

MAY 2018

Mayor's Challenge for Water Conservation



Winning poster by Sidney Pehrson from Mesa Middle School.

Each April, the Town of Castle Rock participates in the national community service campaign, mywaterpledge.com, to see which leaders can best inspire their residents to make a pledge to use water more efficiently, reduce pollution, and save energy. This year, Castle Rock reached 8th in our population category, making it the third year in a row we have been ranked in the top 10!

An added component this year to help us spread the word was a poster contest for middle schoolers. We received more than 175 posters from two schools. Students could use a range of media and posters received were in water color, pastels, colored pencil and photography. The

Mayor chose 10 to help represent our conservation message which will be used for outreach throughout the year. The top winner was Sidney Pehrson from Mesa Middle School. Other Mesa Middle School winners were Maya Ellis, Meagan McNeal, Ryane Fadness, Alexia Cooper, Megan Thompson, Alizeigh White-Rushing, John Puskas and Riley Young. Malia Scott from Cloverleaf Enrichment School also had a winning poster.



Sidney Pehrson, Mesa Middle School and Mayor Jennifer Green



The Mayor presented the students with a certificate and congratulations at Town Council.



OUR VISION

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



WHAT'S NEW IN WATER?

Castle Rock Water wants you to know what's happening around town and in your local neighborhood. Check back here each month for a list of upcoming projects, or visit us at CRgov.com/waterprojects.

CRAIG AND GOULD NORTH INFRASTRUCTURE IMPROVEMENTS ●

Planned for 2020, this project includes the reconstruction of public infrastructure (drainage system, water mains, sanitary sewer mains and streets) within the Craig and Gould neighborhood. Estimated cost is approximately \$6.8 million.

EAST PLUM CREEK REACH 6 STABILIZATION PROJECT ●

Planned for 2020, this project will design and construct stream channel improvements along the downstream reach of East Plum Creek, generally located between the Plum Creek Water Reclamation Authority site and North Meadows Drive. Estimated cost is approximately \$1 million.

TERRAIN-FOUNDERS SEWER PROJECT ●

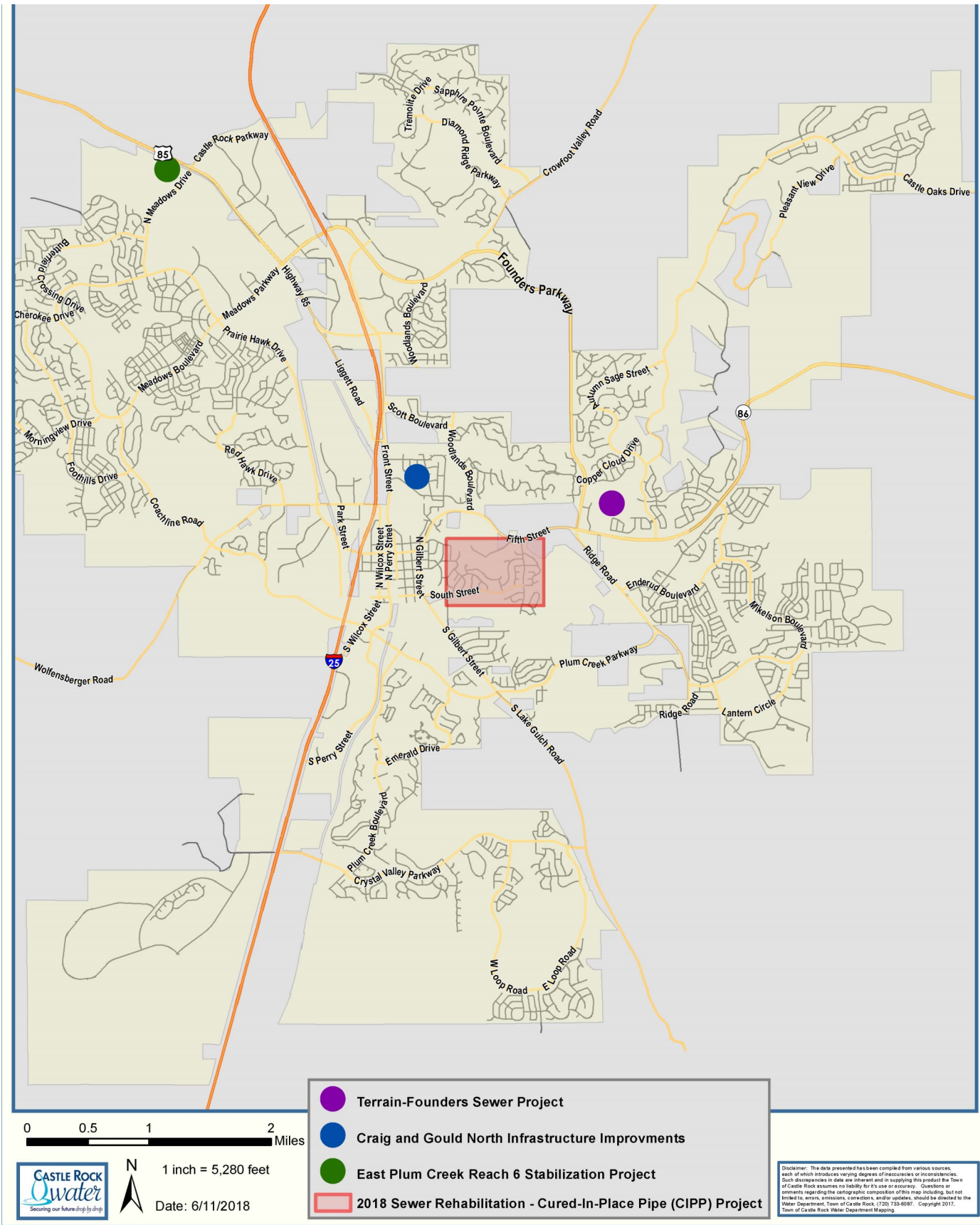
Construction for this project is planned for Fall 2018, and includes a new sewer main which will eliminate the need for the Ray Waterman Regional Water Treatment Facility (RWRWTF) temporary lift station. Estimated cost is approximately \$975,000.

2018 SEWER REHABILITATION - CURED-IN-PLACE PIPE (CIPP) PROJECT ●

The sewer pipe in the Young/American Neighborhood has been identified to be rehabilitated as part of the 2018 Sewer Rehabilitation project. CIPP is a process in which a resin-saturated felt tube is pulled through the existing pipe, pressurized to fit tight against it, and then cured to form a new pipe within a pipe. The budgeted amount for this project is \$250,000.

See map on next page for approximate locations of these projects

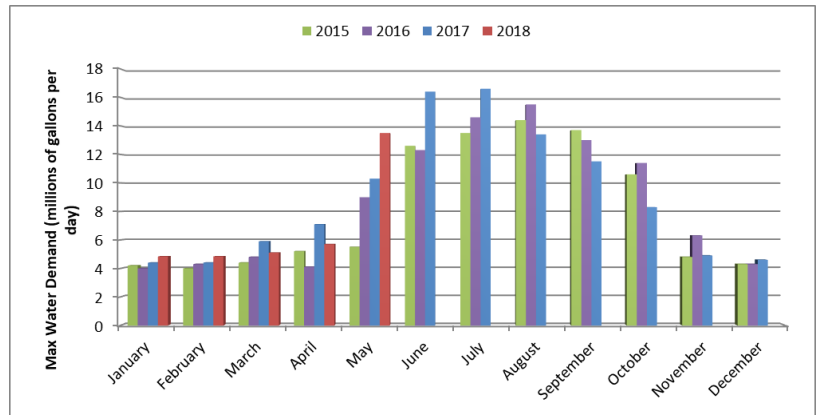
What's New in Water, continued



2018 Water Demands

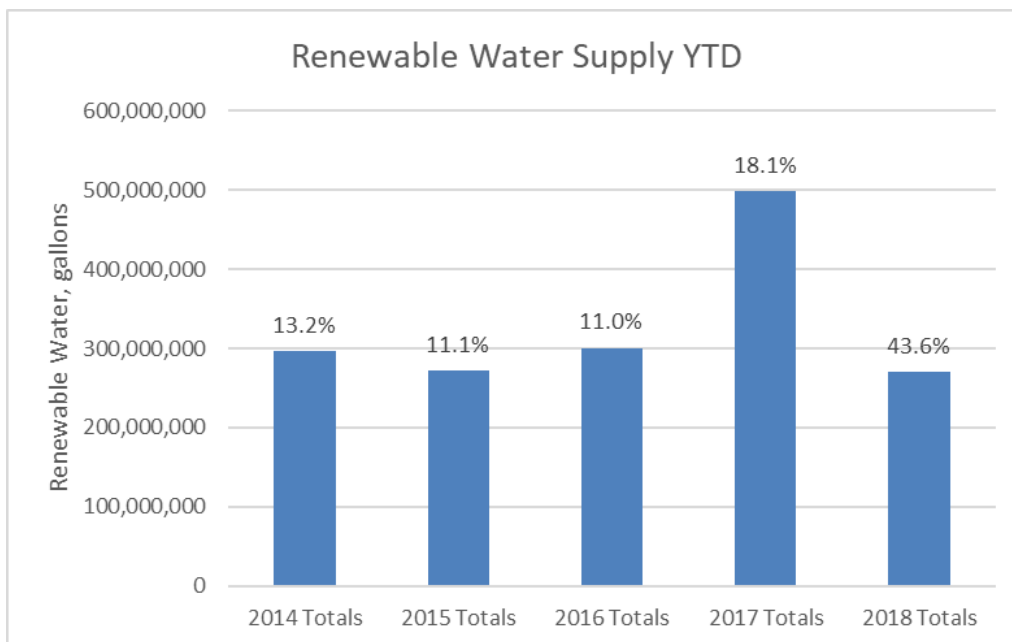
By: Lauren Tyner, Water Resources Program Analyst

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 May was 13.5 million gallons per day (MGD) which was 39% 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 May was 285.7 million gallons (MG), which was about an 87.8% increase from the April 2018 total of 152.1 MG, and a 30.9% increase from the May 2017 demand of 218.2 MG.



The CR-1 diversion produced an average of 1.6 MGD for the month of May. The Town’s thirteen alluvial wells and CR-1 produced a total of 72.7 MG of renewable water and WISE deliveries totaled 23.5 MG during May, which represents 31.9% of the total water supply for the month (301 MG or 924 acre-feet) and 43.6% of the annual water supply (367 MG or 1,126 acre-feet).

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 (such as WISE) that can be used over and over, to extinction. The average reusable supplies used by Castle Rock for 2018 through May is 63.4% with 61.5% of available reusable supplies being used in the month of May.



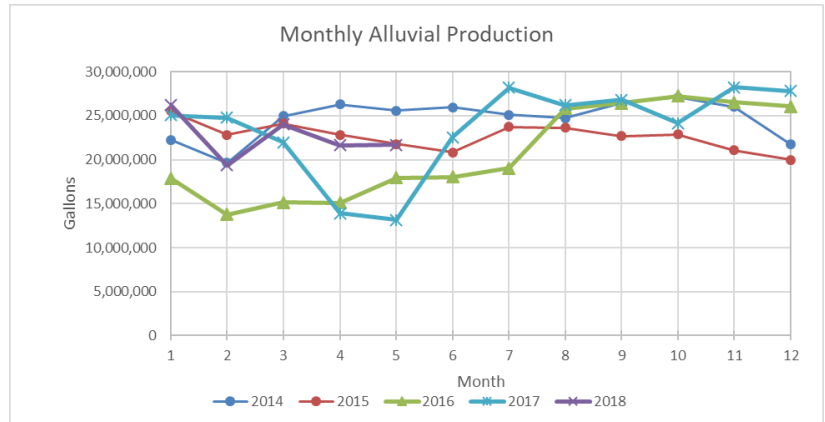
**2018 renewable production will vary as demand increases and additional sources are brought online.*

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

Continued on next page

Water Demands, continued

The Aquifer Storage and Recovery (ASR) Pilot Study started in November 2016 and we are currently on cycle 5 of the study. During the month of May, 1.4 MG was recharged into the Arapahoe and Denver aquifers (for a total of 7.3 MG recharged for 2018). The ASR program helps us to store renewable water during the off peak season without evaporative losses while also helping to maintain the Denver Basin aquifers.

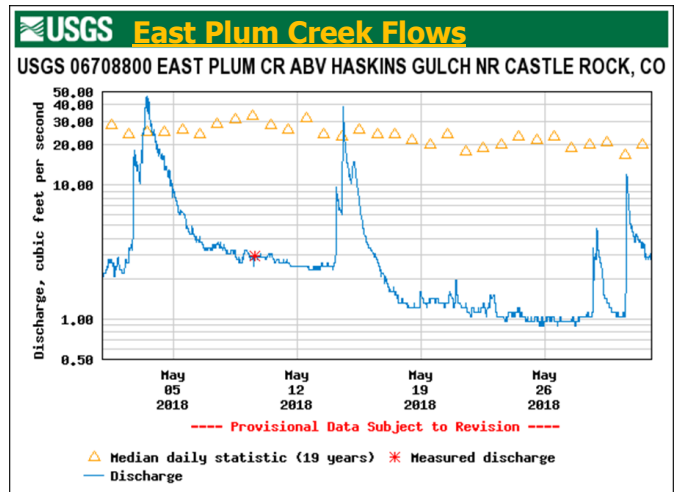


The graph (see right) shows the monthly production of the Town's alluvial well system.

The production from the alluvial wells in May 2018 was 22 MG, which is less than the second half of 2017. Lower production combined with rising water levels indicates that the wells are due for a cleaning. 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 0.9 and 46 cubic feet per second (cfs) during the month of May. We had four precipitation events throughout the month, with flows averaging around 5.8 cfs for the first half of the month and around 1.6 cfs for the second half of the month. This May, the average streamflow in East Plum Creek (EPC) was 1.5 cfs which is approximately 6% of the median daily streamflow of 25 cfs. As a comparison, in May 2017 the average streamflow in EPC was 35 cfs, which is 140% of the median 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. During May 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.

According to the U.S. Drought Monitor from USDA, the northern half of Douglas County is abnormally dry, while the southern half is considered to be in a moderate drought. The NRCS Colorado SNOTEL report for June 5, 2018 shows the snow water equivalent (SWE) for the South Platte River Basin is at 10% of the median. 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 May was 1.9, above the 1.1 trigger level, which is good.





Plan Review Update

By Tina Close, Plan Review Engineer

Castle Rock Water reviewed 90 applications (see below) this month which compares to 81 during the same time period in 2017. The average assigned due date by Development Services was eight days, and Castle Rock Water completed the reviews in an average of five days.

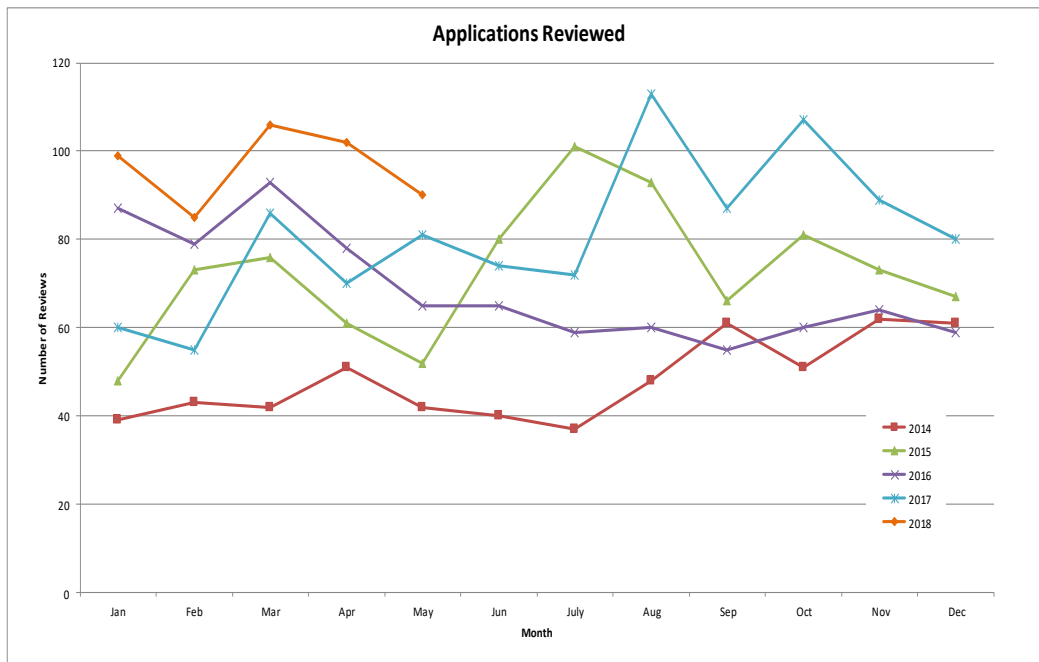
- 6 Agreements
- 6 Field Change Orders
- 25 Grading, Erosion, and Sediment Control (GES) Plans
- 1 Miscellaneous
- 2 County Referrals
- 2 Planned Development Plans
- 4 Plats
- 8 Preliminary Project Applications
- 21 Construction Drawings
- 13 Site Development Plans
- 2 Technical Criteria Variances

The applications reviewed consisted of:

- 50 1st submittals
- 15 2nd submittals
- 12 3rd submittals
- 13 Special reviews
- 17 Completed late
- 73 Completed on-time as scheduled

In addition, Castle Rock Water completed 75 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.



HOA Irrigation Seminar

Castle Rock Water held a seminar, on May 17, for Homeowner Association (HOA) community managers and their boards to provide information on how to best manage their irrigation. Topics presented included the importance of water use management, non-residential watering schedules and new irrigation guidelines. Information on ColoradoScape and the rebates now offered to non-residential customers was also provided. Approximately 35 were in attendance representing about 40 percent of all of the homeowner's associations in Castle Rock. Rick Schultz, Linda Gould and Sandi Aguilar conducted the seminar.



After the presentation, the HOAs had an opportunity to ask questions. The Q & A went on for an additional 30 minutes after the end time of the program, with not a single HOA member leaving! The participants found it extremely rewarding and thus we expect we will conduct this seminar annually.

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:



Laura Murphy
Distribution IV



Casey Stevenson
Distribution I

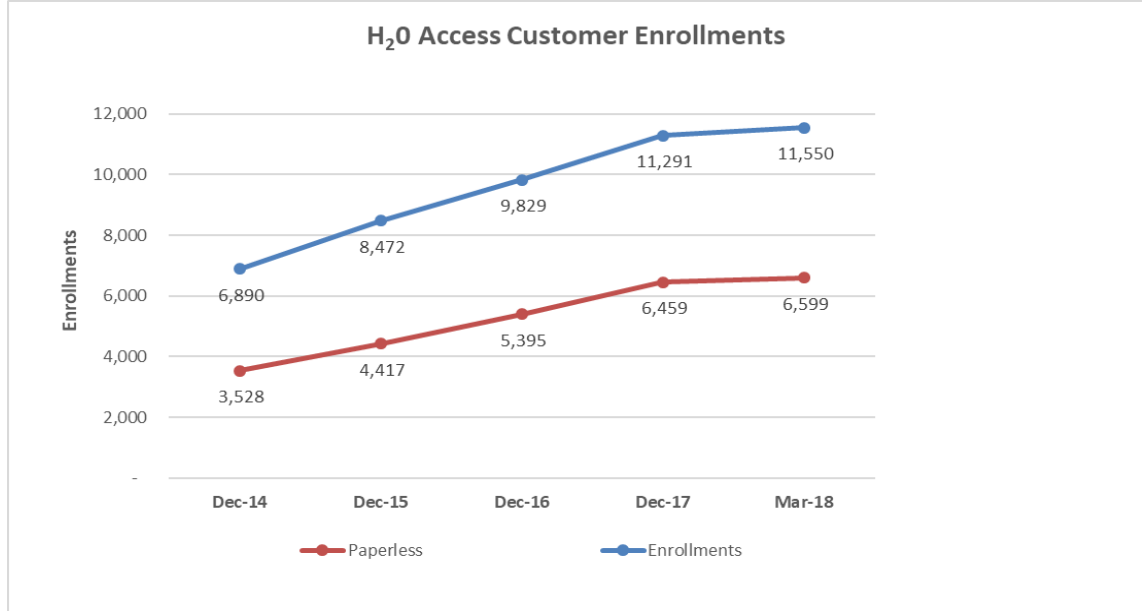


Avery Worland
Distribution I

Customer Statistics

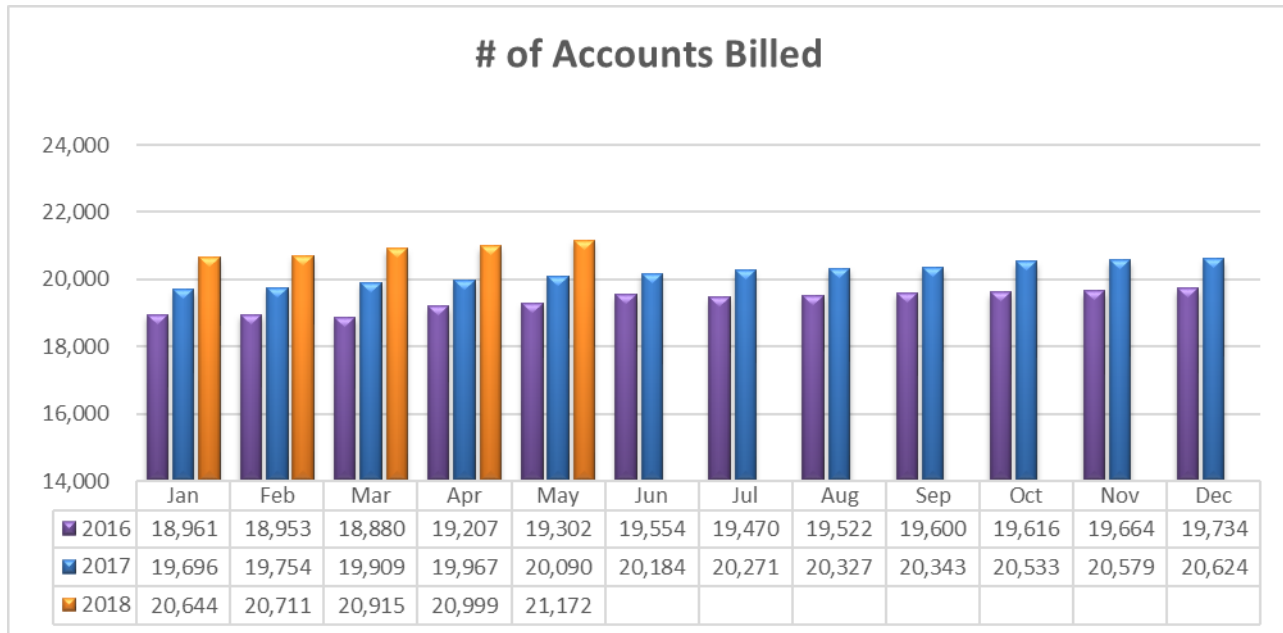
By: Anne Glassman, Business Solutions Manager

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.



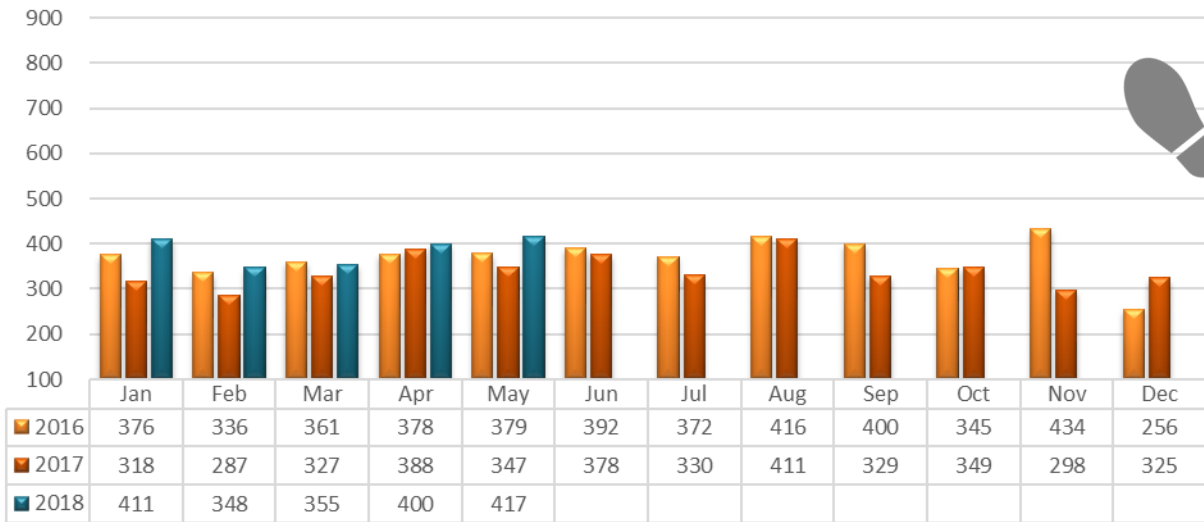
Updated quarterly - Data reported quarter ending 3/2018

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



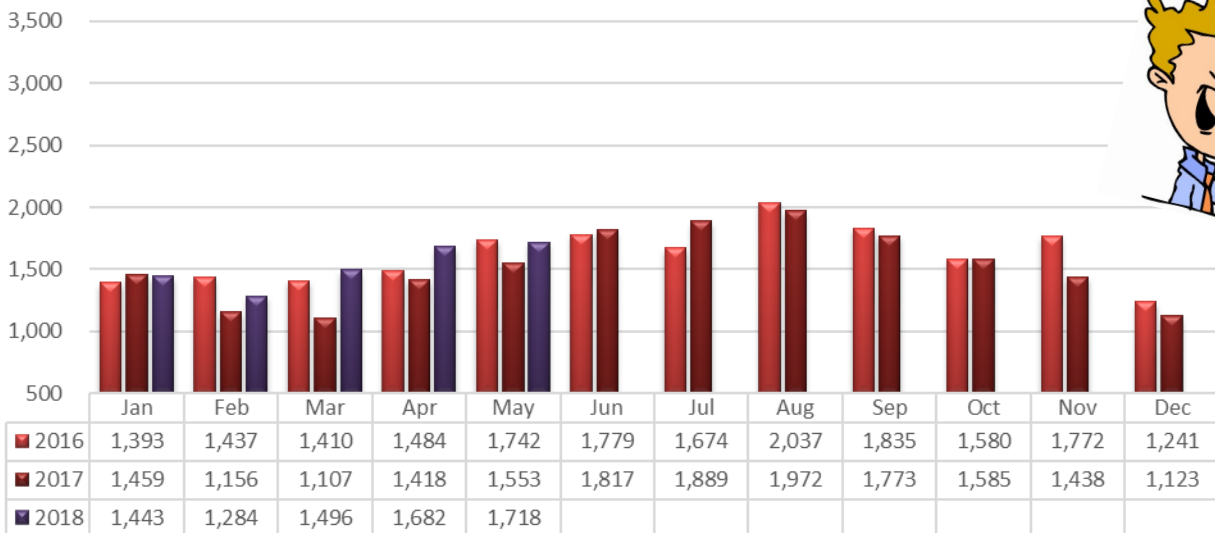
The number of accounts billed continues to increase year over year due to new residential and commercial growth.

Walk-In Customers



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

Customer Phone Calls



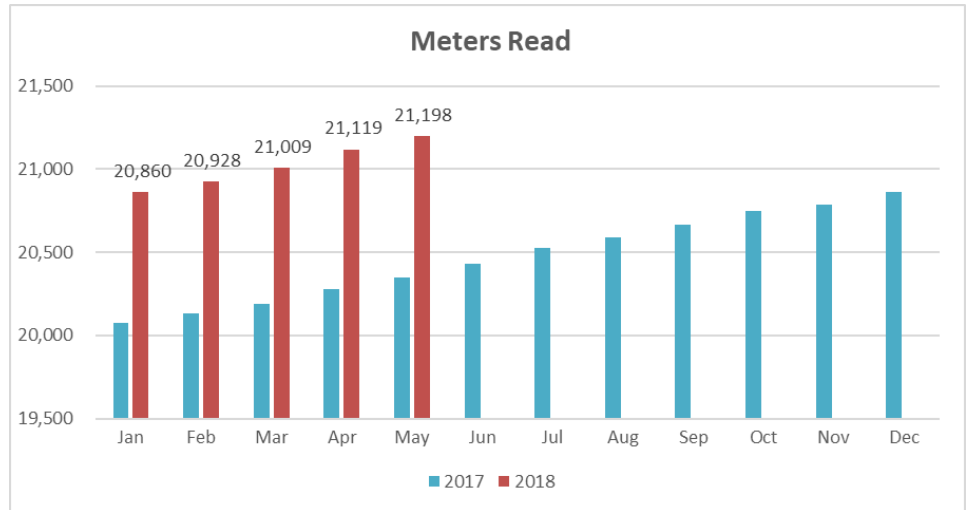
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METERS



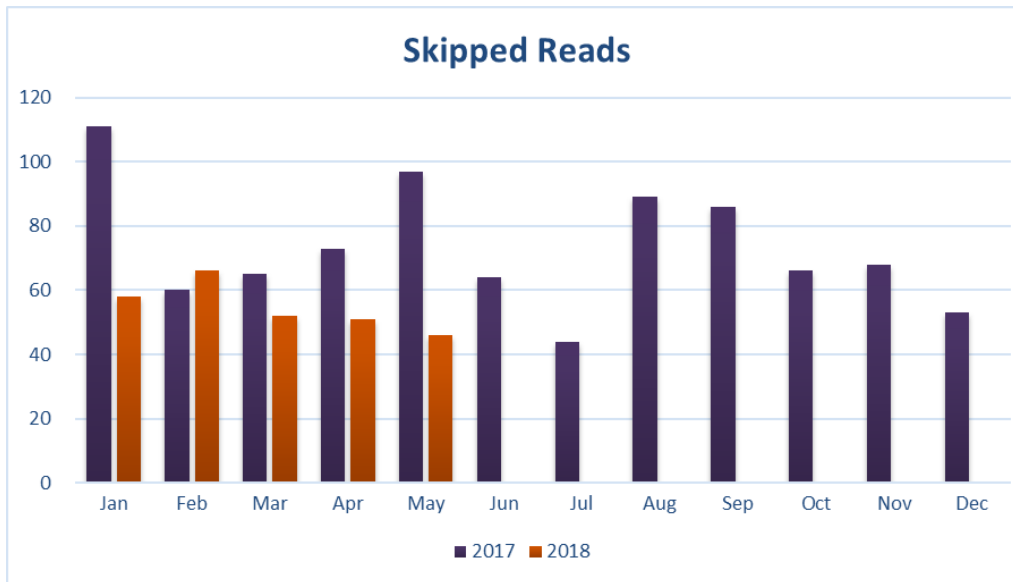
Meter Sets

Month-to-Date 171
Year-to-date 727



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

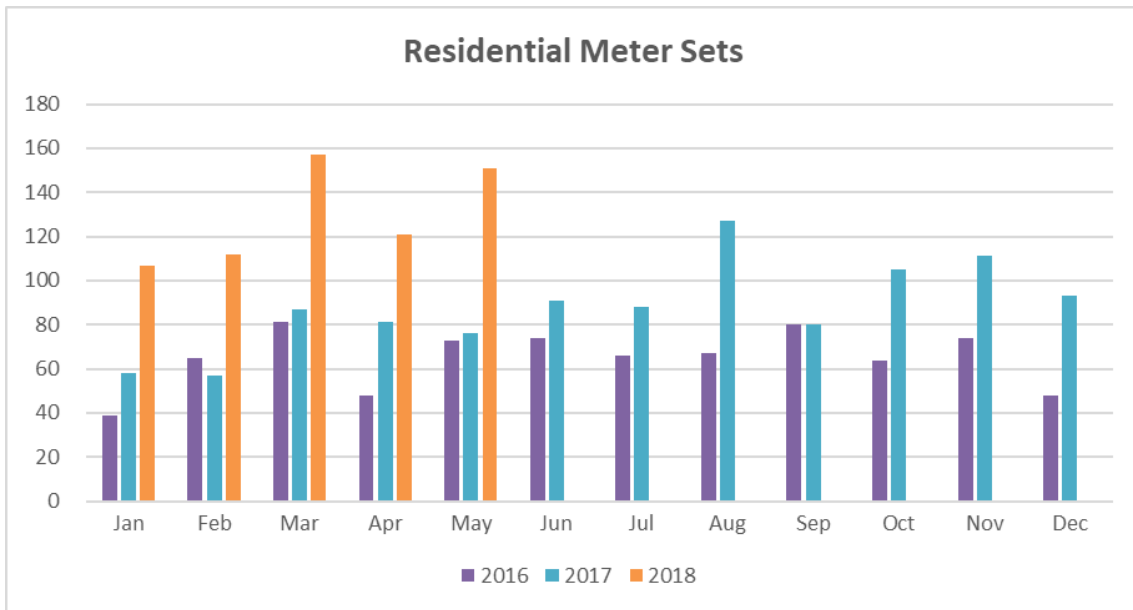
Skipped Reads



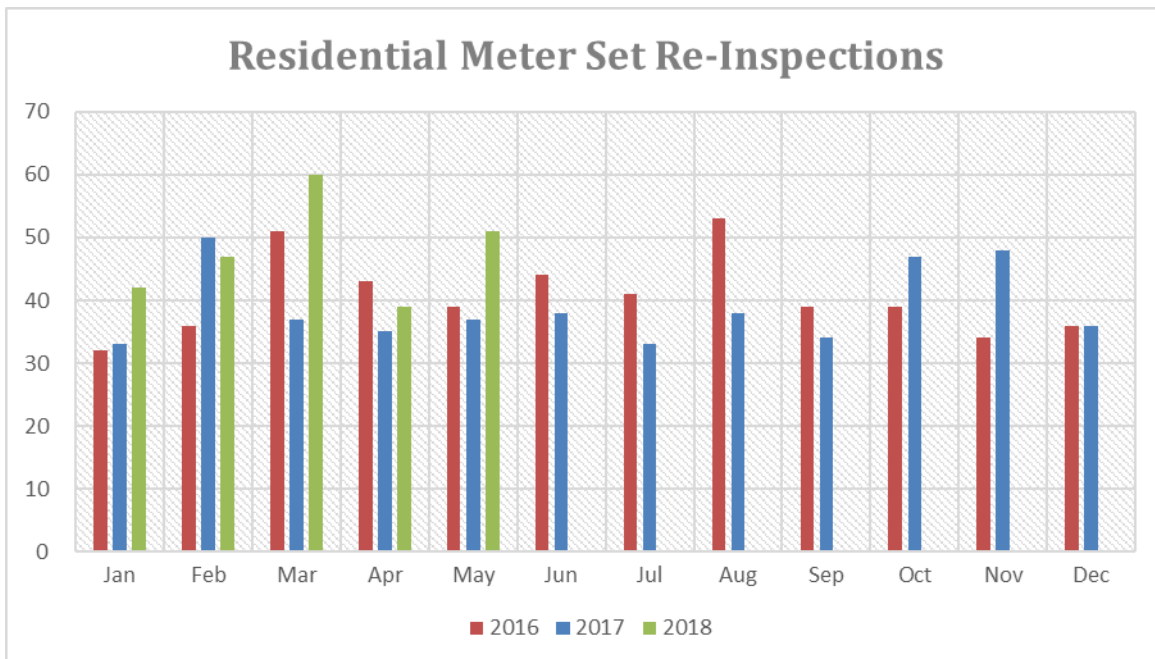
The American Water Works Association (AWWA) standard for skipped reads is 2 percent, so at 0.22 percent in May, we still continue to stay well below the industry average. This is a result of continued maintenance and repair efforts on meter infrastructure.

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.



Residential meter sets continue to remain higher than last year due to new commercial and residential development.



Residential meter set re-inspections are higher than this same time last year.



STORMWATER UPDATE

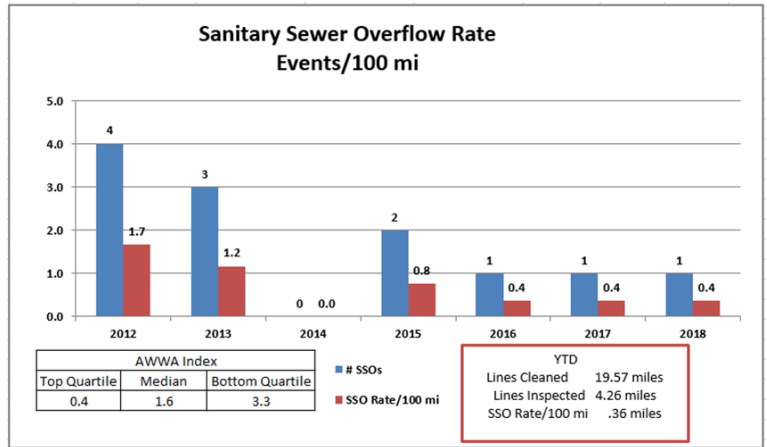
Our team of four “storm troopers” maintains over 138 miles of pipe and drainageways, 110 detention ponds and 4,439 inlets as well as completes special projects designed to improve water quality.



The Stormwater Team removed a tree and regraded the roadside ditch to re-establish a proper drainage channel along Topeka Way.

Sanitary Sewer Overflows

We are tracking in the Top Quartile in the Sanitary Sewer Overflow Rate since 2014, according to the American Water Works Association, showing one incident for the year. There were no sanitary sewer issues in May.



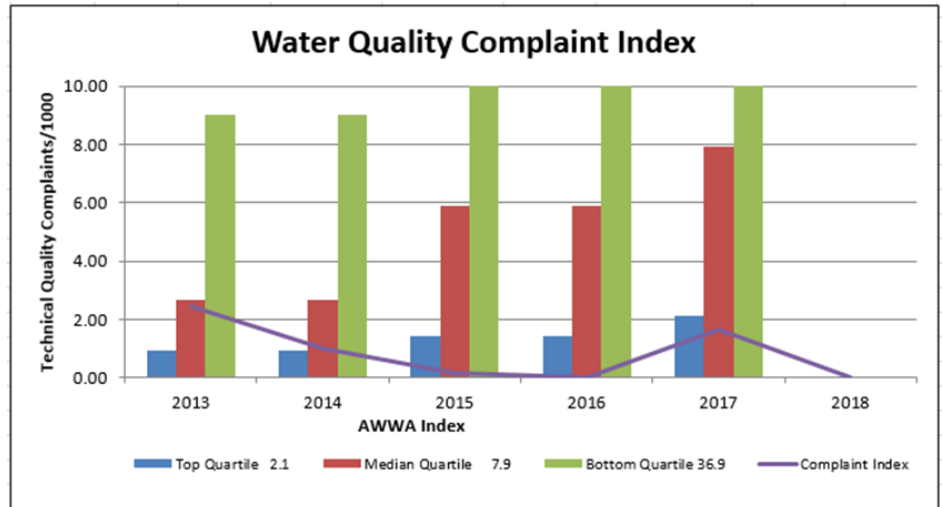
How do we avoid overflows?

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.

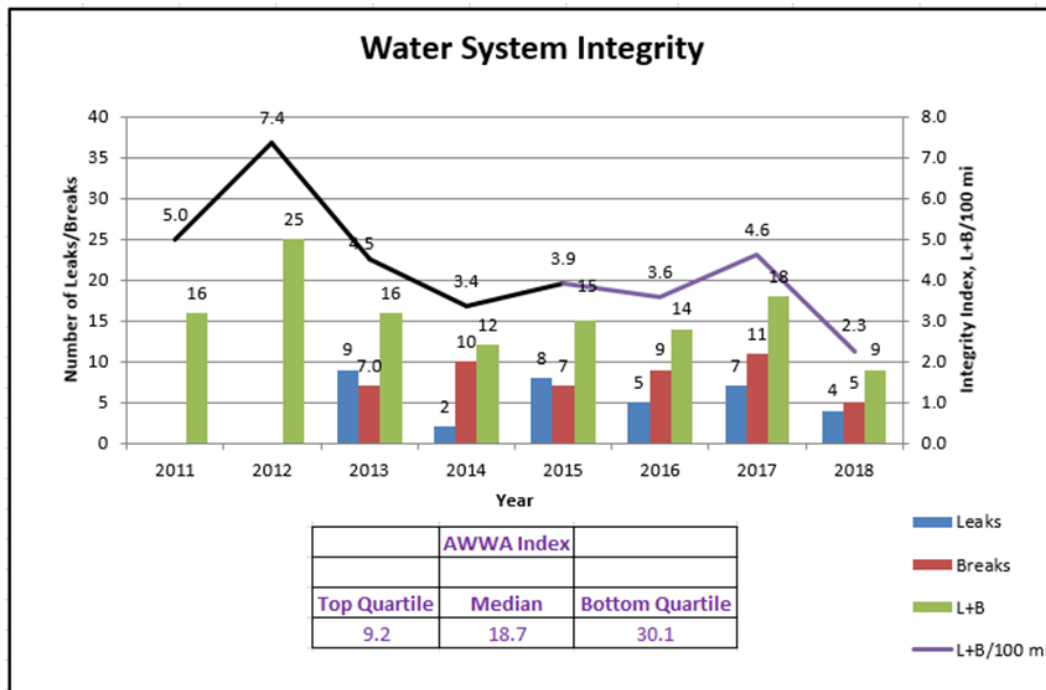
Water Quality Complaints

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 May 2018.



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 of 25 percent for water system integrity based on American Water Works Association benchmarking since 2011. There was one water system integrity issue in May.

Facilities Maintenance

Thanks to this team for managing an exterior siding renovations project at two of our pump stations and one lift station storage shed. Below are some before and after photos.



Citadel Pump Station



Hillside Pump Station



Mitchell Creek Lift Station Storage Shed



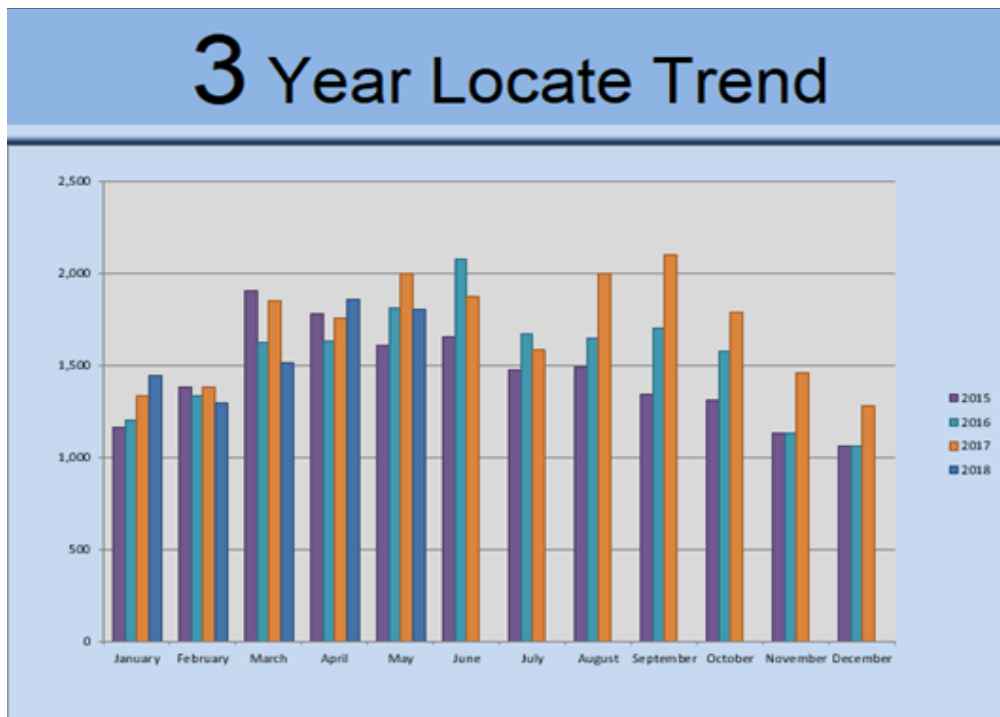


Before you start a project, call 811. Whether you are planning to do it yourself, or hiring a professional, we'll help you do it safely. The local 811 Call Center will contact Castle Rock Water. We will schedule a time to come out to locate public water and wastewater lines in the road and in your project 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	1,269	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				
July	680	582	859	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	1,277				
Totals	8,545	7,539	11,097	15,702	15,731	17,323	18,469	20,411	7,906			



MAY 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 but one sample was within the parameters set forth by the Safe Drinking Water Act and Colorado Drinking Water Standards. In April, Castle Rock Water conducted its first Lead and Copper sampling event for 2018. Per regulation, Castle Rock Water is required to collect a sample from 60 homes that meet a certain criteria every six months. While Castle Rock Water met the requirements for regulatory compliance, one of those samples, upon analysis, was found to exceed the action level for lead of 0.015 mg/L. Castle Rock Water staff immediately reached out to the homeowner to discuss. It was found that the homeowner collected the sample from a bar sink in their basement that hadn't had water run through it in over 10 years and is not used for drinking water purposes. A date was immediately scheduled with the homeowner for a re-sample and they were asked to sample from a sink that is regularly used for drinking water consumption (per the Lead and Copper Rule). Analysis of this second sample came back as a non-detect of lead.

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 15 internal water pressure customer issues in May.

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 May.

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 service line repair in Castlewood Ranch in which three houses were out of water for less than 10 minutes.