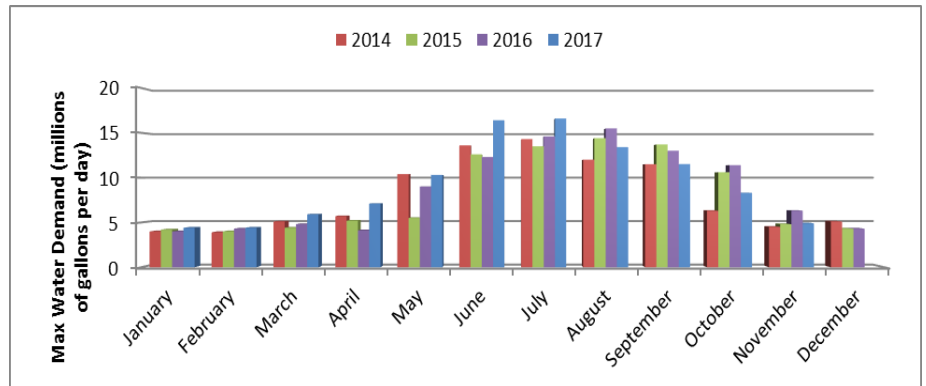
The maximum daily water demands are plotted by month from 2014 to the current month. As observed by the data, the maximum demand for the month of November was 4.9 million gallons per day (MGD) which was approximately equal to the 5-year average maximum daily demand for the month. Summer time maximum 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 November was 137.52 million gallons (MG), which was about a 21% decrease from the October 2017 total of 174.09 MG, and a 9.5% decrease from the November 2016 demand of 151.9 MG.

The CR-1 diversion produced an average of 1.8 MGD for the month of November. The Town's thirteen alluvial wells and CR-1 produced a total of 83 MG of renewable water during November, which represents 62.6% of the total water supply for the month and 16.2% (423 MG or 1,298 acre-feet) of the water supply year to date. The total renewable water produced since the opening of the PCWPF has surpassed 1,469 MG, which represents 12.3% 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 renewable water projects the Town is currently working on will help close this gap.

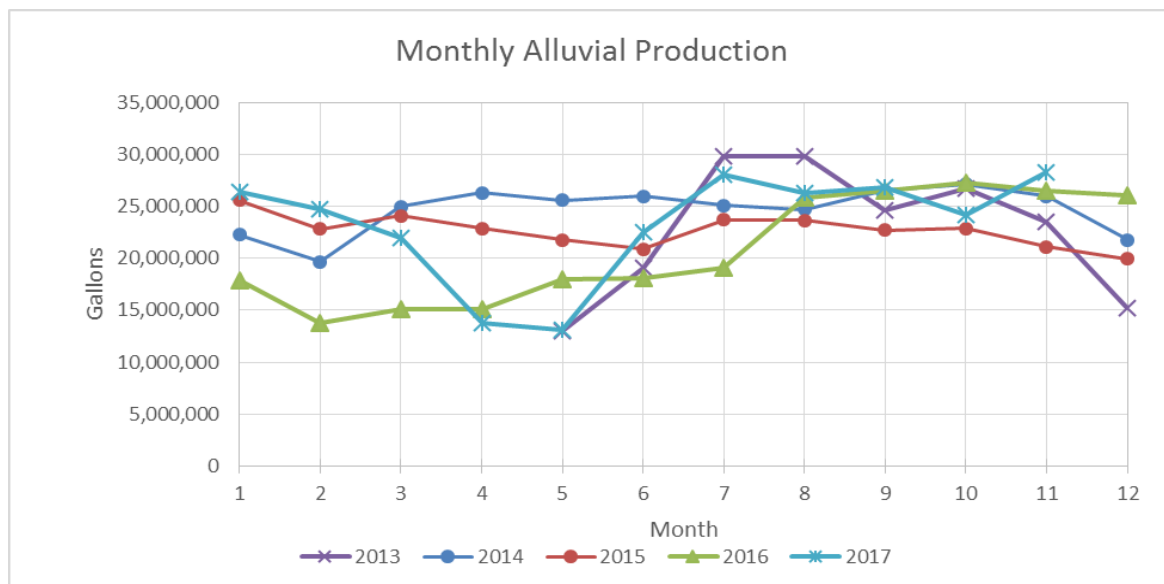
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Water Demands, continued

Renewable supplies are those water sources that are replenished by precipitation (think of our alluvial wells or CR-1) whereas reusable supplies are those waters that are either from the Denver Basin (deep wells) or imported supplies (like we will be getting with WISE) that can be used over and over, to extinction. From 2013 through 2016 Castle Rock has used an average of 9.2% of available reusable supplies, however, in 2017 we have really ramped up our usage of this resource. The average reusable supplies used by Castle Rock for 2017 through November is 29.6% with 83.1% of available reusable supplies being used in the month of November!



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

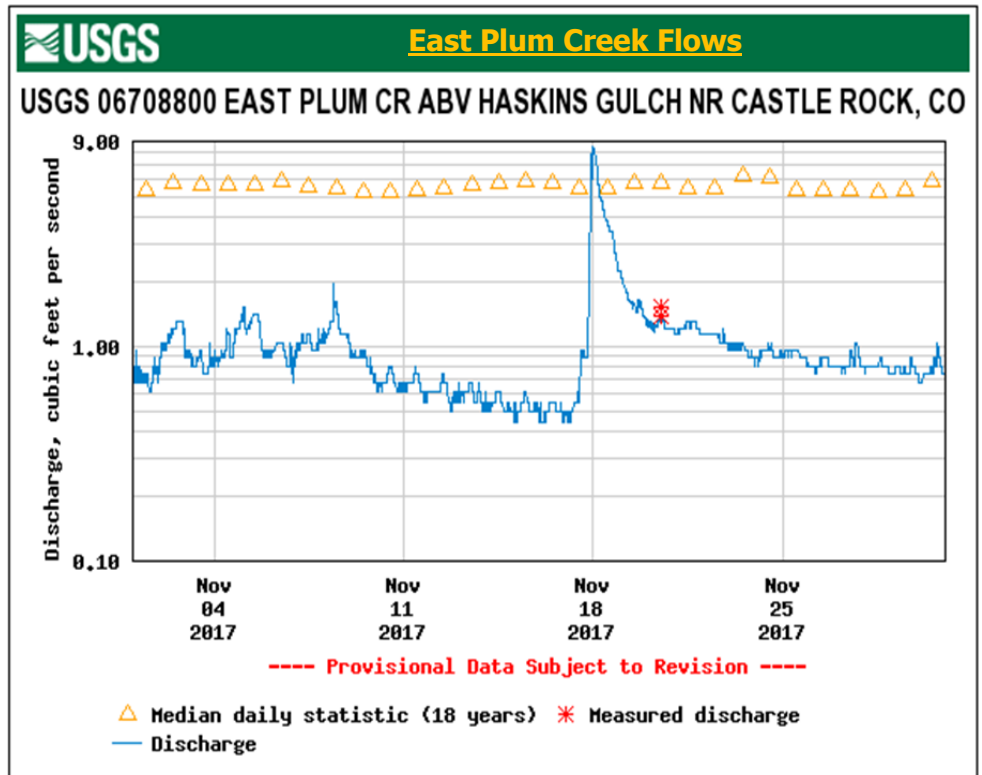


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Water Demands, continued

The 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 0.4 and 9 cubic feet per second (cfs) during the month of November, with flows averaging around 0.9 cfs. During November, there were active calls on the South Platte River. 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.



Did you KNOW?



*Awesome drawing on thank you note by Blanka,
5th grader at Academy Charter School*

The Water Conservation team and Stormwater team, led by Rick Schultz and Jessup Schield, respectively, visit elementary schools throughout Castle Rock teaching about water conservation, stormwater and water quality. These interactive presentations include:

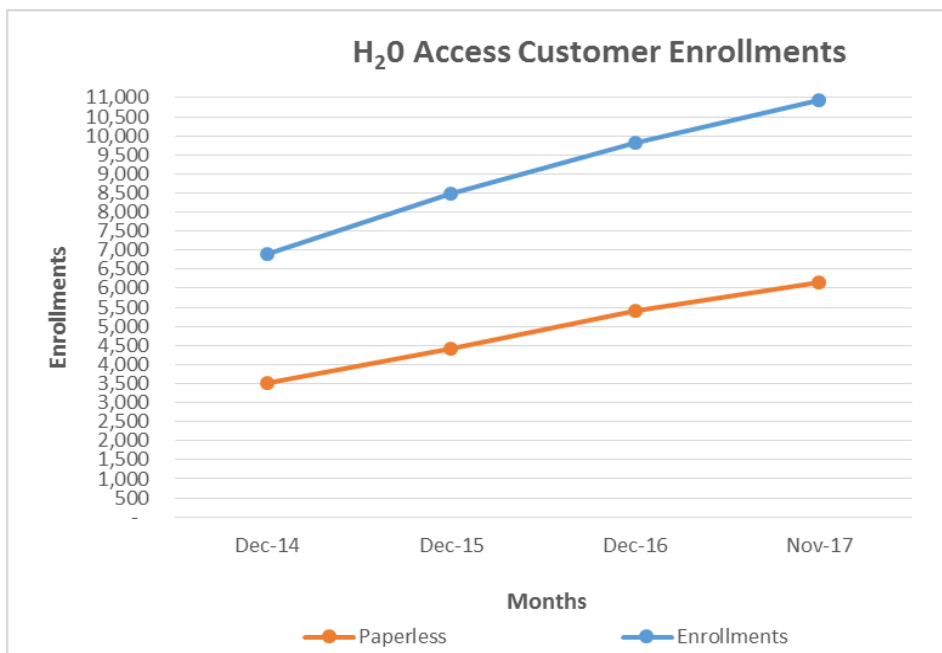
- Where Castle Rock gets its water
- Water cycle
- Groundwater and surface water - renewable vs. nonrenewable resources
- Stormwater and water quality - the impact of human civilization
- Importance of conservation and our Town's goal

If you'd like them to visit your school, contact us at 720-733-6027 or waterconservation@crgov.com

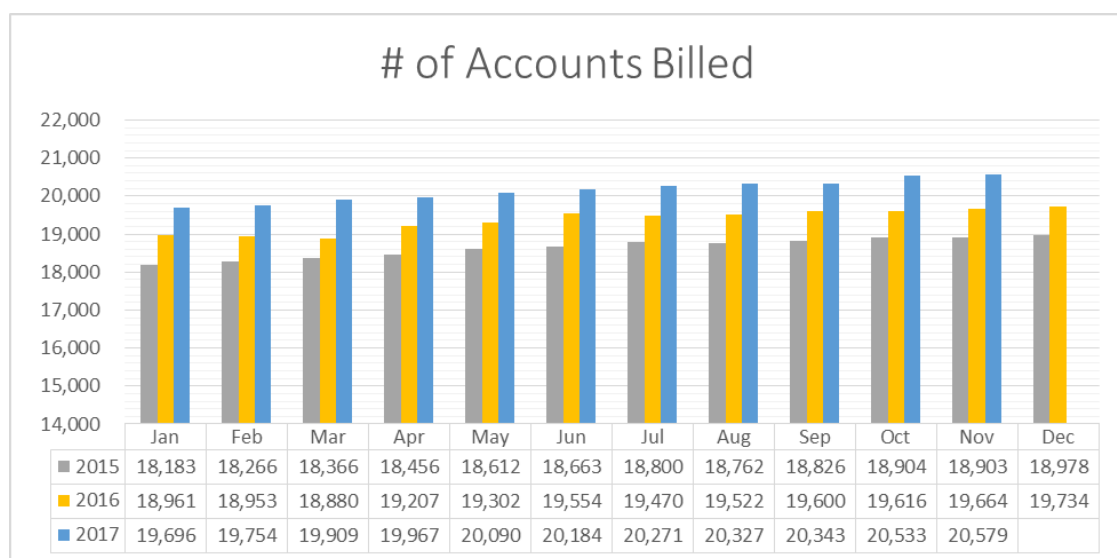
Customer Statistics

By: Anne Glassman, Business Solutions Manager

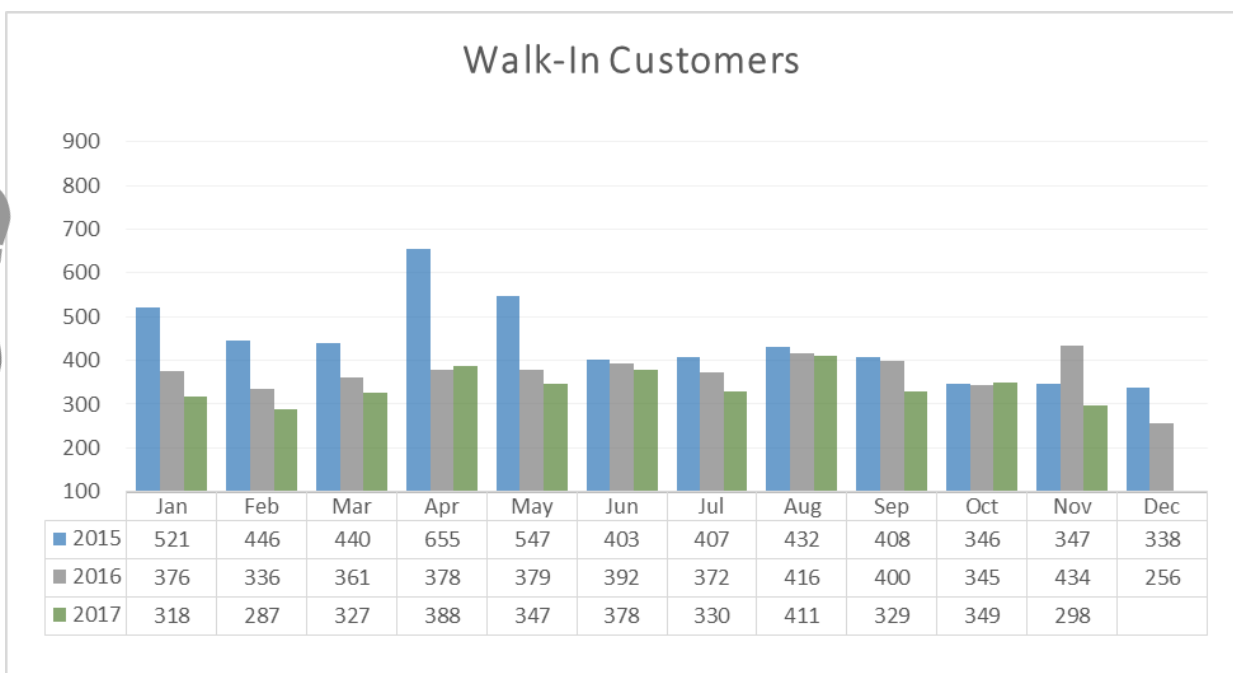
Our Business Solutions Team continues to track a host of statistics and data as we continue to evaluate our levels of service and look for efficient ways to improve on these levels.



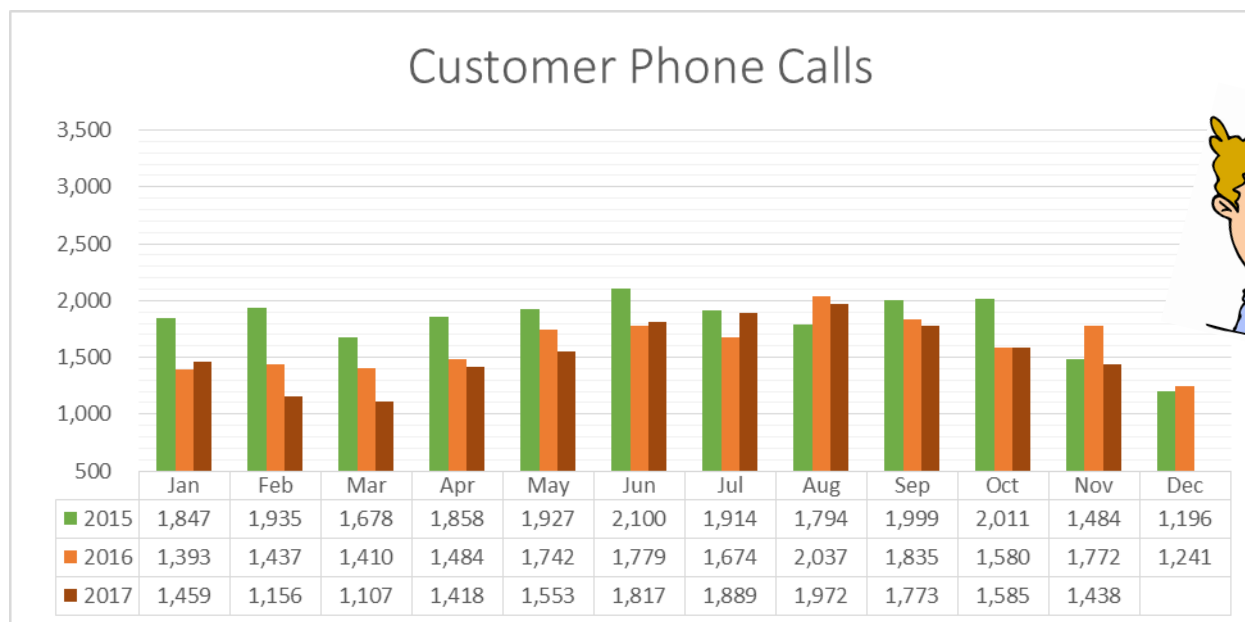
In October and November, we launched a “go paperless” campaign to help increase enrollment. Any customer enrolled in paperless billing as of November 30 was entered into a chance to win a \$50 water bill credit. This campaign resulted in a two percent increase in the enrollment from 55 percent to 57 percent, the highest adoption rate since launching the online customer portal in January 2014.



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



Walk-in customers in November are down from last month as well as from this same time last year.



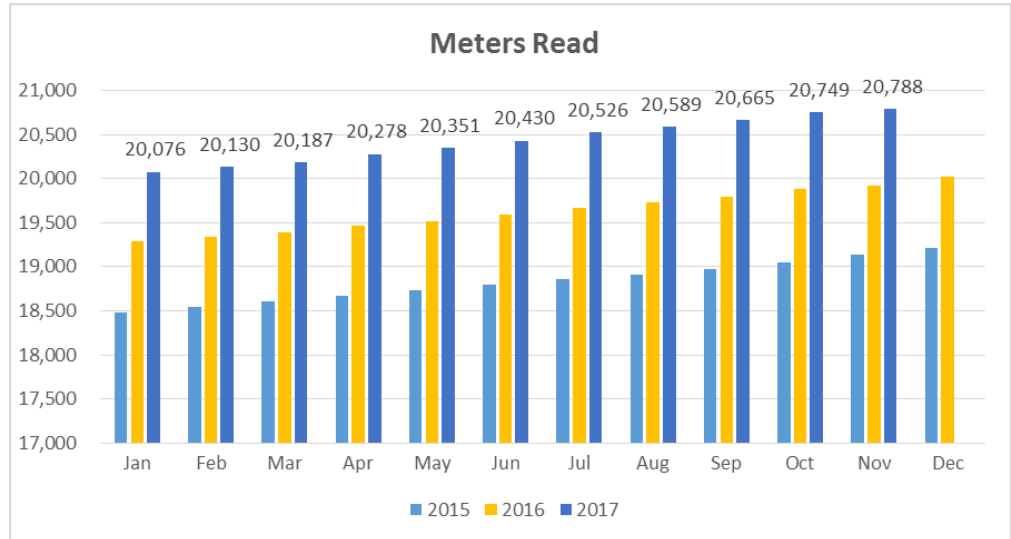
Customer phone calls are consistent with this same time in the previous years

METERS



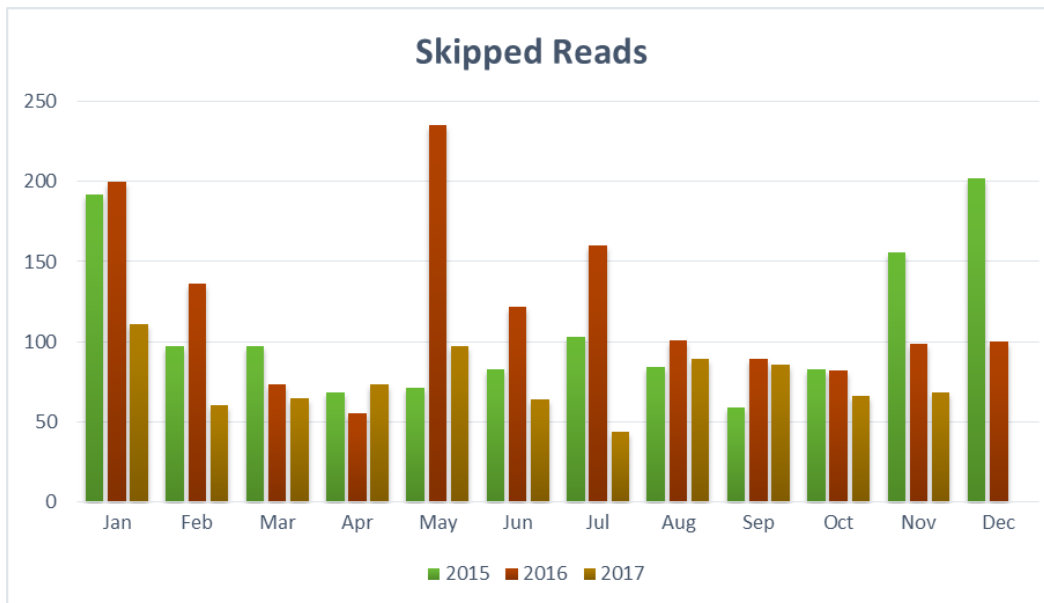
Meter Sets

Month-to-Date 74
Year-to-date 817



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

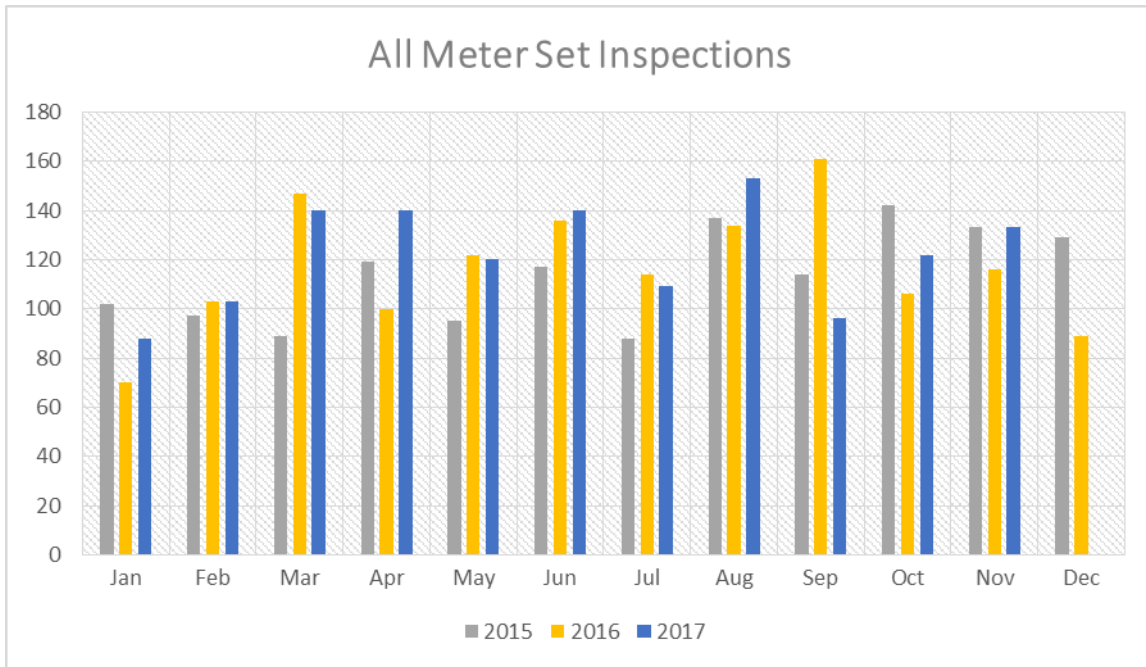
Skipped Reads



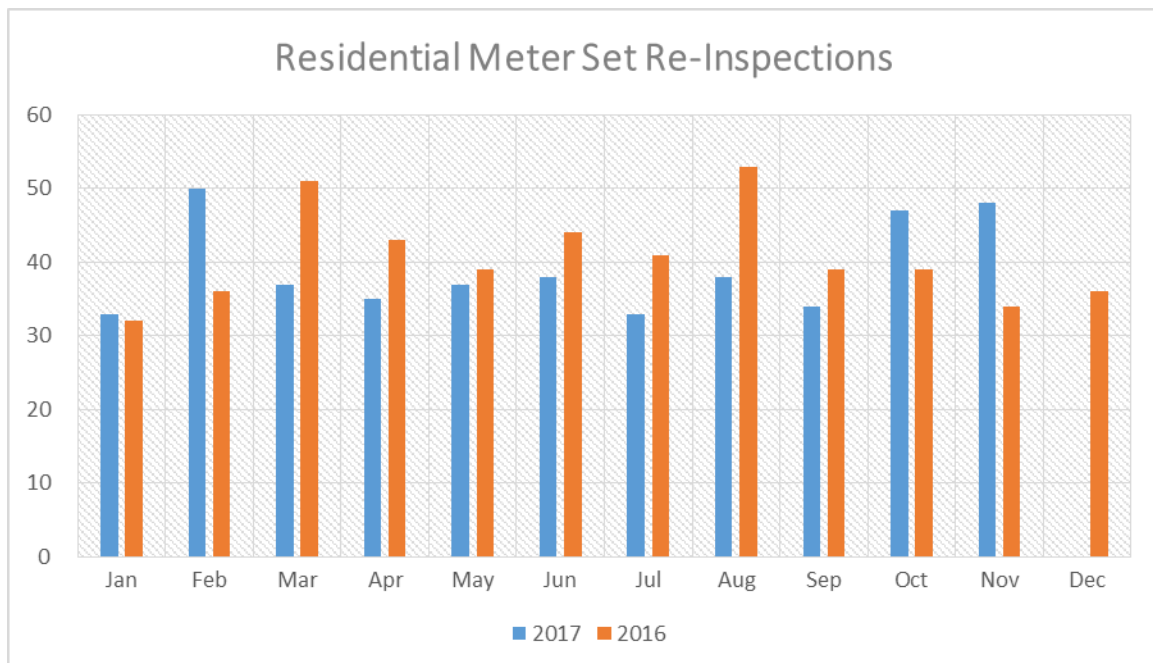
The American Water Works Association (AWWA) standard for skipped reads is 2 percent, so at 0.33 percent in November, we still continue to stay below the industry average. This is a result of continued maintenance and repair efforts on meter infrastructure.

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 set inspections are consistent with the trends we see this time of year.



Residential meter set re-inspections are slightly lower in total for 2017 compared to the same time period last year. This is a good indication meters are being set properly the first time, thus not creating additional inspections.



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 completes special projects designed to improve water quality.



Erosion damage on the access road to Well 80 was repaired.



The “storm troopers” graded, and millings were used on the road to provide access to the CR-1 Facility.



The stormwater team conducted heavy equipment training for the Operations staff. This included vehicle and worksite safety, equipment loading and offloading and equipment use training.



Campfire and Hot Chocolate, Anyone?

While it might look like this team was enjoying a campfire and hot chocolate, it was anything but. When a pump at a key small lift station that pumps sewer water failed, a bypass pump was rented and enough hose purchased, to route the sewage past the station into the correct manhole (see photos below.) The entire Operations team joined forces to work day and night, through the weekend, at the Ray Waterman Lift Station. Despite the cold, snow and the long sleepless nights, they persevered!

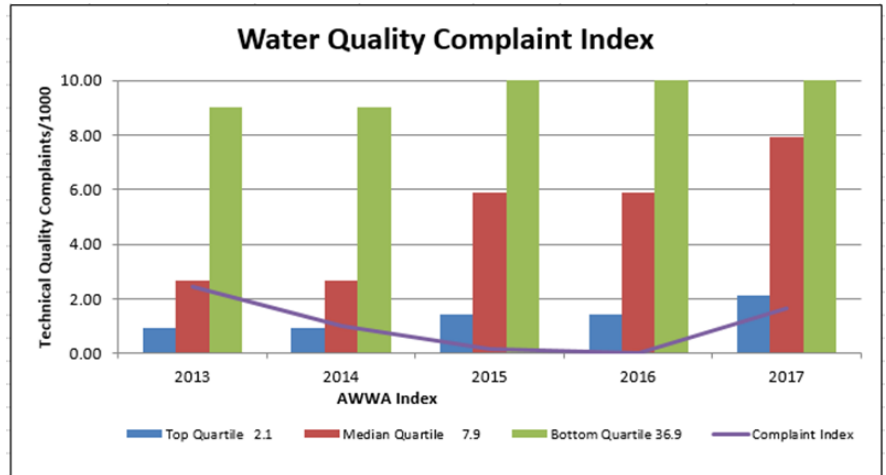




Our team maintains about 810 miles of water, wastewater and stormwater pipeline, enough to run from Castle Rock to Las Vegas, Nevada.

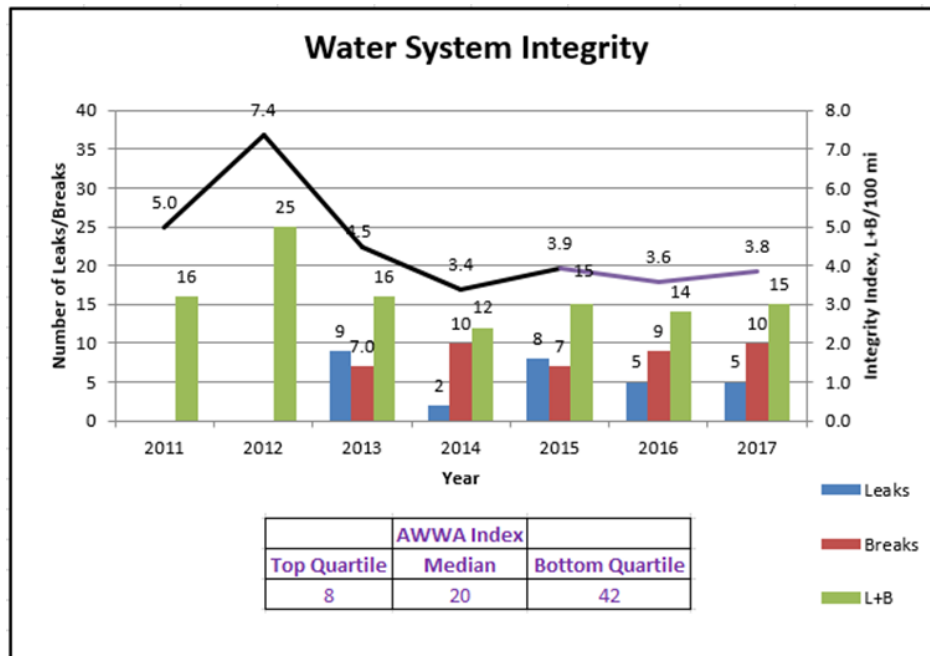
Water Quality Complaints

The Water Quality Complaint index shows that we are doing very well in this category; rating in the Top Quartile since at least 2015 according to the American Water Works Association. Our score was even better in 2016! There were no water quality complaints in November, 2017



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

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 three water system integrity issues in November.



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.

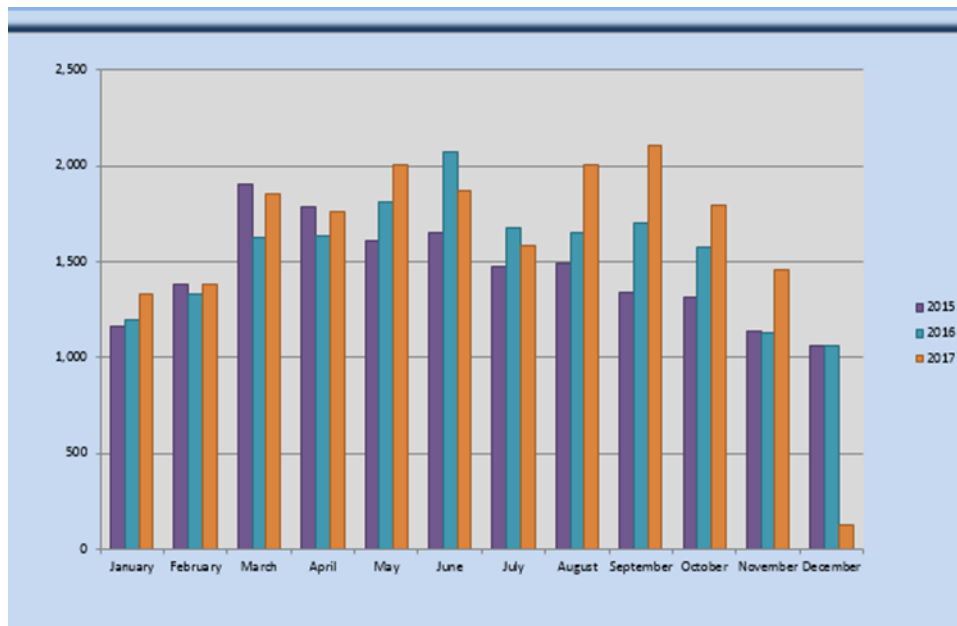
The graphs below show our monthly utility locates and a chart showing the year-to-year comparison

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				
February	521	485	538	1,094	1,093	1,383	1,334	1,378				
March	660	552	818	1,437	1,349	1,906	1,625	1,851				
April	838	681	1,025	1,482	1,552	1,784	1,631	1,760				
May	853	863	985	1,541	1,531	1,609	1,809	2,002				
June	969	844	982	1,314	1,399	1,654	2,075	1,872				
July	680	582	853	1,350	1,392	1,477	1,675	1,582				
August	901	723	1,123	1,476	1,468	1,494	1,651	2,001				
September	880	723	1,029	1,240	1,373	1,343	1,701	2,102				
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	124				
Total	8,545	7,539	11,097	15,702	15,731	17,323	18,469	19,258	0	0	0	0
Difference from previous	N/A	-1,006	3,558	4,605	29	1,592	1,146	789	-19,258	0	0	0

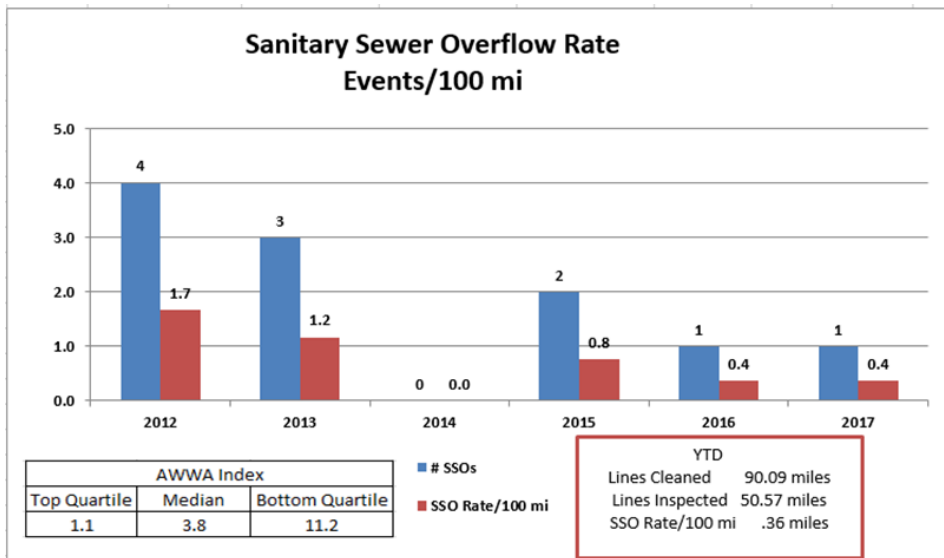


3-YEAR LOCATE TREND



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 one incident in 2017. There were no sanitary sewer issues in November.



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.

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

NOVEMBER 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.

There were no issues in November.

Sewer System Effectiveness

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

There were no issues in November.

Drinking Water Supply Outages

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

There was a water main break in the Plum Creek subdivision. Corrosion caused a hole in an 8-inch ductile pipe. Six customers were out of water or had reduced pressure for more than four hours.

The distribution team repaired a valve and break at the bell of an 8-inch iron pipe main in The Woodlands. Twenty-nine homeowners were without water for less than four hours, and experienced reduced pressure overnight during the repair.

A water main break on a 6-inch cast iron pipe in the Glovers neighborhood affected 25 homeowners. They did not experience a water outage, as the water had been throttled down overnight to make the repair.