

Great Lakes Water Authority

2016 Year in Review



GLWA is an important example of regional collaboration in Southeast Michigan, with the City of Detroit, the counties of Wayne, Oakland, and Macomb, and the State of Michigan officially uniting to ensure that both city and suburban water and sewer customers have a powerful voice in the direction of one of the largest water and wastewater utilities in the United States.

OUR VISION

Through regional collaboration, GLWA strives to be the provider of choice dedicated to efficiently delivering the nation’s best water and sewer services in partnership with our customers.

OUR MISSION

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

BOARD OF DIRECTORS

The GLWA Board of Directors includes one representative each from Oakland, Macomb and Wayne counties, as well as two representatives from the City of Detroit, and one appointed by the governor of Michigan to represent customer communities outside the tri-county area.

Robert Daddow, <i>Chairman</i>	Oakland County
Gary Brown, <i>Vice Chair</i>	City of Detroit
Brian Baker	Macomb County
Freman Hendrix	City of Detroit
Craig Hupy	Governor Snyder/State of Michigan
Abe Munfakh	Wayne County





We are ONE water.



LETTER FROM THE CEO

History was made on January 1, 2016 when, through an unprecedented level of regional collaboration, the Great Lakes Water Authority (GLWA) began operations. With a very successful first year behind us, GLWA is committed to continuing in its efforts to be the provider of choice for water and wastewater services, serving 127 municipalities in seven Southeastern Michigan counties.

We are One Water. Working in partnership with our customer communities is the bedrock of GLWA's operating philosophy. During this first year we have hosted more than 80 meetings with GLWA established customer community-based Advisory and Steering Committees on topics ranging from best practices and consumer education to capital program planning, budgeting and cost allocation. As we invest in GLWA's infrastructure, we are coordinating with all levels of government and across infrastructure types in ways that will leverage public investment for the benefit of our customers.

With the Great Lakes as our source water, GLWA is uniquely positioned to provide its customer communities with water of unquestionable quality. With highly qualified and expert staff, we focus on quality control, smart use of technology, and innovation to optimize our treatment processes and surpass regulatory requirements.

Our activities and accomplishments are driven by our vision to be the provider of choice in Southeast Michigan dedicated to efficiently delivering the nation's best water and sewer services.

I am proud to share GLWA's accomplishments with you in our first year-in-review report. In it you will find not just a simple accounting of activities, but stories that illustrate the complexity of creating and operating one of our country's few, and most certainly largest, regional water authorities.

On the following pages you will learn about GLWA's many firsts, our priorities – collaboration and water quality -- as well as highlights on infrastructure improvements, charge structures, our environmental approach and more. It has been an incredible year.

GLWA is all about water. We take water from the environment, move it through our treatment processes and provide it to our customers. Our customers use it and return it to us. We then process it again and return it to the environment – often times cleaner than how we received it as source water.

Everyone at GLWA works together for the same benefit; the benefit of our customers and healthy communities. We are truly, "One Water."

I appreciate your interest and look forward to continuing to work with our community representatives around the region as we provide you with the best water services available.

Sincerely,

A handwritten signature in dark ink that reads "Sue F. McCormick".

Sue F. McCormick, Chief Executive Officer

*We are about
the movement of
water, from the
environment to our
customers and back
to the environment.*



Accomplishments

STANDUP | START OF OPERATIONS

With its standup, GLWA assumed operational, infrastructure improvement, environmental compliance and budget-setting responsibilities for the regional water and sewer treatment plants, major transmission mains and sewage interceptors, and related facilities. The Authority provides nearly 40 percent of Michigan's population with water, and nearly 30 percent of the state with sewer services. In the span of GLWA's first 12 months, the Authority achieved a number of significant "firsts," including:



New Logo

The water drops show motion as the water moves through the treatment process, is delivered to our customers, they use it and it is delivered back to us to be treated and returned to the environment.

- Received upgrades to its bond ratings from all three bond ratings agencies in February and AGAIN in October;
- Executed a money-saving \$1.3 billion inaugural bond sale, achieving \$309.1 million in savings over the life of the refinanced bonds;
- Began operation of the Water Residential Assistance Program (WRAP), a sustainable assistance program that provides qualifying households with help in paying current and past-due water bills, and water conservation efforts;
- Established a biennial budget and implemented BS&A, a new enterprise resource planning system which GLWA is utilizing for almost all of its financial processes;
- Created a Leadership Training Academy, designed to build consistency in our

employees' leadership skills, as well as increase momentum toward creating a common leadership culture across the organization.

To clearly identify GLWA, the Authority developed a new brand and logo icon. It was important for GLWA to identify what the authority would mean to our customers.



It came down to one simple promise: Through regional collaboration with GLWA customers, GLWA will strive to be their provider of choice, dedicated to efficiently delivering the nation's best water and sewer services.

GLWA's goal of transparency and partnership meant increased communications. In addition to customer meetings and an upgraded online portal, GLWA also has expanded public outreach. You will now find GLWA on social media with updates, fact sheets, and even podcasts. To join the conversation or connect, you can follow GLWA at [@glwatermi](https://twitter.com/glwatermi) on Twitter and [Facebook.com/glwater](https://www.facebook.com/glwater).



Leadership

CEO

GLWA's leadership team was established with the selection of the organization's Chief Executive Officer. After a nearly five-month long nationwide search that identified 178 viable candidates, GLWA's Board of Directors selected Sue McCormick as the Authority's first CEO.

Ms. McCormick, who was then serving as GLWA's Interim Chief Executive Officer, is also the former director of the Detroit Water and Sewerage Department (DWSD), where she guided the organization through major initiatives that resulted in cost savings, regulatory compliance and improved financial performance. Her unprecedented local experience, familiarity with the regional system and vision for the organization's future made her the clear choice to lead the new regional authority.

Before coming to DWSD in 2012, she served as Public Services Administrator for the City of Ann Arbor, Michigan, where for 11 years she managed the city's entire physical infrastructure, including roads, solid waste, parks, fleet and facilities and the water and sewer system. Ms. McCormick's career in public service began with the Lansing Board of Water and Light in 1979, where she held a variety of roles, including Environmental Chemist, Environmental Laboratory Manager, Manager of Water and Steam Planning, Water Technical Support Manager and Business Development Manager.

EXECUTIVE LEADERSHIP TEAM

As Ms. McCormick built her executive leadership team, she brought on board a strong group of professionals with varied backgrounds, including a number who had worked together with her at DWSD to implement significant reforms. Her team includes:

Bill Wolfson

Chief Administrative and Compliance Officer/General Counsel

Prior to assuming his position with GLWA, Mr. Wolfson served as DWSD's Chief Administrative and Compliance Officer, as well as its General Counsel.

Mr. Wolfson joined government as an attorney working in the City of Detroit's Law Department in 1986. He served under Mayors Young and Archer until 1998, working as the legal liaison to Detroit City Council and on several key initiatives such as the casino and stadium development projects.

Upon leaving the city of Detroit, Mr. Wolfson moved to Wayne County's Department of Corporation Counsel and was appointed Deputy Corporation Counsel by County Executive Edward McNamara. The succeeding County Executive, Robert Ficano, appointed Mr. Wolfson to the position of Assistant Deputy County Executive/Director of Legal Affairs. In that position, Mr. Wolfson was responsible for the day-to-day operations of county government and its 4,500 employees. Mr. Wolfson retired from his Wayne County position in July 2009; he then went into private practice and was contracted to





serve as Wayne County's Interim Corporation Counsel. Mr. Wolfson is a graduate of the University of Michigan and the University of Minnesota Law School. He currently serves as a member of the Detroit Zoological Society's Board of Directors.

Nicolette Bateson, CPA

Chief Financial Officer and Treasurer

Ms. Bateson's service follows her tenure as the first Chief Financial Officer for the Detroit Water and Sewerage Department, which began in February 2013. In that role, she led the Financial Services Group through a significant transformation effort engaging cross-functional teams to achieve sustainable change. The result was a professionalized department with an unprecedented demonstration of transparency to all stakeholders. This pivotal effort supported intensive, collaborative discussions that were essential to forming the regional authority.

Ms. Bateson possesses extensive financial and public administration experience. As a visiting specialist for the State and Local Government Program with Michigan State University Extension, Ms. Bateson worked with state and local officials to address the needs of cities in fiscal stress. Her research, educational programs, and writings related to public-sector financial challenges are often cited. In her roles as Assistant City Manager and Finance Director in local government, she was responsible for strategic planning, financial turnaround, information technology, labor relations, employee benefit design, project management and deploying multi-year budgeting and long-range capital planning. Ms. Bateson's professional career began with a national accounting firm serving clients in the construction, manufacturing, and nonprofit sector.

Ms. Bateson earned a Bachelor of Business Administration degree in Professional Accountancy from the University of Michigan-Dearborn and a Master of Public Administration from Eastern Michigan University.



Cheryl Porter

Chief Operating Officer, Water and Field Services

Before her appointment at GLWA, Ms. Porter was the Chief Operating Officer (COO) for DWSD. At DWSD, prior to her ascension to COO, Ms. Porter served as Water Production and Operations Manager. She began her career with DWSD in 1996 as a Junior Chemist.

Ms. Porter holds an F-1 Water Filtration Treatment Plant Operator license with the state of Michigan. She earned a Bachelor of Science degree from the University of Michigan, an MBA with a concentration in Human Resources Management from Madonna University and a Juris Doctor degree from the University of Detroit.



Suzanne Coffey, P.E.

Chief Planning Officer/Interim Chief Operating Officer, Wastewater

Prior to joining GLWA, Ms. Coffey served as Chief Planning Officer for DWSD, a position she began in August 2015.

In her capacity as Chief Planning Officer, Ms. Coffey champions GLWA's efforts to bolster the Authority's energy and asset management capacities as well as leading long-term planning efforts such as the Wastewater Master Plan. She is presently also filling an interim role as Chief Operating Officer for wastewater operations.

Ms. Coffey became very familiar with GLWA through her role as Manager in Oakland County's Water Resources Commissioner's (WRC) office where she worked for 12 years, and was an integral part of the DWSD-GLWA transition efforts.

A licensed Professional Engineer in the state of Michigan, Ms. Coffey graduated Cum Laude from Lawrence Technological University with a Bachelor of Science degree in Civil Engineering and was named Young Engineer of the Year by the Northern Chapter of the Michigan Society of Professional Engineers.



Terri Tabor Conerway

Chief Organizational Development Officer

Ms. Conerway brings approximately three decades of comprehensive human resource and training experience to her position as GLWA's Chief Organizational Development Officer.

Prior to joining GLWA, Ms. Conerway served as Organizational Development Director for DWSD, Human Resources Director for the Detroit Public Library, and also held numerous managerial positions within city government since beginning her career with the city of Detroit in 1972.

Ms. Conerway holds a Bachelor of Science degree in Psychology from Wayne State University, and has completed post-degree work in Educational Psychology at the University of Michigan. Ms. Conerway is certified as a facilitator for Influencer training and Franklin Covey.

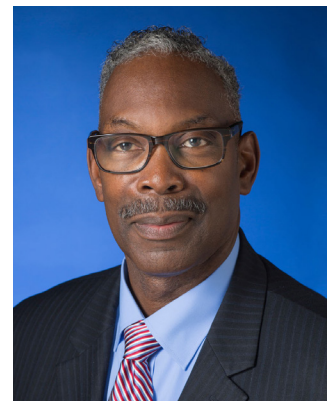


W. Barnett Jones

Chief Security and Integrity Officer

Chief Jones was appointed the Chief Security and Integrity Officer for the Authority on January 1, 2016, after serving with DWSD in that capacity since 2012.

Chief Jones' extensive experience in law enforcement and security spans more than four decades. He is responsible for the Authority's entire security posture, which includes the physical security and safety of employees, facilities and assets. In addition, he has been pivotal in developing and implementing entity-wide integrity policies and procedures. Prior to his arrival at GLWA, Chief Jones served as Chief of Police, Police Administrator, Fire Chief, Captain, Lieutenant, Sergeant, and Deputy Sheriff with large local units of government in Michigan including the supervision of both police and fire personnel.



Chief Jones has a Masters in Liberal Studies from Eastern Michigan University and a Bachelor of Arts in General Studies from the University of Michigan-Dearborn. He is also a graduate of the FBI National Academy and of Secret Service Dignitary Protection Training, and a certified firefighter.

Michelle Zdrodowski

Chief Public Affairs Officer

In her capacity as Chief Public Affairs Officer, Ms. Zdrodowski guides the organization's efforts to build and maintain its relationships with internal and external stakeholder communities. Ms. Zdrodowski brings nearly 30 years of strategic communications and community engagement experience to GLWA.

Immediately prior to joining the GLWA team, she served as Chief Communications Officer for Detroit Public Schools during a period of unprecedented challenge and change. Her previous public sector communications experience also includes her tenure as Deputy Press Secretary to former Detroit Mayor Dennis Archer. Ms. Zdrodowski also spent more than a decade leading the nonprofit/government practice group for a Detroit-based public relations agency.

Ms. Zdrodowski holds a Bachelor of Arts degree in Communications from Michigan State University.

Jeffrey Small

Chief Information Officer

In his capacity as Chief Information Officer, Mr. Small provides information technology strategy and implementation for the organization.

Mr. Small brings 30 years of information technology and business process experience to GLWA. Immediately prior to joining the GLWA team, he served for four years as Deputy Chief Information Officer at Wayne County, Michigan.

Prior to his work at Wayne County, Mr. Small held IT leadership roles at several multi-national companies in a cross-section of industries, including retail, sourcing, brand management and consumer products.

Mr. Small holds a Bachelor of Arts degree in Political Science from The George Washington University and an MBA in Computer Information Systems from Baker College.



Customer Collaboration

When the Authority began, customer outreach programs initiated in the 1990’s by DWSD were transitioned to GLWA. GLWA’s Customer Outreach Program continues to focus on the ongoing partnership between the Authority and its customers. GLWA instituted new customer work groups to ensure that everyone’s voice was heard and that customers played a key role in establishing the foundation of GLWA.

In GLWA’s first year, two new work groups were added to address emerging topics: a Capital Improvement Program-Asset Management (CIP-AM) work group and an ad hoc work group on Water Quality formed in response to the country’s focus on lead in drinking water. Additionally, a video and podcast series for elected officials was developed specifically for providing information on this important topic.

Throughout GLWA’s first 12 months of operation, 83 customer outreach meetings were held across nine work groups with a Water Technical Advisory Committee and Wastewater Steering Committee overseeing the process.

83 *Customer Outreach Meetings Held This Year*

Financials

A key indicator of success for GLWA has been strong financial performance. This has been one of GLWA’s most critical improvements, allowing the Authority to earn customers’ and investors’ trust through financial stability and transparency.

GLWA’s journey started with the transfer of an existing \$5.6 billion in debt from DWSD to the Authority, along with all revenues of the system, enabling the start of operations.

In less than one year, improved ratings from Fitch Ratings, Moody’s Investors Service, and S&P Global Ratings have validated the GLWA Board of Directors’ vision and the Executive Leadership Team’s efforts on behalf of the Authority, and made GLWA an “A” rated utility.

GLWA is an **“A” rated utility.**



GLWA CEO Sue McCormick
signing the bond
closing documents ►

\$309.1 million
in savings achieved



On the heels of the credit rating upgrades, GLWA went to market for its inaugural transaction in October 2016, executing a \$1.3 billion bond sale. This included nearly \$1.1 billion for refunding of outstanding debt, and \$251.8 million for new capital projects for the regional and Detroit local water systems.

As a result of the favorable interest rates on the bonds, GLWA realized a net cash flow savings of \$309.1 million over

the life of the refinanced bonds.

The bond sale was a key part of a comprehensive plan to create long-term financial sustainability and reduce GLWA's dependence on debt financed capital for both water and sewer systems.

A factor in the success of the transaction was GLWA's engagement of the investor community via a number of investor outreach events leading up to that transaction. GLWA is committed to ongoing investor community interests and has launched an initial investor outreach page on its website. Key financial, bond offering, and legal documents are now readily available online.

As a new authority, GLWA also recognizes the significance of the vendor community's role in providing quality, reliable service at the best value. In June 2016, a vendor outreach event was held with over 300 parties in attendance. The GLWA Board has adopted a modernized procurement policy and GLWA leadership has made prompt vendor payment a top priority.

Water Residential Assistance Program

Water is critical to public health. From its inception, GLWA has taken this responsibility very seriously. To address the need for financial assistance for low-income families in GLWA's customer communities, the Authority established the Water Residential Assistance Program (WRAP).

WRAP is a first of its kind program in Michigan focused solely on providing assistance for residential water services, and represents a hallmark of regional collaboration. Initial WRAP funding for Fiscal Year 2016 was \$4.5 million, which will provide assistance to nearly 5,000 households in Southeast Michigan.



“It was awesome. I feel very blessed. This program is a life changer. It has so much to offer and they treat you like family. I was surprised it was an unexpected but wonderful experience.” – WRAP PARTICIPANT

WRAP launched in March 2016 and to date has committed \$3.2 million, which has served over 3,900 households in the program’s first 10 months.

Unlike assistance programs of the past that relied on outside funding, WRAP has a dedicated source of funds -- a half-percent of GLWA’s revenue is dedicated to the program each year, making it a sustainable model.

“I thank God that there are funds and help available for people like me really trying to make it with little income. I am thankful and grateful.”

– WRAP PARTICIPANT

In addition to assistance with current and past due payments, WRAP also provides participants with home water audits, as well as repairs for leaky plumbing and fixtures that can contribute to a higher water bill. Training classes and water saving kits are also available.

WRAP’s water conservation component launched in March 2016, and in under a year 692 homes with high usage have received a home water audit, which has given them the motivation, tools and knowledge to understand their water bill and take action to lower it. As a result of the home water audits, 2,153 plumbing issues have been found,

“We need more organizations that give detailed information and treat people in need with dignity, respect and patience. I also can appreciate speaking with an actual person.” – WRAP PARTICIPANT

2,644 conservation measures have been installed and 1,185 repairs have been performed – resulting in an average savings of \$559 per home.

Although WRAP was designed to be comprehensive in the services it provides, the program was not designed to meet all of the needs that exist in the region.



Water Quality

Water quality is at the heart of GLWA's operations. GLWA's commitment to supporting healthy communities and providing water of unquestionable quality is exhibited through the Authority's assistance to the city of Flint throughout its water crisis.

After disconnecting from the GLWA system in April 2014, Flint officials requested to be reconnected in October 2015. GLWA teams responded with all due urgency, reconnecting Flint to the Authority's system within five days.

Since that time, Flint's service from GLWA has been extended via an emergency service agreement until June 30, 2017, and GLWA continues to provide service to the Flint community with no increase in charges. GLWA remains committed to continuing to serve Flint and its residents until that emergency is lifted.

GLWA sets target treatment standards that are stricter than state and federal regulatory requirements and test more frequently during treatment.

When it comes to public safety, GLWA is not content to simply comply with regulations. The Authority doesn't just meet acceptable levels; it surpasses them where possible through an optimization approach. Stringent treatment practices – a source of pride – keep GLWA's water test results significantly below the federal action level for both copper and lead.

With concerns about water quality high as a result of the Flint water crisis, and in conjunction with the Authority's ongoing commitment to add value wherever possible, GLWA worked collaboratively with its customer communities to create a Water Quality Work Group. The work group crafted a variety of sharable materials, including FAQs and presentations (which have also been translated into Spanish and Arabic) and even a podcast (available at <https://soundcloud.com/glwa/sets/outreach-series-for-elected>), that have helped customer communities quickly respond to their resident's concerns about lead and copper in drinking water. This is just one example of how GLWA's customers are able to leverage the benefits of having GLWA as their service provider.

Delivering safe, quality and reliable water means taking a proactive approach to treatment and monitoring. To ensure public health, GLWA works proactively to identify emerging threats so that they do not affect drinking water quality, as well as partners with world-class universities and foundations on research regarding emerging contaminants.



“GLWA’s regional leadership has made great strides toward greater cooperation and effectiveness of unifying approaches to problems. A case in point is the GLWA creation of its Water Quality Work Group, a committee of GLWA customer water utility managers, with its first charge to address lead and copper concerns. The GLWA Work Group members help assemble commonly voiced issues across the region regarding lead and copper, which GLWA staff used to create educational materials to provide a regional message with information related to the concerns from both our citizens and elected officials. GLWA also had the Frequently Asked Questions translated into Arabic and Spanish to reach a wide audience of customers. For Dearborn this was an important feature. This is the leadership Dearborn wants from GLWA and GLWA has risen to the occasion.”

– JAMES E. MURRAY, DIRECTOR OF DPW, CITY OF DEARBORN

GLWA also proactively monitors source water through numerous tests and systems. For example, GLWA’s water monitoring system uses high-tech sensor equipment to provide real-time information about source water. This early warning system helps detect changes in source water and can identify oil spills or chemical leaks from upstream industrial plants or other contaminants flowing into intake pipes.

In addition to the water warning system, GLWA also monitors source water directly at its three intakes so that treatment can be adjusted properly based on the water pumped into its plants.

Finally, as a testament to GLWA’s promise of delivering water of unquestionable quality, the Authority received the “10-Year Directors Award” from the Partnership for Safe Water in July 2016. The EPA and American Water Works Association (AWWA) developed the program to guide water systems towards improving water quality by optimizing system operations. GLWA was part of a select group of utilities honored by the Partnership at the AWWA’s 2016 conference. The AWWA is the largest and oldest worldwide organization dedicated to safe water. GLWA is proud that three of its plants received this prestigious award.



◀ Cheryl Porter, Chief Operating Officer, Water Operations, (center) receiving GLWA’s 10-Year Director’s Award.

GLWA received the
“10-Year Directors Award”
from the
Partnership for Safe Water in July 2016.



**Improved
environmental
outcomes and
cost savings
are mutually
attainable.**

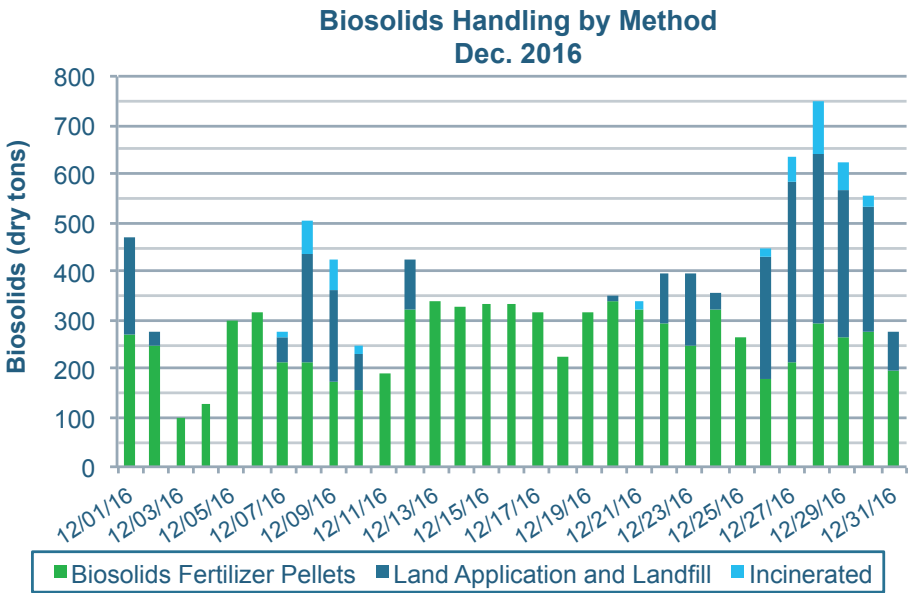
*Fertilizer pellets created by
the Biosolids Dryer Facility*



ENVIRONMENTAL IMPACT

Thanks to a continued focus on environmental impact, GLWA has not only been able to eliminate years of federal oversight, but has now become a leader in the Midwest for environmental practices and compliance.

GLWA's Wastewater Treatment Plant (WWTP), the largest single-site treatment facility in North America, is being used as a benchmark for other plants across the Midwest. This leadership in environmental practices is due largely to GLWA's ability to greatly reduce phosphorous levels and surpass the federal and state goals of phosphorus reduction in the Western Lake Erie Basin for our facility (See graph on Page 24).



In a giant step toward a green future, GLWA's new Biosolids Dryer Facility (BDF) has the ability to turn 700 million to 1.1 billion gallons of biosolids into environmentally friendly fertilizer every year rather than burning or landfilling.

GLWA is in the process of retiring six of the system's oldest incinerators while the remaining incinerators have been upgraded to meet new air quality regulations and dramatically improve air quality emissions. Since the BDF does not burn biosolids, the dryer facility produces about 56 percent less carbon dioxide equivalent emissions than incineration. Drying also reduces other air pollution, decreasing particulate emissions by 51 percent, nitrogen oxides by 87 percent, and carbon monoxide emissions by 95 percent. The new plant also reduces truck traffic by 75 percent and significantly decreases odors.

The significant environmental benefits of the BDF also came with an economic benefit. In its first year in operation, GLWA saw millions in operational cost savings, and it also received \$1.5 million in principal forgiveness from the state of Michigan on the financing of the project (the BDF qualified in its entirety as a green project under EPA criteria).

Energy Management

GLWA's Energy Management Team (EMT) has been actively pursuing new solutions to improve operational efficiency, utilizing new concepts and technologies to achieve sustainability.

Embracing the concept of sustainability, much of GLWA's energy management work has revolved around auditing existing facilities, evaluating equipment, studying various processes and developing an overall understanding of the Authority's energy consumption. Many of these initial studies, pilot projects and evaluations will directly

GLWA is saving \$395,000 per year as a result of the initial efforts of its Energy Management Team.

result in future capital investments. To ensure long-term sustainability, the EMT has drafted a Strategic Energy Plan that outlines the challenges facing GLWA, established goals and identified the methodology for measuring our success.

In the short term, the EMT has optimized the cost of energy in a variety of ways, including a system-wide lighting review, changing the billing classification for a wastewater facility, and the bundling small gas accounts with the State of Michigan Cooperative, which together will save GLWA \$395,000 per year.

CHARGE STRUCTURE

For the first time, in May 2016, GLWA approved both water and sewer charges for its customer communities. The initial GLWA water and sewer charges honored the commitment in the Lease(s) to limit annual increases in budgeted revenue requirements to 4 percent or less. GLWA's methodology for developing water and sewer charges follows industry standards and provisions in the model contracts that were established in consultation with GLWA's customer communities.

A goal of the Authority is to help customers understand how charges are set, and ultimately, how those charges are eventually passed along to residents and business owners as a part of local community rates. It is important to note that GLWA's charges are only one element of what local residents and business owners see on their bill. Each municipality has its own added costs associated with maintaining its local system and its customer service operation for its customers. Ultimately, each individual customer community determines the end cost that is passed along to consumers in local rates.



Members of GLWA sewer customer communities meet with GLWA staff in Lathrup Village in December to discuss potential sewer charge changes. ►



- ◆ Sewer charges consist entirely of fixed monthly charges that reflect a 'share' of the system's costs based on the history of usage of the system. In order to provide predictability in the relative customer cost responsibility, the shares are fixed for an agreed upon multiple year service charge period. Current 'shares' were implemented as part of a "Rate Simplification Initiative" effective with Fiscal Year 2015 service charges, and apply through Fiscal Year 2017. Shares for Fiscal Year 2018 are currently under development in conjunction with the sewer customer communities.

GLWA's charge methodology follows provisions in its model contracts that were established in consultation with its customer communities.

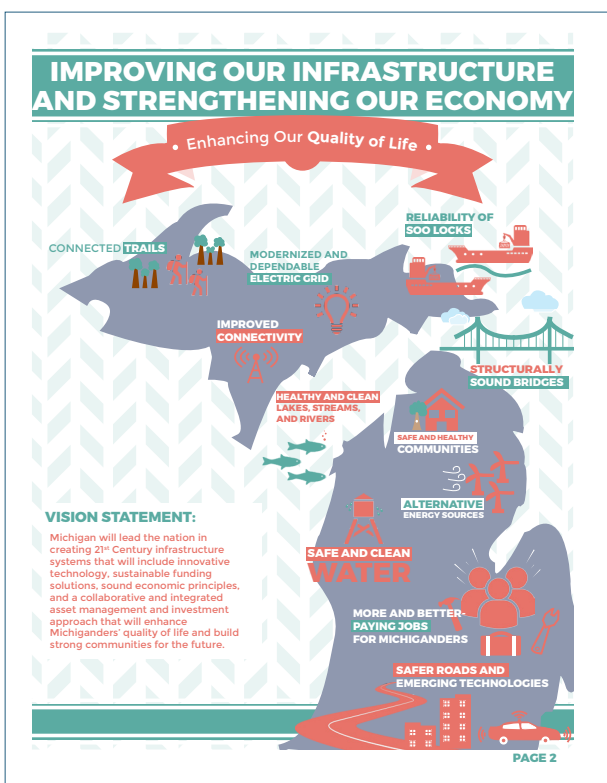
- ◆ Drinking water charges to individual communities are based on several factors including annual sales volume, contracted maximum day and peak hour demands, as well as distance and elevation from water treatment plants. As a result, these charges can vary significantly from community to community. GLWA has developed a video for its customer communities explaining this, which can be found at: <https://www.youtube.com/watch?v=YzUETza30Q4>



INFRASTRUCTURE

Infrastructure reinvestment has been a hot topic in the national news, as well as in Michigan, with increasing statewide focus through the creation of Governor Rick Snyder's 21st Century Infrastructure Commission. With GLWA's formation, through the lease of the city of Detroit's assets, a dedicated source of funding is provided to DWSD for infrastructure renewal. Southeast Michigan benefits as well, with GLWA positioned as a new dedicated steward for the regional system.

GLWA's focus on supporting healthy communities is well represented and reinforced by Board Chairman Robert Daddow's appointment to Governor Snyder's 21st Century Infrastructure Commission.



GLWA is focused on maintaining and improving the regional infrastructure as needed to assure safe, reliable and effective water services at the lowest cost feasible by utilizing a rigorous asset management approach. In addition, GLWA has revitalized the process it uses for the identification and selection of capital improvement projects.

Capital Improvement Projects are identified through an extensive research and study process which engages GLWA's customer communities as the Authority determines and prioritizes infrastructure needs. This process, together with the asset management approach, allows GLWA to support its customer communities with

*The right sizing of GLWA's treatment capacity is estimated to avoid, on average, more than **\$40 million** in capital investment annually.*

high quality services at affordable costs, while ensuring needed upgrades are made on a consistent basis. GLWA has made it a priority to share its plans for capital improvement with its board, customers and the public, providing the greatest opportunity to coordinate infrastructure improvements across agencies and infrastructure systems.



Master Planning

In 2016, major milestones related to GLWA's master planning efforts were achieved.

Water System

An update to the 2015 Water Master Plan was completed and accepted by the GLWA Board in 2016. With significantly more treatment capability than is necessary to meet the needs of the region for the foreseeable future, the plan outlines a strategy to repurpose one water treatment plant and right-size the remaining four. This strategy avoids significant capital investment costs for unneeded capacity. The 2016 update also included an alternative approach to increasing service reliability in the northeastern area of the service district, and outlined a detailed approach associated with the repurposing of the Northeast Water Treatment Plant, which is reflected in the 2018 CIP. Efforts are underway to implement the plan.

Wastewater System

With a focus on water quality outcomes, the effort to update the Wastewater Master Plan continued to gain momentum during GLWA's first 12 months, with the finalization of a regional steering team, full specification of the masterplan study (including regional goals), and solicitation of proposals for a consultant.

This comprehensive study will chart the course for GLWA's wet weather control program, as well as provide a roadmap for the continued transformation of the Authority's Wastewater Treatment Plant into a water resource recovery facility. This *utility of the future* concept includes nutrient recovery for beneficial reuse, as well as moving toward an energy neutral or energy positive facility.

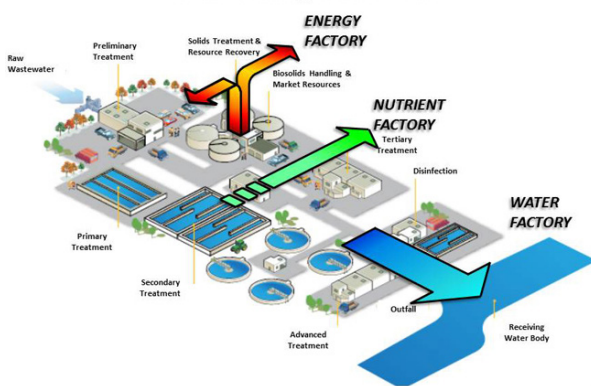
With this move toward becoming a utility of the future, GLWA is renaming its wastewater treatment plant. Moving forward it will be called a Water Resource Recovery Facility (WRRF).

Alongside the focus on long-term planning and becoming a *utility of the future*, the Authority has made significant progress on asset management by standing up an enterprise-wide Capital Improvement Plan and Asset Management (CIP-AM) Work Group. In its broadest sense, asset management looks at the entire life-cycle of facilities and equipment, and our newly formed CIP-AM Work Group is structured

to include these two specific elements. The CIP-AM Work Group is headquartered at the WWTP, and has worked alongside plant staff to give structure and vision to the program at a high level and also to augment our WWTP asset management team.

The new format of GLWA's FY 2018 CIP and multiple town hall-style meetings with staff on asset management are hallmarks of the progress made in 2016 on this enterprise-wide effort.

The Utility of the Future: Recovering Resources



Some key regional projects GLWA is currently focused on include:

◆ **Cross Agency and Infrastructure Collaboration** Infrastructure collaboration reduces the public's investment for both systems, while also minimizing disruptions, and serves as a shining example of the spirit of regional collaboration on which GLWA was founded:

- a. GLWA and the city of Romulus coordinated roadwork and water main replacement work. Through collaboration with the city of Romulus on their project, a new parallel 48-inch main from Wick Station to Hannan Road was installed;
- b. GLWA installed a new 42-inch main along 24 Mile Road from Romeo Plank to Rochester Road, and coordinated the project with Shelby Township so that instead of paving just one side of the road, both sides of 24 Mile Road could be completed for the same cost ahead of their original schedule;
- c. GLWA coordinated the installation of a new 36-inch main on Telegraph Road from Cherry Hill to Warren Avenue in conjunction with Dearborn Heights' work on their stormwater sewers.

◆ **Springwells Water Treatment Plant Construction** As a part of the Water Master Plan, GLWA is making multiple upgrades to the Springwells Treatment Plant including:

- a. Filter replacement;
- b. Intake tunnel repairs;
- c. Reservoir fill line installation.

Moving forward with these types of projects is imperative to GLWA sustaining a reliable level of service to customers, especially while changes are made to decommission treatment at another facility.

◆ **Raw Water System Condition Assessment** Using divers and remotely operated vehicles to inspect the entire raw water tunnel system, GLWA evaluates the physical condition of each tunnel and determines schedules for any needed infrastructure investment. This is one of the many proactive steps that GLWA is taking to ensure it is able to catch any issues well in advance of them affecting the system.

◆ **Rouge River Disinfection Project** Significant progress was made this year toward accomplishing disinfection of all wet weather flows that are discharged from the Wastewater Treatment Plant. The project, known as Rouge River Outfall Disinfection (RRO), was scoped as a progressive design build project. This allows for multiple elements of the work to be completed concurrently, accomplishing the goal of achieving wet weather treatment while minimizing necessary delays to complete implementation. The project will also provide disinfection of all flow discharged from the WWTP marking completion of what MDEQ considers the wastewater system's "core" combined sewer overflow program projects. This forward-thinking project delivery method is proving to be very beneficial in keeping GLWA on track for completion of this important project.

GLWA is also represented at the state level regarding important infrastructure planning through GLWA Board Chairman Robert Daddow's appointment by Governor Snyder to Michigan's 21st Century Infrastructure Commission. The Commission's vision: Michigan will

The RRO was originally scoped as an approximately \$300 million project in FY 2010. However, its design was re-imagined twice to not only reduce public investment to an estimated \$40 million, but more importantly, to improve water quality outcomes.



21st Century Recommendations Snapshot

Our residents deserve reliable, safe, efficient, and cost-effective infrastructure - a 21st century infrastructure system that creates a foundation for the future.

RECOMMENDATIONS

WATER



- **Ensuring Public and Environmental Health:** Invest in replacement of aging water, sewer, and stormwater infrastructure.
- **Water Asset Management:** Perform regular assessments and maintenance of Michigan's drinking water, sewer, stormwater, and dam infrastructure systems.
- **21st Century Water Infrastructure:** Design and build water systems using the best available technologies.
- **Fiscally Sustainable Pricing Models:** Adopt policies that require self-sufficient and transparent budgets for water, sewer, and stormwater facilities.
- **Green Infrastructure:** Develop integrated and sustainable approaches to manage the quantity and quality of stormwater.
- **Onsite Well and Septic Systems:** Revise regulations to provide safe, affordable drinking water and wastewater disposal.

lead the nation in creating 21st Century infrastructure systems that will include innovative technology, sustainable funding solutions, sound economic principles, and a collaborative and integrated asset management and investment approach that will enhance Michiganders' quality of life and build strong communities for the future.

Tasked with identifying long-term strategies to help ensure Michigan's infrastructure remains safe and efficient now and into the future, the Commission's recently submitted report outlines key infrastructure needs and strategies.

A number of the Commission's strategies are in place and underway at GLWA in collaboration with the communities we serve, including: invest in replacement of aging infrastructure, perform regular condition assessments and maintenance, design and build using best available technologies, adopt self-sufficient and transparent budgets, and employ green infrastructure for stormwater management.

Despite the Authority's progress, every operations-based organization does have to respond to unexpected situations, and GLWA is no exception. In March 2016, GLWA experienced a fire at its Wastewater Treatment Plant. Fortunately, due to fast action by GLWA employees, stringent safety procedures and the Detroit Fire Department's rapid response, no one was injured and there was no environmental risk due to the fire. GLWA was also able to continue to treat wastewater and operations were not affected.

In November 2016, GLWA responded to a break on its 84" North Service Center transmission main (*photo to the right on page 23*) which delivers water to Troy, Rochester Hills and Pontiac. The extensive repair work was completed expeditiously, and with as little impact to the customer communities as possible. The Authority has infrastructure improvements planned in its CIP for this area of the system to ensure reliability and avoid similar impact to customer communities in the future.

Many thanks to the quick and collaborative efforts of GLWA employees and contractors in demonstrating the resiliency of GLWA operations.





GLWA responded to a break on its 84" North Service Center transmission main which delivers water to Troy, Rochester Hills and Pontiac.

Innovation

Advancing technologies and identifying emerging efficiencies are key pillars to GLWA’s operating philosophy. In support of these pillars, the Authority hired its first Director of Research and Innovation, Bill Creal, who had spent 37 years with the Michigan Department of Environmental Quality prior to joining the GLWA team in May 2016.

Mr. Creal's new role was created to further support GLWA's efforts to identify and implement the latest advancements in managing water quality, and he has proven himself to be an asset since joining the team.

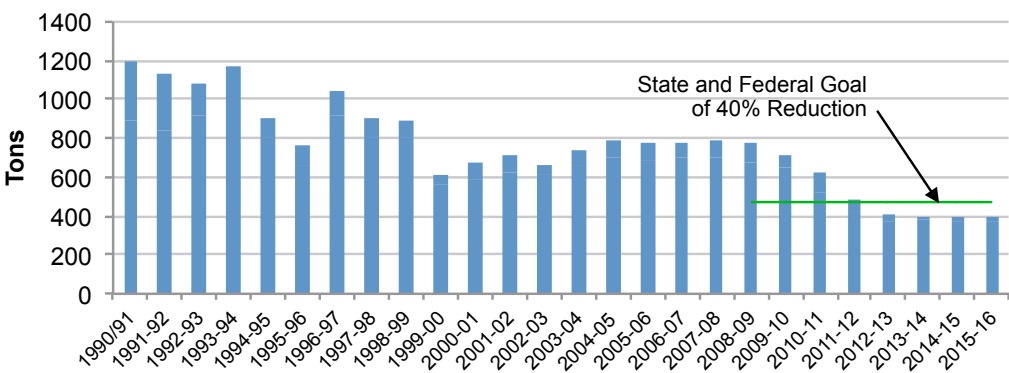
Research and Innovation includes GLWA's strengthening partnerships with world-class universities and foundations to conduct cutting-edge research. The Authority has a long history of university partnerships and research projects, particularly with Wayne State University (WSU) for drinking water, and the University of Michigan for the sewer system.

In September 2016, GLWA and WSU agreed to continue their partnership regarding research conducted in the pilot plant located in our Water Works Park water treatment facility. The pilot plant is an exact replica of the utility’s Water Works Park water treatment facility (even the source water for the pilot plant is drawn from the same water intake pipes). This allows the WSU research team to test process improvements using the same water that is treated and delivered to customer communities by GLWA.

WSU’s studies will consist of a broad range of research, including finding efficiencies within GLWA's systems, examining potential monitoring system enhancements, automation of treatment process aspects and identifying emerging contaminants.

GLWA is also in discussions with Eastern Michigan University to continue to study and assess the Detroit River’s phosphorus levels. High phosphorus levels can lead to harmful algae blooms, which can affect swimming, tourism and drinking water systems. Additionally, GLWA has been working with the University of Michigan on research regarding anaerobic digestion, which could provide solutions for creating energy from by products of the wastewater treatment process.

Effluent Phosphorus Loading
1996 to 2016



COMMITMENT TO CONTINUOUS IMPROVEMENT

Ensuring long-term sustainability means fostering a culture of continuous improvement. Employees of GLWA receive training and are coached by a team of LEAN Black Belts and Master Black Belts to build upon their knowledge and experience and earn their certifications while improving GLWA operations. So far, 20 GLWA employees have been through Lean Green Belt training and five have completed Black Belt training. To date, four projects have been completed and another four are underway.

GLWA fosters a culture of continuous improvement.

Lean project teams have already delivered significant results, garnering costs savings, improved safety, more efficient operations and more effective procurement processes:

- ◆ The Procurement team applied Lean concepts to develop a simple procurement guide for current and new procurement specialists. Lean “Voice of the Customer” techniques were used to define exactly what ‘simple’ looked like to the users of the manual. Process simplification tools allowed the team to combine several distinct process flows into a single flow with clear steps to handle the distinct procurement types. The project resulted in a reduction in cost per request and rapid on-boarding of new procurement personnel.
- ◆ A Lean team at Water Works Park applied some basic statistics to prove exactly which process variables were leading to higher chemical usage and which were not. Three specific high-impact solutions were implemented at no cost, while other planned expenditures were cancelled as the evidence projected negligible value. The team delivered over 10 percent reduction in chemical costs in a process that was already running at a very efficient level.
- ◆ A cross-functional Lean team from Procurement, Legal, IT, Capital Asset Management, plus project experts from Water and Wastewater Operations have identified major simplification opportunities in GLWA contracting processes. The team conducted a focus group session with key contracting partners to help identify some of the opportunities. Several of the solutions are already implemented and will lead to significant simplification of our contracting, error reduction, and improved ease of doing business that should expand participation and competition in our contract bidding.



GLWA Lean experts have been invited to share successes and lessons learned across the state of Michigan at the Michigan Lean Consortium annual event and at the Michigan Water Works Association.

*A Lean project at Water Works Park resulted in a **10% reduction** in chemical costs.*

◆ Team members, left to right: Kevin Haywood, Victor Vecsernyes, Nagendra Pullala, Wajid Khan, Yao Kouassi, Balvinder Sehgal, Chirag Kawa, Risikat Alli, and Michael Grezlik (Lean Coach). Participating team members not shown: Terry Daniel (Project Champion), Ronald Hayes, Shannon Williams, Jeffrey Jones, Abul Ahmed, Biji Varghese, Jackie Hunt, Lashone Bedford, and Richard Babler.



Leadership Development

In GLWA's first year, focused training has been provided to more than 100 members of its Leadership Team in order to continue to build capacity throughout the Authority.

Beginning in August, GLWA's Organizational Development Group and its Training Team presented the Hungry Leaders Development series by Doug Cartland, a leading expert in creating energy to motivate management and ignite passion in organizations. This 10-week training was selected because it aligns well with GLWA's personality, which can also be defined as an organization's culture or character.

GLWA believes that its personality and culture must be modeled throughout the organization, beginning with our leadership team members. The Hungry Leaders Development series provided insight for these team members into the foundational principles of the Authority's personality which we fully embrace -- collaborative, approachable, reliable, trustworthy, smart, efficient, focused and determined.

ONE WATER; ONE TEAM – THE BEST AND THE BRIGHTEST!

The GLWA team is made up of an incredibly dedicated and talented group of individuals who use their knowledge and experience to ensure that the Authority fulfills its vision to be the provider of choice for water and wastewater services in Southeast Michigan.

As the Authority celebrates its first year of operations, it is only fitting that GLWA recognizes them for their service and commitment to going above and beyond to bring value to its customer communities.

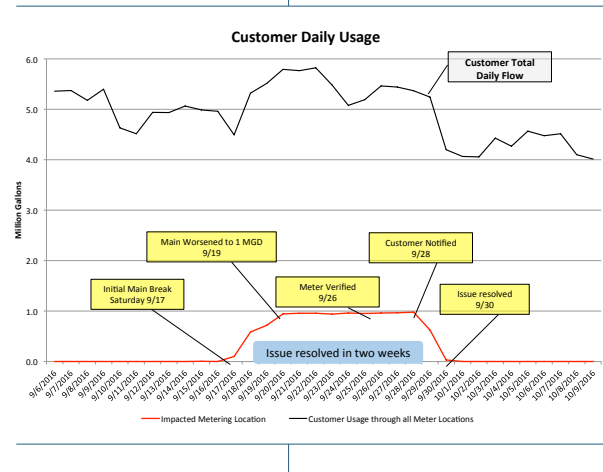
Team member accomplishments range from receiving awards from professional organizations to identifying issues that lead to saving our customer communities money they otherwise would not have recovered to teamwork that helps address emergency situations before they have harmful impacts. Below are a few examples:

◆ **Tina Clickscales**, Purchasing Manager, was named Public Purchasing Manager of the Year by the Michigan Public Purchasing Officers Association. Tina received her award, in part, for the development of a Procurement User Handbook for Supply Chain Operations at GLWA that created clear process paths that are easy to follow, instruct and implement and resulted in a reduction in cost per request and rapid on-boarding of new personnel. Great job, Tina, for putting her GLWA-provided Lean Six Sigma training so effectively into practice!

*Tina Clickscales receiving
her Public Purchasing
Manager of the Year Award*



◆ As a part of normal data review, GLWA's **System Analytics and Meter Operations Group** identified an increase of approximately one million gallons per day in the volume of one of the Authority's wholesale water customers. The Group notified the customer and after investigation, the increase was determined to have been caused by a break in a private water service line of an industrial customer that was going undetected because the water was running into a deep crevasse in the property. Kudos to Chandan Sood, Douglas Inman and Eric Griffin for their early detection of this issue which helped avoid high bills, billing disputes and wasted water for the community.



The GLWA team is made up of incredibly dedicated and talented groups of individuals.

◆ Water Technician **Allen Wilson** and Team Leader **Andrew Ross**, both of the Springwells Water Treatment Plant, received the Edward Dunbar Rich Award from the American Water Works Association's Michigan Section. The award recognizes water utility personnel for completing 25 or more years of meritorious and faithful service in providing and maintaining a safe, dependable and adequate public water supply. Congratulations, gentlemen!



◆ Thanks to the outstanding performance of members of GLWA's **Water Operations Field Services and Water Quality Teams**, repairs were made to a 96-inch air valve in northern Oakland County (M-59 near Dequindre) in October 2016 without a loss in pressure to surrounding

communities, and with the integrity of the Authority's water quality being maintained. Kudos to the teamwork of Clemon Beverly, Keith Brooks, Tammi Dubose, Eddie Hudson, Brandon Tait, Rodney Williams, Craig Steele and Philip Rase!

These are true examples of GLWA team members personifying One Water; One Team!

◆ *CEO Sue McCormick and COO Cheryl Porter, stand with members of the Field Services Team after the GLWA Board of Directors presented them with certificates of recognition for their valued service.*





We are
one water.

What's Next for GLWA?

2016 was an incredibly productive year for GLWA. However, the Authority has no plans to slow down. In year two, GLWA is committed to:

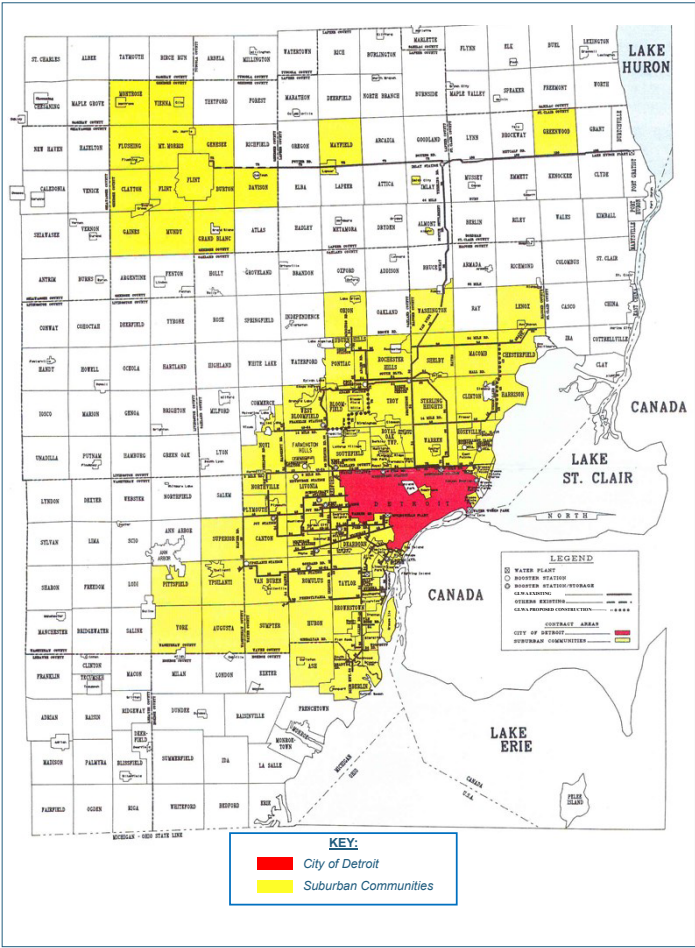
- ◆ **Continuing a strong financial focus** through improved bond ratings to ensure the most economical funding for our CIP, and to find savings that will benefit our customer communities. This will ensure that Southeast Michigan's infrastructure continues to be maintained and upgraded as needed, and allow GLWA to provide additional value to its customers.
- ◆ **Right-sizing facilities.** The regional system has far more capacity than is needed with the amount of customers it serves. It is in the Authority's best interest to operate the system in the most efficient way possible to create long-term savings for all ratepayers and provide more money for infrastructure updates and repairs.
- ◆ **Collaborating with customer communities** on upgrading and replacing infrastructure that lies in the public right of way in GLWA-served communities. Whether road, sewer, water, stormwater, etc., evaluating the prospect for joint engagement presents the greatest opportunity to reduce costs and minimize disruption for the public we serve. GLWA will identify other planned infrastructure projects in served communities, and enable coordinated efforts across jurisdictions and infrastructure systems. This prevents duplicated work, reduces traffic disruptions and saves the public money.

Working in collaboration with its Customer Communities, GLWA is excited for the future.

- ◆ **Building capacity and sustainability** in our employees' skills through on-going training opportunities will continue across all levels of the Authority.
- ◆ **Wrapping up GLWA's Water Loss Study** and developing a plan to address communities that are not master metered.
- ◆ **Providing the public with a better understanding** of how the Authority monitors water usage trends, and how that affects system users' charges.



Water Service Area



Wastewater Service Area

