

waterwise

The official publication of Colorado WaterWise

The Voice of the Colorado
Water Conservation
Community

colorado
waterwise



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ColoradoWaterWise.org

Fall 2015

From the editors

Colorado WaterWise has had success both as an organization and with our utility members. Last year at the Summit we launched the Value of Water Campaign entitled COLORADO WATER Live Like You Love It. Materials were created and largely directed toward millennials. Fact sheets, social media and a two minute video were created. This year a new Live Like You Love It website was developed and released, LoveColoradoWater.org.

The Colorado Outdoor Water Regulation Guide Smart Phone App was also created. Currently, about 40 zip codes are loaded into the app, but more content is still needed. An unintended benefit to the app is that utilities can look at other codes and borrow language when updating their own ordinances.

Three Lunch 'N Learns were held this year to provide mini learning opportunities for members and potential members. These were well received - read more on page 4.

Two more exciting educational workshops are coming up: Water Audits and Loss Control workshop aka M36 training the week of September 21-25. Find out more on page 5.

The highlight of the year is the [7th Annual Water Conservation Summit](#). Registration is now open. Speakers from around Colorado will cover Colorado WaterWise's accomplishments, the Colorado Water Plan, Commercial Industrial Institutional Assessment tool kit and Landscape Best Management Practices. Dr. Wallace Nichols will present "Blue Mind" and have a book signing. And to top off the day there will be a private screening of the Great Divide. Please join us for happy hour and networking.

Kim Frick
Ruth Quade
Leslie Martien

WaterWise is the official publication of Colorado WaterWise and is published four times a year (Mar, Jun, Sep, and Dec). Articles are due one month before the newsletter comes out.

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This newsletter is intended to spark dialogue about various issues concerning water conservation in Colorado. The viewpoints of the authors are not necessarily those of the Colorado WaterWise.



COLORADO WATERWISE ONGOING MEETINGS

Colorado WaterWise Board Meetings: Second Thursday of each month, 10 a.m.-noon

September 10

October 8

November 12

December 10

On the cover: Denver Botanic Gardens presented the Rocky Mountain Region's first major [outdoor exhibition of artwork by celebrated American artist, Dale Chihuly](#) in 2014. Photo by Ruth Quade.



2015 Water Conservation Summit

Thursday, October 29, 2015

8:15 a.m. to 5:30 p.m.

Police Protective Association Event Center
2105 Decatur Street, Denver

Support

Participate

Network

| | | |
|---------------------|----------------------|---|
| 8:15 am - 9:00 am | Exhibits Open | REGISTRATION & CONTINENTAL BREAKFAST |
| 9:00 am - 9:15 am | | Welcome & Opening Remarks FRANK KINDER, Colorado WaterWise Co-Chair |
| 9:15 am - 9:45 am | | Colorado Water "Live Like You Love It" JASON HANSON, Watermark Advertising |
| 9:45 am - 10:15 am | | Colorado Outdoor Water Regulation Guide - Right Rules Right Now LYLE WHITNEY, Aurora Water |
| 10:15 am - 10:30 am | | MORNING NETWORKING BREAK |
| 10:30 am - 11:00 am | | The Final Colorado Water Plan JAMES EKLUND, Colorado Water Conservation Board |
| 11:00 am - 11:30 pm | | Ice Breaker Group Activity FRANK KINDER, Colorado WaterWise Co-Chair |
| 11:30am - 12:45 pm | | LUNCH (provided) <i>Presentation of Colorado WaterWise Conservation Award</i> |
| 12:45pm - 1:15 pm | | CII Assessment Tool and Net Zero Waste Planning Toolkit BECKY FEDAK, Brendle Group and RUSS SANDS, City of Boulder |
| 1:15 pm - 1:45 pm | | Quantification of Landscape Water Conservation Best Management Practices JANE CLARY, Wright Water Engineers, Inc. |
| 1:45 pm - 2:00 pm | | AFTERNOON NETWORKING BREAK |
| 2:00 pm - 2:30 pm | | AWWA M36 Water Auditing Training WILL JERNIGAN, AWWA M36 COMMITTEE CHAIR |
| 2:30 pm - 3:30 pm | | KEYNOTE SPEAKER AND BOOK SIGNING "A BLUE MIND" NEW YORK TIMES BEST SELLING AUTHOR DR. WALLACE J. NICHOLS |
| 3:30 pm - 3:45 pm | | DOOR PRIZES & CLOSING REMARKS FRANK KINDER, Colorado WaterWise |
| 3:45 pm - 4:00 pm | | NETWORKING BREAK: COCKTAILS AND POPCORN |
| 4:00 pm - 5:30 pm | | MOVIE PREMIERE: THE GREAT DIVIDE A HAVEY PRODUCTIONS FILM **** Additional \$15 Registration Required **** |

REGISTER NOW!

The 7th Annual Colorado WaterWise Water Conservation Summit is coming on October 29. Visit ColoradoWaterWise.org to register and be a part of this great event.

The Keynote Speaker is Dr. Wallace J. Nichols, the author of "Blue Mind." Dr. Nichols is an innovative, silo-busting, entrepreneurial scientist, movement maker, renown marine biologist, voracious Earth and idea explorer, wild water advocate, bestselling author, and sought after lecturer. Read a review of "Blue Mind" on page 17.



Registration Costs:

Early Bird Member Rate: \$150

Member Rate (after September 19): \$200

Early Bird Non-Member Rate: \$200

Non-Member Rate (after September 19): \$275

Become a [WaterWise Member](#) or renew your membership before you register for the summit.

Sponsors are needed to make the event a success. [Learn more about sponsorship opportunities.](#)

COLORADO WATERWISE SUCCESSFULLY LAUNCHES A NEW LUNCH 'N LEARN SERIES; MORE TO COME IN 2016

By Frank Kinder, Colorado Springs Utilities

It's well known that professionals in the Colorado WaterWise community are implementing leading solutions, but with busy schedules, we don't often have available opportunities to share and learn the details of those solutions. To connect people with ideas and examples, Colorado WaterWise launched an easy way to [Lunch 'n Learn](#) together. The goal of this effort is to offer professional growth, networking connections and in-depth insight into unique, innovative, and transitional programs or projects that progress the field of water efficiency. We do so by providing regional water conservation experts an opportunity to present specialty topics in a free, efficient, convenient, and relaxed setting. These are learning opportunities for busy practitioners amongst peers, and this venue allows participants to learn details, ask questions, and consider possibilities for their own organizations. It also allows for conversation, problem solving, and shared understanding and celebration of success. Besides, everyone needs to eat lunch!

Held after our board meetings and hosted at board member facilities, these informative sessions proved popular, useful and enlightening to attendees. Three sessions presented a variety of water efficiency topics. [The first](#), held at the Aurora Library and taught by [Kate McMordie-Stoughton of Pacific Northwest National Labs](#), focused on the [Federal Energy Management Plan](#). The plan supports Executive Orders pursuing water efficiency in government, and has created multiple [BMPs](#) to help agencies achieve required savings. The BMPs include a number of water initiatives, many of which coincide with programs underway at Colorado utilities, which help Federal facilities reduce energy and water demand while progressing technology innovation. Kate's slides can be seen [here](#).

The second, held in Westminster, introduced CWW's [Colorado Outdoor Water Regulations Smart Phone Application](#). This evolving effort is designed to mobilize existing landscape ordinances, rebates, regulations, and other information guiding the use of water in the landscape into a simple to use, mobile platform to help professionals access information. The goal is to make compliance easier for residential and commercial landscape installation and management, and to reduce burdens on municipalities. Patterned after successful apps by Aurora Water, this effort meets the needs of a modern workforce and delivers additional venues of information to help all of us use water wisely. The project is gaining participant cities and is available for download.

The third was Rick Schultz from City of Castle Rock explaining his [Registration for Landscape Professionals](#). Rick shared his City's unique partnership with the landscape industry and how it has helped unify water efficiency requirements, practices, and results. Ultimately, his [training](#) and registration helps Castle Rock meet its Comprehensive Master Plan's goals of protecting natural features and systems, critical wildlife habitats, and environmental resources from adverse impacts through sound conservation practices. He shared the program, its participants, and how this effort helps users meet Castle Rock's Landscape and Irrigation Performance Standards. He also shared rebates and incentives, lessons learned, and some fun stories. Attendees were impressed and inspired, and excited to see how partnering with industry can achieve great results.



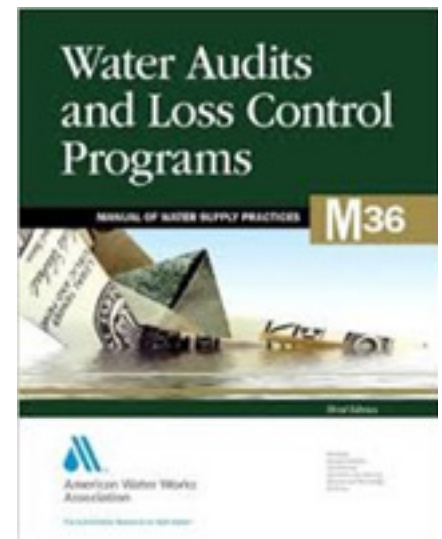
WaterWise is continuing Lunch 'n Learns in 2016 and welcomes your submission for ideas or presentations. Please send suggestions to Amelia.Nuding@westernresources.org.



STATEWIDE AWWA WATER LOSS AUDIT TRAINING – SIGN UP NOW!

Colorado WaterWise, the Colorado Water Conservation Board, the Rocky Mountain Section of AWWA, the Water Research Foundation and Cavanaugh are teaming up to bring you a Pilot Training Program for AWWA M36 Water Auditing & Loss Control. The training included a kickoff webinar on August 19th and has circuit of five training workshops across the State of Colorado September 21st – 25th. The training is essentially free with a small \$20 charge to cover lunch.

The Program will include foundational training on the AWWA M36 Water Auditing & Loss Control Methodology for water system improvements. Participants will be introduced to strategically applying the methodology and interpreting the water audit data to assess and improve water loss performance at the utility level. Water systems that operate more efficiently, with lower water losses, experience significant financial benefits from increased revenues, reduced treatment and pumping costs, public health and customer service benefits from fewer main breaks and service interruptions, and operational benefits from better managed flows, pressures and control valves. We encourage attendance from multiple departments for a holistic understanding of loss impacts, control, and remedy.



Establishing audit capability helps covered entities meet their HB 1051 reporting obligations and prepares them for any future requirements. It's also a great opportunity to institute operational auditing and eventually pursue Real Loss Component Analysis for Economic Water Loss Control.

Who should attend: Utility leadership, operations, financial and conservation professionals. To learn more about these programs, visit the Colorado WaterWise website: coloradowaterwise.org/WaterLossAuditTraining. Dates for the training are on page 15, in Water Conservation News and Notes.



CWW PARTNERS WITH COLORADO REAL ESTATE JOURNAL ON LAND AND DEVELOPMENT CONFERENCE

By Frank Kinder, Colorado Springs Utilities

The connection between water, land use and development is increasing in importance. To help bridge these disciplines, Colorado WaterWise (CWW) is partnering with Colorado Real Estate Journal (CREJ) to share information on water use, efficiency, tools and training that helps the commercial real estate industry understand and maximize water use.

CREJ is the preeminent commercial real estate news source in Colorado, sharing development trends, ownership changes, redevelopment projects, management principles, construction techniques and technologies, and larger industry information. It is an educational resource providing insight into commercial real estate at large, and also offers regular articles on high performance construction, such as USGBC's LEED, and updates on issues of sustainability. See crej.com for past issues.

Many real estate companies are embracing sustainability as a component of their vision and mission, and pursuing capital and human expenses in pursuit of this goal. As a trusted source for urban water efficiency leadership, Colorado WaterWise has contributed articles in support of water conservation, which has become both a focus and opportunity for multiple sectors, including Multi-Family, Hospitality, Office Space, Education, Retail, Warehouse, and Government. An article in the current issue highlights the upgrades to WaterSense fixtures in apartment buildings to reduce indoor water use, and future articles will share CWW's tools such as the Colorado Outdoor Water Regulation Guide, Colorado Water: Live Like You Love It Toolkit, and others. We look forward to helping new and existing real estate benefit from focusing on smart water use.

CREJ hosts multiple industry-specific conferences each year, and CWW is proud to be a Trade Association Partner of Colorado Real Estate Journal's 2015 Land & Development Conference which was held Tuesday, September 1, 2015, at The Inverness Hotel and Conference Center. This is Colorado's largest Land & Development conference of the year with more than 500 attendees. Speakers represent companies and municipalities across the Front Range, many of whom are CWW members and supporters. This year, James Eklund of CWCB was on a panel, as was Xcel Energy and economic development specialists. As water becomes more of a focus of development, communication and collaboration of this nature will help Colorado meet mutual goals.

In partnership with Otten Johnson Robinson Neff + Ragonetti, P.C. and DTZ.

If you have any questions about CREJ, this or future events, please contact Jon Stern at jstern@crej.com or 303-623-1148 ext. 10





A spotlight on **AMY CONKLIN**

WW: Tell us a little about yourself.

I have a Bachelor's from Colorado College in Biology and a Master's in Water Resources Management from the University of Wisconsin-Madison. I've been married to my husband for 31 years and we have three children: Lucy, a scientific illustrator in Monterey, CA; Grace a renewable energy engineer in Denver; and Patrick, a paralegal in Denver. We've lived in Littleton since 1984.

I've worked in the private sector, the public sector, for large corporations, local governments and am now a sole proprietor of a consulting firm. I work for myself. My boss is terrible.

I'm also a relentless volunteer and recovering politician. I started volunteering for my community in 1988, when I left my position as a Water Planner with the Denver Regional Council of Governments (DRCOG) for a part-time job at Parson's Engineering, Inc. At that time, DRCOG prohibited their employees from volunteering with any of the local governments. As soon as I could, I volunteered for the Littleton Library Board I went on to Littleton's Planning Commission serving four years on the Library Board, two as Chair. I served six years on the Planning Commission. In 1994, I was able to stay home full time to be with my three young children. So, naturally, I became Chair of all the PTOs in Littleton Public Schools. I served as PTO Chair for four years, while also on the Planning Commission. 'Stay at Home' Mom was an oxymoron. I was never at home.

After years of being recruited, I ran for Littleton City Council where I served for four years. I was elected by my peers to the Executive Committee of the Colorado Municipal League and served on the Environment and Natural Resources Committee of the National League of Cities. When I lost my bid for re-election, I worked for my State Representative, Col. Joe Rice, as his Legislative Aide for the 2009 session. Nearly every fall, since 1988, I've been out campaigning for candidates or issues on the November ballots. Being involved in politics is in my blood.

“Water conservation is still one of those behaviors we want everyone else to do. When we try to conserve as individuals, it’s not that easy. Think about smoking or wearing seatbelts and how tolerance of those behaviors has changed.”

WW: How did you get started in the (water, conservation, or other) business?

I’m one of those very fortunate people who has known what I wanted to do since I was a teenager: save the environment. I am fortunate that “saving the environment” can mean a lot of things. Having always been drawn to biology, I consider myself a scientist. My favorite movie quote is from Ghostbusters (the original), “Back off, man! I’m a scientist.”

One of the watershed moments in my career was when I was serving on Littleton’s City Council. As a council member, one of my responsibilities was decision-making about the Littleton/Englewood Wastewater Treatment Plant. It is the fourth largest plant in the state and has won multiple awards from EPA for excellent management. In 2006, we had to raise wastewater treatment rates by \$4.80 a year for each household. There was standing room only at the rate-setting hearing. I was dumbfounded when I realized that people don’t have a clue about the magic that happens between the stream and their taps or any idea what happens to the wastewater that leaves their houses. By the time we got to second reading for the rate increase, I was ready with a carefully constructed speech and some theatrics. It was the beginning of what would be a decade long (and counting) mission to educate people about their water.

WW: Regarding water conservation, what do you feel are the biggest challenges facing Colorado?

Water conservation is still one of those behaviors we want everyone else to do. When we try to conserve as individuals, it’s not that easy. Think about smoking or wearing seatbelts and how tolerance of those behaviors has changed. It’s taken decades and billions of dollars to change the societal paradigm about how smoking in public and wearing seatbelts in cars are perceived. Water conservation is going to take the same kind of effort and time, before the paradigm is changed. That’s just human nature. Using the tenants of community-based, social marketing provides a framework for a plan to connect Coloradans to their water.



Water professionals are rarely trained in the skills that are needed for community-based social marketing. In my experience, I have been shocked by the chasm between what the public knows and what the water professionals think they should know. People care about their water, but few have any idea where it comes from. Water professionals are talented, detail-oriented, hard workers focused on public safety. They are rarely good story tellers. What I hope to bring to my clients is the translation of the critically important work they do into a short story that the public can understand. It was Mark Twain who said, “I didn’t have time to write you a short letter, so I wrote you a long one.” I want to help my clients write their short letter.

WW: What regulatory measures do you think will have the biggest impact on water conservation in Colorado?

Management of water rights is by far the biggest regulatory measure that can impact water management in general and water conservation in particular. It’s blasphemy to suggest that water rights law might change, but if we want to manage our resources differently, it will have to. We’ll need to take small steps, many years and lots of effort to change the culture around water in Colorado. Change will likely come in fits and spurts accompanying our cycles of drought and flood.

“Having always been drawn to biology, I consider myself a scientist. My favorite movie quote is from Ghostbusters (the original), “Back off, man! I’m a scientist.”

WW: What technologies do you think will have the biggest impact on water conservation in Colorado?

I really want my own rain barrel. I know that’s not a very sophisticated technology but it changes people’s perceptions about water. We manage a resource differently when we own it. Having a personal rain barrel would help Coloradans begin to connect to their water.

The other technologies that will impact water conservation are reuse technologies. The first company that can affordably and reliably turn seawater into drinking water will change the water world forever. That probably won’t be in my lifetime but maybe my kid’s. I keep telling my daughter Grace to work on it.



WW: What has given you the most satisfaction during your career?

The hardest job I loved the most was staying home to raise my kids. For 10 years my social security statements show I earned \$0. That burns me up because it was the hardest I ever worked, hands down. That’s probably not the answer your readers expected so the job that gave me the second most satisfaction was writing human health risk assessments. The job was to evaluate toxicity data and likely exposures to it, then assess a person’s risk of death from contaminants at the site. As a scientist, it was fascinating. I loved it. I have some great stories about risk assessments I wrote for places like Rocky Flats and the Rocky Mountain Arsenal. The risk assessment I’m least proud of is the one I wrote without any data. Apparently, it can be done.

WW: Beyond work, what other interests do you have? Passions, goals, missions?

At this point in my career, what I really want to do is empower groups of people to work together to solve complicated, difficult issues. Wisdom is the property of groups. I want to help groups articulate and implement their wise solutions to our societal challenges. It sounds simple but is incredibly difficult. However, working with groups provides me with an opportunity to use my scientific expertise along with the many lessons I learned and skills I developed raising children.

WW: Any last thoughts you’d like to share with our readers?

One of the best things I’ve ever done for my self is create a folder – I have several now – labeled, ‘Humor and Praise’. I’ve read that it takes 11 compliments to offset one criticism. Especially for people working in water professions, we tend to come in after something has gone wrong and a lot of criticism gets directed to us. In addition, we work in a technical field that most people don’t understand. They tend not to appreciate the tremendous amount of work it takes to deliver clean, fresh water to their taps and to dispose of wastewater. Be sure to pause and celebrate the compliments when they come.

APARTMENT COMPLEXES CAN CAPTURE HUGE WATER SAVINGS

By Frank Kinder, Colorado Springs Utilities

Like many communities in Colorado Springs, Alta Mira Apartments was built in the high growth period of the 1980s. As these types of properties age they often are upgraded but historically, utility efficiency has not driven such changes. When apartment utilities typically are billed back to residents, property managers didn't see the comparative benefits to upgrading water fixtures and appliances vs. other amenities that would attract more residents.



Alta Mira Apartments' management met with Colorado Springs Utilities (CSU) to see how they could save water. Following is a case study highlighting the results of replacing thirty year old toilets with WaterSense-toilets.

1. Provide a short description of the project.

Altamira is a larger multi-family apartment community built in the early 1980s. We replaced 360 toilets with HD Supply's WaterSense Approved Seasons 1.28 GPF system. This reduced the water consumption of the property. The result was an expense reduction in the residents' monthly water bills (these are master metered bills charged back on a RUBS system).

2. What was your inspiration or motivation for making the improvements?

For two main reasons:

- 1) Reduce water consumption at the site to keep in line with green initiatives and
- 2) Help residents reduce the costs associated with their consumption.

3. How do these improvements improve your business or community's overall bottom line and/or provide value?

When a property has a master billed utility, it is difficult to get the residents to conserve so management chose to participate in helping the conservation through this commode change. Management and ownership recognized that their residents would enjoy a reduction in their living costs at Altamira and this helped with the overall mission of the Aspen Pointe programs. Aspen Pointe is a regional health entity assisting individuals with life care services, including housing.

This project addresses CWW Best Practice #12: High efficiency fixture and appliance replacement for residential and non-residential sectors.

The age of homes and commercial facilities in a service area should be taken into consideration. Older buildings tend to have older fixtures and older fixtures tend to be less water efficient.

Utilities with significant numbers of older homes (before 1994) might find properly targeted incentive programs particularly useful in curbing demand.

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4. How did you plan and what resources did you use?

We met with CSU to understand the rebate programs, eligible products, the process and potential savings. We received approval from our ownership. We were able to get quotes from HD Supply for the project. Once those were received, we contacted CSU to schedule the roll off to recycle the old toilets. At that time we were able to start, using our own staff and two gentlemen from Express Personnel that assisted in putting the toilets together, helped our maintenance team tremendously.

5. Provide the cost savings already achieved or that you plan to achieve. In addition to dollars, please provide percentages, as these will help others best understand how a similar project may apply to them.

Altamira had a 60% savings in our common water based on a 30-day cycle. Total impact for the property is a \$10,000 per month savings; from \$17k to \$7K for the community.



6. On a scale of 1 to 5 (1 being simple and 5 most difficult), please rate the ease of implementing this type of project?

This was our second rebate project. Based on knowledge received during our first project, I give the toilet replacement project a 2. I also appreciated all the help provided by Colorado Springs staff member Frank Kinder.

7. Were there any surprises you encountered by doing this project?

No, we encountered no problems. It was a very smooth process from start to finish.

8. Would you recommend this type of project to other business customers? If so, why?

Yes, based on the savings in common water alone, I would highly recommend. We have since pursued additional retrofit projects including lighting improvements and window replacements. Each of these steps helps us reduce costs, improve service, and increase property value.

TIME TO TURN DOWN YOUR LAWN WATERING

By Ruth Quade, City of Greeley

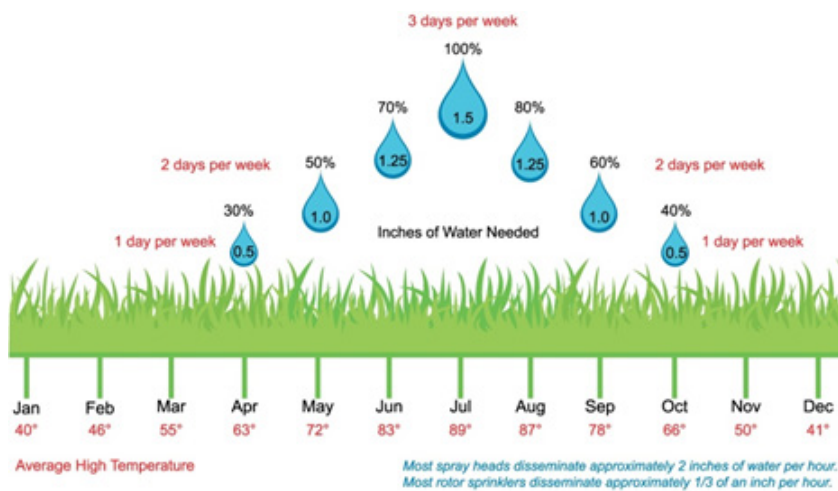
It's that time of year when the summer is winding down. School is back in session and cooler nights are saying that autumn is upon us. You may be feeling the end of summer blues, but your lawn still thinks that it is July. Why is this? Because you are most likely still watering your lawn as if it was still July.

It is a best practice to change your sprinkler program each month to match the weather and water needs of your lawn. Ideally, lawn watering over a season should follow a bell curve pattern with water use peaking in July. Many people are good at ramping up their lawn watering, but forget to turn it down once temperatures start to decrease. Although temperatures might stay high in September it is hotter for a shorter period of time and therefore less water is needed.

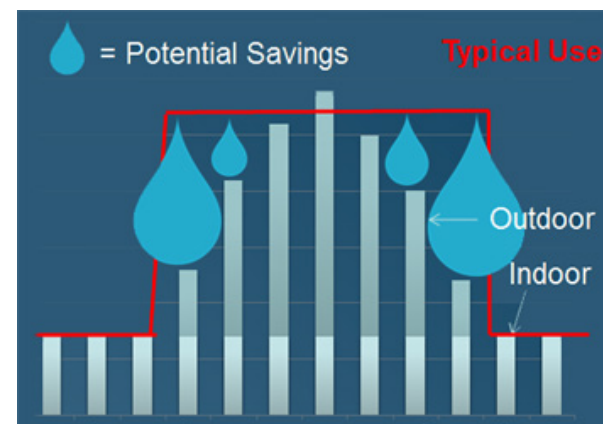
Lawns in September need about 50 to 60 percent less water than they do in July, although average water production shows only a 30 percent reduction from July to September. This tells us that many people are still watering their lawns like it is the middle of summer. By watering less, there is a large potential for water savings for the city and for your pocketbook. Here are three easy ways to make a 50 percent reduction:

- Instead of watering your lawn three days per week, only water one day per week and spot water in between.
- Reduce your watering times in half. If you water a zone for 15 minutes, only water it for seven.
- If your sprinkler clock works on a percentage, turn it down 50 percent.

Setting your sprinkler system and forgetting it is a common practice, because many people don't know how to program their controllers. New technology, like weather-based sprinkler controllers, can help people water their lawns efficiently. Weather-based controllers actually adjust schedules based on local weather conditions. These climate-based systems gather local weather information and some even factor in your exact landscape (types of plants, soils, slopes, etc.) to make run-time adjustments so your landscape always receives the appropriate amount of water. There is a wide range of products in this category with various weather input options and landscape-specific adjustment factors. The water savings can be substantial and the convenience of these self-adjusting controllers is another great benefit. Water providers often have rebates for customers for these controllers.



The graphic below was created to help customers with watering to the needs of their lawn rather than a schedule. It can be a sticker or magnet that can be placed directly onto the controller. There are several ways for the customer to use info on the graphic, whether it is a percentage on the controller, days per week or average daily temperature.



This chart shows the potential for savings if you water based on the weather and don't set your sprinkler system and forget it.

NEW REPORT: CONNECTION CHARGES PROVIDE AN OPPORTUNITY TO STRETCH WATER SUPPLIES

By Amelia Nuding, Western Resources Advocates

As many U.S. communities are struggling to support growing populations with limited water resources, very few of them are utilizing water connection charges to increase water savings in new, residential developments. So concludes a new report by Western Resource Advocates, the University of North Carolina's Environmental Finance Center, and Ceres, evaluating water connection charges used by 800 public water utilities in Arizona, Colorado, Georgia, North Carolina and Utah.

This first-of-its-kind report entitled "Water Connection Charges: A Tool for Encouraging Water-Efficient Growth" found that 93% of the fee structures in the southeastern states and 62% of the fee structures in the western states used uniform water connection charges for single-family homes that took no account of key factors in influencing the design of a home's water footprint. As a result, owners of new homes are typically paying the same amount to be connected to local water systems whether it's a large home with a grass lawn or a small home with xeriscape. For the full report visit: westernresourceadvocates.org/projects/water-connection-charges/



WATER CONNECTION CHARGES: A TOOL FOR ENCOURAGING WATER-EFFICIENT GROWTH

August 2015

Authored by
Amelia Nuding, WRA
Shariene Leung, Ceres
Jeff Hughes, UNC



However, a handful of communities, most of them in water-parched Colorado, are including water-saving incentives in water connection charges, and the initial results show promise in effectively shaping different developments. In the case of Aurora, CO, the state's third-largest municipality, five of six new developments coming on-line since 2014 used "zero-water" landscaping in order to get a 100% refund on their connection charges.

Numerous studies have been done on how U.S. water utilities should price the volume of water being sold to customers monthly in order to incentivize efficiency. Far less research has been focused on how to determine water connection charges – typically the cost of the actual physical connection to a water system, plus costs for developing new capacity to serve the customer – in order to influence development behavior.

The report analyzes water connection charges in five, fast-growing states which are all experiencing varying degrees of water scarcity and resource vulnerability, thus making them more likely to have connection charges designed to influence future water demand. Researchers evaluated 450 rate structures in North Carolina, 290 in Georgia and 60 from three Western states (20 each in Arizona, Colorado and Utah.) The report looked at which factors were used by utilities in determining their water connection charges, such as lot size/irrigated area, types of landscaping (such as low-water-use plants vs. turf grass), efficiency of water fixtures, and house size/ number of bedrooms/bathrooms. The report also includes four case studies showcasing the effectiveness of multi-factor water connection charges in changing behavior.

The report recommends utilities consider using multiple factors to determine the connection charges to drive water efficiency and to fully and equitably capture the costs of new development. The report also recommends mechanisms to ensure longevity of water savings and suggests utilities fully engage customers and developers in designing new connection charges.



ONLINE LANDSCAPE WATER BUDGET TOOL

By Leslie Martien, Aquacraft, Inc.

The savings from replacing a 3.5 gallon per flush toilet (gpf) with a 1.28 gpf toilet is easy to quantify. So is the savings from replacing a showerhead that uses 2.5 gallons per minute with one that uses 1.5 gpm. But what happens when you remove 500 square feet of cool season turf and replace it with xeriscape plants? What if you convert your front yard to plants that require very little supplemental water? What if you could determine how much water your landscape needs and compare it with how much water your landscape actually uses?

Most of us are aware that outdoor water use in Colorado is a large percentage of the total household water used by our residential customers. In fact, as much as 60% of the residential water used in Colorado annually is applied to landscapes. We ask our customers to conserve water by reducing their landscape irrigation but helping our customers understand the effect of reducing their irrigated area or installing a water-conserving landscape can be challenging.

Aquacraft has developed a web-based landscape tool that allows customers to do just that. By entering their address and zip code homeowners can “zoom in” to their property and map out different sections of their landscape. They can modify the shape and size of each section or change the type of plant material being irrigated. By reconfiguring their landscape homeowners can see the impact that those changes have on their water use.



The data is tabulated in a Landscape Analysis Table that includes information on the plant type, the irrigated area, an irrigation factor (based on the efficiency of the irrigation system), local ETo, and the annual irrigation requirement for each zone.

| Landscape Analysis Table | | | | | | |
|---|----------------------|--------------|--------|--------------|--------------|---------------|
| ID | Plant Type | Area (sq) | Factor | Net ETo (in) | Annual TIR | |
| | | | | | Cubic Feet | Billing Units |
| 1 | Cool season grass | 3,003 | 1.13 | 1.75 | 5,938 | 59.0 |
| 2 | Low water use plants | 1,788 | 0.30 | 1.75 | 939 | 9.0 |
| Total | | 4,791 | | | 6,877 | 68.0 |
| Reference Requirement (REF - Area * Net ETo) | | 8,384 | | | | |

In addition to total annual water use, the web app provides the monthly irrigation requirement for the landscape based on the monthly, average ETo for the area.

| Theoretical Irrigation Requirement (TIR) Table | | | | | | | | | | | | | |
|--|-------|-------------------|-------|-------|--------|------------------|--------|--------|--------|-------|-------|-------|---------|
| Address: 5006 Forsythe Place, 80 | | Zip for ET: 80303 | | | | Annual TIR: 9913 | | | | | | | |
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
| Monthly Net ETo (fU) | 0.00 | 0.00 | 0.00 | 0.14 | 0.21 | 0.34 | 0.38 | 0.33 | 0.23 | 0.12 | 0.00 | 0.00 | 1.75 |
| Monthly Net ETo % | 0.00% | 0.00% | 0.00% | 8.11% | 11.99% | 19.57% | 21.46% | 18.90% | 13.00% | 6.96% | 0.00% | 0.00% | 100.00% |
| Monthly TIR (bu) | 0 | 0 | 0 | 8 | 12 | 19 | 21 | 19 | 13 | 7 | 0 | 0 | 99 |
| Monthly TIR (kgal) | 0 | 0 | 0 | 6 | 9 | 15 | 16 | 14 | 10 | 5 | 0 | 0 | 75 |

Finally, the web app can be linked to utility billing data so that customers can compare how much they actually used in a particular month with how much water they should be using, based on their particular landscape. Customers who are consistently using more water than their landscape requires may need to evaluate their irrigation system, their irrigation schedule, or the efficiency of their irrigation system. This is the perfect opportunity for utilities that provide irrigation audits to offer assistance.

For more information please contact William DeOreo at: bill@aquacraft.com or call 303-786-9691x1.

CONSERVATION NEWS UPDATES

[Northern Water - Fall Field Day](#)

Friday, September 18
9:00 AM
220 Water Avenue, Berthoud

[AWWA M36 Water Loss Audit Training](#)

Cost: \$20 - Register By Sept. 11
[September 21 - Grand Junction](#)
[September 22 - Frisco](#)
[September 23 - Pueblo](#)
[September 24 - Greeley](#)
[September 25 - Denver](#)

[Water Smart Innovations Conference](#)

The 8th WaterSmart Innovations Conference and Exposition, Oct. 7-9, 2015, in Las Vegas, is a premier venue to showcase new water-efficiency technology; build and strengthen effective, interdisciplinary relationships.

[The 2015 RMSAWWA/RMWEA Joint Annual Conference](#)

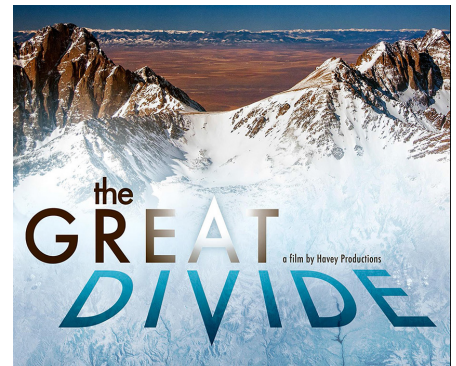
Held at the Embassy Suites in Loveland, Colorado from September 13 - 16, 2015.

[Best Practices for Collaborative Water Decisions](#)

October 14-16, 2015 in Palisade. From the Colorado Water Institute at CSU, please join us for this 16-hour, highly interactive training.

[South Platte Forum](#)

Takes place October 28 and 29 in Loveland at the Embassy Suites. The South Platte Forum was initiated in 1989 to provide an avenue for a timely, multi-disciplinary exchange of information and ideas important to resource management in the South Platte River Basin.



[The Great Divide Film Tour](#)

The Great Divide, a feature length documentary film that illustrates the timeless influence of water.

See it on the film tour:

September 10 - Durango
September 18 - Pueblo
September 24 - Carbondale
October 17 - Grand Junction
October 21 - Fort Collins
October 23 - Alamosa
[October 29 - Denver \(CWW WaterWise Summit\)](#)
November 14 - Steamboat Springs



SOCIAL MARKETING VS. SOCIAL MEDIA: WHAT'S THE DIFFERENCE?

By Natalie Stevens, City of Greeley

The terms social media and social marketing are thrown around in discussions of water conservation customer outreach. Some people working in water who are not into the details of public communication or are not active online sometimes get these two concepts confused and feel like they are somehow interrelated.

The truth is that they can be used together, but they are essentially two different things. Most simply, social marketing is a planning approach to communication efforts and social media is a broad term which describes online communication channels and inspires feedback, interaction and sharing messages.

Community-Based Social Marketing (CBSM) is an approach to public outreach that is based on social science research with a focus on influencing behavior change. It also requires measurable behavioral change outcomes. The roots of CBSM are in public health communication, but recently has been used successfully in communicating environmental messages such as recycling, energy efficiency, and water conservation.

CBSM begins with research to discover the barriers and benefits of engaging in a particular behavior. It gives you the opportunity to reduce or eliminate barriers to make it easier or less expensive for people to save water. An example of this is a rebate program that makes new technology more affordable. You can also make the benefits more attractive like showing people that they will save money. Communication tools such as public commitment, prompts, social norms, easy to understand and interesting messaging, and incentives are used to reach out to the public.

Social media is a form of electronic communication that strives for feedback and interaction. The focus is on sharing information, ideas, personal messages, and multimedia content. Online communities are formed through these social media sites.

The most popular site is Facebook which is considered a social networking site. It's a service that allows people of similar interests and background to connect. It consists of a profile and ways to interact with your "friends" online. Organizations can create pages and groups to interact with users.

Twitter is considered microblogging. It focuses on short updates that are sent to anyone subscribed to receive the updates. Other sites focus on media sharing, like YouTube for video and Instagram for photography. These types of sites are ideal for sharing information with your constituents.

So, while you can use social marketing techniques on social media sites, it is important to understand they are not the same thing.

CBSM Resources

Fostering Sustainable Behavior: Community Based Social Marketing - cbsm.com

EPA WaterSense Community-Based Social Marketing Workbook (WaterSense Partner only resource)

BLUE MIND: THE SURPRISING SCIENCE THAT SHOWS HOW BEING NEAR, IN, ON, OR UNDER WATER CAN MAKE YOU HAPPIER, HEALTHIER, MORE CONNECTED, AND BETTER AT WHAT YOU DO

By Leslie Martien, Aquacraft, Inc.

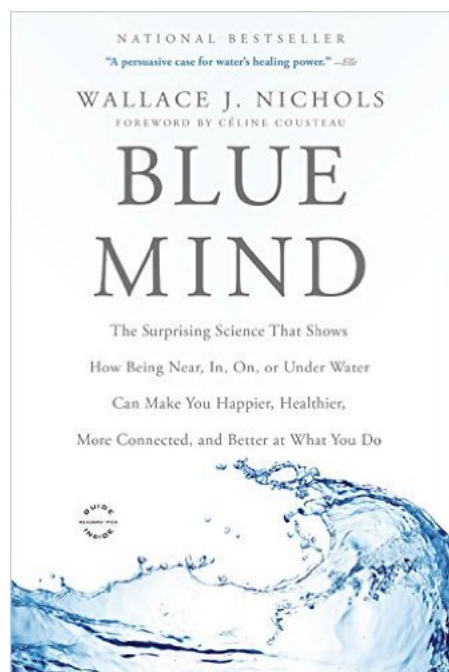
That water is essential to life as we know it on this planet has never been questioned. It sustains the plants and animals that feed us; it moderates the temperature of the planet and makes it habitable. Without water on a nearly daily basis we would not survive. “Thousands have lived without love,” wrote noted author W.H. Auden, “not one without water.”

“Thousands have lived without love,” wrote noted author W.H. Auden, “not one without water.”

Dr. Nichols’ research leads him to believe that our connection to water is essential not only to our survival but to our mental health and well-being. In fact he states: “research showed that both natural and built scenes containing water were rated more positively—with higher preferences, more positive emotions, and greater perceived restorativeness—than those without water.” In a 1997 survey, philosopher Denis Dutton found that the elements of a beautiful landscape were universal: “open spaces, covered with low grass, interspersed with trees. And if you add water to the scene—either directly in view or as a distant bluish cast that the eye takes as an indication of water—the desirability of that landscape skyrockets.”

We seem to know this inherently. For many of us, vacation means heading somewhere near water: a lake, a stream, the ocean or maybe even a swimming pool. We may rest on the beach and listen to the waves, cast our line into the middle of the stream, or dive below the surface to swim with the fishes. Nichols’ research shows that neuroscientists and psychologists “are beginning to learn that our brains are hardwired to react positively to water and that being near it can calm and connect us.”

Nichols artfully weaves together neuroscience, psychology, art, anecdotes and personal experience as a marine biologist to make compelling arguments that we, as humans, are drawn to water for reasons far beyond our need to survive. He shows the benefits of what he refers to as the Blue Mind – in other words our brains on water.



Come join us at the [Colorado WaterWise Summit](#) on October 29th to hear Dr. Nichols speak about his book, have your book signed and share your personal anecdotes about water and why you love it.

COLORADO NATURE, AND WATER CONSERVATION EFFORTS FEATURED



By Norman Creeker, Cherry Creek 3

Several Colorado water conservation and nature revival efforts are slated to be highlighted on a national TV stage in the coming months. Hometown Habitat is a 90-minute environmental, education documentary focused on showing how and why native plants are critical to the survival and vitality of local ecosystems. Featured is entomologist, Doug Tallamy, whose research, books and lectures on the use of non-native plants in landscaping sound the alarm about habitat and species loss. Tallamy provides the narrative thread throughout Hometown Habitat. The message: each individual has the power to conserve resources, restore habitat for wildlife and bring beauty to their patch of earth.

Catherine Zimmerman, director of photography for Hometown Habitat, shot footage in Colorado this year for the documentary. Zimmerman, whose career spans 40 years, has won numerous White House Press Awards and international acclaim for her projects. The production team is still out doing pick up shots and working in the post-production process. They are setting a target for completion by the end of October, but depending on fund raising, it could stretch to January 2016 before airing.

The Hometown Habitat crew spent the last year and a half traveling to tell positive stories about rebuilding healthy ecosystems in watersheds across the county. In the Rocky Mountains, they profiled the Rocky Mountain Audubon Society's Habitat Hero program, which seeks to teach about water wise landscaping that also builds habitat, called "wildscaping."

Photo credit for this story: Catherine B. Zimmerman, the Meadow Project

The documentary heavily spotlights the Cherry Creek 3 Townhomes in Denver (featured in this newsletter's spring issue), which has reduced its annual water consumption by more than 14 million gallons of water a year while utilizing native and xeric plants to give the neighborhood a new landscaping look. Zimmerman interviewed Jeff Terjal, Denver Water's manager of conservation, and Don Ireland, HOA president and leader of the community's water conservation and landscaping retrofit projects at Cherry Creek 3.

Hometown Habitat filmed a group of Cherry Creek 3 volunteers planting the final three front stoop-gardens in the neighborhood. The project to replace all 251 home fronts was a five-year effort that also included removing some unused bluegrass yard sections, installing water-saving rotary head sprinklers and eliminating grass in inferno strips in the southeast Denver location. Most of the new plants installed in the neighborhood were recommended by Plant Select, a Colorado non-profit organization collaboration of Colorado State University (www.plantselect.org), Denver Botanic Gardens and plant professionals across the state. Last fall, Cherry Creek 3 was the first HOA in Colorado to receive an Audubon Society Habitat Hero designation for its efforts.

During her travels across Colorado, Zimmerman led the Hometown Habitat film crew to a shooting at the South East Colorado Water Conservancy District, where its water wise, native plant demonstration gardens is a great example of how government can educate and bring the community along to a new understanding of building habitat while also conserving water.



The documentary crew also got footage in Salida, Beulah and Fort Collins that show Colorado projects using wildscapes that produce beautiful gardens while conserving water.

To learn more about the Hometown Habitat program, visit www.themeadowproject.com.

LOVECOLORADOWATER.ORG

Have you visited LoveColoradoWater.org? It is the website supporting Colorado WaterWise's [Live Like You Love It Campaign](#). Get involved with this awesome effort.

Campaign materials are available to CWW members at the \$300 level and up **THIS YEAR**. Next year, membership levels will change and a minimum of \$500 will be necessary to access the materials, so [join today](#).



AGASTACHE LENDS FALL COLOR TO THE GARDEN

By Leslie Martien, Aquacraft, Inc.

Gardening in the late summer and early fall presents a challenge for many of us. The heat begins to wear us down, the soil is often dry and hard to work, the unconquered weeds are going to seed and the bright blooms of many spring and summer flowers have begun to fade.

Fortunately, just when the summer doldrums threaten to bring our gardening to a halt, the late summer flowers begin to bloom. A favorite of many western gardeners is Agastache – the delicate flowers, on foot-long stems, wave softly in the breeze and belie the toughness of the plant. The flowers mimic the shades of a late summer sunset, ranging from soft blue and light orange to intense, rich reds and pinks. The toothed, lance-shaped leaves come in silver and maroon and various shades of green.

Also known as Hyssop or Hummingbird Mint, most Agastaches are generally not fussy about soil and thrive in the heat of the summer as long as they receive an occasional deep soaking. As the name suggests, the highly aromatic plants are a magnet for hummingbirds; the nectar in the tubular flowers provides nourishment for bees and butterflies as well. Their strong fragrance, ranging from licorice, to mint, to root beer, makes them resistant to browsing by deer and rabbits.

There are numerous Agastache species available; look for ones that are adapted to growing conditions in the western United States. The Plant Select program researches, tests and identifies many of these plants and lists four Agastaches on its website. Agastache rupestris was an original Plant Select choice when Plant Select was founded in 1997. Since then three other Agastaches have made the list: Agastache cana ‘Sinning’, Agastache aurantiaca and Agastache ‘Pstessene’. These and other varieties are perfect for filling empty spaces in the mid-garden. Planted with other late bloomers like Black-eyed Susan, Russian Sage, Maiden grass, and Goldenrod, Agastache can bring beautiful color to the late summer garden.



Agastache-Apricot Sprite



Agastache-Ava-Sorghastrum

WATER LOSS CONTROL

By Dan Moore and Ruth Quade, City of Greeley Water

As mentioned in the summer issue of the newsletter, Greeley has an active water loss control and leak detection program which includes a regular leak detection and repair regimen in order to maintain a tight distribution system. As a result, Greeley's system losses have averaged less than five percent since 2000. Industry standard considers ten percent system losses to be acceptable, so Greeley is operating a particularly tight system.

When water interacts with the ductile or cast iron metal of the mains, mineral build up, also known as barnacle, is inevitable. Barnacle not only restricts flow and pressure, but as pieces breaks loose, a hole or crack in the pipe can result. To alleviate this problem without having to replace the entire pipeline, Greeley has had an active Cement Mortar Lining (CML) program where older parts of the treated water system are rehabilitated to increase longevity and reduce unaccounted for (non-revenue) water.

About 81 miles of Greeley's pipelines were installed before 1950 and had no lining for protection against corrosion and deterioration. When these pipes age, the rust on the inside causes restricted flow problems, rusty water, and make the pipes more susceptible to leaks. The technology exists to take these pre-1950 pipes out of service while maintaining water service to customers. The CML process scrapes the pipes clean on the inside, which are then lined with cement mortar to prevent future build-up of rust. The CML process can be done at half the cost of replacing the old pipe with very little inconvenience to customers.

The first step in the project was to notify customers prior to the commencement of the project. Next was to connect the citizens in the area to water from the hydrants. Pipes are laid in the gutter to keep the water flowing to the houses and businesses while the project is being executed. Since the water is not going through their meters, they get water for free for the short time the project is happening.

The Water Department began pipe cleaning and CML in 1991 to improve water flow and water quality, and to minimize leaks. At the same time, all lead service lines were replaced with new copper fittings to further reduce leak potential. The final project was completed in 2012.





A small excavation is made at each end of the main to be lined. This is what it looks like by day in the street while crews work.



Travel during non-work times is virtually seamless where excavation is covered by a steel plate



Pipes are cleaned with drag scrapers that correlate with pipe size.

Cement mortar lining helps the city in many ways:

- It costs less than a third of the cost of pipe replacement
- Less asphalt to replace, less staff time
- Less disruptive to traffic and citizens
- Reuses valuable resources (pipes)



A thin layer of cement (1/4 inch) between the water and the metal of the pipe keeps minerals from building up to the point of restricting the flow.

FORT COLLINS UTILITIES HELPS CUSTOMERS SAVE WITH A NEW TRACKING TOOL

By Leslie Martien, *Aquacraft, Inc.*

Most of us get our water bill at the end of the month and occasionally, with the bill, comes a big surprise. Instead of the usual amount this bill is double or triple what you normally pay. What happened? Did the company that came to visit for a week take really long showers? Has the irrigation been working overtime because it's really hot and dry? Maybe there's a leak. By the time the bill comes you may not even remember that you had company at the beginning of the month or what the weather was in the middle of July. But there is still the high bill to pay and you don't know whether there will be another one next month because you don't know when all of the water use occurred or why.



Fort Collins Utilities has a new, free, online tool that offers customers a way to monitor their use and costs while conserving their resources. [Monitor My Use](#) allows utility customers to create an account and log in. Water and electricity use can be tracked hourly and daily. Customers can see if there are specific days or hours with high consumption – perhaps your daughter had a party for all of her friends – or continuous water use throughout the day because someone perhaps someone forgot to turn off the hose or that pesky old toilet is leaking again.

Beginning in March 2012, Fort Collins Utilities began upgrading their electrical and water meters with electronic devices that provide wireless two-way communication between the meter and the utility. Customers can receive alerts via email or text and a dashboard provides data on the customer's current water and electric use and costs as well as their environmental impact.

Data is available to customers 24/7 and can be tracked even when they're on vacation. In addition to providing customers with up to the minute data, Fort Collins Utilities has tips for saving water, energy and money. Customers can find what rebates are available for upgrades and repairs and find ways to avoid moving into the next pricing tier.

As more and more utility customers are becoming accustomed to instant access to a multitude of data, providing easy access to data on their water and energy use seems like a natural progression and the wave of the future.