



August 29, 2018

Colorado Water Conservation Board
Attention: Kevin Reidy and Ben Wade
1313 Sherman Street, Room 718
Denver, Colorado 80203

RE: Eagle River Regional Water Efficiency Plan

Dear Mr. Reidy and Mr. Wade,

Attached is the final version of the Eagle River Regional Water Efficiency Plan (WEP), which was developed pursuant to C.R.S. 37-60-126. Thank you for reviewing and commenting on the April 5, 2018 Draft of the WEP. Thank you also for working through edits to the plan with us, we appreciate the collaboration.

The updated WEP has been reviewed and adopted by the Boards of Directors for the Eagle River Water & Sanitation District and the Upper Eagle Regional Water Authority as summarized in Appendix C of the attached plan.

Retail Water Delivery and Population

A summary of the district and authority retail water delivery by customer class for 2011 – 2015 is provided below in Table 1 and Table 2, respectively. Total annual deliveries through 2017 are presented in Figure 3 of the WEP; however, deliveries by customer class for 2016 and 2017 are still under evaluation. Total production for 2011-2015 is also shown. Tables 1 and 2 also provide estimated resident and transient service area populations for 2013 – 2015 based on 1051 reporting. It is challenging to develop accurate population estimates due to seasonal occupancy and tourism that is experienced in our service areas.

Table 1. District Retail Water Delivery by Customer Class and Estimated Population.

Retail Water Delivery (ac-ft/yr)	Customer Class	2011	2012	2013	2014	2015
	RES	907	945	922	929	879
	COM	529	563	557	549	517
	MIX	457	487	478	452	479
	IRR	95	102	98	95	85
	Snowmaking*	55	59	61	68	76
	TOTAL	2,042	2,157	2,116	2,093	2,035
Total Production (ac-ft/yr)		2,475	2,560	2,760	2,845	2,980
Population (#)	Resident	-	-	5,289	5,289	5,320
	Transient	-	-	10,549	12,617	11,387

*This includes treated snowmaking deliveries only (i.e. it does not include raw water used for snowmaking). See section 4.4 of the plan for additional details related to snowmaking.

Table 2. Authority Retail Water Delivery by Customer Class and Estimated Population.

Retail Water Delivery (ac-ft/yr)	Customer Class	2011	2012	2013	2014	2015
	RES	2,557	2,660	2,517	2,521	2,439
	COM	516	536	519	506	490
	MIX	496	508	482	480	474
	IRR	341	356	340	339	329
	TOTAL	3,911	4,060	3,859	3,847	3,732
Total Production (ac-ft/yr)		4,300	4,430	4,275	4,274	4,430
Population (#)	Resident	-	-	39,922*	29,873	29,873
	Transient	-	-	7,997	9,373	9,373

*In 2013, authority population was calculated using resident population for Eagle County, minus the Vail area, which is served by the district. Beginning in 2014, in addition to subtracting the Vail area to calculate authority population, the Gypsum and Eagle area populations were also subtracted from the County population, as they are not part of the authority service area.

The utilities do not currently use any metrics to convert SFEs into the number of people occupying a service connection, because we have been unable to draw a direct correlation from the data. For instance, a rate study demonstrated that per-SFE use is generally higher the more SFEs a unit has, even in cases where the unit may have fewer occupants or be located in an area that is generally occupied by more part-time residents.

Commitment of Resources

The District and the Authority are excited to implement the measures outlined in the Regional WEP and are committed to designating the necessary financial and staffing resources. Maureen Mulcahy will be the primary contact for the plan and will lead the implementation efforts. Ms. Mulcahy may be reached at: (970) 477-5402 or mmulcahy@erwsd.org.

We would like to genuinely thank you and the Colorado Water Conservation Board for the financial assistance to prepare the Regional WEP and your technical guidance. We respectfully request your review and approval of the attached WEP.

Sincerely,

A handwritten signature in blue ink, appearing to read "Linn Brooks", with a stylized flourish extending to the right.

Linn Brooks
General Manager
Eagle River Water and Sanitation District

Attachment:

Eagle River Regional Efficiency Plan



EAGLE RIVER
WATER & SANITATION
DISTRICT

Clean Water. Quality Life.™

Eagle River Regional Water Efficiency Plan



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PREFACE

The Eagle River Water & Sanitation District (district) and the Upper Eagle Regional Water Authority (authority) are local governments that work together to provide drinking water to customers from East Vail to Cordillera using surface and groundwater sources, including the Eagle River and wells located in Vail and Edwards.

Through this water efficiency planning effort, our organizations analyzed current water use to understand how our customers use water; projected future water needs for our community; established aggressive but achievable conservation and efficiency goals; and identified efficiency programs that meet the needs of our customers and that help us achieve these goals. The plan also sets a schedule for implementing these programs.

The district and authority are each a “covered entity” pursuant to §37-60-126(1)(a), Colorado Revised Statutes (C.R.S.), that provide at least 2,000 acre feet (ac-ft) of retail water to their customers on an annual basis and are therefore required, per Colorado’s Water Conservation Act of 2004, to have a Water Efficiency Plan on file with the state that has been approved by the Colorado Water Conservation Board (CWCB).

The district and authority boards adopted a joint resolution for development of a regional plan in December 2016 and were awarded nearly \$50,000 in water efficiency grant funding by the CWCB in March 2017 to assist with consulting costs related to plan development.

The district and authority employed a collaborative approach to incorporate comments from a wide range of utility staff as well as external stakeholders. District staff involved with the preparation of the plan included: Amy Schweig, Brian Tracy, Diane Johnson, Elena Jones, Evette Smits, James Wilkins, Jason Cowles, John McCaulley, Linn Brooks, Maureen Mulcahy (project manager), Micah Schuette, Pam Wegener, and Wade McCaulley. Matthew Welsh and Beorn Courtney of ELEMENT Water Consulting supported our organizations’ technical efforts to prepare the WEP.

From April through June of 2018, the district and authority conducted stakeholder outreach to inform community partners of our planning effort, engage them in development of the plan, and solicit feedback for inclusion in the plan. Staff presented the plan at more than a dozen public meetings, including the following:

- Arrowhead Metro District Board
- Avon Town Council
- Beaver Creek Metro District Board
- Berry Creek Metro District Board
- Cordillera Metro District Board
- Cordillera Valley Club Board
- Eagle County staff and Planning Commission

- Eagle River Valley State of the River community event
- Eagle River Watershed Council Board
- EagleVail Metro District Board
- Edwards Metro District Board
- Mountain Star Association Board
- Restore the Gore Sustainable Landscaping Workshop
- Rotary Club of Edwards
- Town of Vail Lunch with the Locals
- Vail Recreation District Board
- Vail Town Council

We extend our gratitude to all of our community partners for their engagement related to this planning effort and to water efficiency in general. In addition to this extensive stakeholder outreach, a 30-day public notice period was held in July 2018. Updates were made to the plan as appropriate based on the input we received.

We will use this plan as a tool for empowering our customers to *waste* less water using the following programs, described in detail within the plan:



The appendices to this plan include: additional information related to water efficiency programs already being implemented by our organizations (Appendix A); a roadmap for our continuing efficiency efforts detailing our commitment and time frame (Appendix B); a documentation of plan's adoption and comments received during the public notice period (Appendix C); an outline of how the plan meets the requirements of Colorado's Water Conservation Act of 2004 (Appendix D); and a representation of our organizations' conservation-oriented tiered water rates (Appendix E).

1. INTRODUCTION

The Eagle River Valley community's quality of life and economic success are dependent on its natural resources, including access to a sufficient quantity of high-quality water. As the community continues to grow and thrive, it is imperative that we actively plan and prepare to meet future challenges posed by physical and regulatory environments in flux.

As committed environmental stewards, the Eagle River Water & Sanitation District and Upper Eagle Regional Water Authority are prepared to meet these challenges through foresight, specific planning efforts, and maintenance of organizational flexibility. This plan is part of our organizations' overarching commitment to long-range planning and preparedness. Other planning examples include water rights reports, which describe our ongoing evaluation of our water supply and a master planning update effort that is currently underway to evaluate and address system infrastructure and treatment needs.

This Water Efficiency Plan, referred to in this document simply as "the plan," focuses on the water needs of our community, also known as "water demand." **Water demand management** is an environmentally and fiscally responsible practice that makes sure that we are efficiently using our current water supply as a first step in meeting future needs. Preparing this plan has allowed us to look back at the good work our community has done to improve efficiency. This plan is also an opportunity to evaluate what we must do now in order to align our water demands with available supply into the future.

This regional plan builds on the Water Conservation Plan adopted by the district in 2012. [FIGURE 1](#) demonstrates how elements from that plan are being carried forward to build on our community's successes. The 2018 plan also directly relates to our organizations' water demand management program, established in 2014, which endeavors to use our existing water supply more efficiently over time to serve an expanding population while protecting the natural resource.

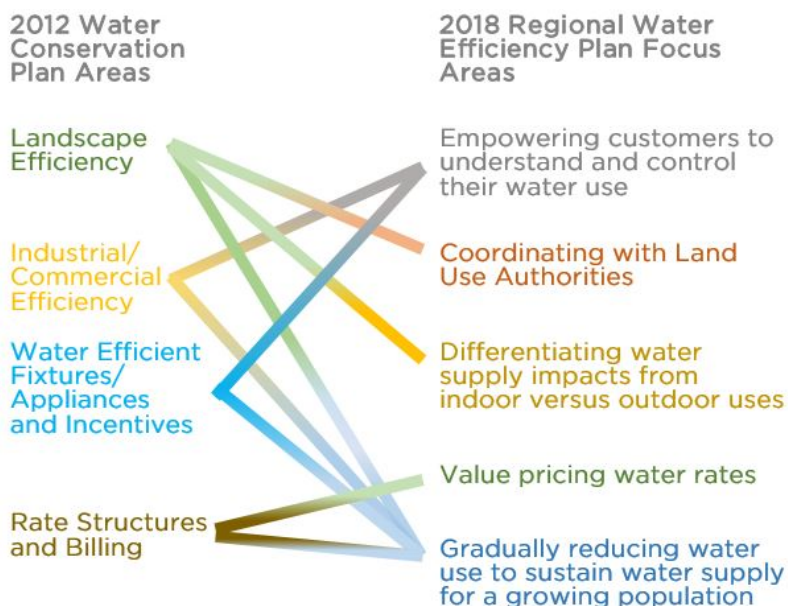


FIGURE 1. COMMON ELEMENTS: 2012 PLAN AND 2018 REGIONAL PLAN

In the same way that the district and authority adapt our operations to support customer needs and protect stream health, community stakeholders must be prepared to participate in solutions that support the values of our community and our natural environment. Achieving the goals set forth in this plan will require both individual and collective engagement. The district and authority continue to evaluate ways we can support our existing customers to foster efficient use of water resources. We have also begun to explore how we can work with land use partners to ensure the design of new developments reflects the limited and precious nature of our water resource. This plan evaluates future needs and outlines actions that will aid in securing our community's water future.

Systems

The district and authority are both quasi-municipal corporations, making them political subdivisions of the State of Colorado. Our organizations were formed to provide necessary public services and operate in accordance with the Special District Act (§32-1-101 *et seq.*, C.R.S., and §29-1-204.2 C.R.S.). The district supplies water to Vail. The Wolcott area is also included in the district's service boundary, and so the district may supply water to future development in that area. The authority's water service area includes the following: Arrowhead Metropolitan District, Town of Avon, Bachelor Gulch Metropolitan District, Beaver Creek Metropolitan District, Berry Creek Metropolitan District, Cordillera Metropolitan District, Eagle-Vail Metropolitan District, Edwards Metropolitan District, and Traer Creek Metropolitan District (Village at Avon). See [FIGURE 2](#).

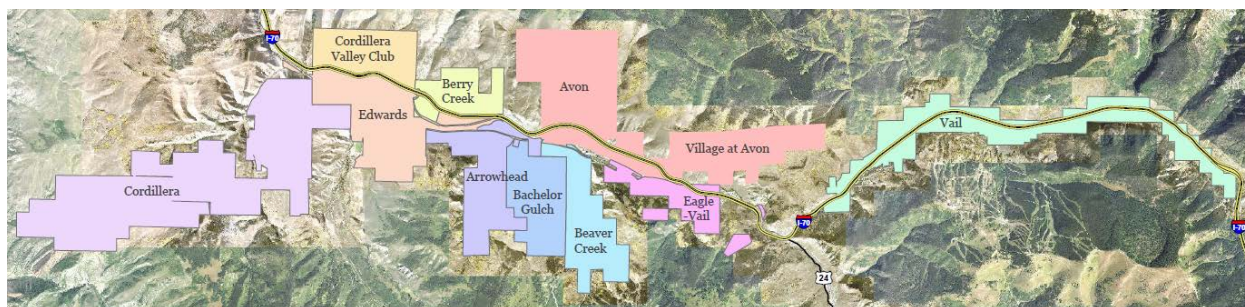


FIGURE 2. SERVICE AREAS

The district and authority have two of the most complex public water systems in Colorado and face operational challenges including seasonal variations in supply and demand, limited space for facilities, and rugged topography.

The district's water system consists of seven groundwater wells and one treatment facility – the Gore Valley Drinking Water Facility. The authority's system consists of ten groundwater wells and two treatment facilities – the Avon Drinking Water Facility and the Edwards Drinking Water Facility. An interconnecting pipeline connects the district and authority systems and allows for water transfer between Vail and lower portions of the Valley.

2. HOW MUCH WATER OUR COMMUNITY USES AND SAVINGS SUCCESSES

The district and authority have a longstanding track record of implementing demand management and water efficiency measures dating back to at least 1995, when a Water Conservation Officer staff-position was created. By that time, conservation programs were already in place, and included: free indoor water conservation kits provided to customers; a certification program for irrigation system professionals; educational programming; and irrigation system maintenance, leak detection, and repair. The four categories of conservation activities identified by the CWCB (foundational, incentive, ordinance, and education programs) have continued to expand since that time. Appendix A¹ provides a summary of new and existing conservation activities.

PASSIVE SAVINGS

Water savings that have been achieved by district and authority customers are the result of a combination of active water conservation programs and passive savings. Over time, as fixtures and appliances are upgraded with more efficient technology, some water savings happens automatically. This is referred to as “passive” savings, because it is a one-time upgrade, not requiring ongoing customer behavior change.

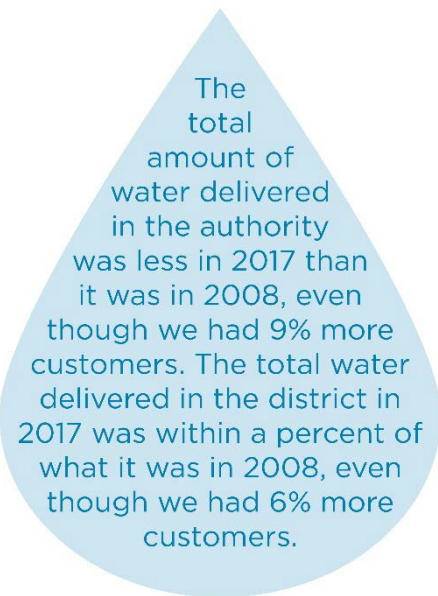
The next section provides an overview of water use trends over time, followed by a brief summary of the programs that have been successfully implemented and, along with passive savings, have helped achieve the efficiency savings realized to date.

Water Use Over Time and Savings To-Date

The district’s 2012 plan evaluated water use data from 2003-2007; this data is used as a baseline for calculating savings achieved since 2013 with the implementation of the 2012 plan. This regional plan is the first water efficiency plan for the authority; however, many of the programs identified in the district’s 2012 plan were implemented in the authority as well. These efficiency programs reduced the amount of water needed per customer in 2017 by 15%

¹ Appendix A summarizes all measures and programs evaluated under this plan, in accordance with the state’s statutory planning requirements (C.R.S. §37-60-126).

in the authority and 10% in the district.² This equates to a reduced demand of 309 ac-ft in the district and 769 ac-ft in the authority in 2017 through efficiency savings. These efficiency savings have allowed total water use for the authority to decline and total water use for the district to remain consistent even though the single-family equivalents served by the system increased by 9% and 6%³, respectively, since 2008. A **single-family equivalent (SFE)** is a multiplier assigned to each customer account for billing purposes. The SFE is based on account characteristics⁴ such as square footage for residential accounts and meter size for business accounts.



These water savings are a significant achievement that demonstrate the ongoing commitment of our organizations and our customers to use water more efficiently. In addition to reducing the amount of water that has been diverted from our rivers and streams, the water savings also reduce expenditures related to operating costs and updating infrastructure, and have helped delay the need for developing new water supplies. Water savings achieved by other water providers in Colorado with

² Savings were calculated by multiplying per-SFE use from 2003-2007 by the number of SFEs in 2017 to establish what total use would have been in 2017 if per-SFE use had not decreased. The difference between actual 2017 water use and that calculated number was ascribed to efficiency savings. The average per-SFE use from 2003-2007 within the district was 209 gpd/SFE, while the average from 2013-2017 was 189 gpd/SFE, representing a 10% decrease. If per-SFE use in 2017 was at 2003-2007 levels, an additional 309 ac-ft would have been used in 2017. The average per-SFE use from 2003-2007 within the authority was 258 gpd/SFE, while the average from 2013-2017 was 217 gpd/SFE, representing a 15% decrease. If per-SFE use in 2017 was at 2003-2007 levels, an additional 769 ac-ft would have been used in 2017.

³ These numbers reflect the percent increase in number of SFEs served since 2008.

⁴ SFE Assignment Criteria:

Customer Class	SFE Criteria
Residential	<ul style="list-style-type: none"> 1.0 SFE per residential unit up to 3,000 sq-ft with a cooking facility; SFE for units greater than 3,000 sq-ft are increased proportionally based on size; Efficiency* units are counted as 0.5 SFE.
Commercial	<ul style="list-style-type: none"> SFE based on meter size, ranging from 1.5 SFE for a 3/4-inch meter to 92.1 SFE for a 6-inch meter.
Mixed-Use	<ul style="list-style-type: none"> SFE based on number, type, and size of residential units and meter size.
Irrigation	<ul style="list-style-type: none"> SFE for "Sprinkler Irrigation Ratio (SIR)" accounts is based on the SFE of the associated structure; SFE for "Sprinkler Irrigation Coverage (SIC)" accounts is based on irrigated area. 1.0 SFE = 1.0 irrigated acre.

*An "efficiency unit" is a residential unit having one room with an integral cooking facility and one bathroom.

active conservation programs have averaged water savings in the range of 10% to 15% over a similar timeframe. This indicates that our organizations' demand management efforts are on par with the programs being implemented by other utilities that have made a commitment to water efficiency.

FIGURE 3 shows water demand trending for the district and authority over time. Trends are for “metered use,” or water delivered to customers. Many factors may impact water demand, including weather and economics. Despite the variability created by these factors, water demand has been trending downward over time. Trends in the figure are shown for total use and use per single-family equivalent. Total use trends are shown in acre-feet, which is a commonly used measurement related to water supply and water system planning. An acre-foot is the volume of water required to cover an acre one foot deep (325,851 gallons).

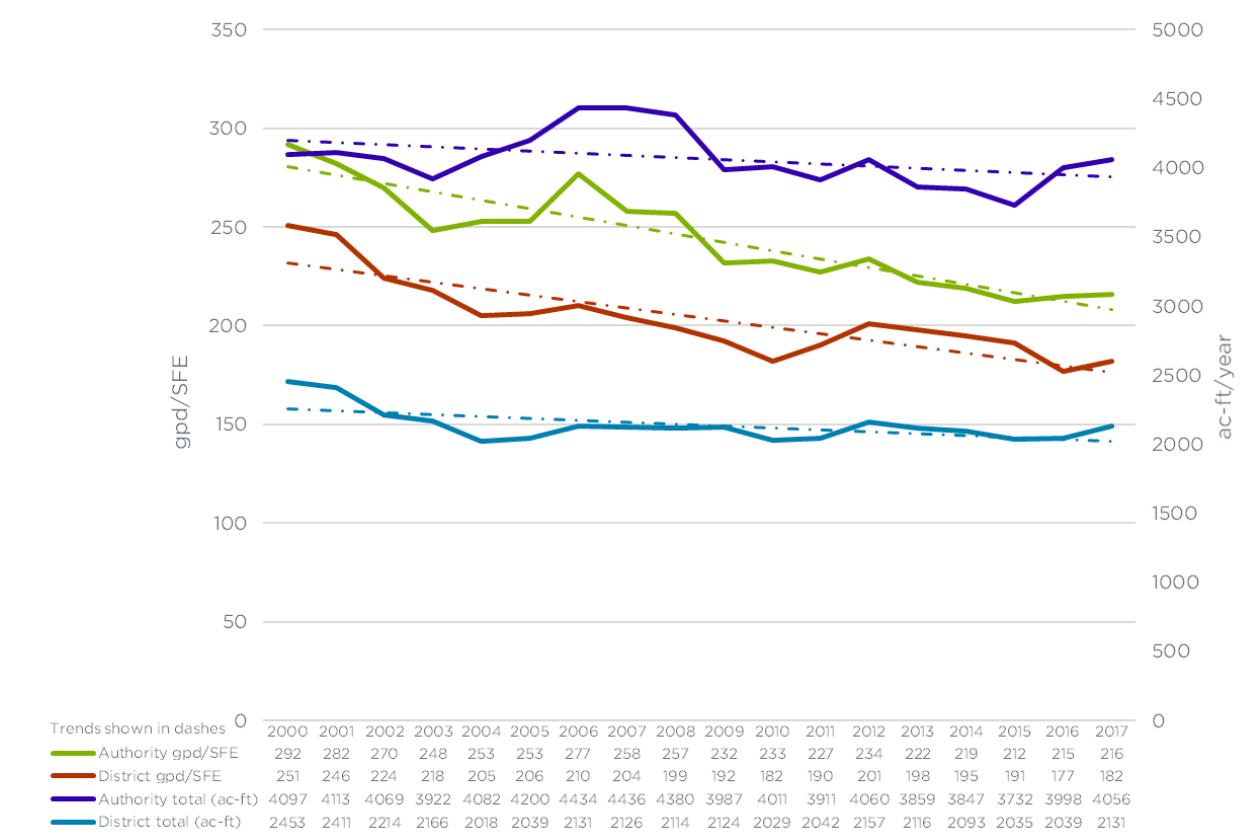


FIGURE 3. METERED WATER USE TRENDS

Implemented Conservation Programs

This section provides a brief summary of the programs that have been successfully implemented and, along with passive savings, have helped achieve the efficiency savings realized to date.



Advancing Data Collection and Analysis. Modern metering technology allows accurate measurement of our customers' water use. We are in the process of implementing advanced metering infrastructure (AMI) that will enable customers to monitor water use in near real-time, empowering them to manage their use to meet their efficiency goals. AMI technology can also be a valuable tool for identifying leaks and enhancing goal-setting and tracking. The district and authority also employ industry best practices such as regular meter testing, leak detection, and ongoing analysis of system losses.



Targeting Non-Revenue Water. As a responsible steward of the water resource, our organizations actively address system water losses, also referred to as non-revenue water. These losses can be either 'apparent' losses (metering inaccuracies, data handling errors, or unauthorized use) or 'real' losses (physical water loss from leakage or storage tank overflows). A certain quantity of loss is unavoidable because the water delivery system is under physical pressure at all times in order to protect the water quality and make delivery possible. The district established an interdepartmental committee in 2003 to address non-revenue water. The committee uses industry standardized reporting methods to assess how well we are maintaining, repairing, and rehabilitating our systems for leakage control. Our organizations undertake projects identified by the committee to help our operations stay within a target range. Recent projects include: advanced metering at water production sites; new reporting mechanisms for water used during system maintenance or for community needs like fire suppression system testing; and ongoing leak detection efforts using acoustic technology. Refer to Appendix B, Section 1.2 for additional information related to non-revenue water.



Communicating the Value of Water through Rates. The district and authority use conservation-oriented tiered water rates to communicate the value of water to customers through pricing. Rates for the district and authority are included in Appendix E to illustrate the organizations' tiered rates. Please note that the appendix includes rates for 2018; rates may be adjusted annually as appropriate. Customers are given a water use allowance within each tier based on their property's assigned SFE multiplier. As the customer enters higher tiers, the price of water per thousand gallons used increases. [FIGURE 4](#) shows water use monthly allowances for each tier for a typical residential customer. Pricing signals are an effective way of communicating to customers that their use may be inefficient. Customers whose use is in the higher tiers can save money on water bills by addressing the cause of their high use, whether by installing high-efficiency fixtures and appliances, updating their irrigation system technology and management practices, or changing every day behavior to reduce water use (for example, only running the dishwasher or washing machine when there is a full load).

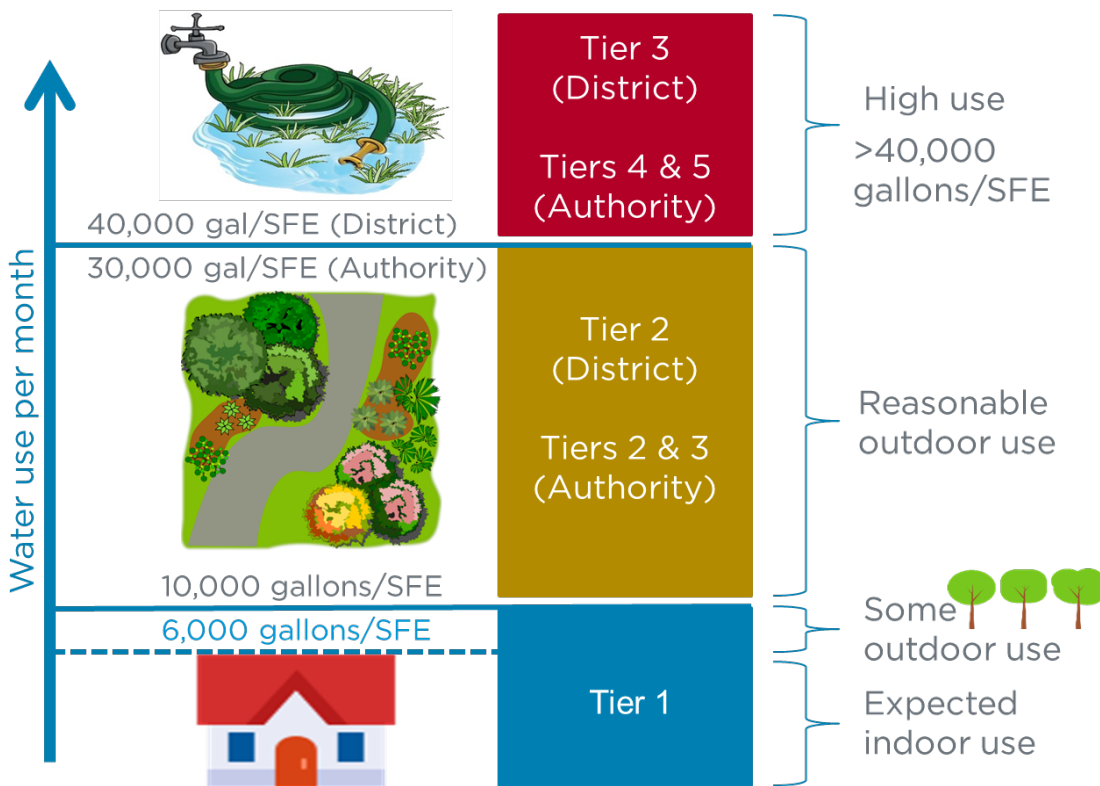


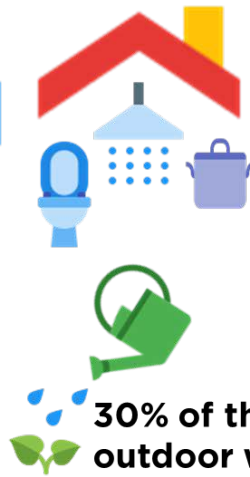
FIGURE 4. COMMUNICATING THE VALUE OF WATER – MONTHLY TIER ALLOWANCES



Outdoor Measures. As shown in [FIGURE 5](#), approximately 95% of water used indoors is returned to surface waterways, while only about 30% of water used outdoors is returned to the stream or river. Therefore, indoor use is 5% consumptive, meaning that only 5% of what is used is consumed and not returned to the environment, while outdoor use is approximately 70% consumptive. Because outdoor use is approximately 14-times more consumptive than indoor use, it has the greatest impact on local stream flows. Furthermore, outdoor use has a larger impact on the capacity of in-basin reservoirs to release legally required flows in periods of drought. Efficient outdoor water use is increasingly important as hotter, drier weather becomes more of a norm than an outlier. Increasing the efficiency of outdoor water use creates savings that may be used to support the demands of future growth. We will continue to offer resources that are shown to have an impact on reducing outdoor water use. We currently offer irrigation system audits/consultations to empower customers to more efficiently manage their outdoor water use and outdoor water efficiency devices, including garden hose nozzles with automatic shut-off, soil moisture probes, and rain gauges.

95% of the indoor water use leaves the home through drains and is sent to the wastewater treatment facility

Treated water is delivered to customers' homes



30% of the outdoor water use makes it back to the environment

Treated water is returned to the environment

Water is withdrawn from the environment and treated in the drinking water facility

FIGURE 5. TREATED WATER CYCLE



Community Relations. Public outreach and education is a key component to ensuring the continued success of our water demand management measures and helping to achieve targeted water savings. We will continue to provide education through multiple channels including spots on local radio, notices and articles in the Vail Daily, social media posts, mailings, and participation in community events, including the Vail Farmers' Market.



VAIL FARMERS' MARKET



Our water use regulations, which have been in place since 1995, are another key aspect of customer engagement. These regulations establish watering schedules to reduce peak demand, allow watering only at efficient times, and prohibit wasteful water use.

3. BACKGROUND: GOAL-SETTING AND TYPES OF CUSTOMERS

Goal-setting is a useful tool to assess water efficiency and track progress over time. Also referred to as benchmarking, water efficiency targets, or performance indicators, goal-setting assists with creating policies and can be used as part of the screening process for potential programs.

One of the most common performance indicators used throughout the water industry for evaluating efficiency in municipal systems is residential per person water use, measured as gallons per capita per day. However, this metric is not directly applicable for many district and authority customers because of variations in use due to seasonal occupancy and tourism. The district and authority are implementing measures to collect additional customer characteristics data to develop and refine goals for each customer class. These measures are discussed in additional detail in Appendix B.

Because there are key differences in the ways that different types of customers use water, goal-setting is performed by customer class. Each customer is assigned one of the following categories, or classes (customer classes are described in more detail in the corresponding sections):

Residential (RES)
Commercial (COM)
Mixed-use (MIX)
Irrigation-only (IRR)

A summary of the proportional water use by each customer class, organized by provider, is provided in [FIGURE 6](#). Residential use is the leading water use in both the district and the authority.

Though not listed above, the district also supplies water for snowmaking and golf course irrigation. This use type is also not included in [FIGURE 6](#) because it has some key differences from other customer types and therefore is not addressed the same way for the purposes of this plan. This use type is discussed further in Section 4.4.

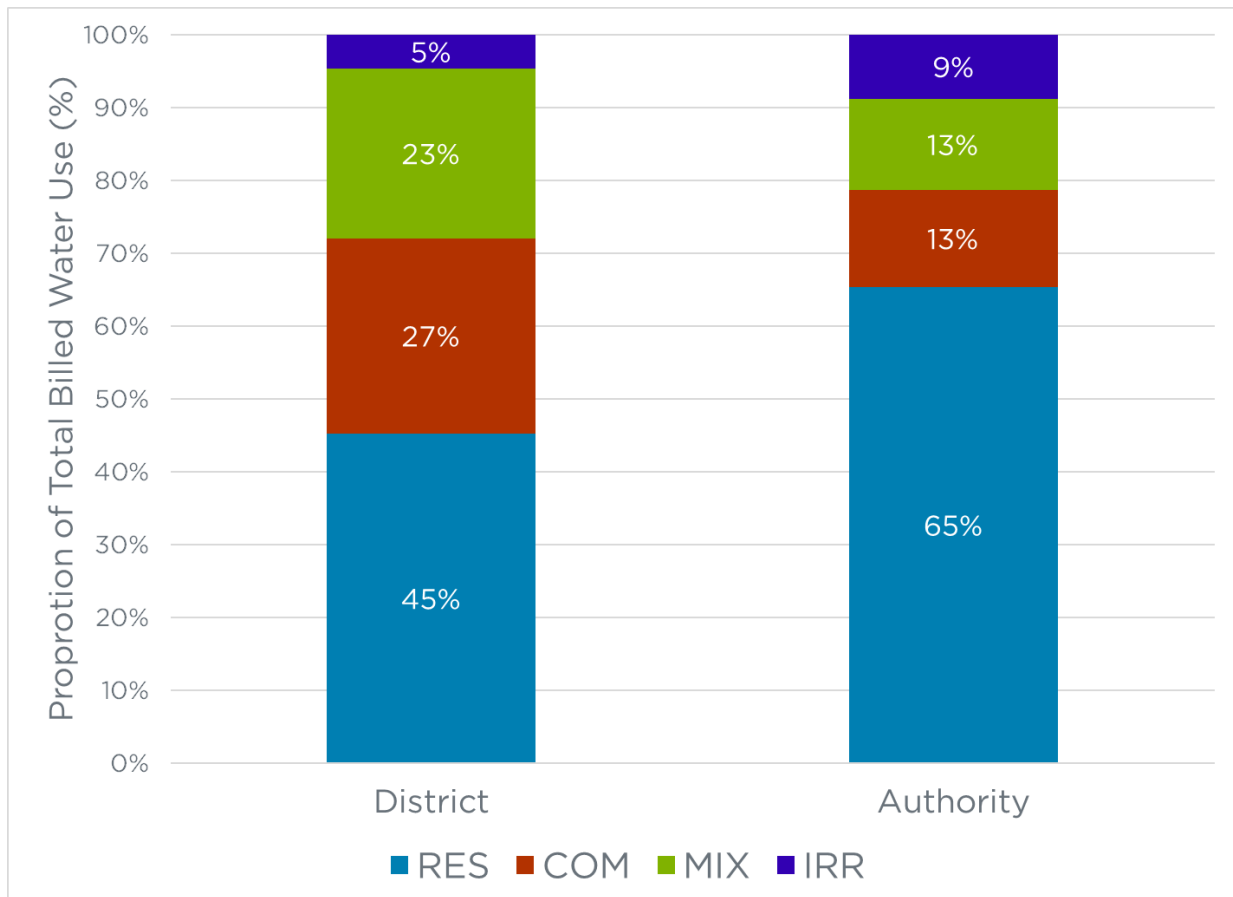


FIGURE 6. PROPORTIONAL WATER USE BY CUSTOMER TYPE AND PLANNING AREA

4. THE DATA AND THE ROADMAP

We are not asking our customers to *use less* water, we are empowering our customers to *waste less* water.

This section outlines the unique characteristics and water use patterns of our different types of customers. We have identified programs to address our customers' specific needs in becoming more water efficient. We are not asking our customers to *use less* water, we are empowering our customers to *waste less* water.

The programs identified in this plan were selected to build upon past successes and expand our efforts to meet our community's demand management objectives. In addition to the priority programs identified in the body of this plan, which have a customer engagement component, our organizations also continue to refine our operations to meet conservation goals. Appendix B provides some details on programs implemented internally by the district and authority.

4.1 RESIDENTIAL CUSTOMERS

Residential customers include single-family homes, condominiums, townhouses, duplexes, multiplexes, apartments, efficiency and accommodation condo or hotel rooms, and mobile homes. This customer category is the largest water user in the district and authority service areas (FIGURE 6). Accordingly, residential customers are a key focus of demand management measures being implemented under the plan. Residential customers are described by efficiency-type categories for the purpose of evaluating water use trends as part of this plan:

- 1 Homes that use more water indoors, referred to in this plan as efficiency-type 1 homes. These homes typically have smaller irrigated areas.
- 2 Homes that use more water outdoors, referred to in this plan as efficiency-type 2 homes. These homes typically have larger irrigated areas.

The graphs in this section show average water use information for type 1 and type 2 homes located in the authority; average water use information for homes located in the district is shown separately because the Vail area has unique water use patterns, as discussed below, as well as separate water rights from the authority. Efficiency-type 1 homes are typically located in compact neighborhoods with more multi-unit complexes (e.g. condominiums, apartments, and hotel rooms) and single-family homes with smaller lot sizes, which tend to have less irrigated area per unit. Areas with more centralized development and infill generally use less water per SFE as compared to areas

with dispersed development (FIGURE 7), typically making them more water-conserving by design. Efficiency-type 2 homes tend to be located in more dispersed neighborhoods, having more single-family detached homes with larger lots. Homes with larger lots often have larger irrigated areas.

Recently, water providers throughout the state have begun evaluating what type of developments minimize new demand on their systems. These studies have found that the way in which we develop matters. More dense developments with less irrigated area require less water and shift use indoors, which is less impactful to the resource, as illustrated in FIGURE 5. However, there are many aesthetically pleasing local examples of homes with larger lots with minimized irrigated area. This is achieved through careful design that incorporates native and adapted plants while maximizing the benefits from irrigated area. Increasing efficiency is an important way to reduce waste regardless of lot size or irrigated area, and we encourage homeowners of all property types to incorporate water saving elements. Examples of water saving elements include: upgrading to efficient fixtures and appliances; reducing outdoor use by limiting turf area and incorporating native or adapted water-wise plants into landscaping; and irrigating with an efficient system that uses appropriate emitters and is run by a weather-based controller.

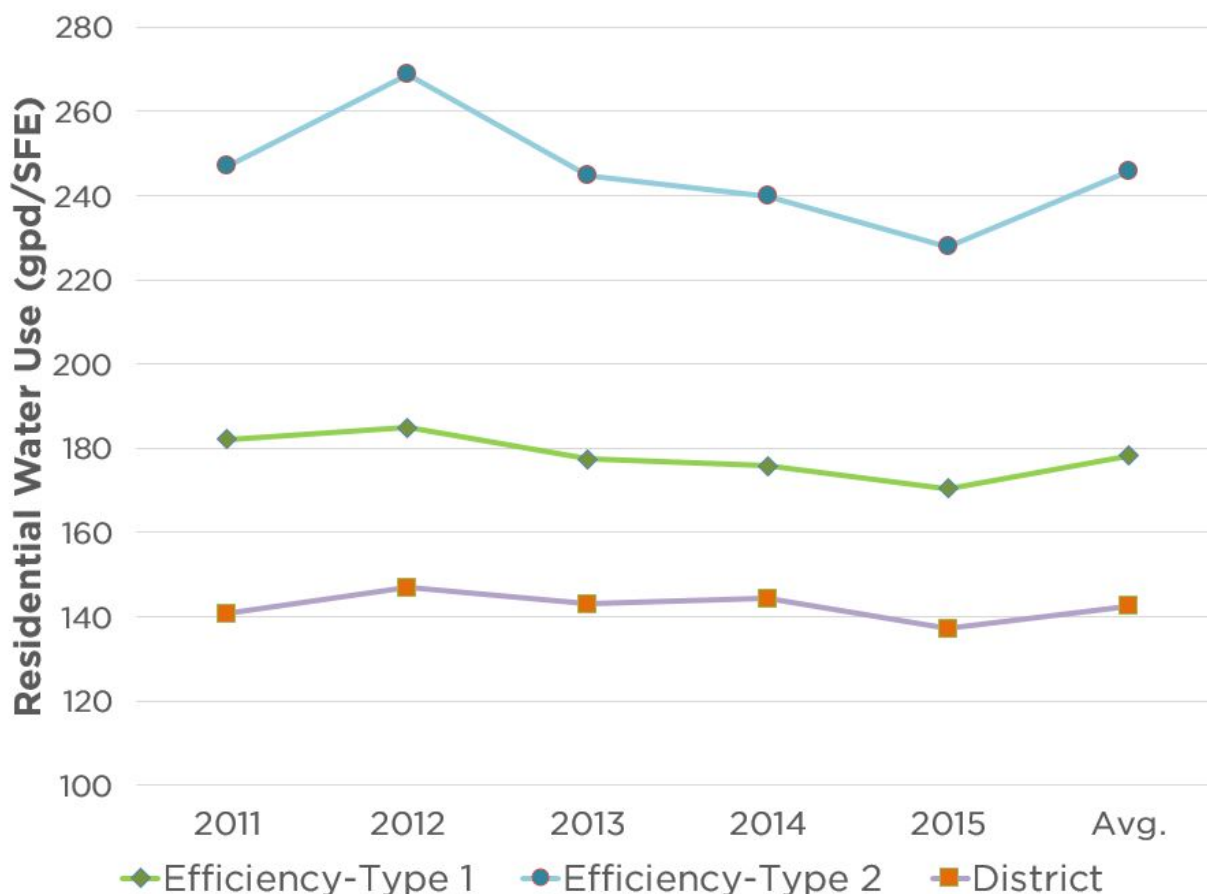


FIGURE 7. TOTAL RESIDENTIAL WATER USE

Efficiency-type 2 residential customers use approximately 2.5 times as much water outdoors as type 1 customers (FIGURE 8), mainly due to larger lot sizes. This results in more year-to-year annual demand variation for type 2 homes than for type 1 homes. FIGURE 7 shows that the average per-SFE demand for a type 2 home significantly increased in 2012, when the summer was relatively warm and precipitation was relatively low, while the average per-SFE demand for a type 2 home stayed moderately stable. Though type 1 homes use less water per-SFE, indoor uses for these homes are 1.4 times higher per-SFE than indoor use in type 2 homes. This is likely related to higher occupancy rates as well as a higher concentration of year-round residents in efficiency-type 1 homes. District homes use the least amount per-SFE on average, in part due to smaller irrigated areas and a shorter growing season, as well as due to passive savings from redeveloped or remodeled units.

Based on higher volume of water used for outdoor purposes in type 2 homes, a focus on outdoor efficiency for these homes may result in a larger volume of water savings. However, even customers with smaller irrigated areas, like type 1 homes, still have the opportunity to reduce water use with increased efficiency. Our goal is to provide resources to help all of our customers become more efficient, and identified programs are available for any home where efficiency savings are possible.

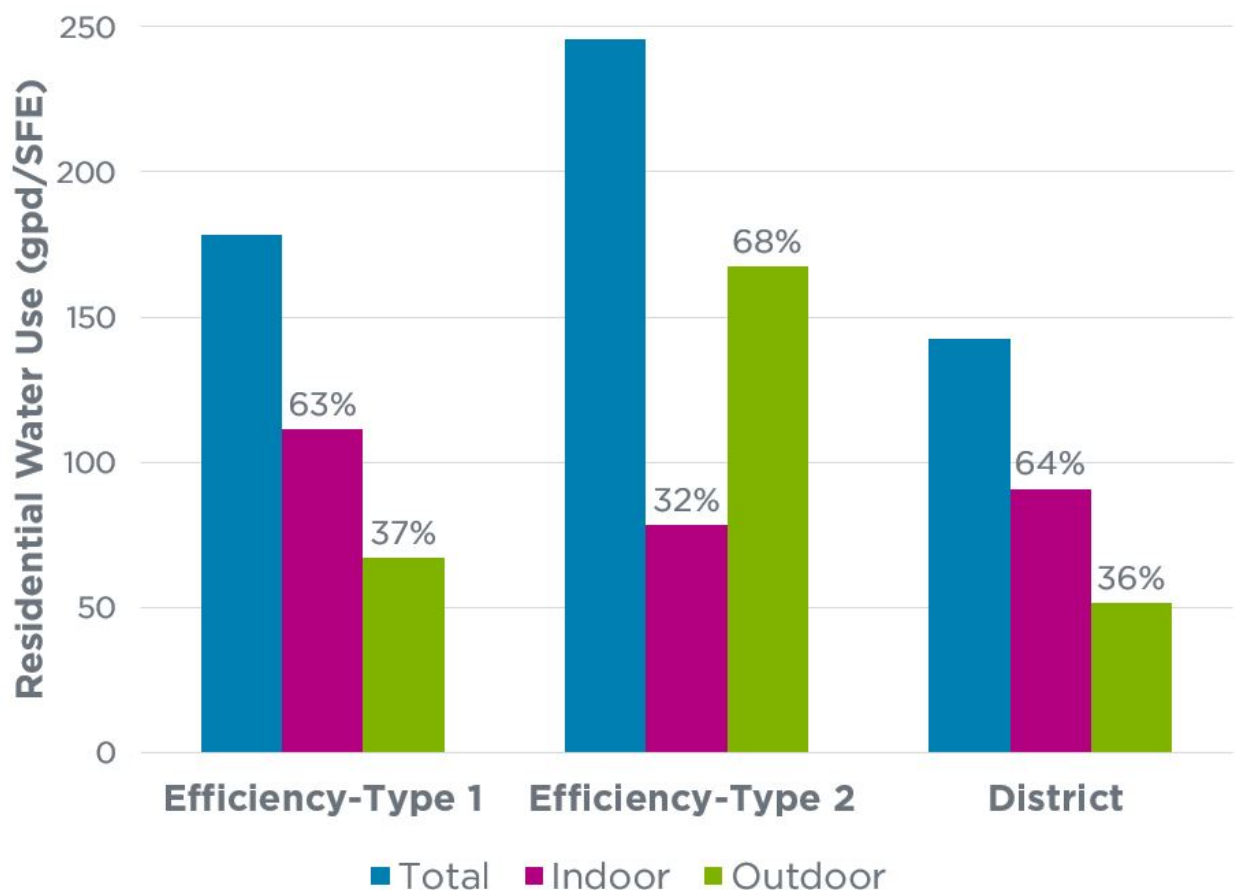


FIGURE 8. INDOOR AND OUTDOOR RESIDENTIAL WATER USE

Savings Objectives⁵

The district and authority have established the following objectives for residential customers to help guide demand management efforts. See Appendix B for additional details on how our organizations plan to collect additional data to continue to develop water use targets.

The Climate Action Plan for the Eagle County Community, which has been adopted by the district and the authority, recommends promoting and incentivizing efficient use of water in the interior and exterior of residential buildings. Because water conservation reduces demand for both water and energy, it can play an important role in reducing greenhouse gas (GHG) emissions. Savings objectives and demand management programs identified in this section of the plan are consistent with the Climate Action Plan.

- 1 Based on historical water use, growth projections, and a review of goals set by similar communities, this plan establishes an outdoor water use savings goal for authority type 2 areas of 0.75%/year, or a total savings of 10% by the year 2030. Similarly, this plan establishes a goal for the district and authority type 1 areas of 0.5%/year, or a total savings of 7% by year 2030.

In part, this reduction goal may be achieved by bringing the water use ratio for type 2 homes closer to 60% indoor and 40% outdoor. This is a recommendation identified in the Colorado Water Plan, which was created with stakeholder input from throughout the state and sets measurable goals to help communities address projected future water needs and track conservation progress. The Southwest Basin Implementation Plan identified achieving this ratio as a measureable outcome and identified this as a goal for southwest Colorado and the entire state by 2030.

On average, district homes and type 1 homes within the authority are in line with this guidance; therefore, the outdoor water savings target identified relates to use for type 2 homes. Though it may take longer than the planning period to align with this goal, moving closer to this target is achievable through the programs identified for this customer group, including turf to native vegetation conversion, efficiency upgrades, and alignment with maximum irrigated area provisions.

- 2 This plan establishes an indoor water use savings goal of 0.7%/year for the authority and 0.5%/year for the district. This equates to a total savings by the year 2030 of 9% in the authority and 7% in the district. A slightly larger savings is anticipated in the authority, because the projected growth rate is higher and water-efficient new developments are expected to contribute to the projected savings.

This goal may be achieved in part through offering targeted support for affordable and multi-family developments where passive savings

⁵ Estimated water savings in this section are based on research that evaluated how water is used in homes. DeOreo, William B. et al (2016). Residential end uses of water, version 2. Water Research Foundation.

through upgrades have not occurred and therefore have much higher per-SFE use than other similar developments. FIGURE 9 shows use per SFE data for a sampling of multi-family developments within the district and authority service areas. Example 1 is affordable housing, where monthly rent cannot exceed 40% of monthly salary and monthly salary cannot exceed five times the monthly rent of each person. Example 2 is affordable deed-restricted workforce housing. Example 3 is employee housing. Example 4 is Section 8 housing, where rental rates are dependent on income and are subsidized. Example 5 is restricted covenant workforce housing. Examples 6 and 7 are affordable housing with restricted rental rates.

The figure demonstrates the dramatic water use reductions that can be achieved through retrofits. These savings are reliable over the useful life of the product since they depend on technology rather than behavior change to save water. FIGURE 9 shows example 4 with a dark blue line representing a property that was retrofitted in the early 2000s. Following the retrofit, per-unit water use was reduced from almost 200 gallons per day (gpd)/SFE to closer to 100 gpd/SFE. The per-SFE use after retrofit was comparable to that of example 7 (light blue line) which is relatively newer construction. Based on observations in our area, a goal range for indoor use for this type of development is 80-120 gpd/SFE. Examples 2 and 6 show water use for properties that have not been retrofitted, so outdated fixtures are likely strongly related to water use outside of the goal range. Significant savings are achievable with these developments, and we will explore various ways to facilitate upgrades, including the possibility for incentives, rebates, or other assistance as appropriate.

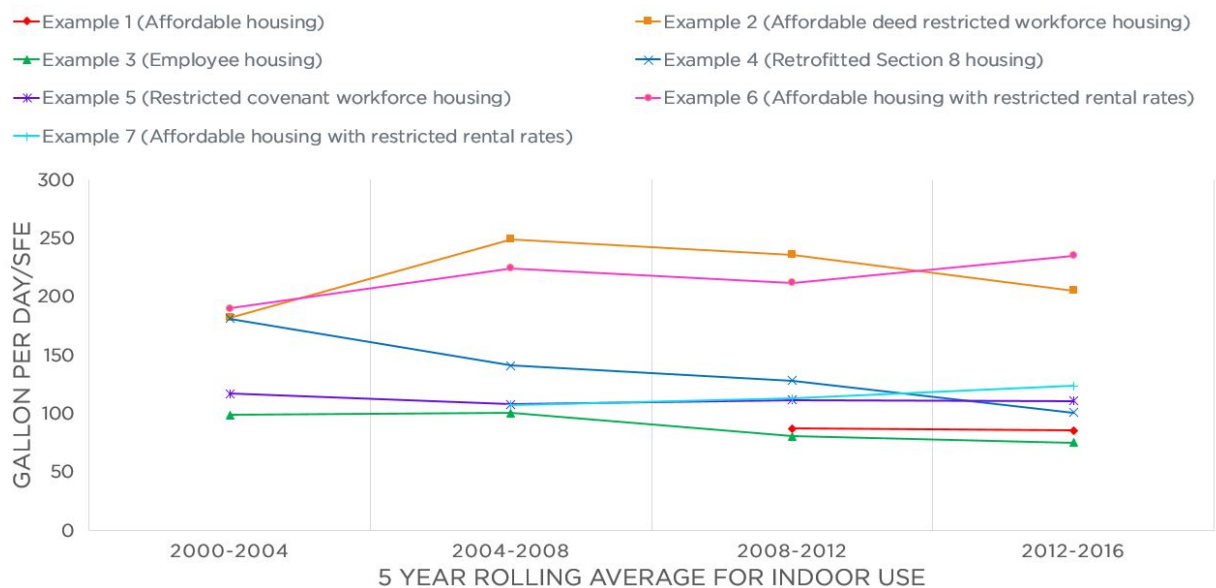


FIGURE 9. MULTI-FAMILY DEVELOPMENT WATER USE EXAMPLES

Demand Management Programs

Following is a summary of programs to be implemented under this plan to provide support to residential customers to improve water efficiency at their homes. We are not asking our customers to save water by completely changing their lifestyles, we are providing them with tools to *reduce waste* while they continue to enjoy the things they value about living in this community.



Outdoor Incentives and Rebates. Water-efficient landscaping incentives and rebates will continue to be offered for technology upgrades that provide the ability to manage irrigation systems more efficiently. The current giveaway program includes rain gauges, soil moisture indicators, and automatic hose shutoff devices. In the future, incentives and rebates may also be offered for weather-based controllers and rain shutoff devices to promote more efficient irrigation. We will also evaluate offering incentives and rebates for repairs and upgrades recommended through the irrigation system consultations described below.



Irrigation System Consultations and Partnership with Irrigation Professionals. Even the most advanced irrigation system technology requires ongoing maintenance and management by individuals who understand how plant water needs change seasonally. Irrigation system consultations have been provided to our customers since 2011. In the past, district personnel were able to provide this service. However, due to employee turnover and resource constraints, our organizations partnered with a nonprofit to offer this as a third-party service to customers on a pilot basis starting in 2017. The district and authority will explore building local partnerships and internal expertise to offer this type of service to customers. We think partnership will be the most efficient use of resources to effectively offer this service to a wider customer base. This service is very valuable in helping to reduce customer water use by improving sprinkler system efficiency. Our experience so far has indicated that for this type of program to be successful in our area, in addition to homeowner buy-in, landscaper and property manager participation is critical. This program may involve offering training as well as exploring other ways to connect local landscaper and property management professionals with the skills, knowledge, and resources they need for efficient irrigation system management and scheduling techniques.



Turf to Native Vegetation Conversion Program. A program for promoting the conversion of high-water use landscapes to low-water use plantings is under consideration. It is anticipated that the program will be coordinated with the Town of Vail and other interested land use partners to maximize benefits associated with water savings, riparian habitat restoration, and storm water detention and filtering. Minimum requirements for area, landscape preparation, and installation will be developed to promote the success of the program. We will also work to connect our customers to resources related to recommended native and adapted plants for our area.



Indoor Incentives. Since approximately 1994, the district and authority have funded giveaway programs that provide customers with educational materials and indoor products such as faucet aerators, low-flow showerheads, and toilet flappers. We expect to continue these programs with a shifted focus toward promoting fixture replacement in multi-family, low-income, and workforce housing units, as discussed in the residential savings objectives section of this plan, because passive replacement may be less likely for these units.



Customer Engagement. There are very powerful customer engagement platforms that can help customers understand their water use, set efficiency goals, and learn how their water use compares to neighbors. These platforms can even automatically notify homeowners of high use events, alert homeowners to possible leaks, and provide the necessary resources and information to identify and repair the issue. This type of software platform offers a valuable expansion of our existing high use and leak notification program. We began piloting this platform in 2017, and hope to begin to offer this platform more widely in 2018 to allow our customers to access these features on their mobile device or computer. Generally, our customers understand what a valuable resource our water is and want to use it wisely. It is our job to provide them with the tools they need to understand their use and make small changes that can lead to big savings.

We are working to develop water budgets based on the specifics of individual customer properties in order to help both our organizations and homeowners understand where the most room for improvement exists. We hope to implement water budgets beginning in 2020. Appendix B describes the process of developing water budgets in greater detail.



Coordination with Land Use Authorities. As water providers, our organizations do not have land use authority. That authority rests with local jurisdictions, including Eagle County, the Town of Avon, the Town of Vail, and various metropolitan districts and homeowners associations. Coordination with our land use partners in approval processes, outdoor landscape planning, and development of land use ordinances is critical to meeting our demand management goals. Water-smart developments incorporate water efficiency practices and recognize that the way our community develops impacts how much water will be needed to support growth. For instance, more compact development that encourages infill and revitalization over sprawl has a smaller water foot print. The same is true for developments that are designed to work within the natural environment by incorporating native and adaptive landscapes.

The district and authority have initiated efforts to collaborate with local land use authorities (LUAs) regarding the potential for incorporating measures to promote water efficiency in new development. The utilities and local LUAs recently participated in a three-day workshop hosted by the Sonoran Institute that focused on integrated land use and water planning. Types of measures identified during that collaboration include: updates to land use regulations and codes; coordination on verifying compliance with irrigated area

limitations in place for specific communities; landscape and irrigation system design and installation regulations, as well as plan review and inspection requirements; and aligning development review and approval processes to integrate water savings and improve customer experience.

PARTNERSHIP IN PRACTICE

Our organizations have begun partnering with Eagle County and developers to add water budgeting into development plans for new projects. Budgeting limits the amount of water that may be used by a development based on its specific characteristics. The benefits of this strategy are two-fold: 1) It promotes water efficiency in these new developments; and 2) The cost to the developer of securing water for the project may be discounted, based on less water being needed to serve the more efficient development.

4.2 COMMERCIAL AND MIXED-USE CUSTOMERS

Commercial customers include accounts delivering water to any structure or facility that is used to engage in a business, commerce, manufacturing, marketing, and/or sale of products and services of any kind, and is not habitable. **Mixed-use** customers contain one or more residential units and one or more commercial units within the same structure (e.g., efficiency and accommodation hotel rooms in hotels with a restaurant or retail space, apartment or condo developments with restaurant or retail space, etc.).

Commercial and mixed-use customers account for 50% of total water use in the district and an average of 26% of the total water use by the authority (FIGURE 6). Most of the water used by these customers is attributable to indoor demands, estimated to account for about 80% of total use by commercial and 90% of total use by mixed-use customers. Average indoor use per SFE is comparable for commercial and mixed-use customers, averaging approximately 190-200 gpd/SFE from 2011 through 2015. Based on these similarities, it is appropriate to apply the same savings objectives and programs for these customers.

Savings Objectives

The district and authority have established the following objective for commercial and mixed-use customers to guide demand management efforts while additional data is being collected to help set efficiency goals based on specific business type and size.

This plan establishes an indoor savings objective for this customer class of 0.25%/year for the district and 0.35%/year for the authority. This equates to a total savings by the year 2030 of 5% in the authority and 3% in the district. Throughout Colorado, water savings for the commercial and mixed-use sector have not kept pace with residential savings. This is in part because replacing fixtures and appliances may not result in as significant or consistent savings

for some businesses as it does for residences. Some savings are expected with new businesses due to factors like installation of high-efficiency bathroom fixtures. As with residential customers, we expect higher savings for this category in the authority based on higher expected growth due to the installation of efficient fixtures. These savings objectives are in line with targets set by other Colorado communities in their water efficiency plans.

Demand Management Programs

Following is a summary of programs to be implemented under this plan to provide support to commercial customers to improve water efficiency.



Climate Action Partnerships. Water conservation reduces demand for both water and energy. The storage, transport, and delivery of water contribute to GHG emissions. Helping commercial and mixed-use customers to continue to increase water efficiency is an objective identified in the Eagle County community's Climate Action Plan; we will continue to coordinate with the Climate Action Collaborative that is working to implement this plan. We will also investigate whether there are any partnership opportunities related to energy efficiency programs and other programs that work with these customers related to resource efficiency, such as Walking Mountains Actively Green certification program. Conserving water can play an important role in reducing GHG emissions.



Rates. Pricing signaling has been identified as a key program for our commercial and mixed-use customers, which has been an effective method for reducing water demands for other customer classes. Water use is a very small percentage of bills for this type of customer, because base rates (which go to debt service and infrastructure costs) are higher for these users based on their relatively larger number of SFEs. We will evaluate our rate structure to determine what changes may encourage water conservation and efficiency for this customer class.



Rebate and incentive programs. We are evaluating programs related to the replacement of fixtures and appliances, as shown in the list below.

Item	Eligibility criteria
Toilet	WaterSense-labeled using less than or equal to an average on 1.1 gallons per flush
Urinals	WaterSense-labeled using less than or equal to 0.125 gallons per flush
Pre-rinse spray valves	WaterSense-labeled using less than 1.28 gallons per minute
Coin/card laundry equipment	Consortium for Energy Efficiency Tier 2 or Tier 3
Sub-metering	Individual residential units in multi-family buildings, individual commercial spaces, etc.

In addition to the listed items, we are evaluating offering custom rebates that would allow funds to be available for upgrades not on the list identified by customers that could significantly save water. Examples of possible custom rebates include cooling tower water upgrades, pool and water feature upgrades, commercial laundry upgrades, and irrigation system upgrades.

4.3 IRRIGATION-ONLY ACCOUNTS

Irrigation-only customers account for 5% of total water use in the district and an average of 9% of the total water use by the authority (FIGURE 6). Though there is relatively little variation in water use between years (FIGURE 10), efficiency savings could likely be achieved if irrigation was adjusted to more closely match plant requirements based on temperature and precipitation. Installation of weather-based irrigation system controllers could help achieve these savings.

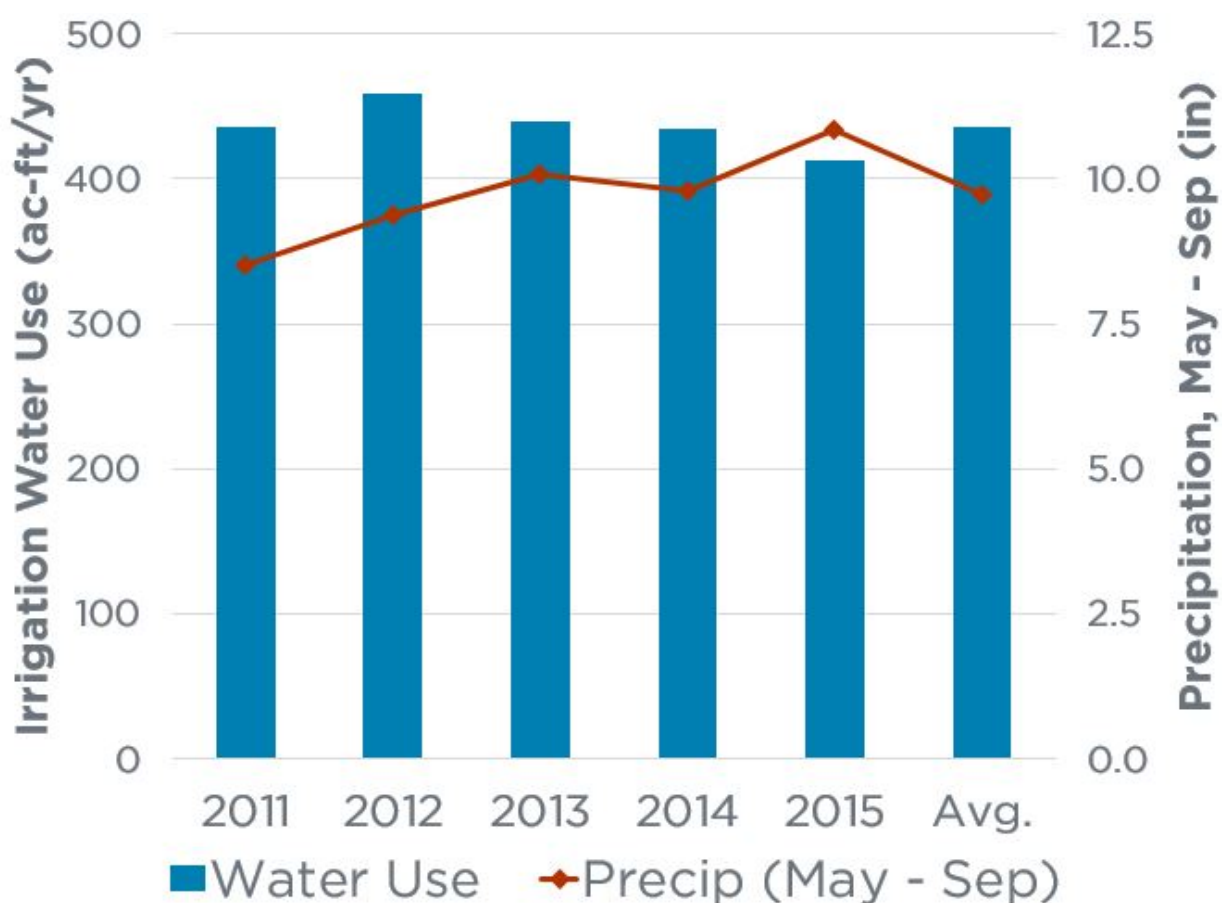


FIGURE 10. IRRIGATION WATER USE

Savings Objectives

The district and authority have established the following objectives for irrigation-only customers:

- 1 Reduce outdoor use for accounts where the irrigated area is known to a gallon per square foot per year goal, depending on the evapotranspiration rate for the property location.
- 2 Reduce overall outdoor water use by 0.75% per year, or 10% by 2030.

Demand Management Programs

Following is a summary of programs that are targeted to irrigation-only customers.



Irrigation System Consultations and Partnership with Irrigation

Professionals. This service is very valuable in helping to reduce water use by improving sprinkler system efficiency, as described in the residential section. Specifically for this sector, the program may involve offering training or exploring ways to connect local landscape and property management professionals with the skills, knowledge, and resources they need for efficient irrigation system management and scheduling techniques.



Outdoor Incentives and Rebates.

In addition to improved management, technology can allow for increased efficiency and water savings. Incentives may be offered in the future for weather-based controllers and rain shutoff devices that help achieve more efficient irrigation. Water-efficient landscaping incentives and rebates will be offered to the extent they are expected to have an impact on reducing outdoor water use.



Customer Engagement. The same customer engagement platform described in the residential section will be made available to all customers, enabling them to closely track and manage their water use.



Coordination with Land Use Authorities. As described in Section 4.1, integration of land use and water planning can be used to promote the efficient use of the water resource. Closer coordination during the development phase is expected to promote installation of efficient irrigation systems and incorporation of native and adapted vegetation.

4.4 SNOWMAKING AND GOLF COURSE IRRIGATION

As noted in Section 3, the district supplies water for snowmaking and golf course irrigation. The main source of snowmaking water is untreated “raw” water, which is withdrawn directly from a surface water such as Gore Creek. Up to 603 ac-ft per year of raw water may be supplied to Vail Resorts for use at the Vail ski area. The district provides up to 120 ac-ft of treated, or potable, water for snowmaking to the Ski and Snowboard Club Vail, a Colorado nonprofit, which is used to ensure there is adequate snow to perform their early season training activities.

The amount of water needed for snowmaking varies from year to year based on snowfall and temperatures. Snowmaking is a significant use supplied by the district and may account for more than half of district stream diversions (water withdrawn from the environment) during the winter. Approximately 75% to 80% of the water used for snowmaking is returned to the stream through runoff from snowmelt in the spring, boosting spring instream flows.

The district supplies raw water to the Vail Recreation District for irrigation of the Vail Golf Club golf course and Donovan and Ford Parks. Up to 174 ac-ft may be supplied annually for this use.

Savings Objectives

This use type has one key difference from other customer types and therefore is not addressed the same way for the purposes of this plan. This water is delivered in accordance with water service agreements which set the maximum supplied amounts indicated. Our partners who use this water are dedicated to efficiency. Even so, we anticipate that the full allocation will be needed in the future due to climatic factors. Mid-century temperatures are projected to average 1.5° Fahrenheit to 6.5° F hotter than in 1971-2000, depending on future levels of heat-trapping emissions.⁶ It is additionally projected that winter precipitation will shift from snowfall to rainfall, which may increase the demand for snowmaking in the future. Irrigation demand may increase resulting from longer growing season and evaporative effects caused by the projected warming.

Demand Management Programs

Conservation activities related to this type of use are in place. The district provides leak detection support for the snowmaking system as needed. The district will continue to work with our partners related to efficiency for these uses.

⁶ Saunders, Stephen and Easley, Tom. Climate change in the headwaters water and snow impacts. The Rocky Mountain Climate Organization, Louisville, CO.
<http://nwccog.org/wp-content/uploads/2018/02/Climate-Change-in-the-Headwaters.pdf>

5. DEMAND PROJECTIONS AND ESTIMATED WATER SAVINGS

Based on historical SFE growth rates over the 1999 to 2015 timeframe, annual SFE growth rates in the district and the authority are projected to be 1.1% and 2.1%, respectively, through the 2030 planning period being considered as part of this plan. Two separate demand projections (baseline and active conservation) were prepared for both entities, as described below.

BASELINE

The baseline projections combine the average historical water use values with future SFE growth estimates. These projections represent demand scenarios if there were no additional water savings between now and 2030.

ACTIVE CONSERVATION

The active projections use a more complex approach where demands are separated by customer category with outdoor and indoor demands being evaluated separately. This allows the impacts of specific water efficiency measures, like high-efficiency fixtures and appliances, and irrigation management, to be considered. The projections include the impact of passive savings from new construction and retrofits of houses and businesses with high-efficiency toilets, clothes washers, and dishwashers. The active projections also incorporate anticipated savings from the planned water efficiency programs described in this plan.

The results of the baseline and active projections are shown in [FIGURE 11](#). Total metered water deliveries by the authority under the active projection is 4,790 acre-feet per year (ac-ft/yr) in 2030, which represents an additional reduction of 430 ac-ft/yr, or 8%, as compared to the baseline projection. Total metered water deliveries include all treated water delivered to customers through their meters. The district's total metered water deliveries in 2030 is projected to be 2,240 ac-ft/yr in the active scenario, which represents an additional savings of 140 ac-ft/yr, or 6%, as compared to the baseline projections. We expect 50% of projected savings in the authority and 40% in the district will be due to savings in outdoor use, with the majority of those savings achieved through the active programs identified in this plan.

The remainder is expected to be achieved through indoor savings, with approximately 10% from active indoor savings programs identified in this plan, and the rest as passive savings through water-efficient new development and natural replacement of fixtures.

In addition to the reductions in treated water deliveries, the district and the authority have established a goal of continuing to reduce non-revenue water (see Section 2 of this plan for an explanation of non-revenue water). Our established goals are based on an industry-accepted performance indicator. Achievement of these goals would allow for projected annual savings of water diversions of 100 ac-ft in the district and 120 ac-ft in the authority. See Appendix B, section 1.2 for more detail related to NRW goals. Projections in [FIGURE 11](#) do not include non-revenue water because the figure shows metered deliveries only, and non-revenue water is unmetered.

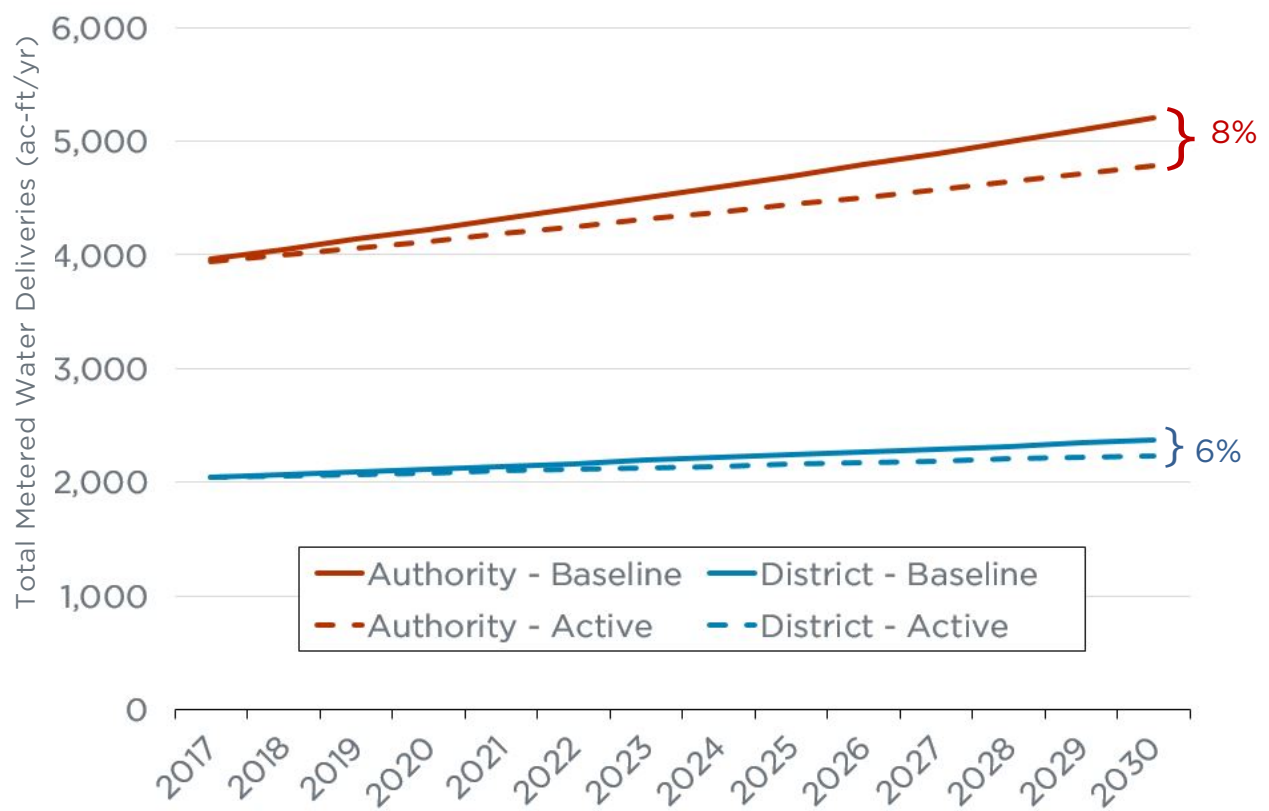


FIGURE 11. TREATED WATER USE PROJECTIONS

6. SUMMARY

This plan sets aggressive yet achievable goals for reducing water demand through efficiency measures and customer engagement. Our community has shown significant reductions in per-gpd/SFE usage which demonstrates the success of past programs and signals that our community is up to the challenge. Innovation and a commitment to resource stewardship will allow our community to continue to grow while shrinking our per SFE water footprint. With this plan as our roadmap, our organizations are prepared to continue the work of securing our community's water future.

APPENDIX A. TABULATION OF NEW AND EXISTING DEMAND MANAGEMENT PROGRAMS

Category	Programs	Existing or New
Fixtures and appliances	Giveaways of faucet aerators, low-flow shower heads, and toilet flappers	Existing
	Targeted toilet replacement for multi-family and low-income customers	New
Low-water use landscapes	Irrigation system audits	Existing
	Giveaways of rain gages, soil moisture indicators, and auto-shutoff hose sprayers	Existing
	Irrigation pilot projects to gather data to assess current residential irrigation efficiency and evaluate savings associated with weather-based controllers and irrigation system audits	Existing
	Coordination with land use authorities	Existing
	Turf replacement program	New
Water-efficient industrial and commercial processes	Evaluate rates, rebates, and incentive programs to encourage conservation and efficiency in this customer class	New
Water reuse	Indirect reuse for snowmaking; non-potable reuse for wastewater treatment operations	Existing
Leak identification and repair	System-wide water audits	Existing
	AWWA M36 audits annually	Existing
	Meter testing and replacement	Existing
	Meter upgrades	Existing
	Identification of unmetered/unbilled treated water uses	Existing
	Distribution system sounding program	Existing
Information and public education	Water Demand Management Coordinator	Existing
	2012 Conservation Plan and 2014 Water Demand Management Plan	Existing
	Master plans/water supply plans	Existing
	Print media	Existing
	Webpages	Existing
	Social media	Existing
	Participation in Vail landscaper workshop	Existing
	Outreach at Vail Farmers' Market	Existing
	Outreach via local radio shows	Existing
	Attendance at community events	Existing
	Software platform to help customers understand and manage their water use	New
	Landscaper, irrigation professional, and property manager education and outreach	Existing
	Demonstration gardens	New

Category	Programs	Existing or New
Rate structures and billing	AMI conversion	Existing
	Separate indoor/outdoor metering for commercial and mixed-use customers	Existing
	Volumetric billing	Existing
	Periodic water rate modifications	Existing
	Monthly billing	Existing
	Tiered rates	Existing
	Sub-metering of indoor use by commercial and mixed-use accounts	New
	Separate indoor and outdoor metering for new residential customers with greater than 5,000 square-feet of irrigated area	New
	Rate updates including evaluation of water budgets	New
	Irrigation and sprinkler account billing based on area delineations	New
	Water-efficiency oriented water system impact fees	New
	Expanded delineations of irrigated areas	New
	Uniformity performance to ensure SFE count accuracy for consistent and accurate billing and water use tracking	Existing
Regulatory measures	Water waste prohibition	Existing
	Time of day watering restrictions	Existing
	Day of week watering restrictions	Existing
	Review of requirements for new water features	Existing
	Landscape design/installation rules and regulations	Existing
	Special irrigation permit for landscape establishment	Existing
	Coordination with land use authorities on new development/redevelopment	Existing
Incentives	Giveaways of faucet aerators, low-flow shower heads, and toilet flappers	Existing
	Giveaways of rain gages, soil moisture indicators, and auto-shutoff hose sprayers	Existing
	Rebates for weather-based irrigation controllers	New

APPENDIX B. IMPLEMENTATION, MONITORING, AND GOAL-SETTING

1.1 IMPLEMENTATION PLAN

The Eagle River Water & Sanitation District and Upper Eagle Regional Water Authority employ a full-time water demand management coordinator that will be responsible for implementing the regional water efficiency plan with support from other staff members in the customer service, finance, planning, water, field operations, and community relations departments. The district and authority will continue to budget money for priority programs identified in the plan and may pursue Colorado Water Conservation Board (CWCB) water efficiency grants to further achieve our water efficiency goals.

A phased implementation approach has been developed, with many programs being implemented immediately as a continuation of existing programs. A summary of the planned implementation schedule for new or substantially expanded programs is provided in [TABLE 1](#).

TABLE 1. PROGRAM IMPLEMENTATION SCHEDULE.

Water Efficiency Activities ¹	Start Date	Implementation Plan
Continuing conversion to advanced metering infrastructure (AMI) technology	Ongoing	100% by 2021
Non-revenue water activities, including American Water Works Association M36 audits	Ongoing	Quarterly committee meetings, annual audits, advanced metering, leak detection, and enhanced reporting
Customer engagement	2018	Software/application platform release to allow customers to understand and track water use
Communicating the value of water through rates and water-efficiency oriented water system impact fees, including investigation of water budgeting	2018	<ul style="list-style-type: none">• Rate study• Collection of GIS data
	2019	<ul style="list-style-type: none">• Water system impact fee updates• Surface classification of GIS data
	2020	Pilot water budgeting

¹ A program description is provided in Section 1.2 of this appendix for programs not described in the main body of the plan.

Water Efficiency Activities ¹	Start Date	Implementation Plan
Outdoor incentives and rebates	2019	<ul style="list-style-type: none"> Pilot weather-based controller and rain shutoff device incentives/rebates Pilot turf replacement program
Irrigation system consultations	Ongoing	Continue to offer to customers and investigate local partnerships
Partnership with irrigation professionals	2019	Pilot training opportunities for landscape/irrigation professionals
Indoor efficiency upgrades (residential)	2018	Evaluate multi-family development retrofit project partnership opportunities
Indoor incentives/rebates (commercial)	2019	Pilot incentives/rebates for commercial and/or mixed-use customers
Coordination with land use authorities	Ongoing	Continue to align processes related to new developments, continue to provide support for policy and land use regulation updates
Development of a landscape policy	2018	Requirement for district/authority approval of landscape/irrigation plans takes effect
Dual metering and sub-metering	2018	Dedicated irrigation metering for homes with a irrigated area over an identified threshold, separate metering of business in commercial and mixed-use developments
Develop goals for commercial and mixed-use customers	2018	Enhanced data collection and tracking (see section 1.4.2 of this appendix for additional details)
Area-based accounts	Ongoing	Continue conversion of irrigation accounts to square-footage based accounts
Snowmaking and golf course irrigation efficiency	Ongoing	Continue to work with our partners related to efficiency for these uses

1.2 INTERNAL PROGRAMS AND PARTNERSHIP OPPORTUNITIES

In addition to the programs described in the main body of the plan, which have a customer engagement element, our organizations will continue to refine our operations to enhance environmental stewardship. Internal efforts will include: refining how we communicate the value of water to our customers through pricing; enhancing data collection and tracking to facilitate data driven management; and continuing to identify opportunities for customer engagement.

Non-Revenue Water

The district as a water supplier has an obligation to act as a steward of the valuable water resources we manage. The Non-Revenue Water (NRW) Committee is a branch of this stewardship. This interdepartmental group recognizes that water and revenue losses are wasteful to our customers, the environment, and society, while good accountability and loss control offer many benefits to all.

The district's NRW Committee was established in 2003 following the drought of 2002. In 2005, the committee brought in HDR as a consultant to help review our management practices in relation to NRW. As an outcome of this review, HDR developed an accounting model to help the district track its NRW more consistently, which provided the committee a framework for consistent program monitoring.

The water industry has made significant improvements on providing utilities with standardized reporting methods and Key Performance Indicators (KPI) for NRW. The start of this industry-wide improvement began with the publishing of the M36 manual on Water Audits and Loss Control Programs. The committee currently uses this manual as their guiding document for approach to tracking NRW, KPI, and overall program monitoring.

The committee's priorities are derived from a couple of industry-recommended KPI. The Infrastructure Leak Index (ILI) is a KPI that quantifies how well a distribution system is managed (maintained, repaired, and rehabilitated) for control of losses at the current systems operating pressure. A low ILI value indicates that the water utility has managed its leakage down toward the level of theoretical technical low limit of leakage achievable based on the inherent characteristics of the current state of pipe technology. A 1.0 is the best an organization can do with leakage control in its system and means all unnecessary leakage has been found and controlled. An 8.0 means an organization has a lot of water loss due to leakage and no controls in place.

The goal range for district and authority is to stay between 1.0 – 3.0 for ILI. The NRW committee feels this range is appropriate based on the value of our water for our area. The ILI is an excellent KPI because it takes personalized information from our distribution system and calculates how well our system is being managed and can be used to make comparisons to others in the industry. Figures 1 and 2 illustrate how we have done in relation to staying within our ILI goal- range since February 2014. The highlighted area in the

graphs represents the goal range and the red line shows the ILI value over time. As illustrated, the authority has remained in the goal range since 2014, while the district made great strides in reducing ILI and entered the goal range in 2017.

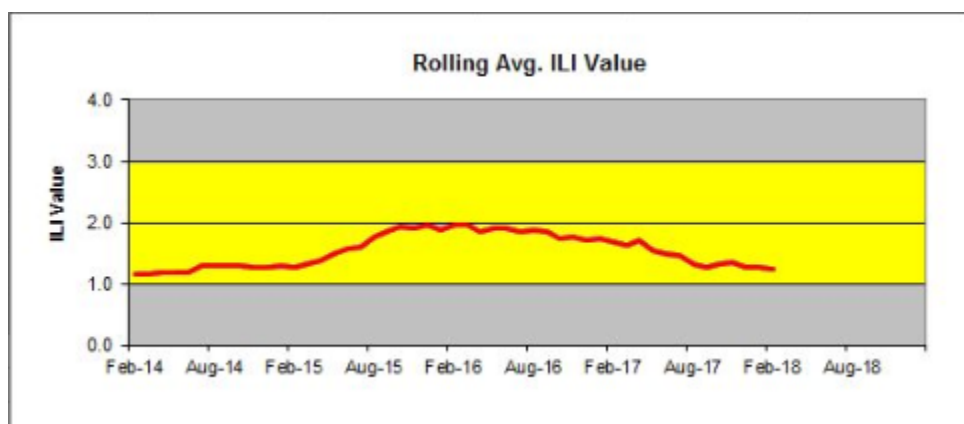


Figure 1 – Authority non-revenue water



Figure 2 – District non-revenue water

Rates and Water-Efficiency Oriented Water System Impact Fees

Rates and tiers are regularly updated to reflect changes in the cost of service. Our organizations have budgeted for a rate study in 2018. The following modifications will be evaluated as part of the future rate updates:

Water budget rate structures. Water budgeting is intended to align tier pricing with efficient water use based on the specifics of an individual property. As a step toward implementing water budgeting, our organizations are pursuing collection of updated GIS imagery. Once the updated imagery has been collected it will be evaluated using surface classification techniques to allow for comparison of customer consumption data with irrigated area. Water budgeting will be evaluated as part of the 2018 rate study.

Water system impact fees that encourage water efficient new developments. Impact fees can be a powerful tool for influencing the water efficiency of new

developments. The district and authority will evaluate revising the current impact fee structure to include indoor and outdoor components that appropriately assign higher costs for outdoor demands, which are more consumptive of the resource and drive capacity to serve peak demand. Impact fee updates will likely occur following the master plan update project currently underway.

Dual Metering

Many commercial, mixed, and multi-unit residential customers have a separate meter for outdoor use, which provides a mechanism for separately evaluating indoor and outdoor water uses. All new accounts for these types of customers are dual metered. Two additional potential metering upgrades have been identified for consideration as part of this plan:

- 1 Dual metering of new single-unit residential customers with landscape areas above a certain threshold.
- 2 Sub-metering of customers and businesses served by one commercial or mixed connection. Currently, many of these types of customers are co-located with other businesses or with residential units in a building with one meter. Being able to separately meter business use is expected to improve data collection and help to develop efficiency goals based on the business operations.

Area-Based Accounts

The district and authority are implementing a program to measure irrigated areas for all irrigation-only accounts. Upon completion, water use by these customers will be compared to irrigation demand planning targets, which will be developed based on the evapotranspiration rate of the customer's location. This will allow for the identification of irrigation customers that may benefit from our support in increasing their efficiency.

Landscape Policy

The district and authority are developing a review policy for landscape and irrigation plans, which as of 2018, are required to be submitted to and approved by our organizations. The Town of Avon recently incorporated landscape requirements into the Town Municipal Code. Our organizations provided input on those requirements and will develop a policy that is consistent with our land use partners to the greatest extent possible to allow regulatory certainty for our customers. We will continue to strive to integrate review processes with our land use partners to reduce complexity associated with dealing with multiple requirements.

1.3 MONITORING AND EVALUATION

The district and authority will review and update the regional water efficiency plan at least every seven years. We regularly monitor water use trends based on metered data that will continue to be collected. Progress toward meeting the water savings goals will be evaluated as part of our annual water demand reporting to the state as required under House Bill 1051, as well as when the

water efficiency plan is next updated. This tracking and analysis will help determine what (if any) additional demand management measures are necessary to help the district and authority meet our stated goals by 2030.

The district and authority will monitor the following on an ongoing basis, coordinated with 1051 reporting, until the next water efficiency plan update:

- Total water deliveries
- Water use by customer class
- Number of active SFEs
- Non-revenue water (percentage and Infrastructure Leakage Index value)
- Water use per SFE, grouped by customer class
- Outdoor water use per irrigated area, to the extent possible based on available data
- Water use relative to water budgets, if adopted
- Number of irrigation system consultations and associated savings
- Number of smart controller incentives/rebates and associated savings
- Turf replacement program details and associated savings
- Information regarding non-residential efficiency audits
- Water use regulations violations
- Goal-setting information (as further described below)

1.4 GOAL-SETTING

Through the preparation of this plan, the district and authority determined that the collection of additional customer characteristics data will be instrumental in improving our ability to evaluate water use trends. The following sections provide a summary of actions that will be considered to improve data collection and the ability to set and track benchmarks by customer class.

Goal-setting requires a significant amount of time and resources, and the approach is expected to evolve as more data becomes available and our tracking mechanisms develop. Accordingly, it will be an ongoing process dependent on available time and resources.

1.4.1 Residential

The district and authority are interested in developing water budgets for residential customers. Budgets serve as water use goals for customers and are set based on the specifics of the customer's property. Until water budgets are developed, gpd/SFE by development type will be used as an indicator of efficiency. We are in the process of making the following updates in our customer database, in order to help with ongoing goal setting and evaluation process:

- Sub-classification of residential accounts as single-unit or multi-unit
- Tracking the number of dwelling units per multi-unit account

1.4.2 Commercial and Mixed-Use

The efficiency of indoor use by commercial and mixed-use accounts is challenging to evaluate because efficient use can vary widely based on the type of business, volume of operations, and seasonal variation. This challenge is not unique to the district and authority, and published end use data from the commercial and institutional sectors is generally very limited. Accordingly, many utilities use local data to develop metrics for benchmarking as appropriate to their customers types. Following is a list of information that we hope to gather to assist in developing benchmarks for commercial and mixed-use customers²:

- Building square footage
- Hotel beds/units and guest occupancy
- Track type(s) of business being served by account (e.g. retail/office, restaurant, industrial, institutional, etc.)
- Pool/hot tub characteristics (e.g. surface area)
- Students per school

1.4.3 Irrigation-Only

The district and authority are implementing a program to measure irrigated areas for all irrigation-only accounts. Upon completion, water use by these customers will be compared to irrigation demand planning targets based on an appropriate gallon per square foot per year value for the evapotranspiration rate of the area.

² See AWWA's National Survey of Commercial, Industrial and Institutional Water Efficiency Programs (2016). Available for download at: www.awwa.org/Portals/0/files/resources/water%20knowledge/rc%20water%20conservation/AWWAsUtilitySurveyofCIWaterEfficiencyProgramsReport.pdf

APPENDIX C. PUBLIC REVIEW, ADOPTION, AND APPROVAL PROCESS

1.1 PUBLIC REVIEW

The regional water efficiency plan was made available for public comment through the district's website. A request for public comments was also placed in the Vail Daily newspaper on July 2, 2018. A printed copy of the plan was available for review at the district's office. A 30-day public review process was held from July 1, 2018, through July 30, 2018.

1.1.a Responses to Public Comments

Comment received: The current Eagle River Water & Sanitation District water restrictions and the draft plan under comment make no provision for non-permanent residents whose water usage is negligible for five months or more during the year. The restrictions and proposals favor a "use it or lose it" approach to water conservation. I am not opposed to water conservation, but the current programs discriminate against the property owner that is genuinely conservative of water on an annual basis and would likely remain conservative on an annual basis even if permitted to water daily during the summer. I urge some consideration be given to an exception to alternate day watering for those customers whose annual consumption is well below that consumed by a full-time resident. Our water consumption, for example, was 16,000 gallons for the last twelve months, with a peak monthly consumption of 4,000 gallons and five months where consumption was zero gallons. A summer permit allowing us to water daily would still leave us well under the full-time resident consumption and would be a much fairer allocation of water to users such as ourselves.

Response: The water use for the homes of many of our part-time residents is often on par with their full-time resident neighbors when there is an associated irrigated landscape area, as landscapes are maintained whether the homeowner is present or not and landscapes can be a significant portion of annual water use. We are not considering allowing part-time residents, or water-efficient users, to water every day because established plants do not require water every day. Daily watering may damage plant health and actually decreases a plant's ability to withstand heat and drought. Since daily watering is harmful rather than beneficial to plants, this is a wasteful practice. Our rules and regulations prohibit water waste. We offer temporary permits that allow more frequent watering for the initial establishment of plants, which can be obtained through our customer service department.

"Use it or lose it" is a term sometimes used when talking about water rights. Water rights for the water we deliver to our customers are owned by our organizations, not the individual customer. Customers do not lose anything by not using water, because they are only charged for what they use. Therefore, being conservative with water not only preserves the water resource, it also

1.2 WATER EFFICIENCY PLAN ADOPTION

The district and authority Boards reviewed the regional water efficiency plan after the public comment period was completed and conditional approval had been provided by Colorado Water Conservation Board (CWCB). On August 27, 2018, both Boards approved the plan as presented. A copy of the Board Resolution adopting the regional water efficiency plan is attached.

1.3 WATER EFFICIENCY PLAN APPROVAL

A draft of the water efficiency plan was submitted to the CWCB Office of Water Conservation and Drought Planning prior to the public review period on April 5, 2018. CWCB comments have been addressed in this updated final version. On XXXX, 2018, the official notification was received that the plan was approved by the CWCB.

**JOINT RESOLUTION OF
EAGLE RIVER WATER AND SANITATION DISTRICT AND
UPPER EAGLE REGIONAL WATER AUTHORITY**

ADOPTING THE EAGLE RIVER REGIONAL WATER EFFICIENCY PLAN

WHEREAS, the Eagle River Water and Sanitation District (“District”) and the Upper Eagle Regional Water Authority (“Authority”) are each political subdivisions of the State of Colorado authorized to provide water service; and

WHEREAS, the Authority and District adopted a Water Demand Management Plan in July 2014 that formally establishes the Water Demand Management Program, the purpose of which was to develop a process and fee structure to encourage users to use water more efficiently over time, in order to use the existing supply to serve an expanding population, while protecting water rights and the natural water resource; and

WHEREAS, water efficiency planning supports the purpose of the Water Demand Management Program by analyzing current water use and future demand; evaluating needs for infrastructure and facilities; identifying water supply options; and through integration with water supply planning to create a more holistic approach to planning; and

WHEREAS, the District and Authority are each a “covered entity” pursuant to §37-60-126(1)(b), C.R.S., that provides at least 2,000 AF of retail water to their customers on an annual basis and therefore are required per Colorado’s Water Conservation Act of 2004, §37-60-126, C.R.S., to have a Water Efficiency Plan on file with the state that has been approved by the Colorado Water Conservation Board (“CWCB”); and

WHEREAS, each covered entity must prepare and submit a water efficiency plan to be eligible to receive loan and grant proceeds from the CWCB or the Colorado Water Resources and Power Development Authority; and

WHEREAS, permitting agencies will consider whether the organizations have a current Water Efficiency Plan when evaluating new water storage projects; and

WHEREAS, the Boards of Directors of the Eagle River Water and Sanitation District and the Upper Eagle Regional Water Authority resolved to create a joint water efficiency plan; and

ADOPTED this 23rd day of August, 2018.

Eagle River Water and Sanitation District

By 
Stephen Friedman, Chairman

Attest:


George Gregory, Secretary

APPENDIX D. COMPLIANCE WITH STATE PLANNING REQUIREMENTS

Colorado Revised Statute (C.R.S.) § 37-60-126 requires a covered entity to develop, adopt, make publicly available, and implement a water conservation (efficiency) plan that will encourage its customers to use water more efficiently. According to the statute, a “covered entity” is a “municipality, agency, utility, including any privately owned utility, or other publicly owned entity with a legal obligation to supply, distribute, or otherwise provide water at retail to domestic, commercial, industrial, or public facility customers, and that has a total demand for such customers of two thousand acre-feet or more.” Based on these criteria, both the Eagle River Water & Sanitation District and the Upper Eagle Regional Water Authority are covered entities.

The Colorado Water Conservation Board (CWCB) provided grant funding to assist with the development of this regional plan through the Water Efficiency Grant Program, which provides financial assistance to communities and water providers for water conservation related activities and projects. These funds were used to enlist the assistance of ELEMENT Water Consulting to support our organizations’ efforts to prepare this regional water efficiency plan. CWCB’s ongoing support of water management activities for water providers through funding, technical support, and training workshops elevates local efforts which are critical to securing our state’s water future.

Key elements that must be evaluated in development of the plan, per statute, are listed below:

- a) Water-saving measures and programs including:
 - I. water-efficient fixtures and appliances;
 - II. low water use landscapes, drought-resistant vegetation, removal of phreatophytes, and efficient irrigation;
 - III. water-efficient industrial and commercial water-using processes;
 - IV. water reuse systems;
 - V. distribution system leak identification and repair;
 - VI. information and education;
 - VII. conservation-oriented rate structures and billing systems;
 - VIII. regulatory measures designed to encourage water conservation;
 - IX. incentives to implement water conservation techniques including rebates.
- b) Role of conservation in the entity’s supply planning.
- c) Plan implementation, monitoring, review, and revision.
- d) Future review of plan within seven years.
- e) Estimated savings from previous conservation efforts as well as estimates from implementation of current plan and new plan.
- f) Water demand management that may be implemented through land use planning.
- g) A 60-day minimum public comment period (or other time period based on local ordinance).

It is not required that each of these items be implemented, but that the planning organization consider each and adopt the programs that will help to achieve water savings goals set by the plan. See Appendix B for a comprehensive list of programs selected by the district and authority.

1.1 EAGLE RIVER REGIONAL WEP COMPLIANCE

Our organizations developed this water efficiency plan, in part, to comply with C.R.S. § 37-60-126. Each element of compliance is documented below.

A. Consideration of specific water efficiency measures.

(I) Fixtures and appliances – Since 1994, our organizations have funded giveaway programs at various levels that provide customers with educational materials paired with indoor products such as faucet aerators, low-flow showerheads, and toilet flappers. Our giveaway programs are expected to continue with a shifted focus toward promoting fixture replacement in multi-family and low-income/workforce housing units where passive replacement is less likely. More information can be found in Section 4.1 of the plan document.

(II) Outdoor water efficiency – Outdoor efficiency is a key focus of the demand management measures being implemented as part of this plan. Customers are currently offered the following outdoor water efficiency devices at no cost: garden hose nozzle with automatic shutoff, soil moisture probe, and rain gage. Irrigation system audits/consultations will also continue to be offered. New programs planned for pilot implementation include: incentives for weather-based controllers, rain shutoff devices, and a turf replacement program; training for landscape and irrigation professionals; and expanded billing of outdoor water use based on irrigated area. More information can be found in Sections 4.1 and 4.3 of the plan document and Section 1.2 of Appendix B.

(III) Commercial, Industrial and Institutional (CII) measures – CII water efficiency is promoted through ongoing education efforts and conservation-oriented rate structures. Our organizations plan to evaluate rates, rebates, and incentive programs, especially those related to the replacement of fixtures and appliances, to encourage conservation and efficiency in this customer class. Sub-metering of customers and businesses served by one commercial or mixed connection is also being considered to improve data collection and help to develop efficiency goals based on the business operations. More information can be found in Section 4.2 of the plan document and Sections 1.2 and 1.4.2 of Appendix B.

(IV) Water reuse systems – The district coordinates indirect reuse of effluent for snowmaking purposes.

(V) Water loss and system leakage reduction – Our organizations work actively to address system water losses. The district established an interdepartmental committee in 2003 to address non-revenue water. Our organizations use industry standardized reporting methods to assess how well we are maintaining, repairing, and rehabilitating our systems for leakage control. Our organizations also undertake projects as needed to help operations stay within a target range. Recent projects include: advanced metering at water production sites; new reporting mechanisms for water used during system maintenance or for community needs like fire suppression system testing; and ongoing leak detection efforts using acoustic technology. Our organizations also conduct annual audits based on the AWWA M36 methodology and are in the process of implementing advanced metering infrastructure (AMI) to help identify leaks. More information can be found in Section 2 of the plan document.

(VI) Information and public education – Public outreach and education is a key component of ensuring the continued success of our water demand management measures and helping to achieve targeted water savings. Our organizations will continue to engage with our customers to provide education through multiple channels. More information can be found in Section 2 of the plan document.

(VII) Water rate structure – Our organizations currently bill customers monthly using 3 and 5 tier inclining block rate structures. Customers are given a water use allowance within each tier based on the size of their property or other factors. Pricing signals are a way of communicating to customers whose use is in higher tiers that their use may be inefficient. Future rate studies will evaluate water budget rate structures as well as tap fees that encourage the efficient use of water. More information can be found in Section 1.2 of Appendix B.

(VIII) Regulatory measures – Our organizations have water use regulations that have been in place since 1995, which establish watering schedules to reduce peak demand, restrict watering to efficient times, and prohibit wasteful water use.

(IX) Incentives – Indoor incentives such as faucet aerators, low-flow showerheads, and toilet flappers have been offered to all customers in the past, but future efforts will focus on multi-family and low income/workforce housing units where passive replacement is less likely. Current outdoor incentives include garden hose nozzles with automatic shutoffs, soil moisture probes, and rain gages, and future incentives may include weather-based controllers and rain shutoff devices. More information can be found in Section 4.1 of the plan document.

B. Role of conservation in supply planning.

As stewards of our community's water resource, we view increasing efficiency and reducing waste as the environmentally and economically responsible first step to securing our water future. This plan is part of our organization's overarching commitment to long range planning and preparedness. Other key planning efforts that complement this plan include water rights reports which describe our ongoing evaluation of our water supply and a master planning update effort that is currently underway to evaluate and address system infrastructure and treatment needs. This water efficiency plan focuses on water demand, and savings projected through this plan will be considered as part of our ongoing analysis of future supply need and availability. Our community has demonstrated that innovation and a commitment to resource stewardship can allow us to continue to grow while shrinking our per-SFE water footprint. More information can be found in Section 1 of the plan document.

C. Plan implementation, monitoring, review, and revision.

Our organizations employ a full-time water demand management coordinator that will be responsible for implementing the plan. Our organizations will continue to budget money for priority programs identified in the plan and may pursue CWCB water efficiency grants to further achieve our water efficiency goals. We regularly monitor water use trends based on metered data that will continue to be collected. Progress toward meeting the water savings goals will be evaluated as part of our annual water demand reporting to the State as required under House Bill 1051, as well as when the water efficiency plan is next updated. This tracking analysis will help determine what (if any) additional demand management measures are necessary to help the district and authority meet our stated goals by 2030. More information can be found in Sections 1.1 and 1.3 of Appendix A.

D. Future review of plan within seven years.

Our organizations plan to review and update this water efficiency plan every seven years, or as needed. During this review, progress toward achieving the stated efficiency goals will be evaluated.

E. Estimated savings from previous conservation efforts and current plan.

Water use by the district has decreased from an average of approximately 209 gpd/SFE over the 2003-2007 period to a 2013-2017 average value of approximately 189 gpd/SFE. This equates to a reduction of 10%, which is consistent with the goal identified in the 2012 Water Conservation Plan, and is approximately 309 ac-ft/yr. Water use in the authority has decreased from about 258 gpd/SFE over the 2003-2007 period to a 2013-2017 average value of 217 gpd/SFE. This equates to a total savings of 15% and approximately 769 ac-ft/yr. Through this planning effort, the district and authority have established future savings goals of 6% and 9%, respectively. This equates to 140 ac-ft/yr in the district and 430 ac-ft/yr in the authority. More information can be found in Sections 2 and 5 of the plan document.

F. Land use planning.

Water demand management may be implemented through land use planning and through enforceable, recorded contracts. We have initiated efforts to coordinate with our land use authority partners in approval processes, outdoor landscape planning and development of land use ordinances that support water efficiency. Measures being considered include: updates to land use regulations/codes; coordination on verifying compliance with irrigated area limitations in place for specific communities; landscape and irrigation system design and installation regulations, as well as plan review and inspection requirements; and aligning development review and approval processes to integrate water efficiency and improve customer experience. More information can be found in Section 4.1 of the plan document and Section 1.2 of Appendix B. In addition to coordination with land use authority partners, the authority and district have entered into contracts with developers to establish water budgets for some new developments.

G. Public comment period.

A 30-day public review process was held from July 1, 2018, through July 31, 2018, as described in Appendix C. A 30-day review procedure is consistent with the policy set forth in the Resolution for Public Notice.

Authority 2018 Rates

Water Service Base Charge/SFE		Water Usage Rates (per kgal)	
Base Rate	\$ 17.29	Tier 1 (0-10)	\$ 3.62
Debt Service 2010 Bonds	\$ 3.05	Tier 2 (11-20)	\$ 5.43
Debt Service 2013 Bonds	\$ 2.54	Tier 3 (21-30)	\$ 8.14
Capital Replacement Program	\$ 3.39	Tier 4 (31-40)	\$ 12.22
Water Base Portion of Bill per SFE	\$ 26.27	Tier 5 (more than 40)	\$ 18.33
Wastewater Service Base Charge/SFE		Town/Metro Base Charge/SFE	
Base Service (min charge 5 kgal)	\$ 25.30	Avon Water	\$3.25
Debt Service 2009 Bonds	\$ 3.20	Village at Avon Water	\$3.25
Debt Service 2012 Bonds	\$ 5.91		
Wastewater Base Portion of Bill per SFE	\$ 34.41		

Outdoor Usage

Irrigation Usage Rates (no structure)		Irrigation Usage Rates (coverage based)	
<i>SIR (SFE factor based on meter size)/kgal</i>		<i>SIC (SFE factor calculated from irrigated sq.ft.)/kgal</i>	
Tier 1 (0-10)	\$ 5.43	Tier 1 (max 175 kgal) 1 1/2" cover	\$ 5.43
Tier 2 (11-20)	\$ 8.14	Tier 2 (max 234 kgal) 2" cover	\$ 8.14
Tier 3 (21-30)	\$ 12.22	Tier 3 (more than 234 kgal) 2"+ cover	\$ 12.22
Tier 4 (31-40)	\$ 18.33	(SFE X max kgal = allowable usage for each tier)	
Tier 5 (more than 40)	\$ 27.50		
Sprinkler Usage Rates			
<i>SIR (based upon associated structure SFE) /kgal</i>			
Tier 1 (0-20)	\$ 5.43		
Tier 2 (21-30)	\$ 8.14		
Tier 3 (31-40)	\$ 12.22		
Tier 4 (more than 40)	\$ 18.33		

Construction Usage

Temporary/Suspended Base Service Charges & Rates		Seasonal Fire Hydrants (4/15/18-10/15/18)	
Water Service Base Charge per SFE	\$ 17.63	Deposit	\$ 2,500.00
Wastewater Service Base Charge per SFE	\$ 21.76	Install/Removal Fee	\$ 144.00
<i>Water Usage Rates (per kgal)</i>		Hydrant Weekly Rental	\$ 130.00
Tier 1 (0-10)	\$ 5.43	<i>Water Usage Rates (per kgal)</i>	
Tier 2 (11-20)	\$ 8.14	Tier 1 (0-15)	\$ 5.43
Tier 3 (21-30)	\$ 12.22	Tier 2 (16-30)	\$ 8.14
Tier 4 (31-40)	\$ 18.33	Tier 3 (more than 30)	\$ 12.22
Tier 5 (more than 40)	\$ 27.50		

District 2018 Rates

Water Service Base Charge/SFE		Water Usage Rates (per kgal)	
Base Rate Per SFE	\$ 15.28	Tier 1 (0-10)	\$ 2.58
Debt Service 2009 Bonds	\$ 7.10	Tier 2 (11-40)	\$ 4.51
Capital Replacement Program	\$ 5.36	Tier 3 (more than 40)	\$ 7.89
Water Base Portion of Bill per SFE	\$ 27.74		
Wastewater Service Base Charge/SFE			
Base Service Rate (min charge 5 kgal)	\$ 25.30		
Debt Service 2009 Bonds	\$ 3.20		
Debt Service 2012 Bonds	\$ 5.91		
Wastewater Base Portion of Bill per SFE	\$ 34.41		

Outdoor Usage

Irrigation Usage Rates (no structure)	
SIR (SFE factor based on meter size)/kgal	
Tier 1 (0-10)	\$ 5.43
Tier 2 (11-20)	\$ 8.14
Tier 3 (21-30)	\$ 12.22
Tier 4 (31-40)	\$ 18.33
Tier 5 (more than 40)	\$ 27.50
Sprinkler Usage Rates	
SIR (based upon associated structure SFE) /kgal	
Tier 1 (0-20)	\$ 5.43
Tier 2 (21-30)	\$ 8.14
Tier 3 (more than 31)	\$ 12.22

Irrigation Usage Rates (coverage based)	
SIC (SFE factor calculated from irrigated sq.ft.)/kgal	
Tier 1 (max 175 kgal) 1 1/2" cover	\$ 5.43
Tier 2 (max 234 kgal) 2" cover	\$ 8.14
Tier 3 (more than 234 kgal) 2"+ cover	\$ 12.22
(SFE X max kgal = allowable usage for each tier)	

Construction Usage

Temporary/Suspended Base Service Charges & Rates		Seasonal Fire Hydrants (4/15/18-10/15/18)	
Water Service Base Charge per SFE	\$ 20.10	Deposit	\$ 2,500.00
Wastewater Service Base Charge per SFE	\$ 21.76	Install/Removal Fee	\$ 144.00
<i>Water Usage Rates (per kgal)</i>		Hydrant Weekly Rental	\$ 130.00
Tier 1 (0-10)	\$ 5.43	<i>Water Usage Rates (per kgal)</i>	
Tier 2 (11-20)	\$ 8.14	Tier 1 (0-15)	\$ 5.43
Tier 3 (21-30)	\$ 12.22	Tier 2 (16-30)	\$ 8.14
Tier 4 (31-40)	\$ 18.33	Tier 3 (more than 30)	\$ 12.22
Tier 5 (more than 40)	\$ 27.50		

CONNECTION FEES - As of January 1, 2018

Upper Eagle Regional Water Authority

DISTRICTS	RESIDENTIAL						COMMERCIAL - Based on Meter Size						
	Residential Base	Up to X Sq Ft	Thereafter per Sq Ft	Efficiency Unit (0.5 SFE)	Accomm Unit (0.35 SFE)	Swimming Pools per Sq Ft	¾" 1.5 SFE	1" 2.6 SFE	1½" 5.8 SFE	2" 10.3 SFE	3" 23.0 SFE	4" 40.9 SFE	6" 92.1 SFE
UERWA WSIF (Water System Impact Fee)	Floor AreaTiers	Sq Ft in TIER	Price per Sq Ft	TIER TOTAL									
	TIER 1	0 - 2,500	\$3.96	\$9,900									
	TIER 2	2,501 - 3,500	\$4.87	\$4,870									
	TIER 3	3,501 - 5,000	\$5.94	\$8,910									
	TIER 4	5,001 +	\$7.62	+ overage									
In Addition to the UERWA WSIF (above), Member Districts have the following Connection Fee assessments:													
Arrowhead Mountain - Water ⁽¹⁾	\$8,250	600	\$3.00	\$4,125	\$2,888		\$7,500	\$13,000	\$29,000	\$51,500	\$115,000	\$204,500	\$460,500
Bachelor Gulch - Water ⁽¹⁾	\$5,500	600	\$2.00	\$1.75 /sq ft	\$1.75 /sq ft		\$2 per square foot of Commercial Floor Area						
Cordillera - Water ⁽¹⁾	\$7,000	2,500	\$2.00	\$2,500	\$1,750		N/A	\$13,000	\$29,000	\$51,500	\$115,000	\$204,500	\$460,500
Plus, Administrative Fee Sewer Lines	\$1,500						\$1,500						
Town of Avon - Water ⁽¹⁾	\$4,000	3,000	\$2.00	\$2,000	\$1,400	\$2.00	\$6,000	\$10,400	\$23,200	\$41,200	\$92,000	\$163,000	\$368,000
Plus, Oversized Unit Surcharge (Applies to units in Avon)	\$0	3,000	\$1.40				up to \$4,200 per SFE						
Plus, Oversized Unit Surcharge (Applies to units in Mtn. Star)	\$0	7,500	\$1.40				up to \$4,200 per SFE						
Village at Avon/Traer Creek - Avon Water ⁽¹⁾	\$4,000	3,000	\$2.00	\$2,000	\$1,400	\$2.00	\$6,000	\$10,400	\$23,200	\$41,200	\$92,000	\$163,000	\$368,000
Plus, Incremental Sewer Tap Fee			\$0.94				\$3,213	\$5,570	\$12,425	\$22,065	\$49,270	\$87,615	\$197,295
Plus, Water Development Fee	Tier 1	0 - 600	\$2.50	(Min \$1,500)		\$2.00	\$3,000	\$5,200	\$11,600	\$20,600	\$46,000	\$81,500	\$184,000
	Tier 2	>601	\$2.00										
If connecting to the Wastewater System the following Connection Fee assessment Shall apply:													
ERWSD- Wastewater	0	N/A	\$3.75				\$12,853	\$22,279	\$49,699	\$88,258	\$197,081	\$350,462	\$789,182
The following Other Connection Fee assessments May also apply:													
UERWA-Irrigation Water Impact Fee	\$1.06 per sq. ft. of irrigation						es to new multi-family, open areas, new parks and commercial irrigated						
West Edwards Sewer Encumbrance Fee	\$1,000 per SFE						\$1,000 per SFE						

CONNECTION FEES - As of January 1, 2018								
EAGLE RIVER WATER & SANITATION DISTRICT								
CONNECTION FEE	RESIDENTIAL	COMMERCIAL - Based on Meter Size						
	Base Rate Per Square Foot	$\frac{3}{4}$ " 1.5 SFE	1" 2.6 SFE	1½" 5.8 SFE	2" 10.3 SFE	3" 23.0 SFE	4" 40.9 SFE	6" 92.1 SFE
ERWSD-Wastewater	\$3.75	\$12,853	\$22,279	\$49,699	\$88,258	\$197,081	\$350,462	\$789,182
Vail Water Subdistrict	\$4.72	\$15,172	\$26,299	\$58,667	\$104,184	\$232,644	\$413,702	\$931,588
The following Other Connection Fee assessment May also apply:								
ERWSD-Irrigation Water System Impact Fee	\$1.10 per sq. ft. of irrigation	Applies to new multi-family, open areas, new parks and commercial irrigated areas						

CONNECTION FEES - As of January 1, 2018		
Eagle River Water & Sanitation District	Upper Eagle Regional Water Authority	
DEVELOPMENT FEE/ DEDICATION/ DEPOSIT	RESIDENTIAL	COMMERCIAL
Inclusion Fee	\$1,000.00	
Treated Water Storage Dedication (New Tank)	Where no existing regional water storage is sufficient to serve the proposed development, an applicant will be required to construct and dedicate water storage sufficient to serve the needs of the development. See Treated Water Storage Dedication policy.	
Water Rights Dedication Review Deposit	\$5,000.00	
Water Rights Dedication Cash-in-lieu Non-Summer Months Fee (Sept through April)	\$35,000 per consumptive acre-foot of water	
Water Rights Dedication Cash-in-lieu Summer Months Fee (May through August)	\$9,000 per consumptive acre-foot of water	