Water Conservation Plan Update

Denver Water

1/7/2015

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Section 1: Introduction

Denver Water is a leader in water conservation and is committed to water conservation and efficiency because of the value it brings to Denver Water's operations, customers and the environment. Denver Water's 2007 conservation plan, Tap-Smart, set a goal to reduce per capita water use by 22 percent from pre-2002 drought levels by 2016. As that effort nears completion, Denver Water's conservation plan requires updating, pursuant to C.R.S. §37-60-126. Fulfilling this requirement offers the opportunity to demonstrate the knowledge gained in water conservation, to report water savings since 2007, to reanalyze Denver Water's programmatic approach and to reanalyze how to measure success.

The Tap-Smart plan accelerated the timeline of Denver Water's savings goal from 2050 to 2016. In this plan, 39,400 acre-feet (AF) of water savings was apportioned in the following manner: 10,000 AF of permanent savings as a result of behavioral and structural changes from the 2002-2004 drought; a 4,400 AF reduction achieved as a result of an inclining block rate structure; and a 25,000 AF reduction from a combination of active and passive savings.

The transition from the 2007 Tap-Smart plan to this updated plan includes an increased focus on conservation program monitoring and evaluation. This effort clearly allocates the desired savings goal into measurable objectives. This shift is due in large part to the impractical nature of measuring a 22 percent reduction in per capita use on an annual basis.

This updated plan compliments several other ongoing planning efforts at Denver Water and does not function as a standalone tool to manage water demand for the future. Denver Water's 2014 Drought Response Plan creates the framework for emergency demand reduction and, when necessary, may take priority over many aspects of conservation activities outlined in this plan. The Water Reuse Master Plan provides a means to maintain current reuse customers and prioritize new customers connecting to the reuse system. The planned efforts to increase water storage through enlarging and dredging current reservoirs and reducing leaks in distribution system also provide reliability and additional water needed for the future.

The following chapters provide information required under C.R.S. §37-60-126, while also showing the knowledge gained since 2007 about managing a comprehensive conservation program. This plan provides a snapshot of how Denver Water manages programs today, while providing the flexibility necessary to adjust efforts when needed. Denver Water's programs continue to evolve with Board direction, customer needs and new technology. Denver Water realizes that continued conservation, along with new supply projects and reuse opportunities, need to be part of its integrated water supply future. Water conservation plays a crucial role as a low cost form of supply and a way to stretch both current and future supplies.

Denver Water drafted this plan in 2014 using the State's Guidance documents, the State Wide Supply Initiative (SWSI) Levels Analysis and knowledge gained from over 20 years of managing conservation programs. The quality of the content and concepts included in this plan were greatly enhanced by input from Denver Water Distributor's, The Denver Water Citizens Advisory Committee, Non- Government Organizations, Colorado Water Conservation Board staff and other water provider's staff.

A public input process was initiated on October 23, 2014 with comments accepted through December 31, 2014. The plan was posted on Denver Water's web site and staff solicited comments through directly engagement of stakeholders. There were no direct comments to the plan through this engagement.

CURRENT STATE

Section 2: Profile of Existing Water System

2.1 Water Sources and Delivery

Background

Denver Water is Colorado's oldest and largest water utility. Denver Water proudly serves high-quality water and promotes its efficient use to 1.3 million people in the city of Denver and many surrounding suburbs. Established in 1918, the utility is a public agency funded by water rates and new tap fees, not taxes. Denver Water is a separate entity from the city of Denver and derives its authority from the Charter of The City and County of Denver (Article X).

Denver Water is run by a five-member Board of Water Commissioners, who are charged with ensuring a continuous supply of water to the people of Denver and Denver Water's suburban customers.

Today, Denver Water's service area covers more than 335 square miles, including the City and County of Denver and several suburban distributors. Denver Water operates and maintains more than 3,000 miles of distribution pipe — enough to stretch from Los Angeles to New York — as well as 19 raw water reservoirs, 22 pump stations and four treatment plants — Marston, Moffat and Foothills potable water plants and the non-potable Recycling Plant.

Water Supply

The source of water for the three potable water plants comes from rivers and streams fed by mountain snowmelt. Denver Water's collection system, shown in **Figure 1** on the following page, covers about 4,000 square miles, or 2.5 million acres, and extends into more than eight counties. The South Platte River, Blue River, Williams Fork River and Fraser River watersheds are Denver Water's primary water sources, but it also uses water from the South Boulder Creek, Ralston Creek and Bear Creek watersheds. Dillon Reservoir is Denver Water's largest storage facility and holds nearly 40 percent of Denver Water's reservoir capacity.

Denver Water serves about one-quarter of the state's population but uses less than two percent of all water, treated and untreated, in Colorado. Outside the City and County of Denver, Denver Water provides water service through contractual relationships with distributors. The service area and associated water providers covered under the combined service agreement are shown in a map in Appendix A with a list of Distributors delineating covered and non-covered entities in Appendix B. The State of Colorado designates water providers serving 2000 AF or more as a covered entity for State Conservation Planning purposes; this plan covers all entities listed, covered and non-covered, as one integrated system.

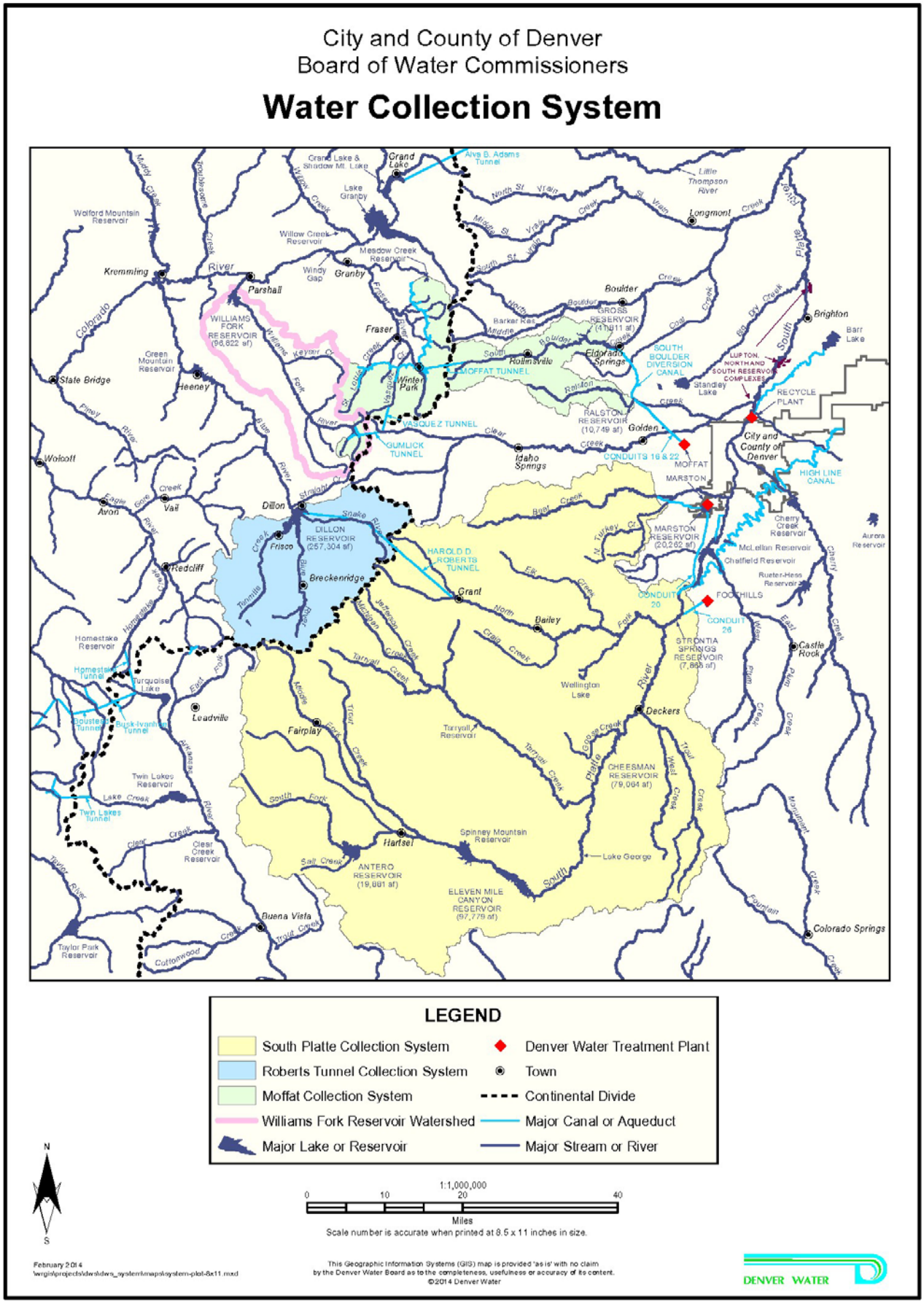


Figure 1. Map of Denver Water's collection system.

Recycled Water

Water is a precious resource here in the West, much too precious to use just once. Fully understanding the value of water in this climate, Denver Water started a program to treat and recycle wastewater. Once build-out of the recycled water system is complete, it will supply more than five billion gallons of recycled water every year — water for irrigation, for industrial use, for lakes in parks and for golf courses.

Denver Water operates the largest recycled water system in the state. The source water for the Recycling Plant is treated wastewater from the Robert W. Hite Wastewater Treatment Plant. The Recycling Plant's capacity is 30 million gallons per day.

Recycled water is not part of this conservation plan update; its demand and savings are captured separately since it is not a direct conservation program. While some conservation activities will overlap into recycled water, they will not be counted toward the goal in this conservation plan.

Gross Reservoir Expansion Project

Though customers have done an impressive job conserving water, Denver Water's supply, treatment and distribution system is still at risk from drought, wildfire and future water shortfalls. The Gross Reservoir Expansion Project will serve to help mitigate those risks.

The Gross Reservoir Expansion Project — also known as the Moffat Collection System Project — will pave the way for Denver Water to nearly triple the capacity of Gross Reservoir, located in Boulder County, and it will help resolve three major challenges: vulnerability, reliability and water shortfall.

2.2 Water Billing and Rate Structure

Denver Water bills all customers monthly. Water rate structures and billing systems are designed to encourage water efficiency in a fiscally responsible manner.

Rate structures vary based on the type of customer. Single family and small multi-family residential customers have a tiered rate structure where the cost per 1,000 gallons increases as customers use more water. Non-residential customers (i.e., commercial, industrial, government and irrigation only) have a seasonal rate structure where the cost per 1,000 gallons increases during the summer months (May through October). As of January 1, 2014 all customers pay a monthly fixed charge of $6.58.

The tables below show water use charges as of January 1, 2014 for the customer types served by Denver Water.

Table 1. Single Family Residential Water Use Charges

Rate per 1,000 Gallons	Schedule 1 Inside City	Schedule 2 Outside City Read and Bill	Schedule 3 Outside City Total Service
First 11,000 Gallons	$2.68	$2.73	$3.02
12,000 – 30,000 Gallons	$5.36	$5.46	$6.04

31,000 – 40,000 Gallons	$8.04	$8.19	$9.06
Over 40,000 Gallons	$10.72	$10.92	$12.08

Table 2. Small Multi-Family Residential (Duplex through 5-Plex with a Single Meter) Water Use Charges

Rate per 1,000 Gallons	Schedule 1 Inside City	Schedule 2 Outside City Read and Bill	Schedule 3 Outside City Total Service
First 15,000 Gallons	$2.93	$3.39	$4.21
Over 15,000 Gallons	$3.52	$4.07	$5.05

Table 3. All Other (Non-Residential) Water Use Charges

Rate per 1,000 Gallons	Schedule 1 Inside City	Schedule 2 Outside City Read and Bill	Schedule 3 Outside City Total Service
Winter – All Consumption	$1.84	$2.35	$2.70
Summer – All Consumption	$3.68	$4.70	$5.40

Winter bills have billing periods ending on November 1 through April 30. Summer bills have billing periods ending on May 1 through October 31.

Table 4. Irrigation Only Water Use Charges

Rate per 1,000 Gallons	Schedule 1 Inside City	Schedule 2 Outside City Read and Bill	Schedule 3 Outside City Total Service
Winter – All Consumption	$1.20	$1.31	$1.56
Summer – All Consumption	$4.81	$5.24	$6.24

Winter bills have billing periods ending on November 1 through April 30. Summer bills have billing periods ending on May 1 through October 31.

Table 5. Outside City Master Meter Treated Water Use Charges

	Rate per 1,000 Gallons
All Consumption	$3.95

Table 6. Recycled Water Use Charges

Rate per 1,000 Gallons	Inside City	Outside City	Outside the Combined Service Area
All Consumption	$0.99	Not Applicable	$1.11

Section 3: Current Water Conservation Efforts

3.1 Current Programs

Denver Water believes it is important that all customer classes have the opportunity to participate in conservation programs. Denver Water uses four main categories of conservation programs: rebates, audits, contracts and information.

Rebates – Denver Water offers both indoor and outdoor residential and commercial rebates. Over 20 different rebate types are available. Each year rebate participation and new products are evaluated to ensure adequate rebate offerings. Examples of items rebated include high-efficiency toilets, coin-operated laundry machines, ware washers, cooling tower conductivity controllers, irrigation controllers and irrigation rotary nozzles.

Audits – Audits play a significant role in the success of Denver Water's conservation program. There is full-time staff dedicated to performing audits year round. Denver Water audits residential high-bill, large irrigation, multi-family and commercial customers. Indoor audits range from hour-long single family home evaluations to week long multi-family complex evaluations requiring multiple staff. These audits include the replacement of inefficient fixtures such as faucet aerators and showerheads. Irrigation audits are performed seasonally and range from single family homes to multi-acre properties. These audits provide a detailed evaluation of each zone in the irrigation system as well as scheduling inefficiencies, inefficient design and mechanical problems. Reports are provided to the customer to help them prioritize repairs to their irrigation system. Audits also play an important role in identifying leaks.

Performance Incentives/Grants – For large commercial, irrigation and industrial customers, Denver Water administers performance-based incentives. These incentives help fund water-saving projects for a wide range of commercial and industrial processes for which there is no applicable rebate. Customers are paid based on measured water savings and receive no funds if projects are not successful, thus incentivizing customers to save water and protecting Denver Water against administering payments for projects that do not achieve water savings. Denver Water also supports public entities such as the City and County of Denver, public school districts and parks and recreation districts with matching funds for upgrades to landscapes, irrigation equipment, plumbing fixtures and other water uses otherwise not addressed with a rebate.

Education Information and Rules – Every customer class receives educational information about efficient practices and products. While some of this effort is accounted for in the passive savings in the form of advertising and informational bill stuffers, others are considered active programs with verifiable water savings. Active programs include Water Use Education and Enforcement and informational letters and email to customers. Water Use Education and Enforcement is a seasonal program to primarily educate and, when needed, enforce Denver Water operating rules for outdoor water use. Denver Water's soil amendment rule requires 4 cubic yards per 1000 square feet of irrigable landscape for all new construction to ensure infiltration of water into the soil. Denver Water is piloting personalized water efficiency information for customers through the Water Budget Program. This effort is meant to provide context to the very recognizable "Use Only What You Need" campaign. The ability to compare consumption to an efficient budget provides a gauge of what "Need" means in regards to the unique circumstance of each customer. Single-family customers

receive a monthly report that compares their consumption to a target budget and to other homes with similar characteristics. For larger customers a water use analysis is performed to create a more detailed water budget. This report is also sent monthly to all identified stakeholders including property managers and irrigation contractors.

Water Loss –Denver Water has a leak detection unit and regularly exceeds the American Water Works Association standards for leak detection and remediation. Water loss control involves system auditing, loss tracking, infrastructure maintenance, leak detection and leak repair for the water system. In addition, Denver Water began using the M36 Manual for Water Audits and Loss Control Programs in 2013.

3.2 Public Education

Public Education and Outreach

Public education and outreach is a key component of Denver Water's conservation program. Denver Water offers a variety of informational services for customers wanting to know more about the system that stores, monitors, treats, and delivers their water, and the unique water issues affecting Colorado. Examples of education and outreach efforts include:

- Denver Water has a robust website that has sections dedicated to Conservation, Education & Outreach, and more.

- Groups can request to tour a drinking water treatment plant to learn the five-steps of potable water treatment or learn about the expanding recycled water system at the Recycled Water Treatment Plant.

- Groups can request an expert speaker through Denver Water's Speakers Bureau free of charge.

- Denver Water has created an interactive graphic, The Journey of Water, to help users understand where their water comes from and how that water is delivered to customers.

- Denver Water has created two interactive graphics to illustrate how the potable water treatment and recycled water treatment systems work.

- Denver Water's Teacher Resource Packet contains information and activities related specifically to water use and supply in the Denver area. These materials are meant to complement the classroom text Investigating Earth Systems: Water.

- Denver Water's website hosts a series of short video clips on the organization's history, organization, conservation programs, and supply plans for the future.

- The Denver Water Trailer supplies ice-cold water to large, outdoor, public events. There is no fee for this community service.

- Denver Water considers contributions and sponsorships with external civic, nonprofit, education and business organizations that advance Denver Water's mission, vision and strategic initiatives.

- Denver Water writes a blog, *Mile High Water Talk*, that offers timely stories on Denver Water happenings, conservation opportunities, drought and youth education, among other topics.

- *WaterNews* is a monthly compilation of water news affecting Denver Water and customers. This is the online version of the insert printed every month in bills.

- Denver Water offers a free online newsletter, *E-Tap*, to share the latest water-saving tips and news from Denver Water.

- Denver Water educates customers on conservation practices with information with customer's monthly water bills.

- Denver Water is an active member in conservation organizations, including Colorado WaterWise, AWWA, AWRA and many more.

- Denver Water customers are able to download a graph displaying their water consumption over a specified period in order to compare usage month-to-month and year-to-year.

Use Only What You Need

In 2006 Denver Water started asking its customers to *use only what you need*. Since then, billboards have sprouted up over town, advertisements have rolled through the streets on bus tails, sandwich board-wearing conservation ambassadors have walked among the populace, and towering, barrel-shaped sculptures have educated. "Use Only What You Need" has become an award-winning and internationally-recognized marketing program.

Youth Education

Helping people understand water's importance and Denver Water's complex system often starts with the youngest members of society, and that is what Denver Water's youth education program sets out to do — increase students' knowledge of water in Colorado; educate children about who Denver Water is and what we do; and help create wise water-use behaviors.

Examples of Youth Education programs and activities include:

• Teacher Resource Packet: The packet contains information and activities related specifically to water use and supply in the Denver area. It's automatically distributed to every sixth-grade Earth Science class in Denver Public Schools, as well as to several classes within Denver Water's service area in Jefferson County Public Schools. Teachers have provided positive feedback about the packets, which include teaching tips, fun facts, expanded readings about local water topics, a glossary and more.

• H_2O Outdoors: Denver Water partners with Keystone Science School, the Colorado River Water Conservation District and Aurora Water to offer the H_2O Outdoors program in Summit County. High

school students from across the state spend three days in Keystone learning about the complexity of water in Colorado and the variety of stakeholder interests involved.

• Metro Denver Children's Water Festival: Denver Water worked closely with suburban distributors and Metropolitan State University of Denver's One World One Water Center to produce the first annual Metro Denver Children's Water Festival on May 14, 2014. More than 800 sixth-grade students enjoyed a day of hands-on activities and water-related education on the Auraria Campus.

• Classroom presentations and treatment plant tours: In the 2012-2013 school year, Denver Water's youth program educators gave 50 classroom presentations for 2,876 students and 152 adults, as well as 17 treatment plant and water quality lab tours for 357 students and teachers.

• Denver Water collaborates with local technical and community colleges to promote careers in the water industry.

Section 4: Water Use and Forecasted Demands

4.1 Current Water Use

Denver Water's 2008 to 2013 average consumption by customer type is shown in **Table 7** below. The consumption shown in the table represents treated water consumption by customers metered and billed within the service area as well as treated water master meter customers that purchase water from Denver Water for resale.

Table 7. Current Water Use

Current Water Use, expressed in thousands of gallons		
Metered General Customers		**Current Use in Thousands of Gallons**
Residential	Inside City	13,107,945
	Outside City – Read and Bill	4,435,092
	Outside City – Total Service	4,802,742
Residential Irrigation	Inside City	238,897
	Outside City – Read and Bill	173,094
	Outside City – Total Service	117,871
Small multi-family	Inside City	1,490,865
	Outside City – Read and Bill	122,199
	Outside City – Total Service	164,225
Commercial	Inside City	12,199,848
	Outside City – Read and Bill	2,399,534
	Outside City – Total Service	2,204,068
Industrial	Inside City	1,225,906
	Outside City – Read and Bill	629,394
	Outside City – Total Service	42,322
Other Irrigation	Inside City	691,557
	Outside City – Read and Bill	370,428
	Outside City – Total Service	490,541
Other Sales to Public Authorities		
City & County of Denver	Irrigation	1,397,712
	Non-Irrigation	809,888
Other County Agencies	Inside City	387,327
	Outside City – Read and Bill	195,781
	Outside City – Total Service	191,462
State Agencies	Inside City	144,819
	Outside City – Read and Bill	9,854
	Outside City – Total Service	1,456
Federal Agencies	Inside City	62,008
	Outside City – Read and Bill at Denver Rates	58,385
	Outside City – Read and Bill	63,922
	Outside City – Total Service	419
Master Meter	Outside City and Outside Combined Service Area	17,034,573
Total Current Use		**65,264,132**

4.2 Demand Forecast

Denver Water has developed water use projections that extend to the year 2050. Using econometric models, water use is forecasted using a host of major drivers on water use. Some of the major drivers include population, number of jobs, lot size for residential areas, weather and personal income. The numerical relationship between water use and these drivers is estimated in three econometric equations, one for each of the three service types in the service area (i.e., inside city, read and bill, and total service). Then, changes in population, jobs, lot size, etc. are estimated over time, and water use estimates are calculated.

Denver Water treats conservation in two different ways in its long-term planning. Passive conservation, which is defined as permanent water savings that occur through no direct intervention from the water provider, are subtracted from the water use projection described above. Active conservation is defined as permanent water savings achieved through direct intervention from the water provider. Active water conservation is evaluated along with other water resource strategies such as recycling water and new supply development, to arrive at an appropriate mix of strategies to meet the long-term water needs of the service area.

Differences between projected water use and actual water use can be a result of many circumstances. Changes in the rate of population growth, land use development, income, weather and conservation programs can contribute to differences. Denver Water's long-term water use projections are to the year 2050. It does not attempt to show how water use will grow throughout that period. As a result, there may be periods, such as the economic recession beginning in 2008 that would impact water use. Over the course of several decades, however, Denver Water plans for average growth rate with the understanding that there will be fast or slow periods of growth within those periods.

Denver Water is actively working on a conservation goal that aims to accelerate the pace of water conservation in its service area and reduce overall water use from pre-2002 drought usage by 22 percent by 2016. Denver Water's Board set this conservation goal to make permanent the many efficiencies seen during the 2002–2004 drought.

Denver Water is using numerous conservation tools to achieve this aggressive goal. There are components of passive savings and active savings. The active savings are expected to be achieved through direct programs such as rebates but also through a conservation-oriented rate structure, education, outreach and marketing. While there is some ability to quantify the savings from direct programs Denver Water offers, it is difficult, if not impossible, to quantify savings from advertising, broad-scale education or rates.

Section 5: Conservation Goals and Objectives

While Denver Water's planning relies on the 22 percent reduction in water use from pre-2002 drought usage by 2016, an important next step is to make sure those savings are permanent. Monitoring water savings from active programs is best measurement of permanence. Therefore, Denver Water's conservation goal continues to be to reduce overall water use from pre-2002 drought usage by 22 percent by 2016, but Denver Water's measurable objectives, reported to the Board annually to demonstrate progress toward that goal, are as follows:

Goals	**Objectives**
Defined as long- term (2006-2016) - Able to monitor general trends	Defined as short-term (yearly) - Able to measure specific actions
22 percent reduction in GPCD	1,000 AF active savings per year Program for every customer type Average cost per AF of less than $6,000

Denver Water will monitor the progress towards the conservation goal, which captures reductions in water use due to many factors, such as rates, passive savings and active savings. More importantly, however, this conservation plan emphasizes the monitoring and evaluation of the objectives of the water use reduction achieved through active conservation programs. A suite of active programs will attain at least 1,000 AF of savings annually.

Section 6: Identify Potential Water Conservation Measures and Programs

Denver Water selects and implements active programs for every customer type based on several factors and the matrix found in Appendix C. This matrix lists a comprehensive inventory of all the known programs available to Denver Water to conserve water. By cataloging these programs in a comparative matrix, Denver Water hopes to demonstrate the numerous programs that could be offered and the factors used to select and deselect programs. The function of the matrix is not to develop a ranking of when or if a listed program will be offered. Rather, this effort of selecting and deselecting programs is ongoing and the list will continue to grow with the science of conservation.

The matrix uses the SWSI Levels Analysis as an organizational tool as this reflects the current state of conservation best practices. This matrix covers all the State required elements for a plan but no additional weight is given to these measures when selecting programs. However, the matrix emphasizes the following measureable objectives that do not follow the Levels Analysis format:

- Average cost per acre foot,
- Active programs for every customer type, and
- Measurable water savings.

This matrix also aids in creating and maintaining partnerships by listing how potential partners and Denver Water can engage. For example, fixture rebate programs require staff to inform many of Denver Water's partners about programmatic changes prior to implementation since retailers, associated trades and Denver Water distributors need adequate lead time to prepare for changes. Efforts involving code or ordinances changes for landscaping require collaboration with Denver Water distributors and trade group representatives in order to empower local change. To fulfill the goal, Denver Water will partner with others when needed to leverage resources.

FUTURE STATE

Section 7: Evaluation and Selection of Measures and Programs

The primary way programs are measured and selected for implementation is by their overall cost per acre foot (CPAF). The CPAF compares the total annual water savings to the costs of administering the program. Program costs include equipment, rebate amounts and staff time. The CPAF figure allows the utility to compare the cost of new supply against the cost of conservation savings on an acre-foot basis. Denver Water's current portfolio of programs has an overall average CPAF below $6,000 per acre-foot. Programs that have a higher CPAF are maintained if they satisfy the requirement to have a program available for all types of customers.

Program design has historically followed a "store front" model, whereby programs were created and marketed, and the organization waited to see who "walked in the door." Future program design will rely heavily on a targeted approach for customer participation. Customers that use water in a similar way and have similar motivations will be grouped and ranked when designing and selecting programs. Programs will be customized and offered only to customers that will see the most water savings. With this approach, higher cost incentives can be offered with the cost justified by the increased water savings per customer. This targeted approach will require better classification of customers and analyses of their water use. Piloting new programs will be critical with this method as motivations and barriers will be unique to each customer classification.

Currently-selected conservation programs, associated water savings and CPAF are found in **Table 7** below. The programs listed in Table 7 reflect the 2015 action plan and will likely have minor changes every year as staff evaluates current and pilot programs and recommends changes to the board.

Table 7. Selected programs reflecting the 2015 action plan

Program	Expected Participation	Expected Savings (AF)	Expected CPAF
Water Use Enforcement & Education	4,800	35	$799
Commercial / Industrial / Multi-family Audits	616	19	$4,277
Residential High Bill Audits	1,200	66	$3,304
Large Irrigation Audits	1,100	131	$1,568
Low-Income Audits	2,834	108	$875
Performance Incentives / Efficiency Contracts	57	48	$5,318
Landscape Conversion Pilot	700	TBD	TBD
Low-Income Retrofits	1,725	57	$5,782
WaterSense Challenge	3,600	118	$3,742
Indoor Residential Rebates (HE/UHE Toilets)	12,440	409	$3,096
Outdoor Residential Rebates (nozzles/ET controllers)	12,050	52	$329
Indoor Commercial / Industrial Rebates	458	41	$1,283
Outdoor Commercial / Industrial Rebates	5,620	60	$1,731
Total:		1,143	
Average:			$2,675

Section 8: Monitoring, Evaluating, and Revising the Conservation Plan

Water savings are defined using two categories: active and passive. Active savings are considered observable based on participation in a program. Passive savings are not directly observable and are credited to the impacts of plumbing codes, ordinances and standards that improve water efficiency.

8.1 Monitoring Active Savings

Participation in active conservation programs is recorded in a variety of information systems and spreadsheets. These records are compiled monthly, quarterly and annually to track participation by program. Estimated savings are determined for each unit of participation within a program (e.g., rebate, incentive, audit), allowing the ability to report achieved savings in a given time period.

8.2 Evaluating Active Savings

Programs are evaluated based on cost, participation and achieved savings. For existing programs the savings attributed are based on an analysis of pre- and post-consumption at participating properties. For new programs, savings estimates are based on manufacturer specifications or evidence from literature. Program costs are evaluated annually using the CPAF metric. The combination of participation, cost and measured savings allow the ability to thoroughly evaluate the viability of each program.

As products and the market change, rebates are retired or updated. For example, in 2013 the high efficiency washing machine rebate was retired due to the results of a customer survey that showed the majority of customers that applied for rebates stated that they would have purchased the same washer regardless of the rebate incentive. In addition, the rebate for high efficiency toilets was reduced from $125 to $75 following a drop in price for qualifying models over time. With the introduction of ultra-high efficiency toilets, which carry a higher retail cost, a new rebate amount of $150 was created in 2014 for these products. Changes such as these are ongoing as Denver Water strives to move the market towards high-efficiency products.

8.3 Monitoring Passive Savings

Passive savings are monitored through reductions in gallons per capita per day (GPCD). GPCD is the annual ratio of total treated water production to the service area population. **Figure 2** below shows the annual service area GPCD from 2007 to 2013. Denver Water recognizes that observed reductions in water use beyond those quantified as active savings may also not be passive savings as much of the observed changes reflect weather differences and economic changes. For instance, the lower GPCD seen in 2009 and 2013 reflect a cooler and wetter summer and a drought response, respectively.

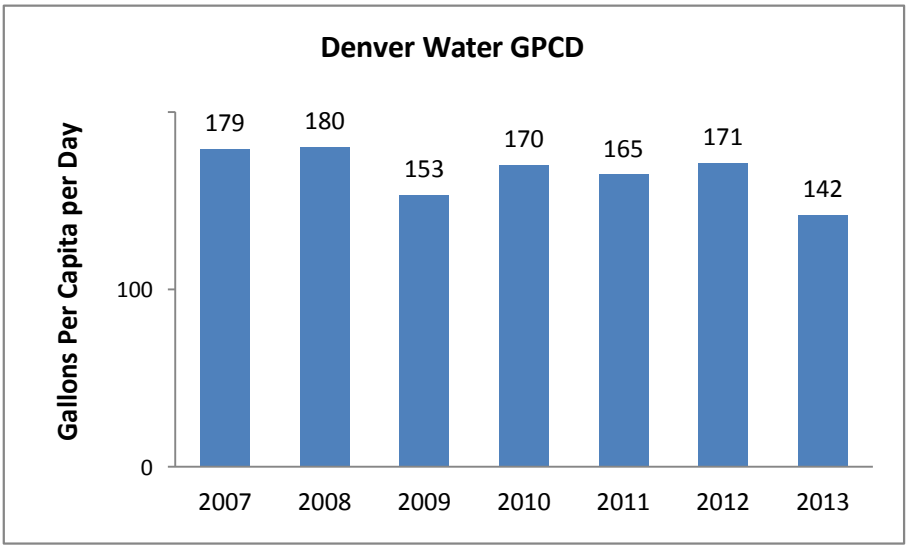


Figure 2. Denver Water's system-wide treated water GPCD from 2007 to 2013.

8.3 Evaluating Passive Savings

Passive savings are difficult to evaluate due to the numerous variables that can affect water use. It is currently unknown which factors have the greatest influence on water use reductions for customers that have not participated in a Denver Water conservation program.

8.4 Permanence of Savings

Active savings grant us the ability to evaluate on an ongoing basis because the location and type of activity are documented, and therefore water use can be evaluated over an extended period. These savings are considered permanent or sustainable due to the physical replacement of inefficient fixtures and the ability to monitor water use.

Since passive savings are a combination of unrecorded fixture replacement, changes in behavior, and more, Denver Water is unable to directly evaluate permanence. There currently is an internal effort to evaluate passive savings by analyzing water use trends and identifying variables that correlate strongly with a reduction in indoor and outdoor water use. The goal of this effort is to classify passive savings into permanent and non-permanent. These results will provide a high level of confidence in establishing baselines for revising the conservation plan.

8.5 Revising the Conservation Plan

Under the current conservation plan, Denver Water has achieved an average of over 1,200 acre feet of active savings per year since 2007. Savings are calculated each year and added to the previous total to show the cumulative progress towards the 2106 conservation goal. Estimated cumulative savings by general program type are shown in **Figure 3** below.

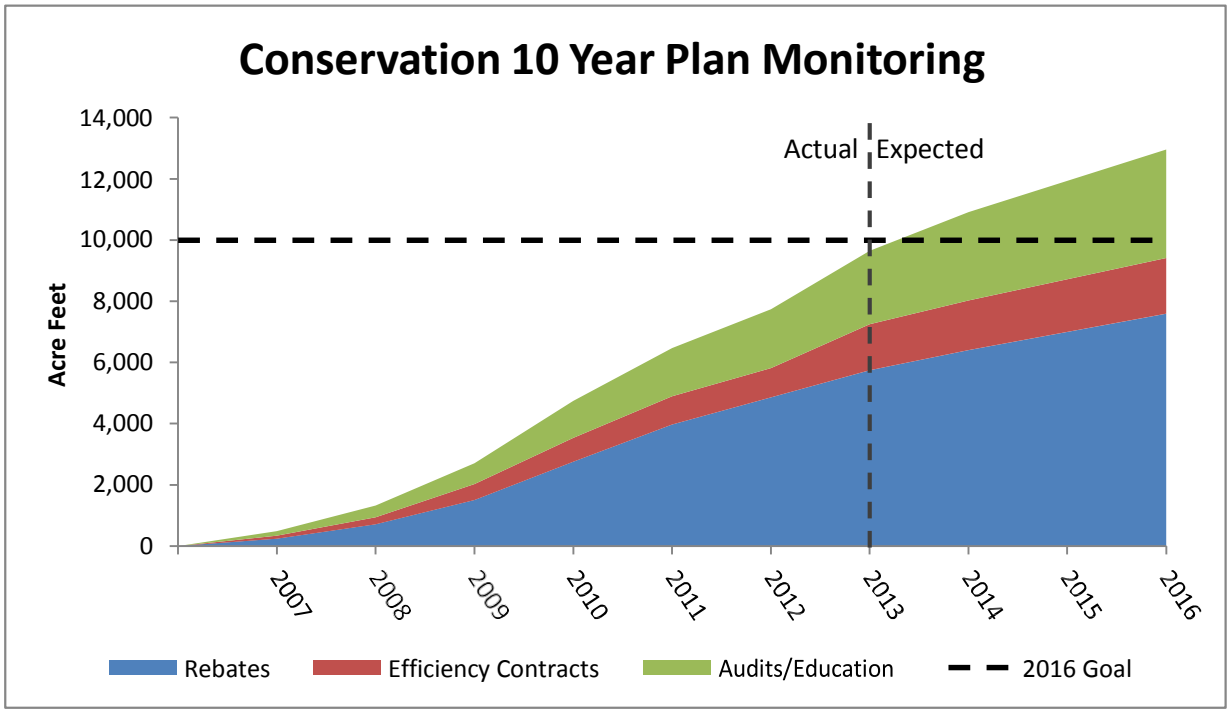


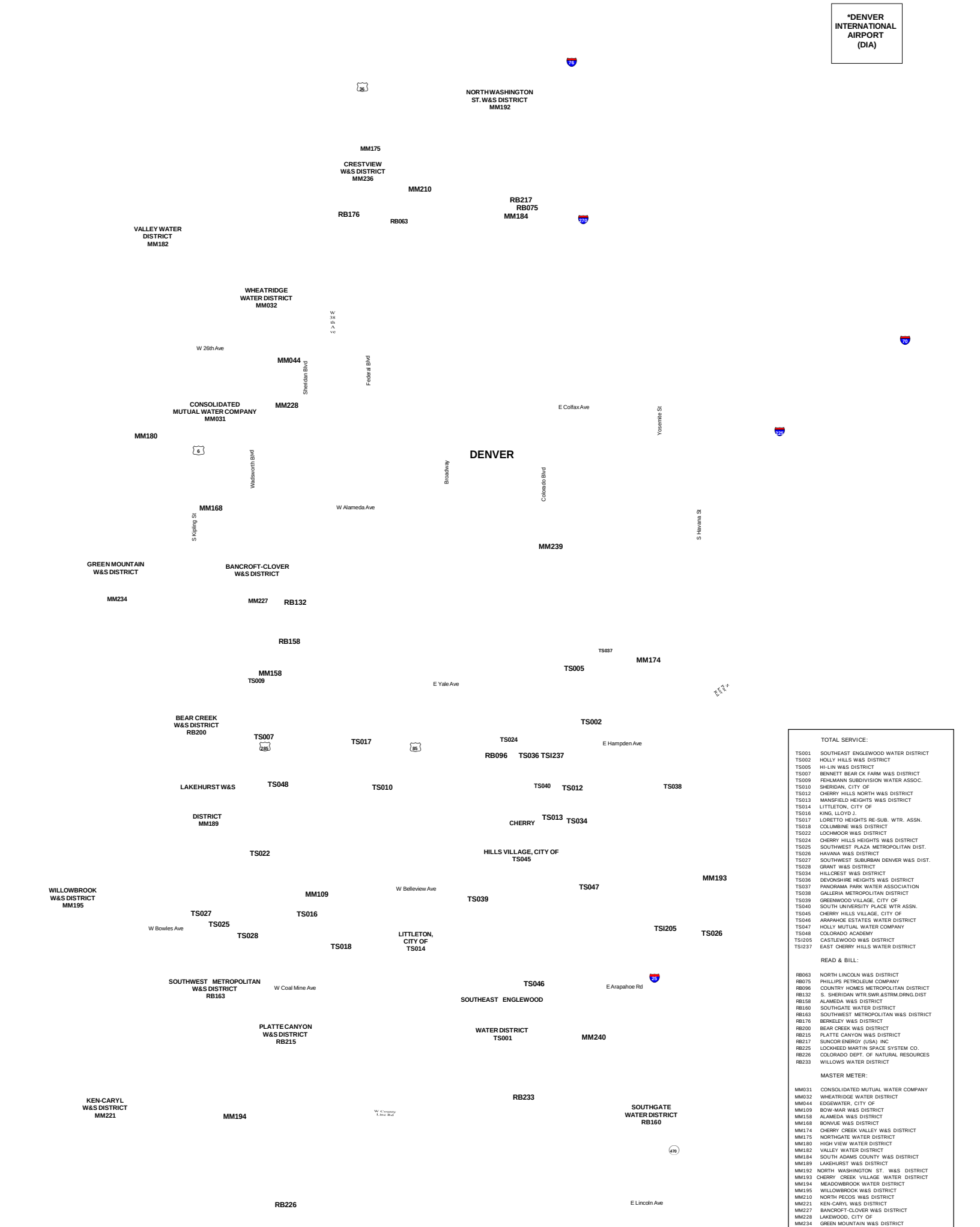
Figure 3. Estimated cumulative conservation water savings from 2007 to 2016.

As customers continue to adopt water-efficient behavior and technologies, it becomes increasingly difficult to achieve larger volumes of savings per year, a phenomenon known as demand hardening. Moving forward, a measurable objective of 1,000 acre-feet of active savings per year has been established for this Conservation Plan Update.

In order to meet our goal, Denver Water will focus on using better customer information and targeting programs to engage customers with the greatest potential for water savings. In addition to customized information and programs, Denver Water will also continue to offer programs for all customer types. Denver Water will use new information gained through programs, pilots and research to update this plan no later than December 31st, 2021.

Appendix A: Denver Water Service Area Map

DENVER WATER DISTRIBUTOR CONTRACT BOUNDARIES 2010



TOTAL SERVICE:

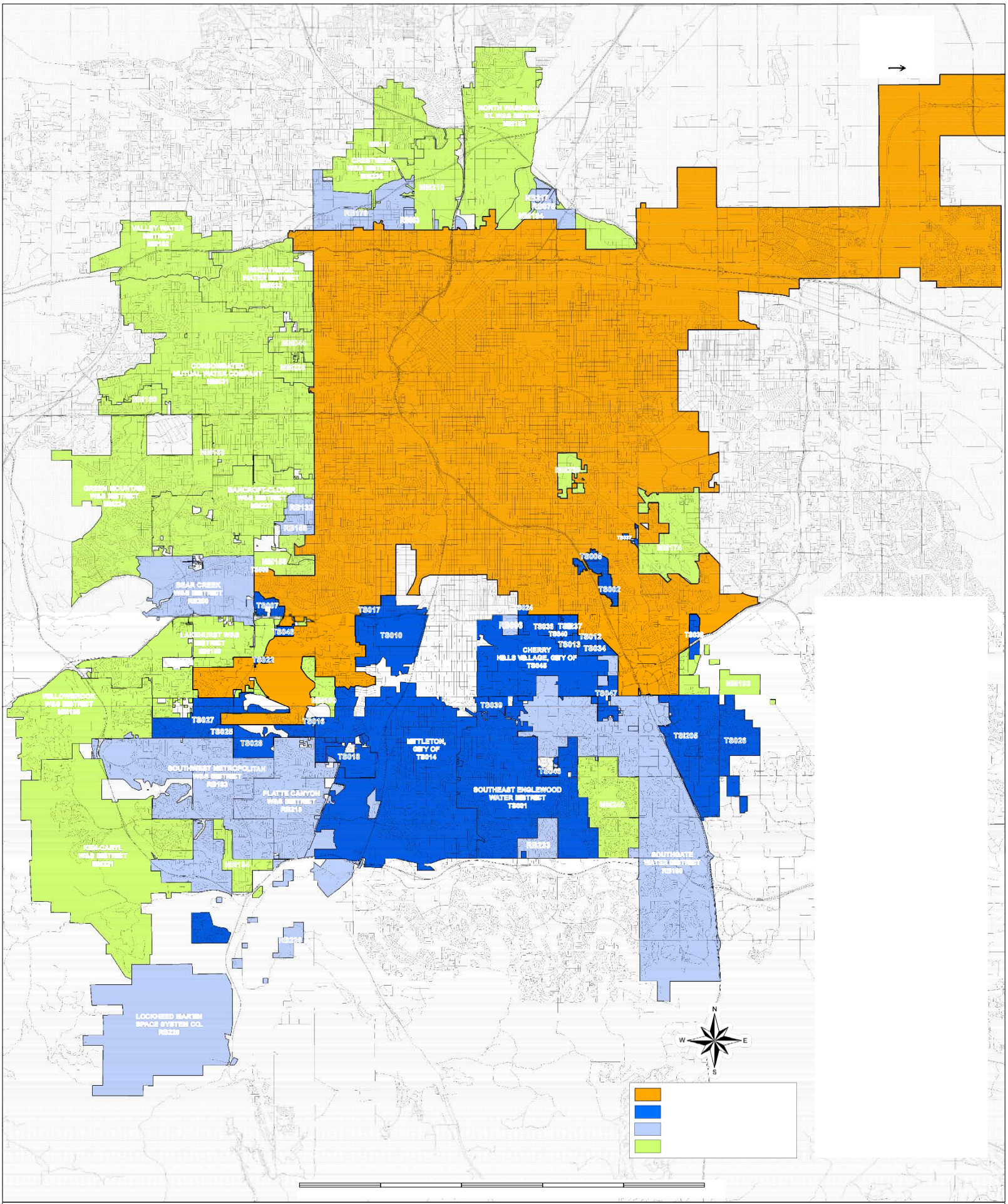
TS001	SOUTHEAST ENGLEWOOD WATER DISTRICT
TS002	HOLLY HILLS W&S DISTRICT
TS005	HI-LIN W&S DISTRICT
TS007	BENNETT BEAR CK FARM W&S DISTRICT
TS009	FEHLMANN SUBDIVISION WATER ASSOC.
TS010	SHERIDAN, CITY OF
TS012	CHERRY HILLS NORTH W&S DISTRICT
TS013	MANSFIELD HEIGHTS W&S DISTRICT
TS014	LITTLETON, CITY OF
TS016	KING, LLOYD J.
TS017	LORETTO HEIGHTS RE-SUB. WTR. ASSN.
TS018	COLUMBINE W&S DISTRICT
TS022	LOCHMOOR W&S DISTRICT
TS024	CHERRY HILLS HEIGHTS W&S DISTRICT
TS025	SOUTHWEST PLAZA METROPOLITAN DIST.
TS026	HAVANA W&S DISTRICT
TS027	SOUTHWEST SUBURBAN DENVER W&S DIST.
TS028	GRANT W&S DISTRICT
TS034	HILLCREST W&S DISTRICT
TS036	DEVONSHIRE HEIGHTS W&S DISTRICT
TS037	PANORAMA PARK WATER ASSOCIATION
TS038	GALLERIA METROPOLITAN DISTRICT
TS039	GREENWOOD VILLAGE, CITY OF
TS040	SOUTH UNIVERSITY PLACE WTR ASSN.
TS045	CHERRY HILLS VILLAGE, CITY OF
TS046	ARAPAHOE ESTATES WATER DISTRICT
TS047	HOLLY MUTUAL WATER COMPANY
TS048	COLORADO ACADEMY
TSI205	CASTLEWOOD W&S DISTRICT
TSI237	EAST CHERRY HILLS WATER DISTRICT

READ & BILL:

RB063	NORTH LINCOLN W&S DISTRICT
RB075	PHILLIPS PETROLEUM COMPANY
RB096	COUNTRY HOMES METROPOLITAN DISTRICT
RB132	S. SHERIDAN WTR.SWR.&STRM.DRNG.DIST
RB158	ALAMEDA W&S DISTRICT
RB160	SOUTHGATE WATER DISTRICT
RB163	SOUTHWEST METROPOLITAN W&S DISTRICT
RB176	BERKELEY W&S DISTRICT
RB200	BEAR CREEK W&S DISTRICT
RB215	PLATTE CANYON W&S DISTRICT
RB217	SUNCOR ENERGY (USA) INC
RB225	LOCKHEED MARTIN SPACE SYSTEM CO.
RB226	COLORADO DEPT. OF NATURAL RESOURCES
RB233	WILLOWS WATER DISTRICT

MASTER METER:

MM031	CONSOLIDATED MUTUAL WATER COMPANY
MM032	WHEATRIDGE WATER DISTRICT
MM044	EDGEWATER, CITY OF
MM109	BOW-MAR W&S DISTRICT
MM158	ALAMEDA W&S DISTRICT
MM168	BONVUE W&S DISTRICT
MM174	CHERRY CREEK VALLEY W&S DISTRICT
MM175	NORTHGATE WATER DISTRICT
MM180	HIGH VIEW WATER DISTRICT
MM182	VALLEY WATER DISTRICT
MM184	SOUTH ADAMS COUNTY W&S DISTRICT
MM189	LAKEHURST W&S DISTRICT
MM192	NORTH WASHINGTON ST. W&S DISTRICT
MM193	CHERRY CREEK VILLAGE WATER DISTRICT
MM194	MEADOWBROOK WATER DISTRICT
MM195	WILLOWBROOK W&S DISTRICT
MM210	NORTH PECOS W&S DISTRICT
MM221	KEN-CARYL W&S DISTRICT
MM227	BANCROFT-CLOVER W&S DISTRICT
MM228	LAKEWOOD, CITY OF
MM234	GREEN MOUNTAIN W&S DISTRICT



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Appendix B: Denver Water Distributors List

Covered Entities Under Denver Water Conservation Plan

Distributor Contract Name	Map Label
Bancroft-Clover W&S District	MM227
Bear Creek W&S District	RB200
Cherry Creek Valley W&S District	MM174
City of Littleton	TS014
Consolidated Mutual Water Company	MM031
Green Mountain W&S District	MM234
Improvement Contract/Castlewood	TS1205
Ken Caryl Ranch W&S District	MM221
Lakehurst W&S District	MM189
North Washington Street W&S District	MM192
Platte Canyon W&S District	RB215
Southeast Englewood Water District	TS001
Southgate Water District	RB160
Southwest Metropolitan W&S District	RB163
Wheat Ridge Water District	MM032
Willows Water District	MM240

Non-Covered Entities Under Denver Water Conservation Plan

Alameda W&S District	MM158
Alameda W&S District	RB158
Arapahoe Estates Water District	TS046
Bennett Bear Creek Farms W&S District	TS007
Berkeley W&S District	RB176
Bonvue W&S District	MM168
Bow Mar W&S District	MM109
Cherry Creek Village Water District	MM193
Cherry Hills Heights	TS024
Cherry Hills North W&S District	TS012
City of Cherry Hills Village Water District	TS045
City of Edgewater	MM044
City of Glendale	MM239
City of Greenwood Village	TS039
City of Lakewood	MM228
City of Sheridan	TS010
Colorado Academy	TS048
Columbine W&S District	TS018
Suncor Energy	RB217
Country Homes Land Co	RB096
Crestview W&S District	MM236
Devonshire Heights W&S District	TS036
Fehlmann Subdivision Water Association	TS009
Galleria Metropolitan District	TS038
Grant W&S District	TS028
Havana W&S District	TS026
High View Water District	MM180
HI-LIN W&S District	TS005

Hillcrest W&S District	TS034
Holly Hills W&S District	TS002
Holly Mutual Water Company	TS047
Improvement Contract /E. Cherry Hills	TS1237
Lloyd J. King	TS016
Lochmoor W&S District	TS022
Loretto Heights Subdivision Water Assn.	TS017
Mansfield Heights W&S District	TS013
Lockheed Martin Space Systems CO	RB225
Meadowbrook Water District	MM194
North Lincoln W&S District	RB063
North Pecos W&S District	MM210
Northgate Water District	MM175
Panorama Park Water Association	TS037
Phillips/Shamrock OIL	RB075
South Adams County W&S District	MM184
South Sheridan W&S District	RB132
South University Place Water Association	TS040
Southgate Water District	RB160
Southwest Plaza Metropolitan District	TS025
Southwest Suburban Denver W&S District	TS027
State Division of Parks & Recreation	RB226
Valley Water District	MM182
Willowbrook W&S District	MM195
Willows Water District	RB233

Based on 2014 Consumption

Appendix C: Conservation Program Matrix

Water Efficiency Activities for Screening	State Statute Requirement	Identification		Qualitative Screening		Quantitative Screening		Notes to consider	Collaboration with partners *
		Existing/ Potential Activity	Targeted Customer Category	*Feasability*	Implimentation Effort	*Water savings potential*	*Cost per AF estimate*		
Metering									
Automatic Meter Reading Installation and Operations		Potential	All	High	Low	TBD	TBD		Inform
Submetering for Large Users (Indoor and Outdoor)		Current	Comm	Medium	Medium	TBD	TBD		Consult
Meter Testing and Replacement		Current	All	High	High	TBD	TBD		Inform
Meter Upgrades		Current	All	Low	High	TBD	TBD		Inform
Identify Unmetered/Unbilled Treated Water Uses		Current	All	Medium	High	TBD	TBD		Consult
Data Collection - Monitoring and Verification									
Monthly Meter Reading		Current	All	NA	NA	TBD	TBD		Inform
Tracking Water Use by Customer Type		Current	All	NA	NA	TBD	TBD		Inform
Configure Billing System to Track Use by Sufficient Customer Types		Potential	All	High	High	TBD	TBD		Inform
Tracking Water Use for Large Customers		Current	All	NA	High	High	TBD	Over 1 million gallons per large customer	Inform
Area of Irrigated Lands in Service Area (e.g. acres)		Potential	All	High	High	TBD	TBD		Inform
Water Use Efficiency Oriented Rates and Tap Fees									
Volumetric Billing		Potential	All	Low	High	TBD	TBD		Consult
Water Rate Adjustments		Potential	All	Low	High	TBD	TBD		Consult
Frequency of Billing		Potential	All	High	High	TBD	TBD		Inform
Inclining/Tiered Rates		Current	All	NA	High	TBD	TBD		Inform
Water Budgets		Potential	All	Low	High	TBD	TBD		Partner
Tap Fees with Water Use Efficiency Incentives		Potential	All	Medium	Medium	TBD	TBD		Consult
System Water Loss Management and Control									
System Wide Water Audits		Potential	NA	Medium	High	TBD	TBD		Inform
Control of Apparent Losses (with Metering)		Potential	NA	Medium	High	TBD	TBD		Inform
Leak Detection and Repair		Current	NA	NA	High	High	TBD		Inform
Water Line Replacement Program		Current	NA	NA	High	TBD	TBD		Inform
									Inform
Planning									
Integrated Water Resources Plans		Current	NA	NA	Medium	TBD	TBD		Inform
Master Plans/Water Supply Plans		Current	NA	NA	Medium	TBD	TBD		Inform
Capital Improvement Plans		Current	NA	NA	Medium	TBD	TBD		Inform
Feasbility Studies		Potential	NA	Medium	Medium	TBD	TBD		Inform
Staffing									
Water Conservation Coordinator		Current	All	Low	Low	NA	NA	Yes, full time staff	Inform
Staff for Youth Education		Current	All	Low	Low	NA	NA	Yes, full time and seasonal staff	Inform
Staff for Adult Education		Current	All	Low	Low	NA	NA	Yes, full time staff	Inform

Staff for Audits	Current	All	Low	Low	NA	NA	Yes, full time and seasonal staff	Inform
Staff for Data Management	Current	All	Low	Low	NA	NA	Yes, full time staff	Inform
Staff for Rebates and Incentives	Current	All	Low	Low	NA	NA	Yes, full time staff	Inform
Installation of Water Efficient Fixtures and Appliances								
Indoor Audits	Current	All	High	High	High	$3,664	Based on multif-family residential (10,000 gallons per unit)	Partner
Toilet Retrofits	Current	All	High	High	High	$2,629		Partner
Urinal Retrofits	Current	All	High	High	Medium	$3,747		Consult
Showerhead Retrofits	Current	All	High	High	TBD	TBD		Empower
Faucet Retrofits (e.g. aerator installation)	Current	All	High	High	TBD	TBD		Empower
Water Efficient Washing Machines	Current	MFR	High	High	High	$3,033	Discontinued residental program in 2012, continued with coin-operated for MFR	Partner
Water Efficient Dishwashers	Potential	All	High	High	Low	TBD		Partner
Efficient Swamp Cooler and Air Conditioning Use	Potential	All	High	High	TBD	TBD		Partner
Low Water Use Landscapes								
Drought Resistant Vegetation	Potential	Irr	Medium	High	TBD	TBD	Pilot programs; Garden in a Box	Partner
Removal of Phreatophytes	Potential	Irr	Medium	Medium	Low	TBD		Partner
Irrigation Efficiency Evaluations/Outdoor Water Audits	Current	Irr	High	High	High	$1,568	97,715 gallons average per audit	Partner
Outdoor Irrigation Controllers	Current	Irr	High	High	High	$4,112	100,000 gallons per controller (large irrigation customers)	Partner
Irrigation Scheduling/Timing	Potential	Irr	High	High	TBD	TBD		Consult
Rain Sensors	Previous	Irr	High	Low	Medium	Unknown	Rebate expired in 2011	Empower
Residential Outdoor Meter Installations	Potential	Irr	High	High	TBD	TBD		Partner
Xeriscape	Potential	Irr	Medium	High	TBD	TBD		Partner
Other Low Water Use Landscapes	Potential	Irr	Medium	High	TBD	TBD		Partner
Irrigation Equipment Retrofits	Current	Irr	High	High	High	$6,853		Partner
Water- Efficient Industrial and Commercial Water-Using Processes								
Specialized Nonresidential Surveys, Audits and Equipment Efficiency Improvements	Current	Multiple	NA	NA	Medium	TBD		Consult
Commercial Indoor Fixture and Appliance Rebates/Retrofits	Current	Multiple	NA	NA	Medium	TBD		Inform
Cooling Equipment Efficiency	Current	Multiple	NA	NA	High	TBD		Partner
Restaurant equipment	Current	Multiple	NA	NA	Medium	TBD		Partner
Incentives								
Toilet Rebates	Current	All	High	High	High	$2,629		Consult
Urinal Rebates	Current	All	High	High	Medium	$3,747		Consult
Showerhead Rebates	Potential	All	High	High	TBD	TBD		Partner
Water Efficient Faucet or Aerator Rebates	Potential	All	High	High	TBD	TBD		Inform
Water Efficient Washing Machine Rebates	Previous	All	High	High	High	$3,033		Inform
Water Efficient Dishwasher Rebates	Potential	All	High	High	Low	TBD		Inform
Efficient Irrigation Equipment Rebates	Current	Irr	NA	NA	High	$260	Based on rotary nozzle rebate	Inform
Landscape Water Budgets Information and Customer Feedback	Current	All	NA	High	High	TBD	Over 1 million gallons per large customer	Involve
Turf Replacement Programs/Xeriscape Incentives	Potential	Irr	High	High	High	TBD		Partner
Give-aways	Potential	All	High	Low	TBD	TBD	Showerheads, rotary nozzles, shower timers…	Inform
General Water Use Regulations								

Water Waste Ordinance		Current	Irr	NA	NA	High	TBD	4,700 gallons per recorded stop	Inform
Time of Day Watering Restriction		Current	Irr	NA	NA	High	TBD	4,700 gallons per recorded stop	Inform
Day of Week Watering Restriction		Potential	Irr	High	Low	TBD	TBD	4,700 gallons per recorded stop	Inform
Water Overspray Limitations		Current	Irr	NA	NA	High	TBD	4,700 gallons per recorded stop	Inform
Landscape Design/Installation Rules and Regulations									
Landscaper Training and Certification		Potential	Irr	High	Medium	TBD	TBD		Partner
Irrigation System Installer Training and Certification		Potential	Irr	High	Medium	TBD	TBD		Partner
Soil Amendment Requirements		Current	Irr	NA	NA	High	TBD		Partner
Turf Restrictions		Potential	Irr	Low	High	TBD	TBD		Empower
Irrigation Equipment Requirements		Potential	Irr	Low	High	TBD	TBD		Partner
Outoor Water Audits/Irrigation Efficiency Regulations		Potential	Irr	Low	High	TBD	TBD		Partner
Outdoor Green Building Construction		Potential	Irr	Low	High	TBD	TBD		Partner
			Irr						
Indoor and Commercial Regulations									
High Efficiency Fixture and Appliance Replacement		Current	Multiple	Low	High	TBD	TBD		Inform
Commercial Cooling and Process Water Requirements		Potential	Multiple	Low	High	TBD	TBD		Inform
Green Building Construction		Potential	Multiple	Low	High	TBD	TBD		Involve
Indoor Plumbing Requirements		Current	Multiple	NA	NA	TBD	TBD	Senate Bill 103 begins in 2016	Partner
City Facility Requirements		Potential	Multiple	Low	High	TBD	TBD		Inform
Required Indoor Residential Audits		Potential	SFR	Low	High	TBD	TBD		Consult
Required Indoor Commercial Audits		Potential	Comm	Low	High	TBD	TBD		Inform
Commercial Water Wise Use Regulations (Car Washes, Restaurants, etc.)		Potential	Comm	Low	High	TBD	TBD		Partner
Customer Education									
Bill Stuffers		Current	SFR	High	Low	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Inform
Newsletter		Current	All	High	Low	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Inform
Newspaper Articles		Current	All	High	Medium	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Inform
Mass Mailings		Current	Multiple	High	Low	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Inform
Web Pages		Current	All	High	Low	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Inform
Water Fairs		Current	Multiple	High	High	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Empower
K-12 Teacher and Classroom Education Programs		Potential	Multiple	High	High	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Partner
Message Development/Campaign		Current	All	High	High	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Consult
Interactive Websites		Potential	All	High	Medium	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Inform
Social Networking (e.g Facebook)		Current	All	High	High	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Inform
Customer Surveys		Current	All	High	Medium	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Inform

Focus Groups		Current	All	High	Medium	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Consult
Citizen Advisory Committee		Current	All	High	Low	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Involve
								Likely a part of passive savings, hold as TBD pending further information	
Technical Assistance									
Customer Water Use Workshops		Potential	Multiple	High	Low	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Partner
Landscape Design and Maintenance Workshops		Potential	Multiple	High	Low	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Partner
Xeriscape Demonstration Garden		Current	All	High	Medium	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Consult
Water Conservation Expert Available		Potential	Multiple	High	Medium	TBD	TBD	Likely a part of passive savings, hold as TBD pending further information	Inform

* Follows the IAP2 format with a focus on stratigic partnerships in place of public participation. www.iap2.org.au/sitebuilder/resources/knowledge/asset/files/36/iap2spectrum.pdf

Appendix D: Memo to Colorado Water Conservation Board

DENVER WATER

1600 West 12th Ave
Denver, CO 80204-3412
303.628.6000
denverwater.org

MEMORANDUM

To: Rebecca Mitchell, Section Chief, Colorado Water Conservation Board
Kevin Reidy, Water Conservation Technical Specialist, Colorado Water Conservation Board
From: Jeff Tejral, Manager of Conservation, Denver Water
Re: Denver Water Conservation Plan Update
Date: May 12, 2015

The attached Conservation Plan Update is submitted to CWCB for review and approval. The minimum water conservation plan elements defined required for State approval in accordance with §37-60-126 C.R.S are contained within the document. This plan was created by Denver Water staff as an update to the existing Denver Water Conservation Plan (2007) on file with the CWCB. Through the Water Board's adoption of this plan it has committed resources to enact and support conservation goals listed.

Please send questions and final approval to Jeff Tejral, Manager of Conservation via email at jeff.tejral@denverwater.org.

Appendix E: Board Approval Documentation

RECORD OF PROCEEDINGS

MINUTES
OF THE
BOARD OF WATER COMMISSIONERS

OPEN SESSION **January 14, 2015**

A duly called Regular Meeting of the Board of Water Commissioners was held Wednesday, January 14, 2015, beginning at 9:08 a.m. in the Board Room, Room 309, 1600 West 12th Avenue, Denver, Colorado. Members of the Board present during the Regular Meeting were:

H. Gregory Austin, President
John R. Lucero, First Vice President
Thomas A. Gougeon, Vice President
Paula Herzmark, Vice President
Penfield W. Tate, III, Vice President

Board employees and others present during portions of the meeting were:

J.S. Lochhead, CEO/Manager
A.C. Bricmont, Director of Finance
S.C. Covington, Director of Public Affairs
B.D. Good, Deputy Manager of Organizational Improvement
R.J. Mahoney, Director of Engineering
G. Cagle, Director of Human Resources
M.K. Frishman, Attorney
T.L. McGuire-Collier, Assistant Director of Public Affairs – Communications and Marketing
T. Bryant, Controller
D.M. Hamm, Staff Analyst
P.L. Wells, General Counsel
D.L. Little, Director of Planning
J.A. Anderson, Director of Customer Relations
T.J. Roode, Director of Operations and Maintenance
C.R. Dermody, Director of Information Technology
P.A. Carey, Manager of Purchasing and Contracting
M.E. Elliott, Assistant Director of Public Affairs – Government, Stakeholder Relations and Conservation
S.L. Chesney, Manager of Media and Executive Communications
T. Thompson, Senior Media Relations Coordinator

MINUTES
OF THE
BOARD OF WATER COMMISSIONERS

S. Snyder, Special Projects Coordinator
D. Shable, Engineer
B. Cochran, Engineer
D. Raitt, Construction Project Manager
J. Tejral, Manager of Water Conservation
K. Dudas, Manager of Marketing and Special Projects
J. Mahaffey, Communications Specialist
J. Martin, Engineer
R. Sheehan, Manager of Accounting
J. Shaw, Conservation Specialist

Commissioner Austin called the meeting to order.

Public Comment and Communications

Commissioner Austin issued an invitation to members of the public to comment to the Board on any matters not included in the Agenda for the meeting. There was no response.

Ceremonies, Awards, and Introductions

Ms. Bryant introduced the new Manager of Accounting, Rick Sheehan, who comes to Denver Water from the City and County of Denver.

Upon motion regularly made, seconded and unanimously carried by the Commissioners then present, unless otherwise noted, the Board acted upon the following agenda items:

1. **ITEM II–A–1: MINUTES OF DECEMBER 10, 2014**

The reading of the Minutes of the Regular Meeting and Annual Meeting of December 10, 2014, was dispensed with and such Minutes were approved.

The Minutes of the Executive Session of December 10, 2014, were approved.

2. **ITEM II–A–2: MINUTES OF DECEMBER 17, 2014**

The reading of the Minutes of the Regular Meeting of December 17, 2014, was dispensed with and such Minutes were approved.

The Minutes of the Executive Session of December 17, 2014, were approved.

3. **ITEM II–A–3: EMPLOYEES ELIGIBLE FOR REGULAR STATUS**

The following employees were classified as regular employees of the Board, with all rights and privileges thereof, effective January 1, 2015, unless otherwise noted:

Employee Name	Employment Date	Division/Section
Nelson, Nisha	2014-06-16	Engineering Division Electrical Engineering, #213
Tucker, Jonathan L.	2014-06-16	Human Resources Division Director of Human Resources, #420
Castaneda, David G.	2014-06-16	Human Resources Division Organizational Development & Training, #424
Lewis, Jefferson J.	2014-06-30	Operations and Maintenance Division Recycled Water Plant, #650

4. **ITEM II–A–4: ANNUAL MAINTENANCE & SUPPORT FEES FOR INTERNET FIREWALLS AND LAPTOP ENCRYPTION**

Approved additional funding for Contract 07307A with Dirsec, Inc., for annual maintenance and support for Internet firewalls and laptop encryption. The addition of $110,918.25 results in a total amended contract amount not to exceed $667,328.25.

5. **ITEM II–A–5: SECOND AMENDMENT TO CONTRACT FOR CONSTRUCTION MANAGEMENT SOFTWARE SERVICES**

Approved the Second Amendment to Contract 14609A with EADOC, LLC, for construction management software services. The amendment extends the contract through June 30, 2018, and adds $317,000.00 for a total amended contract amount not to exceed $389,400.00. A copy of the amendment is attached to and incorporated in these Minutes as Exhibit "A."

6. **ITEM II–A–6: DESIGNATION OF PLACES FOR POSTING NOTICES OF MEETINGS**

Designated the following places for posting notices of Board meetings during 2015: (1) the glass-enclosed bulletin board near the main entrance to the Administration Building at 1600 West 12th Avenue, Denver, Colorado, and (2) on a bulletin board near the elevators on the fourth floor of the City and County Building, Denver, Colorado.

7. **ITEM II–A–7: AMENDMENT NO. 1 TO CONTRACT FOR CONDUIT NO. 70 VALVE REPLACEMENT AT SHERIDAN BOULEVARD AND WEST 5TH AVENUE**

Approved Amendment No. 1 to Contract 15143A with Layne Heavy Civil, Inc., for the Conduit No. 70 Valve Replacement at Sheridan Boulevard and West 5th Avenue. The amendment adds $247,850.00 for a total amended contract amount not to exceed $2,239,428.13. A copy of the amendment is attached to and incorporated in these Minutes as Exhibit "B."

8. **ITEM II–A–8: CHANGE ORDER NO. 1 TO CONTRACT TO FURNISH AND INSTALL THE LONG LAKE FEEDER DITCH DIVERSION STRUCTURE REPLACEMENT AND RALSTON CREEK FLUME REPLACEMENT**

Approved Change Order No. 1 to Contract 15605A with Western Summit Constructors, Inc., to furnish and install the Long Lake Feeder Ditch diversion

structure replacement and Ralston Creek flume replacement for an amount not to exceed $167,597.00. A copy of the change order is attached to and incorporated in these Minutes as Exhibit "C."

9. **ITEM II–A–9: RATIFICATION OF CONSTRUCTION CONTRACT CHANGE ORDERS AND AMENDMENTS TO AGREEMENTS**

Ratified Construction Contract Change Orders and Amendments to Agreements authorized in December 2014 as follows:

Change Order No. 12 to Contract 13327A with Gracon, LLC, for the Dillon Dam Outlet Works Gate Repairs;

Change Order No. 6 to Contract 14062A with Garney Construction for the Highlands Reservoir & Pump Station Replacement of Basin Nos. 1 & 2;

Change Order No. 1 to Contract 14203A with Archer Western Construction for the Green Mountain Pump Station Renovation;

Change Order No. 1 to Contract 14421A with Mainlining America, LLC, for the 2014 Pipe Rehabilitation;

Change Order No. 5 to Contract 14913A with T. Lowell Construction, Inc., for the Tanabe Reservoir Outlet and Interconnect;

Change Order No. 2 to Contract 15143A with Layne Heavy Civil for the Conduit No. 74 Replacement in Smith Road from Sand Creek to Havana Street;

Change Order No. 2 to Contract 15253A with Concrete Works of Colorado, Inc., for the South Platte Collection System – North Complex Outlet;

Change Order No. 1 to Contract 15671A with Garney Construction for the Conduit No. 16 – 72-Inch Diameter Steel Pipeline Installation on McIntyre Street Crossing;

Second Amendment to Contract 15020A with SiteWise Corporation for the Removal of Debris and Groundwater from Pipes, Vaults, Water Meters and Appurtenances; and

First Amendment to Agreement 15292A with Trimble Navigation Limited for Global Positioning Services,

all as more particularly described in the attachment to Agenda Item II-A-9, which is attached to and incorporated in these Minutes as Exhibit "D."

10. **ITEM II–B–1: ADOPTION OF CONSERVATION PLAN**

Mr. Tejral presented the updated Conservation Plan for Denver Water. A draft of the plan was made available for public comment in 2014. Staff also reached out to various stakeholders, including Denver Water distributors, environmental groups, other municipalities, and other water utilities, for additional input.

The plan reflects the current goal to reduce water consumption by 22 percent – to 165 gallons per person per day. Consumption by Denver Water customers has already dipped below this projection for the past five to six years. The reduction goal is measured through active programs with a goal to save 1,000 acre-feet annually; the programs dedicate resources to achieve the goal.

The Board adopted the plan, which staff will provide to the Colorado Water Conservation Board for approval. If approved, the plan will remain in effect for seven years. A copy of the plan is attached to and incorporated in these Minutes as Exhibit "E."

11. **ITEM IV–A: CEO REPORT**

Mr. Lochhead reminded the Board that employees are in the midst of performance evaluation season. He also mentioned that work on the state water plan continues and that he participated in a recent webinar on transmountain diversions with the Colorado Water Congress.

Mr. Lochhead also reported that staff plans to make a year-in-review presentation for 2014 at the next meeting of the Board. In 2015, he expects significant accomplishments at Denver Water, including the start of construction for the redevelopment of the Operations Complex, receiving a Record of Decision on the Gross Reservoir expansion project, implementation of technology improvements that enhance budgeting and accounting capabilities, further tying budgeting and the strategic objectives, completing a new rate study, work on a comprehensive conservation strategy, beginning to implement the Total Rewards strategy, spending $104 million in capital investments, improving operations and customer satisfaction through the Lean process, and rolling out a new communication and branding strategy.

Commissioner Austin commented that the organization's accomplishments in the last couple of years and the anticipated accomplishments are remarkable. He complimented the organization for its strong leadership, teamwork, and management.

12. **ITEM IV–C: OPERATIONS REPORT**

Mr. Roode reported on some recent assistance Denver Water staff provided to the Town of Frisco, which was facing a possible requirement to construct a reverse osmosis treatment plant to address water quality issues. He said Steve Price, Engineer, and Zeke Campbell, System Manager for Water Quality and Treatment, were instrumental in helping the town find an alternative solution.

Mr. Roode also discussed the results of a Lean event that was held to reduce the size of the warehouse for the redeveloped Operations Complex. The participants examined the current processes for inventory and delivery of goods. The exercise resulted in plans for a significantly smaller warehouse – from the current 57,000 square feet to 24,000 square feet.

13. **ITEM V–A: SCHEDULING OF FUTURE BOARD MEETINGS AND TENTATIVE DISCUSSION TOPICS**

The Board received the Schedule of Future Board Meetings and Tentative Discussion Topics, which is attached to and incorporated in these Minutes as Exhibit "F."

14. **ITEM V–B: EVENT CALENDAR**

The Board received a calendar of upcoming community events to be attended by various staff, which is attached to and incorporated in these Minutes as Exhibit "G."

15. **ITEM V–C: 2014 ("ON-CALL") GENERAL ENGINEERING AND CONSTRUCTION MANAGEMENT SERVICES CONTRACTS**

The Board received a tabulation of contracts entered into under On-Call General Engineering Design Services and Construction Management Services Contracts for the period August 2012 through December 2014, which is attached to and incorporated in these Minutes as Exhibit "H."

16. **ITEM V–D: NEW CONTRACT SUMMARY**

The Board received a report of contracts entered into in the Fourth Quarter of 2014 for amounts between $20,000.00 and $100,000.00, which is attached to and incorporated in these Minutes as Exhibit "I."

MINUTES
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17. **ITEM V–E: ROCKY MOUNTAIN PBS SPOTS**

Mr. Thompson presented two prime-time television spots that Denver Water has produced for the Rocky Mountain PBS station. Denver Water has been a sponsor of the station since 2009, and the spots are televised at no cost. They can reach up to 900,000 weekly viewers of the station. The spots show how employees' personal lives are connected with the work they do at Denver Water to benefit the natural environment. The two spots currently running showcase David Bennett, a water resource manager, and Laurna Kaatz, a climate scientist. The Public Affairs division is spreading the word about the PBS spots through all of Denver Water's social media outlets.

No further business appearing, the Board voted unanimously to adjourn at 9:43 a.m.

President

Secretary