



To: Kevin Reidy, Water Conservation Technical Specialist
Colorado Water Conservation Board
From: Tom Cech, Director
One World One Water Center, MSU Denver
Date: March 23, 2016

RE: Grant Application - Colorado Water Collaboratory

Dear Kevin,

Thank you for allowing us to submit this proposal to begin work on the Colorado Water Collaboratory – a partnership between Colorado Mesa University & the City of Grand Junction, the University of Colorado – Boulder & the City of Boulder, and the One World One Water Center at MSU Denver & Denver Water. The purpose of this effort is to utilize the three university campuses as living laboratories for water conservation for new technology testing, public awareness assessment and behavioral change.

Background

The One World One Water (OWOW) Center at Metropolitan State University (MSU) Denver is the grant applicant for this Project, and will also be the fiscal agent. Funds would be distributed to the OWOW Center's account at the MSU Denver Foundation, Inc. which is recognized as a 501(c)(3) tax-exempt organization under the Internal Revenue Code, and classified as a public charity as described in Section 170(b)(1)(A)(vi).

The OWOW Center has three major functions:

- 1) Offer an interdisciplinary Water Studies minor to complement a wide variety of majors;
- 2) Provide enriching co-curricular activities; and
- 3) Enhance water stewardship on and beyond the Auraria Campus by promoting effective use of water resources.

The primary contact person at MSU Denver is Tom Cech, Director of the OWOW Center, MSU Denver, 1045-9th Street Park, Denver, Colorado 80217, tcech@msudenver.edu, 303.352.7400.

Goals of the Project

This Collaboratory differs from a conventional big research effort in that its focus is on the campus itself as a laboratory for innovating and understanding better ways to manage water resources. To this end, the research efforts of the Collaboratory will be the summation of many small activities, projects, and studies that look at the Home Campus as a Living Laboratory, using the scale and scope of what they offer, to measure innovation, best practices, and human behavior. In addition, the Colorado Collaboratory will serve as a catalyst for a broader sharing of research and information related to understanding water use and conservation. This research can be used by other universities/colleges and water providers across the state to augment their own demand management efforts.

Outcomes will include:

- Greater awareness of the need for water use efficiency
- Identification of potential urban water use efficiency practices (particularly outdoor)
- Improved water use efficiency practices at the three universities
- Technology/information transfer from the three university campuses to individual homes of students, faculty and staff.
- Increased interest in students, faculty and staff to adopt improved water use efficiency practices on campus and at home.

The Project will promote the benefits of water resource conservation through improved information related to current water use practices on the three university campuses. In addition, the surveys will provide a base level of information regarding student, faculty and staff knowledge and attitudes toward water use efficiency. This Project will demonstrate the current status and potential benefits of water use efficiency – a goal of the CWCB – on the three university campuses.

Phase 2 will expand the work of Phase 1 to implement water use efficiency practices both on the three university campuses as well as 3-4 additional college/university campuses, as well as at the homes of students, faculty and staff. Outreach would also begin with the local water providers to include non-university water users.

Scope of Work

Phase 1:

1. Baseline Data

1.1 - Determine monthly on-campus water use (both indoor and outdoor)

- * Tom Cech & Nona Shipman (MSU Denver) – 20 hours
- * Hannah Holm (CMU) – 20 hours
- * Paul Lander (CU-Boulder) – 20 hours
- * Completion date: October 2016

2.0 Create & Conduct Survey to Assess Water Conservation Attitudes on Campuses

2.1 – Create Survey

- * Tom Cech/Nona Shipman & Dr. Nicole Vowles (MSU Denver) – 10 hours
- * Hannah Holm & CMU faculty – 10 hours
- * Paul Lander & CU-Boulder faculty – 10 hours
- * Completion date: September 2016

2.2 – Conduct Survey (we anticipate contacting 50-100 individuals on each campus)

- * Dr. Nicole Vowles (MSU Denver) – 10 hours
- * Hannah Holm & CMU faculty – 10 hours
- * Paul Lander & CU-Boulder faculty – 10 hours
- * Completion date: December 2016

2.3 – Analyze Survey Data

- * Dr. Nicole Vowles (MSU Denver) – 5 hours
- * Hannah Holm & CMU faculty – 5 hours
- * Paul Lander & CU-Boulder faculty – 5 hours
- * Completion date: January 2017

3.0 Assess Water Reduction Techniques at other University Campuses in the U.S.

- * Tom Cech & Nona Shipman (MSU Denver) – 20 hours
- * Hannah Holm (CMU) – 15.6 hours
- * Paul Lander (CU-Boulder) – 15.6 hours
- * In-Kind Match, student research – 20 hours
- * Completion date: December 2016

4.0 Assess How Other University Campuses Are Measuring/Monitoring Campus Water Use

- * Tom Cech & Nona Shipman (MSU Denver) – 15 hours
- * Hannah Holm (CMU) – 13.3 hours
- * Paul Lander (CU-Boulder) – 13.3 hours
- * Completion date: January 2017

5.0 Conduct Preliminary Analysis of Meter/Data Loggers That Could Be Used

- * Paul Lander (CU-Boulder) – 25 hours
- * Tom Cech (MSU Denver) – 6 hours
- * Completion date: November 2016

6.0 Develop Future Research and Water Use Needs

- * Tom Cech & Nona Shipman (MSU Denver) – 8 hours
- * Hannah Holm (CMU) – 8 hours
- * Paul Lander (CU-Boulder) – 8 hours
- * Completion date: January 2017

7.0 Begin Preliminary Assessment of How Best to Include Campus Facilities Employees

- * Tom Cech & Nona Shipman (MSU Denver) – 8 hours
- * Hannah Holm (CMU) – 8 hours
- * Paul Lander (CU-Boulder) – 8 hours
- * Completion date: November 2016

8.0 Grant Administrative Costs

- * Ongoing

9.0 Write Final Report for Phase 1

- * Tom Cech & Nona Shipman (MSU Denver) – 23 hours
- * Hannah Holm (CMU) – 3 hours
- * Paul Lander (CU-Boulder) – 3 hours
- * Completion date: April 2017

Phase 2:

- * Students develop campus water conservation strategies for implementation (include campus sustainability groups), and may include social media and other communication methods.
- * Metering installation begins to determine campus outdoor and indoor use
- * Directly involve the water providers of the three initial universities
- * Develop demographic trends of campus community
- * Develop a National Science Foundation Grant, perhaps with the Denver Botanic Gardens

- * Expand the program with other universities to begin with Phase 1 work. We would explore including Adams State University, Colorado State University – Pueblo, Western State Colorado University, and Fort Lewis College.
- * Provide community reports (to local water utilities and other organizations) to share best practices with the general public
- * Conduct a survey to assess changing water conservation behavioral change
- * Final Report for Phase 2

Phase 3:

- * Water/Energy Nexus – Retrace work in Phases 1-2, but with an energy savings emphasis
- * This work would begin with MSU Denver, Colorado Mesa, and CU-Boulder, but would later expand to other colleges and universities in the state

Time Line

Phase 1 will begin after funding is received, and will last for 12 months

Phase 2 would begin after Phase 1 is completed, and will last 12 months

Phase 3 would begin after both Phase 1 and 2 are completed, and would last 18 months.

**Phases 2 and 3 will occur later, and are not included in this grant request.*

Final Reports

A final report will be written after the completion of each Phase of work.

Support Letters

To be provided

Individuals Involved in the Project

Metropolitan State University of Denver

- Tom Cech, Director, One World One Water Center, Project Manager
- Nona Shipman, Manager, One World One Water Center, Project Assistant
- Elizabeth Swanson, Auraria Higher Education Corporation, Project Cooperator
- Dr. Nicole Vowles, Professor, Department of Marketing, Survey Work

Colorado Mesa University

- Hannah Holm, Director, Hutchins Water Center, Co-Project Manager
- Dr. Gigi Richard, Faculty Director, Hutchins Water Center, Co-Project Manager

University of Colorado – Boulder

- Paul Lander, Instructor, Department of Geography, Co-Project Manager

Other

A common data base of information will be kept at the OWOW Center at MSU Denver.

Project Budget

See Attached.

Deliverables

Progress Report @ 50% completion point – October, 2016

Progress Report @ 75% completion point – January, 2017

A final Phase 1 Report will be written after the completion of the work, anticipated to be April 30, 2017.

Task	Staff	In-Kind/Cash Match	CWCB Grant Request	TOTAL
1- Baseline Data				
1.1 - Determine monthly on-campus water use (both indoor and outdoor)	Tom Cech & Nona Shipman (MSU Denver) - 20 hours at			\$ 4,320.00
	Hannah Holm (CMU) - 20 hours at \$41/Hour	\$ 500.00	\$ 1,000.00	
	Paul Lander (CU) - 20 hours at \$100/Hour		\$ 820.00	
		\$ 1,000.00	\$ 1,000.00	
2 - Create & Conduct Survey to Assess Baseline Water Conservation Attitudes on Campuses				
2.1 - Create Survey	Faculty/Staff (MSU Denver) - 10 hours at \$100/Hour	\$ 500.00	\$ 500.00	\$ 2,705.00
	Faculty/Staff (CMU) - 5 hours at \$100/Hour & 5 hrs @ \$41/hr		\$ 705.00	
	Faculty/Staff (CU) - 10 hours at \$100/Hour	\$ 500.00	\$ 500.00	
2.2 - Conduct Survey	Faculty/Staff (MSU Denver) - 10 hours at \$75/Hour	\$ 250.00	\$ 500.00	\$ 2,455.00
	Faculty/Staff (CMU) - 5 hours at \$100/Hour & 5 hrs @ \$41/hour		\$ 705.00	
	Faculty/Staff (CU) - 10 hours at \$100/Hour	\$ 500.00	\$ 500.00	
2.3 - Analyze Survey	Faculty (MSU Denver) - 5 hours at \$100/Hour		\$ 500.00	\$ 1,705.00
	Faculty/Staff (CMU) - 5 hours at \$100/Hour & 5 hrs @ \$41/hour		\$ 705.00	
	Faculty (CU) - 5 hours at \$100/Hour		\$ 500.00	
3 - Assess Water Reduction Techniques at Other University Campuses				
	Tom Cech & Nona Shipman - 20 hours at \$75/Hour	\$ 330.00	\$ 1,170.00	\$ 4,120.00
	Hannah Holm (CMU) - 20 hours at \$41/Hour		\$ 820.00	
	Paul Lander (CU) - 15 hours at \$100/Hour	\$ 330.00	\$ 1,170.00	
	In-Kind Match, Student Research - 20 hours at \$15/Hour	\$ 300.00		
4 - Assess How Other University Campuses are Measuring/Monitoring Campus Water Use				
	Tom Cech & Nona Shipman - 15 hours at \$75/Hour	\$ 125.00	\$ 1,000.00	\$ 3,240.00
	Hannah Holm (CMU) - 15 hours at \$41/Hour		\$ 615.00	
	Paul Lander (CU) - 15 hours at \$100/Hour	\$ 500.00	\$ 1,000.00	
5 - Conduct Preliminary Analysis of Meters/Data Loggers that Could be Used to Provide Better Indoor/Outdoor Data				
	Paul Lander (CU) - 25 hours at \$100/Hour	\$ 500.00	\$ 2,000.00	\$ 3,100.00
	Tom Cech (MSU Denver) 6 hours at \$100/Hour		\$ 600.00	
6 - Develop Future Research and Water Use				
	Gigi Richard (CMU) - 10 hours at \$53/Hour		\$ 530.00	\$ 1,880.00
	Paul Lander (CU) - 6 hours at \$100/Hour	\$ 100.00	\$ 500.00	
	Tom Cech & Nona Shipman (MSU Denver) - 10 hours at	\$ 250.00	\$ 500.00	
7 - Begin Preliminary Assessment of How Best to Include Campus Facilities Employees				
	Hannah Holm (CMU) - 8 hours at \$41/Hour		\$ 328.00	\$ 1,728.00
	Paul Lander (CU) - 8 hours at \$100/Hour	\$ 300.00	\$ 500.00	
	Tom Cech & Nona Shipman (MSU Denver) - 8 hours at \$75/Hour	\$ 100.00	\$ 500.00	
8 - Grant Administrative Costs				
	Tom Cech (MSU Denver) - 35 hours at \$100/Hour	\$ 1,500.00	\$ 2,000.00	\$ 5,356.00
	Hannah Holm (CMU) - 16 hours at \$41/Hour		\$ 656.00	
	Paul Lander (CU) - 12 hours at \$100/Hour	\$ 500.00	\$ 700.00	
9 - Write Final Report for Phase 1				
	Tom Cech (MSU Denver) - 25 hours at \$100/Hour	\$ 500.00	\$ 2,000.00	\$ 3,457.00
	Holm/Richard - Review Draft - 3 hours at \$41/Hour & \$53/Hour		\$ 282.00	
	Paul Lander - Review Draft - 3 hours at \$100/Hour		\$ 300.00	
	Nona Shipman - Review Draft - 5 hours at \$75/Hour	\$ 375.00		
Financial Management				
6% of grant request - MSU Denver Foundation Fee			\$ 1,632.00	\$ 1,632.00
Sub Total - Total Request for CWCB Funding			\$ 26,738.00	
In-Kind/Cash Match		\$ 8,960.00		
Total Project Cost				\$35,698.00



June 15, 2016

Tom Cech, Director
One World One Water Center for Urban Water Education and Stewardship
Metropolitan State University of Denver
Campus Box 8
P.O. Box 173362
Denver, Colorado 80217-3362

Dear Tom,

I am writing to express my support for the Colorado Water Collaboratory grant project. I believe this will yield important information on water use patterns and attitudes that will be beneficial to the City of Grand Junction Water Services Department.

We will be happy to consult with the Hutchins Water Center at Colorado Mesa University on data collection activities to successfully complete this project.

Sincerely,

A handwritten signature in dark ink, appearing to read "Rick Brinkman".

Rick Brinkman
City of Grand Junction
Water Services Manager

June 22, 2016

Mr. Ben Wade
Water Conservation Coordinator
Colorado Water Conservation Board
1313 Sherman Street, Suite 718
Denver, Colorado 80203

Dear Ben:

On behalf of Denver Water, I would like to express our support for the Colorado Water Collaboratory grant application submitted by the One World One Water (OWOW) Center at MSU Denver, Colorado Mesa University, and the University of Colorado - Boulder

The Colorado Water Collaboratory will serve as a catalyst for a broader sharing of research and information related to understanding water use and conservation. This research can be used by other universities/colleges and water providers across the state to augment their own demand management efforts.

Outcomes will include:

- Greater awareness of the need for water use efficiency;
- Identification of potential urban water use efficiency practices (particularly outdoor);
- Improved water use efficiency practices at the three universities;
- Technology/information transfer from the three university campuses to individual homes of students, faculty and staff; and,
- Increased interest in students, faculty and staff to adopt improved water use efficiency practices on campus and at home.

We are pleased to partner with the Auraria Higher Education Corporation, City of Boulder, University of Colorado - Boulder, Colorado Mesa University, the City of Grand Junction, and the OWOW Center at MSU Denver on this important project.

Sincerely,



James S. Lochhead
CEO/Manager