CITY OF EVANS

2019 MUNICIPAL WATER EFFICIENCY PLAN UPDATE

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EXECUTIVE SUMMARY

The City of Evans, Colorado *(City* or *Evans*) is a Northern Colorado community located in Weld County. Named for Territorial Governor John Evans, Evans was established in 1869 and was known as the "Queen City of the Platte" and held the Weld County's seat of government. In its early years, Evans was a small 'wild west' town of 400 people. The City has grown into an urban community that values its rural roots and historical heritage. A variety of amenities for its residents make it a great place for families and businesses alike. The City has over 300 acres of parks and open space, biking trails by the river, shopping areas, and has easy access to major highways going to Denver, the Rocky Mountains, and the International Airport.

The City of Evans distributes water to a service area that includes customers in the incorporated City limits and portions of the unincorporated area. The City has an estimated population of 21,615 people[1] and encompasses 10.53 square miles or 6,740 acres. The City's Urban Growth Area is nearly three times the size of the current limits.

In an effort to optimize its water resources, the City of Evans developed this Municipal Water Efficiency Plan Update (*MWEP* or *Plan*) in accordance with the Water Conservation Act of 2004 and to meet the provisions of Colorado Revised Statute section 37-60-126. As part of CRS 37-60-126, a State-approved Plan will qualify Evans for funding from the Colorado Water Conservation Board (*CWCB*) and the Colorado Water Resources and Power Development Authority for water supply and delivery projects.

This report documents the City's water rights and systems, historical and projected water demands, planning process used to prepare this Plan, and targeted water efficiency activities to implement. Water efficiency planning was completed in accordance with CWCB's Municipal Water Efficiency Plan Guidance Document (*Guidance Document)*. The benefits of water efficiency activities may include: delaying the purchase of costly water supplies and infrastructure upgrades, reducing wastewater flows and treatment and associated costs, and improved water management and stewardship.

The City's existing water supplies consist of both treated water supplies and non-potable supplies. The City's raw water supplies come from trans-mountain diversions from the Colorado River and native streamflow in the South Platte River basin. Treated water supplies have an average yield of approximately 6,361 acre-feet (*AF*) per year. This Plan is intended to provide guidance to the City in developing water efficiency activities that complement its existing land planning activities, future economic developments, and community goals.

[1] Population in 2018 from the Colorado Department of Local Affairs, State Demography Office.

In 2018, the City's water demand was 2,663 AF of treated water to meet residential, commercial, irrigation and municipal customer usage, as well as non-revenue losses. The annual treated water demand is expected to increase due to population growth and new development to approximately 3,247 AF by the end of this Plan's planning period in 2028. Water savings from water efficiency activities developed in this Plan may save up to 498 AF per year of treated water demand. The savings from this planning effort will make a considerable contribution toward the water supplies needed to serve the 2028 demand.

Past and Current Water Efficiency Activities

Evans has implemented several water efficiency activities prior-to and since its *2009 Water Conservation Plan*. The water efficiency activities that have been historically implemented are shown in **Table ES-1**.

Table ES-1: Evans' Existing and Ongoing Water Efficiency Activities

Water Efficiency Activities	Approx. Date of Implementation
Foundational Activities	
Advanced Metering Infrastructure Installation and Operations	2015
Water Rate Study - Water Efficient Rate Structure with Regular Updates	2001 (recent update in 2019)
Water Reuse System	Since 2010 and prior
Tap Fees with Water Use Efficiency Incentives (Lot-based water dedication)	Since 2010 and prior
Master Plans/Water Supply Plans/Integrated Water Resource Plans	2016
Drought Management Plan	2013
General Monitoring and Verification Activities and General Water Rates and Billing	Since 2010 and prior
Designated Water Conservation Coordinator	Since 2010 and prior; not consistently
Ordinances and Regulations	
Weekly and Time of Day Outdoor Watering Restrictions	1982
Water Waste Ordinance	2002
Irrigation System Standards for New Developments	2004
New Car Wash Standards (New Construction)	In development (anticipated 2022)
Landscape Design Ordinances and Restrictions	2004
Education Activities	
Public Education (Newsletter, Webpage, Interactive Website, Social Media, etc.)	Since 2010 and
Children's Water Fair or Festival	Since 2010 and prior; not consistently

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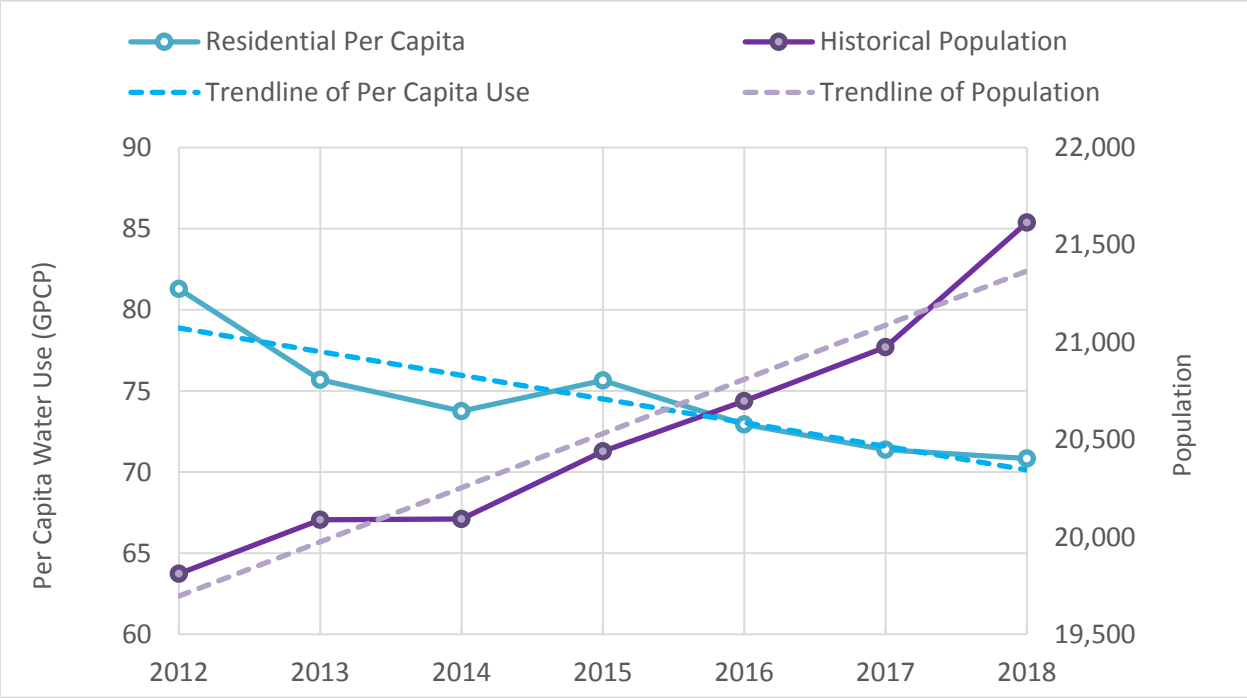
Water savings from water efficiency activities are challenging to quantify, especially activities that are highly dependent on human behavior, such as public education programs. Also, some water efficiency activities are not implemented consistently, such as a designated water conservation coordinator, so water savings can fluctuate from year-to-year. Without collecting specific data on each activity, a simple way to evaluate water savings as a whole is by calculating the City's per capita water use to observe trends. The City's residential per capita water use show a general downward trend in water use since 2012 as depicted in **Figure ES-1**.

Figure ES-1: Treated Water Use and Population Trends



The residential per capita usage decreased by 10 gallons per day per person from 2012 to 2018. Some of the variability in the per capita water use is likely linked to the yearly fluctuations in temperature and precipitation. For example, 2012 was a dry year which may explain the higher per capita water usage. This may be linked to increases in outdoor water usage during dry years. Other factors that may impact the residential per capita use is new developments with dual systems. While the residential per capita from treated water decreases, residents are using non-potable water for irrigation which can skew the per capita values. Based on the cost-benefit analysis, the projected saving from Evans' implemented water efficiency activities is 242 AF per year.

An initial set of water savings goals were developed in the beginning stages of this planning effort to guide the development of this Plan. The initial goals were used as a means to screen and evaluate potential activities to ensure the City's goals can be met

with the water efficiency activities evaluated. The following initial goals were established:

- The targeted water savings goal for this Plan will be to lower the treated water demand by 10% over the ten-year planning period, or approximately 1% per year.
- The targeted ten-year water reduction goals for the following customer categories were as follows:
    - Residential: 13%
    - Commercial: 5%
    - Irrigation: 5%
    - Municipal: 5%
    - Non-Revenue Water: 1%
- To develop a Plan that can be effectively implemented by City Staff and with City Council approval and encouragement.
- To implement water efficiency activities that are compatible with the community and residents.
- To develop a cost-effective program that achieves water savings goals while staying within budget constraints.
- To assess activities and programs with partnership opportunities.

The City of Evans used a four-phase process recommended in the *Guidance Document* to select and fully evaluate water efficiency activities for implementation in this Plan. The four phases include: 1) assessment; 2) identification; 3) qualitative screening; and 4) evaluation and selection.

During the initial screening process, City staff selected 35 potential water efficiency activities to evaluate in a cost-benefit analysis. During the second screening process, City staff eliminated one activity that didn't fit with the City's goals and interests. The City used the following criteria to screen potential activities:

- Applicability to the City of Evans
- Moderate to high potential reduction of water use and financially feasible
- Staff and City Council support
- Partnership opportunities with other entities to help organize and implement activities

The following 34 activities were selected for implementation by the City in this Plan:

- System Wide Water Audits
- Advanced Meter Reading Installation and Operations
- Water Rate Study – Water Efficient Rate Structures with Regular Updates
- Water Reuse System
- Tap Fees with Water Use Efficiency Incentives
- Leak Detection and Repair Program
- Master Plans/Water Supply Plans/Integrated Water Resource Plans/Capital Improvement Plans
- Drought Management Plan

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- General Monitoring and Verification Activities and General Water Rates and Billing
- Designated Water Conservation Coordinator
- Slow the Flow Residential Indoor Audits
- Slow the Flow Residential Irrigation Audits
- Slow the Flow Commercial Irrigation Audits
- Rebates and Retrofit Program - Indoor
- Rebates and Retrofit Program - Outdoor
- Giveaways: Water Audit Kits
- Xeriscape Incentives – Garden in a Box
- Distribute Pre-Rinse Spray Heads to Restaurants and Institutions
- Restrict High Water Use Turn on Medians and in Parking Lot Plantings
- Weekly and Time of Day Outdoor Watering Restrictions
- Water Waste Ordinance
- Irrigation System Standards for New Developments
- 10% Lot Restriction
- Requiring Wind and/or Rain Sensors for Business and Open Space Irrigation
- Restrictive Covenants Ordinance
- New Car Wash Standards (New Construction)
- Landscape Design Ordinances and Restrictions
- Public Education Activities
- Children's Water Fair or Festival
- Post or Distribute ET Irrigation Scheduling
- K-12 Teacher and Classroom Education
- Property Manager/HOA Education and Training
- Citizen Advisory Board
- Xeriscape Demonstration Garden

Table ES-2 compares the City's initial water savings goals at the beginning of this planning effort to the water savings estimated for the selected activities. Over a ten-year period, the selected activities are estimated to provide an overall water savings of 5,127 AF. This is an overall reduction from the forecasted water use by 17% which exceeds the City's initial water savings goal of 10%. This value is a ten-year savings for all the 34 activities.

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Table ES-2: Water Efficiency Goals Comparison

Water Use Categories	Total Projected Water Use (2019 to 2028)	Reduction Goals for Planning Horizon		Adjusted Reduction Goals for Planning Horizon	
				Total Water Savings from Activities	Resulting Reduction
	(AF)	(%)	(AF)	(AF)	(%)
Residential	19,827	13%	2,578	3,679	19%
Commercial	5,671	5%	284	901	16%
Irrigation	831	5%	42	213	26%
Municipal	687	5%	34	99	14%
Non-Revenue Water	2,734	1%	27	236	9%
Total:	29,750		2,965	5,127	
Total Percent Reduction:			*10%*	*17%*	

Implementation and Monitoring Plan

The implementation plan defines the process necessary to develop the selected water efficiency activities. The City Manager will be chiefly responsible for coordinating and delegating tasks to City Staff to implement this Plan. The Public Works, Utility Billing, Engineering, Communication and Parks Departments will have roles in implementing some of the selected activities pertaining to their departments. For some activities, the City Staff may partner with other organizations offering tools and programs for municipalities, such as Resource Central, the Northern Colorado Water Conservancy District or the City of Greeley.

A monitoring plan outlines the City's process to monitor the progression of the implementation plan to ensure its success. The success of the stated goals is measured through monitoring of billing data, screening/evaluating activities acceptable to City staff, and soliciting City Council and community feedback on water efficiency activities. Monitoring various types of data is beneficial in tracking the water savings generated from implementing an MWEP. Evans monitors the produced treated water and the total billed water by customer category on an annual and monthly basis. Evans also tracks the number of taps per customer category and the City's population. The demand data, which will be collected during the monitoring period of the Plan, is presented in **Table ES-3**.

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Table ES-3: Selection of Demand Data for Efficiency Plan Monitoring

Monitoring Data	HB 10-1051 Reporting Requirement				Selection			
	Annual	Monthly	Bi-Monthly	Daily	Annual	Monthly	Bi-Monthly	Daily
Total Water Use								
Total treated water produced (metered at Master Meters from WTP)						X		
Total treated water delivered (sum of customer meters)	√					X		
Raw non-potable deliveries						X		
Per capita water use					X			
Non-revenue water	√				X			
Water Use by Customer Type								
Treated water delivered		√				X		
Raw non-potable deliveries						X		
Residential per capita water use					X			
Unit water use (e.g. AF/account or AF/irrigated acre)					X			
Other Demand Related Data								
Drought index information						X		
Population					X			
New taps						X		

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INTRODUCTION

The City of Evans, Colorado (City or Evans) is a Northern Colorado community located in Weld County. Named for Territorial Governor John Evans, Evans was established in 1869 and was known as the "Queen City of the Platte" and held the Weld County's seat of government. In its early years, Evans was a small 'wild west' City of 400 people. The City has grown into an urban community that values its rural roots and historical heritage. A variety of amenities for its residents make it a great place for families and businesses alike. The City has over 300 acres of parks and open space, biking trails by the river, shopping areas, and has easy access to major highways going to Denver, the Rocky Mountains, and the International Airport.

The City of Evans distributes water to a service area that includes customers in the incorporated City limits and portions of the unincorporated area. The City has an estimated population of 21,615 people[1] and encompasses about 6,740 acres (10.53 square miles). The City's Urban Growth Area is nearly three times the size of the current City limits. The water distribution system was constructed beginning in 1904 and has had many additions to improve and expand delivery as the City grew. The City's water rights portfolio consists of both treated and non-potable water supplies. Water supplies are from both trans-mountain diversions originating on the western slope of Colorado and native streamflow on the eastern slope.

Evans completed its first State-approved Water Efficiency Plan in 2009. The purpose of this Municipal Water Efficiency Plan (*MWEP or Plan*) update is to continue the City's valuable planning efforts towards greater water efficiency, future demand planning, and the implementation of conservation programs and activities. The Plan is also required by the State of Colorado as the City provides over 2,000 acre-feet (*AF*) of water to its customers annually.

The Colorado Revised Statute 37-60-126 prompted by the Water Conservation Act of 2004, declares that water providers delivering over 2,000 AF or 652 million gallons (*MG*) of water, as is the case for the City of Evans, are required to have a State-approved Water Efficiency Plan on file with the Colorado Water Conservation Board (*CWCB*), Office of Water Conservation and Drought Planning. A State-approved Water Efficiency Plan must be in place to qualify for funding from CWCB or the Colorado Water Resources and Power Development Authority to build water projects. The City of Evans will be eligible for grants through these organizations by development of this Plan.

The planning horizon for this Plan is ten years from 2019 to 2028. In this Plan update, the City will perform the five steps of municipal water efficiency planning as outlined in the CWCB's MWEP Guidance Document (*Guidance Document*):

[1] Population in 2018 from the Colorado Department of Local Affairs, State Demography Office.

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1. Profile its existing water supply system;
2. Profile its water demands and historical demand management;
3. Integrate planning and water efficiency benefits and goals;
4. Selection water efficiency activities; and
5. Implement and monitor the Plan.

In the development of this Plan update, several documents and sources were reviewed and used to develop the water efficiency activities. The City's *2010 Comprehensive Plan*, *2009 Water Conservation Plan*, water usage data, contract documents and water rights information were used as informational resources. Evans' website and other webpages were also used for additional information to help in this planning effort. There are many acronyms, terms, and terminology that are commonly used in water efficiency and water planning, and some additional terms are common in this geographical area; a list of terms and definitions is included in **Appendix A**.

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SECTION 1.0 – PROFILE OF EXISTING WATER SUPPLY SYSTEM

1.1 Overview of Existing Water Supply System

Service Area

Evans is located just south of the City of Greeley in south-central Weld County. The City's population nearly doubled in size from 2000 to 2010, increasing from about 9,500 to 18,700 residents in just ten years. Since 2010, the population of Evans has grown about 16% to about 21,600 in 2018. The growth since 2010 has grown an average of about 2% per year.

The City limits comprises 10.53 square miles, as shown in **Figure 1**. The City's Urban Growth Area is nearly three times the size of the current City limits. Almost all of the City's water supply is used within its City limits and the vast majority is used for residential use. Less than 1% of residential taps are from out-of-city water users. Approximately 73% of treated water use from 2012 through 2018 was billed to residential customers. During the same time period, commercial customers used 21% of the treated water supplies, irrigation customers used 3% and the City used 3% for non-billable uses.

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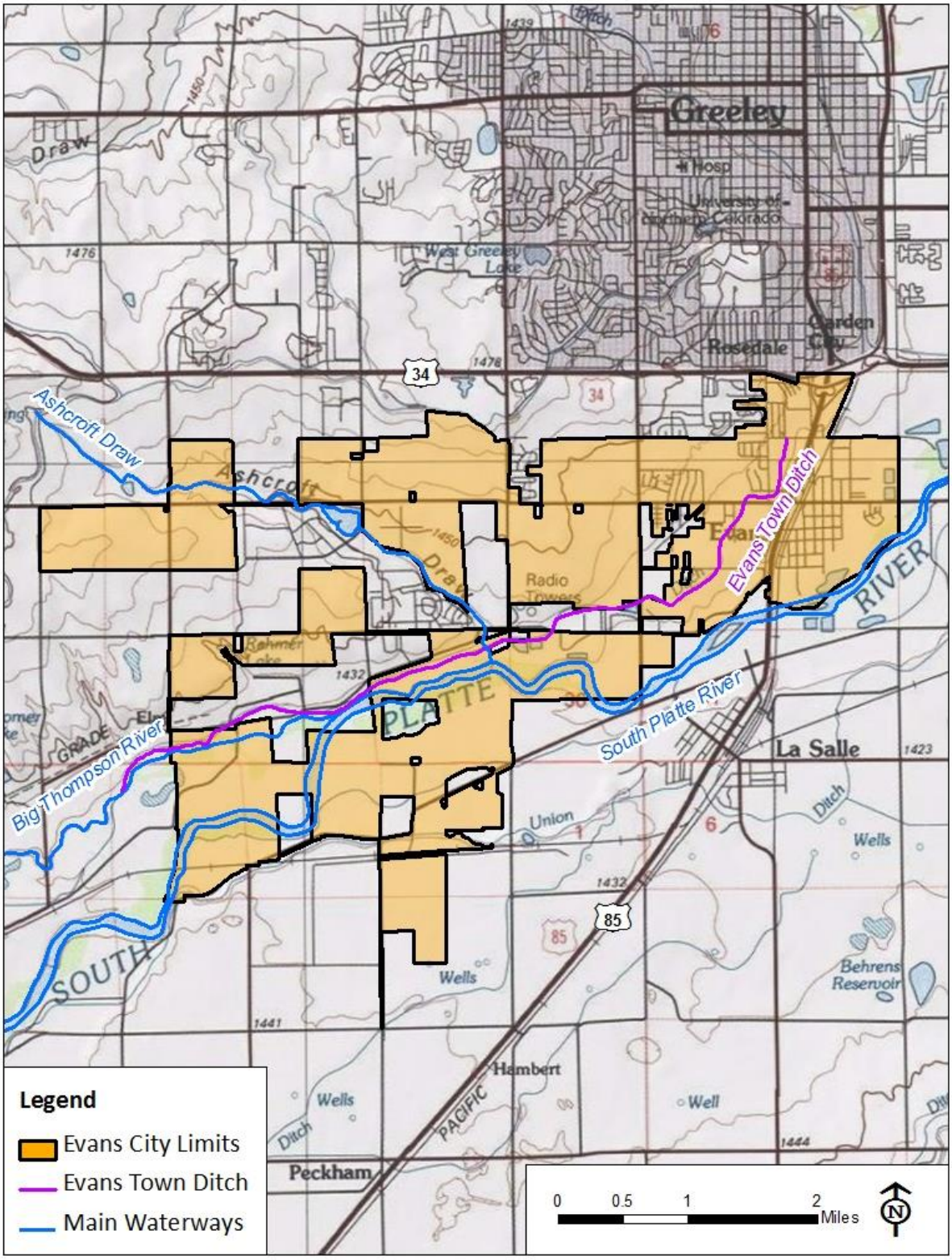
Figure 1: City of Evans Limits and Service Area



Water Supply

The City's treated water sources are from the Colorado-Big Thompson (*C-BT*) Project, the Greeley and Loveland Irrigation Company, Loveland and Greeley Reservoir Company and Seven Lakes Reservoir Company (collectively referred to as the *Greeley-Loveland system*). The City's non-potable supply used for irrigation is the Evans City Ditch and unchanged water rights in the Greeley-Loveland system. The C-BT Project is managed by Northern Colorado Water Conservancy District (*Northern Water*) and consists of 12 reservoirs, 35 miles of tunnels, 95 miles of canals, six hydroelectric power plants, and 700 miles of transmission lines. The C-BT Project system diverts water from the Colorado River and delivers it across the continental divide to the Big Thompson River. The City's other water supplies are native to the east slope of Colorado and are delivered down the Big Thompson River. The City's water rights portfolio is provided in **Table 1**.

Table 1: Summary of Evans/ Water Supply

		Yield (AF/Share or Unit)		Total Yield (AF)	
Water Right Name or Source	No. of Shares or Units Owned	Average Year Yield	Firm Yield	Average Year Yield	Firm Annual Yield
Treated Sources					
C-BT	3,460	0.7	0.7	2,422	2,422
Greeley and Loveland Irrigation Co.	143.18	18.10	5.00	2,592	716
Loveland and Greeley Reservoir Co.	18.75	34.40	8.30	645	156
Seven Lakes Reservoir Co.	37.58	18.68	6.30	702	237
			Treated Total =	**6,361**	**3,530**
Non-Potable Only Sources					
Greeley and Loveland Irrigation Co.	10.00	18.10	5.00	181	50
Loveland and Greeley Reservoir Co.	1.00	34.40	8.30	34	8
Seven Lakes Reservoir Co.	8.25	18.68	6.30	154	52
Evans City Ditch	100%	-	-	29.3 cfs	29.3 cfs

Note: The average and firm yields were supplied by the City of Evans and are consistent with the values used in the City's water planning. The Greeley and Loveland Irrigation, Co., Loveland and Greeley Reservoir Co., and the Seven Lakes Reservoir Co. are referred to collectively as the GLIC in this report.

Colorado-Big Thompson Project Water Supply

The C-BT Project is the largest trans-mountain water diversion project in Colorado. It was constructed by the Bureau of Reclamation between 1938 and 1957 and is maintained by Northern Water. The Project imports an average of 213,000 AF (69 billion

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gallons) of water each year to many public and private water users along the northern Front Range and northeastern Colorado for agricultural, municipal and industrial uses.

The yield of C-BT units is established each year by the Northern Water Board through what is known as the quota setting process. The basis for setting the quota is to attempt to make every year look like an average year. The Northern Water Board examines the region's native supplies and local storage before declaring a quota that meets the supplemental need of the region as a whole. As a result, the quota is typically lower in wet years because native supplies are plentiful and local reservoirs are full, so less C-BT water is required to satisfy water demands. As C-BT continues to transfer from agricultural to municipal use, the landscape of using the C-BT Project as a supplemental supply is changing. The City owns 3,460 units of the C-BT Project.

Native Water Supplies
The City owns agricultural water rights that divert streamflow from the Big Thompson River. These include shares/rights in the following ditch companies: Greeley and Loveland Irrigation Company (153.18 shares), Seven Lakes Reservoir Company (45.83 shares), and the Loveland and Greeley Reservoir Company (19.75 rights). These companies are jointly operated and use the same water storage and delivery structures. The Greeley-Loveland system is generally bounded by the City of Loveland, City of Greeley, Cache la Poudre River, and Big Thompson River. The water rights are either treated at the City of Greeley's Water Treatment Plant (WTP) and delivered to Evans or are used for non-potable uses in the City. The City also owns 100% of the Evans City Ditch which is used for non-potable irrigation.

Key Existing Facilities

Water Distribution System
Evans has a 25-year agreement with the City of Greeley where Greeley provides treated water to Evans through 14 master meters. The current agreement was made effective in 1998 and expires in April 2023, however there are plans to renew for an additional 10 years by 2023. In the agreement, Evans transfers raw water they own to Greeley in the amount of their projected annual water demand plus a shrinkage charge. The water supply provided by the City of Greeley is limited annually. If Evans exceeds their annual allotment, charges are incurred for overuse. Evans water is turned over to Greeley and treated either at Greeley's Bellevue Water Treatment Plant (WTP) or Boyd Lake WTP according to Greeley's operation. Most of Evans' Greeley-Loveland system shares/right are available at the Boyd WTP and their C-BT water is available at both plants. The City also provides non-potable water supply to dual use customers using unchanged shares/rights of the Greeley-Loveland system and the Evans Town Ditch. The non-potable supplies are delivered via the historical ditch systems.

The City's water distribution system is served by three pressure zones. Most of the existing service area is within Zone 1. Pressure Zones 2 and 3 serve most of the future western area. The existing water distribution system was originally installed between 1904 and 1907. The City's water distribution system does not include any pump stations or treated water storage.

1.2 Water Supply Reliability

Water Supply Gap

Water supply reliability is the ability of the City to meet water demands in times of drought and to meet growing demands from new developments and population growth. In 2003, the Colorado General Assembly authorized the CWCB to implement the Statewide Water Supply Initiative (*SWSI*) as a result of growing pressure on water supplies in Colorado, especially as experienced in the 2002 drought. The SWSI identified that demands could exceed supplies even with aggressive conservation and additional water supply projects in the works. The SWSI was updated in 2010 and projects demands to 2050 in addition to outlining passive water conservation savings to be implemented by communities in Colorado.

The SWSI 2010 report identified a 58% gap between water needs and water supplies in the South Platte River Basin by 2050. The SWSI report as well as 2015 Colorado Water Plan identified water conservation as a key strategy to mitigate the gap between supply and demand. In 2016, the CWCB began a technical update to the Colorado Water Plan and revisited the water supply gaps for the river basins in Colorado for agricultural, municipal and industrial, and environmental and recreation uses. Water supply gaps were identified for different planning scenarios to account for variations in the economy. Municipal and industrial gaps in the South Platte Basin may be up to 43% for a high growth scenario. The population is expected to grow from 3.8 million people in 2015 up to 5.4 million to 6.5 million people in the South Platte Basin.

Current Water Supply Reliability

C-BT Project Water Reliability

The Northern Water Board sets the annual quota by examining native supplies and local storage capacities that can adequately meet the supplemental demands of the region. The C-BT Project system has approximately 740,000 AF of gross storage. There is approximately 2.3 times the storage that would be needed to deliver a 100% annual quota which gives the system drought reliability and the ability to meet future demands. The annual yield ranges between 0.5 AF per unit (50% quota) to 1.0 AF per unit (100% quota). In over sixty years of operation, the average yield has been 0.74 AF per unit (241,000 gallons per unit) and the commonly used average quota is 70%.

To determine the average yield and firm yield of the City's C-BT units, we assumed a 70% quota as the typical average yield and a 70% quota as the firm yield, consistent with the City of Evans' water planning. Evans has 3,460 units of CB-T which equates to an average and firm yield of 2,422 AF per year. **Figure 2** shows the historical quota set for the C-BT units. The City's C-BT units provide 38% of the overall average treated water yield and up to 69% of the firm yield.

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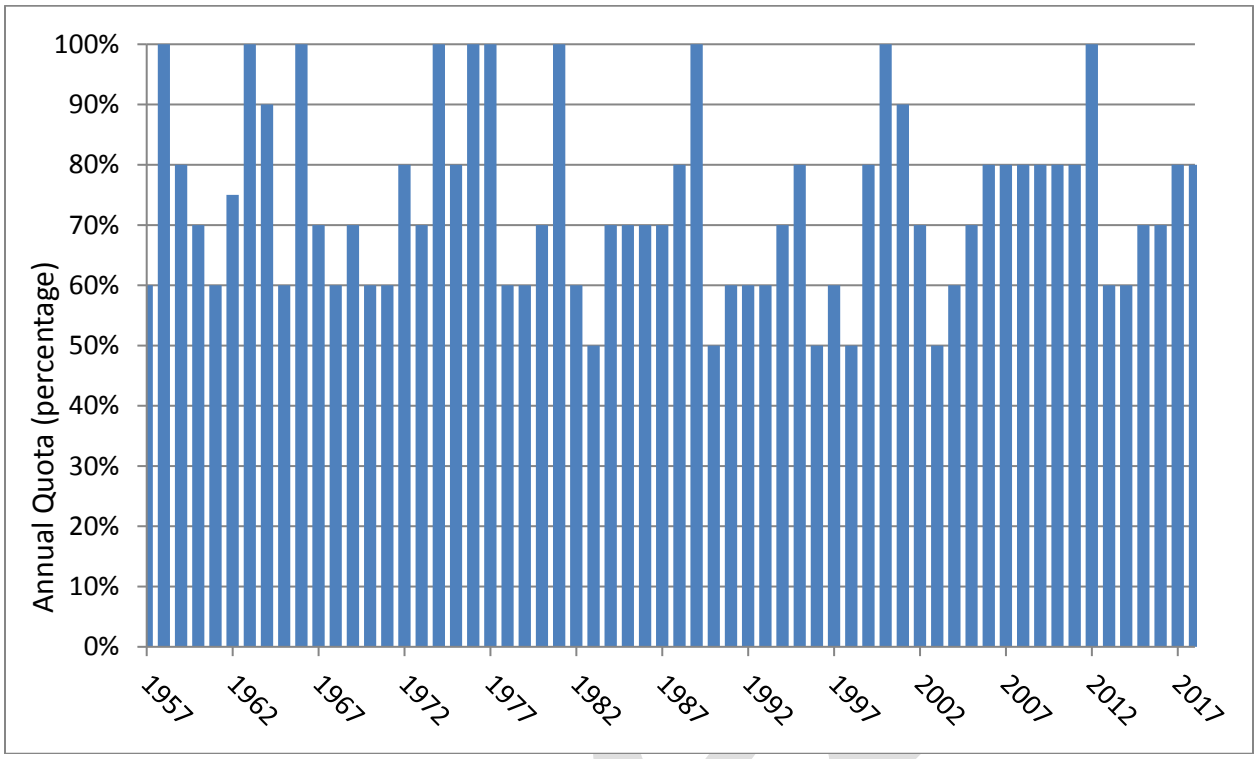
Figure 2: Historical C-BT Quotas (1957 – 2018)



Native Water Supplies

The City of Evan's Greeley-Loveland shares/rights have both direct flow right and storage components. The average and firm historical consumptive use yields from these water rights are 1,842 AF per year and 119 AF per year, respectively, for the City. The firm yield values are from 2002 which was an extreme drought year. This is a broad range and shows the City's treated water supply using these sources can be greatly impacted in extreme drought years.

The Evans Town Ditch is a direct flow right that diverts water from the Big Thompson River. Ditch water right yields in Colorado are dependent on weather conditions such as snowpack, precipitation and temperature. The ditch water supplements the GLIC non-potable supply in the summer months. Since direct flow rights are impacted by the seasonal fluctuation in snowpack runoff, the City uses treated water in the early spring and late fall (shoulder season) for irrigation when the Evans Town Ditch and GLIC water is not available.

1.3 Supply-Side Limitations and Future Needs

Water Supply Limitations

The location of Evans makes it attractive as a place to live as well as a place for business. The population growth rate is estimated to grow by 2% per year and therefore, future water demand is expected to increase steadily up to the City's future

build-out. Careful planning is required to provide adequate water supply for future population growth and economic development.

In addition to identifying sectors in the City with high water use, system limitations can provide insight into how and where to set water efficiency goals. Discussions here include both current and potential system limitations. Ideally, saving water through efficiency activities can help mitigate a portion of the limitations and improve the reliability of the system. General water supply limitations are summarized in *Worksheet A* of **Appendix B**. *Worksheet A* is from the Guidance Document and provides an overview of limitations and how limitations will be addressed in the future.

C-BT Project Water Supply Limitations

Increasing pressure on water from population growth in the Front Range has driven the price of water up significantly since the drought dry years in the early 2000s. In 1965, C-BT water could be purchased for $100 per AF from farmers that felt they had more water than needed while a recent acquisition of C-BT units was approximately $32,000 per AF. Since C-BT water is so versatile, the market value of its shares has increased substantially and there continues to be more municipal and industrial (M&I) competition to acquire units. The C-BT Project water price increases are reflective of price trends water supplies along the Front Range of Colorado. **Figure 3** shows the market price for C-BT Project water over time and **Figure 4** shows the ownership transition over time from agricultural to municipal and industrial uses.

Figure 3: Historical Market Price of C-BT Project Water (1960 – 2018)

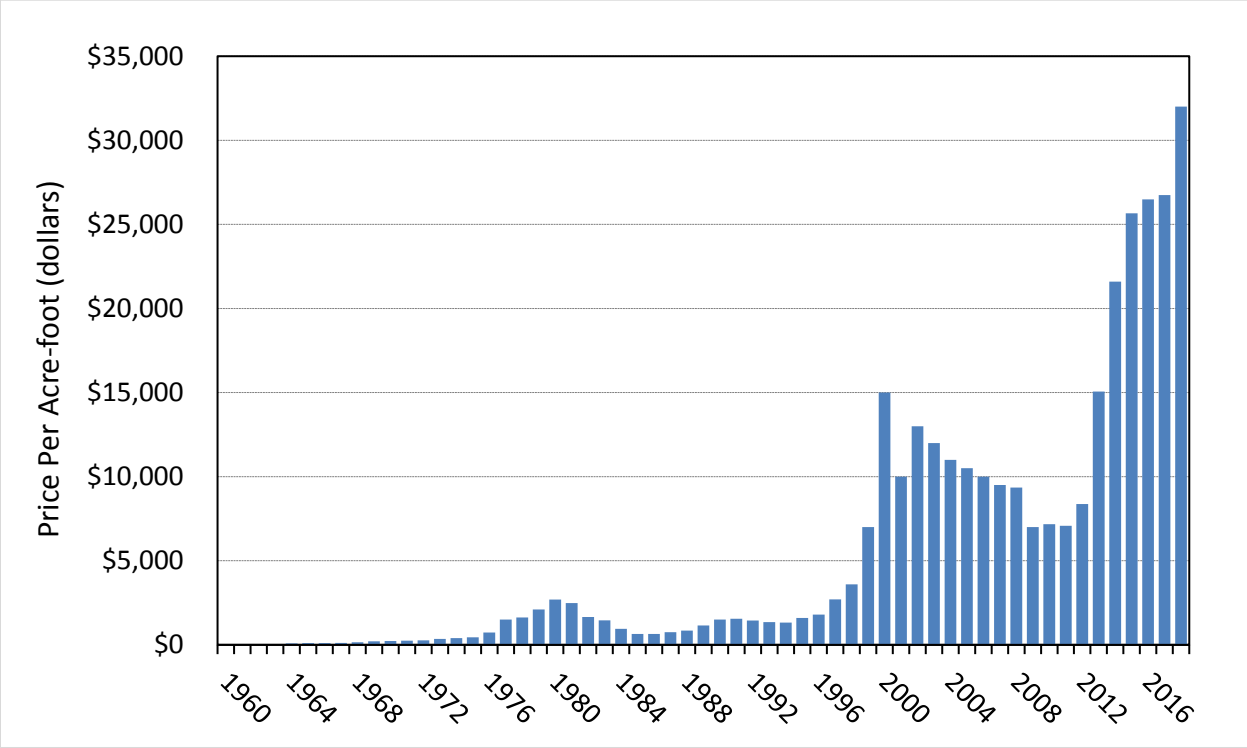
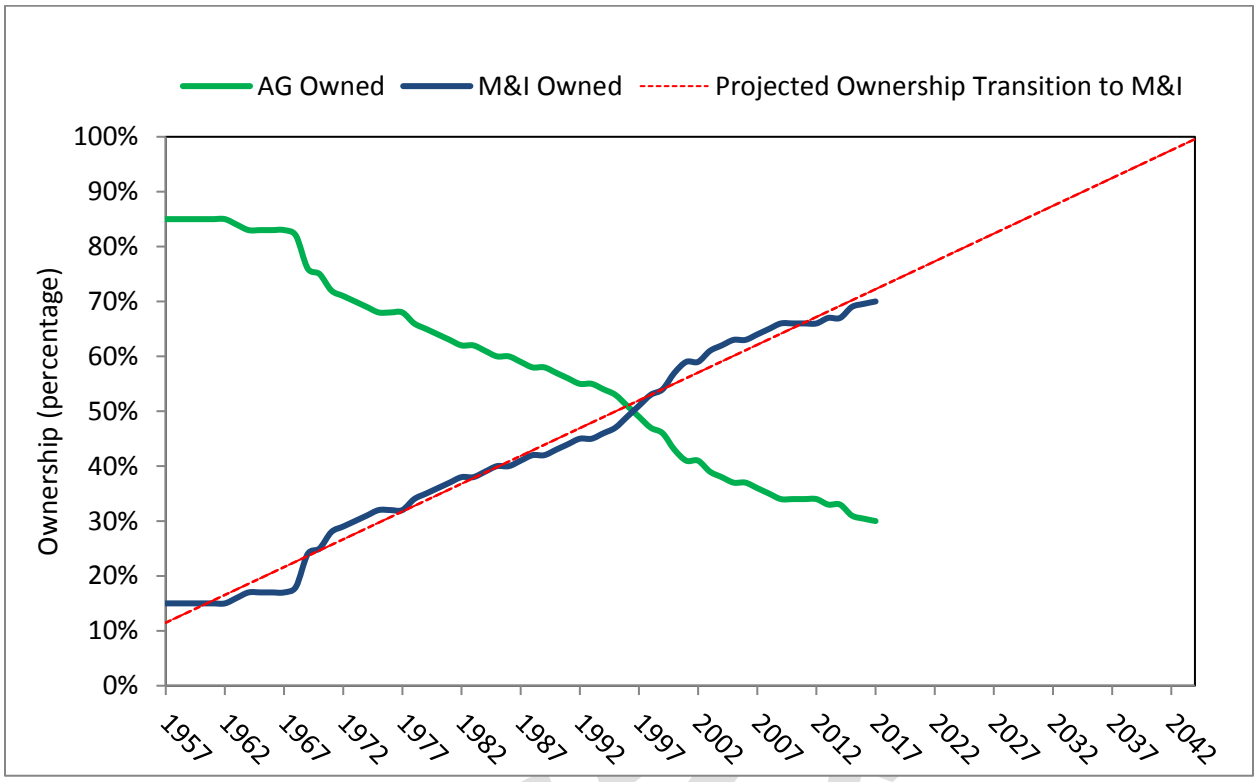


Figure 4: C-BT Ownership Transition over Time



Besides the increasing price and competition for C-BT units, Evans water supply is largely reliant on this water supply and raw water is treated at the Greeley WTPs. Should a fire ever occur in the area of Lake Granby on the Western Slope of Colorado, water quality would be a major issue for C-BT Allottees. There is a large amount of beetle kill to trees surrounding Lake Granby, Grand Lake, and other C-BT Reservoirs. This beetle kill poses a potential increase risk of fire. Greeley's WTPs would have to treat large quantities of water degraded from ash and soot runoff. This has been an ongoing issue for other water treatment facilities when fire has been present in a basin used for raw water supply. In addition, East Slope C-BT storage, once segregated from the system to avoid contamination, is not enough storage to meet demands, particularly in a drought. Should a fire or other issue occur at the Greeley WTPs, Evans may have a delay in water treatment which would pose significant supply issues even if under short-term circumstances.

Native Water Supply Limitations

Similar to C-BT Project water, Greeley-Loveland system water poses similar future limitations to acquire new supplies as competition and prices grow with development along the Front Range.

The Evans Town Ditch yield may be impacted in drought years, such as 2002, when senior water rights holders are calling for water on the main stem of the South Platte River. During extreme drought years, the City would implement water restrictions to reduce the non-potable water demand for irrigation of lawns.

City System Limitations

Evans is at lower elevation than the Greeley WTPs that provide Evan's treated water supply. The distribution system is gravity fed and does not have any pressure or supply issues to deliver water to Evans. However, once water is delivered into Evans' distribution system, some issues with pressure are experienced within the City. The City is currently conducting field visits and updating its internal water model to address pressure issues in the system.

Infrastructure Considerations

Evans' water delivery system has aging water mains and pipes in need of repair and the City hasn't historically completed proactive leak detection. The City is also planning on adding storage capacity with tanks to help reduce stress on the system during times of peak demand after water is treated at the WTP. Storage tanks can be filled during times of low demand and provide water during peak demands to prevent overdraw from the Greeley WTPs. The City's agreement with the City of Greeley for treatment has a water treatment volume cap and once the cap is exceeded, Evans must pay an additional 'system development' charge. In new residential developments, the City is promoting integration of non-potable supply for irrigation, these systems are also known as dual-distribution systems.

Future Water Supplies

The cost of water along the Front Range of Colorado is becoming more and more expensive as municipalities are growing and in need of additional supplies. Evans' primary treated water supply, its C-BT units, are becoming more challenging to acquire due to increased competition and skyrocketing prices. The City is limited in the future supplies it can obtain because the water must be physically delivered to the Greeley WTPs for treatment. Any future water supplies must be reliable and provide Evans with a valuable firm yield since the City doesn't have storage reservoirs as drought reserves. Currently, the City intends to implement this Plan to reduce demand and use existing supplies to meet some of its growth. The City.is also investigating acquiring additional water supplies to meet future demand on an ongoing basis.

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SECTION 2.0 – PROFILE OF WATER DEMANDS AND HISTORICAL WATER EFFICIENCY ACTIVIES

2.1 Demographics and Key Characteristics of the Water Service Area

Population and Demographics

The population of Evans has grown by about 16% from 2010 to 2018, increasing from approximately 18,600 to 21,600 people. In 2018, the median age was 29 years old with a median household income of over $51,000 per year and with the average household income of about $62,500. The majority of residents are between the ages of 20 to 64 year old (60.8% of people are within this range). Housing units are occupied at 97.1% and are comprised of single-family and multi-family homes. **Table 2** provides the City's population from 2010 through 2018.

Table 2: City and Water Service Population (2010 – 2018)

Year	Population	Change in Population	Population Growth
2010	18,651	-	-
2011	19,121	470	2.52%
2012	19,811	690	3.61%
2013	20,088	277	1.40%
2014	20,092	4	0.02%
2015	20,440	348	1.73%
2016	20,698	258	1.26%
2017	20,975	277	1.34%
2018	21,615	640	3.05%

Note: Out-of-City customers not included as the vast majority are in-City customers. Population data from the Colorado Department of Local Affairs.

Billing System

The City's current treated water billing system distinguishes between residential, commercial, irrigation and municipal water usage. The system also distinguishes between residential customers with and without non-potable water availability. The previous water billing system categorized residential use into an additional category of multi-family as described in the *2009 Water Conservation Plan*. The City's new billing system became operational in 2015. Evans' utility billing system creates rate class descriptions and rate class codes to distinguish the various water uses in the City. The number of water accounts is also tracked using the City's utility billing system.

For treated water, the residential customer category includes both single and multi-family residences. Residential and Commercial customers have either single systems, which receive treated water only, or have dual systems, which

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receive both treated and non-potable water. The treated water customer categories are as follows:

- **Residential** – single and multi-family residences
- **Commercial** – local businesses
- **Irrigation** –
    - Dual system residents and commercial businesses without non-potable water availability in the shoulder season (spring and fall) before the City's non-potable water rights are delivering water.
    - HOAs and subdivisions.
- **Municipal** – water use from City buildings, park irrigation on occasion, hydrant use, and uses by the fire department and City

Evans categorizes the non-potable customers as either residential, commercial or irrigation. Evans categorizes the non-potable customers as follows:

- **Residential** – single and multi-family residences that use non-potable water for lawn and garden irrigation in the summer
- **Commercial** – local businesses that use non-potable water for irrigation in the summer
- **Irrigation** – non-potable supplies used to irrigate City parks, HOAs and subdivisions

Water Rates

Residential and commercial water users are equipped with individual meters. The City's treated water rates are composed of a base service delivery charge of $19.50 for City residential customers and $20.50 for out-of-City residential customers. There are three volumetric pricing tiers for residential treated water customers with single systems and two volume tiers for customers with dual systems. Commercial treated water use is charged at a flat rate of $5.67 per 1,000 gallons. Residential and commercial users of non-potable water are charged at a flat rate of $2.55 per 1,000 gallons. The rates are shown in **Table 3**.

Table 3: Water Rates (2019)

Base Service Delivery Charge	
City of Evans Residential Customer	$19.50
Out-of-City of Evans Residential Customer	$20.50

Residential *without* Non-Potable Availability Rates	
Volume Tiers	Rate per Thousand Gallons
1,000 to 16,000 gallons:	$4.65
16,001 to 22,000 gallons:	$7.34
Over 22,000 gallons:	$11.77

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Residential *with* Non-Potable Availability Rates	
Volume Tiers	Rate per Thousand Gallons
1,000 to 16,000 gallons	$4.65
Over 16,001 gallons	$11.77

Commercial Treated Water Rates	Rate per Thousand Gallons
Usage per 1,000 gallons	$5.67

Non-Potable Water Usage Charge for Residential and Commercial Rates	Rate per Thousand Gallons
Usage per 1,000 gallons	$2.55

2.2 Historical Water Demands

Water Use Data

The City of Greeley provides Evans with the total amount of treated water from the WTPs delivered to Evans by month. The billed treated and non-potable water use data by customer category is maintained by the City from monthly billing records. Annual and monthly water use data by customer category is available beginning in 2012 through the City's billing system.

Demand Data Limitations

The City's billing system is unable to maintain long-term records so the City Staff was unable to download treated water records prior to 2012. Non-potable water usage by customer category was missing for 2016. Non-potable water usage was also missing data in some months of 2013 and 2017. In 2013, the missing months were filled with the prior year's data. In 2017, only November and December values were missing and were left as zero usage since previous years showed minimal usage during this time. Lastly, the City's current treated water billing system doesn't distinguish single-family and multi-family water usage. This impacts the City's ability to track the effectiveness of specific water efficiency activities targeted to each residential category.

Annual and Monthly Treated Water

Treated Water Delivery, Water Usage and Non-Revenue Water
The City's total treated water delivery is an average of 2,523 AF per year over the past seven years from 2012 through 2018, and represents the volume of water treated at Greeley's WTPs. The total water usage is the annual volume billed to customers. Billed water usage is less due to water loss in the system. There are two types of water losses

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that occur in municipalities, apparent losses and real losses. Apparent losses are "paper" losses that can be caused by customer meter inaccuracies, billing system data errors or unauthorized consumptions. Real losses are those that are physically lost within the distribution system, including the water treatment process.

The City's total average water usage by customers is 2,332 AF pear year from 2012 through 2018. Non-revenue water is the difference between the treated water delivery and the water usage. The City's non-revenue water averaged 240 AF per year or 9% which is considered good by industry standards. **Table 4** provides a summary of the treated water delivery, usage by customers and non-revenue water. In the table, the treated water from 2009 through 2011 is included for comparison.

Table 4: Total Treated Water Delivery Summary

Year	Total Treated Water Delivery from Greeley's Master Meters (AF)	Total Treated Water Usage (Billed to Customers) (AF)	Annual Non-Revenue Water (AF)	Percentage of Non-Revenue Water (AF)
2009	2,250	no data	no data	n/a
2010	2,448	no data	no data	n/a
2011	2,526	no data	no data	n/a
2012	2,781	2,404	377	14%
2013	2,545	2,284	261	10%
2014	2,424	2,392	32	1%
2015	2,511	2,354	157	6%
2016	2,511	2,296	215	9%
2017	2,572	2,272	300	12%
2018	2,663	2,325	338	13%
Average 2012-2018	2,523	2,332	240	9%

Treated Water by Customer Category

Residential treated water use averaged 1,712 AF per year which constitutes 73% of the total treated use. This is important to consider when selecting conservation measures that target specific categories of use. Targeting categories of highest use can have the greatest impact in reducing demand. The commercial category water use is approximately 489 AF per year or 21% of treated water use. The irrigation and municipal customer categories comprise the remaining 6% of the treated water usage. The annual treated water use by customer category is shown in **Figure 5** and the monthly treated water use by customer category is shown in **Figure 6**.

Figure 5: Percentage of Treated Water Use by Customer Category (2012-2018)

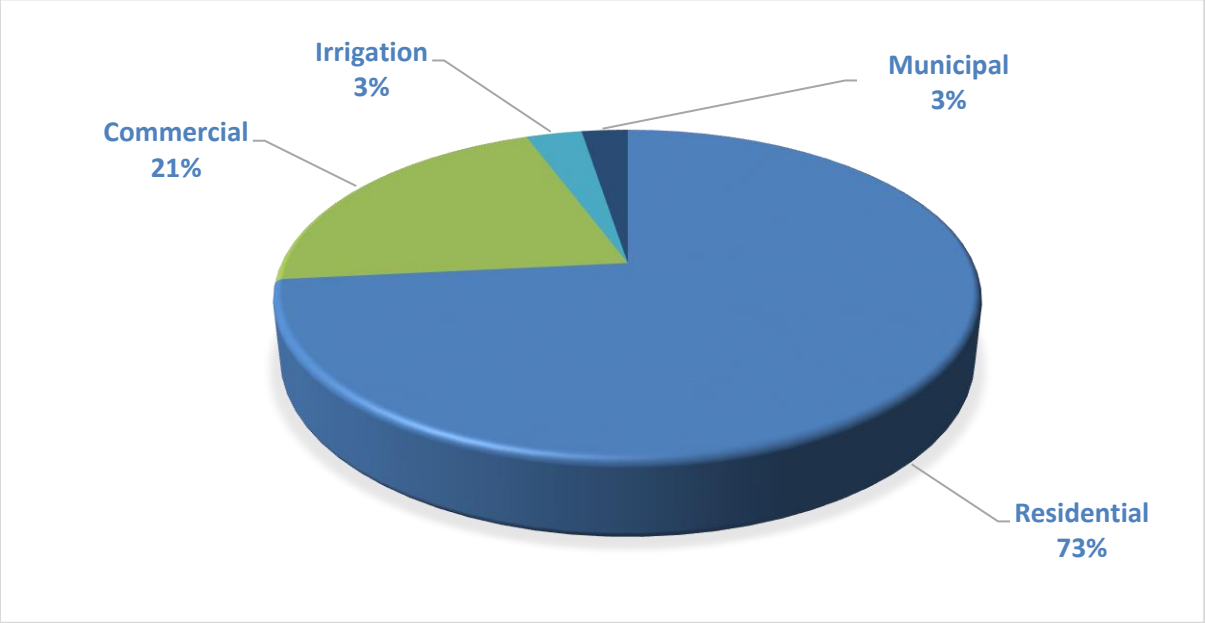
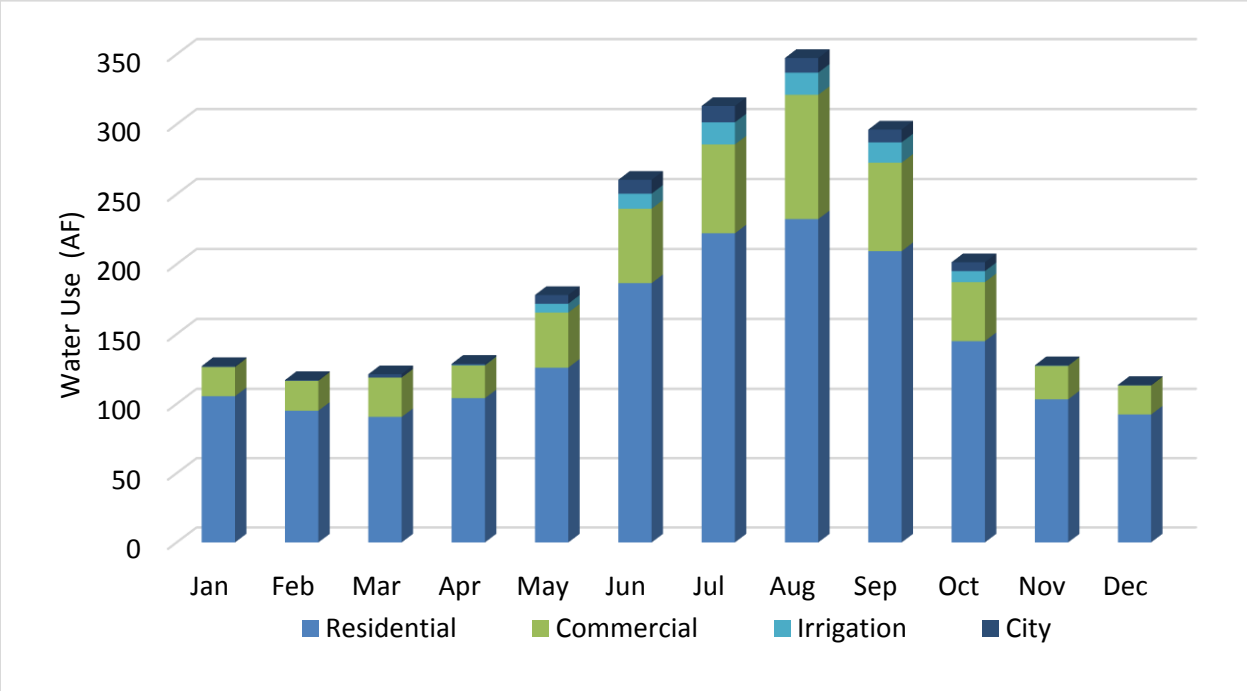


Figure 6: Monthly Treated Water Use by Customer Category (2012-2018)

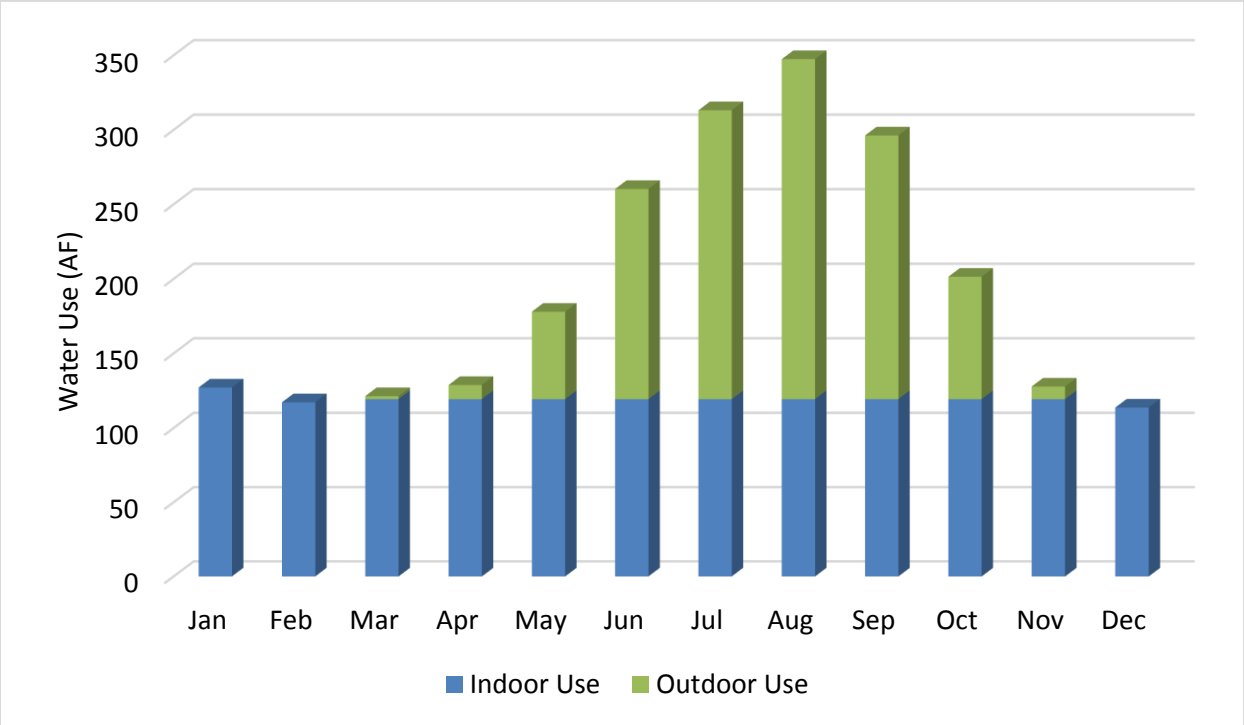


Treated Water Indoor and Outdoor Demands

Water use during summer months is significantly higher than in winter months due to the use of treated water for landscape irrigation. To assess the fraction of indoor to outdoor use, we can estimate the monthly indoor use throughout the year by taking an average of use during the winter months of December, January and February when water is only used indoors. Approximately 61% of annual treated water is used indoors

and 39% is used for outdoor irrigation across all categories, as shown in **Figure 7**. Understanding seasonal water use is also important to select appropriate water efficiency activities that aim to reduce outdoor irrigation.

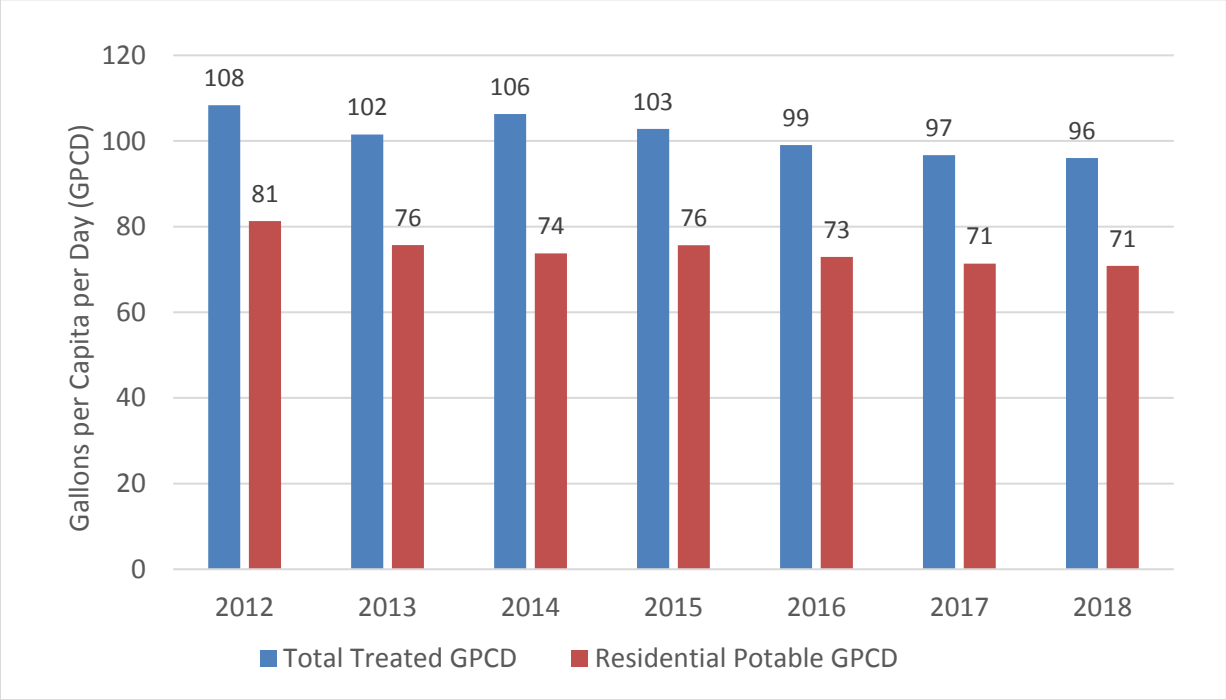
Figure 7: Average Indoor and Outdoor Water Use (2012-2018)



Per Capita Water Use

Measuring annual per capita water use in gallons per capita per day (GPCD) is a commonly used method to gage an entity's water use over time. The per capita water use can be calculated as system-wide per capita volume and a residential per capita volume. System wide per capita use can vary between cities depending on the type and number of commercial customers in the system. Residential per capita water use captures a better approximation of residential consumption and can be compared to cities similar in size and location. The system-wide per capita averages 102 GPCD and the residential per capita water use averages 75 GPCD. Both per capita water uses have seen a downward trend. The per capita was use over time is depicted in **Figure 8**.

Figure 8: Historical Per Capita Treated Water Deliveries (2012-2018)



Annual and Monthly Non-Potable Water

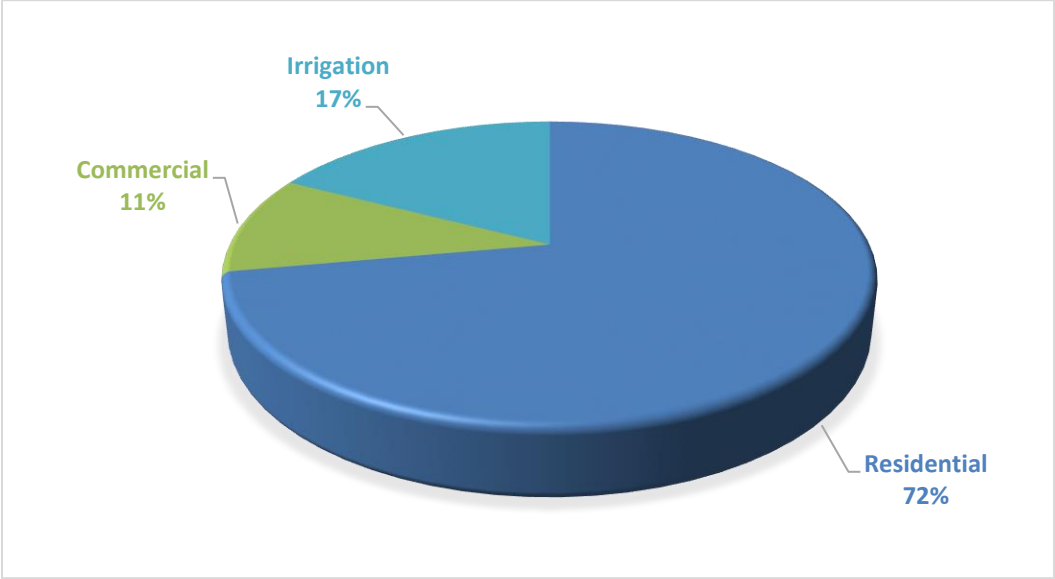
Non-Potable Water Use

In Evans, non-potable water is approximately 9% of the total water use and averages approximately 221 AF per year from 2012 through 2018. Non-potable is used for irrigation in residential and commercial accounts with connections to potable water mains in the shoulder season, subdivision and HOA irrigation and for City park irrigation. **Table 5** shows the annual non-potable water use and **Figure 9** shows breakdown of water use by customer category.

Table 5: Total Non-Potable Water Use

Year	Annual Non-Potable Water Use (AF)
2012	281
2013	247
2014	161
2015	227
2016	no data
2017	164
2018	244
Average	221

Figure 9: Percentage of Non-Potable Water Use by Customer Category (2012-2018)



Note: 2016 non-potable data is missing.

2.3 Past and Current Water Efficiency Activities and Impact to Demands

Current Water Efficiency Activities

Evans has considered water efficiency in its planning for many years and has developed several measures to promote efficient water use. The City has instituted the following water efficiency activities:

- Advanced Metering Infrastructure Installation and Operations
- Water Rate Study/Water Efficient Rate Structure with Regular Updates
- Water Reuse System
- Tap Fees with Water Use Efficiency Incentives (Lot-based water dedication)
- Master Plans/Water Supply Plans/Integrated Water Resource Plans
- Drought Management Plan
- General Monitoring and Verification Activities and General Water Rates and Billing
- Water Conservation Coordinator (position not currently held)
- Weekly and Time of Day Outdoor Watering Restrictions
- Water Waste Ordinance
- Irrigation System Standards for New Developments
- New Car Wash Standards (New Construction) (in progress)
- Landscape Design Ordinances and Restrictions
- Public Education (Newsletter, Webpage, Interactive Website, Social Media, etc.)
- Children's Water Fair or Festival

These activities are described in further detail in Section 4.3 of this report. The City wants to continue current and past water efficiency activities, as well as explore new strategies in this Plan to conserve supplies as demand grows into the future. The City is determined to learn where water is being wasted in the system and work towards better planning and budgeting for improvement projects.

Treated Water Savings Estimates Using Demand Data

Water savings can come from passive actions and active programs. Passive actions are those made by customers without utility incentive, for example; replacing inefficient indoor fixtures with more efficient ones and upgrading washers to newer and more efficient models. Active programs are those that have been initiated, encouraged or enforced by the City.

Water savings experienced by implementing specific water efficiency activities is challenging to identify, especially for activities dependent on human behavior. For example, public education activities bring information and awareness to customers but it's challenging to translate changes in customer behaviors to volumes of water savings accurately. However, evaluating the trends in per capita water use help the City to understand the water use trends by customers over time. **Figure 10** shows the historical population compared to the residential per capita water usage. While the population has steadily increased since 2012, the per capita water use has generally declined from 81 GPCD to 71 GPCD. It should be noted that as more developments install dual systems, the per capita treated water use trendline can become skewed as more residents begin using non-potable water for irrigation. Some of the variability in the water usage is also linked to the yearly fluctuations in temperature and precipitation. For example, customers typically use less water for outdoor irrigation in dry years.

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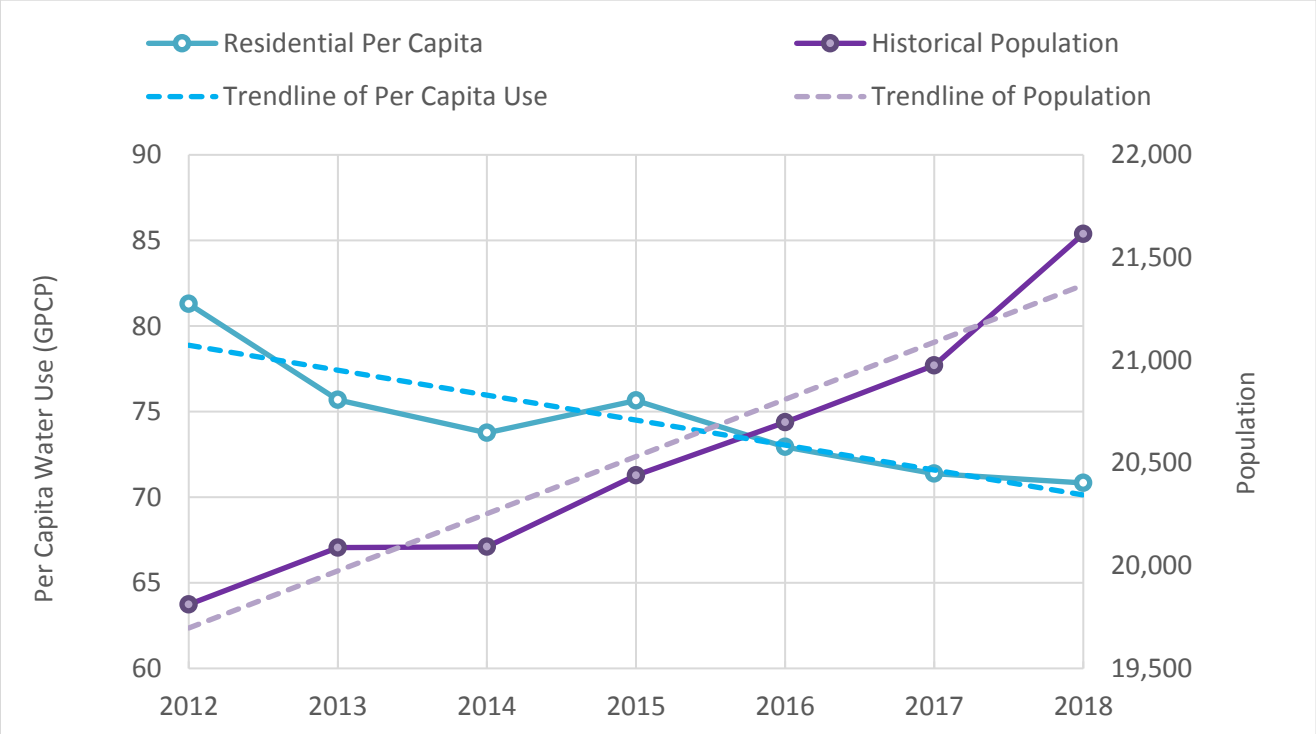
Figure 10: Treated Water Use and Population Trends



To determine an estimated total water savings from implemented water efficiency activities, we completed a cost-benefit analysis which included the calculation of water savings by activity. The estimated savings for the City of Evans is approximately 242 AF per year of treated water for all customer categories.

2.4 Treated Water Demand Forecasts

Forecasting future growth and resulting water demands for the City is necessary to understand the reliability of current water supplies to meet future demand. The demand forecast in this Plan uses a ten-year planning horizon (2019 through 2028) and assumes an MWEP Update will occur in seven years in 2025.

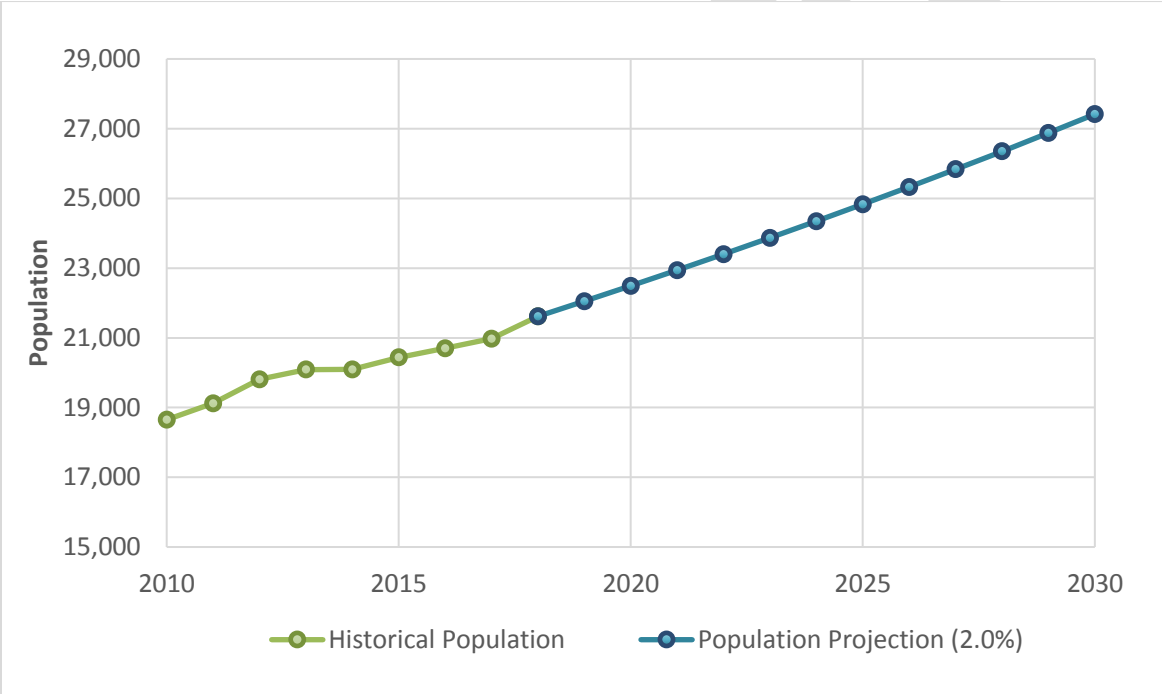
An “unmodified” baseline demand forecast was developed to show the projected water demand growth over a ten-year planning period assuming no new water efficiency activities are implemented. This unmodified baseline demand forecast is used to compare the “modified” demand forecast which projects water demand growth including water savings from the proposed water efficiency activities in this Plan.

Future demand can be estimated to increase proportionally with future population growth. The City projects a 2% growth rate per year for treated water demand through 2028. The unmodified baseline demand forecast assumes existing water efficiency activities continue and increase proportionally to projected population. Population estimates and average yearly growth rates are shown in five increments in **Table 6** and illustrated in **Figure 11.**

Table 6: Observed and Projected Population Growth in Five-Year Increments

Year	Population	Average Yearly Growth Rate
2010	18,651	'-
2015	20,440	2%
2020	22,488	2%
2025	24,829	2%
2030	27,415	2%

Figure 11: Historical and Projected Population Growth



The unmodified demand forecast projects the treated water demands are expected to reach 3,247 AF for all customer categories and non-revenue water by the end of the planning horizon. This volume is less than the City's average and firm water supply yields in **Table 1**. This provides meaningful information regarding the long-term sustainability of the City's current water supplies compared with the projected demand. The annual treated water demand projections by customer category are provided in **Table 7**.

Table 7: Treated Water Demand Projections by Customer Category (Values in AF)

Year	Residential	Commercial	Irrigation	Municipal	Total Amount Billed to Customers	Non-Revenue (loss)	Total Treated Water Demand
2019	1,810	518	76	63	2,467	250	2,717
2020	1,847	528	77	64	2,516	255	2,771
2021	1,884	539	79	65	2,567	260	2,827
2022	1,921	549	81	67	2,618	265	2,883
2023	1,960	561	82	68	2,671	270	2,941
2024	1,999	572	84	69	2,724	276	3,000
2025	2,040	583	85	71	2,779	281	3,060
2026	2,080	595	87	72	2,834	287	3,121
2027	2,122	607	89	73	2,891	292	3,183
2028	2,164	619	91	75	2,949	298	3,247

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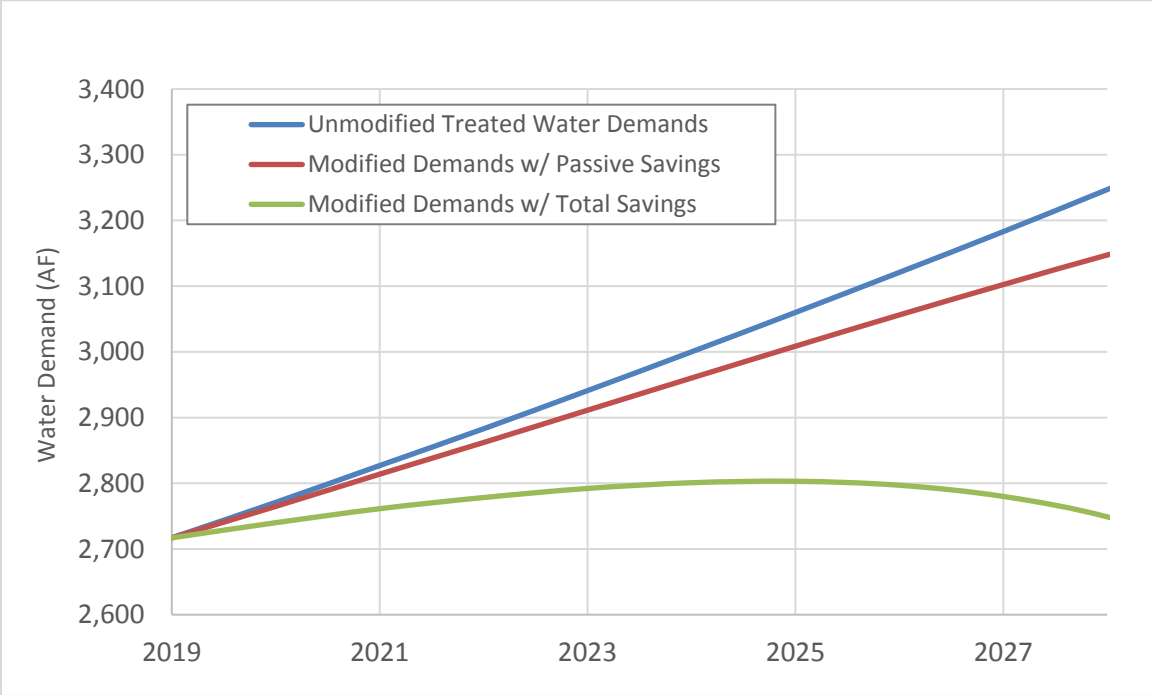
SECTION 3.0 – INTEGRATED PLANNING AND WATER EFFICIENCY BENEFITS AND GOALS

3.1 Water Efficiency and Water Supply Planning

Forecasted Modified Water Demands

A "modified" demand forecast was developed to estimate the total treated water demands at the end of the planning horizon (ten years, or in 2028) assuming the existing and planned new water efficiency activities are implemented. This was completed to analyze the long-term benefits of implementing water efficiency activities. The modified forecast shows a total annual demand in 2028 of 2,749 AF. This value includes non-revenue water but does not include surcharge water charged by the City of Greeley for treatment. This equates to an annual treated water demand savings of up to 498 AF (or 15%) in comparison to the unmodified baseline forecast. The total water savings in a ten-year period is estimated to be up to 5,127 AF (17%) if all the selected water efficiency activities are implemented[2]. The modified demand forecast is illustrated in **Figure 12** and shows the anticipated water savings from both passive and active water savings**.** **Table 8** is a summary of the unmodified baseline demands and modified demands.

Figure 12: Treated Demand Projections with Modified Demands



[2] The ten-year volume includes the compounding effects of certain activities over a ten-year period so it is higher than the annual water savings. This value assumes all activities are implemented for ten years.

Table 8: Treated Demand Projections - Unmodified and Modified (Values in AF)

Year	Unmodified Treated Water Demand	Modified Treated Water Demand with Passive Savings	Modified Treated Water Demand with Total Savings
2019	2,717	2,717	2,717
2020	2,771	2,765	2,740
2021	2,827	2,814	2,761
2022	2,883	2,862	2,778
2023	2,941	2,911	2,792
2024	3,000	2,960	2,801
2025	3,060	3,009	2,803
2026	3,121	3,056	2,797
2027	3,183	3,102	2,780
2028	3,247	3,147	2,749

Impacts to Future Water Facilities and Supply Acquisitions

The benefits of this water efficiency planning effort for the City of Evans include:

- Using water supplies more efficiently to allow existing supplies to meet the needs of future City growth and development;
- Creating the ability to cover shortages in droughts or other emergency situations;
- Delaying the purchase of additional costly water supplies which are increasing quickly along the Front Range of Colorado;
- Delaying increased water treatment costs with the City of Greely which is charged to meet funding needs for a future expansion of Greeley's treatment facilities.

3.2 Water Efficiency Goals

Water efficiency goals are intended to establish targeted objectives that will result in the identified benefits in Section 3.1. Establishing goals is an iterative process that begins by evaluating the future demand for water based on current water-use habits and identifying areas water use can feasibly and effectively be reduced.

An initial set of water savings goals were developed in the beginning stages of this planning effort to guide the development of this Plan. The initial goals were used as a means to screen and evaluate potential activities to ensure the City's goals can be met with the water efficiency activities evaluated. The following initial goals were established:

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- The targeted water savings goal for this Plan will be to lower the treated water demand by 10% over the ten-year planning period, or approximately 1% per year.
- The targeted ten-year water reduction goals for the following customer categories were as follows:
    - Residential: 13%
    - Commercial: 5%
    - Irrigation: 5%
    - Municipal: 5%
    - Non-Revenue Water: 1%
- To develop a Plan that can be effectively implemented by City Staff and with City Council approval and encouragement.
- To implement water efficiency activities that are compatible with the community and residents.
- To develop a cost-effective program that achieves water savings goals while staying within budget constraints.
- To assess activities and programs with partnership opportunities.

The success of the stated goals is measured through monitoring of billing data, screening/evaluating activities acceptable to City staff, and soliciting City Council and community feedback on water efficiency activities. During the initial meeting, City Staff expressed interest in evaluating 35 different water efficiency activities.

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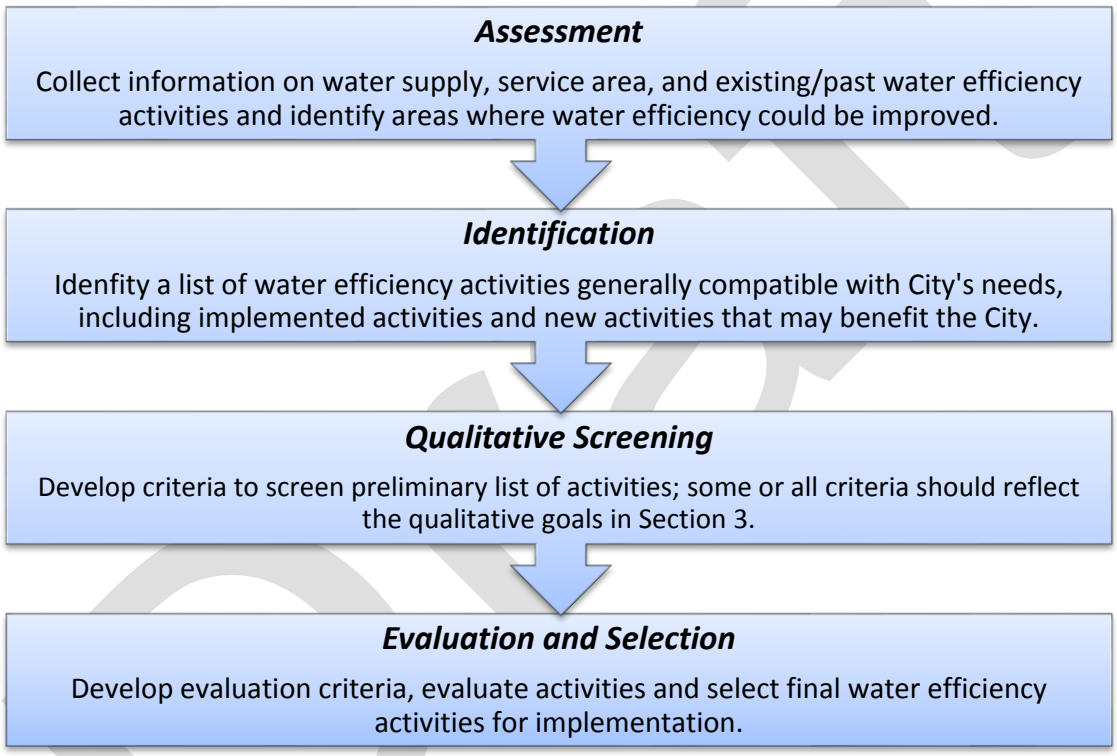
SECTION 4.0 – SELECTION OF WATER EFFICIENCY ACTIVITIES

4.1 Summary of Selection Process

General Overview of Selection Process

Evans used a four-phase process to select and fully evaluate water efficiency activities for implementation in this Plan, as recommended in the *Guidance Document*. This process is shown in **Figure 13**.

Figure 13: Four-Phase Process for Selecting Water Efficiency Activities



Assessment, Identification, and Qualitative Screening

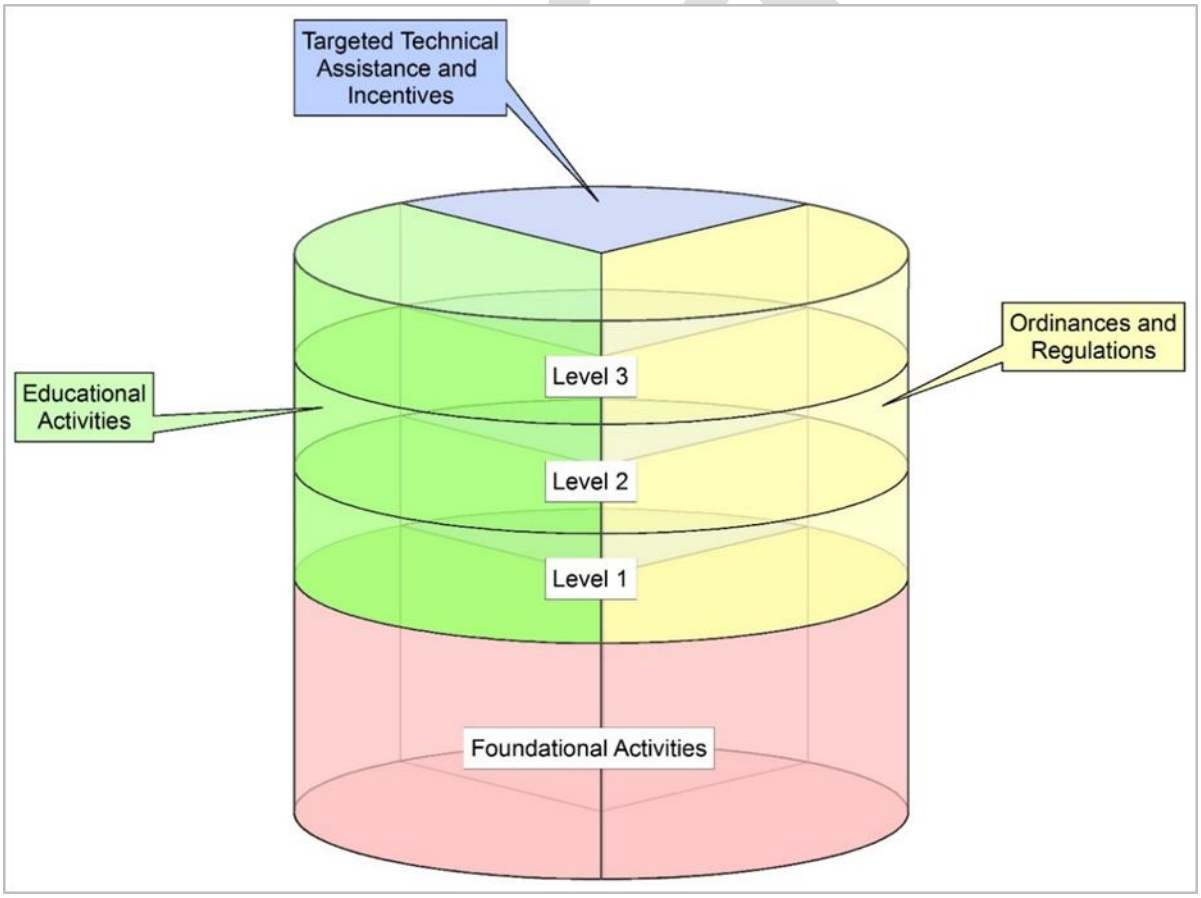
As part of the 'Assessment' Phase, the City profiled its existing water supplies and identified its current water savings from implemented water efficiency activities (Sections 1.1 and 2.3). The City also identified where water efficiency could be improved in each of its customer categories.

In the 'Identification' Phase, *Worksheets D – G* (**Appendix B**) from the *Guidance Document* were used to identify a list of activities to potentially meet the City's goals. The list of activities evaluated are organized according to the SWSI Levels Framework. The SWSI Levels Framework was developed as a component of the SWSI 2010 update to organize water efficiency activities into a model that assists municipalities in prioritizing and selecting activities. SWSI Levels Framework includes the following levels of water efficiency activities:

- **Foundational Activities** – These activities focus on system operations and water efficiencies that are under Evans' direct control and can improve the effectiveness of the planning efforts by ensuring sufficient metering and data tracking.
- **Targeted Technical Assistance and Incentives** – These measures cover activities that Evans and its customers can do to improve existing water efficiency.
- **Ordinances and Regulations** – These measures include regulatory activities designed to encourage water efficiency.
- **Education Activities** – These efforts educate the public on the benefits of water efficiency, inform customers on how they can reduce their water usage, and publicize water efficiency activities that Evans is implementing.

Figure 14 depicts the framework provided in SWSI 2010 to help municipalities organize and prioritize water efficiency activities by "activity type" and then by "level" within each type.

Figure 14: SWSI Levels Framework



Evaluation and Selection

In the 'Evaluation and Selection' Phase, the City developed evaluation criteria, evaluated the activities, and selected the final activities for implementation. Some of the general evaluation criteria included:

- Applicability to the City of Evans
- Moderate to high potential reduction of water use and financial feasibility
- Staff and City Council support
- Partnership opportunities with other entities to help organize and implement activities

4.2 Water Efficiency Activities

The initial screening of the water efficiency activities with City Staff resulted in selecting 35 candidate activities for further evaluation. A second screening was completed to evaluate 35 candidate activities against the criteria established in Section 4.1. The City Staff then met internally to determine which activities would be implemented in the Plan. Ultimately, the City Staff eliminated one activity after the initial evaluation. The analysis of costs and benefits of the selected measures and programs are shown in *Table C-1* in **Appendix C**. Details about the cost/benefit evaluation and information about each measure can be found in the following section with further detail available in **Appendix D**.

4.3 Selection of Activities for Implementation

The activities selected for implementation are described below and organized the SWSI Levels Framework.

Foundational Activities

- **System Wide Water Audits**
  The City may utilize the IWA/AWWA Water Audit Method published in the AWWA Manual of Practice M36 to conduct a "top down approach." By implementing System Wide Water Audits, Evans could identify unmetered and unbilled treated water uses in order to assess where losses are occurring and how losses can be addressed. These losses are considered Non-Revenue water.
- **Advanced Meter Reading Installation and Operations**
  The City is in the process of upgrading meters or adding registers to existing meters that would transmit usage information to the City's metering system. Advanced Metering Infrastructure (AMI) is a metering system that records customer consumption and provides frequent transmittal of measurements over a communication network to a central collection point. AMI systems have the capability to offer customers an interactive portal where they would get usage alerts and be able to view billing and metering data.
- **Water Rate Study – Water Efficient Rate Structures with Regular Updates**

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Evans utilizes water volume tiers with increasing rates. Based on many studies, water rates (e.g., inclining and/or tiered rates) are one of the most effective ways to encourage efficient water use. A rate study is necessary to ensure maximum water savings. Because they are very interrelated, this measure also includes Volumetric Billing and Tiered Rates within it.

- **Water Reuse System**
  The City of Evans uses backwash at its waste water treatment plant to irrigate lawn and areas surrounding the waste water treatment plant facility.
- **Tap Fees with Water Use Efficiency Incentives**
  This activity would encourage smaller lot design and construction by charging reduced fees for smaller lot sizes. For example, this might include a discount on tap fees for turf areas of less than 3,000 square feet or a discount for a smaller percentage of irrigated areas. Typically, an irrigated area of less than 30% is considered conservative in nature. On the opposite end, an additional fee may be charged for larger lots with greater irrigated area. This provides incentives for reduced irrigation. The City currently has tap fees with water use efficiency incentives.
- **Leak Detection and Repair Program**
  Evans wants to proactively complete leak detection programs. Leak detection and repair targets non-revenue water and helps the City reduce water lost in the system to increase its overall efficiency. This program can reduce the raw water demand or provide saved water to customers. Leak detection and repair also reduces the liability of system damage due to leaks.
- **Master Plans/Water Supply Plans/Integrated Water Resource Plans/Capital Improvement Plans**
  These types of plans are comprehensive studies used to guide the City in future decision-making on planning and growth. The City completed a *2010 Comprehensive Plan.* Other plans the City could develop may include Non-Potable Master Plan, Treated Water Master Plan or Capital Improvement Plan. These plans help to integrated future land development and water planning.
- **Drought Management Plan**
  Evans completed its *Drought Management Plan (DMP) in 2013* and anticipates a DMP Update in the coming years. Drought conditions can significantly reduce a municipality's firm water supplies. Drought Management Plans focus on how to mitigate and respond to short-term water supply shortages in dry years. Typically, these plans focus on temporary water savings, such as mandatory water restrictions and other measures to reduce customer demand quickly. Drought Management Plans complement Water Efficiency Plans, which aim to conserve water by implementing long-term activities to reduce the per-capita water use.
- **General Monitoring and Verification Activities and General Water Rates and Billing**
  Evans participates in general water monitoring and verification activities including, but not limited to: customer meter installation, frequent meter reading, volumetric-based billing with increasing/tiered rates that encourage customers to conserve, customer type tracking, etc.

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- **Designated Water Conservation Coordinator**
  The City of Evans has previously hired water conservation coordinators/officers. The City could hire a summer intern or full-time employee to assist with the implementation, organization and tracking of water efficiency activities. This will help the City develop new activities and manage existing to achieve the water savings determined in this planning effort. A Coordinator can also adapt both the Implementation and Monitoring Plans over time to keep them relevant and useful to the City. The cost-benefit analysis assumes one intern is hired in the summer months for simplicity.

Targeted Technical Assistance and Incentives

- **Slow the Flow Residential Indoor Audits**
  Resource Central (*ReCen*) offers "Slow the Flow" Residential Indoor Audits. "Slow the Flow offers consultations on residential water usage and suggests simple measures to increase water use efficiency in the home. Participants simply schedule an inspection with a trained technician in their home. During the one-hour appointment the technician will measure outputs from faucets, toilets, and shower heads, and perform a cost-benefit analysis on fixture replacement options. They may also install high efficiency shower heads and faucet aerators at no cost. You'll be left with a customized list of recommendations for increasing water use efficiency." – ReCen
- **Slow the Flow Residential Irrigation Audits**
  ReCen offers "Slow the Flow" Residential Irrigation Audits for sprinkler systems. "Participants schedule an appointment to meet with a trained technician at their home and learn how to save water and money while keeping their lawn healthy and green! The service usually takes an hour to an hour and 15 minutes and involves a visual inspection, data collection, and in-depth evaluation of your system. Our technicians will deliver a clear and actionable list of suggestions to reduce water use and runoff at each property, while keeping lawns healthy." – ReCen

"Slow the Flow" irrigation audit example. Photograph from Resource Central, https://resourcecentral.org/.

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- **Slow the Flow Commercial Irrigation Audits**
  ReCen offers “Slow the Flow” Commercial Irrigation Audits for HOAs and commercial businesses. "Slow the Flow’s trained technicians perform a detailed analysis of your existing sprinkler system and will provide a comprehensive report detailing findings and recommendations to improve efficiency. The service will provide suggestions that will deliver measurable improvements in water use reduction, saving your HOA or commercial property money, and supporting community conservation goals." –ReCen.
- **Rebates and Retrofit Program - Indoor**
  The City may offer rebates/retrofits for high-efficiency toilets, washing machines or bathroom fixtures (toilets, showerheads, faucets). The purpose of a rebate is to encourage residents to convert to higher efficiency fixtures. The City could partner with ReCen for "Flush For the Future" program. ReCen partners with municipalities to upgrade their residents to ultra-high efficiency toilets. ReCen estimates each toilet can save up to 10,000 gallons of water per year.
- **Rebates and Retrofit Program - Outdoor**
  The City may offer rebates for wind/rain sensors and efficient irrigation equipment, such as irrigation controllers. The sensors and controllers are used to automatically shut off sprinklers during rain events or windy conditions when irrigation efficiency is reduced. Irrigation controllers allow a user to program automatic irrigation schedules for different irrigation zones. The City could partner with ReCen on a controller upgrade program called "Automate Your Irrigation", where "Residents can get a Rachio Smart Controller at a reduced rate. The Rachio Smart Controller gathers weather data via your wifi signal and adjusts your watering schedule accordingly for an accurate water application tailored to local precipitation patterns. Maintain your perfect lawn and save water from anywhere with smartphone remote control technology." - ReCen
- **Giveaways: Water Audit Kits**
  The City can customize Water Audit Kits with many useful, educational, and yet fun water saving components. Some of the items include water-saving hose nozzles, water-efficient showerheads, faucet aerators, and outdoor moisture meters to name a few. These kits can be customized with the City’s logo and provided to citizens at City events. The kits include instructions with insight and direction on how to save water and money in their homes and businesses.
- **Xeriscape Incentives – Garden in a Box**
  ReCen offers an array of do-it-yourself Xeric garden kits, created by professional landscape designers for sun, shade, and everything in between. These plant-by-number gardens can have a significant conservation impact and are perfect for anyone who wants to beautify their yard while using less water than standard turf. The City can fully or partially sponsor these garden kits for a certain number of participants per year. ReCen refers to this program as “Grass to Garden” and provides the “Garden in a Box” kits to residents in participating municipalities.

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"Garden In a Box" program xeric plants. Photograph from Resource Central, https://resourcecentral.org/.

- **Distribute Pre-Rinse Spray Heads to Restaurants and Institutions**
  ReCen offers this program. "Save water in commercial kitchens with a quick, easy, and effective pre-rinse spray valve (PRSV) upgrade. This 15-minute swapping service is offered at no cost to businesses and creates instant, measurable water and energy savings."

Ordinances and Regulations

- **Restrict High Water Use on Medians and in Parking Lot Plantings**
  The City could restrict high water use turf on medians and replace it with native low-water use plants, xeriscape plants or non-living landscape material such as rock, gravel, cobble or mulch. This would significantly reduce water usage on medians and other areas such as parking lot plantings.
- **Weekly and Time of Day Outdoor Watering Restrictions**
  Evans' Municipal Code states, "The use of water for sprinkling of lawns, gardens and trees will be permitted on scheduled days except between the hours of 12:00 and 5:00 p.m." The scheduled watering days are based on customer type. The Municipal Code also sets a season of use from April 15th through October 15th (the City may begin irrigation earlier on athletic fields). The City Council, by resolution, may also declare a drought emergency and implement additional watering restrictions.
- **Water Waste Ordinance**
  The City currently has a Waste Water Ordinance and is interested in expanding the current ordinance.
- **Irrigation System Standards for New Developments**
  Some municipalities and counties in Colorado require irrigation system standards within their building permit review process. These types of standards and specifications could include an irrigation design plan and system requirements such as pressure control, sprinkler head layout requirements, and equipment requirements.
- **10% Lot Restriction**
  The City could require new lot irrigation to be reduced by 10%. Developers could alternatively replace turf areas on lots with non-irrigated native plants or non-living landscape material such as rock, gravel, cobble or mulch, depending on the City's preferred landscaping.

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- **Requiring Wind and/or Rain Sensors for Business and Open Space Irrigation**
  This activity would require wind and/or rain sensors for businesses and open space irrigation. Wind/rain sensors paired with irrigation controllers are used to automatically shut off sprinklers during rain events or windy conditions when irrigation efficiency is reduced. This avoids over-watering and wasting water.
- **Restrictive Covenants Ordinance**
  A Restrictive Covenants Ordinance prohibits homeowner association's covenants from banning the use of Xeriscape or requiring a percentage of landscape area to be planted with turf.
- **New Car Wash Standards (New Construction)**
  The amount of water used by car wash facilities depends primarily on the type of cleaning system used and whether its design includes reclamation. Car washes with reclaimed water systems can reduce water use by more than half.
- **Landscape Design Ordinances and Restrictions**
  Landscape design ordinances include Rules and Regulations for Landscape Design/Installation, Soil Amendment Requirements, Turf Restrictions, and Irrigation Efficiency Regulations. The City has Landscaping Development Standards in its Municipal Code; the City can add new regulations or strengthen existing regulations.

Educational Activities

- **Public Education Activities**
  The City Staff are interested in providing educational materials on water efficiency to its citizens through one or a combination of: bill stuffers, newsletters, electronic bill links to interactive webpages, and social media campaigns. The City currently has a page with water conservation tips and has its *2009 Water Conservation Plan* available for download on its website. The City has multiple social media platform accounts and can use these platforms to distribute educational information. The City will continue to strive for consistent online information throughout its Public Education Activities.
- **Children's Water Fair or Festival**
  Evans partners with Greeley to participate in Children's Water Fairs/Festivals and provides educational materials and information to students about water efficiency and conservation. The City could also partner with Northern Water to reduce the staff time needed to prepare materials and network with students.
- **Post or Distribute ET Irrigation Scheduling**
  ET (evapotranspiration) is a combination of water transpired from plants and evaporated from the soil and plant surfaces. An ET irrigation schedule uses historical climate data to calculate average turf grass water use throughout the spring, summer and fall. This helps customers understand seasonal water needs and be able to program their water systems to avoid over-watering lawns. The schedule can be printed on water bills or posted on the City's website. The Northern Water website provides turf water use guides by location.
- **K-12 Teacher and Classroom Education**

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The City can develop a K-12 Teacher and Classroom Education Program and/or potentially partner with a local college or its students. There are various organizations with training workshops, educational materials and in-class presentations such as Project Wet and Northern Water.

- **Property Manager/HOA Education and Training**
  This measure includes a seminar style training provided to large property managers and HOAs. The City may be able to partner with Northern Water for education and training. This could be paired with the Slow the Flow Commercial Irrigation Audits.
- **Citizen Advisory Board**
  Evans may organize a Citizen Advisory Board to help with public education campaigns, water efficiency planning measures and public outreach and feedback. This board can provide feedback to staff regarding the potential public acceptance of new programs.
- **Xeriscape Demonstration Garden**
  Maintaining a xeriscape demonstration garden is an excellent way to educate the public to the water savings and beauty available from xeriscaping. The City could partner with other organizations to design and maintain a xeriscape demonstration garden. There are also grants available from Northern Water through their Collaborative Water-Efficient Landscape Grant Program. The Northern program helps fund new or redeveloped landscapes based on the principles and best practices displayed at the Northern Water Conservation Gardens located at their office in Berthoud.

Comparison of Costs and Benefits

In **Appendix C**, *Table C-1* is a summary of the cost and benefits analysis of the water efficiency activities evaluated. The cost for activities related to treated water ranged from less than $1 up to $142 per 1,000 gallons saved. The least expensive activity is the Water Reuse System and the most expensive is Rebates and Retrofit Program – Outdoor, based on the analysis. The water savings from the selected water efficiency activities was organized by the targeted customer categories to more easily compare the anticipated savings to the original goals. Some of the measures contribute savings to more than one category. **Table 9** shows the water savings for the selected activities, sub-totaled for each customer category.

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Table 9: Combined Water Savings of Selected Water Efficiency Activities

Water Efficiency Activities **yellow rows are historical, existing or in-progress activities*	Estimated Annual Water Savings (MG/yr)	Estimated Total Ten-Year Water Savings (MG)
Non-Revenue		
System Wide Water Audits	0.45	4.5
Advanced Metering Infrastructure Installation and Operations	0.89	8.9
Water Reuse System	0.24	2.4
Leak Detection and Repair Program	4.45	44.5
Master Plans/Water Supply Plans/Integrated Water Resource Plans	0.45	4.5
Drought Management Plan	0.89	8.9
General Monitoring and Verification Activities and General Water Rates and Billing	0.22	2.2
Designated Water Conservation Coordinator	0.1	0.9
Subtotal - MG	**7.7**	**76.8**
Acre-Feet	***23.6***	***236***
Residential		
Advanced Metering Infrastructure Installation and Operations	38.76	387.6
Water Rate Study - Water Efficient Rate Structure with Regular Updates	32.30	323.0
Water Reuse System	1.74	17.4
Tap Fees with Water Use Efficiency Incentives (Lot-based water dedication)	0.21	2.1
Master Plans/Water Supply Plans/Integrated Water Resource Plans	3.23	32.3
Drought Management Plan	6.46	64.6
General Monitoring and Verification Activities and General Water Rates and Billing	1.62	16.2
Designated Water Conservation Coordinator	0.65	6.5
Slow the Flow Residential Indoor Audits	0.05	2.7
Slow the Flow Residential Irrigation Audits	0.02	1.3
Rebates and Retrofit Program - Indoor (Toilet, Washing Machines, Showerhead and Faucet)	0.18	9.6
Rebates and Retrofit Program - Outdoor (Wind/Rain Sensors, Efficient Irrigation Equipment)	0.03	1.7
Giveaways - Residential Water Audit Kits	0.02	0.9
Xeriscape Incentives/Turf Replacement Programs - Garden in a Box	0.01	0.4
Weekly and Time of Day Outdoor Watering Restrictions	0.41	4.1
Water Waste Ordinance	0.21	2.1

Water Efficiency Activities **yellow rows are historical, existing or in-progress activities*	Estimated Annual Water Savings (MG/yr)	Estimated Total Ten-Year Water Savings (MG)
Residential (continued)		
Irrigation System Standards for New Developments	2.34	23.4
10% Lot Restriction	4.68	46.8
Restrictive Covenants Ordinance	5.17	51.7
Landscape Design Ordinances and Restrictions	2.34	23.4
Public Education (Newsletter, Webpage, Interactive Website, Social Media, etc.)	12.92	129.2
Children's Water Fair or Festival	0.02	1.3
Post or Distribute ET Irrigation Scheduling	4.13	41.3
K-12 Teacher and Classroom Education Programs	0.05	2.6
Citizen Advisory Boards	0.65	6.5
Xeriscape Demonstration Garden	0.001	0.1
Subtotal - MG	**118.2**	**1,198.7**
Acre-Feet	***362.7***	***3,679***
Commercial		
Advanced Metering Infrastructure Installation and Operations	5.54	55.4
Water Rate Study - Water Efficient Rate Structure with Regular Updates	3.70	37.0
Water Reuse System	0.50	5.0
Tap Fees with Water Use Efficiency Incentives (Lot-based water dedication)	0.09	0.9
Master Plans/Water Supply Plans/Integrated Water Resource Plans	0.92	9.2
Drought Management Plan	1.85	18.5
General Monitoring and Verification Activities and General Water Rates and Billing	0.46	4.6
Designated Water Conservation Coordinator	0.18	1.8
Slow the Flow Commercial Irrigation Audits	0.19	10.2
Rebates and Retrofit Program - Indoor (Toilet, Washing Machines, Showerhead and Faucet)	0.07	3.9
Distribute Pre-Rinse Spray Heads to Restaurants and Institutions	0.40	22.0
Weekly and Time of Day Outdoor Watering Restrictions	0.18	1.8
Water Waste Ordinance	0.09	0.9
Irrigation System Standards for New Developments	1.59	15.9
Requiring Wind and/or Rain Sensors for Business and Open Space Irrigation	4.45	44.5
New Car Wash Standards (New Construction)	0.37	3.7
Landscape Design Ordinances and Restrictions	1.59	15.9

Water Efficiency Activities **yellow rows are historical, existing or in-progress activities*	Estimated Annual Water Savings (MG/yr)	Estimated Total Ten-Year Water Savings (MG)
Commercial (continued)		
Public Education (Newsletter, Webpage, Interactive Website, Social Media, etc.)	1.39	13.9
Post or Distribute ET Irrigation Scheduling	1.78	17.8
Property Management/HOA Irrigation Education Training	0.89	8.9
Citizen Advisory Boards	0.18	1.8
Subtotal - MG	**26.4**	**293.7**
Acre-Feet	***81.1***	***901***
Irrigation		
Advanced Metering Infrastructure Installation and Operations	0.81	8.1
Water Rate Study - Water Efficient Rate Structure with Regular Updates	0.54	5.4
Water Reuse System	0.07	0.7
Master Plans/Water Supply Plans/Integrated Water Resource Plans	0.14	1.4
Drought Management Plan	0.27	2.7
General Monitoring and Verification Activities and General Water Rates and Billing	0.07	0.7
Designated Water Conservation Coordinator	0.03	0.3
Rebates and Retrofit Program - Outdoor (Wind/Rain Sensors, Efficient Irrigation Equipment)	0.03	1.5
Restrict High Water Use Turf on Medians and in Parking Lot Plantings	1.35	13.5
Weekly and Time of Day Outdoor Watering Restrictions	0.05	0.5
Water Waste Ordinance	0.03	0.3
Irrigation System Standards for New Developments	0.26	2.6
10% Lot Restriction	0.52	5.2
Requiring Wind and/or Rain Sensors for Business and Open Space Irrigation	1.35	13.5
Landscape Design Ordinances and Restrictions	0.26	2.6
Public Education (Newsletter, Webpage, Interactive Website, Social Media, etc.)	0.20	2.0
Post or Distribute ET Irrigation Scheduling	0.54	5.4
Property Management/HOA Irrigation Education Training	0.27	2.7
Xeriscape Demonstration Garden	0.00	0.1
Subtotal - MG	**6.8**	**69.3**

Water Efficiency Activities **yellow rows are historical, existing or in-progress activities*	Estimated Annual Water Savings (MG/yr)	Estimated Total Ten-Year Water Savings (MG)
Municipal (continued)		
Acre-Feet	***9.9***	***99***
Non-Potable		
Water Rate Study - Water Efficient Rate Structure with Regular Updates	2.94	29.4
Tap Fees with Water Use Efficiency Incentives (Lot-based water dedication)	0.06	0.6
Master Plans/Water Supply Plans/Integrated Water Resource Plans	0.40	4.0
Drought Management Plan	0.79	7.9
General Monitoring and Verification Activities and General Water Rates and Billing	0.20	2.0
Designated Water Conservation Coordinator	0.08	0.8
Weekly and Time of Day Outdoor Watering Restrictions	0.13	1.3
Water Waste Ordinance	0.06	0.6
Irrigation System Standards for New Developments	0.68	6.8
10% Lot Restriction	1.04	10.4
Requiring Wind and/or Rain Sensors for Business and Open Space Irrigation	0.51	5.1
Restrictive Covenants Ordinance	1.37	13.7
Landscape Design Ordinances and Restrictions	0.68	6.8
Public Education (Newsletter, Webpage, Interactive Website, Social Media, etc.)	1.28	12.8
Post or Distribute ET Irrigation Scheduling	1.30	13.0
Property Management/HOA Irrigation Education Training	0.10	1.0
Citizen Advisory Boards	0.06	0.6
Xeriscape Demonstration Garden	0.01	0.4
Subtotal - MG	**11.7**	**117.3**
Acre-Feet	***35.9***	***360***
Grand Total (Treated and Non-Potable Water) - (MG)	**174**	**1,788**
Acre-Feet	***534***	***5,487***
Treated Water Grand Total - (MG)	**162**	**1,671**
Acre-Feet	***498***	***5,127***

The selected activities provide an overall estimated water savings of up to 5,127 AF[3] in ten years when implemented. The water savings per customer category in **Table 10** was compared to the original water savings goals identified in Section 3.0. The adjusted goals reflect the goals the City Staff believe are achievable through the implementation

[3] This volume includes the compounding effects of certain activities over a ten-year period so it is higher than the annual water savings.

of water efficiency activities. **Table 10** compares the anticipated water savings from the selected activities with the original goals in Section 3.2 and then adjusts the water saving goals. As described previously, the City may save up to 498 AF per year by implementing the selected activities by the end of the ten-year planning horizon.

Table 10: Water Efficiency Goals Comparison

Water Use Categories	Total Projected Water Use (2019 to 2028)	Reduction Goals for Planning Horizon		Adjusted Reduction Goals for Planning Horizon	
				Total Water Savings from Activities	Resulting Reduction
	(AF)	(%)	(AF)	(AF)	(%)
Residential	19,827	13%	2,578	3,679	19%
Commercial	5,671	5%	284	901	16%
Irrigation	831	5%	42	213	26%
Municipal	687	5%	34	99	14%
Non-Revenue Water	2,734	1%	27	236	9%
Total:	29,750		2,965	5,127	
Total Percent Reduction:			*10%*	*17%*	

Land Use Activities and Efforts

The City of Evans incorporates land use planning efforts in several of its existing and proposed water efficiency activities in this Plan including:

- ***Master Plans and Other Water-Related Plans*** – through its Comprehensive Plan, MWEP Plan and Drought Management Plan, the City is able to integrate long-term water supply planning, treated water demand forecasting, water efficiency and drought management planning, with its future land use and development plans.
- ***Water-Related Ordinances and Regulations –*** there are various ordinances and regulations selected for implementation in this Plan. The City would like to strengthen its current water-related regulations, such as its water waste ordinance and watering restrictions. Currently, the City implements conservation-oriented tap fees to incentivize developers to reduce outdoor water demand and encourage smaller lots and low water use landscapes. Several proposed new regulations are targeted at reducing outdoor demand through turf restrictions, irrigation system standards, wind/rain sensors for irrigation efficiency, restrictive covenants, and water efficient landscape design. These regulations integrate water demand considerations with the City's approval process for new developments and changes to existing developments.
- ***Water Audits –*** the City is proposing residential and commercial outdoor audits on a voluntary basis to help customers learn how to efficiently water lawns and reduce outdoor demand.

- ***Public Education Activities*** – through its public education activities and electronic communication platforms, Evans is able to provide consistent online information to residents and businesses regarding water and land use educational campaigns and the City's policies.
- ***Property Manager/HOA Education and Training*** – by offering educational training to property managers and HOAs, the City can engage HOA communities to participate in water efficiency measures, such as installing and maintaining low water use landscapes in community areas. This equips property managers with tools to effectively save water in their HOA communities and bridges the gap between policies and management 'on the ground'.

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SECTION 5.0 – IMPLEMENTATION AND MONITORING PLAN

5.1 Implementation Plan

The implementation plan is a guide to develop the selected water efficiency activities. The City Manager will be chiefly responsible for coordinating and delegating tasks to the City Staff and departments. The Public Works, Utility Billing, Engineering, Communication and Parks departments, as well as the City Council, will have roles in guiding and implementing the selected activities in this Plan. For some activities, the City Staff may partner with other organizations offering tools and programs for municipalities, such as Resource Central, the Northern Colorado Water Conservancy District or the City of Greeley.

Evans' proposed implementation plan is presented in *Worksheet J*, **Appendix B**. The City intends to budget for water efficiency activities presented in this Plan and intends to pursue CWCB water efficiency implementation grants to fund activities to meet its goals.

5.2 Monitoring Plan

The monitoring plan guides the City on how to monitor the progression of the implementation plan and determine the success of the stated goals and objectives. This Plan is meant to be adaptive so the City is encouraged to modify the water efficiency activities and the implementation plan as needed. This will lead to a more successful plan over time. The City's monitoring plan includes the following recommended components: data collection, evaluation and communication processes, and documentation.

Water demand data monitoring is beneficial in tracking water savings generated from water efficiency activities. Evans collected total treated water and breaks it down into the four customer categories: residential, commercial, irrigation, and municipal. This data is organized monthly and annually. Non-potable raw water sources are also summarized both monthly and annually by customer category (residential, commercial, municipal). The water demand data to be collected during the monitoring period of this Plan is presented in *Worksheet K* in **Appendix B**. An abbreviated table of *Worksheet K* is presented in **Table 11.**

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Table 11: Selection of Demand Data for Efficiency Plan Monitoring

Monitoring Data	HB 10-1051 Reporting Requirement				Selection			
	Annual	Monthly	Bi-Monthly	Daily	Annual	Monthly	Bi-Monthly	Daily
Total Water Use								
Total treated water produced (metered at WTP discharge)						X		
Total treated water delivered (sum of customer meters)	√					X		
Raw non-potable deliveries						X		
Per capita water use					X			
Non-revenue water	√				X			
Water Use by Customer Type								
Treated water delivered		√				X		
Raw non-potable deliveries						X		
Residential per capita water use					X			
Unit water use (e.g. AF/account or AF/irrigated acre)					X			
Other Demand Related Data								
Drought index information						X		
Population					X			
New taps						X		

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SECTION 6.0 – ADOPTION OF NEW POLICY, PUBLIC REVIEW, AND FORMAL APPROVAL

6.1 Public Review Process

State-approved plans require a public review process. The public review process gathers the local community's opinions to improve the Plan and make it applicable to the City and its citizen's values. A 60-day public review process was carried out from [date] to [date]. The public notification was placed in the [newspaper] and included instructions on how to review the Plan and submit comments. The Plan was also available electronically for download on Evans' website on the [page] webpages. A hard copy was available at the City Hall for review by citizens. [Number] public comments were received during the 60-day comment period. [Discuss comments/changes to plan]. Copies of the public notice announcement, and the official Plan adoption resolution are provided in **Appendix E**.

6.2 Local Adoption and State Approval Process

After the public review process, the Plan must be formally adopted by the local governing entity. The Evans' City Council formally approved and adopted the Plan at the meeting held on [date]. A copy of the Plan was then submitted to the CWCB for formal Plan approval.

The CWCB approved the plan with [no or minor additions] in a letter dated [date]. The cover letter prepared for CWCB, CWCB's Approval Checklist, and CWCB's formal approval letter are included in **Appendix F**. Implementation of the selected water efficiency activities in this Plan will likely begin in late 2020.

6.3 Periodic Review and Update

Water efficiency planning is the most successful in creating long-term water savings when the planning efforts are reevaluated often instead of a "one-time" planning process to allow the planning to adapt to changes in the City. MWEPs are required to include the steps necessary to review and revise the Plan over time. Evans will periodically review and update this Plan with the following three steps:

1. *Assign a department or staff member responsible for taking the lead in initiating a Plan Update.* The City Manager will be the responsible party for this task.
2. *Outline the process of how monitoring results will be incorporated into Plan Updates*. Results collected through Evans' monitoring plan process will be evaluated and incorporated in future Plan Updates. This will be completed by summarizing and comparing monthly and annual data including, but not limited to, total treated water use, treated water use by

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customer category, and per-capita water use. Water use trends and other information discovered through this process, including community feedback, will guide the City's future planned activities and decision-making. The implemented water efficiency activities will be described in future Plan Updates. Any documented changes to the Plan may also be noted.

3. *Complete the next required Plan Update, not to exceed seven years from the date of this Plan.* The City's next update is scheduled to be completed in 2025.

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APPENDIX A

Definition of Terms

DEFINITION OF TERMS & TERMINOLOGY

This section provides an overview of many acronyms, terms, and terminology that are commonly used in water efficiency and water planning. Some additional terms are included that are common in this geographical area. Please note that this is not a comprehensive list of all terms and definitions. Other important terminology is reserved for discussion within the document. Not all of the following terms are used within the main body of this document.

AF:	Acre-foot: The amount of water it would take to cover one acre of land to a depth of one foot; approximately 325,851 gallons.
AMI:	AMI stands for Advanced Metering Infrastructure. AMI meters, also known as Smart meters are updated, digital versions of the traditional electrical meter attached to the outside of a home or business. These new meters not only measure how much water (electrical and other meters are also common) is used, but also at what times during the day. More advanced Smart meters are also designed to transmit pricing and water information from the utility company to the consumer (two-way communication). Utility companies who provide their customers with Smart meters are able to implement a variety of water reduction and saving programs, helping reduce the cost of providing water to a community.
AMR:	AMR stands for Automatic Meter Reading. It is an older technology that only collects electrical energy consumption and transfers that data from the electric meter on the home to the utility (one-way communication). Typically AMR meters are a “drive-by” type that require the utility to be in close proximity in order to read the meter. Also see AMI.
Average Day Demand:	Average daily treatment plant production divided by the total tap equivalents served.
BMP:	Best Management Practice
Build-out:	Theoretical maximum development of city, City, district, or service area.
C-BT:	Colorado Big Thompson Project. Trans-mountain diversion project managed by Northern Water.

C-BT Quota:	The percentage set by the Northern Board of Directors each water year which determines the amount of ac-ft per unit of C-BT, i.e. 70% quota equals 0.7 ac-ft per C-BT unit.
CWCB:	Colorado Water Conservation Board
Demand management:	The implementation of water efficiency activities to reduce water deliveries (demands) and or improve efficiencies within the distribution system. For purposes of this document, demand management refers to both system and customer water demands. Demand management is used interchangeably with water efficiency.
Demand-side:	The distribution and consumption of treated water supplies for domestic purposes or the delivery and use of reclaimed water or untreated raw (i.e. ditch water, groundwater) for non-potable purposes such as irrigation or industrial processes.
Dual water supply systems:	Water supply systems that use a combination of treated water to meet potable water needs and reclaimed water and/or non-treated water (i.e. untreated ditch water and groundwater) to meet non-potable water needs.
ET:	Evapotranspiration: The rate at which water is removed from the soil by evaporation and from plant surfaces by transpiration.
ET Controllers:	Evapotranspiration controllers adjust the amount of water applied from sprinkler systems based on soil moisture and weather conditions.
GMA:	Growth Management Area
GPCD:	Gallons per capita per day: A measure of efficiency to determine the approximate amount of water that each resident within an area utilizes each day.
Maximum Day:	The largest amount of water used in a single day.
MG:	Million gallons
MGD:	Million gallons per day
MWEP:	Municipal Water Efficiency Plan
NCWCD:	Northern Colorado Water Conservancy District. Also referred to as Northern Water (see Northern Water).

NISP:	Northern Integrated Supply Project (see Northern Water)
Non-Potable Use:	Water that is not treated and used for irrigation or other uses.
Non-revenue water:	Annual non-revenue water (previously referred to as unaccounted for water) consists of unbilled authorized uses (i.e. hydrant flushing), apparent losses, and real losses. Real losses consist of leaks in the water distribution system that does not reach the end user. Apparent losses consist of unauthorized consumption, customer metering inaccuracies, and data handling errors.
Northern Water:	Northern Colorado Water Conservancy District (NCWCD). Manages the C-BT Project water for its customers. Other projects include Windy Gap and NISP.
Peak Hour:	The largest amount of water used in a single hour – typically occurs on the Maximum Day.
Phreatophytes:	Species of plants and trees that consume groundwater through their root zones below the water table such as Cottonwood and Russian Olive trees.
Potable Use (Treated Water Use):	Water that is treated to drinking water standards for municipal use, including residential and commercial use.
ReCen:	Resource Central: ReCen offers multiple programs including "Garden in a Box", "Slow the Flow", "Toilet Upgrades", and more. ReCen is a non-profit organization that offers many programs that can assist communities with conservation efforts. One benefit for water providers is the ReCen helps to greatly reduce planning efforts, startup costs, and labor that can be associated with getting efficiency activities up and running. ReCen has the programs already set up and in place, so the City will know exactly what the upfront costs will be. Additionally, ReCen hires and trains local technicians to provide the various services they offer, another value added component of ReCen programs.
SFE:	Single Family Equivalent, unit of measure used in planning to adjust water use for multi-family dwellings, such as City homes or condominiums, to a single residential equivalent.
Supply-side:	Water supply operations and facilities that include the diversion, extraction, storage, and transmission of untreated water.
SWSI:	Statewide Water Supply Initiative

System water demand:	Volume of water necessary to meet customer water needs within a certain period of time. System water demand is typically measured at the point of discharge from the water treatment plant and includes non-revenue water. In dual water supply systems, system water demand may also include the distribution and delivery of non-potable water (i.e.: reclaimed water and untreated ditch and groundwater) to meet irrigation needs.
TE:	Tap Equivalent, unit of measure often used by providers to adjust water use for larger taps such as multi-family or commercial, to a single residential tap equivalent. A typical single residential tap is either ⅝" or ¾".
Water efficiency:	Water efficiency includes the practices, techniques, and technologies that extend water supplies either directly through water savings or through substituting alternative supplies such as reuse. For purposes of this document, water efficiency is inclusive of water conservation and is used instead of "water conservation." The term water efficiency captures the essential objective of a local plan which is to improve the efficiency of a municipal demand and water supply system. Water efficiency includes both system demands and customer water demands. *Note: CWCB's former 2005 Water Conservation Plan Development Guidance Document and other literature on conservation and water use efficiency distinguish supply-side and demand-side water use efficiency. These resources generally characterize demand-side as technical efficiencies (e.g. water efficient toilets) and behaviors (e.g. taking shorter showers) that save water at the end use/water user level. Supply-side refers to water efficiency at the system level such as the repair of pipeline leaks and water reuse. For purposes of this Plan, the distinction between these water efficiency encompasses both supply and demand side efficiencies.*
Water efficiency activities:	Traditionally water efficiency activities have been referred to as water conservation measures and or water conservation programs. For purposes of this document, measures and programs are replaced with water efficiency activities. Water efficiency activities encompass all efforts to either save water or improve efficiencies within a water supply system.
WCP:	Water Conservation Plan. CWCB's previous designation for (Municipal) Water Efficiency Plans.
Wind and Rain Sensor:	A device that is connected to the irrigation system controller that will temporarily shut off irrigation when a pre-determined amount of rain or wind is detected.

WTP:	Water treatment plant
WWTP:	Wastewater treatment plant

APPENDIX B

Municipal Water Efficiency Plan Guidance Document Worksheets

WORKSHEET A - WATER SUPPLY LIMITATIONS AND FUTURE NEEDS

Limitation and/or Future Need [1]	[2] Yes	[2] No	Comments on Limitation or Future Need [3]	How is Limitation or Future Need Being Addressed [4]
System is in a designated critical water supply shortage area	X		SWSI 2010 identified a 58% supply gap in South Platte Basin by 2050.	Water Efficiency Plan is being developed and activities are being investigated and planned.
System experiences frequent water supply shortages and/or emergencies		X	None.	
System has substantial non-revenue water		X	Averaged 9% Non-Revenue Water (2012 - 2018).	
Experiencing high rates of population and demand growth	X		Population increased by about 16% from 2012 to 2018. City anticipates future growth of 2% in next five years as there are general population increases along the Front Range.	Water Efficiency Plan is being developed and activities are being investigated and planned. Proactively partnering with Greeley on water efficiency activities.
Planning substantial improvements or additions	X		City's agreement with Greeley for water treatment has a water cap; once the cap is exceeded, the City must pay an additional 'system development charge'. The cap was exceeded most recently in 2012.	Water Efficiency Plan is being developed and activities are being investigated and planned.
Increases to wastewater system capacity anticipated		X	None. Wastewater system recently upgraded.	
Need additional drought reserves	X		City is interested in developing water storage tanks.	City exploring water storage tank options.
Drinking water quality issues		X	None.	
Aging infrastructure in need of repair	X		Aging mains and pipes may need repair.	Exploring proactive leak detection/repair program.
Issues with water pressure in portions of distribution system	X		Yes.	City addressing by updating its water model/field investigations to improve pressure.

Instructions:
[1] This column provides a list of limitations/future needs related to planning and operating the water supply system.
[2] Enter an "X" to show whether or not the system exhibits the limitations/future needs.
[3] Include any comments regarding the limitations/future needs that may be useful to consider in the planning process.
[4] If applicable, include how the limitation/future need is being addressed.

WORKSHEET D - IDENTIFICATION AND SCREENING OF FOUNDATIONAL ACTIVITIES

Water Efficiency Activities for Screening [1]	State Statute Requirement [2]	Identification: Existing/ Potential Activity [3]	Identification: Targeted Customer Category [4]	Carry to Evaluation [5]	Reason for Elimination or Other Notes [6]
Metering (BP1)	V, VII				
Automatic Meter Reading Installation and Operations	V, VII				Advanced Metering Infrastructure installed instead.
Advanced Metering Infrastructure Installation and Operations		E	All Categories	X	
Submetering for Large Users (Indoor and Outdoor)	V				Not a significant number of large water users to warrant submetering.
Meter Testing and Replacement	V	E	All Categories	X	Included as part of Advanced Metering Infrastructure.
Meter Upgrades	V	E	All Categories	X	
Identify Unmetered/Unbilled Treated Water Uses	V	E	Non-Revenue	X	
Water Reuse System		E	All Categories	X	
Data Collection - Monitoring and Verification (BP2)					
Frequency of Meter Reading	VII	E	All Categories	X	
Tracking Water Use by Customer Type	VII	E	All Categories	X	
Upgrade Billing System to Track Use by Sufficient Customer Types	VII	E	All Categories	X	
Tracking Water Use for Large Customers	VII				Not a significant number of large water users to warrant submetering.
Area of Irrigated Lands in Service Area (e.g. acres)					Challenging to determine and not a priority for the City to use staff time.
Water Use Efficiency Oriented Rates and Tap Fees (BP1)	VII, VIII				
Volumetric Billing	VII, VIII	E	Residential, Commercial, Irrigation	X	
Water Rate Adjustments	VII, VIII	E		X	
Frequency of Billing	VII	E		X	
Inclining/Tiered Rates	VII, VIII	E		X	
Water Budgets	VII, VIII	E		X	
Tap Fees with Water Use Efficiency Incentives	VII, VIII	E	Residential, Commercial	X	
System Water Loss Management and Control (BP3)	V				
System Wide Water Audits	V	P	Non-Revenue	X	
Control of Apparent Losses (with Metering)	V	E		X	
Leak Detection and Repair	V	P		X	
Water Line Replacement Program	V	P		X	
Planning (BP2)					
Integrated Water Resources Plans		P	All Categories	X	
Master Plans/Water Supply Plans		E	All Categories	X	
Capital Improvement Plans					Not a priority for the City currently; focus is on other planning efforts.
Feasibility Studies					Not a priority for the City currently; focus is on other planning efforts.
Drought Management Plan		E	All Categories	X	
Water Rate Study		E	All Categories	X	
Staff (BP4)					
Water Conservation Coordinator		E/P	All Categories	X	
Integration of Land Use Efforts	IV(f)(i)				
Establish Regular Contact and Information Sharing					Not a priority for the City currently; focus is on other planning efforts.
Align Data and Information Used					
Establish Coordinated Procedures for Post-Occupancy Monitoring and Enforcement					
Integrate Water Considerations into the Development Approval Process		E/P	Residential, Commercial	X	Included as part of various activities including: Tap Fees with Water Use Efficiency Incentives, Restrict High Water Use Turf on Medians and in Parking Lot Plantings, Irrigation System Standards for New Developments, 10% Lot Restriction, Requiring Wind and/or Rain Sensors for Business and Open Space Irrigation, Restrictive Covenants Ordinance, and Landscape Design Ordinances and Restrictions.
Integrate Long Term Land Use and Water Planning		E	All Categories	X	Included as part of the Water Resources/Master Plans activity.

Instructions:
[1] This column provides a list of possible activities & identifies the Best Practice activity as defined in the Colorado WaterWise Guidebook of Best Practices (BP) for Municipal Water Conservation in Colorado. List additional activities identified through the planning process.
[2] This column identifies, by roman numeral, the elements that correspond with the best practices and that shall be fully considered in the planning process per Colorado State Statute 37-60-126.
[3] Specify whether the activity is "Existing" or a "Potential" activity to carry through screening by entering an "E" or "P", respectively.
[4] As applicable, specify which customer category (residential, commercial, etc.) is/would be impacted by the activity.
[5] Based on the screening process, indicate which activities will be carried to the evaluation phase with an "X".
[6] If eliminated via screening, comment on why.

WORKSHEET E - IDENTIFICATION AND SCREENING OF TARGETED TECHNICAL ASSISTANCE INCENTIVES

Water Efficiency Activities for Screening [1]	State Statute Requirement [2]	Identification: Existing/ Potential Activity [3]	SWSI Framework Levels [4]: Level 1 Municipal Uses	Level 2 Customers with the Largest Water Use	Level 3 Customer Type(s) in Service Area	Targeted Customer Category [5]	Carry to Evaluation [6]	Reason for Elimination or Other Notes [7]
Installation of Water Efficient Fixtures and Appliances	I							
Indoor Audits		P			X	Residential	X	Included as Slow the Flow Residential Indoor Audits.
Toilet Retrofits		P			X	Residential, Commercial	X	Included as Rebates and Retrofit Program - Indoor (Toilet, Washing Machines, Showerhead and Faucet).
Urinal Retrofits								Not a priority for the City. May be limited benefit from water savings.
Showerhead Retrofits		P			X	Residential, Commercial	X	Included as Rebates and Retrofit Program - Indoor (Toilet, Washing Machines, Showerhead and Faucet).
Faucet Retrofits (e.g. aerator installation)		P			X		X	
Water Efficient Washing Machines		P			X		X	
Water Efficient Dishwashers		P			X		X	Not a priority for the City. Focus is on other retrofits/rebates.
Efficient Swamp Cooler and Air Conditioning Use								
Low Water Use Landscapes	II							
Drought Resistant Vegetation		P			X	Residential	X	Included as Xeriscape Incentives/Turf Replacement Programs - Garden in a Box and other ordinances/regulations explored by the City.
Removal of Phreatophytes								Not a priority for the City and no major phreatophytes identified.
Irrigation Efficiency Evaluations/Outdoor Water Audits	II	P			X	Residential, Commercial	X	Included as Slow the Flow Residential Irrigation Audits and Slow the Flow Commercial Irrigation Audits.
Outdoor Irrigation Controllers	II	P			X	Residential, Irrigation	X	Included as Rebates and Retrofit Program - Outdoor (Wind/Rain Sensors, Efficient Irrigation Equipment).
Irrigation Scheduling/Timing		P			X	All Customers	X	Included as and educational activity instead as Post or Distribute ET Irrigation Scheduling.
Rain Sensors	II	P			X	Residential, Irrigation	X	Included as Rebates and Retrofit Program - Outdoor (Wind/Rain Sensors, Efficient Irrigation Equipment).
Residential Outdoor Meter Installations								Not a priority for the City.
Xeriscape		P			X	Residential	X	Included as Xeriscape Incentives/Turf Replacement Programs - Garden in a Box and other ordinances/regulations explored by the City.
Other Low Water Use Landscapes	II	P			X		X	
Irrigation Equipment Retrofits		P			X	Residential, Irrigation	X	Included as Rebates and Retrofit Program - Outdoor (Wind/Rain Sensors, Efficient Irrigation Equipment).
Water- Efficient Industrial and Commercial Water-Using Processes	III							
Specialized Nonresidential Surveys, Audits and Equipment Efficiency Improvements								More activities are focused on residential use as this is the largest use in the City.
Commercial Indoor Fixture and Appliance Rebates/Retrofits		P			X	Commercial	X	Included as Distribute Pre-Rinse Spray Heads to Restaurants and Institutions.
Cooling Equipment Efficiency								Not a significant number of customers.
Restaurant equipment								Focus is on Distribute Pre-Rinse Spray Heads to Restaurants and Institutions.
Incentives	X							
Toilet Rebates		P			X	Residential, Commercial	X	Included as Rebates and Retrofit Program - Indoor (Toilet, Washing Machines, Showerhead and Faucet).
Urinal Rebates								Not a priority for the City. May be limited benefit from water savings.
Showerhead Rebates		P			X	Residential, Commercial	X	Included as Rebates and Retrofit Program - Indoor (Toilet, Washing Machines, Showerhead and Faucet).
Water Efficient Faucet or Aerator Rebates		P			X		X	
Water Efficient Washing Machine Rebates		P			X		X	
Water Efficient Dishwasher Rebates								Not a priority for the City. Focus is on other retrofits/rebates.
Efficient Irrigation Equipment Rebates		P			X	Residential, Irrigation	X	Included as Rebates and Retrofit Program - Outdoor (Wind/Rain Sensors, Efficient Irrigation Equipment).
Landscape Water Budgets Information and Customer Feedback								Not a priority for the City.
Turf Replacement Programs/Xeriscape Incentives	X	P			X	Residential	X	Included as Xeriscape Incentives/Turf Replacement Programs - Garden in a Box and other ordinances/regulations explored by the City.
Give-always	X	P			X	Residential	X	Included as Giveaways - Residential Water Audit Kits.
Integration of Land Use Efforts	IV(f)(i)							
Developer Incentives to Reduce Water Demand		E			X	Residential, Commercial	X	Included as Tap Fees with Water Use Efficiency Incentives.
Conservation-Oriented Tap Fees		E			X		X	
Water Efficient Land Development Patterns								City staff time and budget restraints. City may explore these in the future.
Model Landscape Plans								
Incentives for Reduced Irrigation								Focus is on ordinances/regulations regarding reduced irrigated area and low water use landscapes instead of incentives.
Water-Smart Home Options								City staff time and budget restraints.
Become a WaterSense Partner								City may explore this activity in future Plans.
Low Water Use Demonstration Homes								City staff time and budget restraints. Activity may require a significant amount of upkeep.
Water Audits		P			X	Residential, Commercial	X	Included as Slow the Flow Residential Indoor/Outdoor Audits and Commercial Outdoor Audits. Focus is on residential/commercial voluntary audits.
Rainwater Reuse								Not a priority for the City. Focus is on other incentives.

Instructions:

[1] This column provides a list of activities & if applicable, identifies the Best Practice activity as defined under *Colorado WaterWise Guidebook of Best Practices (BP) for Municipal Water Conservation in Colorado*. List additional activities identified through the planning process.
[2] This column identifies, by roman numeral, the elements that correspond with the best practices and that shall be fully considered in the planning process per Colorado State Statute 37-60-126.
[3] Specify whether the activity is an "Existing" or "Potential" activity to carry through screening by entering an "E" or "P", respectively.
[4] Specify which level the historical/potential activities fall under by entering an "X" in the appropriate column.
[5] As applicable, specify which customer category (residential, commercial, etc.) is/would be impacted by the activity.
[6] Based on the screening process, indicate which activities will be carried on the evaluation phase with an "X".
[7] If eliminated via screening, comment on why.

WORKSHEET F - IDENTIFICATION AND SCREENING OF ORDINANCES AND REGULATIONS

Water Efficiency Activities for Screening [1]	State Statute Requirement [2]	Identification						Carry to Evaluation [6]	Reason for Elimination or Other Notes [7]
		Existing/ Potential Activity [3]	SWSI Framework Levels [4]				Targeted Customer Category [5]		
			Level 1 Customer Type(s) within the Existing Service Area	Level 2 New Development	Level 3 Point of Sales on Existing Building Stock				
General Water Use Regulations	IX								
Water Waste Ordinance (BP 5)	IX	E	X	X	X		All Customers	X	
Time of Day Watering Restriction	IX	E	X	X	X		All Customers	X	
Day of Week Watering Restriction	IX	E	X	X	X		All Customers	X	
Water Overspray Limitations									Focus is on strengthening existing water use regulations.
Landscape Design/Installation Rules and Regulations	IX								
Rules and Regulations for Landscape Design/Installation (BP 9)	IX	E	X	X			All Customers	X	Included as Landscape Design Ordinances and Restrictions, Irrigation System Standards for New Developments and Restrictive Covenants Ordinance
Landscaper Training and Certification (BP 8)									Not a priority for the City.
Irrigation System Installer Training and Certification (BP 8)									
Soil Amendment Requirements (BP 9)	IX	E		X			All Customers	X	Included as Irrigation System Standards for New Developments.
Turf Restrictions (BP 9)	IX	P		X			All Customers	X	Included in 10% Lot Restriction, Restrict High Water Use Turf on Medians and in Parking Lot Plantings, and Irrigation System Standards for New Developments.
Irrigation Equipment Requirements	IX	P	X	X			All Customers	X	Included as Requiring Wind and/or Rain Sensors for Business and Open Space Irrigation an Irrigation System Standards for New Developments.
Outdoor Water Audits/Irrigation Efficiency Regulations (BP 10)									Focus is on voluntary audits.
Outdoor Green Building Construction (BP 8,9)									Not a priority for the City.
Indoor and Commercial Regulations	IX								
High Efficiency Fixture and Appliance Replacement (BP 12)									Focus is on voluntary programs for indoor uses and audits.
Commercial Cooling and Process Water Requirements (BP 14)									
Green Building Construction (BP 12)									
Indoor Plumbing Requirements (BP 12)									
City Facility Requirements (BP 12)	IX								
Required Indoor Residential Audits (BP 13)									
Required Indoor Commercial Audits (BP 14)									
Commercial WaterWise Use Regulations (Car Washes, Restaurants, etc.)	IX	E/P		X			Commercial	X	Included as New Car Wash Standards (New Construction).
Integration of Land Use Efforts	IV(f)(i)								
Examine Existing Land Use Regulations for Barriers and Conflicts									City staff time and resources limited.
Adopt or Strengthen Water-Related Ordinances or Regulations		P	X	X	X		All Customers	X	City interested in strengthening existing ordinances/regulations. This activity is included in various ordinances/regulations.
Water Conservation in New Development, Re-Development, and Annexation		P		X	X		All Customers	X	Included in Landscape Design Ordinances and Restrictions.
Incorporate Water Efficiency into Zoning Codes and Rezoning Procedures									Not a priority for the City at this time but may be evaluated in future Plans.
Subdivision or Site Plan Regulations that Include Water Conservation									
Implement Requirements that Contribute to Water Efficiency and Compact Infrastructure		P		X	X		All Customers	X	Included in Landscape Design Ordinances and Restrictions.
Water Efficient Landscape Code									Not a priority for the City at this time. May reevaluate in future planning efforts.
Building and Plumbing Codes									
Ordinances Promoting Efficient Fixtures in Existing Buildings									
Regional Coordination of Water Policy and Procedures									

Instructions:
[1] This column provides a list of possible activities & if applicable identifies the Best Practice activity as defined under Colorado WaterWise Guidebook of Best Practices (BP) for Municipal Water Conservation in Colorado. List additional activities identified through the planning process.
[2] This column identifies, by roman numeral, the elements that correspond with the best practices and that shall be fully considered in the planning process per Colorado State Statute 37-60-126.
[3] Specify whether the activity is an "Existing" or "Potential" activity to carry through screening by entering an "E" or "P", respectively.
[4] For current/historical activities, specify which level the activities fall under by entering an "X" in the appropriate column.
[5] As applicable, specify which customer category (residential, commercial, etc.) is/would be impacted by the activity.
[6] Based on the screening process, indicate which activities will be carried to the evaluation phase with an "X".
[7] If eliminated via screening, comment on why.

WORKSHEET G - IDENTIFICATION AND SCREENING OF EDUCATION ACTIVITIES

Water Efficiency Activities for Screening [1]	State Statute Requirement [2]	Identification					Carry to Evaluation [6]	Reason for Elimination or Other Notes [7]
		Existing/ Potential Activity [3]	SWSI Framework Levels [4]			Targeted Customer Category [5]		
			Level 1 One-Way	Level 2 One-Way with Feedback	Level 3 Two-way communication			
Customer Education (BP6)	VI							
Bill Stuffers	VI	E	X			All Customers	X	Included as Public Education Activities.
Newsletter		P	X			All Customers	X	
Newspaper Articles	VI							City focus is on electronic mediums such as social media and webpages.
Mass Mailings								
Web Pages	VI	E	X			All Customers	X	
Water Fairs	VI	E		X		Residential	X	
K-12 Teacher and Classroom Education Programs		P		X		Residential	X	
Message Development/Campaign	VI	P		X		All Customers	X	Included as Public Education Activities.
Interactive Websites	VI	P		X		All Customers	X	
Social Networking (e.g. Facebook)	VI	E		X		All Customers	X	
Customer Surveys								City staff and resources limited. Focus on Citizen Advisory Boards instead.
Focus Groups								
Citizen Advisory Boards		P			X	Residential, Commercial	X	
Technical Assistance	VI							
Customer Water Use Workshops								City staff and resources limited. Focus on Property Management/HOA Irrigation Education Training instead.
Landscape Design and Maintenance Workshops								
Property Management/HOA Irrigation Education Training		P		X		Commercial, Irrigation	X	
Xeriscape Demonstration Garden	VI	P	X			Residential, Commercial	X	
Water Conservation Expert Available								City staff and resources limited. Focus on Designated Water Conservation Coordinator instead. The City could make the Coordinator available for public inquiries.
Post or Distribute ET Irrigation Scheduling		P	X			All Customers	X	
Integration of Land Use Efforts	IV(f)(i)							
Consistent Online Information		E/P		X		All Customers	X	Included as part of Social Networking and Interactive Websites activities (combined in Public Education Activities).
Water Provider and Planning Department Work Together to Educate the Public								Not a priority for the City but may be evaluated further in the future.
Lead by Example								Not a priority for the City but may be evaluated further in the future, such as upgrading City building indoor fixtures to high-efficiency models.
Jointly Engage with the Development Community and HOAs		P			X	Commercial, Irrigation	X	Included as Property Management/HOA Irrigation Education Training.
Share Success Stories and Case Studies with Other Communities and the Public								Focus is on other educational activities. Stories may be shared through these mediums in the future.
Coordinate Education and Outreach Across the Region								City staff and resources limited.

Instructions:
[1] This column provides a list of possible activities & if applicable identifies the Best Practice activity as defined under Colorado WaterWise Guidebook of Best Practices (BP) for Municipal Water Conservation in Colorado. List additional activities identified through the planning process.
[2] This column identifies, by roman numeral, the elements that correspond with the best practices and that shall be fully considered in the planning process per Colorado State Statute 37-60-126.
[3] Specify whether the activity is an "Existing" or "Potential" activity to carry through screening by entering an "E" or "P", respectively.
[4] For current/historical activities, specify which level the activities fall under by entering an "X" in the appropriate column.
[5] As applicable, specify which customer category (residential, commercial, etc.) is/would be impacted by the activity.
[6] Based on the screening process, indicate which activities will be carried to the evaluation phase with an "X".
[7] If eliminated via screening, comment on why.

WORKSHEET J - IMPLEMENTATION PLAN

Selected Water Efficiency Activities [1]	Period of Implementation [2]	Implementation Actions [3]	Entity/Staff Responsible for Implementation [4]	Coordination and Public Involvement [5]
Foundational Activities				
System Wide Water Audits	1-3 Years	Take IWA/AWWA Water Audit Method training program through Colorado WaterWise and download software.	Public Works, Data Collection, Data Logging	
Advanced Metering Infrastructure Installation and Operations	Ongoing	Continue upgrading meters as needed.	Utility Billing, Public Works	
Water Rate Study - Water Efficient Rate Structure with Regular Updates	Ongoing	Develop a request for proposal and contract a consultant to complete or complete study internally and adjust rates accordingly each year.	Public Works, City Council, Utility Billing	Update water rates and notify public.
Water Reuse System	Ongoing	Continue existing activity.	Public Works	
Tap Fees with Water Use Efficiency Incentives (Lot-based water dedication)	Ongoing	Continue existing activity.	Public Works	
Leak Detection and Repair Program	1-3 Years	Request quote from consultant and schedule leak detection; budget for repairs.	Public Works	
Master Plans/Water Supply Plans/Integrated Water Resource Plans	Ongoing	Continue periodic updates to existing plans and develop new plans as needed.	Engineering	
Drought Management Plan	Ongoing	Continue existing activity.	Engineering	Notify the public when the drought procedures are in effect.
General Monitoring and Verification Activities and General Water Rates and Billing	Ongoing	Continue existing activity.	Engineering	
Water Conservation Coordinator	Ongoing	Hire a new Water Conservation Coordinator.	Public Works	
Targeted Technical Assistance and Incentives				
Slow the Flow Residential Indoor Audits	1-3 Years	Contact ReCen to set up program.	Public Works	Advertise program to residents.
Slow the Flow Residential Irrigation Audits	1-3 Years	Contact ReCen to set up program.	Public Works	Advertise program to residents.
Slow the Flow Commercial Irrigation Audits	1-3 Years	Contact ReCen to set up program.	Public Works	Advertise program to businesses.
Rebates and Retrofit Program - Indoor (Toilet, Washing Machines, Showerhead and Faucet)	1-3 Years	Set up rebate/retrofit program. Research similar programs by other cities/towns.	Public Works	Advertise program to residents/businesses.
Rebates and Retrofit Program - Outdoor (Wind/Rain Sensors, Efficient Irrigation Equipment)	1-3 Years	Set up rebate/retrofit program. Research similar programs by other cities/towns.	Public Works	Advertise program to residents/HOAs.
Giveaways - Residential Water Audit Kits	1-3 Years	Request quote from AM Conservation Group or other kit provider.	Public Works	Provide an information/giveaway booth at community events.
Xeriscape Incentives/Turf Replacement Programs - Garden in a Box	1-3 Years	Contact ReCen to set up program.	Public Works	Advertise program to residents.
Distribute Pre-Rinse Spray Heads to Restaurants and Institutions	1-3 Years	Set up rebate/retrofit program. Research similar programs by other cities/towns.	Public Works	Advertise program to businesses.
Ordinances and Regulations				
Restrict High Water Use Turf on Medians and in Parking Lot Plantings	1-3 Years	Develop potential ordinance/regulation and propose to City Council.	Planning	Notify the public of ordinances/regulations.
Weekly and Time of Day Outdoor Watering Restrictions	Ongoing	Continue existing activity. Strengthen enforcement.	Public Works	
Water Waste Ordinance	Ongoing	Continue existing activity. Strengthen enforcement.	Public Works	
Irrigation System Standards for New Developments	1-3 Years	Develop potential ordinance/regulation and propose to City Council.	Planning	
10% Lot Restriction	1-3 Years		Planning	
Requiring Wind and/or Rain Sensors for Business and Open Space Irrigation	1-3 Years		Planning	
Restrictive Covenants Ordinance	1-3 Years		Planning	
New Car Wash Standards (New Construction)	1-3 Years	Continue existing activity.	Planning	
Landscape Design Ordinances and Restrictions	Ongoing; 1-3 Years	Continue existing activities and develop new ordinances/regulations.	Planning	
Education Activities				
Public Education (Newsletter, Webpage, Interactive Website, Social Media, etc.)	1-3 Years	Continue existing activites; develop new activities and campaigns. Look into partnering with Colorado WaterWise, Northern Water or other organizations for educational campaigns.	Communications	Provide easily accessible water conservation information to citizens.
Children's Water Fair or Festival	1-3 Years	Continue existing activity.	Public Works	
Post or Distribute ET Irrigation Scheduling	1-3 Years	Determine distribution method (bill links, social media, etc.); Research Northern Water's ET Irrigation Scheduler.	Communications, Public Works	Notify public of the schedule.
K-12 Teacher and Classroom Education Programs	4-7 Years	Contact school representatives to organize; Develop education program; Research existing program resources.	Communications	
Property Management/HOA Irrigation Education Training	1-3 Years	Develop a training program.	Parks	Notify HOAs of training.
Citizen Advisory Boards	1-3 Years	Develop advisory board program.	Public Works	
Xeriscape Demonstration Garden	1-3 Years	Develop a garden plan (contact Northern Water, Denver Botanic Gardens, ReCen or CSU for help in design); Contact local organizations to volunteer in planting and upkeep.	Parks	Contact listed organizations for partnering opportunities; Notify public of gardens.

Instructions:
[1] Provide the list of water efficiency activities selected for implementation during Step 4.
[2] Provide period in which activity is going to be implemented.
[3] Include information on specific actions necessary to implement the activities (e.g. advertise rebates to public).
[4] Specify which entity/staff responsible for implementing the activities.
[5] If applicable, comment on necessary coordination among staff/other entities and how the public will be involved. This includes educational campaigns, feedback, direct participation in certain actions, etc.

WORKSHEET K - SELECTION OF MONITORING DEMAND DATA FOR MONITORING PLAN

Monitoring Data [1]	HB 10-1051 Reporting Requirement [2]				Selection [3]				Entity/Staff Responsible for Data Collection and Evaluation [4]	Comments [5]
	Annual	Monthly	Bi-Monthly	Daily	Annual	Monthly	Bi-Monthly	Daily		
Total Water Use										
Total treated water produced (metered at Master Meters from WTP)						X			Utility Billing, Engineering	Data provided by Greeley.
Total treated water delivered (sum of customer meters)	√					X			Utility Billing, Engineering	Data from billing software compiled by staff.
Raw non-potable deliveries						X			Utility Billing, Engineering	Data from billing software compiled by staff.
Reclaimed water produced (metered at WWTP discharge)										
Reclaimed water delivered (sum of customer meters)										
Per capita water use					X				Planning, Engineering	Calculation based on the total water use and the population.
Indoor and outdoor treated water deliveries										
Treated water peak day produced										
Reclaimed water peak day produced										
Raw water peak day produced/delivered										
Non-revenue water	√				X				Utility Billing, Engineering	Calculation based on the total treated water from Greeley's WTP less the total water use by Evans' customer categories (billable and non-billable tracked water use).
Water Use by Customer Type										
Treated water delivered		√				X			Utility Billing, Engineering	Data from billing software compiled by staff.
Raw non-potable deliveries						X			Utility Billing, Engineering	Data from billing software compiled by staff.
Reclaimed water delivered										
Residential per capita water use					X				Planning, Engineering	Calculation based on the residential billed water and the population.
Unit water use (e.g. AF/account or AF/irrigated acre)					X				Utility Billing, Engineering	Estimated based on the billed water by customer category and the number of taps.
Indoor and outdoor treated water deliveries										
Large users										
Other Demand Related Data										
Irrigated landscape (e.g. AF/acre or number of irrigated acres)										
Precipitation										
Temperature										
Evapotranspiration										
Drought index information						X			Engineering	Staff track drought conditions through the Drought Management Plan processes.
Economic conditions										
Population					X				Planning	Based on State Demography Office estimates and/or internal estimates from the City's planning efforts.
New taps						X			Utility Billing	Staff track all water accounts.

Instructions:
[1] This worksheets provides a list of possible demand data. Add additional demand data provider would like to monitor.
[2] Specifies annual reporting requirements per HB 10-1051.
[3] Select demand data provider plans to use to monitor effectiveness of water efficiency activities by inserting an "X" in appropriate boxes.
[4] Specify staff/entity responsible for data collection and evaluation.
[5] Add any additional comments.

APPENDIX C

Additional Tables

Table C1: Water Efficiency Activity Evaluation

Water Efficiency Activities for Evaluation	Existing/ Potential Activity	Targeted Customer Category *(Treated Water)*	Targeted Customer Category *(Non-Potable)*	Review of Qualitative Screening – Qualitative Goals: *Benefit in Water Savings*	*Low Financial Implications*	*Staff Approval and Availability*	*Partnership Possibility*	*Board and Public Approval*	*Existing or Planned Project*	*Overlap of Criteria*	Evaluation – Projected Water Savings: Total Water Savings over the Planning Period (MG)	Total Water Savings over the Planning Period (AF)	Average Annual Water Savings (MG/yr)	Average Annual Water Savings (AF/yr)	Cost per 1,000 gal saved	Projected Implemen-tation Costs over Planning Period Including Lost Revenue	Quantitative Goals: *Helps to Achieve Overall Savings Goals*	*Low Cost w/ Significant Water Savings*	*Beneficial to Community*	Final Selection: Selected for Implemen-tation
Foundational Activities																				
System Wide Water Audits	P	Non-Revenue	-	X	X	X		X		X	**4.5**	**13.67**	**0.45**	**1.37**	**$2.43**	**$10,818**	X	X		X
Advanced Metering Infrastructure Installation and Operations	E	All Categories	-	X		X		X		X	**466.8**	**1,432.63**	**46.68**	**143.26**	**$9.19**	**$4,289,913**	X		X	X
Water Rate Study - Water Efficient Rate Structure with Regular Updates	E/P	Residential, Commercial, Irrigation	Residential, Commercial	X	X	X		X	X	X	**394.8**	**1,211.59**	**39.48**	**121.16**	**$2.55**	**$1,008,114**	X	X	X	X
Water Reuse System	E	All Categories	-	X	X	X		X	X	X	**26.1**	**80.00**	**2.61**	**8.00**	**$0.42**	**$11,000**	X	X		X
Tap Fees with Water Use Efficiency Incentives (Lot-based water dedication)	E	Residential, Commercial	Residential, Commercial	X		X		X		X	**3.6**	**11.07**	**0.36**	**1.11**	**$8.61**	**$31,075**	X			X
Leak Detection and Repair Program	P	Non-Revenue	-	X	X	X		X		X	**44.5**	**136.70**	**4.45**	**13.67**	**$1.90**	**$84,823**	X	X		X
Master Plans/Water Supply Plans/Integrated Water Resource Plans	E/P	All Categories	All Customers	X		X		X	X	X	**52.4**	**160.89**	**5.24**	**16.09**	**$7.60**	**$398,566**	X	X	X	X
Drought Management Plan	E	All Categories	All Customers	X	X	X		X	X	X	**104.9**	**321.78**	**10.49**	**32.18**	**$6.22**	**$652,451**	X	X	X	X
General Monitoring and Verification Activities and General Water Rates and Billing	E	All Categories	All Customers	X		X		X	X	X	**26.2**	**80.45**	**2.62**	**8.04**	**$7.23**	**$189,624**	X		X	X
Designated Water Conservation Coordinator	E/P	All Categories	All Customers	X		X		X	X	X	**10.5**	**32.18**	**1.05**	**3.22**	**$20.85**	**$218,647**	X		X	X
Targeted Technical Assistance and Incentives																				
Slow the Flow Residential Indoor Audits	P	Residential	-	X		X	X	X		X	**2.7**	**8.22**	**0.05**	**0.15**	**$15.21**	**$40,745**	X			X
Slow the Flow Residential Irrigation Audits	P	Residential	-	X		X	X	X		X	**1.3**	**3.87**	**0.02**	**0.07**	**$24.94**	**$31,449**	X			X
Slow the Flow Commercial Irrigation Audits	P	Commercial	-	X		X	X	X		X	**10.2**	**31.35**	**0.19**	**0.57**	**$7.18**	**$73,372**	X			X
Rebates and Retrofit Program - Indoor (Toilet, Washing Machines, Showerhead and Faucet)	P	Residential, Commercial	-	X		X	X	X		X	**13.5**	**41.35**	**0.25**	**0.75**	**$14.25**	**$191,983**	X			X
Rebates and Retrofit Program - Outdoor (Wind/Rain Sensors, Efficient Irrigation Equipment)	P	Residential, Irrigation	-	X		X	X	X		X	**3.1**	**9.61**	**0.06**	**0.17**	**$142.31**	**$445,784**	X			X
Giveaways - Residential Water Audit Kits	P	Residential	-	X		X		X		X	**0.9**	**2.74**	**0.02**	**0.05**	**$41.26**	**$36,851**	X			X
Xeriscape Incentives/Turf Replacement Programs - Garden in a Box	P	Residential	-	X		X	X	X		X	**0.4**	**1.10**	**0.01**	**0.02**	**$39.65**	**$14,210**	X			X
Distribute Pre-Rinse Spray Heads to Restaurants and Institutions	P	Commercial	-	X	X	X	X	X		X	**22.0**	**67.52**	**0.40**	**1.23**	**$7.18**	**$157,854**	X	X		X
Ordinances and Regulations																				
Restrict High Water Use Turf on Medians and in Parking Lot Plantings	P	Irrigation	-	X	X	X		X		X	**13.5**	**41.55**	**1.35**	**4.16**	**$5.72**	**$77,394**	X	X		X
Weekly and Time of Day Outdoor Watering Restrictions	E	All Customers	All Customers	X	X	X		X		X	**8.2**	**25.02**	**0.82**	**2.50**	**$6.26**	**$51,044**	X	X		X
Water Waste Ordinance	E	All Customers	Residential, Commercial	X	X	X		X		X	**4.1**	**12.51**	**0.41**	**1.25**	**$6.92**	**$28,227**	X	X		X

Table C1: Water Efficiency Activity Evaluation

Water Efficiency Activities for Evaluation	Existing/ Potential Activity	Targeted Customer Category *(Treated Water)*	Targeted Customer Category *(Non-Potable)*	Review of Qualitative Screening – Qualitative Goals: *Benefit in Water Savings*	*Low Financial Implications*	*Staff Approval and Availability*	*Partnership Possibility*	*Board and Public Approval*	*Existing or Planned Project*	*Overlap of Criteria*	Evaluation – Projected Water Savings: Total Water Savings over the Planning Period (MG)	Total Water Savings over the Planning Period (AF)	Average Annual Water Savings (MG/yr)	Average Annual Water Savings (AF/yr)	Cost per 1,000 gal saved	Projected Implemen-tation Costs over Planning Period Including Lost Revenue	Quantitative Goals: *Helps to Achieve Overall Savings Goals*	*Low Cost w/ Significant Water Savings*	*Beneficial to Community*	Final Selection: Selected for Implemen-tation
Irrigation System Standards for New Developments	P	All Customers	Residential, Commercial	X	X	X		X		X	**51.0**	**156.64**	**5.10**	**15.66**	**$6.15**	**$313,983**	X	X		X
10% Lot Restriction	P	Residential, Irrigation	Residential	X	X	X		X		X	**62.5**	**191.68**	**6.25**	**19.17**	**$5.91**	**$369,290**	X	X		X
Requiring Wind and/or Rain Sensors for Business and Open Space Irrigation	P	Commercial, Irrigation,	Commercial	X	X	X		X		X	**73.1**	**224.37**	**7.31**	**22.44**	**$4.94**	**$360,971**	X	X		X
Restrictive Covenants Ordinance	P	Residential	Residential	X	X	X		X		X	**65.4**	**200.57**	**6.54**	**20.06**	**$5.81**	**$379,897**	X	X		X
New Car Wash Standards (New Construction)	E/P	Commercial	-	X	X	X		X		X	**3.7**	**11.43**	**0.37**	**1.14**	**$6.25**	**$23,268**	X	X		X
Landscape Design Ordinances and Restrictions	E/P	All Customers	Residential, Commercial	X	X	X		X		X	**51.0**	**156.64**	**5.10**	**15.66**	**$6.15**	**$313,983**	X	X		X
Education Activities																				
Public Education (Newsletter, Webpage, Interactive Website, Social Media, etc.)	E/P	All Customers	All Customers	X	X	X		X		X	**159.6**	**489.64**	**16.0**	**49.0**	**$6.39**	**$1,019,031.66**	X	X	X	X
Children's Water Fair or Festival	E	Residential	-	X		X	X	X		X	**1.3**	**4.03**	**0.02**	**0.07**	**$17.96**	**$23,589**	X			X
Post or Distribute ET Irrigation Scheduling	P	All Customers	Residential, Commercial	X	X	X		X		X	**81.5**	**250.20**	**8.15**	**25.02**	**$5.66**	**$461,329**	X	X	X	X
K-12 Teacher and Classroom Education	P	Residential	-	X		X	X	X		X	**2.6**	**8.06**	**0.05**	**0.15**	**$18.34**	**$48,179**	X			X
Property Management/HOA Irrigation Education Training	P	Commercial, Irrigation	Commercial	X		X		X		X	**12.6**	**38.79**	**1.26**	**3.88**	**$7.62**	**$96,359**	X	X		X
Citizen Advisory Boards	P	Residential, Commercial	Residential, Commercial	X		X		X		X	**9.0**	**27.49**	**0.90**	**2.75**	**$8.01**	**$71,788**	X			X
Xeriscape Demonstration Garden	P	Residential, Irrigation	Residential, Commercial	X		X	X	X		X	**0.6**	**1.79**	**0.01**	**0.03**	**$55.18**	**$32,241**	X			X

APPENDIX D

Activity Cost and Benefit Analysis

System Wide Water Audits

By implementing System Wide Water Audits, the City could identify unmetered and unbilled treated water uses in order to assess where losses are occurring and how losses can be addressed. These losses are considered Non-Revenue water. The City may utilize the IWA/AWWA Water Audit Method published in the AWWA Manual of Practice M36 to conduct a "top down approach."

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate	0.5%	

Category	Avg. Annual Water Use over Planning Period (MG)	*Estimated Annual Water Savings (gal/yr)*
Non-Revenue Water	89.09	445,438

Estimated Annual Water Savings	**0.45**	MG/yr
Estimated Savings over Planning Period	**4.5**	MG

Notes:

By specifically identifying these losses, additional actions can be taken to reduce the water lost. This measure has the potential to improve all categories, but Non-Revenue is the main category assumed. A conservative reduction of 0.5% of projected annual water use was assumed.

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	20	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$1,081.80	
Third Party Costs	$0.00	/year
Evaluation and Follow-up Costs	$0.00	/year
Annual Labor	**$1,081.80**	/year

Notes:

Estimated costs for Staff to spend approximately 20 hours per year at $54.09/hour to conduct audits.

The 20 hours is based on other water providers' time estimates to complete audits. Although some revenue may be lost on the demand side, more revenue will likely be realized on the supply side.

Estimated Annual Cost	**$1,082**	/year
Estimated Total Cost over Planning Period	**$10,818**	
Cost per 1000 Gallons Saved	**$2.43**	

Advanced Metering Infrastructure Installation and Operations

Advanced Metering Infrastructure (AMI) is a metering system that records customer consumption hourly or more frequently and provides for daily or more frequent transmittal of measurements over a communication network to a central collection point. AMI systems have the capability to offer customers an interactive portal where they would get usage alerts and be able to view billing and metering data. The City is in the process of upgrading meters or adding registers to existing meters that would transmit usage information to the City's metering system.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Customer Category	Avg. Annual Water Use over Planning Period (MG)	Estimated Annual Savings Rate	*Estimated Annual Water Savings (gal/yr)*
Non-Revenue	89.09	1.0%	890,877
Residential	646.06	6.0%	38,763,887
Commercial	184.79	3.0%	5,543,703
Irrigation	27.08	3.0%	812,347
Municipal	22.39	3.0%	671,579

Estimated Annual Water Savings	**46.68**	MG/yr
Estimated Savings over Planning Period	**466.8**	MG

Notes:

As more new meters are installed, the savings rate increases over the projected planning period. There are several influencing factors to the amount of savings realized including customer feedback and response, ease of incorporating new meters into the current system, etc.

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	364	/year
Hourly Cost	$54.09	/hour
Annual Labor	**$19,688.76**	/year

Material Costs

Unit Cost	**$300.00**	/ meter
Number of Meters/Year	**397**	
Annual Materials	**$119,190.00**	/year

Notes:

Annual Staff Costs for this savings measure include data processing. Other costs, such as fuel and vehicle maintenance are not included since some costs would be associated with reading the meters no matter what the scenario.

Materials cost assumes the City installs AMI meters for customers (assumed 50% of customers already have AMI meters).

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Residential	$6.55
Commercial	$5.67
Irrigation	$5.67
Municipal	$0.00

Water rates are based on a weighted average for each customer category and incorporate seasonal usage.

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$5,435,856	/year
Estimated Average Annual Revenue with Water Savings	$5,145,744	/year
Estimated Annual Revenue Loss Related to Water Savings	$290,113	/year

Estimated Annual Cost	**$428,991**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$1,388,788**	
Estimated Total Cost over Planning Period Including Lost Revenue	**$4,289,913**	
Cost per 1000 Gallons Saved	**$9.19**	

Water Rate Study - Water Efficient Rate Structure with Regular Updates

Based on many studies, water rates (e.g., inclining and/or tiered) are one of the most effective ways to encourage efficient water use. A rate study is necessary to ensure maximum water conservation savings. Because they are very interrelated, this measure also includes Volumetric Billing and Tiered Rates within it.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Customer Category	**Avg. Annual Water Use over Planning Period** (MG)	**Annual Estimated Savings Rate**	***Estimated Annual Water Savings*** *(gal/yr)*
Residential	646.06	5.00%	32,303,239
Commercial	184.79	2.00%	3,695,802
Irrigation	27.08	2.00%	541,564
Non-Potable Residential	54.68	5.00%	2,733,890
Non-Potable Commercial	10.26	2.00%	205,286

Notes:

Assumed a conservative reduction of per customer category of projected total billed water. Rate change studies have often shown an even greater savings (e.g., Southwest Florida Water Management District study indicated a 13% savings). Conservative savings rates were applied to each category.

Estimated Annual Water Savings	**39.48**	MG/yr
Estimated Savings over Planning Period	**394.8**	MG

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	15	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$811.35	
Third Party Costs (Rate study)	$100,000.00	
Evaluation and Follow-up Costs (Labor/Consultant)	$0.00	/year
Annual Labor	**$100,811.35**	/year

Notes:

Annual Revenue Lost due to water savings is not incorporated into the Total Cost to Water Provider because these costs are absorbed and included in the rate adjustments to the customers.

Total Cost to Water Provider

Estimated Annual Cost	**$100,811**	/year
Estimated Total Cost over Planning Period	**$1,008,114**	
Cost per 1000 Gallons Saved	**$2.55**	

Water Reuse System

Currently, backwash at the City of Evan's waste water treatment plant is used to irrigate lawn and areas surrounding the waste water treatment plant facility.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate	0.3%	
Total Customer and Non-Revenue Water Use:	969.41	MG/yr
Estimated Annual Water Savings	**2.61**	MG/yr
Estimated Savings over Planning Period	**26.1**	MG

Notes:

City staff estimate that they use approximately 8 acre-feet (2,606,808 gallons) of backwash water for lawn irrigation each year.

Costs

Total Cost to Water Provider

Materials Costs		
Unit Cost	$1,100.00	/year
Number of Participants	1	/year
Gallons Saved per Unit per Year	0	gallons
Annual Materials	**$1,100.00**	/year

Notes:

We estimate the pumping costs equal approximately $1,100 per year.

Estimated Annual Cost	**$1,100**	/year
Estimated Total Cost over Planning Period	**$11,000**	
Cost per 1000 Gallons Saved	**$0.42**	

Tap Fees with Water Use Efficiency Incentives (Lot-based water dedication)

Evans would encourage smaller lots designated by developers by charging reduced fees for smaller lot sizes. For example, this might include a discount on tap fees for turf areas of less than 3,000 square feet or a discount for a smaller percentage of irrigated areas. Typically an irrigated area of less than 30% is considered conservative in nature. On the opposite end, an additional fee may be charged for larger irrigation areas.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate	0.10%	

Category	**Avg. Annual Outdoor Water Use over Planning Period** (MG)	*Estimated Annual Water Savings gallons/yr*
Residential	206.74	206,741
Commercial	89.07	89,069
Non-Potable Residential	54.68	54,678
Non-Potable Commercial	10.26	10,264

Estimated Annual Water Savings	**0.36**	MG/yr
Estimated Savings over Planning Period	**3.6**	MG

Notes:

A conservative reduction of 0.1% of projected annual water use was assumed. 0.1% was calculated by a 2% growth rate multiplied by 5% savings (based on participation and overall savings).

This measure mainly impacts future residential developments. It was assumed the Water Use Efficiency Incentives would be targeted to outdoor water use.

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	20	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$1,081.80	
Third Party Costs	$0.00	/year
Evaluation and Follow-up Costs	$0.00	/year
Annual Labor	**$1,081.80**	/year

Notes:

Estimated costs for Staff to spend approximately 20 hours per year at $54.09/hour to help coordinate within the service area.

Water Rates

Rate Category	**Current Rates** (per 1,000 gals)
Residential	$6.55
Commercial	$5.67
Non-Potable Customers	$2.55

Notes:

The annual revenue loss was estimated based on current rates for residential and commercial customers.

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$2,025,683	/year
Estimated Average Annual Revenue with Water Savings	$2,023,657	/year
Estimated Annual Revenue Loss Related to Water Savings	**$2,026**	/year

Estimated Annual Cost	**$3,107**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$10,818**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$31,074.83**	
Cost per 1000 Gallons Saved	**$8.61**	

Leak Detection and Repair Program

The City could perform this program in-house or use an outside consultant (e.g., American Leak Detection). A Leak Detection and Repair Program could also be target Mobile Home Parks which have historically been high water users.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate	5.0%	
Annual Estimated Non-Revenue Water without Savings	89.09	MG/yr
Estimated Annual Water Savings	**4.45**	MG/yr
Estimated Savings over Planning Period	**44.5**	MG

Notes:

The average system unaccounted leakage/loss rate is 9%.

Savings equals the current projected water usage of Non-Revenue water multiplied by the estimated savings rate.

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	25	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$1,352.25	
Third Party Costs (Leak Detection Consult)	$7,130.00	/year
Evaluation and Follow-up Costs (Labor/Consultant)	$0.00	/year
Annual Labor	**$8,482.25**	/year

Notes:

Third Party Costs include leak survey performed annually by a consultant.

Annual staff costs include coordination with consultants.

Estimated Annual Cost	**$8,482**	/year
Estimated Total Cost over Planning Period	**$84,823**	
Cost per 1000 Gallons Saved	**$1.90**	

Master Plans/Water Supply Plans/Integrated Water Resource Plans/Capital Improvement Plans

Evans plans to continue developing, updating, and evaluating plans (i.e. Master Plans, Water Efficiency Plans, etc.) that will improve its overall water efficiency and help plan for future use.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate	0.50%	

Notes:

This measure has the potential to improve all categories. A conservative reduction of 0.5% of projected annual water use was assumed.

Category	Avg. Annual Water Use over Planning Period (MG)	*Estimated Annual Water Savings (gal/yr)*
Non-Revenue	89.09	445,438
Residential	646.06	3,230,324
Commercial	184.79	923,951
Irrigation	27.08	135,391
Municipal	22.39	111,930
Non-Potable Residential	54.68	273,389
Non-Potable Commercial	10.26	51,322
Non-Potable Municipal	14.17	70,873

Estimated Annual Water Savings	**5.24**	MG/yr
Estimated Savings over Planning Period	**52.4**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	90	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$4,868.10	
Third Party Costs	$68,000.00	
Evaluation and Follow-up Costs	$0.00	/year
Annual Labor	**$11,668.10**	/year

Notes:

Estimated staff costs for Staff to spend an average of 90 hours per year at $54.09/hour to help develop the various Plans for the City.

Third party costs include a consultant to aid staff in the development of these Plans. The cost is over the 10-year planning period.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Weighted average of customer rates	$6.17
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on a weighted average of current rates for all customers.

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$5,637,701	/year
Estimated Average Annual Revenue with Water Savings	$5,609,513	/year
Estimated Annual Revenue Loss Related to Water Savings	**$28,189**	/year

Estimated Annual Cost	**$39,857**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$116,681**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$398,566.07**	
Cost per 1000 Gallons Saved	**$7.60**	

Drought Management Plan

Evans plans to update its Drought Management Plan (DMP) to improve its overall water efficiency and help plan for future use and drought periods.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate	1.00%	

Category	Avg. Annual Water Use over Planning Period (MG)	*Estimated Annual Water Savings (gal/yr)*
Non-Revenue	89.09	890,877
Residential	646.06	6,460,648
Commercial	184.79	1,847,901
Irrigation	27.08	270,782
Municipal	22.39	223,860
Non-Potable Residential	54.68	546,778
Non-Potable Commercial	10.26	102,643
Non-Potable Municipal	14.17	141,745

Notes:

This measure has the potential to improve all categories. A conservative reduction of 1% of projected annual water use was assumed.

Estimated Annual Water Savings	**10.49**	MG/yr
Estimated Savings over Planning Period	**104.9**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	90	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$4,868.10	
Third Party Costs	$40,000.00	
Evaluation and Follow-up Costs	$0.00	/year
Annual Labor	**$8,868.10**	/year

Notes:

Estimated staff costs for Staff to spend an average of 90 hours per year at $54.09/hour to help develop and implement the DMP for the City.

Third party costs include a consultant to aid staff in the development of a CWCB grant application and pay a portion of each DMP. It assumes a DMP will be updated two times in the planning period.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Weighted average of customer rates	$6.17
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on a weighted average of current rates for all customers.

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$5,637,701	/year
Estimated Average Annual Revenue with Water Savings	$5,581,324	/year
Estimated Annual Revenue Loss Related to Water Savings	**$56,377**	/year

Estimated Annual Cost	**$65,245**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$88,681**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$652,451.14**	
Cost per 1000 Gallons Saved	**$6.22**	

General Monitoring and Verification Activities and General Water Rates and Billing

Water savings is evident from Evans' existing water monitoring and verification activities which include frequent meter reading. Additionally, Evans' water rates and billing encourage citizens to conserve water through volumetric billing with inclining/tiered rates and frequent billing. The following calculates estimated savings for these activities.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate: 0.25%

Notes:

These activities are estimated to save a quarter of a percent per year. Current system leakage/loss rate is estimated at 9%.

Category	**Avg. Annual Water Use over Planning Period** (MG)	***Estimated Annual Water Savings*** *(gal/yr)*
Non-Revenue	89.09	222,719
Residential	646.06	1,615,162
Commercial	184.79	461,975
Irrigation	27.08	67,696
Municipal	22.39	55,965
Non-Potable Residential	54.68	136,694
Non-Potable Commercial	10.26	25,661
Non-Potable Municipal	14.17	35,436

Estimated Annual Water Savings	**2.62**	MG/yr
Estimated Savings over Planning Period	**26.2**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	90	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$4,868.10	
Evaluation and Follow-up Costs	$0.00	/year
Annual Labor	**$4,868.10**	/year

Notes:

Estimated staff costs for Staff to spend an average of 90 hours per year at $54.09/hour to help develop and implement these activities for the City.

Revenue losses are absorbed by the usage rates customers pay.

Water Rates

Rate Category	**Current Rates** (per 1,000 gals)
Weighted average of customer rates	$6.17
Non-Potable customers	$2.55

Estimated Average Annual Revenue without Water Savings	$5,637,701	/year
Estimated Average Annual Revenue with Water Savings	$5,623,607	/year
Estimated Annual Revenue Loss Related to Water Savings	**$14,094**	/year

Estimated Annual Cost	**$18,962**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$48,681**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$189,623.53**	
Cost per 1000 Gallons Saved	**$7.23**	

Designated Water Conservation Coordinator

The City of Evans has previously hired water conservation officers. This analysis assumes one intern is hired in the summer months. In the future, Evans may hire a full-time employee to fill this position.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate	0.10%	

Category	Avg. Annual Water Use over Planning Period (MG)	*Estimated Annual Water Savings (gal/yr)*
Non-Revenue	89.09	89,088
Residential	646.06	646,065
Commercial	184.79	184,790
Irrigation	27.08	27,078
Municipal	22.39	22,386
Non-Potable Residential	54.68	54,678
Non-Potable Commercial	10.26	10,264
Non-Potable Municipal	14.17	14,175

Notes:

This measure is estimated to affect projected water usage for all customer categories. This measure also potentially overlaps with other efficiency measures and programs, therefore a conservative reduction of 0.10% of projected annual water use was assumed.

Estimated Annual Water Savings	**1.05**	MG/yr
Estimated Savings over Planning Period	**10.5**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	300	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$16,227.00	
Evaluation and Follow-up Costs	$0.00	/year
Annual Labor	**$16,227.00**	/year

Notes:

Staff hours are estimated for a summer internship position. Intern will work approximately 15 weeks at about 30 hours per week. Some hours were incorporated into other efficiency measures.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Weighted average of customer rates	$6.17
Non-Potable customers	$2.55

Average rates are shown for planning purposes only. Estimated Revenue assumes that the current avg rates will not change over the planning period.

Estimated Average Annual Revenue without Water Savings	$5,637,701	/year
Estimated Average Annual Revenue with Water Savings	$5,632,064	/year
Estimated Annual Revenue Loss Related to Water Savings	**$5,638**	/year

Estimated Annual Cost	**$21,865**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$162,270**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$218,647.01**	
Cost per 1000 Gallons Saved	**$20.85**	

Slow the Flow Residential Indoor Audits

ReCen offers indoor water audits. "Slow the Flow offers inspections on residential water usage and suggests simple measures to increase water use efficiency in the home. Participants simply schedule an inspection with a trained technician in their home. During the one-hour appointment the technician will measure outputs from faucets, toilets, and shower heads, and perform a cost/benefit analysis on fixture replacement options. They may also install high efficiency shower heads and faucet aerators at no cost. You'll be left with a customized list of recommendations for increasing water use efficiency." - ReCen

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Participant Annual Estimated Savings Rate	5.0%

Customer Category	**Avg. Annual Indoor Water Use Over the Planning Period** (gal/tap)	***Estimated Annual Water Savings*** *(gal/tap/yr)*	***Annual Program Participants*** *(taps)*
Residential	64,947	3,247	15

Estimated Annual Water Savings	**0.05**	MG/yr in Year 1
Estimated Savings over Planning Period	**2.7**	MG

Notes:

The indoor use estimate for the Residential customer category is 68% of water use.

Assumed a conservative estimate of 5% savings of projected indoor water usage . Customers have to put Auditor's advice and suggestions into practice. Shower heads and aerators may be installed by ReCen.

Program Participants based on other water providers' participation rates for similar programs.

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	11.25	/year
Hourly Cost	$54.09	/hour
Annual Labor	**$609**	/year
Third Party Costs		
Audit Cost	$114	
Number of Participants	15	/year
Annual Cost	**$1,710**	/year

Notes:

Costs include staff time for implementing (approximately 45 min. per participant). Program is largely organized by ReCen .

Third Party Costs include ReCen 's time. Residential audits = $114/audit.

Water Rates

Rate Category	**Current Rates** (per 1,000 gals)
Residential	$6.55

Note:

The annual revenue loss was estimated based on current rates for customers and assumes rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$35,120	/year
Estimated Average Annual Revenue with Water Savings	$33,364	/year
Annual Revenue Loss Related to Water Savings	**$1,756**	/year

Estimated Annual Cost	**$4,074**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$23,185**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$40,745**	
Cost per 1000 Gallons Saved	**$15.21**	

Slow the Flow Residential Irrigation Audits

The City may partner with Resource Central (ReCen) for residential irrigation audits. ReCen offers the "Slow the Flow" program which provides outdoor sprinkler consultations to residential customers. "The service usually takes 90 minutes and involves a visual inspection, data collection, and in-depth evaluation. Our technicians will deliver a clear and actionable list of suggestions to reduce water use and runoff at each property, while keeping landscapes and lawns healthy." -ReCen

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Participant Annual Estimated Savings Rate	5.0%	

Customer Category	Avg. Annual Outdoor Water Use Over the Planning Period (gal/tap)	*Estimated Annual Water Savings (gal/tap/yr)*	*Annual Program Participants (taps)*
Residential	30,564	1,528	15

Estimated Annual Water Savings	**0.02**	MG/yr in Year 1
Estimated Savings over Planning Period	**1.3**	MG

Notes:

The outdoor use estimate for the Residential customer category is 32% of water use.

Assumed a conservative estimate of 5% savings of projected outdoor water usage . Customers have to put Auditor's advice and suggestions into practice.

Program Participants based on other water providers' participation rates for similar programs.

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	11.25	/year
Hourly Cost	$54.09	/hour
Annual Labor	**$609**	/year
Third Party Costs		
Audit Cost	$114	
Number of Participants	15	/year
Annual Cost	**$1,710**	/year

Notes:

Costs include staff time for implementing (approximately 45 min. per participant). Program is largely organized by ReCen .

Third Party Costs include ReCen 's time. Residential audits = $114/audit.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Residential	$6.55

Note:

The annual revenue loss was estimated based on current rates for the Residential customer category.

Estimated Average Annual Revenue without Water Savings	$16,527	/year
Estimated Average Annual Revenue with Water Savings	$15,700	/year
Annual Revenue Loss Related to Water Savings	**$826**	/year

Notes:

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Annual Cost	**$3,145**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$23,185**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$31,449**	
Cost per 1000 Gallons Saved	**$24.94**	

Slow the Flow Commercial Irrigation Audits

The City may partner with Resource Central (ReCen) for irrigation audits for HOAs and businesses through the "Slow the Flow" program. "Slow the Flow's trained technicians perform a detailed analysis of your existing sprinkler system and will provide a comprehensive report detailing findings and recommendations to improve efficiency. The service will provide suggestions that will deliver measurable improvements in water use reduction, saving your business money, and supporting community conservation goals." -ReCen

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Participant Annual Estimated Savings Rate	5.0%

Customer Category	**Avg. Annual Outdoor Water Use Over the Planning Period** (gal/tap)	***Estimated Annual Water Savings*** *(gal/tap/yr)*	***Annual Program Participants*** *(taps)*
Commercial	371,430	18,571	10

Estimated Annual Water Savings	**0.19**	MG/yr in Year 1
Estimated Savings over Planning Period	**10.2**	MG

Notes:

The outdoor use estimate for the Commercial customer category is 48% of water use.

Assumed a conservative estimate of 5% savings of projected outdoor water usage . Customers have to put Auditor's advice and suggestions into practice.

Program Participants based on other water providers' participation rates for similar programs.

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	7.5	/year
Hourly Cost	$54.09	/hour
Annual Labor	**$406**	/year
Third Party Costs		
Audit Cost	$114	
Number of Participants	10	/year
Annual Cost	**$1,140**	/year

Notes:

Costs include staff time for implementing (approximately 45 min. per participant). Program is largely organized by ReCen .

Third Party Costs include ReCen 's time. Commercial audits = $114/audit.

Water Rates

Rate Category	**Current Rates** (per 1,000 gals)
Commercial	$5.67

Note:

The annual revenue loss was estimated based on current rates for the Commercial customer category.

Estimated Average Annual Revenue without Water Savings	$115,830	/year
Estimated Average Annual Revenue with Water Savings	$110,039	/year
Annual Revenue Loss Related to Water Savings	**$5,792**	/year

Notes:

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Annual Cost	**$7,337**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$15,457**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$73,372**	
Cost per 1000 Gallons Saved	**$7.18**	

Rebate Program and Retrofit Program - Indoor (Toilet, Washing Machines, Showerhead and Faucet)

The City may offer rebates/retrofits for high-efficiency toilets, washing machines or bathroom fixtures. The purpose of a rebate is to encourage residents to convert to higher efficiency fixtures. The analysis below shows the cost for a toilet rebate program for simplicity. The City could partner with ReCen for "Flush For the Future" program. ReCen partners with municipalities to upgrade their residents to ultra-high efficiency toilets. ReCen estimates each toilet can save up to 10,000 gallons of water per year.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Customer Category	Avg. Annual Indoor Water Use Over the Planning Period (gal/tap)	*Estimated Annual Water Savings (gal/tap/yr)*	*Annual Program Participants (taps)*
Residential	64,947	7,000	25
Commercial	399,171	14,000	5

Estimated Annual Water Savings	**0.25**	MG/yr
Estimated Savings over Planning Period	**13.48**	MG

Notes:

The indoor use estimate for the Residential customer category is 68%. The indoor use estimate for the Commercial category is 52%.

The Town could partner with ReCen; ReCen offers the "Flush for the Future" toilet upgrade program. A minimum of 30 toilets is required. ReCen estimates a ultra high-efficiency toilet upgrade saves 7,000 gallons annually, and potentially up to 10,000 gallons per year.

Estimated Savings over Planning Period is calculated by compounding the estimated annual water savings per the total number of participants for each given year. As more participants utilize the replacements or rebates, more savings is realized.

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	75	/year
Hourly Cost	$54.09	/hour
Annual Labor	$4,056.75	/year
Rebates		
Rebate/Retrofit Cost	$190.00	
Number of Participants	35	/year
Annual Rebate Cost	**$6,650.00**	

Notes:

Annual staff time is estimated at approximately 3 hours per participant. This time includes water savings tracking.

Minimum participation is 30 toilets at $5,700. Additional toilets are $190 a piece. It is assumed each residence receives one toilet and commercial businesses receive two toilets.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Residential	$6.55
Commercial	$5.67

Notes:

The annual revenue loss was estimated based on current rates for the listed customer categories.

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$120,773	/year
Estimated Average Annual Revenue with Water Savings	$112,282	/year
Annual Revenue Loss Related to Water Savings	**$8,492**	/year

Estimated Annual Cost	**$19,198**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$107,068**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$191,983.04**	
Cost per 1000 Gallons Saved	**$14.25**	

Rebates and Retrofit Program - Outdoor (Wind/Rain Sensors, Efficient Irrigation Equipment)

The City may offer rebates for wind/rain sensors and efficient irrigation equipment, such as irrigation controllers. The sensors and controllers are used to automatically shut off sprinklers during rain events or windy conditions when irrigation efficiency is reduced. Irrigation controllers allow a user to program automatic irrigation schedules for different irrigation zones. The City could partner with ReCen on a SMART controller upgrade program called "Automate Your Irrigation", where "Residents can get a Rachio Smart Controller at a reduced rate. The Rachio Smart Controller gathers weather data via your wifi signal and adjusts your watering schedule accordingly for an accurate water application tailored to local precipitation patterns. Maintain your perfect lawn and save water from anywhere with smartphone remote control technology."

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate	5.00%

Customer Category	Avg. Annual Outdoor Water Use Over the Planning Period (gal/tap)	*Estimated Annual Water Savings (gal/tap/yr)*	*Annual Program Participants (taps)*
Residential	30,564	1,528	20
Irrigation	105,568	5,278	5

Estimated Annual Water Savings	**0.06**	MG/yr
Estimated Savings over Planning Period	**3.13**	MG

Notes:

The outdoor use estimate for the customer categories are: Residential = 32% and Irrigation = 100%.

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	75	/year
Hourly Cost	$54.09	/hour
Annual Labor	$4,056.75	/year

Materials Cost

Irrigation Controller Unit Cost	$130.00
Sensors Unit Cost	$28.00
Annual Rebate Cost	**$3,950.00**

Notes:

Annual staff time is estimated at approximately 3 hours per participant. This time includes water savings tracking.

Materials cost based on the Rain Bird online store (http://www.rainbird.com). The Rachio online store has smart sprinkler controllers (https://www.rachio.com) for approximately $230 which use satellite, radar and weather station data to update watering schedules. This is another option.

Materials cost assumes the City will pay for the full price; however, the City could pay only a portion.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Residential	$6.55
Irrigation	$5.67

Notes:

The annual revenue loss was estimated based on current rates for the listed customer categories.

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$38,496	/year
Estimated Average Annual Revenue with Water Savings	$1,925	/year
Annual Revenue Loss Related to Water Savings	**$36,572**	/year

Estimated Annual Cost	**$44,578**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$80,068**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$445,784.11**	
Cost per 1000 Gallons Saved	**$142.31**	

Giveaways: Water Audit Kits

Self-guided residential water audit kits can be designed and customized for the City with various water saving items. Examples of these items include the following: water saving hose nozzles, water efficient shower heads, faucet aerators, dish squeegees, toilet volume reducers, leak detection tablets, and outdoor moisture meters. Instructions for conducting the audit and evaluating the results can give residential customers insight and direction on how they can save water and money. The guidance offered in the instructions could also lead the customer to take part in other conservation programs offered, including rebates, Garden in a Box, or Outdoor Water Audits.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Participant Annual Estimated Savings Rate	0.25%	

	Avg. Annual Indoor Water Use Over the Planning Period (gal/tap)	***Estimated Annual Water Savings*** *(gal/tap/yr)*	***Annual Program Participants*** *(taps)*
Residential	64,947	162	100

Estimated Annual Water Savings	**0.02**	MG/yr
Estimated Savings over Planning Period	**0.89**	MG

Notes:

Estimated Savings over Planning Period is calculated by compounding the estimated annual water savings per the total number of participants for each given year. Estimated Water Use is based on the forecasted annual indoor water use since most of the audit kit contents are related to indoor savings efforts.

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours (Website updates, etc.)	25	/year
Total:	$54.09	/hour
Annual Labor	**$1,352.25**	/year

Give Aways per Year

Give Away Kits per Year	**100**	/year
Materials Cost	**$1,747.50**	/year

Notes:

Staff Hours are estimated at 15 minutes per kit or participant. Residential water conservation kits are available at wholesalers like AM Conservation Group, Inc. (www.amconservationgroup.com) for varying costs. One example that would include several pieces is $12.45 per kit. Another kit focused more on outdoor savings would be more economical at $22.50 per kit. Cost assumes average of both kits.

Water Rates

Rate Category	**Current Rates** (per 1,000 gals)
Residential	$6.55

Notes:

The annual revenue loss was estimated based on current rates for listed City customers.

Estimated revenue assumes that the current rates will not change over the planning period.

Estimated Average Annual Revenue without Water Savings	$234,130	/year
Estimated Average Annual Revenue with Water Savings	$233,545	/year
Annual Revenue Loss Related to Water Savings	**$585**	/year

Estimated Annual Cost	**$3,685**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$30,998**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$36,850.75**	
Cost per 1000 Gallons Saved	**$41.26**	

Xeriscape Incentives - Garden in a Box

Each year Resource Central (ReCen) offers an array of do-it-yourself Xeric garden kits, created by professional landscape designers for sun, shade, and everything in between. These plant-by-number gardens can have a significant conservation impact and are perfect for anyone who wants to beautify their yard while using less water than standard turf.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Participant Annual Estimated Savings Rate: 25% [1]

Customer Category	Avg. Annual Outdoor Water Use Over the Planning Period (gal/tap)	*Estimated Annual Water Savings (gal/tap/yr)*	*Annual Program Participants (taps)*
Residential	30,564	434	15

Estimated Annual Water Savings	**0.007**	MG/yr in Year 1
Estimated Savings over Planning Period	**0.4**	MG

Notes:

[1] The "Annual Estimated Saving Rate" represents a 25% savings of water for the turf area replaced with the Garden in the Box plants and not a 25% savings overall. Similar to the Demonstration Gardens themselves, this measure affects projected outdoor water usage for the listed Customer Category(ies).

It is estimated that approximately 32% of Residential customer use is outdoor use. Each garden is estimated to use up to 60% less water than the same area of turf, but irrigation systems need to be adjusted for benefit to be realized.

A garden typically covers 100 sq ft. Assumption was made that same area of turf will be replaced with same area of xeriscaping. Irrigation requirements = approximately two AF/acre for turf = 748 gal/garden savings. This estimate was cut in half due to other potential problems.

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	3.75	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$202.84	
Third Party Costs	$0.00	/year
Evaluation and Follow-up Costs (Labor/Consultant)	$0.00	/year
Annual Labor	**$202.84**	/year
Materials Costs		
Associated Costs	$65.55	/garden
Number of Participants	15	/year
Annual Materials	**$983.25**	/year

Notes:

Staff cost include approximately 1/4 hour per participant. ReCen offers end consumers a discount through the water provider.

ReCen's price is $4,370 for 80 gardens. An assumed 20% mark-up was made for smaller quantities.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Residential	$6.55

Notes:

The annual revenue loss was estimated based on current rates for customers and assumes rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$16,527	/year
Estimated Average Annual Revenue with Water Savings	$16,292	/year
Annual Revenue Loss Related to Water Savings	**$235**	/year

Estimated Annual Cost	**$1,421**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$11,861**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$14,210**	
Cost per 1000 Gallons Saved	**$39.65**	

Distribute Pre-Rinse Spray Heads to Restaurants and Institutions

ReCen offers this program. "Save water in commercial kitchens with a quick, easy, and effective pre-rinse spray valve (PRSV) upgrade. This 15-minute swapping service is offered at no cost to businesses and creates instant, measurable water and energy savings."

Planning Period	2024	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate	5.0%

Customer Category	Avg. Annual Indoor Water Use Over the Planning Period (gal/tap)	*Estimated Annual Water Savings (gal/tap/yr)*	*Annual Program Participants (taps)*
Commercial	399,171	20,000	20

Estimated Annual Water Savings	**0.40**	MG/yr
Estimated Savings over Planning Period	**22.0**	MG

Notes:

ReCen estimates a savings of 20,000 per PRSV swap. Pre-rinse nozels for dishwashers are installed by ReCen. Number of participants and savings rates are also based upon per tap water usage and percentage of water usage.

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	15	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$811.35	
Third Party Costs	$2,500.00	/year
Evaluation and Follow-up Costs	$0	/year
Annual Labor	**$3,311.35**	/year

Notes:

Costs include staff time (approximately 45 min./participant) for implementing and evaluation.

Third Party Costs include CRC time. Minimum cost = $2,500 for 20 installs

Material cost is incorporated into Third Party Costs and includes the cost of the fixture.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Commercial	$5.67

Estimated Average Annual Revenue without Water Savings	$248,963	/year
Estimated Average Annual Revenue with Water Savings	$236,489	/year
Annual Revenue Loss Related to Water Savings	**$12,474**	/year

Notes:

The annual revenue loss was estimated based on current rates for the indicated customer category.

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Annual Cost	**$15,785**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$33,114**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$157,854**	
Cost per 1000 Gallons Saved	**$7.18**	

Restrict High Water Use Turf on Medians and in Parking Lot Plantings

The City could restrict high water use turf on medians and replace it with native low-water use plants, xeriscape plants or non-living landscape material such as rock, gravel, cobble or mulch.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate: 5.00%

Customer Category	Avg. Annual Outdoor Water Use Over the Planning Period (MG)	*Estimated Annual Water Savings (gal/yr)*
Irrigation	27.08	1,353,911

Notes:

Median water uses are found predominately in the Irrigation water use category.

Estimate that approximately 5% of the total Irrigation category is used to water medians and parking lot plantings.

Estimated Annual Water Savings	**1.35**	MG/yr
Estimated Savings over Planning Period	**13.5**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	10	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$540.90	/year
One-Time Staff Cost	$865.44	
Total Labor Costs	**$627.44**	/year

Notes:

Labor costs include one-time estimated staff costs for researching and developing requirements and standards and receiving approval and implementing restriction/ordinance (2 days). Annual labor cost includes enforcement.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Irrigation	$5.67

Notes:

The annual revenue loss was estimated based on current weighted rates for listed customer categories

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$153,533	/year
Estimated Average Annual Revenue with Water Savings	$145,857	/year
Annual Revenue Loss Related to Water Savings	**$7,677**	/year

Estimated Annual Cost	**$7,739**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$627**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$77,394.19**	
Cost per 1000 Gallons Saved	**$5.72**	

Weekly and Time of Day Outdoor Watering Restrictions

Evans' Municipal Code states, "The use of water for sprinkling of lawns, gardens and trees will be permitted on scheduled days except between the hours of 12:00 and 5:00 p.m." The scheduled watering days are based on customer type. The Municipal Code also sets a season of use from April 15th through October 15th (the City may begin irrigation earlier on athletic fields). The City Council, by resolution, may also declare a drought emergency and implement additional watering restrictions.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate: 0.20%

Notes:

Outdoor use is estimated at a weighted average of approximately 39% for the listed treated water customer categories and 100% for non-potable customer categories.

A conservative estimate of 0.2% savings of projected outdoor water usage was assumed.

Customer Category	Avg. Annual Outdoor Water Use Over the Planning Period (MG)	*Estimated Annual Water Savings (gal/yr)*
Residential	206.74	413,481
Commercial	89.07	178,138
Irrigation	27.08	54,156
Municipal	19.81	39,623
Non-Potable Residential	54.68	109,356
Non-Potable Commercial	10.26	20,529

Estimated Annual Water Savings	**0.8**	MG/yr
Estimated Savings over Planning Period	**8.2**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	10	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$540.90	/year
Total Labor Costs	**$540.90**	/year

Notes:

Costs include staff time for enforcing water restrictions for existing measure.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Weighted average of customer rates	$6.17
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on current weighted rates for listed customer categories

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$2,281,765	/year
Estimated Average Annual Revenue with Water Savings	$2,277,201	/year
Annual Revenue Loss Related to Water Savings	**$4,564**	/year

Estimated Annual Cost	**$5,104**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$5,409**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$51,044.29**	
Cost per 1000 Gallons Saved	**$6.26**	

Water Waste Ordinance

The City of Evans can expand on the current City ordinance restricting water waste.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate: 0.10%

Notes:

Outdoor use is estimated at a weighted average of approximately 39% for the listed treated water customer categories and 100% for non-potable customer categories.

A conservative estimate of 0.1% savings of projected outdoor water usage was assumed.

Customer Category	Avg. Annual Outdoor Water Use Over the Planning Period (MG)	*Estimated Annual Water Savings (gal/yr)*
Residential	206.74	206,741
Commercial	89.07	89,069
Irrigation	27.08	27,078
Municipal	19.81	19,812
Non-Potable Residential	54.68	54,678
Non-Potable Commercial	10.26	10,264

Estimated Annual Water Savings	**0.41**	MG/yr
Estimated Savings over Planning Period	**4.1**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	10	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$540.90	/year
Annual Labor	**$540.90**	/year

Notes:

Costs include staff time for enforcing waste water ordinance for existing measure.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Weighted average of customer rates	$6.17
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on current weighted rates for listed customer categories

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$2,281,765	/year
Estimated Average Annual Revenue with Water Savings	$2,279,483	/year
Annual Revenue Loss Related to Water Savings	**$2,282**	/year

Estimated Annual Cost	**$2,823**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$5,409**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$28,226.65**	
Cost per 1000 Gallons Saved	**$6.92**	

Irrigation System Standards for New Developments

Boulder and Weld Counties encourage or require irrigation system standards within their building permit review process. As an example, the City of Aurora also has Irrigation System Standards and Specifications included in its 2020 Water, Sewer and Storm Drainage Standards. The Standards and Specifications include an irrigation design plan and system requirements such as pressure control, sprinkler head layout requirements, and equipment requirements.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate: 5.00%

Customer Category	Avg. Annual Outdoor Water Use Over the Planning Period for New Construction (MG)	*Estimated Annual Water Savings (gal/yr)*
Residential	46.82	2,340,914
Commercial	31.88	1,594,161
Irrigation	5.21	260,681
Municipal	4.61	230,703
Non-Potable Residential	10.43	521,362
Non-Potable Commercial	3.13	156,408

Notes:

Outdoor use is estimated at a weighted average of approximately 39% for the listed treated water customer categories and 100% for non-potable customer categories.

An estimate of 5% savings of projected outdoor water usage was assumed.

Estimated Annual Water Savings	**5.1**	MG/yr
Estimated Savings over Planning Period	**51.0**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	40	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$2,163.60	/year
One-Time Staff Cost	$1,730.88	
Total Labor Costs	**$2,336.69**	/year

Notes:

Labor costs include one-time estimated staff costs for researching and developing requirements and standards and receiving approval and implementing restriction/ordinance (4 days). Annual labor cost includes enforcement and/or inspection. Inspections may also be performed by a third party.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Weighted average of customer rates	$6.17
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on current weighted rates for listed customer categories

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$581,232	/year
Estimated Average Annual Revenue with Water Savings	$552,171	/year
Annual Revenue Loss Related to Water Savings	**$29,062**	/year

Estimated Annual Cost	**$31,398**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$23,367**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$313,982.97**	
Cost per 1000 Gallons Saved	**$6.15**	

10% of Lot Irrigation Restriction

The City could require new lot irrigation to be reduced by 10%. Developers could alternatively replace turf areas on lots with non-irrigated native plants or non-living landscape material such as rock, gravel, cobble or mulch, depending on the City's preferred landscaping.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate: 10.00%

Customer Category	Avg. Annual Outdoor Water Use Over the Planning Period for New Construction (MG)	*Estimated Annual Water Savings (gal/yr)*
Residential	46.82	4,681,827
Irrigation	5.21	521,362
Non-Potable Residential	10.43	1,042,723

Notes:

Outdoor use is estimated at a weighted average of approximately 39% for the listed treated water customer categories and 100% for non-potable customer categories.

This ordinance/restriction would only be applied to new construction. An estimate of 10% savings of projected outdoor water usage was assumed.

Estimated Annual Water Savings	**6.2**	MG/yr
Estimated Savings over Planning Period	**62.5**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	10	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$540.90	/year
One-Time Staff Cost	$865.44	
Total Labor Costs	**$627.44**	/year

Notes:

Labor costs include one-time estimated staff costs for researching and developing requirements and standards and receiving approval and implementing restriction/ordinance (2 days). Annual labor cost includes enforcement.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Residential	$6.55
Irrigation	$5.67
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on current weighted rates for listed customer categories

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$363,016	/year
Estimated Average Annual Revenue with Water Savings	$326,714	/year
Annual Revenue Loss Related to Water Savings	**$36,302**	/year

Estimated Annual Cost	**$36,929**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$6,274**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$369,290.48**	
Cost per 1000 Gallons Saved	**$5.91**	

Requiring Wind and/or Rain Sensors for Business and Open Space Irrigation

The City could require wind and/or rain sensors for businesses and open space irrigation. Wind/rain sensors paired with irrigation controllers are used to automatically shut off sprinklers during rain events or windy conditions when irrigation efficiency is reduced. This avoids over-watering and wasting water.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate: 5.00%

Customer Category	Avg. Annual Outdoor Water Use Over the Planning Period (MG)	*Estimated Annual Water Savings (gal/yr)*
Commercial	89.07	4,453,441
Irrigation	27.08	1,353,911
Municipal	19.81	990,579
Non-Potable Commercial	10.26	513,215

Notes:

Outdoor use is estimated at a weighted average of approximately 64% for the listed treated water customer categories and 100% for non-potable customer categories.

A conservative estimate of 5% savings of projected outdoor water usage was assumed.

Estimated Annual Water Savings	**7.3**	MG/yr
Estimated Savings over Planning Period	**73.1**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	32	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$1,730.88	/year
One-Time Staff Cost	$1,298.16	
Total Labor Costs	**$1,860.70**	/year

Notes:

Labor costs include one-time estimated staff costs for researching and developing requirements and standards and receiving approval and implementing restriction/ordinance (3 days). Annual labor cost includes enforcement and/or inspection. Inspections may be performed by a third party.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Commercial	$5.67
Irrigation	$5.67
Municipal	$0.00
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on current weighted rates for listed customer categories

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$684,728	/year
Estimated Average Annual Revenue with Water Savings	$650,491	/year
Annual Revenue Loss Related to Water Savings	**$34,236**	/year

Estimated Annual Cost	**$36,097**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$18,607**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$360,970.83**	
Cost per 1000 Gallons Saved	**$4.94**	

Restrictive Covenants Ordinance

A Restrictive Covenants Ordinance prohibits homeowner association's covenants from banning the use of Xeriscape or requiring a percentage of landscape area to be planted with turf.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate: 2.50%

Notes:

Outdoor use is estimated at 32% of treated Residential water use and 100% of non-potable water use.

An estimate of 2.5% savings of projected outdoor water usage was assumed.

Customer Category	Avg. Annual Outdoor Water Use Over the Planning Period (MG)	*Estimated Annual Water Savings (gal/yr)*
Residential	206.74	5,168,518
Non-Potable Residential	54.68	1,366,945

Estimated Annual Water Savings	**6.54**	MG/yr
Estimated Savings over Planning Period	**65.4**	MG

Costs

Total Cost to Water Provider

One-Time Labor Costs

Staff Hours	10	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$540.90	/year
One-Time Staff Cost	$865.44	
Total Labor Costs	**$627.44**	/year

Notes:

Labor costs include one-time estimated staff costs for researching and developing requirements and standards and receiving approval and implementing restriction/ordinance (2 days). Annual labor cost includes enforcement.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Residential	$6.55
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on current weighted rates for listed customer categories

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$1,494,489	/year
Estimated Average Annual Revenue with Water Savings	$1,457,126	/year
Annual Revenue Loss Related to Water Savings	**$37,362**	/year

Estimated Annual Cost	**$37,990**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$6,274**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$379,896.58**	
Cost per 1000 Gallons Saved	**$5.81**	

New Car Wash Standards (New Construction)

The amount of water used by car wash facilities depends primarily on the type of cleaning system used and whether its design includes reclamation. Car washes with reclaimed water systems can reduce water use by more than half.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Self Service Carwash Water Use*	15	gal/vehicle
Stationary Automatic Carwash Water Use*	60	gal/vehicle
Conveyor Carwash Water Use*	65	gal/vehicle
Average Vehicles Washed per Year	7,300	/carwash/yr
Estimated Average Annual Carwash Facility Usage	248,200	gal/carwash
Carwash Reclamation/Recycle System Savings Rate*	50%	gal/yr
Estimated Number of Future Carwash operations	3.0	
Estimated Annual Water Savings	**0.37**	MG/yr
Estimated Savings over Planning Period	**3.7**	MG

The Carwash water use per vehicle does not include any water recycling systems.

Assumed that on average approximately 20 vehicles are cleaned at a single carwash each day.

Assume the 60% of vehicles use the self service, 20% use the Automatic Carwash, and 20% use the Conveyor washes.

**Based on "Handbook of Water Use and Conservation" by Amy Vickers.*

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	10	/year
Hourly Cost	$54.09	/hour
Annual Labor	**$540.90**	/year
One-Time Staff Cost	$865.44	
Annual Labor	**$919.53**	/year

Notes:

Labor costs include one-time estimated staff costs for researching and developing requirements and standards and receiving approval and implementing restriction/ordinance (2 days).

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Commercial	$5.67

Notes:

The annual revenue loss was estimated based on a the average rate of commercial customers.

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$2,815	/year
Estimated Average Annual Revenue with Water Savings	$1,407	/year
Estimated Annual Revenue Loss Related to Water Savings	**$1,407**	/year

Estimated Annual Cost	**$2,327**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$9,195**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$23,268.24**	
Cost per 1000 Gallons Saved	**$6.25**	

Landscape Design Ordinances and Restrictions

Landscape design ordinances include Rules and Regulations for Landscape Design/Installation, Soil Amendment Requirements, Turf Restrictions, and Irrigation Efficiency Regulations. The City has Landscaping Development Standards in its Municipal Code; the City can add new regulations or strengthen existing regulations.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate: 5.00%

Customer Category	Avg. Annual Outdoor Water Use Over the Planning Period for New Construction (MG)	*Estimated Annual Water Savings (gal/yr)*
Residential	46.82	2,340,914
Commercial	31.88	1,594,161
Irrigation	5.21	260,681
Municipal	4.61	230,703
Non-Potable Residential	10.43	521,362
Non-Potable Commercial	3.13	156,408

Notes:

Outdoor use is estimated at a weighted average of approximately 39% for the treated customer categories and 100% of non-potable water use.

It was assumed this ordinance/restriction would only be applied to new construction. An estimate of 5% savings of projected outdoor water usage was assumed.

Estimated Annual Water Savings	**5.1**	MG/yr
Estimated Savings over Planning Period	**51.0**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	40	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$2,163.60	/year
One-Time Staff Cost	$1,730.88	
Total Labor Costs	**$2,336.69**	/year

Notes:

Labor costs include one-time estimated staff costs for researching and developing requirements and standards and receiving approval and implementing restriction/ordinance (4 days). Annual labor cost includes enforcement.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Weighted average of customer rates	$6.17
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on current weighted rates for listed customer categories

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$581,232	/year
Estimated Average Annual Revenue with Water Savings	$552,171	/year
Annual Revenue Loss Related to Water Savings	**$29,062**	/year

Estimated Annual Cost	**$31,398**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$23,367**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$313,982.97**	
Cost per 1000 Gallons Saved	**$6.15**	

Public Education Activities

Analysis of costs and benefits for educational activities are combined as shown below. Activities include Billing Statements that Encourage Water Savings, Bill Stuffers, Electronic Bill Links, Newsletters, Water Efficiency Page on Evans' website and Social Media Campaigns (e.g., Facebook, Twitter, etc.). One goal is to provide consistent online information between platforms and planning efforts.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Customer Category	Avg. Annual Water Use over Planning Period (MG)	Estimated Annual Savings Rate	*Estimated Annual Water Savings (gal/yr)*
Residential	646.06	2.00%	12,921,296
Commercial	184.79	0.75%	1,385,926
Irrigation	27.08	0.75%	203,087
Municipal	22.39	0.75%	167,895
Non-Potable Residential	54.68	2.00%	1,093,556
Non-Potable Commercial	10.26	0.75%	76,982
Non-Potable Municipal	14.17	0.75%	106,309

Estimated Annual Water Savings	**15.96**	MG/yr
Estimated Savings over Planning Period	**159.6**	MG

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	121	/year
Hourly Cost	$46.87	/hour
Annual Labor	**$5,688.92**	/year
Materials Costs		
Unit Cost (cost of Mailers)	$0.25	/participant
Avg. Number of Participants (receiving bill stuffers) over Planning Period	7,283	/year
Annual Materials	**$1,820.65**	/year
Annual Costs		
CO WaterWise Membership (optional)	$500.00	/year

Notes:

Staff hours include time spent preparing mass mailings, updating the website, adding electronic links in bills to conservation webpage and preparing social media posts/campaigns.

The average number of treated water taps during the planning period is projected to be 7283. Electronic 'bill stuffers' or links in bills can be used insead of paper copies.

Annual WaterWise membership cost included for a small utility. The City could use the Live Like You Love It campaign materials.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Weighted average of customer rates	$6.17
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on current rates for the City customers and assumes rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$5,637,701	/year
Estimated Average Annual Revenue with Water Savings	$5,543,808	/year
Estimated Annual Revenue Loss Related to Water Savings	**$93,894**	/year

Estimated Annual Cost	**$101,903**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$80,096**	
Estimated Total Cost over Planning Period Including Lost Revenue	**$1,019,031.66**	
Cost per 1000 Gallons Saved	**$6.39**	

Children's Water Fair or Festival

Evans partners with Greeley to participate in Children's Water Fairs/Festivals and provides educational materials and information to students about water efficiency and conservation.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Participant Annual Estimated Savings Rate	0.25%

Customer Category	Avg. Annual Water Use Over the Planning Period (gal/tap)	*Estimated Annual Water Savings (gal/tap/yr)*	*Annual Program Participants*
Residential	95,511	239	100

Estimated Annual Water Savings	**0.02**	MG/yr
Estimated Savings over Planning Period	**1.3**	MG

Notes:

This measure only affects residential water usage. It was asssumed 100 children participate in a water fair each year. Each year it is assumed 100 new children participate, so by year 10 of the planning period, a total of 1000 children have participated in the water fairs. For simplicity, the treated water Residential customer category was used; however, some savings may occur in the Non-Potable Residential category at homes with dual systems.

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	24	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$1,298.16	
Third Party Costs	$0.00	/year
Evaluation and Follow-up Costs (Labor/Consultant)	$0.00	/year
Annual Labor	**$1,298.16**	/year
Materials Costs		
Annual Materials Budget	$200	/year
Annual Materials	**$200.00**	/year
One Time Labor and Material Costs		
One Time Materials Cost	$0.00	
Third Party Costs	$0.00	
One Time Labor/Material Cost	**$0.00**	

Notes:

Staff hours include time participating in water fairs or festivals. It was assumed the City would participate in 1 fair for 8 hours each with 4 hours of prep time for each.

Material costs may include an annual budget for educational materials.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Residential	$6.55

Notes:

The annual revenue loss was estimated based on current rates for the City customers and assumes rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$344,309	/year
Estimated Average Annual Revenue with Water Savings	$343,448	/year
Annual Revenue Loss Related to Water Savings	**$861**	/year

Estimated Annual Cost	**$2,358.93**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$14,981.60**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$23,589.33**	
Cost per 1000 Gallons Saved	**$17.96**	

Post or Distribute ET Irrigation Scheduling

ET irrigation schedules using historical averages of weather data can be prepared by the City prior to the irrigation season and sent out to all customer categories to reference when programming their irrigation systems. Northern Water has tools on their website that can aid with this calculation. The schedule could be printed on the bill or posted on the web at the beginning or for the duration of the irrigation season.

Planning Period	2019 to 2028
Years in Planning Period	10
Program Length	10

Estimated Water Savings

Annual Estimated Savings Rate	2.00%

Customer Category	**Avg. Annual Outdoor Water Use Over the Planning Period** (MG)	***Estimated Annual Water Savings*** *(gal/yr)*
Residential	206.74	4,134,815
Commercial	89.07	1,781,377
Irrigation	27.08	541,564
Municipal	19.81	396,232
Non-Potable Residential	54.68	1,093,556
Non-Potable Commercial	10.26	205,286

Notes:

This measure affects projected outdoor water usage for the customer categories shown.

Estimate that approximately 39% of treated water use is used outdoors and 100% of non-potable water is used outdoors.

Estimated Annual Water Savings	**8.15**	MG/yr
Estimated Savings over Planning Period	**81.5**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	8	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$432.72	
Third Party Costs	$0.00	/year
Evaluation and Follow-up Costs (Website updates, etc.)	$0.00	/year
Annual Labor	**$432.72**	/year

Notes:

Staff hours include time spent preparing schedules. It is assumed a schedule is sent out one time per year. One-time labor costs include 12 hours of program set-up by City Staff and then 8 hours per year of Staff support.

One Time Labor and Material Costs

One Time Materials Cost	$0.00	
One Time Labor Costs	$649.08	*12 hours of staff time
One Time Labor/Material Cost	**$649.08**	

Water Rates

Rate Category	**Current Rates** (per 1,000 gals)
Weighted average of customer rates	$6.17
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on current rates for the City customers and assumes rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$2,281,765	/year
Estimated Average Annual Revenue with Water Savings	$2,236,129	/year
Estimated Annual Revenue Loss Related to Water Savings	**$45,635**	/year

Estimated Annual Cost	**$46,132.92**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$497.63**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$461,329.19**	
Cost per 1000 Gallons Saved	**$5.66**	

K-12 Teacher and Classroom Education Programs

The City can develop a K-12 Teacher and Classroom Education Program and/or potentially partner with a local college or its students.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Customer Category	0.25%

Customer Category	Avg. Annual Water Use Over the Planning Period (gal/tap)	*Estimated Annual Water Savings (gal/tap/yr)*	*Annual Program Participants*
Residential	95,511	239	200

Estimated Annual Water Savings	**0.05**	MG/yr
Estimated Savings over Planning Period	**2.6**	MG

Notes:

This measure only affects residential water usage. It was asssumed 200 students are enrolled in the program each year.
Each year it is assumed 200 new students participate, so by year 10 of the planning period, a total of 2000 students have been through the program.
For simplicity, the treated water Residential customer category was used; however, some savings may occur in the Non-Potable Residential category at homes with dual systems.

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	48	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$2,596.32	
Third Party Costs	$0.00	/year
Evaluation and Follow-up Costs (Labor/Consultant)	$0.00	/year
Annual Labor	**$2,596.32**	/year
Materials Costs		
Annual Materials Budget	$500	/year
Annual Materials	**$500.00**	/year

Notes:

Staff hours include time spent preparing and updating an education program, ordering and preparing educational materials, and training educators. Assumes 4 staff members spend 12 hours/year. Note the staff time may be less if partnering with another organization.

Material costs include a $500 annual budget for education materials costs.

For more information please see:
www.projectwet.org
www.watereducationcolorado.org
https://northernwater.org/AboutUs/TeacherInfo.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Residential	$6.55

Notes:

The annual revenue loss was estimated based on current rates for the City customers and assumes rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$688,618	/year
Estimated Average Annual Revenue with Water Savings	$686,897	/year
Annual Revenue Loss Related to Water Savings	**$1,722**	/year

Estimated Annual Cost	**$4,817.87**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$30,963.20**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$48,178.65**	
Cost per 1000 Gallons Saved	**$18.34**	

Property Manager/HOA Education and Training

This measure includes a seminar style training provided to large property managers and HOAs.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Customer Category	1.00%

Category	Avg. Annual Outdoor Water Use Over the Planning Period (MG)	*Estimated Annual Water Savings (gal/yr)*
Commercial	89.07	890,688
Irrigation	27.08	270,782
Non-Potable Commercial	10.26	102,643

Notes:

This measure affects projected Commercial and Irrigation customer categories.

Estimate that approximately 60% of treated water use is used outdoors and 100% of non-potable water is used outdoors.

Estimated Annual Water Savings	**1.26**	MG/yr
Estimated Savings over Planning Period	**12.6**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	40	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$2,163.60	
Third Party Costs	$0.00	/year
Evaluation and Follow-up Costs	$0.00	/year
Annual Labor	**$2,163.60**	/year

Materials Costs

Unit Cost	$25.00	/participant
Number of Participants	25	/year
Gallons Saved per Unit per Year	0	gallons
Annual Materials	**$625.00**	/year

Notes:

Cost includes seminar preparation and instruction.

Material budget is approximately $25 per class participant. With an estimated seminar attendance size of 25 participants.

There may be an opportunity to team with the City of Greeley.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Commercial	$5.67
Irrigation	$5.67
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on current rates for the City customers and assumes rates will not change significantly over the planning period. For revenue loss calculations.

Estimated Average Annual Revenue without Water Savings	$684,727.74	/year
Estimated Average Annual Revenue with Water Savings	$677,880.46	/year
Estimated Annual Revenue Loss Related to Water Savings	**$6,847.28**	/year

Estimated Annual Cost	**$9,635.88**	/year
Estimated Cost Over Planning Period not including Lost Revenue	**$27,886.00**	
Estimated Total Cost Over Planning Period Including Lost Revenue	**$96,358.77**	
Cost per 1000 Gallons Saved	**$7.62**	

Citizen Advisory Board

Evans may organize a Citizen Advisory Board to help with public education campaigns, water efficiency planning measures and public outreach and feedback. This board can provide feedback to staff regarding the potential public acceptance of new programs.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Customer Category	0.10%

Category	Avg. Annual Water Use over Planning Period (MG)	*Estimated Annual Water Savings (gal/yr)*
Residential	646.06	646,065
Commercial	184.79	184,790
Non-Potable Residential	54.68	54,678
Non-Potable Commercial	10.26	10,264

Estimated Annual Water Savings	**0.90**	MG/yr
Estimated Savings over Planning Period	**9.0**	MG

Notes:

This measure has the potential to improve all categories; however, it was assumed the priority would be Residential and Commercial customer categories.

This measure also potentially overlaps with other efficiency measures and programs, therefore a conservative reduction of 0.1% of projected annual water use was assumed.

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	32	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$1,730.88	
Third Party Costs	$0.00	/year
Evaluation and Follow-up Costs	$0.00	/year
Annual Labor	**$1,730.88**	/year

Notes:

Estimated staff costs to conduct 2 Citizen Advisory Board meetings per year with 2 staff members in attendance. It assumes each meeting is 1 hour long plus an additional 7 hours of preparation and follow-up per staff member.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Residential	$6.55
Commercial	$5.67
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on current rates for the City customers and assumes rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$5,447,925.30	/year
Estimated Average Annual Revenue with Water Savings	$5,442,477.38	/year
Estimated Annual Revenue Loss Related to Water Savings	**$5,447.93**	/year

Estimated Annual Cost	**$7,178.81**	/year
Estimated Cost Over Planning Period not including Lost Revenue	**$17,308.80**	
Estimated Total Cost Over Planning Period Including Lost Revenue	**$71,788.05**	
Cost per 1000 Gallons Saved	**$8.01**	

Xeriscape Demonstration Garden

Maintaining a xeriscape demonstration garden is an excellent way to educate the public to the water savings and beauty available from xeriscaping. The City could partner with another organization to design and maintain a xeriscape demonstration garden within the City.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Treated Water Savings:

Participant Annual Estimated Savings Rate	0.15%	

Customer Category	**Avg. Annual Outdoor Water Use Over the Planning Period** (gal/tap)	***Estimated Annual Water Savings*** *(gal/tap/yr)*	***Annual Program Participants*** *(taps)*
Residential	30,564	46	25
Irrigation	105,568	158	10
Non-Potable Residential	88,743	133	10
Non-Potable Commercial	875,081	1,313	5

Estimated Annual Water Savings	**0.01**	MG/yr
Estimated Savings over Planning Period	**0.6**	MG

Notes:

This measure affects projected outdoor water usage for the listed Customer Categories. Other customer categories may also benefit; however, they were not included to be conservative. If turf is removed at the garden location, there may be additional water savings. It is assumed new annual participants continue xeriscaping throughout the rest of the planning period.

It is estimated that approximately 32% of treated Residential customer use is outdoor use and 100% of Irrigation and non-potable water use is outdoor use.

Costs

Total Cost to Water Provider

Labor Costs		
Staff Hours	30	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$1,622.70	
Third Party Costs	$10,000.00	(one time cost)
Evaluation and Follow-up Costs (Labor/Consultant)	$0.00	/year
Annual Labor	**$2,622.70**	/year
Materials Costs		
Annual Materials Budget	$400	/year
Annual Materials	**$400.00**	/year

Notes:

Some staff time is associated with communication and coordination of a contractor, volunteers or a partner organization to develop and maintain the Xeriscape Garden. A one-time third party cost for garden installations, plants and planting materials is included. Annual maintenance costs are also included for the City. The City may be able to obtain a grant to cover some or all costs.

Water Rates

Rate Category	**Current Rates** (per 1,000 gals)
Residential	$6.55
Irrigation	$5.67
Non-Potable customers	$2.55

Notes:

The annual revenue loss was estimated based on current rates for City customers and assumes rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$134,277	/year
Estimated Average Annual Revenue with Water Savings	$134,076	/year
Annual Revenue Loss Related to Water Savings	**$201**	/year

Estimated Annual Cost	**$3,224.12**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$30,227.00**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$32,241.16**	
Cost per 1000 Gallons Saved	**$55.18**	

Sub-Meter Mobile Home Parks (Not Selected)

The total water use for the City's four mobile home parks comprise about 45% of the City's treated commercial use. Sub-metering these parks would help residents to conserve water.

Planning Period	2019 to 2028	
Years in Planning Period	10	
Program Length	10	years

Estimated Water Savings

Annual Estimated Savings Rate	2.00%	
Total Average Annual Commercial Water Use	184.8	MG/yr

Notes:

Approximately 45% of the total potable Commercial water usage is used by the four City mobile home parks.

Category	Avg. Annual Water Use over Planning Period (gal)	*Estimated Annual Water Savings (gal/yr)*
Cave Creek	57,324,672	1,146,493
Terrace Park	3,874,076	77,482
Green Acres	6,704,852	134,097
Bella Vista	1,467,990	29,360

Estimated Annual Water Savings	**1.39**	MG/yr
Estimated Savings over Planning Period	**13.9**	MG

Costs

Total Cost to Water Provider

Labor Costs

Staff Hours	141	/year
Hourly Cost	$54.09	/hour
Annual Staff Costs	$7,626.69	
Third Party Costs	$0.00	
Evaluation and Follow-up Costs	$0.00	/year
Annual Labor	**$7,626.69**	/year

Materials Costs

Unit Cost	$300.00	/participant
Number of Participants	70	/year
Annual Materials	**$21,000.00**	/year

Notes:

Anticipate that there will be approximately 703 units that will require meters. Annual Staff Costs for this savings measure include data processing. Other costs, such as fuel and vehicle maintenance are not included since some costs would be associated with reading the meters no matter what the scenario.

Materials cost assumes the City installs AMR meters for all customers.

Water Rates

Rate Category	Current Rates (per 1,000 gals)
Commercial	$5.67

Notes:

The annual revenue loss was estimated based on current rates for commercial customers.

Estimated Revenue assumes that the current rates will not change significantly over the planning period.

Estimated Average Annual Revenue without Water Savings	$393,337	/year
Estimated Average Annual Revenue with Water Savings	$385,470	/year
Estimated Annual Revenue Loss Related to Water Savings	**$7,867**	/year

Estimated Annual Cost	**$36,493**	/year
Estimated Cost over Planning Period not including Lost Revenue	**$286,267**	
Estimated Total Cost over Planning Period Including Set-up and Lost Revenue	**$364,934.28**	
Cost per 1000 Gallons Saved	**$26.30**	

APPENDIX E

Public Notice and City of Evans Resolution

APPENDIX F

Colorado Water Conservation Board Cover Letter, Checklist, and Approval