CENTER FOR
ReSource Conservation

January 5, 2015

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,

We are excited to present you with a full proposal to request funding from the Water Efficiency Grant Program Fund to support our effort to help Colorado public schools with water conservation. Our School District Efficiency Project will be an in-depth effort with a Colorado public school district to assess their water use, present them with solutions for addressing inefficiencies and then implementing those solutions, providing the district with significant levels of measurable water savings. In addition, this grant will bring water conservation into the classroom, through lessons and hands-on activities that teach students concepts and methods of water conservation.

The goal of this project is to have a direct impact on the water use of the district as well as to educate their staff and students about the importance and approaches of water use efficiency. Specifically, the three main goals of this project are:

- To educate the school district staff on the most cost effective water efficiency upgrades that can be made and/or process changes that it can implement indoors and outdoors, to cause significant reduction in water use and cost of water bills.
- To implement major water efficiency upgrades and/or operational changes within the district. Major is defined by demonstratable and significant water savings associated with the upgrades and/or changes.
- To provide educational lessons and opportunities to students in each school in the district on water conservation concepts and methods.

The total cost of this project will be $88,982, and CRC is asking for $48,882 in support from the CWCB. As well as CWCB funds, CRC will contribute $5,600 of in-kind work, and the partner school district will contribute $22,000 of in-kind labor and $12,500 of matching funds to go toward purchases of high-efficiency fixtures and/or appliances. The total match amount is therefore $40,100, or 45%.

Sincerely,

Morgan Shimabuku
Senior Manager of Sustainability Programs
mshimabuku@conservationcenter.org

Dan Stellar
Senior Director of Sustainability
dstellar@conservationcenter.org

Center for ReSource Conservation
2639 Spruce Street
Boulder, CO 80302
303-999-3820

Water Efficiency Grant Program Fund Application:

Version Date: 12/19/2014 (original submission 11/24/2014)

Applicant: Center for ReSource Conservation (CRC)

Project Name: School District Water Efficiency Project

Goal: To partner with a school district to identify and implement demonstratable water savings and to educate students within the district on water conservation concepts and methods.

Funds Requested: $ 48,882

Matching Funds: $ 12,500

In-Kind Matching Funds: $ 27,600

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Project Summary

Water conservation efforts within school districts helps to accomplish two important state-wide water goals including reducing demand through active conservation work and enhancing education around water conservation concepts and methods. In order to help the state meet these goals the Center for ReSource Conservation (CRC) proposes to partner with a public school district to identify opportunities for instating measurable improvements in water use, to instate those changes, and to educate their staff and students on the topic of water conservation. CRC has received a formal commitment, including a letter of support, from the St. Vrain Valley School District to partner to achieve these goals.

The first task will be to perform indoor commercial assessments at the 20 highest water-using schools in the district. The next task will be to perform outdoor assessments at the 10 highest outdoor water-using schools in the district. Third will be to evaluate and analyze the data and report findings from the assessments to district staff. CRC and district staff will work together to identify the upgrades and/or process changes that can be implemented with grant funds and matching funds from the district to create measurable water savings. Afterward, CRC and district staff will implement the upgrades and/or process changes. Education and participation of the school district's students will involve school staff delivering lessons at all grade levels as well as hands-on learning through small-scale student-led indoor assessments. During these assessments it is possible that students will be able to participate in implementing

some of the upgrades, such as through switching out aerators, and will become engaged with measuring before and after-upgrade water use. The final task will be to compile all findings and information and do an analysis to provide a clear explanation of the water savings that will be achieved from the work in the district, by staff, students and CRC.

Project Background

CRC is a nonprofit organization that works across the state of Colorado in partnership with water utilities to put conservation into action. More specifically, CRC serves 25+ Colorado communities through implementing residential and commercial, indoor and outdoor water conservation programs. For a school district water conservation program CRC will bring expertise in both indoor and outdoor water auditing. CRC's outdoor irrigation auditing program, Slow the Flow, works in over 20 water districts across the state, with proven results in water savings[1]. With a year of commercial water assessments program experience, CRC has developed the knowledge- and skill-base needed to provide commercial entities with concise, pertinent, and significant recommendations for improved water use through upgrades and process changes, including pay-back periods of the recommended changes.

Starting in 2013 the CRC worked with several utilities and used funding from the CWCB to create a commercial water assessment program. CRC created this program in order to fill a void in the water conservation program offerings, particularly within small to medium-sized water utilities. These utilities rarely have the infrastructure or staff to enable them to provide services for their business community. During the pilot year of the program CRC performed 11 water assessments at schools within the Front Range. Nearly every school was found to have significant potential for water, energy, and cost savings from upgrading fixtures and/or large appliances to WaterSense and EnergySTAR products. Based on water records analysis and billing history from these schools, CRC also found that a majority of water use occurred during the summer, suggesting that conservation opportunities exist for schools in the outdoor watering arena as well.

Another strength that CRC brings to the table is from their direct work with school districts across the state through our youth engagement energy competition, ReNew Our Schools. Through this program CRC has developed a strong set of skills involving the coordination of school district resources and staff to deliver impactful, education-based programming. Since 2011 CRC has run ReNew Our Schools within St Vrain Valley School District (SVVSD) three times and it is within this district that CRC proposes to implement the proposed School District Efficiency Project. The relationships that CRC has built within the district, with the administrative, maintenance team and educational teams, will provide the foundation that is needed in order for this project to succeed. Furthermore, SVVSD has directly experienced the benefits that conservation can have on their students and on the district's bottom-line, so they are not only willing, but committed to supporting this effort with staff time and monetary

[1] Water Conservation Impact Assessment: 2013 Final Report to CWCB. Grant Number OE PDA 13000000102

resources. Through this partnership and CRC's knowledge- and skill-base in water conservation, this project should be highly successful.

With the new skills, infrastructure and experience with commercial water conservation assessments in hand, CRC is ready to bring our expertise to a sector of Colorado businesses that need and want to make improvements in water use efficiency. School districts are known for being limited by monetary resources. Programs that offer them the chance to prioritize infrastructure upgrades and process improvements that over time, reduce overhead costs, can create the opportunity for the districts to put their limited funds toward other priorities. This project will provide a district with an in-depth evaluation of their water use behaviors and infrastructure, and directly identify opportunities for the most cost-effective changes they can make to save water and money.

Project Goals

The main goals of the project include:

- To educate the school district staff on the most cost effective water efficiency upgrades that can be made and/or process changes that it can implement indoors and outdoors, to cause significant reduction in water use and cost of water bills.
- To implement major water efficiency upgrades and/or operational changes within the district. Major is defined by demonstratable and significant water savings associated with the upgrades and/or changes.
- To provide educational lessons and opportunities to students in each school in the district on water conservation concepts and methods.

Project Scope of Work

The scope of the project includes 20 indoor and 10 outdoor water assessments for high water using schools within the district, education about and participation in school assessments for students and staff, collaboration with district staff throughout the implementation process, and a final analysis to review water savings. Below, each task is described separately.

School Assessment Tasks

Water use across the district will be used to target the 20 schools for the indoor and 10 outdoor assessments. Student population size will be taken into account when evaluating water use in order to provide a base metric for comparing use across widely ranging school sizes. At least one school within each grade range, elementary, middle and high school, will be chosen to receive an assessment in order to ensure all grade levels within the district are receiving the educational benefits. Indoor assessments will be scheduled for the spring of 2015 (February-April). Outdoor assessments will be scheduled for late spring and early summer of 2015 (May-July), and will only occur once district irrigation systems have been turned on for the season.

All data collected during the indoor and outdoor assessments will be complied in a single database. Initial findings from the assessments will be relayed to district staff as the assessments occur. Final analysis of all of the data in order to decide on the best upgrade(s) and/or process improvement for the district will be performed after all indoor and outdoor assessments have been completed.

Water Conservation Education Tasks

A main goal of this project is to provide the students within the school district with engaging lessons that teach them about their school's and community's water use and the concepts and methods of water conservation. In order to meet this goal, CRC will work with the district staff and each participating school's teachers to offer age-appropriate lessons at each school and to direct small-scale, student-led water assessments. These lessons will be planned and prepped in the spring and summer of 2015. The lessons will be given and the student-led water assessments will be performed in the fall of 2015.

Each school will be allowed to choose the best means of involving students with the small-scale assessments. Some schools may have environmental clubs that will perform the assessments either during or after school hours. Some schools may assign a particular class to perform the assessments during school hours. CRC will work with school staff and educators to figure out which method will work best for their student body and school.

The small-scale, student-led water assessments will be an opportunity both for students to learn about water conservation concepts and methods as well as help with the implementation aspect of the larger water-saving effort. CRC and school staff will also be directly involved in these assessments in order to teach and guide the students through the process. These assessments will focus on indoor water use and will involve the students in measuring flow rates at hand washing faucets, showers and kitchen faucets and upgrading these same fixtures to high-efficiency products[2]. Data collected during these assessments will be used by students and project staff to estimate water use before and after exchanging aerators, providing the students with an opportunity to quantify their direct impact on the school's water savings from the project.

Implementation of Water Conservation Upgrades to the School District

Another main goal of this project is to ensure that the school district implements changes to its water fixtures and/or procedural operations that directly reduce the amount of water used by the district. Using the data collected from the indoor and outdoor assessments, CRC will work directly with school district staff to create an implementation plan. Throughout the assessment process, from January through July, CRC will provide the school district staff with findings from the assessments so as to have little surprise at the end of completing the final assessment as to what upgrades and/or changes will be the best to implement. The implementation plan will be

[2] While it is not known at this time which schools will have the identified need of high-efficiency aerators or other products, there are three reasons to plan for doing this exercise. 1) Data from CRC assessments at 11 Front Range schools in 2014 found that among these schools there was 359,000 gallons of potential water savings from replacing aerators, suggesting significant savings from this simple upgrade; 2) Aerators are very inexpensive and therefore will be a low-cost method for saving water; 3) Replacing aerators is a task that 6th-12th grade students can do, therefore this is an opportunity to give students the ability to have a direct impact on their school's water use.

completed by the end of August, 2015. After the plan is created, any necessary supplies will be ordered and CRC will work with district staff to schedule the installations and upgrades of the high-efficiency products and/or changes made to operations. CRC and the district will plan to have installation and operations changes completed by the end of the school term on December 18, 2015.

Project Tasks and Timeline

The scope of work includes six tasks, described below, that will lead the CRC and its partners to the three main goals of the project. The tasks, deliverables, and deadlines are summarized in Table 1.

Table 1: Summary of Tasks, Deliverables, Deadlines, and Billable Amount

Task	Deliverables	Deadline	Billable Amt.
Task 1: Indoor Water Assessments	20 indoor water assessments completed Preliminary analysis of water conservation recommendations delivered to district staff	4/15/2015	$10,712
Task 2: Outdoor Water Assessments	10 irrigation assessments completed 50% Progress Report	7/31/2015	$15,712
Task 3: Water Conservation Education	Comprehensive, well organized database of water-related lesson plans for K-12 students Submissions from educators on lesson plans used Results from student-led water assessments and aerator replacements 75% Progress Report	11/15/2015 (database will be complete by 6/30/2015)	$6,274
Task 4: Implementation	Report compiling findings of indoor and outdoor assessments with recommendations from CRC Report from School District detailing plan for implementation including details of purchases with grant funds and matching funds and process changes Any water fixture purchases will be complete and delivered to all schools receiving the upgrades Water upgrades and/or process changes implemented and installed	12/18/2015 (Report from CRC and District will be completed by 8/30/2015)	$13,984
Task 5: Data Analysis and Reporting	Analysis of water savings and project accomplishments for school district Final Report to CWCB	1/30/2016	$2,200

Task 1: Perform Indoor Water Assessments

This task encompasses the indoor assessments at the 20 selected schools. CRC will lead the assessments with support and participation by district staff. One district staff will attend each assessment with a trained water technician from the CRC. During each assessment the following will occur:

- Initial meeting with district staff and/or school staff to discuss specific issues related to the school's water use, demographics, or other relevant information.
    - Student population number
    - Teacher and staff numbers
    - Square footage of each building
    - Number of days of facility use (including summer uses)
    - Number of meals served per day
    - Information on standard fixture replacement policy and process for reporting and fixing broken fixtures and appliances when the breaks occur.
- Each water using fixture and appliance will be tested and/or surveyed from the following parts of the school:
    - Kitchen
    - Restrooms (employee and student)
    - Locker/gym rooms
    - Science/laboratory classrooms (if applicable)
- Catalog and detail all water-using fixtures and appliances on the property
    - Dishware information (e.g. disposable or reusable?)
    - Restroom faucet flow rates
    - Toilet and urinal flush volumes
    - Shower flow rates (if available)
    - In-classroom water use measurements (if available)
    - Water using appliance stats (e.g. brand, model, and gallons of water per load, if available)
    - Kitchen appliance stats (e.g. brand, model, and gallons of water per load, if available)
    - Pre-rinse spray valve flow rate
    - Kitchen faucet flow rates
- Brief meeting at the end of the assessment to go over any findings that require immediate attention (e.g. leaks)

**Fixture tests include both use and leak tests*

This list of data and information requires for the assessment to include short staff interviews and discussions. During this first task, the main goal for CRC will be to gather information, but also, if possible, to provide education to school staff if an opportunity for this kind of exchange exists. Another goal of this process is to not just catalogue each school's fixtures, but also to figure out if any processes within the school could be changed to use less water while not compromising the outcomes of the process.

A secondary part of this task will be an initial overview and evaluation of the data in order to gain a basic idea of the most useful upgrades and process changes that can be made within the school system. A brief, initial report will be supplied to school district staff so that they are also informed of preliminary results from the indoor assessments. Furthermore, it is expected from this investigation that at least one low-cost and simple upgrade will be discovered that can be later used during Task 3, indoor assessments and implementation with students (e.g. aerators). If possible, an order for this appliance will be placed prior to the completion of this task so that students will be able to install them during the fall of 2015.

CRC plans to complete Task 1 by April 15, 2015. The total amount to be billed for Task 1 is $10,712.

Task 2: Perform Outdoor Water Assessments

This task will focus on the completion of 10 outdoor irrigation assessments at the schools with the highest water use outdoors. These schools will be identified separately from the 20 chosen for the indoor assessments; however it is expected that there will be some overlap between the 20 highest users overall (relative to square footage or student numbers) and the 20 highest outdoor users.

One to two CRC water technicians will attend each outdoor assessment along with a district staff member. The length of each outdoor assessment will vary depending upon the number of zones at the site. Typically, a large property audit with more than 50 zones takes 16-64 hours of water technician time. With less than 50 zones the assessment will take between 4 and 16 hours of water technician time. During the irrigation audit the following tests and steps will be performed:

- Meet with the school maintenance staff, gather general information related to the site (who is responsible for maintaining the grounds, what is the typical approach to watering, presence of rain sensors, ET sensors, etc.)
- Visual inspection of the system
    - Turn on each zone
    - Note current schedule on control clocks
    - Note problems or other discoveries
- Catch cup tests
    - Choose 2-4 zones per controller
    - Calculate Precipitation Rate and Distribution Uniformity
- Pressure Measurements
    - Perform these tests in same zones as the catch cup tests
- Soil and root-depth tests
    - Perform these tests in same zones as the catch cup tests
- Landscape Measurements

Similar to the indoor assessments, the goal of this task will be to gather information on what kind of equipment is used, but with a stronger focus on process. Outdoor irrigation systems often require more attention and knowledge to run efficiently than indoor appliances. Therefore, we expect significant opportunities for process improvement from this area of the assessment.

Each assessment will produce a report detailing specific changes and upgrades that could be made to the irrigation systems. After all assessments have been completed, these individual reports will be evaluated by CRC staff in order to provide preliminary results to the district.

CRC plans to complete Task 2 by July 31, 2015. Along with the completion of this task will be the 50% progress report. The total amount to be billed for Task 2 is $15,712.

Task 3: Provide educational lessons and opportunities for students and staff

The main goal of Task 3 will be to deliver the educational component of the project, which includes lessons at every grade[3] level as well as participation in implementation of water conservation measures through student-led water assessments. The student-led assessment effort will provide an opportunity for students to measure the before and after water use, allowing them to quantify the direct impact that their efforts have on their school. Within Task 3 there are three subtasks, each with separate deliverables.

Sub-task 1: To develop a database of lesson plans for educators

During the first half of 2015 CRC staff will create a database of lesson plans for school educators to use when planning lessons around water conservation. This database will be a comprehensive resource for educators to select both topic-relevant and age-appropriate lessons for their students in the fall of 2015. The database that CRC provides will be filled with lesson plans from pre-existing K-12 curriculum. For example materials from Arizona Project Wet's School Water Audit Program (SWAP) has a publicly available list of lesson plan downloads that work toward the same objectives that this project seeks to meet. **Appendix 1** of this proposal contains a list of links to various sources that contain lesson plans that will make up the database that will be provided to the educators at the participating schools. CRC will work with district staff and some lead/point educators within the district to receive feedback on the database's content and format prior to distributing the final database to the educators during the summer of 2015.

CRC will work to create a database that allows for topical searches/filtering as well as age-appropriate searches/filtering. Educators will be directed to this resource, but not required to use it. There will be many complete lesson plans available within the database, however all educators will be allowed to develop their own lessons as they see best for their classroom.

In order to ensure that water conservation curriculum is taught at the participating schools, it will be requested that at least one teacher for each school submit a lesson plan that they used by a designated date in the 2015-2016 school year.

[3] Lessons at each grade level does not mean that every students in the district will receive direct education related to this project. The lessons will be focused on the schools that receive the assessments, and will go to at least one classroom or environmental group per grade level within each school.

The deliverable from this sub-task will be the database of water conservation lessons. This sub-task will be complete by June 30, 2015.

Sub-task 2: Deliver lessons to students through classroom and/or environmental clubs

This subtask involves delivering the lessons to students at the schools where the water assessments have been performed. School staff will be the main implementers of this task. CRC staff will be available to help, as needed, and will attend some lessons. If an educator prefers to offer the lesson to a school group, such as an environmental club, that will also be acceptable.

The deliverable from this sub-task will be one lesson plan from at least one educator from each of the participating schools that have received a water assessment, delivered to CRC staff after it has been used in the fall of 2015.

Sub-task 3: Student-led assessment of before and after water conservation upgrade

The third subtask will engage the students that have received lessons about water conservation in actively participating in their schools efforts to measure the water use and implement water conservation upgrades. The goal of this sub-task is to give the students hands-on experience with water conservation methods and measurements. This task will occur after the in-depth indoor and outdoor assessments have been performed in order to allow for CRC staff and school district staff to come to an agreement on the water conservation updates that will be implemented and for the correct supplies to be ordered. Details of the plan for upgrade purchases are included under Task 4.

Performing small-scale water audits within school restrooms and kitchens will be an interactive, hands-on learning opportunity for students in grades 5-12. Each student will be able to test flow rates on faucets, showers and/or pre-rinse spray valves and taught how to check for leaks and where and how to report them if they are found. Next, students will be walked through the process of installing high-efficiency aerators, showerheads and/or pre-rinse spray valves. They will then measure the flow rates of these devices after the upgrade, and do basic calculations to estimate the change in the water use, both for the single device, and for the entire school, if all of the faucets/showerheads/PRSVs[4] were to be updated. In this way, the students will be able to quantify and understand (through actual tests of their own) the implications of their work and of water conservation.

In order to perform these indoor assessments CRC will use grant monies to purchase

- Toilet leak test tablets
- Water flow bags

For students in lower grades, alternative hands-on activities will be performed. The lesson database will include lesson plans for hands-on activities

[4] Please refer to footnote #3.

that help teach younger students about water conservation methods. Educators will be encouraged to educate these students on ways that each of them can use less water in their own daily lives. Some basic quantitative aspects will also be incorporated into these lessons as well.

Task 3 will be completed by November 15, 2015. The total amount to be billed for Task 3 is $6,274.

Task 4: Implementation for Water Savings

For this task CRC will work with the school district staff to implement water conservation upgrades and process improvements to with demonstratable, significant water savings. Implementation has two phases – first is evaluating the findings from the indoor and outdoor assessments to figure out the opportunities that exist for improving water efficiency, and the second is to order the supplies and perform the installations and/or make a clear and direct plan for process improvements.

Sub-task 1: Evaluate findings from indoor and outdoor assessments

Using the data collected during the indoor and outdoor assessments, CRC will first spend time compiling the findings into a report that can be presented to district staff and decision makers. CRC staff will present the report electronically and in-person to the district staff.

The district and CRC will mutually decide on what upgrades to make to fixtures or appliances and/or what process changes to implement with regards to water use. The district is also committing to matching the $12,500 grant fund monies with an equivalent sum of money in order to implement changes. While it is not possible at this time to know the exact number and cost of the final purchases, the following list includes example combinations of fixtures and/or appliances that could make up the list for a school district's water conservation implementation plan. The list was made based off of CRC's previous water assessments made at schools within Colorado.

Upgrade Example Options for School District with projected water savings*

- 500 0.5 gpm bathroom aerators ($1,000), 60 1.28 gpf flushometer toilets ($16,000), 30 0.5 gpf urinals ($6,000), 10 Rain Sensors ($200)
    - Water savings estimated (rain sensor not included): 1,081,000 gallons per year
- 500 0.5 gpm bathroom aerators ($1,000), 50 1.5 gpm showerheads ($500), 100 0.5 gpf urinals ($20,000)
    - Water savings estimated: 875,000 gallons per year
- 500 0.5 gpm bathroom aerators ($1,000), 100 1.28 gpf tank toilets ($20,000), 20 1.0 gpm PRSVs ($1,300)
    - Water savings estimated: 998,000 gallons per year

**All prices and savings are estimated and actual prices and water savings may vary. These prices do not include tax, nor shipping & handling charges, but it is expected that these extra charges will come out of the $25,000 contribution from*

the grant and the district toward the upgrades. These prices assume that school district and CRC staff can perform installations of the new fixtures.

This list does not include water savings from process improvements, such as to irrigation scheduling, as these changes will not require funds from the grant to implement. However these savings are likely to be highly significant as a large proportion of a school district's total use goes toward outdoor irrigation. This list also does not include large appliances due to the finding from previous work that these appliances are more commonly already highly efficient models (e.g. Energy STAR).

Deliverables from this sub-task include a report that contains a compilation of the findings from all of the assessments, a document that details the plans for implementing water conservation upgrades and measures using funds from the grant and their own matching dollars, and a timeline detailing the dates of implementation of these upgrades and measures.

Sub-task 2: Order parts and implement water conservation efforts

Once the school district has decided on what fixtures, appliances, and/or processes to upgrade, the CRC will place orders for the parts through their current accounts with water conservation fixture distributors (e.g. Niagara Conservation, Rampart Supply).

CRC staff and school district staff will be used to install the fixtures. If more technical expertise is required than CRC and district staff are qualified for, funds from the grant and from matching sources will be used to hire professional services to make the necessary changes. CRC and the district will follow the timeline to install all ordered parts within the timeframe provided by the grant, by December 18, 2015.

Task 4 will be completed by December 18, 2015. The total amount to be billed for Task 4 is $13,984.

Task 5: Data Analysis and Reporting

The School District Water Efficiency project includes a significant data collection component to aid the district in understanding their water use and figure out how to target conservation efforts. Pervious tasks include data analysis as well, however this task will focus on compiling the data collected, putting into a single report, and evaluating the final upgrade decisions made by the district. This analysis will include results from the student-led water assessments and fixture upgrades. The CRC anticipates providing one report to the district maintenance staff and one for the administrative staff, to allow both bodies to learn about the entire process of implementing water conservation and educating their students on the concepts and methods. 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 reports will include the following information:

- Basic information about each school

- Number, type, and flow rate of fixtures found at each school
- Water savings potential from fixture replacements at each school
- Fixture replacements performed by students
- Fixture replacements performed during the implementation
- Leaks and other problems found at each school
- Process improvement recommendations and explanations that provide information on how to implement those changes.

Task 5's deliverables include a report for the school district that covers the entire projects, all findings, water savings analysis and accomplishments of the district toward reducing water use and the final report to the CWCB. Task 5 will be complete by January 30, 2016. The total amount to be billed for Task 5 is $2,200.

The CRC anticipates providing the CWCB with the 50% progress report by July 31st, 2015, after Task 2 is complete, and the 75% progress report by November 15th, 2015 after Task 3 is complete and Task 4 is nearly complete. The CRC will provide the final report to the CWCB by January 30th, 2016.

Project Team and Partners

This program represents a partnership between the CRC and a Colorado public school district. An initial letter of support is presented along with the grant application from the school district that has committed to work with the CRC should we be awarded the grant. CRC and Saint Vrain Valley School District staff members who will work on the project are listed below.

Center for ReSource Conservation Team

Morgan Shimabuku, Sr. Manager of Sustainability Programs
Morgan Shimabuku joined CRC as an intern in 2012 and by 2013 became full-time staff. She has focused primarily on quantifying the CRC's impact upon the communities within which it works and has also managed several special projects and programs including the commercial water audit program launch, a PRSV replacement program, and Boulder Flood community outreach. Morgan's primary experience is in watershed research and evaluation with a degree in Physical Geography from the University of Colorado where her research focused on the impacts of climate change on high-elevation watersheds. She has also worked as a staff scientist at a water resources consulting firm and as a stream technician for the US Forest Service. Her Bachelor's degree in Geology and Environmental Studies from Whitman College.

Morgan is the primary contact and point person for the execution of this program.

Dan Stellar, Director of Sustainability
Dan Stellar joined the CRC as Water Division Director in July of 2011. Dan has a strong background in environmental policy with an emphasis on water issues. For three and a

half years Dan served as the Assistant Director of the Columbia Water Center, a program of the Earth Institute, Columbia University. In this capacity he managed water conservation, policy and development projects both domestically and internationally, with a special focus on work in India. In addition to project management, Dan guided the development and operations of the Water Center; he was the founding staff member of the Center, and helped it develop into a thriving program with expertise across a range of disciplines. Dan has written and spoken about water related issues to a range of audiences, including at World Water Week in Stockholm, Sweden, and as a regular contributor to the Asia Society's Global Sustainability Roundtable blog. Dan holds a Master of International Affairs degree, with a focus in environmental policy, from Columbia University's School of International and Public Affairs (SIPA), and his undergraduate degree is from the University of Massachusetts, Boston.

Dan will act in a supervisory role for this project as well as the signatory for CRC.

Water Conservation Technical Staff
The water conservation technician will be responsible for performing indoor and outdoor water audits. He or she will be required to prove responsibility and proficiency in conducting a high-quality indoor and outdoor water audit and working with customers. He or she will also be involved with implementation of the upgrades to the schools through some labor and coordination of the project.

Water Conservation Associate
The water conservation associate will be responsible for coordinating with the school district staff to schedule indoor and outdoor water audits. He or she will be required to demonstrate exceptional customer service and organizational skills in order to schedule audits effectively.

St. Vrain Valley School District Team

Dara Ward, SVVSD Energy and Sustainability Manager
Main project coordination/management with SVVSD Grounds Team, schools, teachers, principals and CRC.

Mark Thomas, SVVSD Manager Building & Outside Services
Part of implementation planning process and implementation labor support

Dale Bjorhus, SVVSD Irrigation Lead
Part of implementation planning process and provides labor support for outdoor audits, scheduling and managing equipment

Taylor, SVVSD Grounds Lead
Part of implementation planning process and provides labor support for outdoor audits, scheduling and managing equipment

Patrick Myhaver, SVVSD Plumbers Lead,
Part of implementation planning process and provides labor support for indoor audits, scheduling and managing equipment

Custodial Support
Each participating school has a Lead Custodian who will be involved with providing access to indoor areas

Lead Teachers (TBD when schools are invited to participate)
Implement lessons to students and coordinate other educators to implement water conservation lessons and identify students to participate and contribute to water audits

Program Budget									
Task 1: Indoor Water Assessments	**CRC Hours**	**Audits**	**CRC Miles**	**CRC Rate**	**Total**	**CWCB Request**	**Partner School District In-Kind**	**Partner School District Direct Funds**	**CRC In-Kind**
20 Indoor Water Assessments		20		$450	$11,000	$9,000	$2,000		
CRC Program Management Time	20			$50	$1,000	$1,000			
Prelimary Analysis of Results by CRC Prgm Manager	40			$50	$2,000	$600			$1,400
Mileage for Meetings with District	200			$0.56	$112	$112			
Total for Task 1					**$14,112**	$10,712	$2,000	$0	$1,400
Task 2: Outdoor Water Assessments	**Hours**	**Audits**	**Miles**	**Rate**	**Total**				
5 Large Commercial Property Outdoor Assessments		5		$1,800	$17,000	$9,000	$8,000		
5 Small Commercial Property Outdoor Assessments		5		$1,200	$10,000	$6,000	$4,000		
CRC Program Management Time	20			$50	$1,000	$600			$400
Prelimary Analysis of Results by CRC Prgm Manager	20			$50	$1,000				$1,000
Mileage for Meetings with District			200	$0.56	$112	$112			
Total for Task 2					**$29,112**	$15,712	$12,000	$0	$1,400
Task 3: Water Conservation Education	**Hours**	**Audits**	**Miles**	**Rate**	**Total**				
Creating Comprehensive Water-related Lesson Plan Database	25			$50	$1,250	$850			$400
Time With Student-Led Assessments	80			$50	$8,000	$4,000	$4,000		
CRC Program Management Time & Analysis	40			$50	$2,000	$1,000			$1,000
Materials for Student-Led Assessments					$200	$200			
Mileage to Support Lessons and Student-Led Assessments			400	$0.56	$224	$224			
Total for Task 3					**$11,674**	$6,274	$4,000	$0	$1,400
Task 4: Implementation	**Hours**	**Audits**	**Miles**	**Rate**	**Total**				
Implementation Time	70			$50, $22	$6,660	$1,260	$4,000		$1,400
Water Fixture Purchases					$25,000	$12,500		$12,500	
Mileage for Meetings and Implementation Work with District			400	$0.56	$224	$224			
Total for Task 4					**$31,884**	$13,984	$4,000	$12,500	$1,400
Task 5: Data Analysis and Reporting	**Hours**	**Audits**	**Miles**	**Rate**	**Total**				
CRC Prgm Manager	40			$50	$2,000	$2,000			
Printing					$200	$200			
Total for Task 5					**$2,200**	$2,200	$0	$0	$0
					Total Project Cost	CWCB Request	Partner School District In-Kind	Partner School District Funds	CRC In-Kind
Summary									
Project Cost					$88,982	$48,882	$22,000	$12,500	$5,600

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Energy & Sustainability Department

395 South Pratt Parkway • Longmont, Colorado 80501-6499 • 303.682.7363

Date: November 12, 2014
To: Colorado Water Conservation Board Grant Review Committee
Cc: Morgan Shimabuku, Senior Manager of Sustainability Program, CRC
From: Dara Ward, Energy & Sustainability Manager, SVVSD
Subject: CWCB Letter of Support

The St. Vrain Valley School District would like to express its support for the Center for ReSource Conservation's (CRC) proposal to the CWCB for the school district water efficiency project. The scope of work, tasks and timeline are all acceptable to St. Vrain Valley Schools. Furthermore, our district is willing to commit to spending up to $12,500 to match funds provided by any support awarded from the CWCB for water conservation upgrades and process changes to improve the water use efficiency within our school district.

St. Vrain Valley Schools has worked directly with CRC for several years through the ReNew Our Schools youth engagement program. This program has been a popular program within our district, offering our students and staff exceptional educational and experiential learning opportunities around energy use and conservation. Through a hands-on approach, teachers, students, and staff identify sound measures to limit the use of natural resources and become good stewards of the Earth. In addition, students are not only equipped with the tools and knowledge to pursue careers in the energy and sustainability field, but are motivated to do so. When CRC approached us about the chance to bring a similar program to our schools surrounding water conservation, we were, without hesitation, thrilled and eager to partner with them.

We appreciate the CWCB's leadership on water conservation throughout the state. We are excited for the potential of increasing our district's awareness of water conservation inside and outside the classroom as well as identifying sound measures to reduce our water usage. If any staff at CWCB has any questions for St. Vrain Valley Schools regarding our level of commitment to this project, please feel free to contact me.

Respectfully,

Dara Ward

Dara Ward
Energy & Sustainability Manager, SVVSD
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