



Rebecca Mitchell
Section Chief, Water Supply Planning
Colorado Water Conservation Board
1313 Sherman St., Rm. 721, Denver, CO 80203

Ms. Mitchell,

The board of Colorado WaterWise heartily supports the application for a Water Efficiency Grant to facilitate the American Water Works Association's (AWWA) M36 Water Auditing Pilot Phase Training Program in Colorado.

Colorado WaterWise is an ideal partner in this effort and has been successful in creating useful tools in partnership with the State to progress water efficiency, including the Guidebook of Best Practices for Municipal Water Conservation in Colorado and the Colorado Outdoor Water Regulation Smart Phone Application.

We are collaborating with multiple organizations to ensure maximum participation and value of this project, and our organization stands ready to implement this training with recognized industry experts.

This training directly facilitates the implementation of House Bill 1051 reporting, our first recommendation for "no/low regrets" actions in Colorado's Water Plan. Water loss reporting is a key component of HB 1051, and improving water loss management is critical for water providers across the state.

Sincerely,

Two handwritten signatures in black ink. The first signature, on the left, is "Alyssa Quinn" and the second, on the right, is "Frank Kinder".

Alyssa Quinn & Frank Kinder

Colorado WaterWise Co-Chairs



CWCB Water Efficiency Grant Program
M36 Water Auditing - Pilot Phase Training Program Grant Application

Contents

Background 2

Name and contact information of entity seeking grant: 5

Selected agent to deliver training program: 5

Public Entity Application Info: 5

Scope of Services 6

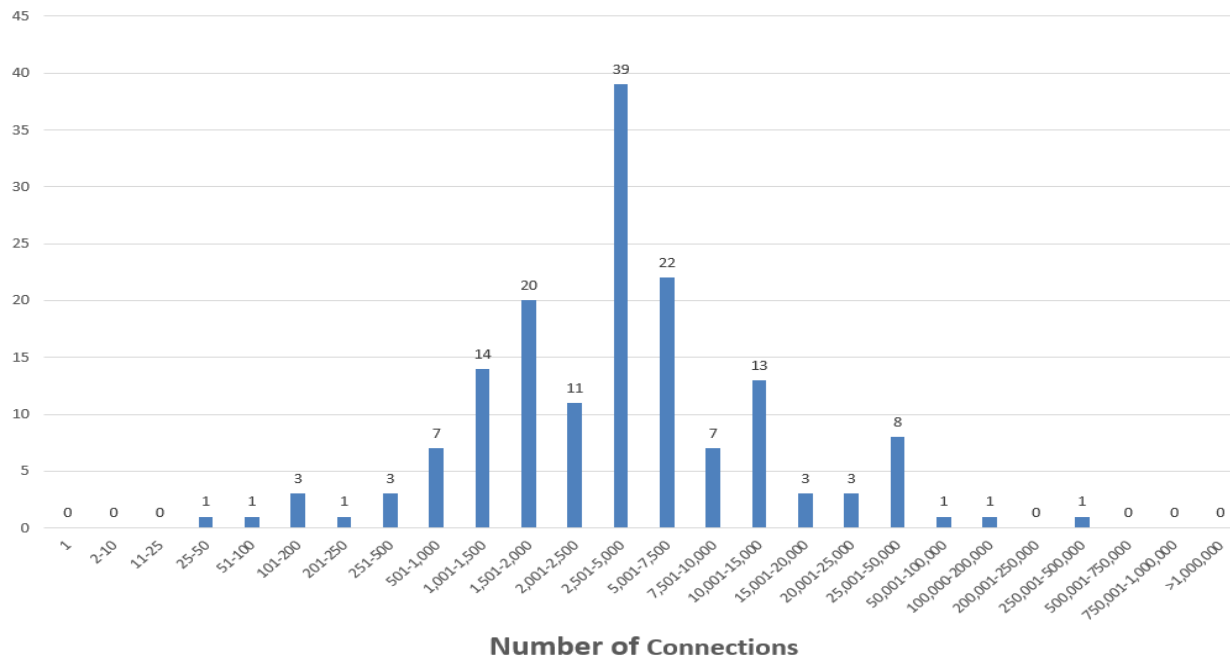
Detailed Project Budget..... 8

CWCB Water Efficiency Grant Program M36 Water Auditing - Pilot Phase Training Program Grant Application

Background

The State of Colorado is interested to establish a Pilot Training Program for AWWA M36 Water Auditing & Loss Control, in a pursuit similar to the training that has been implemented since 2011.¹ The objectives of the Pilot Training Program include foundational training of a broad spectrum of water systems on the AWWA M36 Water Auditing & Loss Control Methodology for system improvements. According to the Colorado Water Conservation Board (CWCB), approximately 70% of the largest water providers in Colorado do not use the M36 Water Auditing Methodology. It is anticipated that this Pilot will serve as groundwork for widespread adoption of best-practices in the M36 Water Auditing Methodology in the State of Colorado. It is also anticipated that the Pilot may lead to a broader, more detailed training and technical assistance program to further advance M36 Water Loss Management practices in the State of Colorado. Below are statistics on the distribution of water systems by size (number of connections), for all water systems serving greater than 3,300 in population (n=159). This delineation is estimated to represent approximately 95% of the service population in the State of Colorado.² Statewide statistics on non-revenue (NRW) water are not available, but benchmarks from validated national water audit data³ indicate an average of approximately 30,000 gallons of NRW per service connection each year, which translates to **over 41 Billion Gallons of NRW every year** in the State of Colorado. The goal of the Pilot would be to reach as many of these 159 utilities as possible, in a regional workshop circuit approach. Below are data from this effort in Georgia.

Colorado Utilities Serving >3,300 Population
Total = 159



¹ White Paper - *Stepping Up Water Loss Control – Lessons from the State of Georgia*. Center for Neighborhood Technology. 2013. <http://www.cnt.org/resources/stepping-up-water-loss-control-lessons-from-the-state-of-georgia/>

² Source: EPA SDWIS.

³ Approximate averages from the AWWA Water Audit Data Initiative, 2014 published dataset. www.awwa.org/waterlosscontrol

**CWCB Water Efficiency Grant Program
M36 Water Auditing - Pilot Phase Training Program Grant Application**

Examples Learned from this process in Georgia:

Training and technical assistance program in Georgia has been implemented over multiple phases, over multiple years. Their program began with a pilot round, with a small number of single workshops around the state (Phase 0). Phase 1 launched in 2012 with a statewide workshop series that was protracted over a 10-month timeframe, designed to progressively build on the training content over 3 rounds of in-person workshops (at 7 locations across the state). Targeted outreach was conducted by the trainers ahead of the workshops - to ensure that the utilities showed up with the right people and prepared. This yielded about a 90% signup rate for the overall program (100 utilities out of 115 eligible), and all 100 utilities then successfully completed the entire 10 month training program. Between the workshop rounds there were specific homework assignments for the utility teams, and phone check-ins from the trainers to guide implementation of workshop content.

Phase 2 followed the Phase 1 training and brought technical assistance to those utilities based on what the AWWA M36 audits identified as needs, including source meter verification, customer meter testing, leak detection & pipeline condition assessment, evaluations for pilot DMAs & pressure management zones.

In tandem with these training and technical assistance phases (1 & 2), the State of Georgia also implemented a water audit validation program, conducting 3rd party quality control reviews on all of the water audits, to address inherent challenges in data validity and guide validity improvements over time.

Following every phase, a feedback survey was conducted with all participants, with approx. 60-70% response rate on the survey, and 99% satisfaction rate on the program.

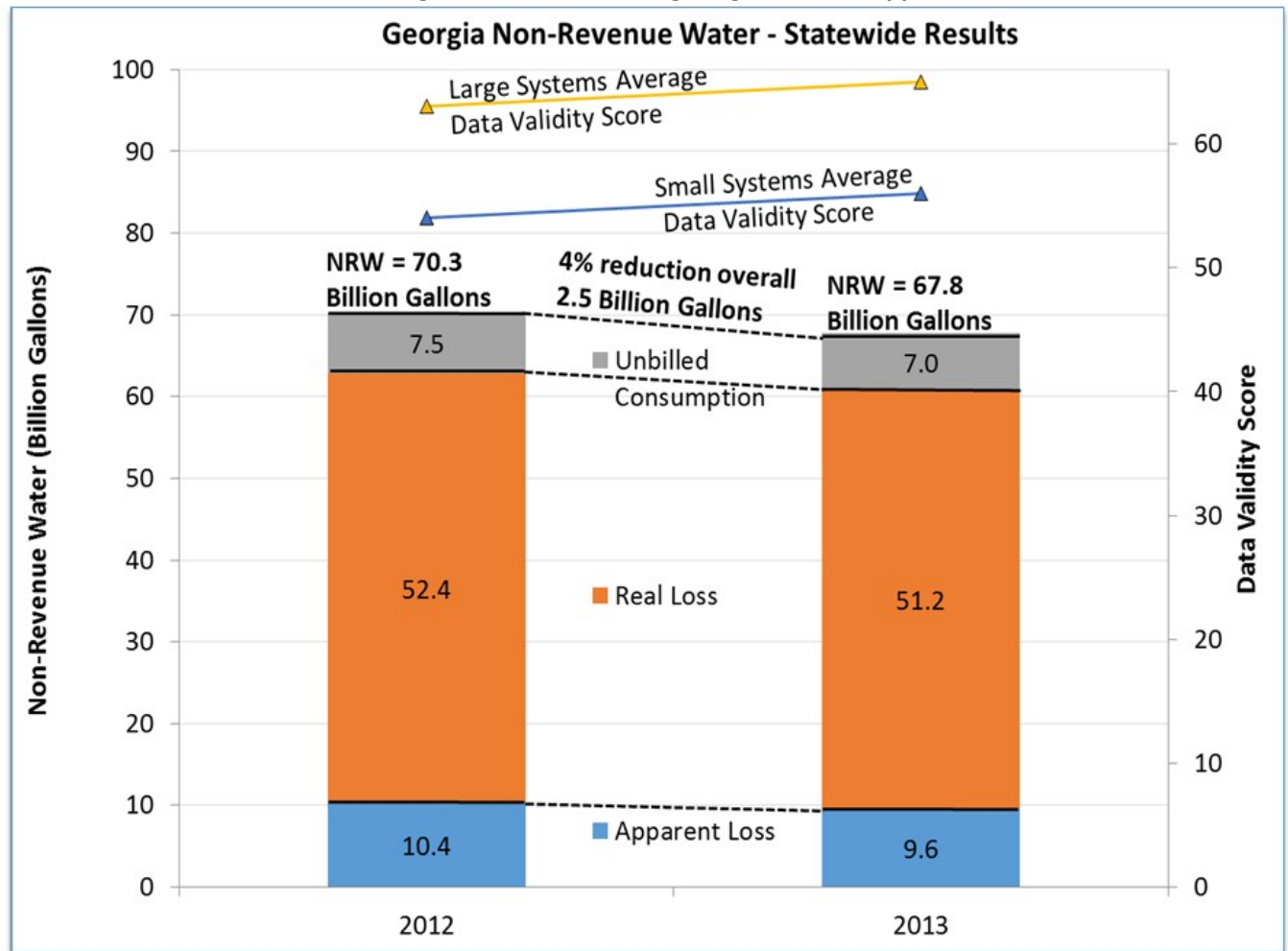
Successes:

Wide and growing understanding of the M36 methodology and management of water loss.

Documented improvements in water audit data validity.

Documented reductions, statewide, of approx. 2.5 Billion Gallons of non-revenue water (~4% aggregate reduction). (graph)

CWCB Water Efficiency Grant Program
M36 Water Auditing - Pilot Phase Training Program Grant Application



Lessons learned:

Long-term effectiveness requires training that coordinated and extended over time, not a 'one-off'

Pilot approach can be very effective to set the stage for this

It took concerted marketing and outreach to get the utilities to the workshops - with the right people, and prepared

**CWCB Water Efficiency Grant Program
M36 Water Auditing - Pilot Phase Training Program Grant Application**

Name and contact information of entity seeking grant:

Applicant:	Colorado Water Wise Council (CWW) P.O. Box 40202 Denver, CO 80204	Contact: Frank Kinder, Co-Chair 2855 Mesa Road Colorado Springs, CO 80904
------------	---	---

Colorado WaterWise is a Colorado 501c3 Non-Profit organization. *Who We Are: A Colorado non-profit for water efficiency professionals including utilities, engineers, manufacturers, conservation organizations, and those interested in and practicing conservation.*

Mission: *"Connecting stakeholders, creating resources, and serving as the collaborating with leader in the efficient use of urban water in Colorado."*

Goals

- I. Serve as the primary water conservation resource for professionals in Colorado
- II. Promote water conservation in Colorado
- III. Ensure Colorado WaterWise's organizational sustainability and growth
- IV. Participate in the development of urban water conservation policies and integrated resources planning

Selected agent to deliver training program:

CWW has selected Cavanaugh as the subject matter expert and training agent for this program. See attached *Cavanaugh M36 Statement of Qualifications.pdf*.

Public Entity Application Info:

Identify the groups, individuals, organizations and/or institutions that will be included within the education and outreach efforts to be proposed as the Project.

- Colorado Water Conservation Board-Interbasin Compact Committee-Conservation Committee
- Colorado Water Wise – Board and Members
- Rocky Mountain Section AWWA- Conservation Committee
- Cavanaugh

Identify the specific goals of the Program

- To educate Colorado water systems on best practices for water loss management per the AWWA M36 Methodology.
- To promote widespread adoption of the M36 Methodology in the State of Colorado as an effective conservation approach.
- To lay the groundwork for a broader, large-scale training & technical assistance program in the State of Colorado, beyond the Pilot, broadly modeled from the State of Georgia.

CWCB Water Efficiency Grant Program**M36 Water Auditing - Pilot Phase Training Program Grant Application**

Identify specific tasks to be funded from Water Efficiency Grant

- 💧 See Scope of Services

Scope of Services

The Pilot Training will be designed to provide participant utilities with a foundational understanding of the AWWA M36 methodology, how it is applied, and how water audit data may be used to assess and improve Water Loss performance at the utility level. Specifically, the pilot utilities will learn how to:

- 💧 Conduct the top-down AWWA Water Audit;
- 💧 Implement practices for bottom-up validation of the audit data;
- 💧 Assess Data Validity and develop improvements for audit reliability;
- 💧 Perform component analysis for Water Loss components – Volumes & Values;
- 💧 Use audit and component analysis results to identify next steps for Water Loss management in their system.

Below are the specific tasks for the Program:

Task 1 – Program Development

CWW and Cavanaugh will conduct a kickoff call to begin the process of Program design. Cavanaugh will lead the design effort, and CWW will review. Once the program logistics (including selection of training locations, curriculum and training materials are developed and approved by CWW, Cavanaugh and CWW will work with the RMS AWWA to identify appropriate facilities in the selected training locations. Cavanaugh, CWW, RMS AWWA and CWCB will work together to promote the workshop circuit and encourage as many of the target attendees to attend as we can. Registration will be administered by CWW or RMS AWWA.

Task 2 – Program Execution

Close to the time of the workshop circuit, Cavanaugh will lead a webinar to prepare attendees on the workshop experience, including what materials to bring and what to be ready for. Following the preparatory webinar, Cavanaugh will provide direct phone outreach to training participants to further prepare them for the workshops – in particular to ensure they will bring the right number and representation of utility staff. For the workshop circuit, Cavanaugh will provide facilitation and execution of five (5) training workshops at the selected locations across the State of Colorado (locations to be determined in Task 1) teaching the technical content described in the bullets above. Specific outcomes of the regional workshops will be:

- 💧 Foundational understanding of the M36 methodology for auditing and validation
- 💧 Foundational understanding of the M36 methodology for component analysis
- 💧 Demonstration of Audit Software Tools and example audit results.
- 💧 Action items for next steps in Water Loss management

Locations: Held Statewide in a way to reach Five Major Basins: Thinking Training in: Durango, Vail, Grand Junction, Denver, Pueblo, Greeley. Would take input in this from BRT Conservation Committee.

CWCB Water Efficiency Grant Program

M36 Water Auditing - Pilot Phase Training Program Grant Application

Task 3 – Program Documentation & Reporting

Cavanaugh will provide documentation of the Program, including the following:

- 3.1 Training materials
- 3.2 50% Progress Report for CWCB
- 3.3 75% Progress Report for CWCB
- 3.4 Concept development for full-scale Statewide Technical Assistance and Training
- 3.5 Final Report including:
 - 💧 Summary of Pilot program activity and participants
 - 💧 Outline of full-scale Statewide Technical Assistance and Training proposal

Start - early-mid July

Task 1 - Program Development: early-mid July - 8/15

Task 2 - Program Execution: 8/15 - 9/15

Task 3 - Program Documentation & Reporting: 7/15 - 9/30

Milestones:

50% Progress Report: 8/15

75% Progress Report: 9/15

Final Report: 9/30

Individuals and Roles in Project

Colorado WaterWise:

Frank Kinder – Board Co-Chair- Project Sponsor and Lead – CWCB Liaison

Brenda O’Brien- Board Coordinator – Website Registration and Electronic Communication

Laura Wing – Board Member - Website Registration and Electronic Communication

Lyle Whitney, Ruth Quade, Lucas Mouttet-Board Members-Utility Participation in Budget

Cavanaugh and Associates:

Will Jernigan, P.E. - Project Manager, Lead Trainer in the webinar and workshops

Tory Wagon, P.E. - Support for development of training materials and delivery of webinar & workshops

Rachel Harris - Support for development of training materials and project reporting

RMSAWWA: Melissa Elliot ---Denver Water – Promotion, Coordination, and Communication- Letters of support have been solicited and are expected to be provided.

CWCB Water Efficiency Grant Program
M36 Water Auditing - Pilot Phase Training Program Grant Application

Detailed Project Budget

		Cavanaugh				Colorado Water Wise							
	Tasks	Steve Cavanaugh, P.E.	Will Jernigan, P.E.	Tory Wagoner, P.E.	Rachel Harris	Subtotal Consultant Cost	Frank Kinder	Brenda O'Briend	Laura Wing	Lyle Whitney	Ruth Quade or Lucas Mouttet	Total In-Kind Cost	
	Hourly Rate	250	225	200	150		75	75	75	75	75		
Task 1 - Program Development													
	Kickoff, Program design & development of materials, approval by CWW		12		2	3000	8	8	8	8	8	3000	
	Promotion of training workshops		2			450	10	10	10	10	10	3750	
Task 2 - Program Execution													
	Conduct an initial training kickoff via Webinar with training participants		4	2	2	1600						0	
	Conduct direct outreach to training participants to prepare them for the regional workshop	12				3000						0	
	Workshop logistics planning		4		12	2700						0	
	Conduct a full-day, regional workshop at five (5) locations around the State with training participants	16	54	54		26950	16	16	16	16	16	6000	
Task 3 - Program Documentation & Reporting													
	Overall Project Management		16			3600						0	
	Development of concept for full-scale Statewide Technical Assistance and 50% progress report		8			1800	8	8	8	8	8	3000	
	75% progress report		1		2	525						0	
	Develop & deliver final report		1		2	525						0	
			4		16	3300	6	6	6	6	6	2250	
			Total Consultant Time Cost			47450	Total In-Kind Contribution CWW					18000	
	Direct Expenses - Consultant						Direct In-Kind Expenses - RMS AWWA						
	Flight (x1)	600	750	600		1950			Workshop facility rental (x5)			750	
	Hotel (x6 nights)	300	900	900		2100		Total In-Kind Contribution RMS AWWA					750
	Rental Car (x6 days)		300			300							
	Per Diem	180	360	360		900							
			Total Consultant Direct Costs			5250							
			Total Consultant Costs			52700							
			Summary										
			Total CWCB Grant Request			\$ 49,999							
			Total Consultant Costs			\$ 52,700							
	Consultant In-Kind Contribution (to limit CWCB amount requested)					\$ 2,701							
	Consultant Goodwill Fee Allocation to CWW					\$ 2,500							
			Net Consultant Compensation			\$ 47,499							
			Total In-Kind Contribution CWW			\$ 18,000	25%						
			Total In-Kind Contribution RMS AWWA			\$ 750	1%						
			Project Grand Total			\$ 71,450							