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Visit us at www.mnawwa.org
Spring is the time of change. Time to fire up the grill, get your warm weather clothes out, feel a good warm sunny breeze, catch a Twins game, catch a Saints game, and renew ourselves in our jobs and personal lives. Spring brings changes to water treatment around our state, as well. Time for Ultraviolet disinfection systems to be turned on and extra care taken in water surface plants as stream turbidity peaks. I love spring (or maybe I should say that after 56 years I hate winter). What will your summer projects be this year? Whatever they may be, I hope you are satisfied with the results by the time the leaves fly in the fall.

One of the goals of our Section this year is to launch a membership recruit and retention plan. In January, I had the privilege of attending the AWWA’s Membership Summit in Denver with Allison Wheeler, the Young Professional (YP) Committee chair of our Section.

The keynote speaker was Sara Sladek, a Minneapolis author and expert on the Y generation. All attendees received a copy of her book, Knowing Y, that she wrote to help people “engage the next generation now” in the workplace and in personal life. Her two-hour presentation was very interesting and valuable as she discussed the differences between Baby Boomers, Gen X and Gen Y and what each of these generations value and how they communicate. As our Section members are retiring in big numbers, we will definitely use some of the knowledge shared at the event to assist us in recruiting and retaining our Gen Y members (ages 22-35). The information was abundant and when I left, I felt like my time spent there was very worthwhile.

Did you know that the Minnesota Section sends you (our members) free of charge to various events put on by AWWA? If you are interested in attending a regional meeting, summer workshop, national utility conference, national YP conference, or the Membership Summit please seek out one of our board members and let that person know. This is a great member benefit and a chance for you to find out more about AWWA and the various volunteer opportunities that are available.

Thank you to all for the support of the Water for People concert. What a great event this is, every year. Our Section has a lot to be proud of in everything we have accomplished for Water for People over the years. For those of you who do not know, Water for People was started by AWWA but separated into its own entity several years ago.

A new philanthropic initiative from AWWA was recently introduced called “Total Water Equation.” This charitable arm of AWWA will provide training and education grants to people in the water industry who otherwise would not be able to participate. It will also seek out and fund small impoverished areas within the United States that have a need for water and/or sewer projects. Our Section has renamed the Water for People Committee the Philanthropic Committee and now will raise funds for both Water for People and the newly formed Total Water Equation.

When you have the time go to the AWWA website I encourage you to view a short film called AWWA 2020. This is a very informative film about the current vision and mission of AWWA.

Let’s all reach out to people we know in our industry or workplace and tell them about AWWA and the value it will bring to their careers. Recruit, Recruit, Recruit.

I am sincere when I say I am very glad to have attended this Membership Summit and it was very worthwhile.
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Message from the Director

Serving Our Members

The Fall Conference was a huge success and a deserving celebration for our accomplishments. Now it is time to get back to work . . .

AWWA Board Meeting
In mid-January, the AWWA Board met to discuss business and operational plans, provide updates on various initiatives, approve policy statements and standards, approve award nominees, and elect new officers.

The first order of business was to introduce our incoming Director, Pete Moulton, to the other board members and staff; welcome aboard, Pete!

Below are highlighted tasks achieved in 2016 and what is planned for 2017.

In 2016, the Association, under the theme “Sustain and Grow,” achieved the following:
• [Member Engagement & Development] Met the 21st Century Membership plan goal of membership of over 50,000 for all 12 months of the year, and ended the year with a membership count of 50,925.
  • [Organizational Stewardship] Completed an update to the Strategic Plan, started the OneAWWA Operator Scholarship (77% of the Section signed on in the first year – including our Section), continued working on AWWA2020 branding (already completed by our Section), and had nine Sections form Community Engineering Corps (CE Corp) teams or committees (including our Section).
  • [Knowledge Creation & Exchange] Total Water Solutions (TWS) integration continued and the Association held the first International Symposium on Potable Water Reuse, the launching of the Partnership for Clean Water (PCW), the approval of a Lead Service Line (LSL) management policy and standard, and AWWAIndia continued to grow (membership more than doubled).

In 2017, under the theme of “Traction, Manage, New,” the Association has plans for the following:
• [Member Engagement & Development] A Membership goal of over 51,000 and implementation of more student programs.
• [Organizational Stewardship] A continued evaluation of its governance model will realign the regions to improve participation and efficiency, hopes to form seven new CE Corp teams.
• [Knowledge Creation & Exchange] To roll out a Total Water Solutions (TWS) implementation guide for Sections, to roll out the “Buried No Longer Wastewater Tool,” and to hold the first AWWAIndia Conference.
• [Water Policy and Leadership] To help communities utilize WIFIA (it is open for business), continue building the LSL collaborative, work on a coordinated multi-organization DC Fly-In, and continue building media impressions.

Elections
The following individuals were elected . . .
• AWWA President-elect is David Rager; former Association Treasurer and a member of the Ohio and Kentucky/Tennessee Sections. David will be AWWA President in 2018-2019.
• AWWA Vice-Presidents are Ray Baral, Jr. (Connecticut Section), Steve Blankenship (New Jersey Section), Mark Coleman (Michigan Section), and Allen Forest (Arizona Section). Their terms formally begin after ACE17.
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in Philadelphia, PA and join Kevin Bergschneider (Rocky Mountain Section) and Mitch Kannenberg (South Dakota Section) as the six Association VPs.

- **AWWA Director-At-Large** will be Marshall Thompson (Pacific Northwest Section); he is replacing our Sections’ Uma Venpati. His term formally begins after ACE17 in Philadelphia, PA.
- **AWWA Service Provider Director-At-Large** will be Randy Moore (Missouri Section). His term formally begins after ACE17 in Philadelphia, PA.

**Awards**

Congratulations to Nancy Sullivan, our Section Services representative and Manager of AWWA Section Services, for receiving the Archie E. Becher, Jr. Award. The award recognizes the outstanding accomplishments of an AWWA staff member.

Congratulations to Mona Cavalcoli for receiving the Jack W. Hoffbuhr Award; the award recognizes the outstanding accomplishments of a Section staff member of AWWA. During Mona’s over 20 years as AWWA Section staff, she has been instrumental in maintaining and improving the operations of three Sections: Minnesota, New Jersey, and New York. She currently serves as staff for the Minnesota and New Jersey Sections. In addition, Mona has diligently worked with the Association and other Sections to benefit the general membership.

**Retiree Member Definition Change**

AWWA’s members are retiring at an increasing pace. Based on the favorable retirement packages in many utility and government jobs, employees may be entitled to retire prior to age 65. Because they have not reached the age of 65 or have 15 years of membership (both requirements for eligibility in the retiree membership category), members are more likely to drop their AWWA membership. The Board approved a reduction in the minimum age to 55 and membership tenure to 10 years for eligibility in the retiree membership classification. The loss of revenue to AWWA would be reduced by 20% to 25% when a retiree member decides to renew into the retiree category rather than drop his/her membership altogether.

**Lead Service Line Management Policy**

A new policy statement lends support to AWWA utilities when addressing the need for full lead service line replacement with their public officials and customers. The policy is designed to provide broad guidance on the issue and focus on the high-level details with emphasis on protecting public health, public education and communication, maintaining optimal corrosion control measures, and developing a collaborative community-based approach.

**Other Lead Guidance**

The Lead Service Line Replacement Collaborative, a diverse coalition of 23 water utility, public health, environmental, labor, consumer, housing, and state and local governmental organizations – including AWWA – has released an online toolkit designed to help communities across the United States accelerate removal of lead service lines. The group’s toolkit (can be found at www.ks-collaborative.org) includes information to assist local community efforts to remove lead service lines, including the portion of lead services on private property.

More information on lead can be found at www.awwa.org/lead.

**Water Infrastructure Finance and Innovation Act**

The U.S. Environmental Protection Agency (EPA) announced that it is accepting Letters of Interest from water utilities and similar entities that may be candidates for low-cost loans under the Water Infrastructure Finance and Innovation Act (WIFIA) program. AWWA and a host of other water and governmental associations worked to get WIFIA created in order to provide low-cost loans for larger water infrastructure projects.

Congress provided seed money for WIFIA to begin making loans in budget legislation passed in December. The $20 million in seed money could result
in more than $1 billion in loan funds and consequently, more than $2 billion in total water infrastructure investment.

**AWWA Grant Activity**

AWWA continues to advance its grant program to include projects with the U.S. Environmental Protection Agency (EPA) – through partnerships with Rural Community Assistance Program and Environmental Finance Center Network – U.S. Department of Agriculture Rural Utilities Service, the Great Lakes Protection Fund, and the National Institute for Hometown Security.

The Association has sought and received almost $2.5 million dollars in the following grants:

- **EPA small systems training grant** (training for compliance with Safe Drinking Water Act and small system operations training between July 2014 and Apr 2018); $1.6 million dollars ($746k went to the Association for curriculum development and $843k went to various Sections for delivering programs). The Association developed 18 hours of modular content so the Section can choose the issues applicable to their area. To date, 7,872 small system staff have been reached, at no charge to them. In 2017, the Association expects to reach more than 12,000 small system staff.

- **A $500k Great Lakes Protection fund grant** was awarded ($200k going to AWWA) for the energy challenge competition; with a goal to reduce emissions.

- **The NIHS awarded a $251k grant** for cybersecurity in small and medium-sized US water utilities.

- **USDA Rural Utility Services issued a grant** to the Community Engineering Corp to the tune of $103k to continue its effort of assisting communities in need.

Much of the program success is thanks to the involvement of Section staff and volunteer leadership. This business relationship continues to be strong and outside funding agencies see great value in it when evaluating proposals for additional work.

**Washington Fly-In**

On April 13-14, members from various Sections and the Association will fly to Washington, DC to meet with congressional members to discuss various water initiatives.

As always, if you have any questions about the Association, please email me at jeaton@cityofeagan.com. I want to Thank the Minnesota Section for voting me as Director and the Association Board as Vice-President. I am honored to represent our Section and Association! See you in Philadelphia at ACE2017!

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**Editor’s Report with Guest Columnist**

**Dave’s Alternative Facts**

By Dave

Dave, who has filled in for the regular editor in the past with Dave’s Thoughts, returns for this issue with Dave’s Alternative Facts:

- I enjoyed watching the Vikings win the Super Bowl.
- The capital of New Mexico is spelled Albuquerque.
- They found my bicycle in the basement of the Alamo.
- I’m dating Manti Te’o’s former girlfriend.
- The construction on Highway 169 has been completed.
- Tim Brewster was the best football coach the Gophers ever had.

Water Bar (Thornley)
Thornley described his experience with his visit to the Water Bar and gave a brief overview of what it is. Minnesota Department of Health is currently coordinating with the Water Bar to be part of their exhibit at the 2017 Minnesota State Fair. They are looking for volunteers to cover 12-hours of operation for the full 12 days of the Fair. Shifts may be in two-hour increments or longer depending on volunteer support. Belden said it would be good to have an AWWA presence.

The Water Bar would also like to include water taste testing from various areas of the state. To accomplish this, early brainstorming is that water would be supplied to the exhibit by keg. However, there are still a lot of unknowns like, volume needed, storage, handling, etc. Volk said he would present the concept and volunteer needs to SUSA at their board meeting in January. Those interested in reading more about the Water Bar can go to their website, www.Water-Bar.org.

Feldman stated the Water Bar and MNAWWA should consider focusing on water discussion only, instead of taste testing. Eaton stated MNAWWA needs to consider what they want to get out of the exhibit as well. Thornley and Belden will gather more information for presentation at the next Board meeting.

Wells Fargo (Thornley)
The Section currently uses Wells Fargo exclusively for the checking and investment accounts. With the recent news of the illegal practices of Wells Fargo, Thornley wanted to discuss the social justice aspect of continuing to bank with them.

Feldman asked questions about continuing to invest with Wells Fargo for the investment accounts. Feldman stated to date, in 2016, we have paid 60% of our dividends and gains as fees to Wells Fargo. Belden stated we cannot look at the Section investments from the same standpoint of personal investments. Eaton stated a bigger window of time should be examined. Brief discussion resulted in having the Finance Committee take the first steps in reviewing our banking with Wells Fargo.

Thornley motioned to have the Finance Committee review our checking and investment accounts. Schluenz 2nd. Passed unanimously.

Philanthropic Committee Naming (Belden)
Belden said that people at the conference expressed difficulty in associating with the newly renamed Philanthropic Committee as well as pronouncing it.
Belden proposed an idea of renaming it to The Water Equation to match with the Association. Fronek stated Water For People is not part of The Water Equation at the Association level, however. Since the Section still wants to support Water For People, Fronek stated that naming may not be ideal. “People For Water” was a later proposal by Belden. Results of continued discussion, was that the Philanthropic Committee be asked to consider new naming and make recommendation to the Board.

Philanthropic Committee Charities (Feldman)
Feldman stated he needed to know all of the charities the Section plans to support so that accounting practices can be adjusted accordingly. The following charities are planned to be supported:
- Water For People
- The Water Equation
- The Minnesota Section
- Endowment Fund

Sponsorship Packages for 2017 (Mona Cavalcoli/Feldman)
Feldman stated that with the restructuring of charities supported by the Section, the event naming and sponsorship packages available will have to be reformatted. Depending on how event proceeds will be directed, it may effect what activities sponsors sign up for. Result of discussion is that the Water For People naming will be dropped from the events and sponsorship packages will remain unchanged from last year. There was no debate over the pricing remaining the same as last year. The conference sponsorship will revert back to the $550 charged prior to last year’s 100th anniversary increase to $750.

MAC Social Expense Allocation (Belden)
Concern has been raised about the clarity of how the MAC Social is funded at the fall conference. There was unanimous agreement that it would be a good idea to better define and promote where that money comes from. A recommendation was made to have the Finance and Conference Committees work together to find ways to clearly state that the money used is coming from the exhibitor fees.

Future Conference Dates (Rob Isabel)
Future annual conferences at the Duluth Entertainment Convention Center (DECC) will be held on the following dates:
- September 12-15, 2017
- September 18-21, 2018
- September 17-20, 2019
- September 22-25, 2020

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Rod Ambrosie was named chief executive officer of Wenck of Golden Valley, Minnesota. Ambrosie has been with Wenck since 1992 and has been on its board of directors since 2003. Ambrosie was executive vice-president and principal-in-charge of the solid waste market for Wenck before becoming chief executive officer. Ambrosie succeeds Joe Grabowski, who served as president and chief executive officer from 2002 to December of 2016.

Hal Golder, Martin Alberson, and Danielle Masteron have joined Y.A. Engineering and Connectivity of St. Charles, Minnesota, as project design engineers. Golder brings 27 years of engineering and architecture to his new firm. Alberson, who graduated from Union College in Schenectady, New York, interned while in college at Thomwan Consultants in Troy, New York, and most recently was an engineer for Cleveland Steamer, Inc. of Cleveland, Ohio. Masteron has been involved in government work for 15 years, overseeing various bridge and roadway projects.

Dan Boyce, the utility manager for Grand Forks Water & Light, has retired after 26 years with the utility. Boyce kept water operations going in East Grand Forks during the horrible flooding in 1997. Dan is the recipient of the two highest honors from the Minnesota Section of American Water Works Association; he received the George Warren Fuller Award in 1995 and the Leonard N. Thompson Award in 2011.

If you set the bar at competence, how do you reach excellence?
In February 2017, the Minnesota Department of Health (MDH) received 12 responses from community water systems in the state in response to a survey regarding water affordability. The Minnesota survey is a follow-up to a national assessment done: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0169488.

Here are the questions asked and some of the responses:

**What typical steps does your system take to address delinquent billing?**
- Reminder notice(s)
- Payment plans (installments or extensions)
- Collection agency
- Shut off service (water or electric)
- Add to property taxes
- Informal contact (small systems)

**What percent of, and how quickly is, delinquent billing resolved at each step?**
The following steps resolve delinquencies at these percentages (0.33-5% of total billings are delinquent):
- 50-95% of customers that receive reminder notice(s) pay; some take advantage of payment plans, installments, extensions, or low-income resources
- 69% of customers that receive notice the bill is going to a collection agency/pay electric
- 27-98% of customers with service (water or electric) shut off service; some service connections may not be in use, which are likely part of the 27%
- 2.5-5% of all delinquent billing goes to property taxes

**Is financial assistance or reduced rates available for low-income customers from either your system or other organizations?**
- None
- Utility payment plans, i.e., installments
- Energy assistance programs (may or may not include water; typically only pay electric)
- County social services or economic assistance
- Non-profit organizations, i.e., Salvation Army
- Utility donation program

**What ideas would you suggest to help address delinquent billings for low income customers (statewide perspective)?**
- Provide a list of resources for individual budget counseling (effective?)
- Maintain a list of resources for financial assistance
- Encourage customers to use auto-pay, or set aside a specific dollar amount each month
- Work with a non-profit or other agency to set up a utility donation program
- Provide installment payments as an option (already being done at many community water systems)

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Dear President-Elect Trump:

Congratulations on your election as the 45th President of the United States.

During the long campaign, you ran on a platform of change, and since the election, you have charted a course toward improving our nation’s infrastructure. I urge you to focus some of that change and a significant portion of those infrastructure improvements on the one issue at the center of survival for all Americans, regardless of whom they voted for – water. By improving our water systems and boosting our water industry, you’ll keep your promises about putting Americans to work and bringing manufacturing back to America. You’ll be protecting our health (even before the first negotiation about insurance programs) and setting the stage for a better-educated generation. You will make us stronger and more strategic.

I am sharing this perspective after nearly four decades in the water industry around the world – in the trenches using my engineering background, as well as looking at water issues from the 30,000-foot perspective.

You and I were fortunate to have grown up drinking some of the world’s best tap water. Like you, I grew up in Queens, NY (I learned to speak “the Queens English” in the Woodside housing projects). It is vital that all Americans have access to great drinking water, as well as reliable sewers, abundant irrigation supplies, and a healthy environment. You are now in a position to update our water works and reverse the impacts of as much as a century of deferred maintenance.

As I told political candidates back in 2010, water is the ultimate non-partisan issue, uniting all Americans – rural and urban, rich and poor, liberal and conservative – in the basic biological quest for clean water. But our water infrastructure is severely challenged, and sinks deeper into disrepair every day. The American Society of Civil Engineers (ASCE) graded our drinking water and wastewater systems a “D” in its Infrastructure Report Card. The American Water Works Association estimates the needed repairs to our water delivery infrastructure, including pipes in many cities that are more than 100 years old, to cost $1 trillion.

That’s a lot of investment. It’s also a lot of jobs.

In fact, in data cited by the American Water Works Association, the Bureau of Economic Analysis at the U.S. Department of Commerce estimates that every job added to the water sector adds an additional 3.68 jobs to the national workforce. And the return on investment should appeal to your business sense – the Bureau also calculates that every $1 invested in water infrastructure returns $2.63 in the private economy.

Investing in the water industry can take many forms, and may even push those returns higher. Public works projects put people to work immediately and give communities access to clean water for domestic and industrial use. And we have the opportunity to make American industry the global heart of water technology. That will create jobs at all levels – good jobs, from technical experts who push water technology to new heights to manufacturing jobs that can put thousands of Americans back to work. Imagine the U.S. exporting the sensor systems, filtration technologies, pumps, and controls for the 21st century water industry, designed by experts in a new Silicon Valley of Water and built to the standards by which American industry set the bar for manufactured products.

As we build that Silicon Valley of Water, we can learn from nations that already have powerful water technology clusters. Israel, Singapore, Australia, and Texas (yes, even Texas!) are navigating new routes to water-secure futures through innovation, infrastructure, conservation, and planning.

Back in September, you stated your commitment to ensuring “clean air and clean, safe drinking water for all Americans.” That’s a great place to start in addressing our nation’s water needs in two regions that were critical to your election – rural areas served by small water utilities and the hurting cities of the Rust Belt.

I urge you to support the dedicated staffs of the small, under-resourced water districts served by the National Rural Water Association, who are true American heroes. And in cities like Flint, MI, where you are planning to restore America’s industrial might, give children a chance at a good education and healthy future by replacing lead-lined delivery infrastructure. Bluefield Research reports that there are approximately 2,000 water systems in the U.S. that have tested positive for high levels of lead; 350 supply schools and daycare facilities. With the EPA’s Clean Water State Revolving Funds already in place to support infrastructure upgrades, you could put people to work on January 20 upgrading vital infrastructure.

Making America great starts with protecting our children, and that – like everything else in life – starts with water.

Our water is more than just a vital element of our biology. It’s more than the building block of our industrial success,
technology sector, and energy resources. It’s a national strategic asset. In fact, Lt. Gen. Michael Flynn, the former head of the Defense Intelligence Agency and your pick for National Security Adviser, pointed out in a 2015 interview with Fareed Zakaria that water is “a means to increasing the economic health of the Middle East.” He clearly understands the many roles water plays in national security and regional stability.

During your campaign, you spoke quite a bit about China. As you look across the negotiating table at China’s leaders, take a moment to consider their highly strategic approach to water – their own supplies and that of their neighbors. (Here’s a crash course I wrote recently about China’s water power play.) We need to not only recognize how a country like China approaches water strategically, but also learn from it.

Mr. Trump, I know people are lining up to pitch their projects and suggest ways you can apply your skills as a developer to creating enduring changes to our nation’s physical strength. We know you can build great buildings, luxurious golf courses, and urban developments, and are surely able to construct airports, bridges, and roads. But what America needs most right now is the infrastructure for clean water and sewers.

By applying your leadership to our nation’s water resources, you will be addressing a critical issue of national security and seizing the opportunity to put people to work rebuilding, reinforcing, and repairing a water treatment and delivery system that has long been the envy of the world.

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Osseo Water Tower May be Placed on Historic Register

In 2013, as the water tower in downtown Osseo was approaching its 100th birthday, no longer containing water but serving as a familiar landmark, the city included an item in its newsletter, asking residents for feedback as it considered demolishing the tower.

Kathleen Gette, a proposal writer in her career, volunteered to write the grants to seek historic status for the tower, which would open doors for funding and help cover the costs to rehabilitate the iconic tower. “It’s structurally sound,” said Gette, “but it is in need of sprucing up, which is where the conversation started.”

Gette also started a “Save the Osseo Water Tower” Facebook group (https://www.facebook.com/SaveTheOsseoWaterTower) and collaborated with the Minnesota Historical Society’s State Historic Preservation Office, “which is a wonderful partner and works to preserve historic structures throughout Minnesota,” Gette noted.

Currently, Gette is writing the condition assessment grant through which the Minnesota Historical Society would fund an evaluation to identify potential repairs, repainting, and lead abatement/encapsulation needed to bring Osseo closer to its goal of saving the water tower.

It is likely that the nearly 102-year-old tower will be placed in the National Register of Historic Places this spring. In addition to opening funding opportunities for the rehabilitation of the water tower, listing of the water tower property in the National Register will recognize and celebrate the heritage of both the water tower and the city of Osseo.

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(612) 850-9495
Slovenija Declares Water a Human Right

In November 2016, Slovenija became the first country in the European Union to amend its constitution to state that drinkable water is a human right. In 2010, the United Nations General Assembly had recognized the "Human Right to Water and Sanitation," and some South American countries, including Uruguay, have made water a constitutional right; Slovenija has become the first in Europe to do this.

"Slovenija is very conscious of the environment. Making water a human right fits in. It’s consistent with the philosophy of the country and its citizens. People have a sense of pride because they’re very proud of their water."

Miro Medved, the consul of the Republic of Slovenija in Minnesota, praised the decision. "I’m very proud of it," he said. "Slovenija is very conscious of the environment. Making water a human right fits in. It’s consistent with the philosophy of the country and its citizens. People have a sense of pride because they’re very proud of their water."

Cindy Gauthier, whose great-grandparents were among the first to emigrate from Slovenija to the United States, in 1868, said, "It’s good for a teeny teeny country what it should do with water and that it should be a basic human right."

John Zakelj, who was born in a refugee camp in Slovenija in 1948 and came to the United States when he was one-and-a-half, said his relatives were used to clear water in Slovenija and "were shocked to see how dirty the Mississippi River is when they come to visit."
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Neighboring community public water systems (CPWSs) often use interconnection as a water-management strategy. While this may improve reliability and security, it is important to consider liability, costs, and unintended consequences. Physical, chemical, or hydraulic compatibilities are often forgotten elements when developing a water-sharing agreement.

In order to assist with regulatory and practical aspects of physical connections, MDH recently drafted an Interconnection Policy as guidance to CPWSs when initiating or updating connection agreements. A key component of this policy is the definition of interconnections based on active duration: long-term is at least six months; interim is between one and six months; short-term must end within a month. In addition, any interconnected CPWSs are expected to enter into a water-sharing agreement that addresses some or all of the following issues:

**Water Sharing Agreement Requirements**

- Finished water compatibility
- Water age issues
- Water quality issues
- Disinfection issues

**Recommendations**

- Agreement review process
- Agreement non-conformance
- Water pressure
- Water flow
- Service areas
- Production capacity
- Wholesale meter ownership
- Wholesale meter maintenance
- Costs, depreciation, and billing
- Service interruption management
- Conservation measures

A blank copy of the Community Public Water System Interconnection Plan form can be found at www.health.state.mn.us/divs/eh/water/forms/com.

Brian Davis of the Metropolitan Council, Anita Anderson of the Minnesota Department of Health, and Jon Eaton of the City of Eagan are members of the National Blue Ribbon Commission for Onsite Non-potable Water Systems. The commission – which has 30 representatives from 10 states and the District of Columbia – met in San Francisco in December for its first meeting to serve as a forum for collaboration and knowledge exchange on policies and best management practices, develop state guidance for the management and oversight of onsite non-potable systems, and identify additional research needs in the field.

Onsite water systems collect wastewater, storm water, rainwater, and more, and treat it so that it can be reused in a building or at the local scale for non-potable needs such as irrigation, toilet flushing, and cooling. The systems are usually integrated into a city’s water and/or wastewater systems to contribute to sustainable water management by using alternate water sources, reducing valuable potable water used for non-potable purposes, and minimizing strain on wastewater systems.

“I am honored to work with such qualified and dedicated professionals on the development of best management practices to support the use of onsite non-potable water systems for individual buildings or at the local scale,” said Eaton. “We are committed to protecting public health and the environment, and sustainably managing water.”

Anderson said, “This collaboration is coming at an excellent time for Minnesota as we are in the midst of our Clean Water Fund project to advance safe and sustainable water reuse in our state. The commission provides an opportunity to both learn from and share experience with other states as we all set a path forward for reuse.”

Three Minnesotans on Blue Ribbon Commission for On-Site Non-Potable Systems

**MDH Drafts Interconnection Policy**
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Water Bar Coming to the State Fair

“Welcome to the Water Bar. Water is all we have.” Visitors to the state fair will hear those words from volunteers staffing the Water Bar in the EcoExperience building this summer. All water professionals in Minnesota are invited to sign up for a shift and serve visitors water from different cities in the state. This is a chance to engage visitors about water issues and concerns. More information will be posted, when available, on how to sign up. Meanwhile, for more information on the Water Bar, go to www.worksprogress.org/water-bar.

Workshop on Cybersecurity

The U.S. EPA is sponsoring a free, one-day workshop entitled “Introduction to Cybersecurity: Workshop and Response Exercises.” This workshop will introduce you to the cybersecurity threat; highlight the results from on-site cybersecurity assessments conducted at Virginia waterworks, and explain/demonstrate free resources and tools available for your utility. Two facilitated “real-life” response exercises will round out the day. Water-sector information technology staff and managers are highly encouraged to attend this workshop. The workshop takes place at the Eden Prairie Community Center, Eden Prairie, MN on May 16, 2017 in the Cambria Room. To register for this workshop, please visit: www.horsleywitten.com/cybersecurity.

2017 Drinking Water Institute Scheduled for August 7-9

The 2017 WaterWorks! Drinking Water Institute for Educators will be held from Monday, August 7 to Wednesday, August 9 in Lakeville, Minnesota.

Each year Minnesota science teachers attend the three-day Institute, learning about drinking water and about ways to develop inquiry-based activities that can be incorporated into their existing science curriculum. The program is free to teachers, who receive college credit for their participation.

WaterWorks! is sponsored by the Minnesota Department of Health and the Minnesota Section of AWWA and is conducted through a partnership with Hamline University’s Center for Global Environmental Education.

More information is available at www.health.state.mn.us/water/institute/index.htm.
St. Cloud Recognized for Source Water Protection Projects

St. Cloud received the 2016 Crown Community Award from American City & County magazine for pollution prevention for efforts to protect the city’s source water (http://tinyurl.com/htev444).

Through natural means, such as infiltration, and through other source water protection methods, the City of St. Cloud is cleaning up storm water before it reaches the Mississippi River, the city’s source for drinking water.

Like other cities, St. Cloud has separated its storm and sanitary sewers, reducing flows to its wastewater treatment plant. But through its Northeast St. Cloud Stormwater & Source Water Protection Program, the city is replicating the primary treatment that would take place in a wastewater plant, according to Lisa Vollbrecht, Assistant Public Utilities Director for St. Cloud. “We are encouraging storm water infiltration into additional green space and rain gardens rather than directly flowing into the Mississippi River,” she explained, “and slowing down the flow so total suspended solids settle out and remove phosphorus with it.”

The project has five elements that include the installation of an underground treatment system and several sump manholes, which have created all the environmental benefits that a traditional regional pond would provide.

St. Cloud, a central-Minnesota city of 70,000, has six major sub-watersheds with 27.2 square miles of the Mississippi River sub-watershed. It is the first city on the Mississippi to draw water from the river for drinking water.

St. Cloud, working with Short Elliott Hendrickson Inc., completed a drainage analysis that helped guide the city in the completion of the 2016 project elements in the Northeast sub-watershed. More than two-thirds of the $1.3 million project cost was funded through the Clean Water Land & Legacy Amendment, passed by Minnesota voters in 2008.
Got a Gimmick? Got a Gadget? Bring It to the Metro School

The Metro District of the Minnesota Section of American Water Works Association (AWWA) will hold its spring school in conjunction with the Minnesota Department of Health from Monday, April 3 to Wednesday, April 5, 2017 in Brooklyn Center. This year the school will include Gimmicks and Gadgets, an opportunity for utilities to display and demonstrate innovative devices they have made. The entries will be judged, and the winner will get a registration to the Minnesota AWWA annual conference next September with the chance to have the gimmick/gadget judged there.

Questions about Gimmicks and Gadgets may be directed to Brent Massmann, 651-675-5200, bmassmann@cityofeagan.com.

Design-Build for Water/Wastewater Conference in Minneapolis March 29-31

American Water Works Association is one of the co-hosts with the Design-Build Institute of America’s Design-Build for Water/Wastewater Conference, which will be held at the Minneapolis Convention Center March 29-31, 2017. The conference will define, teach, and promote best practices in design-build project delivery and will focus on water and wastewater projects.

Sessions include: The Future of Infrastructure and Design-Build and Utilizing Progressive Design-Build to Promote Collaboration and Innovation.

More information is available at http://www.dbia.org/Conferences/water/Pages/default.aspx.
Lewis & Clark Moving through Minnesota

Carstensen Contracting, Inc. of Pipestone, Minnesota, worked through the end of 2016, extending water pipes eastward through southern Minnesota as part of the Lewis & Clark Regional Water System. Conceived in 1988 as a way of serving water-challenged areas in South Dakota, Iowa, and Minnesota, the Lewis & Clark project takes water from a series of wells that tap into an aquifer adjacent to the Missouri River near Vermillion, South Dakota. The water is delivered to communities as far as 125 miles away. The project will serve approximately 300,000 people when it is completed.

The pipes first crossed into Minnesota in 2015. Recent work between Magnolia and Adrian covered a stretch with many crossings (highway, railroad, streams) that defy open-cut trenching. Instead, the contractor drilled a total of 11 horizontal bores for placement of carrier pipes to extend beneath the crossings. The streams posed a particular challenge because of the Topeka shiner – a nuisance minnow to many but an endangered species. Late-season work causes the least disturbance to the Topeka shiners’ sensitive habitat, the reason Carstensen worked into December before taking a break until spring.

The work in 2017 will continue the distribution system that includes a connection to the Lincoln-Pipestone Rural Water System, which serves a wide area that includes 38 cities in 10 counties. In addition, projects scheduled for the year include an aboveground storage reservoir and pump station South of Luverne and a meter building East of Adrian. Substantial completion of these projects in Minnesota is scheduled for next November.

“We will have a busy construction season,” said Troy Larson, executive director of the Lewis & Clark Regional Water System.
Ellingboe Takes over as ASDWA President

Randy Ellingboe, the manager of the Drinking Water Protection Section of the Minnesota Department of Health (MDH), is the president of the Association of State Drinking Water Administrators (ASDWA) for 2017.

“We face the coming year knowing that the public, the media, the state and federal lawmakers have a high level of interest in state drinking water programs,” said Ellingboe. “We will have a new administration that will oversee EPA [Environmental Protection Agency] activities and no doubt set new priorities. We face the ongoing challenges of working with public water supply systems to ensure that the systems meet all Safe Drinking Water Act requirements and that they can address the issues brought by contaminants they may find that are unregulated, like toxins from harmful algal blooms. We continue to work to find strategies to protect our sources of drinking water. We will face problems but also find opportunities.”

Ellingboe’s predecessor, 2016 ASDWA president June Swallow said, “Randy is up to the challenge. I have gotten to know Randy over this last year and have observed that he brings a calm and thoughtful approach to problems and I am confident that he will serve ASDWA extremely well.”

Governor Dayton Announces Clean Water Begins with Me! Poster Contest

“Clean water has to be an ethic, not an edict,” said Governor Mark Dayton February 9 when he announced the annual water poster contest, conducted by H2O for Life and co-sponsored by Minnesota AWWA and Minnesota Department of Health. Clean Drinking Water Starts with Me! is the theme for this year’s contest as Minnesota students at various grade levels submit a poster. The grand-prize winner will get a bottle filling station installed in his or her school. The winning posters will be displayed in the state capitol and at the Minnesota Department of Health exhibit in the Eco Experience building during the state fair.

Asset Management Pilot in Minnesota

Due to many of the technical, managerial, and financial (TMF) challenges faced by very small municipalities in Minnesota, the Minnesota Department of Health has chosen to use Drinking Water State Revolving Funds for technical assistance to contract with Minnesota Rural Water Association (MRWA) to provide TMF training.

Recently, MRWA was asked to create an asset management spreadsheet tailored to water systems with populations fewer than 1,000. The spreadsheet highlights the five core components of asset management and was completed in July of 2016 after being piloted on three small cities.

By collaborating with another funding source, MRWA was also able to provide a similar wastewater asset management spreadsheet.

The project will continue in state fiscal year 2017. MRWA will continue to pilot the spreadsheets with a new group of small community water systems plus provide technical assistance training on the spreadsheets, which are available at www.mrwa.com/assetmgmt.html.
Fluoridation Equipment Improvement Grants

In early 2017, the MDH Drinking Water Protection Section expects to make available federal grant funds to reimburse eligible public water systems (PWSs) for equipment costs related to water fluoridation optimization. As in past years, the goal of the Fluoridation Equipment Improvement Grant will be to assist PWSs with the purchase, installation, and engineering costs of fluoridation process improvements.

However, unlike previous fluoridation grants, priority will be given to PWSs located in areas designated as dental health professional shortage areas (D-HPSA), which are designated by the U. S. Health Resources & Services Administration as having shortages of dental care, include nearly all-rural Minnesota counties as well as some areas of the Twin Cities.

An MDH map of the rural D-HPSAs may be found at www.health.state.mn.us/divs/orhpc/images/shortage/hpsadtrural.pdf. Visit the MDH Community Public Water Supply Fluoridation Grant Information web page (http://www.health.state.mn.us/divs/eh/water/com/grants) before March 2017 for grant availability, application requirements, and other details.

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<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>% Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gallons Sludge</td>
<td>1,137,598</td>
<td>542,000</td>
<td>52%</td>
</tr>
<tr>
<td>% Solids</td>
<td>2.68%</td>
<td>1.67%</td>
<td>35%</td>
</tr>
<tr>
<td>Dry Tons</td>
<td>124</td>
<td>38</td>
<td>70%</td>
</tr>
</tbody>
</table>

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High-Hazard Cross Connections and Significant Deficiencies
Cross Connections and Backflow Preventer Tracking
By Gary McLaren, HydroCorp

Recent contamination of the public water system in Corpus Christi, Texas, demonstrates the critical need for a citywide cross-connection-control program. It also raises the question, "Could that happen in our town?" The answer is "Yes."

The Minnesota Administrative and Plumbing Codes specifically address cross connections in potable water systems. These codes and requirements are the foundation for good backflow prevention and cross-connection control. There is, however, additional focus needed on commonly overlooked scenarios that may leave a public water system vulnerable to backflow contamination. To address these concerns, Minnesota public water suppliers should recognize several realities about facilities connected to the public supply:

• Since plumbing codes do not require it, most buildings in Minnesota do not have a backflow preventer at the service connection/water meter.
• Not all buildings have testable backflow preventers, but all buildings do have several forms of non-testable backflow preventers, such as hose connections and air gaps.
• Backflow preventer test forms do not guarantee the building is free of unprotected cross connections.
• A backflow preventer tester typically performs only a test on the assembly and does not perform a thorough cross-connection survey of all other water piping at the facility.

While requirements and guidelines may exist on paper, the true effectiveness of a cross-connection-control program occurs when an established plan is followed on a regular basis – an example of ongoing planned activities are as follows:

• Maintaining records that detail facility compliance.
• Performing periodic site surveys to identify unknown cross connections.
• Providing resources that enhance public awareness. Receiving and tracking annual backflow preventer test records is a key element in a program; however, it does not address hidden cross-connection hazards within buildings. The unknown hazards are the real challenge, and with a well-rounded cross-connection-control program that includes the activities listed, safe drinking water can be better protected from backflow.

The Latest on Corpus Christi
Corpus Christi, Texas, had a water emergency in December 2016 when a chemical from an industrial plant – Ergon Asphalt and Emulsions Inc. – leaked into the city's water supply, causing disruption and a run on bottled water. Although the exact cause has yet to be determined, a cross connection is suspected.

News sources quoted Corpus Christi spokeswoman Kim Womack saying that they did not find a backflow preventer at the site. “They're [Ergon Asphalt] saying there is one and we're telling them, 'Show us,'” Womack said. “In the simplest terms, someone was careless when they were injecting chemicals with a pump and… when the injection occurred it crossed over into our water system.”

The company issued a statement the day after the problem was reported saying it has been in contact with the Texas Commission on Environmental Quality and is “working cooperatively to provide all information to ensure state officials can remedy the situation as quickly as possible.”

The U. S. Environmental Protection Agency has said it will investigate the cause of the chemical leak.

Effluent to Beer
You may not be able to turn sushi to gold, but a coalition called the Southwest Water Campus in Pima, Arizona, won a water innovative challenge for a statewide education campaign to get buy-in on turning effluent into a potable product.

As with any reuse effort, the challenge isn’t technological as much as it is overcoming public perception, particularly when water reuse is so often labeled “toilet to tap.”

The coalition decided to overcome the “yuck factor” in a different way – with beer. In partnership with brewers, the coalition is constructing a mobile potable treatment facility that will travel to Arizona cities to produce bottled water and craft beer in a series of high-profile educational events that will lead us to a national reuse conference in Phoenix in September.

Jeff Prevatt of Pima County Regional Wastewater Reclamation Department said, “Let our crisp brews change your attitudes and make Arizona more fluent about effluent.”

News and Notes

Fact Sheet for Permanganate Overfeeds
By Jon Groethe, Minnesota Department of Health engineer

On rare occasions, an overfeed of sodium or potassium permanganate occurs at one of Minnesota’s many filtration plants, resulting in a release of pink water in parts of the distribution system. An overfeed of permanganate may be caused by a variety of operational or mechanical problems, and it is certain that customers will quickly begin calling the utility with their questions and concerns. Health risks associated with higher-than-normal levels of permanganate are usually less than with other water treatment chemicals, centering around long-term exposure rather than short-term. However, customers will strongly react to the observed pink discoloration of the water.

A new fact sheet is now available on the Minnesota Department of Health (MDH) website which may significantly help a utility during the initial scramble for information to provide to its customers, Why Is My Water Pink? It provides talking points on the benefits and safety of permanganate, as well as information about the temporary discoloration of their water. It also provides basic health risk information. Response actions that are typically taken by the utility are listed, and instructions to flush following the event are provided to consumers.

The information can be handed out as a fact-sheet, posted as a link on a city’s web page, or blended into a separate public message.

This one-page fact sheet is easily accessed by typing “Why Is My Water Pink?” in the MDH search window at www.health.state.mn.us.

Finally, don’t forget to call the Minnesota State Duty Officer (800-422-0798) at the outset of a pink-water episode, so the MDH Drinking Water Protection Section is informed. •
Smithsonian Exhibit Moves to Lanesboro

The Water/Ways series of exhibits, part of the Smithsonian Institution’s Museum on Main Street program, opened in Fillmore County at the Commonweal Theatre in Lanesboro in early January for a six-week stint.

Water/Ways is a traveling exhibit that focuses on the relationships between people and water – how water connects story, history, faith, ethics, the arts, and science, all through community.

Water/Ways reveals the central nature of water in our lives by exploring how Americans use water, how water unites communities, how water affects every element of life, and how Americans care for our water and protect this valuable resource for the future.

Minnesota is one of only five states chosen by the Smithsonian to launch this new traveling exhibit. It has already been in New London/Spicer, St. Peter, Red Wing, and Sandstone.

The Becker County Historical Society in Detroit Lakes will be the last stop for the exhibit on the Minnesota tour. Water/Ways will be there until April 9.

11th Annual Spring Golf Tournament

Join Minnesota AWWA and help support two great charities. Water For People is an organization dedicated to providing the lifesaving gift of safe, clean drinking water and sanitation services, accessible to all, and sustained by strong communities, businesses, and governments. The Water Equation aims to ensure pure drinking water and efficient wastewater treatment systems, by addressing the critical shortage of skilled water professionals through scholarship and training opportunities.

On May 25, the 11th Annual Spring Golf Tournament will take place at Willingers Golf Club in Northfield, Minnesota with proceeds going towards these two amazing organizations. To register online visit the Minnesota Section AWWA website.
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The IWA Principles
For Water Wise Cities

For Urban Stakeholders to Develop a Shared Vision and Act towards Sustainable Urban Water in Resilient and Liveable Cities

The IWA Principles for Water-Wise cities assist leaders to develop and implement their vision for sustainable urban water, beyond equitable universal access to safe drinking water and sanitation. The principles underlie resilient planning and design in cities. The ultimate goal of these principles is to encourage collaborative action, underpinned by a shared vision, so that local governments, urban professionals, and individuals actively engage in addressing and finding solutions for managing all waters of the city, driven by three paradigm shifts:

1. RESOURCES ARE LIMITED: WE NEED TO DO MORE WITH LESS
With increasing numbers of people living in metropolitan areas, water, energy and materials need to be used carefully, reused, and renewed.

2. CITY DENSIFICATION IS BOTH AN OPPORTUNITY FOR ECONOMIC GROWTH AND A THREAT TO LIVEABILITY
By 2030, over 6 billion people are expected to live in cities. More populated, denser cities will be required to provide more efficient services. Water is essential for the well-being of citizens, their safety, and social inclusion in cities.

3. AN UNCERTAIN FUTURE UNDERLIES THE PLANNING OF OUR CITIES
Historical development pathways are often not appropriate to plan future water systems. Climate change and population growth are uncertainties. Planning these systems with increased modularity and reduced dependencies enable a better reactivity to unforeseen trends and events.

THIS IS A HUGE TASK. As water professionals, we are determined to inspire a new shared vision and implement the recently approved Sustainable Development Goals (SDG), and in particular SDG6 and SDG11, which are a bold call for the promotion of sustainable urban water management for safer, more inclusive, and resilient cities. To achieve this we need to harness the power of collaboration with adapted governance, engagement of stakeholders, and active citizen involvement.

The following principles establish a framework for transitioning cities to address these paradigm shifts. Where existing and aging assets are in place, the principles are to be
applied at the pace of asset renewal, as dictated by wise asset management strategies. Where assets are to be built, applying the principles opens opportunities for innovative systems which best address these paradigm shifts.

The principles are structured along four increasing levels of action (each enabled by the next level), accompanied by five building blocks through which the urban stakeholders can deliver sustainable urban water, becoming a water-wise community. See Figure 1.

Sustainable urban water is defined in this document as “all urban waters used and managed by water-wise communities in cities connected to their basins, built in a way that is sensitive to water issues so that short-term risks are minimized, resources are preserved, and livability is increased through Water Sensitive Urban Design and Regenerative Water Services for all”.

The Five Building Blocks to Deliver Sustainable Urban Water

VISION
• A shared vision moves stakeholders from defending solutions for their own specialties to defining a set of common drivers for the greater benefit of the urban community.
• A shared vision is an essential prerequisite for ensuring the implementation of new policies and strategies.

GOVERNANCE
• Governance and institutions provide the framework for urban stakeholders to work together, breaking silos to integrate water in all urban services at the building, neighborhood, metropolitan, and catchment scales.
• Policies provide incentives for urban stakeholders to unlock the synergies across sectors, maximizing the benefits of water to cities.

KNOWLEDGE AND CAPACITIES
• Implementing the sustainable urban water vision starts with the existing capacities and competencies of the different urban stakeholders.
• To fully realize the vision, increased capacities and competencies are needed, through sharing success stories from other cities, learning to work differently with new tools, pooling resources, and opening to other sectors’ approaches and methods.

A resilient city vision, including water, enables people to work together at different scales and across disciplines. It supports the political will needed to invest in long-term measures. It provides consistency beyond political cycles.
PLANNING TOOLS
• Asset management, master plans or decision support systems are the means for urban stakeholders to initiate action.
• These tools, developed and used by cross-sectoral teams, allow for assessing risks, identifying benefits and co-benefits of projects, defining levels of service, and ensuring ownership by stakeholders.

IMPLEMENTATION TOOLS
• Regulations create incentives. Based on quality assurance, equity, transparency, accountability and sound financing, they provide a solid frame for stakeholders to invest in sustainable urban water.
• Financial tools, linked to rigorous asset management plans, enable long-lasting improved service levels with a well-maintained infrastructure.
• Financing tools, which value the ability of solutions to adapt to changes or recover from disasters, allow cities to adopt more efficient solutions and transition towards systems requiring smaller and more frequent investments.
• Integrated services, combined with shorter investment cycles and the valuing of co-benefits, bring new funding opportunities, providing options to overcome the lack of financial capacity for cities.
• Augmenting traditional financing and contracting models with innovative instruments involving private and public financing, including circular economy mechanisms, open new funding opportunities which promote regenerative water services.

The Four Levels of Action:
The four levels of actions build on the base principle that all city-dwellers have access to safe drinking water and sanitation services, which requires planning, prioritization, monitoring and reporting of the human rights to water and sanitation.

LEVEL 1 - REGENERATIVE WATER SERVICES FOR ALL
The main goal is to ensure public health and satisfy all current needs while protecting the quality and quantity of water resources for future generations by efficient production and use of water, energy and materials. Regenerative water services are underpinned by five principles. Embedding these principles in water and wastewater systems rehabilitation, extension or new development will ensure the resource is protected and not overused. It will create value from energy and resource recovery not only from water but also from other services, and will facilitate financing by generating new revenue whilst delivering broader economic, social and environmental benefits to the city:

1.1 REPLENISH waterbodies and their ecosystems within the basin by taking from or discharging to them only what can be given or absorbed by the natural environment. Reduce water intakes to match quantities that the natural environment is able to renew, and protect the quality of water sources from...
wastewater and urban run-off so that it is fit for ecosystems and for use with minimal treatment requirements.

1.2 REDUCE the amount of water and energy used. Minimize the amount of water used in accordance with storage capacities. Minimize the energy used in moving and treating urban waters, including rainwater.

1.3 REUSE and use diverse sources of water with treatment that matches the use, applying the ‘fit for purpose’ water quality approach and Integrated Water Resources Management (IWRM); RECOVER energy from water whether through heat, organic energy or hydraulic energy; RECYCLE and recognize the value of “upcycled” materials, such as nutrients or organic matter.

1.4 Use a SYSTEMIC APPROACH integrated with other urban services. Consider the different parts of a water system and other services such as waste or energy as a whole, to enable solutions that reduce and reuse while improving services costs efficiently.

1.5 INCREASE THE MODULARITY and ensure there are multiple resource, treatment, storage and conveyance options available throughout the system for ensuring service levels and resilience of urban water systems in the face of either gradual or sudden changes.

By applying the principles for regenerative services when adapting to population growth, or to the impacts of climate change, water services contribute to reducing the carbon footprint of cities and to rehabilitating their basins.

LEVEL 2 - WATER SENSITIVE URBAN DESIGN seeks the integration of urban planning with the management, protection and conservation of the total urban water cycle to produce urban environments that are ‘sensitive’ to water sustainability, resilience and livability co-benefits. This second level of action includes four principles:

2.1 PLAN AND IMPLEMENT URBAN DESIGN ENABLING REGENERATIVE WATER SERVICES. Design domestic and industrial precincts and buildings in ways that enables regenerative water services. This reduces the water, energy, and carbon footprint of housing, contributing to its affordability through lower monthly bills. It also leads to cleaner waterways, benefiting ecosystems and people, while also improving social and urban amenities. It includes building green infrastructure to capture and treat stormwater for a range of co-benefits.

2.2 DESIGN URBAN SPACES TO REDUCE FLOOD RISKS. Increase resilience to flood risks by developing urban drainage solutions, integrated with urban infrastructure design so that safe flooding spaces are provided and the city acts as a “sponge,” limiting
surges and releasing rainwater as a resource. Plan vital infrastructure to enable quick disaster recovery.

**2.3 ENHANCE LIVEABILITY WITH VISIBLE WATER** from roadside green infrastructure to major blue-green corridors as opportunities for recreation, inclusive public space, economic development and transportation, creating multi-purpose spaces and infrastructure. Urban water services are essential for ensuring sustainable irrigation of parks and gardens, providing shade and mitigation of heat islands.

**2.4 MODIFY AND ADAPT URBAN MATERIALS TO MINIMISE THEIR IMPACT ON WATER POLLUTION:** The urban materials of roofs, walls, surfaces, roads, and urban furniture ought to be carefully selected to prevent the release of pollutants when exposed to sun and rain.

**LEVEL 3 - BASIN CONNECTED CITIES**
The city is intrinsically connected and dependent on the basin it is part of, and which interacts with neighboring basins. By proactively taking part in basin management, the city secures water, food and energy resources, reduces flood risk and enhances activities contributing to its economic health. This third level of action includes three principles:

**3.1 SECURE THE WATER RESOURCE** and plan for drought mitigation strategies by sharing the water resource with other users in the basin, namely agriculture, industry, and energy sectors, and other cities who all contribute to the basin’s and city’s economy.

**3.2 PROTECT THE QUALITY** of the water resource together with the other basin stakeholders, to ensure high quality drinking water achieved with minimal treatment and energy requirements, and ecosystems services (e.g. forest catchment areas, wetlands).

**3.3 PREPARE FOR EXTREME EVENTS,** such as storms and heavy rains, by managing flow regimes in rivers and by maintaining adequate vegetation in the basin to minimize flash floods. Invest in coastal storm risks mitigation and flood warning systems.

**LEVEL 4 - WATER-WISE COMMUNITIES**
The implementation of the previous three sets of principles requires a holistic approach and strong partnerships. This fourth level of action is about people building on their existing capacities to govern and plan; professionals becoming more “water-wise” in their area of expertise, so that they can integrate water across sectors, highlighting the co-benefits of integrated solutions to unlock investments. It is also about people becoming “water-wise” in their behaviors as citizens.
This level of action is where the transition starts; it is where each stakeholder realizes the role they have to play to make a difference. It is about inspired people instigating five key actors of change into this ‘water-wise’ transition:

4.1. CITIZENS involved in the sustainable urban water vision.

Water-wise citizens can drive urban planning and design with their understanding of the risks (flooding, scarcity) and opportunities (resource recovery, reducing dependency on uncertain future resources, increased well-being). Water-wise citizens will also adapt their behavior. They will develop their acceptance to solutions, enabling regenerative water services, and their willingness to pay for such services while mandating their officials to ensure affordability.

4.2. PROFESSIONALS WITH VARIOUS EXPERTISE (FINANCE, TECHNICAL, SOCIAL) who understand the co-benefits across urban sectors so that they may plan and implement the best solutions for urban dwellers and businesses. Synergies and dependencies exist between water and urban planning, architecture, landscaping, and energy, waste, and transport services: water services require energy but conversely urban water can be used to produce energy locally; green urban space requires water that can be provided by collecting rainwater or reusing water from treated effluent to recycle nutrients in vegetated areas. Professionals, realizing the market and non-market value of the co-benefits associated to an integrated urban agenda, will enable innovative sustainable solutions.

4.3. TRANSDISCIPLINARY PLANNING AND OPERATION TEAMS integrating water in city planning. All waters (freshwater supply, rain, rivers, seas and wastewater) are interconnected with each other and other urban systems (parks, roads, energy and waste) so that efficiencies and synergies arise from a coordinated approach. A city planning organization recognizing these inter-relations and bridging over existing individual departments is needed to enable urban professionals to implement sustainable urban water.

4.4. POLICY MAKERS enable the implementation of the principles for regenerative water services, water sensitive urban design, and basin-connected cities. Water-wise policy makers establish policies and financing mechanisms (tariffs, partnerships, that are responsive and adaptive to future changes) to drive and enable sustainable urban water through incentivizing and rewarding innovative solutions. They phase out the existing subsidies and tax advantages that are environmentally harmful. They monitor, evaluate, and adjust the policies based on future needs as they change over time.

4.5. LEADERS provide the progressive vision and a governance structure to coordinate work at 4 scales (catchment, metro, neighborhood and building) and across disciplines. The people governing at the national and local levels can enable sustainable urban water through coordination and integration, leveraging "effective and efficient governance enhancing trust and engagement." Water-wise communities will use the building blocks to put the principles into action. The progressive implementation of the principles at three levels: 1) regenerative water services for all, 2) water sensitive cities, and 3) basin connected cities, will strengthen each of the 5 key actors of change of the city's water-wise communities.

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3 Refer to the Lisbon Charter
4 Refer to “IWA’s manual of the Human Rights to Safe Drinking Water and Sanitation for Practitioners”.
5 Integrated water Resources Management is a process which promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.
6 Refer to Basin of the Future Charter (in drafting)
7 OECD Principles on Water Governance, 2015
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Questions: Jim Hauth, Chair, MN AWWA Philanthropic Committee, 651-675-5216 or Chris Voeltz, City of Saint Peter Public Works, 507-934-0670

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To reach water professionals through Breeze magazine and its targeted readership, contact Darrell at your earliest convenience to discuss your company’s promotional plans for 2017.

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