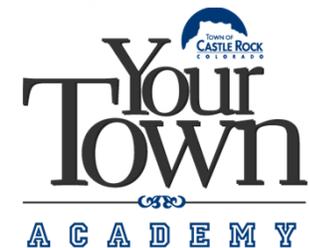


YOUR TOWN WATER



Tonight's Agenda

- ▷ History of Town's water
- ▷ Services of Castle Rock Water
- ▷ Long-term water plan
- ▷ Water treatment & distribution
- ▷ Tour of water treatment plant
- ▷ Wastewater collection & treatment
- ▷ Stormwater management
- ▷ Business enterprise
- ▷ Development processes

EDUCATIONAL GOALS

- We provide reliable, safe drinking water
- We have water now and for the future
- We provide a comprehensive water service

Castle Rock Water

Our Vision

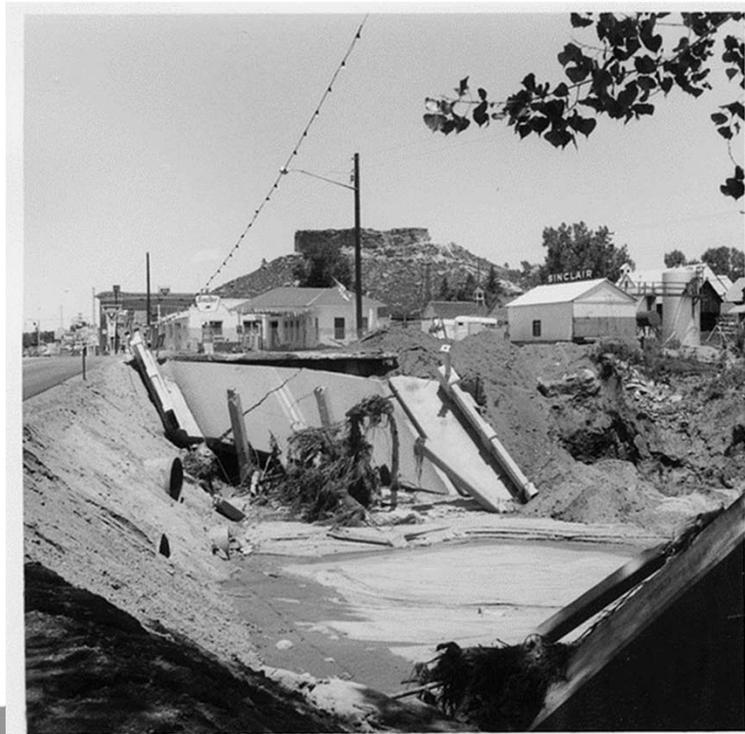
We will be a national leader among water utilities, focused on customer satisfaction and delivering outstanding quality and value.

Our Mission

We provide our community with exceptional service that protects public health and balances social, environmental and fiscal responsibilities in a sustainable manner.

History

- ▷1880 First water rights secured
- ▷1893 Castle Rock Water Works
- ▷1905 First potable water tank
- ▷1921 Town electrification
- ▷1930s Sewer system developed
- ▷1950s Deep groundwater is tapped
- ▷1965 Flood directs stormwater efforts
- ▷1980s System expansion
- ▷1985 First watering restrictions
- ▷2000s System expansion resumes
- ▷2002 Independent department created
- ▷2003 Stormwater utility started
- ▷2005 Renewable water strategy
- ▷2008 Rueter-Hess Reservoir buy-in
- ▷2013 Plum Creek Water Purification Facility opens
- ▷2016 Official name change to “Castle Rock Water”
- ▷ 2018 WISE imported renewable water starts



Slide 5

DVD1

Add 1965 flood or i can show my own flood history slide

David Van Dellen, 8/18/2016

How We Serve

Water Service

- ▷ Treatment
- ▷ Distribution
- ▷ Plant maint.
- ▷ Engineering
- ▷ Plan review

Water Resources

- ▷ Supply
- ▷ Conservation
- ▷ Storage

Stormwater

- ▷ Water quality protection
- ▷ Flood control
- ▷ Watershed management
- ▷ Development review

Wastewater

- ▷ Collection system
- ▷ Reclamation system
- ▷ Plan Review

Business Solutions

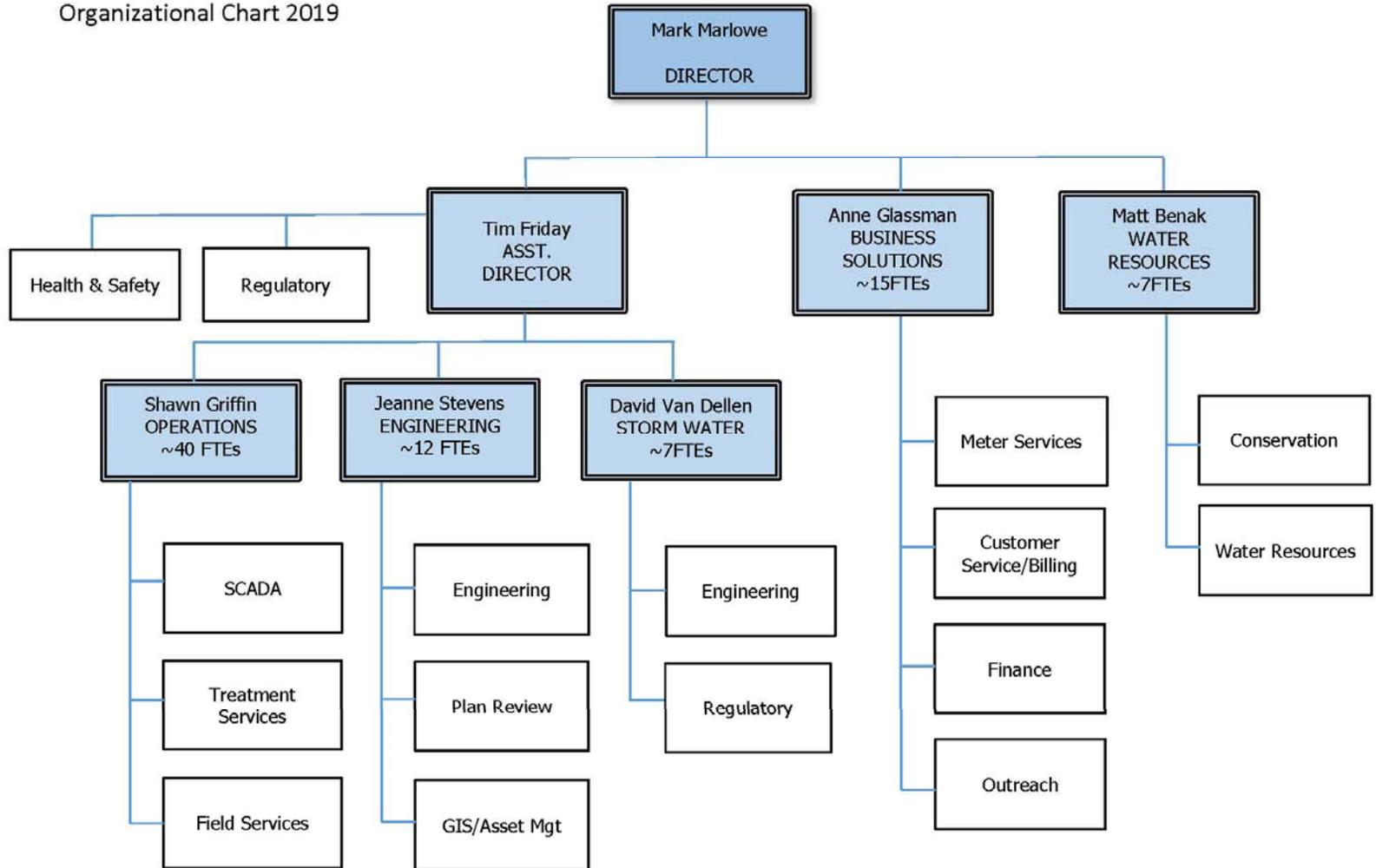
- ▷ Billing
- ▷ Meters
- ▷ Customer service
- ▷ Finance
- ▷ Rates and fees

Engineering & Support

- ▷ Development
- ▷ Capital Improvement Projects
- ▷ Regulatory compliance
- ▷ Health and safety

Organizational Summary

CASTLE ROCK WATER
Organizational Chart 2019



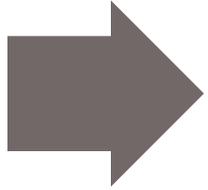
Boards and Commissions

- ▷ **South Metro Water Supply Authority**
CR Water director is board member
- ▷ **WISE Authority**
CR Water director is board member
- ▷ **Plum Creek Water Reclamation Authority**
CR Water director is board member
- ▷ **Chatfield Watershed Authority**
Council member Teal is board member
- ▷ **Cherry Creek Basin Water Quality Authority**
Council member Johnson is board member
- ▷ **Castle Rock Water Commission**
Seven member commission
- ▷ **Water Resources Committee**
Council members Bracken and Teal, Water Commissioner Warnke

Planning and More Planning

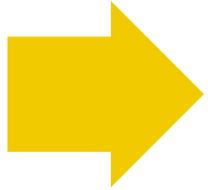
- ▷ **Water Use Management Plan**
Demand management tool
- ▷ **Water Resources Strategic Master Plan**
Future water needs
- ▷ **Water Efficiency Master Plan**
Practical approach to water savings
- ▷ **Wastewater Master Plan**
Current and future infrastructure and CIP
- ▷ **Stormwater Master Plan**
Priorities for specific drainage-way improvement projects
- ▷ **Water Facilities Master Plan**
Water treatment and distribution capital improvement projects
- ▷ **Sourcewater Protection Plan**
Keeping the watershed clean
- ▷ **Drought Management Plan**
Managing peak demand when renewable supplies diminish
- ▷ **5-year strategic plan**
Leadership planning tool
- ▷ **Financial Management Plan**
Guide for financial decision making
- ▷ **Rates and Fees Study**
Annual modeling and projections

Castle Rock Water



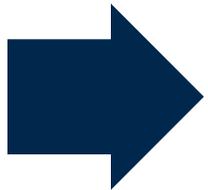
22,000 +

Water customers



4 to 17 million

Gallons of water delivered daily



0 days

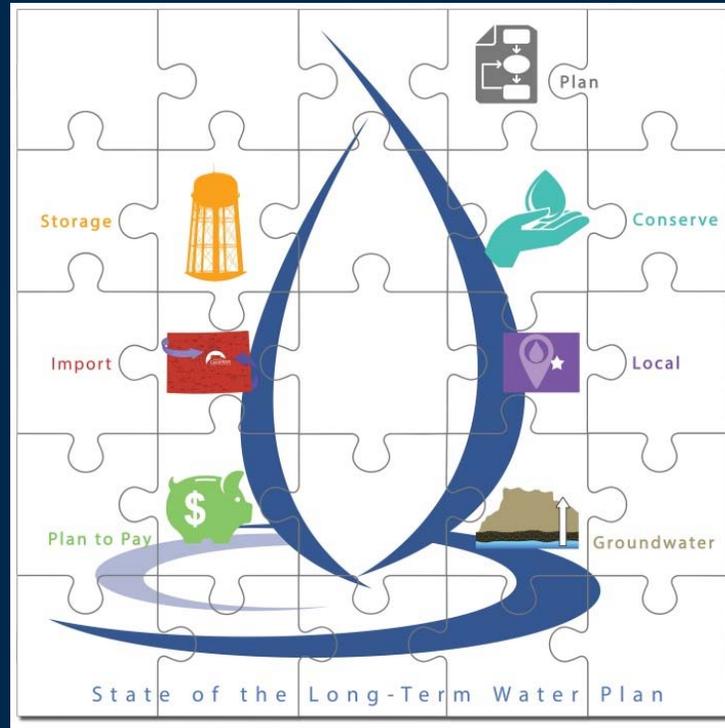
Without service

Awards



- ▷ **Pursuing Excellence – Gold 2016 - 2019**
Colorado Dept. of Public Health and Environment
 - ▷ **Environmental Leadership Program – Gold 2018, 2019**
Colorado Dept. of Public Health and Environment
 - ▷ **NOAA Honored Institution Award 2017**
Recognition of 25 years of weather observation
 - ▷ **Alice Darilek Water Conservation Award 2017**
Rocky Mountain Section American Water Works Assoc.
 - ▷ **Water Distribution Operator Award 2016**
Rocky Mountain Section American Water Works Assoc.
 - ▷ **Water Taste Test - 1st Place 2015 / 2nd Place 2016**
Rocky Mountain Section American Water Works Assoc.
- Plus:
- South Metro Water Supply Authority** – Denver Regional Council of Governments
 - Plum Creek Water Purification Facility** – Engineering and design awards
 - American Water Works Association** benchmarking – top quartile industry parameters

LONG-TERM WATER



Long Term Water Supply

Local supply

- ▷ East/West Plum Creek
- ▷ Cherry Creek
- ▷ Surface diversions
- ▷ Reuseable water rights
- ▷ Alluvial wells

Imported water

- ▷ WISE (Began 2018)
- ▷ Box Elder (~2030)

Groundwater

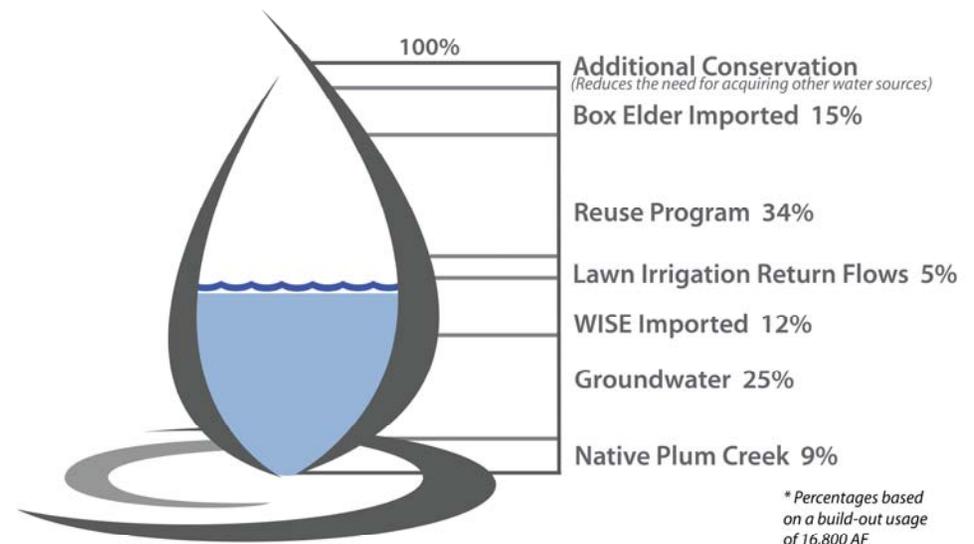
- ▷ Denver Basin aquifer
- ▷ 44,975 acre feet (AF)
(+9,870 AF to be adjudicated)
- ▷ Non-renewable

Storage

- ▷ Rueter-Hess Reservoir
- ▷ Chatfield Reallocation
- ▷ CR Reservoir No. 1
- ▷ Aquifer storage and recovery

Reuse

- ▷ PCWPF Advanced Treatment expansion
- ▷ Non-potable projects



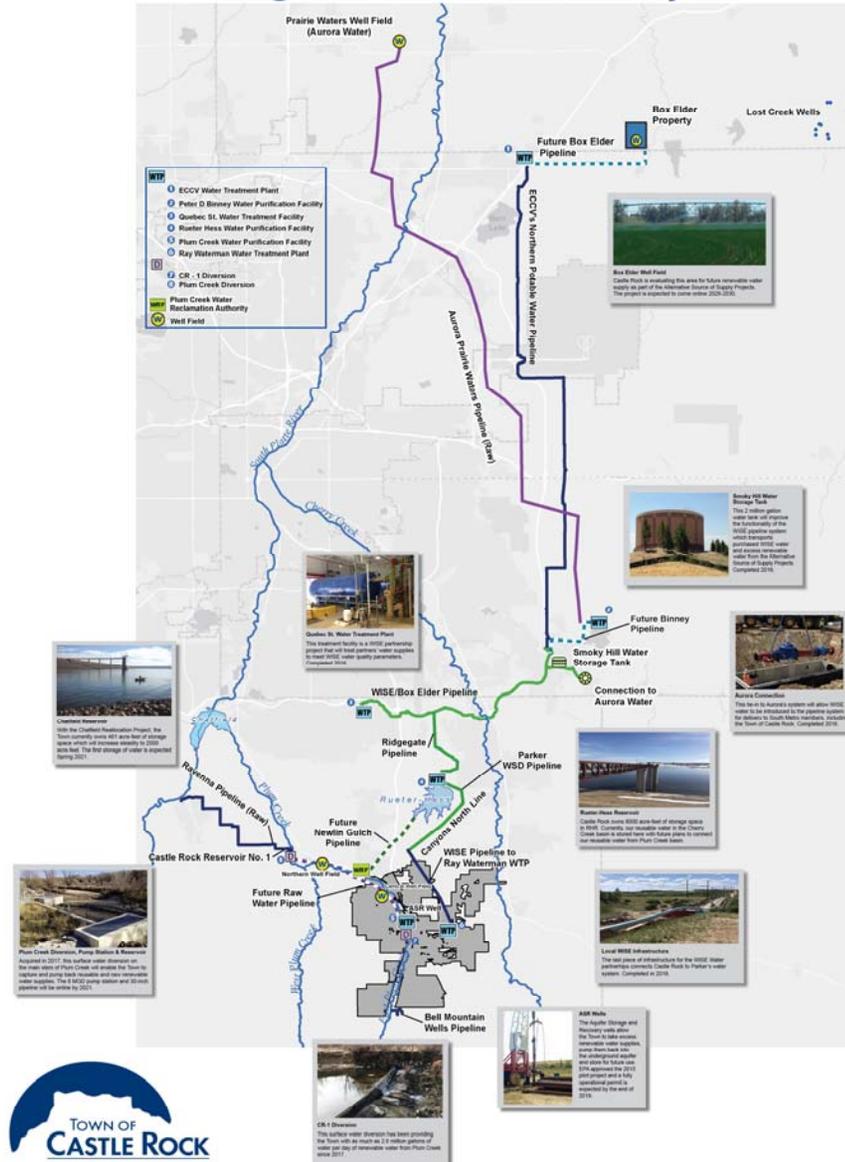
Projects

Sources of Water Supply – Now and in the Future



Plum Creek Water Purification Facility is currently adding Advanced Treatment processes to purify reuse water.

Long-Term Water Resources Projects



Water Conservation

Education

- ▷ Water Wiser
- ▷ Elementary school visits
- ▷ Water plant tours
- ▷ Water Ambassador (SMWSA)
- ▷ Irrigation assessments
- ▷ CRconserve.com
- ▷ Coloradoscape campaigns

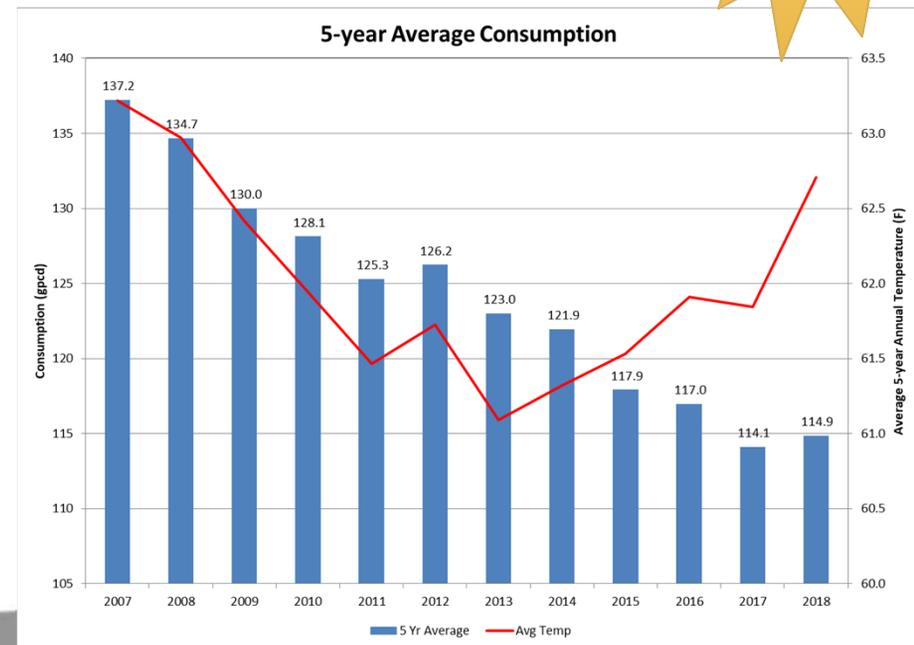
Regulation

- ▷ Landscape regulations
- ▷ Water Use Management plan
- ▷ Watering schedules
- ▷ Water monitors

Rebates

- ▷ SmartScape renovation
- ▷ Smart controller retrofit
- ▷ Rotary nozzle retrofit
- ▷ Rain sensor

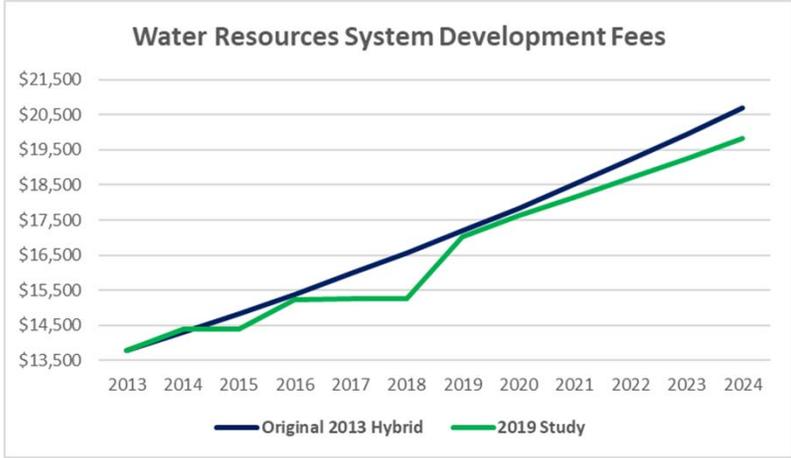
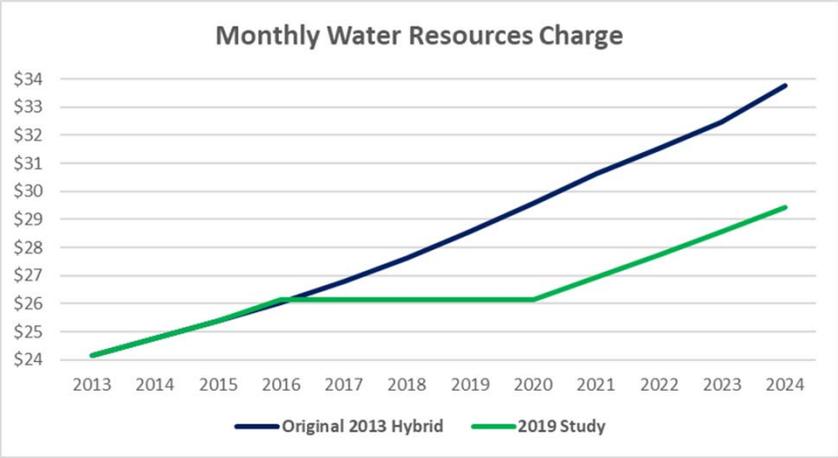
*Surpassed
CO Water Plan
2050 goal*



Financial Management

Financial Management Plan
\$470 million for long term program

Rates will increase
But goal is to be smooth



WATER SERVICE



Castle Rock Water

5

Water plants

Miles of service lines

410

22,000+
customer connections

56

Deep groundwater wells and

13 alluvial wells

4,147 fire hydrants

280 miles
sewer mains

\$680 million in assets

14

water tanks with **36 million**
gallons of capacity

4,764

stormwater
inlets

90+
staff

12,255

sewer and
stormwater
manholes

371

detention
ponds

227 miles of
stormwater channels

Water Treatment

- ▷ Purify groundwater
 - remove iron & manganese
- ▷ Purify surface water
 - remove constituents & pathogens
- ▷ Disinfect
 - chloramine; system wide
- ▷ Testing
 - throughout the day

*Best Tasting Water
1st place in 2015
2nd place in 2016*



Treatment goal → safe, reliable drinking water 100% of time

Plant tour of Plum Creek Water Purification Facility

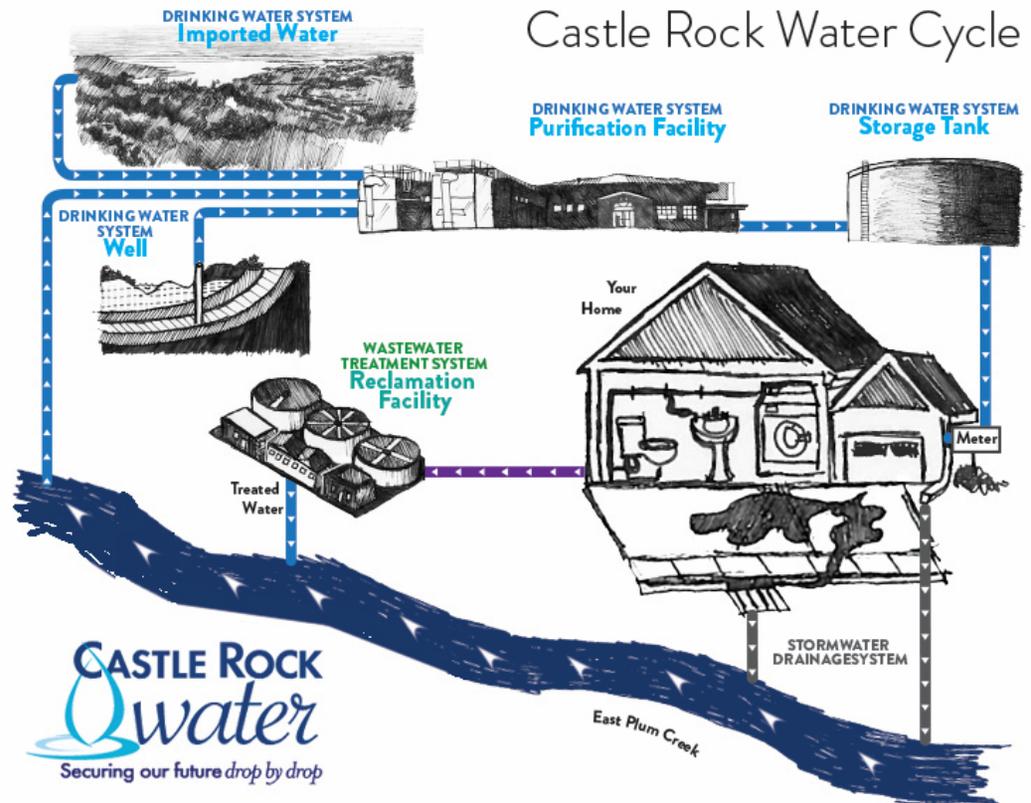
Water Systems

Drinking Water - Distribution

- ▷ Delivered 24/7
- ▷ High quality drinking water
- ▷ Continuous fire protection
- ▷ 410 miles pipe
- ▷ 14 storage tanks/36M gallons
- ▷ 4,147 fire hydrants
- ▷ 12,500+ valves
- ▷ 10 pump stations
- ▷ Certified water operators
- ▷ Inspected by State

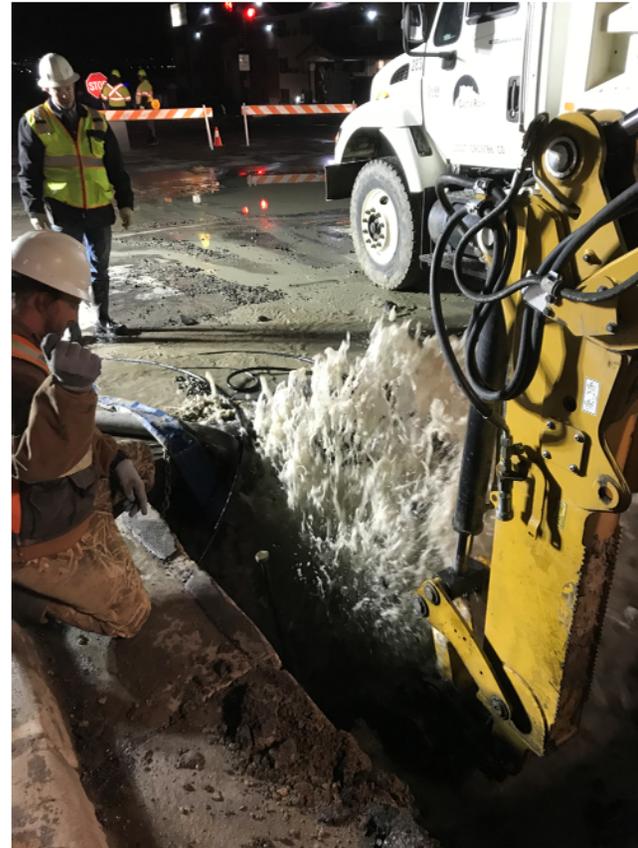
Stormwater system

Wastewater treatment system



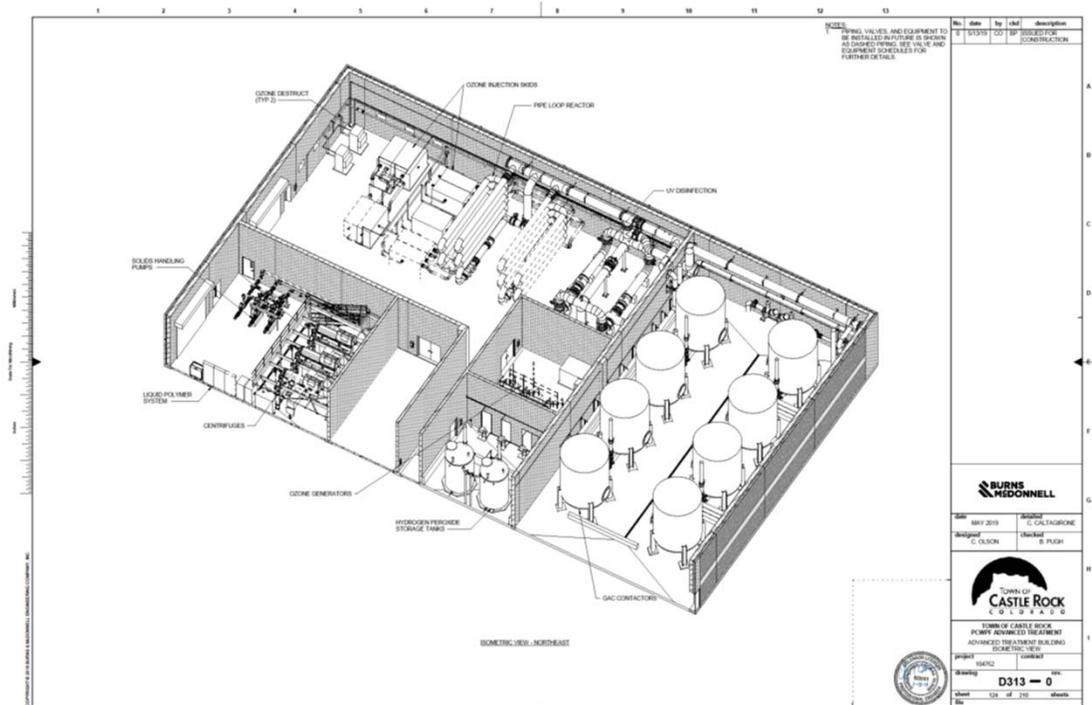
Maintenance

- ▷ On call 24/7
- ▷ Emergency response
- ▷ Preventive maintenance
- ▷ Age of infrastructure
- ▷ Skilled operators and mechanics
- ▷ Heavy equipment
- ▷ Specialized tools
- ▷ Training
- ▷ Lots of practice



Engineering

- ▷ Planning
- ▷ Design
- ▷ Construction oversight
- ▷ Operations support
- ▷ Troubleshooting and problem solving
- ▷ Professional staff



Tour

Plum Creek Water Purification Facility

Break into 3 groups

- ▷ Group 1 – begin at Lab
- ▷ Group 2 – begin at Control Room
- ▷ Group 3 – Taste Test first



Bathroom Break

Taste Test

All groups should take the Taste Test, located in the front lobby

Taste Test

Castle Rock water has won the regional taste test for the best tasting water.

How do you think it compares?

Choices

- ▷ Castle Rock tap water
- ▷ Denver tap water
- ▷ Aquafina bottled water
- ▷ Nestle bottled water

Order 1 to 4

Order your preference with 1 being the best overall taste and 4 being the least.

Water does have a taste

- ▷ Can you taste a chemical, mineral, sweet or bitter flavor?
- ▷ Is there chemical, earthy or plastic odor?

WASTEWATER



Wastewater Collection

- ▷ Separate system
- ▷ Collected 24/7
- ▷ Flush your troubles down the drain
- ▷ 280 miles of collection piping
- ▷ 10 sewage lift stations
- ▷ Stuff happens
- ▷ Emergency response
- ▷ Periodic cleaning/inspection
- ▷ Pipes/manholes - 50 year lifespan
- ▷ Replace or line interior

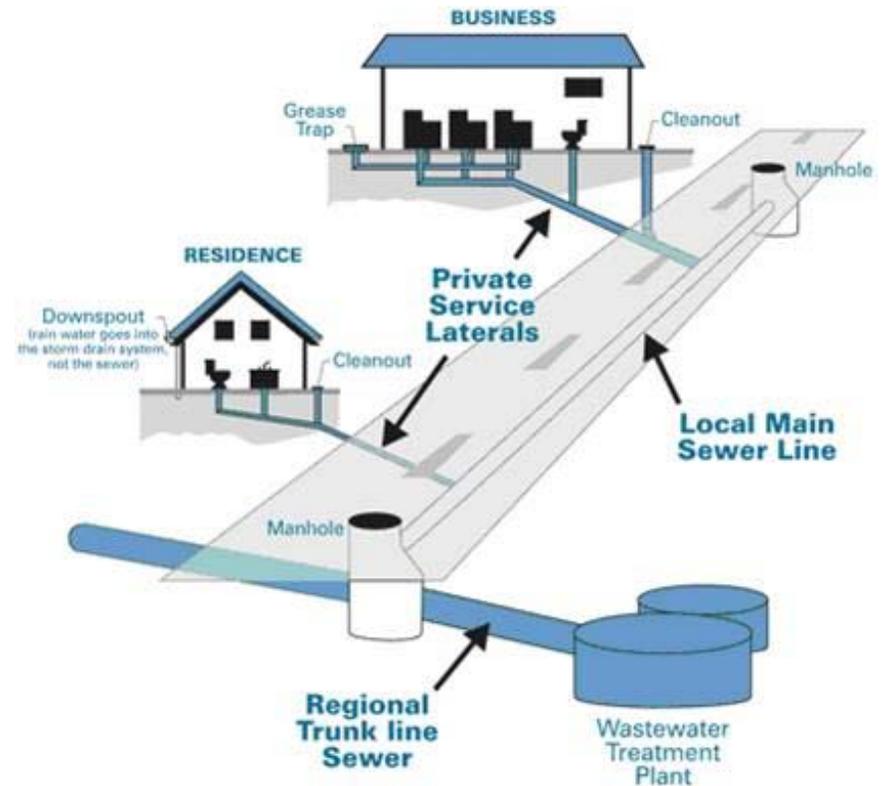


Diagram of a sanitary sewer system

Wastewater Treatment

Plum Creek Water Reclamation Authority

- ▷ Operates 24/7
- ▷ Biological process
- ▷ Byproducts: clean water & bio-solids
- ▷ Treated water discharge
- ▷ Costs \$6.59/1,000 gal



STORMWATER MANAGEMENT



Stormwater Management

Protecting people,
property and the
environment

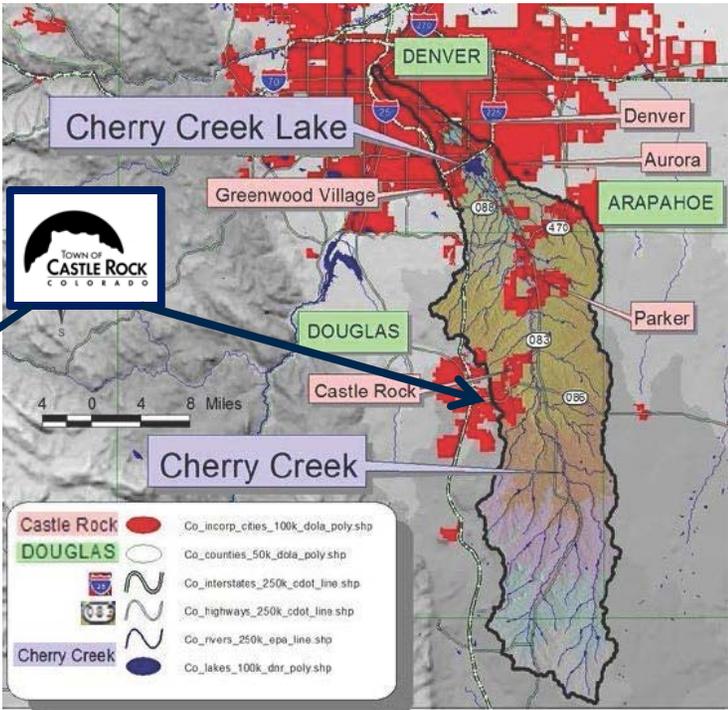
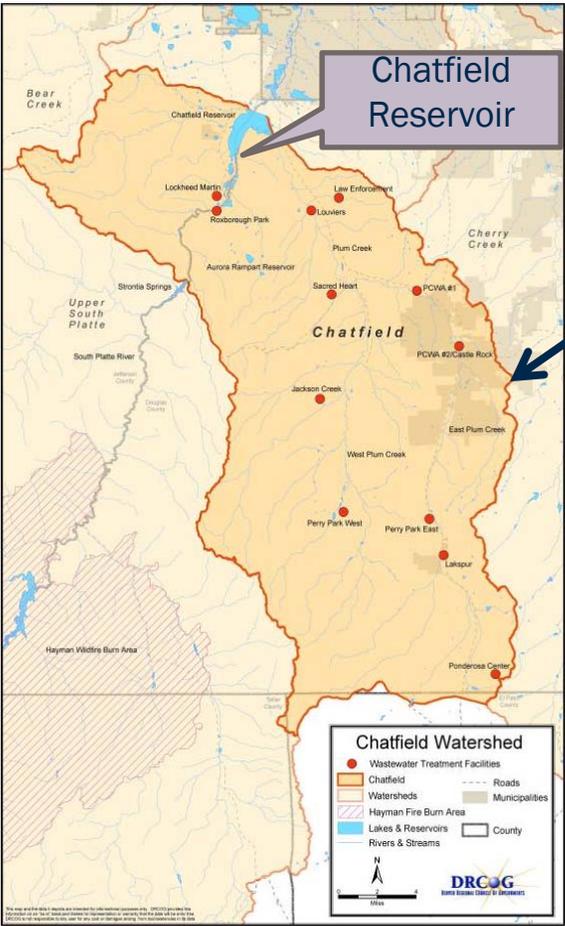
Watershed
protection

Storm drainage
improvements

Floodplain
management



Our Place in Our Watersheds



Water Quality Protection

Preserving natural waterways and Town water supplies

- ▷ Public education
- ▷ Public participation
- ▷ Illegal dumping
- ▷ Construction controls
- ▷ Post-construction BMPs
- ▷ Municipal pollution prevention



Stormwater Hotline: 720-733-2235



Minimizing contamination

- Municipal Code violations
- Cleanup orders, civil penalties and criminal charges
- Household Hazardous Waste Collection Events
(In Castle Rock, each fall: Sept. 21, 2019)

Residents caught on Google Maps improperly dumping water waste into the storm drain

Stormwater Capital Improvements

Mitigating stream impacts

- ▷ 71 miles of stream corridor
- ▷ ~\$500-\$1,000 per linear foot



Benefits

- ▷ Improved water quality
- ▷ Public hazard reduction
- ▷ Protect property and infrastructure



Urban Stormwater System Planning

Allocating space for stormwater management in site planning:

- ▷ System conveyance
- ▷ Water quality treatment
- ▷ Flood control

Without proper planning, stormwater runoff will conflict with other land uses, resulting in damages and the disruption of other urban systems



BUSINESS SOLUTIONS



Four Enterprise Funds

WATER

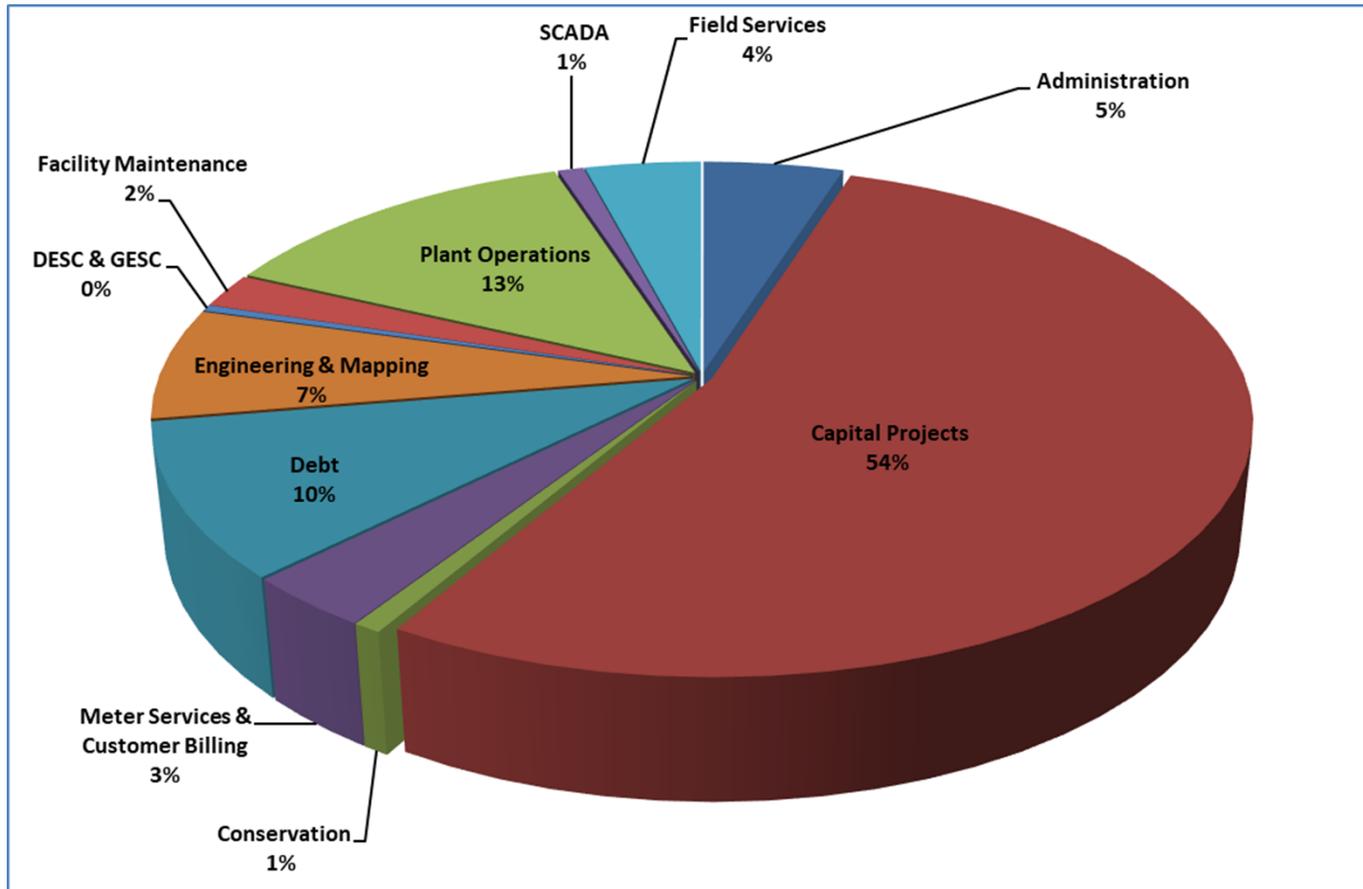
WATER
RESOURCES

STORM
WATER

WASTE
WATER

DESCRIPTION	All Funds 2018 ACTUALS (in millions)
Total Revenues	\$ 69.8
Operating Expenditures	\$ 38.6
Capital Outlay	\$ 15.4
Debt Service	\$ 5.7
Total Expenditures	\$ 59.7
Outstanding Debt	\$ 54.9
Capital Assets	\$ 680.4

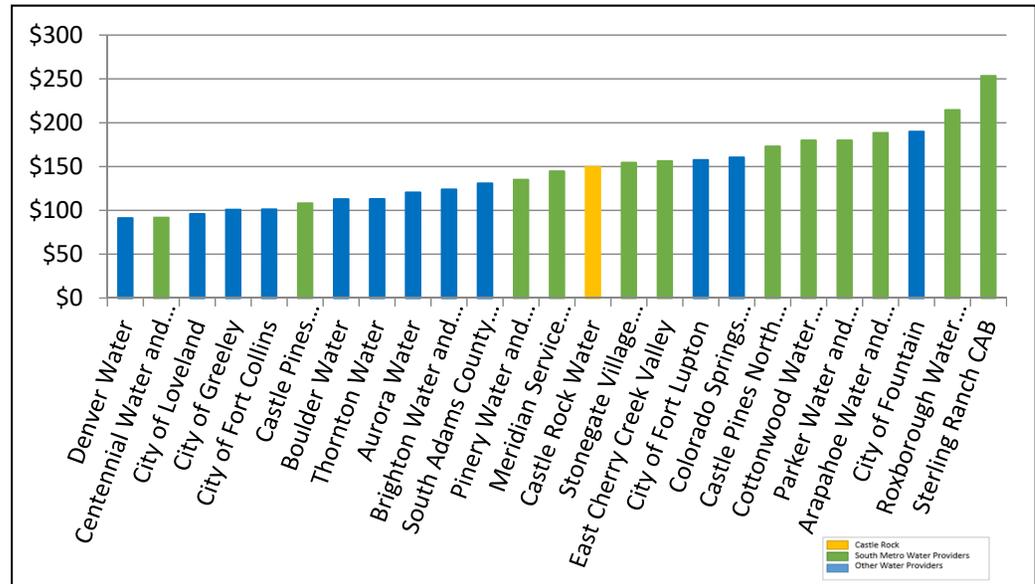
2018 Costs by Functional Area



Rates and Fees

- ▷ Annual Study
Water Commission
Town Council
- ▷ Cost of service based
- ▷ Capital improvement projects
- ▷ System development fees
Growth pays for growth
- ▷ Current customer rates
- ▷ Special charges
- ▷ Financial management plan

2019 Typical Monthly Summer Bill (15,000 gallons)



*Includes tax mill levy based on median home price distributed equally over 12 months.

Water Budget Rate Structure

Volumetric Charges

Tier 1: Indoor Budget -- Average Winter Monthly Consumption (AWMC)

Tier 2: Outdoor Budget -- irrigation

Tier 3: Excess Tier – over Tier 2 budget

Tier 4: Surcharge Tier -- >40k gallons

Castle Rock		175 Kellogg Ct.	Account No.: 00012345-67
Castle Rock, CO 80108		Castle Rock, CO 80108	Service Address: 1234 Main St
Phone Payment: 1-800-288-8288		Castle Rock, CO 80108	Billing Date: 11/06/2015
CRegis.com/waterbill		Castle Rock, CO 80108	To: VIEW OR PAY ONLINE GO TO: www.ci.castlerock.co.us
			VIEW YOUR ENCLOSURE ONLINE: www.ci.castlerock.co.us
Payments that were received after 8 p.m. Nov. 8 are not reflected on this statement.			
Details	Gallons Used	Rate/1,000 gallons	Amount
Previous Balance			\$120.81
Payment Received			\$108.00
Fast Due (Pay immediately to avoid service interruption)			\$141.81
Tier 1 (0-7,000 gallons)	5,000	\$2.75	\$13.75
Tier 2 (over 7,000-13,000 gallons)	0	\$0.39	\$0.00
Tier 3 (over 13,000 gallons)	0	\$0.08	\$0.00
Tier 4 Surcharge (over 40,000 gallons)	0	\$8.08	\$0.00
Water Charge Charges Total	5,000		\$13.75
Water Service Charge			\$9.54
Renewable Water Resource Charge			\$25.39
Wastewater (AWMC & Service Charge)			\$48.84
Stormwater Charge			\$6.85
Fixed Charges Total			\$90.42
Shutoff Letter Charge			\$10.00
Late Charge			\$0.00
Total Current Charges (Due 11/06/2015)			\$124.37
TOTAL DUE:			\$266.18



Castle Rock		175 Kellogg Ct.	Account No.: 00012345-67
Castle Rock, CO 80108		Castle Rock, CO 80108	Billing Date: 11/06/2015
CRegis.com/waterbill		Castle Rock, CO 80108	Current Charges: \$124.37 Due 11/06/2015
			Fast Due: \$141.81 Pay Immediately
			Total Due: \$266.18
			Amount Enclosed
			Make Checks Payable to Town of Castle Rock
			Please check the box for address, phone and email corrections. Print corrections on reverse side.
			<input type="checkbox"/>
			Send To:
			Town of Castle Rock
			Utility Billing Payments
			PO Box 17227
			Denver, CO 80217-2727

Fixed Charges

Water Service Charge

Renewable Water Resource Charge

Wastewater (AWMC & Service Charge)

Stormwater Charge

Meter Services

Meter Reads

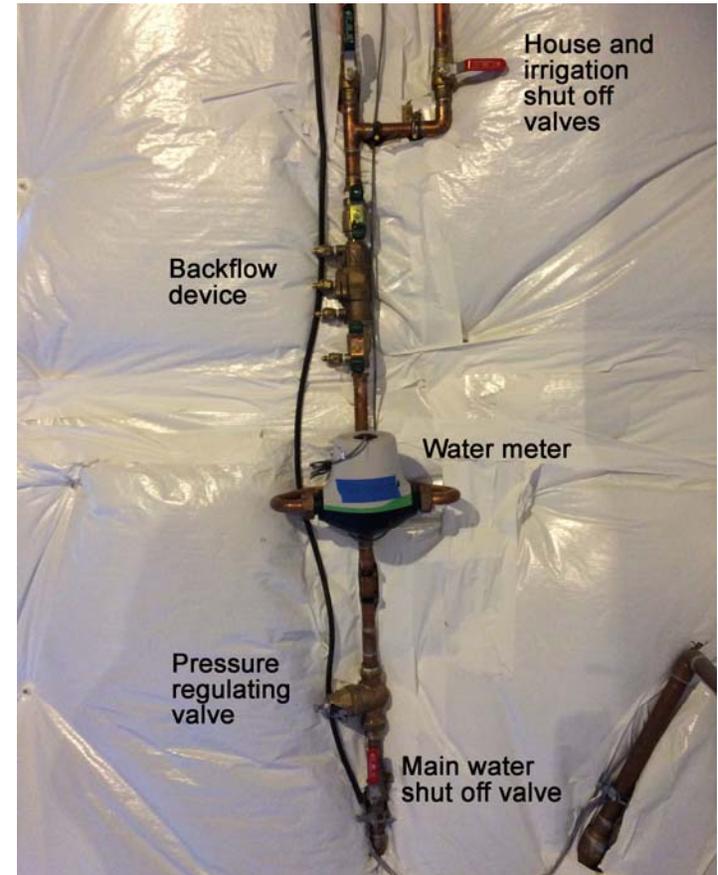
- ▷ 22,000+ meters in service
- ▷ Read - 1st three days of every month
 - Automated Meter Reading
- ▷ Skipped reads – AWWA 2%, TOCR 0.3%

Service Work Orders

- ▷ Meter set inspections
- ▷ Final Reads - Transfers of service
- ▷ Curb stop maintenance
- ▷ Data logging, high usage
- ▷ Exact time appointments

Disconnections/Reconnections

- ▷ Non payment
- ▷ Customer requested



Customer Service and Billing

Type of Service	2018 Annual	2018 Average per Month
Walk-in customers	4,443	370
Customer phone calls	19,204	1,600
Transfers of service	4,822	402
Disconnection notices	10,050	838
Accounts billed	255,971	21,331
Revenue billed	\$37,651,789	\$3,137,649



Customer Engagement



Welcome Packet

- ▷ New customers

Outreach Campaigns

- ▷ Mayor's Challenge
- ▷ ColoradoScape
- ▷ Videos

Education

- ▷ Social media posts
- ▷ Town Talk newsletter
- ▷ Statement messaging
- ▷ Email outreach
- ▷ CRconserve.com
- ▷ Your Town Academy

H2O Access

- ▷ Multiple Ways to Pay
- ▷ Archived Statements – 12 Months
- ▷ Paperless Billing
- ▷ Access 24/7

DEVELOPMENT PLAN REVIEW

Castle Rock is
“Our Town”



Planning for Development

Annexed areas

- ▷ Developer pays for their share of existing infrastructure
- ▷ Developer constructs basic infrastructure required
- ▷ Developer pays for improvements to existing infrastructure to support their plan

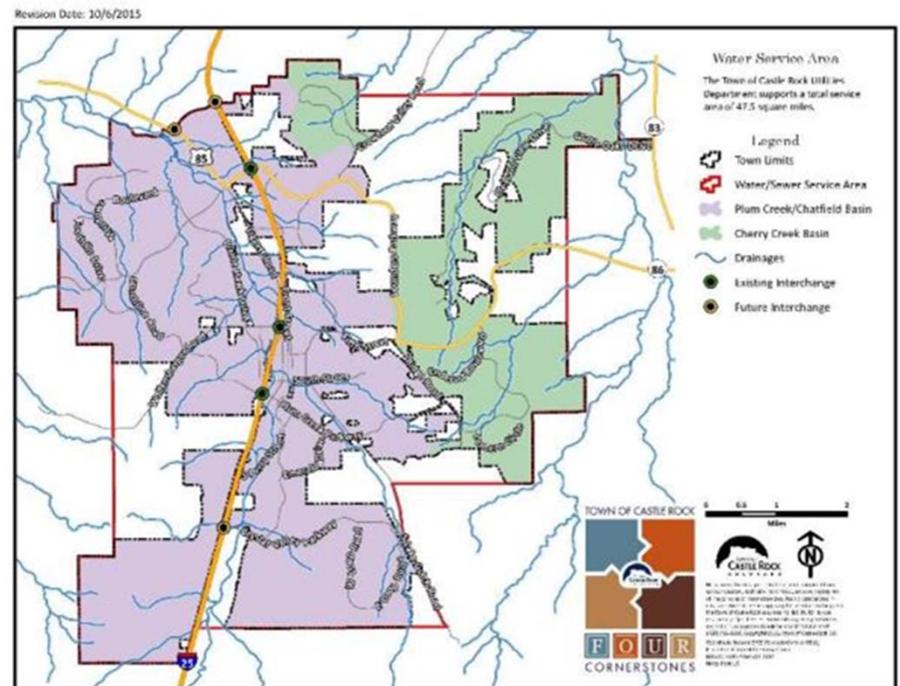
Extraterritorial service agreements

- ▷ Within service area, but not annexed

Adequate water resources

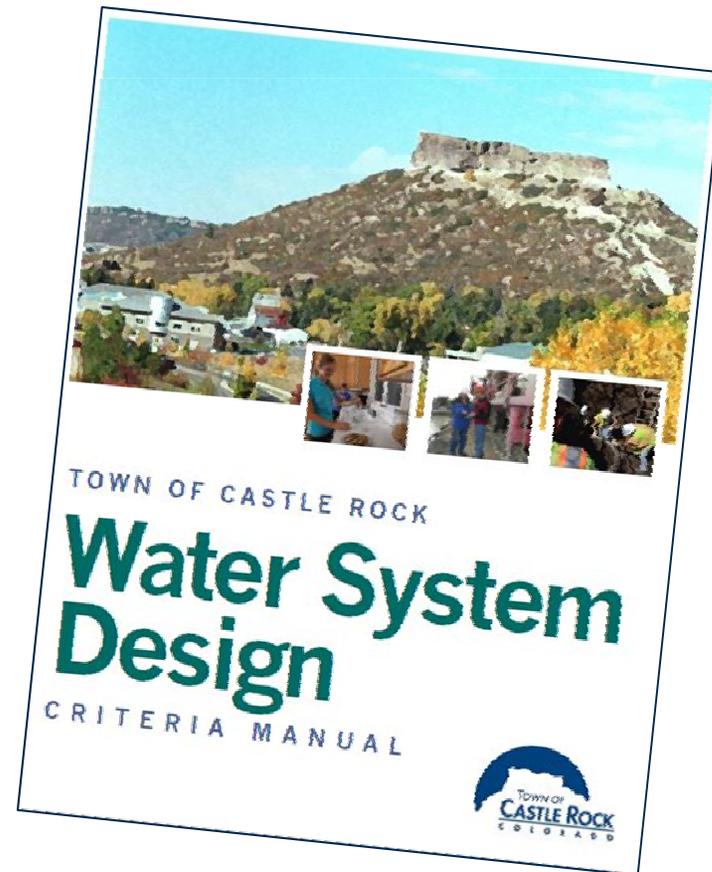
- ▷ Dedication of ground water rights
- ▷ Renewable water
- ▷ Water efficiency plans

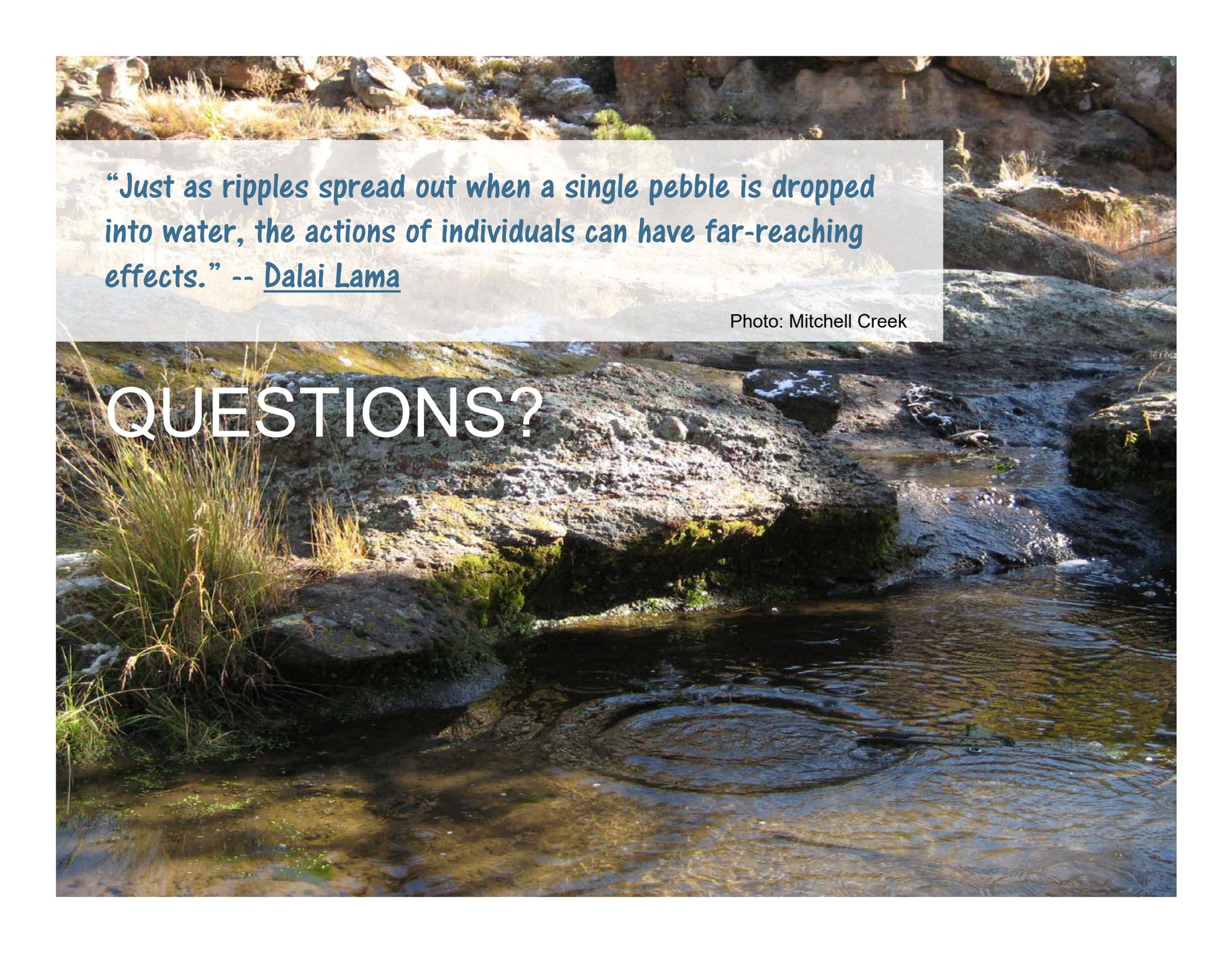
Planned service area



Plan Review Goals

- ▷ Financially sustainable
- ▷ Adequate water resources
- ▷ Effective long-term operations and maintenance
- ▷ Coordination of infrastructure requirements
- ▷ Plan for the future
- ▷ Standards and best industry practices





“Just as ripples spread out when a single pebble is dropped into water, the actions of individuals can have far-reaching effects.” -- Dalai Lama

Photo: Mitchell Creek

QUESTIONS?