

# MONTHLY REPORT

## DEC. 2022



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

## Woodlands Interceptor Manhole Rehabilitation Phase 2 Project

The Woodlands Sewer Interceptor is a 2.5-mile gravity pipeline installed in 1987 that conveys wastewater flows from portions of the Town east of Founders Parkway/Ridge Road back to the Plum Creek Interceptor. A significant portion of the Town's wastewater flows through the interceptor pipeline making it a critical component of the wastewater collection system. The majority of flows in the interceptor are pumped from lift stations through long force mains east of Founders Parkway/Ridge Road and detained in the sanitary collection system for a number of hours. This depletes oxygen levels creating sewer gasses that have severely corroded the concrete manholes along the interceptor.

An initial phase of the project successfully replaced 7 of the most corroded manholes with corrosion resistant fiberglass reinforced polymer (FRP) inserts in 2020. The second phase of the project identified rehabilitation needed for an additional 25 corroded manholes between Black Pine Drive and Woodlands Boulevard. C&L Water Solutions was awarded a contract in the amount of \$960,095 to complete the project in 2022. C&L replaced 12 of the manholes with FRP inserts and rehabilitated the other 13 manholes with corrosion resistant mortar and epoxy lining. Corrosion resistant composite manhole frames and lids were also installed on all of the rehabilitated manholes. The work was completed under live wastewater flows.



The Castle Rock Water Sanitary Sewer Collection Team managed lift station flows to reduce the amount of active bypass pumping needed. The contractor utilized flow-through pipe plugs and carefully managed dual pump active bypassing setups when required for the work. The team effort helped prevent any sanitary sewer overflows. This was a significant achievement given the length of time bypassing and the unpredictable lift station flow surges.

Construction started in July 2022 and was substantially completed in December within the original budget. Site reclamation and restoration will be completed in spring 2023.

The rehabilitated manholes have renewed structural integrity as well as resistance to future corrosion from sewer gases. Many of the interceptor manholes are also located within the floodplain. Additional seals were installed and existing groundwater underdrains were disconnected from the manholes during construction. These measures will help reduce the amount of groundwater and stormwater entering the sanitary sewer collection system and reduce Town costs related to wastewater collection system and treatment capacities.



# Good job!

## Look who got

*Promoted!*



**Dawn Tiffany**  
Operations Support Supervisor



**Nic Van Kooten**  
SCADA Supervisor

## NEW CERTIFICATIONS



**Courtney Stoddard**  
Colorado Water Operator B  
Water Plant Operator III



**Michael Murphree**  
CDOT/CDL License

In 2022, staff earned 44 new certifications.

## 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.*

### **Safety**

*Demonstrated outstanding safety conscious behavior in performing a job or task.*

### **Exceptional Service**

*Provided exceptional service to either an internal or an external customer*

### **Quality**

*Delivered excellent quality service or product*

### **Value**

*Provided remarkable value for our customers*

### **Environmental:**

*Demonstrated extraordinary environmental responsibility*

### **Fiscal**

*Demonstrated superb fiscal responsibility*



**Tina Close**, Plan Review Supervisor, was given the Water Star Award by Nathan Hannick for her help in changing certain new infrastructure installation details. These changes have made locates more efficient while staying compliant with state and CO811 laws.

# Sharing the holiday spirit with each other and the community

## Toy & Food Drive

Castle Rock Water held a toy and food drive during the holiday season, in support of the local Help and Hope Center's Santa's Sharing Program. Staff delivered two SUV loads full of items to the center which included toys, gifts and clothing items for children in all age groups, as well as assorted pantry items.

On Dec. 29th we received the following thank you note from Jenny Follmer, Deputy Director of the Help and Hope Center, "As we reflect on the holiday, our hearts are warmed by the fact that children found toys under the tree thanks to your generosity. One parent said that "Christmas wouldn't have come this year if it hadn't been for the Santa's Sharing program". On behalf of Help & Hope Center and the many families we helped, please know how truly grateful we are for your support. This would not have happened without your donations..."

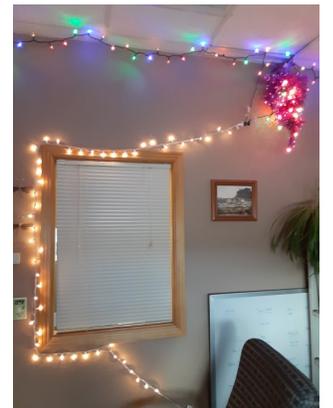


## Holiday Office Decorating Contest

Castle Rock Water was full of holiday spirit and creativity in December! We decked the halls and our workspaces with an office decorating contest, sponsored by the EAT Team. Staff was invited to decorate their workspaces by Dec. 20. Staff, then, voted for their favorite. The top 3 winners were awarded gift cards to local businesses.

The winners were

- \* Matt Hayes (Project Manager-CIP)
- \* Nichol Bussey (Business Solutions Manager)
- \* John Grahn (Stormwater Inspector)



## Holiday Office Luncheon

Staff shared a meal together and along with food and gabbing, there were games and craft. Staff was also encouraged to wear their 'ugly' sweaters.



# Sharing the holiday spirit with each other and the community

## Holiday Celebration 2022



# Stormwater Compliance

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:

- Construction site inspections
- Spill reporting, enforcement and response
- Public education and outreach
- Pond maintenance oversight
- Floodplain management

## MS4 Stormwater Program Self-Audit

The Stormwater Division, with the support of Jacobs Engineering, performed an internal audit for compliance with the Town’s Municipal Separate Storm Sewer System (MS4) Permit.

Based on a review of select documents from each of the program areas listed in Figure 1, the overall program complies with the current permit. The Town continues to implement appropriate procedures for each program area and maintain documentation of compliance with the MS4 permit.

To enhance ongoing program compliance and be prepared for potential future regulatory agency audits and/or actions by interested third parties/environmental groups, fourteen items were recommended. Of these, three have been completed, six are in progress and five are open. The Stormwater Division continues to work both internally and with Jacobs Engineering to complete the recommendations.

### Required control measures/best management practices (BMPs):

- Public education and outreach.
- Public involvement and participation.
- Illicit discharge detection and elimination.
- Construction sites.
- Post-construction stormwater management in new development and redevelopment.
- Pollution prevention/good housekeeping for municipal operations.

Figure 1: MS4 Permit Program Areas

## Customer Service

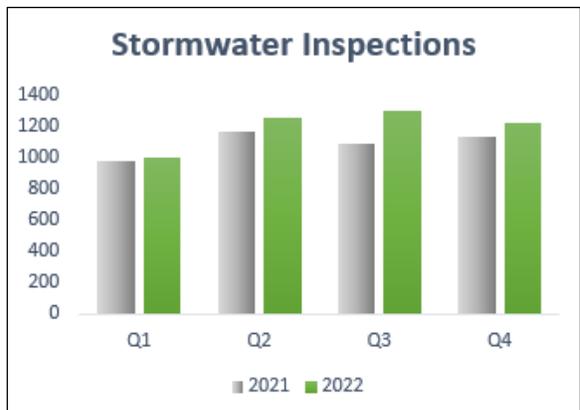
The Stormwater Division receives various customer concerns from nuisance groundwater and illicit discharges to dust to maintenance of infrastructure. Complaints often rise and fall with weather patterns.

Customer issues in 2022 were down 9% from 2021. 135 requests were received in 2022.

## Inspections

The inspection team regulates permitted residential and commercial properties.

Total inspections tracked 9% higher than in 2021 with over 4800 inspections performed in 2022. In addition, the team completed 354 pond and outfall inspections.



# Plan Review

Castle Rock Water Plan Review team reviews planned development plans, site plans, construction drawings, water efficiency plans and technical reports for each project to ensure the public infrastructure built by the developer is following the criteria set by the Town, with respect to:

- Water
- Sanitary sewer
- Stormwater
- Drainage
- Flood Control
- Landscape and Irrigation
- Temporary erosion sedimentary control

## Project Reviews

A project can be as large as a master planned development area or subdivision, or as small as a commercial building or building addition.

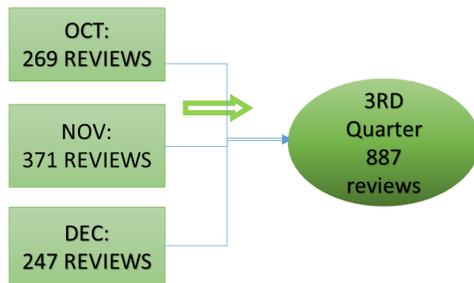
4th Quarter

- November had the highest number of distinct projects for the year
- The number of permits dropped this quarter
- November had record high number of project reviews
- 83% on time

## Plan Reviews

Each project may have several plans related to it.

This graph identifies the total number of different plan reviews for all projects and permits.



## Plan Permits

The plan review team reviews building permits to verify proposed water demand to size meters and assess system development fees. The team reviews permits for each single family home, multi-family building, commercial building, commercial tenant improvement, irrigation meter, and temporary trailers.

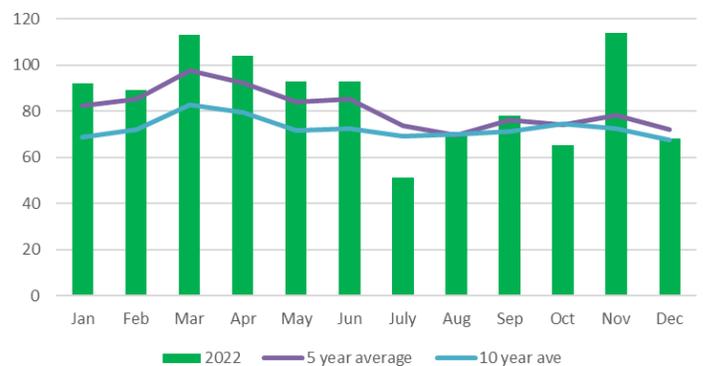
### 4th quarter

- 315 permits
- 572 project reviews
- 354 1<sup>st</sup> reviews

### 2022 TOTALS

- 4,324 Reviews of projects and permits
- 1,905 permits reviewed for single family, commercial new, commercial tenant improvements, irrigation, floodplain
- 2,419 project reviews for Utility (water/san), storm, floodplain, landscape, TESC, variances, field change orders and agreements
- 1,031 projects total in 2022

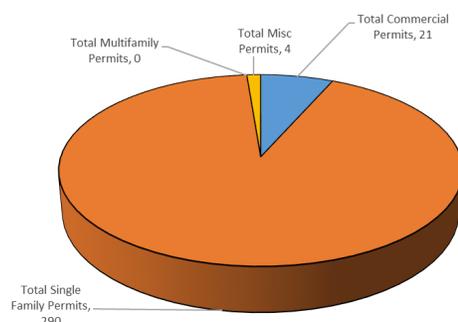
Monthly Projects Reviewed 2022



Plan Review quarterly comparisons



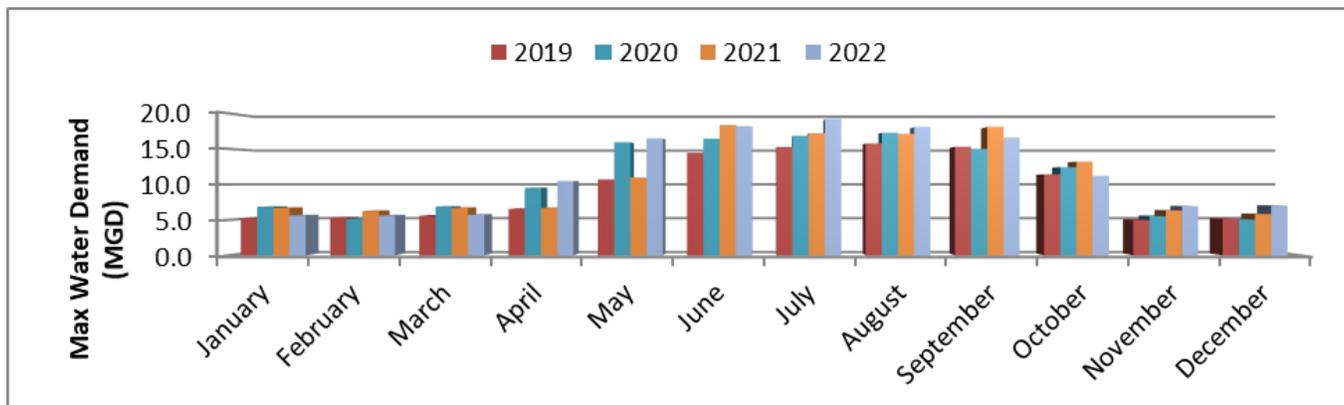
2022 4TH Quarter Permits



# Water Resources

## 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.



### Max Daily Demand:

- 7.0 million gallons/day (MGD)
- 5-year average: 5.7 MGD
- 23% higher than the 5-year average
- The max demand for the year was the July demand of 19.2

### Water Demand Total:

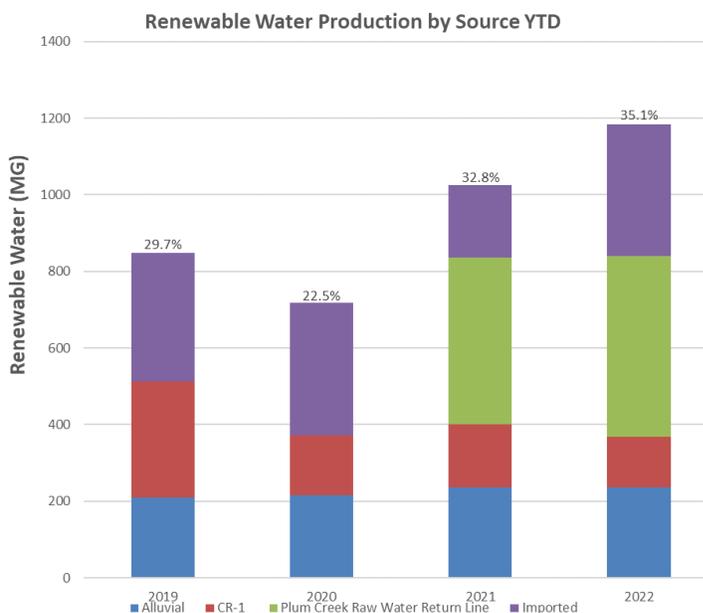
- The water demand total for December was 160.4 million gallons (MG) [492.2 acre-feet (AF)]
- 2% higher from the November 2022 total of 157.1 MG
- 3.0% decrease from the previous year's December 2021 demand of 165.3 MG.
- The total water demand for 2022 was 3,423.2 MG [10,505.42 AF]

## Renewable supplies

Renewable supplies are those water sources that are replenished by precipitation.

In total, renewable supplies accounted for 59.2% of the total water supply for the month (89.9 MG of 151.7 MG) and 35.1% of the annual water supply (1,184.6 MG of 3,374.7 MG).

- The CR-1 diversion produced an average of 0.33 MGD.
- The PC diversion produced an average of 0 MGD.
- The 14 alluvial wells produced an average of 0.73 MGD.
- The renewable water production average was 2.9 MGD.
- The renewable water total production was 89.9 MG (275.9 AF).



# Water Demand

## Reusable supplies

Reusable supplies are waters that are either from the non-tributary Denver Basin (deep wells) or imported supplies (such as WISE) that can be used over and over, to extinction.

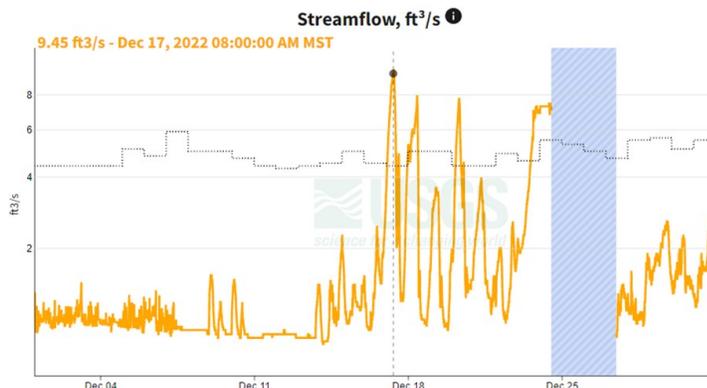
- The average reusable supplies used by Castle Rock for 2022 is 57.8%.

## Storage

### Current reservoir storage

- Chatfield Reservoir: 656.51 AF
- Rueter-Hess Reservoir: Approximately 100 AF
- Castle Rock Reservoir No. 1 (CRR1): 158.91 AF

## Local Plum Creek supplies



The hydrograph shows the estimated flows in the East Plum Creek basin.

*\*Blue area indicates equipment malfunction.*

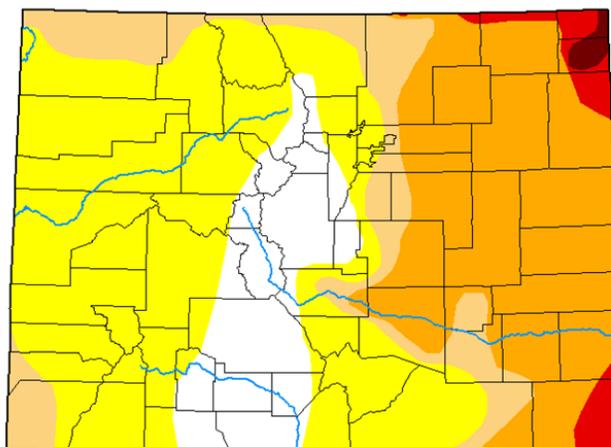
- Flows ranged from 0.51 – 9.72 cubic feet per second (cfs).
- The monthly average streamflow was 1.5 cfs.
- The 22-year median is 4.7 cfs.

## Drought

According to the most recent U.S. Drought Monitor maintained by the United States Department of Agriculture (USDA), Douglas County is experiencing no conditions to Moderate Drought (D1) conditions.

### U.S. Drought Monitor Colorado

December 27, 2022  
(Released Thursday, Dec. 29, 2022)  
Valid 7 a.m. EST



#### 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:

Richard Heim  
NCEI/NOAA



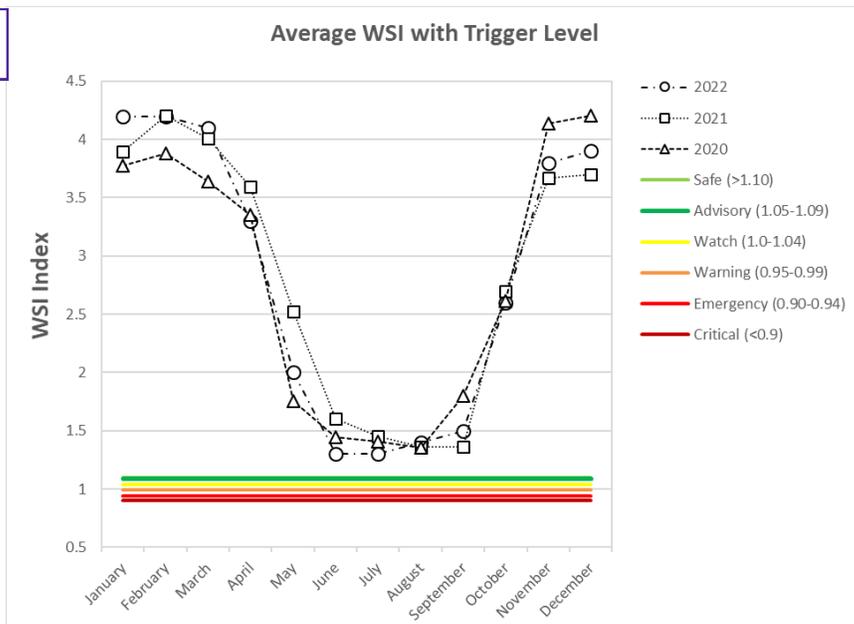
[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

# Water Demand

## Water supply index

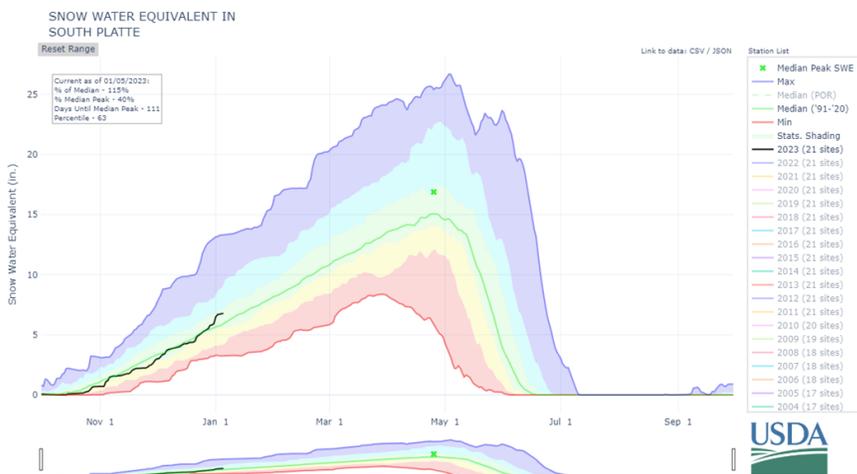
The Town of Castle Rock's Drought Management Plan uses a Water Supply Index (WSI) for the Town that accounts for local conditions relative to the Town's capability to address our water resources and daily water demands. Anything below a 1.1 will trigger a drought stage relative to its severity.

- The average WSI for December was 3.9.



## South Platte River Basin Snow Pack

- Year-to-date precipitation at 101% of average.
- Snow Water Equivalent (SWE) at 115% of average.



# Water Demand

## Conservation—Annual Summary

### Workshops

- 11 Water Wiser workshops
  - ◊ New participants: 309
  - ◊ Renewals: 112
  - ◊ Current total of active Water Wisers: 3,507
- 2 ColoradoScape workshops
- 1 Winterization workshop
- 5 Qualified Water Efficient Landscaper (QWEL) training (with SWMSA)
- 2 school presentations (~78 students)

### Rebates

#### **Residential ColoradoScape Renovation rebates:**

- 82 completed applications
- Amount refunded: \$80,941.20
- Square feet renovated: 71,092
- Avg water consumption savings since 2013: 16%

#### **Non-Residential ColoradoScape Renovation:**

- Six (6) completed applications
- Amount refunded: \$60,664.70
- Square feet renovated: 110,544
- Average water consumption since 2018: 28%

#### **Smart Controller rebates:**

- 66 completed applications
- Amount refunded: \$5,607.97

#### **Rotary Nozzle rebates:**

- 12 completed applications
- Amount refunded: \$1,439.40

#### **Toilet rebate participants:**

- Five (5) completed applications (12 toilets)
- Amount refunded: \$1,200.00

#### **Whole-Home Water Monitoring System rebates:**

- Two (2) applications
- Amount refunded: \$337.47

**2022 Residential Total: \$89,526.04**

**2022 Non-Residential Total: \$60,664.70**

**2022 Total: \$150,190.74**

### Inspections

#### **Residential and non-residential: 1,884**

- Pre-con: 22
- Point of connection inspection: 16
- Point of connection re-inspection: 9
- Soil inspection: 1,190
- Soil re-inspection: 328
- Sub-surface inspection: 6
- Sub-surface re-inspection: 0
- Site visits: 17
- Landscape final inspection: 97
- Irrigation final inspection: 34
- Landscape final re-inspection: 70
- Irrigation final re-inspection: 7
- Graywater inspection: 29
- Graywater re-inspection: 7
- Indoor WEP inspection: 28
- Indoor WEP re-inspection: 4

### Violations

#### **Residential violations: 2,443 violations, \$12,700**

- 1st Residential Watering Violation: violations 2,053
- 2nd Residential Watering Violation: 309 violations, \$7,300.00
- 3rd Residential Watering Violation: 61 violations, \$3,000.00
- 4th Residential Watering Violation: 15 violations, \$1,400.00
- 5th Residential Watering Violation: 4 violations, \$800.00
- Subsequent Residential Watering Violation: 1 violations, \$200.00

#### **Non-residential violations: 493 violations, \$88,900**

- 1st Non-Residential Watering Violation: 210 violations
- 2nd Non-Residential Watering Violation: 98 violations, \$9,700.00
- 3rd Non-Residential Watering Violation: 73 violations, \$12,800.00
- 4th Non-Residential Watering Violation: 45 violations, \$16,800.00
- 5th Non-Residential Watering Violation: 25 violations, \$18,400.00
- Subsequent Non-Residential Watering Violation: 42 violations, \$31,200.00

**Total: 2,361 violations, \$101,600**

### Exemptions

Sod/seed/plant material exemptions: 589

# Business Solutions

## Customer Service & Billing



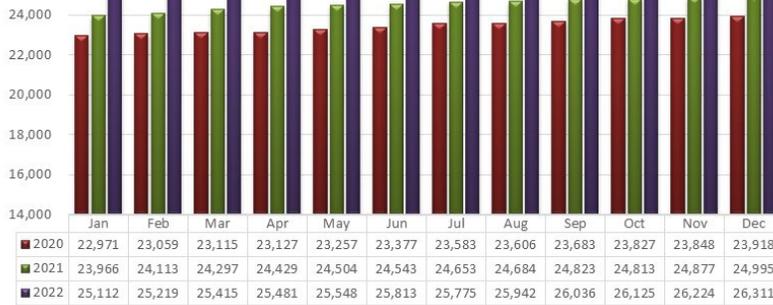
*These percentages rose slightly this quarter!*

### 2022/Q4 statistics

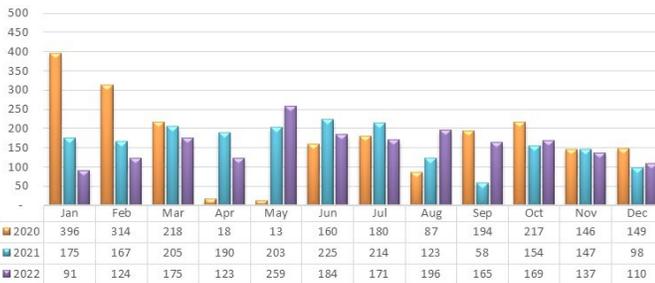
- 19,631 (75%) have an online account
- 12,723 (65%) are paperless

Customers benefit from having an online H2Oaccess account with 24/7 access to statement information, 12 months of statement history, helpful email account reminders and safe and secure online payment options. Customers are encouraged to use paperless billing to reduce clutter, be environmentally friendly and save mailing costs.

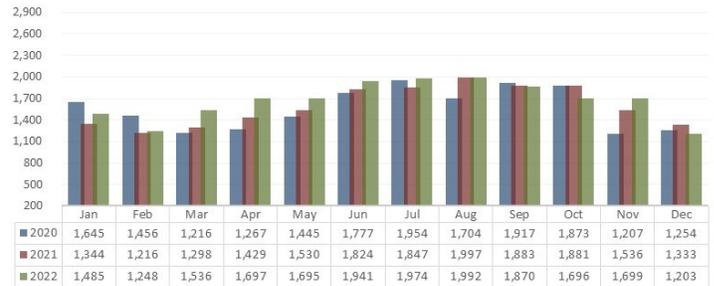
# of Accounts Billed



Walk-In Customers



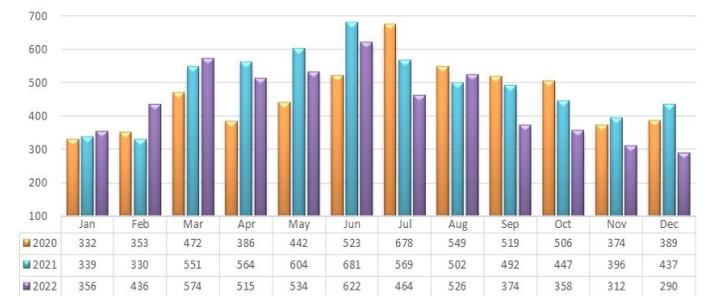
Customer Phone Calls



Mywaterbill Email Inquiries



Transfers of Water Service



## Customer Outreach

Water Outreach Social Media Stats	REACH
Gift of water savings—Dec. 7	1,470 people
Freezing pipes—Dec. 14	3,873 people
Hank Poop Fairy—Dec. 15	3,654 people
Keep hydrated—Dec. 21	1,450 people
Cold weather safety (combined)—Dec. 21	5,011 people
Toilet is not a trashcan—Dec. 28	2,341 people

Email: Tips to prevent freezing pipes!	12,827 opened (70% open rate)
Email: Winter woes for your water	12,798 opened (70% open rate)
HOA email: What the no-turf regulation means for the HOA	114 opened (58% open rate)

End of year top ranking stats	REACH
ColoradoScape winner—May 19	19,230 people
Troubleshooting/Pressure—Feb. 16	7,848 people
Poop Fairy Tailor—April 8	7,478 people

# Meters



## Meters Read

Meters are read the first two 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

**Dec. 2022: 0.85 %**

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

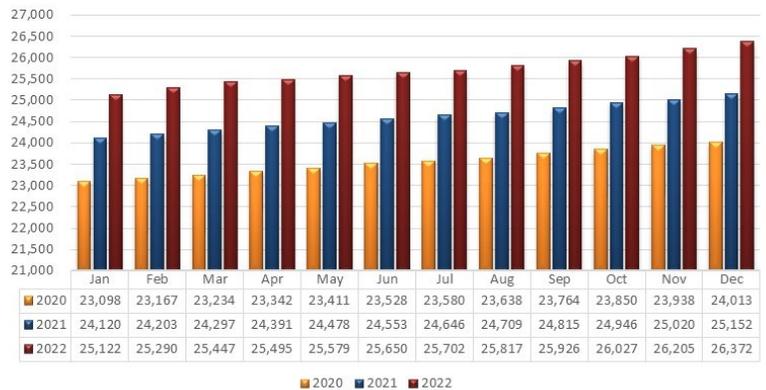
**Re-inspections: 26%**

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.

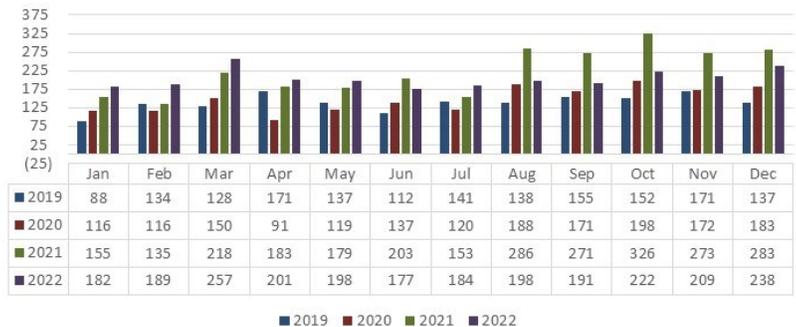
## Work Orders

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 transfers of service, disconnection and reconnections, meter set inspections, and more.

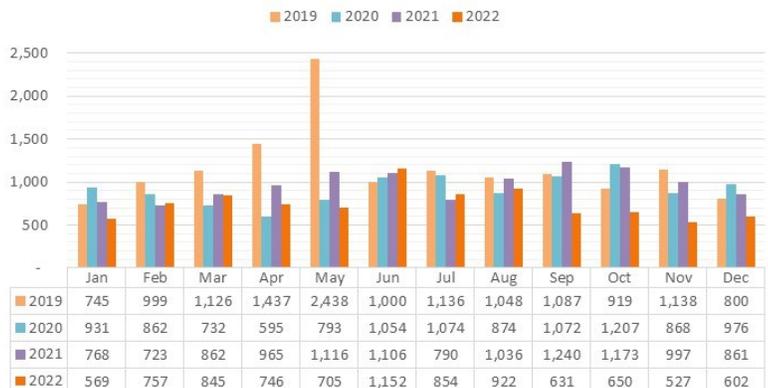
Meters Read



All Meter Set Inspections  
(includes all re-inspections)



ALL Service Work Orders



# Operations & Maintenance

## LEVELS OF SERVICE

## December 2022

### Drinking Water Compliance

Castle Rock Water will deliver water that meets or surpasses the requirements of both Primary Drinking Water Regulations and Secondary Maximum Contaminant Levels 100% of the time.

**One hundred routine samples were completed and no issues discovered.**

### Pressure Adequacy

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

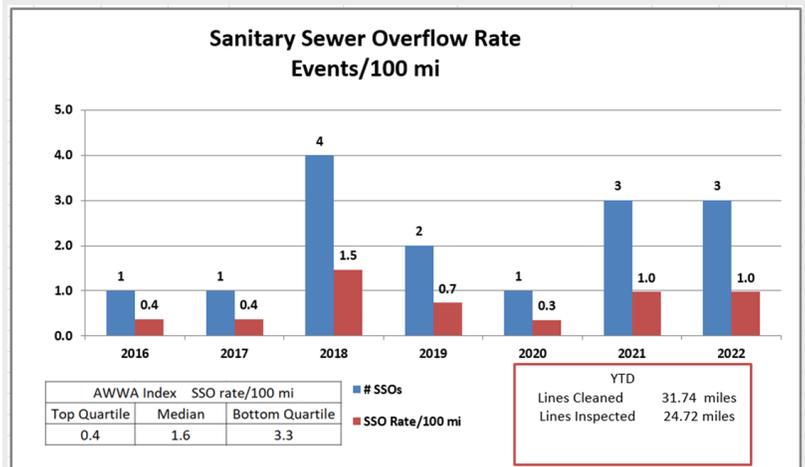
**There were no water pressure issues in December.**

### Sewer System Effectiveness

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

There was a total of 3 Sewer System Overflows in 2022.

**There were no sanitary sewer issues in December.**



### Water Quality Complaints

Castle Rock Water remains in the Top Quartile for water quality complaints based on the AWWA benchmarking.

**There were no water quality complaints for December. We conducted 7 educational visits.**

For 2022, we conducted 27 educational visits for the year.

## Utility locates



Know what's below.  
Call before you dig.

### Water locates conducted

- December: 1,383
- 2022 total: 27,533

Locating public water, wastewater and stormwater lines



# Operations & Maintenance

## LEVELS OF SERVICE

### Drinking Water Supply Outages

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

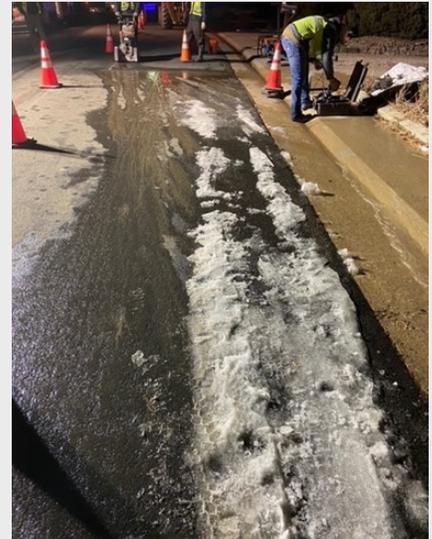
Castle Rock Water remains in the Top Quartile for water system integrity based on the American Water Works Association benchmarking.



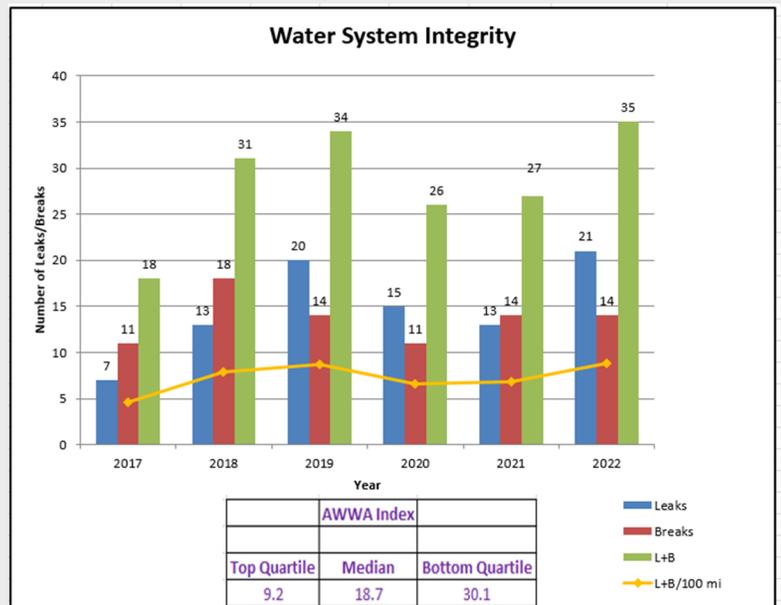
## December 2022

There was one water system integrity issues in December.

- There was a severe beam break on a 6" CIP main in a neighborhood off South St. During the repair 15 homes were affected with little to no pressure for less than four hours.



2022 total: 35 water system integrity issues



# Operations & Maintenance

## Stormwater

The stormwater team completed a large project in the storm system areas at The Pines Apartments.



To improve holding capacity in the pond and channels, sediment was removed.



Additional rip rap was added in some areas to prevent erosion and future sediment buildup.

