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Water Efficiency Project Summary	
Name of Applicant	COPPER MOUNTAIN CONSOLIDATED METROPOLITAN DISTRICT
Name of Grant Project	Water Meter System AMI Upgrades
WEGF Grant Request Total	$32,000
In-Kind Match	$67,000
Cash Match	$240,000
Total Project Costs	$361,100

Applicant Information	
Name of Applicant	COPPER MOUNTAIN CONSOLIDATED METROPOLITAN DISTRICT
Mailing Address	0800 Copper Road, PO Box 3002, Copper Mountain, CO 80443
Applicant's Organization Contact(1)	Bryan Webinger
Position/Title	District Manager
Email	bwebinger@cmcmdi.com
Phone	970-968-2537 ext 206
Grant Management Contact(2)	Robert Martin
Position/Title	Public Works Director
Email	rmartin@cmcmdi.com
Phone	970-968-2537 ext 206
Name of Consultant (if applicable)	Tetra Tech – Michael Saxton
Mailing Address	1560 Broadway, Suite 1400, Denver, CO 80202
Position/Title	Senior Project Manager
Email	Michael.Saxton@tetratech.com
Phone	303-825-5999

(1) Person with signatory authority

(2) Person responsible for creating reimbursement invoices (Invoice for Services) and corresponding with CWCB staff.

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Organizations & Individuals Assisting on the Project
A list of the organizations and/or individuals including those hired or otherwise retained by the entity that will assist in the project, and a written statement of their role and contributions
Metron Farnier – Meter Manufacturer and Supplier. Metron will assist with procurement of meters and installation materials in addition to providing technical support to incorporate new meters into the District's system and online data portal. **Plumbing Systems Inc. (PSI)** – Plumbing contractor that will provide services as necessary to replace existing meters. Approximately 10 – 20% of the meter replacements will require a professional plumbing contractor to modify and reconfigure existing piping to accommodate new meter installation. **Tetra Tech** – Consulting Engineer. Although many of the meter upgrades will be simple replacements, the District's Engineer has and will provide consulting services to reevaluate meter sizing and plumbing system requirements. **CMCMD** – District Water & Sanitation staff will install the majority of the new meters, coordinate with and schedule the Plumbing Contractor and Engineer, procure all meters and installation materials, integrate new meters into the online data portal, and provide water customers with initial support.

Type of Eligible Entity (check one)	
	Covered Entity: as defined in Section 37-60-126 Colorado Revised Statutes
	Non-covered Entity
X	**State or Local Governmental Entity**
	Public or Private Agency: entity whose primary purpose includes the promotion of water resource conservation. Please disclose your organizational structure and charter (or equivalent)

Type of Project (check one)	
	Drought Management Plan
	Drought Management Implementation
	Water Efficiency Plan
X	Water Efficiency Implementation
	Public Education & Outreach

Location of Entity	
Please provide the county and applicants (if needed) location identified by SWSI (Statewide Water Supply Initiative)	
Basin	Copper Mountain, Summit County, CO – Colorado River Basin

Retail Water Delivery over Past 5 Years
Please identify retail water delivery by the entity for each of the past five years (in acre feet) and additional information characterizing past water use by sector (e.g., residential, commercial, industrial, irrigation) and source (e.g., surface water, groundwater, etc.).

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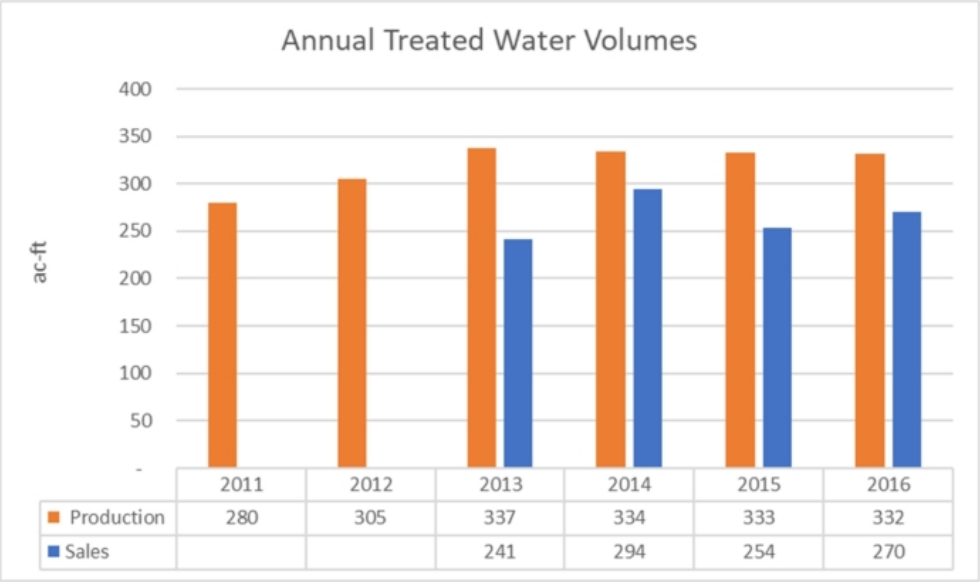
Water Production

A comparison of annual treated water volumes and volume of retail water delivered is provided in the Figure below. Note that the production period 2011 – 2016 is longer than the retail water period that is represented in the figure due to some gaps in the District's records. The District has and continues to develop better methods for data management and analysis, including consolidating historical data.

Comparison of Produced and Delivered Water Volumes



This Figure was excerpted from the District's Water Efficiency Plan

The volumetric difference between water production and metered water consumption is referred to as non-revenue water. Non-revenue water uses in the District's system include hydrant flushing, system leaks, and water used for firefighting. Although there are legitimate non-revenue uses, much of the gap between production and metered consumption is due to unaccounted for losses. The District manages non-revenue water volumes primarily through a leak detection and repair program and metering. It is anticipated that upgrading the metering system to the AMI platform will result in a significant reduction in non-revenue water as water losses will be identified and corrected almost immediately.

Water Use by Sector

Being a resort area, it is difficult to characterize water use by discrete sectors. Many of the condo association buildings that are served by a single meter also house restaurants, retail, and other services. The District uses the following categories to differentiate between customers in its service area: Single Family, Multi Family, Commercial, Mixed Use, and Irrigation. Although the volume consumed by each sector varies somewhat on an annual basis, the pattern is relatively consistent. The percentage contribution of each category is provided in the following Table.

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Retail Water Delivery over Past 5 Years

Water Use by Category

Use Category	Percent Contribution
Single Family Residential	6%
Multi-Family Residential	12%
Commercial	9%
Mixed Use	68%
Irrigation	5%

Water System

The District's drinking water system consists of three groundwater wells and associated pumping facilities, two storage tanks with a total capacity of 1,000,000 gallons, a booster pump station, and distribution system piping and appurtenances. Groundwater is pumped through two well houses, WH1A/3 and WH2/4, that contain all of the control valves and disinfection, flow monitoring, and sampling/analysis equipment associated with water production. The wells themselves are designated as Well 1A, Well 2, and Well 4. A previously functional Well 3 was reclassified as groundwater under the direct influence of surface water (GWUDI) in 2016 by the Colorado Department of Public Health and Environment (CDPHE) and as a result, has been decommissioned and permanently disconnected from the distribution system. As a result of the GWUDI reclassification, Well 1A was reclassified as a conditional groundwater source. It is still connected to the system but its capacity has been reduced from 500 gpm to 250 gpm as a result of the CDPHE action. The capacity of the remaining operational wells and that of the system as a whole are summarized in Table 2.

Table 2 – Groundwater Pumping and System Capacities

Designation	Facility	Classification	Capacity
Well 1A	Well House 1A/3	Conditional Groundwater	250 gpm
Well 2	Well House 2/4	Groundwater	725 gpm
Well 4	Well House 2/4	Groundwater	750 gpm
		Total System Fixed Capacity	1,725 gpm
		Total System Firm Capacity	975 gpm

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Projections of Future Annual Retail Demand

A reasonable estimate must be submitted with detailed projections of future annual retail demand for the next five years based on predicted population (provide source of data), building permits, expected new taps, and/or some other credible information

Projecting future demands for a resort area like Copper Mountain is difficult when considering the transient nature of the population and how tourism may increase or decrease over time, depending on the economy and the variability in climatic conditions that have a direct and often immediate impact. The District's Long-Range Master Plan (LRMP) provides a guideline for projecting future demands that are based on proposed development as detailed in the Copper Mountain PUD. Planned development includes a base area neighborhood at the undeveloped east side of the resort, workforce housing as required by Summit County, construction of at least two hotels, and a small number of commercial, single-family, and multi-family properties. At buildout, which is a moving target but it is anticipated by 2030, the total water demand for all development categories is projected to be approximately 750 ac-ft/yr. The following Table summarizes the projected water demands from the LRMP for the next five years.

Projected Water Demand: 5-Year Projection

Year	Projected Annual Demand	
	Gallons	***Acre-Feet***
2019	207,847,000	638
2020	215,044,000	660
2021	222,289,000	682
2022	229,730,000	705
2023	237,215,000	728

Background Characterizing the Water System

Current and past system wide and single family residential per capita water use for the last five years, and the basis for those calculations.

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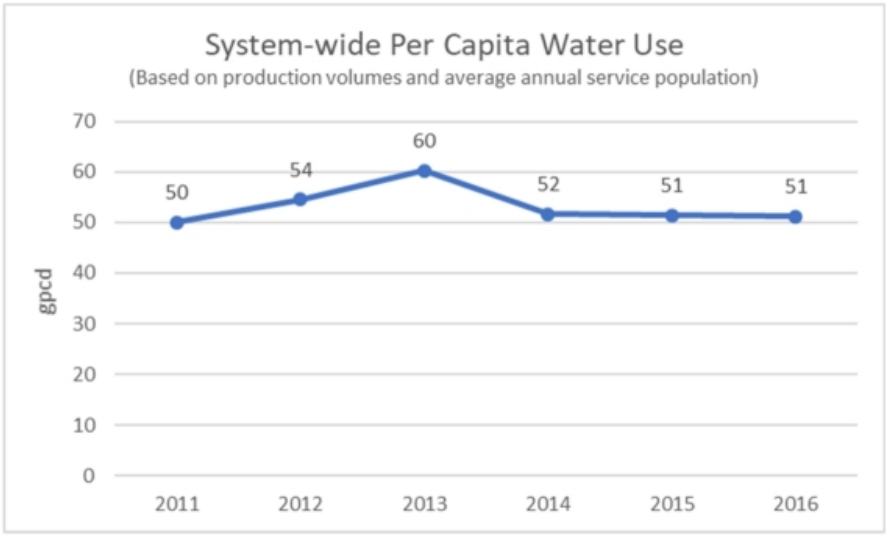
Background Characterizing the Water System

Water Demand

Copper Mountain is a ski resort area with a permanent population of approximately 300 residents that swells to a transient population of 5,000 – 10,000 visitors during the peak summer and winter seasons. The resort typically experiences several days of over 14,000 skiers during the holiday season in December and the height of Spring break in March.

Given the large fluctuations in population, it is difficult to quantify average population and per capita consumption. Single Family consumption accounts for only about 6% of total use and as such, it is not particularly representative of water system demands. Based on average occupancy for short-term rentals, permanent residents, and average annual day-use visitation numbers, the District and High Country Conservation Center arrived at an approximate but defensible average annual population of 5,000 during development of the District's Water Efficiency Plan. Using this average and water production volumes over the period between 2011 and 2016, the per capita water consumption has varied between 50 and 60 gpcd. Per capita consumption is summarized in the following Figure.

System-wide Per Capita Water Consumption



This Figure was excerpted from the District's Water Efficiency Plan

Potential Growth – Population

Provide population for the past five years, current year and 10 year population projection served by the entity and the source of this information

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Potential Growth – Population

Population

Copper Mountain is comprised almost entirely of the ski resort and associated amenities. Tourism introduces a high degree of seasonality and variability into the service population. In 2015, Copper Mountain had a population of 268 permanent residents (ACS 2015). However, the District estimates that the annual average service population was between 5,000 and 6,000 and that the daily peak service population was more than 14,000.

From 2011 to 2015, Copper Mountain experienced an 8% decline on average year-over-year in permanent resident population (from 385 to 268 residents; ACS 2015), but an increase of 5% year-over-year in average annual population served. Moving forward, based on the State of Colorado's projections for Summit County, the District is planning for a 2% growth rate in the permanent population (CSDO 2015) as well as the annual average service population. The Table below summarizes current and 10-year population projections based on 2% annual growth.

The District meets with Copper Mountain regularly to discuss current and future development projects to ensure that the water and sanitation systems have the capacity to accommodate growth and demand. As a resort area, Copper Mountain's PUD and growth projections are in a continuous state of flux and the District needs to keep pace with changing growth and development forecasts to plan for its own future. Currently, Copper Mountain has plans for at least two hotels, a base area/neighborhood at the undeveloped east end of the resort, workforce housing mandated by Summit County, and multiple smaller single-family and commercial developments.

10-Year Population Growth Projections

Population Category	Current Population	10-Year Projections at 2% Growth
Permanent Residents	268	410(1)
Service Area – Average Day	5,000 – 6,000	6,100 – 7,300
Service Area – Peak Day	14,000	17,000

(1) Includes approximately 80 workforce housing units in addition to 2% annual growth projection.

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Estimated Water Savings Goals

Estimate water savings goals to be achieved through implementation of the Plan in acre feet and as a percentage.

Based on the initial results of the AMI upgrades that have been completed to date and the benefits of AMI in general, it is the District's position that complete conversion of its metering system to the AMI platform will yield greater results in terms of efficiency and conservation than any of the other Foundational Activities identified in the Water Efficiency Plan. This position is consistent with the Water Efficiency Plan that projects water savings of 23 ac-ft/yr by the year 2025 as a result of AMI implementation. This is equivalent to 3% of the projected water demand on the District's system at buildout of the Copper Mountain service area. Aside from the primary goal of achieving the projected water savings, other goals and anticipated benefits of implementing an AMI system include:

- Conservation – The primary focus of the project is conservation through advanced system monitoring, enabling operations staff and water customers to collect data and evaluate water consumption in real time.
- Water Loss Reduction – The ability to continuously monitor water usage throughout the system allows operations staff to identify leaks or anomalous usage and notify property owners to address and correct the problem.
- Asset & Resource Management – Real-time monitoring and early identification of losses reduces the wear and tear on distribution system assets and the resources and energy required to produce and treat water.
- Metering Accuracy – meters lose accuracy and fail over time. Continuous monitoring rather than monthly meter readings allows operations staff to quickly identify and replace faulty equipment.
- Remote Meter Reading – accessing metered flow data through the web portal has significantly reduced the time and number of staff required to collect meter readings.
- Equipment & Fuel Reduction – Fuel consumption, mileage, and vehicle wear & tear are all reduced, if not virtually eliminated, with online access to flow data.
- Customer Involvement & Education – AMI provides individual customers with the tools to take ownership of their water systems, identify and correct deficiencies, and understand and modify their own consumption patterns.
- System Alerts – An important component of water loss reduction, the AMI web portal alerts operations staff when there is a suspected leak or otherwise atypical usage pattern in the system.

Estimated Water Savings Goals - Monitoring

Indicate how the activities will be monitored to estimate actual water savings during Project implementation (Implementation & Public Education/Outreach Projects)

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Estimated Water Savings Goals - Monitoring

Initial estimates of water savings will be based on system monitoring through the online web portal. The web portal provides the District and individual Water & Sanitation customers with continuous access to real-time consumption data and can be configured to alert District staff when a leak or otherwise anomalous use pattern is detected. The system has already identified and alerted District staff who were able to work with property owners to correct several issues including simple toilet valve leaks, irrigation leaks, and excessive rental unit consumption.

Long-term monitoring will enable year to year comparisons of monthly water use that will provide the District and its customers with valuable information regarding significant changes in consumption patterns. Over several years of system monitoring and year by year comparisons, the District will have a very accurate estimate of the actual water savings and the effectiveness of the meter upgrade program.

Drought Impacts (Drought Management Planning Grants Only)

Description of the impacts experienced by the covered entity, or state or local governmental entity, during the 2000-2003 & 2012-2014 drought including a breakdown by water use sector (e.g. municipal, commercial, industrial, irrigation, etc.) of those adverse impacts and steps taken to address 2002- 2003 drought impacts to date. Include short term and long term impacts, as well as social and economic impacts where applicable and as feasible.

N/A

Adequacy, Stability, and Reliability

Explain the adequacy, stability, and reliability of the entity's water system and provide the entities location with respect to areas of current and future water needs as identified by the Statewide Water Supply Initiative (SWSI).

As described above, the District's water system has a firm production capacity of 975 gpm which is equivalent to 1.4 million gallons per day (MGD). Peak water production rarely exceeds 500,000 gpd so the current firm capacity is more than adequate to accommodate current demand. Preliminary design for a future Well 5 is currently in progress to ensure adequate supply as the resort develops. The Well 5 location has been selected and much of the piping infrastructure was installed as part of a recent well house and distribution system expansion project.

The District's water supply is a groundwater system that is highly stabile and reliable. The District has never suffered from a loss of water supply, a failure to meet system demands, or a decline in water level in the supply aquifer. Water production has never been compromised, not even during the significant droughts that occurred in 2002 and 2012. Groundwater systems are inherently less susceptible to many of the natural hazards and sources of contamination that often threaten surface water systems. Erosion events and contamination from surface runoff and point sources that directly affect streams and reservoirs typically have little if any impact on groundwater supplies.

Although much of the District's water distribution piping is aging, an annual leak detection and repair program ensures that any issues are identified and addressed in a timely manner. All of the water storage and distribution infrastructure is inspected regularly and in accordance with CDPHE and EPA requirements: storage tanks are cleaned and inspected every three to five years and valves are exercised, fire hydrants are flushed, and distribution leak detection is performed annually.

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Colorado Water Conservation Board
Department of Natural Resources

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Outreach Goals & Efforts
Identify the groups, individuals, organizations and/or institutions that will be included within the education and outreach efforts to be proposed as the Project. Identify the specific goals of the Project (e.g., identify target audience(s) to reach, policy changes, outcomes of educational efforts, etc.) with respect to promoting the benefits of water resource conservation and water efficiency through education and outreach activities. Make note of how the goals of the Project tie to the mission and objectives of the CWCB and its programs (Colorado Water Plan/Basin Implementation Plans), as appropriate. Identify in detail the specific activities and tasks to be funded with the Water Efficiency Grant Program monies, including all meetings, workshops, fairs, printings, mailings and all other tasks and activities that will be used to promote the benefits of water resource conservation and water efficiency.
With the exception of educating individual customers about their meters and access to their data through the web portal, this project will not have a significant education and outreach component.

Signature of an individual with the authority to commit the resources of the entity seeking Water Efficiency Grant program monies.

Bryan Webinger, District Manager — Date 11/7/2019

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Water Efficiency Grant Fund	
Scope of Work	
Date:	**January 7, 2019**
Project Name:	**Water Meter System AMI Upgrades**
Grant Applicant:	**Copper Mountain Consolidated Metropolitan District**

The scope of work shall state the purpose and primary features of the project, end products to be delivered, clear timelines and provide a detailed narrative of all tasks to be performed for completion of plan. (Timelines must include 50 and 75% progress reports and final plan submission.) Each task within the scope of work must:

- Be numbered
- Contain a detailed description of work to be performed
- Identify those responsible for performing the task
- Identify funding sources, such as; grant monies, entity funds, in-kind services, and cash contributions, necessary to complete the task.

Copper Mountain Consolidated Metropolitan District (District) is submitting this application for CWCB grant funding through the Water Conservation Implementation Grant Program. The District is designated as a Special District under Title 32 of the Colorado Revised Statutes and as such, qualifies as a local government entity that provides water and sanitation services. In collaboration with High Country Conservation Center (HC3) and other local water providers, the District recently finalized a Water Efficiency Plan (WEP) that was formally adopted by Resolution of the District Board of Directors on June 29, 2018.

Grant funding is being requested by the District to facilitate and expedite implementation of one of the Foundational Activities identified in the WEP: upgrading the existing water metering system to an Advanced Metering Infrastructure (AMI) platform in an effort to enhance water loss control and improve monitoring of water consumption. AMI is a “smart” technology that collects water use data at regular intervals and transmits it over a fixed network. The AMI platform that is being implemented employs cellular registers that transmit flow data over 2G and 4G networks to a proprietary data management system. Water usage data is subsequently made available to the District and its customers through a website interface. The District began upgrading to the AMI system in 2016.

Approximately twenty percent of the meters in CMCMD’s system have been upgraded since 2016 and the Water & Sanitation Department has successfully implemented the technology, working with its customers to identify leaks and/or excessive water consumption and address the problems accordingly. The benefits of AMI were realized almost immediately as metering accuracy was improved and the web portal provided current flow usage information and a view of the water system that operations staff had never had access to.

The primary meter manufacturer that the District has been working with is Metron Farnier (Metron) but other manufacturers may be considered depending on their compatibility with the AMI platform that is being implemented. An integral component of the AMI system is a proprietary web portal called WaterScope that is administered by Transparent Technologies (T2), an independent automatic meter reading provider. The Metron meters that the District has and will be installing are equipped with cellular registers that transmit flow data over 2G and 4G networks. Flow data is received and compiled by T2 and may be accessed by the District and its Water & Sanitation customers. Individual customers may create their own Waterscope

accounts (at no charge) and will have 24/7 access to real-time flow data generated at and transmitted by their respective meters. In addition to real-time consumption data, the web portal provides graphs of historical flows and cumulative consumption and allows users to compare historical consumption, establish baseline water budgets, analyze usage in a variety of ways over different time periods, and set notifications that may indicate leakage or atypical usage. The web portal is relatively user-friendly and has been well received by District operations staff and water customers. This ease-of-use enhances the benefits of AMI as operators and customers have not reportedly experienced the frustration barrier that often accompanies the implementation of new technology.

Based on the initial results of the AMI upgrades that have been completed to date and the benefits of AMI in general, the District believes that complete conversion of its metering system to the AMI platform will yield greater results in terms of efficiency and conservation than any of the other Foundational Activities identified in the WEP. Given the potential magnitude of the projected water savings associated with this project, the District intends to dedicate a significant percentage of its staff resources and capital projects budget to meter system upgrades over the next two to three years Because of the potential for water savings and the District's commitment, we consider this project an ideal candidate for CWCB grant funding. The District appreciates CWCB's funding and involvement in the development of the WEP and for consideration of this project for Water Efficiency Grant funding.

Objectives: (List the objectives of the project)

Objectives of the project and observed benefits since its inception include:

- Conservation – The primary focus of the project is conservation through advanced system monitoring, enabling operations staff and water customers to collect data and evaluate water consumption in real time.
- Water Loss Reduction – The ability to continuously monitor water usage throughout the system allows operations staff to identify leaks or anomalous usage and notify property owners to address and correct the problem.
- Asset & Resource Management – Real-time monitoring and early identification of losses reduces the wear and tear on distribution system assets and the resources and energy required to produce and treat water.
- Metering Accuracy – meters lose accuracy and fail over time. Continuous monitoring rather than monthly meter readings allows operations staff to quickly identify and replace faulty equipment.
- Remote Meter Reading – accessing metered flow data through the web portal has significantly reduced the time and number of staff required to collect meter readings.
- Equipment & Fuel Reduction – Fuel consumption, mileage, and vehicle wear & tear are all reduced, if not virtually eliminated, with online access to flow data.
- Customer Involvement & Education – AMI provides individual customers with the tools to take ownership of their water systems, identify and correct deficiencies, and understand and modify their own consumption patterns.
- System Alerts – An important component of water loss reduction, the AMI web portal alerts operations staff when there is a suspected leak or otherwise atypical usage pattern in the system.

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Tasks
Provide a detailed description of each task using the following format:
Task 1 – 2019 Procurement
Description of Task:
Prioritization of meter replacement and procurement. Funding – We anticipate grant monies will fund approximately 10% of Task 1 procurement, consulting, and installation costs. The District will fund the remainder with cash contributions and in-kind services.
Method/Procedure:
Approximately half of the replacement meters (~110) will be ordered in 2019 after initial identification of aging and potentially failing equipment. Procurement will be phased over the course of the year to minimize excess inventory languishing on the shelf and to mitigate and correct any procurement issues identified in the initial stages of Task 1. Responsibilities – Task 1 will primarily involve District Water & Sanitation staff and the meter manufacturer(s). Tetra Tech and PSI will plan and procure materials on an as-needed basis for meter installations that require reconfiguration of existing plumbing.
Applicant Deliverable: (Describe the deliverable the applicant expects from this task)
Procurement of approximately half of the replacement meters and associated installation materials.
CWCB Deliverable: (Describe the deliverable the applicant will provide CWCB documenting the completion of this task)
The District will submit meter and materials receipts, engineering consulting and contractor invoices, and any other information that CWCB requires to demonstrate completion of Task 1 procurement.

Tasks
Provide a detailed description of each task using the following format:
Task 2 – 2019 Installation
Description of Task: All of the meters procured under Task 1 are scheduled to be installed by District Water & Sanitation staff in 2019. PSI will provide meter installation support as necessary when existing plumbing needs to be reconfigured to accommodate the new meter(s). Funding – We anticipate grant monies will fund approximately 10% of PSI's costs and any Engineering Consulting fees that are incurred. The District will fund the remainder of with cash contributions and will provide in-kind services by installing the greater majority of the meters.
Method/Procedure:
The majority of the meter replacements will simply be a matter of swapping out the meters without any modifications to individual plumbing systems. However, there will be a percentage of the meter replacements that will require PSI's professional plumbing services. The District will contract PSI on a case-by-case/as-needed basis.

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Tasks
Applicant Deliverable: (Describe the deliverable the applicant expects from this task)
Installing new meters and incorporating them into the District's system.
CWCB Deliverable: (Describe the deliverable the applicant will provide CWCB documenting the completion of this task)
A list of completed installations will be submitted to CWCB upon completion of Task 2. The list will include the numbers of the new meters, the numbers of the meters they replaced, property addresses or other relevant designations, and any other information that is deemed relevant.

Tasks
Provide a detailed description of each task using the following format:
Task 3 – 2020 Procurement
Description of Task:
The remaining existing system meters will be procured in 2020 provided Task 2 is completed in 2019. As with Task 1, procurement will be phased in multiple orders over the course of the year. Funding – We anticipate grant monies will fund approximately 10% of Task 2 procurement, consulting, and installation costs. The District will fund the remainder with cash contributions and in-kind services.
Method/Procedure:
The remainder of the replacement meters will be ordered in 2020. As with Task 1, procurement will be phased in multiple orders over the course of the year. Responsibilities – Task 3 will primarily involve District Water & Sanitation staff and the meter manufacturer. Tetra Tech and PSI will plan and procure materials on an as-needed basis for meter installations that require reconfiguration of existing plumbing.
Applicant Deliverable: (Describe the deliverable the applicant expects from this task)
Procurement of the remainder of the replacement meters and associated installation materials.
CWCB Deliverable: (Describe the deliverable the applicant will provide CWCB documenting the completion of this task)
The District will submit meter and materials receipts, engineering consulting and contractor invoices, and any other information that CWCB requires to demonstrate completion of Task 3 procurement.

Tasks
Provide a detailed description of each task using the following format:
Task 4 – 2019 Installation
Description of Task: All of the meters procured under Task 3 are scheduled to be installed by District Water & Sanitation staff in 2019. PSI will provide meter installation support as necessary when existing plumbing needs to be reconfigured to accommodate the new meter(s).

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Tasks
Funding – We anticipate grant monies will fund approximately 10% of PSI's costs and any Engineering Consulting fees that are incurred. The District will fund the remainder of with cash contributions and will provide in-kind services by installing the greater majority of the meters.
Method/Procedure:
The majority of the meter replacements will simply be a matter of swapping out the meters without any modifications to individual plumbing systems. However, there will be a percentage of the meter replacements that will require PSI's professional plumbing services. The District will contract PSI on a case-by-case/as-needed basis.
Applicant Deliverable: (Describe the deliverable the applicant expects from this task)
Installing new meters and incorporating them into the District's system by the end of the year. This is a relatively aggressive schedule but the District is committed to expediting the project to maximize potential water savings as quickly as is feasible and practical.
CWCB Deliverable: (Describe the deliverable the applicant will provide CWCB documenting the completion of this task)
A list of completed installations will be submitted to CWCB upon completion of Task 4. The list will include the numbers of the new meters, the numbers of the meters they replaced, property addresses or other relevant designations, and any other information that is deemed relevant.

Tasks
Provide a detailed description of each task using the following format:
Task 5 – Web Portal Verification
Description of Task: Integration of all AMI meters into the online system and assistance with setup of individual customer accounts and customer access to the web portal. Funding – The District will provide all necessary cash contributions and in-kind services for completion of Task 5.
Method/Procedure:
Although integration of each AMI meter into the online system is relatively seamless, it does require District personnel resources and will be an ongoing part of the project that will continue throughout its duration. Task 5 does not follow Task 4 chronologically but does stand alone as its own Task, requiring dedicated time and resources to verify that all meters are recognized by the system and transmitting flow data. Staff resources are also often required to help customers work through the initial registration and login process. The District anticipates that personnel resources will be required during installation and for a period of time after Task 4 is complete.
Applicant Deliverable: (Describe the deliverable the applicant expects from this task)
Complete system integration
CWCB Deliverable: (Describe the deliverable the applicant will provide CWCB documenting the completion of this task)
CWCB will be provided with notification that system integration is complete and operational. Notification of significant delays or issues with integration will be provided if necessary.

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Tasks
Provide a detailed description of each task using the following format:
Task 6 – Billing System Setup
Description of Task: Incorporation of each AMI meter into the District's billing system. Funding – The District will provide all necessary cash contributions and in-kind services for completion of Task 6.
Method/Procedure:
All new meters will need to be incorporated into the District's billing system. This will also be an ongoing process that will continue for the duration of the project. Similar to Task 5, Task 6 does not follow other tasks chronologically but does stand alone as its own task, requiring dedicated time and resources. This will be an entirely internal exercise involving Water and Sanitation and Administrative staff. It is anticipated that the AMI platform will not only simplify and make meter reading more efficient, but will streamline the conveyance of information and data between District departments.
Applicant Deliverable: (Describe the deliverable the applicant expects from this task)
Completion of billing system integration.
CWCB Deliverable: (Describe the deliverable the applicant will provide CWCB documenting the completion of this task)
CWCB will be notified of Task 6 completion in the final project report.

Budget and Schedule
Budget: This Scope of Work and Schedule shall be accompanied by a Budget that reflects the Tasks identified in the Scope of Work and Schedule and shall be submitted to CWCB in an excel format.
Schedule: This Scope of Work and Budget shall be accompanied by a Schedule that reflects the Tasks identified in the Scope of Work and Budget and shall be submitted to CWCB in an excel format.
The Budget and Schedule spreadsheet is attached as a separate document. Budget numbers are based on costs for the meters and associated installation materials, engineering consulting fees, plumbing contractor charges, and District cash contributions and In-kind services. It is the District's intention to cover consulting fees and contractor invoices using grant money if the funding is approved. Every effort will be made to limit consulting and contracting costs and remaining grant money will be used for purchasing the meters and installation materials. Per the attached Budget & Schedule spreadsheet, approximately $22,100 will go toward consulting and contracting, and approximately $14,101 will be used to purchase materials. Depending on the level of consultant and contractor involvement, more or less grant money will be allocated for material costs. Regarding cash contributions and in-kind services, the District will fund the majority of the project directly and Water & Sanitation staff will install the greater percentage of the meters themselves. In addition, the District will provide all services associated with meter and materials procurement,

Budget and Schedule

initial customer support, and integration of the AMI platform into the monitoring and billing system. The in-kind services estimate in the Budget & Schedule is based on the projected number of hours that District staff will dedicate to the project at an average hourly rate of $50/staff. The following table summarizes in-kind services and estimated cost to the District.

Estimated Cost of In-Kind Services

In-Kind Service Description	Estimate # of Hours	Average Rate(2) ($/Hour)	Estimated Service Cost
Material Procurement	160	$50	$8,000
Meter Installation(1)	880	$50	$44,000
Web Portal Verification/Customer Set-up	100	$50	$5,000
Billing System Integration	200	$50	$10,000
		Total In-Kind Services	$67,000

(1) $50/hour is a minimum rate charged for District services.
(2) Based on past experience, it takes two operators approximately two hours (4 staff hours) to upgrade an existing meter. Estimate 220 meters x 4 crew hours = 880 hours.

Reporting Requirements

Reporting: The applicant shall provide the CWCB a Progress Report at 50% & 75% completion of the project. The Progress Report shall address the following:

- the success of meeting previously identified goals and objectives
- obstacles encountered
- preliminary findings or accomplishments
- potential need for revisions to the scope of work and timelines

(The CWCB may withhold reimbursement until satisfactory Progress Reports have been submitted.)

Final Deliverable: At the completion of the project, the applicant shall provide the CWCB a final report on the applicant's letterhead including a review of the activities completed, an estimate of actual water savings realized (for covered entities), and other information that is relevant to the Board's record of the Project and future use of the Project outcomes.

The CWCB will withhold the last 10% of the grant request until the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the purchase order or contract will be closed without any further payment.

Last Update: October 20, 2017

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Water Efficiency Grant Fund

BUDGET & SCHEDULE

Date: January 7, 2019
Project Name: Water Meter System AMI Upgrades
Applicant: Copper Mountain Consolidated Metropolitan District

Task No.	Description	Start Date	End Date	Tetra Tech - PM (Rate $240/Hour)		PSI: Plumbing Contractor (Rate $125/Hour)		Matching Funds (Cash & In-kind)		Total
				Hours	Sub Total	Hours	Sub Total	Cash[1]	In-Kind[2]	
1	2019 Meter Procurement	January 2019	February 2019	20	$4,800			$110,000	$4,000	$118,800
	50% Progress Report	January 2020								
2	2019 Meter Installation	February 2019	December 2019	0	$0	50	$6,250	$10,000	$22,000	$38,250
3	2020 Meter Procurement	January 2020	February 2020	20	$4,800			$110,000	$4,000	$118,800
4	2020 Meter Installation	February 2020	December 2020	0	$0	50	$6,250	$10,000	$22,000	$38,250
	75% Progress Report	August 2020								
5	Web Portal Verification	February 2019	December 2020	0	$0				$5,000	$5,000
6	Billing System Setup	February 2019	December 2020	0	$0				$10,000	$10,000
	Final Report	January 2021								
			SubTotal		**$9,600**		**$12,500**	**$240,000**	**$67,000**	**$329,100**

Contingency(10%)	**$32,910**
Project Total	**$362,010**
WEGF Request (10% of Project Total)	**$36,201**

(1) Cash Contributions are estimates based on the meter manufacturer's 2018 pricing. Actual meter and material costs will be submitted to CWCB as deliverables and/or progress reports.

(2) In-Kind services amounts are based on estimated number of hours for meter procurement and installation and $50/hour per staff member. Actual In-Kind contributions will be submitted to CWCB as deliverables

Project may begin as soon as the grantee enters contract/purchase Order

CWCB will withhold the last 10% of the entire grant budget until the Final Report (Deliverable) is completed and accepted (per the WEGF Criteria & Guidelines).