

## **Grant Application to the Colorado Water Conservation Board Water Efficiency Grant Program**

**Applicant:** Bow Mar Water and Sanitation District

**Project Name:** Automatic Meter Reading and Meter Replacement/Rehabilitation Project

**Goal:** Update and replace existing meters to an Automatic Meter Reading system and replace inflexible, outdated customer billing system which will result in more accurate readings for both the customers and Bow Mar Water and Sanitation District.

**Organizations/Contractors working on project:** Platte Canyon Water and Sanitation District, Dana Kepner, C&L Water Solutions and Data West Corporation

**CWCB Funds Requested:** \$36,601.84

**Bow Mar Water and Sanitation District Cash Match and In-Kind Hours Donation:**  
\$329,416.59

**Total Project Value:** \$366,018.43

**Contact:** Alyssa Quinn, 303-979-2333, [alquinn@plattecanyon.org](mailto:alquinn@plattecanyon.org)  
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### **Project Overview and Background**

The original program entailed replacement of 93 existing meters over a 10 year span. The initial implementation commenced in 2005, with the replacement of 10 meters, which the District replaced at their own expense. Although the program is not proceeding at the pace which was originally intended, the potential benefits warrant the aggressive pursuit of this initial supply side program. This will benefit the district, and the individual customer(s) in the following manner:

1. The new meters shall provide a more accurate accounting of the individual customer usage. This will allow the district to better determine the amount of water which is being lost through leaks.
2. The new meters shall be radio-read, which will save the district time and money, related to the actual reading of the meters.
3. The new meters will allow the district to more accurately account for the effects of various conservation measures and programs. The new system will enable the district to detect leaks on the service line.
4. The new billing system will include an Automatic Meter Reading Sensus Interface that will allow for the new meters to be read. It will also allow for customization in the rate structure and any other charges.

The Bow Mar Water and Sanitation District is a quasi municipal subdivision of the State of Colorado created under Title 32, Special Districts Article I, 32-14-204.5 Colorado revised statutes. Bow Mar Water and Sanitation District was created in 1951. The District currently has a population of 733 (based on 2.5 persons per household/tap) and the District boundary encompasses .56 square miles. Bow Mar's population projections have not changed in the past 5 years and will not change in the future due to Bow Mar being an established subdivision with no potential of growth.

Bow Mar Water and Sanitation is a master meter distributor of Denver Water. The District serves 293 residential customer accounts. The annual water consumption is approximately 110 million gallons per year. The District utilizes master meters to monitor the amount of water from Denver Water, and each customer has an individual meter to track water use. Residential lots in Bow Mar are 1 acre in size.

The District is covered under Denver Water's Efficiency Plan which was approved in 2015. Bow Mar residents have been participating in Denver Water's conservation rebate program since 2006. They have received 103 total rebates; 59 high efficiency clothes washers, 5 irrigation rotary nozzles, 36 HET toilets, and 3 wireless rain sensors. Currently, the district is unable to monitor water savings due to the old inaccurate meters and outdated billing system. With the new meters and new billing system the district will be able to monitor water usage more accurately and consider conservation tiered billing rates and other conservation oriented billing structures.

## **Project Scope of Work**

The purpose of this program is to reduce the Non-Revenue water, that is water that is treated and delivered into the potable water distribution system, but is not accounted for, generates no income and is essentially wasted. This is mainly due to inaccurate meters which are under reporting the use, due mainly to age. The meter replacement/rehabilitation program shall replace 233 meters and rehabilitate 60 existing meters by replacing the meter register to accommodate for automatic meter reading.

### **Task 1 – Meter Rehabilitation**

The rehabilitation of the 60 meters includes replacing the meter register with a new register and a MXU device that allows for automatic meter reading along with a 12" plastic inner lid for the MXU.

### **Task 2 – Meter Replacement**

The replacement of the 233 meters involves replacing the entire meter, a meter yolk or re-setter, and a MXU device for automatic meter reading and all miscellaneous appurtenances to install the yolk.

At this point of the project we will submit the 50% progress report to the state.

### **Task 3 – Automatic Meter Reading Equipment**

The automatic meter reading system will include a programming device, a hand-held receiver and software that will automatically read all 293 meters by radio and download readings to the office billing system.

The District will contract with C&L Water Solutions for the installment of the meters and Dana Kepner will supply the parts for the meters. A District employee will be on site for inspection purposes throughout the installation of the meters.

The 75% report will be submitted to the state at this point.

### **Task 4 – Billing Software**

The District's existing billing system cannot accommodate automatic meter reading and needs to be updated to a current billing system that allows for automatic meter reading. It will also give the District options for conservation geared billing that are not currently available such as a tiered billing structure, water budget, surcharge fees and monthly billing.

Once the billing software has been implemented we will complete the final report for the state.

## **District Support for Water Conservation**

The Board of Directors for Bow Mar Water and Sanitation District want to expand water conservation efforts in their community. As referenced above the District has participated in Denver Water's conservation programs and most recently, the District created a website to promote and encourage conservation to all their residents. They have also replaced the majority of their distribution system to eliminate any possible leaks and help eliminate water loss. Some of the future efforts include:

- Development of a supplemental water conservation program in addition to Denver Water's.
- Possibly expand water efficient fixture rebates
- Promote water efficient irrigation (this is especially important due to the 1 acre lot sizes)
- Conduct water audits
- Reduce water loss and under reporting of consumption (this will necessitate AMR – meter replacement/rehabilitation and a new billing system).
- Send a strong conservation message through water billing

## **Collaborative Partners**

Bow Mar Water and Sanitation District has built and maintained valuable relationships over many years with other water providers. Bow Mar has followed Denver Water's aggressive water conservation program since it was first implemented and helped in the 20% savings that has been accomplished by Denver Water customers. Letters in support of this grant have been received from the following organizations:

- Denver Water

## Estimated Timeline

	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10	Wk11	Wk 12	Wk13	Wk14	Wk15
Task 1	x	x	x												
Task 2				x	x	x	x	x	x	x	x	x	x	x	x
Task 3														x	x
Task 4														x	x

\*see attached timeline for more detail

## Supporting Exhibits in this Grant are:

- Project budget (itemized and summarized)
- Project timeline
- Rebates
- Current and past year water demand and per capita use
- Letters of support from Partners

## Financial Summary for Grant

Total CWCB Contribution: \$36,601.84

Total Bow Mar Water and Sanitation District Contribution: \$329,416.59

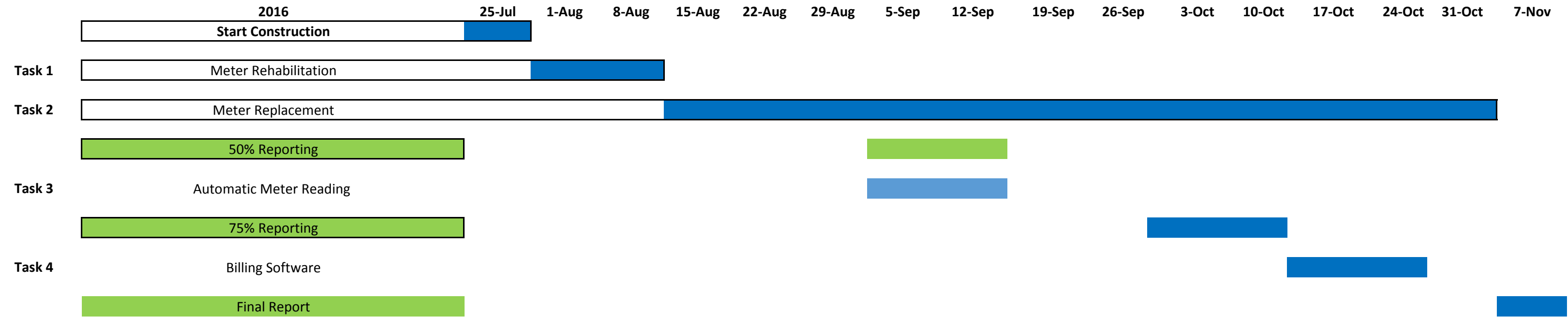
Total Project Value: \$366,018.43

## Authorized Signature

The undersigned acknowledges that significant resources will need to be designated to this program and that the above information is accurate to the greatest extent possible.

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BOW MAR AUTOMATIC METER READING & METER REPLACEMENT/REHABILITATION PROJECT



## BOW MAR AUTOMATIC METER READING & METER REPLACEMENT/REHABILITATION PROJECT

		# of Meters	Price per meter	Dana Kepner Materials Cost	Contractor - C&L Water cost per meter	Total Cost	Data West Corp. Software	Platte Canyon			Total Budget Cost	Cash Contribution	Grant Contribution	
Task 1	Meter Rehabilitation							hrs	Rate	Labor Cost				
	Replace Register inc. MXU			\$14,186.40	\$33.00	\$1,980.00					\$16,166.40			
	Install MXU Frost Lid			\$646.20							\$646.20			
	Inspection of MXU installation							45	\$121.38	\$5,462.10	\$5,462.10			
	Sub-Total Task #1	60	371.2450	\$14,832.60	\$33.00	\$1,980.00				\$5,462.10	\$22,274.70	\$20,047.23	\$2,227.47	
Task 2	Meter Replacement							Operations Foreman						
	Install New Iperl Meter w/ MXU			\$84,334.11	\$60.50	\$14,096.50					\$98,430.61			
	Install New Meter Dome w/ lid			\$18,400.00	\$271.46	\$63,250.00					\$81,650.00			
	Install Misc apputances for meter			\$13,816.48	\$388.14	\$90,437.60					\$104,254.08			
	Inspection of new meter install							175	\$121.38	\$21,241.50	\$21,241.50			
	Sub-Total Task #2	233	1,311.4858	\$116,550.59	\$720.10	\$167,784.10				\$21,241.50	\$305,576.19	\$275,018.57	\$30,557.62	
Task 3	Automatic Meter Reading							*Operators						
	AMR Equipment to read new meters			\$14,388.42							\$14,388.42			
	Training of Equipment					\$4,000.00		24	\$122.64	\$2,943.28	\$6,943.28			
	Sub-Total Task #3			\$14,388.42		\$4,000.00				\$2,943.28	\$21,331.70	\$19,198.53	\$2,133.17	
Task 4	Billing Software							**Administration						
	Data West's Bill Master Software						\$9,000.00				\$9,000.00			
	Training of Software						\$5,120.00	24	\$113.16	\$2,715.84	\$7,835.84			
	Sub-Total Task #4						\$14,120.00			\$2,715.84	\$16,835.84	\$15,152.26	\$1,683.58	
	TOTAL	293	1,249.2097	\$145,771.61		\$173,764.10	\$14,120.00			\$32,362.72	\$366,018.43	\$329,416.59	\$36,601.84	
												Dana Kepner	\$149,771.61	
												Data West	\$14,120.00	
												C&L Backhoe	\$169,764.10	
												Platte Canyon	\$32,362.72	
													\$366,018.43	
												*Task 3 is an average of multiple employees		
												**Task 4 is an average of multiple employees		