



Colorado Water Conservation Board

Water Supply Reserve Fund

Water Project Summary

Name of Applicant	Consolidated Mutual Water Co	
Name of Water Project	Lena Gulch Water Quality Monitoring Program	
Basin Account Request Subtotal		\$99,999.00
Applicant Cash Match		\$30,000.00
Applicant In-Kind Match		\$15,000.00
Basin Requests		
<i>North Platte</i>		\$99,999.00
Sources of Funding		

Grant Details

Water Project Justification

Project Description:

The Water Quality Monitoring Program will assist CMWC in better understanding the raw water quality within their Maple Grove reservoir facility. Because of historic water management in the region as well as significant population growth and urbanization over the past 50 years, water quality has deteriorated in the Lena Gulch basin. This significantly impacts the community CMWC serves, including several existing (and under-development) low-income housing communities. The project will entail the development of a water quality monitoring program that will allow water quality challenges to be identified and solutions to be installed. The program will include the purchase of the appropriate equipment as well as the planning of the program for on-the-ground implementation.

Our primary goal is to generate the necessary data to inform sound decision-making for raw water system improvements and the development of new operating plans. Collecting numeric data on water quality will contribute to a quantitative assessment of the costs and benefits of treating other raw water sources and the modification and expansion of the raw water system. We foresee that a raw water quality monitoring system has the potential to improve raw water operations in a way that positively impacts lake health, customer satisfaction, and reduces water treatment costs. Some benefits of monitoring will take time to develop, whereas others may immediately impact decision-making under challenging treatment conditions like those observed in 2023 following large rainstorms.

Which Basin priorities does the project address?

The program would address the following goals Metro/South Platte Basin goals:

- Encourage implementation of Projects: This work would get the water quality program established which is the first step to greater systemwide improvements on CMWC system.
- Maximize Development of Native Supplies: The water quality program is the first step needed to evaluate system upgrades including storage capacity of native supplies in existing facilities within the Metro basin.
- Protect and enhance watershed function: Identify sources of water quality impacts and address these in an efficient and holistic manner while measuring and avoiding adverse effects on aquatic ecosystem from water pollution. This work will allow for the development of innovative strategies to improve water quality in impaired

areas downstream.

- Protect and enhance environmental attributes by studying and applying methods to improve general river health as well as water quality related to temperature and other pollutants.

Applicant & Grantee Information

Name of Grantee: Consolidated Mutual Water Co
Mailing Address: 12700 W 27th Ave Lakewood Colorado 80215
FEIN: 840,177,040

Organization Contact: Jarod Roberts
Position/Title: _____ Email: jroberts@cmwc.net
Phone: (303) 238-0451

Organization Contact - Alternate: Raj Jerath
Position/Title: CFO Email: rjerath@cmwc.net
Phone: 303.274.7415

Agency Information

Agency Type	Other
Current Assessment	
Number of Shareholders or Customers	100,000
Number of Shares	
Number of Taps	
Average Monthly Water Bill	
Annual Water Delivery (acre-feet)	11,740

Description of Grantee/Applicant

The Consolidated Mutual Water Company is a private (non-profit) water utility serving communities in the western suburbs of the Denver Metro area. We are seeking loan and/or grant funding for a plethora of water resource and infrastructure related projects.

Location of Water Project

Latitude	39.752178
Longitude	-105.138408
Lat Long Flag	Reservoir location: Coordinates based on location of reservoir
Water Source	Maple Grove Reservoir; Lena Gulch
Basins	Metro
Counties	Jefferson
Districts	80-North Fork of South Platte

Water Project Overview

Major Water Use Type	Municipal
Type of Water Project	Planning
Scheduled Start Date - Design	7/1/2024
Scheduled Start Date - Construction	
Description	

The Water Quality Monitoring Program will assist CMWC in better understanding the raw water quality within their Maple Grove reservoir facility. Because of historic water management in the region as well as significant

population growth and urbanization over the past 50 years, water quality has deteriorated in the Lena Gulch basin. This significantly impacts the community CMWC serves, including several existing (and under-development) low-income housing communities. The project will entail the development of a water quality monitoring program that will allow water quality challenges to be identified and solutions to be installed. The program will include the purchase of the appropriate equipment as well as the planning of the program for on-the-ground implementation.

The addresses the following Basin goals:

- Encourage implementation of Projects: Project is the first step to greater improvements on CMWC system.
- Maximize Development of Native Supplies: First step needed to evaluate system upgrades including increased native water storage on existing facilities.
- Protect and enhance watershed function: Identify sources of water quality impacts and address these in an efficient and holistic manner.
- Protect and enhance environmental attributes by studying and applying methods to improve general river health as well as water quality.

Measurable Results

11,740	<p>New Storage Created (acre-feet)</p> <p>New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive</p> <p>Existing Storage Preserved or Enhanced (acre-feet)</p> <p>New Storage Created (acre-feet)</p> <p>Length of Stream Restored or Protected (linear feet)</p> <p>Length of Pipe, Canal Built or Improved (linear feet)</p> <p>Efficiency Savings (dollars/year)</p> <p>Efficiency Savings (acre-feet/year)</p> <p>Area of Restored or Preserved Habitat (acres)</p> <p>Quantity of Water Shared through Alternative Transfer Mechanisms or water sharing agreement (acre-feet)</p>
100,000	<p>Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning</p> <p>Number of Coloradans Impacted by Engagement Activity</p>
Other	<p>Improved taste and smell of water for community served including low income clients; identification of poor water quality sources that may be addressed to improve downstream aquatic habitats for fish and invertebrates.</p>



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Colorado Water Conservation Board	
Water Supply Reserve Fund	
<u>Exhibit A - Statement of Work</u>	
Date:	10/20/23
Water Activity Name:	Lena Gulch Water Quality Monitoring Program
Grant Recipient:	Consolidated Mutual Water Company
Funding Source:	Metro Roundtable
Water Activity Overview: (Please provide brief description of the proposed water activity (no more than 200 words). Include a description of the overall water activity and specifically what the WSRF funding will be used for. (PLEASE DEFINE ALL ACRONYMS).)	
<p>The Water Quality Monitoring Program will assist Consolidated Mutual Water Company (CMWC) in better understanding the raw water quality within their Maple Grove reservoir facility. Because of historic water management in the region as well as significant population growth and urbanization over the past 50 years, water quality has deteriorated in the Lena Gulch basin. This significantly impacts the community CMWC serves, including several existing (and under-development) low-income housing communities. The project will entail the development of a water quality monitoring program that will allow water quality challenges to be identified and solutions to be installed. The program will include the purchase of the appropriate equipment as well as the planning of the program for on-the-ground implementation.</p> <p>The addresses the following Basin goals:</p> <ul style="list-style-type: none"> • Encourage implementation of Projects: Project is the first step to greater improvements on CMWC system. • Maximize Development of Native Supplies: First step needed to evaluate system upgrades including increased native water storage on existing facilities. • Protect and enhance watershed function: Identify sources of water quality impacts and address these in an efficient and holistic manner. • Protect and enhance environmental attributes by studying and applying methods to improve general river health as well as water quality. 	
Objectives: (List the objectives of the project. (PLEASE DEFINE ACRONYMS).)	



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Tasks
Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)
<u>Task 1 - Program Plan Development</u>
Description of Task: This task will include research into which techniques and machinery will be most effective at collecting and analyzing water quality. This information will feed into the development of a program plan for equipment acquisition, installation, and thresholds at which new measures must be implemented to improve water quality in the Lean Basin system.
Method/Procedure:



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Tasks	
	Review online resources and institutional knowledge to identify best equipment and thresholds.
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)	
	Finalized list of equipment selected for installation, costs, and associated install schedule.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)	
	n/a. Deliverable will be wrapped into final technical document.,

Tasks	
Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)	
<u>Task 2 – Equipment Purchase and Installation</u>	
Description of Task:	
	Task will include the ordering of all equipment and installation thereof per the plan developed in Task 1.
Method/Procedure:	



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Tasks	
	Online ordering and installation by equipment company and/or CMWC staff. Training on equipment use and accurate data collection and material handling will be incorporated into this task as well as machine calibration.
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)	All equipment installed and producing desired data.
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)	n/a. Deliverable will be wrapped into final technical document.,

Tasks	
	Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)
<u>Task 3 – Monitoring Program Implementation</u>	
Description of Task:	Task will include initial data collection and processing of water quality data to begin to understand water quality constraints and effective alternatives treatment. Task will also entail the development of a technical report for CWCB and report out to the Metro RT.
Method/Procedure:	



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Tasks	
Review collected data for accuracy and development of alternatives.	
Grantee Deliverable: (Describe the deliverable the grantee expects from this task)	
Data collected and processed.	
CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)	
Technical memo development for delivery to CWCB and Metro Roundtable detailing equipment purchased, showing installation points and decision-making process for equipment selection and installation areas, and initial data obtained. CMWC will also present at the next most appropriate Metro Roundtable to provide a brief overview of the technical memo and next steps.	

Budget and Schedule
Exhibit B - Budget and Schedule: This Statement of Work shall be accompanied by a combined Budget and Schedule that reflects the Tasks identified in the Statement of Work and shall be submitted to CWCB in <u>excel format</u> . A separate <u>excel formatted</u> Budget is required for engineering costs to include rate and unit costs.

Reporting Requirements
Progress Reports: The grantee shall provide the CWCB a progress report every 6 months, beginning from the date of issuance of a purchase order, or the execution of a contract. The progress report shall describe the status of the tasks identified in the statement of work, including a description of any major issues that have occurred and any corrective action taken to address these issues. The CWCB may withhold reimbursement until satisfactory progress reports have been submitted.
Final Report: At completion of the project, the grantee shall provide the CWCB a Final Report on the grantee's letterhead that: <ul style="list-style-type: none">• Summarizes the project and how the project was completed.• Describes any obstacles encountered, and how these obstacles were overcome.• Confirms that all matching commitments have been fulfilled.• Includes photographs, summaries of meetings and engineering reports/designs.

Payments



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Reporting Requirements

Payment will be made based on actual expenditures, must include invoices for all work completed and must be on grantee's letterhead. The request for payment must include a description of the work accomplished by task, an estimate of the percent completion for individual tasks and the entire Project in relation to the percentage of budget spent, identification of any major issues, and proposed or implemented corrective actions.

The CWCB will pay the last 10% of the entire water activity budget when 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 water activity and purchase order or contract will be closed without any further payment. Any entity that fails to complete a satisfactory Final Report and submit to CWCB within 90 days of the expiration of a purchase order or contract may be denied consideration for future funding of any type from CWCB.

Performance Requirements

Performance measures for this contract shall include the following:

(a) Performance standards and evaluation: Grantee will produce detailed deliverables for each task as specified. Grantee shall maintain receipts for all project expenses and documentation of the minimum in-kind contributions (if applicable) per the budget in Exhibit B. Per Grant Guidelines, the CWCB will pay out the last 10% of the budget when the final deliverable is completed to the satisfaction of CWCB staff. Once the final deliverable has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.

(b) Accountability: Per the Grant Guidelines full documentation of project progress must be submitted with each invoice for reimbursement. Grantee must confirm that all grant conditions have been complied with on each invoice. In addition, per the Grant Guidelines, Progress Reports must be submitted at least once every 6 months. A Final Report must be submitted and approved before final project payment.

(c) Monitoring Requirements: Grantee is responsible for ongoing monitoring of project progress per Exhibit A. Progress shall be detailed in each invoice and in each Progress Report, as detailed above. Additional inspections or field consultations will be arranged as may be necessary.

(d) Noncompliance Resolution: Payment will be withheld if grantee is not current on all grant conditions. Flagrant disregard for grant conditions will result in a stop work order and cancellation of the Grant Agreement.

NOTE TO APPLICANTS: Below are two "detailed budget" examples. Detailed budgets will vary between all projects, so these examples can be used as a helpful guide



**Colorado Water Conservation Board
Detailed Budget Estimate**

Date: **10/20/2023**
 Water Activity Name: **Lena Gulch Water Quality Monitoring Program**
 Grantee Name: **Consolidated Mutual Water District**

EXAMPLE A: Coordination

Item	Hourly Rate	# Hours	Subtotal	Item Cost	Item Quantity	Subtotal	Total	CWCB Funds	Other Matching Funds
Task 1 -Program Plan Development									
Internal Coordination	\$ 60.00	\$ 166.67	\$ 10,000.00	\$ -	\$ -	\$ -	\$ 10,000.00	\$ -	\$ 10,000.00
Task 2 -Equipment Purchase and Installation									
Equipment Purchase*			\$ -	\$ 108,000.00	1.00	\$ 108,000.00	\$ 108,000.00	\$ 100,000.00	\$ 8,000.00
Equipment Installation	\$ 60.00	200	\$ 12,000.00	\$ -	\$ -	\$ -	\$ 12,000.00	\$ -	\$ 12,000.00
Task 3 - Monitoring & Program Implementation									
Initial data collection	\$ 60.00	167	\$ 10,020.00	\$ -	\$ -	\$ -	\$ 10,020.00	0	\$ 10,020.00
Grant reporting	\$ 60.00	\$ 83.00	\$ 4,980.00	\$ -	\$ -	\$ -	\$ 4,980.00	0	\$ 4,980.00
TOTAL							\$ 145,000.00	\$ 100,000.00	\$ 45,000.00

*see attached equipment line item budget

Line Item Equipment Budget (Anticipated):

#	Part Number	Description	List Price USD	Qty	Ext. Price USD
1	202341	Pontoon Platform, 6x12-ft	\$12,289.00	1	\$12,289.00
2	200102	Profiler Power Assy	\$1,685.00	1	\$1,685.00
3	200140	T-Frame Assembly	\$11,978.00	1	\$11,978.00
4	006980	6980 - Winch Controller, PVC CR1000 version	\$14,715.00	1	\$14,715.00
5	200104	6960 Depth Sounder Option (For NEW Pontoon Profilers ONLY)	\$3,480.00	1	\$3,480.00
6	300510255	Radar Reflector	\$510.00	1	\$510.00 *
7	351060	EXO Link Adapter 2.0, EXO LINK 2.0 for PROFILER, 6 SERIES CONVERSION ASSEMBLY	\$2,185.00	1	\$2,185.00
8	202141	Pallet, Wood (Pontoon)	\$769.00	1	\$769.00
9	202146	Crate, Wood (Profiler T-Frame)	\$399.00	1	\$399.00
10	669501	6955 - Vertical Profiler Winch Assy, 50M	\$15,666.00	1	\$15,666.00
11	669553	6691 Profiler Cable, Non Vented, 50M	\$1,325.00	1	\$1,325.00
12	669683	6976 - YSI Profile Wizard Software	\$137.00	1	\$137.00
13	HYP-SW-TERM-ISS-VIPER-BASIC	HYPACK VIPer - Visualization Profiler Software package for display of environmental data	\$680.00	1	\$680.00 *
14	5601100-00	RV50X Sierra Wireless Airlink Modem	\$1,065.00	1	\$1,065.00
15	202016	EMM Buoy Antenna Assembly	\$3,037.00	1	\$3,037.00
16	SIM911050-02	YSI SIM card/Customer Activation and Product Installation	\$16.00	1	\$16.00
17	203242	2 Way Cellular Communications, 12 Months, NEW	\$588.00	1	\$588.00
18	300510585	Anchor, 70 LB, Pyramid, DOR-MOR	\$440.00	2	\$880.00 *
19	910053-000	Mooring System, common materials for Pontoon Profiler, quantity of 2 is for dual point mooring. Includes bridle, A1 float assembly, shackles, and chain. Nylon rope quoted separately depending on deployment depth. Does not include dead weight.	\$1,273.00	2	\$2,546.00
20	200553-125	Mooring Line, Rope Assembly, 5/8" Nylon, with thimbles, 125 feet	\$322.00	2	\$644.00
				Subtotal Without Options	\$72,524.00

* The optional items are not included in Grand Total calculations below.

Basic All In One buoy for EXO Sonde

The following items have been grouped together.

#	Part Number	Description	List Price USD	Qty	Ext. Price USD
1	351197-50	DB600 buoy with Ai1 system Includes: -Verizon 4G modem -3 x 9 Watt Solar Panels and 8ah battery -Integrated GPS -EXO RS-485 Adapter -EXO Bulkhead Connector -1m EXO Field Cable -2nm Navigation beacon -1m mooring chain and shackle -Base programming for EXO and/or DCS	\$13,052.00	1	\$13,052.00
2	203700	HydroSphere Cloud based data hosting and visualization platform. Includes: Alarms, data exports, public website, scalable user roles, and more. Monthly service fee for new accounts.	\$9.99	12	\$119.88
3	203242	2 Way Cellular Communications, 12 Months, NEW	\$588.00	1	\$588.00
4	SpecSingleMoor	Single point mooring kit (deadweight not included), chain, swivel, shackles, and mooring line. Max Operational Depth 25 meters.	\$1,087.00	1	\$1,087.00
5	SIM911050-02	YSI SIM card/Customer Activation and Product Installation.YSI supplied, unactivated Verizon SIM card. SIM card will be shipped with system uninstalled. Customer to activate SIM card upon receipt of goods, activate with local provider, and install in modem. Factory testing of complete system will be performed at YSI with a known, good SIM card prior to shipment.	\$16.00	1	\$16.00
				Subtotal	\$14,862.88

EXO2 Sonde with common sensors

The following items have been grouped together.

#	Part Number	Description	List Price	Qty	Ext. Price
1	599502-00	EXO2 Sonde, No Depth, 6 Sensor Ports, 1 Wiper Port <ul style="list-style-type: none"> - No depth sensor installed - AUX port for future expansion - Contains: Sonde, 4 'D' Batteries, Calibration Cup, Tool Kit, 4 port plugs, USB drive loaded with User Manual and KOR Software 	\$6,635.00	1	\$6,635.00

#	Part Number	Description	List Price	Qty	Ext. Price
2	599827	<p>EXO Wiped Conductivity/Temperature Sensor</p> <ul style="list-style-type: none"> - Purpose-built for combating sensor fouling in long-term monitoring applications - Designed and engineered for compatibility with EXO2 Sonde's Central Wiper - Additional Central Wiper Brush and Spacing Kit included 	\$1,785.00	1	\$1,785.00
3	577602	<p>EXO ISE02 pH Sensor Assembly, Unguarded, Ti</p> <ul style="list-style-type: none"> - Patented user replaceable sensor head - Incorporates wet-mate connector and welded titanium housing 	\$600.00	1	\$600.00
4	599100-01	<p>EXO Optical DO Sensor, Ti</p> <ul style="list-style-type: none"> - Compatible with any EXO sonde - User replaceable sensor cap (installed) - Incorporates wet-mate connector and welded titanium housing 	\$2,100.00	1	\$2,100.00
5	599101-01	<p>EXO Turbidity Sensor, Ti</p> <ul style="list-style-type: none"> - Compatible with any EXO sonde - Wide range Sensor reads from 0-4000 FNU - Incorporates wet-mate connector and welded titanium housing 	\$1,950.00	1	\$1,950.00
6	599102-01	<p>EXO Total Algae - PC Sensor, Ti</p> <ul style="list-style-type: none"> - Optimized for freshwater use - Phycocyanin - Includes chlorophyll and blue green algae sensors in a single Sensor - Incorporates wet-mate connector and sealed welded titanium design 	\$3,675.00	1	\$3,675.00

#	Part Number	Description	List Price	Qty	Ext. Price
7	599090-01	EXO Central Wiper, EXO2, EXO3, Ti - Installs in center wiper port on EXO 2 and EXO 3 only - Includes 2 wiper brushes and installation tool - Used in unattended monitoring deployments to reduce biofouling	\$1,320.00	1	\$1,320.00
8	599810	EXO Signal Output Adapter - USB - Allows connections between EXO sonde and a PC	\$445.00	1	\$445.00
9	060907	3167 Conductivity Calibrator, 1,000-umhos/cm (8 ea, pint)	\$150.00	1	\$150.00
10	603824	3824 pH Buffer, Assorted Case	\$93.00	1	\$93.00
11	608000	6080 Turbidity Std. 0 NTU (6026 and 6136), 1 Gallon	\$185.00	1	\$185.00
12	607300	Turbidity Standard 100NTU, 126NTU (6136), 124NTU (ProDSS/ EXO)	\$385.00	1	\$385.00
13	599667	EXO2 Guard Assembly Kit - Bottom plate #599354 - Standard polymer material - Guard tube #599309	\$100.00	1	\$100.00
14	599564	EXO2 Anti Fouling Guard Sensor Guard designed with copper alloy to inhibit growth and extend deployment time	\$1,015.00	1	\$1,015.00
				Subtotal	\$20,438.00