CORTEZ
Grants & Special Projects
210 East Main Street
Cortez, CO 81321

970-564-4094

November 7, 2014

Colorado Water Conservation Board
Attn: Ben Wade ben.wade@state.co.us
1313 Sherman Street, Room 721
Denver, CO 80203

RE: Water Efficiency Grant Program

Please accept this letter of application for a Water Efficiency Grant of $50,000. The City of Cortez Water Meter Replacement Project is designed to replace its manually read meters with electronic automated meters. We believe we have put together a funding program that meets the needs of the City and its citizens. It is comprised of this request for $50,000 from CWCB in grant form, $200,000 from DOLA in grant form, $650,000 in a loan from CWCB (we are applying for $850,000 in loan funds in case the DOLA grant does not come through), and $300,000 in cash match from the Cortez Water Fund for a total project of $1,200,000.

The City of Cortez Public Works Department utilizes manual reads of water meters on a monthly basis. This is done utilizing two (2) full time employees and assigned trucks. The meters are read using remotely mounted "odometers" or visual means for each meter in our system. This means all accounts must be physically visited every month. Currently, there are approximately 3,400 meters in our system. This method of collecting billing data is not cost effective. It is inefficient and can be problematic regarding human error, coverage of down personnel, timely reading/billing, and provides only static information.

Automated Meter Reading (AMR) is the use of radios to read meters via a drive-by or a fixed base receiver. This makes use of radio frequency to read and store data on every metered account that is set up in our distribution system. This data would be stored in a laptop device specific to this methodology. The technology that is currently available for AMR would have a profound effect on our situation. Every aspect of the issues would be addressed in a positive fashion.

The City of Cortez is a local government entity and currently has loans through CWCB. Plus its Water Conservation Plan is on file with the CWCB.

Application Submittal Requirements

1. **Name and Contact Information**

City of Cortez
Shane Hale, City Manager
210 East Main St.
Cortez, CO 81321
970-564-4004
shale@cityofcortez.com

2. Organization and Personnel Performance List

City of Cortez – Owner and operator of the Municipal Water distribution system, it is a local governmental entity identified by the State of Colorado and has a locally adopted Water Conservation Plan which is on file with the CWCB. The City of Cortez will contribute $300,000 in funding toward the project.

Shane Hale – City Manager, has overall responsibility for the operation of City of Cortez Municipal Water distribution and has responsibility for the general oversight of the project.

Phil Johnson – Director of Public Works, has overall and daily responsibility for the design, engineering, installation and operation of the project.

Kathi Moss – Director of Finance, has responsibility for oversight of financial requirements for project expenditures and payments for the project as they relate to grants, loans, and City of Cortez funding.

Mike Green – City Attorney, has responsibility for review and recommendations of grant and loan documents for the project.

Chris Burkett – Grants Administrator, has responsibility for review and grant documentation and project guideline/requirement adherence for the project.

Contractor – None has been hired at this time but will meet bid guidelines as determined by the City and any Grant requirements, contractors will be required to adhere to design and engineering specifications of the project.

3. Local Government Entities

a. Retail Water Delivery by Use - 5 year

Year	2009	2010	2011	2012	2013
Acre Ft	3166.6	2934.7	3214.2	3135.2	2757.4

Consumption %	
Residential	45.5%
Commercial/Industrial	17.8%
Gov't/Churches/Schools	9.2%

Concurrent Systems 24.4%

b. Background Characterization

i. Current and Past Water Use

Year	Population	Water/MG	Per Capita
2009	8965	657.9	201.1
2010	8482	584.6	188.8
2011	8429	596.3	193.8
2012	8433	632.2	205.4
2013	8568	555.7	177.7

ii. Population last 5 yrs, current yr, & 10 yr projection (DOLA)

2009 8965
2010 8482
2011 8429
2012 8433
2013 8568
2014 8482 – current yr
20248948 – 10 yr projection

iii. Estimated Water Savings

Quantifying the savings via this meter upgrade is a very rough estimate. We believe that the accuracy of this new technology will motivate consumers to revisit and reduce their water consumption. As a result, water savings may be realized in the 5% range or 138 acre-feet. This number may not be fully realized until the second year of implementation due to the nature of changing of habits. As soon as users realize what the impact of their under-metered water has, they will then reduce the demand on the system.

iv. Last 5 years estimated water savings

Comparing 2009 versus 2013, there has been a reduction of 12.9% in raw water measured entering the treatment facility. This could be attributed to the Water Conservation Plan implemented in 2010 by the City of Cortez and more accurate raw water readings; this equates to 409.1 acre-feet.

v. Adequacy, stability and reliability of the entity's water system.

The City of Cortez's drinking water system supplies the City's residents and several adjacent areas outside of the City's municipal boundaries, including Montezuma Water District No. 1 and the Ute Mountain Ute Tribe. The drinking water supplied by Cortez to MCWD#1 and the Ute Mountain Ute Tribe is their exclusive source of drinking water.

The water system is operated by the City of Cortez's Department of Public Works. The Public Works Director is Philip Johnson. The Water Treatment Plant Superintendent is James Campuzano.

The City's water system consists of raw water drawn from McPhee Reservoir, followed by a small water storage reservoir, water treatment plant, finished water storage tanks, a distribution system and associated administrative offices. The treatment plant provides a series of treatment processes, including coagulation, flocculation, sedimentation, multimedia granular filtration, submerged membrane microfiltration, and chlorine disinfection.

The City's drinking water system was originally constructed in 1960 and has undergone several subsequent upgrades. The treatment system was most recently upgraded in 2006 to include submerged microfiltration treatment, complementing the existing treatment processes. The upgrade has improved system performance and reliability. It also helps ensure compliance with increasingly stringent regulatory requirements, particularly for the removal of microorganisms.
Finished water is stored in three above ground storage tanks that pressurize the distribution system and ensure adequate water is available during high demand periods. Each storage tank has a capacity of two million gallons (MG), and is located near the drinking water treatment plant. Two tanks are located at a higher elevation than the lower tank. The upper two tanks provide water to the Ute Mountain Ute Tribe. The lower tank provides water to the City of Cortez and Montezuma Water District No. 1.
The drinking water supply for the City is from the Dolores River and McPhee Reservoir, the second largest reservoir within Colorado. The Dolores River is a tributary of the Colorado River, approximately 250 miles long, and flows through Colorado and Utah. It starts in southwestern Colorado near Dolores Peak and Mount Wilson in the San Miguel Mountains. It flows southwest, past the Town of Dolores, where it turns, flowing north and northwest. It then flows through the Dolores River Canyon, cuts across Paradox Valley before receiving the San Miguel River in Montrose County and crossing into Utah, where it joins the Colorado River in Grand County. McPhee Reservoir was created via the construction of McPhee Dam on the Dolores River, and is part of the Dolores Project. The Dolores Project is managed by the Dolores Water Conservancy District(DWCD), and consists of a system of canals, tunnels, and laterals that convey water from McPhee Reservoir to a number of nearby agricultural, residential, commercial, and governmental users.
McPhee Reservoir has a maximum storage capacity of 229,000 acre-feet of water.

c. **How Grant monies will be used**.
These grant funds will provide new and accurate meters. This will help to capture under-metered water, provide data storage and retrieval, and identify leaks. This information and accurate metering will instigate water savings on the account customers in the service area. Timely notification of leaks and paying for actual water used will motivate customers to curtail wasteful practices.

d. How activities will be monitored to estimate actual water savings.
This project will take no longer than 120 days to be fully implemented. Tracking of water billing will occur as normal during the upgrade. Immediately upon completion; a monthly comparison of produced water (finished water from treatment plant) will be compared to the billed amounts. Totalized flows will be tabulated and water use will be audited versus water produced. This will provide a consistent gauge to measure the success of this projects water savings.

5. **Scope of Work**

Remove and replace approximately 3,400 meters, relocate 180 meters into new meter pits, upgrade entire system to AMR with radio read capabilities. The steps involved are:
Task 1 – Bid Installation and Bid Equipment

- Planning & Design (Phil Johnson, City of Cortez)
- Sign contract with Installation Contractor

Task 2 – Purchase Equipment and AMR Software

- Purchase AMR meters
- Accounting Software will be purchased (Phil Johnson, City of Cortez)

Task 3 – Install New Meters & AMR Software

- Existing meters and meter pit lids will be removed by contractor, new AMR meters will be placed into existing pits/meter yokes; lids will be modified to accommodate an antenna with hole drilled in it at this time. (Phil Johnson, City of Cortez).

    - Meters under residences (approximately 180) will be relocated into new meter pits dug in yards of residences by contractor; new meters will be installed into new pits at time of excavation
    - Meter pit lids will be modified with a hole drilled in it to accommodate antenna by contractor and overseen by Phil Johnson, City of Cortez.
    - Antenna and lid will be reinstalled by contractor and overseen by Phil Johnson, City of Cortez
    - AMR Software and Accounting Software will be installed
    - The existing meter locations under homes will be re-plumbed to eliminate old meter yoke under homes by contractor and overseen by Phil Johnson
    - AMR Software training will be completed by meter provider.
    - Accounting Software training will be completed by Accounting Software provider
    - Run through of meter reading and coordination of AMR software and Accounting Software

Task 4 – Project Reporting -

- 50% and 75% completion of installation of meters.
- Final closeout report will be completed

Project Reporting & Time Line (see attached Time Line)

1. 50% Progress Report (Chris Burkett, City of Cortez) & 50% of project completed May 31, 2015 (Phil Johnson, City of Cortez)
2. 75% Progress Report (Chris Burkett, City of Cortez) & 75% of project completed June 20, 2015 (Phil Johnson, City of Cortez)
3. 100% of project completed July 31, 2015 (Phil Johnson, City of Cortez)
4. 100% Progress Report August 31, 2015 (Chris Burkett, City of Cortez)

Steps involved in Project (Steps occur simultaneously within phases above)

All segments of the Steps involved in the project Scope of Work will occur simultaneously once the project is under way. The process will flow in stages and we

expect to see ¼ of the project completed each month until closeout and then the Software Meter Reading and Billing Installation & Training will occur at the completion of the meter installation. See attached Time Line.

6. **Project Budget**

Meters & Equipment – meters, encoders, interface, 6" antenna, cast iron bottom caps, N_Sight R900 AMR components

Item	Qty	Price	Total
5/8 x ¾ T-10	3145	$ 166	$522,070
1" T-10	102	$ 254	$ 25,908
1.5" T-10	25	$ 427	$ 10,675
2" T-10	102	$ 520	$ 53,040
3" T-10	5	$ 1,771	$ 8,855
Trimble Nomad 900LE	1	$ 2,479	$ 2,479
Belt Clip Receiver	1	$ 1,783	$ 1,783
Trimble Nomad charger/cradle	2	$ 345	$ 690
MRX920 Mobile Collector	1	$ 5,875	$ 5,875
N_Sight R900 Software	1	$ 2,300	$ 2,300
MX900 Software – GIS Map	1	$ 1,725	$ 1,725
Training	1	$ 3,450	$ 3,450
Maintenance	1	$ 1,150	$ 1,150
		Sub Total	$640,000

Meter Installation – R900 AMR Components

5/8x3/4 meter w/R900i & antenna	3145	$ 34.26	$107,747
1"meter w/R900i & antenna	102	$ 34.26	$ 3,494
1.5" meter w/R900i & antenna	25	$ 85.00	$ 2,125
2" meter wR900i & antenna	102	$ 85.00	$ 8,670
3" meter wR900i & antenna	5	$ 85.60	$ 428
Holes cut in exist lids	3442	$ 8.00	$ 27,536
		Sub Total	$150,000

Meter Relocation – Removal of old meter, construction of new meter pit & installation of meter, encoders, interface, 6" antenna, cast iron bottom cap

Meter & Pit Installation	180	$1333.33	$240,000
Old meter removal	180	$ 666.67	$120,000
		Sub Total	$360,000

Billing Software for Finance to match R900 AMR software for City of Cortez HTE Financial Package

Billing Software	1	$50,000	$ 50,000
		Sub Total	$ 50,000
		Total	$1,200,000

The City of Cortez looks forward to working with CWCB to complete the Cortez Water Meter Upgrade and Replacement Project in 2015. This is a project that has been several years in the development and planning process. Not only will the project benefit the City of Cortez Water Department but also the Citizens that it serves. Accurate and timely meter reading is a major component and benefit that will come out of the project. It will also provide operational savings that benefit the community. Should you have any additional questions or need additional information, please feel free to contact me at your convenience.

Sincerely,

Shane Hale
City Manager

Cortez Water Meter Upgrade & Replacement Project Budget

			Cortez In-Kind				
	Equipment	**Labor (Contractor)**	**Cortez In-Kind/Cash**	**CWCB Loan**	**DOLA Grant**	**CWCB Grant Request**	**Total Project Cost**
TASKS	Total	Labor Cost					
1- Bid Installation & Equipment							
2 - Purchase Equipment/Software							
a. Meter Equipment	$ 640,000		$ 85,000	$ 305,000	$ 200,000	$50,000	
b. AMR Billing Software	$ 50,000		$ 50,000				
Subtotal Task 2	**$ 690,000**		**$ 135,000**		**$ 200,000**	**$50,000**	
3 - Install New Meters & AMR Software/Relocate Meters							
a. Meter Installation		$150,000	$ 165,000	$ 270,000			
b. Meter Relocation				$ 75,000			
Old Meter Removal		$120,000					
Meter and Pit Installation		$240,000					
Subtotal Task 3		**$ 510,000**	**$ 165,000**		**$ -**	**$ -**	
4 - Reporting							
Progress Report			6 hrs				
Final Report			5 hrs				
Subtotal Task 4	**$ -**		11 hrs		**$0**	**$0**	
	$ 690,000	$ 510,000	$ 300,000	$ 650,000	$ 200,000	$ 50,000	$ 1,200,000

Task 2- Detail

Metering Equipment & Software

Quantity	Item	Price	Total
3,145	5/8 x 3/4 T-10	$166	$ 522,070
102	1" T-10	$254	$ 25,908
25	1.5" T-10	$427	$ 10,675
102	2" T-10	$520	$ 53,040
5	3" T-10	$1,771	$ 8,855
1	Trimble Nomad 900LE	$2,479	$ 2,479
1	Belt Chip Receiver	$1,783	$ 1,783
2	Trimble Nomad charger/c	$345	$ 690
1	MRX920 Mobile Collector	$5,875	$ 5,875
1	N_Sight R900 Software	$2,300	$ 2,300
1	MX900 Software - GIS Ma	$1,725	$ 1,725
1	Training	$3,450	$ 3,450
1	Maintenance	$1,150	$ 1,150
1	AMR Software		$ 50,000
Total			**$ 690,000**

Task 3-Detail

New Meter Installation and Relocation

Quantity	Item	Price	Total
3145	5/8 X 3/4 meter w/ R900i & antenna	$34.26	$ 107,747
102		$34.26	$ 3,494
25		$85	$ 2,125
102		$85	$ 8,670
5		$85.60	$ 428
3442		$8	$ 27,536
Total			**$ 150,000**

Cortez Water Meter Upgrade & Replacement Project Timeline

See Page 5 of Grant Application for program breakdown & Task #

Steps	$ allocated	Nov	Dec	Jan-15	Feb	Mar	April	Fund	May	Fund	June	Fund	July	Fund	August	Fund
Planning & Design Finalized		1														
Grant & Loan Application		2	2													
Grant & Loan Approval				3												
Meter Bids Out					4											
Meter Bids Accept						5										
Project Start Date April 1																
Meters & Equip Task 2	$ 160,000						$ 50,000	CWCB Grant								
Meters & Equip Task 2							$ 110,000	DOLA								
Meter Installation Task 4	$ 90,000						$ 90,000	City Match								
Meter Relocation Task 4	$ 37,500						$ 37,500	City Match								
Project Progress April 30							5(a thru g)									
Meters & Equip Task 2	$ 160,000								$ 90,000	DOLA						
Meters & Equip TAsk 2									$ 70,000	City Match						
Meter Installation Task 4	$ 90,000								$ 90,000	CWCB Loan						
Meter Relocation Task 4	$ 37,500								$ 37,500	City Match						
50% Progress Report May 31									6(a thru g)							
Meters & Equip Task 2	$ 160,000										$ 15,000	City Match				
Meters & Equip Task 2											$ 145,000	CWCB Loan				
Meter Installation Task 4	$ 90,000										$ 90,000	CWCB Loan				
Meter Relocation Task 4	$ 37,500										$ 37,500	CWCB Loan				
75% progress Report June 30											7(a thru g)					
Meters & Equip Task 2	$ 160,000												$ 160,000	CWCB Loan		
Meter Installation Task 4	$ 90,000												$ 90,000	CWCB Loan		
Meter Relocation Task 4	$ 37,500												$ 37,500	CWCB Loan		
Meter Billiing Software Task 5	$ 50,000												$ 50,000	City Match		
Project Close Date July 31													8(a thru i)			
100% Progress Report Aug 31																9

Grant Fund Breakdown

CWCB - CWCB Grant	$ 50,000	All for purchase of equipment
DOLA - DOLA Grant	$ 200,000	All for purchase of equipment
City - City of Cortez Match	$ 300,000	Total
	$ 85,000	For purchase of eqipment
	$ 165,000	For construction installation and relocation
	$ 50,000	For purchase of Billing Software
CWCBL - CWCB Loan	$ 650,000	Total
	$ 305,000	For construction installation and relocation
	$ 345,000	For construction installation and relocation

Project Breakdown Costs

Meters & Equipment	$ 640,000
Meter Installaton	$ 360,000
Meter Relocation	$ 150,000
Meter Billing Software	$ 50,000