CENTER FOR ReSource CONSERVATION

www.conservationcenter.org

November 22, 2013

Kevin Reidy and Ben Wade
Office of Water Conservation and Drought Planning Section
Colorado Water Conservation Board
1313 Sherman St, Room 721
Denver, CO 80203

Dear Mr. Reidy and Mr. Wade,

Status report for Center for ReSource Conservation grant: Commercial Water Audit Program
PO# 13000000065

As of November, 2013, the CRC's Commercial Water Audit Program has approached its 50% of completion benchmark. Below is a summary of the successes and challenges encountered on the project to date.

Overall, the project has gone well and is moving forward. To date we have completed 100% of the work defined under Tasks 1 and 3, and 80% of the work defined under task 2. We have been successful at all the preliminary work necessary to develop the program, including hiring and training program staff, compiling equipment for an auditor toolkit, and identifying and refining an electronic audit form. In addition, to date we have performed two test audits that successfully identified significant opportunities for water and monetary savings for the customers. We have contracted with three water providers to provide 10 more audits with each service area. Our website and marketing materials are being shared and we are fully prepared to receive scheduling requests and perform more audits.

We have had one major challenge that has slowed the implementation of this project. CRC's initial slow progress on Task 1 earlier this year has led to a much slower start to creating contractual agreements with water providers than previously planned. Due to these delays, we were unable to present the project proposal to our water provider partners until earlier this month. At that time, many partners were interested, but unable to commit funds. Three water providers were able to commit funds, however, and so we are focused on generating demand for the audits in these service areas, as well as creating contracts for 2014 for our other partners to adopt. However, we will not be able to reach our original timeline of completing Task 2 by 11/30/2013.

With this delay we would like to request a timeline extension for the grant. The timeline would extend the completion date of the grant from February 28, 2014 to April 30, 2014. Details of this request are in the table on page 1 of the report.

Another technical revision that we would like to submit is to change the wording of the deliverables in Task 2 and Task 4. Original wording described these deliverables in terms of number of audits (150 total), however through our investigation of other programs and from our own experience with our two test audits, we believe that a better method for accounting for commercial audits is through hours. The original 150 audits was set equal to 375 audit hours, for an average of 2.5 hours per audit. However we now realize that not only do audits take closer to an average of 6 hours each, including scheduling and report writing, but that there is also a great deal of variation in the length of the appointments. We are still committed to delivering the 375 audit hours referenced in our proposal, however we would like to measure our progress in terms of *audit hours*, rather than *audit appointments.* Along with the newly proposed timeline, we request that Task 2 deliverables to be updated to 180 *audit hours scheduled*, and Task 4 deliverables are proposed to be 375 *audit hours completed*. Further details of this change are explained in the report.

The work to complete all aspects of this grant is in motion, and we are confident in our ability to complete the project within the proposed revised timeline. CRC is committed to this project, and we are dedicating significant resources to completing our work under the grant. We are excited at the opportunities that this new program brings to our organization as well as to the water conservation community across the State of Colorado. We believe that this project will continue to grow to become a significant and impactful program for water conservation efforts.

If the Board has any further questions for us before moving forward, please do not hesitate to contact me directly. Thank you again for your support.

Respectfully Submitted,

Dan Stellar
Senior Director of Sustainability Programs
Center for ReSource Conservation

50% Progress Summary

Requested updates in red.

Task	Deliverables	Current Deadline	Proposed Deadline	Percent Complete, 11/22/2013
Task 1: Develop the Program	3 utilities signed on for program participation in 2013 - 2014 Training agenda Audit database (web tool) Online scheduling tool	8/16/2013	No change	100%
Task 2: Market and Advertise the Program	150 commercial audit requests Requested update: 180 audit hours scheduled	Most preliminary work completed by 9/30/13. Final requests by 11/30/13	12/31/2013	80%
Task 3: Hire and Train Program Staff	Audit staff hired and trained	10/31/13	No change	100%
Task 4: Perform Audits	150 indoor audits performed Requested update: 375 audit hours performed	12/31/13	3/31/2014	0%
Task 5: Data Analysis and Reporting	Customer survey completed Program reports provided to partner utilities and the general public	2/28/2014	4/30/2014	0%

Detailed Narrative

Below is a detailed narrative describing the project progress to date on the Commercial Audit Program grant. The non-italicized text is the project narrative from the grant; the *italicized* text under each task describes the task progress. Text in RED highlights our need for revisions to the timeline.

Task 1: Lay the Groundwork to Expand the Indoor Audit Program to the Commercial Sector – Complete

Task 1 includes everything required so the program is ready to be implemented in new areas, including hiring and training auditors. In Task 1, the program will build heavily off the Colorado WaterWise ICI work. These include:

- Survey existing audit programs focusing on indoor use by commercial entities to understand program details and best management practices.
- Design the program structure and program branding
- Make any changes or updates to the Colorado WaterWise auditing form and prepare the form for use.
- Develop a program proposal for partner utilities
- Solicit utilities for 2013 - 2014 participation and develop agreements with utilities
- Develop auditor training agenda and presentations
- Perform test audits to test procedures and systems
- Build a database for audit information
- Create scheduling systems for audits
- Purchase equipment and materials for the auditor

Task 1 includes the following deliverables:

- Utilities signed on for program participation in 2013 - 2014
- A training agenda
- Audit database
- Online scheduling tool

Task 1 will be completed by August 16, 2013.

This task is 100% complete. Below we discuss the sub-tasks listed in the bullet points above and describe the outcome of each.

We have surveyed existing commercial water audit programs at various utilities across the country including Denver Water, City of Austin (TX), Portland Water Bureau (OR), and others. From surveying these programs we learned several things. One of the most significant lessons was that there are generally two kinds of commercial audit programs: programs that are designed for working at many industries and business types, and programs that are designed for a single industry. The City of Austin, for example, focuses on a single industry, the hotel industry. This kind of focus allows the program to go very in-depth, most likely providing highly significant results in water savings. However this kind of focus also requires a lot of expertise on the part of the auditing group and the audit process is much more involved than with a more general approach. This means that the business being audited has to be significantly more committed, time-wise and money-wise, for the audit to occur. We decided to create a program the can be applied to a broad array of businesses, with a focus on restaurants and hotels, as we believe that it is important to promote conservation to as large of a group of commercial entities as possible. We also want our program to be appealing to as many utilities as possible and therefore did not want to limit our services to a single industry.

The structure of the program has been designed and is nearly identical to our structure for Slow the Flow (STF) for HOA and commercial groups, with one additional component. For the HOA and commercial STF program we direct potential customers to our website where they can read about what the audit entails, and then they are directed to call our Water Conservation Associate to schedule an appointment. On the scheduled date we send our auditor to perform the audit. Finally, a detailed report is issued to the business that explains their water use and sprinkler system issues. With the indoor commercial water audits, we have similarly built a web page where interested businesses can read about the program, and we direct them to call us to schedule their audit. The additional component is that we ask them to complete a short survey about their business before calling. The link to this survey is on the website. The survey asks for basic location information as well as business type, size, water, electricity and gas billing information and a few focused questions about water use and reasons for the audit. The information from this survey will help us to better serve businesses by allowing us to make an educated estimate of the length of time that we will need to complete the audits. The survey also prepares the businesses for the types of questions that we will ask during the audits, such as about their utility rates. We hope that this additional step helps us and our customers to be more efficient and effective in the time that we have with them during the audits. The link to the website is: http://conservationcenter.org/water-home/indoor-water-conservation-for-businesses/ *. Like the STF program, we will issue a detailed report to businesses after the audits. These reports will include analyses of the building usage, recommendations for water savings, and cost-benefit analyses of the recommendations. Any rebates available to the businesses will also be described and recommended in the report.*

Branding of the program has taken a different turn than we had originally envisioned. We originally envisioned creating a unique program name and logo; however after reviewing other commercial audit programs from around the country we learned that very few of the programs had significant, traditional brands. The program websites tended to be very descriptive, informational, and to-the-point. We feel that this lack of more traditional branding makes sense for our goals of communicating directly with commercial establishments. We have decided that, similar to most other commercial water conservation programs, we will produce material that has a straightforward emphasis on describing the program and its benefits. We also have tried to highlight the potential cost-savings that a business can expect to receive from the program. As you can see on our website, the program is simply called "Indoor Commercial Water Audits" and "Indoor Water Conservation Audits." As we move forward with the program we will continue to evaluate how well this decision serves our purpose, and if need be, we will seek out a different branding approach.

The Colorado WaterWise auditing form – which we refer to as the commercial audit "tool" – is an excel spreadsheet created by the Brendle Group, through a partnership with the City of Boulder. The City of Boulder and the Brendle Group have worked with us on specifications of the tool and have listened to our suggestions as they work out the details of the final version of the tool. We are using this tool as our primary medium for collecting information and data during the audit. The tool itself has several worksheets that require different inputs. It uses the input information to come up with a custom report that describes the costs and pay-back period of all possible fixture

and appliances. It also creates a graph to visualize the water savings from the recommended upgrades. Overall, we are happy with the tool. Because we are in direct communication with the creator of the tool, the Brendle Group, we will be able to continue to suggest improvements and report issues as we use it for our work. Finally, the tool has helped us to complete another subtask listed above, that of creating an audit database. The tool has an output page that compiles all of the information that it collects and calculates into a single row in an excel spreadsheet. From this compilation, we can cut and paste the data into a separate excel database that will aggregate the data from all of the audits. Water usage data, collected from the water providers after the audit, will also be compiled into a single spreadsheet and used for analysis further along in this project (Task 5).

Our main proposal to garner interest and support in this program from our partner utilities was presented at our annual meeting at the beginning of November. This presentation got three quick responses from The City of Thornton, Centennial Water & Sanitation District, and Westminster, who have all signed up for approximately 10 audits each, to be fulfilled in the next month. At this time, we are working with these partners to reach out to specific businesses that they have identified as needing an audit. We will be scheduling the audits beginning next week. We are also in discussion with Boulder Valley School District about auditing some of their schools over the winter. While we recognize that we have missed our original deadline with regards to scheduling audits (discussed further in Task 2), we have successfully completed two "test audits", one in the City of Boulder's service area and one in the City of Thornton's service area. These two test audits were successful and taught us a great deal about our auditing procedure and report writing. See an example of the report in ***Attachment 1*** *at the end of this document.*

We have developed a full auditor training agenda and have trained one auditor, our lead Water Technician. We worked with a consultant (Peter Mayer of Water Demand Management) to help us design and perform the trainings. See Task 3 for further discussion of this task.

As mentioned above, the scheduling for these audits is set up nearly exactly like our scheduling for STF HOA and commercial audits. The only addition is a short survey that each business will need to complete before calling in to be scheduled. Our Water Conservation Associate has been trained and is ready to schedule audits and answer questions regarding the program.

All equipment and materials have been purchased for the auditor. We choose equipment and materials based off of other program recommendations and with the help of the hired consultant. ***Attachment 2*** *details the auditor toolkit.*

Task 2: Market and Advertise the Program – 80% Complete

In order for a commercial, indoor water-audit program to be successful, potential participants need to be aware of and excited by the program. In Task 2, the CRC will develop marketing materials for the program and will work with partner utilities to advertise the program to their commercial customers. Steps involved include:

- Design marketing materials **(Complete)**
- Certificate of participation **(Complete)**

- Design a commercial, indoor water-audit section of the CRC's website **(Complete)**
- Coordination between the CRC and partner utilities to facilitate advertising **(Complete)**
- Advertising of the program by partner utilities to their customers **(In progress)**

Preliminary work completed by 9/30/13, final request by 11/30/13.

This task is 80% complete, with the final sub-task still in progress. The design of marketing materials, including the website, a brochure and a certificate of participation for the program, are all complete. The link to the website is: http://conservationcenter.org/water-home/indoor-water-conservation-for-businesses/ . The certificate is included as ***Attachment 3****. These materials are being used to promote the program along with direct phone calls that our water provider partners are making to potential businesses. Coordination of marketing efforts is also currently underway, and is an ongoing process. As with our other conservation programs, no single marketing approach works for all situations, and we expect to have to continuously assess and adapt our marketing approach as time goes on and as we add more water providers to our list of partners for this program.*

Advertising of the program, which in turn will generate the [revision request] 180 hours of audit requests promised for this task, is currently occurring, but is not completely fulfilled. While we have the marketing materials ready, our challenge has been in generating the demand among our water provider partners. This is mostly because we did not come to them with the proposal until November, when many of them were planning for 2014 and did not have funds available to add on additional programs before the end of the year However, despite not having funding currently available, many of our partners still showed significant interest in the program. So now we are looking ahead to next year and hope to be incorporating this service into more contracts for 2014. As stated earlier, we do have three water providers signed on, working with us to generate audit requests. We are also in communication with Boulder Valley School District on implementing commercial water audits in their buildings. We anticipate demand from the 3 water providers and BVSD generating approximately 180 audit hours.

Task 3: Hire and Train Program Staff – Complete

In this task, the CRC will hire and train staff for the program. Staff includes a water conservation technician to perform the audits, and a conservation associate to schedule the audits. Technician training will be three days long. CRC staff will conduct most of the training, but the CRC may bring in outside experts to assist with certain topics. Task 3's deliverables include one trained technician who is capable of performing high-quality commercial audits, and one associate hired and trained to schedule audits. The CRC anticipates that Task 3 will be completed by October 31, 2013.

This task is 100% complete. We have hired and trained a water conservation technician and he has helped to perform the test audits. Training occurred in October and was done in collaboration with a hired consultant. The consultant also helped us to

create a set of training materials that can be used to train future auditors. We also have a Water Conservation Associate who has been trained to schedule the audits.

Task 4: Perform Commercial Audits – Due December 31, 2013 – Proposed deadline change to March 31, 2014

Task 4 involves several mini-tasks:

- Record requests for audits
- Contact customers to schedule audits
- Gather water use information from utilities for each customer
- Perform audits on-site with commercial customers
- Collect audit data
- Manage program staff

Task 4's deliverable includes 375 hours of completed indoor water audits (these are the same 375 hours as previously reported in Task 2 deliverables). The CRC anticipates that this task will be complete by [revision request] March 31, 2014.

Due to late start with generating agreements with water providers we will be unable to complete this goal by December 31st, 2013, as originally proposed. We would like to request an extension of this task to March 31, 2014. We feel that three extra months will be adequate for us to fulfill this goal of 375 audit hours performed.

Task 5: Data Analysis and Reporting - Due February 28, 2014 – Proposed deadline change to April 30, 2014

The Commercial, Indoor Water-Audit program includes a significant data collection component to aid partner utilities in understanding commercial customers and targeting conservation programs. In Task 5, the CRC will compile and analyze data collected during audits of commercial facilities, perform a customer feedback survey, and write program reports based on this data. The CRC anticipates providing one report to each partner utility containing data from their targeted commercial customers for each year that the program is performed and one general report containing all data collected during the program. The CRC will make the general report available to the water conservation community and will make efforts to present its findings.

The CRC anticipates that the data collected and analyzed will include the following:

- Basic information about each business
- Number, type, and flow rate of fixtures found at each business
- Water savings potential from fixture replacements at each business
- Fixture replacements performed on-site at each audit
- In partnership with staff at some partner utilities, rebates applied for by commercial, indoor water-audit customers
- Leaks and other problems found at each business
- At the end of the first year of the program, results of a follow-up survey of audit customers

The follow-up survey will consist of a phone survey of commercial, indoor water-audit customers, conducted after audits are completed for the year. The survey will include questions concerning both customer satisfaction and the impact of the program.

Task 5's deliverables include a completed commercial customer survey, a program report provided to each partner utility, and a program report made available to the CWCB and the general public. [revision request] The CRC anticipates that Task 5 will be complete by April 30, 2014.

[revision request] The CRC anticipates providing the CWCB with the 50% progress report by November 22, 2013, and the 75% progress report by March 31, 2014, after Task 4 is complete. The CRC will provide the final report to the CWCB by April 30, 2014.

WATER CONSERVATION AUDIT REPORT
Boulder Shelter for the Homeless

September 27, 2013

Mr. Greg Harms
Executive Director
Boulder Shelter for the Homeless
3280 Broadway Ave.
Boulder, CO 80301

Dear Greg,

Thank you for taking the time to meet with us and for your assistance in conducting the water conservation audit at the Shelter on August 19. Based on our flow measurements and analysis we believe that the Shelter could cost-effectively reduce water use without sacrificing performance by replacing all shower heads and bathroom sink faucet aerators with modern low flow models. This report provides more information on these and other water conservation opportunities at the Boulder Shelter as well as estimations of potential savings and cost effectiveness of these opportunities. The report also describes financial incentives that may be available to help reduce project costs.

Water Use

Water use at the Boulder Shelter increased steadily from 2005-2009, and then leveled off in 2010-2012 (see figure 1). In 2012, the Shelter spent $17,545 on water, the highest amount over the 8 year record. Consumption data from 2013 suggest a further increase in water use.

Upgrade Opportunities

Based on discussions with the facility manager and staff, it appears that water use for showers and faucets in the Shelter's dormitory rooms are among the largest categories of water use at the facility. During the audit it was determined that both the shower (flowing at 3.0 gpm) and bathroom faucet (flowing at 2.2 gpm) flow rates are significantly higher than current industry standards. Shower flow rates can be reduced to 1.4 gpm and faucet flow rates can be reduced to 0.5 gpm using the latest technology.

Additional water savings can be achieved by replacing two pre-rinse spray valves (PRSV) in the Shelter's kitchen. We were able to replace one of these fixtures during our visit on 8/19, and hope to return with another PRSV to install (for free) in the near future.

Some water savings could be achieved by replacing existing tank-type toilets and flushometer urinals at the Shelter, but the economic benefit of these changes would be less significant than the showerheads and aerators discussed above.

CRC recommends replacement of 22 shower heads, 10 faucet aerators, and 2 PRSVs to achieve cost-effective water use reductions at the Boulder Shelter for the Homeless. We had contacted the City of Boulder and Boulder County to determine if any rebates or incentives might be available to reduce or eliminate the cost of these proposed water efficiency upgrades. A second high-efficiency pre-rinse spray valve will be installed by CRC at no cost to the Shelter.

Table 1 shows the estimated costs and savings associated with all potential water efficiency upgrades considered for the Shelter. Table 2 summarizes the potential cost savings and estimates the rebate level that might be available from the City of Boulder. Figure 2 shows the estimated water and energy savings associated with each proposed upgrade. Because of the Shelter's geothermal system, the estimated energy savings shown in this report is likely to be higher than would be actually achieved. Only minimal energy benefits are anticipated from these upgrades, but the water savings appear significant.

Best Management Practices

In addition to upgrading equipment, you can save water and money by regularly checking for and repairing leaks. According to the EPA, leaks can waste thousands of gallons of water over time. The EPA recommends that business implement the following practices to detect leaks:

- Read the facility water meter during off-peak hours when all water-using equipment can be turned off, and building occupants, employees, and visitors are not using sanitary fixtures. After all water uses have been shut off, read the meter; and then read it again an hour later. If the meter reading changed significantly, there may be a leak somewhere within the distribution system or within the facility.
- Read water meters and water bills monthly. Pay close attention to water meter readings to ensure that they make sense and are consistent with expected water use trends. Compare monthly water bills to the previous month and to the same month of the previous year.
- Conduct regular visual inspections of fixtures and look and listen for leaks. Train employees to notify management if they notice leaking fixtures or equipment.

Rebates Available

The City of Boulder is offering prescriptive rebates for 50% of actual installed cost for end-use fixtures (toilets, urinals, and faucets) and 50% of equipment cost for appliances. Custom rebates are available for other projects that are designed to save 20% or more per year

compared to prior equipment or systems. Rebates are capped at $5,000 per customer and based on the actual customer invoice. However, since the Shelter is outside of the City of Boulder's primary water service area, Boulder County may be a better source of funding for these upgrades. CRC is working to investigate these options.

Next Steps

CRC is researching cost and availability of the specific showerheads and faucet aerators currently used in the Shelter. Once this information is available we will provide it to you along with information on any potential rebates from the City or County.

As I mentioned earlier, I will follow up with you the week of November 25, 2013, to see if you have any questions about this report or our findings. I am here as a free resource to help you reach your water conservation goals. Thank you again for taking the time to meet with me. I look forward to working with you.

Sincerely,

Dan

Dan Stellar
Water Program Director
Center for Resource Conservation
dstellar@conservationcenter.org

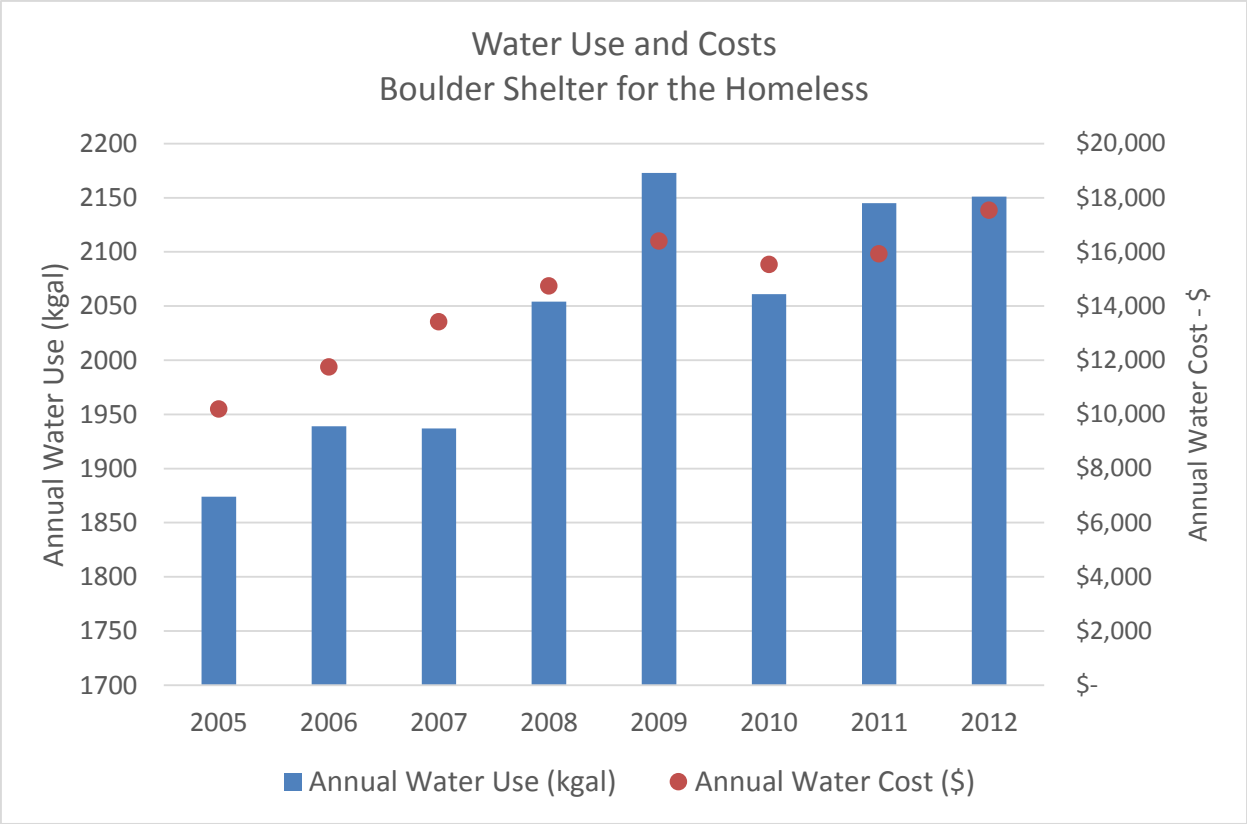
Water Use and Costs
Boulder Shelter for the Homeless
Annual Water Use (kgal)
2200
2150
2100
2050
2000
1950
1900
1850
1800
1750
1700
$20,000
$18,000
$16,000
$14,000
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$-
Annual Water Cost - $
2005
2006
2007
2008
2009
2010
2011
2012
Annual Water Use (kgal)
Annual Water Cost ($)

Figure 1

Table 1

CII Water Assessment Tool – Results — Boulder Shelter for the Homeless

Measure	Quantity	Water Savings (kgal)	Electricity Savings (kWh)	Natural Gas Savings (therm)	Water Cost Savings* ($)	Electric Cost Savings* ($)	Natural Gas Cost Savings* ($)	Total Cost Savings* ($)	Estimated Rebate*** ($)	Installed Cost** ($)	Simple Payback (years)
Faucet	0	0	0	0	$0	$0	$0	$0	$0	$0	
Aerator	10	132	0	276	$968	$0	$168	$1,136	$150	$300	0.1
Pre-rinse spray valve	2	7	0	14	$48	$0	$8	$56	$150	$300	2.7
Toilet	15	75	-	-	$546	-	-	$546	$4,500	$9,000	8.2
Urinal	4	66	-	-	$480	-	-	$480	$1,200	$2,400	2.5
Showerhead	22	679	0	1,414	$4,963	$0	$862	$5,825	$825	$1,650	0.1
Clothes washer	0	0	0	0	$0	$0	$0	$0	-	$0	
Dishwasher (residential)	0		0	0	-	$0	$0	$0	-	$0	
Dishwasher (commercial)	1	41	827	461	$299	$33	$281	$613	50% equip.	$770	
Ice machine	0	0	0	0	$0	$0	$0	$0	-	$0	
Steam cooker	0	0	0	0	$0	$0	$0	$0	-	$0	
Food disposal	1	0	-	-	$0	-	-	$0	50% equip.		
Cooling tower	0	0	-	-	$0	-	-	$0	-	$0	
Custom Project	0	0	0	0	$0	$0	$0	$0	$0	$0	
Total of All Measures		**999**	**827**	**2,165**	**$7,304**	**$33**	**$1,320**	**$8,657**	**$6,825**	**$14,420**	**0.9**
Total of Included Measures		**884**	**0**	**1,703**	**$6,459**	**$0**	**$1,039**	**$7,498**	**$2,325**	**$4,650**	**0.3**

Table 2

City of Boulder Water Conservation Assessment Report

Boulder Shelter for the Homeless
3280 Broadway
Boulder, CO 80301

Potential opportunities for water and cost savings	Qty.
Aerator	10
Pre-rinse spray valve	2
Urinal	4
Showerhead	22

Annual Savings*	Resource		Cost	
Water	883,500	gallons	$6,500	
Electricity	0	kWh	$0	
Natural Gas	1,700	therms	$1,040	
Total Savings	-		**$7,540**	
Installed Cost**			$4,700	
Potential Rebate***			$2,300	+
Simple Payback			**0.3**	**years**

* Utility and cost savings are based on typical utility rates and equipment use practices. Actual savings may vary.
** Installed costs are based on typical equipment cost and may vary. Installed costs include the full cost of end-use fixtures and the additional cost of water-saving appliances over conventional alternatives.
***Prescriptive rebates are offered for 50% of **actual** installed cost for end-use fixtures and 50% of equipment cost for appliances. Custom rebates are available for other projects that are designed to save 20% or more per year compared to prior equipment or systems. Rebates are based on actual customer invoice and a rebate application must be submitted. Maximum $5,000 rebate per customer.

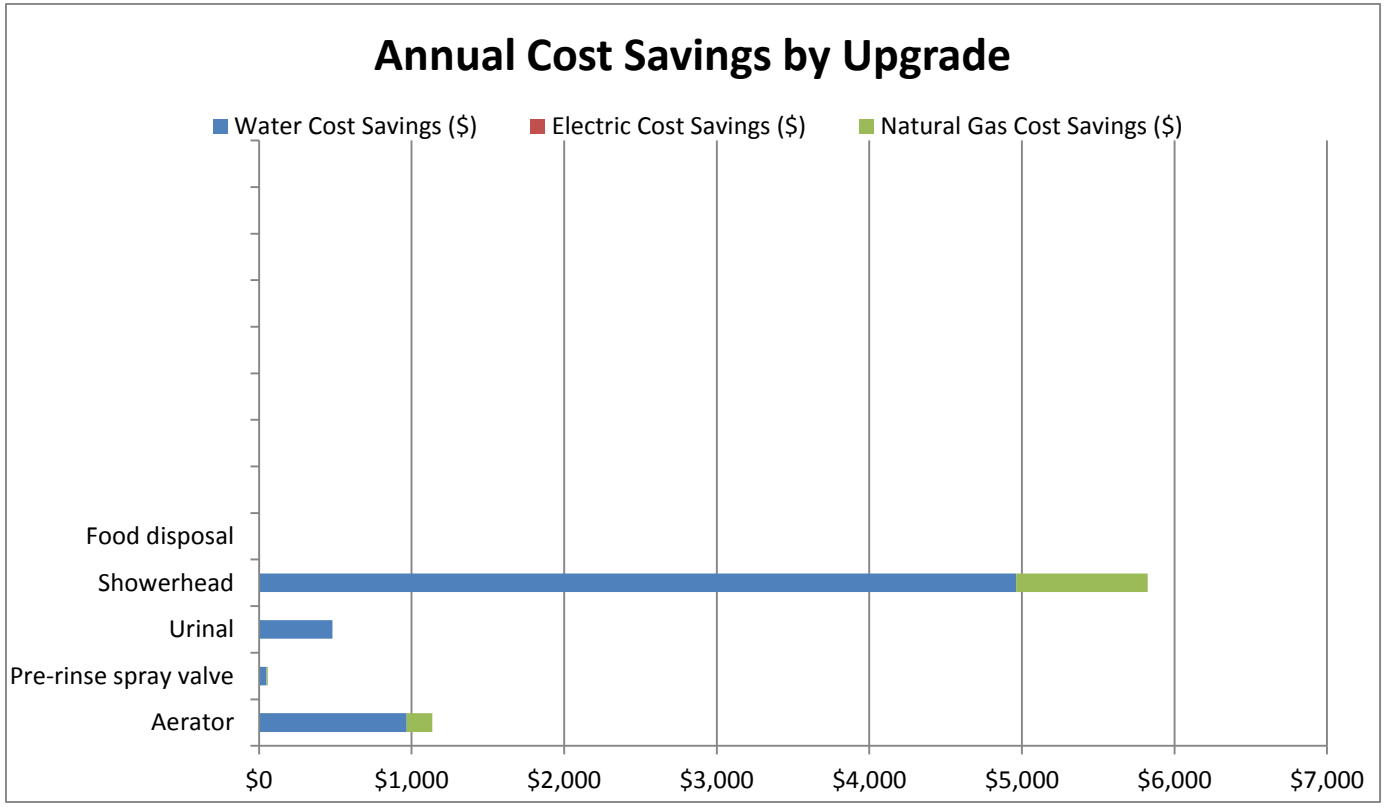
Annual Cost Savings by Upgrade
Water Cost Savings ($)
Electric Cost Savings ($)
Natural Gas Cost Savings ($)
Food disposal
Showerhead
Urinal
Pre-rinse spray valve
Aerator
$0
$1,000
$2,000
$3,000
$4,000
$5,000
$6,000
$7,000

Figure 2

Center for Resource Conservation

Toolkit Specification for Restaurant and Hospitality Audit Program

Items for CRC Auditor

1. Uniform/T-shirt
2. CRC ID card
3. Tablet computer loaded with audit software
4. Available info about audit site (name, address, phone, contact person, type of business, water use history if available)
5. Paper and pen (in case of tablet or software malfunction)
6. Pliers and/or vice grips (small to medium size)
7. Rubber gloves
8. Crescent wrench (2 sizes – small and medium)
9. Screwdrivers – flathead and phillips
10. Teflon tape
11. Flow bags and/or calibrated bucket (2 – 5 gallons in size)
12. Stop watch
13. Plastic tubing or hoses (short lengths of 3 – 5 feet) for measuring flow rates. Diameter must be sufficient to capture all flow from a typical faucet fixture.
14. Flashlight
15. Tape measure
16. Printed handouts and information about CRC and the CII audit program
17. Business cards

Recommended Pre-Rinse Spray Valve Models

The Food Service Technology Center recommends a pre-rinse spray valve with a flow rate of 1.6 gallons per minute or less, and with a cleanability performance of 26 seconds per plate or less, based on the ASTM *Standard Test Method for Performance of Pre-Rinse Spray Valves*.

The following pre-rinse spray valves have been verified by the FSTC to meet this criteria:

- BK Resources PRV-1
- Bricor B064 PRV
- Bricor B074 PRV
- Bricor B084 PRV
- Bricor B094 PRV
- Bricor B095NS
- Chicago Faucet 90-LABCP
- Encore KN50-Y002-12
- Encore KN50-Y103 & Y104 (Straight Stream)
- Encore KN50-Y103 & Y104 (25 degree Fan Position)
- Encore KN50-Y103 & Y104 (15 degree Fan Position)
- Fisher Ultra-Spray 2949 & 71307

- Fisher 10197 & 13641
- Krowne Metal Water Saver 21-129
- Meisheng M0098SV-065G
- Meisheng M0098SV-124G
- Meisheng M0098SV-142G
- Meisheng M0098SV1-124G
- Niagara N2180
- Strahman Kwik-Clean 3 (Straight Spray)
- Strahman Kwik-Clean 3 (5 Degree Fan Position)
- Strahman Kwik-Clean 3 (15 Degree Fan Position)
- Strahman Kwik-Clean 3 (Tri Tip Position)
- Strahman Kwik-Clean II
- T&S B-0107
- T&S EB-0107-C
- T&S B-0107-C
- T&S B-0107-C & EB-0107-C (60 Plate Test)
- T&S Equip 5SV
- T&S Equip 5SV-C
- T&S JetSpray B-0108
- T&S JetSpray B-0108-C
- T&S B-2108
- Zurn Z80000-PR1

Instructional Videos for PRSV Testing and Installation

PRSV Testing

http://www.youtube.com/watch?feature=episodic&v=RmlbhA2dq4E&NR=1

PRSV Installation

http://www.youtube.com/watch?v=dwBDKra3S-0

Certificate of Completion

Business Name

has received an

Indoor Water Conservation Audit

performed by the ***Center for ReSource Conservation***
through the support of ***the City of Vwxyz***

CENTER FOR ReSource CONSERVATION

Thank you for supporting businesses that work to protect our community's natural resources.

City of Fort Collins Utilities