

**ACWWA**



**Arapahoe County Water and Wastewater Authority**  
13031 East Caley Avenue, Centennial, CO 80111, (303) 790-4830, FAX (303) 790-9364  
[www.arapahoewater.org](http://www.arapahoewater.org)

February 3, 2015

Mr. Ben Wade  
Colorado Water Conservation Board  
1313 Sherman Street, Room 721  
Denver, CO 80203

**RE: *Arapahoe County Water and Wastewater Authority Water Efficiency Plan  
Update Grant Application***

Dear Mr. Wade:

The Arapahoe County Water and Wastewater Authority (ACWWA) is interested in updating their 2006 Water Conservation Plan. Under a new document title, the updated Municipal Water Efficiency Plan (Plan) will guide the effective and responsible use of their water resources. As you will see in the attached planning grant application, ACWWA is committed to continued effective efficiency planning strategies as outlined in the Scope of Work.

As the General Manager for ACWWA, I will authorize funds and staff time to dedicate towards developing this Municipal Water Efficiency Plan update. Once the Plan update is in place, I will authorize funds as they become available to implement the Plan.

Clear Water Solutions, Inc. has prepared the attached planning grant application for a Municipal Water Efficiency Plan update. The total cost to complete the plan is \$59,111.75. ACWWA proposes to match a total of \$14,788.02, which consists of \$13,788.02 of in-kind services and \$1,000 cash. This equates to 25% of the total project. ACWWA requests a grant for \$44,323.73 from CWCB to complete the plan. We respectfully submit this request for your consideration.

Sincerely,  
***Arapahoe County Water and Wastewater Authority***



Steve Witter, *Interim General Manager*  
Enclosures

## CWCB MUNICIPAL WATER EFFICIENCY PLAN UPDATE GRANT APPLICATION SUBMITTAL REQUIREMENTS

1. Contact information of entity seeking grant:

**Arapahoe County Water and Wastewater Authority**

Attn: Steve Witter, Interim General Manager  
13031 E. Caley Avenue  
Centennial, CO 80111  
T: (303) 790-4830  
F: (303) 790-9364  
switter@arapahoewater.org

2. Selected firm and individuals to assist in development of the Municipal Water Efficiency Plan update:

**Clear Water Solutions, Inc.**

Attn: Steve Nguyen, P.E.  
8010 South County Road 5, Suite 105  
Windsor, CO 80528  
T: (970) 223-3706  
F: (970) 223-3763  
steve@clearwatercolorado.com

Clear Water Solutions, Inc. (CWS) will complete a Municipal Water Efficiency Plan (Plan) update for the Arapahoe County Water and Wastewater Authority (ACWWA). Individuals from CWS that will be involved in the project include Michelle Hatcher and Steve Nguyen, P.E.

Michelle Hatcher has worked on a number of CWCB-approved water efficiency plans and has over ten years of experience in water resources planning and management. Michelle will serve as Project Manager for this Plan update.

Steve Nguyen is a Professional Engineer registered in the State of Colorado. He has over seventeen years of experience in the water rights and water-planning arena. He has helped many clients manage their water resources including water supply, water acquisition, water usage, water efficiency, and drought management. Steve will serve as a Technical Advisor on all portions of the Plan update.

**Arapahoe County Water and Wastewater Authority**

Katie Spahr currently holds the position of Water Resource Project Specialist at ACWWA. She audits the field and billing data for water quality and quantity and projects future use to optimize the ACWWA system operations for water quality. Katie also provides other technical support to the water resources group. Katie

will assist with all stages of Plan development. She has a Bachelor's degree in Environmental Engineering and a Master's degree in Civil Engineering; her Master's thesis focused on water conservation.

Steve Witter is a Professional Engineer registered in the State of Colorado. He currently works as the Interim General Manager for ACWWA. On top of managing ACWWA's water resources portfolio and developing new water supplies to ensure ACWWA has an adequate supply to meet current and future water demands, Steve collaborates with board members and other stakeholders to keep the utility running smoothly. Steve will provide general direction on all aspects of the Plan development. Steve has a Bachelor's and Master's degree in Civil Engineering and an MBA. Steve has been in the water resources management field for over 14 years.

3. Identification of retail water delivery of the covered entity for past five years:

ACWWA's average water usage for the past five years for each customer category is shown in **Table 1**. The total water usage has ranged from 3,092 to 4,318 acre-feet (AF) and averages 3,596 AF. An average gallons-per-capita-per-day (gpcd) is not included because of the nature of ACWWA's service area.

**Table 1: Annual Water Delivery**

<b>Customer Category</b>	<b>2009 (AF)</b>	<b>2010 (AF)</b>	<b>2011 (AF)</b>	<b>2012 (AF)</b>	<b>2013 (AF)</b>	<b>Average (AF)</b>
Commercial	2,292	1,016	1,071	1,079	1,092	1,310
Residential	541	591	616	660	592	600
Irrigation from Well Sources	1,267	1,351	1,466	1,592	1,066	1,348
Irrigation from Reg 84	205	141	457	465	320	318
Construction Hydrant Use	13	12	27	26	21	20
Total (all categories)	4,318	3,111	3,637	3,823	3,092	3,596

ACWWA's water supply consists of multiple sources of water. In the past, nearly all of ACWWA's water came from alluvial groundwater wells and non-renewable deep groundwater wells. As part of ACWWA's Flow Project, ACWWA is currently in the process of adjudicating 4,400 AF of additional surface water rights from various sources. **Table 2** shows the various agricultural ditch shares that have been purchased. ACWWA started water deliveries via a Substitute Water Supply Plan from Phase 1 of ACWWA Flow in June 2013. Water delivery for 2014 from this Phase was 1250 AF, and ACWWA anticipates delivering 1500 AF for 2015.

**Table 2: ACWWA Flow Project Water Rights**

<b>Name</b>	<b>Number of Shares</b>	<b>Change Case</b>
<b>WATER RIGHTS PURCHASED BY ACWWA/ACWWAPID</b>		
Farmers Independent Ditch Company	20.00	2012CW73
Fort Morgan Reservoir and Irrigation Company	166.50	Not yet filed
Fulton Irrigating Ditch Company	182.00	2010CW313
Lake Canal Company	41.00	Not yet filed
Lake Canal Reservoir Company	14.00	Not yet filed
Larimer and Weld Irrigation Company	16.00	Not yet filed
Larimer and Weld Reservoir Company	19.00	Not yet filed
New Cache La Poudre Irrigating Company	96.00	2013CW3026
Cache La Poudre Reservoir Company	20.00	2013CW3026
Water Supply and Storage Company	2.75	Not yet filed
Weldon Valley Ditch Company	42.00	2011CW151
Western Mutual Ditch Company	40.00	Not yet filed
Whitney Irrigation Company	7.00	Not yet filed
Windsor Reservoir and Canal Company	7.00	Not yet filed
<b>WATER RIGHTS HELD IN RESERVE BY UNITED W&amp;S FOR ACWWA</b>		
Fort Morgan Reservoir and Irrigation Company	1.00	Not yet filed
Lake Canal Company	2.00	Not yet filed
Lower Latham Ditch Company	7.00	Not yet filed
Lower Latham Reservoir Company	4.50	Not yet filed
Weldon Valley Ditch Company	20.625	2011CW151

4. Background characterizing the water system, potential growth and any other pertinent issues that relate to the stated evaluation criteria.
- ACWWA is a political subdivision formed by an agreement between Arapahoe County and the Arapahoe County Water and Wastewater Public Improvement District (PID) for the purpose of developing water resources, systems and facilities, wastewater collection, and treatment facilities for the ACWWA service area. ACWWA serves an area of more than eight square miles in the southeastern Denver metropolitan area, approximately 10 miles from downtown Denver.
  - ACWWA's service area is primarily in Arapahoe County but includes some property in northern Douglas County. It is comprised mostly of office complexes, commercial, and light industrial areas. Significant multi-family residential development has been added in recent years; these additions have been primarily in the eastern part of the service area. ACWWA also provides wholesale wastewater treatment service to the Cottonwood Water and Sanitation District in Douglas County. ACWWA similarly receives and treats wastewater from Inverness Water and Sanitation District. ACWWA provides water service to the Town of Foxfield as well

and will soon serve other residential subdivisions east of Parker Road and south of Arapahoe Road. ACWWA also provides water service to 120 units in Elkhorn subdivision, a residential area in northwest Elbert County with an anticipated build out area of approximately 250 units.

- c. Due to the nature of ACWWA's service area, population projections are very difficult and not representative of the water usage. Less than 20% of the water supplied by ACWWA is used by customers that are full-time residents. Most of the service area is comprised of office complexes, commercial, and light industrial areas. Also included in the service area is Centennial Airport, a major hub for general aviation. Over 25,000 workers are estimated to be served by ACWWA's infrastructure and water supplies. Roughly 50% of ACWWA's service area is built out; the remaining properties are mostly commercially zoned. Instead of population, ACWWA utilizes tap equivalents (TE) to estimate growth and need for expansion. **Table 3** shows the TE projections used; these values were provided by ACWWA staff.

**Table 3: Tap Equivalent Growth and Future Projection for ACWWA**

Year	TE	Growth Rate
1992	1,733	
1993	1,741	0.5%
1994	1,751	0.6%
1995	1,803	3.0%
1996	1,910	5.9%
1997	2,066	8.2%
1998	2,300	11.3%
1999	2,541	10.5%
2000	3,763	48.1%
2001	4,273	13.6%
2002	4,668	9.2%
2003	5,038	7.9%
2004	5,404	7.3%
2005	5,608	3.8%
2006	6,002	7.0%
2007	6,232	3.8%
2008	6,414	2.9%
2009	6,526	1.7%
2010	6,754	3.5%
2011	6,991	3.5%
2012	7,235	3.5%
2013	7,489	3.5%
2014	7,751	3.5%
2015	8,022	3.5%
2016	8,303	3.5%
2017	8,593	3.5%
2018	8,894	3.5%
2019	9,206	3.5%
2020	9,528	3.5%

- d. The estimated water savings goal for this Plan will be to lower the total water use by 10%. However, there has already been several water savings measures applied over the last five years and the actual water savings achieved by this Plan may be less than 10%. ACWWA will revisit and revise this goal, as necessary, as it further analyzes the potential water savings that corresponds to the development of this Plan update.
- e. **Table 3** shows the existing and on-going water efficiency activities for ACWWA.

**Table 3: ACWWA's Existing and On-going Water Efficiency Activities**

Water Efficiency Activity
ACWWA Rules and Regulations on Water Conservation <sup>1</sup>
Water Reuse System <sup>1</sup>
Conservation Technical Assistance for Customers <sup>1</sup>
Voluntary Watering Schedules and Volume Billing <sup>1</sup>
Water Rate Structures <sup>1</sup>
Planned Indirect Potable Reuse System and Expansion of Non-Potable Water System <sup>1</sup>
Efficient Showerhead Give Away <sup>2</sup>
Informative and Understandable Water Bill <sup>2</sup>
Educational Water Bill Inserts <sup>2</sup>
Website Conservation Page <sup>2</sup>
Water Schedule Bill Inserts <sup>2</sup>
Water Turn Off Policy <sup>2</sup>
Xeriscape Demonstration Garden Efforts Near ACWWA's Main Office in Cooperation with Eagle Scouts <sup>2</sup>

<sup>1</sup>Existing activity per 2006 Water Conservation Plan

<sup>2</sup>Activity implemented since 2006 Water Conservation Plan

Estimates of water savings realized in the past five years through water efficiency efforts will be developed and presented in the Plan update.

- f. Adequacy stability and reliability of the entity's water system

ACWWA has a very complex system with water sources including alluvial and non-tributary wells, reuse of treated wastewater, and ACWWA Flow Water. As mentioned earlier, ACWWA is in the process of adjudicating 4,400 AF of water from various sources of origin (i.e. various ditch and reservoir companies). As more ACWWA Flow water is adjudicated and becomes available, ACWWA will utilize less of the alluvial and non-tributary sources.

As part of the distribution system, ACWWA currently has one water treatment facility and also owns capacity in the ECCV Water Treatment



Plant. ACWWA as has its own wastewater treatment facility. Customers are served by 407.8 miles of pipelines that include 168.4 miles of potable water pipelines, 145.0 miles of non-potable water pipelines, 88.6 miles of wastewater pipelines, and 5.8 miles of water reuse pipelines. ACWWA's system also includes 18 wells, 16 pump stations, one enclosed storage facility, and seven storage basins.

With the various changes that ACWWA has already implemented and are currently in progress, the system's adequacy and stability are continuously improving.

- g. ACWWA is located in the South Platte Basin. The Statewide Water Supply Initiative conducted by CWCB identified a 22% gap in this basin between future need for water and identified sources to fill that need. Water conservation efforts made by ACWWA will help narrow that gap.
5. In this Plan update, the ACWWA will perform the six steps of municipal water efficiency planning as outlined in the *Municipal Water Efficiency Plan Guidance Document*. See **Attachment A** for the Scope of Work and **Attachment B** for a projected schedule for the Plan.
6. ACWWA will use the grant money for completion of the Plan update and will provide CWS all information, including billing and financial information, as well as staff time to successfully complete the Plan update. See **Attachment C** for the breakdown of Project Fees including projected hours and rates.
7. ACWWA will publish a notice in the local newspaper and post on its website that a draft Plan update is available for the public to review and comment. The public will have a 60-day period to provide comments to ACWWA.
8. "ACWWA's Board is committed to water resource sustainability and water efficiency. ACWWA intends to do its part to preserve water for future generations. Both ACWWA staff and the Board understand the needs and benefits to implement long-term water efficiency activities. We are committed to complete a Municipal Water Efficiency Plan update in its entirety to be approved by CWCB for the grant money requested."

X 

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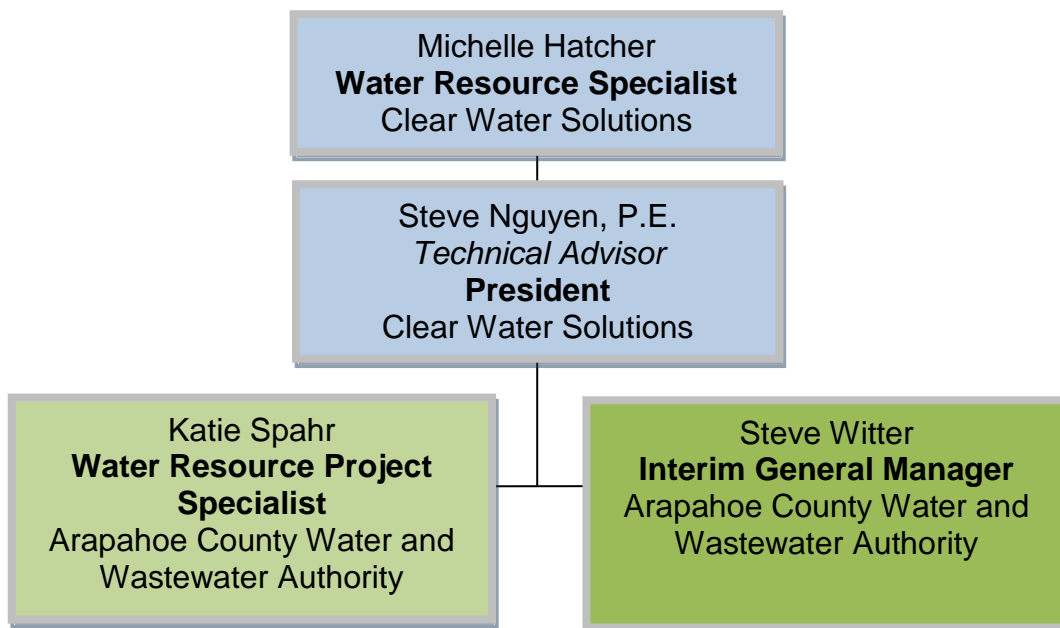
Steve Witter, ACWWA Interim General Manager

## **Arapahoe County Water and Wastewater Authority Municipal Water Efficiency Plan Update**

### **Attachment A - Scope of Work**

This Scope of Work describes the work to be performed by Clear Water Solutions, Inc. (CWS) for the Arapahoe County Water and Wastewater Authority (ACWWA). The scope outlines the tasks required to successfully complete a Municipal Water Efficiency Plan (Plan) update in accordance with CWCB's Municipal Water Efficiency Plan guidelines and policies.

The scope will be completed under the following structure:



### **DEVELOP MUNICIPAL WATER EFFICIENCY PLAN UPDATE**

ACWWA is seeking grant assistance from the Office of Water Conservation and Drought Planning pursuant to the Water Conservation Act of 2004 HB04-1365 to develop a Plan update. The main purpose of this Plan update is to develop a Plan that meets the CWCB requirements enabling ACWWA to apply for State financial assistance for subsequent projects.

The Plan update will be developed following *CWCB's Municipal Water Efficiency Plan Guidance Document, July 2012*. This document outlines the requirements needed for CWCB's approval. CWS will submit a draft Plan update to ACWWA for comments prior to a public-review period. Following the public-review process, CWS will incorporate public comments as appropriate and submit the Plan update to CWCB for final approval.



Development of this Plan update is divided into steps and subtasks similar to the CWCB Model Plan Template. This Plan update includes all the essential items necessary for CWCB to approve the Plan update.

## **STEP 1 – PROFILE OF EXISTING WATER SUPPLY SYSTEM**

### **Purpose**

The activities described under this task will provide general background on ACWWA's existing water supply system.

### **Approach**

Meeting #1 - Kickoff meeting with ACWWA staff to discuss overall project and gather preliminary data

#### **1.1 – Overview of Existing Water Supply System**

- 1.1.1 CWS, with the help of ACWWA staff, will describe ACWWA's service area.
- 1.1.2 CWS, with the help of ACWWA staff, will describe ACWWA's water supply sources.
- 1.1.3 CWS, with the help of ACWWA staff, will describe the key existing facilities.

#### **1.2 – Water Supply Reliability**

- 1.2.1 CWS will provide a description of the ACWWA's location with respect to areas of current and future water needs as identified by the Statewide Water Supply Initiative (SWSI) and other regional planning efforts.
- 1.2.2 CWS, with the help of ACWWA staff, will describe water supply system reliability.
- 1.2.3 CWS, with the help of ACWWA staff, will describe how excess supplies are used after meeting municipal demands.

#### **1.3 – Supply-Side Limitations and Future Needs**

- 1.3.1 CWS, with help of ACWWA staff, will summarize the ACWWA's water supply system limitations and future challenges ACWWA may have for planning and operating their system.
- 1.3.2 CWS and ACWWA staff will describe how ACWWA intends to address

water supply system limitations and future challenges.

## **STEP 2 – PROFILE OF WATER DEMANDS AND HISTORICAL DEMAND MANAGEMENT**

### **Purpose**

The activities described under this task will provide an overview of the historical water demand trends as well as the influence of historical water demand management on water use and forecasted future water demands.

### **Approach**

#### 2.1 – Demographics and Key Characteristics of the Service Area

- 2.1.1 CWS will describe customer categories, service area population and other pertinent information.

#### 2.2 – Historical Water Demands

- 2.2.1 CWS and ACWWA staff will describe any limitation associated with the availability of the demand data.
- 2.2.2 CWS, with the help of ACWWA staff, will outline total annual treated water distribution, total annual distribution of raw non-potable and reclaimed water and annual non-revenue water.
- 2.2.3 CWS and ACWWA staff will quantify water demand by customer category including monthly and annual treated metered water use by customer category.
- 2.2.4 CWS and ACWWA staff may analyze system wide demand by calculating and describing per capita water demands and indoor and outdoor water usage.

#### 2.3 – Past and Current Demand Management Activities and Impact to Demands

- 2.3.1 In coordination with ACWWA staff, CWS will include an estimate of the amount of water saved through previous demand management efforts.
- 2.3.2 CWS, with the help of ACWWA staff, will list the demand management activities implemented prior to this Plan update. The list will include the date of initial implementation.
- 2.3.3 CWS will analyze the projected water savings/goals developed from previous efforts and discuss whether these projected water savings were

achieved.

- 2.3.4 CWS will identify how demand management activities impacted historical demands.
- 2.3.5 CWS will discuss passive vs. active demand management savings and quantitative data that supports passive demand reductions.
- 2.3.6 CWS will discuss lessons learned on the implementation, monitoring and overall effectiveness of the historical demand management activities.

## **2.4 – Demand Forecasts**

- 2.4.1 In coordination with ACWWA staff, CWS will identify the planning horizon for the Plan update.
- 2.4.2 CWS, with the help of ACWWA staff, will present the unmodified forecasted water demands based on ACWWA's existing water efficiency program through the planning horizon.
- 2.4.3 CWS will discuss method(s) and any assumptions used to develop the demand forecast.

## **STEP 3 – INTEGRATED PLANNING AND WATER EFFICIENCY BENEFITS AND GOALS**

### **Purpose**

The activities described under this task focus on the role that water efficiency plays in ACWWA's water supply planning efforts.

### **Approach**

#### **3.1 – Water Efficiency and Water Supply Planning**

- 3.1.1 In coordination with ACWWA staff, CWS will describe how long-term water savings garnered through water efficiency activities are incorporated into water supply planning and decision making.
- 3.1.2 CWS will present modified forecasted water demands through the planning horizon incorporating ACWWA's projected water savings identified in Section 4.0
- 3.1.3 CWS, if appropriate and logical, will discuss how water savings achieved

through the new water efficiency plan could or could not result in the elimination, downsizing and/or postponement of certain capital improvements/water acquisitions.

- 3.1.4 CWS will state how the saved water will be used and the additional water efficiency benefits realized.

Meeting #2 – Discuss desired water efficiency goals and initial screening of water efficiency activities

### 3.2 – Water Efficiency Goals

- 3.2.1 In coordination with ACWWA staff, CWS will provide a list of water efficiency goals for this Plan update and methods by which the success of the goals will be measured. The goals will incorporate targeted total water savings, targeted water savings by customer class and targeted water savings from system water loss control management.
- 3.2.2 CWS and ACWWA staff will provide an explanation of how these goals were developed and designed to achieve the water efficiency benefits.
- 3.2.3 CWS and ACWWA staff will provide an explanation of how these goals compare to the goals in ACWWA's former water efficiency plan and describe why goals remained the same or were changed.

## **STEP 4 – SELECTION OF WATER EFFICIENCY ACTIVITIES**

### **Purpose**

The activities described under this task will present the water efficiency activities selected for implementation and describe the processes used to identify, screen and evaluate each of these activities.

### **Approach**

#### 4.1 – Summary of Selection Process

- 4.1.1 CWS along with ACWWA staff will provide a list of selected water efficiency activities included in the new water efficiency plan.
- 4.1.2 CWS will summarize the identification, screening and evaluation processes used to select the final activities. All of the required elements/activities will be considered. If any activities are deemed not feasible for implementation by ACWWA staff, the proper documentation and supporting materials will be provided justifying why the activities will not be implemented.

## 4.2 – Demand Management Activities

- 4.2.1 CWS along with ACWWA staff will provide an estimate of the amount of water that will be saved through water efficiency when the plan is implemented.
- 4.2.2 CWS with ACWWA staff will estimate water savings from selected *Foundational Activities*.
  - 4.2.2.1 CWS and ACWWA staff will describe current and planned metering programs, modification and/or new metering programs selected because of this water efficiency planning effort and discuss lessons learned from past metering programs.
  - 4.2.2.2 CWS and ACWWA staff will describe the current billing system and available demand data, the frequency of billing, evaluate billing systems designed to encourage water efficiency in a fiscally responsible manner, describe modification to the data collection and billing systems as a result of this water efficiency planning effort and discuss any past lessons learned.
  - 4.2.2.3 CWS and ACWWA staff will describe the existing water rate structure by customer category and the frequency of billing and discuss any proposed adjustments to water rates. We will also describe any lessons learned from previous water rate structure evaluations.
  - 4.2.2.4 CWS and ACWWA staff will describe the current and planned system water loss management and control programs.
- 4.2.3 CWS with ACWWA staff will estimate water savings from *Targeted Technical Assistance and Incentive Activities*.
  - 4.2.3.1 CWS and ACWWA staff will describe the selected water efficiency activities focused on the utility facilities and describe the implementation plan for each activity within the utility facility customer category. Additionally CWS will evaluate the potential costs and benefits of the selected activities. If any activities have been implemented prior to this Plan update, CWS will provide past performance indicators and any lessons learned from past implementation.
  - 4.2.3.2 CWS and ACWWA staff will describe the selected water efficiency activities focused on the largest water users and describe the implementation plan for each activity within the targeted customer

category. Additionally CWS will evaluate the potential costs and benefits of the selected activities. If any activities have been implemented prior to this Plan update, CWS will provide past performance indicators and any lessons learned from past implementation.

4.2.3.3 CWS and ACWWA staff will describe the selected water efficiency activities focused on the remainder of the service area and/or on specific customer categories and describe the implementation plan for each activity within the targeted customer category. Additionally CWS will evaluate the potential costs and benefits of the selected activities. If any activities have been implemented prior to this Plan update, CWS will provide past performance indicators and any lessons learned from past implementation.

4.2.4 CWS with ACWWA staff will detail *Ordinance and Regulatory Activities* selected for implementation and estimate water savings for those selected.

4.2.4.1 CWS and ACWWA staff will describe the regulations selected to target the general service area and/or specific customer categories and describe the implementation plan for the regulation(s) selected and targeted customer categories. Additionally CWS will evaluate the potential costs, benefits and challenges to adopt the selected activities. If any activities have been implemented prior to this Plan update, CWS will provide information and any lessons learned from past implementation.

4.2.4.2 CWS and ACWWA staff will describe the regulations selected for new construction and describe the implementation plan for the regulation(s) selected and targeted customer categories. Additionally CWS will evaluate the potential costs, benefits and challenges to adopt the selected activities. If any activities have been implemented prior to this Plan update, CWS will provide information and any lessons learned from past implementation.

4.2.4.3 CWS and ACWWA staff will describe the regulations selected for existing building stock (e.g. point of sales ordinance) and describe the implementation plan for the regulation(s) selected and targeted customer categories. Additionally CWS will evaluate the potential costs, benefits and challenges to adopt the selected activities. If any activities have been implemented prior to this Plan update, CWS will provide information and any lessons learned from past implementation.

4.2.5 CWS with ACWWA staff will detail *Educational and Outreach Activities*



selected for implementation and estimate water savings for those selected.

- 4.2.5.1 CWS and ACWWA staff will describe the selected one-way education activities (one-way education – information is conveyed to the public without tracking or specific follow-up) and the plan to implement said activities within the targeted customer category. Additionally CWS will evaluate the potential costs and benefits to adopt the selected activities. If any activities have been implemented prior to this Plan update, CWS will provide information and any lessons learned from past implementation.
- 4.2.5.2 CWS and ACWWA staff will describe the selected two-way education activities (two-way education – information is conveyed to the public with feedback provided by the public) and the plan to implement said activities within the targeted customer category. Additionally CWS will evaluate the potential costs and benefits to adopt the selected activities. If any activities have been implemented prior to this Plan update, CWS will provide information and any lessons learned from past implementation.
- 4.2.5.3 CWS and ACWWA staff will describe the selected three-way education activities (three-way education – providers actively engage customers in developing and implementing the water efficiency plan) and the plan to implement said activities within the targeted customer category. Additionally CWS will evaluate the potential costs and benefits to adopt the selected activities. If any activities have been implemented prior to this Plan update, CWS will provide information and any lessons learned from past implementation.

Meeting #3 – Second screening of demand management activities and final selection of activities for implementation. This meeting will also include discussion on implementation and monitoring.

## **STEP 5 – IMPLEMENTATION AND MONITORING PLAN**

### **Purpose**

The activities under this task will address the activities and coordination necessary to implement the Plan update and monitor the overall effectiveness of the updated water efficiency plan.

## **Approach**

### **5.1 – Implementation Plan**

- 5.1.1 CWS and ACWWA staff will develop and discuss the actions, timeline and coordination necessary to implement the selected water efficiency activities. CWS will provide a list of selected activities, anticipated period of implementation, actions necessary to implement each activity (including goals) and estimated water provider costs (and avoided costs).
- 5.1.2 CWS and ACWWA staff will discuss how reductions in water use could impact revenue and actions taken to help mitigate negative impacts.

### **5.2 – Monitoring Plan**

- 5.2.1 CWS and ACWWA staff will develop and describe the data collection and assessment activities necessary to monitor the effectiveness of the water efficiency plan. CWS will include a monitoring plan that includes steps used to monitor the Plan update.
- 5.2.2 CWS will include a list of demand data to be collected during the monitoring period/process and a list of other relevant data specific to the implementation of the activities.
- 5.2.3 CWS will include a summary of the process to communicate monitoring and evaluation results to decision-makers, including the frequency of communication. Frequency of data collection will also be specified.

## **STEP 6 – ADOPTION OF NEW POLICY, PUBLIC REVIEW AND FORMAL APPROVAL**

### **Purpose**

The activities described under this task address the public review and formal adoption process.

### **Approach**

#### **6.1 – Public Review Process**

- 6.1.1 CWS will describe the public review process and how the public accessed the Plan update. Additionally, CWS will summarize the public comments received, how the comments were addressed and details of the meetings held during the Plan development process.

## 6.2 – Local Adoption and State Approval Process

6.2.1 CWS will discuss the formal process for Plan adoptions.

## 6.3 – Periodic Review and Update

6.3.1 CWS and ACWWA Staff will summarize the process that will occur to facilitate the update of the Plan update and the anticipated timing of plan updates. CWS will include steps used to review and revise the Plan update, the process of how monitoring results will be incorporated into updated plans and the anticipated date of the next water efficiency plan update.

Meeting #4 - Meeting with ACWWA Board to present draft plan

### **REQUIREMENTS**

1. ACWWA Board and staff will review a final draft of the Plan update and provide comments.
2. CWS will incorporate ACWWA's comments prior to the public-review process.
3. Public comments will be solicited and incorporated into the Plan update as necessary.
4. ACWWA will formally adopt the final Plan update.
5. CWS will submit the final Plan update to CWCB.
6. CWCB will review final Plan update.

### **DELIVERABLES**

CWS will submit the following:

- Monthly invoices to ACWWA with brief progress reports.
- Submit 50% and 75% progress reports to CWCB.
- Four meetings with Staff and/or ACWWA Board.
- Provide draft Plan update to ACWWA for comments prior to submission to CWCB.
- Final Plan update submitted electronically to CWCB with all comments, including public input.
- Ten hard copies of the final Plan update submitted to ACWWA after CWCB's final approval.

## ATTACHMENT B

### Project Schedule

Arapahoe County Water and Wastewater Authority Municipal Water Efficiency Plan Update

Task	Date
Grant application submitted to CWCB	12/30/2014
Required CWCB details addressed	2/17/2015
CWCB approves grant and PO issued	3/3/2015
Kick-off meeting with staff	3/24/2015
Submit 50% progress report to CWCB	4/21/2015
Submit 75% progress report to CWCB	5/5/2015
Submit draft plan to staff for review and comment	6/2/2015
Staff provides comment from review	6/16/2015
Submit draft report to Board for review	6/30/2015
Present draft report at Board meeting and collect comments	7/8/2015
Notify public of draft plan in paper and website	7/9/2015
Public review period (60 days)	9/7/2015
ACWWA provides public input comments to CWS	9/8/2015
CWS incorporates public comments	9/30/2015
Board formally adopts final report	10/14/2015
CWS submits final report to CWCB	10/15/2015
CWCB approves final report	<i>up to 90 days</i>

ATTACHMENT C  
Project Fee Estimate  
Arapahoe County Water and Wastewater Authority Municipal Water Efficiency Plan Update

ITEMS OF WORK	CWS		CWS		Arapahoe County Water and Wastewater Authority (In-Kind)				Labor Total	Expense Total	Grand Total	Cash Contribution	CWCB Grant Request
	Michelle Hatcher		Steve Nguyen		General Manager		Project Specialist						
	HOURS \$150	SUB TOTAL	HOURS \$180	SUB TOTAL	HOURS \$77.40	SUB TOTAL	HOURS \$39.61	SUB TOTAL					
Introduction													
I.1 Introduction - Refer to Guidance Document Template	4	\$600.00	1	\$180.00		\$0.00		\$0.00	\$780.00		\$780.00	\$50.00	\$730.00
Kick-off Meeting with District Staff (Meeting #1)	7	\$1,050.00	5	\$900.00	2	\$154.80	2	\$79.22	\$2,184.02		\$2,184.02		\$1,950.00
Sub-Total	11	\$1,650.00	6	\$1,080.00	2	\$154.80	2	\$79.22	\$2,964.02	\$0.00	\$2,964.02	\$50.00	\$2,680.00
Step 1 - Profile of Existing Water Supply System													
1.1 Overview of Existing Water Supply System	8	\$1,200.00	4	\$720.00	4	\$309.60	6	\$237.66	\$2,467.26		\$2,467.26	\$50.00	\$1,870.00
1.2 Water Supply Reliability	4	\$600.00	2	\$360.00	4	\$309.60	4	\$158.44	\$1,428.04		\$1,428.04		\$960.00
1.3 Supply-Side Limitations and Future Needs	2	\$300.00	1	\$180.00	4	\$309.60	4	\$158.44	\$948.04		\$948.04		\$480.00
Sub-Total	14	\$2,100.00	7	\$1,260.00	12	\$928.80	14	\$554.54	\$4,843.34	\$0.00	\$4,843.34	\$50.00	\$3,310.00
Step 2 - Profile of Water Demands and Historical Demand Management													
2.1 Demographics and Key Characteristics of the Service Area	3	\$450.00	3	\$540.00	3	\$232.20	10	\$396.10	\$1,618.30		\$1,618.30	\$250.00	\$740.00
2.2 Historical Water Demands	15	\$2,250.00	6	\$1,080.00	6	\$464.40	20	\$792.20	\$4,586.60		\$4,586.60		\$3,330.00
2.3 Past and Current Demand Management Activities and Impact to Demands	15	\$2,250.00	4	\$720.00	4	\$309.60	20	\$792.20	\$4,071.80		\$4,071.80		\$2,970.00
2.4 Demand Forecasts	8	\$1,200.00	3	\$540.00	3	\$232.20	10	\$396.10	\$2,368.30		\$2,368.30		\$1,740.00
Sub-Total	41	\$6,150.00	16	\$2,880.00	16	\$1,238.40	60	\$2,376.60	\$12,645.00	\$0.00	\$12,645.00	\$250.00	\$8,780.00
Step 3 - Integrated Planning and Water Efficiency Benefits and Goals													
3.1 Water Efficiency and Water Supply Planning	6	\$900.00	5	\$900.00	3	\$232.20	6	\$237.66	\$2,269.86		\$2,269.86	\$150.00	\$1,650.00
Water Efficiency Plan Update Meeting #2	7	\$1,050.00	5	\$900.00	2	\$154.80	2	\$79.22	\$2,184.02		\$2,184.02		\$1,950.00
3.2 Water Efficiency Goals	6	\$900.00	4	\$720.00	4	\$309.60	10	\$396.10	\$2,325.70		\$2,325.70		\$1,620.00
Sub-Total	19	\$2,850.00	14	\$2,520.00	9	\$696.60	18	\$712.98	\$6,779.58	\$0.00	\$6,779.58	\$150.00	\$5,220.00
Step 4 - Selection of Water Efficiency Activities													
4.1 Summary of Selection Process	3	\$450.00	1	\$180.00	1	\$77.40	2	\$79.22	\$786.62		\$786.62	\$200.00	\$430.00
4.2 Demand Management Activities	40	\$6,000.00	6	\$1,080.00	10	\$774.00	25	\$990.25	\$8,844.25		\$8,844.25		\$7,080.00
Water Efficiency Plan Update Meeting #3	7	\$1,050.00	5	\$900.00	2	\$154.80	2	\$79.22	\$2,184.02		\$2,184.02		\$1,950.00
Sub-Total	50	\$7,500.00	12	\$2,160.00	13	\$1,006.20	29	\$1,148.69	\$11,814.89	\$0.00	\$11,814.89	\$200.00	\$9,460.00
Step 5 - Implementation and Monitoring Plan													
5.1 Implementation Plan	15	\$2,250.00	6	\$1,080.00	10	\$774.00	20	\$792.20	\$4,896.20		\$4,896.20	\$100.00	\$3,230.00
5.2 Monitoring Plan	8	\$1,200.00	4	\$720.00	10	\$774.00	15	\$594.15	\$3,288.15		\$3,288.15		\$1,920.00
Sub-Total	23	\$3,450.00	10	\$1,800.00	20	\$1,548.00	35	\$1,386.35	\$8,184.35	\$0.00	\$8,184.35	\$100.00	\$5,150.00
Step 6 - Adoption of New Policy, Public Review and Formal Approval													
6.1 Public Review Process	2	\$300.00	1	\$180.00	2	\$154.80	3	\$118.83	\$753.63		\$753.63	\$100.00	\$380.00
6.2 Local Adoption and State Approval Process	4	\$600.00	3	\$540.00	2	\$154.80	4	\$158.44	\$1,453.24		\$1,453.24		\$1,140.00
6.3 Periodic Review and Update	2	\$300.00	1	\$180.00	2	\$154.80	4	\$158.44	\$793.24		\$793.24		\$480.00
Board Meeting - Present draft to Board	7	\$1,050.00	5	\$900.00	3	\$232.20	3	\$118.83	\$2,301.03		\$2,301.03		\$1,950.00
Sub-Total	15	\$2,250.00	10	\$1,800.00	9	\$696.60	14	\$554.54	\$5,301.14	\$0.00	\$5,301.14	\$100.00	\$3,950.00
General Project Expenses													
Reproduction of Reports - 10 copies x \$100/copy + 3 hours x \$90/hr										\$1,210.00	\$1,210.00		\$1,210.00
Travel - 4 meetings x \$0.62/mi x 2 x 69.3 mi										\$343.73	\$343.73		\$343.73
Submit 2 progress reports	12	\$1,800.00	4	\$720.00					\$2,520.00		\$2,520.00		\$2,520.00
Final incorporation of CWCB comments	6	\$900.00	5	\$900.00	4	\$309.60	10	\$396.10	\$2,505.70		\$2,505.70	\$100.00	\$1,700.00
Sub-Total	18	\$2,700.00	9	\$1,620.00	4	\$309.60	10	\$396.10	\$5,025.70	\$1,553.73	\$6,579.43	\$100.00	\$5,773.73
TOTAL FEE	191	\$28,650.00	84	\$15,120.00	85	\$6,579.00	182	\$7,209.02	\$57,558.02	\$1,553.73	\$59,111.75	\$1,000.00	\$44,323.73