

## MONTHLY REPORT

SEPT. 2020

**CASTLE ROCK**  
*Water*  
Securing our future *drop by drop*

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

## Castle Rock Reservoir No. 2

By Shantanu Tiwari, Jeanne Stevens, Matt Benak

One of Castle Rock Water's long-term goals is to provide a sustainable, reliable and renewable water supply for all of its customers. The Plum Creek Diversion and Pump Station with two reservoirs will help fulfill that goal.

The next phase of the Plum Creek Diversion project, the design and development of Castle Rock Reservoir No. 2 (CRR2), is underway. This 1,130-acre-foot reservoir will be located approximately 1.8 miles northwest of the town of Sedalia, just immediately east of Castle Rock Reservoir No. 1 (CRR1).

CRR1, a pumping station and diversion were part of a purchase that the Town made in 2017 from United Water and Sanitation District. Construction of a new pumping station is nearly complete and will pump raw water from Plum Creek to CRR1 and then back to the Plum Creek Water Purification Facility (PCWPF) in Castle Rock for advanced water treatment. In the future, this new pumping station will also be connected to CRR2.

The joint capacity of reservoirs 1 and 2 is 1,370 acre-feet and will help Castle Rock Water to

accommodate daily high demands during summer months in the coming years. Additionally, these reservoirs will allow the Town to recapture and reuse its renewable water supplies.

Design and permitting will begin in October 2020; construction is anticipated to begin in early 2022; and the reservoir is to be in service by early 2024. After a competitive bidding process, the design contract has been awarded to W. W. Wheeler and Associates for a fee of \$556,000. Castle Rock Water has also received a \$125,000 grant from the Colorado Water Conservation Board to help fund this project integral to ensuring our community's strong water future.



*Reservoir No. 2 will be just southeast of the CRR1.*

*Welcome!*

## New hires:



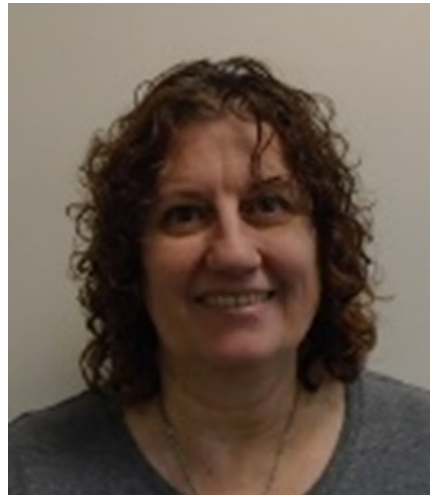
**Matt Poland**  
joined the Water Treatment team as  
an Operator II



**Jonathon Weikle**  
joined the Collections  
team as an Operator I

## 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:*



**Liz Knox**  
Distribution 2 and  
Water Treatment C Operator  
Certification



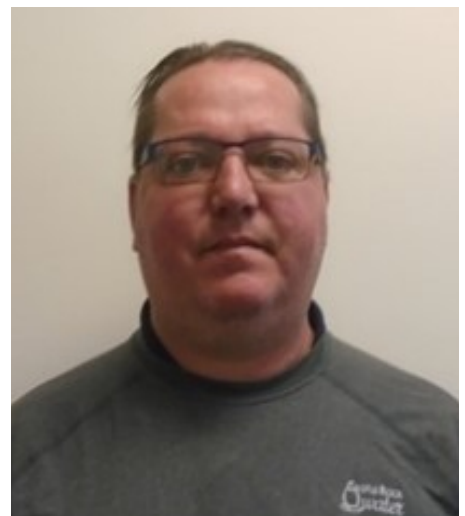
**Ryan Livingston**  
Distribution 3 Operator  
Certification



**Kevin Moore**  
Water Treatment A Operator  
Certification



**Alex Tarnawski**  
Distribution 4 Operator  
Certification



**Henry Mahaffey**  
Collections 2 Operator  
Certification



# Water Star Award

*The Water Star Award recognizes a coworker within Castle Rock Water for doing an excellent job in fulfilling the Department's Vision and Mission.*

The Customer Service Team: Kaitlin, Jane, Debbi, Vickie, Nichol and Vicki received the Water Star Award from Mark Marlowe.

Mark loves to get compliments from customers which thanks to the front line staff, pour in regarding the service, helpfulness and friendliness of our customer service reps. They always have a warm smile, make customers and staff alike feel welcome, and create a happy environment. Mark appreciates the politeness and consideration exhibited from these individuals especially on the phone and when dealing with angry and confused customers. They provide great explanations to customers and consistently provide follow up on questions and emails. Their friendly nudges to keep Mark timely on responses is appreciated too!

This team shows their dedication and service across the board and delivers the feeling they really care about the customer, making Castle Rock Water and exceptional utility!



*Oops... Jennifer and Sandi made it into this picture with the Customer Service and Billing staff.*

## Conservation

### Conservation is teamwork

Every spring as the warmer temperatures make an entrance the water department gets busier and this is certainly no exception for the conservation team. We spend a tremendous amount of time each irrigation season answering customer phone calls, completing inspections, enforcing the watering schedule, processing rebates, presenting workshops, and helping residents with sprinkler system assessments (did I mention the phone calls?). All of which we couldn't do without the help of our seasonal staff.

The water monitors, Alex, Annie, Dennis and Nicki wrote 4,534 watering violations in 2020. Our inspector, Wayne completed 1,076 residential

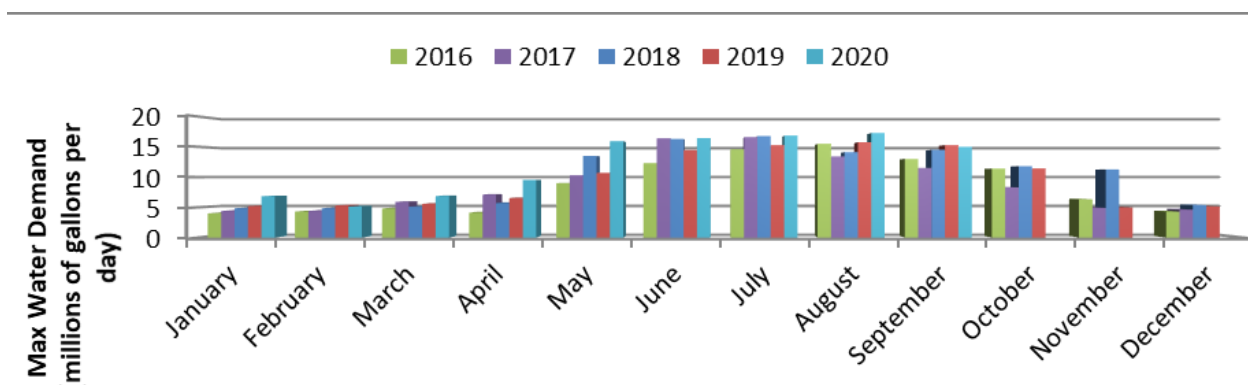


inspections and assisted in completing 312 non-residential inspections. And last but certainly not least, our office assistant Susan who, for a bit longer, continues to answer countless telephone calls, process violations, issue watering exemptions, schedule inspections, and assist customers.

As we quickly move into the fall months and say goodbye to these individuals that make such a difference to our team sometimes thank you just doesn't seem enough but their hard work does not go unnoticed. We truly appreciate everything they've done to help us make it through another irrigation season!



# Water Demand



## Max daily water demand

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.

**Sept. 2020**                      **15.0 million gallons/day**  
 Sept. 5 yr. avg                13.9 million gallons/day  
*8% higher than average*

**Max daily water demand in 2020**  
 17.3 MGD in August (record breaking)

## Water demand total

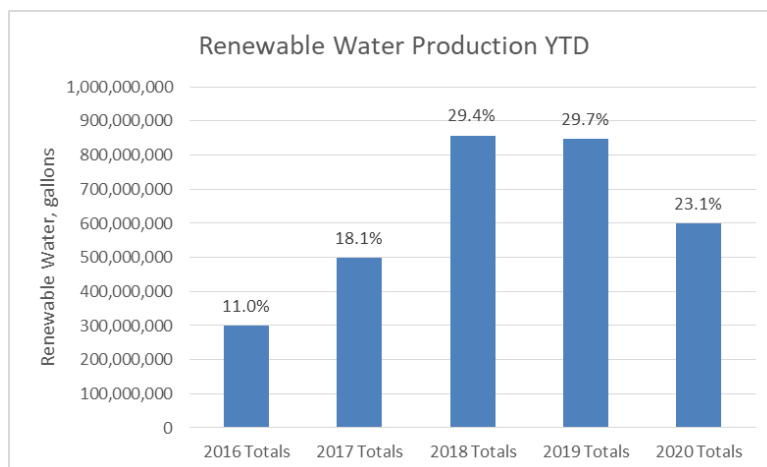
Water demand total is how much water was used over the entire month. Population and weather changes can significantly affect usage.

**Sept. 2020**                      **357.5 million gallons**  
 Sept. 2019                      392.2 million gallons  
*8.9% decrease from last year*

**Water demand total for 2019**  
 2,838.5 MG

## Renewable water supply

- The CR-1 diversion produced an average of 0.53 MGD for the month of September (including captured Well 7C and the Bell Mountain Wells' flows).
- The Town's thirteen alluvial wells and CR-1 produced a total of 32.67 MG of renewable water (and an average of 1.1 MGD). Imported (WISE and RHR) water supplied an additional 58.1 MG of renewable water.
- In total, renewable supplies accounted for 26.5% of the total water supply for the month and 23.1% of the annual water supply (2,593 MG or 7,958 AF) to date.



*Our goal is to reach 75% renewable water by 2050.*

# Water Demand

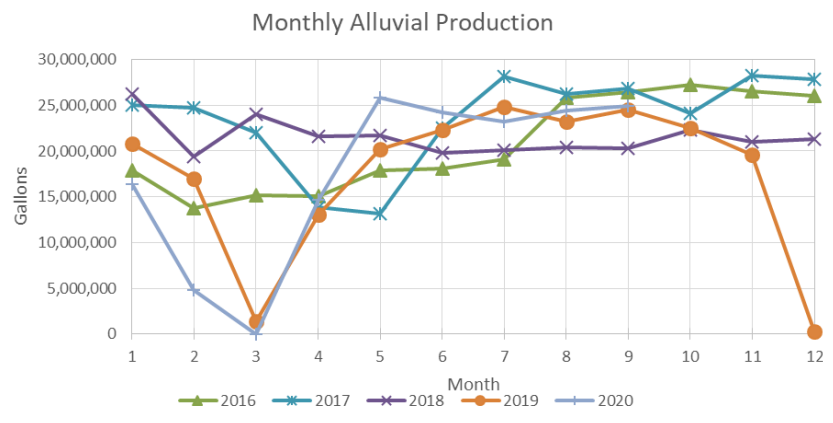
Renewable supplies are those water sources that are replenished by precipitation (think of our alluvial wells, CR-1, and WISE), whereas reusable supplies are those waters that are either from the Denver Basin (deep wells) or imported supplies (such as WISE and RHR) that can be used over and over, to extinction. The average reusable supplies used by Castle Rock for 2020 through September is 30.9% with 37.2% of available reusable supplies used in the month of September.

## Alluvial supply

**Sept. 2020 production: 24.4 MG**

The graph shows the monthly production of the Town's alluvial well system, which helps to supply PCWPF.

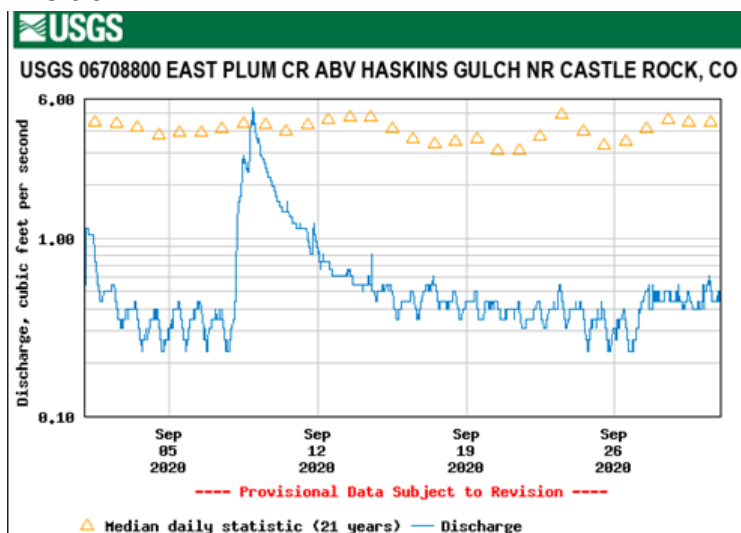
The production from the alluvial wells in September was 25.0 MG. We completed eight well rehabilitation projects this year and are in the process of one more this fall.



## East Plum Creek Flows

**Average Sept. streamflow: 0.63 cfs**

The flow hydrograph represents stream flows in East Plum Creek (EPC) taken from the stream gauge located above Haskins Gulch. The hydrograph shows that estimated flows in the East Plum Creek basin ranged between 0.23 and 5.36 cubic feet per second (cfs) during the month of September, with an average streamflow of 0.63 cfs. This month's average streamflow of 0.63 cfs is below the 20-year median of 4.5 cfs.



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 replenished 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. As a participant in the Chatfield Storage Reallocation Project, the Town is able to store up to 2,000 AF of water in Chatfield Reservoir. This means that our reusable water that flows down Plum Creek and past CRR1 can be captured and stored at Chatfield for later use. First storage started on May 15 and to date we have 206.4 AF of water stored in Chatfield.

# Water Demand

## Drought Monitor

The average WSI for August was 1.8, above the 1.1 trigger level, which is considered “good.”

According to the U.S. Drought Monitor maintained by the United States Department of Agriculture (USDA), approximately 99.3% of Colorado is experiencing Moderate Drought (D1) to Exceptional Drought (D4) conditions. The Town of Castle Rock Drought Management 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 NRCS Colorado Precipitation Report

Sept. 29, 2020

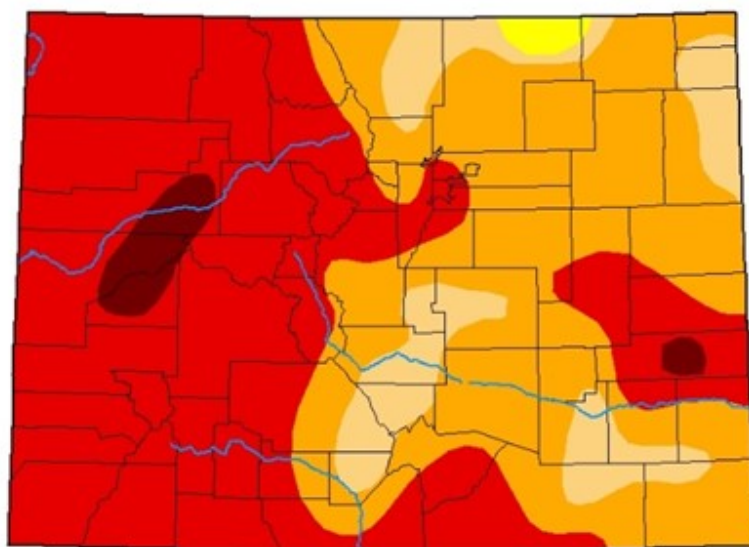
YTD precipitation for the  
South Platte River Basin is at  
88% of average.

## U.S. Drought Monitor Colorado

September 29, 2020

(Released Thursday, Oct. 1, 2020)

Valid 8 a.m. EDT



### Intensity:

- None
- 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. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

### Author:

Brad Rippey  
U.S. Department of Agriculture



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)



# Plan Review

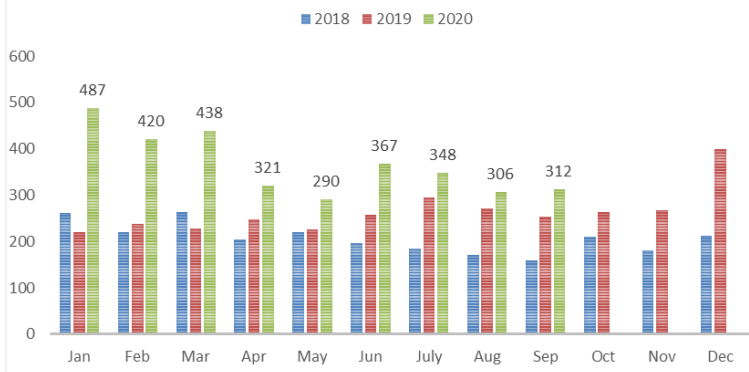
For each commercial and residential project submitted for development review, Castle Rock Water provides plan review, as appropriate, for:

- Water
- Sanitary sewer
- Stormwater
- Landscape/irrigation
- Temporary erosion and sedimentary control

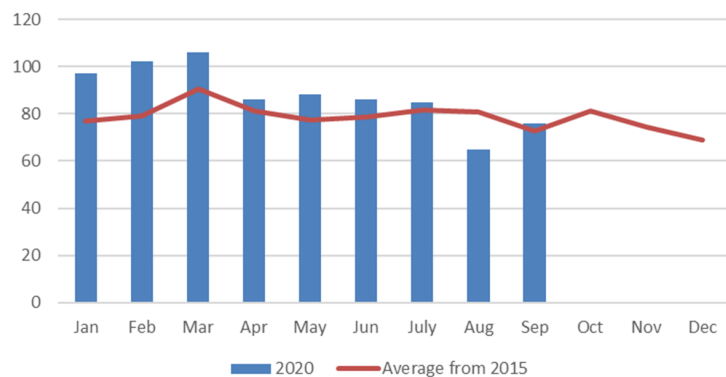
Castle Rock Water reviews site plans, construction drawings and technical reports for each project to ensure the public infrastructure built by the developer is following the criteria set by the Town.



## TOTAL # OF CASTLE ROCK WATER PLAN REVIEWS FOR DEVELOPMENT SERVICES AND BUILDING



## Monthly Projects Reviewed 2020 Average monthly reviews since 2015



Both 2019 and 2020 saw an increase in the number of projects in Sept. from Aug. based on the 5 year average.

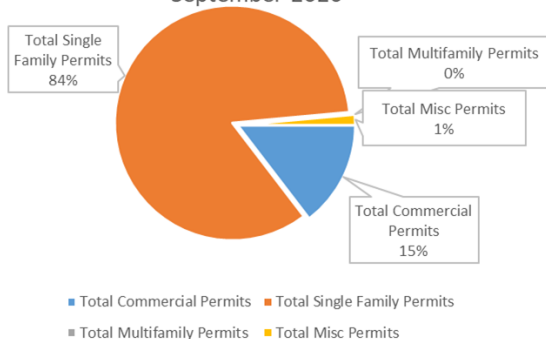
## Reviews

175 development services PROJECT plan reviews  
137 building PERMIT reviews  
For 76 separate projects

- Number of Distinct Projects decreased by 10% from Sept. 2019
- The total number of development project reviews decreased by 4% from Sept. 2019
- At 137 permits in Sept. 2020, the total number of permit reviews increased by 95% vs. Sept. 2019

Building permits are reviewed to calculate the system development fees for each lot, as determined by the number of fixtures, irrigated area, meter size, etc. This is necessary for proper billing.

## Castle Rock Water Building Permit Reviews September 2020



## Service levels

The average number of days assigned to review: 13.1 days

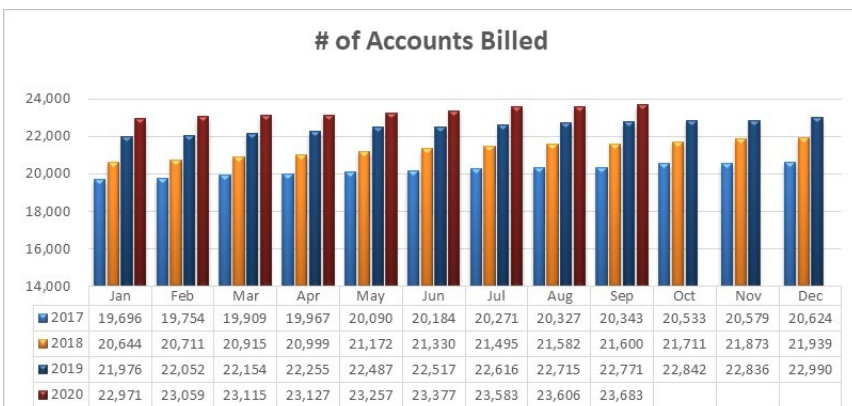
The average days to complete assigned reviews: 12.4 days

Plan Review: 95% of the reviews were completed on-time

Review time for each plan is 1 to 5 weeks,  
a permit is 3-5 days.

# Business Solutions

## Customer Service & Billing

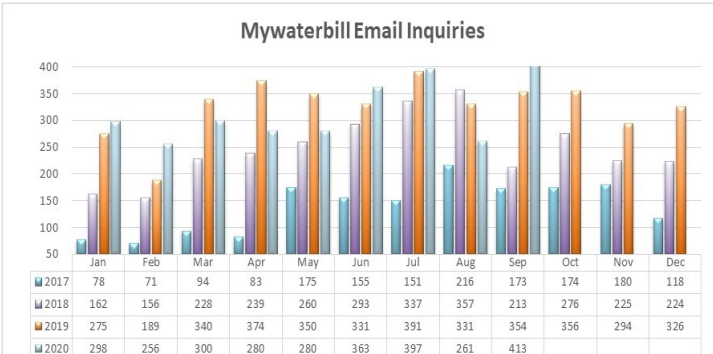
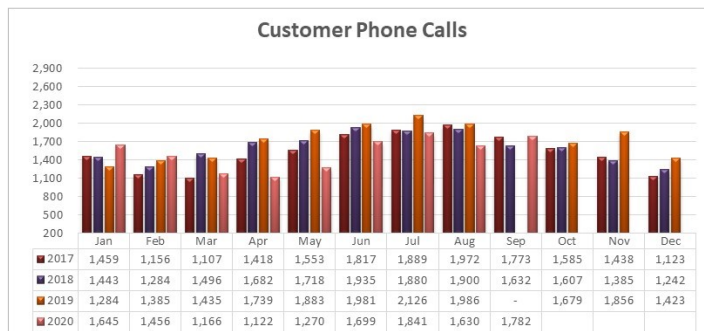
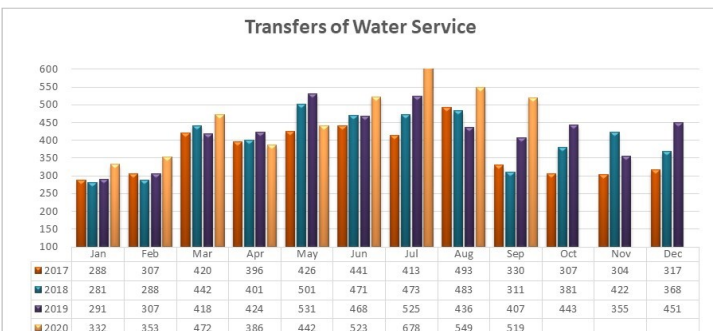


The online account portal provides customers with 24/7 access to their statements, ability to pay online and the opportunity for paperless statements.

### 2020/Q3 statistics

Enrollment: 15,060 (63% of all accounts)

Paperless: 9,444 (63% of online accounts)

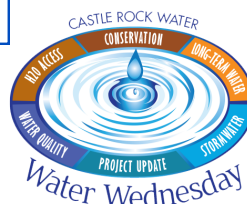


## Customer Outreach

Keeping customers aware of activities within the department, the benefits of conservation and the value of water is accomplished through social media, email, newsletter and billing messaging, along with periodic events and campaigns.

In September, with cooler temperatures, the focus was on landscape maintenance. A healthier yard makes for more efficient water use.

Social media reach: 5+ posts with 2,846 average reach  
Email reach: 6,473 (35% of email accounts)



- ColoradoScape Contest Winner – posted Sept. 2:  
4,203 people reached
- Winterizing Class Reminder – posted Sept. 9:  
2,997 people reached
- National Preparedness Month – posted Sept. 16:  
1,985 people reached
- Fall Tree Planting – posted Sept. 23:  
1,941 people reached
- Preparing for Environmental Conditions – posted Sept. 30:  
3,103 people reached



# Meters



## Meters Read

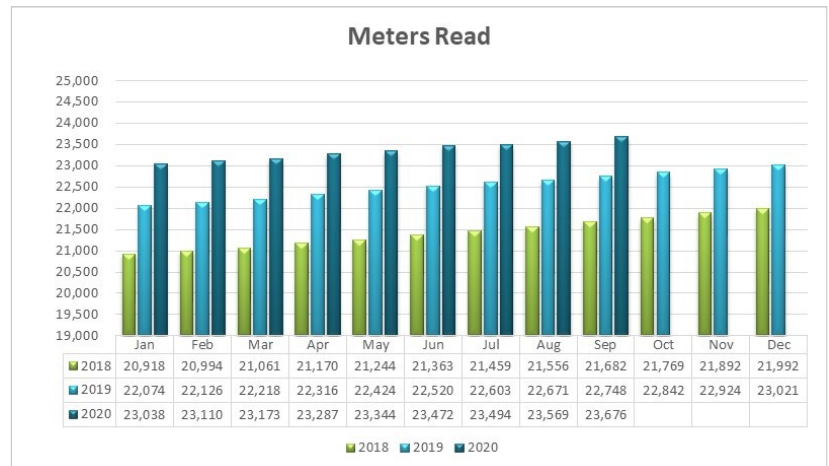
Meters are read the first three days of every month. The number of meters read continues to increase month to month and is a significant increase over last year.

## Skipped Reads

**Sept. 2020: 0.37%**

Measuring skipped reads 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.

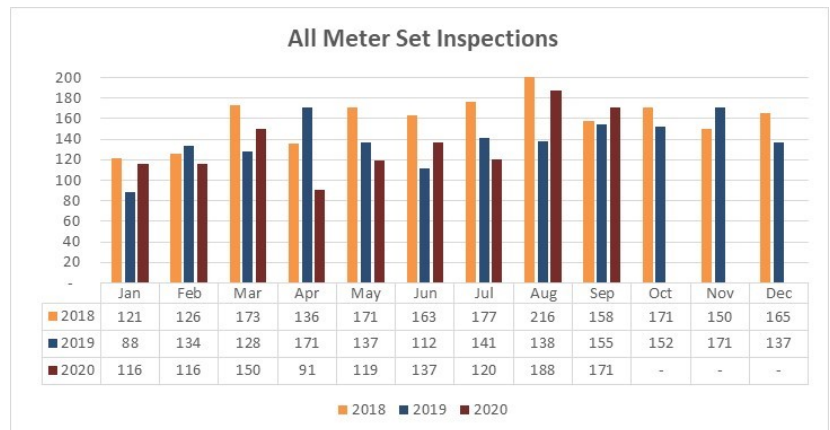
*The AWWA standard is 2%, so we still continue to stay well below the industry average.*



## Meter Set Inspections

**Re-inspections 47%**

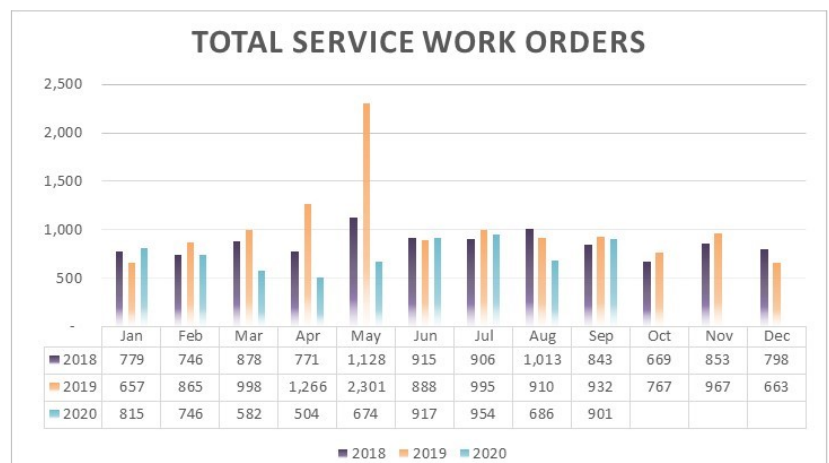
Meter set inspections are required on all new meters installed. This ensures that the meters are installed per specifications and according to Town code. At the time of the inspection, the curb stop is tested for operability and the MXU is installed which provides reading capability for our drive by technology. Re-inspections are needed to ensure installation meets code when original inspections are failed.



## Work Orders

**Sept. 2020 901**

Meter services performs a variety of service work orders every month beyond meter reading. These include curb stop maintenance, meter replacement and repair, final reads for transfer of service, disconnection and reconnections, meter set inspections, etc.



# Stormwater

2020/Q3

As an integral part of the Town's vision of providing residents the highest quality services at the best value, the Stormwater Division manages stormwater runoff to minimize flooding hazards and to protect water quality in our watersheds.

Services the Stormwater Division provides include:

- Storm sewer system development and maintenance
- Watershed water quality protection
- Pollution prevention, detection and elimination
- Construction site stormwater runoff control
- Floodplain management

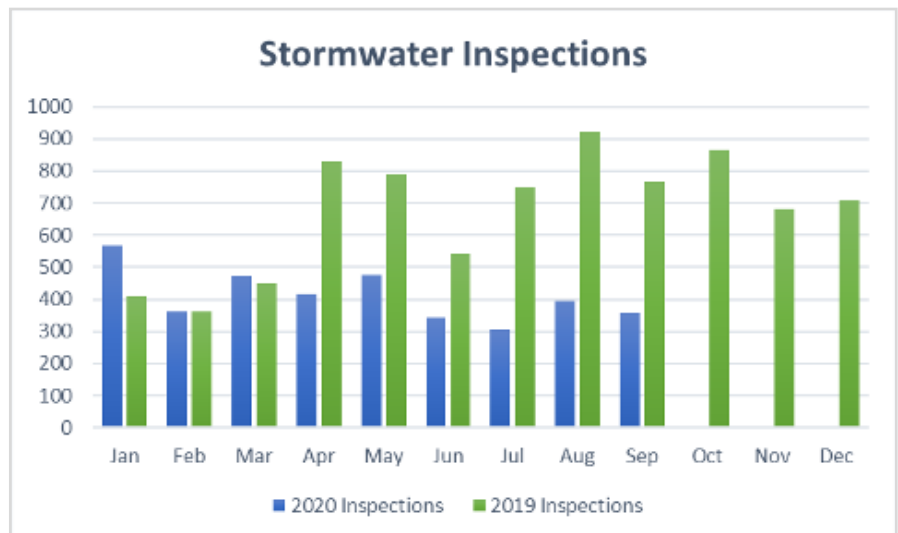


## Inspections

The inspection team regulates permitted residential and commercial properties.

Inspection numbers are staying more steady now that 100% of the builders that were required to migrate to the vertical TESC program have finally done so.

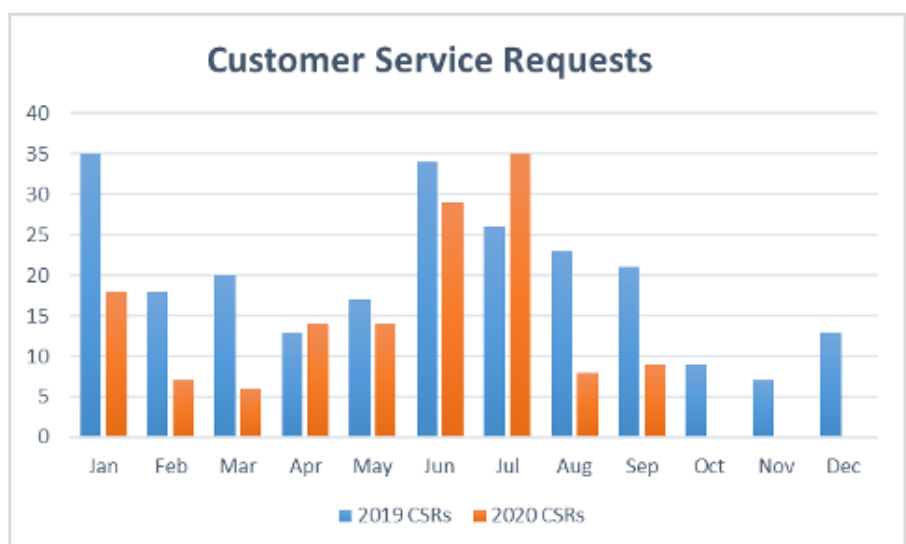
We have seen a 37% drop in total inspections over the same period in 2019.



## Customer Service

The Stormwater Division receives various customer concerns from nuisance groundwater and illicit discharges to dust to maintenance of infrastructure. Complaints often rise and fall with weather patterns.

There was a major decrease in requests from July (35) to August (8). We all were wondering what was happening—then realized that it was back-to-school in a whole new world and assumed that our customers may have been busy with other concerns. They continued to stay low in September, but ice season is just around the corner and requests are expected to increase significantly!



# Operations & Maintenance

## LEVELS OF SERVICE

**SEPT. 2020**

<b>Drinking Water Compliance</b>	Castle Rock Water will deliver water that meets or exceeds the requirements of both Primary Drinking Water Regulations and Secondary Maximum Contaminant Levels 100% of the time.	<b><i>Ninety routine samples were completed. All samples were within the parameters set forth by the Safe Drinking Water Act and Colorado Drinking Water Standards.</i></b>
<b>Pressure Adequacy</b>	< 1% of our customers will experience less than 43 pounds per square inch (psi) of pressure at the meter during normal operations.	<b><i>There were no water pressure issues this month.</i></b>
<b>Sewer System Effectiveness</b>	<p>&lt;1% of our customers will experience a sewer backup caused by the utility's sewer system per year.</p> <p><i>Castle Rock Water remains in the Top Quartile for least number of sewer backups based on the American Water Works Association benchmarking.</i></p>	<b><i>There were no sewer system issues this month.</i></b>
<b>Drinking Water Supply Outages</b>	<p>&lt;5% of our customers will experience water outages for one or more events totaling more than 30 hours/year.</p> <p><i>Castle Rock Water remains in the Top Quartile for water system integrity based on the American Water Works Association benchmarking.</i></p>	<p><b><i>There were two water system integrity issues in September.</i></b></p> <p><i>There was a waterline repair in The Meadows which affected one home owner for less than four hours.</i></p> <p><i>A valve repair in Founders was completed without affecting any residents.</i></p>
<b>Water Quality Complaints</b>	<i>Castle Rock Water remains in the Top Quartile for water quality complaints based on the American Water Works Association benchmarking.</i>	<b><i>There were no water quality issues this month. There were no water quality education visits in September.</i></b>



# Operations & Maintenance

## Locate Report



Know what's below.  
Call before you dig.

Castle Rock Water's locate requests from 811 have continued to rise, year over year. This year to date, there have been no incidences of damage to lines, as a result of incorrect locate marks.

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 and will schedule a time for us to come out to locate public water, wastewater and stormwater 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	1,472	1,612	
February	521	485	538	1,094	1,093	1,383	1,334	1,378	1,293	1,404	1,443	
March	660	552	818	1,437	1,349	1,906	1,625	1,851	1,514	1,560	1,626	
April	838	681	1,025	1,482	1,552	1,784	1,631	1,760	1,856	1,984	2,600	
May	853	863	985	1,541	1,531	1,609	1,809	2,002	1,801	2,122	2,288	
June	969	844	982	1,314	1,399	1,654	2,075	1,872	1,854	1,716	1,931	
July	680	582	859	1,350	1,392	1,477	1,675	1,582	1,556	1,937	1,894	
August	901	723	1,123	1,476	1,468	1,494	1,651	2,001	1,986	1,603	2,096	
September	680	723	1,029	1,240	1,373	1,343	1,701	2,102	1,747	1,979	2,026	
October	715	688	1,155	1,501	1,376	1,314	1,579	1,792	2,064	1,839		
November	536	518	1,041	1,072	866	1,134	1,131	1,460	1,469	1,649		
December	415	405	925	1,005	1,043	1,063	1,059	1,277	1,293	1,175		
Totals	8,545	7,539	11,097	15,702	15,731	17,323	18,469	20,411	19,875	20,440	17,516	

## Collections

YTD	
Lines Cleaned	45.89 miles
Lines Inspected	29.66 miles
SSO Rate	0.35 SSO/100 mi

Castle Rock Water tracks within the top quartile in the Sanitary Sewer Overflow rate, according to the American Water Works Association. 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 is to clean and inspect one-fifth of the collection system or 55 miles each year.





# Operations & Maintenance

## Stormwater Field Services

A resident notified us that a manhole cover had been removed. When the stormwater team investigated, they found that kids had been entering the manhole and decorating the concrete with graffiti. The team removed the damaged riser and reinstalled the cover, which should limit unwanted access.



The stormwater team discovered an unidentified storm outfall that had become completely overgrown with trees, willows and sediment. Staff removed 70 cubic yards of brush and 131 cubic yards of trash and sediment, restoring proper flow to the facility.

