PROGRESS REPORT:
CWCWD WATER EFFICIENCY PLAN

for

Central Weld County Water District

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Greeley, CO 80631

prepared by

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Project No. 18-110.05

Progress Report No. **#1 - 50% Progress Report**
Submittal Date **07/15/2018**

Grant Agreement No:
Project Name: **CWCWD Water Efficiency Plan**
Total Project Cost: **$49,210**

Progress Report Summary:

The progress reports will detail the success of previously identified goals and objectives, project challenges, preliminary report findings, and potential need for scope of work and timeline revisions.

Progress Report Contents

The contents of this document will be organized within the framework of the following six steps, which were stated as the responsibilities of NOCO Engineering Co. (NEC) in the development of a Water Efficiency Plan (WEP) for Central Weld County Water District (District):

Step 1: Profile of Existing Water Supply System – Collection and development of supply-side information and historical supply-side water efficiency activities. Consult with the District to clarify and define the District's requirements for the WEP and review available data. Advise and assist the District with providing or obtaining from other special services the necessary data required for the report. The District's Worksheet A will be completed during this step.

Step 2: Profile of Water Demands and Historical Demand Management – Collection and development of demand data and historical demand management activities. Worksheet B will be completed during this step.

Step 3: Integrated Planning and Water Efficiency Benefits and Goals – Identification of how water efficiency will be incorporated into future water supply planning efforts and development of water efficiency benefits and goals. Worksheet C will be completed during this step.

Step 4: Selection of Water Efficiency Activities – Assessment, identification, screening, and evaluation process to select and fully evaluate a portfolio of water efficiency activities for implementation. Worksheet D-1 will be completed during this step.

Step 5: Implementation and Monitoring Plans – Development of an implementation and monitoring plan for the methods selected during step 4. Worksheets J, K, and L will be completed during this step.

Step 6: Adoption of New Policy, Public Review, and Formal Approval – Work associated with this step includes obtaining draft WEP approval from the CWCWD Board. With Board approval, the draft WEP will be submitted to CWCB staff to ensure the plan meets all of the State's criteria for acceptance. With CWCB approval, the draft WEP will begin the public review process. Following the public review process, NEC will incorporate comments into the document and final approval will be solicited from the District Board and CWCB.

A description of progress will be addressed within each step, along with mainstay findings within each action item. Each section will conclude with a list of remaining action items to be completed.

Step 1: Profile of Existing Water Supply Systems
Status: 100% Complete

A comprehensive profile of the District's existing water supply system has been completed, which is comprised of the following information:

- **Overview of existing water supply system:** 100% Complete

  This section includes geographic area served, water and supply sources, key existing facilities

- **Water supply reliability:** 100% Complete

  This section includes water treatment provider's location within areas of both current and future water needs and other regional planning efforts and summary of water supply system reliability (safety factors, drought preparedness, etc.)

- **Supply side limitations and future needs**: 100% Complete

  This section includes Worksheet A and description of how CWCWD intends to address its water supply limitations and future challenges is complete. Worksheet A is provided below.

Table Error! No text of specified style in document.**: Needs and Limitations (Worksheet A)**

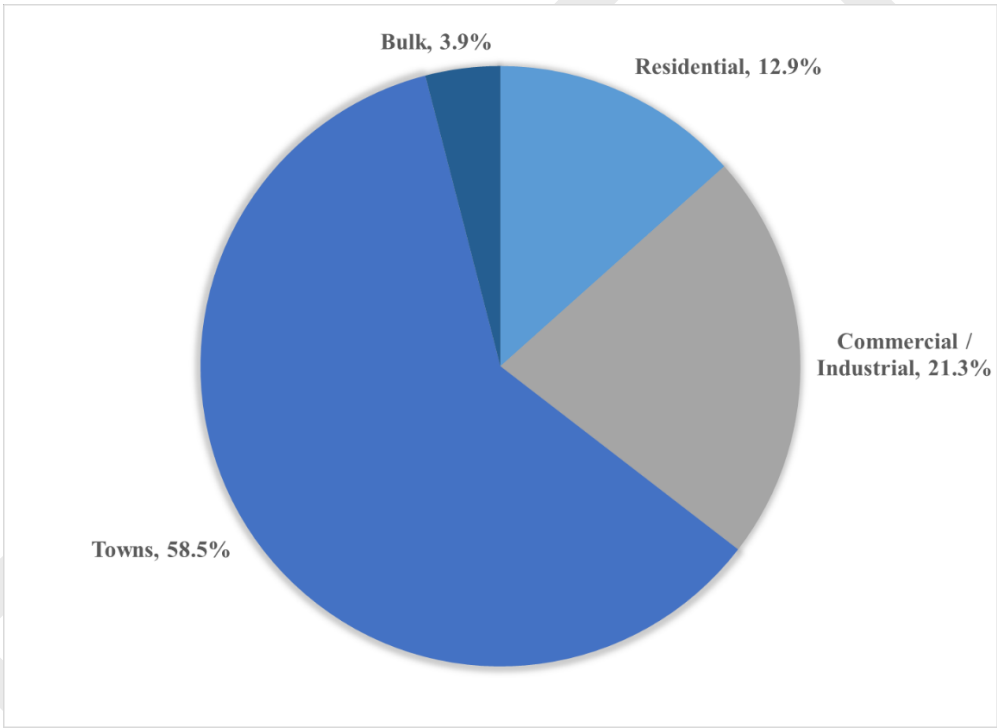
Limitation and/or Future Need	Yes	No	Comments on Limitation or Future Need	How is Limitation or Future Need Being Addressed
System is in a designated critical water supply shortage area	X		The system is in a critical water supply area.	The District will continue to purchase water rights as they become available and contribute towards NISP.
System experiences frequent water supply shortages and/or emergencies		X	The system does not experience supply shortages.	
System has substantial non-revenue water		X	With a newly installed metering system, unaccounted for water is limited to between 0 – 10%.	
Experiencing high rates of population and demand growth	X		Population in the service area is projected to grow	The District is purchasing or trading water rights as they become available.
Planning substantial improvements or additions	X		System improvements are primarily intended to increase the capacity of existing pipelines and supply of surface water sources.	Per the 2012 Master Plan (Farnsworth 2012), there are several capital improvement projects in the planning stages.
Increases to wastewater system capacity anticipated		X	District does not own a wastewater system.	
Need additional drought reserves		X	The system does not experience supply shortages.	
Drinking water quality issues		X	The water delivered by the District meets all State and Federal Safe Drinking Water Act parameters.	Recent changes to the water treatment process has decreased the lead and copper detections and decreased the need to flush the water system.
Aging infrastructure in need of repair	X		Portions of the District's system are over 60 years old.	The District is engaged in replacing 3% of the old mains annually to improve system reliability and decrease water leaks.
Issues with water pressure in portions of distribution system		X	The District has adopted the goal of maintaining a minimum pressure of 35 psi throughout the system during the peak hour demand with a maximum pressure of 250 psi.	

Step 2: Profile of Water Demands and Historical Demand Management
Status: 85% Complete

A complete overview of the historical water demand trends has been completed. The impact of historical water demand management on water use has been assessed as well as an analysis on forecasted future water demands. The following information has been included as part of this section:

- **Description of customer categories and provide information on service area population**: 100% Complete

  This report has identified four main water customer categories: bulk water sales, residential, towns through master meters, and commercial/industrial use (Figure 1).



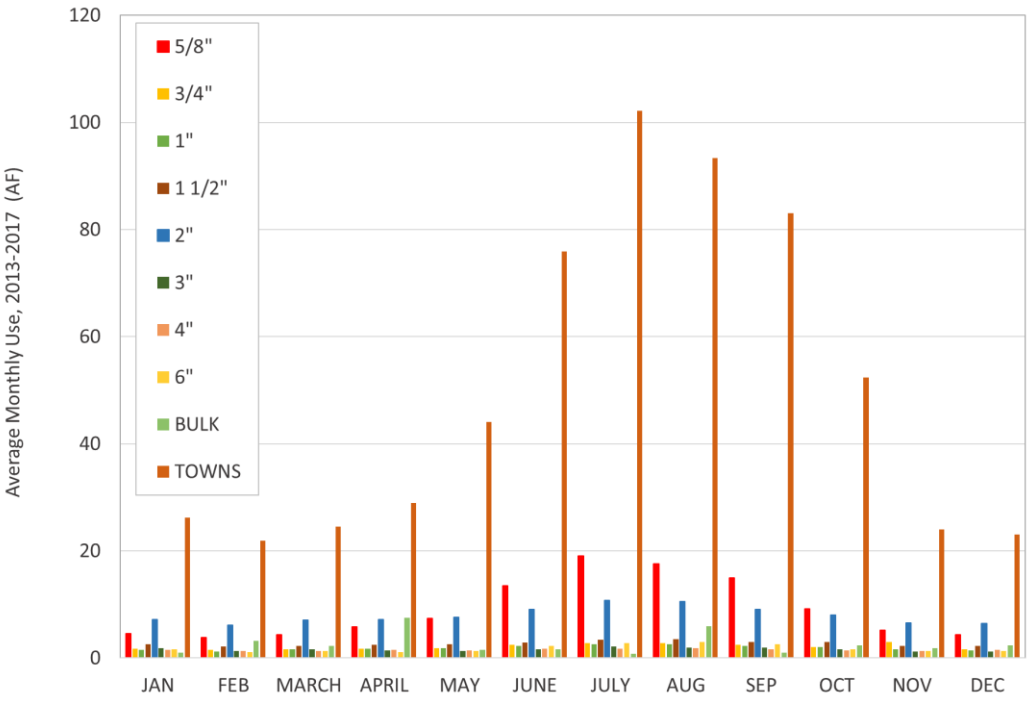
- **Assess historical water demand by customer categories:** 100% Complete

  Historical water demands by customer category were assessed in three ways:
  (1) a bulk volumetric annual averaged annual basis over the last 5 years

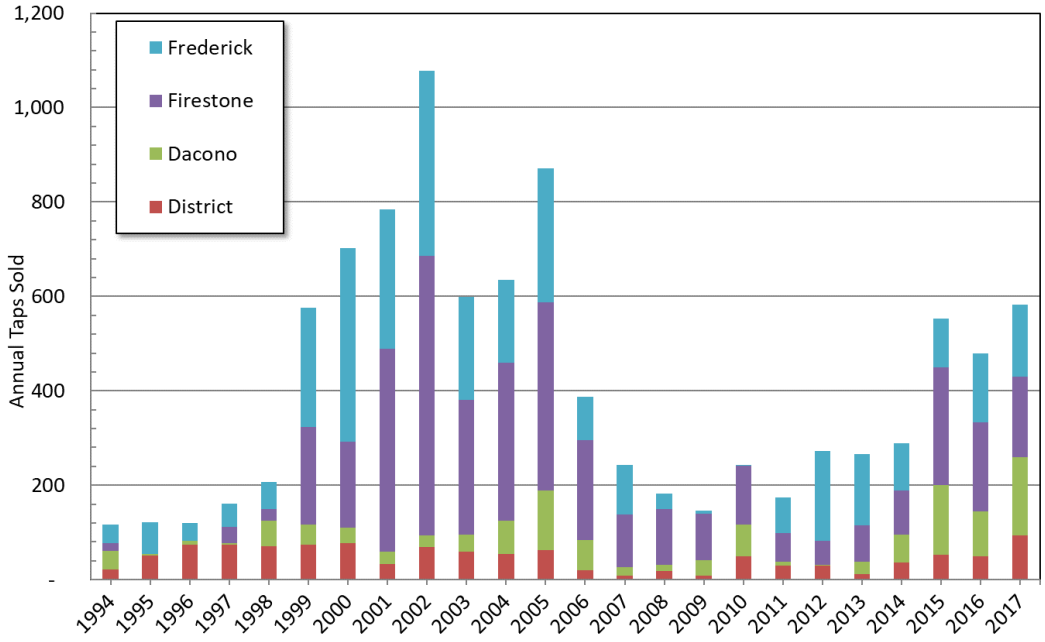
Table 2: Annual treated water deliveries.

Year	Annual Treated Water Deliveries (AF/year)
2013	8,687
2014	8,590
2015	5,524
2016	10,083
2017	9,460
Average	8,469

(2) monthly average water consumption by tap size



(3) historical tap sales for areas of highest growth.



- **<u>Summarize past and current demand management activities with associated projected savings, and water efficiency goals</u>**: 50% Complete

  Worksheet B was used to assess past and current demand management activities, which is shown below. The savings garnered from the following activities are expected to continue to save the District water in the future.

  Table 3: Past and current demand management activities and estimated water savings (Workshop B)

Historical and Current Water Efficiency Activities [1]	Period of Implementation [2]	Annual Water Savings for Past Five Years (AF or %) [3]					Total Five-Year Water Savings [4]	Average Annual Savings [5]
		2013	*2014*	*2015*	*2016*	*2017*		
Foundational Activities								
Implement Over-Use Surcharge	**2017 - Present**	-	-	-	-			
Offer Budget Tap Connections	**2017 - Present**	-	-	-	-			
Leak Detection and Repair	**1995 - Present**	5	5	10	10	10	40	**8**
Maintenance and Improvements of Distribution System	**1995 - Present**	10	10	15	15	15	65	**13**
Addition of ortho-phosphates	**2017 - Present**	-	-	-	-			
Subtotal		15	15	25	25	25		
Total Savings		15	15	25	25	25	105	21

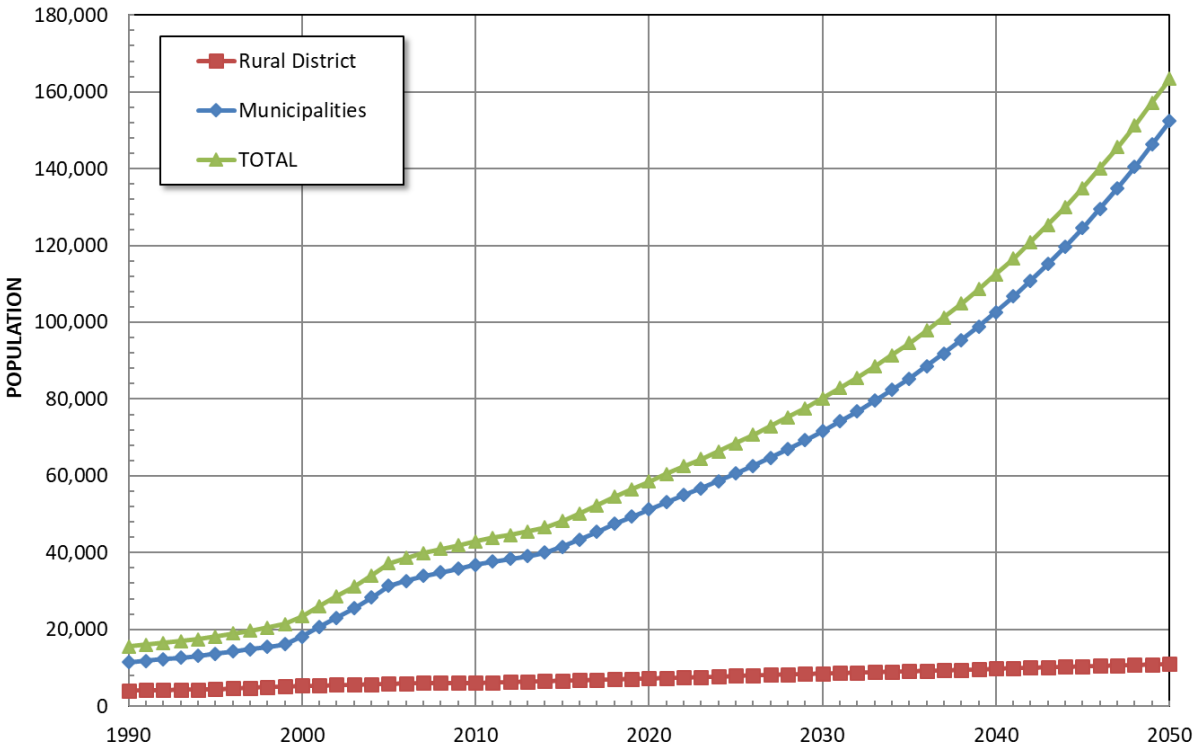
A collaborative effort between the District staff, officials, and consulting engineers was used in the goal development process. Data on the District's water system and current conservation measures were studied to characterize water supply, water demand, and customer use. Discussions were held in which target water users were identified based on the information that has been provided in the preceding chapters. The goals were then established based on those that would have the highest probability of success and public acceptance. The following water conservation goals were created for CWCWD:

(1) Perform leak detection and repair on 10 miles of the distribution system per year
(2) Reduce per customer water use by 5%
(3) Reduce system water loss to 4% or less

- **Provide demand forecasts assuming no modifications to the currently implemented demand management activities:** 100% Complete

The State of Colorado experienced tremendous population growth during the period of 1990 through 2016. The South Platte River Basin was the fastest growing basin in the State. It is clear from this plot that the majority of population growth will be seen from municipalities. From the CWCWD 2012 Master Plan, this discrepancy is largely due to anticipated growth in the Tri-Town Area/I-24 Corridor. The water usage pattern experienced by the District will reflect

changes in customer base, which is projected to grow most dramatically within the municipalities.



Forecasting water demand for CWCWD can be difficult because the District is comprised of multiple governing entities for which decision about future developments, expansions of existing feedlots and dairies, and the installation of new industries are made independently of one another. The following analysis, showing projected peak daily demands in the plot and average daily demands within the table, used varying growth factors to represent different user entities.

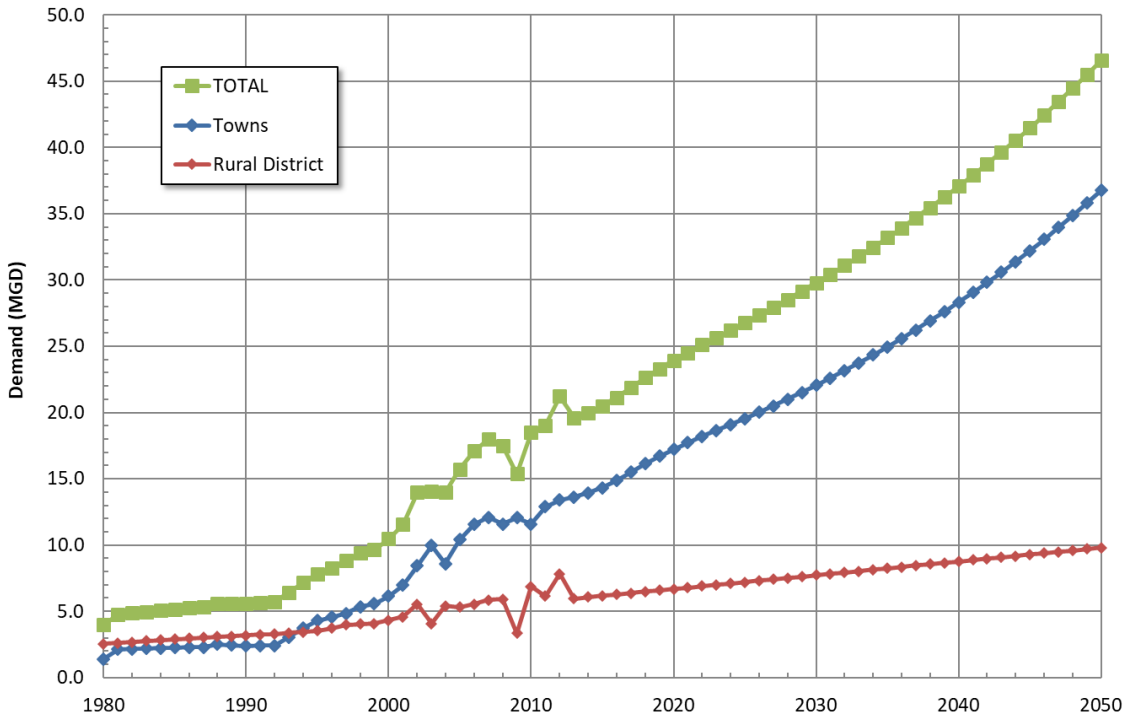


Table 4: Average daily demand projections through the next 10 years.

Year	Population	Tap Equivalents	Average Day Demand (MGD)	Annual Raw Water Demand (AF)
2017	111,533	17,122	10.7	11,981.28
2018	115,848	17279.12	10.8	12,091.58
2019	120,214	17436.74	10.9	12,201.87
2020	124,590	17627.76	11.0	12,335.55
2021	129,179	17818.78	11.1	12,469.22
2022	134,070	18009.80	11.3	12,602.89
2023	139,030	18200.82	11.4	12,736.56
2024	144,171	18391.84	11.5	12,870.23
2025	149,379	18582.86	11.6	13,003.91
2026	154,608	18773.88	11.7	13,137.58
2027	159,824	18964.90	11.8	13,271.25

Step 3: Integrated Planning and Water Efficiency Benefits and Goals
Status: 0% Complete

Outstanding action items:

- **Water efficiency and water supply planning:** 0% Complete
- **Water efficiency goals:** 0% Complete
- **Perform forecasted modified water demands**: 0% Complete
- **Describe impacts to future water facilities and supply acquisitions**: 0% Complete

Step 4: Selection of Water Efficiency Activities
Status: 0% Complete

Outstanding action items:

- **Summarize the identification, screening, and evaluation processes used to select the final activities and that demonstrate full evaluation:** 0% Complete

- **List the final selected water efficiency activities included in new water efficiency plan:** 0% Complete

Step 5: Implementation and Monitoring Plans
Status: 0% Complete

Outstanding action items:

- **Create an implementation plan discussing the actions, timeline, and coordinateion necessary to implement the selected water efficiency activities**: 0% Complete
- **Create a monitoring plan that describes the data collection and assessment activities necessary to monitor the effectiveness of the water efficiency plan**: 0% Complete

Step 6: Adoption of new policy, public review, and formal approval
Status: 0% Complete

Outstanding action items:

- **Summarize the public's role in development of the plan**: 0% Complete
- **Summarize the formal process for plan adoption**: 0% Complete
- **Summarize the processes that will occur to facilitate the update of the plan and the anticipated timing of plan updates**: 0% Complete