



## **GREAT LAKES WATER AUTHORITY**

2018 YEAR IN REVIEW

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## Letter from the CEO



A commitment to long-term sustainability and collaboration guided The Great Lakes Water Authority (GLWA) through 2018, its third year of operations.

From a long-term sustainability perspective, GLWA launched a pilot program to conduct a condition assessment of GLWA's water transmission mains, began phase one of our first valve exercising program to locate, inspect, evaluate, exercise and repair 450 valves, and gained momentum in the development of our regional Wastewater Master Plan.

The Authority also worked collaboratively with our member partners to bring to a close Phase 2 of our Water Units of Service project, marking a pivotal turn to a new phase of charge development at GLWA, and released the results of our second Member Outreach Scorecard, which provides important member partner feedback on the quality of service they receive from the GLWA team.

The shift in terminology from customer to member partner might be new for some. GLWA made this change to call attention to how we work in full partnership with those we serve in the interest of the end consumer.

The 2018 Year in Review delves deeper into the details of GLWA's accomplishments and tells the broader story of the Authority's success over the last 12 months through three distinct sections: **One Water**, **One Team**, and **One Mission**.

GLWA has been able to achieve the level of success that we have over these last three years thanks to the collective efforts of our team members, member partners and other stakeholders working collaboratively toward our vision to be the provider of choice in southeast Michigan.

Thank you to everyone for their ongoing partnership. I believe Helen Keller said it best, "Alone we can do so little; together we can do so much."

Sincerely,

Suc M. Cormise

Sue McCormick Chief Executive Officer



## **MEASURING SUCCESS**

The Great Lakes Water Authority prides itself on continuous improvement and transparency, which is why measures for success have been created throughout our operations.

These Key Performance Indicators (KPIs) are constantly reviewed and adjusted to ensure that each operating unit remains on task and can visually track their progress and set new targets to drive further improvements.

In 2018, a number of new measures were added from across our operating units. Of particular interest are two new KPIs in the Effective Utility Management areas of Infrastructure Strategy and Performance which detail (1) preventative maintenance progress in our water and wastewater operations areas, and (2) preventative and corrective maintenance in our wastewater operations. Timely preventative maintenance extends the useful life of infrastructure and minimizes unplanned downtime.



(1) Infrastructure Strategy and Performance—
Wastewater and Water
Preventative Maintenance
(PM) Management
(November 2018)

(2) Infrastructure Strategy and Performance—
Wastewater Preventative & Corrective Maintenance
Management
(November 2018)



\*The Target is derived from the 2017 American Water Works Association Utility Benchmarking program that indicates that an appropriate level of PM activities can be identified by the PM percentage of total maintenance work performed. If the percentage is significantly lower than the target (red) it is a warning of possible increase in unplanned, emergency type work (CM). If the percentage is significantly higher than the target (yellow) it is a warning that PMs can be reduced, and resources can be better directed to other system needs.

GLWA

PM = Preventative Maintenance CM = Corrective Maintenance

## FINANCIAL SUSTAINABILITY

## MONEY SAVING BOND SALE AND RATINGS UPGRADES

GLWA returned to the market in 2018, pricing a \$413 million bond sale, which included \$331.5 million for refunding of outstanding debt and approximately \$81.6 million par amount in new bonds, which generated \$91 million in funds for Detroit local sewer system improvements.

As a result of the favorable interest rates on the bonds, GLWA realized a net cash flow savings of approximately \$85 million over the life of the refinanced bonds, bringing the total cash flow savings on refinancing to \$394 million since the launch of the Authority in 2016.

The bond sale is part of a comprehensive Five-Year Financial Plan being executed by GLWA to not only continue building financial sustainability, but importantly, increase its use of a pay-as-you-go approach to fund infrastructure improvements across the regional system. This savings ultimately translates into GLWA being able to outperform on its promise to limit annual increases in its budgeted revenue requirement to four percent or less each fiscal year, which assists the Authority in its efforts to keep the cost of water affordable now and into the future.

Contributing to the success of the bond sale were the upgrades received from all three credit rating agencies this year, which were strong recognition of GLWA's ongoing positive financial performance:

- S&P Global Ratings increased GLWA's senior lien water system rating by three notches to AA- and its second lien water system rating by three notches to A+. It also moved GLWA's senior lien sewer system rating up by two notches to A+, and its second lien sewer system was increased by two notches to A. Both the senior and second sewer liens were assigned a positive outlook;
- Moody's Investors Service upgraded GLWA's water system and sewer system senior lien ratings one notch to A2, and its second lien ratings one notch to A3;
- Fitch affirmed GLWA's ratings for its water system and sewer system senior lien bonds at an A, and its second lien bonds at an A-. The credit outlook for both water and sewer debt was increased from stable to positive.

"From my experience in municipal government, I know that investors love a good story. GLWA has a very good story to tell about the progress it has made, both financially and operationally, in its first two years – and the bond market clearly recognized that value. Congratulations to CEO Sue McCormick and everyone at GLWA for their hard work and commitment to serving GLWA's member communities." Freman Hendrix, GLWA 2018 Board Chairman



Financial Services Area Team Member Alicia Haskin handmade delicious "AA" cookies to celebrate GLWA's bond rating upgrades

## FY 2030 FINANCIAL FORECAST

In 2017, GLWA established a Five-Year Financial Plan to communicate its stewardship of the system's assets and commitment to cost control, transparency and strong financial management. The plan contained financial forecasts for a five-year period ending with FY 2023.

With the plan in place, GLWA turned its focus to developing a longer-term Financial Sustainability Model that extends its forecast period to FY 2030, and encompasses the following objectives:

- Risk Management: Ensuring that there is sufficient liquidity to seek new opportunities, and address unforeseen and/or uncontrollable events;
- **Affordability**: Appropriate level of fixed long-term commitments, controlled variable annual costs, and balancing the two to achieve intergenerational equity;
- **Stability**: Anticipating annual budget variances and ensuring that charges are stable and predictable (i.e. prevents "rate shock").

GLWA's Financial Services Group is now working with its Board of Directors to translate these objectives into measurable planning parameters.



## OPERATIONAL OPTIMIZATION AND SUSTAINABILITY



## SUSTAINABILITY IS A CONCEPT THAT APPLIES TO ALL GLWA OPERATIONS IN WAYS THAT ARE UNIQUE TO THOSE AREAS.

## UTILITY OF THE FUTURE

GLWA is continuing along its multi-year path to becoming a Utility of the Future. Central to that path is the transitioning of the Authority's Wastewater Treatment Plant (WWTP) to a Water Resource Recovery Facility (WRRF). At the end of this transition process, the facility will be able to produce its own energy to assist in running its operations.

Sustainability is the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs.

The Authority was recently recognized for its efforts by being designated a Utility of the Future Today by the National Association of Clean Water Agencies (NACWA), Water Environment Federation (WEF), Water Research Foundation (WRF) and the WateReuse Association. The designation is given to utilities in acknowledgement of their pioneering innovative technologies and use of cutting-edge practices with a focus on resource recovery. GLWA was recognized specifically for (1) an organizational culture that supports utility of the future implementation through the use of Effective Utility Management, and (2) a commitment to the principles of a Utility of the Future via the operation of its Biosolids Dryer Facility.



CEO Sue McCormick congratulates Majid Khan, Philip Kora and Wendy Barrott on the WRRF achieving Utility of the Future Today recognition.



#### **BIOSOLIDS DRYER FACILITY**

GLWA continues to be acknowledged for the operation of its Biosolids Dryer Facility (BDF), the largest of its kind in the United States. In 2018, it received both state and national recognition, garnering an Honor Award in the American Council of Engineering Companies (ACEC) 2018 Engineering Excellence Awards Competition, as well as a design award from the ACEC of Michigan at its Engineering and Surveying Excellence Awards.

The BDF has the capacity to process 700 million to 1.1 billion gallons of solids annually, which has allowed GLWA to retire six of WRRF's oldest incinerators, dramatically improving air quality. The remaining incinerators received a \$30 million upgrade to meet new air quality regulations implemented by the Environmental Protection Agency (EPA).

Biosolids are nutrient-rich organic materials resulting from the treatment of wastewater. Before the BDF came on-line in 2016, approximately five percent of the annual biosolids generated were lime-stabilized and land applied to provide soil conditioning and fertilization, 60 percent of the biosolids were incinerated and the ash landfilled, and the remaining amount was lime-stabilized and then landfilled.

The BDF has the capacity to process 420 dry tons per day, which is enough to convert 70 percent of the biosolids from the WRRF into "Class A Exceptional Quality" fertilizer to be sold to farms throughout the country.

Since the BDF does not burn biosolids, the dryer facility produces about 56 percent less carbon dioxide equivalent emissions than incineration. Additionally, drying reduces other air pollution, decreasing particulate emissions, nitrogen oxides, and carbon monoxide emissions. The facility is also reducing truck traffic in the neighborhood surrounding the BDF by approximately 75 percent and is significantly reducing odors.



## WASTEWATER MASTER PLAN

The comprehensive regional Wastewater Master Plan (WWMP), which began in 2017, is being developed to ensure that the regional wastewater system meets current and future needs and can provide environmentally sustainable, reliable and cost efficient services for the region over the next 40 years. "The pipes in our region really know no boundaries, and it is critical that we review public investments that have already been made to ensure that they are leveraged to the maximum benefit of the public as new investments are considered." Sue McCormick, GLWA CEO

The WWMP project continued its momentum in 2018 with several major accomplishments:

- Creation of a new Regional Wastewater Collection System Model, which includes the new West Side Model, new member partner models, and the recommendations of the recently completed Interim Wet Weather Operating Plan (IWOP) project;
- Completion of a flow monitoring program in Detroit's East and Central Sewer Districts. Data from this program is being used to calibrate the Regional Wastewater Collection System Model;
- Analysis of system performance for small storm events (storms with rainfall of 1-inch) to determine ways to
  operate the system to capture and treat more flow;
- Analysis of the root cause of combined sewer overflows to the Rouge River to find the most cost-effective means to improve water quality and achieve regulatory requirements;
- Completion of models for the WRRF, including plant hydraulic and treatment process models. These models, along with reviews of plant operational data, interviews with plant team members, and field testing, were used to evaluate existing plant performance and develop alternatives for improvements;
- Initiated development efforts for a Regional Operating Plan to optimize the use of existing facilities in the region to maximize flow to the WRRF. This is a collaborative effort with GLWA Members and the MDEQ and is intended to be the execution of the "pipes know no boundaries" concept;
- Established collaborative forums to discuss needs and potential solutions for wastewater, stormwater, green infrastructure and water recreation objectives with several stakeholder organizations, including: SEMCOG, Michigan Department of Transportation, the Detroit Riverfront Conservancy, Friends of the Rouge, the Alliance of Rouge Communities, the Clinton River Watershed Council, and the Erb Foundation.

The WWMP works with a Steering Team to provide input and monthly review of the project team's work. A Regional Collaboration Group (RCG), a subgroup of the Steering Team, was formed to work closely with the WWMP project team members. The RCG met monthly and participated in two retreats to discuss needs for

water quality and wastewater service improvements for member partners, and to discuss alternatives to address those needs.

In early 2019, the WWMP team will complete its evaluation of existing facilities, as well as the calibration of the Regional Sewer Collection System model. The model will then be used to review alternatives for the 40-year plan in Spring 2019.

#### Sustaining Our Wastewater System in the 21st Century



"Throughout my career, I've had the opportunity to play a direct role in the development of essential tools for utility operations. In my new role, I now get the chance to utilize similar tools to lead and develop an exceptional group of team members."

Navid Mehram, COO Wastewater Operating Services





#### DEDICATED CHIEF OPERATING OFFICER -WASTEWATER OPERATING SERVICES

In October, GLWA announced that Navid Mehram, P.E., joined its Executive Leadership Team as the first dedicated Chief Operating Officer of Wastewater Operating Services.

A licensed professional engineer in Michigan with more than 10 years of experience, Navid brings his extensive skill set in design and construction of water and wastewater treatment systems, as well as operation and maintenance of the water and wastewater sector to GLWA.

The addition of the dedicated COO of Wastewater position signals the value GLWA places on the operation of its wastewater facilities and the respect it holds for wastewater team members and the work they do which contributes to the Authority being the provider of choice in southeast Michigan.

Navid will be responsible for optimizing the Authority's wastewater operating services and continuing to lead the organization forward as a Utility of the Future.

#### CAPITAL IMPROVEMENT PROGRAM DIRECTOR POSITION ADDED

In support of the strong focus GLWA has placed on the assessment and enhancement of its extensive inventory of infrastructure, the Authority took the important step of creating a new position whose sole duties are to direct the development and execution of its Capital Improvement Plan (CIP). Ali Khraizat, P.E., formerly the Engineering Design Manager for Wastewater Operations, was appointed to this new role in October 2018. Ali will work to optimize CIP planning efforts in close complement with GLWA's asset management initiatives.

#### FIVE-YEAR CAPITAL IMPROVEMENT PLAN – BEST-IN-CLASS AND CONTINUALLY EVOLVING

GLWA's Capital Improvement Plan (CIP) demonstrates the Authority's continued commitment to investing in improvements and enhancements to the system's aging infrastructure. The CIP is a five-year plan that identifies capital projects and programs and their respective financing options. It is updated annually to reflect changing system needs, priorities and funding opportunities.

The Authority is recognized as a leader in the area of CIP development, and is committed to continuously evolving and improving its five-year planning document. In 2018, these improvements included:

- A refinement of projects with a sharp financial focus (alignment with GLWA's overall financial plan);
- A 10-year outlook for both the Water and Wastewater Systems;
- A more efficient and functional Business Case Evaluation database.

## WEBSITE REDESIGN

This year, GLWA underwent a transformative redesign of its website, creating a more engaging experience for users. Users will now find a website that is easier and more intuitive to navigate, and automatically adapts to any mobile platform.

Other new features include a dynamic home page with four sliding images that are updated regularly, and an emergency banner that will appear at the top of all pages when there is a boil water advisory or other important system information to share.

Through its new site, GLWA is demonstrating its commitment to transparency and public education. You can visit the website at www.glwater.org.





## **One Team:**

Collaboration with Member Partners, Team Members and other Stakeholders

## MEMBER PARTNER/STAKEHOLDER COLLABORATION

A collaborative philosophy is core to all aspects of the regional system's operations, especially in its relationship with its member partners and other stakeholders.

Engagement through our One Water Partnering Agreement is key to the success of this collaborative philosophy.

Not only did GLWA hold 75 official Member Outreach meetings in 2018, but it also provided a variety of workshops and seminars that shared with member partners and stakeholders a cross-section of valuable information on a broad range of topics, including:

- Water Storage Best Practices Workshop: Built a shared understanding of the opportunities and best practices related to water storage and included presentations on when to build storage, design and engineering options, financing and return on investment and how to optimize the use of storage once it's built;
- **Consecutive Sampling Workshop**: GLWA invited MDEQ to share information about the EPA's decision to rescind the existing consecutive sampling approach, including why the changes were made, an overview of the implementation plan and information on how to identify new sampling sites and update the related sampling plans;
- Lead and Copper Workshop: MDEQ was invited by GLWA to provide additional information about the changes to the state's Lead and Copper Rule, including information on proper sampling protocol, and a timeline for implementation and requirements for the rule.



## NATIONAL WASTEWATER CHARGES SYMPOSIUM

This past June, GLWA hosted a two-day National Wastewater Charges Symposium.

During the event, participants were able to hear from a panel of the country's leading wastewater service providers with systems similar to GLWA's wastewater system. The event introduced a variety of wastewater charge methodologies used by these national leaders and invited participants to discuss key areas of interest that GLWA and its member partners agree on that deserve investigation for potential implementation in future charge seasons.

Members appreciated the opportunity to develop a more expansive view of best practices (and shared struggles) from national leaders in the field, connect with one another and learn more about each other's perspectives as all involved seek to improve the regional system and ways to share cost equitably. "While every organization is certainly unique, we share an uncanny number of similarities as wholesale water/wastewater service providers. We find a lot of common ground in terms of the historic context within which we work, the goals we seek to achieve (i.e. protecting the public health and environment) and the challenges we face, like managing combined sewer systems during wet weather events, maintaining aging infrastructure and balancing stability and equity in our charge methodologies." Suzanne Coffey, Chief Planning Officer



Speaker Panel during GLWA's Wastewater Symposium on Tuesday, June 19, 2018.

## *"IT TAKES A VILLAGE" –* MEMBER OUTREACH FACILITATION

Under the two decades-long guidance of previous coordinator Project Innovations, the Member Outreach Program has built solid relationships and developed an organizational structure that allows for strong collaboration among all those involved.

In June, Bridgeport Consulting stepped into the role of lead Member Outreach Program facilitator and hit the ground running with a dual commitment to excellence and fun (including the dreaded meeting ice breaker).

Bridgeport's expertise as process consultants, combined with their neutral/objective perspective, has enabled them to ask questions and make recommendations about potential paths forward that may otherwise not be considered. "There's an old saying: 'it takes a village.' Over this past year, we've come to recognize that when it comes to GLWA Member Outreach, it takes all the villages – plus the townships, and the cities, and the counties – to make GLWA the best organization it can be." Kerry Sheldon, Founder, Bridgeport Consulting

Much has been accomplished in their first year, including achieving consensus on the Water Units of Service recommendations in just one meeting.

GLWA thanks them for jumping right in and for not only embracing, but exemplifying the spirit of our One Water Partnership.



The Bridgeport Consulting Team, left to right: Brittany Golisdorfer, Kerry Sheldon and Lori Nash Bryon.

## ONE WATER PARTNERSHIP SCORE CARD - THE "VOICE OF THE MEMBER"

GLWA is committed to ensuring that all aspects of its operation understand the importance of feedback from its member partners using its Member Outreach Scorecard.

The scorecard process, developed by member partners, was rolled out in 2017, and in 2018 saw a refinement in the tool's second year.

The scorecard is intended to serve as an iterative "report card" for GLWA as an organization, revealing both points of pride and areas of opportunity for improvement – and, importantly, identifying year-over-year trends in member partners' experience working with GLWA.

A directional comparison between this year's results and last year's baseline shows improvement in four areas, stability in three areas, and a slight decline in one other area which was an expression of member partners' strong interest in GLWA more quickly coming to approval on its budget and charges for the next fiscal year.

#### Member Outreach Scorecard — Directional Comparison, 2017 to 2018

<b>2018 Topic</b> Normed Weighted Average in ( )		<b>2017 Topic</b> Normed Weighted Average in ( )
Field Services (3.18)	1	Field Services Excellence (2.95)
Communications (3.40)		Routine Communications (3.24)
GLWA Collaboration Efforts (3.17)		Collaboration (3.08)
GLWA – Technology Innovation (3.17)	1	Innovation Leader (3.08)
Member Outreach Program (4.0)	$\Leftrightarrow$	Customer Outreach Program (4.0)
Communications – Emergency (3.30)	$\Leftrightarrow$	Emergency Communications (3.28)
GLWA Team Members (3.30)	$\Leftrightarrow$	Staff Interaction (3.35)
Water and Wastewater Charges (3.00)	ſ	Water and Wastewater Charges Mgt. (3.15)



## WRAP

Now in its third year, GLWA's WRAP (Water Residential Assistance Program) has helped countless residents throughout southeast Michigan.

In August, the GLWA Board of Directors amended the program to make it easier for households to qualify for replacement of residential kitchen and bathroom fixtures that predate the 1986 lead-free plumbing code change by removing the pre-condition that eligible households have over 120 percent average annual usage. Now, anyone participating in WRAP is eligible to have these fixtures replaced by the program, ensuring safe and quality water.

The Board also approved the transfer of more than \$1.2 million in additional WRAP funding to the city of Detroit, as well as to the city of Flint, with over \$200,000 dedicated to the replacement of fixtures.

"The alterations to WRAP further underscore GLWA's commitment to our low-income residents throughout southeast Michigan, particularly in the cities of Detroit and Flint. As the program continues to evolve, we've also made the effort to transfer conservation funding, which will allow participants to have access to plumbing repairs that can dramatically impact their bill and lead to significant ongoing savings. As a region, we must ensure that all of our residents have a path toward assistance, and that is what WRAP and GLWA have provided to these communities." Brian Baker, GLWA 2018 Board Vice Chairman, Representative of Macomb County

WRAP, which is administered by Wayne Metropolitan Community Action Agency, provides qualifying customers at or below 150 percent of the federal poverty threshold with help in paying current and past-due water bills. Eligible customers receive a \$25 monthly credit toward current water bills. There is also an arrearage assistance option for communities to opt-in to that provides customers who successfully make their monthly payments for six months with an additional credit of up to \$350 toward the arrearages (up to \$700 during a 12-month period). In addition to payment assistance, the program assists participants with home water audits, as well as repairs for leaky plumbing fixtures that can contribute to higher water bills. WRAP has a dedicated source of funding, with a half-percent of all GLWA revenue committed to the program annually.



As of December 31, 2018, 75 of 104 eligible communities had opted into the WRAP program.

698Homes with high<br/>water usage<br/>received a home<br/>water audit in<br/>201820182,016 Plumbing Issues Found2,781 Conservation Measures Installed2,781 Conservation Measures Installed2018945 repairs performed in initial audit<br/>(3% ofhomes received professional plumbing repairs after audit)

\$420 average water savings per home

pased on sample pre-post water bill analysis

## GLWA'S COMMITMENT TO THE FOUR PERCENT REVENUE REQUIREMENT PROMISE

As agreed in its foundational documents, GLWA is committed to limiting annual increases in its budgeted revenue requirement to four percent or less each fiscal year.

For FY 2019, annual increases in both the drinking water and sewerage budgets were only **one percent**, over achieving on the Authority's commitment of a four percent maximum.

One measure of GLWA's success is delivering budgetary control in comparison to peer utilities. Over the last three years, GLWA charge increases are less than half of that indicated for its peers in a Utility Rate Index published in 2016 by Black & Veatch. Further, GLWA charge increases (particularly for the wastewater system) are closer to inflationary indices than peer utility averages. This is notable for a highly capital and maintenance-intensive utility enterprise.

The drinking water and sewer service charges set by GLWA, which vary by member community, cover all of the Authority's costs of providing water and sewer services. These costs include pumping stations, transmission pipes, and treatment plant maintenance and renewal, as well as paying debt service on outstanding bonds issued to fund ongoing capital improvements to the system's vast infrastructure.

It is important to note that GLWA charges are one element of what local residents and business owners see on their bill. Each municipality has its own added costs associated with maintaining its system, which can mean that GLWA's charges may be a larger or smaller percentage of the total cost of a local community's water expenses. Ultimately, each individual member partner sets the end-cost that is passed along to consumers in local rates.



To assist its member partners in explaining the charge setting process to their retail customers, GLWA developed two user-friendly infographics.

## FAIR AND EQUITABLE CHARGE SETTING

#### Water Units of Service

An important milestone in GLWA's ongoing efforts to set fair and equitable charges for its member partners was reached in late 2018 with the completion of Phase 2 of the Authority's Water Units of Service (WUS) Project.

This project was stipulated in the Water and Sewer Services Agreement with the Detroit Water and Sewerage Department that was executed in 2015 as part of the standup of GLWA.

The project is a study to reestablish the water demands for non-master metered water member partners, the cities of Detroit, Dearborn and Highland Park. Black & Veatch (B&V), a consultant and expert in water audits, was selected to perform the work for GLWA. Phase 1, completed in 2017, was a desktop analysis of available data and national research, tying to the American Water Works Association information where possible. Phase 1 work resulted in increases in the water demands for all three non-master metered member partners. Because of the charge impact, GLWA's Board of Directors chose to phase in the results over two years.

In 2018, Phase 2 of the WUS project added significant field work to collect additional system-specific data aimed to increase the accuracy of the demands. The field work included two district metered areas (DMAs), which are small pilot areas isolated and metered for a period of time, in both Detroit and Dearborn. It also included use of temporary meter data for Highland Park. The collected data was then extrapolated to the entire municipality. The Phase 2 work resulted in lower demands than indicated in Phase 1 for all three of the non-master metered member partners. GLWA's member partners, through its Analytical Work Group meetings, reviewed the progress and results of the project for both Phase 1 and 2. Consensus to endorse the B&V conclusions for Phase 2 was reached and the demands will be used in the development for FY 2020 water charges. This project yielded significant insight into the current demand characteristics of the non-master metered member partners to the study, were built-up from a variety of historical data.

WUS completion marks a pivotal turn to a new phase of charge development for GLWA.

## **CONTRACT ALIGNMENT PROCESS**

## GLWA's model water contract designated reopener dates in year two, year five and every five years afterward, until the end of the 30-year term of the contract.

In 2017, a request was made of GLWA by its member partners to implement strategies to achieve the goal of water charge stability and equity. As part of this strategy, members asked for alignment to a common schedule of the agreed upon reopeners in their 30-year model contracts to minimize the annual charge volatility that could be created by changing contract demands, which come as a result of roughly one third of model contracts reopening in most years. These max day and peak hour demands account for approximately 90 percent of the annual revenue requirement allocation to each member partner.

GLWA met with 29 member partners with water model contracts for regularly scheduled reopeners in 2017. The next regularly scheduled reopener for most of these member partners was scheduled for 2022.

As a part of the Contract Alignment Process (CAP) requested by member partners, in 2018 GLWA met with 54 member partners with model water contracts to reopen them, review their demands, and amend the next regularly scheduled contract reopener to 2022, and every four years thereafter. During this same process, GLWA also met with four other member partners that were previously on old or expiring contracts, and negotiated new 30-year model water contracts.

The CAP and new model contract negotiations resulted in a shift in revenue requirement allocations to the other member partners of about \$3.7 million for FY 2020 due to the reduction in max day and peak hour demands in these model contracts.

Even though the CAP resulted in a one-time shift in revenue requirements, it will provide for greater stability in future charges for water service over the next four years.



Jon Wheatley, Laurie Koester, Teresa Newman, Laura Harris and Tim Kuhns

"From my perspective, as both a customer and a One Water Partnership Co-Chair, the Contract Alignment Process was a big success. The CAP team was well prepared for our negotiation session and they had provided information to us so that we could be well prepared, too. It only took us one meeting to reach an agreement. While we didn't get everything we wanted in the agreement, GLWA communicated their positions well and we understood why they had those positions. The agreement that we reached was fair to both sides. It was obvious that the CAP team had spent a lot of time in preparation for our meeting and that they were all on the same page and that made the one meeting go very quickly and smoothly. From my perspective as a Co-Chair, the CAP helped reduce the volatility in charges that member partners receive as a result of contract negotiations which is a major dissatisfier for member partners. It will be important for GLWA to be able to do a similar process when all the customer contracts come up for renegotiation in four years." Jeff McKeen, General Manager, SOCWA, Co-Chair, GLWA One Water Partnership

## **ONE WATER ONE TEAM**

## APPRENTICESHIP PROGRAM ADDS MAINTENANCE TECHNICIAN APPRENTICESHIP

With the full support and approval of the U.S. Department of Labor (USDOL), in 2018 GLWA expanded its Apprenticeship Program to include a new three-year, 10-month apprenticeship designed to train and hire up to 20 Maintenance Technicians for GLWA.



Similar to the original program, this second apprenticeship provides on-the-job training and education with full program tuition paid by GLWA. The apprentices will have the opportunity to work one-on-one with GLWA Journey Workers to learn the various operations within the Authority's system. Apprentices will rotate job locations every six months until the end of their program, when they will be granted employment, receive a Maintenance Technician Certification from Henry Ford College, and a USDOL Journey Worker card.



"Being an EICT-I apprentice with GLWA has changed my life. I have been exposed to the unlimited possibilities that can be achieved if I work hard and dedicate myself to my team. Having the opportunity to work with professionals that have been doing the job for a long time is one of my favorite parts of the job and I think is the most valuable resource I have. Overall my future is brighter, my skills are sharper, and I am better for having been given the opportunity to work for a company that is striving to improve our environment, our water quality and willing to invest in its team members like myself. One Water!" - LaRico Andres, EICT-IA (Left)

"The Apprenticeship program's training has taught me how to apply the theory that I've learned from class, whether it's for troubleshooting or routine maintenance, on water system components both electrical and mechanical," said Bilal Bell-Muhammad EICT-IA (Right)

GLWA's inaugural apprenticeship for Electrical Instrumentation Control Technicians (EICT-I) is currently in the second year of its three-year duration, training 20 apprentices to receive their EICT-I certification. Apprentices have successfully completed a combined average of 2,607 hours of on-the-job training and 19 credit hours of Related Training Instruction (RTI) at Henry Ford College marking completion of approximately 75 percent of the program, with Cohort 1 expected completion date of January 2020, and Cohort 2 completion date of March 2020. The EITC-I apprentices' enthusiasm remains high as they reach the end of their first full year in the program.

GLWA has committed to launching one new USDOL apprenticeship program per year until the system's remaining needs are met to ensure a trained and sustainable workforce, and to balance an aging workforce.

GLWA looks at its Apprenticeship Program as a win-win for its team members and the Authority.

## **ONE WATER ONE TEAM – MAKING BIG WAVES**

2018 was an exceptional year for GLWA and its team members! Our One Water One Team continues to make big waves in the water service sector and their communities.

Crain's Detroit Business Notable Women in Marketing

Chief Public Affairs Officer, Michelle Zdrodowski was honored by Crain's Detroit Business as a Notable Woman in Marketing in acknowledgement of her work to raise GLWA's brand awareness and improve internal communications.

#### SEMCOG Regional Ambassador

For her contributions to the success of southeast Michigan, CEO Sue McCormick was presented with the Southeast Michigan Council of Governments' Regional Ambassador Award – the highest honor given to individuals who contribute to making southeast Michigan a better place to live, work, and raise a family.

#### GovTechnology 2018 Regional Award for Technology Innovation-Operations

Team members from IT and Systems Control were honored for their creation of a GIS Wet Weather Map that can be used to track and analyze rainfall and water flow in real-time during wet weather events.

#### MPPOA Purchasing Agency of the Year

GLWA's Procurement Team was chosen by the Michigan Public Purchasing Officers Association as its Purchasing Agency of the Year in recognition of their innovation and teamwork in the public purchasing field.

24 Great Lakes Water Authority

#### Chair MI-AWWA

Bill Fritz, Asset Management and Capital Improvement Planning team member, was elected Chair of the Michigan Section of the American Water Works Association (MI-AWWA). Bill, whose theme for his year as Chair is "Accepting Change," will serve as chairman for one year.

#### Chair – Michigan Water Asset Management Council

CEO Sue McCormick has been elected Chair of the State of Michigan's Water Asset Management Council. As a result of her election, she will also hold a seat on the Michigan Infrastructure Council.

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Crain's Detroit Business Notable Women in Finance

Chief Financial Officer and Treasurer Nicolette Bateson was recognized by Crain's Detroit Business as a Notable Woman in Finance for her excellent financial stewardship of the Authority.

#### MGFOA Honorary Life Membership Award

Financial Services Team Member Kathy Smith-Roy was awarded the Michigan Government Finance Officer's Association's highest honor granted to an individual, an Honorary Life Membership Award. Kathy graciously donated her \$5,000 back to the MGFOA to fund future scholarships at the organization.

#### LIFT Intelligent Water Systems Challenge

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In partnership with the University of Michigan, GLWA won the first-ever LIFT Intelligent Water Systems Challenge for using data analytics to develop a tool to maximize the use of collecting systems and minimize combined sewer overflows. The team's winning project was titled, Open-Storm Dynamics, and they predict that their solution could enable the regional system to handle an additional 100 million gallons with no new construction, which translates to a potential savings of about \$500 million. The research grant underlying the development of the tool was less than \$200,000.

#### Michigan Public Service Institute Graduates (MPSI)

Fifteen GLWA team members graduated from MPSI's three-year leadership course. Congrats to Patrick Williford, Aaron Butler, Pawan Kapila, Khader Hamad, Andrew Ross, Terry Daniel, Annie Philip, Candice Hobson, Balvinder Sehgal, William Henry, Michael Hayden, Chirag Kawa, Nathan Taylor, Wajid Khan and Fred Collins.

## **One Mission**

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Water of Unquestionable Quality; Effective and Efficient Services

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## WATER QUALITY

The treatment of safe and reliable water is at the heart of GLWA's operations. The Authority's commitment to supporting healthy communities and providing water of unquestionable quality is fulfilled by not only meeting, but surpassing current state and federal safe drinking water regulations.

## **MONITORING FOR EMERGING CONTAMINANTS**

GLWA understands the importance of monitoring for emerging contaminants, including Per- and Polyfluoroalkyl Substances (PFAS), man-made compounds used in the manufacturing of carpets, clothing, furniture fabric, paper packages for food and other materials that are resistant to water, grease or stains. They are also found in products such as fire fighting foams, cleaners, cosmetics, paints, adhesives and insecticides.

The Authority has been monitoring for PFAS since 2009, and in its 2017-2018 round of drinking water system screenings, GLWA is pleased to assure the public that these chemicals were not detected in our drinking water. This means that PFAS levels were below that which is measurable under the EPA's standard analytical methodology for the detection of the compounds.

In a time of continued public concern, GLWA can confidently assure its member partners and southeast Michigan residents that its water remains of unquestionable quality.

Test results can be found here:

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https://www.glwater.org/update-feeds/statement-glwa-pfas-testing-for-drinking-water-system/

## NEW STATE OF MICHIGAN LEAD AND COPPER RULE

## The state of Michigan enacted changes to its Lead and Copper Rule (LCR) in June 2018.

GLWA is leveraging its knowledge and resources to assist its member partners in understanding the changes and how they will impact the regional system, as well as their individual communities. The Authority is also ensuring that the voice of its member partners is heard in the ongoing discussions about the overall legality of the changes to the rule.

In compliance with the new LCR rule, GLWA has established a Water Advisory Council, which includes a member of the public from its service area who does not have any previous connection to or employment with the Authority.

## **CONSECUTIVE SYSTEM SAMPLING RESCISSION**

Another regulatory change LCR requires is for GLWA's member communities to increase their number of water quality monitoring samples from 750 to over 3,200 per month.

Understanding the burden this would place on them, and given that GLWA has certified laboratories, GLWA issued a survey to its members to gauge their interest in adding this additional testing to the services that GLWA already provides. The vast majority of member partners responded in the affirmative, and GLWA is now gearing up to take on this task in 2019.

## **CORROSION CONTROL MONITORING PROJECT WITH MDEQ**

Since 2016, GLWA has been participating in a corrosion control optimization project with the Michigan Department of Environmental Quality (MDEQ).

As a part of the project, the Authority volunteered to expand water quality sampling at all five of its water treatment plants to include a variety of newly identified parameters of interest. The goal of the new monitoring and related calculations is to give community water systems additional tools in early detection and correction of potential problems, as well as provide information that may be useful in assessing what may be interfering with optimizing corrosion control treatment. With all of the interest around the LCR, GLWA took a proactive perspective to corrosion control and actively engaged in updating the original corrosion control study which set regulatory parameters for plant operations. The scope for new studies at each of its five water treatment plants is now finalized, and GLWA has sent these specs to the MDEQ, as well as the EPA for their review and consideration.

## SYSTEM RESILIENCY

#### WATER TRANSMISSION MAIN CONDITION ASSESSMENT

The sustainability of the regional system is one of GLWA's top priorities. Our commitment to the use of best practices and innovative technologies is central to our ability to ensure that our system functions at its optimal level - now and into the future.

In October 2018, GLWA announced the launch of a pilot program designed to begin assessing the condition of its water transmission mains using two technologies: SmartBall and PipeDiver. The pilot will examine the eight miles of water transmission pipe along 14 Mile Road in Oakland County, where a water main break in 2017 impacted nearly 300,000 residents in 11 communities.

The SmartBall technology, which will be utilized first, employs acoustic technology to detect leaks and gas pockets. The PipeDiver technology assesses the pipes to detect structural weaknesses.

Both SmartBall and PipeDiver are state-of-the-art technologies that operate while the pipes remain pressurized and in operation.

"Since being launched in 2016, GLWA has been working to assess the condition of its assets throughout the regional system. Earlier this year, and in just 24 months, we completed the assessment of more than 190 miles of the sewer collection system, a task that was expected to take seven years. The partnership and technology we've entered into supports our mission to continually innovate solutions that will minimize disruptions and assist us in taking another step forward in our shift to a predictive maintenance and asset management strategy." Cheryl Porter, Chief Operating Officer, Water and Field Services

The data collected from testing will allow the Authority to predict where an area of main might be weak and intercede before a break happens. This early detection of leaks and structural defects is expected to result in cost savings, by allowing for cost-effective repairs and avoiding emergency situations, that will benefit all GLWA member communities. Weather permitting, GLWA expects to begin the pilot assessment program in early 2019.



Developed by Pure Technologies, the PipeDiver (above left) and SmartBall (above right) technologies are being used by several peer utilities throughout the country. GLWA is the first utility in Michigan to use the PipeDiver technology.

## VALVE EXERCISING PROGRAM

GLWA began its first value exercising program in 2018, with the goal of locating, inspecting, evaluating, exercising and repairing 450 values with a diameter of 24-inches or greater.

This two-year program is the first step in the Authority's assessment of the 4,980 system valves operated by GLWA. These valves control water flow through the regional system's more than 800 miles of transmission main spread across 1,760 square miles of service area. The ultimate goal of the program is to assess all valves on a 10-year cycle, and critical valves on an annual basis.

This program will provide significant benefit for GLWA's member partners as it will allow for faster response during emergency situations, and provide for better resiliency and redundancy within the regional water system while reducing water loss and improving the level of service for the system's member partners.



## Infrastructure Strategy and Performance – Water and Field Services Valve Exercising

Valves cycled 20% on the initial visit/attempt • Valves cycled 100% on the second visit/attempt • Target to exercise 25 valves per month

**Infrastructure Strategy and Performance:** GLWA's goal is to determine the status of system valves and prioritize necessary repairs. 450 valves will be evaluated and will be operated from open position to close and back open two times at a minimum.

## STRATEGIC ASSET MANAGEMENT

In 2018, GLWA began the process of preparing a Strategic Asset Management Plan (SAMP) consistent with best practices for infrastructure-intensive organizations.

As part of the SAMP process, the Authority is creating an Asset Management policy which will describe the expectations for asset management at GLWA. The SAMP will establish the asset management system and chart the path for GLWA to emerge as a leader in asset management processes and outcomes.

Team members from every area of GLWA are engaged in this important process.

Following completion of the SAMP, GLWA will begin a very deliberate process to examine its infrastructure/ equipment to ensure reliability and make smart investment decisions around infrastructure renewal. "Strategically timing infrastructure interventions such as maintenance, rehabilitation and replacement assures that we optimize the asset life-cycle and the public investment necessary to meet our regions expected level of service. This is truly the conversion to an asset management focus." Jody Caldwell, GLWA Asset Management Director

## INNOVATION

## **BIOSOLIDS TO BIO-ENERGY – MICHIGAN STATE UNIVERSITY PARTNERSHIP**

GLWA is looking into new ways to recover energy and other valuable resources from the biosolids produced at its Water Resource Recovery Facility (WRRF) as a part of its Utility of the Future energy neutral efforts.

In conjunction with these efforts, GLWA has partnered with the Department of Biosystems and Agriculture at Michigan State University (MSU) to estimate the potential amount of net energy that can be recovered from biosolids through anaerobic digestion and thermal conversion. As part of the research, MSU has custom built two 150-gallon anaerobic digesters at the WRRF.

Of particular interest is the use of food waste in the anaerobic digester process. Co-digestion of the food waste and biosolids has the potential to remove high-strength wastewater out of the sewer, reducing aeration requirements, decreasing food waste going to the landfill and increasing renewable energy production from the digester. The result could compound savings from renewable energy production and reduce greenhouse gas emissions. If proven, this technology will be considered in GLWA's Wastewater Master Planning effort, concluding in 2019.



Delivery and installation of the two anaerobic digesters was completed in September 2018

## UNIVERSITY OF MICHIGAN PARTNERSHIP

#### **Phosphorus Removal**

GLWA and the University of Michigan (UM) have partnered to continue studying optimization or maximization of phosphorus removal from wastewater as it passes through GLWA's treatment processes. The research is testing process control modifications that may reduce the cost of phosphorus removal during the treatment process through both biological and chemical means.

#### **Dynamic Collection System Control**

Sewer collection systems all over the U.S. are looking for ways to eliminate combined sewer system overflows by applying the use of technology to change collection system operations. The purpose of this UM and GLWA project was to test the theory that the GLWA collection system could store more storm water during a wet weather event, while ensuring that basement flooding is prevented, and reducing combined sewer overflows to the Detroit River. The UM Storm Dynamics Team constructed a software control engine that received the inputs from all control points and data points in a sub-region of the collection system plus rainfall data. Using the hydraulic model of the collection system, the control engine smoothed the signal noise from the sensors, applied criteria for the desired outcome (decrease overflows and peak flow to the water resources control facility), and generated outputs for position of valves and pumping conditions.

Historical rainfall events were compared using the actual outcomes of the event compared with the alternate outcomes. Modelled results for historical rainfall events indicated that 100 million gallons of CSO discharge per event could potentially be eliminated. From an annual perspective, this amount of stormwater retained temporarily in the collection system could reduce combined sewer overflow volumes by as much as 12 percent and reduce the number of combined sewer overflow discharge events by 65-80 percent. This has the potential to decrease the new construction required to significantly eliminate combined sewer overflows, and result in substantial capital cost avoidance over the next 20 years, while improving water quality and long-term affordability.

The project's next step is to provide a dashboard to collection system operators for a real-life demonstration of the potential. This dashboard will be launched in early 2019.

## **ONE WATER INSTITUTE**

A trained, flexible workforce is at the core of any successful enterprise. With this understanding and the support and encouragement of its member partners, over the course of the last year GLWA has developed the **One Water Institute** (OWI), a premier regional training program that will provide quality educational opportunities and leadership development to GLWA team members to assist us in continuing to grow operational and professional skills for individuals at GLWA.



And, because GLWA works in partnership with its member partners to serve consumers in the region, beginning in 2019 member partners will also have the opportunity to send their team members to the OWI to build capacity for the operation of their local systems. OWI consists of six educational academies:

- Safety
- Water and Field Operations
- Wastewater Operations
- Technology
- Leadership Development
- The Leader-in-Me

Each academy will engage team members through recognition programs, certificates of training and preparation for licensure and certification.

## **VENDOR OUTREACH AND ENGAGEMENT**

In May, GLWA hosted vendors from around the region at its third annual Vendor Outreach event held at the Michigan State University Management Education Center in Troy, Michigan. More than 260 people attended the event, representing 168 companies – of which, 82 companies new to GLWA. Central to the program of the event was the opportunity to roll out two new Procurement initiatives. *"This* 

#### **SMALL BUSINESS INITIATIVE**

The Small Business Initiative (SBI) launched in April, is designed to better engage small, minority-owned, and/ or women-owned businesses in GLWA's procurement activities and service delivery.

In addition to attending trade fairs and "meet the buyer" events, partnerships are being formed with minority and women's professional organizations, as well as government agencies. The Authority has also hosted SBI quarterly advisory meetings to stay connected and understand the concerns of vendors.

In October, GLWA and the U.S. Small Business Administration (SBA) entered into a Strategic Alliance Memorandum to develop and foster mutual understanding and a working relationship between SBA and GLWA to strengthen and expand small business development in the GLWA service area. "This agreement allows the SBA and GLWA to work together to match small business owners with future procurement opportunities within GLWA." Constance Logan, SBA District Director



SBA District Director Constance Logan and GLWA CEO Sue McCormick sign a new Strategic Alliance Memorandum

## BONFIRE **CON BONFIRE**

Launched in July, Bonfire is an automated sourcing and contracts administration platform that provides ease of use by efficiently and effectively managing the GLWA procurement process. Importantly, the system provides an outward facing view of all GLWA contracts for total transparency.

Benefits that Bonfire provides to include:

- Free access to the public, including a database of all signed contracts;
- Increased transparency in the public procurement process;
- Accuracy of bid/proposal tabulations;
- Decreased turnaround time for solicitations;
- Solicitation alerts customized to products or services provided;
- Reliable and timely delivery of notifications, addendums and documents;
- Advanced notification of term-contracts;
- E-bid and E-quote submissions.

## WHAT'S NEXT FOR GLWA?

## "If everyone is moving forward together, then success takes care of itself."—Henry Ford

By every measure, 2018 was a good year for GLWA. In the coming year, the Authority and its Board of Directors, being chaired in 2019 by Brian Baker, plan to build on this momentum and are committed to:

- Continuing efforts to manage equity and volatility in charges for next year and beyond; reach conclusion on wastewater charge methodology and determine if any changes will be implemented for future service charges and launch a water charge methodology discussion;
- Building operational capacity through the continued development of apprenticeships and other structured training and development programs, such as the One Water Institute, for GLWA team members and member partner staff;
- Ensuring that member partners' voices are heard in the discussion of issues critical to the water and wastewater sectors through GLWA's leadership in regional, state and national organizations and associations;
- Providing GLWA member partners with their annual water and wastewater charges in a timely, transparent manner, in the collaborative spirit of the One Water Partnership Agreement and the Member Partner Scorecard;
- Completing the comprehensive regional Wastewater Master Plan;
- Providing member partners with consecutive sampling services in compliance with new EPA requirements included in the state of Michigan's new Lead and Copper Rule.



# Water System 5 Treatment Plants



3.9 million 803 miles of transmission main





255 127 member partners

3 Water

# % 1,069 square mile % service area

# 19 Booster Pump Stations

Treatment capacity of 1.72 billion gallons per day



# Wastewater

87 member partners

WRRF

## 76 comunities

WRRF is the **largest** single-site wastewater treatment facility in the United States.

# 3 Interceptors

988 square mile service area



## 9 Pump Stations

181 miles of trunk sewers and interceptors

Treatment capacity of1,700 million gallons per day



## **BOARD OF DIRECTORS 2018**



GLWA Board of Directors, left to right: Gary Brown, Brian Baker, Robert Daddow, Freman Hendrix, Craig Hupy, Abe Munfakh

#### **FREMAN HENDRIX**

GLWA Board Chairman; GLWA Board Representative for the City of Detroit

#### **BRIAN BAKER\***

GLWA Board Vice Chairman; GLWA Board Representative for Macomb County

#### ABE MUNFAKH, P.E.

GLWA Board Secretary; GLWA Board Representative for Wayne County

#### **GARY A. BROWN**

GLWA Board Representative for the City of Detroit

#### **ROBERT J. DADDOW**

GLWA Board Representative for Oakland County

#### **CRAIG HUPY**

GLWA Board Representative for the State of Michigan

\*Brian Baker was elected by the Board to serve as chairman for 2019.

## **EXECUTIVE LEADERSHIP TEAM**



SUE MCCORMICK Chief Executive Officer



BILL WOLFSON Chief Administrative and Compliance Officer



NICOLETTE BATESON Chief Financial Officer and Treasurer



**CHERYL PORTER** Chief Operating Officer, Water & Field Services



NAVID MEHRAM

Chief Operating Officer, Wastewater Operating Services



**TERRI TABOR CONERWAY** Chief Organizational Development Officer



SUZANNE COFFEY Chief Planning Officer



MICHELLE ZDRODOWSKI Chief Public Affairs Officer



JEFFREY SMALL Chief Information Officer



W. BARNETT JONES Chief Security and Integrity Officer



RANDAL BROWN General Counsel



## One Water

# One Team





## One Mission

## **OUR VISION**

Through regional collaboration, GLWA strives to be the provider of choice dedicated to efficiently delivering the nation's best water and wastewater services in partnership with our member partners.

## **OUR MISSION**

To exceed our member partners' expectations by utilizing best practices in the treatment and transmission of water and wastewater, while promoting healthy communities and economic growth.

## **OUR VALUES**

Approachable, Reliable, Trustworthy, Smart, Efficient, Focused, Determined

## SPRINGWELLS

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## WATER WORKS PARK

lime

LAKE HURON

## WATER RESOURCE RECOVERY FACILITY





