City of Greeley Colorado

City of Greeley Water & Sewer Department - Water Operations Division

AMI Meter Installation Project

WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2019 Grant Application

October 3, 2019

PREPARED BY:
City of Greeley
Water & Sewer Department-Water Operations Division
1001 11th Avenue, Second Floor
Greeley, CO 80631-3823

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Grants for Fiscal Year 2019
Grant Application

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EXECUTIVE SUMMARY

Successful stewardship of precious water resources is a benchmark by which future generations will judge the City of Greeley's current citizens and water utility staff.

The Greeley Advanced Metering Infrastructure (AMI) Meter Installation Project (Greeley AMI) demonstrates the City's ongoing commitment to honor that call to stewardship. By providing real-time water management capabilities, the Project will deliver 24/7 access to vital water use and leak detection information that will help all stakeholders—the City, residents and businesses—reduce water demand and ensure a safe, healthy water source.

The Greeley AMI Project will provide the City with real-time water management data by converting 14,500 outdated meters (13,320 residential; 1,160 commercial; and 20 wholesale water purchaser accounts) to AMI meters equipped with advanced, wireless technology. The requested funds of $1,486,538.00 cover costs to purchase and install the meters, set up and initiate the project, and integrate the smart-meter software with Greeley Water's SCADA system.

Date | 10.3.2019

Applicant | Greeley Water & Sewer Dept., Water Operations Division

City | Greeley

County | Weld

State | Colorado

Project Length | 3 years

Completion | Dec. 2022

On Federal Facility | No

This project delivers wide-spread benefits. It will:

- Provide the technology necessary to save at least 636 acre-feet/year (AFY) in improved meter accuracy, 365 AFY in leak detection/elimination, and 982 AFY in water conservation, for a total savings of 1,983 AFY or 8.1 percent.
- Provide 24/7 real-time monitoring and alert capabilities that will detect high usage and leaks
- Give Greeley's water customers safe, secure, real-time access to their water usage through an online customer portal. Accurate information allows customers to proactively partner with the City in its conservation efforts by monitoring and adjusting their personal usage during peak-use times—a feature that will be especially beneficial to commercial and landscape customers who have higher usage rates and thus, higher water bills.
- Deliver accurate metering of all water flows, potentially helping to reduce raw water purchases for lower rates overall.
- Positively impact public health by replacing existing meters, of which 67 percent contain lead.
- Allow Greely to meet or exceed Safe Drinking Water Act requirements to reduce finished water exposure to lead and prevent leaching of lead into drinking water supplies.
- Support the Bureau of Reclamation's (BOR) goals to manage, develop and protect water in an environmentally and economically sound manner.

Situated in a semi-arid environment and recognizing the very real possibility that certain water supplies may dwindle or no longer be available in as little as 10 to 15 years, the City of Greeley looks to this project to help ensure the water demands of a growing population can be met.

Background Data

Water Supply

The majority of future growth along Colorado's Front Range is projected to occur in northern Colorado, with Greeley's population by 2024 estimated at approximately 133,000. Along with significant growth comes significant water demand.

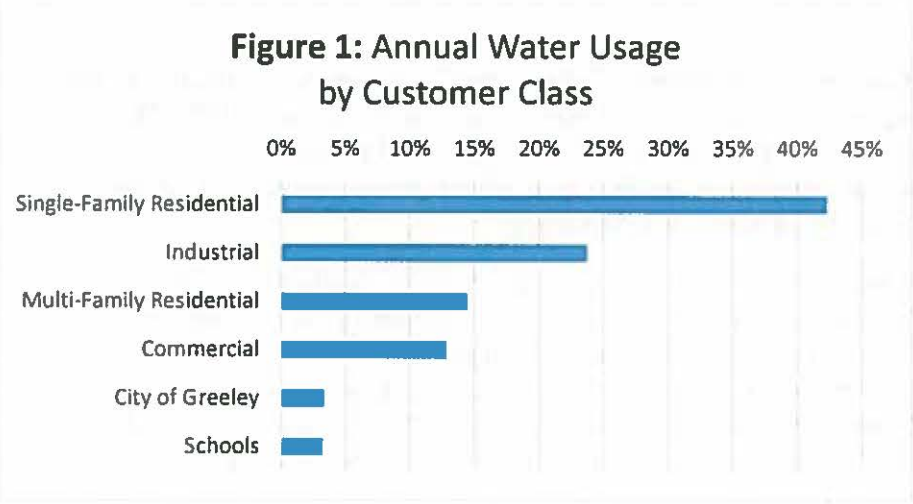
Greeley offers one of the most robust water conservation programs in Colorado. With just over 13 inches of rainfall per year, Greeley is considered a semi-arid climate, which means local water supplies are scarce and must be used prudently.

Greeley owns surface water rights in four major river basins—the Cache la Poudre River, Big Thompson River, Laramie River and Colorado River—and operates six water storage reservoirs year-round as part of its public drinking water system. The high mountain reservoirs are Barnes Meadow, Comanche, Hourglass, Milton Seaman, Peterson, and Twin Lakes. The reservoirs capture spring snowmelt that is released as needed to meet Greeley's water demands.

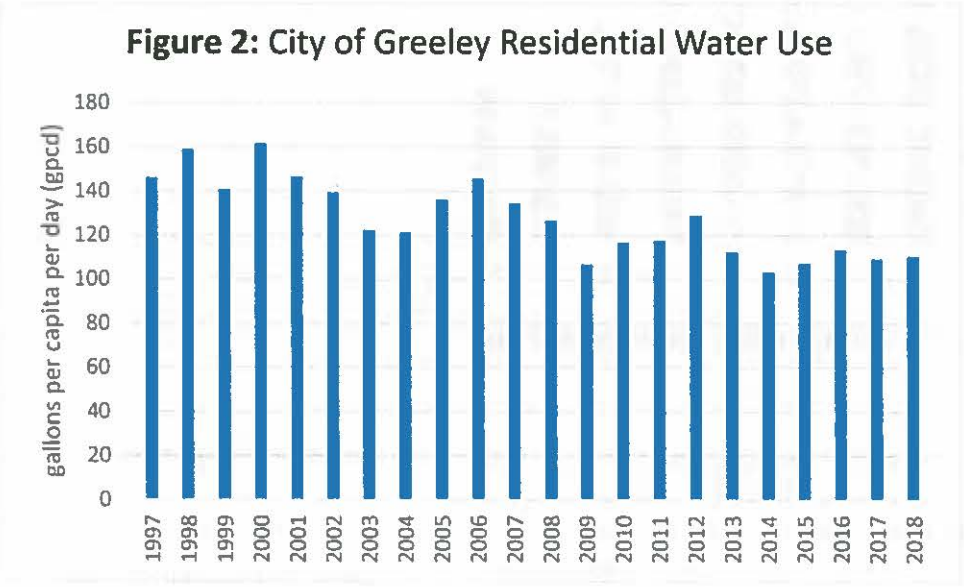
Competition for water rights in the Big Thompson, Cache la Poudre, Laramie River, and Colorado River has increased as large Front Range municipalities, as well as speculative private equity investors, are acquiring water supplies in the basin. In 2019, Colorado-Big Thompson (C-BT) water became scarce, which drove the price of C-BT water to more than six times 2008 prices, or $55,000 per unit. Greeley has long benefited from having diverse, relatively inexpensive water supplies in these four basins available are for municipal (residential and commercial) and industrial growth; however, it has become clear that those water supplies may no longer be available currently and could be very scarce in as little as 10 to 15 years. Therefore, Greeley must increase its water conservation efforts, which includes implementing efficient, cost-effective and easily maintained projects like the AMI Project.

Current Water Uses

Greeley has a mixture of residential and industrial commercial and institutional (ICI) water users. Greeley also treats and delivers water to three nearby municipalities and rents water (10,000 to 20,000 AFY) to agriculture in adequate water years. Figure 1 shows the break down by customer class.



Since the 1990s, Greeley has had a strong conservation ethic as evidenced by being one the first cities in Colorado to be fully metered and have a conservation plan in place. In 1997, a conservation specialist was hired to implement the conservation plan. Furthermore, Greeley has had watering restrictions in place since the early 1900s. Greeley is the only utility in Colorado that has both a water budget rate structure and proposed water tap fees that promote water conservation. Figure 2 shows that as these conservation measures have been implemented, residential water use (measured as gallons per capita per day (gpcd) has declined from a high of 160 gpcd in the late 1990s to approximately 110 gpcd in 2018. Consumption data shows that conservation has impacted ICI use as well, even as new commercial development has been brought into the system.



The Greeley AMI project will provide a valuable new component to the City's Water Conservation Program by enabling customers to use real-time water monitoring to become even more efficient.

Delivery System

Greeley treats water at one of two treatment plants—Bellvue and Boyd Lake water treatment plants (WTP). The Bellvue plant, located northwest of Fort Collins, was built in the early 1900s. Water is conveyed to the plant from the Poudre and Laramie River through the Laramie-Poudre tunnel into the Poudre River. Treated water is piped 36 miles through three transmission lines to Greeley. This is Greeley's main treatment plant and operates 365 days a year.

The Boyd Lake plant, located west of Greeley in Loveland, treats Colorado River and Big Thompson River water through the C-BT project. Boyd Lake is a peaking plant and generally is operated from April through the end of October. Water is then pumped through 17 miles of transmission lines to Greeley. Within the city, Greeley operates and maintains three treated water storage facilities and approximately 600 miles of distribution lines and associated meters and fire hydrants. Average total volume of water treated on a monthly basis is shown on Figure 3.

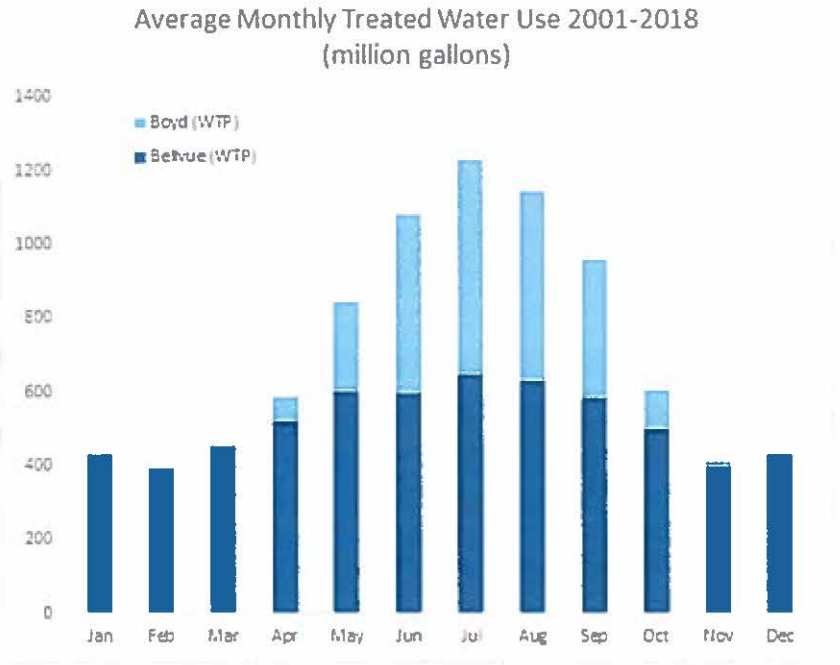


Figure 3: City of Greeley Average Monthly Water Use

In 2008, as part of a comprehensive Water Conservation Program, the Greeley Water and Sewer Board adopted the *Water Conservation Plan* that projected a more than 8 percent reduction in Greeley's water demand over the next 20 years. The Water Conservation Program is one of the largest water conservation programs in the state with an annual budget of more than $500,000. Since 2008, the Water Conservation Program has provided approximately 175 residential irrigation audits per year and issued 1,650 toilet rebates and 2,223 washer rebates.

The AMI Project dovetails seamlessly into the City's overall Water Conservation Program.

Also in 2008, as part of the Water Conservation Program, Greeley began to evaluate a water-budget-based rate structure—in other words, evaluate the effectiveness of empowering customers with information that would allow them to take an active role in monitoring and lowering their consumption and, in turn, their water bills. Beginning with a pilot project, Greeley developed a water-budget-based rate model for each single-family residential customer, including information on each household's irrigated area and forecasted demand based on weather data. Part of the new rate model included targeted communication pieces to customers who regularly exceeded water budgets and flagging exceptionally high-water bills and users who grossly exceeded their water budget.

In 2015, the Water and Sewer Board, Greeley City Council and the Colorado Water Conservation Board approved an updated version of its *Water Conservation Plan*. The *2014 Water Conservation Plan* (the Plan) includes existing auditing, rebates, watering restrictions as well as new programs, like commercial and residential landscape code changes, water budget rate structure, WaterSmart customer portal, investigating AMI technology and turf reduction incentives for customers. The Plan update projects a water demand reduction of 1,820 acre-feet over a 20-year planning horizon.

In 2016, the Water Budget Rate Structure Resolution was presented to and approved by the Water and Sewer Board and City Council. Water budget rate structure implementation steps have included changes to the billing system, an extensive public outreach program, and incorporation of the rate structure into the Water & Sewer Department financing and budget systems. The Water Budget went live in 2017 after several years of piloting and testing an informational water budget on customer bills.

While preliminary analysis on the water budget rate structure indicates a trend toward more customers staying within their water budget, there is still a small percentage of customers using a significant amount of water who will benefit from more accurate water consumption data and notifications. Specifics regarding the water budget rate structure and how the AMI project will improve its effectiveness are included below. The AMI project is the only conservation measure from that 2014 Plan that still needs to be implemented.

In 2016, a Water Efficiency Tactical Team (WETT) was formed with the goal of developing conservation strategies to reduce outdoor watering at high-turf/high water use City park and open space landscapes. A funding method was identified within the Water Department budget to support the WETT's efforts. Buy-in from multiple city departments, the Water and Sewer Board and the City Council was important. This interdepartmental collaboration was key to identifying priority projects for conservation at City parks and open space. Also, through this effort, the WETT team was charged with program planning and implementation focused on also identifying landscape code revisions, a water messaging campaign, and other enhanced conservation methods for parks and open space. Two landscape re-vegetation pilot programs were developed and completed in 2016-17, with two more planned for in 2020.

PROJECT LOCATION

The AMI Project is located in the City of Greeley, located at 40.4233°N, 104.709°W, in a region known as Northern Colorado, approximately 49 miles north/northeast of Denver (see Figure 4). Greeley is the Weld County seat and the largest City in the county, with a population now exceeding 108,000 people. Total population served in 2018 was 139,638 which includes wholesale water-

purchasing municipalities near Greeley. The City's elevation is 4,658 feet above sea level. The City has a total area of 30,730 acres. Greeley's long-range growth area adds an additional 27,599 acres to the City's size.

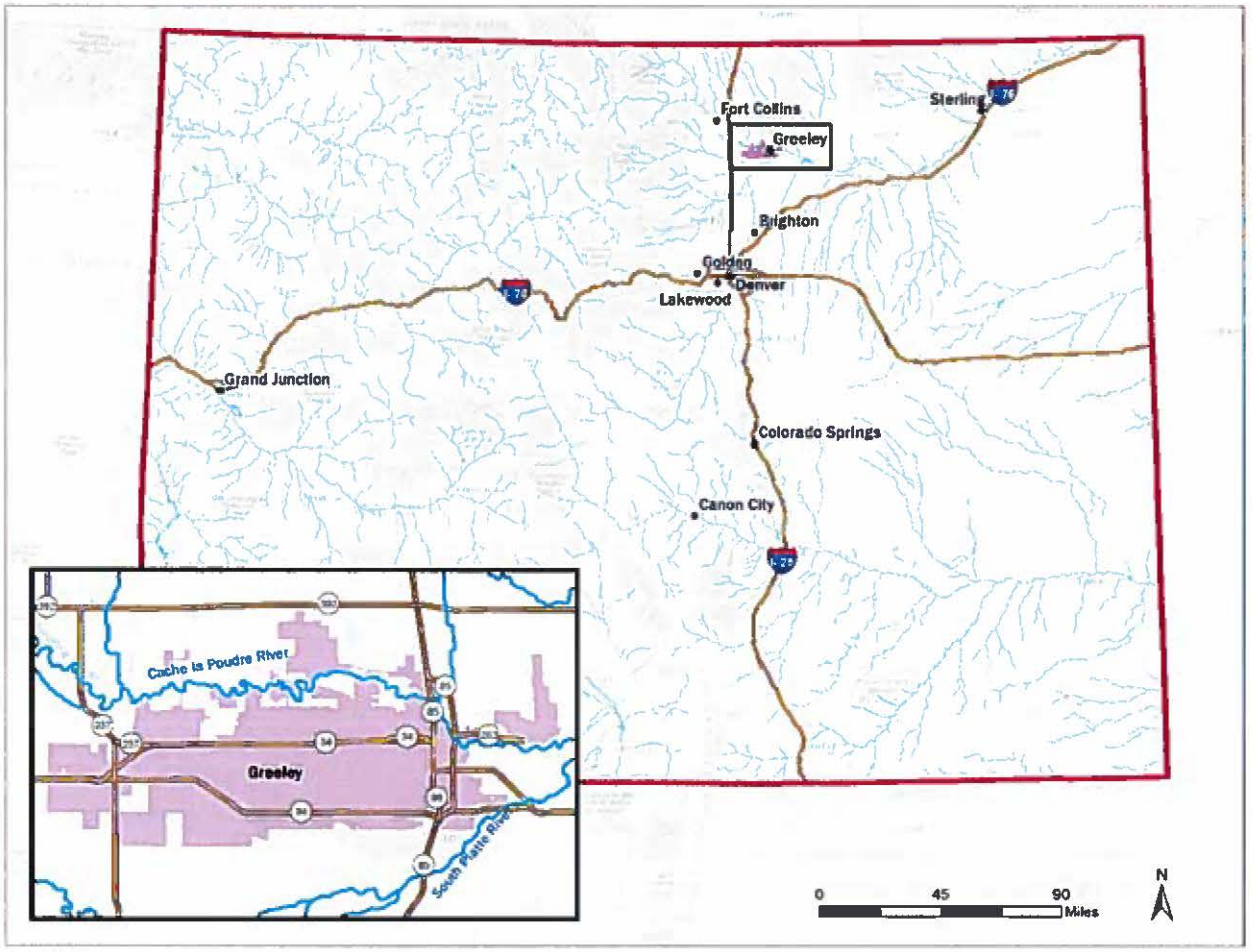


Figure 4: City of Greeley Location

TECHNICAL PROJECT DESCRIPTION

The AMI Project will enhance Greeley's water stewardship and conservation, with the planned project taking three years to implement. The proposed project timeline is from summer 2020 through December 2022. The City proposes to purchase and install 14,500 Badger E-series AMI meters purchased from National Meters & Automation in Centennial, CO (the company that provided the price quote for the project), and develop a contract with UMS in Raleigh, NC, for installation services, project setup and initiation, and software integration.

The new AMI meters will replace half of the existing residential, commercial, industrial, and water purchaser outdated water meters. The City has proactively started the critical meter replacement process and is already engaged in replacing 450 meters for the highest water users. Two key benefits include enabling water customers, particularly high water users, to monitor their own water usage in real time, and allow Greeley Water Operations Division to locate leaks in real time. These benefits

will promote an anticipated total 8.1 percent in water savings once all the new AMI meters are installed. These savings are enumerated in detail in the "Quantifiable Water Savings" section below.

EVALUATION CRITERIA

Quantifiable Water Savings

Describe the Amount of Estimated Water Savings

For projects that conserve water, please state the estimated amount of water expected to be conserved in acre-feet/year (AFY). Include specific, quantifiable water savings estimate.

By switching from the existing standard volumetric meters that are outdated and do not provide the capability for remote monitoring to AMI smart meters that provide real time, two-way communication electronically for both City staff and customers, Greeley's project will result in both quantifiable water savings and improved water management. The City will be able to mitigate water leaks and losses, educate customers on how to reduce water usage and help control water use during water emergencies, shortages and droughts. By having access to real-time, daily meter readings (rather than once-per-month readings), the City estimates it can reduce non-revenue water by a significant amount (see below). Additionally, meter accuracy will significantly increase (from 0.5 to 0.1 gallons per reading), and operational staff time will become more available to enhance the existing leak detection program.

The City has attempted to estimate the most accurate, reasonable, and conservative quantities of water that could be saved with the new 14,500 Badger Beacon AMI meter system. In short, Greeley believes it can save at least 636 acre-feet/year (AFY) in improved meter accuracy, 365 AFY in leak detection/elimination, and 982 AFY in water conservation, for a total savings of 1,983 AFY or 8.1 percent.

Describe Current Losses

Explain where water that will be conserved is currently going (e.g., back to a stream, spilled at the end of a ditch, seeping into the ground, etc.)

Currently, Greeley's annual water demand on a rolling, five-year average is 7,997,513 gallons or 24,543.43 acre-feet. Sources of water loss include:

- Water seeping into soils surrounding distribution and customer piping
- Water seeping into soils from over-watered lawns,
- Runoff from overwatering, which seeps into surrounding soils and eventually enters the South Platte River alluvial aquifer.
- Building sources, such as leaking toilets, which ends up in the City's wastewater collection/treatment system.

Table 1: Common Water Loss Examples		
Source	Rate	Total
Leaking toilet	.5 gallons per minute (gpm)	21,500 gallons per month (gal/mo)
Drip irrigation	1 gpm	43,200 gal/mo
Garden watering	2 hours @ 5 gmp	18,000 gal/mo
Garden watering	2 hours @ 10 gpm	36,000 gal/mo
Unattended water hose	1 night (9 hrs) at 10 gpm	5,400 gal/mo
Broken service lines	1 night (9 hrs) @ 15 gpm	8,100 gal/mo
	1 day @ 15 gpm	21,600 gallons
	1 week @ 15 gpm	151,200 gallons
	1 month @ 15 gpm	648,000 gallons

Describe Support/Documentation of Estimated Water Savings

Provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review. Water Savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.

Municipal Metering: To receive credit, an applicant must provide a detailed description of the method used to estimate savings, including references to documented savings from similar previously implemented projects. Applicants proposing municipal metering projects should address the following:

a. How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions and supporting data.

Increased accuracy of meter readings (non-revenue water)

The existing City of Greeley meters are Badger Recordall Disc meters with an operating range of 0.5 to 25 gpm and a low-flow rate of 0.25 gpm. The proposed new AMI meter will be the E-Series Ultrasonic meter with an operating range of 0.1 to 32 gpm and an extended low-flow rate of 0.05 as shown on the attached meter data sheets. The current meter readings are taken once a month and have a low-flow range accuracy of 0.5 gpm that correlates to a reading every 43,200 minutes (1440 minute per day * 30 days = 43,200 minutes/month). The new meters will take readings every 15 minutes and have a low-range accuracy of 0.1 gpm. This means that the City will now take an additional 2,880 readings per month (43,200 minutes/15 minutes). Each reading has an accuracy of +/- 0.4 gallons, which corresponds to 1,152 gal per meter per month or 13,824 gallons (2880 * 0.4 gal/meter reading = 1,152 gal/meter/month = 13,824 gal/meter/year) not registered per meter. The City plans to replace 14,500 meters, results in 200,448,000 gallons. This potential increased accuracy of meters reading could result in a savings of 636 acre-feet of water each year.

Improved leak detection

Over the last 14 years, the City has detected an annual average of approximately 10 residential leaks, detection of which is typically delayed for at least a month given the current monthly meter-reading schedule. Using AMI meters to detect these 10 leaks within days could allow the city to reduce lost water by 199 acre-feet/year (10 leaks undetected for a month at 648,000 gal/leak). In addition, Greeley estimates that there are likely five times (i.e., 50) more undetected leaks within the residential system that go undetected for at least a month (in addition to the 10 that the City

typically finds). The current meters are read once a month and have an accuracy of 0.5 gals, whereas new AMI meters are read every 15 minutes and have an accuracy of 0.1 gals. This new ability to monitor meters is the difference of 1.5 gal/15 min versus the existing system of 1,296,000 gals/month. Based on these 50 undetectable leaks, the City believes it can save an additional 166 AFY (50 leaks multiplied by 1,080,000 gals [0.5-gallon leak going undetected for 30 days]).

Improved residential water conservation

Using literature values of water savings gained from other projects converting to AMI meters, for residential water conservation (20 percent water use reductions in 20 percent of the customers) equates to approximately 982 AFY.

As described in the Background Section, Greeley implemented a water budget rate structure that calculates an individual water budget for each resident. The water budget is based on the indoor and outdoor water needs specific to each single-family residence, including persons per household, any landscaped area around the house, and real-time weather data. During the non-watering season (November 1 – April 14), the total water budget is comprised only of indoor use; during the non-watering season (April 15 – October 31), both indoor and outdoor use make up the total water budget. The indoor budget is based on the number of people in a household (persons per household), with each person allocated 55 gallons per person per day, (gpcd) for every day of the year. Therefore:

Indoor budget = 55 gpcd x persons per household x number of days in billing period

The outdoor budget is based on the actual water need of bluegrass (the "irrigation water requirement," which is based on real-time Greeley weather) and the resident's total "irrigable area" (in square feet), which is the total area of the non-pervious surfaces around the house. Although the irrigation water requirement (IWR) is based on water needs of bluegrass, it is more than adequate to sustain other plants and trees. The irrigable area includes rights-of-way, shrubs, and trees but excludes driveways, sidewalks, and rooftops. The IWR is calculated on a daily basis (in gallons per square foot), and every household is given the IWR for their water budget. Therefore:

Outdoor budget = Irrigable area x total IRW for each billing period

A water budget is made up of four tiers (efficient, inefficient, excessive and unsustainable) to incentivize those who stay within their budget. Potential savings can be generated with the AMI Project as customers are able to monitor their use compared to their budget throughout the month. In drought situations, when customers are asked to decrease their water budgets by 20 to 80 percent, a potential savings of 1,600-6,400 acre-feet could be generated. Additionally, Greeley intends to add commercial, industrial and multi-family accounts to the water budget rate structure program in the future, which will result in even more savings through the AMI Project.

The AMI project aligns with a number of State, regional and City best management practices targeting water conservation and curbing water losses through rates. Current water customers have their meters read monthly and wait at least 34 days to receive their water bill for that cycle. The project will eliminate these delays and provide immediate, 24/7 access to data regarding leaks and excessive water use. Accounting for water losses that are currently unable to be billed to clients due to inaccurate, outdated meters will help the City generate additional revenue.

b. How have current distribution system losses and/or the potential for reductions in water use by individual users been determined?

The current distribution system losses and/or potential for reductions in water use by all water customers is calculated as a percent difference between total metered water deducted from metered water produced by both water treatment plants.

c. For installing individual water user meters, refer to studies in the region or in the applicant's service area that are relevant to water use patterns and the potential for reducing such use. In the absence of such studies, explain in detail how expected water use reductions have been estimated and the basis for the estimations.

The Badger Meter Company has done several studies on actual water savings that followed municipal utilities installing advanced metering analytics in the City of Merced, CA (BEA-CS-02480-EN-01, July 2017); the Highway 71 Water District No. 1 in Alma, AR (BEA-CS-02420-EN-01, May 2017); and at the University of California–Merced (BEA-CS-01607-EN-01, May 2015).

The studies revealed the following benefits:

- Leaks were detected faster and more accurately
- Non-revenue water loss was tracked daily
- The new system was easily deployed and flexible. Increased operational efficiency and cost savings were realized by all three utilities.
- Reduced truck rolls and employee costs generated cost savings
- Water savings enabled the utilities to hire new employees and replace older meters
- Customers got leak notification quicker than waiting for their bill and could respond quicker
- Customers easily accessed water usage via smartphone or tablet, which gave them direct insight into their water usage and knowledge needed to make habit changes
- More detailed water usage information enabled each utility to proactively reach out to customers who may have an issue and quickly resolve billing questions

Supporting resources for water savings due to increased meter accuracy

The article titled *Apparent Losses Caused by Water Meter Inaccuracies at Ultralow Flows (Journal of AWWA)* discusses how water meters have inaccuracies in the low- and high-flow ranges that impact non-revenue water and utility revenue. The article noted that approximately 16 percent of all domestic water consumption occurs in flows below 1 gpm. The noted changes in accuracy from 0.5 to 0.1 gpm could impact low-flow meter readings of approximately 3,927 ac-ft (24,545 ac-ft * 16 percent) of water each year.

Supporting resources for water savings due to improved leak detection

The article titled *Savings Multiplied: Conserve Water and Energy to Maximize Efficiency, Reduce Emissions (AWWA OpFlow)*, indicates that U.S. households can waste an average of 11,000 gal/year through running toilets, dripping faucets, and other leaks. Another source on the U.S. EPA WaterSense website states that 10 percent of a home's water is wasted or 90 gallons or more per day. The U.S. EPA Statistics and Facts estimates the average family can waste 9,400 gallons annually from household leaks. If these 9,400 gallons could be conserved with AMI notifications to customers, the City of Greeley could potentially save 165,000,000 gallons each year, or 432 AFY, in small leaks alone.

Another paper by Badger Meter entitled *Beacon Advanced Metering Analytics (AMA) Powered By ORION Cellular Technology Increases Efficiency and Reduces Water and Energy Consumption for City of Merced, California* found that the City of Merced installed a new Beacon AMA system that help detect leaks that were only losing 8.3 gpm which would historically go undetected for a month for a total water loss of 360,000 gallons.

In *How AMI Systems Are Driving Water Conservation* (San Jose Water), it was stated an AMI system can also alert water utilities about suspicious changes in water use and trigger early response. This helps identify leaks in the distribution network before water even reaches a residence or commercial location. Most utilities estimate that 10 percent to 30 percent of distributed water is lost before it even reaches customer meters due to leaks. In addition, *AWWA's 2007 State of the Industry* reported estimated losses at 10 to 20 percent in water distribution systems throughout the nation.

This level of leak detection savings is also supported through the paper *Detect Leaks and Conserve water with AMI (AWWA Opflow)*,which documented the results of the City of Fountain Valley, California, installing an AMI system for 55,000 residential customers and thousands of commercial customers. The City of Fountain found that improved accuracy and data of the new AMI system allow Fountain Valley to identify 35 small leaks per month (down from 35 leaks per week initially after AMI meters installed) after the initial installation of AMI meters. The new system also identified 10 larger leaks per month. This same level of leak detection could correlate to the City of Greeley (60,000 customer/15,000 users with AMI) at approximately 8.75 small leaks per month (105 small leaks/year) and 2.5 larger leaks per month (30 larger leaks/year). As there is no 100 percent correlation between different cities and systems, the City of Greeley tried to make realistic and conservative estimates of water conservation of only 50 small leaks and no calculation of larger leaks.

The article titled *Leverage AMI for Sustainability (AWWA OpFlow)* describes how AMI systems can be a fundamental conservation component by detecting and stopping leaks in multiple ways, including metered leak detection, district metering leak detection, and acoustic leak detection.. The City of Greeley has averaged approximately 37 distribution leaks and 10 transmission leaks per year for the past 14 years (this number represents only leaks actually found and repaired). If the City estimates that most of these leaks are 15 gpm (very low and conservative) and flow for one month before repair, the loss could equate to approximately 93 AFY.

Supporting resources for water savings due to improved water conservation

Integrating the AMI project with the water budget rate structure described in the Background section above will foster increased customer interaction and trigger improved water conservation by customers. The estimated conservation is supported by research completed by Texas A&M AgriLife Research, *Consideration for Adopting AMI and AMR*, which states that AMI/AMR systems improve conservation in two main ways—first, notifying both the utility and customers of major and minor leaks and atypical use patterns can help reduce the volume of lost and wasted water, and second, collecting data can offer customers greater access to detailed water use information than previously possible.

The same City of Fountain, California, study mentioned previously found that installing an AMI system reduced total water demand by 30 percent. Whereas Greeley estimates a total demand conservation of only 4 percent (20 percent water demand reductions in 20 percent of the customers). "The industry-standard water conservation savings estimate for AMI systems is 20

percent water demand reduction of 20 percent of customers." (*City of Santa Barbara AMI Business Case, Westin Engineering Inc.)* City staff is optimistic that more than 20 percent of customers will achieve water conservation savings from AMI, and perhaps overall savings will be higher. However, City staff feels that there will be a range of savings its customers will achieve (e.g., not all City customers will achieve a 20 percent savings), so the 20 percent demand reduction of 20 percent of City customers is a sound and conservative estimate for use in this business case analysis.

The article *AMA Implementation at Badger Meter Headquarters – Practicing What You Preach (Beacon AMA),* noted that after installing AMA or AMI meter system at the Badger Meter headquarters, the company detected leaks in a machine that was running water continuously, which equated to wasting 5,880 gallons per week. The City of Greeley has approximately 500 industrial and commercial high-intensity water users. If each of these customers found one leak per year of the same size, the City could save approximately 469 AFY (5,880 gallons * 52 weeks/year * 500 customers).

The article *Consideration for Adopting AMI and AMR (Texas A&M AgriLife Research)* describes research that found that non-estimated, non-revenue water is greatly reduced for utilities that have AMI features that notify of unauthorized use and meter tampering in real time.

d. If installing distribution main meters will result in conserved water, please provide support for this determination (including, but not limited to, leakage studies, previous leakage reduction projects, etc.). Please provide details underlying any assumptions being made in support of water savings estimates (e.g., how leakage will be reduced once identified with improved meter data).

Not applicable

e. What types (manufacturer and model) of devices will be installed and what quantity of each?

The City proposes to purchase and install 14,500 Badger E-series AMI meters purchased from National Meters & Automation in Centennial, Colorado. The manufacturer and model of devices to be installed and the quantities listed are on the equipment quote from National Meter & Automation, which is included in this application packet. The following is an installation, project setup and initiation and software integration professional services price quote from UMS.

Table 2: AMI Professional Services Estimate from UMS	
Installation services	$ 1,291,515.00
Project setup, initiation and bonding (if required)	$ 114,960.30
Software integration	$ 75,386.60
TOTAL	$ 1,481,861,93

f. How will actual water savings be verified upon completion of the project?

The estimated average annual water savings resulting from the AMI project will be determined by subtracting metered water totals used by all water customers and water purchasers from the metered water produced totals from both water treatment plants. Actual water savings will be verified from meter readouts using the Water Operations' SCADA software and the meter readouts from water treatment plants' produced water, and from the SCADA system, which will be linked during the software integration work to be done by UMS.

Savings from the AMI project can also be verified by comparing the percent of water budgets that each resident uses year to year. With the ability to monitor use daily, it is expected that the percent of residents' water budgets used will decrease. For instance, a residence using 110 percent of its water budget on average would now have the ability to use AMI to alter water use habits. The water budgets were designed to be generous initially; accuracy will be narrowed over time as customers become more aware of their use and modify their habits accordingly. Currently, the first water budget adjustment is set for 2020, when the indoor budget calculation will be adjusted to 45 gpcd and the outdoor budget calculation will be adjusted by using a more focused IWR.

Water Supply Reliability

Address how the project will increase water supply reliability. Proposals that will address more significant water supply shortfalls benefitting multiple sectors and multiple water users will be prioritized. General water supply reliability benefits (e.g., proposals that will increase resiliency to drought) will also be considered. Please provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

1. Will the project address a specific water reliability concern?

Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand or reduced deliveries. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?

The City of Greeley sources its water supply from four river basins—the Colorado River, the the Cache La Poudre River, the Big Thompson River and the Laramie River. As with many Western rivers, each of these river basins is over-allocated by a combination of agricultural, municipal, and industrial users. Water providers in the area, including Greeley, face tremendous pressure and competition for water resources. Diversion of these rivers can, at times, lead to chronic low flows and water quality impairments that negatively affect environmental resources.

Such supply constraints have encouraged significant water conservation at Greeley. Since the early 2000s, per capita water use in Greeley has dropped more than 25 percent. Despite these water savings, the City needs to increase its water supply to meet growing future demands—the population served by the City's Water Department is expected to more than double from 108,000 in 2019 to more than 260,000 by 2065. To meet future population and water needs, Greeley is evaluating various water supply strategies, including constructing new storage projects and converting agricultural water rights to municipal use.

Describe how the project will address the water reliability concern. Address where the conserved water will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system or used to meet other intended use.

AMI will allow the City to better use what water it already has before needing to seek new water resources, which in turn will increase water reliability and security for Greeley water customers, and benefit other water users in Northern Colorado and river ecology. For example, implementing AMI-related savings could offset the planned purchase of agricultural water and associated drying of agricultural lands. Protecting the area's agricultural production and heritage is a primary focus of the City. Further, reducing water losses and increasing customer conservation through AMI could allow Greeley to reduce future river depletions, which could translate to increased flows that benefit river ecology and morphology downstream. Further still, conservation through AMI could reduce the need for and size of

future planned water storage reservoirs. Reservoir projects often have multiple environmental impacts; therefore, reducing customer use could translate to fewer environmental impacts.

The AMI project will also help address water reliability issues from drought situations and effects from climate change that could decrease the reliability of storage supplies and surface water rights. By decreasing demand and increasing water savings through AMI, more water is available to maintain or increase storage levels. This water can help support the City through multi-year droughts or be rented to agriculture. With less production at the plant, more water can remain in storage for later use, and surface flow rights can be sent downstream to meet return flow obligations or to agriculture for irrigation. More water in storage for future years means more water available for agriculture.

Describe the mechanism that will be used, if necessary, to put the conserve water to the intended use.

Clearly, a growing population requires more water; however, less water is available due to hydrologic conditions and increased use of water rights in the Cache la Poudre, Big Thompson, Colorado and Laramie river basins. In addition, competition over the Colorado River has increased significantly—and more than 40 percent of Greeley's water supplies come from the Colorado River. Rather than putting the conserved water to new use, the water conservation attributable to the AMI Project will decrease Greeley's reliance on, and competition for, these limited water resources.

Indicate the quantity of conserved water that will be used for the intended purpose.

As calculated above, water conservation from the AMI project will result in reduced raw water demand of approximately 1,983 AFY.

2. **Will the project make water available to achieve multiple benefits or to benefit multiple water users? Consider:**

Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation or others)?

Water savings through the AMI Project will result in less raw water demand, resulting in reduced diversions from the four river basins to storage and treatment. This will benefit multiple sectors, including:

- Agriculture: Less municipal demand by the City will result in less diversions to storage, allowing for increased flows to downstream agricultural users. The City will also be able to allow farmers continued use of their surface water rights that are part of the City's "lease-back" program.
- Environmental and Recreation: Less municipal demand by the City will result in less diversions to storage, allowing for increased flows to downstream environmental uses and recreational users in the South Platte Basin.

Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state-listed species, or a species of particular recreational or economic importance)? Describe the relationship of the species to the water supply and whether the species is adversely affected by a Reclamation project.

Less municipal demand by the City (from water savings realized through the AMI Project) will result in less diversions to storage, potentially allowing for increased flows to the South Platte River, which will benefit the Platte River endangered species, (e.g., Whooping Crane, the Piping Plover, the Pallid Sturgeon and the Least Tern).

Will the project benefit a larger initiative to address water reliability?

The AMI Project integrates directly in the City's Water Conservation Plan, discussed in the Background Section.

Will the project benefit Indian tribes?

Not applicable

Will the project benefit rural or economically disadvantaged communities?

The City's ability to implement a robust conservation program (bolstered by the AMI Project) provides incentive for farmers in the surrounding rural communities to participate in the City's lease-back program. The agricultural water users will have assurance that the City is doing everything it can to conserve its water resources and will only buy agricultural irrigation supplies when farmers approach the City about purchasing their water rights.

Another important aspect of the AMI project is the fact that it will not have a disproportionately high or adverse effect on low-income populations, and in fact will have a benefit to disadvantaged communities. Greeley has a significant Hispanic population, many of who live at or below the poverty level, and many who come to the area to work as migrant farm laborers. Greeley is also home to a large population of East African refugees who work lower-paying jobs and are raising families. Finding and fixing leaks as well as using the resources we already have will help keep water rates as low as possible to help all citizens of Greeley and disadvantaged communities. The City of Greeley meets Colorado benchmarks for disadvantaged communities because the Median Home Value (MHV) is currently $201,700, which is significantly below the state average MHV of $286,100. Greeley also approaches the disadvantaged community benchmark for Median Household Income of $52,366 per year (Greeley's Median Household Income is $52,887 per year).Describe how the project will help achieve these multiple benefits. Address where the conserved water will go and where it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system or used to meet another intended use.

The conserved water resulting from the AMI Project will result in lower raw water demands. This will in-turn result in lower surface water diversions from the four river basins from which the City derives its water supply.

3. Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?

Is there widespread support for the project? What is the significance of the collaboration/support? Is the possibility of future water conservation improvements by other water users enhanced by completion of this project? Will the project help prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin? Describe roles of any partners in the process and attach any relevant supporting documents.

Greeley has received many letters of support from neighboring water utilities, professional organizations, different agencies, and environmental groups from Northern Colorado who support our grant application for the AMI Project. All local communities, agriculture users, environmental groups, and agencies in Northern Colorado benefit from Greeley's reduced water usage that makes existing water supplies available for other users. For example, on an annual basis, the City of Greeley leases approximately 10,000 to 20,000 AFY to local farmers around Greeley due to Greeley having adequate water supplies for the upcoming year. The decreased water use from Greeley's AMI Project will allow Greeley to lease out additional water supplies to other agricultural users in Northern Colorado.

Overall, Northern Colorado has a significant growing population that requires addition water resources to supply these new demands. This increased need for water resources requires all municipalities, districts, and developers to complete for purchase or lease of limit resources. As an example, CBT prices have increased from $33,000 per share in 2018 to approximately $55,000 per share cost in 2019. The water rights in Northern Colorado are also constantly changing uses or diversion locations from only farm or ditch use to potential municipal use which results in frequency litigation of not injuring downstream users of the seepage or pass through water. Greeley's efforts to conserve water through the AMI Project will decrease the City's dependence on acquiring or leasing new water supplies by the estimated 1,983 AFY.

Although Greeley does not have any direct partners in the project other than the contractor and other municipalities (Windsor, Milliken, and Evans) that use Greeley's water, it is in the best interest of all of the water users in the basins to cooperate and do more with less. As mentioned before we are a shareholder in the CBT project, which derives water from the Colorado River, one of the most over-allocated rivers in the country. During times of drought, we have seen tensions rise and the potential increase for litigation over water resources. Greeley's efforts to conserve its water supplies will provide evidence of good stewardship and increase our ability to have adequate supplies during droughts.

4. **Will the project address water supply reliability in other ways not described above?**

Current planning by the City of Greeley projects that Greeley is approximately 12,125 AFY short of firm water capacity for future population demands. Any reduced water demands, water savings, and conservations from the AMI Project will decrease the City's future supply needs and improve the City's supply reliability. Any improvements of the City's supply reliability will also benefit water users throughout Northern Colorado.

Implementing Hydropower

While the Greeley's AMI Installation Project does not install new hydropower capacity, it does produce energy-related benefits. Not only would installing AMI help reduce energy consumption due to decreased water loss and consumption, it would benefit the City's overall energy consumption by eliminating energy costs associated with fuel costs. Furthermore, Greeley's Boyd Lake water treatment plant uses pumps to supply the treated water to one of Greeley's in-town treated reservoirs. Any savings in pumping and treating cost is directly related to the volume of water being treated and delivered. And any educational awareness of water use for the customer obtained from the data that AMI supplies will also help them conserve on any water use that involves electricity (e.g., irrigation, bathing, laundry, dishwashers). AMI would eliminate the need for field customer service representatives to drive throughout the service area collecting meter readings each weekday, resulting in an estimated fuel savings of approximately 450 gallons each year, in addition to saving on truck maintenance, and reduction in emissions. Automatic readings will also free Greeley's Water Operations' staff to focus on exploring additional conservation measures, leak elimination, and leak detections.

Complementing On-farm Irrigation Improvements

Points may be awarded for projects that describe in detail how they will complement on-farm irrigation improvements eligible for NRCS financial or technical assistance.

The City of Greeley takes great pride in its agricultural heritage as demonstrated by its long history of partnerships with agriculture in northern Colorado. Greeley has implemented a water "lease-back" program, wherein irrigation water supplies are contracted to the City of Greeley under a 10-year lease/fallow option. During average or wet hydrologic years, farmers use their irrigation

supplies as normal to produce their crops; however, during dry years, the City could exercise the option to lease the farmer's irrigation supplies that is then pulled into the municipal water system. In return, the farmer receives a lease payment and fallows the farm. The City's ability to implement a robust conservation program provides incentive for farmers to participate in the lease-back program, as they will have assurance that the City will only use the farm's irrigation supplies when absolutely necessary. Additional benefits to both the City and agricultural community include:

- Supporting the local agricultural industry by allowing new farmers the opportunity to rent farms which have a "lease-back" contract and guaranteed income in dry years and providing retiring farmers an option to rent farms instead of selling them.
- Providing another option to "buy-and-dry", which removes local water resources from the community and often results in transfers of water resources to other parts of the state.
- Reducing the carbon footprint by keeping local agricultural viable rather than transporting goods from other communities.
- Improving water quality by keeping the surrounding community in agriculture rather than urban/suburban sprawl and keeping green spaces between nearby communities.
- Promoting municipal water conservation during dry years to maximize use of the leased irrigation supplies, knowing they are only available for a short time.

Greeley will continue to foster strong partnerships with northern Colorado agricultural entities, as they are a conduct through which future water conservation and management programs can be implemented.

Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies. Provide a detailed description of the on-farm efficiency improvements. Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects or do they plan to in the future? Provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs. Provide letters of intent from farmers/ranchers in the affected project areas.

No direct on-farm efficiencies will be experienced with the AMI Project, but water savings from the project will allow Greeley to increase its annual water leases to local farmers. Greeley currently leases back approximately 10,000 to 20,000 AFY of water to farmers to enhance the local agricultural economy and heritage.

Will the proposed WaterSMART project directly facilitate the on-farm improvement If so, how? For example, installation of a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip irrigation. OR Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?

Implementing the AMI Project will maximize efficiency by allowing Greeley to continue to lease back 10,000 to 20,000 AFY of water to farmers, which enhances the local agricultural economy. The local agricultural economy also benefits from several industrial customers (usage of cheese and meat products) related to processing agricultural products and employs local Citizens of Greeley. Supplying the community with locally grown food reduces the community's carbon footprint and reduces trucking and emissions.

Estimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.

Not applicable.

Department of the Interior Priorities

Points will be allocated based on the degree to which the project supports one or more of the Department of Interior priorities and whether the connection to the priority(ies) is well supported.

The project supports the Departments priority to modernize infrastructure. The AMI project will provide the City with real-time water management by upgrading the water system's infrastructure by converting 14,500 outdated residential and commercial water meters with AMI meters equipped with advanced metering technologies and wireless infrastructure. This project will modernize Greeley's water system's metering capabilities to provide real-time data on water usage and leakage for better water demand management by the City and water customers.

Conservation. The AMI project will be a critical improvement necessary to comply with the City's Water Conservation Plan goals and provide necessary data to the recently adopted water budget rate structure.

Leak detection. Smart meter data available with the AMI Project will improve the City's ability to detect leaks within days, rather than months.

Accounting. An M36 Water Audit is a technical manual and software developed by the America Water Works Association (AWWA) that calculates a utility's revenue versus non-revenue water as well as unaccounted-for water (i.e., water lost from the system to leaks). Better data will provide a better picture of what truly is unaccounted for and where to prioritize further upgrades and improvements to the city.

Customer service and education. Real-time monitoring capabilities through the AMI project will give water customers direct insight into their water usage and provide them knowledge needed to make habit changes.

Keeping ag in water/production. Increased water conservation by the City will support the current "lease-back" program, which allows agricultural lands to stay in production during normal years and lease their water to the City during dry years.

Implementation and Results

Project Planning

Does applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Please self-certify or provide copies of these plans where appropriate to verify that such a plan is in place.

Greeley has had a *Water Conservation Plan* in place since 1992. The existing version of the Plan is included with this grant application packet. Securing safe and sufficient water supplies for future generations of Greeley residents in the face of significant uncertainties such as drought and climate change is a major challenge. Successful stewardship of precious water resources is a benchmark by which future generations will judge the current citizens and water utility staff. The *Water Conservation Plan* for the City of Greeley has been developed to establish clear goals and to outline programs and measures to help meet the goals that will ensure a healthy and robust water supply for the future.

Identify any districtwide or systemwide planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.

Greeley is currently updating its Drought Contingency Plan to reflect the use of water budgets to achieve savings in a drought as opposed to watering restrictions only.

Greeley is also actively working with the City of Evans (one of our wholesale customers) to incorporate water planning into land use planning as these adjoining cities are linked through economies, land, agriculture and resources.

Describe how the project conforms to and meets the goals of any applicable planning efforts and identify any aspect of the project that implements a feature of an existing water plan(s).

Water is a precious commodity in Colorado, and will only become more precious as Greeley's population grows and more water is needed. The mission of the Greeley Water and Sewer Department is to make sure that the community has a secure and reliable water supply. To meet this goal, the Four Point Plan was developed with the leadership of the Greeley Water and Sewer Board.

The elements of the Four Point Plan are:

- Strengthening infrastructure
- Continuing water acquisition
- Expanding storage
- Continuing water conservation

The Four Point Plan is the basis of Greeley's water planning on which all prospective plans and projects are judged. As described in the background section above, the AMI Project dovetails seamlessly into the City's overall Water Conservation program by increasing meter accuracy, improving leak detection and leak elimination efforts, and promoting customer water conservation.

Performance Measures

Describe performance measure that will be used to quantify actual benefits upon project completion (e.g., water saved or better managed, energy generated or saved).

By switching from standard volumetric meters that are outdated (AMR) and do not provide the capability for remote monitoring, to AMI smart meters that provide real time, two-way communication electronically for both City staff and customers, Greeley's project will result in both quantifiable water savings and improved water management. The City will be able to mitigate water leaks and losses, train customers on how to reduce water usage and help control water use during water alerts and droughts. These new remote monitoring capabilities will allow Greeley to compare customer classes and total water usage before and after installation of AMI meters.
The estimated average annual water savings resulting from the project will be determined by subtracting metered water totals used by all water customers and purchasers from the metered water produced totals from both water treatment plants; and by comparing existing water usage data to the new metered customer data, which will reflect water savings for each customer and for the entire Greeley customer base.

Readiness to Proceed

Describe the implementation plan. Include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones and dates.

The City proposes to purchase and install 14,500 Badger E-series AMI meters purchased from National Meters & Automation in Centennial, CO (the company that provided the price quote for the project), and develop a contract with UMS in Raleigh, NC, for installation services, project setup and initiation, and software integration. The planned project will take three years to implement with a proposed timeline from January 2020 through December 2022. The new AMI meters will replace

half of the existing residential, commercial, industrial, and water purchaser outdated water meters. The City has proactively started the critical meter replacement process and is already engaged in replacing 450 meters for the highest water users. The Project Schedule is detailed below.

AMI Project Schedule			
Milestone Description	Category	Start	No. Days
Procurement			
Awarded Grant	Goal	1/2/2020	14
AMI meter bid	Low Risk	1/16/2020	40
AMI Bid Review	Low Risk	2/25/2020	14
AMI Meter Contract	Low Risk	3/10/2020	21
Install Contractor Bid	Low Risk	1/23/2020	45
Contractor Bid Review	Low Risk	3/8/2020	14
Contractor Contract	Low Risk	3/22/2020	21
Phase 1 AMI Install			
AMI Equipment Delivery	High Risk	3/31/2020	120
ROW Permits	Low Risk	3/1/2020	30
Install AMI System	Med Risk	4/1/2020	210
Complete 9,626 AMI Installs	Milestone	10/28/2020	30
Phase 2 AMI Install			
AMI Equipment Delivery	Low Risk	3/1/2021	30
ROW Permits	Low Risk	3/1/2021	30
Install AMI System	Med Risk	4/1/2021	210
Complete 9,626 AMI Installs	Milestone	10/28/2021	30
Phase 3 AMI Install			
AMI Equipment Delivery	Low Risk	3/1/2022	30
ROW Permits	Low Risk	3/1/2022	30
Install AMI System	Med Risk	4/1/2022	210
Complete 9,625 AMI Installs	Milestone	10/28/2022	30

Describe any permits that will be required, along with the process for obtaining such permits.

No permits are required to complete the project.

Identify and describe any engineering or design work performed specifically in support of the proposed project.

The engineering work has already been completed with the evaluation of different meter companies and technologies that will allow a smooth transition from existing Badger Recordall Disc meters.

Describe any new policies or administrative actions required to implement the project.

The City of Greeley Water Board and City Council have approved the planned budgets for 2020, 2021, and 2022 to execute the planned AMI meter replacement as described in this grant application

Describe how the environmental compliance estimate was developed. Has the compliance cost been discussed with the local Reclamation office?

No environmental compliance is required for the completion of this project.

Nexus to Reclamation Project Activities

Points are only awarded to projects with a connection to a Reclamation project or Reclamation activity. If applicable, does the applicant receive Reclamation project water? Is the project on Reclamation project lands or involving Reclamation facilities? Is the project in the same basin as a Reclamation project or activity? Will the proposed work contribute water to a basin where a Reclamation project is located?

Previous work with the Bureau of Reclamation is only through the Northern Colorado Water Conservancy District as a shareholder in the Colorado Big Thompson Project. The AMI Project will not involve Reclamation project lands or facilities, and is located entirely within the City of Greeley.

Additional Non-federal Funding

Up to 4 points may be award to projects that provide non-federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided using the calculation "non-federal funding divided by total project cost"

Total project costs for the Greeley AMI Meter Installation Project is $6,059,616.93. The City is requesting 24 percent in federal funding assistance for this three-year project; therefore, Greeley's share of the project's total project is $4,573,078.93.

Project Budget

Funding Plan and Letters of Commitment

Describe how the non-Federal share of project costs will be obtained. Project funding provided by a source other than the applicant shall be supported with letters of commitment that include the amount of funding commitment, date funds will be available to applicant, any time constraints on fund availability, and any other contingencies associated with the funding commitment.

Funding for Greeley's portion of the budget will come from the City's Water and Sewer enterprise funds. The City of Greeley Water Board and City Council have approved the planned budgets for 2020, 2021, and 2022 to execute the planned AMI meter replacement as described in this grant application

Identify sources of the non-Federal cost-share contribution, including any monetary contributions by the applicant toward the cost-share requirement and source of funds (e.g., reserve account, tax revenue and/or assessments), any costs that will be contributed by the applicant, any third-party in-kind costs, any cash requested or received from other non-Federal entities, and and/or any pending funding requests (i.e., grants or loans) that have not yet been approved and explain how the project will be affected if such funding is denied.

Not applicable

Identify whether budget proposal includes any project costs that have been or may be incurred prior to award, such as project expenditure and amount, date of cost incurrence and how the expenditure benefits the project.

Not applicable

Budget Proposal

Provide a discussion of, or explanation for, items included in the budget proposal including, but not limited to, salaries and wages, fringe benefits, travel, equipment, materials and supplies, contractual, third-party in-kind contributions, environmental and regulatory compliance costs, other expenses, indirect costs

Total Project Cost Table	
Source	**Amount**
Costs to be reimbursed with requested Federal funding	$1,486,538.00
Costs to be paid by the applicant (Greeley)	$4,573,078.93
Value of third-party contributions	NA
Total Project Cost	$6,059,616.93

Project Budget				
Budget Item Description	Quantity	Unit	$/Unit	Total Cost
Equipment - AMI Meters, Cables, TTE Cellular Endpoint				
E35 SS x 9" Fire Series Meter, Twist Tight 10' lead	14,500	AMI Unit	$181.80	$2,636,100.00
LTE-M Cellular Endpoint, Twist Tight	14,500	AMI Unit	$103.21	$1,496,545.00
Annual Service Units	14,500	AMI Unit	$10.68	$154,860.00
13.25WAT Composite Lid, Center Drilled 2" Hole	14,500	AMI Unit	$20.00	$290,000.00
AMI Installation Contractor/Construction				
UMS, Raleigh, NC: installation services	14,500	AMI Unit	$89.07	$1,291,515.00
UMS, Raleigh, NC: project setup, initiation & bonding (if required)	1	Project	Lump Sum	$114,960.33
UMS, Raleigh, NC: software integration	1	Project	Lump Sum	$75,386.60
Environmental and Regulatory				
Notice of Exemption (NOE)	1	Project	Lump Sum	$250.00
Total Project Budget				$6,059,616.93

Budget Narrative

Salaries and Wages

Indicate PM and other key personnel by name and title. PM must be an employee or board member of the applicant. Other personnel should be indicated by title alone. For all positions, indicate salaries and wages, estimated hours or percent of time, and rate of compensation. Labor rates must identify the direct labor rate separate from the fringe rate or fringe cost for each category. All labor estimates must be allocated to specific tasks as outlined in the applicant's technical project description. Labor rates and proposed hours shall be displayed for each task.

Include estimates for compliance with reporting requirements, including final project and evaluation.

Generally, salaries of administrative and/or clerical personnel will be included as a portion of the stated indirect costs. If these salaries can be adequately documented as direct costs they should be included in this section; however, a justification should be included in the budget narrative.

The AMI project does not include budget for City staff salaries or wages. All project costs are contractual.

Fringe Benefits

Identify rates/amount, what costs are included in this category, and the basis of the rate computations. Federally approved rate agreements are acceptable for compliance with this item.

The AMI project does not include budget for City staff fringe benefits. All project costs are contractual.

Travel

Identify purpose of each anticipated trip, destination, number of persons traveling, length of stay and all travel costs, including airfare (basis for rate used), per diem, lodging and misc. travel expenses. For local travel, include mileage and rate of compensation.

None expected.

Equipment

Equipment needed for the Project will be purchased under a construction contract; therefore, no addition equipment is listed here.

Materials and Supplies

Itemize supplies by major category, unit price, quantity and purpose, such as whether the items are needed for office use, research or construction. Identify how these costs were estimated (i.e., quotes, engineering estimates or other methodology). If the materials/supplies will be furnished and installed under a contract, the equipment should be included in the construction contract cost estimate.

The City proposes to purchase and install 14,500 Badger E-series AMI meters purchased from National Meters & Automation in Centennial, Colorado.

Contractual

Identify all work that will be accomplished by consultants or contractors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies and materials that will be required for each task. For each proposed contract, identify the procurement method that will be used to select the consultant or contractor and the basis for selection.

The City will negotiate a contract with UMS in Raleigh, NC, or other specialized meter installation contractor for installation services, project setup and initiation, and software integration. The City plans to conduct a competitive bid for all AMI installation services with selection based on lowest bid prices and is a responsive bid (the contractor must meet the minimum qualifications for installation experience to bid on the project). The noted services by UMS is only utilized for developing a total project budget.

AMI Installation Contractor/Construction				
UMS, Raleigh, NC: installation services	14500	AMI Unit	$89.07	$1,291,515.00
UMS, Raleigh, NC: project setup, initiation & bonding (if required)	1	Project	Lump Sum	$114,960.33
UMS, Raleigh, NC: software integration	1	Project	Lump Sum	$75,386.60

The City will negotiate a contract with National Meter & Automation for all meter equipment, cellular endpoints, one year of cellular service for the meters, and new meter vault lids. The City will source this equipment to be consistent with existing meter replacement and consistency throughout the system.

Equipment - AMI Meters, Cables, TTE Cellular Endpoint				
E35 SS x 9" Fire Series Meter, Twist Tight 10' lead	14500	AMI Unit	$181.80	$2,636,100.00
LTE-M Cellular Endpoint, Twist Tight	14500	AMI Unit	$103.21	$1,496,545.00
Annual Service Units	14500	AMI Unit	$10.68	$154,860.00
13.25WAT Composite Lid, Center Drilled 2" Hole	14500	AMI Unit	$20.00	$290,000.00

Third-party In-kind Contributions

Identify all work that will be accomplished by third-party contributors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies and materials that will be required for each task.

Not applicable.

Environmental and Regulatory Compliance Costs

The AMI project (meter installation) will occur underground in yards or parking lots of Greeley water customers, all within the city limits. No other earth-disturbing activities will occur that could negatively impact soil, air, water or animal habitat in the project area. Greeley will pursue a notice of exemption from environmental permit requirements, with an associated cost of $250.00

Other Expenses

Any other expenses not included in the above categories shall be listed in this category, along with a description of the item and why it is necessary. No profit or fee will be allowed.

The only additional expense associated with the AMI project.

Indirect Costs

No other indirect costs are anticipated.

Required Permits or Approvals

Applicant must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals.

No federal, state, tribal, or county permits are required for this project. Staff anticipates they will need to secure right-of-way permits to access water meters when they are located within various non-City (Windsor, Fort Collins, Timnath, etc.) rights-of-way throughout the water service areas.

APPENDIX A — LETTERS OF PROJECT SUPPORT

Attach letters from interested stakeholders supporting the proposed project in an appendix.

KEN BUCK
4TH DISTRICT OF COLORADO

2455 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-4676
FAX: (202) 225-5870

DISTRICT OFFICE:
900 CASTLETON RD. SUITE 112
CASTLE ROCK, CO 80109
PHONE: (720) 639-9165
FAX: (720) 639-9134

1023 39TH AVE.
GREELEY, CO 80634
PHONE: (970) 702-2136
FAX: (970) 702-2951

Congress of the United States
House of Representatives
Washington, DC 20515-0605

HOUSE JUDICIARY COMMITTEE
SUBCOMMITTEE ON IMMIGRATION AND CITIZENSHIP
SUBCOMMITTEE ON ANTITRUST, COMMERCIAL AND ADMINISTRATIVE LAW

HOUSE FOREIGN AFFAIRS COMMITTEE
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS
SUBCOMMITTEE ON WESTERN HEMISPHERE, CIVILIAN SECURITY AND TRADE

October 1, 2019

The Honorable Brenda Burman
Commissioner
U.S. Bureau of Reclamation
1849 C Street NW
Washington, DC 20240-0001

Dear Commissioner Burman,

I am writing in support of the City of Greeley's WaterSMART Water and Energy Efficiency grant application. These funds will greatly benefit the City of Greeley by modernizing their existing water infrastructure to meet future demands and enable consumers to make educated choices about their water usage. I respectfully request that you provide full and fair consideration of the City of Greeley's application.

In Colorado and across the West, history is written in water. This is especially true in eastern Colorado where cities, towns, and municipalities must continue innovating to meet rapidly expanding demand. In fact, the City of Greeley, which currently serves approximately 105,000 customers and five large wholesale customers, is expecting its population to more than double in the next 40 years. In order to meet this demand, the City of Greeley will use these grant funds to continue developing its demand management program by installing Advanced Metering Infrastructure (AMI) at every finished water connection in the City. Greeley officials also plan to pair the infrastructure updates with a new user interface that allows customers to better understand and manage their water usage.

Establishing programs that help curtail water loss, increase access to affordable water, and provide consumers with data to make informed usage decisions will allow Greeley to better support its customers for years to come. Through WaterSMART, Greeley can ensure it has the technology in place to support its rapidly growing population into the future.

Thank you in advance for your full and fair consideration of Greeley's WaterSMART Water and Energy Efficiency grant application. If you should require further information, please contact my Legislative Director, James Hampson, at James.Hampson@mail.house.gov or 202-225-4676.

Sincerely,

Ken Buck

Ken Buck
Member of Congress

Alliance for Water Efficiency

September 4, 2019

Bureau of Reclamation
Financial Assistance Support Section
Atten: Ms. Janeen Koza
P.O. Box 25007, MS 84-27814
Denver CO 80225

RE: WaterSMART: Water and Energy Efficient Program
City of Greeley Water & Sewer Department
Advanced Metering Infrastructure Program

Dear Ms. Koza:

The Alliance for Water Efficiency (AWE) is a stakeholder-based nonprofit organization dedicated to the efficient and sustainable use of water. Headquartered in Chicago, the Alliance serves as a North American advocate for water-efficient products and programs, and provides information and assistance on water conservation efforts.

We are very happy to support the WaterSMART: Water and Energy Efficiency grant application of the City of Greeley for an Advanced Metering Infrastructure Program. If approved, Greeley intends to utilize this grant funding to further the effectiveness of its demand management program and the water budget consumption management tools. Greeley Water intends install Advanced Metering Infrastructure (AMI) at every finished water connection in the City, pairing the infrastructure with a user interface that allows customers to better understand and manage their water use. This city-wide effort is proposed to advance and promote water conservation through "smart" metering technology that provides and leverages real-time water use data. The software and data flow will allow customizable consumption alarms that will greatly increase customer awareness and the data set will allow Greeley Water's operations staff to make more informed supply decisions, limit unnecessary pumping, and minimize water loss.

Greeley Water serves approximately 105,000 city customers and five large wholesale customers with water from four northern Colorado River basins: Cache la Poudre, Colorado, Big Thompson, and the Laramie Rivers. The system relies upon several small high mountain reservoirs and several plains reservoirs for storage of raw water that supplies two water treatment plants and Greeley's non-potable water systems. Eliminating water loss, enhanced demand management and greater operational data will allow Greeley to better support its customers, the ecology of the river systems delivering water to Greeley, and limit the inefficiency of unnecessary treatment and pumping.

33 N LaSalle Street
Suite 2275
Chicago, IL 60602

OFFICE (773) 360-5100
TOLL-FREE (866) 730-A4WE
FAX (773) 345-3636

allianceforwaterefficiency.org
home-water-works.org

Converting standard AMR meters to AMI will also help Greeley reduce new water acquisition requirements, a value and goal that aligns with Greeley's Water Master Plan adopted in 2016; a formal initiative that seeks to effectively manage water demand through increased efficiency and conservation, assure the maximum beneficial use of existing city water supplies; and maximize efficient water use to avoid or minimize the effects of water supply shortages when they occur to the greatest extent possible. The acquisition of less water from farms and agriculture further supports Greeley's regional interconnected economy with Weld County, CO agricultural.

This letter serves as formal support to Greeley's WaterSMART grant application, and the implementation of the proposed AMI Project. We believe it be consistent with Alliance for Water Efficiency's water conservation and best practices recommendations, as we are strong proponents of AMI in general.

We therefore we advocate for and strongly encourage your favorable consideration of this project, and urge thoughtful contemplation of Greeley's grant application.

Sincerely yours,

MaryAnn Dickinson

Mary Ann Dickinson
President and CEO

CENTRAL COLORADO WATER CONSERVANCY DISTRICT
3209 W 28 STREET | GREELEY CO 80634 | WWW.CCWCD.ORG
LOCAL: 970 330 4540 | METRO: 303 [illegible]5 0474 | FAX: 970 330 4546

10/1/2019

Bureau of Reclamation
Financial Assistance Support Section
Attn: Ms. Janeen Koza
P.O. Box 25007, MS 84-27814
Denver, CO 80225

Re: WaterSMART: Water and Energy Efficient Program
City of Greeley Water and Sewer Department Advanced Metering Infrastructure Program

Dear Ms. Koza:

I am pleased to write in support of the City of Greeley's WaterSMART Water and Energy Efficiency grant application.

The Central Colorado Water Conservancy District strongly encourages you to support Greeley's WaterSMART: Water and Energy Efficiency grant application. Greeley intends to utilize the grant funding to further the effectiveness of its demand management program and the water budget consumption management tools. Greeley Water intends install Advanced Metering Infrastructure (AMI) at every finished water connection in the City, pairing the infrastructure with a user interface that allows customers to better understand and manage their water use. This city-wide effort is proposed to advance and promote water conservation through "smart" metering technology that provides and leverages real-time water use data. The software and data flow will allow customizable consumption alarms that will greatly increase customer awareness and the data set will allow Greeley Water's operations staff to make more informed supply decisions, limit unnecessary pumping, and minimize water loss.

Greeley Water serves approximately 105,000 city customers and five large wholesale customers with water from four northern Colorado river basins: Cache la Poudre, Colorado, Big Thompson, and the Laramie Rivers. The system relies upon several small high mountain reservoirs and several plains reservoirs for storage of raw water that supplies two water treatment plants and Greeley's non-potable water systems. Eliminating water loss, enhanced demand management and greater operational data will allow Greeley to better support its customers, the ecology of the river systems delivering water to Greeley and limit the inefficiency of unnecessary treatment and pumping.

Converting standard AMR meters to AMI will also help Greeley reduce new water acquisition requirements, aligns with Greeley's Water Master Plan adopted in 2016, effectively manages water demand through increased efficiency and conservation, assures the maximum beneficial

use of existing city water supplies, while minimizing the effects of water supply shortages when they occur.

This letter constitutes formal support of Greeley's WaterSMART grant application. By supporting the implementation of the proposed AMI Project, we believe it be consistent with the Central Colorado Water Conservancy District and its mission of best management practices and therefore we advocate your support of Greeley's grant application.

Sincerely,

Randy W. Ray
CCWCD Executive Director

September 17, 2019

Bureau of Reclamation
Financial Support Section
Atten: Ms. Janeen Koza
P.O. Box 25007,MS84-27814
Denver, CO 80225

Re: WaterSMART: Water and Energy Efficient Program
City of Greeley Water and Sewer Department Advanced Metering Infrastructure Program

Dear Ms. Koza:

I am pleased to write in support of the City of Greeley's WaterSMART Water and Energy Efficiency grant application. Colorado WaterWise is a statewide network of local water leaders supporting water efficiency measures, developing tools for our members and encourage the use of such tools to reduce demand.

Colorado WaterWise strongly encourages you to support Greeley's WaterSMART: Water and Energy Efficiency grant application. Greeley intends to utilize the grant funding to further the effectiveness of its demand management program and the water budget consumption management tools. Greeley Water intends install Advanced Metering Infrastructure (AMI) at every finished water connection in the City, pairing customers to better understand and manage their water use. This city-wide effort is proposed to advance and promote water conservation through "smart" metering technology that provides and leverages real-time water use data. The software and data flow will allow customizable consumption alarms that will greatly increase customer awareness and the data set will allow Greeley Water operations staff to make more informed supply decisions, limit unnecessary pumping, and minimize water loss.

Greeley Water serves approximately 105,000 city customers and five large wholesale customers with water from four northern Colorado river basins: Cache la Poudre, Colorado, Big Thompson, and the Laramie Rivers. The system relies upon several small high mountain reservoirs and several plains reservoirs for storage of raw water that supplies two water treatment plants and Greeley's non-potable water systems. Eliminating water loss, enhanced demand management and greater operational data will allow Greeley to better support its customers, the ecology of the river systems delivering water to Greeley, and limit the inefficiency of unnecessary treatment and pumping.

Converting standard AMR meters to AMI will also help Greeley reduce new water acquisition requirements, aligns with Greeley's Water Master Plan adopted in 2016, effectively manages water demand through increased efficiency and conservation, assures the maximum beneficial use of existing city water supplies, while minimizing the effects of water supply shortages when they occur.

This letter constitutes formal support of Greeley's WaterSMART grant application. By supporting the implementation of the proposed AMI Project, we believe it to be consistent with Colorado WaterWise and its mission of best management practices and therefore we advocate your support of this important project, and favorable consideration of Greeley's grant application.

Sincerely,

L Lucia

Lyndsey Lucia
Co-Chair

COLORADO
Colorado Water
Conservation Board
Department of Natural Resources
1313 Sherman Street, Room 718
Denver, CO 80203

September 23, 2019

Bureau of Reclamation
Financial Assistance Support Section
Atten: Ms. Janeen Koza
P.O. Box 25007,MS84-27814
Denver, CO 80225

Re: WaterSMART: Water and Energy Efficient Program
City of Greeley Water and Sewer Department Advanced Metering Infrastructure Program

Dear Ms. Burman:

I am pleased to write in support of the City of Greeley's WaterSMART Water and Energy Efficiency grant application. As you may know, the Colorado Water Conservation Board (CWCB) is the water policy and planning agency for the state of Colorado and projects such as this align with many of our statewide goals for water demand management and water efficiency.

The CWCB strongly encourages you to support Greeley's WaterSMART: Water and Energy Efficiency grant application. Greeley intends to utilize the grant funding to further the effectiveness of its demand management program and the water budget consumption management tools. Greeley Water intends to install Advanced Metering Infrastructure (AMI) at every finished water connection in the City, pairing the infrastructure with a user interface that allows customers to better understand and manage their water use. This city-wide effort is proposed to advance and promote water conservation through "smart" metering technology that provides and leverages real-time water use data. The software and data flow will allow customizable consumption alarms that will greatly increase customer awareness and the data set will allow Greeley Water's operations staff to make more informed supply decisions, limit unnecessary pumping, and minimize water loss.

Greeley Water serves approximately 105,000 city customers and five large wholesale customers with water from four northern Colorado river basins: Cache la Poudre, Colorado, Big Thompson, and the Laramie Rivers. The system relies upon several small high mountain reservoirs and several plains reservoirs for storage of raw water that supplies two water treatment plants and Greeley's non-potable water systems. Eliminating water loss, enhanced demand management and greater operational data will allow Greeley to better support its customers, the ecology of the river systems delivering water to Greeley, and limit the inefficiency of unnecessary treatment and pumping.

Converting standard AMR meters to AMI will also help Greeley reduce new water acquisition requirements, aligns with Greeley's Water Master Plan adopted in 2016, effectively manages water demand through increased efficiency and conservation, assures the maximum beneficial use of existing city water supplies, while minimizing the effects of water supply shortages when they occur.

This letter constitutes formal support of Greeley's WaterSMART grant application. The proposed AMI Project is consistent with Colorado's State Water Plan's measurable objectives and is an example of a project that will help the state of Colorado achieve the goal of a 400,000 acre foot demand reduction by 2050. Therefore we advocate your support of this important project, and favorable consideration of Greeley's grant application.

Sincerely,

Kevin D. Reidy

State Water Conservation Specialist
Colorado Water Conservation Board

Northern Water
Northern Colorado Water Conservancy District
220 Water Avenue Berthoud, Colorado 80513
Phone 1-800-369-7246 • www.northernwater.org

September 26, 2019

Bureau of Reclamation
Financial Assistance Support Section
Atten: Janeen Koza
P.O. Box 25007, MS84-27814
Denver, CO 80225

Re: WaterSMART: Water and Energy Efficient Program
City of Greeley Water and Sewer Department Advanced Metering Infrastructure Program

Dear Janeen Koza:

On behalf of the City of Greeley Water & Sewer Department (Greeley Water), I strongly encourage you to support Greeley's WaterSMART: Water and Energy Efficiency grant application. Greeley Water intends to utilize the grant funding to further the effectiveness of its demand management program and water budget consumption management tools. Greeley Water intends to install Advanced Metering Infrastructure (AMI) at every finished water connection in the City of Greeley, pairing the infrastructure with a user interface that allows customers to better understand and manage their water use. This city-wide effort is proposed to advance and promote water conservation through "smart" metering technology that provides and leverages real-time water use data. The software and data flow will allow customizable consumption alarms that will greatly increase customer awareness and the data set will allow Greeley Water's operations staff to make more informed supply decisions, limit unnecessary pumping, and minimize water loss.

Greeley Water serves approximately 105,000 domestic customers and five large wholesale customers with water from four northern Colorado river basins: Cache la Poudre, Colorado, Big Thompson, and the Laramie Rivers. The system relies upon several small, high-mountain reservoirs, and several plains reservoirs for storage of raw water that supplies two water treatment plants and the City of Greeley's non-potable water systems. Eliminating water loss, enhanced demand management and greater operational data will allow Greeley Water to better support its customers while supporting the ecology of the river systems delivering water to the City of Greeley.

Converting standard AMR meters to AMI will also help Greeley Water reduce new water acquisition requirements, aligns with Greeley's Water Master Plan adopted in 2016, effectively manage water demand through increased efficiency and conservation, and assure the maximum beneficial use of existing city water supplies, while minimizing the effects of water supply shortages when they occur.

This letter constitutes formal support of Greeley's WaterSMART grant application. By supporting the implementation of the proposed AMI Project, we believe it to be consistent with Northern Water and its mission of best management practices. Therefore, we advocate your support of this important project, and favorable consideration of Greeley's grant application.

Sincerely,

Frank Kinder
Water Efficiency Program Manager

State Representative
PERRY BUCK
P. O. Box 508
Windsor, CO 80550
Office: 303-866-2907
Home: 970-460-0824
Business: 970-302-4013
Email: perrybuck49@gmail com

MINORITY WHIP
Member:
Education Committee
Rural Affairs & Agriculture
Committee

COLORADO

HOUSE OF REPRESENTATIVES

STATE CAPITOL

DENVER

80203

September 24, 2019

Bureau of Reclamation
Financial Assistance Support Section
Atten: Ms. Janeen Koza
P.O. Box 25007, MS84-27814
Denver, CO 80225

Re: WaterSMART: Water and Energy Efficient Program
City of Greeley Water and Sewer Department Advanced Metering Infrastructure Program

Dear Ms. Koza:

I am pleased to write in support of the City of Greeley's WaterSMART Water and Energy Efficiency grant application.

I strongly encourage you to support Greeley's WaterSMART: Water and Energy Efficiency grant application. Greeley intends to utilize the grant funding to further the effectiveness of its demand management program and the water budget consumption management tools. Greeley Water intends install Advanced Metering Infrastructure (AMI) at every finished water connection in the City, pairing the infrastructure with a user interface that allows customers to better understand and manage their water use. This city-wide effort is proposed to advance and promote water conservation through "smart" metering technology that provides and leverages real-time water use data. The software and data flow will allow customizable consumption alarms that will greatly increase customer awareness and the data set will allow Greeley Water's operations staff to make more informed supply decisions, limit unnecessary pumping, and minimize water loss.

Greeley Water serves approximately 105,000 city customers and five large wholesale customers with water from four northern Colorado river basins: Cache la Poudre, Colorado, Big Thompson, and the Laramie Rivers. The system relies upon several small high mountain reservoirs and several plains reservoirs for storage of raw water that supplies two water treatment plants and Greeley's non-potable water systems.

ST. VRAIN AND LEFT HAND WATER CONSERVANCY DISTRICT

9595 Nelson Road, Suite 203 · Longmont, CO 80501 · 303-772-4060 · www.svlhwcd.org

September 27, 2019

Bureau of Reclamation
Financial Assitance Support Section
Atten: Ms. Janeen Koza
P.O. Box 25007, MS 84-27814
Denver CO 80225

Re: WaterSMART: Water and Energy Efficient Program
City of Greeley Water and Sewer Department Advanced Metering Infrastructure Program

Dear Ms. Koza:

As a water professional in the Northern Colorado area, I am pleased to write in support of the City of Greeley's (Greeley) WaterSMART Water and Energy Efficiency grant application.

As stewards of a natural resource, water professionals are expected to lead, participate and support in activities that preserve and protect our most precious resource – water. Greeley's proposal is completely aligned with that expectation, as it furthers the effectiveness of its demand management program and the water budget consumption management tools.

Greeley is a major utility in the Northern Colorado region, utilizing water from four river basins: Cache la Poudre, Colorado, Big Thompson, and the Laramie Rivers. Eliminating water loss, Advanced Metering Infrastructure (AMI) will allow Greeley to better support the ecology of the river systems delivering water to Greeley. This is a value add to everyone in the region.

We are excited to support the Greeley's efforts towards creating a reliable and resilient region through the WaterSMART grant application.

Sincerely,

Sean T. Cronin
Executive Director

waternow alliance
water leaders. resilient solutions

September 6, 2019

Bureau of Reclamation
Financial Assistance Support Section
Atten: Ms. Janeen Koza
P.O. Box 25007,MS84-27814
Denver, CO 80225

Re: WaterSMART: Water and Energy Efficient Program
City of Greeley Water and Sewer Department Advanced Metering Infrastructure Program

Dear Ms. Koza:

I am writing on behalf of the WaterNow Alliance to express our strong support for the City of Greeley's Water & Sewer Department (Greeley Water) WaterSMART: Water and Energy Efficiency grant application. Greeley intends to utilize the grant funding to enhance the effectiveness of its demand management program and water budget consumption management tools. WaterNow Alliance, a national network of local water leaders supporting water efficiency measures, has worked with Greeley Water to explore various demand management strategies and we believe that this project is crucial to Greeley Water's long-term water supply resiliency and sustainable water management.

Greeley Water intends to install Advanced Metering Infrastructure (AMI) at every finished water connection in the City, pairing the infrastructure with a user interface that allows customers to better understand and manage their water use. The software and data flow will allow customizable consumption alarms that will greatly increase customer awareness and the data set will allow Greeley Water's operations staff to make more informed supply decisions, limit unnecessary pumping, and minimize water loss.

Greeley Water serves approximately 105,000 city residents and five large wholesale customers with water from four northern Colorado river basins: Cache la Poudre, Colorado, Big Thompson, and the Laramie Rivers. Eliminating water loss, enhanced demand management and greater operational data will allow Greeley to better support its customers, the ecology of the river systems delivering water to Greeley, and limit the inefficiency of unnecessary treatment and pumping.

Converting standard AMR meters to AMI will also help Greeley reduce new water acquisition requirements. This is a value and goal that aligns with Greeley's Water Master Plan adopted in 2016; a formal initiative that seeks to effectively manage water demand through increased efficiency and conservation, assuring the maximum beneficial use of existing city water supplies. The acquisition of less water from local farms further supports Greeley's regional interconnected economy with Weld County, CO agricultural and limits the demand for agricultural to urban water transfers.

We believe that Greeley's proposal advances the purposes of the WaterSMART Water and Energy Efficiency program and urge your favorable consideration of their application for the AMI Project. Thank you for your consideration of our views.

Cynthia Koehler

Cynthia Koehler
Executive Director, WaterNow Alliance

WESTERN RESOURCE ADVOCATES

PROTECTING THE WEST'S LAND, AIR, AND WATER

September 30, 2019

Bureau of Reclamation
Financial Assistance Support Section
Atten: Ms. Janeen Koza
P.O. Box 25007, MS 84-27814
Denver, CO 80225

Re: WaterSMART: Water and Energy Efficient Program
City of Greeley Water and Sewer Department Advanced Metering Infrastructure Program

Dear Ms. Koza:

Western Resources Advocates, on behalf of the City of Greeley Water & Sewer Department (Greeley Water), strongly encourage you to support Greeley's WaterSMART: Water and Energy Efficiency grant application. Western Resource Advocates is a non-profit organization, dedicated to protecting the West's water, land and air. As such we have considerable expertise in urban water management and efficiency, and believe the project proposed by Greeley represents a state-of-the art water management tool and customer engagement opportunity.

Greeley intends to utilize the grant funding to further the effectiveness of its demand management program and the water budget consumption management tools. Greeley Water intends to install Advanced Metering Infrastructure (AMI) at every finished water connection in the City, pairing the infrastructure with a user interface that allows customers to better understand and manage their water use. This city-wide effort is proposed to advance and promote water conservation through "smart" metering technology that provides and leverages real-time water use data. The software and data flow will allow customizable consumption alarms that will greatly increase customer awareness and the data set will allow Greeley Water's operations staff to make more informed supply decisions, limit unnecessary pumping, and minimize water loss.

Greeley Water serves approximately 105,000 city customers and five large wholesale customers with water from four northern Colorado river basins: Cache la Poudre, Colorado, Big Thompson, and the Laramie Rivers. The system relies upon several small high mountain reservoirs and several plains reservoirs for storage of raw water that supplies two water treatment plants and Greeley's non-potable water systems. Eliminating water loss, enhanced demand management and greater operational data will allow Greeley to better support its customers, the ecology of the river systems delivering water to Greeley, and limit the inefficiency of unnecessary treatment and pumping.

Converting standard AMR meters to AMI will also help Greeley reduce new water acquisition requirements, a value and goal that aligns with Greeley's Water Master Plan adopted in 2016; a formal initiative that seeks to effectively manage water demand through increased efficiency and conservation, assure the maximum beneficial use of existing city water supplies; and maximize efficient water use to avoid or minimize the effects of water supply shortages when they occur to the greatest extent possible. The acquisition of less water from farms and agriculture further supports Greeley's regional interconnected economy with Weld County, CO agricultural. At NCWCD, we strongly support agricultural interests, and we appreciate that the

Arizona
P.O. Box 30497
Tucson, AZ 85046

Colorado - Boulder
2260 Baseline Road
Suite 200
Boulder, CO 80302

Colorado - Denver
536 Wynkoop Street
Suite 210
Denver, CO 80202

Nevada
550 W. Musser Street
Suite G
Carson City, NV 89703

New Mexico
409 E. Palace Avenue
Unit 2
Santa Fe, NM 87501

Utah
307 West 200 South
Suite 2000
Salt Lake City, UT 84101

investment in AMI and its leverage of the Greeley water budget tools have the potential to limit the demand for agricultural to urban transfers of water.

This letter constitutes strong formal support Greeley's WaterSMART grant application. We strongly support the implementation of the proposed AMI Project and believe it be consistent with Northern Colorado Water Conservancy District's regional water conservation and best practices goals; and therefore we advocate for and encourage your support of this important project, and we urge your favorable consideration of Greeley's grant application.

Sincerely,

Amelia Nuding
Sr. Water Resources Analyst
Western Resource Advocates
amelia.nuding@westernresources.org
720.763.3749

Appendix B – Standard Form 424C—Budget form for Construction Projects

APPENDIX C – NATIONAL METER & AUTOMATION QUOTATION FOR EQUIPMENT

NATIONAL METER & AUTOMATION

QUOTATION

7220 South Fraser Street
Centennial, CO 80112
Phone: 303.339.9100
Fax: 303.649.1017

DATE: August 29th 2019
QUOTED BY: Matt N / Ryan Fenton
CUSTOMER EMAIL: adam.prior@greeleygov.com

BILL TO: City of Greeley
1300 A Street Bldg L
Greeley,CO 80631

SHIP TO: City of Greeley
1300 A Street Bldg L
Greeley,CO 80631

SALESPERSON	PAYMENT TERMS	SHIPPING METHOD	SHIPPING TERMS	SUBJECT TO REVIEW
Ryan Fenton	Net 30 Days	Best Way	TBD	12/31/2019

QTY	Product Description	UNIT PRICE	AMOUNT
14500	E35 SS X 9" Fire Series Meter, Twist Tight 10' Lead	$181.80	$2,636,100.00
14500	LTE-M Cellular Endpoint, Twist Tight	$103.21	$1,496,545.00
14500	Annual Service Units at $.89 X 14,500 X 12 Months = $154.860	$10.68	$154,860.00
14500	13.25WAT Composite Lid, Center Drilled 2" Hole	$20.00	$290,000.00
		SUBTOTAL	$ 4,577,505.00
		SALES TAX	-
		FREIGHT	Add
		TOTAL	$ 4,577,505.00

Sales Tax: To be quoted at time of order
Est. Lead Time: 4 to 6 weeks ARO

THANK YOU FOR YOUR BUSINESS!!
This quotation is an offer subject to the Terms and Conditions available on our website:
www.nationalmeter.com/legal

APPENDIX D — OFFICIAL RESOLUTION

Include an official resolution adopted by the applicant's board of directors of governing body or, for State government entities, an official authorized to commit the applicant to the financial and legal obligations associated with receipt of a financial assistance award under this FOA verifying the identity of the official with legal authority to enter into an agreement; the board of directors, governing body or appropriate official who has reviewed and supports the application submitted; the capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the funding plan; and that the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement.

Note: The Official Resolution will be mailed to the same address as this grant application packet once it is discussed, approved and signed at the October 16, 2019, City of Greeley Water and Sewer Board meeting.