



April 27th, 2020

Attn: Ben Wade
Water Conservation Coordinator
Colorado Water Conservation Board
1313 N Sherman St, Suite 721
Denver, CO 80203

Re: Completion of Water Conservation Plan

Dear Ben Wade,

The City of Steamboat Springs (City) and Mount Werner Water and Sanitation District (District) are pleased to submit our 2020 Water Conservation Plan (Plan). This letter summarizes the activities completed for the Plan update. The Plan is enclosed which includes documentation of the City and District's formal Plan approval in Appendix G.

We have met our goal in producing an updated Water Conservation Plan that meets CWCB's *Municipal Water Conservation Plan Guidance Document* and new *Best Practices for Implementing Water Conservation and Demand Management Through Land Use Planning Efforts*. Analyses of our historical demands indicate that the City and District's average annual demand reductions relative to the baseline demand (average of demands in 2008, 2009 and 2010) were 4.7% and 3.8% lower, respectively, and were on track for meeting the 15% targeted reduction in 2035 called out in our former 2011 Water Conservation Plan. Our water savings goal moving forward in this 2020 Plan is to achieve a 10% water savings in treated water demands by 2030.

During the duration of the project, we did not encounter any significant obstacles or make any revisions to the scope of work. We held two workshops with a twelve-member interdepartmental Core Team and two calls with water resources staff and the City's Planning Department to discuss the integration of water conservation and land use planning. These efforts were critical in gathering the information necessary to develop the Plan. We also held a 60-day public review period, where we received input from stakeholders and the public and presented the draft Plan at a "Talking Green" forum hosted by the Yampa Valley Sustainability Council. Also, during this review period, Kevin Reidy with the CWCB, reviewed the draft Plan and provided comments which have been incorporated into the enclosed Final Draft.

We appreciate your support and the opportunity to have worked with you on this important endeavor.

Sincerely,

A handwritten signature in cursive script, reading "Kelly Romero-Heaney".

Kelly Romero-Heaney
Water Resources Manager
970-871-8205

A handwritten signature in cursive script, reading "Frank Alfone".

Frank Alfone
General Manager
970-879-2424



WATER CONSERVATION PLAN

City of Steamboat Springs and Mount Werner Water
and Sanitation District

May 2020

Prepared for:



Mount
Werner
Water District



Prepared by:



In association with:



Executive Summary

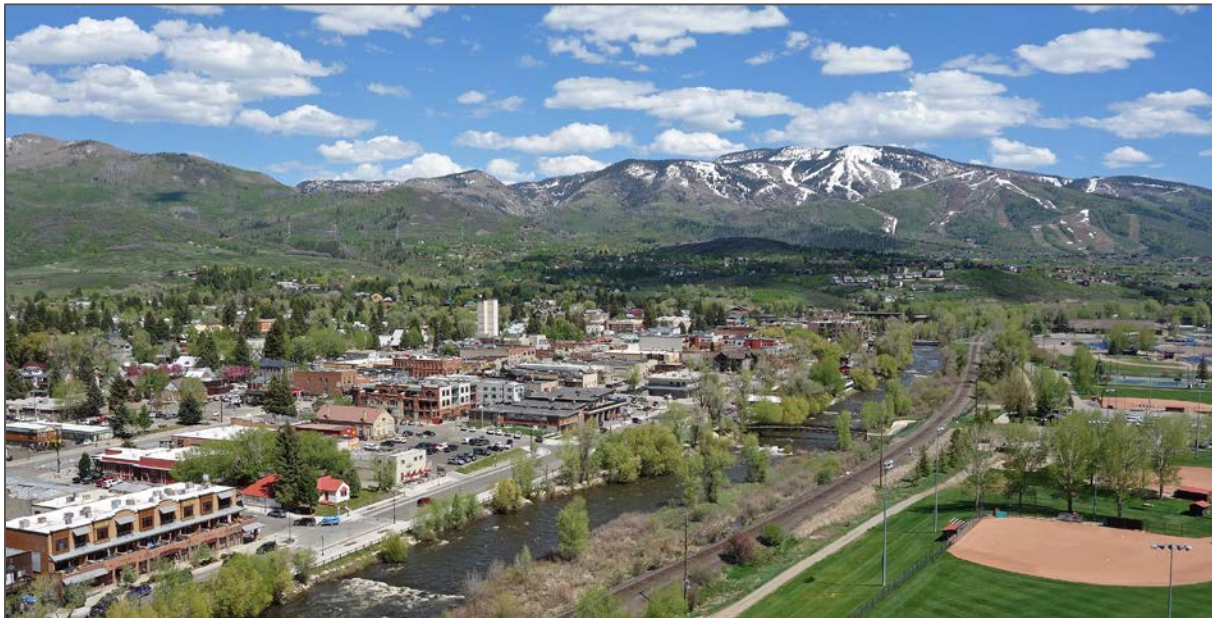
E.1 Background

To prepare for changes to supply and demand, the City of Steamboat Springs (City) and Mount Werner Water District (District) strive to implement strategies that promote water supply resiliency by preparing for growth, planning for drought and wildfire, planning for a Colorado River Compact Call, implementing water conservation, and developing a redundant supply.

In 2019 the City and District completed an update to their Water Supply Master Plan (WSMP), which helps accomplish the items above by assessing the availability of current and future water supplies to meet future consumptive municipal demands under a series of growth and climate scenarios. This Water Conservation Plan (Plan) update builds on the 2019 WSMP effort. This Plan is an update to the City and District 2011 Water Conservation Plan and was developed in accordance with Colorado Statute and the Colorado Water Conservation Board's (CWCB) guidelines.¹

This Plan provides the following:

- Evaluation and documentation of historical water demands, and lessons learned from previous water conservation activities implemented by the City and District.
- Monetary, environmental, and community benefits associated with water conservation in Steamboat Springs.
- Water saving targets and conservation goals to strive for through 2030.
- A list of water conservation activities focusing on both existing and new development.
- An implementation plan for these activities through 2027.
- A monitoring plan and template for evaluating the effectiveness of the water conservation plan and activities on an annual basis.



¹ Colorado state approved water conservation plans are required to be updated every seven years.

E.2 Why Conserve Water?

Water conservation provides many benefits to the Steamboat Springs community and local environment. The benefits are described below.

Community support. Water conservation outreach increases the Steamboat Springs community's understanding of the connection between water conservation and sustainability, resiliency, environmental stewardship, and lower customer water bills. This also provides a foundational understanding for when the community is asked to further reduce water use on a temporary basis during drought and other water supply emergencies.

Regional presence. Steamboat's conservation program demonstrates that Steamboat joins other West Slope municipalities in taking initiatives to conserve water. This can assist in meeting regulatory and political requirements for obtaining permits for local and regional water supply projects.

Delayed need for new infrastructure. The decrease in demands over time can delay and/or reduce the amount of public funds needed to support new infrastructure, such as the expansion of the Fish Creek Water Treatment Plant.

River health. Reductions in indoor and outdoor water use can improve river health by decreasing wastewater discharges and irrigation runoff. It can also improve environmental flow conditions in Fish Creek during dry years since less water will be diverted for municipal use.

Reduced carbon footprint. Water conservation reduces the chemicals and energy needed for treatment and pumping which reduces the City and District's carbon footprint.

While Steamboat has adequate supplies to meet long-term growth in the region, wise water use can help improve the reliability of water supplies in times of drought and local wildfire and sustain a healthy environment.

E.3 What to Accomplish

The goals listed below provide quantitative water saving targets and qualitative parameters to help provide the benefits discussed above. Further information on these goals is provided in Section 3.0.

1. **Water savings target.** Achieve a 10% savings in 10 years. This applies to treated water demands.
2. **Non-revenue water savings.** Reduce non-revenue losses to below 10% by 2027.²
3. **Educate community.** Educate the community to foster awareness that being water efficient and conserving water is not only the right thing to do but essential to attain sustainability and resiliency in an arid climate.
4. **Lead by example.** Capitalize on the opportunity for the City and District to lead by example, conserving water and demonstrating responsible stewardship of the environment. This includes improving efficiency of the water distribution systems and maximizing efficient use of water at City and District facilities and parks.³

² City and District staff decided that a 10% non-revenue loss by 2027 is a reasonable target for both the City and District based on the historical non-revenue losses provided in Table 2-2.

³ This corresponds with the City's Star 2017 Sustainability Action Plan calling for the reduction of raw and treated water use by 5 percent in City facilities over the next two years, and 15 percent over the next 5 years (Star Outcome ID# CE-5:0-2).

5. **Reduce costs.** Optimize operational cost saving opportunities through the reductions in non-revenue water, water use at the City and District facilities, and chemicals and energy needed for water treatment and pumping.
6. **Ensure a reliable water supply.** Grow into the City and District’s existing water portfolios in a responsible manner to ensure water security considering the uncertainties that accompany a changing and variable climate, wildfire, drought and potential future calls on both the Yampa and Colorado rivers.
7. **Integrate water conservation with land use planning.** Develop the policy and coordination needed among multiple City departments and with the District to effectively integrate land use planning with water efficiency efforts.

E.4 Implementation of Water Conservation Activities and Monitoring

The City and District plan to meet the goals discussed above by implementing the activities listed in Table E-1. Sections 4 and 5 provide additional information on each of these activities and the specific actions to be accomplished. Water conservation planning is most effective when it is managed as an adaptive continuous process where routine monitoring and adjustments can be made to the implementation. An annual monitoring report will be given to City Council and the District’s Board during the first quarter of each calendar year. This report will inform any modifications to the conservation program.

Table E-1: Summary of Water Conservation Activities

Conservation Activities	Timing of When Activity Will Be Initiated		
	Currently Doing and Ongoing	2020 to 2024	2025 to 2027
Foundational Activities			
Consider hiring or contracting a water conservation coordinator		X	
Improve Metering, Demand Collection and Billing Systems			
Metering of treated source water improvements	X	X	
End use metering improvements	X		
Submetering	X		
Billing systems	X	X	
Improvements to collection of demand data		X	
Conservation oriented water rates	X	X	
System Water Loss Management and Control			
Leak detection, repair and infrastructure replacement	X		
Colorado Water Loss Initiative Workshops	X	X	
Improvement to monitoring and customer feedback on potential leaks	X	X	
Integrate Water Conservation and Land Use Planning Activities			
Water and long-range land use planning	X	X	
Data and information alignment	X		
Water rights dedication policy	X		
Enforcement of water conservation regulations that may be added to the Community Development Code (CDC)			X
Targeted Technical Assistance and Incentives			
Reduce Water Use at City Facilities			

Conservation Activities	Timing of When Activity Will Be Initiated		
	Currently Doing and Ongoing	2020 to 2024	2025 to 2027
Review of City's largest water accounts (water use on City properties and parks)		X	
Indoor water audits in City facilities		X	
Reduction of irrigation on City parks and facilities	X	X	X
Raw water irrigation on parks and City snowmaking	X		X
Reduce Water Use of Customers through Technical Assistance and Incentives			
Artificial turf on sports fields			X
Commercial water use reduction pilot studies		X	
Feedback to large water users on water use		X	
Indoor rebate program improvements	X	X	
Outdoor rebates		X	
Rain barrels		X	
Landscaper contractor training		X	
Integrate Technical Assistance and Incentives with Land Use Planning			
Integration of water conservation into future planning incentive packages			X
Tap fee study		X	
Model landscape plans		X	
Regulations and Ordinances			
Update Water Use Regulations			
Watering schedule		X	
Clarification on enforcement of water wasting ordinance and watering schedule		X	
Incorporate Water Conservation into Policy, the Revised Municipal Code and CDC			
Amendment of CDC subdivision regulations and annexation policy		X	
Amendment of CDC landscape standards		X	
Amendment of infill and development standards	X	X	
Targeted Education - See Table 5.1 for additional education activities specific to the actions above			
Shared City and District Water conservation website		X	
Water conservation best management practices		X	
Youth education		X	
Demonstration garden(s)		X	
Frequent water use reporting			X
Corporate partnership(s)		X	

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Acknowledgements

This Water Conservation Plan was developed through a collaborative partnership between the City of Steamboat Springs and Mount Werner Water and Sanitation District. A sincere vote of appreciation is extended to the Colorado Water Conservation Board (CWCB) for the grant monies to fund the development of this Water Conservation Plan and to the following individuals and entities that participated in the Plan development.

Members of the Core Planning Team

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Kyle Higgins	Distribution & Collection Supervisor	City of Steamboat
Ernie Jenkins	Parks Supervisor	City of Steamboat
Sarah Jones	Director of Sustainability	Steamboat Ski & Resort Corp ⁴
Nate Johnson	Operations Manager	Mount Werner Water and Sanitation District
Kelly Romero-Heaney	Water Resources Manager	City of Steamboat
Jon Snyder	Public Works Director	City of Steamboat
Toby Stauffer	Senior Planner	City of Steamboat

Stakeholder Review

Mount Werner Water and Sanitation District Board of Directors
City of Steamboat Springs City Council
Yampa Valley Sustainability County
Steamboat Ski and Resort Corp
City of Steamboat Spring Planning Commission

Consultant⁵

Courtney Black	Senior Water Resources Engineer	INTERA, Incorporated
Steve Smith	Senior Water Resources Engineer	Applegate Group, Inc

Funding

A special thanks to the Colorado Water Conservation Board for providing grant monies in support of this Plan update.

⁴ Sarah Jones was with the Yampa Valley Sustainability Council during the Core Planning Team workshops.

⁵ The update of this Water Conservation Plan is a continued effort following development of the 2019 WSMP. Applegate Group served as the prime consultant on the 2019 WSMP teaming with High Country Hydrology and INTERA staff. INTERA served as the lead consultant in the update of this Plan with Applegate Group serving in an advisory role.

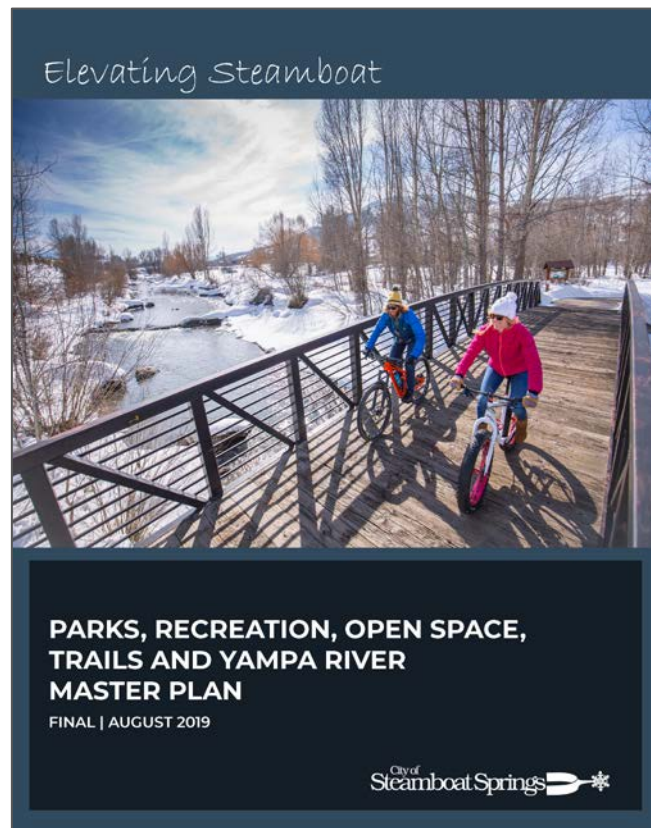
Introduction

Steamboat Springs places a high value on providing a thriving urban environment for its developing community while also preserving and supporting local agriculture, open space and healthy mountain ecosystems. The sustainable management of water resources through water conservation and land use planning are critical components to maintaining a well-balanced community in a semi-arid climate. The City of Steamboat (City) and Mount Werner Water and Sanitation District (District) have an active history of promoting the efficient use of water throughout their service areas. This Water Conservation Plan (Plan) is an update to their 2011 Plan, reflecting the community's values, recent planning efforts and staff expertise.

This State-approved Plan was developed in accordance with Colorado statutes and CWCBC guidelines. The Plan was developed through a series of engagement activities with City and District staff along with community stakeholders and the general public. Two workshops were held with a "Core Planning Team" consisting of District and City Staff to obtain input on the major components of the Plan. Two conference calls, focusing on the integration of land use planning and water conservation, were also held among water resources and planning staff. A draft of the Plan was then distributed to community stakeholders and posted online for 60 days providing opportunity for the public to review and comment. City Council and Board members then had the opportunity to review the Plan and provide input prior to final approval.

The Plan will be implemented in coordination with other local and regional existing and future planning efforts. These efforts include:

- Colorado Water Plan
- Yampa White Green Basin Implementation Plan
- 2018 Yampa River Health Assessment and Streamflow Management Plan
- 2019 Routt County Hazard Mitigation Plan
- 2019 Fish Creek Critical Community Wildfire Watershed Protection Plan
- 2019 City of Steamboat Springs and Mt Werner Water and Sanitation District Water Supply Master Plan (WSMP)
- Water and Wastewater Distribution and Collection Infrastructure Master Plan
- Drought and Water Emergency Preparedness Plan⁶
- City and District water rates studies
- 2017 STAR Sustainability Action Plan
- Steamboat Springs community master plans
- Open space trails and river master plans
- Community Development Code and engineering standards



⁶ Provided in Appendix A of this Plan. Also provided in Appendix G of the 2011 Steamboat Springs, Colorado Water Conservation Plan II.

1. Water Supply System

1.1 Overview

Steamboat's primary source of treated water supplies consists of snowmelt from the 22 square mile Fish Creek watershed. Supplies are stored in Fish Creek and Long Lake Reservoirs and treated at the Fish Creek Water Treatment Plant (WTP). In addition, both the City and District pump alluvial water from the Yampa River as a supplemental source during the peak summer irrigation season and can also lease water from the Upper Yampa Water Conservancy District (UYWCD). These supplies are diverted at the Yampa well fields and treated onsite. The City and District also have supplies for non-treated irrigation on parks and golf courses. Figure 1-1 provides the service area boundaries and main features of the water supply system.

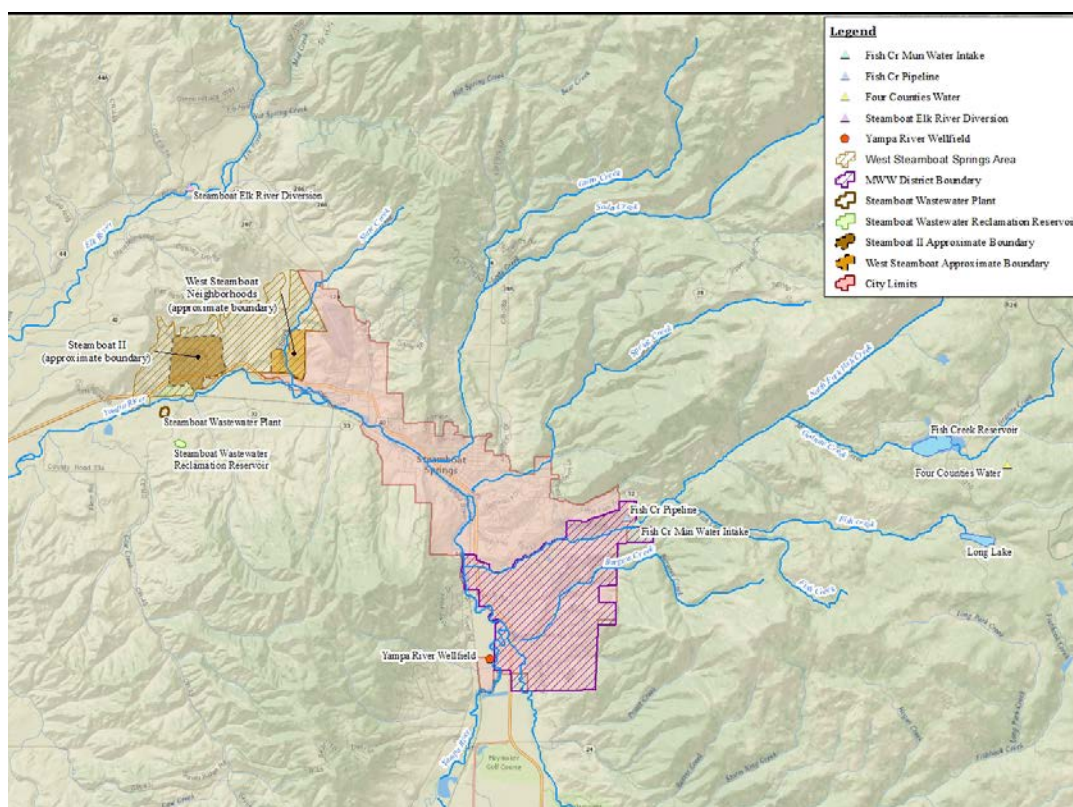


Figure 1-1: The City and District's Service Area and Water Supply System⁷

1.2 Regional Water Supply Reliability and Future Needs

Steamboat Springs is in the Yampa/White/Green River Basin where the population is projected to increase modestly driving an increase in municipal needs. Additional irrigated agriculture downstream of Craig, Colorado, may also increase agricultural demands, however, the energy sector has the potential to create the greatest additional consumptive use. Non-consumptive needs include snowmaking, the environment and recreation. Non-consumptive environmental and recreational needs require flows to sustain endangered native fish, riparian plant communities, sport fisheries, whitewater boating, and ecological integrity.

As the region continues to develop, the number of Steamboat residents, tourists and accompanying water demands are projected to grow. Results from Steamboat's 2019 WSMP indicates that the City and District's

⁷ Figure was developed by Applegate Group for the 2019 WSMP.

water supply portfolios are adequate in meeting the community’s annual water needs through 2070 absent stressors on the water supply such as a Colorado River Compact Call or wildfire that could cause shortages in treated water supply.⁸ Wildfire in the watershed could degrade water quality to a level that causes short-term shortages in the near term. As the region continues to grow, a Colorado River compact call coupled with a changing climate could result in temporary monthly and seasonal shortages, particularly during peak use in the summer. This emphasizes the need for responsible efficient water use to help ensure a reliable water supply.

Steamboat is actively engaged in meeting the following challenges to ensure a reliable water supply.

Drought – Steamboat’s Drought and Water Emergency Preparedness Plan⁹ calls for a series of actions during drought to reduce water use, ensuring supplies for critical health, safety and commercial needs.

Drought – Water Conservation

Water conservation planning aims to achieve lasting, long-term improvements in water efficiency reducing overall water demands. In contrast, drought response plans focus on strategies that achieve short-term relief from temporary drought-related water supply shortages.

Need for more water treatment capacity – The expansion of Fish Creek WTP will most likely be needed between 2040 and 2065 based on the demand projections in the 2019 Water Supply Master Plan (WSMP). The City and District are planning to increase the capacity of Fish Creek WTP to 12 million gallons per day (mgd) and Yampa Wellfield infiltration galleries to 3.5 mgd.¹⁰

Wildfire – Wildfire poses an immediate threat to maintaining water supplies. It degrades water quality, inhibiting water treatment to treated standards. The City and the District finalized its Fish Creek Critical Community Wildfire Watershed Protection Plan in 2019 to increase Steamboat’s resiliency to wildfire and mitigate potential impacts.

Uncertainty of Colorado River compact call – CWCB and other entities throughout the Colorado River Basin are engaged in efforts to reduce the uncertainty of what may happen if a Colorado River call occurs. Steamboat is actively participating in these State-led efforts.¹¹

Uncertainty of climate change – Climate science indicates that statewide annual average temperatures have increased by 2.0°F over the past 30 years and 2.5°F over the past 50 years. Additionally, Colorado is expected to warm even more by the mid-21st century, pushing temperatures outside of the range of the past

⁸ Modeling simulations for the 2019 WSMP indicated that the City and District have a firm yield supply of 9,800 AF without stressors such as wildfire and a Colorado River Compact call. This represents the amount of water the District and City’s current water supply system can reliably yield during exceptionally dry years. Water demand projections for 2070 range from 5,700 to 9,250 AF which is still less than Steamboat’s current firm yield 9,800 AFY. See the 2019 WSMP for more details.

⁹ Provided in Appendix A of this Plan. Also provided in Appendix G of the 2011 Steamboat Springs, Colorado Water Conservation Plan II.

¹⁰ The design and engineering is taking place to add raw water capacity to the Yampa Wellfield infiltration galleries. An additional WTP on Elk River is also being investigated to service the western portion of Steamboat which is anticipated to be developed in the next few decades.

¹¹ The 2019 WSMP indicates that in the near term, a Colorado River Compact call would not likely impact Steamboat’s ability to meet community water needs, however in the long-term (e.g. 30 years), as water demands increase, Steamboat’s ability to meet demands during a call could result in shortages.

century.¹² This will likely increase outdoor irrigation demand and depending on precipitation levels, could result in an increase in duration, frequency and intensity of droughts and an overall decline in water availability.

Aging infrastructure - The City and to a lesser extent, the District, are experiencing aging infrastructure. The City is in the process of replacing and repairing aging infrastructure while the District is focusing on adding system redundancy.

Low flows in Fish Creek - During dry periods, low flows can occur in Fish Creek. The City works closely with the CWCB to maintain a 2 cubic feet per second (cfs) instream flow right on Fish Creek.

Growth in West Steamboat Springs area – New development is anticipated to occur on the northwest portion of the City’s urban growth boundary. While the City has enough raw water supplies to serve this area, the pipe capacity presents some water distribution challenges. The City is investigating options on how to best service the new urban area.



¹² Source for historical temperature change and future projections: *Climate Change in Colorado A Synthesis to Support Water Resources Management and Adaptation*. Second Edition 2014.



2. Water Demands and Historical Demand Management

This section provides an overview on Steamboat's customer service area, water demands, and recent water conservation activities and lessons learned. Additional details on historical water demand trends and how these trends relate to Steamboat's 2011 Water Conservation Plan goals are provided in Appendix B and Appendix C, respectively. Appendix D provides information on the demands of some of the largest City and District customers and Appendix E provides details on the City and District's past and existing conservation activities.



2.1 Customer Service Area and Treated Water Use

Steamboat Springs is a highly visited mountain resort community consisting of approximately 13,200 year-round residents coupled with a winter and summer tourist season. The City's customers primarily consist of long-term residents and year-round commercial businesses in the older portion of town, whereas the District serves the resort community on the mountainside consisting of many transient second homeowners and seasonal tourists and workers. Visitors to Steamboat Springs are estimated to range from 400,000 to 500,000 visitors per year.¹³

The City and District's billing systems categorize customers as residential, commercial and combined. There are minor differences in how these categories are described, as reflected in Table 2-1. Figure 2-1 shows that the demands from residential customers comprise over half the demand for both the City and District. The District has a higher percentage of residential demand while the City serves a larger percentage of commercial.

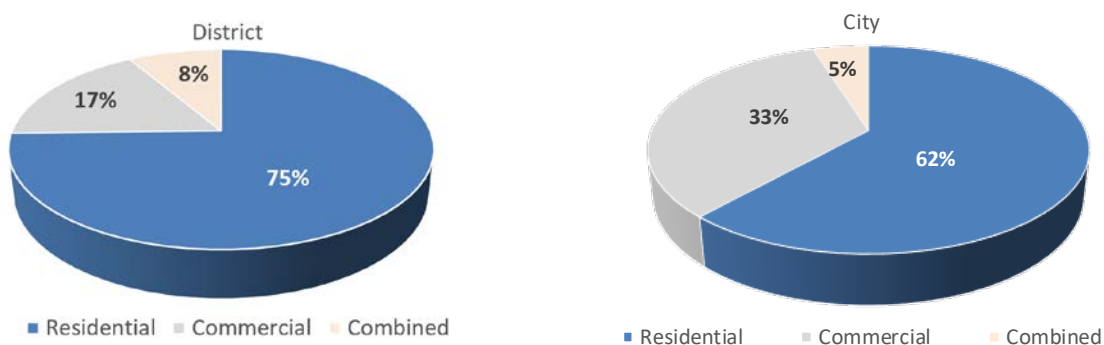


Figure 2-1: City and District Treated Demands by Customer Type ¹⁴

¹³ Source: Chamber of Commerce

¹⁴ These percentages are annual averages from 2010-2017 City and District billing data.

Table 2-1: Descriptions of Customer Types

Type	City	District
Residential	All types of residential development including multi-family housing	Single or multi-family housing
Combined	Residential and commercial customers housed in a single structure served by a single service line	Properties that have both residential and commercial customers within the same structure served by a single water connection
Commercial	All other types of customers that are not residential or combined	Businesses, including hotels and motels

The proportion of treated indoor and outdoor demands is similar among both providers. As shown in Figure 2-2, annual outdoor treated water comprises about one third of total treated use. The remaining two-thirds of treated demands are delivered for indoor use.

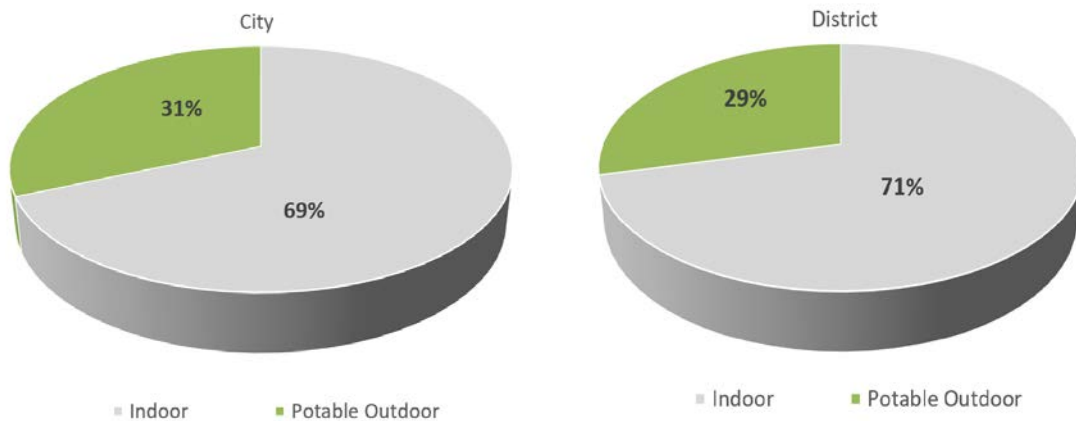


Figure 2-2: Indoor and Outdoor Treated Demands ¹⁵

2.2 Historical Water Demands

Treated Water

Historical treated water demands have been decreasing over the past 10 years while the population continues to increase. This is shown in Figure 2-3, where downward trends in demands have generally occurred since 2007. These downward trends are also reflected in Figure 2-4 which shows a decline in unit water demands, demand per equivalent residential unit (EQR).^{16,17} This declining demand trend is observed

¹⁵ These charts are based on annual WTP production data from 2006 – 2018.

¹⁶ One EQR is essentially equivalent to the amount of water used by a 2,500 square-foot, three-bedroom, two bath single family home which is assumed to be 280 gallons per day of treated water demand for planning purposes.

¹⁷ Demands per EQR were calculated by dividing annual water treatment plant production by the annual number of EQRs. In comparison with per capita water demands (gpcd), the demand per EQR approach provides a more robust baseline to identify annual water demand trends for resort communities that experience a flux of seasonal tourism. The EQR approach uses development rather than population as the baseline denominator.

among providers throughout Colorado and is partially attributed to passive savings accrued through more efficient indoor water fixtures and appliances and behavioral changes that result in less water use since the 2002 drought. Additional information on indoor passive savings and historical demand trends is provided in Appendix B.

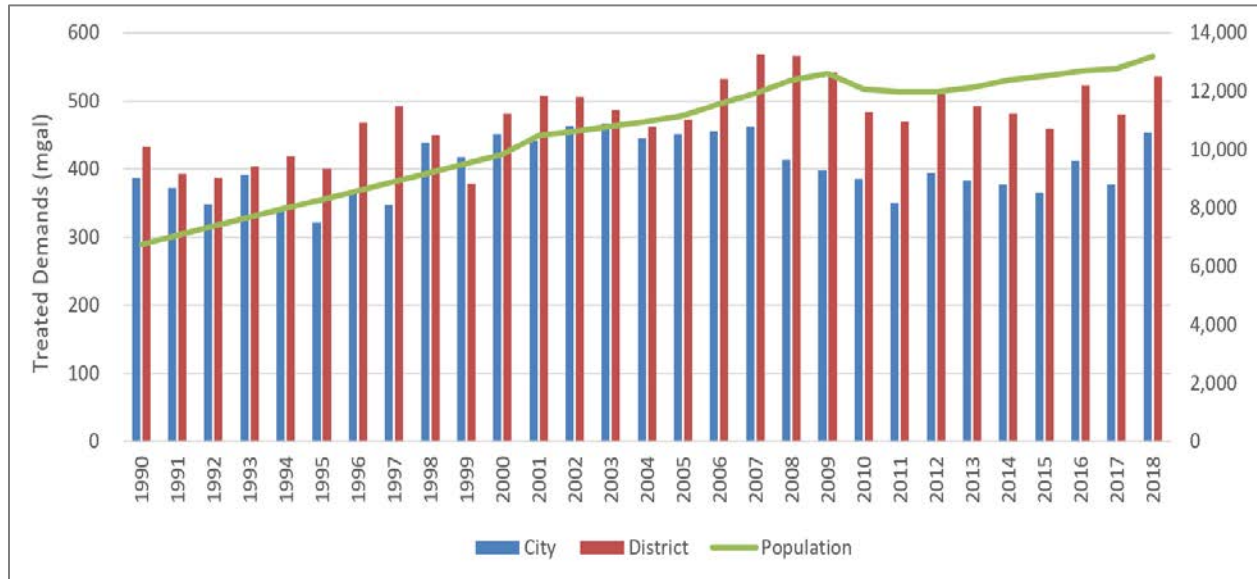


Figure 2-3: Treated Water Demands and Population

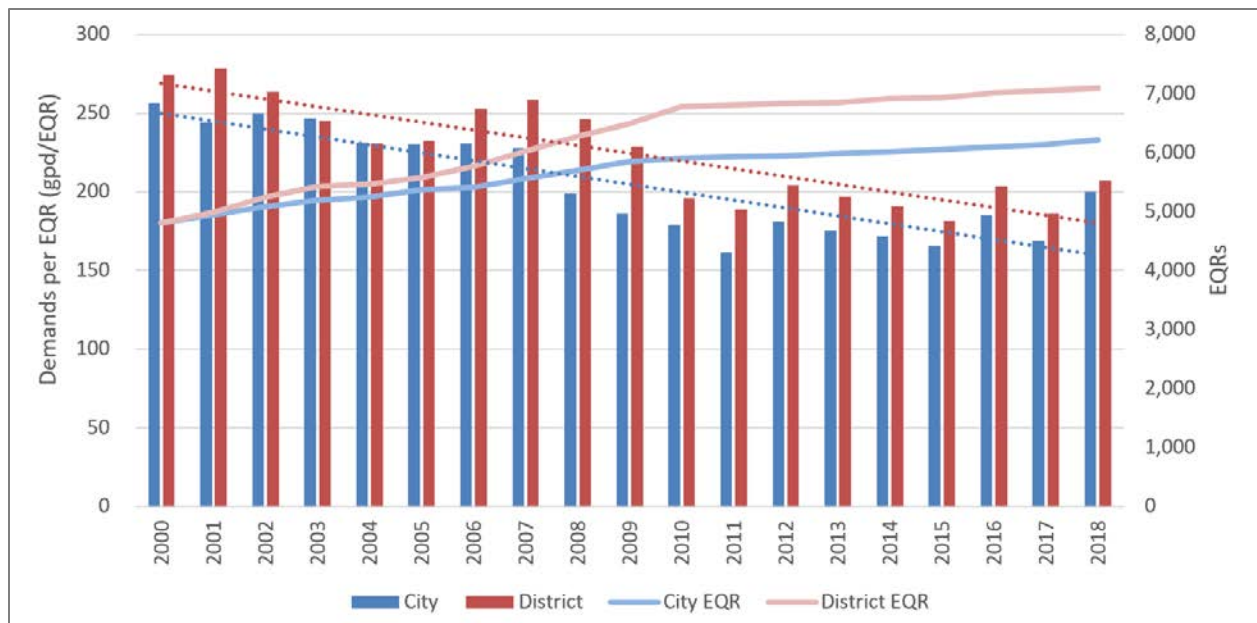


Figure 2-4: Demands Per EQR

Raw Untreated Water

Outdoor demands consist of both treated water supplies and untreated raw water for irrigation and for snowmaking by the City. Figure 2-5 shows the City and District's historical raw untreated water demands.¹⁸ Demands fluctuate on an annual basis with no obvious trends yet are likely influenced by precipitation and temperature. The District's raw water demands comprise of irrigation on the Rollingstone Golf Course while the City's raw water demands include snowmaking and park irrigation.¹⁹

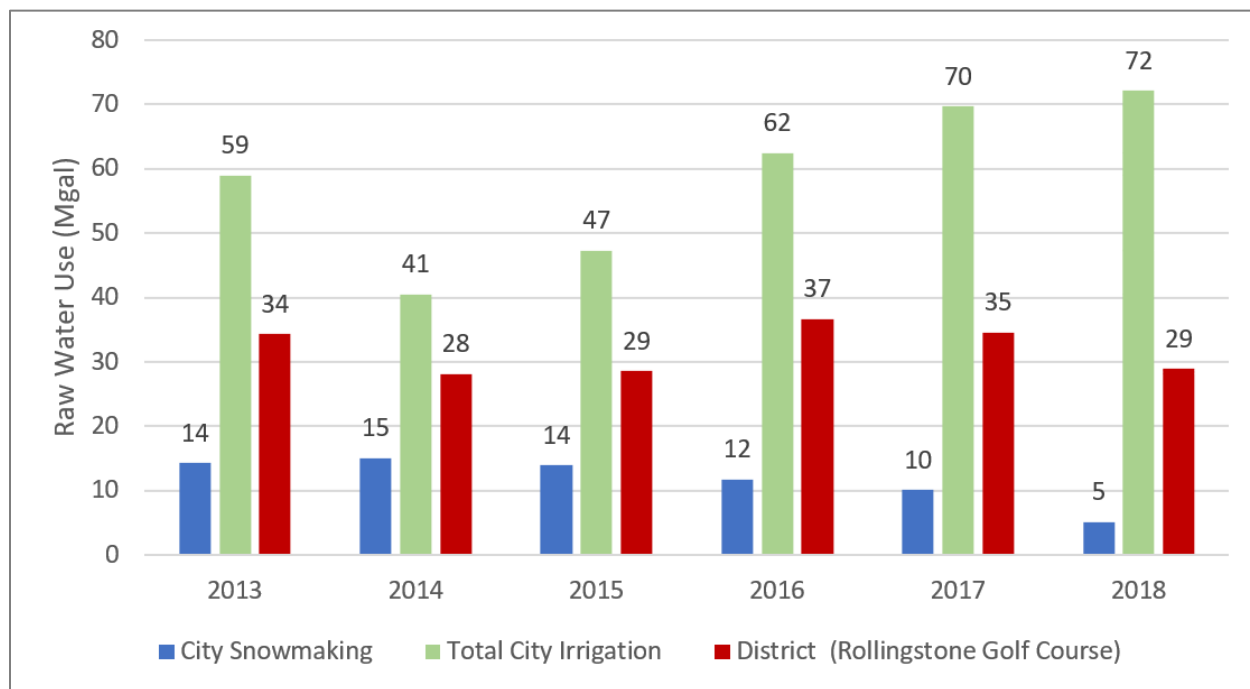


Figure 2-5: Total City and District Untreated Raw Water Demands

Reuse Water

Reuse water from the City of Steamboat Springs has been used on Stanko Ranch for agricultural purposes since 1981. The City's effluent is directly pumped to a reservoir that feeds the ranch's irrigation distribution system.

Non-revenue Water

Non-revenue water consists of distribution system leakage, metering inaccuracies, un-metered demand, non-metered park irrigation and hydrant flushing. Table 2-2 shows the percentage annual non-revenue losses for the City and District using annual WTP production and billing data. Losses were calculated on an annual basis as:

$$\text{Non-revenue losses} = \frac{\text{WTP Production} - \text{Billed metered water}}{\text{WTP Production}}$$

¹⁸ These raw water data are City and District water accounting data from 2006 – 2017.

¹⁹ This includes Ninth Street, Trafalgar Park, Spring Creek Park Memorial Park, West Lincoln Park, Haymaker Golf Course and Casey's Pond. Memorial Park and West Lincoln Park recently came online in 2015 and 2017, respectively. Haymaker Golf Course comprises most of the City's raw water demands.

Table 2-2: Percentage Losses of Non-Revenue Water

Year	City	District
2010	No data available	15%
2011	No data available	14%
2012	No data available	12%
2013	No data available	13%
2014	14%	10%
2015	12%	10%
2016	12%	11%
2017	11%	5%
2018	19%	11%
Average	14%	11%

Note: Daily gaps in WTP production data were replaced with representative data as follows: ½ in 2010, ¼ in 2011, all of 2015 and ¼ of 2016.

The average annual losses are 14% and 11% for the City and District, respectively. Both data sets generally demonstrate an overall decrease in system losses, with the District's losses being lower than the City's losses. This is expected since the City's water system infrastructure is significantly older than the District's. However, the City's non-revenue water in 2018 is significantly higher at 19%. This may be attributed to a meter change that was made at the Fish Creek WTP in 2018. It may be possible to correct the anomaly with an upcoming water audit. However, the higher estimate could also be a more accurate indication of the City's non-revenue losses. Additional data is needed to further explain the discrepancy. Additional information on non-revenue loss trends is provided in Appendix B.

2.3 Past Activities and Lessons Learned

Conservation Activities

Steamboat is actively engaged in water conservation activities provided in Table 2-3. Many of these activities were initiated following the development of Steamboat's 2011 Water Conservation Plan, while others have a longer history of implementation. Additional information on these activities, including period of implementation and estimated water savings, is provided in Appendix E.



Table 2-3: Past and Current Water Conservation Activities

Past and Current Water Conservation Activities
Foundational
Meter reading and water billing
Meter and software enhancements
Meter testing and replacement
Park irrigation monitoring
Monitoring and response program to abnormal water usage
Aquahawk Program (District)
Tiered rate structure
Track water use by customer types
Participating in CWCB sponsored CWLI program using AWWA M36 Software (launched in 2019).
Leak detection
Distribution system, infrastructure repair/replacement
Evaluation of water losses on a regular basis (e.g. annually)
Sub-metering
Targeted Technical Assistance and Incentives
Toilet rebate program
Dishwasher rebate program
Clothes washer rebate program
Irrigation rebates
HOA irrigation rebates
Irrigation audits on Parks
Parks irrigation scheduling and timing
Raw water conversion for irrigation
Demonstration garden - The City removed irrigated sod and installed a low water use demonstration garden in front of its City Hall in 2019.
Regulations
Water wasting ordinance.
<u>Stage 1 water restrictions from Drought and Water Emergency Preparedness Plan</u> 1) Potable water shall be used for beneficial purposes and should not be wasted. 2) No outdoor watering 10 AM – 6 PM.
<u>Odd and Even irrigation watering schedule from Stage 2 water restrictions in Drought and Water Emergency Preparedness Plan</u>
Enforcement of water wasting ordinance and water restrictions.
Education
HOA and Lodging Property Program (District)
Water Conservation Website
Bill stuffers
Irrigation education and training
Commercial education

Current Activities Integrating Water Supply and Land Use Planning

In addition to the water conservation activities listed in Table 2-3, Steamboat has a variety of mechanisms in place that help to coordinate water supply planning with land use planning. These include the following:

- Steamboat has a well-established City urban growth boundary where urban development within the county has generally been focused.
- Water resources staff reviews proposed water rights dedications for City annexation and new development that is over 50 units to ensure there is enough supply for water service.
- Water resources staff works with Planning Department in reviewing development applications to ensure water infrastructure can meet water needs of new development.
- City Code and the District's Rules and Regulations prohibit the unlawful expansion of water use (e.g. development of apartment auxiliary to their home and/or expansion of irrigated area) without paying for an additional tap fee. If cited, customers must pay for an additional tap fee.

These mechanisms provide a legal connection between water supplies and land use planning, ensuring that water supplies are considered when development and land use decisions are being made. Additional activities that the City and District plan on doing in the future to better incorporate water conservation into the land use planning process are discussed in sections 4 and 5.

Lessons Learned

The following lessons and opportunities were identified through development of this Plan.

Conservation goals - Steamboat conducted a comprehensive evaluation of its 2011 Water Conservation Plan goals during the update of its 2019 WSMP (see Appendix C). While it was concluded that Steamboat was successfully on track in meeting its 2011 goals, it was challenging to decipher how to measure this. This Plan describes how the targeted saving goals (see Section 3) may be measured in the Monitoring Plan in Section 5.

Main meter accuracy -The District has experienced periods in which the main meters at the Fish Creek WTP have ceased working, requiring estimates to fill the data gap. Meter improvements are necessary to ensure accurate data collection. Accurate data is essential to informing decisions on capital improvements and implementation of other activities needed to maintain an efficient distribution system.



Billing system data - Prior to the development of this Plan, the City's billing system was not retaining customer water use data older than 4 years. This issue has been rectified and the billing system will now retain a longer history of data.

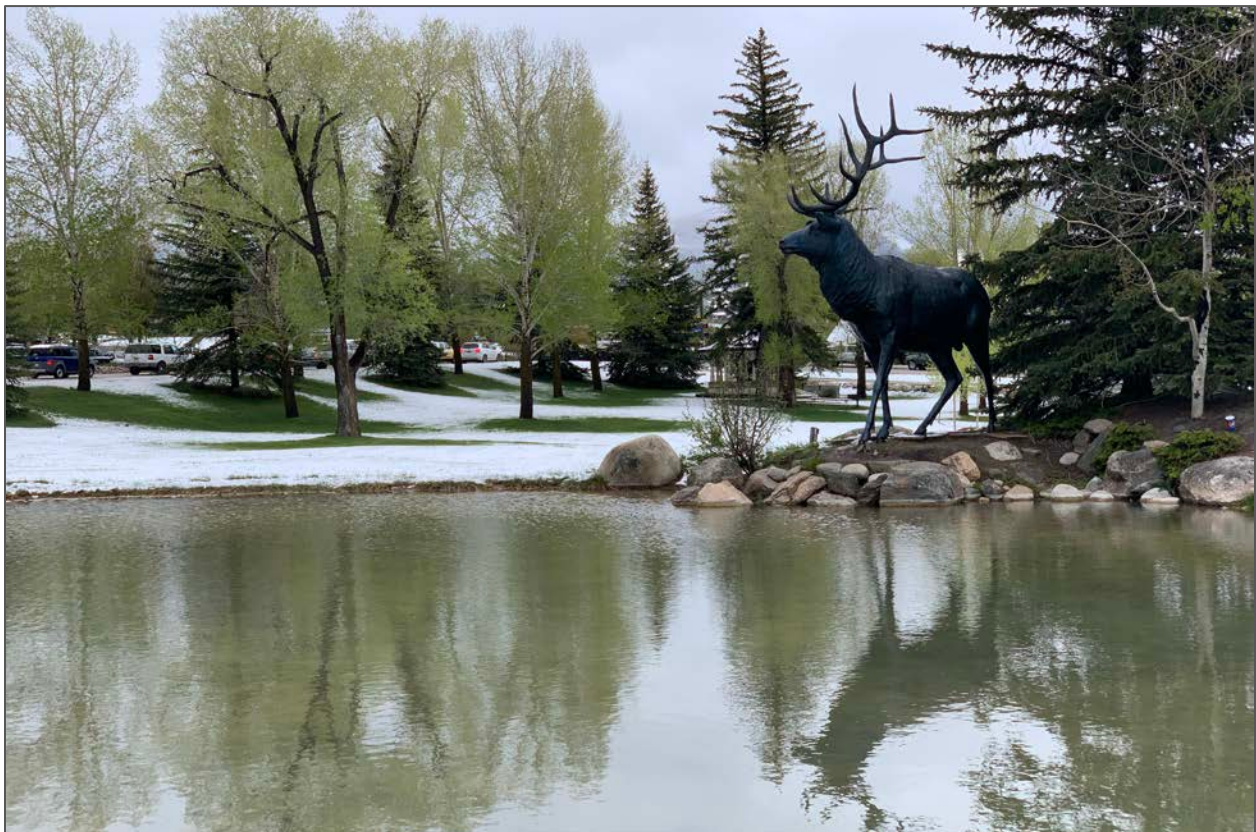
Non-revenue loss monitoring - Efforts are needed to improve the monitoring of non-revenue losses and further understand the historical annual non-revenue estimates in Table 2-2. At a minimum, non-revenue losses need to be evaluated on an annual basis and additional data is necessary.

Billing frequency - The District may benefit from increasing their billing data from a quarterly to monthly billing cycle. This would increase the resolution of end-user water use data and could help reduce customer water use by increasing awareness on how much water is being used on a monthly basis.

Monitoring City water use - Increased monitoring of water use on City property and parks is needed to further understand how the City can become more efficient with their water use. This will likely be a combination of quality assessment and quality control on City meters and tracking City account water use.

Monitoring and Data Collection

The City and District plan to make a series of improvements to their metering and monitoring systems. This will improve Steamboat's ability to invest in water-saving actions based on reliable data.



3. Water Conservation Benefits and Goals

3.1 Water Conservation Benefits

Water conservation provides the following benefits to the Steamboat community and local environment.

Community support - Water conservation outreach increases the Steamboat community's understanding of the connection between water conservation and sustainability, resiliency, environmental stewardship and lower customer water bills. This also provides a foundational understanding for when the community is asked to further reduce water use on a temporary basis during drought and other water supply emergencies.

Regional presence – Steamboat's conservation program demonstrates that Steamboat joins other West Slope municipalities in taking initiatives to conserve water. This can assist in meeting regulatory and political requirements for obtaining permits for local and regional water supply projects.

Delayed need for new infrastructure - The decrease in demands over time can delay and/or reduce the amount of public funds needed to support new infrastructure, such as the expansion of the Fish Creek Water Treatment Plant.

River health - Reductions in indoor and outdoor water use can improve river health by decreasing wastewater discharges and irrigation runoff. It can also improve environmental flow conditions in Fish Creek during dry years since less water will be diverted for municipal use.

Reduced carbon footprint - Water conservation reduces the chemicals and energy needed for treatment and pumping which reduces the City and District's carbon footprint.



City 2019 Goals that Relate to Water Conservation

Long Term Water Planning: Identify and implement strategies to promote water supply resiliency, prepare for growth, plan for drought & wildfire, plan for a Colorado River Compact Call, plan for water conservation, and develop redundant water supplies.

Environmental Sustainability: Create policy that advances environmental sustainability objectives.

3.2 Water Conservation Goals and Projected Water Demands

Attainable water conservation goals provide standards that can be used to gauge the effectiveness of a program as well as clearly define the program's intention. The goals listed below were developed by the Core Planning Team. They provide quantitative water saving targets and qualitative parameters to help achieve the benefits listed in Section 3.1. Further information on how the quantitative goals may be measured is provided in the Monitoring Plan in Section 5.

1. **Water savings target** – Achieve a 10% savings in 10 years. This applies to treated water demands.
2. **Non-revenue water savings** – Reduce non-revenue losses to below 10% by 2027.²⁰
3. **Educate community** - Educate the community to foster awareness that being water efficient and conserving water is not only the right thing to do but essential to attain sustainability and resiliency in an arid climate.
4. **Lead by example** - Capitalize on the opportunity for the City and District to lead by example, conserving water and demonstrating responsible stewardship of the environment. This includes improving efficiency of the water distribution systems and maximizing efficient use of water at City and District facilities and parks.²¹
5. **Reduce costs** - Optimize operational cost saving opportunities through the reductions in non-revenue water, water use at the City and District facilities, and chemicals and energy needed for water treatment and pumping.
6. **Ensure a reliable water supply** - Grow into the City and District’s existing water portfolios in a responsible manner to ensure water security considering the uncertainties that accompany a changing and variable climate, wildfire, drought and potential future calls on both the Yampa and Colorado rivers.
7. **Integrate water conservation with land use planning** - Develop the policy and coordination needed among multiple City departments and with the District to effectively integrate land use planning with water efficiency efforts.



While Steamboat has adequate supplies to meet long-term growth in the region, wise water use can help improve the reliability of water supplies in times of drought and local wildfire and sustain a healthy environment.

These goals aim to achieve a system-wide treated water savings of 10% by 2030 which is equivalent to an annual water savings of 106 mgal based on the projected demands depicted in Figure 3-1. The baseline (green line) is the “business as usual” scenario, assuming Steamboat’s conservation efforts continue at historical unit demand levels (gpd/EQR).²² The passive indoor conservation (light blue line) scenario assumes that an additional 1% savings may be achieved through indoor passive savings. The active conservation (dark blue line) scenario includes the 1% indoor passive savings with an additional 9% savings achieved through new conservation efforts, assuming Steamboat can achieve a unit demand of 160 gpd/EQR by 2030.

²⁰ City and District staff decided that a 10% non-revenue loss by 2027 is a reasonable target for both the City and District based on the historical non-revenue losses provided in Table 2-2.

²¹ This corresponds with the City’s Star 2017 Sustainability Action Plan calling for the reduction of raw and treated water use by 5 percent in City facilities over the next two years, and 15 percent over the next 5 years (Star Outcome ID# CE-5:0-2).

²² The baseline demand projections were developed during the 2019 WSMP update and then updated to remove the Steamboat II contract deliveries for purpose of this Plan. The scenario presented in this Plan assumes the 1.8% annual mid-growth EQR-A method with a unit demand of 178 gpd/EQR which is the unit demand observed in 2017 (not including 2017 Steamboat II deliveries). See the 2019 WSMP for additional information.

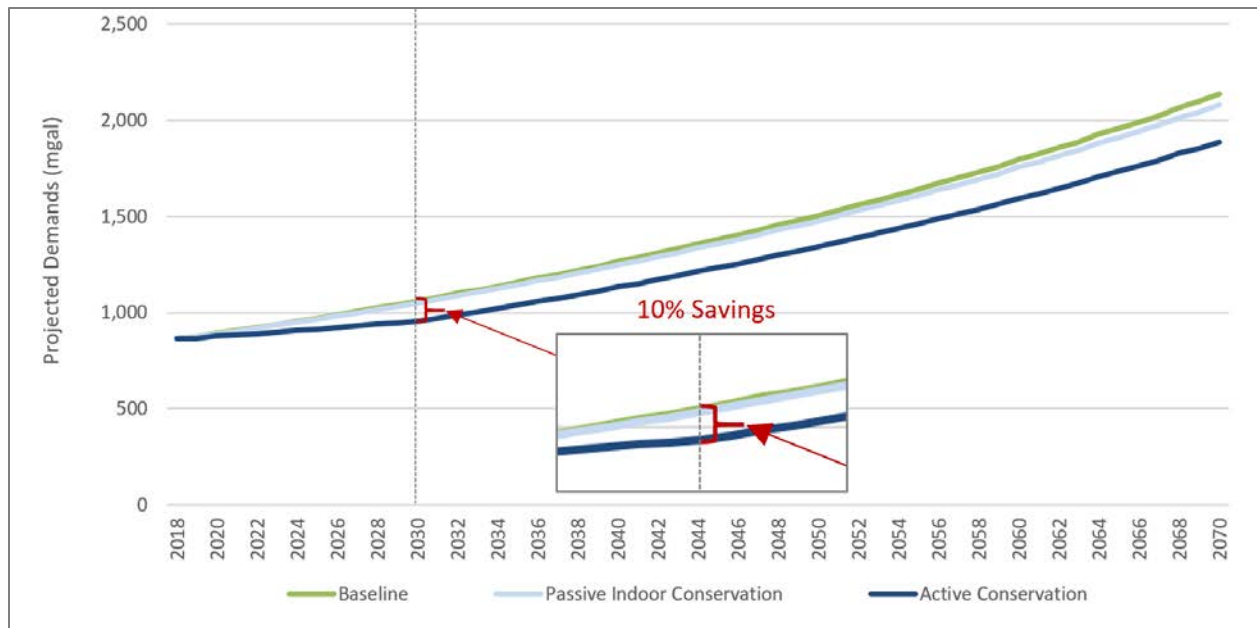


Figure 3-1: Projected Demands and 10% Treated Water Savings Target

Figure 3-2 portrays the unit demand of 160 gpd/EQR in relation to Steamboat's historical treated unit water demands. While this is an ambitious goal relative to historical demand patterns, City and District staff feel it is of benefit to aim high. The goal may be updated with the Water Conservation Plan update in seven years if annual demand monitoring data warrants an adjustment.

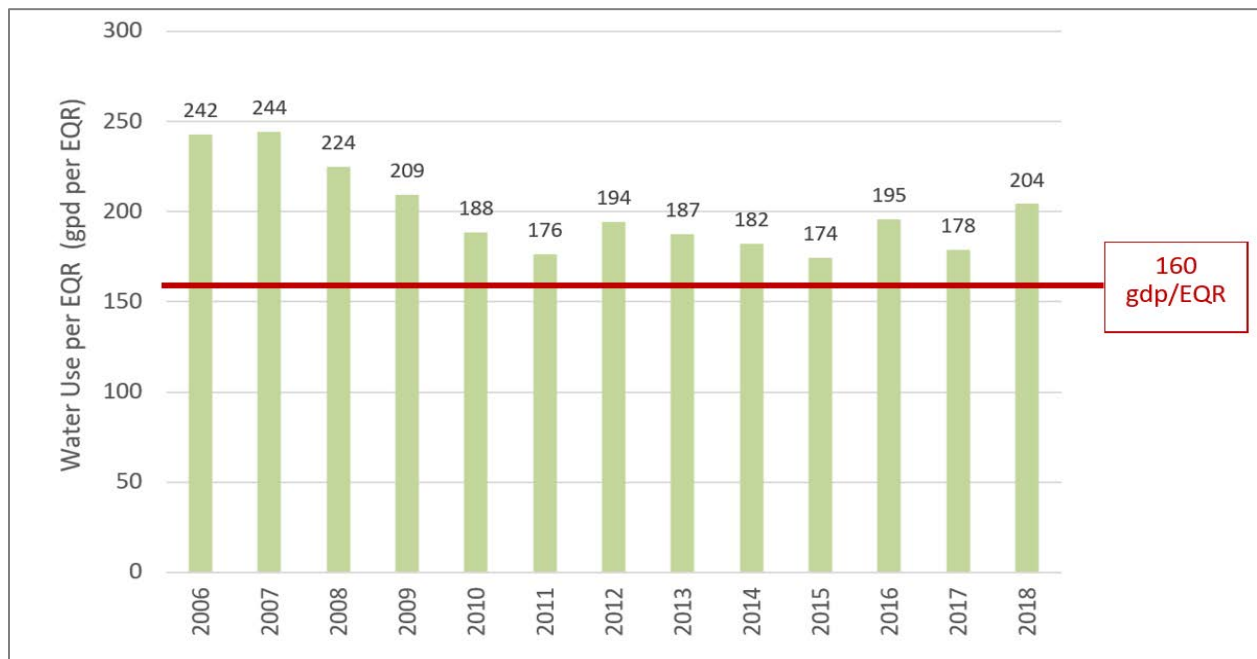


Figure 3-2: Targeted Demand Per EQR Relative to Historical Unit Water Demands²³

²³ The unit demands presented in this figure do not include Steamboat II deliveries, maintaining consistency with Figure 3-1.



3.3 Water Conservation, Land Use Planning and Water Supply Planning

Every 10 years, Steamboat updates its water supply master plan where historical water demand data are used as a metric for developing projected water demands. For instance, the projected water demands in the 2019 WSMP are based on observed 2017 treated water demands which include savings achieved through conservation efforts up until 2017. Future water supply master plan updates could incorporate projected water savings achieved through future conservation efforts (beyond observed existing historical levels), however, additional tracking of conservation efforts and historical demand data is needed to generate a level of confidence that such an approach would be beneficial and provide sufficiently reliable results.

New efforts to integrate water conservation with land use planning will help contribute to the 10% water savings in 10 years target and will also help set the stage for achieving additional savings beyond 2030. The following reference questions served as a tool to guide the development of the new conservation and land use strategies identified in Section 4. These questions may be revisited in the future if efforts to refine how land use planning and water conservation can further be integrated.

Reference Questions for Integration of Water Conservation and Land Use Planning

- Projections indicate that Steamboat will continue to develop with an increasing population and annual number of visitors. How can the City make wise land use decisions that promote efficient water use and sustainable growth?
- What are key areas within the City's Community Development Code and development review procedures that can be updated to encourage the integration of water conservation into land use planning for existing and new development?
- The amount of water used for outdoor irrigation can be reduced while maintaining the values of the community and its aesthetically appealing landscapes. How can low water use landscapes be promoted through the City's land use planning policies and regulations?



4. Water Conservation Activities for Implementation

The City and District plan to implement a diverse collection of water conservation activities to achieve the water conservation goals and benefits discussed in Section 3. These activities are summarized in Table E-1 in the Executive Summary and are discussed in further depth below. The activities were selected by the Core Planning Team based on the following qualifications: technically feasible, practical to implement from a staff resource perspective, politically and publicly acceptable, provide a high probability of success and complementary to each other.²⁴ Estimated water savings and preliminary cost estimates to implement the activities are provided in the Implementation Plan in Section 5.

4.1 Foundational Activities

The foundational activities focus on system operations and water efficiencies that are under the District and City's direct control. They improve the overall efficiency of the water distribution systems by ensuring reliable metering and data tracking.

Improve Metering, Demand Collection, Billing Systems and Rates

Metering of treated source water improvements – During the expansion of the Yampa Wellfield Treatment Plant in 2018, the District replaced many of the meters at the facility and plan to replace the remaining ones in 2020. The District plans to also conduct an audit of the Fish Creek WTP to identify recommendations for improving meter accuracy and water efficiency of the plant. The District will implement feasible recommendations from the audit in addition to testing and calibration of meters on an annual basis.



End use metering improvements– As a standard practice, the City and District's meters and transmitters are maintained, repaired and replaced on an as needed basis. Also, within the past few years, the District has replaced their larger condo meters and is initiating a testing program, where the accuracy of a batch of meters is tested and replaced annually. The City plans to implement a variety of activities to improve meter accuracy and data tracking for water use on City properties. This is discussed in more detail in Section 4.2.

²⁴ The Core Planning Team conducted a comprehensive screening process to discuss the effectiveness of the current conservation activities and identify new activities for implementation. This process consisted of an initial screening with the District and City Water Resources Manager to identify activities for further refinement, two workshops with the Core Planning Team to further refine the list of identified activities and two phone calls among City and District planning and water resources staff to discuss the integration of water conservation and land use planning. Participating staff also had the opportunity to review the draft Plan and provide additional input on each selected activity.

Submetering - The District recommends to developers of all new duplexes have separate meters for irrigation.

Billing systems – The City plans to continue billing its customers on a monthly basis and maintain the customer groupings of commercial, residential and irrigation. The District currently bills on a quarterly basis, with the same groupings (Table 2-1). Evidence has shown that increasing the frequency of billing can reduce customer water use since customers are made aware of how much water they use on a more frequent basis. The District plans to investigate the feasibility of increasing billing to a monthly basis during the next water rate study in 2022.

Improvements to collection of demand data –The City and District have conducted a comprehensive review of their water demands through the 2019 WSMP and this water conservation planning effort. They plan to continue to collect demand data and water conservation activities as detailed in the Monitoring Plan in Section 5.



Conservation oriented water rates - The City and District have a tiered block rate structure for residential customers where customers that use more water are charged a higher rate per gallon than customers that use less. The 2018 water rates for the City and District are provided below and Appendix B provides details on how these rates have been adjusted over time. In 2019, the City and District conducted water rate studies, which are done every three years. Water rates were increased in 2020 based on study results. During the next 2022 water rate study, the District and City will consider increasing rates and/or lowering the amount of water used per individual tier (e.g. increasing Tier 2 or Tier 3 rates) to further encourage water conservation.

Table 4-1: City Water Rates in 2019

Residential volume rate per 1,000 gallons	Rate
0 - 4,000 gallons	\$3.05
4,001 - 12,000 gallons	\$4.58
12,001 - 20,000 gallons	\$7.00
20,001 - 28,000 gallons	\$9.14
>28,000 gallons	\$13.71
Commercial volume rate per 1,000 gallons	\$5.93

Table 4-2: District Water Rates in 2019

Residential Volume Rate per cubic meter	Rate
0 to 75 cubic meters	\$0.33
76 to 420 cubic meters	\$0.53
Over 420 cubic meters	\$1.06
Commercial volume rate per cubic meter	\$0.66

System Water Loss Management and Control

As discussed in Section 3, the City and District have a goal of reducing and maintaining non-revenue losses to 10% or less by 2023. This will be accomplished through metering improvements discussed above in addition to the activities listed below. Non-revenue water will be monitored and evaluated on an annual basis.

Leak detection, repair and infrastructure replacement – Reported leaks are investigated and repaired as soon as possible by District and City staff. In addition, the City is incrementally replacing older sections of their water distribution system. Over 7,250 feet of water main have been replaced since 2013. While the District’s system is relatively new, they are also actively engaged in making improvements, focusing on installing new water main for looping and redundancy. These are standard maintenance practices that the City and District will continue.



Colorado Water Loss Initiative (CWLI) Workshops²⁵ - The City and District are progressing through the CWLI workshops where they are achieving further insight into their non-revenue water losses (e.g. how much of their water losses are meter error vs physical losses). Where feasible, the City and District plan

²⁵ This CWCB program supports the Colorado Water Plan objective to support water management activities for all water providers. The CWLI program includes four working sessions for water providers over a two-year period focusing on implementation of the AWWA M36 water audit and the WRF 4639 Level 1 Validation methodology.

to implement the recommendations that come out of the workshop process.²⁶ Such recommendations may include:

- Develop preventative maintenance and an accurate testing program to periodically inventory, calibrate and test meters both at the end use and throughout the system.
- Investigate new technology options for detecting leaks earlier.
- Update capital improvement plans to target specific infrastructure repair and/or replacement where needed.
- Incorporate estimates of hydrant flushing losses into non-revenue loss calculations to better estimate physical system losses.²⁷

Improvement to monitoring and customer feedback on potential leaks - As discussed above, the City has installed AMI meters throughout their system which has the technical capability of providing meter readings every 20 minutes. The City plans to calibrate its meters with the City's centralized database (adjusts sensitivity of its software system) to ensure that system leaks can reliably be detected.²⁸

The City also plans to investigate the quality and functionalities of new software options that optimizes the capabilities of AMI. This investigation will consider opportunities for



water conservation such as developing a means for customers to be notified within 24-hours if abnormal water use is being recorded suggesting a leak and a platform where customers can access close to "real-time" data on their water use (e.g. data may be available through a mobile phone app).

The District's Aquahawk Program currently covers approximately 10% of the District's customer base. This is a voluntary program where participating customers' water use is monitored daily. Customers are notified within 24 to 72 hours (depending on whether it is a weekend or weekday) if an abnormal water use is observed suggesting a potential leak. This enables customers to repair leaks as soon as possible, avoiding an unnecessary high-water bill and wasting water.²⁹ The District plans to investigate how it can most efficiently expand their Aquahawk system to cover a larger customer base while also having the staff resources to operate the program. This may entail an opt-out program where customers must notify the District if they do not want to be in the program rather than the current "opt-in program" where customers currently must sign up.

²⁶ The District has received the following preliminary recommendations: 1) Validate master meters (e.g. meters at WTPs) to ensure measuring correctly and 2) Once master meters are corrected, investigate technology options for earlier leak detection.

²⁷ The District currently estimates hydrant flushing based on timing of flushing per hydrant and corresponding flow rate measurement.

²⁸ The City's existing software system can mistakenly signal a leak when a large irrigation meter is turned on. Currently when the irrigation meters are turned on at the onset of the irrigation season, the system mistakenly indicate a leak, reducing the reliability of detecting a real leak.

²⁹ The District currently receives to readings twice a day via Aquahawk and spends about \$6000 a year for software plus staff time.



Integrate Water Conservation and Land Use Planning Activities

Water and long-range land use planning - Steamboat has a well-established urban growth boundary (UGB) where the Steamboat Springs Area Community Plan (SSACP) directs the concentration of urban growth within this boundary. The City intends to place more emphasis on and integration of water conservation with future master planning efforts.

Upcoming efforts where this will occur include the Mountain Area Master Plan and an update to the SSACP. The City will also explore opportunities to integrate water conservation and blue-green infrastructure strategies into future long-range planning projects. Blue-green infrastructure strategies are derived from a more inclusive view of urban planning where natural green systems are used to help manage stormwater runoff and other aspects of the urban water system (e.g. bioswales, rooftop gardens and treatment wetlands). Benefits can include improved water quality, reduced flooding, enhanced resiliency to climate change, reduced infrastructure costs and increase spaces for communities and wildlife.



Data and information alignment -The City and District update their water supply master plan every 10 years. The 2019 WSMP uses a combination of Routt County population data, City and District EQR data and City historical population growth trends to develop water demand projections through 2070. The City and District may explore further opportunities for collaboration with the Planning Department during the next WSMP update in 2029.

Adequate Water Supply for Development Policy - Water resources staff reviews proposed water demand reports for City annexation and new development that is over 50 units to ensure there is enough supply for water service. Additionally, water resources staff work with the Planning Department to ensure water infrastructure can meet water needs of new development for development applications both above and below 50 units.

Enforcement of water conservation regulations that may be integrated into the Community Development Code (CDC) -Once the CDC has been updated to better integrate water conservation with development standards (see Section 4.4), the City plans to develop protocol to ensure that the new water conservation-oriented regulations are properly enforced during the development review, construction and post-occupancy phases. For example, this could include new procedures for enforcing a revised CDC Landscape Code to ensure correct installation and routine inspections of water-wise landscape. Monetary and staff provisions will be needed to support enforcement.



4.2 Targeted Technical Assistance and Incentives

These activities rely on indoor water conservation technologies and water-wise outdoor technologies and practices to reduce water use.

Reduce Water Use at City Facilities

Goal CE-5:0-2 in the 2017 City of Steamboat Springs Sustainability Action Plan calls for the reduction of “raw and potable water use by 5 percent in City facilities over the next two years, and 15 percent over the next 5 years.”³⁰ The City plans to conduct the following to assist in meeting this goal.

Review of City’s water accounts - The City plans to review the water use of its City water accounts (e.g. meters serving City facilities and parks irrigation) to identify any abnormalities that could indicate leaks and/or meter error. Any leaks and meter malfunctions will be addressed.

Indoor water audits in City facilities - The City plans to conduct indoor water audits on City facilities and implement recommendations, as feasible, for reducing indoor water use. Such recommendations may include the replacement of less water efficient fixtures and appliances with newer water efficient devices and education to City employees on best management practices (BMPs) to save water. Water use will be monitored pre and post implementation of the recommendations to estimate water savings and compare to the City’s Sustainability Action Goal CE-5:0-2 described above.

Reduction of irrigation on City parks and facilities - The City will be developing and implementing a plan to reduce irrigation on City Parks and facilities. Water use will be monitored pre and post implementation to

³⁰ This goal and Action Plan was developed using the STAR sustainability benchmarking process in 2017 and is not a formal goal of this Plan. Additional information is provided at: <https://www.steamboatsprings.net/540/Sustainability-STAR-Communities>.

estimate water savings and compare to the City's Sustainability Action Goal CE-5:0-2 described above. The plan will consist of the following:

- Conduct quality control to ensure the outdoor water meters are correctly installed at the right location each spring. (The City pulls their park outdoor water meters each fall. Occasionally the meters have been reinstalled at the wrong park.)
- Conduct water audits on identified parks and City property to develop recommendations on how irrigation efficiency can be improved through irrigation equipment and BMPs. Water audits will initially be conducted on smaller systems. Recommendations developed from the audits will consider the latest technology to improve irrigation efficiency such as rain shut-off devices, efficient irrigation head retrofits, weather based and or web based "smart" controlled systems, etc. Lessons learned through these processes will then be incorporated into the larger irrigation systems.
- Conduct assessment to identify areas conducive for replacement of sod with low water use landscaping and prioritize areas for replacement. Replacements will be initiated on smaller areas and expanded as the City learns from the process. These areas may include low traffic areas on parks, landscaping at City buildings, highway medians that the City is responsible irrigating, etc.
- Develop a means to promote the new low water use landscaping to the public. This may include on-site signage, demonstration garden(s) and public outreach on the landscape changes and associated benefits.



Raw water irrigation on parks – The City plans to expand its raw water irrigation. The following parks are being considered for conversion from treated water to raw water: Little Toots Park and Bud Werner Memorial Library, Stehley Park and Bear River Park. The City also plans to encourage structural irrigation system improvements on Haymaker Golf Course to improve efficiency of the existing raw water system.



Reduce Water Use of Customers through Technical Assistance and Incentives

Artificial turf on sports fields – The City will partner with school districts to consider replacing irrigated turf with artificial turf on sports fields.

Commercial water use reduction pilot studies -The City and District each plan to partner with a commercial customer to conduct a pilot water use reduction study. Grant opportunities and a third-party(ies) to assist with the administration and implementation of the studies will also be investigated. The commercial partners will be relatively large water users that have a high degree of interaction with the public (e.g. shopping centers, medical centers, hotels, etc.), providing a conduit for public education as the study pursues. Water use prior to the study will be monitored closely to establish a baseline for measuring savings as conservation activities are implemented. Such activities may include indoor and outdoor water audits and retrofits using the latest technologies, sod replacement with low water use landscaping, public signage educating the visitors of the conservation activities occurring, and outreach such as signs in the hotel rooms promoting visitors to use less water.

Feedback to large water users on water use – The City and District plan to track the water use of their largest water users on an annual/seasonal basis and inform these customers of the amount of water used and how it compares to previous seasons/years. The City also plans to assess their top 50 water users and develop an understanding for why each are ranked as a top water user. Where appropriate, opportunities for water savings may be identified and communicated with customers.

Indoor rebate program improvements – The City and District have implemented a rebate program for toilets, dishwashers and clothes washers since 2012, providing 602 fixture and appliance rebates through 2018. Additionally, the City and District provided irrigation rebates (water audits and outdoor irrigation retrofits) in 2012 through 2014. It was found that the irrigation rebates were too time intensive for staff resources and the program was discontinued.

Outdoor rebates -The City and District intend to reinstitute the outdoor irrigation audit program by working with a third-party to improve administrative efficiencies.

Wasting Water Costs You \$Money\$

WATER CONSERVATION REBATES AVAILABLE!
Replace those water guzzling fixtures and appliances TODAY!

Outdoor rebates - The City and District plan to reenergize the existing indoor rebate program by exploring partnership opportunities with a third party(ies) to elevate outreach and promotion of the program and public participation and assist with administration. Efforts will be made to strategically target outreach to



single-family, multi-family and commercial. The City and District will also consider new residential rebates including showerheads, faucets, aerators, etc. and new commercial rebates including urinals, industrial dishwashers, industrial clothes washers and pre-rinse spray valves for restaurants.

Rain Barrels- The City and District will explore opportunities to work with a partner in promoting and educating the public about the installation of rain barrels.

Landscaper Contractor Training – The City and District will investigate opportunities for providing training to landscapers on how to best incorporate water efficiency into irrigation system design and maintenance.

Integrate Technical Assistance and Incentives with Land Use Planning

Integration of water conservation into future planning incentive packages - The City plans to investigate methods where higher density housing, conservation and other benefits such as blue-green infrastructure strategies and transit options can be incorporated into development plans through upcoming master planning efforts. During these planning processes, the City will explore incentive-based opportunities to encourage high-density, conservation-oriented development. Such incentives could include fee breaks for developers (timing of payment or amount) if they have more density/multi-use housing, density bonuses (developers can include more units if meet certain water efficient criteria), etc.

Tap fee study – The City and District plan to conduct tap fee studies to evaluate their current tap fee structures and identify the benefits, effectiveness and feasibility of implementing new conservation-oriented tap fee structures. Such tap fee structures could provide more price incentive for high density/smaller lots, incentivize low water use landscape and discourage large taps and/or less efficient fixtures. Multi-purpose benefits such as connecting reduced tap fees to providing deed restricted long-term rental units or affordable housing may also be explored. These studies will inform the City and District's 2022 water rate studies.

Model landscape plans – The City and District plan to develop model low water use landscape plans that residents and developers may review and integrate into their landscape projects. Model plans could be developed for single-family, multi-family and commercial development.



4.3 Regulations and Ordinances

The following regulations enforce and help promote water conservation throughout the community.

Update Water Use Regulations

City (Sec. 25-52) and District (Article 10 – Water Conservation) ordinances each prohibit the wasting of water. The following regulations further define the outdoor use of water and enforcement.

Watering schedule– The following watering schedule was adopted by ordinance by the City and Board resolution by the District for implementation every year with adoption of this Plan.³¹

- No outdoor watering between 10AM – 6PM. Exceptions to this may be made for City and District approved management purposes.
- Odd and even watering schedule provided in Table 4-3 below. The watering schedule is based on the last number of customers’ street addresses.³²

Table 4-3: Odd and Even Watering Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Even	Odd	Even	No Watering	Odd	Even	Odd

Clarification on enforcement of water wasting ordinance and watering schedule – The District’s Rules and Regulations 10.3 provide the following structure to enforce its water wasting ordinance and watering schedule discussed above:

- Violation 1 – Written notice and told receive monetary change added to water bill subsequent violations
- Violation 2 – Written notice and charged minimum of \$25
- Violation 3 – Written notice and charged minimum of \$50
- Subsequent violations – Could be subject to temporary suspension of service or revocation of service

The City plans to update its CDC and/or Municipal Code to adopt a similar enforcement structure above, where there is a specific penalty per written notice of a violation and the City is authorized to shut-off customers after reaching a certain number of violations. It is important to note that staff resources and



³¹ These watering schedule originates from the City and District’s Drought and Water Emergency Preparedness Plan, provided in Appendix A. This Plan adopts the schedule every year, regardless of whether there is a water shortage.

³² This is an update to the Drought and Emergency Preparedness Plan in Appendix A which stipulates that the odd and even water schedule should be implemented during Stage 2 water restrictions. Through adoption of this Plan, the odd and even schedule is implemented year-round, regardless of the water restriction stage.

budget are necessary to implement the enforcement. The need for such resources may be more intensive during drought.

Incorporate Water Conservation into Policy, the Revised Municipal Code and CDC

Water conservation is currently addressed in certain policies and sections of the CDC code; however, improvements can be made to further integrate conservation into land use planning. Sections of the CDC and Municipal Code will be updated over time to better connect policy with regulations and incorporate new standards that will benefit the community (e.g. affordable housing). During the policy and code updates, City and District water resources staff will work in concert with the Planning Department to identify water conservation opportunities and discuss how to best integrate these opportunities. Opportunities for blue-green infrastructure strategies may also be identified. Areas of the codes that will be specifically looked at include (but are not limited to) the sections discussed below.

Amendment of CDC subdivision regulations and annexation policy – The City plans to revise the CDC subdivision regulations and the annexation policy to strengthen water conservation practices in new development. This may include an overarching statement that connects the regulations to the Water Conservation Plan goals followed by requirements on incorporating water conservation practices into new development.



Amendment of CDC landscape standards – The City plans to conduct a comprehensive review of the CDC landscape standards to remove disincentives to water conservation and incorporate new water conservation practices. This includes but is not limited to requiring low water use landscaping, water efficient irrigation, best management practices and limits on irrigated turf.

Amendment of infill and development standards – There are currently goals and policies in the SSACP and the CDC that promote density and infill. Development is generally concentrated in the City growth boundary while open space is encouraged in the remainder of the county. However, improvements can be made to the code to encourage water conservation- oriented higher density development. The City plans to update its infill and development standards to incorporate water conservation and other beneficial planning objectives (e.g. more affordable housing). New standards may also be developed for green field development that encourage water conservation-oriented development.

4.4 Education Program

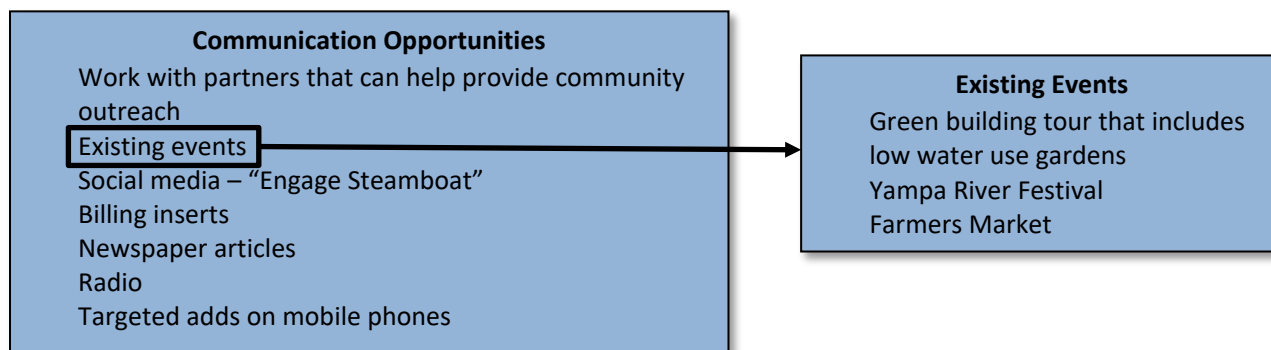
The water conservation education outreach program is a dynamic program that will be crafted based on the conservation activities being implemented and customer communication needs. Outreach efforts will be



customized to different customer types with the highest priority customers being HOAs, property managers, hotels, large commercial customers, the development community and community landscape contractors. Conservation messaging will also be extended to single family and multi-family homeowners, second homeowners, business owners and the tourist industry where appropriate.

The following guiding principles will be considered in further developing communication strategies and activities.³³

- **Complement regulations and activities** –The education program will place strong emphasis on promoting the City and District’s conservation activities detailed above. The Implementation Plan (Table 5-1) provides public outreach actions for each of these activities.
- **Convey conservation benefits** - Conservation can be more successful when customers understand why they should do it and feel a personal connection to the outcome. Efforts will be made to highlight the benefits of water conservation listed in Section 3.
- **Leverage partnerships and existing communication strategies**– Beneficial partnerships; existing effective communication channels; (e.g. “Engage Steamboat, social media, “Spur Change” sustainability campaign, Live Like You Love It Campaign); and existing events that offer opportunities for interacting with the public will be leveraged to optimize public education opportunities.³⁴
- **Highlight City and District activities** -The City and District are taking a strong leadership role to save water and lead by example. The City and District’s will routinely inform the public of their water conservation efforts to emphasize their leadership role in promoting water conservation.
- **Educate staff** - Internal efforts are needed to ensure that City and District staff understand current conservation activities being implemented and be encouraged to educate and promote conservation throughout the local community.



As discussed above, the education outreach needed to support many of the water conservation activities detailed above are included in the Implementation Plan (Table 5-1). Education activities that are not tied to a specific conservation activity include the following.

Shared City and District water conservation website – The City and District will explore the opportunity of consolidating their existing water conservation websites into one website that provides a unified message to

³³ The guiding principles and educational activities were developed from input provided by the Core Planning Team. Staff were asked to identify the type of conservation messages/information that should be conveyed to the public, who the education program should target and how the messaging should be done.

³⁴ Potential partnerships opportunities identified during the planning process include Friends of the Yampa, Yampatika, Yampa Valley Sustainability Council and Yampa River Fund.

its customers. The website would build off existing content on both the City and District's website and be updated to sync with the implementation of this Plan.

Water conservation best management practices – The City and District will investigate and select conservation activities to promote among the development and landscaping communities, HOAs and single-family homeowners. This may include smart irrigation technology, water efficient irrigation practices and waterwise landscaping. The specific activities and scale of implementation will be developed later based on opportunities available including partnerships with third parties.

Youth education – The City and District plan to partner with Yampatika to promote water conservation practices in K-12 education.



Demonstration gardens – The City plans to promote available demonstration garden(s) in the community on a routine basis, encouraging visitation. This includes the demonstration garden at Yampa River Botanical Park and City Hall in addition to other demonstration gardens that may be developed in the future.

Frequent water use reporting – The City and District will explore options for adding water use information on mobile phones where customers can access this information daily. This program would be closely tied with the City and District's AML metering.

Corporate partnership(s) – The City and District will consider developing corporate partnerships (e.g. Steamboat Ski & Resort Corp.) to further educate the public and increase awareness around water conservation.



5. Implementation and Monitoring Plan

5.1 Implementation Plan

The implementation of this Plan will be facilitated through a Water Conservation Program Team consisting of City and District water resources staff and City Planning staff that meet quarterly to coordinate water conservation activities and the integration with land use planning. This diverse team will consist of City and District staff from multiple business functions including staff from water resources, operations, land use planning, parks and recreation, billing, and other representatives that would be of benefit. Duties will be divided among the City and District until a Water Conservation Coordinator can be hired or contracted.

The Implementation Plan, Table 5-1, provides the approximate timing for implementation of the conservation activities described in detail in Section 4. It also provides accompanying education activities for each activity and preliminary costs where costs can reasonably be developed. Table 5-2 provides projected water saving estimates where water savings can reasonably be developed. Efforts will be made to initially implement the activities scoped for the first half of the seven-year implementation period, however, the implementation of some of these activities (particularly the land use planning) may require City Council approval on an individual activity-by-activity basis. The Water Conservation Program Team will review the status of implementation halfway through the seven-year implementation period in 2024 and reprioritize the timing of conservation activities based on input from City Council and the District's Board.



Water Conservation and Potential Revenue Effects

Like most water providers, the City and District's revenues are largely driven by the amount of water used by its customers and the City and District have significant fixed costs that are unaffected by water use. While water conservation has the potential to affect water revenues, it is not expected that attainment of the City and District's water conservation goals will significantly affect costs or revenues within the next seven years. Reduction in non-revenue water would either be revenue-neutral (by reducing real water losses and treatment costs) or would increase revenues (by eliminating non-metered uses and reducing meter underreporting). Additionally, new growth can bring in additional revenue, offset revenue reductions from conservation. The City and District plan to monitor cost expenditures for conservation activities. If an activity does not appear to be cost-effective in the long-term and could potentially contribute to a need to increase water rates, this activity may be considered for elimination.

Table 5-1: Implementation Plan
Note: Actions that do not include the City or District are performed by both entities

Conservation Activities	Timing of When Activity Will Be Initiated			Education Activities that Accompany Each Activity	Estimate of Annual Costs
	Currently Doing and Ongoing	First Portion of 7-Year Period (2020 -2024)	Second Portion of 7-Year Period (2025 - 2027)		
Foundational					
Consider hiring or contracting water conservation coordinator		Consider hiring or contracting water conservation coordinator			
Improve Metering, Demand Collection and Billing Systems					
Metering of treated source water improvements	District - Annually calibrate meters	District - Meter replacement when new raw water source is put online (2020) District - Fish Creek WTP audit & improvements		Inform public of activities emphasizing the District's commitment to saving water	\$10,000-\$50,000
End use metering improvements	District - test accuracy of batch meters			Inform public of activities emphasizing the District's commitment to saving water	\$5,000 -10,000
Submetering	District - recommend that duplexes have separate irrigation meters			Continue outreach efforts to condo property owners and developers	\$1,000
Billing systems	City - bill on monthly basis	District - investigate changing from quarterly to monthly billing (2022)		Inform District customers of any changes to billing frequency highlighting the benefits associated with the change	District – \$5,600/yr
Improvements to collection of demand data		Implement Monitoring Plan (See Section 5.2)			\$5,000
Conservation oriented water rates	Block tiered rate structure Incremental raises in water rates anticipated	District - consider changing rate structure to provide more price incentive for conservation (2022)		Educate customers on reasons for changes to water rates	\$50,000 to \$75,000 per rate study
System Water Loss Management and Control					
Leak detection, repair and infrastructure replacement	Reported leaks investigated and repaired City - replacement of old infrastructure as needed District - improve redundancy in distribution system			Inform customers of improvements demonstrating City and District initiative to eliminate wasting of water and improving efficiency	\$50,000 per year
CWLI Workshops	Participating in CWLI workshops	Implement recommendations from CWLI workshop			
Improvement to monitoring and customer feedback on potential leaks	District - continue using Aquahawk system	City - calibrate meters with software system (2020) City - Optimize functionality of AMI to improve customer feedback (2021) District - Explore options to expand Aquahawk program		Notify customers of unusual high-water use and potential for a leaks ASAP	\$6,500 (cost of Aquahawk program)
Integrate Water Conservation and Land Use Planning Activities					
Water and long-range land use planning		City - Integrate water conservation with master planning efforts		Inform public of City's efforts to promote water savings through land use planning and new development. Provide targeted messaging to stakeholders (e.g. development and landscape communities) that may be directly impacted by changes.	
Data and information alignment	Update water supply master plan every 10 years incorporating planning data				
Adequate Water Supply for Development Policy	City – follows adequate water supply for development policy where water resources staff reviews water demand reports prior to issuing development approval.			Inform public of City's efforts to promote water savings through land use planning and new development. Provide targeted messaging to stakeholders (e.g. development and landscape communities) that may be directly impacted by changes.	

Conservation Activities	Timing of When Activity Will Be Initiated			Education Activities that Accompany Each Activity	Estimate of Annual Costs
	Currently Doing and Ongoing	First Portion of 7-Year Period (2020 -2024)	Second Portion of 7-Year Period (2025 - 2027)		
Enforcement of water conservation regulations that may be integrated into the CDC.			City - Develop protocol in CDC for enforcement and initiate enforcement.		
Targeted Technical Assistance and Incentives					
Reduce Water Use at City Facilities					
Review of City's largest water accounts (water use on City properties and parks)		City - review top 30 water accounts to identify abnormalities in water use suggesting meter error or leaks		City - Inform customers of City's efforts to save water	\$4,000
Indoor water audits in City facilities		City - conduct water audits and implement recommendations		City - Inform customers of City's efforts to save water Educate City staff on BMPs that may be implemented to reduce water use	\$25,000 (does not include retrofits)
Reduction of irrigation on City parks and facilities	City – monitor irrigation on parks	City - conduct water audits and implement recommendations on smaller parcels City - Prioritize areas for sod replacement City - QC to ensure pulled water meters are installed at correct location in the spring	City - conduct water audits and implement recommendations on larger parcels City - sod replacement on larger parcels	City - promote the new low water use landscaping and irrigation efficiency improvements (e.g. signage at low water use landscaping sites)	
Raw water irrigation on parks	City – raw water irrigation on some of its parks District – raw water irrigation on Rolling Stone Golf Course		City - expand raw water irrigation City - encourage structure improvements on Haymaker Golf Course	City – promote public support for raw water irrigation if needed	
Reduce Water Use of Customers through Technical Assistance and Incentives					
Artificial turf on sports fields			City - partner with school district to explore opportunities for installation of artificial turf	Highlight water saving benefits of artificial turf to the public	
Commercial water use reduction pilot studies		City and District - develop partnership and initiate studies		Develop messaging campaign that advertises and leverages pilot study activities to educate the public on conservation practices	
Feedback to large water users on water use		Initiate tracking of water use and communication with large water users		Outreach targeted to abnormal high-water users informing them of water use and collaborating on ways water use can be reduced	
Indoor rebate program improvements	Continue toilet, dishwasher and clothes washer rebates	Reenergize rebate program and consider new types of rebates		Elevate advertisement of the existing water rebate program and any new rebates when they come online	
Outdoor rebates		Work with third-party to reinstitute outdoor irrigate rebate program. This may include water audits and irrigation equipment retrofits.		Work with third-party to advertise outdoor rebates	
Rain barrels		Work with third-party to promote and education the public about the installation and maintenance of rain barrels		Work with third-party to promote and educate the public about rain barrels	
Landscaper contractor training		Explore opportunities to work with a third-party in educating/training landscape contractors about efficient irrigation design and maintenance		Advertisement of the training opportunity to landscape contractors if program moves forward	

Conservation Activities	Timing of When Activity Will Be Initiated			Education Activities that Accompany Each Activity	Estimate of Annual Costs
	Currently Doing and Ongoing	First Portion of 7-Year Period (2020 -2024)	Second Portion of 7-Year Period (2025 - 2027)		
Integrate Technical Assistance and Incentives with Land Use Planning					
Integration of water conservation into future planning incentive packages			City - investigate incentives and incorporate into development packages where feasible	Educate public where needed to generate support and develop targeted messaging to the development community and other relevant stakeholders	
Tap fee study		Conduct tap fee study (prior to 2022 water rate study)		Educate public on study to generate support and develop targeted messaging campaign if new taps fees are adopted	\$10,000 - \$35,000
Model landscape plans		Develop low model low water use landscape plans		Use as resource for workshops/trainings and other relevant events	\$10,000 – 25,000
Regulations and Ordinances					
Update water Use Regulations					
Watering schedule		No watering between 10 AM – 6 PM and odd/even watering schedule (2020)		1) Educate public on watering schedule and emphasize that the odd/even watering schedule is now being implemented every year. 2) Educate public on why parks/golf courses cannot always operate within the irrigation window (e.g. special events where park needs more irrigation to sustain higher traffic volumes)	
Clarify enforcement of water wasting ordinance and watering schedule		City – Revise CDC and/or municipal code to clarify enforcement of water wasting ordinance and watering schedule District – Enforce District’s code		Educate the public on enforcement of water use regulations. Inform public of any changes to CDC	
Incorporate Water Conservation into Policy, the Revised Municipal Code and CDC					
Amendment of CDC subdivision regulations and annexation policy		Revise language in CDC and annexation policy to strengthen water conservation practices in new development and connect to goals in this Plan		Educate public to generate support and understanding of CDC changes. Develop targeted messaging to stakeholders directly impacted (e.g. development and landscaping community). Emphasize connection between higher density development and reduction in water use.	
Amendment of CDC landscape standards		Remove disincentives to water conservation and incorporate new water conservation practices			
Amendment of infill and development standards	Goals and policies in the City’s comprehensive plan and zoning codes promote density and infill	Update infill and development standards to incorporate water conservation and other beneficial planning objectives. Consider developing standards for green field development that encourage water conservation-oriented development.			
Education (in addition to activities listed above)					
Shared City and District Water conservation website		Explore feasibility of a District and City shared conservation website			
Water conservation best management practices		Convey information on BMPs			\$10,000 - \$15,000
Youth education		Partner with Yampatika on K-12 education			
Demonstration gardens		Advertise demonstration gardens			
Frequent water use reporting			Consider option of for adding water use information on customer mobile phones		
Corporate partnership(s)		Consider developing corporate partnership(s) to further educate the public			

Table 5-2: Projected Water Savings for the City and District (kgal/year)³⁵

Year	Rebates				Feedback to large water users on water use	Raw Water Conversions		
	Clothes Washer	Toilet Residential	Toilet Commercial	Dishwasher		City Snowmaking	City Irrigation	District Rollingstone Golf Course
2019	304	3,700	583	25	Not doing	11,654	70,898	34,057
2020	402	4,213	1,070	31	Not doing	11,654	70,898	34,057
2021	499	4,725	1,556	37	859	11,654	70,898	34,057
2022	597	5,238	2,042	43	1,718	11,654	70,898	34,057
2023	694	5,750	2,528	44	2,577	11,654	70,898	34,057
2024	694	6,263	3,014	47	3,436	11,654	70,898	34,057
2025	745	6,775	3,500	51	4,295	11,654	70,898	34,057
2026	745	7,288	3,987	44	4,295	11,654	70,898	34,057
2027	827	7,800	4,473	50	4,295	11,654	70,898	34,057
2028	917	8,313	4,959	56	4,295	11,654	70,898	34,057
2029	1,002	8,826	5,445	61	4,295	11,654	70,898	34,057
2030	1,084	9,338	5,931	66	4,295	11,654	70,898	34,057

5.2 Monitoring Plan

Water conservation planning is most effective when it is managed as an adaptive continuous process where routine monitoring and adjustments can be made to the implementation. Monitoring provides the necessary information decision-makers need to make adjustments that improve the water conservation program under continuously evolving conditions. Such information includes documentation of water conservation activities, water demand trends, other factors that influence water demands and recommendations for the following years. This section provides an outline for an annual monitoring report that will be given to City Council and District's Board during the first quarter of each calendar year. This report will inform any modifications to the conservation program.

³⁵ Annual water savings are cumulative over time starting at the onset of the rebate programs in 2012 (with exception to feedback to large water users which is assumed to start in 2021). In addition, the savings are based on the following assumptions. Number of rebates distributed annually from 2020 to 2030 are clothes washers – 25, residential toilets – 50, commercial toilets – 10 and dishwashers – 40; large water users will achieve a 5% savings through City and District outreach efforts by 2025 assuming 1% annual increase in savings and 2018 water use levels; City snowmaking conversions – average of 2012 -2018 use, City irrigation conversions – average of 2017 and 2018 use and District irrigation conversions – average of 2012 – 2018 use. City irrigation conversion has increased over time as more parks are brought online. The City may bring additional parks online with untreated raw water in the future yet use cannot be estimated at this time.

Monitoring Plan Outline

Title: Annual Water Conservation Monitoring Report (disclose year of report)

Section 1: Introduction – State purpose of the report and outline content.³⁶

Section 2: Water conservation activities- Documentation of water conservation activities over the past year. This documentation can be helpful in providing background and context for making future improvements to the conservation program.

- City and District conservation activities and other relevant data (e.g. number of annual rebates, regulation infractions, etc.)
- Annual estimates of water savings for conservation activities where savings can reasonably be measured or estimated
- Annual costs
- Lessons learned from conservation activities implemented
- Feedback from the public on conservation activities

Section 3: Water demands – Table 5-2 provides guidance on data collection, evaluation and reporting recommendations. The level of detail for each annual evaluation and report will depend on available staff resources.

Section 4: Other factors that can influence water demands – This information is useful in understanding water demand trends over time.

- Development patterns over the past year including changes in population, number of new homes built and properties developed, acres of irrigated parks, etc.
- Number of annual visitors
- Weather data (monthly precipitation, temperatures, ET, etc.)
- Water rate changes

Section 4: Recommendations – List of changes and key actions for the Water Conservation Program for the upcoming year.



³⁶ For example: This annual water conservation report documents the water conservation activities, water demand trends and other factors that influence water demands, lessons learned and provides recommendations for improvements to the water conservation program next year.

Table 5-3: Reporting of Annual Demand Data

Demand Data Collection	Annual Evaluation	Reporting
Daily water treatment production at each water treatment facility	Add daily data to estimate annual WTP production data. Can also evaluate monthly WTP production to observe seasonal changes.	Bar chart showing annual WTP production data relative to prior years. (See Figure 2-3). Can also include a chart showing monthly WTP production.
Number of annual EQRs in the City and District	Subtract annual Steamboat II deliveries from annual WTP production. Divide this number by the total EQRs in the District and City to estimate unit demands (gpd/EQR). This is needed to measure success in meeting the goal of saving 10% in 10 years.	Bar charts showing annual demand (not including Steamboat II deliveries) per EQR relative to prior years. (See Figure 3-2). Compare trends to goal of achieving 10% water savings in 10 years (measured as 160 gpd/EQR by 2030.) ³⁷
Monthly/quarterly end user metered water by customer billing categories	Sum annual water use by individual customer billing category (e.g. commercial, residential and combined)	Bar charts or tables showing annual water use by billing category for the District and City separately.
Monthly calculation of non-revenue water	Recommendations from the CLWI workshops may provide a means to estimate non-revenue water. If not, the calculation commonly used to estimate non-revenue water is provided in Section 2. Hydrant flushing estimates may be incorporated into this equation to further characterize losses. This is needed to measure success in meeting the 10% non-revenue savings by 2027 goal.	Non-revenue loss estimates relative to non-revenue loss goal of 10% or less non-revenue losses by 2027. Include prior non-revenue loss estimates to provide context. (See Table 2-2).
Water use by City accounts on monthly and annual basis. These accounts are for indoor water use at City facilities and irrigation on City property (including parks).	1) Track trends in City indoor and outdoor annual water use 2) Track indoor and outdoor water use for individual key accounts. 3) Track irrigation application rates on individual parks (water applied/irrigated park area)	1) Bar charts showing total monthly/annual raw water irrigation relative to prior years. 2) Compare City annual water use to the Star Sustainability Action Plan Goal CE-5:0-2. (See Section 4).
Large water user accounts	1) City track water use on the largest water user accounts on a monthly or annual basis. 2) District – track water use of six largest water user accounts on an annual or quarterly basis.	1) Pie charts showing total percentage of use relative to customer base. 2) Time series plots show water use on a quarterly/annual basis by water user. (See Appendix D).
Monthly and annual raw water irrigation	1) Track trends in total annual raw water irrigation 2) Track trends in raw water irrigation applied to each individual park 3) Track irrigation application rates on individual parks (water applied/irrigated park area)	Bar charts showing total monthly/annual raw water irrigation. (See Figure 2-5).

³⁷ The 167 gpd/EQR includes deliveries to Steamboat II and therefore to maintain consistency, WTP production data used to develop unit demands (gpd/EQR) should include the Steamboat II deliveries.

6. Adoption of New Policy, Public Review and Formal Approval

6.1 Public Review Process

A public review process is required for all State approved water conservation plans per C.R.S. 37-60-126 (5). Steamboat Springs held a 60-day public review process from December 20 to February 20, 2020. The draft Plan was posted on the City's Engage Steamboat where the community could review the Plan. Community members were also asked to answer the three questions below. The nine responses were in support of the Plan and call for many of the activities in this updated Plan. The comments are provided in Appendix F.

- Why is water conservation important in Steamboat Springs?
- In addition to the water conservation activities described in this Plan, are there additional activities that you would like for the City and District to do to save water?
- Every other day watering schedule with no water Wednesdays has historically been implemented during periods of drought. This Plan calls for the implementation of this schedule every year regardless of whether there is a drought. This can provide water and energy savings and reduce peak water demands at the water treatment plant. Are you in support of this schedule? If not, why?

A press release educating the public on the Plan update and review period was posted in the newspaper and on social media. The City also advertised the posting of the Plan for review on their customer water bills. A presentation providing overview of the Plan was also given on January 14, 2020 at the Yampa Valley Sustainability Council's Talking Green forum. Over 30 people attended this meeting and had the opportunity to provide input on the questions listed above. The City and District also reached out to stakeholders to inform them of the updated Plan and the Talking Green presentation. These stakeholders included developers, HOAs, hotel and business owners and the landscaping community.



6.2 Local Adoption and State

Steamboat's Water Conservation Plan was adopted by the Steamboat City Council on April 7 and by the District Board on March 20. Appendix G provides the formal documentation approving the Plan.

6.3 Periodic Review and Update

Colorado status requires that State-approved water conservation plans are updated every seven years. The City and District intend to update the Plan by 2027. The updated Plan will evaluate historical water use trends and how well Steamboat has met the conservation goals specified in Section 3. Monitoring results discussed in Section 5 will also be incorporated into the updated Plan. New water conservation goals will be considered considering new findings and the new Plan will be updated to meet the current State requirements while also meeting the needs of Steamboat's community.

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Appendix A. Drought and Water Emergency Preparedness

This Drought and Water Emergency Preparedness plan is included as Appendix G in the 2011 Water Conservation Plan. The drought plan includes an odd/even irrigation schedule and irrigation restrictions between 10:00 am to 6:00 pm in the Stage 2 water restrictions. This was modified during the 2020 Water Conservation Plan update. The 2020 Plan update includes the odd/even watering schedule and irrigation restriction from 10:00 am to 6:00 pm as a standard practice implemented every year regardless of the drought stage.

APPENDIX G- DROUGHT and WATER EMERGENCY PREPAREDNESS

1. Statement of Need

As discussed previously in section 6.8, Colorado experiences a wide range of climatic conditions causing potential drought risk. Plans to reduce usage are necessary to stretch the available water supply through periods of drought. Water supply systems are also at risk from uncertainties such as forest fires, failure of dams, mains, and wells, and contamination of all or part of the raw water supply. The Steamboat Water Supply Plan identifies a forest fire as being a potential threat to the Fish Creek water supply that should be addressed. It further recommends that a Drought Response Plan be developed for the City and the District. A Community Wildfire Protection Plan has been developed for the area and the Forest Service has a wildfire management plan for the Fish Creek watershed.

In emergency or drought situations, contingency plans should be designed for implementation of mandatory measures in stages that minimize impacts to the economy, life-styles, and environment of the community. Plans should also be flexible in response to worsening or improving conditions.

2. Proposed Staged Water Use Restrictions

Adoption by the City Council and MWW District Board of the three-stage response plan outlined below is recommended. Adoption of this plan will authorize the Director of Public Works of the City and the General Manager of MWWD to declare Stage 2 and Stage 3 conditions and implement and enforce the drought response actions. Stage 1 will be in effect at all times.

3. Stage 1: The following recommended guidelines are in place at all times

- Potable water shall be used for beneficial purposes and should not be wasted.
- No outdoor watering 10AM – 6PM.
- When irrigating with a hose, use spring-loaded nozzle; no free-running hoses.
- Discourage tree-planting and the seeding or sodding of new lawns June 15th through August 31st.
- Encourage the use of native grasses and shrubs or drought-tolerant species on new or re-developing properties.
- Discourage water-intensive landscapes.
- Encourage cutting lawn grass no shorter than 3 inches to reduce soil moisture loss and to promote deeper roots.
- Limit the filling of swimming pools to one per year, unless draining for repairs is necessary.

3.1 Stage 2: This stage will be triggered by a drought warning based upon:

- April 1st SWE at the Tower SNOTEL site below 80% of average;
- an early run-off (before July 1) resulting in low flows in the Fish Creek Watershed;
- persistent higher than average temperatures within the period of April through August;
- below average precipitation within the period of April through August.

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The following Stage 2 restrictions will be put into effect by Utility operators and will be mandatory in addition to the year-round recommendations in Stage 1:

- Watering schedule based on the last number of customer street address:

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Even	Odd	Even	No Watering	Odd	Even	Odd

- Permits may be secured for newly-sodded lawns and newly-planted trees for up to 14 consecutive days and for newly-seeded lawns for up to 25 consecutive days with the exception of Wednesdays.
- No vehicle washing at residences.
- No washing hard surfaces (i.e., driveways, sidewalks, parking lots, outdoor eating areas).
- No running outdoor water features (including those meeting MWW District specifications).
- No use of domestic water for dust control.

3.2 Stage 3: This stage will be triggered by a drought declaration or a water supply emergency caused by forest fire or failed infrastructure

The following mandatory restrictions go into effect in addition to Stage 1, Stage 2 restrictions:

- No lawn irrigation.
- Suspension of special watering permits including those for newly seeded or sodded lawns.
- Hand watering of trees, shrubs, and flowers, and drip irrigation of trees and shrubs is allowed.
- All businesses including hotels, restaurants and property management companies, will be required to implement Stage 3 water conservation measures including education of owners, tenants and guests.

The entities may impose a total ban on all outside water use in the event of an extreme water system emergency.



Appendix B. Historical Water Demand Trends

This appendix provides more information on monthly demand trends and additional discussion on how the following factors influence Steamboat's water demands: population growth and seasonal tourist demands; water rates and water conservation; passive indoor water savings; climate and drought response and efficiency of the water supply system. Most of the text is taken directly from the 2019 WSMP Water Conservation Memo. Historical demand data are provided through 2017.

The City and District consider water conservation to be an important component of future water-planning and decision-making pursuits. This memorandum summarizes the historical demand and water conservation analysis conducted for the City of Steamboat Springs (City) and the Mount Werner Water District (District) in updating their Water Supply Master Plan (WSMP) and Water Conservation Plan (WCP). The intent of this memorandum is to provide the City and District an initial review of the analysis, and an opportunity to comment on the approach and results.

In efforts to focus on the customer demands that the City services, the demand data presented in this memo (unless noted) do not include snowmaking by the Steamboat Ski Resort nor deliveries made to Steamboat II which services an area not part of the City customer base.³⁸ This differs from the October 2018 *Historical and Current Demands Memo* which includes the Steamboat II deliveries to reflect the City's total supply needs that entails their obligation to deliver water to Steamboat II.³⁹ Demand data prior to 2006 originate from the 2008 *Steamboat Water Supply Master Plan*. Demand data for 2006 – 2017 are based on metered daily water treatment plant (WTP) production data.⁴⁰ Population and EQR data originate from the October 2018 *Historical and Current Demands Memo*.

B.1 Introduction to Historical Water Demands

The City and the District's water demands consist of both treated and outdoor raw water demands.

Treated Demands

The proportion of treated indoor and outdoor demands is similar among both providers. As shown in Figure B-1, annual outdoor treated use comprises about one third of total treated use. The remaining two-thirds of treated demands are delivered for indoor use.

³⁸ To determine demands without Steamboat II, metered Steamboat II demands were subtracted from City metered WTP production data.

³⁹ Data on monthly Steamboat II delivery data were available in 2009 and from 2014 to 2017. Annual deliveries from 2006 to 2008 and from 2010 to 2013 were assumed to be the annual average of available data (40.3 mgal/year). It is unknown when deliveries to Steamboat II started. Deliveries were assumed to start at a very low rate in 1990 and increase by 2.5 mgal/year until reaching the 40.3 mgal/year average in 2006. Monthly deliveries were estimated using prorating factors developed from the average of monthly deliveries from 2013 to 2017.

⁴⁰ As described in the October 2018 *Historical and Current Demands Memo*, there were data gaps in these WTP production data and consequently, the data gaps and other questionable data were replaced with representative production data from other months, based on a comparison of meter data available from 2010 to 2017. Additional details are provided in the October 2018 *Historical and Current Demands Memo*.

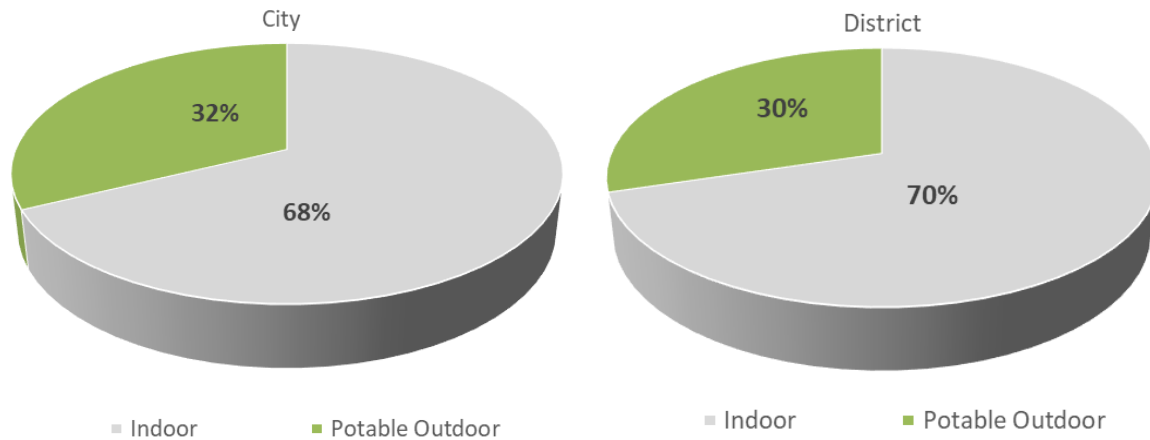


Figure B-1: Indoor and Outdoor Treated Demands⁴¹

Historical treated demands have been decreasing over the past 10 years while the population continues to increase. This is shown in Figure B-2, where downward trends in demands have generally occurred since 2007. This trend is observed among providers throughout the State of Colorado and is partially attributed to passive savings accrued through more efficient indoor water fixtures and appliances. Additional information on indoor passive savings is provided later in this section.

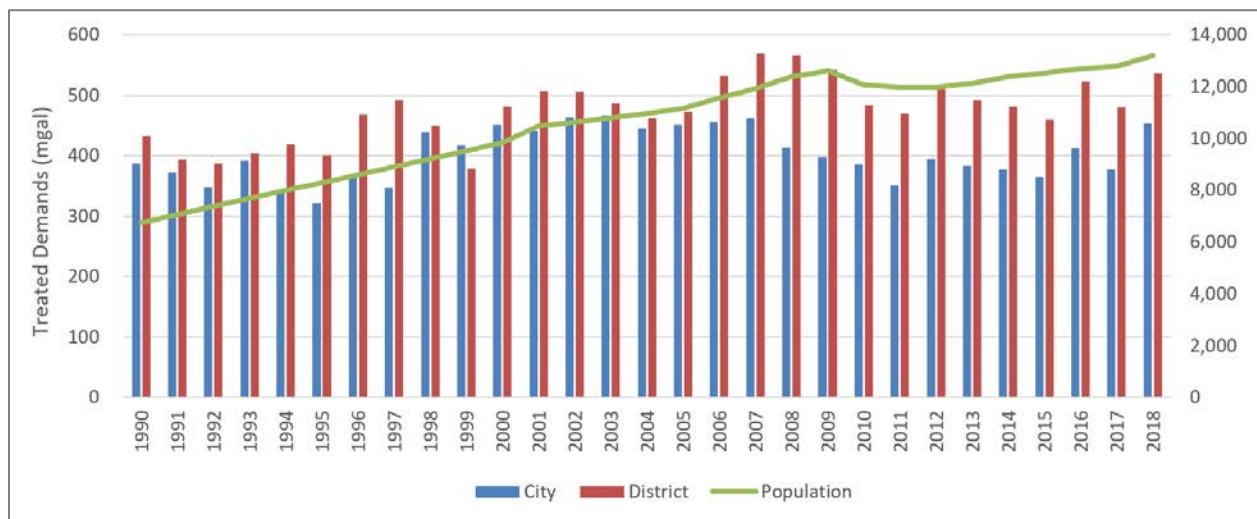


Figure B-2: Treated Demands and Population

Raw Untreated Water Demands

Outdoor demand consists of both treated supplies and raw untreated water for irrigation and for snowmaking by the City. Figure B-3 shows the City and District's raw untreated water demands since 2013.⁴²

⁴¹ These charts are based on annual WTP production data from 2006 – 2017.

⁴² These raw untreated water data are water accounting data from 2006 – 2017 for the District and from 2013 – 2017 for the City. For some of the individual raw water sources, estimates are made based on known pumping

Demands fluctuate on an annual basis with no obvious trends yet are likely influenced by precipitation and temperature. The District's raw water demands comprise of irrigation on Rollingstone Golf Course. Figure B-4 shows the City's raw water demands for snowmaking and by individual park. Memorial Park and West Lincoln Park recently came online in 2015 and 2017, respectively. Haymaker Golf Course comprises most of the City's raw water demands.

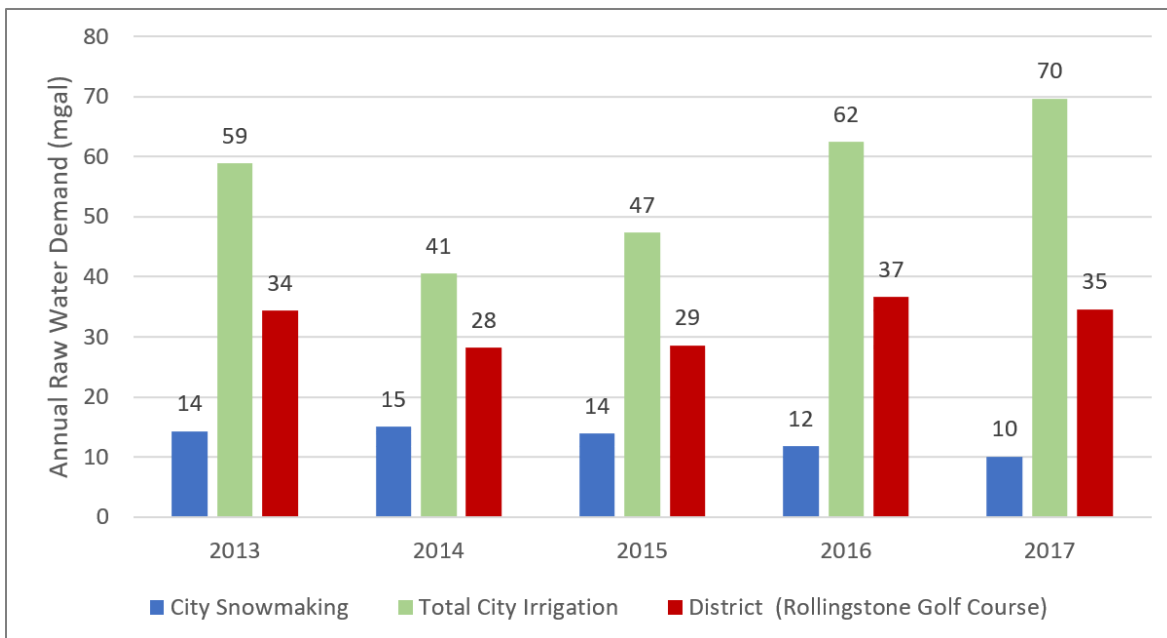


Figure B-3: Total City and District Raw Untreated Water Demands

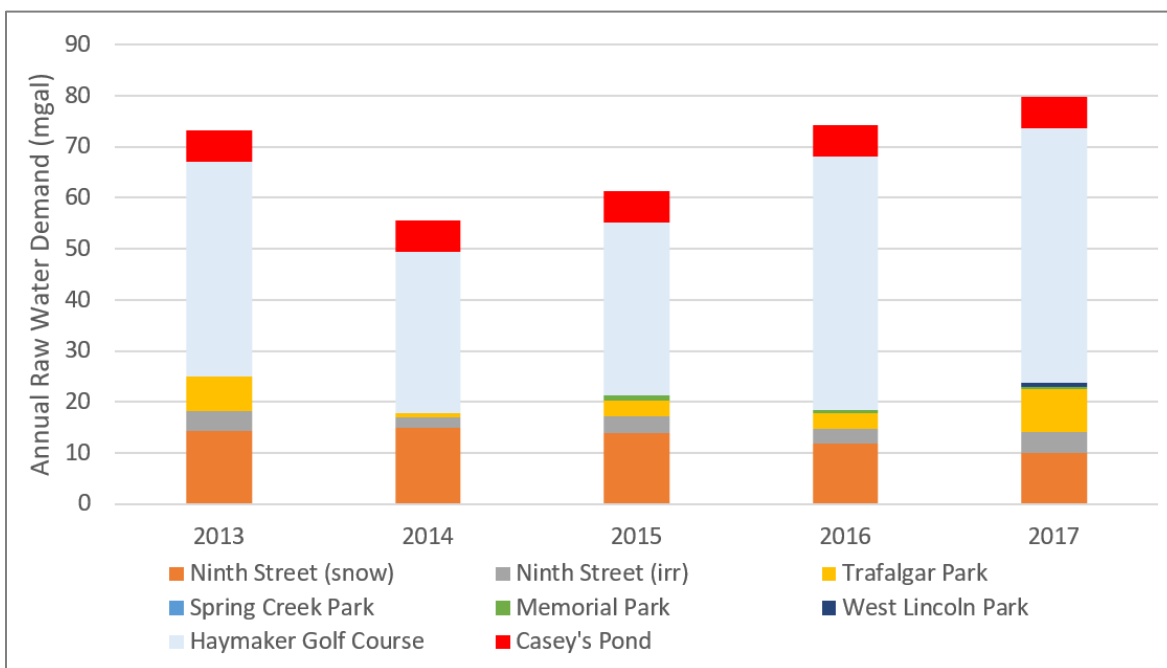


Figure B-4: City Raw Untreated Water Demands

rates and approximate timing of pumping. The data is not to the same degree of precision as the treated supply which is directly metered.

B.2 Treated Demands and Types of Customers

The City and District's billing systems categorize customers as residential, commercial and combined. There are minor differences in how these categories are described, as reflected in Table B-1. Figure B-5 shows that the demands from residential customers comprise over half the demand for both the City and District. The District has a higher percentage of residential demand while the City serves a larger percentage of commercial. As a reference point, City treated use was 377 mgal/year in 2017, and District treated use was 480 mgal/year in 2017.

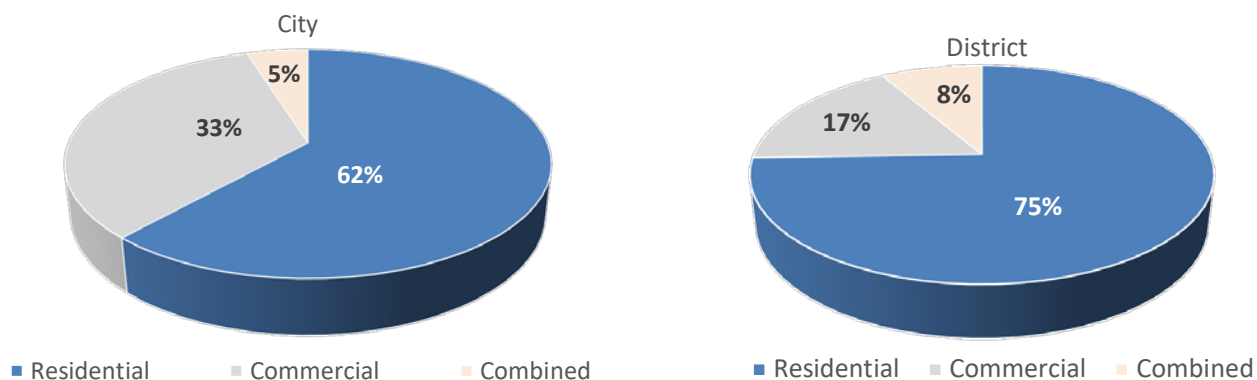


Figure B-5: City and District Treated Demands by Customer Type⁴³

Table B-1: City and District Descriptions of Customer Types

Type	City	District
Residential	All types of residential development including multi-family housing	Single or multi-family housing
Combined	Residential and commercial customers housed in a single structure served by a single service line	Properties that have both residential and commercial customers within the same structure served by a single water connection
Commercial	All other types of customers that are not residential or combined	Businesses, including hotels and motels

Figure B-6 shows the City's billing data for 2014 through 2017 where the City bills customers on a monthly basis. Residential customer demands result in a higher peak water demand during the irrigation season than commercial customers. Very minimal peak is observed with the combined customer accounts.

Figure B-7 shows the District's billing data where the District bills customers on a quarterly basis. The District's billing data appears to be about three times as high as the City's billing data, but in reality, this difference is caused by the quarterly nature of the District's data when compared to the monthly data for the City's data. The City's treated water use is generally less than the District's treated use, but the difference is not as significant as Figures B-6 and B-7 might suggest. Residential demands are significantly higher than

⁴³ These percentages are annual averages from 2010-2017 City billing data and 2014 -2017 District billing data.

commercial demands throughout the year. While there is a peak in commercial demands during the irrigation season, most of the demand is still attributed to residential irrigation. Very little increase is observed with the combined accounts during the irrigation season.

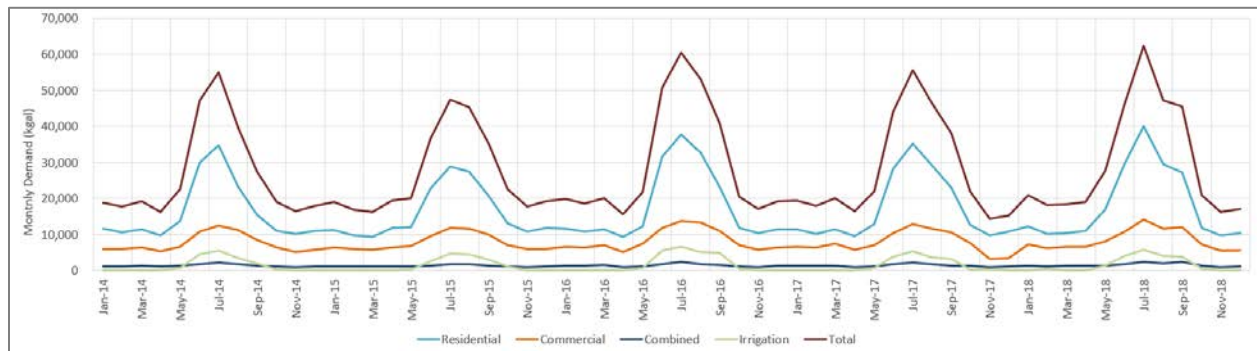


Figure B-6: City Monthly Billing Date for Treated Use (2014 through 2017)

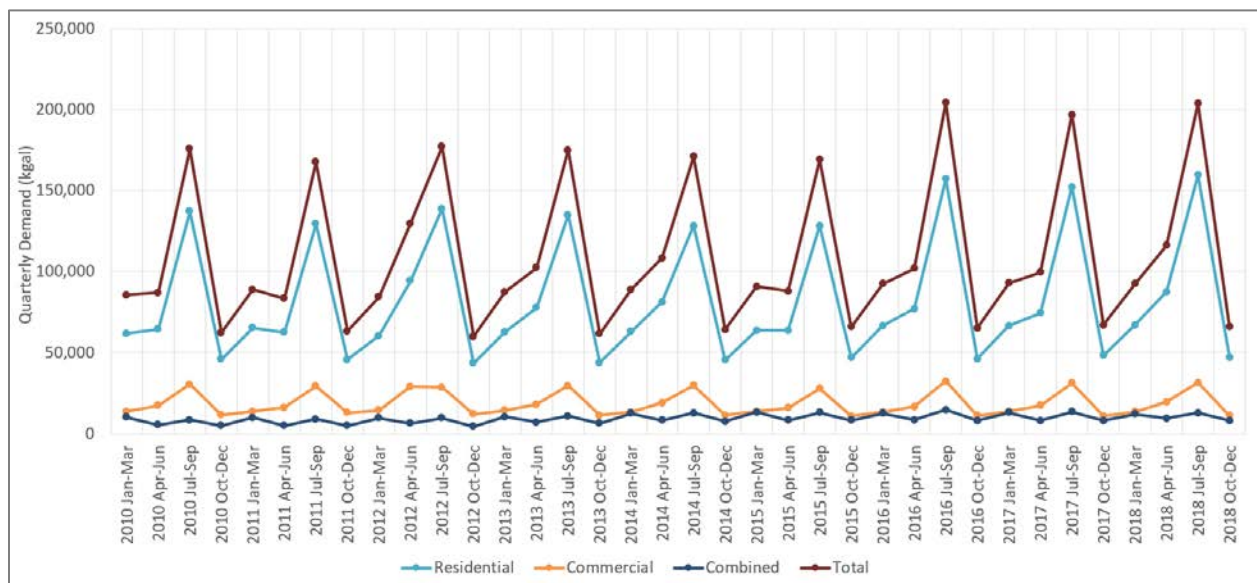


Figure B-7: District Quarterly Billing Date for Treated Use

B.3 Historical Demand Trends

A variety of factors may influence the City and District's water demands. These are introduced in the bullets below and are described in further detail throughout this section.

- Population growth and seasonal tourist demands
- Water rates and water conservation
- Passive indoor water savings
- Climate and drought response
- Efficiency of the water supply system

Population and Seasonal Tourist Demands

The City and District serve a highly visited mountain resort community. Water demands are not only influenced by a growing community coupled with irrigation in the summer, but also by the winter and summer tourist seasons. This is reflected by the timeseries of monthly treated demands shown in Figure B-8.

Demands for both the District and City typically peak in July during the summer tourist and irrigation seasons and are lowest in November and April. During November and April customers are not irrigating, and tourism is at relatively low levels. The District's demands tend to respond more to irrigation and to the flux of tourists than the City. This is largely attributed to differences among the City and District's customer base. The City's customers consist of more long-term residents and year-round commercial businesses in the older portion of town, whereas the District serves the resort community on the mountainside consisting of many transient second homeowners and seasonal tourists and workers.

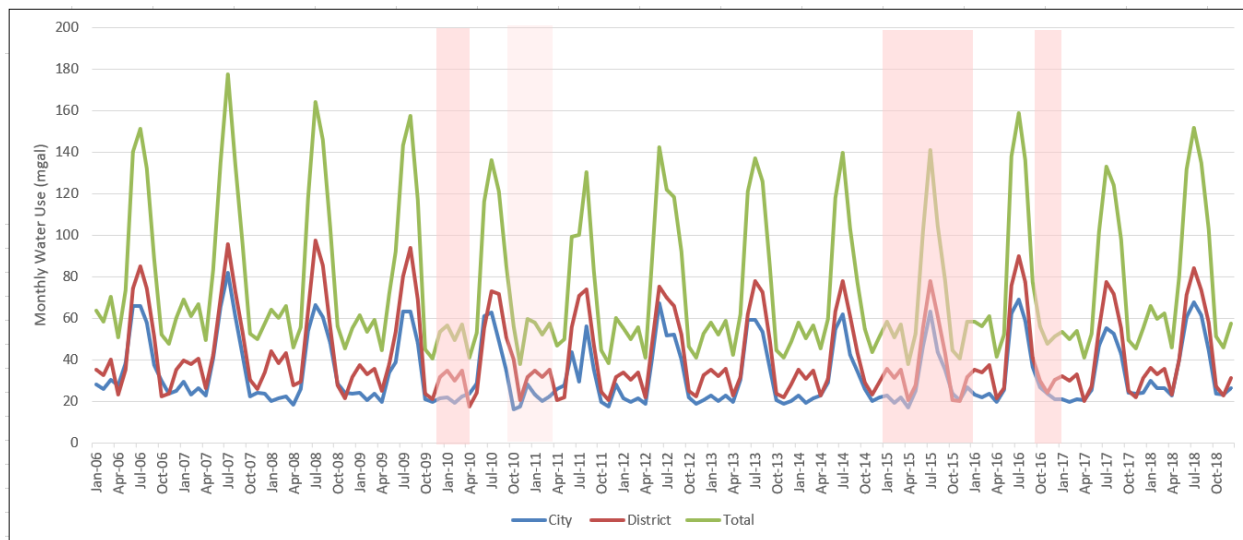


Figure B-8: Monthly Treated Demand Patterns⁴⁴

Figure B-9 shows that the combined City and District's treated per capita water demands (sum of City and District's demands divided by population) has been generally decreasing since 1990 while the community continues to grow. As previously mentioned, this trend is common among providers throughout Colorado. The Colorado Water Plan calls for a municipal per capita demand goal of 146 gpcd by 2050 for the South Platte Basin, assuming a 2010 baseline of 188 gpcd. While the City and District have a different climate and customer base than providers in the South Platte Basin, the City and District's total 2010 per capita demand of 197 gpcd is within the general range of the 2010 baseline for the northern Front Range.⁴⁵ Figure B-9 shows that there is not a significant change in the residential per capita demand based on the available four years of data, with residential use being approximately 110 gpcd.

Figure B-10 provides water demands per EQR from 2000 to 2017 (gpd/EQR), also demonstrating a long-term decline in water demands. In comparison with per capita water demands (gpcd), the demand per EQR approach provides a more robust baseline to identify annual water demand trends for resort communities that experience a flux of seasonal tourism. The EQR approach uses development rather than population as the baseline denominator.

⁴⁴ The rose shading shows where data gaps existed in the metered WTP production data, requiring replacement with representative data. This is described in further detail in the October 2018 *Historical and Projected Demands Memo*.

⁴⁵ Additional information on per capita water use (gpcd) for resort communities in Colorado will be provided during the Water Efficiency Plan update.

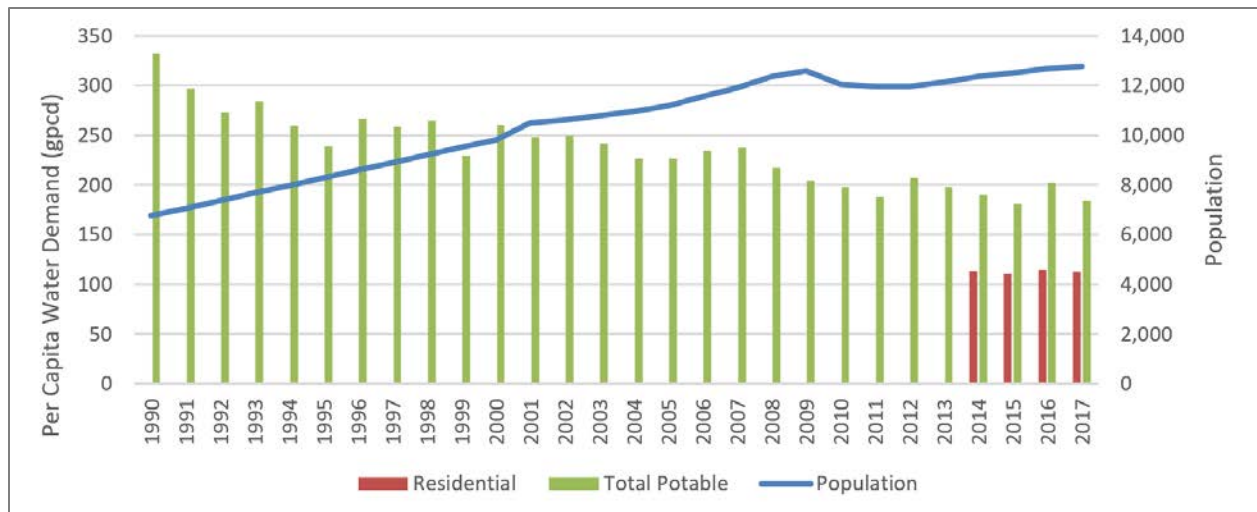


Figure B-9: Per Capita Treated Water Demands

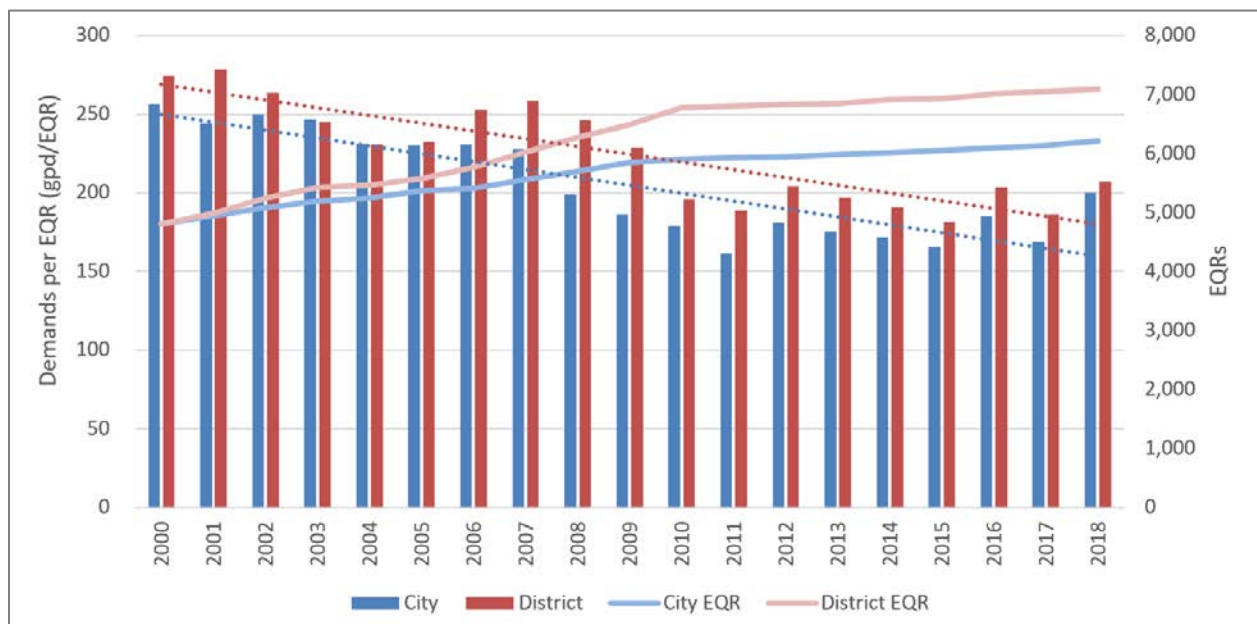


Figure B-10: Demands per EQR

Water Rates

The City and District have a tiered block rate structure for residential customers where customers that use more water are charged a higher rate per gallon than customers that use less. Commercial and combined accounts are charged a uniform volume charge per 1,000 gallons of water use.

The City's water rates have increased incrementally over the past 15 years with the incremental increases in 2011, 2012, 2013 and in 2017. The increases generally ranged from 5% to 6% for most commercial and combined accounts and 5% to 14% for residential accounts. A significant adjustment was made in 2010 where rates were increased by 51% for most customers. The District's water rates were increased in 2007, 2012 and 2017. Rate increases in 2012 were the highest for commercial customers with a 31% increase and residential rate increases ranged from 11% to 22%. In 2017, rates were increased by 7% for all residential

accounts and by 19% for commercial accounts. The increase in water rates may have contributed to observed decreases in water demands per EQR for both the City and District.

Water Conservation

The City and District's WCP was adopted in 2011. Table B-2 lists the three measures that were implemented prior to the 2011 WCP and then incorporated into the WCP, new measures that were adopted in the 2011 WCP and a list of measures to gradually be added to the water conservation program on an annual basis. Most of these measures have been implemented by the City and District. More information will be provided on conservation measures in the updated WCP.

Table B-2: Conservation Measures in the 2011 WCP

Previous Measures	New Measures	One Per a Year
Distribution system, infrastructural repair/replacement	Website enhancements	Irrigation education
Tiered rate structure (City & District)	Bill stuffers	Irrigation training
Meter enhancements/software (City & District)	Park irrigation monitoring (City)	Indoor and Outdoor residential audits
	Raw water conversion for irrigation (City)	Commercial education (partnering with Steamboat Sustainable Biz Program)
	HOA and Lodging Property Program (District)	Leak Detection
	Appliance and/or irrigation component rebate programs with residential & commercial audits as necessitated	
	Hydrant flushing quantification	
	Meter testing	

The City and District have implemented a rebate program since 2012. As shown in Table B-3, the City and District have provided 241 and 342 fixture and appliance rebates, respectively. The City has given \$2,317 in irrigation rebates and the District has provided \$1,055.

Table B-3: City and District Rebates

	Toilet Residential		Toilet Commercial		Dishwasher		Clothes washer		Irrigation		HOA Irrigation	
	City	District	City	District	City	District	City	District	City	District	City	District
2012	54	71	0	0	15	19	11	14	\$550	\$0	\$544	\$0
2013	54	27	0	0	9	5	8	4	\$375	\$550	\$643	\$0
2014	43	46	0	3	9	8	13	12	\$205	\$505	\$0	\$0
2015	5	17	5	0	4	79	0	4	\$0	\$0	\$0	\$0
2016	1	12	2	0	1	3	0	2	\$0	\$0	\$0	\$0
2017	5	12	1	0	1	1	0	3	\$0	\$0	\$0	\$0
Total	162	185	8	3	39	115	32	39	\$1,130	\$1,055	\$1,187	\$0

While it is not possible to quantify savings attributed to these rebates using the historical demands presented in this memo, the replacement of fixtures and appliances has contributed to indoor water savings. The replacement of indoor fixtures and appliances is naturally occurring over time as customers renovate their properties and new development is more water efficient. Rebates can accelerate the pace of this replacement, yielding savings at an earlier time. The irrigation rebates have also likely contributed to outdoor water savings.

Passive Indoor Savings

Indoor water demands are decreasing in many parts of the country as technology is improving and indoor water fixtures and appliances are becoming more water efficient. The Energy Policy Act of 1992 requires all U.S. plumbing manufactures and importers to meet or beat specific water efficiency standards. In 2016, Colo Rev State 6-7.5-102 banned the selling of new plumbing fixtures that have not been certified by the EPA WaterSense Program. Figure B-11 shows the City and District's lowest monthly water demand (typically in November) on an annual basis, reflecting the decreasing national and statewide trends. This trend may continue as new development uses water efficient fixtures and appliances and older residential/commercial properties replace their old less efficient fixtures and appliances with water efficient devices. However, the rate of this decrease will decline when the majority of older properties are renovated. Notable declines in 2010 may be attributed to a decline in tourist visitation due to the economic recession.

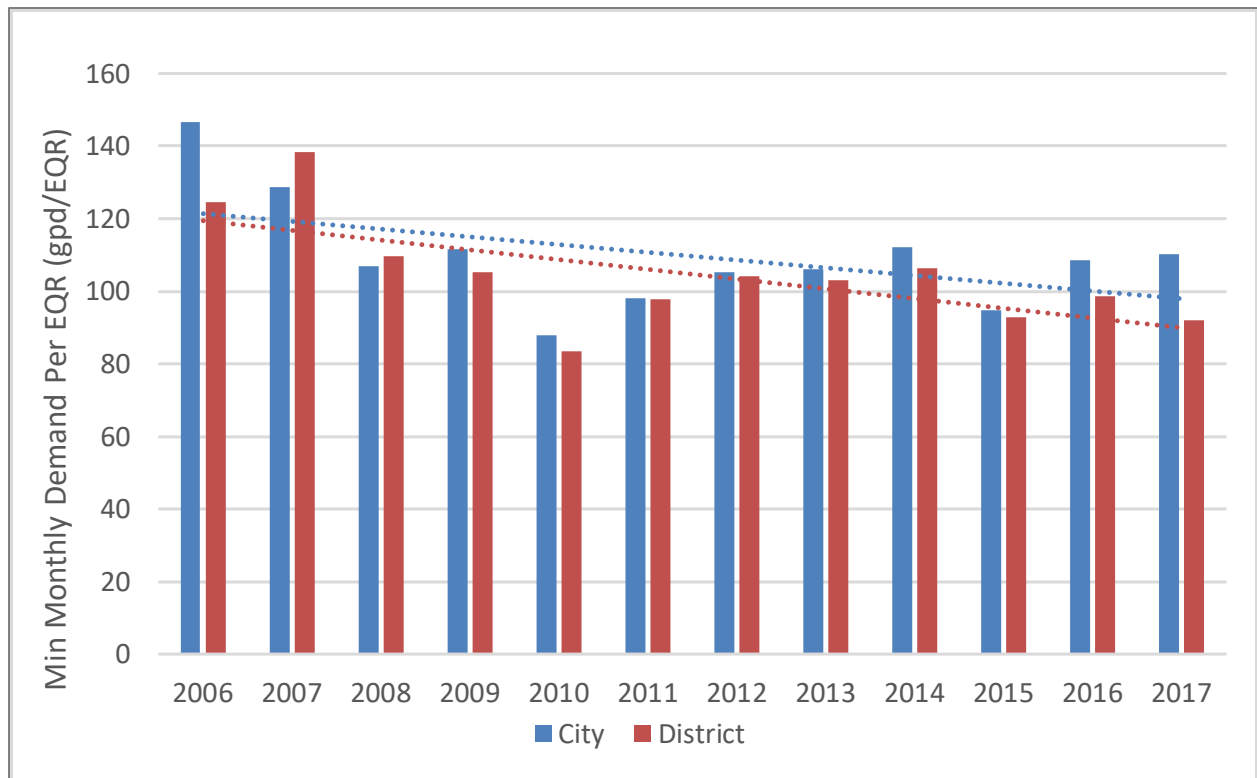


Figure B-11: Passive Indoor Savings (Based on Lowest Monthly Demand)⁴⁶

Climate and Drought Response

Precipitation and temperature, particularly during the irrigation season can significantly influence outdoor water demands. In years when there is ample precipitation, landscapes do not require as much irrigation and consequently outdoor water demands can be lower. For example, the 2010/2011 winter snowpack was very high resulting in relatively low 2011 demands. Conversely during drought, higher temperatures and evapotranspiration coupled with less precipitation can increase outdoor irrigation demands. Figures B-12 and B-13 show the City and District's outdoor water demands per EQR in relation to annual precipitation, respectively. Mandatory water restrictions were implemented in 2012, 2013, 2015 and 2017 as denoted by the purple and rose bars for the City and District, respectively.

Like indoor demands, there is a general downward trend in outdoor demands. This is particularly notable when comparing the dry years of 2008, 2013 and 2017 where precipitation during the irrigation season was within a narrow range of 7 to 8 inches. While precipitation was about the same, outdoor demands were less in 2013 and 2017. This could be attributed to improved irrigation efficiencies and drought response, particularly the mandatory drought restrictions. Conclusions drawn from Table B-4 may differ if the City or District enacted drought restrictions prior to 2012. This should be discussed prior to finalizing the WSMP.

Table B-4: Reduction in Outdoor Demands Per EQR

	2008-2013	2008-2017	Average Reduction
City	10%	26%	18%
District	16%	20%	18%

⁴⁶ The lowest monthly demand typically occurs in November.

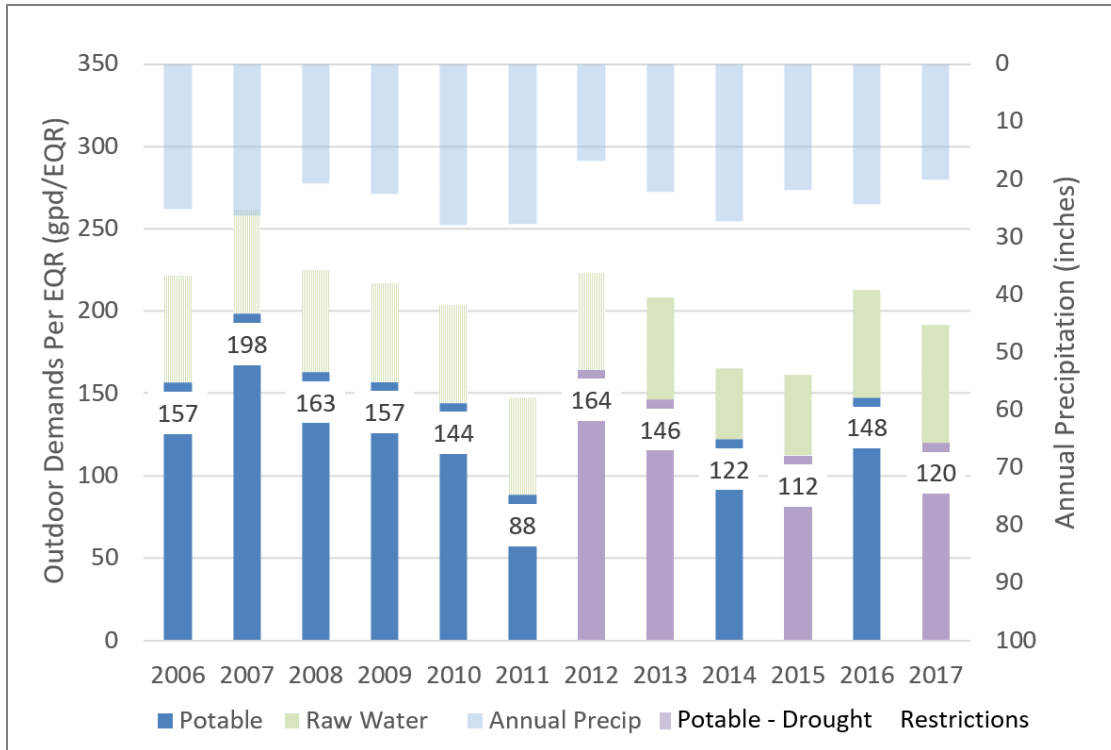


Figure B-12: City Outdoor Demands⁴⁷

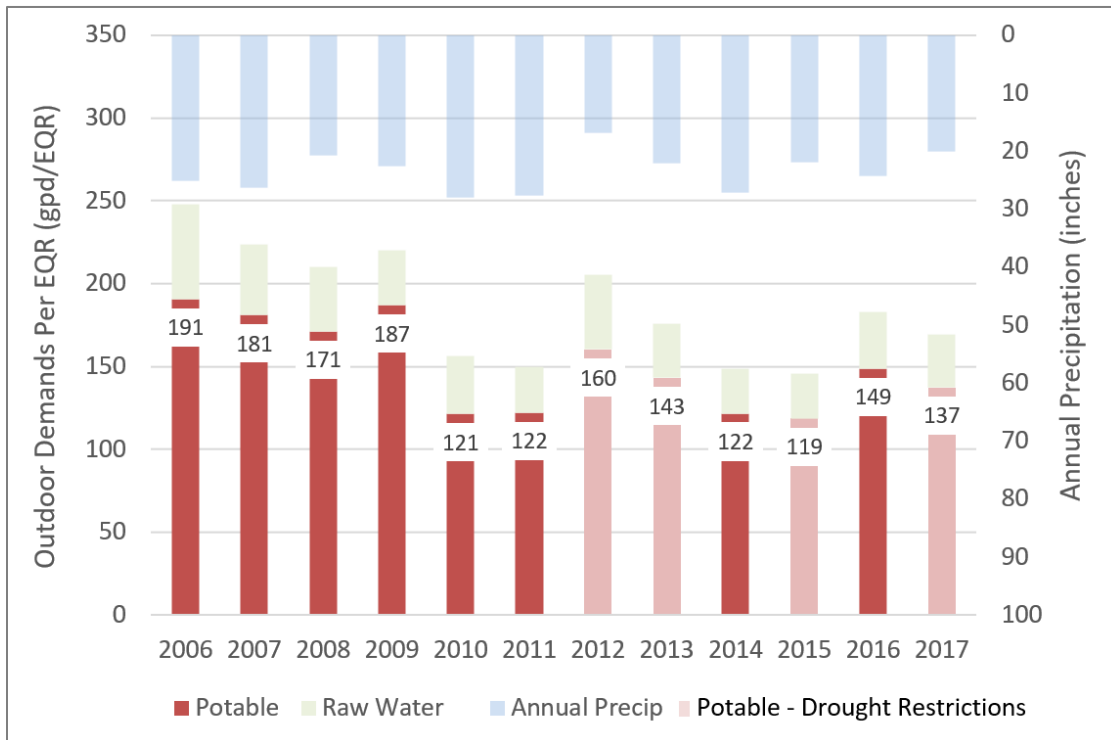


Figure B-13: District Outdoor Demands

⁴⁷ Raw water accounting data was limited to 2013 – 2017. The lighter green stacked bars prior to 2013 are a representative average of raw water demand from 2013 to 2017.

Efficiency of the Water Supply System

Minimizing conveyance losses and meter accuracy can provide cost saving benefits and save waters. The CWCB Municipal Water Efficiency Guidance Document considers this to be a foundational component to water conservation. This is discussed in more detail in Appendix C.

Summary

This historical demand analysis demonstrates that indoor and outdoor water demands have been decreasing for both the City and District. Figure 14 highlights this showing the demands per EQR in relation to drought restrictions and annual precipitation. While it is not possible to accurately decipher how much each of the factors previously discussed are contributing to this reduction, it is concluded that passive indoor savings play a significant role in the long-term reduction of indoor demands. Increase in water rates and water conservation also play a role and drought restrictions appear to be effective in lowering outdoor water demands during drought.⁴⁸ Demand reductions per EQR may continue as indoor savings continue to be passively achieved and efforts are made to improve outdoor and supply-side system distribution system efficiencies.

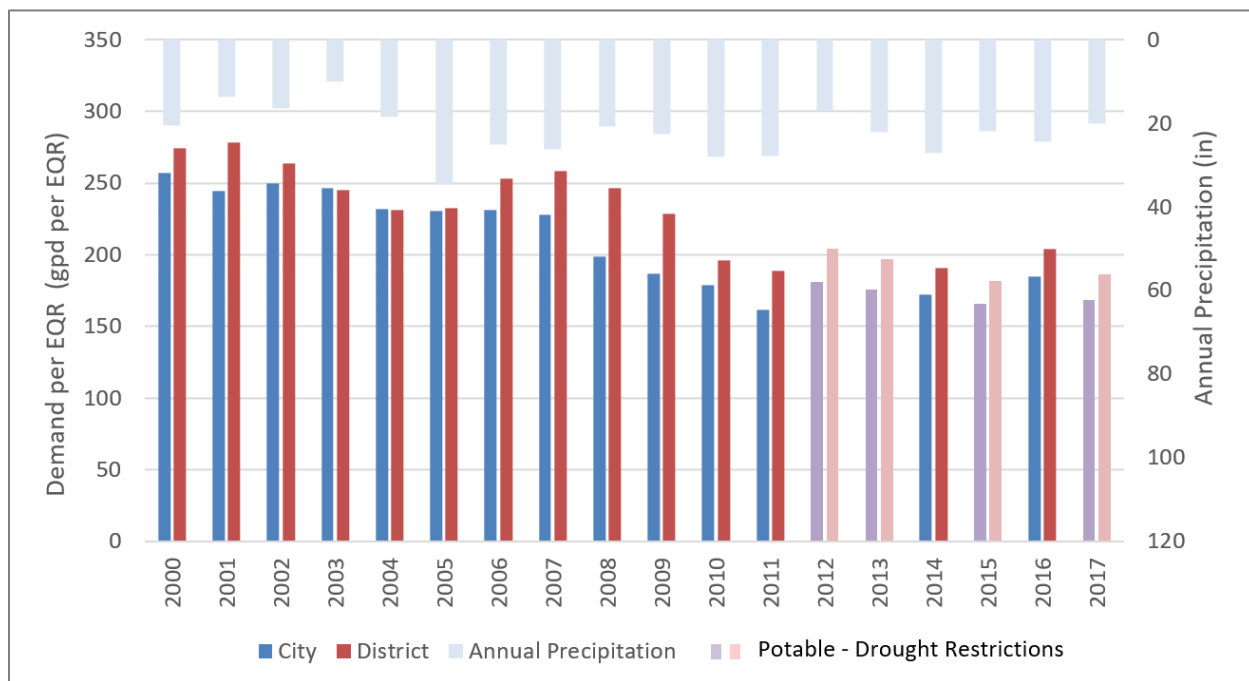


Figure B-14: City and District Demand Per EQR Trends

⁴⁸ The City 2011 demand per EQR decreases relatively significantly before increasing in 2012. This is likely attributed to multiple factors including the increase in City water rates in 2010, low tourist visitation and a really wet winter.

Appendix C. Evaluation of 2011 Water Conservation Goals

This appendix provides a comprehensive review of how well the City and District met the water saving goals provided in the 2011 WCP. Most of the text in this appendix is taken directly from the 2019 WSMP Water Conservation Memo.

The overarching goals of the WCP adopted in 2011 are listed below. These goals will be revisited during the WCP update and where appropriate, changed/refined.

- To raise awareness of the need for and benefits of water conservation and help create a “conservation culture” in Steamboat Springs that protects our limited and essential water supply.
- To foster the understanding that making wise water use choices directly correlates to future investment of public funds – saving water means saving money on mandatory water supply and wastewater plant expansions.
- To convey how every user and each water supplier can benefit from implementing a conservation ethic.
- To prepare the community for responding effectively to a drought or other water emergency and prescribe a response plan.

In addition to these overarching goals, the 2011 WCP includes three quantitative water savings goals addressing system-wide savings, non-revenue water savings and peak-day demand savings. This section focuses on how well these goals are being accomplished.

C.1 Goal 1: System-Wide Savings

The 2011 WCP calls for a 15% reduction in produced water by 2035. However, the WCP does not specify the baseline to use when calculating annual savings in relation to this goal. Table C-1 shows how the 15% target was intended to be distributed among conservation practices in the 2011 WCP. The City and District have implemented many of the measures specified in the first column of this table, however the level of effort necessary to develop accurate water saving estimates of how the 15% goal is being achieved among these categories is not feasible.

Table C-1: Allocation of Targeted 15% Savings

Water Conservation Program General Category	Goal Partition	Approximate water savings (mgal) using projected 2035 water production of 1.8 billion gallons
Indoor residential and commercial water savings through water efficient appliances/equipment & behavioral best practices	15% of the goal will be achieved through this category	40.5
Irrigation and Landscaping Efficiencies	15% of the goal will be achieved through this category	40.5
Utility enhancements (such as distribution system repair/replacement, leak detection, tiered rate structure, meter enhancements and monitoring, hydrant testing/monitoring, bill stuffers & newsletters, decorative water feature standards, park irrigation monitoring, and raw water conversion for irrigation). For details see sections 8 and 9 of the Water Conservation Plan	70% of the goal will be achieved through this category	189

Evaluation

The evaluation of this conservation goal focuses on where the City and District are at in accomplishing the 15% target by 2035 in 2017. Percentage annual savings is calculated assuming the baseline is the average of annual demands observed in 2008, 2009 and 2010 which is 399 and 531 mgal per year for the City and District, respectively. This average occurs prior to the City's notable temporary reduction in annual demands in 2011 (likely attributed to a short-term response in the 50% increase in water rates, a wet winter and reduction in tourist visits due to the economic recession) and is also representative of the demands observed just prior to the adoption of the 2011 WCP. A three-year running average was applied to "smooth" some of the variability observed with demand data in response to annual weather conditions and other factors.⁴⁹

Figure C-1 shows the percentage savings to date in relation to the 15% target in 2035. The green line represents the target, assuming that savings are achieved in a linear fashion from 2011 to 2035. The City and District's demands are lower than what was observed during the baseline years of 2008, 2009 and 2010, yielding the savings shown in Figure C-1. Savings for the District average 8.1% while the average percentage savings for the City is 4.7%. Both averages exceed the 2017 target of 3.8% (shown by the green line), although the City's annual savings are just under the target in 2017. While a three-year average was applied to the demand data in attempt to "smooth" some of the natural fluctuation in annual demands, the percentage annual savings shown in Figure B-1 still tend to fluctuate in response to factors such as climate and annual tourist visitation. It may be concluded that the City and District are sufficiently maintaining demands below levels observed prior to 2011. However, there is not a trend within the past six years demonstrating an incremental increase in savings over time.

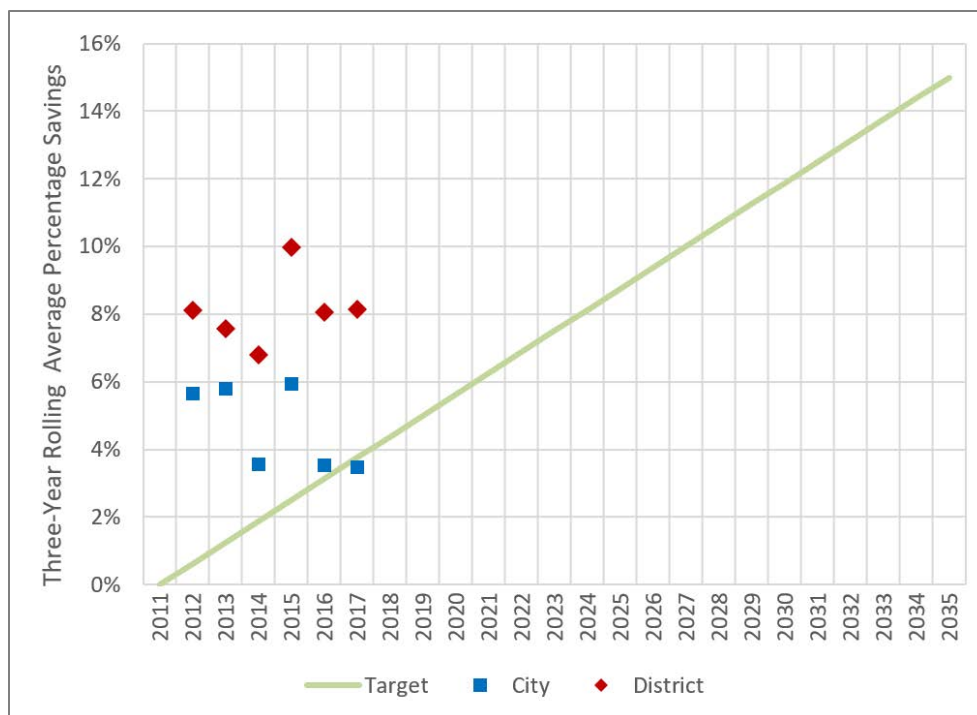


Figure C-1: City and District Water Savings and the 2035 15% Savings Target⁵⁰

⁴⁹ For example, 2015 savings was calculated as: 2015 water savings = Average of 2013, 2014 2015 demands minus baseline demands divided baseline demands. Baseline demands is the average of 2008, 2009, 2010 demands.

⁵⁰ Three-year averages were calculated using the two proceeding years. For example, the three-year average for 2012 represents the average of annual demands from 2010, 2011 and 2012.

C.2 Goal 2: Water System Efficiency – Annual Non-Revenue Water

Non-revenue water consists of distribution system leakage, metering inaccuracies, un-metered demand and non-metered park irrigation. During the development of the 2011 WCP, water losses were estimated at 19.9% for the City and 12% for the District. This estimation included infrastructure leakage (approximately 50%), water main breaks (approximately 20%), hydrant-flushing-related loss (approximately 10%), street cleaning (10%), malfunctioning meters (5%), and non-metered park irrigation (5%). While this information is useful, the WCP does not give the specific methodology used to estimate these losses or a timeframe for when the losses should be achieved. The 2011 WCP specifies the saving targets for non-revenue water provided in the bullets below.

- City – 19.9% to 12%
- District – 12% to 8%

Evaluation

Table C-2 shows the percentage annual non-revenue losses for the City and District using annual WTP production and billing data. Losses were calculated on an annual basis as shown in the equation below.⁵¹

$$\text{Non-revenue losses} = \frac{\text{WTP Production} - \text{Billed metered water}}{\text{WTP Production}}$$

Table C-2: Percentage Losses of Non-Revenue Water

Year	City	District
2010	No data available	15%
2011	No data available	14%
2012	No data available	12%
2013	No data available	13%
2014	16%	10%
2015	13%	10%
2016	14%	11%
2017	9%	5%
Average	13%	11%

Note: Daily gaps in WTP production data were replaced with representative data as follows: ½ in 2010, ¼ in 2011, all of 2015 and ¼ of 2016.

The average annual losses are 13% and 11% for the City and District, respectively. Both data sets demonstrate an overall decrease in system losses, with the District's losses being lower than the City's losses. This is expected since the City's water system infrastructure is significantly older than the District's. Losses in

⁵¹ To account for losses within the City's water supply system, Steamboat II deliveries were included in both the WTP production data and as a commercial account in the billed metered data to estimate losses. This contrasts with the remainder of the demand analysis where the Steamboat II deliveries were taken out in order to focus on the City's customer base.

2017 for both the City and District show significant declines that are below the goals outlined above. This may be attributed to a variety of factors and may or may not coincide with future trends. For instance, in 2017 the District replaced the main water meters that measure flows from the FCTP-2 MG Tank to the City's and District main distribution lines. Water production was calculated using historical averages.

In addition, in 2015 and 2016 the City replaced 2,603 linear feet of old and undersized water main in the old town area. It is possible that leakage in this area could have been significant given water pressures. In 2018, the City also replaced the main for the Riverview subdivision and replaced pipes where there was observed corrosion/cracks. These 2018 changes may improve losses in the future. The District has also made replacement and repairs to its water mains and since 2016, the District has required large water users (mostly condo associations) to replace old meters that were suspected of not reading properly. Additional investigation and monitoring of future loss trends is needed to further understand losses within the City and District's systems.

C.3 Goal 3: Peak Day Demand

The 2011 WCP adopted a peak day water demand goal to address the need to maintain capacity at the filtration plan. The 2011 WCP highlights the importance of maintaining peak day demands stating:

Water usage can triple from winter high season to summer high season. Every summer, irrigation for landscaping strains the ability to provide treated water for all users. Demand on peak days can exceed average daily demand by more than 40%. The City and the MWW must maintain filtration capacity at the filtration plant that is sufficient to meet the 7 to 10 peak-demand days each summer...Neither the City nor MWW experience frequent shortages or supply emergencies... however, the continued growth in tourism and second home ownership in the resort area, residential development west of the old town, and residential infill in the old town may combine to increase demand significantly.

The 2011 WCP calls for percentage reductions in peak day water demand of 5% in 2015, 10% in 2025 and 15% in 2035. The WCP also refers to a baseline metric of 550 gpcd which is the average of 2004 to 2007 total peak day demands for both the City and District presented in Table 2-15 of the *2008 Steamboat Water Supply Master Plan*.

Evaluation

There are a variety of methods to evaluate peak day demand. The following three figures show peak day demand at volumetric demand per day, per capita demand, and demand per EQR.⁵² Figure C-2 demonstrates that there is a downward trend in peak day demands (mgd/day) for both the City and District, although peak day demands fluctuate on an annual basis.

⁵² In contrast to the monthly and annual data presented in this memo, daily Steamboat II deliveries are not subtracted from the City's peak day demands. Steamboat II deliveries are treated by the City and therefore are factored into peak day demands when assessing water treatment capacity.

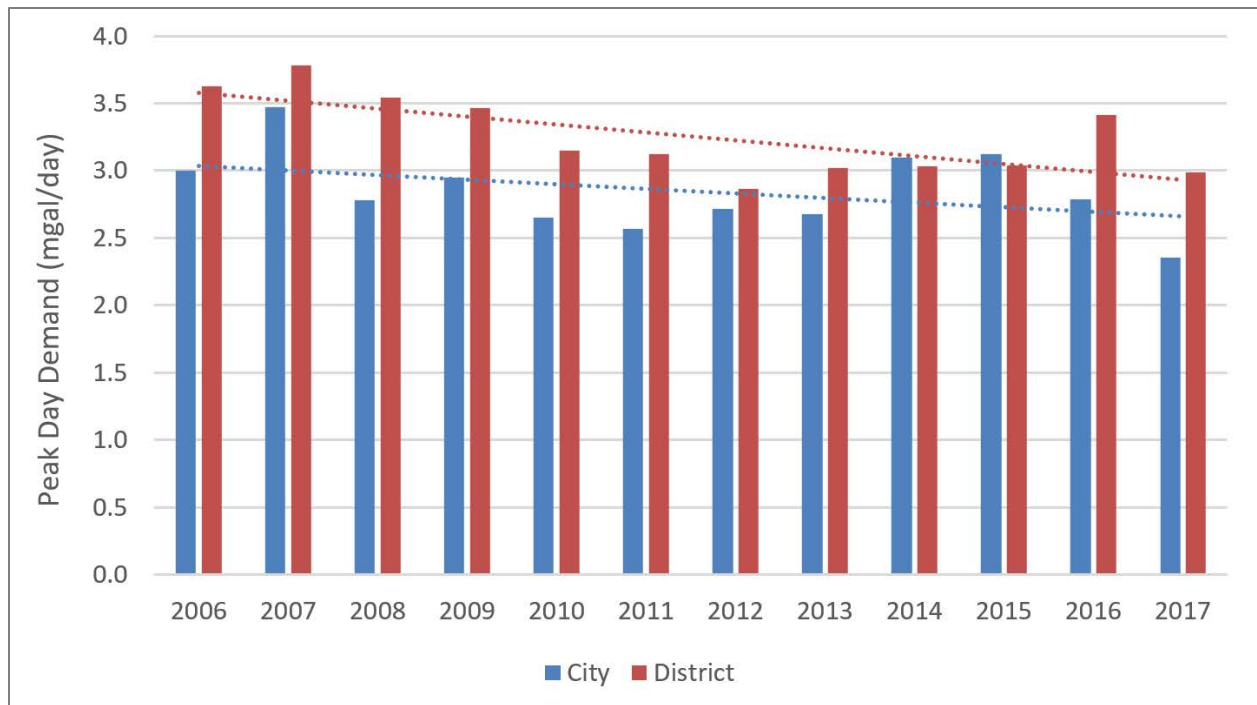


Figure C-2: Peak Day Demands

Figure C-3 shows the reduction in total peak per capita water demand for the City and District using a three-year rolling average to smooth out some of the variability shown in Figure C-2. A reduction of 12% was observed in 2015 based on the 550 gpcd metric specified in the 2011 WCP.⁵³ This far exceeds the 2011 WCP savings goal of 5% by 2015.

Figure C-4 shows the three-year rolling average of peak day demand per EQR for the City and District. Peak day demand per EQR has declined by 19% and 26% for the City and District, respectively using a 2008 peak day demand three-year rolling average as the baseline.⁵⁴

Each of these methods demonstrate the reduction in peak day demands, while Figure C-3 shows that the City and District are exceeding the goal specified in the 2011 WCP. If the WCP update includes a peak day demand goal, it is recommended that demands per EQR be used as opposed to the per capita demand approach (gpcd). The EQR method is more compatible with resort communities and is also the preferred method for projecting future water demands.

⁵³ As discussed above, the 550 gpcd metric specified in the 2011 WCP is the average of 2004 to 2007 total peak day demands for both the City and District presented in Table 2-15 of the *2008 Steamboat Water Supply Master Plan*.

⁵⁴ A 2008 baseline was selected based on available data. The 2008 baseline is the average of peak day demands in 2006, 2007 and 2008.

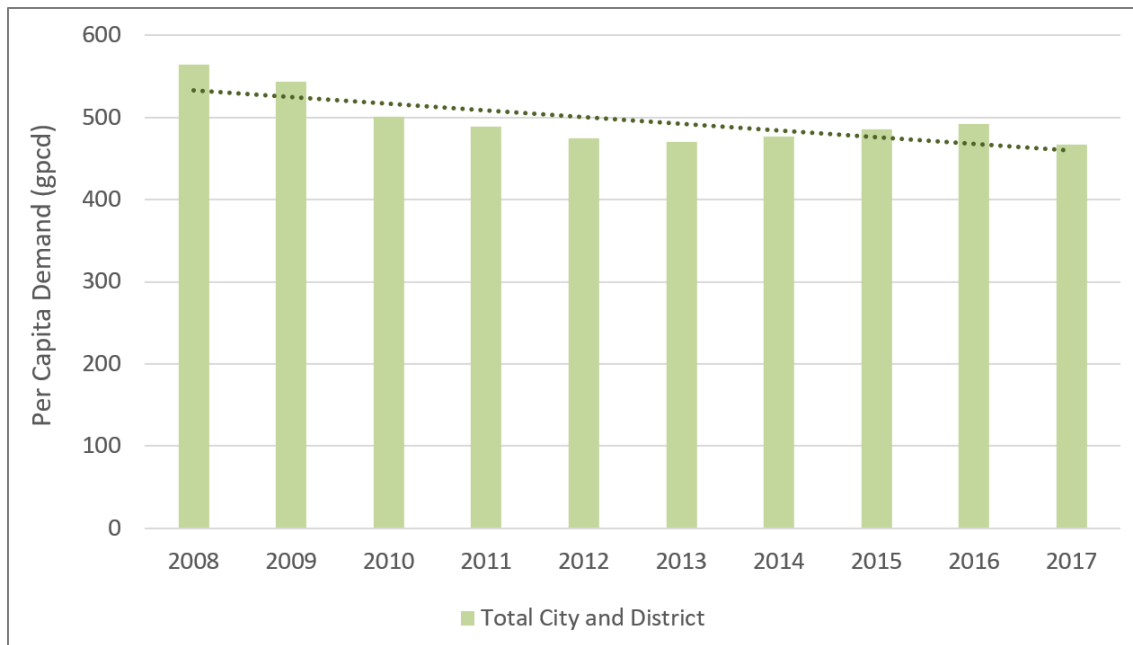


Figure C-3: Three-Year Rolling Average of Per Capita Peak Day Demands⁵⁵

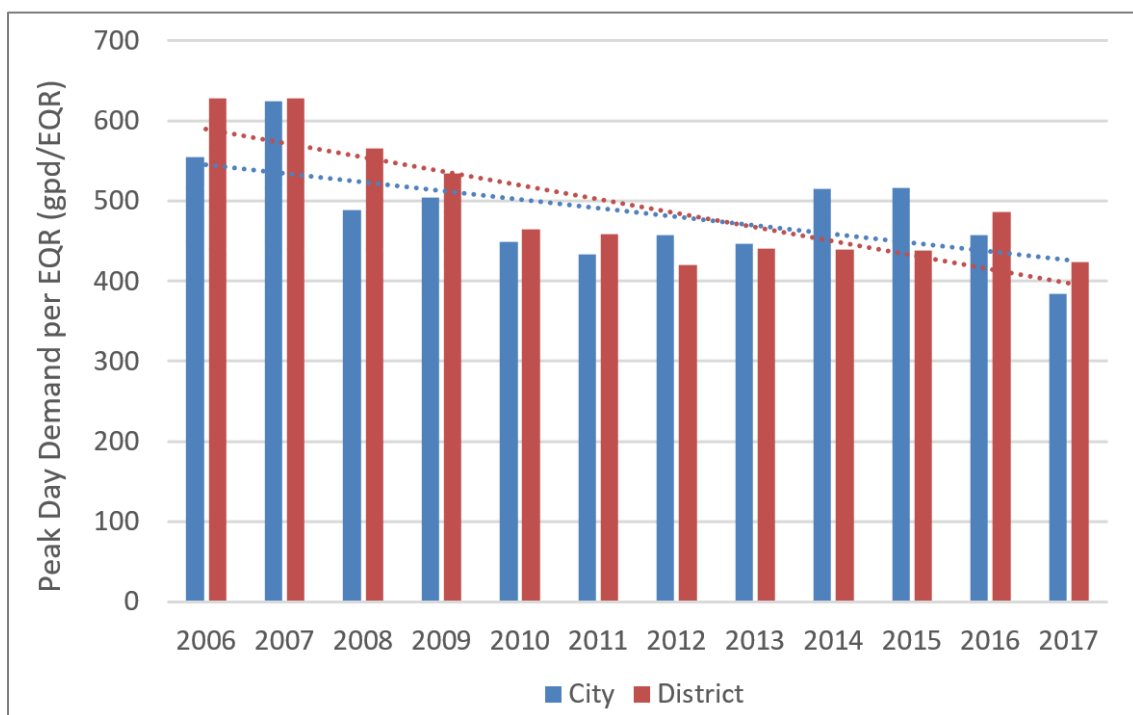


Figure C-4: Three-Year Rolling Average of Peak Day Demand per EQR⁵⁶

⁵⁵ The rolling average was estimated as the average of the current plus two proceeding years. For example, the average 2015 peak day production was estimated as the average of 2013, 2014 and 2015 per capita peak day demands.

⁵⁶ The rolling average was estimated as the average of the current plus two proceeding years. For example, the average 2015 peak day production was estimated as the average of the peak 2013, 2014 and 2015 water demand per EQR per day.

Appendix D. Demands of Large Water Users

D.1 Large Water Users in the District

This analysis evaluates the District's six largest water users. Figure D-1 shows that these users comprise 9% of the total metered water use within the District service area based on average annual metered data from 2012 to 2018.

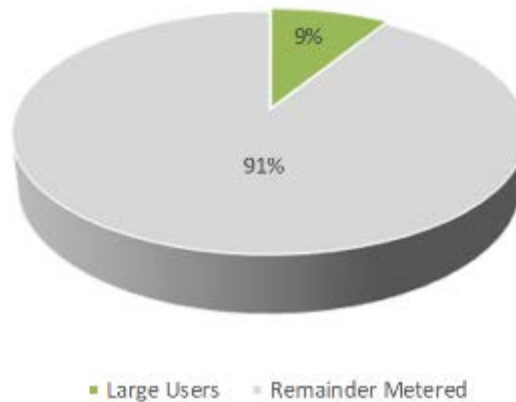


Figure D-1: Six Largest Water Users in the District Service Area

Figure D-2 shows the water use of commercial accounts in relation to combined and residential accounts where the average commercial water use from 2012 to 2018 makes up 17% of the total metered water in the District. The three largest commercial water users make up 19% of the commercial use. Figure D-3 shows the water use of these users on a quarterly basis from 2012 to 2018.

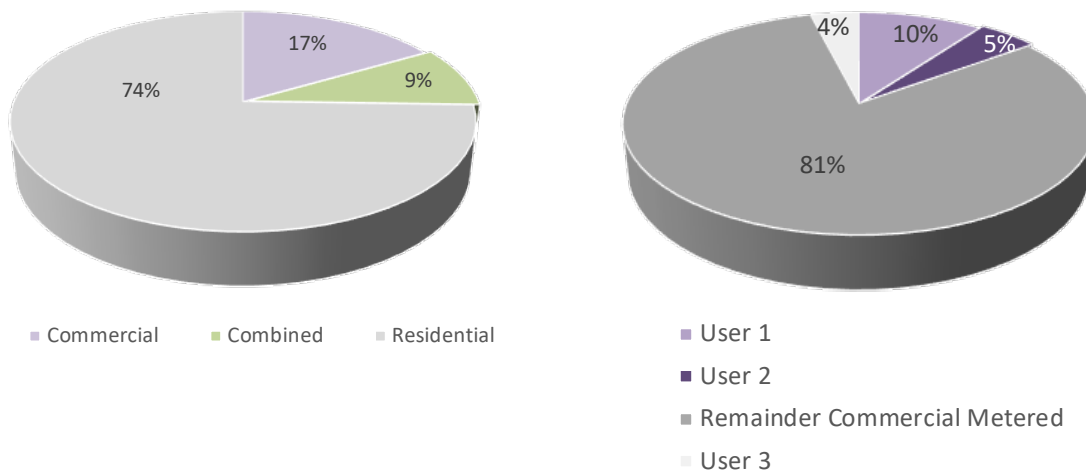


Figure D-2: Largest Commercial Water Users in the District Service Area⁵⁷

⁵⁷ Pie charts are based on the average water use from 2012 – 2018.

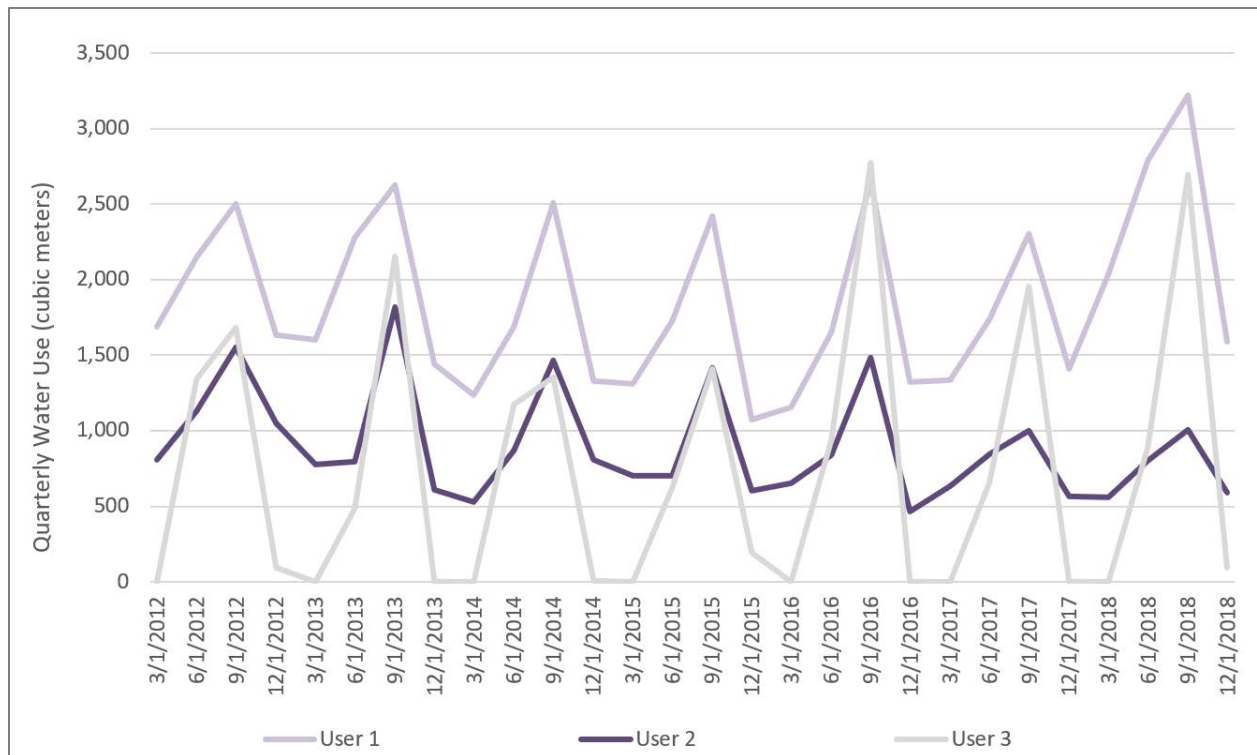


Figure D-3: Quarterly Water Use for the Largest Commercial Water Users in the District Service Area

Figure D-4 shows the water use of combined accounts in relation to combined and residential accounts where the average combined account water use from 2012 to 2018 comprises 9% of the total metered water in the District. The three largest combined accounts make up 64% of the combined account water use. Figure D-5 shows the water use of these users on a quarterly basis from 2012 to 2018. The District plans to continue to monitor the water use and collaborate with these commercial and combined account customers on improving efficiencies.

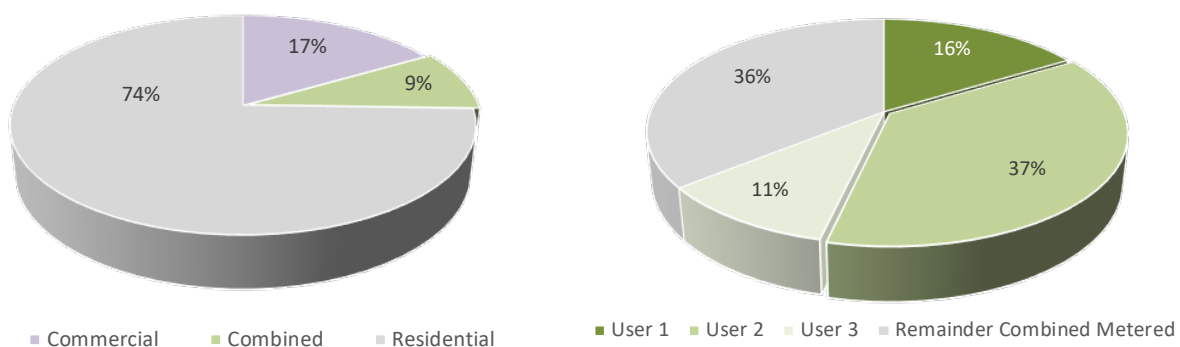


Figure D-4: Quarterly Water Use for the Largest Combined Accounts in the District Service Area⁵⁸

⁵⁸ Pie charts are based on the average water use from 2012 – 2018.

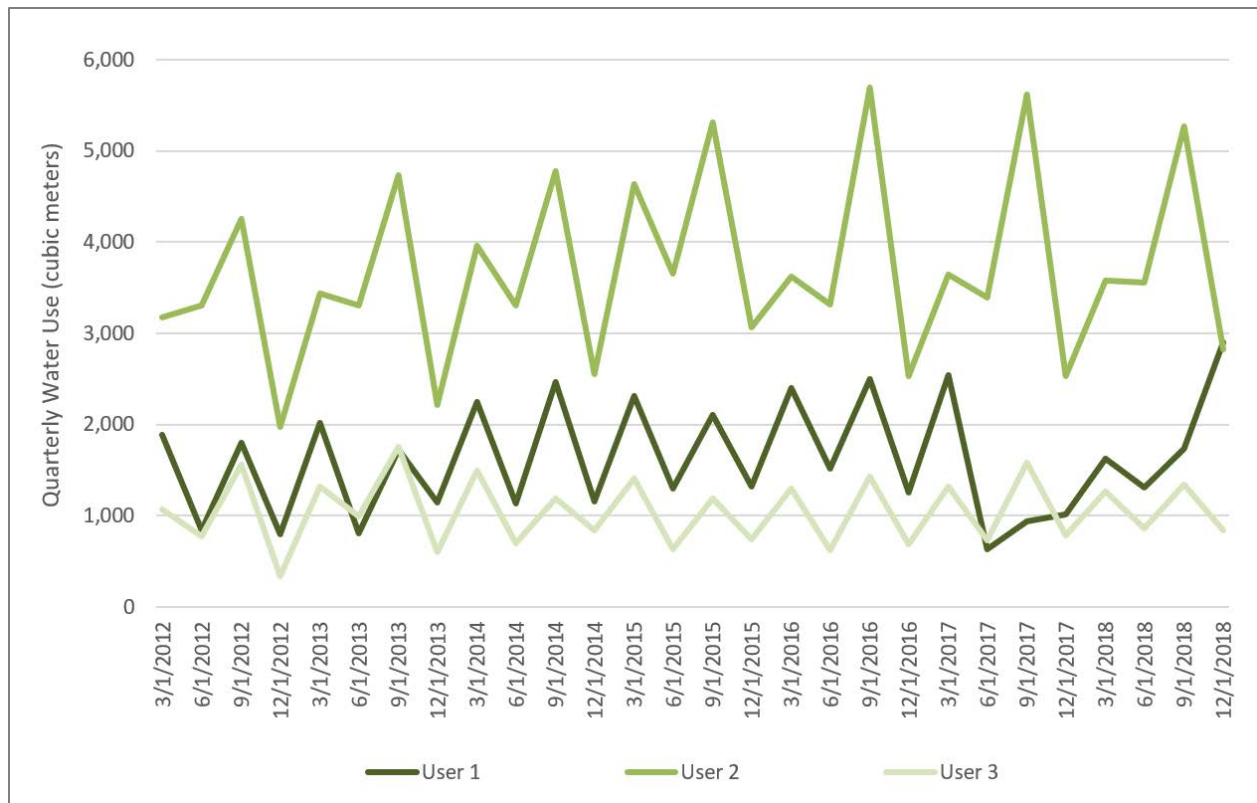


Figure D-5: Quarterly Water Use for the Largest Combined Accounts in the District Service Area

D.2 Large Water Users in the City

This analysis evaluates the City's twenty largest water users in 2018. Figure D-6 shows that these users comprise 10.6% of the total metered water use within the City service area based on 2018 end user metered data.⁵⁹

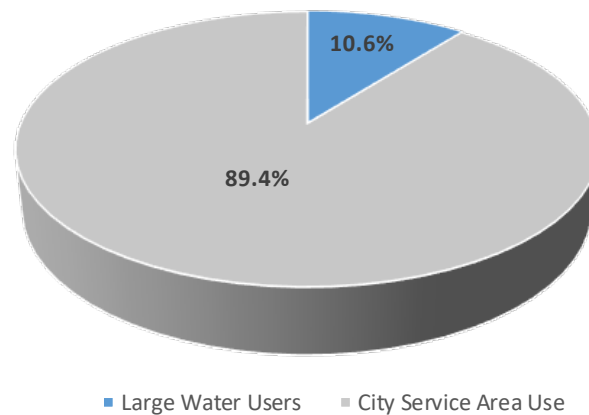


Figure D-6: Twenty Largest Water Users in the City Service Area

⁵⁹ The total metered water use within the City does not include deliveries to Steamboat II.

Figure D-7 shows the twenty largest water user accounts in the City service area in 2018. Water use ranges from 4,795 kgal per year to 1,256 kgal per year. The City plans to continue to monitor the annual water use of these accounts and collaborate with these customers on improving efficiencies.

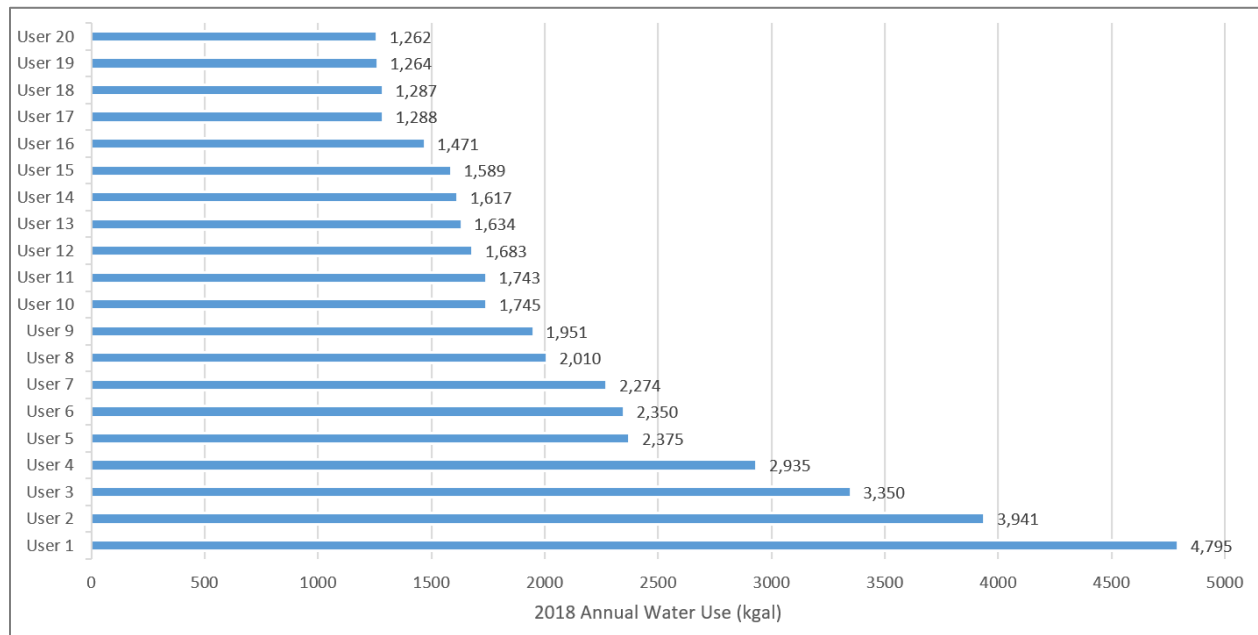


Figure D-7: Twenty Largest Water User Accounts in the City Service Area

Appendix E. Existing and Past Water Conservation Activities

Table E-1 provides an estimate of water savings achieved through water conservation activities implemented in the past. Estimates were only provided for activities for which water savings could reasonably be estimated.

Table E-2 provides a list of the City and District existing and past water conservation measures. Some of these were implemented prior to Steamboat's 2011 Water Conservation Plan while others were initiated following the Plan. Table E-1 provides an estimate of water savings for those measures where water savings could be estimated with reasonable accuracy.

Table E-1: Estimates of Historical Water Savings (kgal)

Year	Rebates				Raw Water Conversions		
	Clothes Washer	Toilet Residential	Toilet Commercial	Dishwasher	City Snowmaking	City Irrigation	District Rollingstone Golf Course
2012	98	1,281	0	5	11,375	0	47,218
2013	144	2,112	0	7	14,290	58,945	34,306
2014	242	3,024	146	10	15,046	40,510	28,130
2015	257	3,249	389	22	13,896	47,340	28,580
2016	265	3,383	486	23	11,776	62,455	36,668
2017	277	3,557	535	23	10,076	69,675	34,592
2018	293	3,649	535	24	5,119	72,120	28,906

Table E-2: Existing and Past Water Conservation Activities

Conservation Activities	Customer Sector					Description of Activities Since 2011		Timeline		
	City/District	Parks	Residential	HOA	Commercial	City	District	Initiated Prior to 2011	Component of 2011 Plan	Started Post 2011 Plan
Foundation										
Meter reading and water billing	X	x	X	x	X	Done monthly	Done quarterly	x	x	
Meter enhancements and software	X	x	X	x	X	Converted to Smart Meters in 2013 and upgraded to Zenner software.	Converted whole system to AMI meters with MTU's (installed at the meters) and read by DCU's (7 located in the District). Also upgraded software (Aclara) and use Aquahawk Alert System installed in 2013. Have been focusing on large meter replacements (2" and up).		x	x
Meter testing and replacement	X	x	X	x	X	Meter transmitters replaced when they fail on as needed basis. Sec 25-27 Municipal Code. The public works department shall maintain, test, and repair all meters as required.	Within past few years has replaced meters from large water users (mainly condos)	x	x	
Park irrigation monitoring		x				Both treated and raw water park irrigation are metered.	Both treated and raw water park irrigation are metered.		x	
Monitoring and response program to abnormal water usage.	x	x	X	x	X	Software can detect abnormally high-water use if a customer contacts the City regarding an unusually high bill.	Software can detect abnormally high-water use if a customer contacts the District regarding an unusually high bill. Also using the customer volunteer Aquahawk program.		x	
Aquahawk Program	x	x	X	x	X	n/a	Volunteer program that customers can sign up for. Customers can view current and past water use and receive notifications if use exceeds a certain amount to detect leaks. Cover 10% of customer base.		x	
Tiered rate structure			X		X	Has residential tiered rates structure. Commercial and combined accounts changed to tiered structure in 2017	Tiered rate structure for residential customers since 2007.	x		
Track water use by customer types	x	x	X	x	X	Track water use by customer type (commercial, residential, combined) through Water Supply Master Plan and conservation planning efforts	Track water use by customer type through Water Supply Master Plan and conservation planning efforts	x	x	
Participating in CWCB sponsored CWLI program using AWWA M36 Software (launched in 2019).	x					Active participant.	Active participant.			2019
Leak detection	x	x	X	x	X	Leaks are investigated when customers report an issue or potential leaks are observed.	Leaks are investigated when customers report an issue or potential leaks are observed.	x	x	
Distribution system, infrastructural repair/replacement	x					7,520 linear feet of water main replacement since 2013. \$1 million/yr	Focus has been adding new water mains for looping and redundancy driven by budget.	x	x	
Hydrant flushing	x					585 hydrants flushed per year. Flow rates are not measured.	Performs annual hydrant testing and monitoring. Estimates amount of water used based on flow rate measurements.		x	
Evaluation of water losses on a regular basis (e.g. annually)	x					Evaluated as a component water conservation and water supply master planning efforts.	Evaluated as a component water conservation and water supply master planning efforts.	x		
Sub-metering						n/a	Recommends that new duplexes have a separate meter for irrigation.			
City follows adequate water supply for development policy where water resources staff reviews water demand reports prior to issuing development approval.	x					Incorporated into development review process	Incorporated into development review process			
Water resources staff works with Planning Department to ensure water infrastructure is able to meet water needs of new development for development applications both above and below 50 units.	x					Incorporated into development review process	Incorporated into development review process			

Conservation Activities	Customer Sector					Description of Activities Since 2011		Timeline		
	City/District	Parks	Residential	HOA	Commercial	City	District	Initiated Prior to 2011	Component of 2011 Plan	Started Post 2011 Plan
Targeted Technical Assistance and Incentives										
Toilet rebate program			X		X	Rebates distributed from 2012 - 2017 Residential toilets - 162 Residential toilets – 8	Rebates distributed from 2012 - 2017 District residential toilets - 185 District residential toilets – 3		x	
Dishwasher rebate program			X		X	Rebates distributed from 2012 - 2017 City – 39	Rebates distributed from 2012 - 2017 District - 115		x	
Clothes washer rebate program			X		X	Rebates distributed from 2012 - 2017 City – 32	Rebates distributed from 2012 - 2017 District - 39		x	
Irrigation rebates			X		X	Expenditures 2012 - 2014City - \$1,130	Expenditures 2013 - 2014Commercial - \$1,187.25Residential - \$1,055.00Included rain sensors; rotary nozzles or high efficiency heads, weather-based ET-based smart controllers, turf replacement with xeriscape. Cost to run program was more than rebates provided.		x	x
HOA irrigation rebates				X		Expenditures 2012 - 2014 City - \$1,187	n/a		x	
Irrigation audits on Parks		x				Irrigation audits were performed on city parks in 2010.	n/a	x		
Raw water conversion for irrigation		x				Memorial Park converted in 2014 West Lincoln Park converted in 2016 Emerald, Ski Town, Spring Creek, Heritage Parke Fields and Howelsen Hill Parks have longer history of being on converted raw water.	Raw water used for irrigation of Rolling Stone Golf Course		x	
Regulations										
Water wasting ordinance	x	x	x	X	X	Potable water shall not be wasted per Sec. 25-52 of City Code.	Potable water shall not be wasted per Sec 25-52 of District's Rules and Regulations.			
<u>Stage 1 water restrictions from Drought and Water Emergency Preparedness Plan</u> 1) Potable water shall be used for beneficial purposes and should not be wasted. 2) No outdoor watering 10AM – 6PM.	x	x	x	X	X	Stage 1 water restrictions applied in all years (wet, dry and average)	Stage 1 water restrictions applied in all years (wet, dry and average)		x	
<u>Odd and Even watering schedule from Stage 2 water restrictions</u> in Drought and Water Emergency Preparedness Plan	x	x	x	X	X	Stage 2 water restrictions enacted in 2012, 2013, 2015 and 2017, 2018 in response to dry conditions.	Stage 2 water restrictions enacted in 2012, 2013, 2015 and 2017, 2018 in response to dry conditions.		x	
Enforcement of water wasting ordinance and water restrictions.	x	x	x	x	X	Infractions may be subject to fines or other measures defined in Section 1-15 of City Code	Provides fee structure per Article 10 of Rules and Regulations.			
Water Rights Dedication Policy - Lists water conservation measures as a suggestion for the water demand report but does not require	x					Incorporated into development review process	Incorporated into development review process			
City Code and the District's Rules and Regulations prohibit the unlawful expansion of water use (e.g. development of apartment auxiliary to their home and/or expansion of irrigated area) without paying for an additional tap fee. If cited, customers must pay for an additional tap fee.	x					Enforced when infractions observed.	Enforced when infractions observed.			

Conservation Activities	Customer Sector					Description of Activities Since 2011		Timeline		
	City/District	Parks	Residential	HOA	Commercial	City	District	Initiated Prior to 2011	Component of 2011 Plan	Started Post 2011 Plan
Education										
HOA and Lodging Property Program (District)				X			District "Water Conservation Certification Program" started in 2006 - with 12 possible standards for certification at the gold, silver or bronze level, encompassing a wide range of water saving ideas from plumbing fixtures to landscaping ideas, maintenance requirements to new construction. The standards also encourage homeowners' associations to adopt a policy to consider water conservation measures in any capital improvements, particularly landscaping. This program needs to be revisited, not much activity in several years.		x	
Water Conservation Website	x	x	x	X	x	Website includes information on rebates, link to Water Conservation Plan and water conservation tips	Website includes information on rebates, tips for water conservation, 2016 The Water Drop newsletter, link to 2011 water conservation plan		x	
Bill stuffers			x		x	Have option to provide one or two lines on bills. Have not utilized lately. Many customers on electronic bills to large bill stuffers would not reach as large as customer base as use to.	n/a		x	
Irrigation education and training						Have not done any irrigation education and training.	Have not done any irrigation education and training.		x	
Commercial education					x	Participated in one YVSC Green Talk presentation with CWCB Water Conservation Manager.	Participated in one YVSC Green Talk presentation with CWCB Water Conservation Manager.		x	x

Appendix F. Public Comments

Steamboat Springs held a 60-day public review process from December 20, 2020 to February 20, 2020 where the Plan was posted on the City's Engage Steamboat website. This provided the opportunity for the public to comment on the Plan and answer the three questions listed below. The comments from the nine community members that responded are provided below.

Question 1: Why is water conservation important in Steamboat Springs?

- Too many people now living in Routt County plus too many tourists place huge strain on water consumption. too many enormous homes/irrigated yards & grass lawns (that used to be native vegetation requiring less water) wasting vast amounts of water. detrimental effects of climate warming, less snowfall, higher temperatures
- With the combined issues of climate change, population growth (in the western United States), and increased wildfire threats, proper usage and conservation of water is a vital issue to Steamboat Springs.
- Water conservation is extremely important in Steamboat Springs because we live in an area that is prone to drought. As the effects of climate change continue to worsen, our snow pack will likely continue to decline over the years. The snow pack is the main source of water that feeds our surrounding rivers. Because of this, it is important to start good conservation habits now, so that we can be prepared for what is to come. Additionally, the Yampa River along with our other surrounding bodies of water are a huge source of recreation that keep the tourism industry alive during the summer.
- We need water to survive! It's our lifeline as humanity! Tourism is a moot point. We can be severely adversely affected by the Colorado River Compact of 1922!
- Water is the foundation of our community's way of life, including economic and cultural ways of operating: skiing, ag, river-recreation, maintaining functional ecosystems, etc.
- To maintain river/stream health, provide water for resident animals and humans.
- To utilize the most current technology create efficient practices to ensure a sustainable future.
- Environmental benefits – more streamflows in the creek and river, Deferring capital costs, Raise awareness of community for resilience

Question 2: In addition to the water conservation activities described in this Plan, are there additional activities that you would like for the City and District to do to save water?

- Even more education including periodic release of scenarios printed in the paper, even holding open houses. How are we affected by a Co compact call, combined with extended drought, and fire producing ash in reservoir water supplies. What percentage of city water rights are prior to 1922? I have asked these questions and received either wrong stats or unknown. Only hope that "more than one leg of the stool won't break at once". That's unacceptable. Be truthful at council meetings regarding water supply for new school and BG, including the cost of pipe replacement and Elk rights with priority dates and new treatment plant.
- There should be strict water rationing policies established for all existing and new residences and commercial businesses & when an individual home or business uses their "yearly quota", their water should be shut off for rest of the calendar year.
- It would be good to see further regulations surrounding snow-making and golf course irrigation, since these are some of the biggest commercial users.

- Ban all the extravagant water dependent landscaping the oversized second homes and the new full time trophy homes being built! Also, LAWNS!!! We are at 7000 feet in the Rocky Mountains with a short summer. Why are we wasting all this water on ego lawns? I built a new home 4 years ago and left it natural. No watering required!
- Mandate water meters for all users and assign user fees accordingly.
- More education on how to save water daily, including short showers, not running water while brushing teeth, less lawn watering, frugal car washing techniques, etc. Consider cutting back on snow making and require water rights users to comply with water commissioner on water calls and setting head gates for consistent measurement of irrigation, based on allocated water.
- Rebates and incentives for agriculture to install more efficient methods, target out-of-date, large buildings for audits and improvement incentives.

Question 3: Every other day watering schedule with no water Wednesdays has historically been implemented during periods of drought. This Plan calls for the implementation of this schedule every year regardless of whether there is a drought. This can provide water and energy savings and reduce peak water demands at the water treatment plant. Are you in support of this schedule? If not, why?

- I would make it even more stringent to encourage xeric landscaping and would increase fines for over watering.
- Yes - it should be expanded to watering only once per week & strictly enforced. Plan should force people to conserve but I see many neighbors on Clubhouse Drive & Sanctuary (many 2nd homeowners) who don't comply with the restrictions in recent years. This would also force people to plant/maintain "low water native vegetation/grasses" in their yards.
- Yes, this change is long overdue
- I am definitely in support of this schedule. Not only does this help conserve water every year, but it also instills in people healthy habits. It reminds citizens that it is always important to think about water conservation, as opposed to only thinking about it in times of drought. It also helps spur further conversation and education surrounding water conservation. Thank you for your work in doing this! It's great to see our city being so proactive about this issue especially when it was not even legally necessary to do this!
- Should be less! And vigorously enforced! I see part time neighbors here in the summer watering their lawns all day long on the wrong days and during the no watering hours. I've called the water district and nothing happens! Stop the lip service and do something! Also, not just part time, many full time homeowners just don't care!
- Yes, and it should be implemented with water-conservation landscaping trainings, discounts for the purchase of water-smart landscaping materials, and a type of "water-smart" label for business/communities.
- Support.
- Yes
- Yes, this is of practice in other communities

Appendix G. Adoption of the Plan and Irrigation Schedule

RESOLUTION

A RESOLUTION ADOPTING THE 2020 MOUNT WERNER WATER & SANITATION DISTRICT AND CITY OF STEAMBOAT SPRINGS WATER CONSERVATION PLAN.

WHEREAS, the Mount Werner Water & Sanitation District (the District) and the City of Steamboat Springs (the City) collectively provide treated water to a resident population of over 12,000 people with a visitor population that can exceed 20,000 people; and

WHEREAS, stressors, such as population growth, climate change, a Colorado River Compact call, and wildfire in the Fish Creek Basin, could limit the City's ability to reliably provide clean drinking water into the foreseeable future; and

WHEREAS, the District and the City completed a joint Water Conservation Plan in 2012 and, that plan shall be updated every seven years at a minimum; and

WHEREAS, the 2019 Mount Werner Water & Sanitation District and City of Steamboat Springs completed a Water Supply Master Plan that assessed historic trends in water conservation and opportunities to meet future demands through conservation measures and

WHEREAS, the District and City staff undertook a water conservation planning effort beginning in April of 2019 and a draft report was presented to the District Board and City Council and was made publicly available for comment in December of 2019; and

WHEREAS, the The Mount Werner Water and Sanitation District finds that adoption of the 2020 Mount Werner Water & Sanitation District and City of Steamboat Springs Water Conservation Plan attached hereto as Exhibit "A" will further the District's goal to "Identify and implement strategies to promote water supply resiliency by preparing for growth, planning for drought & wildfire, planning for a Colorado River Compact Call, planning for water conservation, and developing a redundant supply".

NOW, THEREFORE, BE IT RESOLVED BY THE MOUNT WERNER WATER AND SANITATION DISTRICT OF STEAMBOAT SPRINGS, COLORADO, THAT:

The Mount Werner Water and Sanitation District hereby adopts the 2020 Mount Werner Water & Sanitation District and City of Steamboat Springs Water Conservation Plan, a copy of which is attached hereto as Exhibit "A", and by this reference made apart hereof.

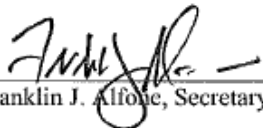
APPROVED AND ADOPTED this 20th day of March, 2020

MOUNT WERNER WATER AND SANITATION DISTRICT

By: 

Steve Frasier, President

ATTEST:

By: 

Franklin J. Alfano, Secretary/General Manager



RESOLUTION

WHEREAS, the MOUNT WERNER WATER AND SANITATION DISTRICT, Routt County, Colorado (the "District"), adopted the the District Rules and Regulations; and

WHEREAS, pursuant to Section 1.6 of said Rules and Regulations, the Board of Directors of the District reserved the right and power to amend such Rules and Regulations without necessity of prior notice; and

WHEREAS, the Board of Directors now desires to amend the Rules and Regulations.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED BY THE BOARD OF DIRECTORS OF THE MOUNT WERNER WATER AND SANITATION DISTRICT that Subsection 10.1, Article 10, "Water Conservation" of the District Rules and Regulations is hereby amended as follows:

10.1 Summer Irrigation Watering Schedule

- No outdoor watering between 10AM – 6PM. Exceptions to this may be made for District and City of Steamboat Springs approved management purposes.
- Odd and even watering schedule provided in Table below. The watering schedule is based on the last number of customers' street addresses.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Even	Odd	Even	No Watering	Odd	Even	Odd

All other subsections of Article 10 do not change, with existing subsection 10.1 becoming 10.2 following through all subsections until the end of said Article.

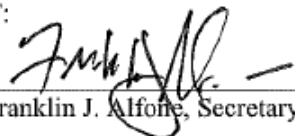
APPROVED AND ADOPTED this 20th day of March , 2020.

MOUNT WERNER WATER AND SANITATION DISTRICT

By: 

Steve Frasier, President

ATTEST:

By: 
Franklin J. Alfano, Secretary/General Manager

CITY OF STEAMBOAT SPRINGS, COLORADO

RESOLUTION NO. 2020-17

**A RESOLUTION ADOPTING THE 2020 CITY OF STEAMBOAT SPRINGS AND MOUNT WERNER
WATER & SANITATION DISTRICT WATER CONSERVATION PLAN**

WHEREAS, the City of Steamboat Springs (the City) and the Mount Werner Water & Sanitation District (the District) collectively provide treated water to a resident population of over 12,000 people with a visitor population that can exceed 20,000 people; and

WHEREAS, stressors, such as population growth, climate change, a Colorado River Compact call, and wildfire in the Fish Creek Basin, could limit the City's ability to reliably provide clean drinking water into the foreseeable future; and

WHEREAS, the City and the District completed an update to its joint Water Supply Master Plan in 2019 that included an evaluation of historic trends in water conservation and opportunities to meet future water demands through conservation measures; and

WHEREAS, the City and the District developed a 2020 Water Conservation Plan with funding and guidance from the Colorado Water Conservation Board that was posted for public review for 60-days; and

WHEREAS, implementation of the 2020 Water Conservation Plan will expand community understanding of water security and environmental issues, it will enhance Steamboat's regional presence in water supply planning efforts, it will delay the need for new water treatment infrastructure, it will increase environmental flows in Fish Creek, and it will reduce the city's carbon footprint; and

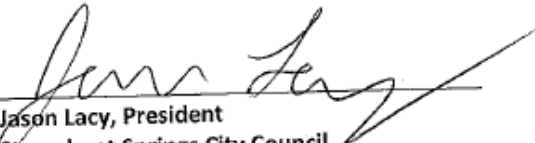
WHEREAS, the City Council finds that adoption of the 2020 City of Steamboat Springs and Mount Werner Water & Sanitation District Water Conservation Plan attached hereto as Exhibit "A" will further the City Council's goal to "Identify and implement strategies to promote water supply resiliency by preparing for growth, planning for drought & wildfire, planning for a Colorado River Compact Call, planning for water conservation, and developing a redundant supply".

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STEAMBOAT SPRINGS, COLORADO, THAT:

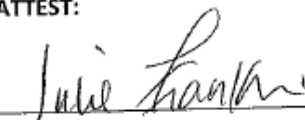
1. The City Council of the City of Steamboat Springs hereby adopts the 2020 City of Steamboat Springs and Mount Werner Water & Sanitation District Water Conservation Plan, a copy of which is attached hereto as Exhibit "A", and by this reference made a part hereof.



PASSED, ADOPTED, AND APPROVED this 7th day of April, 2020.


Jason Lacy, President
Steamboat Springs City Council

ATTEST:


Julie Franklin, CMC
City Clerk



CITY OF STEAMBOAT SPRINGS, COLORADO

ORDINANCE NO. 2752

AN ORDINANCE AMENDING CHAPTER 25, ARTICLES II AND IV OF THE STEAMBOAT SPRINGS REVISED MUNICIPAL CODE, WHICH PERTAINS TO THE MUNICIPAL WATER SUPPLY AND DISTRIBUTION SYSTEM AND WATER CHARGES; PROVIDING AN EFFECTIVE DATE AND REPEALING ALL CONFLICTING ORDINANCES.

WHEREAS, the 2020 City of Steamboat Springs and Mount Werner Water & Sanitation District Water Conservation Plan was adopted on April 7th, 2020; and

WHEREAS, the City of Steamboat Springs intends to lead by example, to reduce costs, to preserve the environment, and to ensure a reliable water supply for its customers by implementing the strategies outlined in the plan; and

WHEREAS, the plan set a goal to achieve a 10% water savings target in 10-years; and

WHEREAS, the plan recommends that the City of Steamboat Springs adopts a watering schedule limiting its customers to three days of outdoor watering per week to help achieve this goal; and

WHEREAS, the City Council believes that amending Chapter 25, Articles II and IV of the Steamboat Springs Municipal Code will enhance the adaptability of the community's drinking water supplies.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF STEAMBOAT SPRINGS, COLORADO:

Section 1. Chapter 25, Sections 37, 52, 53 and 216 of the Steamboat Springs Revised Municipal Code shall be amended to read as follows:

Sec. 25-37. - Management.

- (a) The operation and management of the water system shall be under the control of the city manager, who shall direct the construction of additions thereto and the maintenance and operation thereof, and in all cases not particularly provided for in this chapter or other provisions of this Code, the city manager shall determine in what manner and upon what terms water may be taken from the water system by any property owner or water consumer, and the character of the connections and appliances which may be made or used therefore.
- ~~(b) If conditions of supply and/or quality so limit the water supply of the water system that unrestricted water use may endanger the adequacy of that supply or quality, the city may adopt emergency water use restrictions as appropriate. No person shall use water in violation of restrictions imposed pursuant to this subsection. The city manager's management authority hereunder shall include the~~



~~authority to impose Stage 2 and Stage 3 water restrictions in accordance with the criteria set forth in the May 2011 Water Conservation Plan II.~~

~~Sec. 25-52. - Negligent waste of water- Water Conservation~~

~~(a) Negligent waste of water –~~

~~Potable water shall be put to beneficial use and not wasted. It is unlawful for any person using water from the water system to permit, suffer or allow water to run to waste from his premises, buildings, houses or lots in, through or out of any water closet, lavatory, urinal, bathtub, hose, hydrant, faucet or other fixture, appliance or apparatus whatsoever, or in any manner through neglect or by reason of faulty or imperfect plumbing or fixtures, or for the purpose of bleeding the fixtures to prevent freezing.~~

~~Sec. 25-53.~~

~~(b) It is unlawful for any person at any time to use water for sprinkling or irrigating through a hydrant or hose without a nozzle or lawn sprinkler, and no sprinkler opening used shall be more than 3/8 -inch in diameter.~~

~~(c) Outdoor Potable Watering Schedule~~

~~Potable water shall only be applied to outdoor landscaping according to the following schedule:~~

- ~~• No outdoor watering between 10AM – 6PM.~~
- ~~• Odd and even watering schedule provided in Table below. The watering schedule is based on the last number of customers' street addresses.~~

<u>Sunday</u>	<u>Monday</u>	<u>Tuesday</u>	<u>Wednesday</u>	<u>Thursday</u>	<u>Friday</u>	<u>Saturday</u>
<u>Even</u>	<u>Odd</u>	<u>Even</u>	<u>No Watering</u>	<u>Odd</u>	<u>Even</u>	<u>Odd</u>

EXCEPTIONS:

- ~~- Outdoor watering by drip irrigation, or by hand using only a watering can or a hose with a shut-off nozzle. Drip systems include: mini sprays, maxi sprays, flower sprays, spot watering emitters, etc.~~
- ~~- Outdoor watering of public school property (including, but not limited to, public school athletic fields).~~
- ~~- Outdoor watering within public parks.~~
- ~~- Outdoor watering for other City of Steamboat Springs approved management purposes.~~
- ~~- Permits may be secured for watering newly-sodded lawns and newly-planted trees for up to 14 consecutive days and for newly-seeded lawns for up to 25 consecutive days with the exception of Wednesdays.~~

Section 25-53 Emergency Water Use Restrictions

If conditions of supply and/or quality so limit the water supply of the water system that unrestricted water use may endanger the adequacy of that supply or quality, the city may adopt Emergency Water Use Restrictions as appropriate. No person shall use water in violation of restrictions imposed pursuant to this subsection. The city manager's management authority hereunder shall include the authority to impose Emergency Water Use Restrictions as follows:



-No outdoor watering with the exception of hand watering of trees, shrubs, and flowers, and drip irrigation of trees and shrubs.
-No vehicle washing at residences.
-No washing hard surfaces (i.e., driveways, sidewalks, parking lots, outdoor eating areas).
-No running outdoor water features.
-No use of domestic water for dust control.

Sec. 25-216. - Water service and usage charges.

- (f) If water is used on a premises or at a unit in violation of ~~Stage 2 or Stage 3 water restrictions~~ the Emergency Water Use Restrictions imposed in accordance with subsection 25-27(b)53, the owner or consumer shall be subject to a surcharge in the amount of one hundred dollars (\$100.00). A separate surcharge shall apply to each day, or portion thereof, during which such use occurs. The imposition of a surcharge shall not preclude the enforcement of subsection 25-27(b)53 by citation to municipal court, actions to enjoin public nuisances, or any other applicable remedy.
- (g) If water used on a premises or at a unit is in violation of the Outdoor Potable Watering Schedule in accordance with subsection 25-52(c), the owner or consumer shall be subject to the following actions and/or penalties:
- In the event of a first violation, the owner or customer will be advised in writing of said violation and informed that a monetary fine will be imposed for subsequent violations.
 - In the event of a second violation on the same premises, the owner or customer will be advised in writing of said violation and a minimum \$25 charge will be added to the water bill for said premises.
 - In the event of any subsequent violations on the same premises, the owner or customer will be advised in writing of said violation and a minimum \$100 charge will be added to the water bill for said premises.
 - Continuing waste of water or willful violation of city regulations and/or restrictions is cause for temporary suspension of service or revocation of service.
 - The imposition of a monetary fine shall not preclude the enforcement of subsection 25-52(c) by citation to municipal court, actions to enjoin public nuisances, or any other applicable remedy.

Section 2. The City Council hereby finds, determines and declares that this ordinance is necessary for the immediate preservation of the public peace, health and safety.

Section 3. Pursuant to Section 7-11 of the Charter of the City of Steamboat Springs, Colorado, the second publication of this ordinance may be by reference, utilizing the ordinance title.

Section 4. The Ordinance shall take effect five days following publication after final passage as provided in Section 7.6(h) of the Steamboat Springs Home Rule Charter.

Section 5. All ordinances heretofore passed and adopted by the City Council of the City of Steamboat Springs, Colorado, are hereby repealed to the extent that said ordinances, or parts thereof, are in conflict herewith.



Section 6. A public hearing on this ordinance shall be held on May 5th, 2020 at 5:00 P.M. in the Citizens Hall meeting room, Centennial Hall, Steamboat Springs, Colorado.

INTRODUCED, READ AND ORDERED PUBLISHED, as provided by law, by the City Council of the City of Steamboat Springs, at its regular meeting held on the 7th day of April, 2020.

**Jason Lacy, President
Steamboat Springs City Council**

ATTEST:

**Julie Franklin
City Clerk**

FINALLY READ, PASSED AND APPROVED this 5th day of May 2020.

**Jason Lacy, President
Steamboat Springs City Council**

ATTEST:

**Julie Franklin
City Clerk**

Signature: Jason Lacy
Jason Lacy (May 7, 2020)
Email: jlacy@steamboatsprings.net

Signature: Julie Franklin
Julie Franklin (May 7, 2020)
Email: jfranklin@steamboatsprings.net



2752_Chapter 25 Ordinance

Final Audit Report

2020-05-07

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