

YEAR IN REVIEW



Letter from the CEO

Letter from the CEO

As I reflect on 2022, it really was a year of learning and progress, despite a broad range of internal and external factors that have challenged our resiliency as an organization and a regional system.

Working from a foundation of collaboration with our team members, Member Partners and other stakeholders, we successfully navigated our way through a major break on the largest transmission main in our regional water system. Using lessons learned from previous operational interruptions, we involved our partners sooner and communicated more often to ensure transparency.

Meanwhile, we continued to develop strategies to help ensure that we retain highly skilled team members and attract top talent in an employment market that remains extremely competitive. And, in the face of unprecedented inflationary and operational demands, we have continued our efforts to build resiliency in the regional system.

We could not do what we do without the incredibly talented men and women of GLWA, who are dedicated public servants doing great things in and for our community and their colleagues. I am so proud of how our team comes together in support of each other and the people of southeast Michigan – no matter the challenges that get thrown at them. There is absolutely no other group of people I'd rather work alongside.

Our 2022 Year in Review gives us an opportunity to reflect on the significant events of the year, while showing gratitude to our stakeholders and celebrating our accomplishments. In this Year in Review, you will find this information organized into three distinct sections:



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A sincere thanks to everyone throughout our One Water community for your support of our organization over the past year. I look forward to what we will continue to accomplish together!

Take good care.



Suzanne R. Coffey

SUZANNE R. COFFEY
Chief Executive Officer, GLWA

ONE WATER

Our System and Operations

Measuring Success

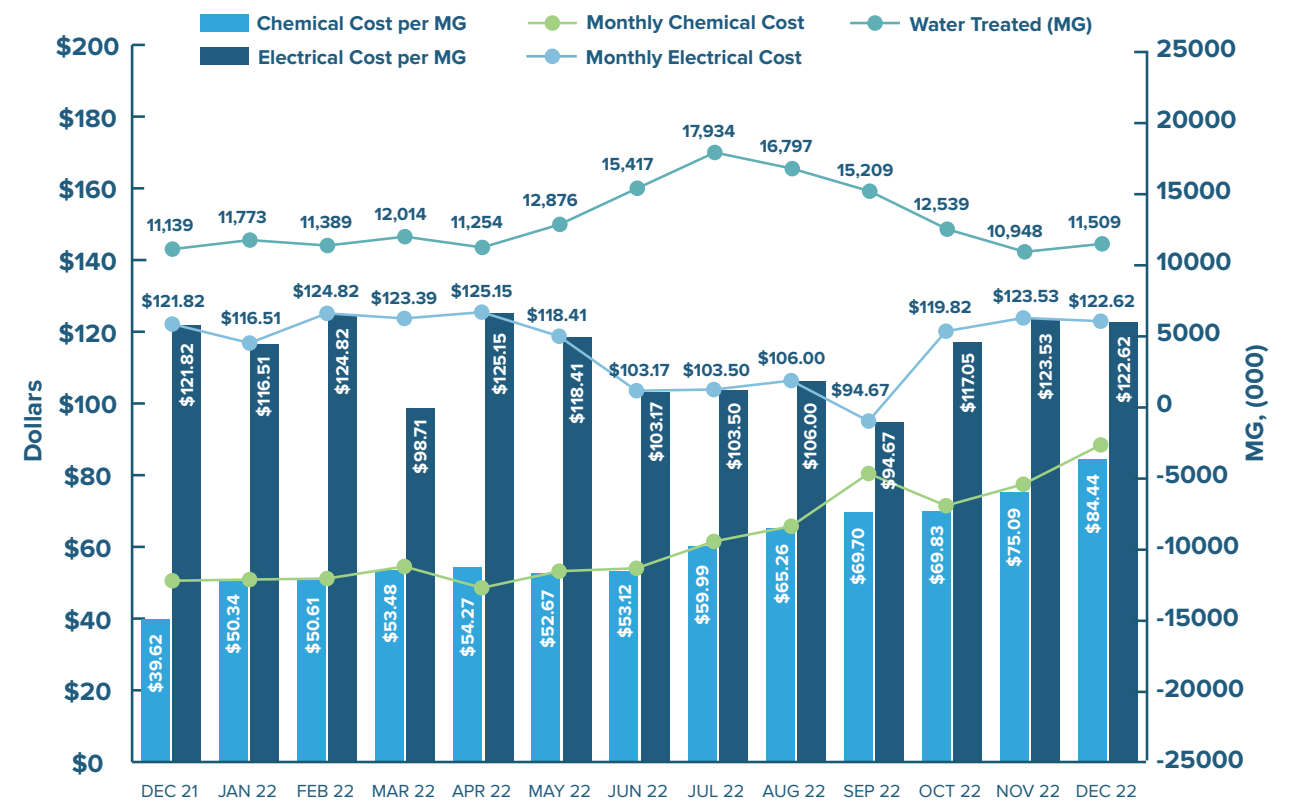
GLWA has, since its inception, been committed to a culture of innovation and improvement, and fully embraced Effective Utility Management (EUM) and its 10 attributes to guide its path toward effective and sustainable operations.

The Authority aligns its key performance indicators (KPIs), which are reported monthly to the Board of Directors, with the EUM framework's 10 attributes. These KPIs touch on all operational areas within GLWA and provide the operational and administrative teams with important insights into progress and challenges toward meeting their identified goals.

KPIs are one tool in GLWA's toolkit for continuing to build a resilient system. Take for example the KPI from the Water Operations Area on Chemical and Electrical Costs, which falls under the Operational Optimization attribute. Being able to identify ongoing performance improvements for chemical and electrical usage per million gallons of water pumped is a key metric in managing operational costs.

OPERATIONAL OPTIMIZATION CHEMICAL & ELECTRICAL COSTS

Chemical and Electrical cost per Million Gallons (MG)



Operational Optimization: Being able to identify ongoing performance improvements for chemical and electrical usage per MG of water pumped is a key metric in managing operational cost. This is under development to include tracking of total costs per MG.

Water Resource Recovery Facility Achieves Significant Regulatory Milestone with Lifting of Administrative Consent Order

Thanks to the continued high level of performance of GLWA's Water Resource Recovery Facility (WRRF), the Michigan Department of Environment, Great Lakes, and Energy (EGLE) terminated the Administrative Consent Order (ACO) it imposed more than a decade ago due to frequent non-compliance of the utility's National Pollutant Discharge Elimination System (NPDES) Permit. NPDES permit compliance has greatly improved throughout the past decade, with enhancement of GLWA's solids processing and disposal abilities. There have also been no solids processing or disposal violations since 2014.

This marks the first time in 45 years that GLWA and its predecessor organization, the Detroit Water and Sewerage Department (DWSD), have been without either a Federal Consent decree or State Administrative Consent Order requiring extraordinary oversight of its wastewater treatment facilities.

“

The termination of this ACO is a significant milestone for GLWA, DWSD and the city of Detroit. We should all be extremely proud of the progress we have made as stewards of the system and what we have accomplished. This really is validation of the exceptional work done by team members over the last decade to greatly improve NPDES permit compliance and water quality and illustrates the State's confidence in GLWA.”

Suzanne R. Coffey, CEO, GLWA



The following actions contributed to improvements in solids processing and, ultimately, led to the termination of the ACO:

Elimination of extended solids recycling;

Infrastructure/equipment upgrades, including the replacement of 22 dewatering units and the upgrade of eight multiple hearth furnace incinerators to meet the Environmental Protection Agency's new air emissions standards;

Construction of the Biosolids Dryer Facility, which went into production in 2016 and converts 70 percent of solids from the WRRF into "Class-A Exceptional Quality" fertilizer pellets. The land application of the fertilizer pellets made from GLWA solids is strictly regulated and meets all state and federal land application guidelines;

Launch of the Rouge River Outfall Disinfection Facility, which ensures every drop of water discharged from the WRRF is entirely screened, treated and disinfected;

Implementation of a comprehensive Asset Management Program across GLWA to help assess the condition of its assets, ensuring they are properly maintained and reliable; and

Continued retention and recruitment of a highly skilled workforce dedicated to ensuring water quality.

“ As the owner of the WRRF and a co-permit holder for NPDES, DWSD appreciates the efforts of past city employees and now the GLWA leadership and team members who have made this milestone possible. Most importantly, the burden of 45 years of extraordinary federal and state oversight is now lifted off team members and our community. The public can have the confidence that the WRRF is operating with the health and safety of our system and rivers as the utmost priority and with a proven track record of compliance.”

Gary Brown, Director, DWSD

It is important to note that the WRRF has been the recipient of the National Association of Clean Water Agencies' (NACWA) Silver Peak Performance Award in 2013, 2014, 2019, 2020 and 2021. The NACWA Peak Performance Awards recognizes wastewater treatment facilities for excellence in permit compliance.

GLWA Receives Positive Ratings Outlooks and Executes Successful Bond Transaction to Secure Funding for Regional Water and Wastewater System Improvements

LOW FIXED RATE BORROWING COSTS ASSIST GLWA AS IT CONTINUES TO FOCUS ON LONG-TERM STRATEGY FOR SYSTEM RESILIENCY AND AFFORDABILITY

On August 30, GLWA executed a successful bond transaction at favorable rates to fund \$450 million in capital improvements for the regional water and wastewater systems, as well as secured \$2 million in cashflow savings by refinancing eligible wastewater system bonds.

In advance of the bond transaction, GLWA earned positive rating outlooks from two of three rating agencies, and an affirmation of a “AA” category rating from the third rating agency:

<p style="text-align: center; margin: 0;">+</p> <p>Fitch Ratings moved the outlook to Positive for the wastewater system and affirmed outstanding water and wastewater systems debt at A+ Senior/A Second Lien;</p>	<p style="text-align: center; margin: 0;">+</p> <p>Moody’s Investors Service moved the outlook to Positive from Stable for both the water and wastewater system and affirmed outstanding debt at A1 Senior/A2 Second Lien;</p>	<p style="text-align: center; margin: 0;">AA-/A+</p> <p>Standard & Poor Global Ratings affirmed its outstanding water and wastewater system debt at AA- Senior/A+ Second Lien with a Stable outlook.</p>
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Commentary within the Moody’s credit opinion noted:

“ The outlook is positive because the Authority has strong management and stable operations and its underlying service area continues to improve, particularly in the City of Detroit, as well as across Wayne (A3 positive), Oakland (Aaa stable) and Macomb (Aa1 stable) Counties.”

Bond Sale Aligns with Overall Financial Strategy focused on Affordability and Stability

The bond transaction focused on securing \$225 million to replenish funding for capital improvement projects for both the water and wastewater systems (total of \$450 million). Since January 2021, GLWA has utilized cash reserves to fund its capital program. Utilizing this pay-as-you-go approach over the last two years was an intentional effort outlined in the Authority’s 10-year financial plan to decrease the overall debt burden and improve affordability.

“ This strategy to shift from maximum use of debt, along with overall cost controls, is how GLWA has managed to maintain average approved system charge adjustments at 2.1 percent in the most recent six years for the water system, and less than one percent (0.7 percent) for the wastewater system.”

Nicolette N. Bateson, Chief Financial Officer and Treasurer, GLWA

GLWA also took advantage of market conditions to refund nearly \$18 million in outstanding wastewater bonds. The refinancing of this debt resulted in nearly \$2 million in cashflow savings. Added to prior GLWA transactions, the Authority has garnered more than \$720 million in cashflow savings from refunding transactions since January 1, 2016, because of an opportunistic refinancing program that has taken advantage of market conditions and GLWA’s improved credit.

Financial Sustainability

Commitment to the Four Percent Revenue Requirement Promise and a Strategy for Affordability and Operability

In February, the Board of Directors adopted a budget for Fiscal Year 2023, which began on July 1. Accounting for a variety of pressures facing Member Partner communities, GLWA limited charge adjustments for the fiscal year.

The FY23 budget included an increase of 3.5 percent for the water system, and a 1.3 percent increase for the wastewater system, delivering on GLWA’s commitment of a four percent maximum increase to its revenue requirement (i.e., budget), as agreed upon in the Authority’s foundational documents.

With this budget approved and in place, the Board also approved charges for FY23. The average charge adjustment for the water system was a 3.7 percent increase, and the average charge adjustment for the wastewater system was a 2.4 percent increase.

The Board continues to focus on keeping charges as affordable as possible.

YEAR	WATER SYSTEM	WASTEWATER SYSTEM
2018	1.8%	-0.7%
2019	1.8%	0.1%
2020	0.6%	0.8%
2021	3.2%	2.0%
2022	1.5%	-0.6%
2023	3.7%	2.4%
Six Year Average	2.1%	0.7%

BOARD OF DIRECTORS ELIMINATES HIGHLAND PARK BAD DEBT RECOVERY CHARGE FROM PREVIOUSLY APPROVED FY23 CHARGES

In June, after the City of Highland Park resumed making payments to GLWA for wastewater services rendered as the result of a court order, the GLWA Board of Directors voted to eliminate the inclusion of bad debt recovery amounts related to Highland Park in GLWA’s FY23 charges that were originally passed in March.



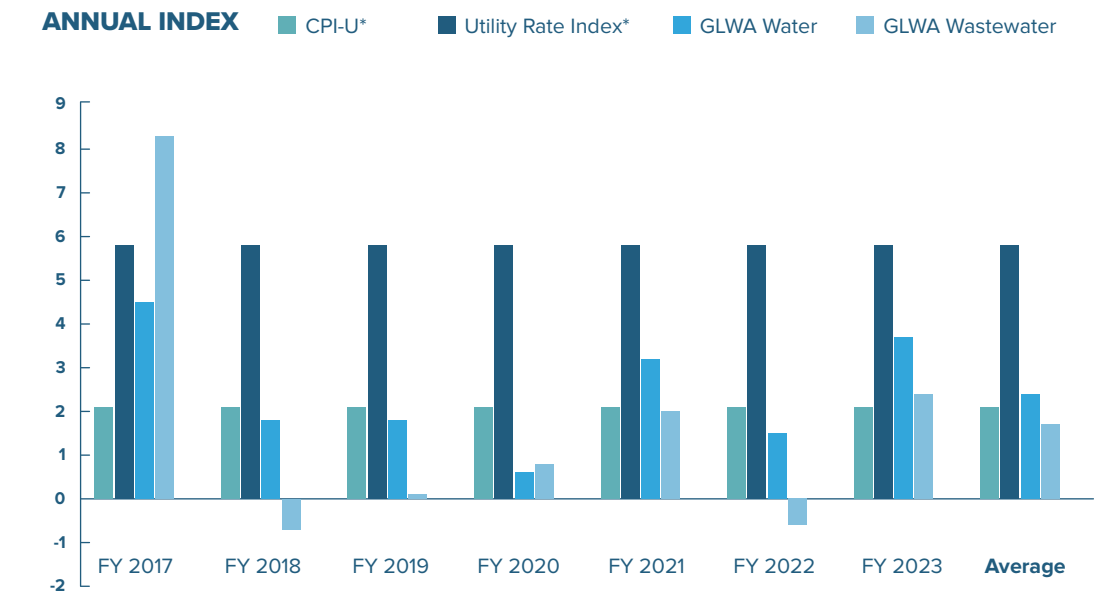
THE ELIMINATION REDUCED CHARGES BY \$6.7 MILLION
 – \$1.3 million for water and \$5.4 million for wastewater.

Measuring GLWA’s Performance Against Utility Peers

GLWA measures its performance against the established utility indexes. The Authority’s average annual system-wide adjustment, over a six-year period, is lower than the Utility CPI Index (2.0% vs. 2.1%) and performed significantly better than the Utility Rate Index for the 50 largest cities (2.0% vs. 5.8%).

HISTORICAL SYSTEM CHARGE ANNUAL INDEX

ANNUAL	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	AVERAGE
CPI-U*	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Utility Rate Index*	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%
GLWA Water	4.5%	1.8%	1.8%	0.6%	3.2%	1.5%	3.7%	2.4%
GLWA Wastewater	8.3%	-0.7%	0.1%	0.8%	2.0%	-0.6%	2.4%	1.7%
GLWA Overall	6.7%	0.3%	0.7%	0.7%	2.5%	0.3%	2.9%	2.0%



*Source: Black & Veatch 50 Largest Cities Rate Survey - 2019 - average 2001-2018

GLWA's Business Inclusion and Diversity Program Yield Results

GLWA's Business Inclusion and Diversity (B.I.D.) Program requires vendors to submit, for all solicitations budgeted at \$1 million or more, a B.I.D. Plan addressing their efforts to include Minority-owned Business Enterprise (MBE), Woman-owned Business Enterprise (WBE), Small Business Enterprise (SBE) and Disadvantaged Business Enterprise (DBE) subcontractors. The program also awards economic equity credit for vendors who have a business presence in the state of Michigan, in GLWA's service area or within certain economically disadvantaged territories within the Authority's service area.

As of the end of 2022, GLWA awarded

 **54**
Contracts

totaling over **\$610 million** under the B.I.D. Program requirements

and has received

 **168**
Vendor
Diversity Plans

that detail targeted outreach efforts to help bring small, minority-owned and disadvantaged business enterprises into the procurement process.

Of the 54 awarded contracts, 48 percent of the awarded dollars went to vendors who were certified as MBE, WBE, SBE, or DBE, and total \$292.5 million.

GLWA Continues Record of Clean Audit Results

For FY22, which ended on June 30, GLWA continued to demonstrate its commitment to the goals of financial reliability and transparency in reporting, as well as continuous improvement. This commitment was evident in the results of the Financial and Single Audit for FY22.

GLWA's financial statements received an unmodified (clean) opinion from auditor Baker Tilly. In addition, there were no material weaknesses or significant deficiencies found in the Authority's single audit. This marks the seventh consecutive year of clean audits for GLWA.

Financial Services Team Receives Continued National Recognition

EXCELLENCE IN FINANCIAL REPORTING CONTINUES TO BE RECOGNIZED



In August, GLWA received notice that its annual comprehensive financial report for FY21 was awarded the Government Finance Officers Association's (GFOA) Certificate of Achievement for Excellence in Financial Reporting. This award recognizes state and local government entities that go beyond the minimum requirements of generally accepted accounting principles to prepare annual comprehensive financial reports that evidence the spirit of transparency and full disclosure.

The Certificate of Achievement is the highest form of recognition in governmental accounting and financial reporting. This milestone was achievable because of the many cross-functional team members who work diligently to provide high-quality documents with both high level and detailed information.

Distinguished Budget Award

After submitting its Biennial Budget and related five-year financial plan to the GFOA, GLWA's Financial Services Area (FSA) team was honored to again receive the national organization's Distinguished Budget Presentation Award. This is the fourth time GLWA has received this distinguished recognition.

This award is the highest form of recognition in governmental budgeting and acknowledges the FSA team's continued commitment to achieve the highest level of transparency and financial management throughout the organization.

The final [FY23 & FY24 Biennial Budget & Five Year Forecast](#) is posted on the GLWA website.

Way to go, Team FSA!

“

Many, many thanks to the talented Financial Services Area team for preparing a high-quality document that provides both high level and detailed information. That outcome is achievable because of many cross-functional team members throughout GLWA who are active participants in the budget process throughout the year!”

Nicolette N. Bateson, Chief Financial Officer and Treasurer, GLWA

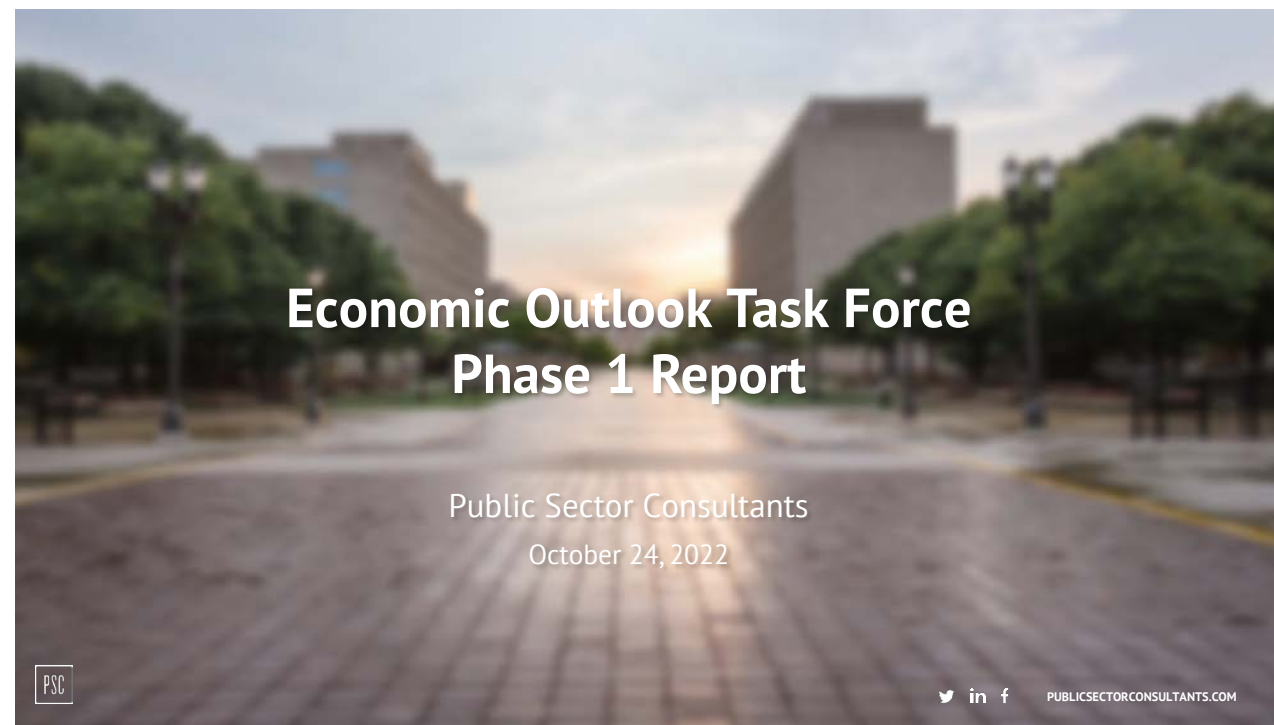
Operational Optimization and Sustainability

Economic Outlook Task Force Continues to Support Capital and Operating Budgets

Recognizing the unprecedented supply chain challenges and rapid cost increases in the utility sector, GLWA established the Economic Outlook Task Force (EOTF) to support the organization in making sound capital and operating budget decisions.

As part of this effort, GLWA interviewed peer organizations in its region and across the country to learn how others are responding and sharing ideas and resources. Outcomes of that effort resulted in a scenario forecast model that allows GLWA to manage financial risk.

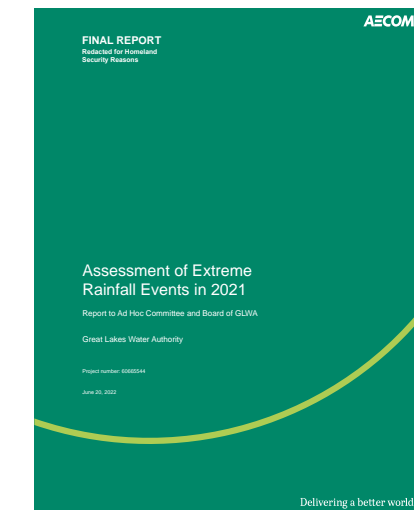
[View the EOTF Phase One Report.](#)



Building Resiliency in the Regional System to Help Address the Increasing Effects of Climate Change

The unprecedented and historic rain events that occurred in the summer of 2021 had major impacts throughout southeast Michigan and brought the issue of building resiliency in the regional system to the forefront. One year on from the rain events, GLWA continues to implement improvements to the system, work collaboratively with its Member Partners and stakeholders on improving the regional response to wet weather events, and create resources to help educate the public on the system and how it works.

INDEPENDENT INVESTIGATION: AMOUNT AND INTENSITY OF RAIN CREATED A NATURAL DISASTER THAT NO SEWER SYSTEM COULD HANDLE



In June, the Independent Investigative Team reviewing the Summer 2021 rain events presented its [final report](#) to GLWA's Board of Directors.

The report concluded that heavy and historic rainfalls exceeded the design capacity of the wastewater system, making surface flooding and basement backups inevitable.

Additionally, the report stated that even if every piece of piping and equipment in the regional system worked in an ideal manner, basement backups and surface flooding would still have occurred in GLWA's system, or any other collection system designed to today's standard.

This standard reflects a collection system

designed to handle 1.7 inches of rain in one hour (with no rain before or after) or 3.31 inches in 24 hours. On June 25, more than six inches of rain was experienced in only half that time, which is double the maximum design standard for 24 hours.

Contained within the Independent Investigative Team's report was a series of short-, medium-, and long-term operational and programmatic recommendations. GLWA reviewed these recommendations and continues to assess which items can help inform improvements to currently underway projects or offer new approaches to ongoing concerns.

NEW RESILIENCY DELIVERY TEAM CREATED TO ASSESS AND EXECUTE REPORT RECOMMENDATIONS

In September, Navid Mehram, GLWA's Chief Operating Officer-Wastewater Operations, established a special Resiliency Delivery Team to assess the recommendations provided in the Independent Investigative Team's report at an operational level, and begin execution of the short-, medium-, and long-term recommendations that were chosen for their ability to improve operational reliability. The team is made up of experts from across GLWA's operational areas. The objectives of the Resiliency Delivery Team are to:



Complete and accurately document the progress of resiliency improvements;



Maintain consistent communication to the Board of Directors, Member Partner communities, and their operators;



Evaluate system awareness and condition assessments for system assets;



Maintain reliable operations of the pump stations during storm events;



Maintain power reliability while ensuring feasible flexibility;



Maintain operational readiness for large, high-intensity storms; and



Establish an ideal road map for the future of the Conners Creek Pump Station.

“

The unprecedented rain events of the summer of 2021 are a real-life example of the devastating impacts climate change can have on our communities. It is likely we will continue to see more intense storms at a greater frequency. While it is not possible to eliminate the chance of flooding given these circumstances, we are taking actions that can help mitigate the extent of the flooding.”

Suzanne R. Coffey, CEO, GLWA

IMMEDIATE ACTIONS IMPROVE REGIONAL SYSTEM CLIMATE RESILIENCY

Since the summer 2021 rain events, GLWA has taken the following actions to improve climate resiliency in the regional system in the short-term:

1

Installed three new transformers at the Freud Pump Station and successfully converted the external power supply feeding the transformers to DTE Energy power via three independent power feeds; *See photos below

2

Converted external power such that all wastewater facilities operated by GLWA in the collection system are serviced by DTE Energy;

3

Installed Power Quality Monitoring Systems (PQMs) on the Conners Creek, Freud and Blue Hill Pump Stations and all wet weather treatment facilities. These monitors provide advance notice regarding power supply and power quality problems that hinder operations;

4

Developed extreme weather operational strategies to improve system response;

5

Reviewed and recalibrated over 200 instruments in the wastewater collection system;

6

Reinspected approximately more than 20 miles of the regional system, which is about 13 percent of the total GLWA regional sewer system;

7

Authorized \$102 million in regional sewer rehabilitation project within the city of Detroit;

8

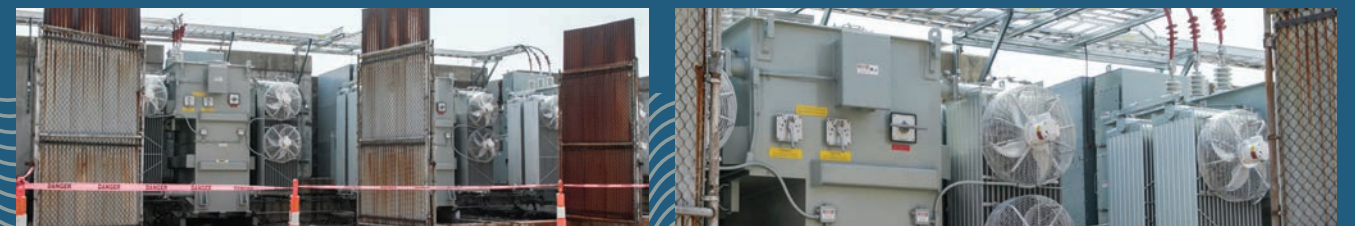
Increased frequency of notification of extreme wet weather events to the public;

9

Initiated targeted coordination with eastside and westside Member Partner communities, including establishing lines of communication with public works directors and operators to facilitate real-time coordination during emergency events; and

10

Worked with the U.S. Army of Corps of Engineers to develop the concept of a regional flood mitigation study for southeast Michigan. The comprehensive feasibility study would evaluate the implementation of concepts such as wastewater storage at the surface or deep tunnel levels, using pumping stations for discharge, constructing large diameter relief sewers, and strategic sewer separation to address the long-term impacts of climate change. The study received programmatic authorization under the Water Resources Development Act (WRDA) and has also been included in President Biden's recently released budget for FY24.

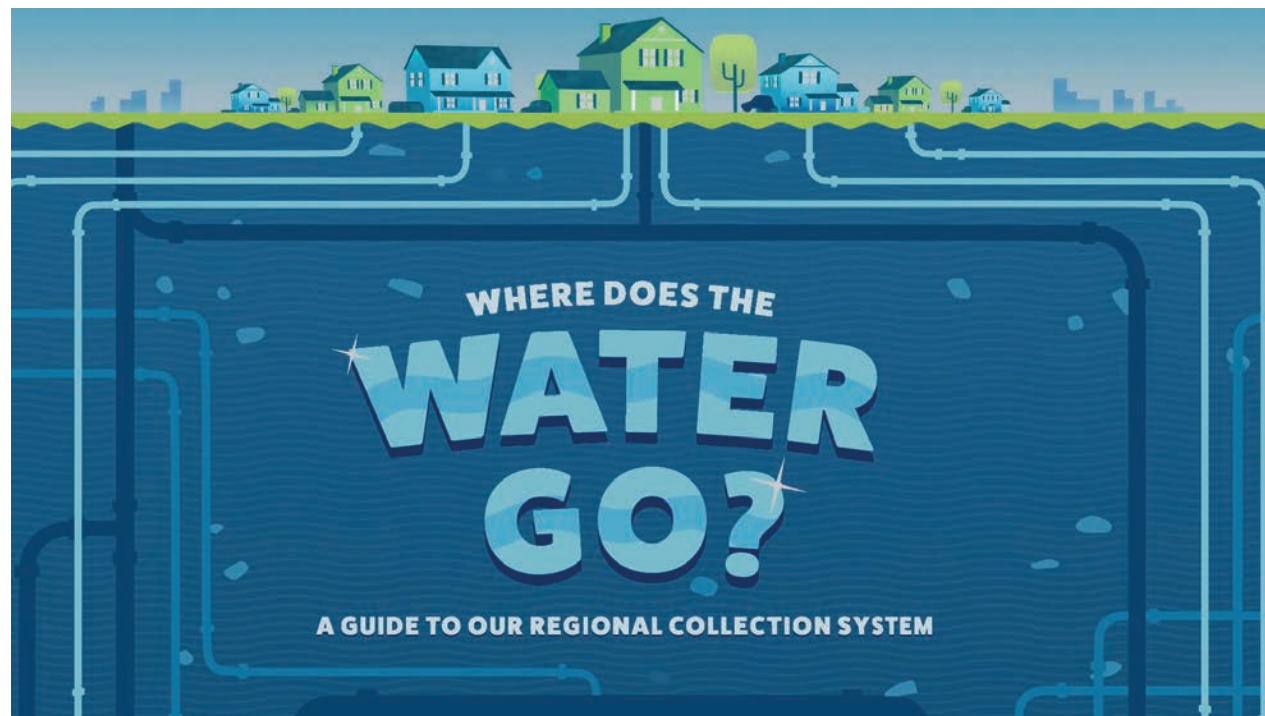


Where Does the Water Go?

As a part of its ongoing community outreach efforts after the historic rain events of 2021, GLWA created an animated video to educate the public on how the regional collection system works.

The 11-minute video titled, "Where Does the Water Go," uses simple, easy-to-understand language with approachable animations to tell the story of what happens when wastewater and stormwater enter GLWA's system. The story breaks down: What is wastewater; How does our system work; What is weather's impact; and How you can help.

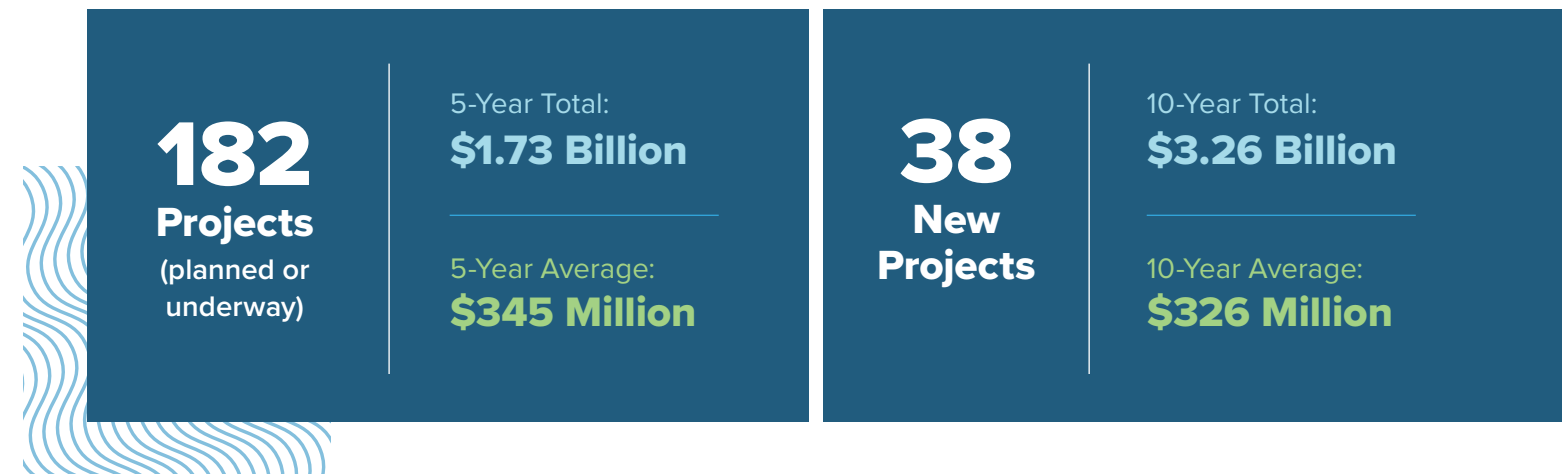
[View the "Where Does the Water Go" video.](#)



Capital Improvement Plan

Within its FY23-27 Capital Improvement Plan (CIP), GLWA will invest more than \$1.73 billion in the region's water and wastewater infrastructure over the next five years, with an expected average annual investment of \$345 million.

CIP SPENDING SUMMARY/PROJECT TOTALS FOR FY 2023-2027:



Highlights of projects in the [2023-2027 CIP](#):

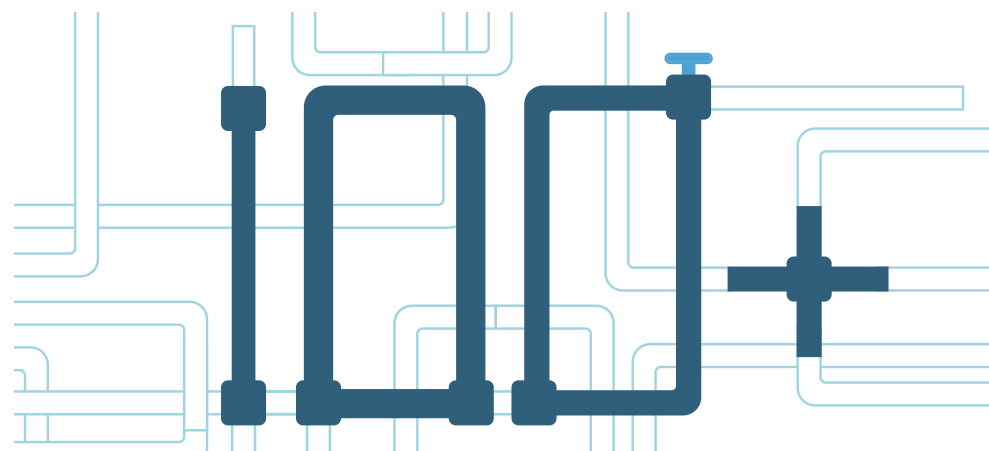
WATER SYSTEM	
Construction of a 14 Mile transmission main loop	Raw water intake tunnel improvements
Rehabilitation, repair and improvements of booster pumping stations and reservoirs throughout the Authority's service area	Improvements at GLWA's Springwells, Northeast, Water Works Park and Lake Huron Water Treatment Plants
WASTEWATER SYSTEM	
Rehabilitation of the Woodward and Conner Creek sewers, as well as the Detroit River and Northwest Interceptors	Improvements to Combined Sewer Overflow (CSO) facilities
Improvements to WRRF	Rehabilitation, repair and improvements to various pump station facilities throughout the Authority's service area



Linear System Integrity Program

GLWA's Linear System Integrity Program (LSIP), which was launched just over one year ago, is an ongoing program of pipeline assessment and renewal. The program is designed to proactively assess water transmission mains and wastewater interceptors and renew deteriorated pipelines as necessary to reduce the impacts of failures, improve service levels and increase reliability of GLWA's linear assets.

The first phase of this program will occur over the initial six years of the program, with GLWA working to assess and rehabilitate more than 100 miles of its drinking water transmission main network throughout southeast Michigan.



MILES OF PIPELINE SET TO BE ASSESSED AND REHABILITATED WITH LSIP

BIG PICTURE: THE GOALS OF THE LSIP

1



Planning and Executing Condition Assessments for Critical Pipelines

Plan for pipeline modifications in collaboration with Member Partners that reduce operational impacts for the condition assessment;

Repair of at-risk pipe segments identified in the assessment; and

Performing the pipe repairs increases the reliability of the overall system and understanding where the damage is can help mitigate potential problems in other areas of the system.

2



Reducing Impacts on Member Partners

Implement quick changes in system operations to minimize impact and ultimately eliminate boil water alerts or reduced levels of service in the system; and

Maintain continual drive toward reducing the likelihood and impact of pipeline failures through the condition assessment program.

3



Maximizing Value of Existing Infrastructure to Realize Large Scale Return on Investment

Focus on helping GLWA allocate available funds toward critical needs by putting a program in place that supports strategically replacing segments of pipe in lieu of large CIP pipeline replacement projects; and

Be a good steward of resources - the cost of doing condition assessment and renewal with strategic pipeline replacement is approximately 10 percent of the cost of a complete pipeline replacement and will maximize the useful life of the piping network.

4



Positive Social, Economic, and Environmental Impacts

Social: Increasing Member Partner confidence in GLWA's ability to provide water of unquestionable quality;

Economic: Prudent use of resources that reduces costs by having fewer pipeline emergency disruptions, which are significantly more expensive; and

Environmental: Chlorinated water and erosion sediments are kept away from waterways that affect ecosystems, as well as flood control to keep roadways and property safe.

GLWA Builds Organizational Resiliency Through a Talented Team of Professionals

With a focus on building resiliency across the organization, GLWA made several promotions and additions to its team of highly talented and capable professionals.



INTERIM CHIEF PLANNING OFFICER EARNS PERMANENT ROLE

After serving as GLWA's Interim Chief Planning Officer since August 2021, **Jody Caldwell, P.E.**, was selected to fill the key executive leadership role permanently. In this role, he champions GLWA's efforts to bolster its asset management capacities, leads long-term planning efforts such as the five-year CIP, and is responsible for system analytics and meter operations and member outreach.

Prior to Caldwell's tenure as Interim Chief Planning Officer, he was the Asset Management Director for the Enterprise-Wide Asset Management Group at GLWA for more than five years. In that role, he helped support GLWA business units by coordinating overall asset management strategies, objectives and activities to ensure decisions were informed by risk, regional needs and life cycle considerations.



NEW CHIEF ORGANIZATIONAL DEVELOPMENT OFFICER RISES THROUGH THE RANKS

Jordie Kramer, who served as GLWA's Director of Organizational Development since 2019, was elevated to the executive leadership role of Chief Organizational Development Officer.

An experienced leader in all aspects of Human Resources (HR), Kramer has served in increasingly more responsible HR roles in government entities in southeast Michigan for nearly three decades. As Chief Organizational Development Officer, she is responsible for leading all areas of GLWA's Organizational Development Group, including recruitment, compensation, benefits, labor relations, employee relations, human resource information systems (HRIS), and training and development.



GLWA PROMOTES FROM WITHIN TO FILL NEW WATER OPERATIONS LEADERSHIP ROLE

A professional water operator with more than 30 years of experience, **Terry Daniel** was promoted to the newly established role of Deputy Chief Operating Officer, Water & Field Services. In this position, Daniel will work directly with Chief Operating Officer Cheryl Porter to oversee the operation and maintenance of GLWA's five water treatment facilities, as well as the System Control Center, Water Engineering, and the Water Quality Group.

Daniel holds both F1 (Water Treatment) and S2 (Water Distribution) certifications from EGLE. He began his career as a Water Plant Operator Apprentice at DWSD three decades ago.



NEW WATER ENGINEERING DIRECTOR NAMED TO HELP ADVANCE DELIVERY OF WATER CIP PROJECTS

Tim Kuhns, P.E., was promoted from Director of Systems Planning and Development to Director of Water Engineering. In his new role, Kuhns leads and supports a team of 23 engineers, life cycle project managers, engineering technicians, and inspectors in the delivery of \$990 million in CIP projects for the improvement of GLWA's water and transmission infrastructure over the next five years. He also supports Design Engineering, Construction Engineering and Construction Inspection team members.



NEW IT DIRECTOR OF SECURITY HELPS MITIGATE RISKS AND THREATS TO GLWA SYSTEMS

Frank Garcia was recently hired by GLWA to serve as its IT Director of Security. Garcia is responsible for developing and overseeing GLWA's Information Security and Risk programs, as well as developing and delivering multi-tier IT initiatives to improve efficiency, eliminate threats and enhance the protection of critical data and information across the Authority.

Garcia brings over 20 years of professional experience in Information and Cybersecurity Technology to GLWA. His expertise includes leading a highly technical, creative team of professionals who drive transparency in reporting risk and cybersecurity posture to leadership, enhance security practices and procedures, and deliver on-time, on-budget solutions.



LEADERSHIP POSITION CREATED TO GUIDE COMBINED SEWER OVERFLOW PROGRAM

David McCord was promoted from CSO Treatment Facilities Operations & Maintenance Manager to CSO Control Program Manager. In this new role, McCord is responsible for overseeing CSO operations and maintenance, ensuring compliance with NPDES regulatory requirements, maintaining operations during wet weather events, and ongoing training for new and current CSO team members. He also acts as the liaison for capital improvement projects for GLWA engineers and contractors.

Prior to this role, McCord served as CSO Team Leader for over five years. Overall, he has a total of over 21 years of combined professional experience with DWSD/GLWA.

GLWA Continues Advocacy at State and Federal Levels

In 2019, GLWA engaged Dykema to provide government relations and legislative representation services. The use of a multi-client legislative relations firm was a first for the Authority and enhanced its ability to tell its story of one water of unquestionable quality.

While still a relatively new initiative, the growing government relations effort in 2022 focused on advocacy regarding programs of importance to GLWA and Michigan. The Authority was instrumental in advocating for the establishment of a low-income household water assistance program, an updated national rule for lead and copper plumbing and service lines, and most recently the authorization for a study by the United States Army Corps of Engineers on flooding in southeast Michigan.

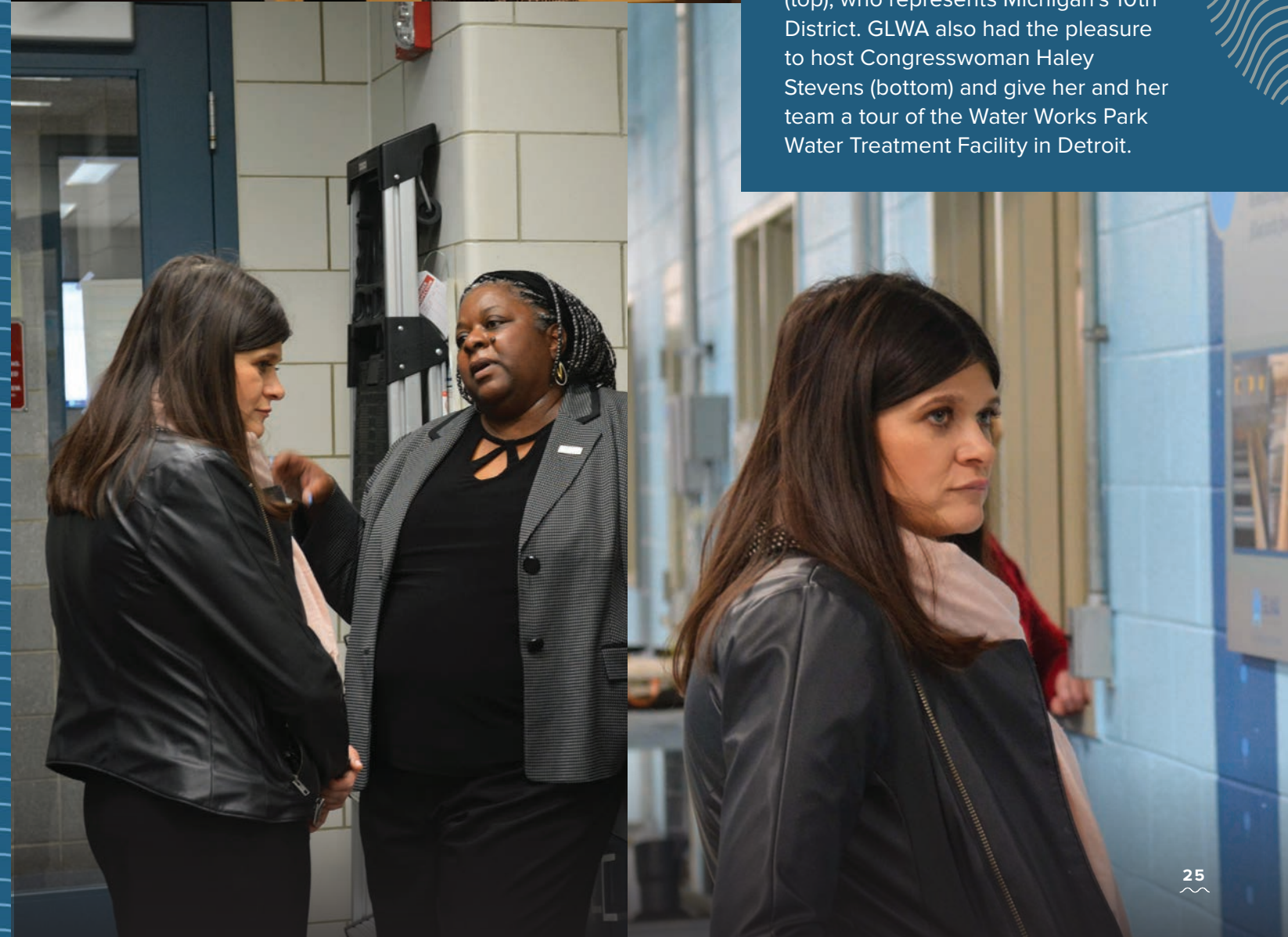
The focus for GLWA to engage in government relations is exchanging ideas and building partnerships. During the past year, it continued to establish a cadence of regular meetings with state and federal legislators with over 50 meetings.

“As GLWA continues to establish itself as a thought leader in the water service sector and as the need to address aging infrastructure continues, the relationships developed through these meetings will continue to be essential both for GLWA and elected officials at the state and federal level. We look forward to continued growth and progress in this area.”

William M. Wolfson, Chief Administrative and Compliance Officer, GLWA



In 2022, GLWA executive leadership traveled to Washington, D.C., to meet with representatives of Michigan’s legislative delegation, including with Congresswoman Lisa McClain (top), who represents Michigan’s 10th District. GLWA also had the pleasure to host Congresswoman Haley Stevens (bottom) and give her and her team a tour of the Water Works Park Water Treatment Facility in Detroit.





Collaboration with Member Partners, Team Members and Other Stakeholders

Member Partner and Stakeholder Collaboration

“

Great things in business are never done by one person; they are done by a team of people.”

Steve Jobs

GLWA continued to embrace the collaborative philosophy that is core to the regional system’s operations, especially in its relationship with its Member Partners and other stakeholders. Engagement through the One Water Partnership (OWP) is key to the success of this philosophy.

This year, Member Outreach convened a total of **104 meetings**, which included **74 work group meetings** and **30 other outreach activities**. GLWA also hosted a number of special meetings, leveraging its resources as a Hub Utility to benefit the region.

These special meetings included:

 Watershed Hub webinars	 Webinars with EGLE to help explain the SRF Loan Program	 A Healthy Urban Waters Research Symposium	 A webinar to gain feedback on the EPA’s Lead & Copper Rule changes
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While a number of these meetings continued to be held in a virtual format to allow for broader participation, GLWA also began reinstating in-person meetings to all for the networking and fellowship that Member Partners and stakeholders have come to value so much.



OWP co-chairs (*partial group)

Member Partner Satisfaction with GLWA Holds Strong at 90 Percent

COMMUNICATION, TRANSPARENCY AND RESPONSIVENESS ARE KEY STRENGTHS

Since 2017, GLWA has solicited anonymous quantitative and qualitative customer feedback on its performance as an organization on an annual basis. The One Water Partnership Scorecard survey, conducted on behalf of the Authority by its third-party member outreach facilitator Bridgeport Consulting, provides the ability to identify year-over-year trends in Member Partners' experiences working with GLWA.

The tool measures members' satisfaction with topics such as responsiveness, knowledge and effectiveness; leadership in regional collaboration; emergency and non-emergency communication; and operational and administrative service areas.

 **90%**
Satisfied or Very Satisfied

Overall satisfaction with GLWA held steady with the previous year's rating, with 90 percent of participants selecting "Satisfied" or "Very Satisfied." Among service areas, the score for GLWA's Executive Leadership increased slightly in 2022.

Communication again emerged as a key strength for GLWA. When asked to comment on the one factor that most influenced their response to the overall satisfaction question, participants mentioned communication, transparency and responsiveness most frequently. Respondents rated the topics Member Outreach communication and communication about emergency issues strongly positive at 93 percent, underscoring their importance in a year that included a break in a 120-inch transmission main, the largest in the GLWA system.

Collaboration and Transparency Lead the Way in GLWA's Response to Major Break on the Largest Water Main in the Regional Water System

Improved communication at all levels, a strong commitment to transparency, and close collaboration with Member Partners and stakeholders were instrumental in helping GLWA to address a break in a 120-inch water transmission main - the largest in the system - that distributes finished drinking water from its Lake Huron Water Treatment Facility to communities in the northern part of its drinking water service area.



Initially, the break impacted 23 communities, covering approximately 935,000 people. Thanks to the hard work of the men and women of GLWA, its contractors and Member Partners, within 24 hours the number of people impacted was reduced to 133,000 in seven communities, and within a week all communities were restored to some level of service. Final repairs to the water main were completed within 45 days.

An investigation into the cause of the break, summarized in an after-action report, had two major findings:

1

The regional system was operating under normal conditions before the break, and therefore pressure spikes do not appear to have played any role in the failure;

2

The break was caused by damage to the exterior mortar coating that protects the Prestressed Concrete Cylinder Pipe (PCCP), which resulted in corrosion and hydrogen embrittlement of the pipe's interior wires.

- ◆ Cause of the mortar damage is unknown, however a ditch between fields located directly above the break location could have created an environment that was detrimental to the mortar coating.

“

On behalf of everyone at GLWA, I want to express my gratitude to our Member Partner communities and their residents for their collaboration and support as we worked through the complexities of the break on what is the largest pipe in our regional system. Although we encountered a number of obstacles along the way, I am so proud of how everyone involved dug-in and used their knowledge, skills and ingenuity to ensure that we made the repair as quickly as possible and kept our focus on protecting the public health.”

Suzanne R. Coffey, CEO, GLWA

GLWA Leadership Ensures Transparency at All Levels Around 120-Inch Main Break

Throughout GLWA's response to the break on the 120-inch transmission main, the Authority remained proactive with information sharing across stakeholder groups to ensure everyone understood what was happening and how it would impact them. In addition to twice daily Emergency Operations Center calls with all impacted parties, there was a regular cadence of public communications issued, including news releases, social media and website postings, FAQs, fact sheets, photos, and videos. These communications also included numerous press briefings by GLWA executive leadership to answer questions and share information about how the public could help as repairs continued.

CEO Suzanne Coffey also welcomed elected officials from the impacted communities onto the site of the break, to ensure they were informed and knowledgeable on the progress being made during the repairs.



LSIP in Action: 120-Inch Main Break

Inspection of 4.5 miles of transmission main adjacent to the 120-inch main break, which was completed while the main was out of service for repair, determined that no additional pipe segments were at risk of immediate failure, and should be managed proactively through periodic condition assessment, pressure management, and periodic focused repairs of any deteriorated pipe as it is identified.

As a part of GLWA's Linear System Integrity Program, plans are being developed to perform condition assessment on the remaining 21.5 miles of transmission main beginning in 2023.



WRAP Income Based Plan approach now provides dynamic bill payment assistance based on ability to pay

PROGRAM UPDATES INCREASE WRAP AVAILABILITY FOR MORE COMMUNITIES



Late in 2022, GLWA fully launched important WRAP (Water Residential Assistance Program) updates aimed at increasing the program’s impact and availability in the Authority’s service area. At its core, WRAP provides payment assistance to eligible, low-income households through water and sewer bill credits for up to two years (or ongoing for households with senior citizens and persons with permanent disabilities), as well as bill arrearage assistance, and water conservation support, including minor plumbing repairs.

The first GLWA Board-approved improvement is the launch of the new WRAP **Income Based Plan**, which is one of the most impactful programs in the nation, offering bill credits based on household income and the amount of the household’s water and sewer bill. **The goal is that after bill credits are applied, the amount the household is expected to pay toward their water and wastewater bill is three percent of the household’s income.** For example, a household that has

 <p>an annual income of \$10,000</p>	+	 <p>and an average annual bill amount of \$1,000</p>	 <p>is now eligible for annually in bill credits. \$700</p>
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Previously, the household would have received only \$300 annually in bill credits.

The WRAP Income Based Plan is available to all eligible households who receive water and/or wastewater services from GLWA via Member Partner communities. Eligible households can receive assistance paying down past due balances and receive bill payment assistance for up to two years. Eligible senior citizens and permanently disabled persons can obtain bill credit assistance without an expiration date. Participants may also receive conservation assistance and minor plumbing repairs. To participate in the WRAP Income Based Plan, an applicant must have a household gross income at or below 200 percent of the federal poverty income threshold, be responsible for paying the bill, and live in the home they own or rent.

Upon enrollment, a WRAP Income Based Plan household will receive:

Bill credits based on income and amount of bill	Past due bill or back payments assistance up to \$1,200 in Year 1 and an additional \$1,200 in Year 2	Conservation measures and education, as well as minor plumbing repairs up to \$2,000
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The second improvement focuses on increasing availability and simplifying the program by enabling all eligible households in GLWA service area Member Partner communities to participate. This means that if a low-income household in a GLWA Member Partner community meets the eligibility requirements of WRAP, or is already enrolled in other qualifying assistance programs, that household can take advantage of the bill credits, arrearage assistance, conservation measures, and minor plumbing repairs offered through the program.

Finally, WRAP will now have an increased emphasis on case management with a shift toward direct client assistance. This will empower WRAP’s service delivery partners to work directly with a household to review their progress in making payments as a pathway to long-term household financial sustainability.

“

These most recent improvements to WRAP are the result of extensive research and an in-depth dialogue with our Member Partner communities, and importantly, with experts in the human services organizations who are on the front-line of providing assistance. It is our goal to ensure that WRAP continues to evolve so that it can provide real assistance – both financial and in terms of creating a healthier home to those with the greatest need in the communities we serve. We are grateful for our Board of Directors’ support of these efforts to ensure that WRAP is designed to best serve those in need across southeast Michigan.”

Nicolette N. Bateson, Chief Financial Officer and Treasurer, GLWA

GLWA has worked closely with service delivery partners Wayne Metropolitan Community Action Agency and Macomb Community Action since the program’s inception in 2016. Beginning in 2023, GLWA will also partner with United Way for Southeastern Michigan to provide service directly to Oakland County residents.

The goal of WRAP is to set participants up for success, which includes helping prevent the shut-off of services by utilizing proactive case management and collaboration with Member Partner communities. Since 2016, the program has been continuously reviewed and a broad range of adjustments have been made to ensure its adaptability and flexibility to address ways to make the program best meet the needs of Member Partner communities and their residents. The conservation measures offered through WRAP focus on creating a healthy home, in addition to reducing water usage.



Community Action Agency Partners

“

United Way is proud to be a part of this important effort to help reduce water utility costs for Oakland County residents. We have provided similar services for electric and gas consumers for over a decade. Adding WRAP to our portfolio of resources will help families address all their utility assistance needs with just one phone call or application. We are also very excited about the water conservation component of the program. This helps residents understand and address issues in their homes to reduce water waste and make their bills more manageable through no-cost plumbing repairs.”

Jeff Miles, Interim Vice President of Community Impact, United Way for Southeastern Michigan

“

The WRAP program has had a significant positive impact on residents within Macomb County and surrounding communities. Macomb Community Action recognizes opportunities to address the root causes of water insecurity and promote solutions our residents deserve. WRAP allows us to work with qualified families, providing access to clean, affordable water – from paying off debt, to providing in-home assessments and recommendations for renters and homeowners to reduce consumption.”

Julie Hintz, Program Manager, Macomb Community Action, Community Action Centers

“

2023 WRAP is more robust and impactful than what we launched in 2016. GLWA leadership is forward-thinking and deeply invested in program performance and continuous improvement. Together we have increased assistance available to each household and by layering multiple state and federal funding sources, provided thousands of southeast Michigan residents with water support in the last year. Wayne Metro remains committed to this strong partnership to ensure clean, safe water remains affordable and accessible for all low-wage, low-income GLWA customers and their families.”

Shama Mounzer, Executive Director at Wayne Metro Community Action Agency

WRAP by the Numbers



\$7 million in WRAP funds were spent in 2022 throughout the GLWA service area.

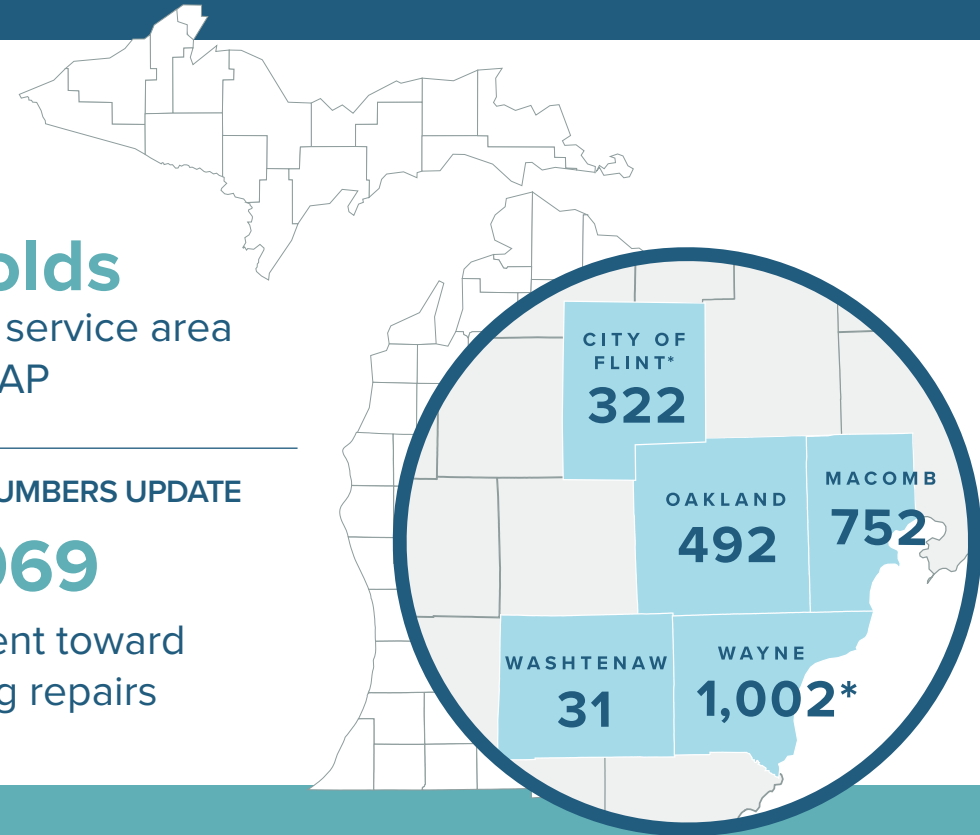
4,948 households

across GLWA's service area enrolled in WRAP

CONSERVATION NUMBERS UPDATE

\$1,779,969

Total funds spent toward minor plumbing repairs



\$63,326

OAKLAND COUNTY



\$1,464,110

WAYNE COUNTY (INCLUDING DETROIT)



\$149,780

MACOMB COUNTY



\$4,632

WASHTENAW COUNTY



\$92,964

CITY OF FLINT

*In 2022, the City of Detroit launched its Lifeline Plan for Detroit residents that is partially funded by WRAP. The number of Detroit households enrolled in 2022 prior to Lifeline launching was 2,349.

*Program administration for the city of Flint moved to Wayne Metropolitan Community Action Agency in June 2022 to allow for more consistent support and assistance to Flint residents. Wayne Metro is working closely with the City of Flint to provide onsite assistance each week.

One Water One Team

GLWA has a strong focus not only on retaining its talented workforce, but also growing their skills and capabilities

NEW PARTNERSHIP WITH BAY COLLEGE OFFERS WASTEWATER TEAM MEMBERS UNIQUE OPPORTUNITY FOR GROWTH

In collaboration with its educational partner Bay College, GLWA has developed a new 20-week program to assess and prepare Wastewater Operations team members to advance as water sector professionals and sit for the state of Michigan C/D Wastewater License. This new training program is the first created specifically for the Wastewater Operations team since GLWA was stood up in 2016.

The Wastewater Treatment Assessment, Training, and Certification Program provides an “online learning” model, along with on-the-job training and education at no cost to the team members participating. There are 16 online modules, which require participants to spend approximately eight hours per week on course work. Four of the modules were specifically dedicated to lab work exercises and exam preparation. Other topics covered include wastewater collection, primary clarification, biological treatment, nutrient removal, disinfection, maintenance, procedures for operating and maintaining a wastewater system, and techniques for recognizing hazards.

Committed to a successful learning outcome, five team members in the inaugural cohort of the program traveled to Bay College for a three-day on-site laboratory class, during which they were able to learn about chemical and biological methods for the treatment of drinking water and wastewater best practices. This on-site experience concluded with an outline of degree path options, along with preparation for the state of Michigan Wastewater D Licensure Exam, including a practice assessment.

Bay College, in Escanaba, Michigan, offers a Water Resource Management Program committed to providing specialized training in water and wastewater treatment theory and application to both entry-level personnel and those who are already working in the water and wastewater fields. The accredited, customized training is conducted by experienced water and wastewater instructors and experts with over 50 years of combined industry experience.



GLWA Apprenticeship Program and One Water Institute Spotlited by Environmental Protection Agency as National Workforce Development Leader

GLWA’s Apprenticeship Program and One Water Institute were featured by the Environmental Protection Agency (EPA) as a workforce development *case study* for other utilities – a testament to the success of both programs. The Authority has implemented measures to achieve a representative team through community workforce partners and internal retention programs. It shares learnings, strategies and resources with Member Partners for further education.

When GLWA was established, it recognized many team members were taking on new responsibilities and needed support through structured training opportunities. In response to this need, the Authority created the One Water Institute (OWI), an internal training academy that provides education, training, leadership, and professional development opportunities for its team members.

The six academies in the OWI are:

 Safety	 Water and Field Services	 Wastewater Operations	 Technology	 Leadership Development	 Leader-in-Me
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Realizing there were untapped markets within the local community, GLWA engaged with workforce organizations that had longstanding relationships and programming within the community, developing workforce pathways for local individuals. The Authority used deep community ties to further develop relationships with local organizations and establish a community apprenticeship recruiting program and pre-apprenticeship program.

The Authority collaborates with workforce partners in the community, such as Focus: HOPE, to educate on and recruit individuals for a career in the water sector, taking them through a US Department of Labor (USDOL) registered apprenticeship program with local community colleges and trade schools. GLWA provides key support both throughout the apprenticeship itself, and after the apprenticeship has been completed when individuals are full-time team members.

To date, GLWA has four active apprenticeship programs: Maintenance Technician, Electrical Instrumentation Control Technician – Instrumentation (EICT-I), Electrical Instrumentation Control Technician – Electrician (EICT-E) and the Water Technician program. The apprenticeship programs successfully demonstrate an earn-while-you-learn training and education model, setting participants up for successful career paths while helping the Authority fill essential roles that are vital to its operations.

[See the EPA Water Workforce Webinar.](#)

GLWA Awarded Sponsor of the Year

GLWA was awarded Sponsor of the Year in recognition of its exceptional performance, superior dedication and positive attitude for its work with registered apprenticeship programs by the Michigan Educators Apprenticeship & Training Association (MEATA). The award was presented during the MEATA spring conference in May. Adino May, Management Professional and Apprenticeship Coordinator, GLWA, accepted the award.



GLWA Creates Video Series to Showcase Apprenticeship Programs and Assist in Recruiting Efforts

To assist in GLWA's efforts to retain and attract talent, the Authority created a series of videos that capture what it's like to be an apprentice at southeast Michigan's largest regional water authority.

The video series features former GLWA apprentices who have seen great success since graduating, with a goal to educate others on the program and encourage more individuals to enroll.

Viewers learn about the program and career opportunities, while each graduate discusses what they enjoy most about their career. The videos showcase the critical role these skilled positions serve for the operation of a water utility.

[See the video.](#)



GLWA Apprentice Selected as Pre-Apprentice of the Year by Statewide Organization

Terrell Dockery, a GLWA Maintenance Technician Apprentice, began his work as a GLWA apprentice through Focus: HOPE in 2018. Now on his seventh rotation, Dockery is ready to face his career in the water sector. He says the Authority has allowed him to take initiative and learn through experience from his very first day.

He says the Authority's hands-on training from a variety of GLWA leaders has given him many perspectives to best prepare him for his career.



“When you start off, you don't really know anything about maintenance or tools and the mechanics of everything that goes on in a plant. You get a good understanding of each plant and how they all run.”

Terrell Dockery, Maintenance Technician Apprentice, GLWA

Due to his hard work and dedication, Dockery was awarded the Pre-Apprentice of the Year Award at the MEATA fall conference. Way to go, Terrell!!

GLWA Apprentices Recognized During National Apprenticeship Week

GLWA celebrated National Apprenticeship Week (NAW) with an appreciation event, "Celebrating Apprenticeships: 85 Years Strong" on November 14, at Water Works Park. The event began with remarks from CEO Suzanne Coffey and Chief Organizational Development Officer, Jordie Kramer. Twenty-five apprentice honorees, US Department of Labor Director Russ Davis, community partners, and GLWA team members celebrated the Authority's apprentices. Event highlights included the acknowledgment of apprentices' contributions to producing water of unquestionable quality, remarks from Chief Administrative and Compliance Officer Bill Wolfson, and GLWA's educational partners and union representatives.

This NAW event and the GLWA board of Directors' NAW proclamation are listed on the [US Department of Labor's NAW website](#).



GLWA Team Members Graduate from National Talent Pipeline Management Academy

In June, three Organization Development team members – Jordie Kramer, Adino May and Patricia Butler – graduated from the US Chamber of Commerce Talent Pipeline Management (TPM) Academy.

The TPM Academy trains business, workforce and economic development leaders on the TPM approach, which is a demand-driven strategy designed to teach professionals how to create real career pathways and drive partnership with their education to align with current business and industry needs.

This effort aligns with GLWA's continued push toward sustaining and growing its generational talent pipeline.



Adino May, Jordie Kramer, Patricia Butler



Recruiting the Future Water Workforce

Manufacturing Day Offers Students Early Exposure to Water Sector Careers

In October, GLWA once again participated in Southeast Michigan Community Alliance's (SEMCA) Manufacturing Day 2022 – a national celebration of modern manufacturing and the industry's vast career opportunities.

The Authority hosted 20 students and a faculty member from Harper Woods College and Career Institute at its Water Works Park (WWP) facility. The students heard from GLWA team members representing engineering, chemistry, skilled trades and apprenticeships, and were able to ask questions about different career opportunities.

Additionally, Organizational Development Management Professional and Apprenticeship Coordinator Adino May and Organizational Development Manager Pat Butler shared information regarding GLWA's extensive apprenticeship program. The highlight of the event was a facility tour conducted by WWP Plant Manager Andrae Savage.

The students were notably fascinated and inquisitive about the water treatment process, and GLWA hopes they will take this interest to the next level and apply for a job at the Authority when they join the workforce!

GLWA Launches Summer Internship Program

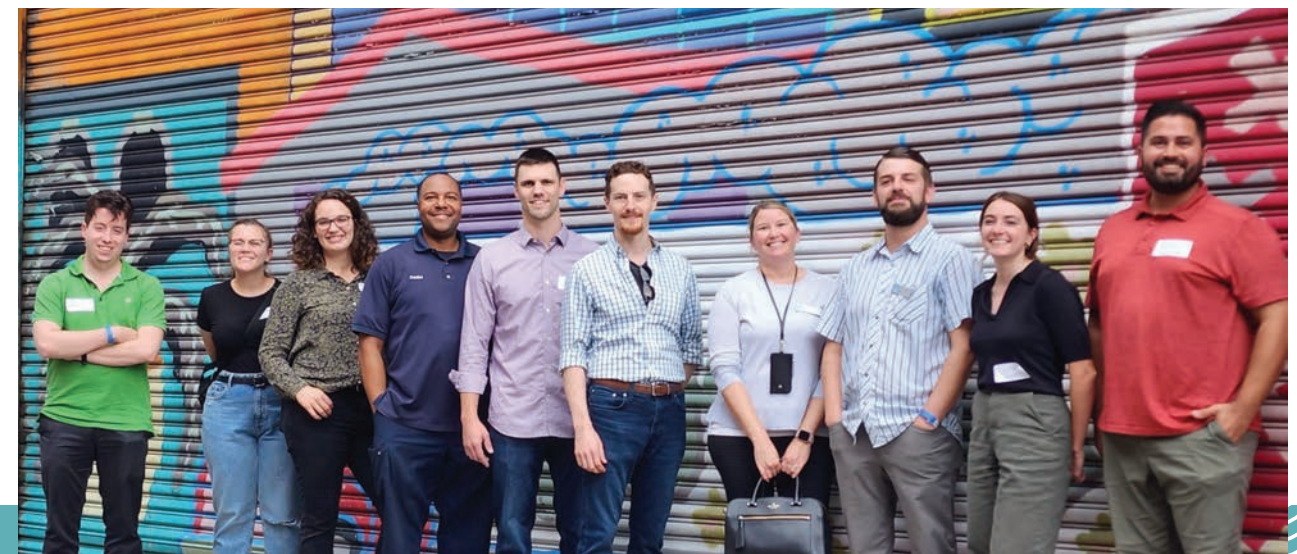
GLWA launched its first summer internship program in May, with the goal of providing on-the-job learning and real-world experience to successfully prepare college-aged students for careers in the Water Sector, while equipping them with essential skills to achieve life-long success. During the inaugural program, interns gained experience in engineering, scientific research, capital projects and legal research. The interns shared their experiences and ideas on the GLWA internal Teams channel affectionately known as "The Hub."



GLWA Young Professionals Network Back in Action

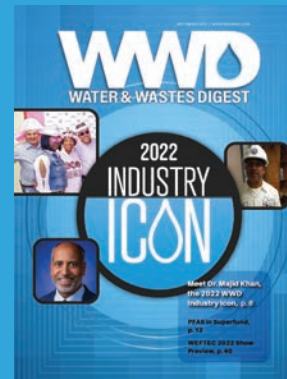
As more team members returned to working in-person, GLWA re-launched its Young Professionals Network, which allows its young water warriors to connect, socialize and learn more about the work their peers are doing across all departments.

GLWA is proud to develop talent from within its organization to strengthen its workforce and place an emphasis on retaining young voices for the future of water.



MAKING BIG WAVES

ACCOMPLISHMENTS



Majid Khan, Director of Wastewater Operations – Water & Wastes Digest 2022 Industry Icon



APWA PROJECT OF THE YEAR-MICHIGAN & NATIONAL

Water Works Park High Lift Pump Station Roof Rehabilitation – \$1-\$5 million category – Historical Restoration/Preservation. Nicholas Hoffman, project manager (Michigan and National)



Springwells 1958 Filter Rehabilitation – \$25-\$75 million category – Historical Restoration/Preservation. Pete Fromm (Center), project manager (who accepted on behalf a Khader Hamad who passed away) (Michigan only)



Nicolette N. Bateson (Right), CFO/Treasurer – Eastern Michigan University Alumni Achievement Award



Dr. Dima El-Gamal, Director Capital Improvement Planning – Wayne State University College of Engineering 2022 Distinguished Alumni Award for the Civil and Environmental Engineering Department

MICHIGAN PUBLIC SERVICE INSTITUTE GRADUATES:

GROUP ONE

- ◆ **Jeffery Jones**
Northeast Water Treatment Facility Management Professional
- ◆ **Benoy Elias**
Lake Huron Team Leader
- ◆ **Charles Remesz**
WRRF Team Leader
- ◆ **Michael Kayode**
WRRF Team Leader
- ◆ **Robert King**
CEO Team Leader
- ◆ **Sajit George**
WRRF Management Professional
- ◆ **Lawanda Rouse**
Southwest Team Leader

GROUP TWO

- ◆ **Beatrice Wanji**
WRRF Team Leader
- ◆ **David McCord**
CSO Program Manager
- ◆ **Tamika Winston**
Southwest Team Leader
- ◆ **Allen Wilson**
Springwells Team Leader
- ◆ **Claude Smith**
WRRF Team Leader
- ◆ **Victor Vecsernyes**
WWP Team Leader
- ◆ **Nathan Taylor**
Water Quality Team Leader



Procurement Management Professional **Tina Clinkscales** earned her Certified Procurement Professional (NGIP-CPP) Certification



Dr. John Norton, Jr. and Xavier Fonoll – American Society of Civil Engineers 2022 Wesley W. Horner Award for their paper: “SARS-CoV-2 in Detroit Wastewater”

In June, GLWA’s Asset Management Strategic Organization (AMSO) held its fifth annual All AMSO Team meeting to bring people involved in Asset Management throughout GLWA together to recognize their hard work and the accomplishments that have been achieved over the last year. A central part of this day was the acknowledgement by peers of team members who go above and beyond in their commitment to Asset Management:

ASSET MANAGEMENT STRATEGIC ORGANIZATION “AMSY” AWARDS:

- ◆ Most Valuable Member: **Katherine Miracle**
- ◆ Most Meetings Attended: **Edwin Merriweather**

ASSET MANAGEMENT HEROES:

- ◆ **Brooke Ballard**, Engineer, Wastewater Operations
- ◆ **Shondell Daniel**, Engineer, Systems Control Center
- ◆ **Bryon Wood**, IT Director, Applications Delivery
- ◆ **Dan Aman**, Team Leader, Water & Field Services
- ◆ **Patricia Butler**, Manager, Organizational Development
- ◆ **Candice Hobson**, Team Leader, Water & Field Services
- ◆ **Joe Burchi**, IT Manager, Enterprise Asset Management Systems
- ◆ **Kassem Ajami**, Engineer, Planning Services
- ◆ **Joe Carl**, GIS Analyst, IT
- ◆ **Aaron Butler**, Team Leader, Water & Field Services



ACCOMPLISHMENTS

ONE MISSION

Water of Unquestionable Quality; Effective and Efficient Services

Water Quality

A top priority for GLWA is the protection of public health through the delivery of water of unquestionable quality. Through its team of certified chemists, engineers, operators and other team members, GLWA is committed to supporting healthy communities by not only meeting, but surpassing, current state and federal safe drinking water regulations.



GLWA HAS REMAINED IN COMPLIANCE WITH ALL STATE AND FEDERAL DRINKING WATER STANDARDS EVERY DAY SINCE IT WAS ESTABLISHED IN 2016



Monitoring for Emerging Contaminants

PFAS – WATER SYSTEM

Taking its responsibility for public health and safety seriously, GLWA has monitored per- and polyfluoroalkyl substances (PFAS) since 2009, and the water it distributes to its Member Partner communities remains water of unquestionable quality.

In the latest round of drinking water system testing required under the Michigan Department of Environment, Great Lakes and Energy’s (EGLE) rule, GLWA is pleased to assure the public these chemicals continue to be not detected in its drinking water. This means PFAS levels were below that which is measurable under the EPA’s standard analytical methodology for the detection of compounds.

In a time of continued public concern, the Authority can confidently assure its Member Partners, as well as the entire region, that its water remains of unquestionable quality.

PFAS – WASTEWATER SYSTEM

GLWA is a leading utility in the state of Michigan, as well as the United States, in monitoring for PFAS in the waste stream. As a part of its Industrial Pretreatment Program (IPP), which is a significant local regulatory program to control toxic pollutant discharges and emerging contaminants, such as PFAS compounds (including PFOA), the Authority has taken a proactive approach to working with its point source industrial discharges to remove these compounds in advance of it entering the wastewater system.

Thanks to these efforts, during the last 12 months, PFOS loadings in the waste stream from known sources regulated by GLWA in its IPP held steady at levels similar to 2021.

As an organization committed to public health and environmental stewardship, in 2022 GLWA submitted final revisions to its Local Limits Re-evaluation Study that was originally submitted to EGLE in June 2021. These revisions included a recommendation for a new Local Pollutant Discharge.



Limitation for PFOS of 65 nanograms per liter
65 GRAINS OF SAND IN ONE TRILLION GRAINS OF SAND.

GLWA is awaiting final approval on this proposed limit.

The reduction and continued stabilization in contributions from known sources, and as observed in the Water Resource Recovery Facility (WRRF) effluent discharge, supports the conclusion that source control and regulatory efforts have been effective in continuing to control and reduce contributions of these compounds within the GLWA service area.

Proactive Corrosion Control Study Continues to Progress

To control corrosion and its effects on water quality, GLWA feeds orthophosphate into its drinking water transmission system. Optimal corrosion control has consistently been maintained at each of GLWA’s five water treatment facilities and is monitored quarterly by sampling and reporting to EGLE.

Since 2020, GLWA has been engaged in a study to verify and optimize its current corrosion control practices as a proactive measure to guarantee the Authority is prepared for changes in federal and state regulations concerning lead and copper. In partnership with Arcadis, pipe loop testing rigs were constructed and installed at 10 testing sites—one at each of the five GLWA water treatment plants and five other locations within its member partners’ local distribution systems. Each Member Partner site represents a single water treatment facility’s water distribution service area.

GLWA partnered with several of its Member Partner communities to harvest sections of existing lead service lines during already-scheduled service line replacement programs. Using lead pipes that have been harvested from the actual distribution system as test pieces on the pipe loop rigs provides insight on how the pipe scale reacts to change. Once the harvesting and installation of the lead service line sections into the 10 pipe loop testing rigs was complete, the Authority ran water through them for approximately six months to ensure they recovered to the same baseline following their disturbance.

The official testing period of different corrosion control scenarios began in November. Information from the testing will inform GLWA about the water quality as it travels from water treatment plants, through the transmission and distribution systems, and into homes and businesses throughout the area. The final report, including optimization recommendations, is anticipated to be complete in 2024.

WATER TREATMENT PLANT LABORATORIES ALL EARN CERTIFICATE OF EXCELLENCE AND LABORATORY OF EXCELLENCE RECOGNITION



All five of GLWA’s water treatment facility laboratories have received a "Certificate of Excellence" for 2022 from ERAWaters, a premier provider of Certified Reference Materials (CRMs) and Proficiency Testing (PT) products.



The water treatment facility labs were also recognized as Laboratories of Excellence for

achieving 100 percent acceptable data in the ERAWaters study, which included 254 participating laboratories.



This achievement a demonstration of the superior quality of GLWA’s laboratories in efforts to ensure

the Authority continues to provide southeast Michigan with water of unquestionable quality.

GLWA Continues Efforts to Inform Southeast Michigan about How Water Works

DETROIT RIVER WATER FESTIVAL ON BELLE ISLE OFFERS EDUCATIONAL OPPORTUNITIES FOR ELEMENTARY STUDENTS

GLWA is a proud two-time sponsor of the Detroit River Water Festival (DRWF) on Belle Isle. The free educational event invites Detroit Public Schools Community District students to engage with and learn about the world’s most precious natural resource – clean, fresh water. GLWA’s involvement in this event is an effective way to further educate the communities it serves while giving consideration to other ways of engaging in recruitment initiatives.



TOUR OF WATER WORKS PARK WATER TREATMENT FACILITY HELPS EXPLAIN HOW WATER GOES FROM SOURCE WATERS TO YOUR TAP

In May, GLWA celebrated Drinking Water Week by recognizing the dedicated water professionals who ensure the safety and quality of drinking water in the regional area. To showcase the importance of the water treatment process and educate the people of southeast Michigan, Chief Operating Officer, Water and Field Services, Cheryl Porter led a tour of the Water Works Park Water Treatment Facility for local news station FOX2 Detroit.

During the tour and interview, she shared the important steps of the water treatment process that provides safe and healthy drinking water to GLWA’s Member Partner communities.

[Watch the full FOX2 segment.](#)



Innovation

GLWA Receives \$1.5M Grant from U.S. Department of Energy for Research Project on Turning Waste Into Transportation Fuel

Research & Technology Award
Hydrothermal Liquefaction to Convert Organic Wet Wastes to Transportation Fuels

The Great Lakes Water Authority (GLWA) is leading a multi-project focused investigation of Hydrothermal Liquefaction (HTL) to convert organic wet wastes to transportation fuels. The HTL process uses moderate temperatures and high pressures to liquify wet organic feedstocks to produce a "biocrude," a petroleum-like end product. The biocrude can be upgraded to transportation fuels using typical refinery unit operations.

A significant component of the overall research effort is a recently won, \$1,500,000 HTL project funded by the U.S. Department of Energy.

Identify and understand:

- Material flows and transformations (technical model)
- Financial and value streams (sustainability model)

Verify and validate respective models:

- Technical review and calculation
- Workshops to identify and understand drivers, issues, and constraints
- Stakeholder and community engagement

Scenario evaluation and assessment:

- Combination of the two models and use data from the workshops (decision analysis and evaluation) to generate and select scenarios
- Implementation plan
- Technical verification (focused piloting)

This project is focused on assessing the technical and economic feasibility of HTL, including the development of community-centered business plans, for HTL biocrude generation from municipal sludge, as well as other regional carbon feedstocks. The project includes the assessment of the social/environmental impacts of wet wastes on the Detroit region.

Xavier Fonoll Almansa, PhD., Principal Investigator
John Norton, PhD., PE., Director of Energy, Research, and Innovation

GLWA embraces research and innovative technologies while remaining a thought leader throughout North America. The Authority’s research projects, strongly aligned with operational needs and goals, are evidence of its commitment to exploring leading edge new ideas and technology.

One such GLWA-led endeavor is a multi-project focused investigation of Hydrothermal Liquefaction (HTL) to convert organic wet wastes to transportation fuels. The HTL process uses moderate temperatures and high pressures to liquify wet organic material to produce “biocrude,” a petroleum-like end product. The biocrude can be upgraded to transportation fuels using typical refinery unit operations. HTL of wet wastes is a promising route to produce environmentally friendly and cost competitive fuels from waste carbon material, such as municipal biosolids.

A significant component of the overall research effort is a recent \$1,500,000 HTL project funded by the U.S. Department of Energy. The project

is focused on assessing the technical and economic feasibility of HTL, including the development of community-centered business plans for HTL biocrude generation from municipal sludge, as well as other regional carbon material. It includes the assessment of the social and environmental impacts of wet wastes on the Detroit region.

The HTL process has many apparent advantages compared to incineration, including generations of local community jobs, complete treatment of pollutants, reduction of wastewater operational costs, resource recovery from wastes, and reducing ecological impact within at-risk communities. This approach accelerates the assessment and deployment of HTL for organic wet waste treatment to responsibly dispose of sludge while producing fuel.

Ultimately, the project will enable GLWA and other wastewater utilities to properly evaluate the HTL-based generation of biocrude as a viable option for the treatment of municipal wastewater biosolids. This research also creates an opportunity to challenge the status quo for wastewater resource recovery facilities by evaluating an alternative sludge disposal technology.

Teaming up with Wayne State to Create a Workforce and Laboratory Center

Wayne State University and GLWA formed a partnership to create a workforce and laboratory center of the future. The three-year project aims to develop the Authority’s existing Water Works Park pilot plant facility to perform applied research, testing and evaluation, and create workforce development with new and emerging technologies. The educational and workforce development programs will help address the critical shortage of technicians, chemists and engineers for water utilities nationwide.

Carol J. Miller, Professor of Civil and Environmental Engineering and Director of Healthy Urban Waters at Wayne State (second from left below), leads the project, along with co-lead Yongli Wager, Wayne State Associate Professor of Civil and Environmental Engineering. They, along with a full support team, will provide important knowledge to help GLWA proactively respond to different water treatment scenarios and emerging water quality concerns.

“

A significant component of this research effort is the development of methods for scaling results from pilot-scale research through to full-scale implementation. There are huge challenges in applying basic research to real world situations. Anything we need to do at the full-scale facility we can first operate within the pilot plant to evaluate how the system responds. This is very useful for training our operators and chemists because they can experiment and learn how the system responds under different scenarios before trying to do it with the full-scale plant.”

John Norton, Director of Energy, Research, and Innovation, GLWA



Water and Field Services Team Builds on Buoy Success

Through a continued partnership with LimnoTech, GLWA is building on its efforts to enhance water quality monitoring with buoys, with the pilot buoy deployed to the Detroit River.

Building on its success, a second buoy was deployed to the southern portion of Lake Huron. Each buoy includes near-real-time data dashboards to display information from the water quality sensors, current meters, weather information, and short clips recorded from the buoys’ onboard video cameras. Together, the buoys monitor a variety of parameters including pH, conductivity, turbidity, total algae, water currents, water temperature, wave height, weather conditions, and more.

This innovative work resulted in creating a buoy network extending to Cleveland, Ohio, in collaboration with a research group led by the Cleveland Water Alliance. This effort will allow further research and monitoring of toxic algae that has severely impacted the quality of source waters used for drinking water treatment and recreation in Lake St. Clair, the Detroit River and Lake Erie. The expanded research will significantly advance the region’s ability to monitor for the presence of toxic algae to provide a more local and actionable response to impacted communities.



Creative Thinking by GLWA Team Members Yields Immediate and Significant Results

GLWA Infrastructure Administrator Zaki Shalhout and Operations Manager Chris VanPoppelen deployed new algorithms that automated key elements of secondary treatment control at WRRF. This has helped reduce the amount of oxygen used for the Authority’s aeration basins, ultimately helping reduce costs for the facility.

The algorithms were the product of a controls-optimization campaign that began in late 2019 with a comprehensive review of historical process data. The review identified the aeration basin mixed-liquor elevations and the aeration basin dissolved oxygen (D.O.) concentrations as prime targets for control automation due to their high degree of moment-to-moment variation (an indicator of suboptimal control).

The results of the project were immediate and significant, including:



Nearly **\$1 million in annual savings** attributed to reduced pure oxygen use; and



30 percent reduction in the average volume of oxygen supplied to the aeration basins each hour.

An overview of this work was the subject of a well-received presentation by Shalhout at the 2022 Michigan Water Environment Association (MWEA) Annual Conference. Additionally, a case study on the project was presented at the 35th Users’ Group conference. Ultimately, the project won the Users’ Group Innovation Water Project of the Year.



Zaki Shalhout, Navid Mehram, Chris VanPoppelen

Unique Public-Private Partnership and Team Member Efforts Save Energy and Optimize Operations

To promote healthy communities through environmental stewardship, GLWA’s Energy Program Manager Eric Griffin created a partnership with DTE Energy (DTE). Through the partnership, teams across GLWA and DTE work together to identify and support projects that boost energy efficiency and cut energy usage and/or costs. The program includes monthly energy meetings at the Authority’s water treatment plants, tracking energy usage across the organization and identifying potential new energy efficient projects.



Team members involved in the projects were recognized as Energy Savings Champions and received a special pin and hard hat sticker to acknowledge their hard work toward energy efficiency. **With the assistance of 30 team members, GLWA received over \$45,000 in DTE rebates.**

Some of the projects that have led to energy savings across the Authority include:

WATER OPERATIONS

Installation of Power Quality (PQ) meters on the mains and major (high lift, low lift, and wash water) pumping units at the Northeast, Southwest and WWP water treatment plants;

Complete conversion of in-house lighting to LED at the Lake Huron water treatment plant;

Implementation of an operational change at WWP that saved over \$100,000;

Installation of LED lighting improvements and replacement of administrative building windows with new, energy-saving windows at WWP;

Converted to LED lighting and supported the installation of metering at the Springwells water treatment plant; and

Installation of LED lighting improvements to support metering efforts at the Southwest water treatment plant

WASTEWATER OPERATIONS

Converted all Combined Sewer Overflow (CSO) basin facilities to full LED lights;

Installed PQ meters on all DTE mains feeding the CSO basins;

Ongoing efforts and process improvements at WRRF to further improve energy efficiency; and

Upgraded the power monitoring expert server and software at WRRF to allow the collection and analysis of power and power quality data

OTHER ACTIVITIES

The Field Services and Systems Control teams led the installation of meters at sewer lift stations and water booster stations;

Facilities changed to LED lights at water booster stations, wastewater lift stations and water treatment plants; and

The Finance team led efforts for energy incentives (rebates) from DTE, as well as energy usage analysis

WHAT'S NEXT FOR GLWA

“ Collaboration allows us to know more than we are capable of knowing by ourselves. ”

Paul Solarz

While much was accomplished in 2022, GLWA always has a focus on the future and what can be achieved on behalf of Member Partners and the region. GLWA and its Board of Directors, being chaired in 2023 by Freman Hendrix, are committed to the following:



Continuing to build climate change resiliency in the regional system in partnership with GLWA's partners and stakeholders; beginning the initial phase of the Southeast Michigan Climate Resiliency Study in collaboration with the U.S. Army Corps of Engineers



Leading and engaging in discussions regarding water affordability with partners throughout the state and nationwide



Ongoing legislative and governmental outreach activities to help ensure GLWA and its Member Partners' input is sought and considered in the discussion of critical water sector issues and funding priorities



Improving the resiliency of regional water and wastewater infrastructure through asset management programs such as the Linear System Integrity Program (LSIP)



Creating awareness of careers in the water sector through regional collaboration with GLWA's Member Partners through an increase in outreach activities to local schools and communities, and through the development of new community partnerships


WATER SYSTEM

5 
Treatment Plants


3.8 MILLION
PEOPLE SERVED

 **816** miles of transmission main 

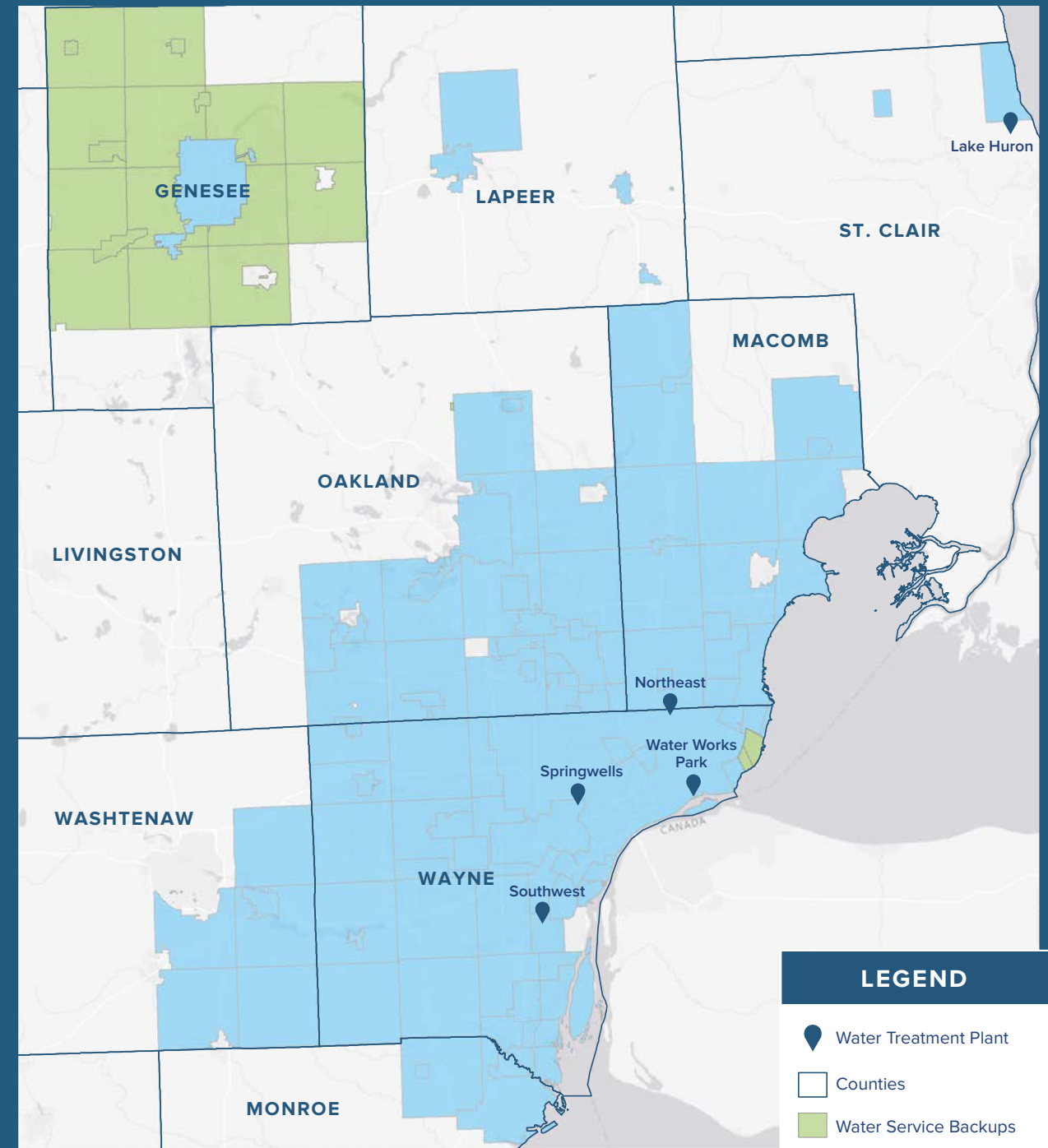
 **3** Water Intakes   **88** Member Partners across **112** communities

 Treatment capacity of **1,720** million gallons per day 

19 BOOSTER PUMP STATIONS 

 **1,698 SQ. MILE** service area

GLWA WATER SERVICE AREA (INCLUDING BACKUPS)



Sources: Great Lakes Water Authority
Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

WASTEWATER SYSTEM



The **largest** single-site wastewater treatment facility in the United States



2.8 MILLION PEOPLE SERVED



195 miles of trunk sewers & interceptors



3 Interceptors



19 Member Partners across **79** communities



Treatment capacity of **1,700** million gallons per day



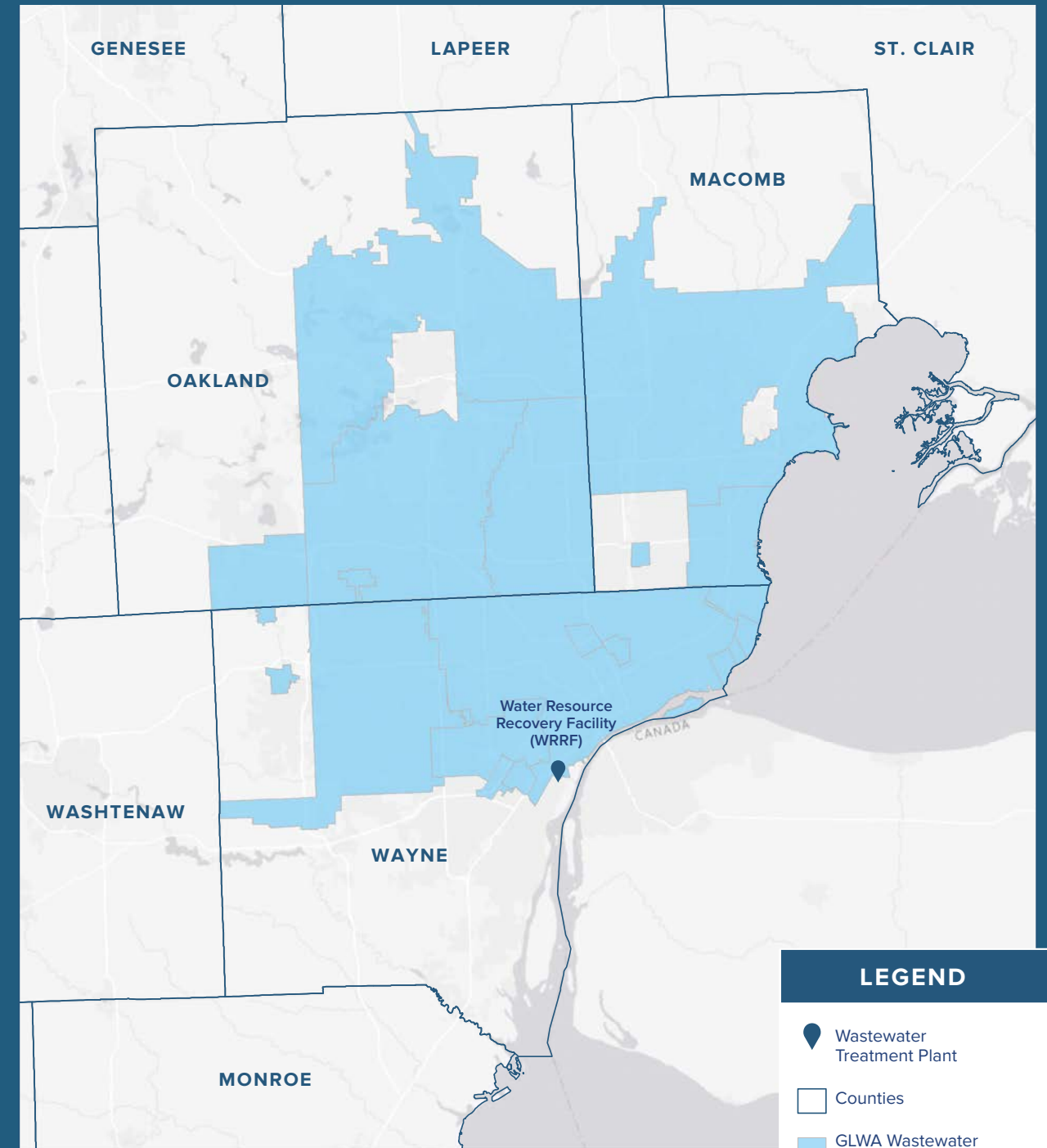
9 PUMP STATIONS



944 SQ. MILE service area

8 CSOs

GLWA WASTEWATER SERVICE AREA

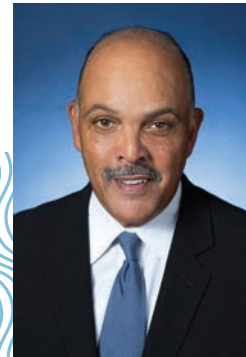


Sources: Great Lakes Water Authority, Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Board of Directors



Jaye Quadrozzi
Board Chair;
Board representative
appointed by
Oakland County



Freman Hendrix**
Board Vice-Chair;
Board representative
appointed by the
city of Detroit



Brian Baker
Board Secretary;
Board representative
appointed by
Macomb County



Beverly Walker-Griffea, Ph.D.
Director;
Board representative
appointed by the
state of Michigan



John J. Zech
Director;
Board representative
appointed by
Wayne County



Gary A. Brown
Director;
Board representative
appointed by the
city of Detroit

** Freman Hendrix was elected by the Board to serve as chairperson for 2023.

Executive Leadership Team



Suzanne R. Coffey
Chief Executive Officer



William M. Wolfson
Chief Administrative and
Compliance Officer



Nicolette N. Bateson, CPA
Chief Financial Officer /
Treasurer, Financial Services



Cheryl Porter
Chief Operating Officer,
Water & Field Services



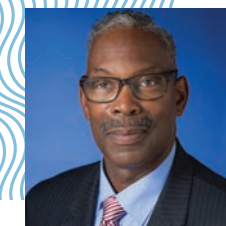
Navid Mehram
Chief Operating Officer,
Wastewater Operating Services



Michelle A. Zdrodowski
Chief Public Affairs Officer



Jeffrey E. Small
Chief Information Officer



W. Barnett Jones
Chief Security and
Integrity Officer



Randal M. Brown
General Counsel



Jody Caldwell
Chief Planning Officer



Jordie Kramer
Chief Organizational
Development Officer



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

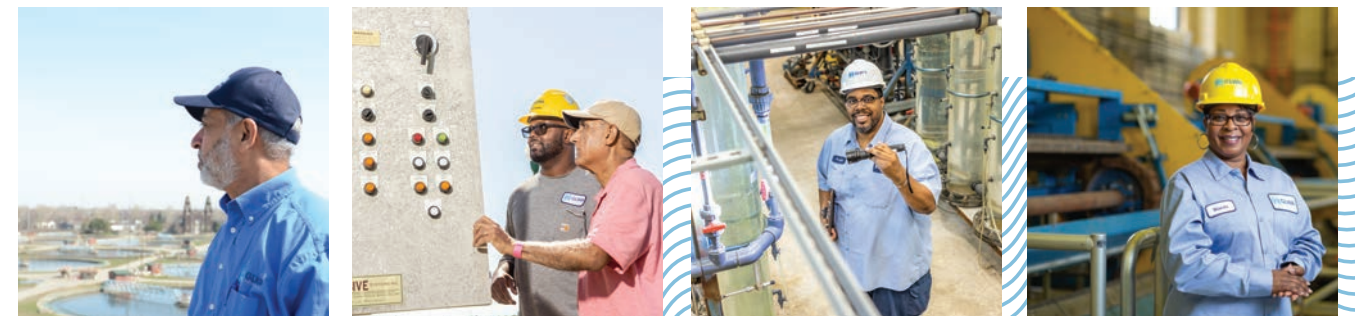
Approachable | Reliable | Trustworthy
Smart | Efficient | Focused | Determined



ONE WATER

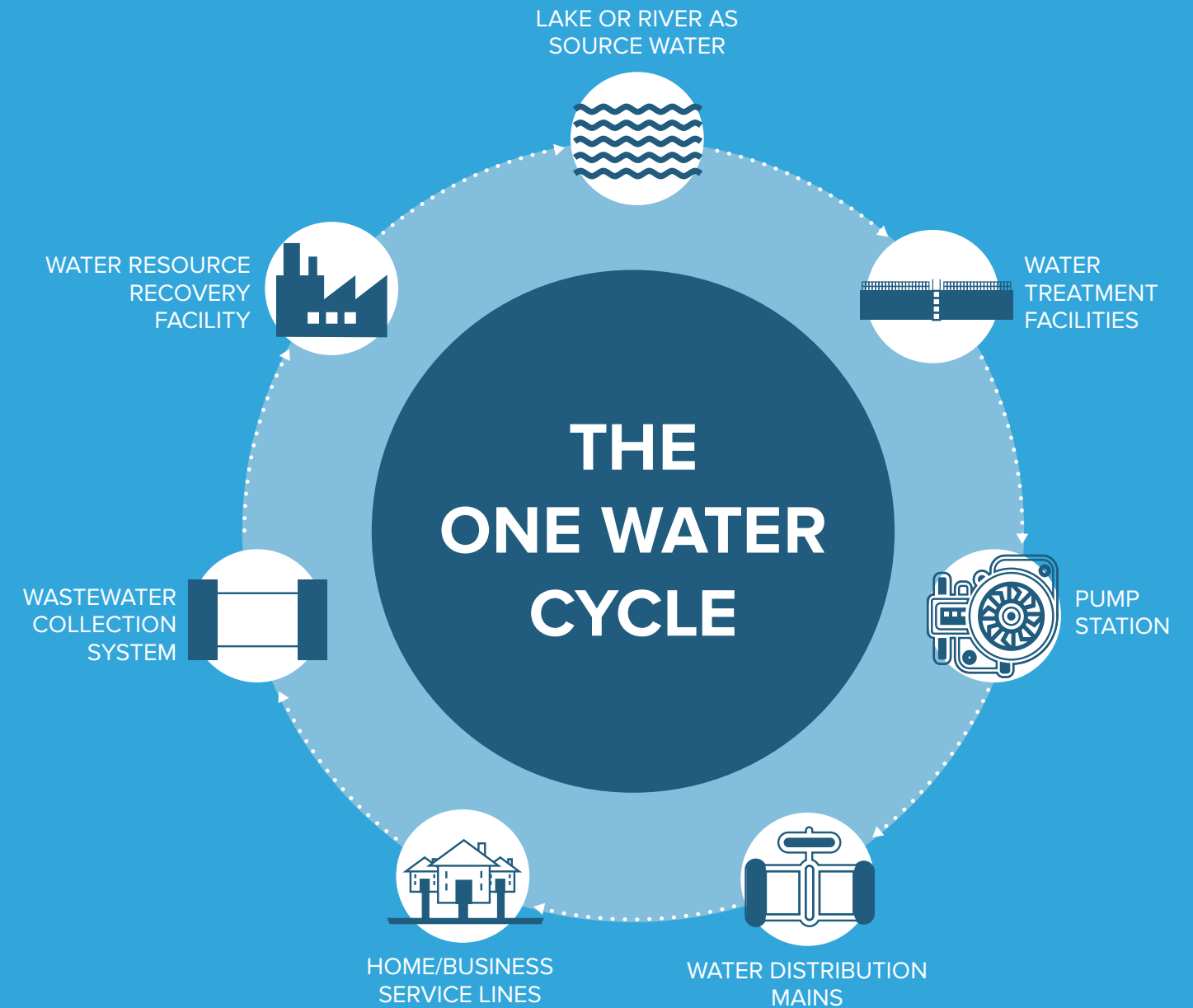
ONE TEAM

ONE MISSION



GLWA is all about One Water... the movement of water from the environment, to our Member Partners, and back to the environment. We ensure our Member Partner communities get the highest quality water using treatment standards that are stricter than state or federal regulatory requirements. Once the water has been used, we run it through our treatment process again before returning it to the environment – oftentimes cleaner than when we received it. Working hand-in-hand with our Member Partners, GLWA provides water of unquestionable quality and efficient and effective wastewater services.

TOGETHER, WE ARE ONE WATER.



SPRINGWELLS



NORTHEAST



WATER RESOURCE RECOVERY FACILITY



LAKE HURON



WATER WORKS PARK



SOUTHWEST

