



Audit Committee

Friday, March 27, 2020 at 8:00 a.m.

Telephonic Meeting

Call: 1-866-528-2256

Access Code: 9169911

AGENDA

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF AGENDA
4. APPROVAL OF MINUTES
 - A. February 12, 2020 (Page 1)
 - B. February 21, 2020 (Page 4)
5. PUBLIC PARTICIPATION
6. OLD BUSINESS
7. NEW BUSINESS
 - A. Proposed Contract Extension- GLWA CS-010 Water Residential (Page 10) Assistance Program
8. REPORTS
 - A. CFO Update (Page 15)
 - B. Monthly Financial Report for December 2019 (Page 21)
 - C. FY 2020 Q2 Construction Work-in-Progress Report through (Page 22) December 31, 2019
9. COMMUNICATIONS
 - A. Rating Agency Upgrades (Page 43)
 - B. *The Procurement Pipeline* for March 2020 (Binder 2)
10. LOOK AHEAD
 - Next Audit Committee Meetings
 - A. Regular Meeting April 17, 2020 at 8:00 a.m.
11. OTHER MATTERS
12. ADJOURNMENT

Note: Binder 1 & Agenda Items 8A and 9A have been combined in agenda order and document was renumbered.



Great Lakes Water Authority

735 Randolph Street
Detroit, Michigan 48226
glwater.legistar.com

Meeting Minutes - Draft

Audit Committee

Wednesday, February 12, 2020

10:00 AM

Water Board Building 5th Floor

Special Meeting

1. Call To Order

Chairperson Baker called the meeting to order at 10:06 a.m.

2. Quorum Call

Present: 3 - Chairperson Brian Baker, Director Gary Brown, and Director Abe Munfakh

Director Brown joined the meeting at 10:15 a.m. under Item 7A.

3. Approval of Agenda

Chairman Baker requested a Motion to approve the Agenda.

Motion By: Brian Baker

Support By: Abe Munfakh

Action: Approved

The motion carried by a unanimous vote.

4. Approval of Minutes

None

5. Public Comment

There were no public comments.

6. Old Business

None

7. New Business

- A.** [2020-062](#) Review of Draft Feasibility Consultant Report- 2020 Water and Sewer Bond Transactions
- Sponsors:** Nicolette Bateson
- Indexes:** Finance
- Attachments:** [7A1 Audit Committee Memo-Prelim Feas Rpt 02.12.2020](#)
 [7A2 Prelim Feas Rpt 021220pw](#)
- Motion By:** Gary Brown
 Support By: Abe Munfakh
 Action: Received and Filed
 The motion carried by a unanimous vote.
- B.** [2020-063](#) Approval of Series Ordinance Authorizing Issuance and Sale of Water Supply System Revenue and Revenue Refunding Bonds in an Amount Not to Exceed \$515,000,000
- Sponsors:** Nicolette Bateson
- Indexes:** Finance
- Attachments:** [7B1 Audit Committee Memo- Water Revenue and Revenue Refunding Series Ordinance 02.12.2020](#)
 [7B2 Board Letter- Water Revenue and Revenue Refunding Series Ordinance 2.12.2020](#)
 [7B3 Water Revenue and Revenue Refunding Series Ordinance FINAL 2.12.2020](#)
 [7B4 Resolution- Approval of Water Revenue and Revenue Refunding Series Ordinance FINAL 2.12.2020](#)
- Motion By:** Abe Munfakh
 Support By: Gary Brown
 Action: Recommended for Approval to the Board of Directors Workshop Meeting
 Agenda of February 12, 2020
 The motion carried by a unanimous vote.

- C. [2020-064](#) Approval of Series Ordinance Authorizing Issuance and Sale of Sewage Disposal System Revenue Refunding Bonds in an Amount Not to Exceed \$800,000,000

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [7C1 Audit Committee Memo- Sewer Revenue Refunding Series Ordinance 02.12.2020](#)
[7C2 Board Letter- Sewer Revenue Refunding Series Ordinance 02.12.2020](#)
[7C3 Sewer Revenue Refunding Series Ordinance FINAL 2.12.2020](#)
[7C4 Resolution- Approval of Sewer Revenue Refunding Series Ordinance FINAL 2.12.2020](#)

Motion By: Abe Munfakh

Support By: Gary Brown

Action: Recommended for Approval to the Board of Directors Workshop Meeting
Agenda of February 12, 2020

The motion carried by a unanimous vote.

8. Reports

None

9. Look Ahead

The next Audit Committee Meeting will be held Friday, February 21, 2020 at 8:00 a.m.

10. Information

None

11. Other Matters

None

12. Adjournment

Chairman Baker requested a Motion to Adjourn.

Motion By: Abe Munfakh

Support By: Gary Brown

Action: Approved

The motion carried by a unanimous vote.

There being no further business, the meeting was adjourned at 10:56 a.m.



Great Lakes Water Authority

735 Randolph Street
Detroit, Michigan 48226
glwater.legistar.com

Meeting Minutes - Draft

Audit Committee

Friday, February 21, 2020

8:00 AM

Water Board Building 5th Floor

1. Call To Order

Chairperson Baker called the meeting to order at 8:00 a.m.

2. Quorum Call

Present: 3 - Chairperson Brian Baker, Director Gary Brown, and Director Abe Munfakh

Note: Director Brown attendance via teleconference.

3. Approval of Agenda

Chairperson Baker requested a Motion to approve the Agenda.

Motion By: Abe Munfakh

Support: Gary Brown

Action: Approved

The motion carried unanimously.

4. Approval of Minutes

[2020-069](#) Approval of Minutes of January 27, 2020

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [4A Audit Committee Meeting Minutes - January 27, 2020](#)

Chairperson Baker requested a Motion to approve the January 27, 2020 Audit Committee Meeting Minutes.

Motion By: Abe Munfakh

Support By: Gary Brown

Action: Approved

The motion carried by a unanimous vote.

5. Public Comment

There were no public comments.

6. Old Business**A. [2020-070](#) Water Residential Assistance Program Reallocation Request for Uncommitted FY 2019 Funds**

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [6A1 Audit Committee Memo- WRAP Reallocation of FY 2019 Funds](#)

[6A1a 2020-066 Board Letter Water Residential Assistance Program Reallocation Request for Uncommitted FY 2019 Funds](#)

[6A2 2020-066 Attachment 1](#)

[6A2 2020-066 Attachment 2](#)

[6A2 2020-066 Attachment 3](#)

[6A2 2020-066 Attachment 4](#)

[6A3 Wayne Metro Reallocation Req. Letter 1.10.20v2](#)

[6A4 WRAP Reallocation Request & Program Change presentation FINAL](#)

Chairperson Baker made a Motion, Supported by Director Munfakh, to recommend approval to the Board, subject to Board vote after Item 6B (Proposed Water Residential Assistance Program Changes for FY 2021) and the budget adoption.

Motion By: Brian Baker

Support By: Abe Munfakh

Action: Recommended for Approval to the Board of Directors

Agenda of February 26, 2020

The motion carried by a unanimous vote.

B. [2020-071](#) Proposed Water Residential Assistance Program Changes for FY 2021

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [6B1 WRAP Program Changes for FY 2021 2.21.2020](#)

[6B2 Wayne Metro Program plan design recommended changes FINAL](#)

[6B3 GLWA Board Resolution 2020-037](#)

[6B4 ALICE Report for Southeast Michigan](#)

Motion By: Brian Baker

Support By: Abe Munfakh

Action: Received and Filed

The motion carried by a unanimous vote.

C. [2020-072](#) Industrial Pretreatment Program Financial Analysis & Charges Update

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [6C IPP Financial Analysis & Charges Update](#)

[B 6C01 Continued Review - Proposed FY 2021 & FY 2022 Biennial Budget and Five-Year Financial Plan](#)

[B1 FY 2021 Budget Highlights Presentation-02.21](#)

[C DRAFT FY 2020.2021 Budget Resolution BOARD LETTER](#)

[D 2020-xxx DRAFT FY 2021 & FY 2022 Biennial Budget Resolution](#)

[E 2021 Charges Board Communication and Resolution](#)

[F Proposed FY 2021 Water and Sewer Charges](#)

Motion By: Abe Munfakh

Support By: Gary Brown

Action: Received and Filed

The motion carried by a unanimous vote.

D. [2020-073](#) Continued Review - Proposed FY 2021 & FY 2022 Biennial Budget & Five-Year Financial Plan

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [6D1 Continued Review - Proposed FY 2021 & FY 2022 Biennial Budget and Five-Year Financial Plan](#)

[6D2](#)

[FY-2021-and-FY-2022-Proposed-Biennial-Budget-and-FY-2021-Proposed-Schedule-of-Charges-1.24.2020](#)

Motion By: Abe Munfakh

Support By: Gary Brown

Action: Received and Filed

The motion carried by a unanimous vote.

7. New Business

- A. [2020-074](#) Authorizing Publication of Notice of Intent to Issue Sewage Disposal System Revenue Bonds
- Sponsors:** Nicolette Bateson
- Indexes:** Finance
- Attachments:** [7A1 Notice of Intent to Issue Sewer Revenue Bonds](#)
[7A2 Board Letter- Notice of Intent to Issue Sewer Revenue Bonds 2.26.2020](#)
[7A3 Resolution Regarding Publication of Notice of Intent to Issue Bonds \(Sewer\) 2020](#)
- Motion By:** Abe Munfakh
Support By: Gary Brown
Action: Recommended for Approval to the Board of Directors
Agenda of February 26, 2020
The motion carried by a unanimous vote.
- B. [2020-075](#) Authorizing Publication of Notice of Intent to Issue Water Supply System Revenue Bonds
- Sponsors:** Nicolette Bateson
- Indexes:** Finance
- Attachments:** [7B1 Notice of Intent to Issue Water Revenue Bonds](#)
[7B2 Board Letter- Notice of Intent to Issue Water Revenue Bonds 2.26.2020](#)
[7B3 Resolution Regarding Publication of Notice of Intent to Issue Bonds \(Water\) 2020](#)
- Motion By:** Abe Munfakh
Support By: Gary Brown
Action: Recommended for Approval to the Board of Directors
Agenda of February 26, 2020
The motion carried by a unanimous vote.
- C. [2020-076](#) Water Residential Assistance Program Contract CS-010 Update
- Sponsors:** Nicolette Bateson
- Indexes:** Finance
- Attachments:** [7C1 WRAP Contract CS-010 Status Update](#)
- Motion By:** Abe Munfakh
Support By: Gary Brown
Action: Received and Filed
The motion carried by a unanimous vote.

8. Reports

A. [2020-077](#) Monthly Financial Report for November 2019

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [8A GLWA Monthly Financial Report November 2019](#)

Motion By: Gary Brown

Support By: Abe Munfakh

Action: Received and Filed

The motion carried by a unanimous vote.

B. [2020-078](#) Quarterly Investment Report

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [8B1 Quarterly Investment Report Cover Memo December 2019](#)
[Investment Report](#)
[8B2 GLWA Quarterly Report December 2019](#)

Motion By: Gary Brown

Support By: Abe Munfakh

Action: Received and Filed

The motion carried by a unanimous vote.

C. [2020-079](#) Quarterly Construction Work in Progress Report

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [8C 20190930 Quarterly CWIP](#)

Motion By: Abe Munfakh

Support By: Gary Brown

Action: Received and Filed

The motion carried by a unanimous vote.

9. Communications**A.** [2020-080](#) The Procurement Pipeline for February 2020

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [9A Feb 2020 Procurement Pipeline 2.19.20](#)

Motion By: Abe Munfakh

Support By: Gary Brown

Action: Received and Filed

The motion carried by a unanimous vote.

B. [2020-081](#) Government Finance Officers Association Budget Award

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [9B1 GFOA Budget Award FY 2019](#)

[9B2 GFOA Budget Award 2019](#)

Motion By: Abe Munfakh

Support By: Gary Brown

Action: Received and Filed

The motion carried by a unanimous vote.

10. Look Ahead

The next Audit Committee Meeting will be held on Friday, March 20, 2020 at 8:00 a.m.

11. Other Matters

Director Baker made an inquiry regarding Arbitration impact on the Budget, and an inquiry on the Bond Sale.

12. Adjournment

Chairperson Baker requested a Motion to Adjourn.

Motion By: Abe Munfakh

Support By: Gary Brown

Action: Approved

The motion carried by a unanimous vote.

There being no further business, the meeting was adjourned at 10:02 a.m.



Financial Services Audit Committee Communication

Date: March 27, 2020

To: Great Lakes Water Authority Audit Committee

From: Jon Wheatley, Public Finance Manager

Re: Proposed Change Order 3 – GLWA CS-010 Water Residential Assistance Program

Background: The current contract with Wayne Metropolitan Communication Action Agency (GLWA CS-010) expires on June 30, 2020.

Analysis: It is recommended that the contract with Wayne Metropolitan Communication Action Agency be extended for six months to provide time for stakeholder input into program design before issuing a request for proposal for these services in accordance with the Great Lakes Water Authority (GLWA) procurement policy. The recommended contract extension (Change Order 3) would be for six months in the amount of \$276,550.00, for a total cost not-to-exceed \$2,532,450.00, and a time extension of six months for a total contract duration of fifty-nine months.

Attached is a draft Great Lakes Water Authority (“GLWA”) Board letter. Typically, this matter would be brought to the Board at their meeting on April 22, 2020. Given the COVID-19 impact on meetings scheduled, it is recommended that the Chief Executive Officer (CEO) proceed with executing this change order in accordance with Resolution 2020-114 adopted on March 20, 2020 regarding “Delegation of Additional Authority to CEO During COVID-19 Emergency”. This will also allow staff to begin the change order and then focus on the stakeholder engagement work plan.

Proposed Action: The Audit Committee recommends that the CEO executes Change Order 3 of Contract No. GLWA CS-010, “Water Residential Assistance Program (WRAP)” with Wayne Metropolitan Communication Action Agency, at a cost increase of \$276,550.00, for a total cost not-to-exceed \$2,532,450.00, and a time extension of six months for a total contract duration of fifty-nine months. Said action to be reported to the Great Lakes Water Authority Board at their next regular meeting. Said action is consistent with Resolution 2020-114 adopted on March 20, 2020 regarding “Delegation of Additional Authority to CEO During COVID-19 Emergency”.

..Title

Proposed Change Order No. 3 - GLWA CS-010 Water Residential Assistance Program

..Body

Agenda of: To Be Determined

Item No.: **2020-117**

Amount:	Original Contract:	\$ 825,000.00
	Change Order No. 1:	\$ 480,000.00
	Change Order No. 2:	\$ 950,000.00
	Proposed Change Order No. 3:	<u>\$ 276,550.00</u>
	Total Revised Contract:	\$2,532,450.00

TO: The Honorable
Board of Directors
Great Lakes Water Authority

FROM: Sue F. McCormick
Chief Executive Officer
Great Lakes Water Authority

DATE: March 27, 2020

RE: Proposed Change Order No. 3 - GLWA CS-010 Water Residential Assistance Program

MOTION

Upon recommendation of Nicolette N. Bateson, Chief Financial Officer/Treasurer, The Board of Directors (Board) of the Great Lakes Water Authority (GLWA), **ratify the action of the Chief Executive Officer to execute Change Order 3 for Contract No. GLWA CS-010, “Water Residential Assistance Program (WRAP)” with Wayne Metropolitan Communication Action Agency, at a cost increase of \$276,550.00, for a total cost not-to-exceed \$2,532,450.00, and a time extension of six months for a total contract duration of fifty-nine months, as authorized by Resolution 2020-114 adopted on March 20, 2020 regarding “Delegation of Additional Authority to CEO During**

COVID-19 Emergency” and authorizes the Chief Executive Officer or Chief Financial Officer to take such other action as may be necessary to accomplish the intent of this vote.

BACKGROUND

The Water Residential Assistance Program (“WRAP”) provides sustainable funding for qualifying low-income residents served by the Great Lakes Water Authority’s (“GLWA”) customers. The program is currently funded by GLWA at an amount equal to 0.5 percent of budgeted revenues with the budgeted FY 2021 funding level of \$6.1 million combined for water and sewer services.

The WRAP began providing assistance to residents in the GLWA service area on March 1, 2016 and as of October 31, 2019 has committed over \$14.2 million in assistance and conservation funds to over 19,000 qualified WRAP participants. Wayne Metro has been the WRAP program administrator for GLWA since the program’s inception.

The current contract with Wayne Metro (GLWA CS-010) expires on June 30, 2020 and has been in place for nearly four and a half years. GLWA is recommending that the contract for the WRAP program administrator be bid out again through a competitive procurement process before the end of the current contract. If a new vendor is selected, the current contract with Wayne Metro will need to be extended in order to transition responsibilities to the new vendor. Therefore, GLWA is recommending the extension of the current contract (GLWA CS-010) through December 31, 2020 through a contract amendment (Change Order 3). The current status of GLWA CS-010 is summarized below:

PROJECT MANAGEMENT STATUS

Original Start Work Date:	February 22, 2016
Original Contract End Date:	February 21, 2018
Change Order 1 Contract End Date:	June 30, 2018
Change Order 2 Contract End Date:	June 30, 2020
Proposed Change Order 3 Contract End Date:	December 31, 2020

Contract Estimate

Original Contract Price:	\$825,000.00
Change Order No. 1:	\$480,900.00
Change Order No. 2:	<u>\$950,000.00</u>
Contract Total:	\$2,255,900.00
Proposed Change Order No. 3	\$276,550.00
Proposed New Contract Total:	\$2,532,450.00

JUSTIFICATION

The contract with Wayne Metro specifies the not-to-exceed administrative fee amount based on the anticipated allocation of assistance dollars to each county. Change Order 3 extends the GLWA CS-010 contract six months to December 31, 2020 increasing the contract amount based on the total budgeted WRAP funding amounts. (See Table 1- FY 2021 WRAP Budget Attachment 1). This extension of time will provide for stakeholder input into program design before issuing a request for proposal for these services.

BUDGET IMPACT

The funding of the proposed administration fees for WRAP are paid from the 0.5% of the budgeted WRAP funds each year and do not impact the FY 2021 Budget.

COMMITTEE REVIEW

This matter was reviewed by the GLWA Audit Committee at its meeting on March 27, 2020. The Audit Committee [3/26/2020 pending action: *recommended that the CEO executes Change Order 3 of Contract No. GLWA CS-010, "Water Residential Assistance Program (WRAP)" with Wayne Metropolitan Communication Action Agency, at a cost increase of \$276,550.00, for a total cost not-to-exceed \$2,532,450.00, and a time extension of six months for a total contract duration of fifty-nine months. Said action to be reported to the Great Lakes Water Authority Board at their next regular meeting. Said action is consistent with in accordance with Resolution 2020-114 adopted on March 20, 2020 regarding "Delegation of Additional Authority to CEO During COVID-19 Emergency".*]

Table 1 - FY 2021 WRAP Budget

Community	Budgeted Direct Assistance	Budgeted Conservation Assistance	Budgeted Administration Costs	Total Budgeted Revenue	Allocation
CITY OF DETROIT					
SHARE OF WHOLESALE FUNDING	\$776,087	\$194,022	\$116,400	\$1,086,509	26.60%
LOCAL WRAP FUNDING	1,431,440	357,860	214,700	2,004,000 (1)	
TOTAL DETROIT	\$2,207,527	\$551,882	\$331,100	\$3,090,509 (2)	26.60%
WAYNE COUNTY	736,129	184,032	73,600	993,761	24.33%
OAKLAND COUNTY	851,554	212,889	85,200	1,149,643	28.15%
MACOMB COUNTY	551,503	137,876	55,100	744,479	18.23%
GENESEE COUNTY	18,150	4,538	1,800	24,488	0.60%
WASHTENAW COUNTY	40,932	10,233	4,100	55,265	1.35%
LAPEER COUNTY	12,891	3,223	1,300	17,414	0.43%
MONROE COUNTY	6,536	1,634	600	8,771	0.21%
ST. CLAIR COUNTY	3,097	774	300	4,171	0.10%
FY 2021 TOTAL	\$4,428,320	\$1,107,080	\$553,100 (3)	\$6,088,500	100.00%
FY 2020 TOTAL	\$3,528,422	\$882,105	\$457,573	\$4,868,100	100.00%

(1) Includes Local WRAP of 1.0% of Budgeted Base Revenues

(2) Total allocated FY 2020 WRAP funding for Detroit was \$1,968,243

(3) Based on FY 2021 Budgeted WRAP Funding of:

Wholesale Funding	\$4,084,500
Detroit Local Funding	2,004,000
Total WRAP Funding	<u>\$6,088,500</u>
50% Administration Fees:	\$276,550



Financial Services Audit Committee Communication

Date: March 27, 2020
To: Great Lakes Water Authority Audit Committee
From: Nicolette N. Bateson, CPA, Chief Financial Officer & Treasurer
Re: CFO Updates

COVID-19 Response

Supporting Operational Needs: The Great Lakes Water Authority's dedicated team members are fully engaged in ensuring continuity of operations. The role of Financial Services Area, which includes the Logistics & Materials and Procurement function, has been on the front line of expanding sources of equipment and supplies.

Vendor Relations: On March 23, 2020, Governor Gretchen Whitmer issued Executive Order 2020-21, the "Stay Home, Stay Safe" Order. This permits critical infrastructure organizations to continue operations. Under Section 8 of the Order, "water and wastewater" operations are critical infrastructure and healthy workers in this sector may continue to work. Section 9 of the Order addresses the vendor community that supports critical infrastructure operations. In accordance with those provisions, starting March 27, 2020, GLWA is sending letters by email to vendors that have been identified as meeting the criteria established in that order.

Potential FEMA reimbursement: This week, we also began the process to identify the incremental costs associated with COVID-19 and revising business processes to easily capture those costs in anticipation of Federal Emergency Management Agency (FEMA). In addition, we have also been in contact with other levels of government to collaborate and coordinate in preparing required documentation.

Budget Impact: Given that this COVID-19 pandemic has incrementally increased in Michigan over the past few weeks, the additional expenses incurred have not been calculated but are at a level that can be managed within the prioritization of the current total operations and maintenance budget. Next month's report will include an update.

Service Revenue Impact: The Public Finance team is developing additional detailed analysis for GLWA to monitor any material changes in usage. An initial report is expected next week.

Investment Income Impact: Attached is a memo from Brian Quinn, Managing Director, PFM Asset Management LLC. He was asked to provide an analysis of the recent market volatility and describe how it is impacting the investment management. Based on what we know today, it appears that investment income in the short-term (i.e. through June 30, 2020) could result in a negative variance of \$1.4 million. Brian also addressed how the market today could impact GLWA's investment earnings over the course of the five-year planning horizon. While there is some fluctuation from prior projections, The Foster Group was

asked how this impacts the current, published five-year financial plan. Fortunately, the new investment rate assumptions from PFM over the course of five years, are within then forecasted investment income (negative variance in first two years and positive in the subsequent three years).

Remote Work Locations: Team members who can perform their work at offsite locations are successfully doing so. Given our multi-location organization with significant cross-functional team interaction, going remote was a relatively easy transition. The functional teams readily developed productivity measures, check-in meetings, and embraced the use of technology to operate in a virtual office environment.

2020 Bond Transaction

The GLWA management team and advisors continue to monitor the market in light of the COVID-19 impact. Like many other refinancing transactions, GLWA will look to execute the transaction when conditions are favorable and the savings objectives are met.

Financial Services Knowledge Share



Members of the Financial Services (FSA) and IT teams recently attended 2-day training for Adobe Captivate software with a New Horizons instructor onsite. Captivate will be instrumental in creating FSA instructional videos and presentations which can then be uploaded to YouTube or LMS.

LtoR: Katlyn Butzin, Jackie Morgan, Shavarn Smith, Susan Kopinski, Greg Monson, Phyllis Walsh, Liz Duncan, Dan Workman (New Horizons instructor), Melissa Phelan, Lynn Herrick (IT), Jodi DiVito, Ashlee Gravley, Nickie Bateson and Sharon Davis-Beavers. (not pictured-Jennifer Payne from IT)

Proposed Action: Receive and file report.



March 26, 2020

Memorandum

To: Nicolette Bateson, CPA, Chief Financial Officer/Treasurer
Deirdre Henry, Treasury Manager
Great Lakes Water Authority

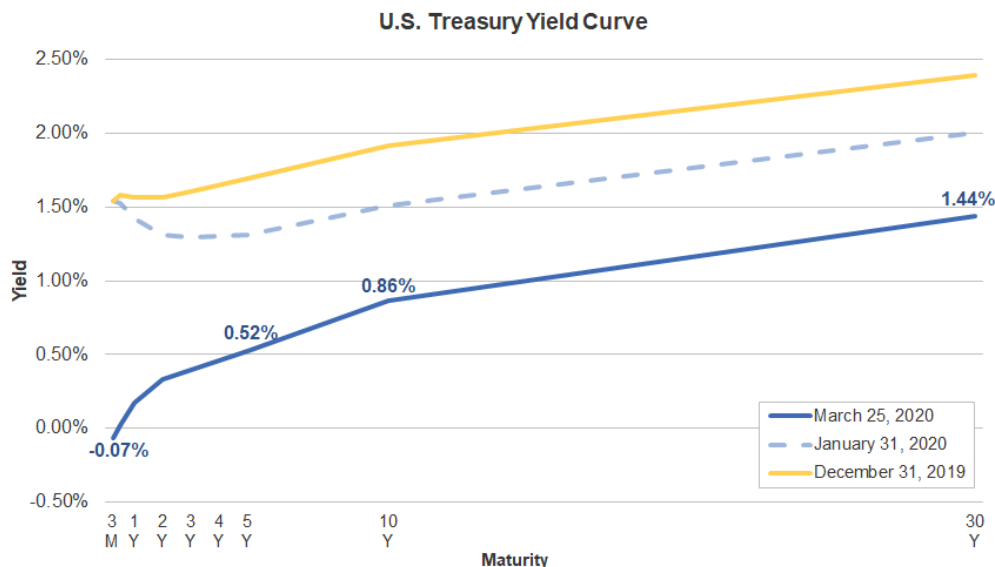
From: Brian Quinn, Managing Director
PFM Asset Management LLC

Re: Monitoring the Great Lakes Water Authority's Investment Program in a Volatile Market

I am writing to update you on the investable assets that PFM Asset Management LLC ("PFM") manages on behalf of the Great Lakes Water Authority (the "Authority"). Market volatility over the past month has been extraordinary, and we have been very active in monitoring the Authority's assets to provide needed liquidity and return a yield that is reflective of the short-term investment markets. It should be noted that PFM has updated the Authority on how the coronavirus has affected the financial markets and together have addressed the current market turbulence fueled by growing concerns over the impact of the coronavirus.

Liquidity:

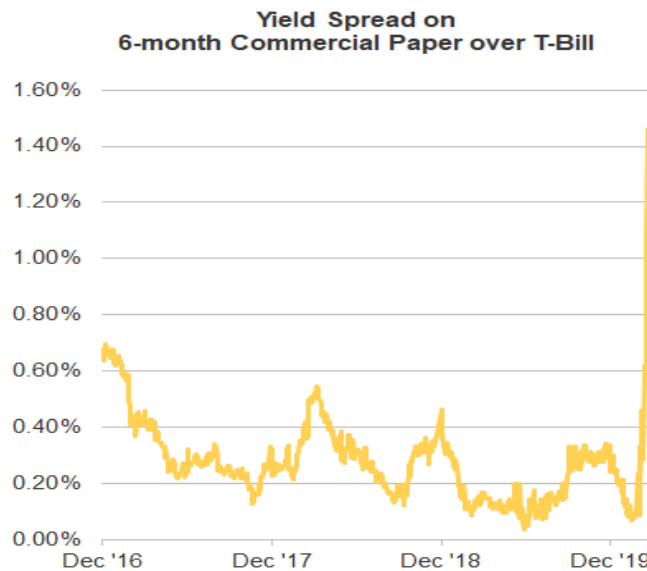
The current market turbulence has been caused by the spreading coronavirus, oil market price collapse, and other market disturbances. Additionally, the sharp downward move in short-term rates, created in part by the Federal Reserve's unscheduled cut in the target overnight rate by 0.50% on March 3rd (and the Fed's subsequent emergency action of slashing interest rates close to zero on March 15th), has pushed U.S. Treasury interest rates lower as noted below:



Source: Bloomberg as of March 25, 2020

To illustrate the magnitude of the interest rate decline, the 3-month Treasury has declined by 1.62% year-to-date and the current yield is -0.07% (as of March 25, 2020).

In addition, commercial paper (“CP”) spreads have widened dramatically in response to the crisis. Commercial paper spreads spiked recently as noted below:



The widening of commercial paper spreads initially caused a liquidity crunch in the short-term market. In mid-March the Federal Reserve moved quickly to remedy this situation by taking numerous steps to provide liquidity to the fixed income markets as highlighted in the table below:

Date	Program Name	Purpose
3/17/2020	Commercial Paper Funding Facility	Backstop Commercial Paper market
3/17/2020	Primary Dealer Credit Facility	Enhance market liquidity by allowing Primary Dealers to post collateral with Fed for loans
3/18/2020	Money Market Mutual Fund Liquidity Facility	Provide liquidity to prime money funds by allowing prime funds to post collateral with Fed and receive advances
3/19/2020	Central Bank Liquidity Swap Lines	Reduce strains in dollar funding markets

Credit:

The spread of the coronavirus has had a significant impact on the financial industry. While the current crisis is not considered a financial crisis/credit crisis, there are obvious ramifications for commercial enterprises generally in the United States; however, unlike 2008, banks and financial institutions are much better capitalized to withstand financial pressures through improved capital and liquidity requirements.

In this environment, a liquidity provider's/bank's ability to generate cash flows may be pressured in the short-term. However, the above-mentioned steps taken by the Federal Reserve to provide liquidity to the corporate and banking sector should help to lower liquidity concerns as the Fed's facilities should allow banks and liquidity providers to borrow directly from the Fed's credit facility.

Earnings Impact

Given the extensive volatility in the bond market driving yields down, it is difficult to approximate earnings for the remainder of the 2020 fiscal year until the volatility subsides. Our original projection for fiscal 2020 was \$17.4 million. Given the Federal Reserve's March movement of the overnight rate to a range of 0-.25% and the short duration of the portfolio, we believe earnings may be negatively impacted to approximately \$16 million. It should be noted that GLWA had already earned \$10.45 million through December 2019.

The more significant impact of the lower interest rate will be felt in future years. The following tables contain an updated interest earnings projection for the Authority for fiscal years 2021 – 2025 by category. Note that the fiscal year 2019 average balances were used to calculate the following projections as we felt that this was the best proxy that we had available for future balances. In addition, in our updated calculations, the implied forward rate on the 3-month Treasury Bill was used as the reinvestment assumption for the cash / money market fund accounts; the forward curve on the 6-month Treasury Bill was used for the cash-flow driven accounts; and the forward curve on the 1-year Treasury Note was used for the benchmarked managed assets. These projections (all based on implied forward rates as of 2/29/2020) may be modified in the future depending on changes in the Authority's balance sheet and interest rates.

<u>Investment Type</u>	<u>Fiscal Year 2019 Average Balance</u>	<u>Average Yield (FY 2021)</u>	<u>Average Yield (FY 2022)</u>	<u>Average Yield (FY 2023)</u>	<u>Average Yield (FY 2024)</u>	<u>Average Yield (FY 2025)</u>
Cash / Money Market	\$447,777,915	0.82%	0.86%	0.99%	1.19%	1.39%
Cash-flow Driven Managed Funds	\$392,714,691	0.82%	0.87%	0.99%	1.19%	1.39%
Benchmarked Managed Funds	\$216,863,701	0.82%	0.87%	1.00%	1.20%	1.40%
Total	\$1,057,356,307	0.82%	0.87%	0.99%	1.19%	1.39%

<u>Investment Type</u>	<u>Fiscal Year 2019 Average Balance</u>	<u>Approximate Earnings (FY 2021)</u>	<u>Approximate Earnings (FY 2022)</u>	<u>Approximate Earnings (FY 2023)</u>	<u>Approximate Earnings (FY 2024)</u>	<u>Approximate Earnings (FY 2025)</u>
Cash / Money Market	\$447,777,915	\$3,671,779	\$3,850,890	\$4,433,001	\$5,328,557	\$6,224,113
Cash-flow Driven Managed Funds	\$392,714,691	\$3,220,260	\$3,416,618	\$3,887,875	\$4,673,305	\$5,458,734
Benchmarked Managed Funds	\$216,863,701	\$1,778,282	\$1,886,714	\$2,168,637	\$2,602,364	\$3,036,092
Total	\$1,057,356,307	\$8,670,322	\$9,154,222	\$10,489,514	\$12,604,226	\$14,718,939

Note: Information projected based upon implied forward rates as of February 29, 2020.

PFM Steps:

PFM continues to review issuers and portfolio holdings in consideration of the current market environment and each client's investment policy requirements. Our credit process looks at business strengths/risks, including analysis of many dynamics including the evaluation of market liquidity, government or regulatory activity, whether the actual business is critical to the welfare of the United States, the quality of the current management, as well as its credit rating and many other factors. All these items are being considered to determine the financial strength of a company and its ability to pay principal to investors at maturity. In concordance with other economists and rating agencies, we do not foresee substantial weakening of credit quality or liquidity availability from large domestic financial institutions.

First and foremost, PFM remains focused on liquidity and safety in the Authority's portfolios. We have temporarily halted most credit purchases for our clients as we await a return to normalcy in the marketplace. With the exception of a few very short-term highly-rated financial institutions, we are not currently buying any sectors other than Treasuries and federal agencies. While this does not necessarily affect the Authority due to your specific investment policy guidelines, rest assured that we continue to invest in highly-liquid and highly-rated securities on your behalf in all of your portfolios.

Please note that the investment team at PFM is vigilant around possible future market moves and will continue to monitor the Authority's funds to preserve principal and provide liquidity as needed. PFM will continue to work proactively with the Authority to determine the best course of action based upon the current and projected market conditions. We would be happy to discuss this memorandum with the Authority further should it have any questions or concerns or need additional information or clarification.

GLWA

Great Lakes Water Authority



Monthly Financial Report Binder

December 2019

**Presented to the
Great Lakes Water Authority
Audit Committee on March 27, 2020**

TABLE OF CONTENTS

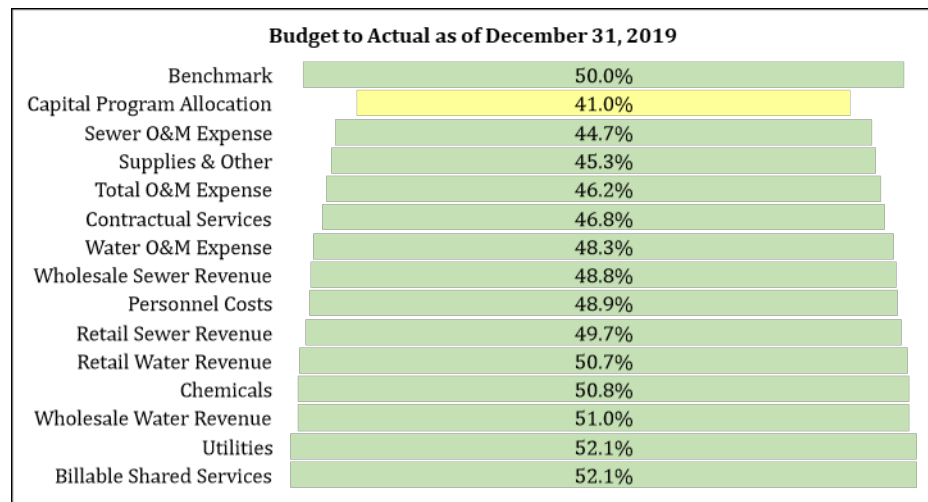
Executive Summary Dashboard	1
Budget to Actual Analysis.....	2
Basic Financial Statements	8
Financial Activity Charts.....	16
Financial Operations Key Performance Indicator.....	19
Budget to Financial Statements Crosswalk.....	20
Construction Work in Progress Summary	24
Master Bond Ordinance Transfers	26
Cash and Investment.....	31
Retail Revenues, Receivables, & Collections	35
Wholesale Billings, Receivables, & Collections.....	39
Trust Receipts and Disbursements	45
Appendix	
Aged Accounts Receivable Report.....	A-1
Highland Park Life-to-Date Billings & Collections	B-1

Revenue and Expense Budget to Actual¹ – Pro-rata Benchmark of 50%

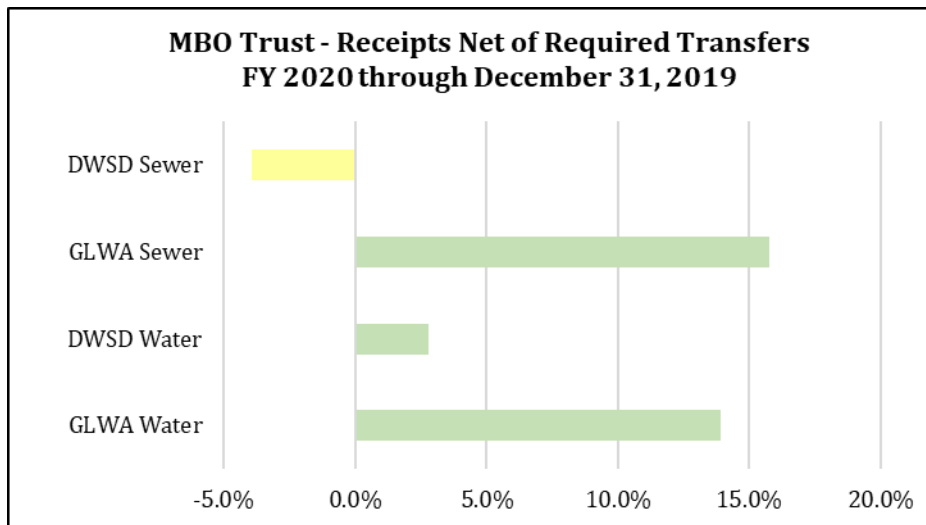
Most revenue and expense reporting categories fall within 7.5% of the pro-rata budget to actual benchmark.

The Capital Program Allocation variation is due to two reasons. Through December 31, 2019, GLWA team member hours posted to projects is 10% less than the prior

year due to increased focus on large maintenance projects versus capital projects. The remaining difference is due to a new element this year which is the AECOM Capital Program Management project. To date, no fees have been incurred that have been identified for capitalization.



Master Bond Ordinance (MBO) Trust Net Receipts



Net cash flow (receipts) is positive for GLWA Water and Sewer. This means that all legal commitments of the MBO Trust and the lease payment are fully funded to date – and that positive cash flow is available for additional capital program funding in

subsequent year(s). DWSD Water and Sewer also report positive cash flows through December. DWSD Sewer reported positive net receipts of \$5.4 million for December 2019 decreasing the cumulative FY 2020 DWSD Sewer shortfall to \$5.3 million. Looking ahead, this shortfall is remedied by the end of February 2020 with cash replenishment transfers to GLWA; the DWSD Operations & Maintenance budgeted transfer request was reduced by \$1 million for March 2020 to hedge any future cashflow timing issues.

Questions? Contact the Office of the Chief Financial Officer at CFO@glwater.org

¹ All amounts are GLWA entity-wide unless noted as water, sewer, and/or retail.

The Monthly Budget to Actual Analysis report includes the following three sections.

1. Revenue Requirement Budget Basis Analysis
2. Operations & Maintenance Budget – Major Budget Categories
3. Alignment of Operations & Maintenance Budget Priorities – Expense Variance Analysis

Revenue Requirement Budget Basis Analysis

GLWA's annual revenue requirement represents the basis for calculating Member Partner charges and aligns with the Master Bond Ordinance flow of funds categories. The budget basis is not the same as the full accrual basis used for financial reporting although the revenues and operations and maintenance expense are largely reported on an accrual basis. The primary difference between the revenue requirement budget basis to the financial reporting basis is the treatment of debt service, legacy pension obligations, and lease related activities. The Revenue Requirement Basis is foundational to GLWA's daily operations, financial plan, and of most interest to key stakeholders.

Table 1A – Water Revenue Requirement Budget and **Table 1B – Sewer Revenue Requirement Budget** presents a year-over-year budget to actual performance report. The revenue requirement budget is accounted for in the operations and maintenance fund for each system. Since this report is for December 2019, the pro-rata benchmark is 50.0% (6 of 12 months of the fiscal year).

Items noted below are highlighted in gold on Tables 1A (Water) and 1B (Sewer).

1. **Revenues:** For *both* systems, FY 2020 revenues are either at or above target and are consistent with the prior year (FY 2019) at the same time. Detailed schedules related to revenues are provided in the *Wholesale Billings, Collections, and Receivables* section of this financial report binder.
2. **Investment Earnings:** For *both* systems, investment earnings are below target for FY 2020. July 2019 includes the reversal of the market adjustment from FY 2019 of \$1.6 million for the *water* system and \$0.6 million for the *sewer* system. Without these adjustments both systems would be above target for FY 2020. Detailed analysis of investment earnings activity to date can be found in the *Cash & Investment Income* section of this financial report binder.
3. **Other Revenues:** These are one-time and unusual items that do not fit an established revenue category. Both the *water* and *sewer* systems actual amount will vary from budget due to the nature of the items recorded in this category.

4. **Operations & Maintenance Expense:** Actual expenses¹ for *both* systems have variances from the pro-rata benchmark. The *water* system is slightly under the pro-rata benchmark for FY 2020 at 48.3%. The *sewer* system O&M expenses, at 44.7%, is less than the pro-rata benchmark.
5. **Debt Service:** *Both* systems are less than the pro-rata benchmark for FY 2020; the water system is at 47.4%; while the sewer system is at 48.4%. The activity is based on the payment schedules adjusted for the State Revolving Fund loans that are still being drawn down. In addition, the monies invested in FY 2019 realized a higher return than projected. This gain was applied to the debt requirements which reduced the payments for July and August.
6. **DWSD Budget Shortfall Pending:** To the extent that the local (DWSD) system experiences budgetary shortfalls as defined by the Water & Sewer Services Agreement, the GLWA budget is impacted.² Steps to proactively detect, and ideally prevent, this shortfall scenario were put into place with the 2018 Memorandum of Understanding (dated June 27, 2018). For FY 2019, DWSD sewer had a shortfall through December 31, 2018, of \$4.1 million (FY 2019 ended with a small surplus). In order to achieve the goal of positive, net cash flows for FY 2019, DWSD reduced its sewer system O&M transfers in May and June. The transfers reduced were \$5,676,792 each for a total of \$11,353,584. For FY 2020, the DWSD water system has budgetary surplus of \$1.4 million and the DWSD sewer system has a budgetary shortfall of \$5.3 million through December 31, 2019. Looking ahead, this shortfall is remedied by the end of February 2020 with cash replenishment transfers to GLWA; the DWSD Operations & Maintenance budgeted transfer request was reduced by \$1 million for March 2020 to hedge any future cashflow timing issues.
7. **Improvement & Extension (I&E) Fund Transfer Pending:** The contribution to the I&E Fund is for improvements, enlargements, extensions or betterment of the Water System. Transfers to the I&E Fund from net revenues are now completed monthly.
8. **Other Revenue Requirements:** The remaining revenue requirements for *both* systems are funded on a 1/12th basis each month in accordance with the Master Bond Ordinance.
9. **Overall:** Total revenue requirements for *both* systems are in line with the benchmark.

¹The tables in this analysis reflect actual amounts spent. If this analysis was on a master bond ordinance (MBO) basis, like that used for calculating debt service coverage, O&M “expense” would equal the pro-rata budget because 1/12 of the O&M budget is transferred monthly outside the MBO trust to an O&M bank account.

² As a reminder, the monthly O&M transfer for MBO purposes are at 1/12 of the budget to a DWSD O&M bank account outside the trust. Actual budget may be less than that amount providing an actual positive variance for DWSD.

Table 1A – Water Revenue Requirement Budget (year-over-year) – (\$000)

	FY2019 AMENDED BUDGET	FY 2019 THRU 12/31/2018	Percent Year-to- Date	FY 2020 BOARD ADOPTED BUDGET	FY 2020 AMENDED BUDGET	FY 2020 THRU 12/31/2019	Percent Year-to- Date
Water System							
Revenues							
Suburban Wholesale Customer Charges	\$ 307,383	\$ 161,170	52.4%	\$ 309,285	\$ 309,285	\$ 158,158	51.1%
Retail Service Charges	20,181	10,163	50.4%	21,296	21,296	10,648	50.0%
Investment Earnings	9,425	4,631	49.1%	9,084	9,084	3,198	35.2%
Other Revenues	-	25	0.0%	-	-	-	0.0%
Total Revenues	\$ 336,989	\$ 175,989	52.2%	\$ 339,664	\$ 339,664	\$ 172,004	50.6%
Revenue Requirements							
Operations & Maintenance Expense	\$ 121,563	\$ 58,671	48.3%	\$ 131,491	\$ 131,491	\$ 63,539	48.3%
General Retirement System Legacy Pension	6,048	3,024	50.0%	6,048	6,048	3,024	50.0%
Debt Service	131,242	65,610	50.0%	137,558	137,558	65,180	47.4%
General Retirement System Accelerated Pension	6,268	3,134	50.0%	6,268	6,268	3,134	50.0%
Extraordinary Repair & Replacement Deposit	-	-	0.0%	-	-	-	0.0%
Water Residential Assistance Program Contribution	1,673	837	50.0%	1,698	1,698	849	50.0%
Lease Payment	22,500	11,250	50.0%	22,500	22,500	11,250	50.0%
Operating Reserve Deposit	-	-	0.0%	3,976	3,976	1,988	50.0%
Improvement & Extension Fund Transfer Pending	47,695	23,848	50.0%	30,126	30,126	15,063	50.0%
Total Revenue Requirements	\$ 336,989	\$ 166,373	49.4%	\$ 339,664	\$ 339,664	\$ 164,026	48.3%
Net Difference		\$ 9,617				\$ 7,978	
<i>Recap of Net Positive Variance</i>							
Revenue Variance		\$ 7,495				\$ 2,172	
Revenue Requirement Variance		2,122				5,806	
Overall Variance		\$ 9,617				\$ 7,978	

Table 1B – Sewer Revenue Requirement Budget (year-over-year) – (\$000)

	FY 2019 AMENDED BUDGET	FY 2019 THRU 12/31/2018	Percent Year-to- Date	FY 2020 BOARD ADOPTED BUDGET	FY 2020 AMENDED BUDGET	FY 2020 THRU 12/31/2019	Percent Year-to- Date
Sewer System							
Revenues							
Suburban Wholesale Customer Charges	\$ 271,296	\$ 137,477	50.7%	\$ 272,324	\$ 272,324	\$ 134,205	49.3%
Retail Service Charges	181,159	91,504	50.5%	185,807	185,807	92,904	50.0%
Industrial Waste Control Charges	15,001	4,608	30.7%	13,744	13,744	4,186	30.5%
Pollutant Surcharges	-	3,012	0.0%	-	-	3,057	0.0%
Investment Earnings	6,879	4,358	63.4%	8,731	8,731	4,141	47.4%
Other Revenues	-	267	0.0%	-	-	247	0.0%
Total Revenues	\$ 474,335	\$ 241,225	50.9%	\$ 480,605	\$ 480,605	\$ 238,740	49.7%
Revenue Requirements							
Operations & Maintenance Expense	\$ 191,079	\$ 85,870	44.9%	\$ 187,057	\$ 187,057	\$ 83,639	44.7%
General Retirement System Legacy Pension	10,824	5,412	50.0%	10,824	10,824	5,412	50.0%
Debt Service	208,389	101,995	48.9%	215,739	215,739	104,497	48.4%
General Retirement System Accelerated Pension	11,621	5,810	50.0%	11,621	11,621	5,810	50.0%
Extraordinary Repair & Replacement Deposit	-	-	0.0%	-	-	-	0.0%
Water Residential Assistance Program Contribution	2,374	1,187	50.0%	2,403	2,403	1,202	50.0%
Lease Payment	27,500	13,750	50.0%	27,500	27,500	13,750	50.0%
Operating Reserve Deposit	-	-	0.0%	-	-	-	0.0%
DWSD Budget Shortfall Pending	-	4,129	0.0%	-	-	5,337	0.0%
Improvement & Extension Fund Transfer Pending	22,548	11,274	50.0%	25,462	25,462	12,731	50.0%
Total Revenue Requirements	\$ 474,335	\$ 229,428	48.4%	\$ 480,605	\$ 480,605	\$ 232,378	48.4%
Net Difference		\$ 11,797				\$ 6,362	
<i>Recap of Net Positive Variance</i>							
Revenue Variance		\$ 4,058				\$ (1,563)	
Revenue Requirement Variance		7,740				7,925	
Overall Variance		\$ 11,797				\$ 6,362	

Operations & Maintenance Budget – Major Budget Categories

The year-over-year benchmark ratio as of December 31, 2019, is 50.0% (six months). When comparing FY 2020 to FY 2019 in **Table 2 – Operations & Maintenance Budget – Major Budget Categories**, it appears that overall spending is consistent.

In addition to the four major budget categories, an internal charge cost center for employee benefits is shown in the table below. If the number is positive, it indicates that the internal cost allocation rate charges to other cost centers is not sufficient. A negative number indicates a surplus in the internal cost center. A moderate surplus is preferred as it provides a hedge for mid-year benefit program cost adjustments (premiums adjust on January 1 each year) as well as managing risk as the program is partially self-insured. An analysis of the benefits is currently being conducted using updated benefit information. A budget amendment may be needed to increase the budget for the FY 2020 employee benefits.

Table 2 – Operations & Maintenance Budget – Major Budget Categories – (\$000)

Major Budget Categories	FY 2019 AMENDED BUDGET	FY 2019 ACTIVITY THRU 12/31/2018	Percent Year-to- Date	FY 2020 BOARD ADOPTED BUDGET	FY 2020 AMENDED BUDGET	FY 2020 ACTIVITY THRU 12/31/2019	Percent Year-to- Date
Water	\$ 66,596	\$ 34,552	51.9%	\$ 66,021	\$ 66,021	\$ 34,780	52.7%
Sewer	118,319	54,265	45.9%	115,985	115,985	53,139	45.8%
Centralized	99,045	44,250	44.7%	106,914	106,914	45,836	42.9%
Administrative	28,683	12,716	44.3%	29,628	29,628	14,178	47.9%
Employee Benefits	-	(1,242)	0.0%	-	-	(756)	0.0%
Total O&M Budget	\$ 312,642	\$ 144,541	46.2%	\$ 318,548	\$ 318,548	\$ 147,178	46.2%

Alignment of Operations & Maintenance Budget Priorities – Expense Variance Analysis

The purpose of **Table 3 – Operations & Maintenance Expense Variance Analysis** is to evaluate whether the actual spend rate within a natural cost category is in alignment with the budget. Given the effort to develop an accurate budget, a variance is a red flag of a *potential* budget amendment or misalignment of priorities.

Total: In total, the O&M expenses are at 46.2% which is reasonably within the pro-rata benchmark of 50.0%. This positive variance equates to a dollar amount of \$12.1 million. The expense category commentary is provided below for items highlighted on Table 3.

Personnel Costs: The overall category is on target with the pro-rata benchmark; coming in at 48.9% through December 2019.

Utilities: The overall category is higher than the benchmark; coming in at 52.1% through December 2019. This variance is not unexpected as usage varies throughout the year.

- **Electric** is higher than the benchmark, coming in at 54.7%. This increase is primarily due to the pumps being required to run longer than normal as a result of the wet weather that Michigan has been experiencing. In addition, the first three months of GLWA's fiscal year (July, August, and September) are typically peak months for the usage of electricity. June, the last month of GLWA's fiscal year, is typically a peak month as well.
- **Gas** is coming in at 40.3%. While this is lower than the benchmark of 50.0%, it is consistent with the prior year (FY 2019). A review of the accounts has confirmed that the usage is variable throughout the year. It is anticipated that actuals will come in at the anticipated budgeted amount for FY 2020.
- **Water service** is lower than the benchmark, coming in at 45.1%. While usage does vary throughout the year, a review of the accounts has shown that the water service bills are coming in lower for Wastewater Operations. Processing efficiencies through the use of the new chemical building has reduced the use of potable water during wet weather events.

Chemicals: This category is on target with the pro-rata benchmark; coming in at 50.8% through December 2019.

Supplies & Other: This category is lower than the benchmark; coming in at 45.3% through December 2019. Given that the nature of the items in this category are subject to one-time expenses that do not occur evenly throughout the year, this variance is not a concern at this time.

Contractual Services: The overall category is lower than the benchmark; coming in at 46.8% through December 2019. Variances in this category are not unexpected as the usage of contracts varies throughout the year (projects scheduled to begin during the latter half of the year as well as contracts that are on an as needed basis). Budget amendments will be processed for those projects in which the actual start dates have been delayed from that in which they were budgeted.

Capital Program Allocation: This category is lower than the benchmark; coming in at 41.0% through November 2019. The amount in the Capital Program Allocation account is shown as negative as this is a "contra" account which represents an offset to the Personnel Costs section of the Operations & Maintenance (O&M) budget. A new element this year is the addition of contracted AECOM Capital Program Management services. The variance is due to two primary reasons. First, through December 31, 2019, GLWA team member hours posted to projects is 10% less than the prior year. This is due to increased focus on large maintenance projects versus capital projects. Second, no AECOM fees have been incurred that have been identified for capitalization.

Shared Services: This category is higher than the benchmark; coming in at 52.1% through December 2019. The shared services reimbursement is comprised of both labor (tracked via BigTime) and expenses, such as annual fees for software licensing. Staff from both GLWA and DWSD have been working together to evaluate and refine the budget for the shared services agreements. Based on these evaluations, adjustments have been made to both the billings and accounting accruals to more accurately reflect the forecasted activity for FY 2020. A budget amendment was entered in December 2019 to adjust the shared services budget to this revised FY 2020 forecast.

Table 3 – Operations & Maintenance Expense Variance Analysis – (\$000)

Expense Categories	FY 2019 AMENDED BUDGET	FY 2019 ACTIVITY THRU 12/31/2018	Percent Year-to- Date at 12/31/2018	FY 2019 ACTIVITY THRU 6/30/2019	Percent Year-to- Date at 6/30/2019	FY 2020 AMENDED BUDGET	FY 2020 PRORATED AMENDED BUDGET (6 MONTHS)	FY 2020 ACTIVITY THRU 12/31/2019	Percent Year-to- Date	PRORATED BUDGET LESS FY 2020 ACTIVITY
Entity-wide										
Salaries & Wages	\$ 63,631	\$ 30,025	47.2%	\$ 59,922	50.1%	\$ 68,233	\$ 34,116	\$ 32,257	47.3%	\$ 1,859
Workforce Development	751	368	49.0%	794	46.3%	1,001	501	456	45.5%	45
Overtime	7,612	3,761	49.4%	7,554	49.8%	6,153	3,077	3,691	60.0%	(614)
Employee Benefits	23,656	12,481	52.8%	21,998	56.7%	22,957	11,479	12,697	55.3%	(1,218)
Transition Services	8,572	3,723	43.4%	8,322	44.7%	6,048	3,024	2,677	44.3%	347
Employee Benefits Fund	-	(1,242)	0.0%	-	0.0%	-	-	(756)	0.0%	756
Personnel Costs	104,221	49,118	47.1%	98,589	49.8%	104,392	52,196	51,022	48.9%	1,174
Electric	39,019	20,953	53.7%	39,103	53.6%	38,386	19,193	20,994	54.7%	(1,801)
Gas	6,631	2,700	40.7%	6,568	41.1%	6,451	3,225	2,597	40.3%	628
Sewage Service	2,491	1,036	41.6%	2,094	49.5%	1,847	923	996	54.0%	(73)
Water Service	3,648	2,085	57.2%	3,631	57.4%	3,658	1,829	1,651	45.1%	178
Utilities	51,789	26,774	51.7%	51,396	52.1%	50,341	25,170	26,238	52.1%	(1,068)
Chemicals	13,385	6,712	50.1%	13,276	50.6%	13,899	6,949	7,066	50.8%	(117)
Supplies & Other	36,226	14,231	39.3%	37,121	38.3%	37,263	18,631	16,890	45.3%	1,742
Contractual Services	100,856	53,815	53.4%	101,873	52.8%	107,012	53,506	50,055	46.8%	3,451
Capital Program Allocation	(3,356)	(1,571)	46.8%	(3,381)	46.5%	(3,515)	(1,758)	(1,442)	41.0%	(315)
Shared Services	(9,005)	(4,538)	50.4%	(7,139)	63.6%	(5,089)	(2,545)	(2,651)	52.1%	106
Unallocated Reserve	18,524	-	0.0%	-	0.0%	14,246	7,123	-	0.0%	7,123
Total Expenses	\$ 312,642	\$ 144,541	46.2%	\$ 291,734	49.5%	\$ 318,548	\$ 159,274	\$ 147,178	46.2%	\$ 12,096

The Basic Financial Statements report includes the following four tables.

1. Statement of Net Position - All Funds Combined
2. Statement of Revenues, Expenses and Changes in Net Position – All Funds Combined
3. Supplemental Schedule of Operations & Maintenance Expenses -All Funds Combined
4. Supplemental Schedule of Nonoperating Expenses – All Funds Combined

At a macro level GLWA has two primary funds for financial reporting purposes: *Water Fund* and *Sewage Disposal Fund*. These funds represent the combined total of four sub-funds for each system that are used internally to properly account for sources and uses of funds. Those sub-funds for each system are: *Operations & Maintenance Fund, Improvement & Extension Fund, Construction Fund, and Capital Asset Fund*.

The Comparative June 2019 basic financial statements are presented based on final audited figures.

Statement of Net Position – All Funds Combined

Explanatory notes follow the Statement of Net Position shown in Table 1 below.

Table 1 – Statement of Net Position - All Funds Combined
As of December 31, 2019
(\$000)

	Water	Sewage Disposal	Total Business- type Activities	Comparative June 30, 2019
Assets				
Cash - unrestricted (a)	\$ 109,035	\$ 142,060	\$ 251,095	\$ 309,016
Cash - restricted (a)	90,251	113,799	204,050	261,999
Investments - unrestricted (a)	276,986	137,601	414,587	274,246
Investments - restricted (a)	82,052	126,015	208,067	185,831
Accounts Receivable	85,652	77,602	163,254	208,914
Due from (to) Other Funds (b)	(707)	707	-	2,890
Other Assets (c)	592,025	449,729	1,041,754	1,046,518
Cash Held FBO DWSD Advance (d)	-	4,714	4,714	
Capital Assets, net of Depreciation	1,356,476	2,278,847	3,635,323	3,747,784
Land	292,799	124,858	417,657	417,657
Construction Work in Process (e)	172,900	222,162	395,063	368,748
Total assets	3,057,470	3,678,095	6,735,564	6,823,603
Deferred Outflows (f)	91,800	174,703	266,503	273,596
Liabilities				
Liabilities - Short-Term (g)	137,228	169,582	306,810	321,270
Due to (from) Other Funds (b)	-	-	-	2,890
Other Liabilities (h)	2,707	6,275	8,982	9,097
Cash Held FBO DWSD (d)	3,611	-	3,611	2,807
Liabilities - Long-Term (i)	3,030,429	3,740,351	6,770,780	6,853,419
Total liabilities	3,173,975	3,916,208	7,090,182	7,189,483
Deferred Inflows (j)	58,374	52,556	110,930	108,541
Total net position (j)	\$ (83,079)	\$ (115,967)	\$ (199,045)	\$ (200,825)

Totals may be off due to rounding

In general, the Statement of Net Position - Draft reflects a mature organization with no unexpected trends. Cash balances as of December 31, 2019 are lower when compared to June 30, 2019 (highlighted in gold on Table 1). This is because of the high liquidity needs at June 30, 2019 to meet annual debt and interest payments, legacy pension obligation payments, and annual operational requirements whereas more funds are being invested as of December 31, 2019.

An ongoing challenge is the Net Position Deficit. The underlying causes took years to build (largely heavy use of debt to finance capital asset investment versus a strategic blend of debt, state revolving funds, and cash). The effect is reflected in GLWA's high debt interest expense. The GLWA is regularly updating the FY 2030 forecast which helps to provide a pathway to a positive Net Position in the future.

Footnotes to Statement of Net Position

- a. *Cash and Investments* are reported at book value. Investments at June 30, 2019 are reported at market value. The December 31, 2019 values differ from the Cash and Investment section of this Financial Report Binder due to timing of certain items recognized on a cash versus accrual basis.
- b. *Due from (to) Other Funds* and *Due to (from) Other Funds* is shown at the gross level for sub-fund activity.
- c. *Other Assets* primarily consists of the contractual obligation receivable from DWSD related to reimbursement of bonded indebtedness for local system improvements.
- d. *Cash Held FBO Advance (for benefit of) DWSD* and *Cash Held FBO DWSD* represents the net difference between DWSD retail cash received from customers and net financial commitments as outlined in the Master Bond Ordinance.
- e. *Construction Work in Process* represents the beginning balance of CWIP plus any construction spending during the fiscal year. The balance will fluctuate based on the level of spend less any capitalizations or write-offs.
- f. *Deferred Inflow* and *Deferred Outflow* relate to financing activity and GLWA's share of the legacy General Retirement System (GRS) pension obligation.
- g. *Liabilities - Short-term* include accounts payable, retainage payable, and certain accrued liabilities. Some items, such as compensated absences and worker's compensation, are reviewed periodically but are only adjusted on an interim basis if there is a material change.
- h. *Other Liabilities* account for the cash receipts set aside for the Budget Stabilization Fund and the Water Residential Assistance Program.
- i. *Liabilities - Long-term* include bonds payable, lease payable, and legacy General Retirement System pension liabilities.
- j. *Net Position Deficit* is defined by accounting standards as the residual of all other elements presented in a statement of financial position. It is the difference between (a) assets and deferred outflows of resources and (b) liabilities and deferred inflows of resources. A net deficit occurs when the liabilities and deferred inflows exceed assets and deferred outflows. GLWA's net deficit is largely driven by an increase in depreciation

expense as a result of the increase in the acquisition valuation approach for recording capital asset values in the opening Statement of Net Position on January 2016. Efforts are underway to evaluate the net operating effect of this matter over the long term.

Statement of Revenues, Expenses and Changes in Net Position – All Funds Combined

This statement, shown in Table 2, is presented in summary format. The accrual basis of revenues and operations and maintenance expense vary from the revenue requirement basis presented in the *Budget to Actual Analysis* and the *Wholesale Billings, Receivables & Collections* sections of the December 2019 Financial Report Binder. Prior year ending balances are provided in the June 30, 2019 column as a reference for comparative purposes. Explanatory notes follow this statement.

**Table 2 – Statement of Revenues, Expenses and Changes in Net Position
– All Funds Combined
For the Six Months ended December 31, 2019
(\$000)**

	Water	Percent of Revenue	Sewage Disposal	Percent of Revenue	Total Business- type Activities	Comparative June 30, 2019
Revenue						
Wholesale customer charges	\$ 161,484	93.8%	\$ 134,205	57.2%	\$ 295,689	\$ 584,172
Local system charges	10,648	6.2%	92,904	39.6%	103,551	201,341
Industrial waste charges	-	0.0%	4,186	1.8%	4,186	9,106
Pollutant surcharges	-	0.0%	3,057	1.3%	3,057	5,933
Other revenues		0.0%	247	0.1%	247	528
Total Revenues	\$ 172,132	100%	\$ 234,599	100%	\$ 406,731	\$ 801,079
Operating expenses						
Operations and Maintenance	63,677	37.0%	84,387	36.0%	148,064	293,863
Depreciation	68,186	39.6%	80,577	34.3%	148,763	309,115
Total operating expenses	131,862	76.6%	164,964	70.3%	296,827	602,978
Operating income	40,270	23.4%	69,634	29.7%	109,904	198,101
Total Nonoperating (revenue) expense	46,467	27.0%	61,658	26.3%	108,125	220,170
Increase/(Decrease) in Net Position	(6,197)	-3.6%	7,976	3.4%	1,779	(22,070)
Net position (deficit), beginning of year	(76,882)		(123,943)		(200,825)	(178,755)
Net position (deficit), end of year	\$ (83,079)		\$ (115,967)		\$ (199,045)	\$ (200,825)

Totals may be off due to rounding

Water Fund

- ✓ The decrease in Water Fund Net Position is \$6.2 million.
- ✓ Wholesale water customer charges of \$161.5 million account for 93.8% of Water System revenues.
- ✓ Operating expenses of \$131.9 million represent 76.6% of total operating revenue. Depreciation is the largest operating expense at \$68.2 million or 51.7% of operating expense.
- ✓ Operating income after operating expenses (including depreciation) equals \$40.3 million or 23.4% of operating revenue.
- ✓ The largest category within nonoperating activities is bonded debt interest expense of \$44.6 million (this equates to the bonded debt interest expense less the offset from DWSD contractual obligation income).

Sewage Disposal Fund

- ✓ The increase in the Sewage Disposal Fund Net Position is \$8.0 million.
- ✓ Wholesale customer charges of \$134.2 million account for 57.2% of Sewer System revenues. Wholesale customer charges are billed one-twelfth each month based on an agreed-upon historical average “share” of each customer’s historical flows which are formally revisited on a periodic basis. The result is no revenue shortfall or overestimation.
- ✓ Local system (DWSD) charges of \$92.9 million account for 39.6% of total operating revenues. These are also billed at one-twelfth of the annual revenue requirement.
- ✓ Operating expenses of \$165.0 million represent 70.3% of total operating revenue. Depreciation is the largest operating expense at \$80.6 million or 48.8% of total operating expense.
- ✓ Operating income after operating expenses (including depreciation) equals \$69.6 million or 29.7% of operating revenue.
- ✓ The largest category within nonoperating activities is bonded debt interest expense of \$57.9 million (this equates to the bonded debt interest expense less the offset from DWSD contractual obligation income).

Supplemental Schedule of Operations & Maintenance Expenses – All Funds Combined

This Supplemental Schedule of Operations & Maintenance Expenses (O&M) schedule is shown below in Table 3. This accrual basis of operations and maintenance expense may vary from the revenue requirement basis presented in the *Budget to Actual Analysis* section of the December 2019 Financial Report Binder. Explanatory notes follow this schedule.

**Table 3 – Supplemental Schedule of Operations & Maintenance Expenses
– All Funds Combined
For the Six Months ended December 31, 2019
(\$000)**

	Water	Percent of Total	Sewage Disposal	Percent of Total	Total Business- type Activities	Percent of Total
Operating expenses						
Personnel						
Salaries & Wages	11,685	18.4%	23,705	28.1%	35,390	23.9%
Overtime	2,179	3.4%	1,512	1.8%	3,691	2.5%
Benefits	7,322	11.5%	4,619	5.5%	11,941	8.1%
Total Personnel	<u>\$ 21,186</u>	<u>33.3%</u>	<u>\$ 29,836</u>	<u>35.4%</u>	<u>\$ 51,022</u>	<u>34.5%</u>
Utilities						
Electric	13,662	21.5%	7,332	8.7%	20,994	14.2%
Gas	407	0.6%	2,190	2.6%	2,597	1.8%
Sewage	154	0.2%	843	1.0%	996	0.7%
Water	1	0.0%	1,650	2.0%	1,651	1.1%
Total Utilities	<u>\$ 14,222</u>	<u>22.3%</u>	<u>\$ 12,015</u>	<u>14.2%</u>	<u>\$ 26,238</u>	<u>17.7%</u>
Chemicals	2,668	4.2%	4,397	5.2%	7,066	4.8%
Supplies and other	5,886	9.2%	11,005	13.0%	16,890	11.4%
Contractual services	23,141	36.3%	27,801	32.9%	50,942	34.4%
Capital Adjustment	-	0.0%	-	0.0%	-	0.0%
Capital program allocation	(942)	-1.5%	(500)	-0.6%	(1,442)	-1.0%
Shared services allocation	<u>(2,485)</u>	<u>-3.9%</u>	<u>(166)</u>	<u>-0.2%</u>	<u>(2,651)</u>	<u>-1.8%</u>
Operations and Maintenance Expenses	<u>\$ 63,677</u>	<u>100.0%</u>	<u>\$ 84,387</u>	<u>100.0%</u>	<u>\$ 148,064</u>	<u>100.0%</u>

Totals may be off due to rounding.

- ✓ Core expenses for water and sewage disposal systems are utilities (17.7% of total O&M expenses) and chemicals (4.8%).
- ✓ Personnel costs (34.5% of total O&M expenses) include all salaries, wages, and benefits for employees as well as staff augmentation contracts that fill a vacant position (contractual transition services).
- ✓ Contractual services (34.4%) includes:
 - Water System costs of sludge removal and disposal services at the Northeast, Southwest and Springwells Water Treatment Plants (approximately \$3.6 million);
 - Sewage Disposal System costs for the operation and maintenance of the biosolids dryer facility (approximately \$7.5 million); and
 - Centralized and administrative contractual costs allocated to both systems for information technology, building maintenance, field, planning and other services.

Supplemental Schedule of Nonoperating Expenses – All Funds Combined

The Supplemental Schedule of Nonoperating Expenses – All Funds Combined is shown in Table 4. Explanatory notes follow this schedule.

Table 4 – Supplemental Schedule of Nonoperating Expenses – All Funds Combined
For the Six Months ended December 31, 2019
(\$000)

	Water	Sewage Disposal	Total Business-type Activities	Comparative June 30, 2019
Nonoperating (Revenue)/Expense				
Interest income contractual obligation	\$ (11,176)	\$ (9,097)	\$ (20,273)	\$ (40,673)
Interest income DWSD Shortfall	-	(731)	(731)	(1,104)
Investment earnings	(4,009)	(4,170)	(8,179)	(26,518)
Other nonoperating revenue	(11)	(6)	(17)	(420)
Interest expense				-
Bonded debt	55,753	66,998	122,751	250,966
Lease obligation	8,758	10,704	19,462	39,264
Other obligations	2,428	786	3,215	6,368
Total interest expense	66,939	78,489	145,428	296,597
Other non-capital expense	-	-	-	-
Memorandum of Understanding	-	-	-	6,527
Capital Contribution	-	(5,960)	(5,960)	-
Amortization, issuance costs, debt	(8,068)	927	(7,141)	(3,995)
Amortization, raw water rights	1,783	-	1,783	3,567
(Gain) loss on disposal of capital assets	(1)	815	814	(81)
Loss on impairment of capital assets	-	-	-	1,025
Water Residential Assistance Program	1,010	1,392	2,402	2,024
Legacy pension expense	-	-	-	(16,778)
Total Nonoperating (Revenue)/Expense	\$ 46,467	\$ 61,658	\$ 108,125	\$ 220,170

Totals may be off due to rounding.

- ✓ Interest income on contractual obligation relates to the portion of the total GLWA debt obligation attributable to DWSD. This interest income offsets the total debt interest expense paid by GLWA on behalf of both entities monthly.
- ✓ Interest income DWSD shortfall represents interest from a budgetary shortfall loan from fiscal years 2016, 2017 and 2018 and is paid in accordance with the 2018 Memorandum of Understanding (MOU).
- ✓ Investment earnings in this report are reflected at book value. Any differences between the Basic Financial report and Cash and Investment section of this Financial Report binder are due to accrued interest and reversal of the market adjustment from

FY 2019. FY 2019 market value adjustments for Water and Sewer totaled of \$1.6 million and \$600 thousand, respectively.

- ✓ Interest expense, the largest category of nonoperating expenses, is made up of three components:
 - Bonded debt;
 - Lease obligation for the regional assets from the City of Detroit; and
 - Other obligations such as an obligation payable to the City of Detroit for an allocation BC Notes related to assumed DWSD liabilities; acquisition of raw water rights related to the KWA Pipeline.

FY 2019 Items of note:

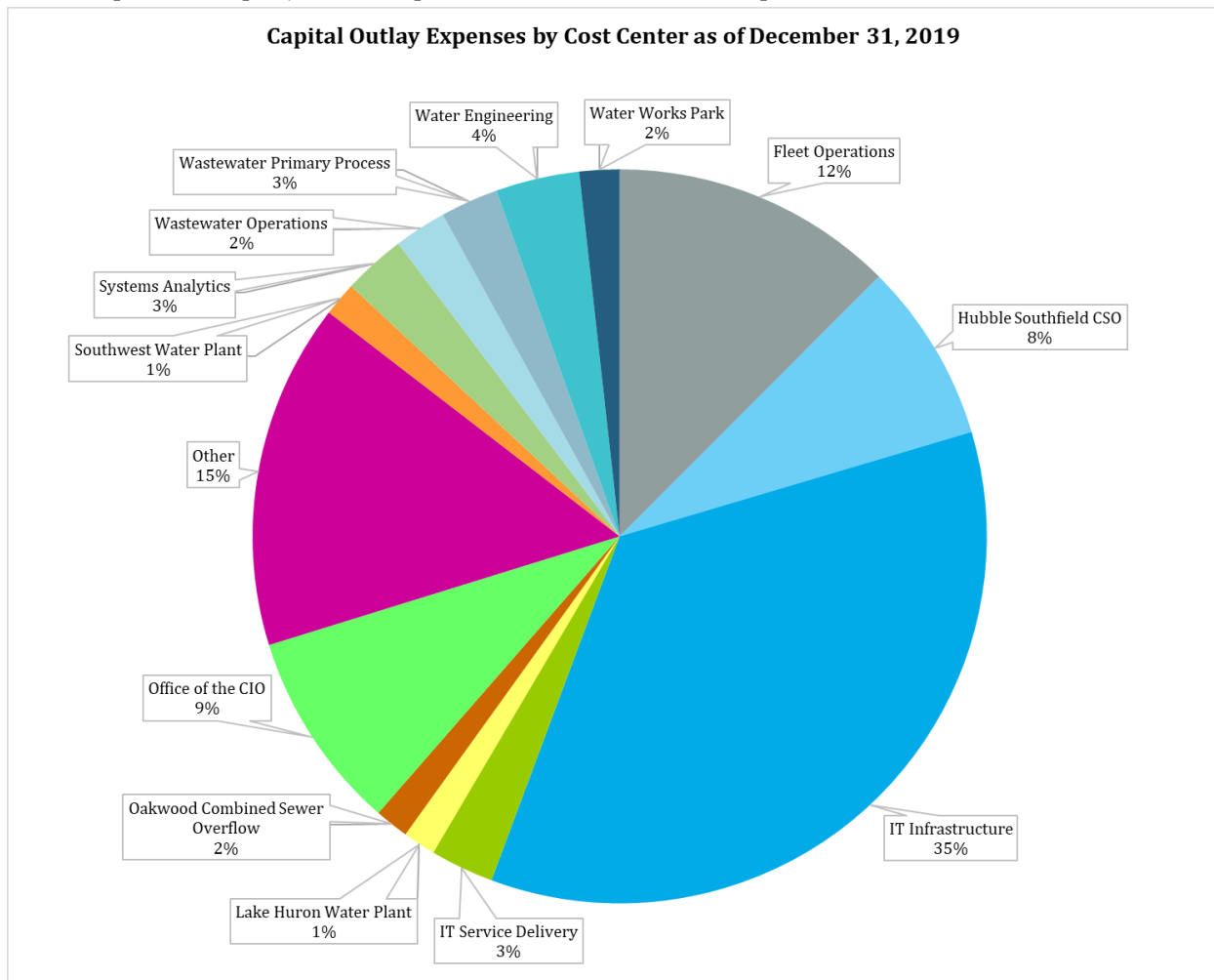
- ✓ Legacy Pension expense is reflected as income due to changes in actuarial assumptions and rates from the June 30, 2018 City of Detroit General Retirement System Component II audited financial statement.
- ✓ Sewer Other Non-operating expense includes the 2018 MOU Item 8a from June 27, 2018 for a final sewer lookback adjustment for DWSD of \$6.5 million.

Financial Activity Charts

Chart 1 – Capital Outlay – Water and Sewer System Combined

Capital Outlay represents purchases of equipment, software, and small facility improvement projects. It *excludes* any capital investment which is included in the monthly construction work-in-progress report related to the Capital Improvement Program. Some items span several months so the entire cost may not have been incurred yet. In addition, items are capitalized only if they meet GLWA’s capitalization policy.

Through December 31, 2019, total capital outlay spend is \$6.8 million. Following this chart is a sample list of projects and purchases from the total spend of \$6.8 million:



Note: Due to rounding totals may not equal 100%.

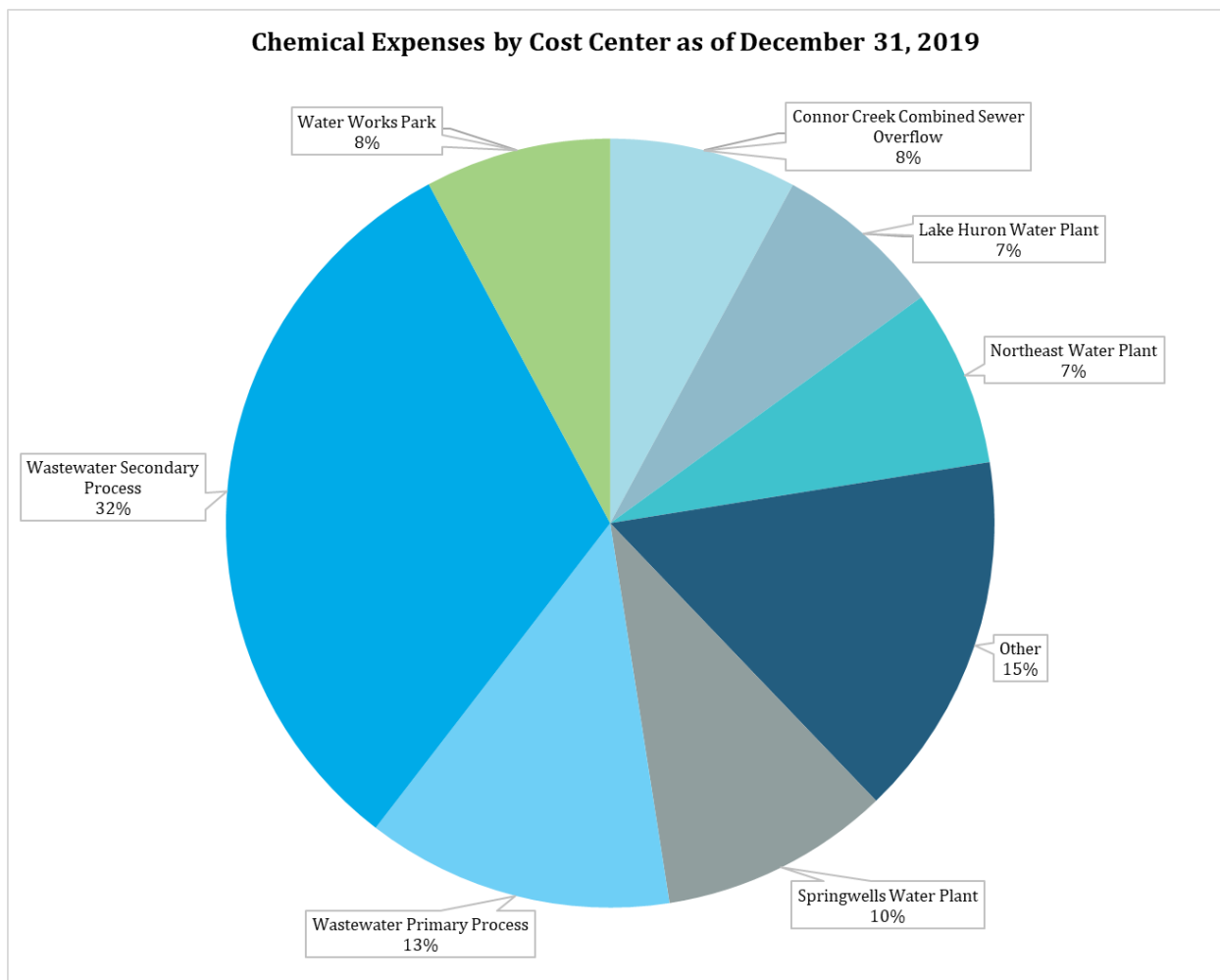
Water Operations: Trucks (\$225k); Water Works Park South garage renovation (\$170k); various water location building improvements (\$80k); Turbid meters (\$53k) and skid steer loader (\$88k) under ‘other’ for the Southwest Water Plant.

Wastewater Operations: Accusonic flow meters (\$540k); transformer C structure at Water Resource Recovery Facility (\$99k); chemical feed pump (\$96k); Flygt pump (\$78k); water heater for Scum building (\$76k); HVAC controls upgrade (\$52k); boilers (\$50k); Rotork actuators (\$49k); belt cooker (\$45k) and loaders (\$44k).

Centralized & Administrative Facilities: Low voltage wiring services (\$1.8m); IT & 17th floor renovation and furniture (\$583k); trucks and vehicles (\$527k); IT software (\$310k); transmitters (\$118k); IT premium hardware support (\$74k); Sewer meter support (\$66k); IT computers (\$61k); 2nd floor furniture at CSF (\$49k); 'Other' category expenses include: bathroom renovation (\$75k) for the Logistics and Materials team.

Chart 2 – Chemical Spend – Water and Sewer System Combined

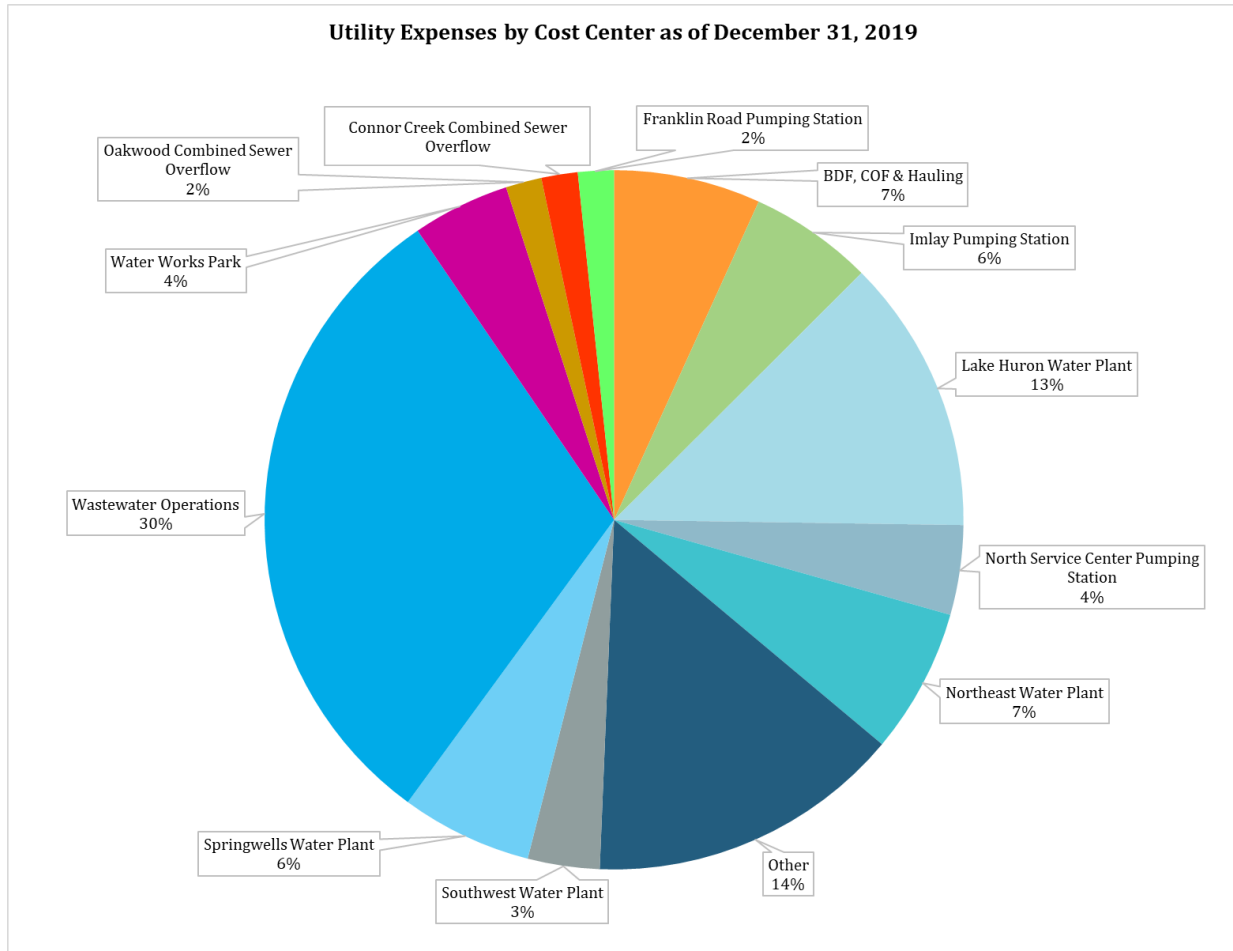
Chemical spend is \$7.0 million through December 31, 2019. The allocation is shown in the chart below and remains consistent with prior periods.



Note: "Other" includes Combined Sewer Overflow (CSO), portions of the Wastewater process and two departments from Water. Due to rounding totals may not equal 100%.

Chart 3 – Utility Spend – Water and Sewer System Combined

Utility spend is \$26.2 million through December 31, 2019. The allocation is shown in the chart below and consistent with prior periods.



Note: Due to rounding totals may not equal 100%.

Financial Operations KPI

This key performance indicator shown in **Chart 1 – Bank Reconciliation Completion Status** below provides a measure of the progress made in the month-end close process which includes bank reconciliations with a completed status at month end.

There were no changes in accounts from November 2019.

Chart 1 – Bank Reconciliation Completion Status

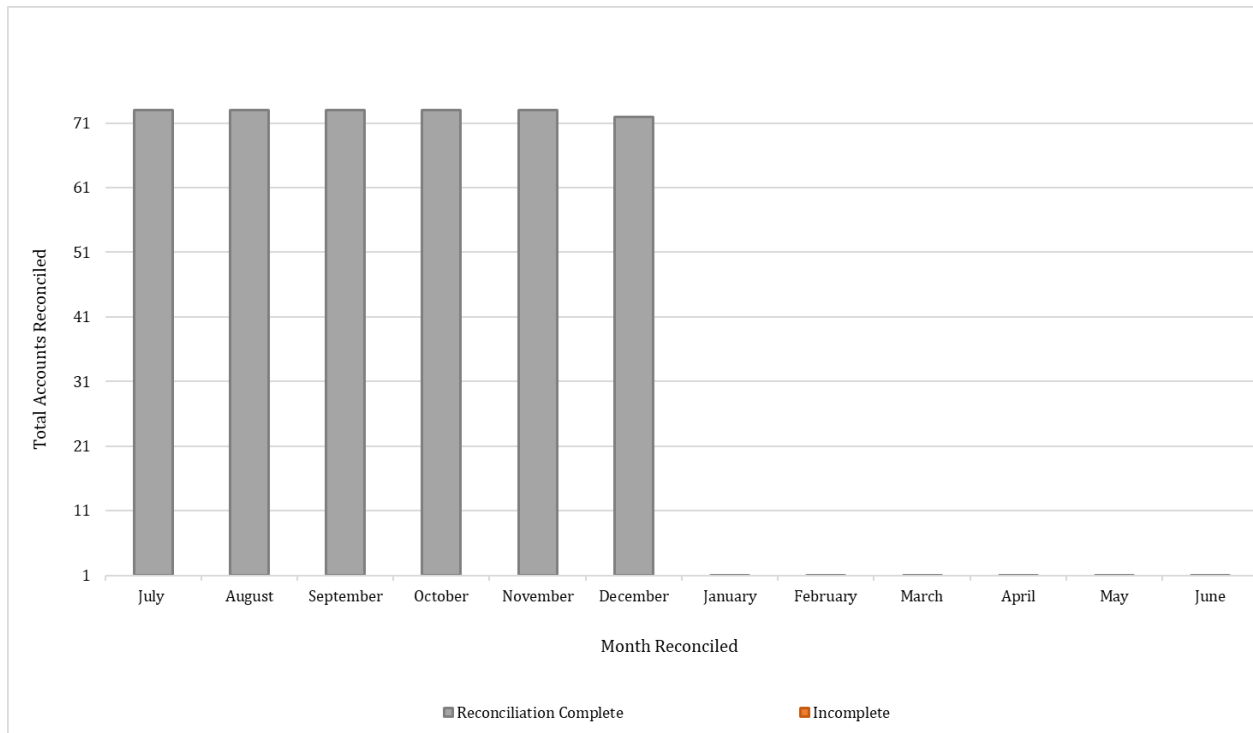


Table 1 – Fiscal Year 2020 GL Cash Account Rollforward

Total GL Cash accounts as of July 1, 2019	71
New GL Cash accounts	2
Inactivated GL Cash accounts	<u>(1)</u>
Total GL Cash accounts as of December 31, 2019	<u><u>72</u></u>

All AP checks are being processed from a new checking account. The old AP checking account was closed in December 2019 after all checks had finally cleared.

The monthly Budget to Financial Statements Crosswalk includes the following.

1. Crosswalk Budget Basis to Financial Reporting Basis
2. Explanatory Notes for Crosswalk

Purpose for Crosswalk: The Great Lakes Water Authority establishes a “Revenue Requirements” budget for the purposes of establishing charges for services. The financial report is prepared in accordance with Generally Accepted Accounting Policies for enterprise funds of a local government. Because the budget and the financial statements are prepared using different basis of accounting, the crosswalk reconciles the “Net Revenue Requirement Basis” from the Budget to Actual Analysis (Table 1A and Table 1B) to the “Increase/(Decrease) in Net Position” in Table 2 of the Basic Financial Statements in the monthly Financial Report.

The Authority has a Water Master Bond Ordinance and a Sewer Master Bond Ordinance (MBO). The Ordinances provide additional security for payment of the bonds. All revenues of the system are deposited into Revenue Receipts Funds which are held in trust by a trustee. The cash is moved to multiple bank accounts monthly based on 1/12th of the budget as defined in the MBO (“the flow of funds”) for all revenue requirements except for the Debt Service monthly transfer. The Debt Service monthly requirement is computed by the trustee, U.S. Bank. The cash transfer for debt is net of investment earnings that remain in the debt service accounts to be used for debt service.

The budget is prepared on a modified cash basis. The revenue requirements are determined based upon the cash needed to meet the financial commitments as required by the Master Bond Ordinance.

- Operation & Maintenance (O&M) expenses based on an accrual basis
- O&M Legacy Pension Allocation (includes administrative fee) and Accelerated Legacy Pension Allocation (includes B&C notes obligation) based on a cash basis
- Debt Service Allocation based on a cash set aside basis to provide the cash for the debt payments on the due dates
- Lease payments based on a cash basis
- Water Residential Assistance Program based on a percentage of budgeted revenue
- Regional System Improvement & Extension Fund Allocation on a cash basis

Budget: In Table 1A and Table 1B of the Budget to Actual Analysis the ‘Revenues’ section is the accrual basis revenues that are available to meet the ‘Revenue Requirements’. The “Revenue Requirements’ section budget column indicates the annual cash transfers to be made.

Financial Reporting: The Authority's financial statements are prepared in conformity with generally accepted accounting principles (GAAP) as applied to government units. The Authority maintains its records on the accrual basis of accounting to conform to GAAP. Revenues from operations, investments and other sources are recorded when earned. Expenses (including depreciation) are recorded when incurred.

Table 1 – Crosswalk Budget Basis to Financial Reporting Basis provides a reconciliation of the “Net Difference” in Table 1A and Table 1B in the Budget to Actual Analysis report to the “Increase/(Decrease) in Net Position” in Table 2 of the Basic Financial Statements in this monthly Financial Report. Explanatory notes follow the Crosswalk shown in Table 1 below.

Table 1 – Crosswalk Budget Basis to Financial Reporting Basis (\$000)
For the Five Months Ended December 31, 2019

	Water	Sewer	Total
Net Revenue Requirement Budget Variance (a)	\$ 7,978	\$ 6,362	\$ 14,340
Budgetary categories adjustments to financial reporting basis			
Pension delayed accounting election adjustments			
Current year pension transfers/payments recorded as deferral (c)	5,720	10,238	15,958
Prior year pension contribution accounted for in current year (d)	-	-	-
Administrative prepaid adjustment (e)	-	-	-
Debt service (f)	20,603	46,596	67,199
Accelerated pension B&C notes obligation portion (g)	88	199	287
Lease payment (h)	2,492	3,046	5,538
WRAP (i)	(161)	(190)	(351)
DWSD short term allocation (j)	-	5,337	5,337
Operating Reserve Deposit (j)	1,988	-	1,988
Improvement & Extension Fund (j)	14,925	11,983	26,908
Nonbudgeted financial reporting categories adjustments			
Depreciation (k)	(68,186)	(80,577)	(148,763)
Amortization (k)	6,285	(927)	5,358
Other nonoperating income (k)	10	4	14
Other nonoperating expense (k)	-	-	-
Gain(loss) on disposal of capital assets (k)	1	(815)	(814)
Raw water rights (l)	1,248	-	1,248
Investment earnings construction fund (m)	812	760	1,572
Capital contribution (n)	-	5,960	5,960
Net Position Increase/(Decrease) per Financial Statements (b)	\$ (6,197)	\$ 7,976	\$ 1,779

Table 2- Explanatory Notes for Crosswalk

- (a) Source: Budget to Actual Table 1A and Table 1B in Monthly Financial Binder
- (b) Source: Basic Financial Statements Table 2 in Monthly Financial Binder
- (c) Current year pension payments are an expense for budget purposes but not for financial reporting purposes.

- (d) Prior year pension payments are accounted for in the current year financial statements.
- (e) The administrative fee is part of the O&M Legacy Pension shown as an expense for budget purposes. For financial reporting purposes part of the administrative fee is considered prepaid based on the prior year General Retirement System audit information and therefore not an expense for the current year financial reporting. The prepaid portion is adjusted in June each year.
- (f) Debt service (principal and interest payments) are shown as an expense for budget purposes. Most of the adjustment relates to principal payments which are not an expense for financial reporting purposes. A portion of the adjustment relates to interest expense variances on state revolving fund debt due to the timing of payment draws. The cash set aside basis for interest expense generally is the same as the accrual basis for financial reporting.
- (g) The accelerated pension payment includes the obligation payable for the B&C notes. The pension portion is included in item (c) above. This adjustment relates to the B&C note obligation payments. The principal and interest cash basis payments are treated as an expense for budget purposes. The principal portion is not an expense for financial reporting purposes. For financial reporting purposes interest is expensed on an accrual basis which is different from the cash basis.
- (h) The lease payment is included as an expense for budget and includes both principal and interest payments. Most of the adjustment relates to the principal payments which are not an expense for financial reporting purposes. A portion of the adjustment relates to interest expense which is recorded on an accrual basis for financial reporting which is different from the cash basis.
- (i) WRAP is shown as an expense for budget purposes. For financial reporting purposes the expense is not recognized until the funds have been transferred to the WRAP administrator. The adjustment shown is the amount of current year transfers that have not been transferred to the WRAP administrator. Note that there are funds from the prior year that have not been transferred to the WRAP administrator.
- (j) The DWSD short term allocation, Operating Reserve Deposit, and Improvement & Extension Fund transfers are shown as an expense for budget purposes but not for financial reporting purposes. For FY 2020, the Sewer Improvement and Extension Fund adjustments also reflect \$748 thousand in Sewer Improvement and Extension Fund expenses relating to repairs paid for through the Sewer Improvement and Extension Fund. The Water Improvement and Extension Fund

also reflects \$138 thousand in Water Improvement and Extension expenses relating to repairs paid for through the Water Improvement and Extension Fund. These are consolidated expenses for financial reporting purposes but are not reflected in the current Operations and Maintenance budget expenses.

- (k) Certain nonoperating income and expenses are reported in financial statements only.
- (l) The water service contract with Flint includes a license for raw water rights which has been recorded as an asset and liability by the Authority. The contract provides a credit to Flint as Flint satisfies its monthly bond payment obligation to KWA. This KWA credit is treated as a noncash payment of principal and interest on the liability recorded for the raw water rights. For budget, wholesale customer charges are net of the anticipated KWA credits to Flint as that is the cash that will be received and available to meet the budgeted revenue requirements. For financial reporting basis the Flint wholesale charges are recorded at the total amount billed. When the KWA credit is issued, the receivable from Flint is reduced and the principal and interest payments on the liability for the raw water rights are recorded as a noncash transaction. Most of the adjustment shown relates to the principal reduction made for the credits applied which are not an expense for financial reporting basis.
- (m) Investment earnings from the construction fund are not shown as revenue in the budget and are shown as revenue in the financial statements. Construction fund investment earnings are excluded from the definition of revenue for budget purposes as they are used for construction costs and are not used to meet the revenue requirements in the budget.
- (n) The capital contribution is a one-time payment made to GLWA by the Oakland Macomb Interceptor Drainage District (OMIDD) as part of a contract amendment to the OMIDD Wastewater Disposal Services Contract.

The Monthly Construction Work in Progress (CWIP) Summary includes the following.

1. Water System Construction Work in Progress costs incurred to date
2. Sewer System Construction Work in Progress costs incurred to date

Construction Work in Progress

Great Lakes Water Authority (GLWA) capital improvement projects generally span two or more years due to size and complexity. Therefore, the GLWA Board of Directors adopts a five-year capital improvement plan (CIP). The CIP is a five-year, rolling plan which is updated annually and formally adopted by the GLWA Board of Directors. In addition, the Board of Directors adopts a capital spending ratio assumption (SRA) which allows the realities of capital program delivery to align with the financial plan. The SRA is an analytical approach to bridge the total dollar amount of projects in the CIP with what can realistically be spent due to limitations beyond GLWA's control and/or delayed for nonbudgetary reasons. Those limitations, whether financial or non-financial, necessitate the SRA for budgetary purposes, despite the prioritization established.

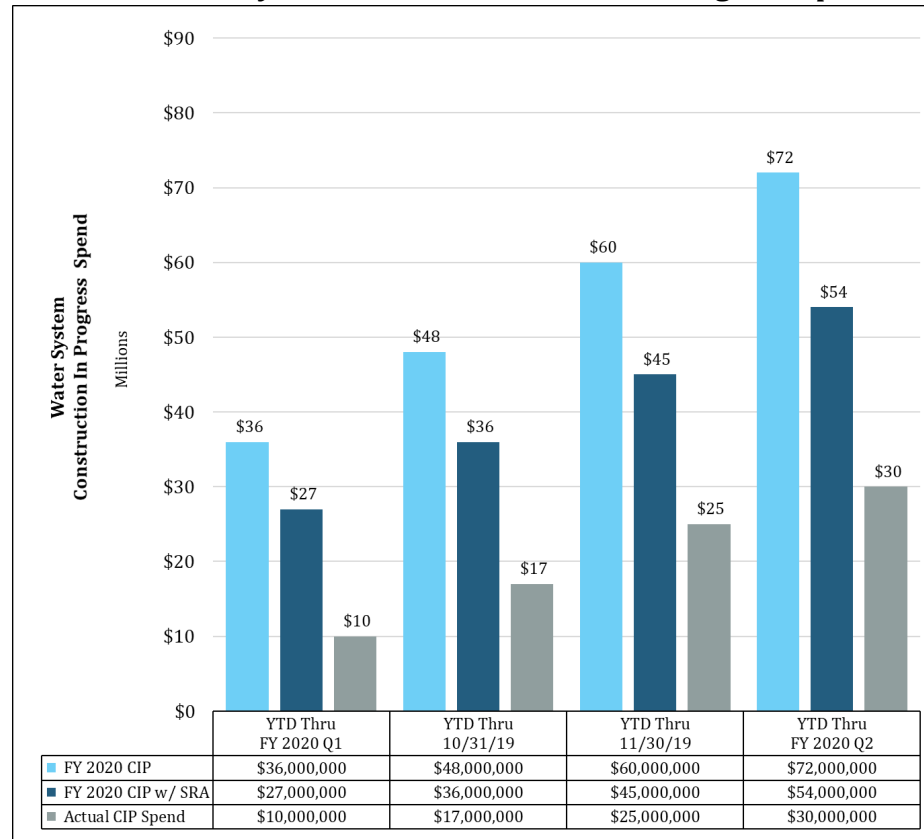
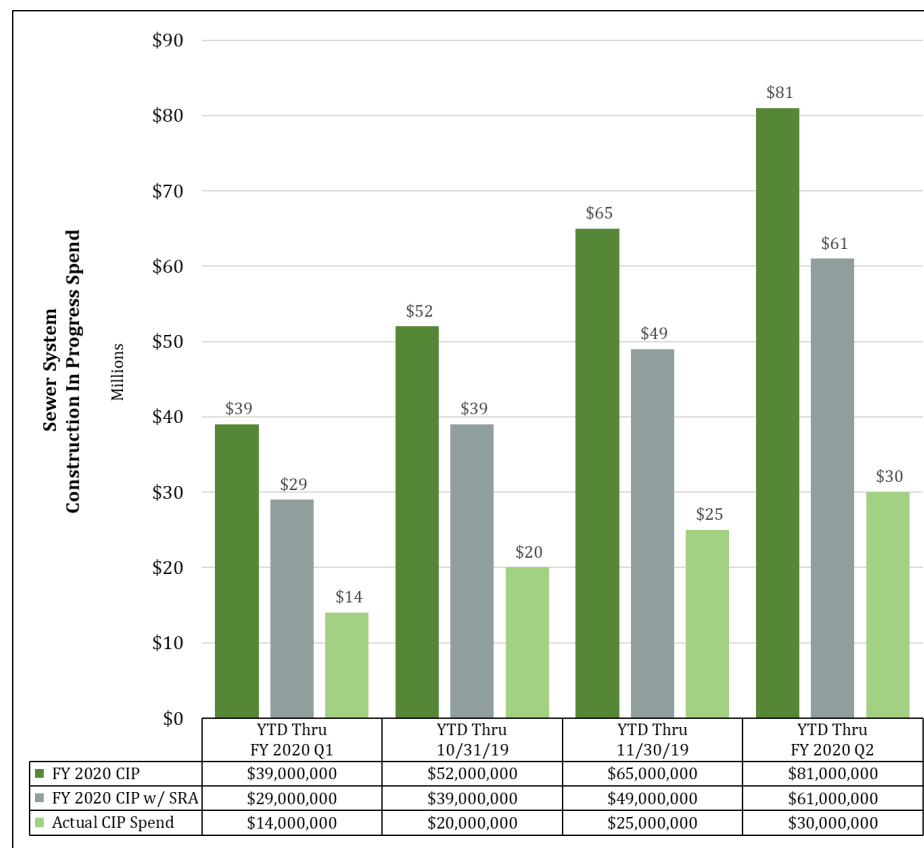
This report presents quarterly and monthly CWIP spending against the prorated CIP in total and the CIP adjusted for the SRA. The prorated CIP is calculated by dividing the total fiscal year 2020 board-approved CIP plan by twelve equal months. It should be noted that for operational purposes, GLWA utilizes Primavera P6 for refined monthly projections for cash management and project management.

Chart 1 – Water System Construction in Work in Progress Spend

As of December 2019, the Water system incurred nearly \$30 million of construction costs to date. This is 42% of the fiscal year 2020 prorated CIP through December and 56% of the financial plan. It is anticipated that the gap will be reduced by the end of the fiscal year.

Chart 2 – Sewer System Construction in Work in Progress Spend

As of December 2019, the Sewer system incurred nearly \$30 million of construction costs to date. This is 37% of the fiscal year 2020 prorated CIP through December and 49% of the financial plan. It is anticipated that the gap will be reduced by the end of the fiscal year.

Chart 1 – Water System Construction Work in Progress Spend

Chart 2 – Sewer System Construction Work in Progress Spend


This report includes the following.

1. Master Bond Ordinance (MBO) Required Transfers to Accounts Held by GLWA
2. Master Bond Ordinance (MBO) Required Transfers to Accounts Held by DWSD

MBO Transfers to Accounts Held by GLWA

GLWA Transfers: The Treasury team completes required MBO transfers on the first business day of each month. These transfers are completed in accordance with the Great Lakes Water Authority (GLWA) and Detroit Water & Sewerage Department (DWSD) budgets as approved and adopted by the GLWA Board of Directors and DWSD Board of Water Commissioners annually.

Monthly transfers for Operations & Maintenance (O&M), Pension, and Water Residential Assistance Program (WRAP) are one-twelfth of the annual, budgeted amount. Budget stabilization should not require additional funding due to new, baseline funding levels established as part of the June 2018 Memorandum of Understanding but is included to reflect historical activity. Transfers to the Extraordinary Repair & Replacement (ER&R) fund are completed annually based on budget and year-end fund status.

Table 1 – GLWA FY 2020 Water MBO Transfers reflects the required transfers for FY 2020 completed through December 2, 2019. MBO transfers for water totaling \$75.1 million have been transferred to GLWA accounts.

Table 2 – GLWA FY 2020 Sewer MBO Transfers reflects the required transfers for FY 2020 completed through December 2, 2019. MBO transfers for sewer totaling \$107.7 million have been transferred to GLWA accounts.

Table 3 – GLWA MBO Transfer History reflects historical transfers for FY 2016 through FY 2020 to date.

Table 1 – GLWA FY 2020 Water MBO Transfers

WATER							
	Operations & Maintenance	Pension Sub Account	Pension Obligation	WRAP	Budget Stabilization (For Benefit of DWSD)	Extraordinary Repair & Replacement (ER&R)	Total Water
FY 2020							
July 2019	10,957,542	504,000	891,308	165,067	-	-	12,517,917
August 2019	10,957,542	504,000	891,308	165,067	-	-	12,517,917
September 2019	10,957,542	504,000	891,308	165,067	-	-	12,517,917
October 2019	10,957,542	504,000	891,308	165,067	-	-	12,517,917
November 2019	10,957,542	504,000	891,308	165,067	-	-	12,517,917
December 2019	10,957,542	504,000	891,308	165,067	-	-	12,517,917
Total FY 2020	\$65,745,252	\$3,024,000	\$5,347,848	\$990,402	\$0	\$0	\$75,107,502

Table 2 – GLWA FY 2020 Sewer MBO Transfers

SEWER							
	Operations & Maintenance	Pension Sub Account	Pension Obligation	WRAP	Budget Stabilization (For Benefit of DWSD)	Extraordinary Repair & Replacement (ER&R)	Total Sewer
FY 2020							
July 2019	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
August 2019	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
September 2019	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
October 2019	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
November 2019	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
December 2019	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
Total FY 2020	\$93,528,600	\$5,412,000	\$7,343,754	\$1,443,648	\$0	\$0	\$107,728,002

Table 3 – GLWA MBO Transfer History

GLWA MBO Transfer History							
WATER							
	Operations & Maintenance	Pension Sub Account	Pension Obligation	WRAP	Budget Stabilization (For Benefit of DWSD)	Extraordinary Repair & Replacement (ER&R)	Total Water
Total FY 2016	\$71,052,000	\$6,037,100	\$10,297,200	\$1,983,300	\$2,326,900	\$606,000	\$92,302,500
Total FY 2017	111,879,600	6,037,200	10,297,200	2,077,200	360,000	-	130,651,200
Total FY 2018	121,562,604	6,048,000	10,695,696	2,159,400	-	-	140,465,700
Total FY 2019	121,562,604	6,048,000	10,695,696	2,061,000	-	-	140,367,300
Total FY 2020 (6 months)	65,745,252	3,024,000	5,347,848	990,402	-	-	75,107,502
Life to Date	\$491,802,060	\$27,194,300	\$47,333,640	\$9,271,302	\$2,686,900	\$606,000	\$578,894,202
SEWER							
	Operations & Maintenance	Pension Sub Account	Pension Obligation	WRAP	Budget Stabilization (For Benefit of DWSD)	Extraordinary Repair & Replacement (ER&R)	Total Sewer
Total FY 2016	\$100,865,600	\$10,838,400	\$14,025,800	\$2,523,400	\$5,591,700	\$779,600	\$134,624,500
Total FY 2017	175,858,800	10,838,400	14,026,800	2,654,400	2,654,400	-	206,032,800
Total FY 2018	191,079,396	10,824,000	14,687,496	2,760,804	-	-	219,351,696
Total FY 2019	191,079,396	10,824,000	14,687,496	2,870,992	-	-	219,461,884
Total FY 2020 (6 months)	93,528,600	5,412,000	7,343,754	1,443,648	-	-	107,728,002
Life to Date	\$752,411,792	\$48,736,800	\$64,771,346	\$12,253,244	\$8,246,100	\$779,600	\$887,198,882

MBO Required and Lease Payment Transfers to DWSD

DWSD Transfers: The GLWA Treasury team completes the required MBO transfers on the first business day of each month. These transfers are completed in accordance with the GLWA and DWSD budgets as approved and adopted by the GLWA Board of Directors and DWSD Board of Water Commissioners annually. Transfers are coordinated with other areas of GLWA Financial Services in advance of the first business day of each month. GLWA Treasury sends confirmation of transfers made to DWSD Treasury.

Monthly transfers for O&M and O&M Pension are one-twelfth of the annual, budgeted amount. The annual lease payment, as stated in the Water & Sewer Lease Agreements, is \$22,500,000 for Water and \$27,500,000 for Sewer. The monthly lease transfer is one-twelfth of the amount as stated in the Lease agreements unless otherwise designated by DWSD. Per Section 3.5 of the Lease, the Lease payment may be used for (a) bond principal and interest for Local System Improvements, (b) bond principal and interest for the City's share of common-to-all System Improvements, and (c) Local System improvements.

Table 4 – DWSD FY 2020 Water MBO Transfers reflects the required transfers for FY 2020 completed through December 2, 2019. MBO transfers for Water totaling \$28.9 million have been transferred to accounts held by DWSD. For FY 2020, DWSD has requested that \$3,548,000 of the lease payment be utilized to offset a portion of debt service of which one-twelfth is applied monthly.

Table 5 – DWSD FY 2020 Sewer MBO Transfers reflects the required transfers for FY 2020 completed through December 2, 2019. MBO transfers for Sewer totaling \$46.3 million have been transferred to accounts held by DWSD. For FY 2020, DWSD has requested that \$5,032,700 of the lease payment be utilized to offset a portion of debt service of which one-twelfth is applied monthly. DWSD has also requested that for December 2019 – June 2020, \$1 million be withheld each month from the Operations & Maintenance transfer to address FY 2020 projected shortfall in retail revenue collections.

Table 6 – DWSD MBO and Lease Payment Transfer History reflects historical transfers for FY 2016 through FY 2020 to date.

Table 4 – DWSD FY 2020 Water MBO Transfers

WATER				
	<u>Operations & Maintenance</u>	<u>Pension</u>	<u>Lease Payment (I&E Fund)</u>	<u>Total Water</u>
FY 2020				
July 2019	\$ 2,888,533	\$ 356,000	\$ 1,579,333	\$ 4,823,866
August 2019	\$ 2,888,533	\$ 356,000	\$ 1,579,333	4,823,866
September 2019	\$ 2,888,533	\$ 356,000	\$ 1,579,333	4,823,866
October 2019	\$ 2,888,533	\$ 356,000	\$ 1,579,333	4,823,866
November 2019	\$ 2,888,533	\$ 356,000	\$ 1,579,333	4,823,866
December 2019	\$ 2,888,533	\$ 356,000	\$ 1,579,333	4,823,866
Total FY 2020	\$ 17,331,198	\$ 2,136,000	\$ 9,475,998	\$ 28,943,196

Table 5 – DWSD FY 2020 Sewer MBO Transfers

SEWER				
	<u>Operations & Maintenance</u>	<u>Pension</u>	<u>Lease Payment (I&E Fund)</u>	<u>Total Sewer</u>
FY 2020				
July 2019	\$ 5,778,625	\$ 238,000	\$ 1,872,275	\$ 7,888,900
August 2019	\$ 5,778,625	\$ 238,000	\$ 1,872,275	7,888,900
September 2019	\$ 5,778,625	\$ 238,000	\$ 1,872,275	7,888,900
October 2019	\$ 5,778,625	\$ 238,000	\$ 1,872,275	7,888,900
November 2019	\$ 5,778,625	\$ 238,000	\$ 1,872,275	7,888,900
December 2019	\$ 4,778,625	\$ 238,000	\$ 1,872,275	6,888,900
Total FY 2020	\$ 33,671,750	\$ 1,428,000	\$ 11,233,650	\$ 46,333,400

Table 6 – DWSD MBO and Lease Payment Transfer History

Transfers to DWSD				
WATER				
	Operations & Maintenance	Operations & Maintenance Pension	Lease Payment (I&E Fund)	Total Water
FY 2016 *				
MBO/Lease Requirement	\$ 26,185,600	\$ 4,262,700	\$ 22,500,000	\$ 52,948,300
Offset to Debt Service	-	-	(2,326,900)	(2,326,900)
Net MBO Transfer	26,185,600	4,262,700	20,173,100	50,621,400
FY 2017				
MBO/Lease Requirement	33,596,400	4,262,400	22,500,000	60,358,800
Offset to Debt Service	-	-	-	-
Net MBO Transfer	33,596,400	4,262,400	22,500,000	60,358,800
FY 2018				
MBO/Lease Requirement	35,059,704	4,272,000	22,500,000	61,831,704
Offset to Debt Service	-	-	(1,875,000)	(1,875,000)
Net MBO Transfer	35,059,704	4,272,000	20,625,000	59,956,704
FY 2019				
MBO/Lease Requirement	35,484,300	4,272,000	22,500,000	62,256,300
Offset to Debt Service	-	-	(3,972,200)	(3,972,200)
Net MBO Transfer	35,484,300	4,272,000	18,527,800	58,284,100
FY 2020 (6 months)				
MBO/Lease Requirement	17,331,198	2,136,000	11,250,000	30,717,198
Offset to Debt Service	-	-	(1,774,002)	(1,774,002)
Net MBO Transfer	17,331,198	2,136,000	9,475,998	28,943,196
Life-to-Date				
MBO/Lease Requirement	147,657,202	19,205,100	101,250,000	268,112,302
Offset to Debt Service	-	-	(9,948,102)	(9,948,102)
Total Water	\$ 147,657,202	\$ 19,205,100	\$ 91,301,898	\$ 258,164,200
SEWER				
	Operations & Maintenance	Operations & Maintenance Pension	Lease Payment (I&E Fund)	Total Sewer
FY 2016 *				
MBO/Lease Requirement	\$ 19,774,300	\$ 2,861,800	\$ 27,500,000	\$ 50,136,100
Offset to Debt Service	-	-	(19,991,500)	(19,991,500)
Total MBO Transfer	19,774,300	2,861,800	7,508,500	30,144,600
FY 2017				
MBO/Lease Requirement	41,535,600	2,862,000	27,500,000	71,897,600
Offset to Debt Service	-	-	-	-
Total MBO Transfer	41,535,600	2,862,000	27,500,000	71,897,600
FY 2018				
MBO/Lease Requirement	60,517,992	2,856,000	27,500,000	90,873,992
Offset to Debt Service	-	-	(9,166,664)	(9,166,664)
Total MBO Transfer	60,517,992	2,856,000	18,333,336	81,707,328
FY 2019				
MBO/Lease Requirement	56,767,920	2,856,000	27,500,000	87,123,920
Offset to Debt Service	-	-	(4,415,000)	(4,415,000)
Total MBO Transfer	56,767,920	2,856,000	23,085,000	82,708,920
FY 2020 (6 months)				
MBO/Lease Requirement	33,671,750	1,428,000	13,750,000	48,849,750
Offset to Debt Service	-	-	(2,516,350)	(2,516,350)
Total MBO Transfer	33,671,750	1,428,000	11,233,650	46,333,400
Life-to-Date				
MBO/Lease Requirement	212,267,562	12,863,800	123,750,000	348,881,362
Offset to Debt Service	-	-	(36,089,514)	(36,089,514)
Total Sewer	\$ 212,267,562	\$ 12,863,800	\$ 87,660,486	\$ 312,791,848

* Note: FY 2016 lease transfer amounts shown do not include prepayment on the lease amount for the 6 months period before bifurcation.

This report includes the following:

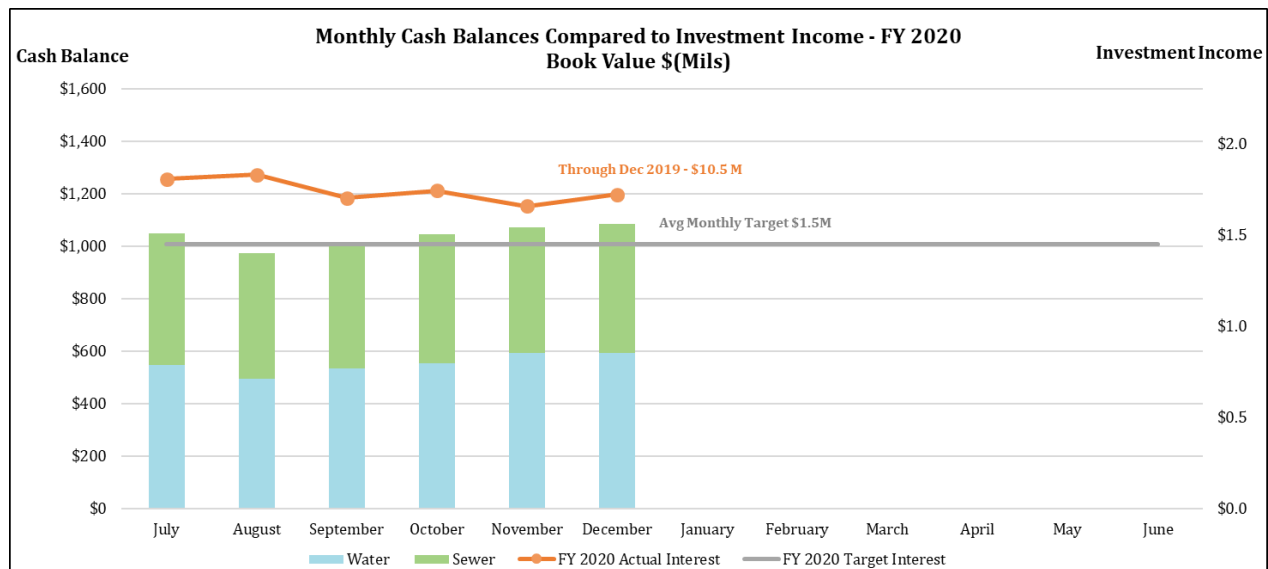
1. Monthly Cash Balances Compared to Investment Income
2. Cash Balance Detail

Monthly Cash Balances Compared to Investment Income

GLWA's investment holdings comply with the requirements of Public Act 20 of 1948, as amended and the GLWA Investment Policy. The cash balances shown in this report include bank deposits, money market funds, a local government investment pool, U.S. Treasuries, Federal Agencies, and commercial paper.

Cash and investment balances change each month based on Master Bond Ordinance (MBO) funding requirements, operational needs, capital spending pace, and mandatory debt payments. Investment income fluctuates monthly based on cash and investment balances as well as market conditions and investment strategy. The cumulative investment earnings through December 2019 of \$10.5 million is 60% of the FY 2020 target of \$17.4 million. As the market environment fluctuates, GLWA will continue to monitor the FY 2020 target.

Chart 1 – Monthly Cash Balances Compared to Investment Income – Through December 2019



\$(Mils)	July	August	September	October	November	December	January	February	March	April	May	June
Water	\$549	\$494	\$536	\$555	594	592						
Sewer	\$501	\$479	\$464	\$489	479	493						
Total	\$1,050	\$973	\$1,000	\$1,044	\$1,073	\$1,085						
Investment Income	\$1.4	\$1.8	\$1.7	\$1.7	\$1.7	\$1.7						

Cash Balance Detail

Funds Held By GLWA: GLWA cash balances are held in accounts as defined by the Master Bond Ordinance. The accounts are funded by monthly transfers, as stipulated in the MBO, on the first business day of each month. The “operations and maintenance” (O&M) fund transfer amounts are based upon the annual O&M budget approved by the GLWA Board of Directors for the regional systems and by the Board of Water Commissioners for the Detroit Water & Sewerage Department (DWSD) local system budgets. The water and sewer funds held by GLWA and their purpose, as defined by the MBO, are listed below.

Funds Held Within Trust:

- Receiving – all retail and wholesale revenues collected which are distributed in subsequent month(s)
- Debt Service – funds set aside for debt service and debt reserve requirements
- Pension Obligation – funds set aside to meet GLWA’s annual funding requirements for the legacy General Retirement System Pension Plan
- Water Residential Assistance Program (WRAP) – funds set aside to be used to provide financial assistance to qualified residents throughout the local and regional water system as directed by program guidelines
- Budget Stabilization – funds held by GLWA on behalf of DWSD that can be applied against shortfalls in retail revenues
- Emergency Repair & Replacement (ER&R) – funds set aside to pay the costs for major unanticipated repairs and replacements of the local and regional systems
- Improvement & Extension (I&E) – funds set aside to be used for the improvements, enlargements and extensions of the regional system

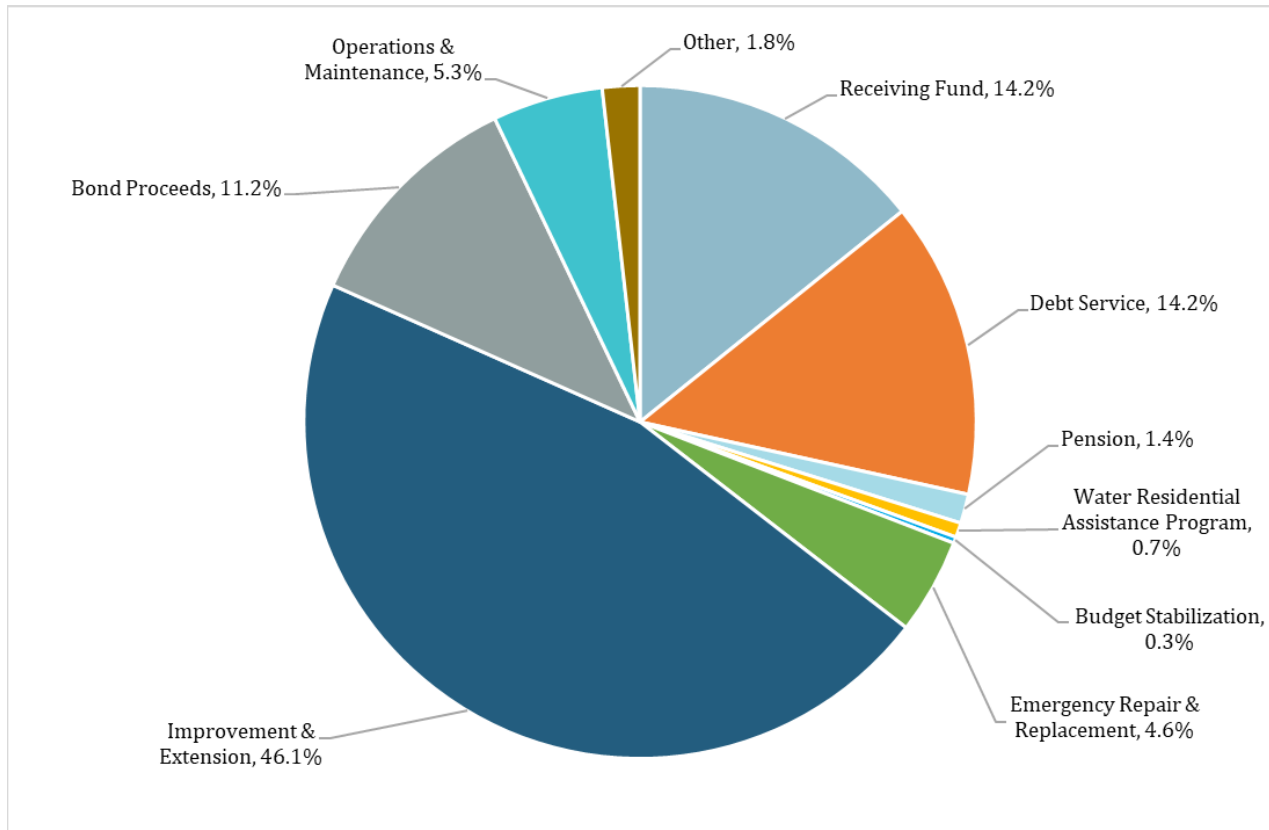
Funds Held Outside Trust:

- Bond Proceeds – funds raised from debt issuance used for costs of repairs, construction, and improvements of the regional system
- Operations & Maintenance (O&M) – funds used to meet the operational and maintenance requirements of the regional system
- Other – retainage funds held on behalf of contractors and security deposit funds held on behalf of the City of Flint

A [chart](#) depicting the follow of funds is online at glwater.org as well as the [MBO](#) documents.

Chart 2 – Cash Balances - Water Funds as of December 31, 2019 - Shows the allocation of the balance among the different categories defined in the section above. The total cash balance for Water Funds as of December 31, 2019 is \$592 million. The allocation of balances among the I&E, bond proceeds, and debt service reserve funds reflects GLWA’s commitment to funding capital improvements and meeting debt reserve requirements while simultaneously increasing I&E resources to fund pay-as-you-go capital funding to reduce long-term debt in the future.

Chart 2 – Cash Balances - Water Funds as of December 31, 2019

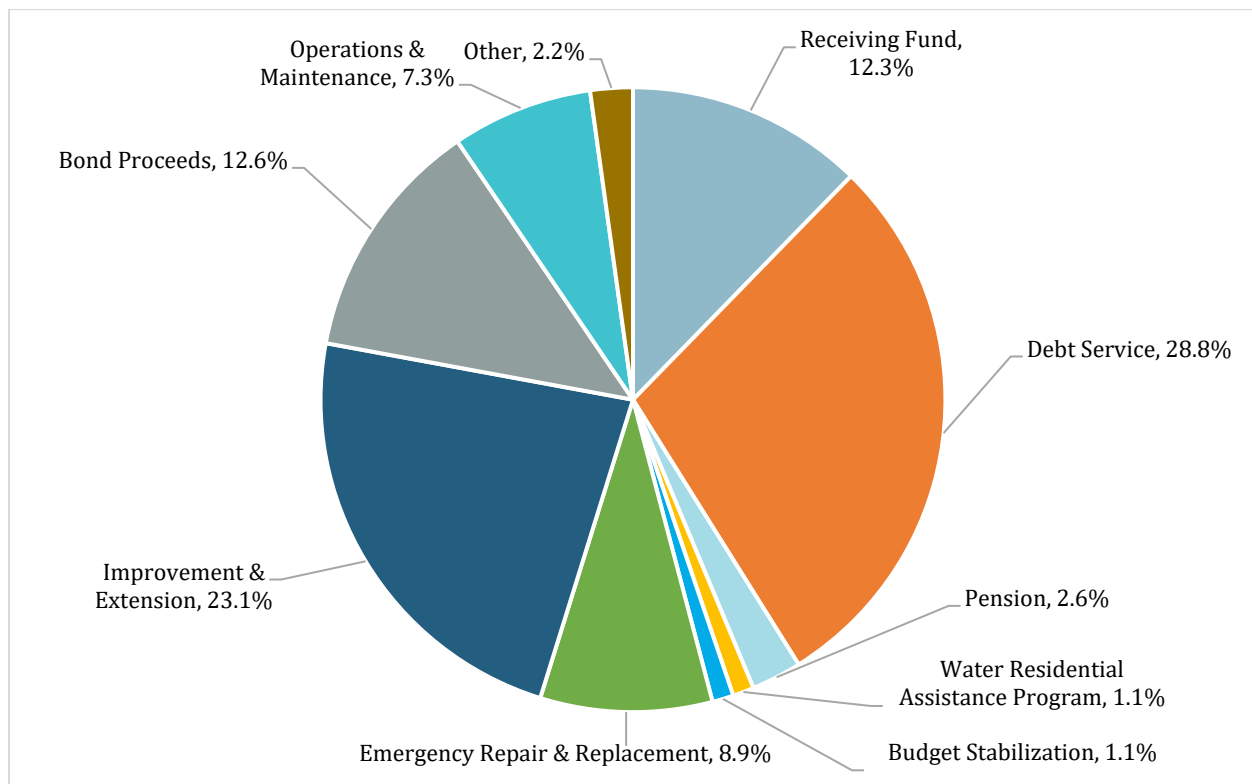


Note: Due to rounding totals may not equal 100%.

Chart 3 – Cash Balances - Sewer Funds as of December 31, 2019 - Shows the allocation of the balance among the different funds defined in the section above. The total cash balance for Sewer Funds as of December 31, 2019 is \$493 million. Like the Water Funds, the allocation of balances among the I&E, bond proceeds, and debt service reserve funds reflects GLWA’s commitment to funding capital improvements and meeting debt reserve requirements while simultaneously increasing I&E resources to fund pay-as-you-go capital funding to reduce long-term debt in the future.

The pace for Sewer Funds I&E deposits has been less than budget to address a budget shortfall over multiple years by DWSD. Beginning in February 2019, DWSD began making payments which will replenish the I&E Fund.

Chart 3 – Cash Balances - Sewer Funds as of December 31, 2019



Note: Due to rounding totals may not equal 100%.

Retail Revenues, Receivables, and Collections: Pursuant to the terms of the lease agreement between the City of Detroit and the Great Lakes Water Authority (GLWA), the Detroit Water & Sewerage Department (DWSD) serves as GLWA's agent for billing activities for the City of Detroit retail customer class. All water and sewer service collections from DWSD customers are deposited in a trust account and are administered in accordance with the GLWA Master Bond Ordinance.

The Monthly Retail Revenues, Receivables, & Collections Report includes the following.

1. DWSD Retail Water Revenue Billings and Collections
2. DWSD Retail Sewer Revenue Billings and Collections
3. DWSD Retail Water & Sewer System Accounts Receivable Aging Report

Note: Wholesale customer revenues are billed by the Great Lakes Water Authority.

DWSD Retail Water Billings and Collections

Retail Billing Basis: DWSD bills retail customers monthly. Customers are billed throughout the month in cycles based on a meter reading schedule beginning with residential accounts and ending with commercial and industrial customers.

Table 1 - DWSD Retail Billings shows the FY 2020 water usage and billed revenue which are provided by DWSD staff. As of December 31, 2019, the DWSD usage was at 92.48% of the budget and billed revenue was at 98.85% of budget.

DWSD Retail Water Collections: The collections represent payments made by DWSD retail customers. These receipts are deposited directly into a lockbox with a trustee for administration of the flow of funds defined by GLWA's Master Bond Ordinance.

Table 2 - Retail Water Collections shows collections by month for the past 12 months compared to collections for the prior year as well as the calculated difference between the periods.

Table 1 – FY 2020 DWSD Retail Water Billings Report

RETAIL WATER CUSTOMERS								
Month (1)	FY 2020 - Budget/Goal			FY 2020 - Actual			FY 2020 - Variance	
	Volume	Revenue	Unit Revenue	Volume	Revenue (2)	Unit Revenue	Volume	Revenue
	Mcf	\$	\$/Mcf	Mcf	\$	\$/Mcf	Mcf	\$
July	286,871	9,909,302	34.54	267,054	9,802,572	36.71	(19,817)	(106,730)
August	288,810	9,698,584	33.58	259,489	9,601,097	37.00	(29,321)	(97,487)
September	246,846	9,159,992	37.11	228,961	8,828,511	38.56	(17,885)	(331,481)
October	228,814	8,288,490	36.22	217,031	8,578,738	39.53	(11,783)	290,248
November	218,154	8,078,402	37.03	200,432	7,879,694	39.31	(17,722)	(198,708)
December	216,372	7,975,070	36.86	201,225	7,811,106	38.82	(15,147)	(163,964)
January	228,259	8,282,968	36.29					
February	225,150	8,294,177	36.84					
March	222,601	8,159,386	36.65					
April	215,049	8,120,879	37.76					
May	230,957	8,499,721	36.80					
June	254,554	9,084,129	35.69					
Total	2,862,437	103,551,100	36.18	1,374,192	52,501,718	38.21	(111,675)	(608,122)
<i>Subtotals ytd</i>	<i>1,485,867</i>	<i>53,109,840</i>	<i>35.74</i>	<i>1,374,192</i>	<i>52,501,718</i>	<i>38.21</i>	<i>(111,675)</i>	<i>(608,122)</i>
<i>Achievement of Budget</i>				<i>92.48%</i>	<i>98.85%</i>			

(1) Figures are stated as "Service Months"; that is, July figures represent bills issued in August, etc.

(2) Retail Revenues include Miscellaneous Revenues and Penalties

Table 2 – DWSD Retail Water Collections

Water				
Month	Current Year	Prior Year	Variance	Ratio
January	8,158,817	8,066,448	92,369	1.15%
February	7,927,299	6,432,245	1,495,054	23.24%
March	8,707,578	8,280,635	426,943	5.16%
April	8,475,657	9,226,675	(751,018)	-8.14%
May	8,415,767	8,969,019	(553,252)	-6.17%
June	7,554,457	7,940,939	(386,482)	-4.87%
July	8,093,394	7,858,272	235,122	2.99%
August	8,671,848	8,692,784	(20,936)	-0.24%
September	8,610,801	9,766,449	(1,155,648)	-11.83%
October	9,619,977	9,015,400	604,577	6.71%
November	7,067,667	7,938,517	(870,850)	-10.97%
December	8,597,558	7,297,698	1,299,860	17.81%
Rolling, 12-Month Total	99,900,820	99,485,081		
Rolling, 12-Month Average	8,325,068	8,290,423		

DWSD Retail Sewer Billings and Collections

Retail billing basis: DWSD bills retail customers monthly. Customers are billed throughout the month in cycles based on a meter reading schedule beginning with residential accounts and ending with commercial and industrial customers.

Table 3 - DWSD Retail Sewer Billings shows the FY 2020 sewer billed revenue which are provided by DWSD staff. As of December 31, 2019, the DWSD usage was at 94.33% of the budget and billed revenue was at 98.72% of budget.

DWSD Retail Sewer Collections: The collections represent payments made by DWSD retail customers. These receipts are deposited directly into a lockbox with a trustee for administration of the flow of funds defined by GLWA's Master Bond Ordinance.

Table 4 - DWSD Retail Sewer Collections shows collections by month for the past 12 months compared to collections for the prior year as well as the calculated difference between the periods.

Table 3 – FY 2020 DWSD Retail Sewer Billings Report

RETAIL SEWER CUSTOMERS						
Month (1)	FY 2020 - Budget/Goal		FY 2020 - Actual		FY 2020 - Variance	
	Volume	Revenue	Volume	Revenue (2)	Volume	Revenue
	Mcf	\$	Mcf	\$	Mcf	\$
July	251,738	28,535,420	244,810	28,049,587	(6,928)	(485,833)
August	258,984	28,327,270	246,989	28,076,624	(11,995)	(250,646)
September	255,527	26,788,442	215,119	26,430,692	(40,408)	(357,750)
October	227,141	26,444,548	238,202	27,549,768	11,061	1,105,220
November	211,617	25,759,684	188,779	24,726,066	(22,838)	(1,033,618)
December	195,192	25,905,017	186,917	24,853,335	(8,275)	(1,051,682)
January	197,099	26,341,264				
February	206,164	26,312,394				
March	200,672	26,467,728				
April	204,606	25,894,612				
May	203,480	27,185,600				
June	218,340	27,376,921				
Total	2,630,560	321,338,900	1,320,816	159,686,072	(79,383)	(2,074,309)
Subtotals ytd	1,400,199	161,760,381	1,320,816	159,686,072	(79,383)	(2,074,309)
Achievement of Budget/Goal			94.33%	98.72%		

(1) Figures are stated as "Service Months"; that is, July figures represent bills issued in August, etc.

(2) Retail Revenues include Miscellaneous Revenues and Penalties

Table 4 – DWSD Retail Sewer Collections

Sewer				
Month	Current Year	Prior Year	Variance	Ratio
January	21,140,835	18,308,458	2,832,377	15.47%
February	20,758,852	17,495,563	3,263,289	18.65%
March	22,111,691	23,015,525	(903,834)	-3.93%
April	20,930,511	16,159,844	4,770,667	29.52%
May	22,807,283	18,341,298	4,465,985	24.35%
June	20,426,151	21,461,926	(1,035,775)	-4.83%
July	20,940,157	27,332,605	(6,392,448)	-23.39%
August	23,175,643	21,746,714	1,428,929	6.57%
September	21,972,754	23,727,505	(1,754,751)	-7.40%
October	26,321,010	23,938,933	2,382,077	9.95%
November	17,546,180	20,624,039	(3,077,859)	-14.92%
December	25,889,823	19,612,154	6,277,669	32.01%
Rolling 12-Month Total	264,020,890	251,764,564		
Rolling, 12-Month Average	22,001,741	20,980,380		

DWSD Retail Water and Sewer Accounts Receivable Aging Report

The DWSD detailed accounts receivable aging is categorized by customer category.

Table 5 is a summary of the total, current and non-current Water and Sewer receivables by category as of December 31, 2019 with comparative totals from December 31, 2018.

Table 5 – DWSD Retail Accounts Receivable Aging Report – Water & Sewer Combined

Sales Class	# of Accounts	Avg. Balance	Current	> 30 Days	> 60 Days	> 180 Days	Accounts Receivable Balance
Residential	286,984	\$ 338.01	\$ 13,625,950 14.0%	\$ 7,406,461 7.6%	\$ 18,733,875 19.3%	\$ 57,236,064 59.0%	\$ 97,002,349 100.0%
Commercial	28,484	1,452.70	8,535,389 20.6%	2,948,723 7.1%	7,931,291 19.2%	21,963,259 53.1%	41,378,663 100.0%
Industrial	4,838	4,051.53	4,599,582 23.5%	1,540,408 7.9%	2,833,221 14.5%	10,628,094 54.2%	19,601,305 100.0%
Tax Exempt Entities	7,997	1,775.95	1,813,757 12.8%	1,146,317 8.1%	2,362,633 16.6%	8,879,571 62.5%	14,202,278 100.0%
Government Entities	3,118	1,975.81	1,125,669 18.3%	324,638 5.3%	1,041,259 16.9%	3,669,002 59.6%	6,160,568 100.0%
Subtotal - Active Accounts	331,421	\$ 538.12	\$ 29,700,348 16.7%	\$ 13,366,547 7.5%	\$ 32,902,279 18.4%	\$ 102,375,990 57.4%	\$ 178,345,163 100.0%
Inactive Accounts	274,885	87.68	120,499 0.5%	213,935 0.9%	(115,660) (0.5%)	23,884,153 99.1%	24,102,928 100.0%
Total	606,306	\$ 333.90	\$ 29,820,847	\$ 13,580,482	\$ 32,786,619	\$ 126,260,143	\$ 202,448,091
% of Total A/R			14.7%	6.7%	16.2%	62.4%	100.0%
Water Fund	230,913	171.26	\$ 6,783,000	\$ 2,949,000	\$ 4,779,000	\$ 25,035,000	\$ 39,546,000
Sewer Fund	288,653	564.35	\$ 23,037,000	\$ 10,632,000	\$ 28,007,000	\$ 101,225,000	\$ 162,902,000
Total December 31, 2019	606,306	333.90	\$ 29,821,000	\$ 13,580,000	\$ 32,787,000	\$ 126,260,000	\$ 202,448,000
Water Fund- Allowance							\$ (28,136,000)
Sewer Fund- Allowance							\$ (98,640,000)
Total December 31, 2019 Bad Debt Allowance							\$ (126,776,000)
Comparative Totals from December 31, 2018	585,755	322.66	\$ 30,802,000	\$ 14,012,000	\$ 34,098,000	\$ 110,085,000	\$ 188,998,000

The Monthly Wholesale Billings, Receivables, & Collections Report includes the following.

1. Wholesale Water Billings and Collections
2. Wholesale Sewer Billings and Collections
3. City of Highland Park Billings and Collections
4. Wholesale Water & Sewer Accounts Receivable Aging Report

Wholesale Water Billings and Collections

Wholesale Water Contracts: Great Lakes Water Authority (GLWA) provides wholesale water service to 87 member-partners through a variety of service arrangements.

Service Arrangement Type

Model Contract	82
Emergency	1
Older Contracts	4
Total	<u>87</u>

Note: Services are provided to the Detroit Water & Sewerage Department (DWSD) via a Water and Sewer Services Agreement (WSSA). See the “Retail Revenues, Receivables, and Collections Report” section of this monthly report.

Wholesale Water Billing Basis: Beginning with FY 2016, wholesale water charges were restructured to create a more stable revenue stream by using a historical rolling average to project customer volumes which accounts for 40% of the monthly charges and 60% of the annual customer revenue requirement as a monthly fixed charge.

Table 1 - Wholesale Water Billings shows the FY 2020 water billed usage and revenues. As of December 31, 2019, the billed usage was at 94.64% of budget and billed revenue at 97.76% of budget. Billings and usage from the City of Flint are included as they were assumed in the FY 2020 Budget.

Wholesale Water Collections: The collections represent payments made by wholesale customers. These receipts are deposited directly into a lockbox with a trustee for administration of the flow of funds defined by GLWA’s Master Bond Ordinance.

Table 2 - Wholesale Water Collections shows collections by month for the past 12 months compared to collections for the prior year as well as the calculated difference between the periods. The difference in rolling average from current year to prior year reflects the gentle downward trend in water usage over time.

Table 1 –FY 2020 Wholesale Water Billings Report

WHOLESALE WATER CUSTOMERS								
Month (1)	FY 2020 - Budget/Goal			FY 2020 - Actual			FY 2020 - Variance	
	Volume	Revenue	Unit	Volume	Revenue	Unit	Volume	Revenue
	Mcf	\$	\$/Mcf	Mcf	\$	\$/Mcf	Mcf	\$
1 July	1,777,138	32,544,400	18.31	1,545,631	30,356,570	19.64	(231,507)	(2,187,830)
2 August	1,549,587	30,383,100	19.61	1,554,426	30,501,606	19.62	4,839	118,506
3 September	1,368,496	28,270,400	20.66	1,257,111	27,278,750	21.70	(111,385)	(991,650)
4 October	1,066,653	25,351,200	23.77	1,026,086	25,007,145	24.37	(40,567)	(344,055)
5 November	917,034	24,049,100	26.22	905,016	23,933,012	26.44	(12,018)	(116,088)
6 December	1,004,420	24,714,000	24.61	983,589	24,535,948	24.95	(20,831)	(178,052)
7 January	1,018,192	24,861,000	24.42					
8 February	893,007	23,780,800	26.63					
9 March	1,008,766	24,753,300	24.54					
10 April	948,751	24,262,000	25.57					
11 May	1,073,966	25,549,300	23.79					
12 June	1,383,200	28,595,300	20.67					
Total	14,009,210	317,113,900	22.64	7,271,859	161,613,031	22.22	(411,469)	(3,699,169)
Subtotals ytd	7,683,328	165,312,200	21.52	7,271,859	161,613,031	22.22	(411,469)	(3,699,169)
Achievement of Budget				94.64%	97.76%			

(1) Figures are stated as "Service Months"; that is, July figures represent bills issued in August, etc.

Table 2 - Wholesale Water Collections

Water				
Month	Current Year	Prior Year	Variance	Ratio
January	23,430,974	32,002,334	(8,571,360)	-26.78%
February	26,147,082	21,352,903	4,794,179	22.45%
March	24,967,335	27,715,696	(2,748,361)	-9.92%
April	23,045,654	18,489,754	4,555,900	24.64%
May	20,755,103	30,447,581	(9,692,478)	-31.83%
June	25,676,458	21,815,013	3,861,445	17.70%
July	23,212,979	21,923,590	1,289,389	5.88%
August	28,808,254	31,920,586	(3,112,332)	-9.75%
September	28,336,152	26,037,313	2,298,839	8.83%
October	25,786,774	27,827,722	(2,040,948)	-7.33%
November	29,245,969	29,238,260	7,709	0.03%
December	23,292,382	27,720,646	(4,428,264)	-15.97%
Rolling 12-Month Total	302,705,116	316,491,398		
Rolling, 12-Month Average	25,225,426	26,374,283		

Wholesale Sewer Billings and Collections

Wholesale Sewer Contracts: GLWA provides wholesale sewer service to 18 member-partners via multiple service arrangements.

Service Arrangement Type

Model Contract	11
Emergency	0
Older Contracts	7
Total	<u>18</u>

Note: Services are provided to the Detroit Water & Sewerage Department via a Water and Sewer Services Agreement (WSSA). See the “Retail Revenues, Receivables, and Collections Report” section of the monthly report.

Wholesale Sewer Billing Basis: Beginning in FY 2015, the “sewer rate simplification” initiative was applied which provides for a stable revenue stream and predictability for our member partners. Wholesale sewer customers are billed a fixed monthly fee based upon the annual revenue requirement.

Table 3 - Wholesale Sewer Billings shows the FY 2020 sewer billed revenues. As of December 31, 2019, the billed revenue is at 99.72% of budget.

Activity to date has been adjusted to reflect the results of the March 2019 Oakland Macomb Interceptor Drainage District contract amendment with terms effective July 1, 2019.

Wholesale Sewer Collections: The collections represent payments made by wholesale customers. These receipts are deposited directly into a lockbox with a trustee for administration of the flow of funds defined by GLWA’s Master Bond Ordinance.

Table 4 - Wholesale Sewer Collections shows collections by month for the past 12 months compared to collections for the prior year as well as the calculated difference between the periods. The year-over-year rolling average from FY 2019 to FY 2020 remains consistent.

The shift in wholesale sewer collection patterns is largely attributable to the timing of payments received. There are several large accounts whose payments swing between the end of the current month and the beginning of the next month.

Table 3 – FY 2020 Wholesale Sewer Billings Report

WHOLESALE SEWER CUSTOMERS						
Month (1)	FY 2020 - Budget/Goal		FY 2020 - Actual		FY 2020 - Variance	
	Volume (2)	Revenue	Volume (2)	Revenue	Volume (2)	Revenue
	Mcf	\$	Mcf	\$	Mcf	\$
July	N/A	22,385,833	N/A	22,323,183	N/A	(62,650.00)
August	N/A	22,385,833	N/A	22,323,183	N/A	(62,650.00)
September	N/A	22,385,833	N/A	22,323,183	N/A	(62,650.00)
October	N/A	22,385,833	N/A	22,323,183	N/A	(62,650.00)
November	N/A	22,385,833	N/A	22,323,183	N/A	(62,650.00)
December	N/A	22,385,833	N/A	22,323,183	N/A	(62,650.00)
January	N/A	22,385,833	N/A		N/A	
February	N/A	22,385,833	N/A		N/A	
March	N/A	22,385,833	N/A		N/A	
April	N/A	22,385,833	N/A		N/A	
May	N/A	22,385,833	N/A		N/A	
June	N/A	22,385,833	N/A		N/A	
Total		268,629,996		133,939,098		(375,900)
<i>Subtotals ytd</i>		<i>134,314,998</i>		<i>133,939,098</i>		<i>(375,900)</i>
<i>Achievement of Budget</i>				<i>99.72%</i>		

(1) Figures are stated as "Service Months"; that is, July figures represent bills issued in August, etc.

(2) Not tracked as part of the wholesale sewer charges.

Table 4 - Wholesale Sewer Collections

Sewer				
Month	Current Year	Prior Year	Variance	Ratio
January	26,874,927	22,057,972	4,816,955	21.84%
February	13,895,100	30,280,800	(16,385,700)	-54.11%
March	22,388,600	15,552,000	6,836,600	43.96%
April	23,203,703	27,812,417	(4,608,714)	-16.57%
May	9,284,000	15,342,700	(6,058,700)	-39.49%
June	32,639,436	28,810,500	3,828,936	13.29%
July	27,222,400	16,179,117	11,043,283	68.26%
August	35,153,500	28,384,600	6,768,900	23.85%
September	18,833,257	22,672,400	(3,839,143)	-16.93%
October	29,833,760	16,105,200	13,728,560	85.24%
November	19,428,000	28,633,300	(9,205,300)	-32.15%
December	19,999,642	24,440,000	(4,440,358)	-18.17%
Rolling 12-Month Total	278,756,326	276,271,006		
Rolling, 12-Month Average	23,229,694	23,022,584		

City of Highland Park Billings and Collections

The City of Highland Park is provided water service pursuant to an emergency service basis. Sewer service is provided pursuant to a 1982 amended contract which indicates that the parties are guided in their legal relationship by a Michigan Supreme Court decision from 1949.

As of December 31, 2019, Highland Park had a delinquent balance of \$43.3 million, including \$33.6 million for wastewater treatment services, \$1.7 million for industrial waste control services, and \$8.0 million for water supply services.

Table 5 - City of Highland Park Billings and Collections provides a life-to-date balance summary of the billing and collection history for Highland Park with detail provided for fiscal year 2020 through December 31, 2019. Please note the numbers below reflect the month the billing was sent and not the month the service was provided. A life-to-date summary is provided as an appendix to this monthly financial report.

Table 5 - City of Highland Park Billings and Collections

	Water	Sewer	IWC	Total
January 31, 2019 Balance	6,853,926	31,629,183	1,655,435	40,138,544
February 2019 Billing	98,898	467,900	3,932	570,731
February 2019 Payments	-	-	-	-
February 28, 2019 Balance	6,952,824	32,097,083	1,659,368	40,709,275
March 2019 Billing	98,353	467,900	3,881	570,134
March 2019 Payments	-	-	-	-
March 31, 2019 Balance	7,051,177	32,564,983	1,663,248	41,279,409
April 2019 Billing	99,879	467,900	4,101	571,880
April 2019 Payments	-	(1,089,003)	-	(1,089,003)
April 30, 2019 Balance	7,151,056	31,943,880	1,667,350	40,762,286
May 2019 Billing	98,118	467,900	3,963	569,981
May 2019 Payments	-	-	-	-
May 31, 2019 Balance	7,249,174	32,411,780	1,671,312	41,332,267
June 2019 Billing	101,871	467,900	3,931	573,702
June 2019 Payments	-	(1,406,836)	-	(1,406,836)
June 30, 2019 Balance	7,351,045	31,472,844	1,675,243	40,499,132
July 2019 Billing	104,702	467,900	4,121	576,722
July 2019 Payments	-	-	-	-
July 31, 2019 Balance	7,455,747	31,940,744	1,679,363	41,075,854
August 2019 Billing	106,638	472,500	4,026	583,164
August 2019 Payments	-	-	-	-
August 31, 2019 Balance	7,562,385	32,413,244	1,683,389	41,659,018
September 2019 Billing	108,007	472,500	4,014	584,521
September 2019 Payments	-	(656,657)	-	(656,657)
September 30, 2019 Balance	7,670,392	32,229,087	1,687,403	41,586,882
October 2019 Billing	107,422	472,500	3,933	583,855
October 2019 Payments	-	-	-	-
October 31, 2019 Balance	7,777,814	32,701,587	1,691,336	42,170,737
November 2019 Billing	101,003	472,500	3,948	577,451
November 2019 Payments	-	-	-	-
November 30, 2019 Balance	7,878,817	33,174,087	1,695,284	42,748,188
December 2019 Billing	98,501	472,500	3,845	574,846
December 2019 Payments	-	-	-	-
December 31, 2019 Balance	7,977,318	33,646,587	1,699,129	43,323,034

Wholesale Water & Sewer Accounts Receivable Aging Report

The detailed accounts receivable aging is in the Appendix to this monthly report. This report reflects the wholesale receivables only and does not include DWSD.

Table 6 - Wholesale Accounts Receivable Aging Report Summary is a summary of the total, current and non-current receivables by category as of December 31, 2019.

Table 7 - Wholesale Accounts Receivable Aging Report, Net of Highland Park is the same summary *without* the past due balances for the City of Highland Park. The small past due balance for Water is due to a payment not received from the City of Dearborn until January 10, 2020.

Table 8 - Wholesale Accounts Receivable Aging Report, Net of Highland Park and WTUA is a summary *without* the past due balances for the City of Highland Park and net of pending credits for certain Western Township Utilities Authority (WTUA). Credits for billed services are pending receipt of a final agreement from Wayne County to effectuate a transfer retroactive to July 1, 2018.

Table 6 - Wholesale Accounts Receivable Aging Report Summary

	Total	Current	46-74 Days	75-104 Days	>105 Days
Water	\$ 39,561,082.94	\$ 30,630,285.66	\$ 1,260,405.87	\$ 108,007.06	\$ 7,562,384.35
Sewer	\$ 40,466,286.23	\$ 7,292,199.50	\$ 472,500.00	\$ 472,500.00	\$ 32,229,086.73
IWC	\$ 3,631,210.22	\$ 668,162.50	\$ 72,850.83	\$ -	\$ 2,890,196.89
Pollutant Surcharge	\$ 820,734.45	\$ 684,105.38	\$ 74,227.45	\$ 13,518.95	\$ 48,882.67
Total	\$ 84,479,313.84	\$ 39,274,753.04	\$ 1,879,984.15	\$ 594,026.01	\$ 42,730,550.64
	100.00%	46.49%	2.23%	0.70%	50.58%

Table 7 - Wholesale Accounts Receivable Aging Report, Net of Highland Park

	Total	Current	46-74 Days	75-104 Days	>105 Days
Water	\$ 31,583,764.87	\$ 30,430,781.42	\$ 1,152,983.45	\$ -	\$ -
Sewer	\$ 6,819,699.50	\$ 6,819,699.50	\$ -	\$ -	\$ -
IWC	\$ 1,932,081.97	\$ 660,369.91	\$ 68,918.20	\$ -	\$ 1,202,793.86
Pollutant Surcharge	\$ 820,734.45	\$ 684,105.38	\$ 74,227.45	\$ 13,518.95	\$ 48,882.67
Total	\$ 41,156,280.79	\$ 38,594,956.21	\$ 1,296,129.10	\$ 13,518.95	\$ 1,251,676.53
	100.00%	93.78%	3.15%	0.03%	3.04%

Table 8 - Wholesale Accounts Receivable Aging Report, Net of Highland Park and WTUA

	Total	Current	46-74 Days	75-104 Days	>105 Days
Water	\$ 31,583,764.87	\$ 30,430,781.42	\$ 1,152,983.45	\$ -	\$ -
Sewer	\$ 6,819,699.50	\$ 6,819,699.50	\$ -	\$ -	\$ -
IWC	\$ 625,550.84	\$ 591,211.73	\$ 34,339.11	\$ -	\$ -
Pollutant Surcharge	\$ 820,734.45	\$ 684,105.38	\$ 74,227.45	\$ 13,518.95	\$ 48,882.67
Total	\$ 39,849,749.66	\$ 38,525,798.03	\$ 1,261,550.01	\$ 13,518.95	\$ 48,882.67
	100.00%	96.68%	3.17%	0.03%	0.12%

Note: percentages vary from 100% due to rounding.

The Monthly Trust Receipts & Disbursements Report includes the following.

1. GLWA Trust Receipts & Disbursements – Net Cash Flows and Receipts
2. DWSD Trust Receipts & Disbursements – Net Cash Flows, Receipts & Loan Receivable
3. Combined System Trust Receipts & Disbursements – Net Cash Flows

GLWA Trust Receipts & Disbursements

Net Cash Flows and Receipts Basis: The trusts established pursuant to the Master Bond Ordinance (MBO) outline a flow of funds that governs the priority of the application of cash receipts from both the regional wholesale (i.e. Great Lakes Water Authority or GLWA) and local retail (i.e. Detroit Water & Sewerage Department or DWSD) activities which are further separated by the water system and the sewage disposal system.

This report provides an ongoing status of the net cash flow of both organizations (GLWA and DWSD) to fund their allocated share of Master Bond Ordinance requirements in accordance with the leases for the regional systems.

Table 1 – GLWA Net Cash Flows from Trust Receipts & Disbursements provides a summary of cash receipt collections and required MBO transfers by fiscal year as well as a total of all activity for GLWA since inception at January 1, 2016. Fiscal year 2020 reflects six months of activity to date.

Water fund activity exceeded required MBO disbursements by 16% through December 31, 2019 with a historical ratio of cash receipts exceeding MBO disbursements by 15% since January 1, 2016.

Sewer fund cash receipts exceeded disbursements by 19% through December 31, 2019 with a historical ratio of cash receipts exceeding MBO disbursements by 6% since January 1, 2016. Strong receipts in December was due in part to a one-time capital contribution of \$11.9 million by the Oakland Macomb Interceptor Drainage District as part of a recent contract amendment.

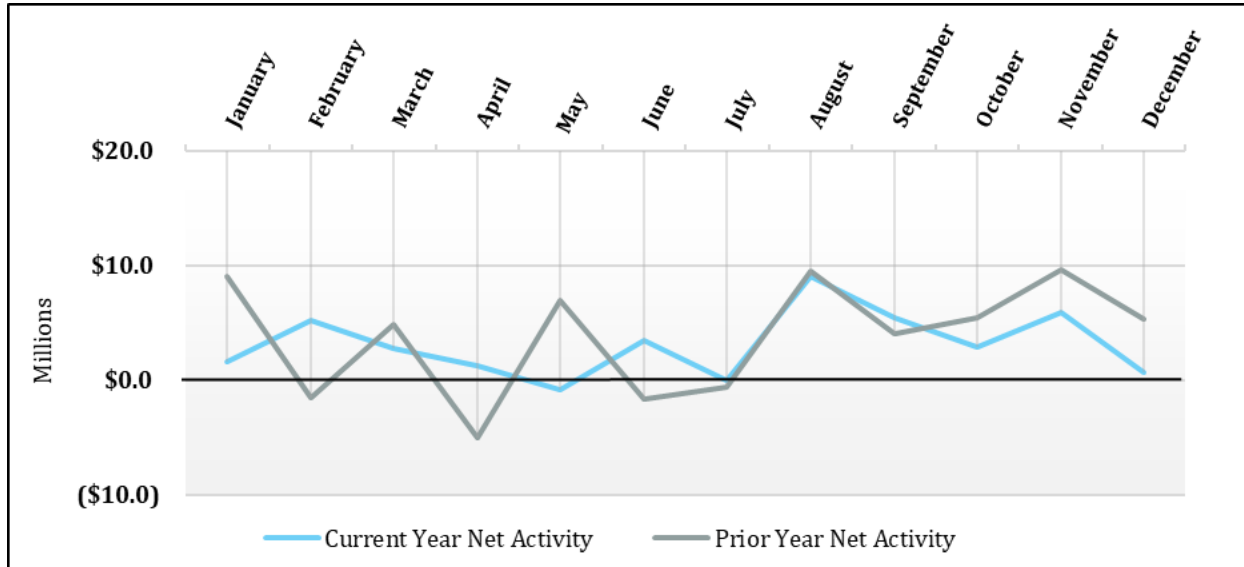
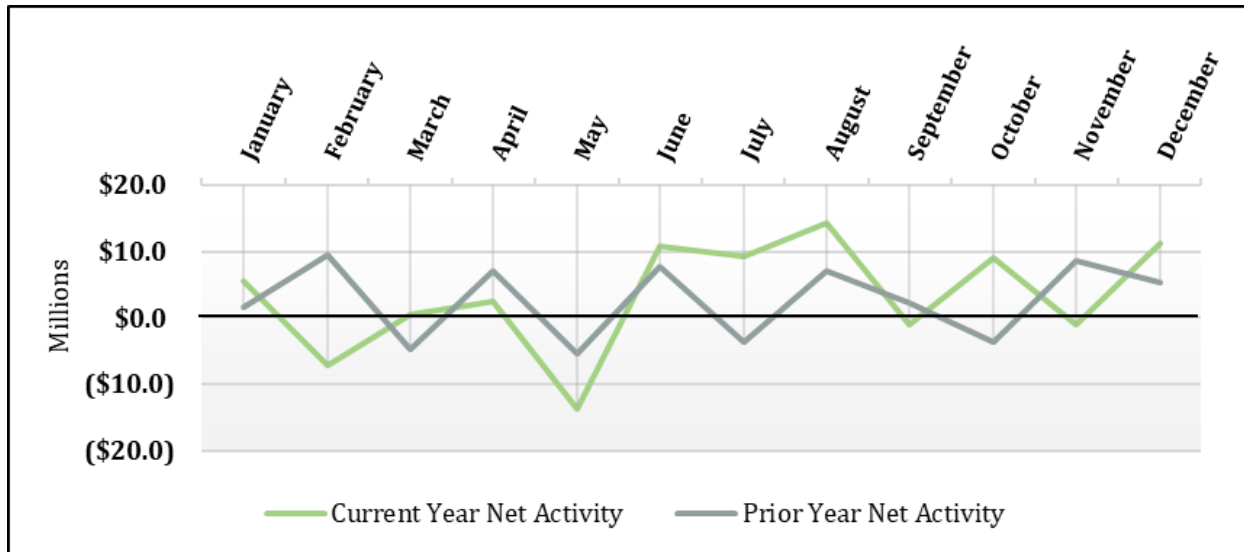
Chart 1 – GLWA 12-Month Net Receipts – Water outlines monthly cash receipt trends across two points of reference for the regional water system—current year and prior year. The black line at the zero highlights the minimum goal for net receipts.

Chart 2 – GLWA 12-Month Net Receipts – Sewer outlines monthly cash receipt trends across two points of reference for the regional sewer system—current year and prior year. The black line at the zero highlights the minimum goal for net receipts.

Table 1 – GLWA Net Cash Flows from Trust Receipts & Disbursements

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020 to Date	Life-to-Date Total
Water						
1 Receipts	\$ 149,688,711	\$ 352,941,909	\$ 338,452,001	\$ 336,594,234	\$ 173,319,301	\$ 1,350,996,156
2 MOU Adjustments	-	-	-	-	-	-
3 Adjusted Receipts	149,688,711	352,941,909	338,452,001	336,594,234	173,319,301	1,350,996,156
4 Disbursements	(146,256,185)	(288,777,985)	(297,064,810)	(289,230,481)	(149,182,120)	(1,170,511,581)
5 Receipts Net of Required Transfers	3,432,526	64,163,924	41,387,191	47,363,753	24,137,181	180,484,575
6 I&E Transfer	-	-	(25,739,700)	(47,695,000)	(15,062,500)	(88,497,200)
7 Net Receipts	\$ 3,432,526	\$ 64,163,924	\$ 15,647,491	\$ (331,247)	\$ 9,074,681	\$ 91,987,375
8 Ratio of Receipts to Required Disbursements (Line 3/Line 4)	102%	122%	114%	116%	116%	115%
Sewer						
9 Receipts	\$ 232,377,715	\$ 469,788,882	\$ 476,269,761	\$ 467,743,744	\$ 266,102,855	\$ 1,912,282,957
10 MOU Adjustments	-	-	-	-	-	-
11 Adjusted Receipts	232,377,715	469,788,882	476,269,761	467,743,744	266,102,855	1,912,282,957
12 Disbursements	(219,538,325)	(441,443,340)	(458,903,335)	(453,406,636)	(224,199,199)	(1,797,490,835)
13 Receipts Net of Required Transfers	12,839,390	28,345,542	17,366,426	14,337,108	41,903,656	114,792,122
14 I&E Transfer	-	-	(22,698,100)	(22,547,700)	(12,730,800)	(57,976,600)
15 DWSD Shortfall Advance	(1,285,466)	(28,014,534)	(24,113,034)	-	-	(53,413,034)
16 Shortfall Repayment (principal)	-	-	-	9,367,355	8,689,920	18,057,275
17 Net Receipts	\$ 11,553,924	\$ 331,008	\$ (29,444,708)	\$ 1,156,763	\$ 37,862,776	\$ 21,459,763
18 Ratio of Receipts to Required Disbursements (Line 11/Line 12)	106%	106%	104%	103%	119%	106%
Combined						
19 Receipts	\$ 382,066,426	\$ 822,730,791	\$ 814,721,762	\$ 804,337,978	\$ 439,422,156	\$ 3,263,279,113
20 MOU Adjustments	-	-	-	-	-	-
21 Adjusted Receipts	382,066,426	822,730,791	814,721,762	804,337,978	439,422,156	3,263,279,113
22 Disbursements	(365,794,510)	(730,221,325)	(755,968,145)	(742,637,117)	(373,381,319)	(2,968,002,416)
23 Receipts Net of Required Transfers	16,271,916	92,509,466	58,753,617	61,700,861	66,040,837	295,276,697
24 I&E Transfer	-	-	(48,437,800)	(70,242,700)	(27,793,300)	(146,473,800)
25 Shortfall Advance	(1,285,466)	(28,014,534)	(24,113,034)	-	-	(53,413,034)
26 Shortfall Repayment	-	-	-	9,367,355	8,689,920	18,057,275
27 Net Receipts	\$ 14,986,450	\$ 64,494,932	\$ (13,797,217)	\$ 825,516	\$ 46,937,457	\$ 113,447,138
28 Ratio of Receipts to Required Disbursements (Line 21/Line 22)	104%	113%	108%	108%	118%	110%

MOU Adjustments applies to DWSD and is shown here for consistency.

Chart 1 – GLWA 12-Month Net Receipts - Water

Chart 2 – GLWA 12-Month Net Receipts – Sewer


DWSD Trust Receipts & Disbursements

Net Cash Flows and Receipts Basis: The trusts established pursuant to the Master Bond Ordinance (MBO) outline a flow of funds that governs the priority of the application of cash receipts from both the regional wholesale (i.e. Great Lakes Water Authority or GLWA) and local retail (i.e. Detroit Water & Sewerage Department or DWSD) activities which are further separated by the water system and the sewage disposal system.

This report provides an ongoing status of the net cash flow of both organizations (GLWA and DWSD) to fund their allocated share of Master Bond Ordinance requirements in accordance with the leases for the regional systems.

Table 2 – DWSD Net Cash Flows from Trust Receipts & Disbursements provides a summary of cash receipt collections and required MBO transfers by fiscal year as well as a total of all activity for DWSD since inception at January 1, 2016. Fiscal year 2020 reflects six months of activity to date.

Water fund cash receipts exceeded required MBO disbursements by 3% through December 31, 2019 with a historical ratio of 3% since January 1, 2016.

Sewer fund cash receipts fell short of required MBO disbursements by 4% through December 31, 2019 with a historic shortfall of 5% since January 1, 2016. DWSD has recognized this issue and proactively implemented plans in December 2019 to resolve the current shortfall.

On December 3, DWSD transferred \$2.6 million from Sewer Operations & Maintenance back to the Sewer Receiving Fund. The remaining current year shortfall will be remedied by the end of February 2020 with an additional \$4.5 million cash replenishment transfer to GLWA; the DWSD Operations & Maintenance budgeted transfer request was reduced by \$1 million for March 2020 to hedge any future cashflow timing issues.

Table 3 – FY 2017 DWSD Loan Receivable - Sewer provides an activity summary of loan receivable established under the terms of the April 2018 MOU addressing the cash shortfall from FY 2016 and FY 2017.

Table 4 – FY 2017 DWSD Loan Receivable Payments - Sewer provides an activity summary of loan receivable payments to date on the FY 2017 Sewer Loan Receivable including the interest on the loan. This payment is transferred directly to GLWA Sewer Improvement & Extension fund monthly.

The Reconciliation Committee monitors this balance and repayment progress as part of its quarterly meetings.

Table 5 – FY 2018 DWSD Loan Receivable - Sewer provides an activity summary of loan receivable established under the terms of the April 2018 MOU addressing the cash shortfall from FY 2018.

Table 6 – FY 2018 DWSD Loan Receivable Payments - Sewer provides an activity summary of loan receivable payments to date on the FY 2018 Sewer Loan Receivable including the interest on the loan. This payment is transferred directly to GLWA Sewer Improvement & Extension fund monthly.

The Reconciliation Committee monitors this balance and repayment progress as part of its quarterly meetings.

Chart 3 – DWSD 12-Month Net Receipts – Water outlines monthly activity trends across two points of reference for the local water system—current year and prior year. The black line at the zero highlights the breakeven goal for net receipts.

Chart 4 – DWSD 12-Month Net Receipts – Sewer outlines monthly activity trends across two points of reference for the local sewer system—current year and prior year. The black line at the zero highlights the breakeven goal for net receipts.

Table 2 – DWSD Net Cash Flows from Trust Receipts & Disbursements

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020 to Date	Life-to-Date Total
Water						
1 Receipts	\$ 26,201,881	\$ 96,451,105	\$ 101,233,147	\$ 99,868,219	\$ 50,678,567	\$ 374,432,919
2 MOU Adjustments	18,446,100	-	-	-	-	18,446,100
3 Adjusted Receipts	44,647,981	96,451,105	101,233,147	99,868,219	50,678,567	392,879,019
4 Disbursements	(47,809,552)	(93,066,144)	(93,049,457)	(97,694,600)	(49,251,246)	(380,870,999)
5 Receipts Net of Required Transfers	(3,161,571)	3,384,961	8,183,690	2,173,619	1,427,321	12,008,020
6 I&E Transfer	-	-	-	(8,407,080)	-	(8,407,080)
7 Net Receipts	\$ (3,161,571)	\$ 3,384,961	\$ 8,183,690	\$ (6,233,461)	\$ 1,427,321	\$ 3,600,940
8 <i>Ratio of Receipts to Required Disbursements (Line 3/Line 4)</i>	93%	104%	109%	102%	103%	103%
Sewer						
9 Receipts	\$ 65,256,734	\$ 233,723,367	\$ 242,104,791	\$ 265,339,797	\$ 135,862,928	\$ 942,287,617
10 MOU Adjustments	55,755,100	-	-	6,527,200	-	62,282,300
11 Adjusted Receipts	121,011,834	233,723,367	242,104,791	271,866,997	135,862,928	1,004,569,917
12 Disbursements	(122,297,300)	(261,963,973)	(266,217,825)	(271,018,306)	(141,199,944)	(1,062,697,348)
13 Receipts Net of Required Transfers	(1,285,466)	(28,240,606)	(24,113,034)	848,691	(5,337,016)	(58,127,431)
14 I&E Transfer	-	-	-	-	-	-
15 Shortfall Advance from GLWA	1,285,466	28,014,534	24,113,034	-	-	53,413,034
16 Net Receipts (a)	\$ -	\$ (226,072)	\$ -	\$ 848,691	\$ (5,337,016)	\$ (4,714,397)
17 <i>Ratio of Receipts to Required Disbursements (Line 11/Line 12)</i>	99%	89%	91%	100%	96%	95%
Combined						
18 Receipts	\$ 91,458,615	\$ 330,174,472	\$ 343,337,938	\$ 365,208,016	\$ 186,541,495	\$1,316,720,536
19 MOU Adjustments	74,201,200	-	-	6,527,200	-	80,728,400
20 Adjusted Receipts	165,659,815	330,174,472	343,337,938	371,735,216	186,541,495	1,397,448,936
21 Disbursements	(170,106,852)	(355,030,117)	(359,267,282)	(368,712,906)	(190,451,190)	(1,443,568,347)
22 Receipts Net of Required Transfers	(4,447,037)	(24,855,645)	(15,929,344)	3,022,310	(3,909,695)	(46,119,411)
23 I&E Transfer	-	-	-	(8,407,080)	-	(8,407,080)
24 Shortfall Advance from GLWA	1,285,466	28,014,534	24,113,034	-	-	53,413,034
25 Net Receipts	\$ (3,161,571)	\$ 3,158,889	\$ 8,183,690	\$ (5,384,770)	\$ (3,909,695)	\$ (1,113,457)
26 <i>Ratio of Receipts to Required Disbursements (Line 20/Line 21)</i>	97%	93%	96%	101%	98%	97%

Note 1: The \$29,300,000 for the DWSD loan receivable balance is calculated as follows.

(1,285,466)	FY 2016 Shortfall
(28,240,606)	FY 2017 Shortfall
(29,526,072)	Subtotal
238,264	June IWC not due until July
(29,287,808)	FY 2017 Shortfall-to-Date

29,300,000 FY 2017 Shortfall-to-Date, Rounded

Table 3 – FY 2017 DWSD Loan Receivable - Sewer

Date	Transaction	Amount	Balance
6/30/2019	Record FY 16 and FY 17 Loan Receivable		29,300,000
2/8/2019	Loan Receivable Payment (for the months of Jul - Dec)	4,635,462	24,664,538
2/22/2019	Loan Receivable Payment (for the months of Jan - Mar)	2,353,768	22,310,770
4/15/2019	Loan Receivable Payment (for the month of Apr)	789,990	21,520,780
5/8/2019	Loan Receivable Payment (for the month of May)	792,705	20,728,075
6/7/2019	Loan Receivable Payment (for the month of June)	795,430	19,932,645
7/5/2019	Loan Receivable Payment (for the month of July)	798,164	19,134,480
8/8/2019	Loan Receivable Payment (for the month of August)	800,908	18,333,572
9/6/2019	Loan Receivable Payment (for the month of September)	803,661	17,529,911
10/2/2019	Loan Receivable Payment (for the month of October)	806,424	16,723,487
11/4/2019	Loan Receivable Payment (for the month of November)	809,196	15,914,291
12/3/2019	Loan Receivable Payment (for the month of December)	811,978	15,102,314
		14,197,686	15,102,314

Table 4 – FY 2017 DWSD Loan Receivable Payments - Sewer

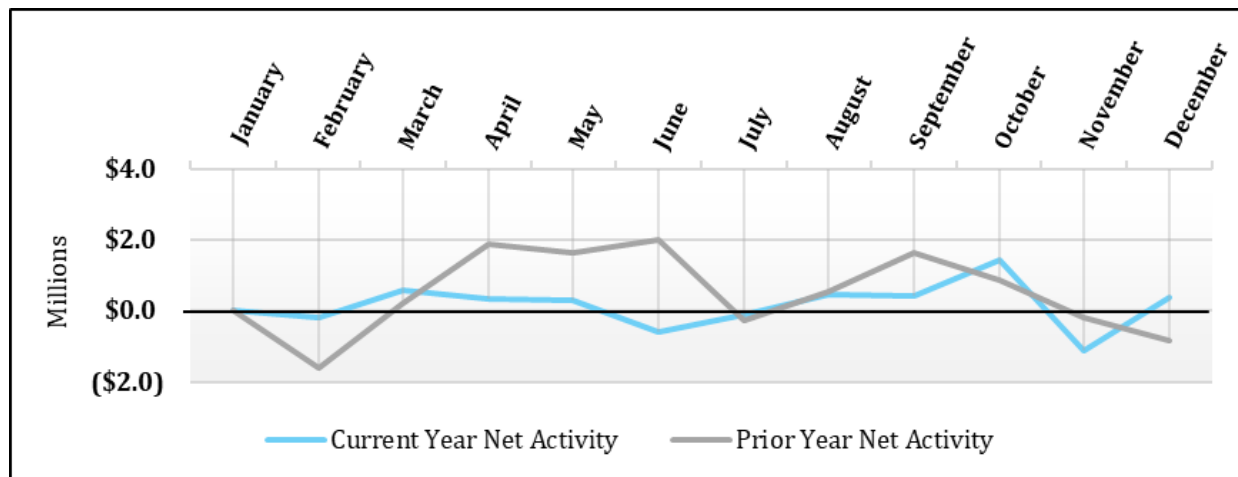
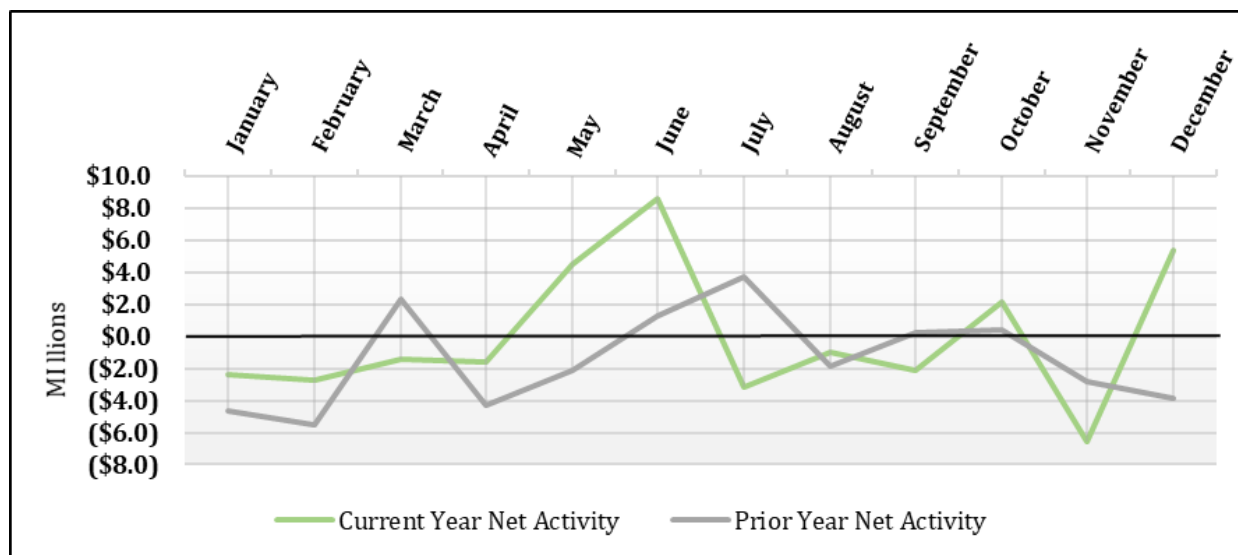
Date	Transaction	Principal	Interest	Total Paid
2/8/2019	Loan Receivable Payment (for the months of Jul - Dec)	4,635,462	564,636	5,200,098
2/22/2019	Loan Receivable Payment (for the months of Jan - Mar)	2,353,768	246,280	2,600,049
4/15/2019	Loan Receivable Payment (for the month of Apr)	789,990	76,693	866,683
5/8/2019	Loan Receivable Payment (for the month of May)	792,705	73,978	866,683
6/7/2019	Loan Receivable Payment (for the month of June)	795,430	71,253	866,683
7/5/2019	Loan Receivable Payment (for the month of July)	798,164	68,518	866,683
8/8/2019	Loan Receivable Payment (for the month of August)	800,908	65,775	866,683
9/6/2019	Loan Receivable Payment (for the month of September)	803,661	63,022	866,683
10/2/2019	Loan Receivable Payment (for the month of October)	806,424	60,259	866,683
11/4/2019	Loan Receivable Payment (for the month of November)	809,196	57,487	866,683
12/3/2019	Loan Receivable Payment (for the month of December)	811,978	54,705	866,683
		14,197,687	1,402,606	15,600,293

Table 5 – FY 2018 DWSD Loan Receivable - Sewer

Date	Transaction	Amount	Balance
6/30/2019	Record FY 18 Loan Receivable		24,113,034
7/15/2019	Loan Receivable Payment (for the month of July)	638,978	23,474,056
8/8/2019	Loan Receivable Payment (for the month of August)	640,686	22,833,370
9/6/2019	Loan Receivable Payment (for the month of September)	642,400	22,190,970
10/2/2019	Loan Receivable Payment (for the month of October)	644,118	21,546,852
11/4/2019	Loan Receivable Payment (for the month of November)	645,840	20,901,012
12/3/2019	Loan Receivable Payment (for the month of December)	647,567	20,253,445
		3,859,589	20,253,445

Table 6 – FY 2018 DWSD Loan Receivable Payments - Sewer

Date	Transaction	Principal	Interest	Total Paid
7/15/2019	Loan Receivable Payment (for the month of July)	638,978	64,482	703,460
8/8/2019	Loan Receivable Payment (for the month of August)	640,686	62,774	703,460
9/6/2019	Loan Receivable Payment (for the month of September)	642,400	61,060	703,460
10/2/2019	Loan Receivable Payment (for the month of October)	644,118	59,342	703,460
11/4/2019	Loan Receivable Payment (for the month of November)	645,840	57,620	703,460
12/3/2019	Loan Receivable Payment (for the month of December)	647,567	55,893	703,460
		3,859,589	361,171	4,220,760

Chart 3 – DWSD 12-Month Net Receipts - Water

Chart 4 – DWSD 12-Month Net Receipts – Sewer


Combined System Trust Receipts & Disbursements

Net Cash Flows and Receipts Basis: The trusts established pursuant to the Master Bond Ordinance (MBO) outline a flow of funds that governs the priority of the application of cash receipts from both the regional wholesale (i.e. Great Lakes Water Authority or GLWA) and local retail (i.e. Detroit Water & Sewerage Department or DWSD) activities which are further separated by the water system and the sewage disposal system.

Table 7 – Combined Net Cash Flows from Trust Receipts & Disbursements provides a summary of cash receipt collections and required MBO transfers by fiscal year as well as a total of all activity for GLWA since inception at January 1, 2016. Fiscal year 2020 reflects six months of activity to date.

Water fund cash receipts exceeded required MBO disbursements by 13% through December 31, 2019 with a historical ratio of cash receipts exceeding MBO disbursements by 12% since January 1, 2016.

Sewer fund cash receipts exceeded required MBO disbursements by 10% through December 31, 2019 and with a historical ratio of cash receipts exceeding MBO disbursements by 2% since January 1, 2016.

Table 7 – Combined Net Cash Flows from Trust Receipts & Disbursements

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020 to Date	Life-to-Date Total
Water						
1 Receipts	\$ 175,890,592	\$ 449,393,014	\$ 439,685,148	\$ 436,462,453	\$ 223,997,868	\$ 1,725,429,075
2 MOU Adjustments	18,446,100	-	-	-	-	18,446,100
3 Adjusted Receipts	194,336,692	449,393,014	439,685,148	436,462,453	223,997,868	1,743,875,175
4 Disbursements	(194,065,737)	(381,844,129)	(390,114,267)	(386,925,081)	(198,433,366)	(1,551,382,580)
5 Receipts Net of Required Transfers	270,955	67,548,885	49,570,881	49,537,372	25,564,502	192,492,595
6 I&E Transfer	-	-	(25,739,700)	(56,102,080)	(15,062,500)	(96,904,280)
7 Net Receipts	\$ 270,955	\$ 67,548,885	\$ 23,831,181	\$ (6,564,708)	\$ 10,502,002	\$ 95,588,315
8 <i>Ratio of Receipts to Required Disbursements (Line 3/Line 4)</i>	100%	118%	113%	113%	113%	112%
Sewer						
9 Receipts	\$ 297,634,449	\$ 703,512,249	\$ 718,374,552	\$ 733,083,541	\$ 401,965,783	\$ 2,854,570,574
10 MOU Adjustments	55,755,100	-	-	6,527,200	-	62,282,300
11 Adjusted Receipts	353,389,549	703,512,249	718,374,552	739,610,741	401,965,783	2,916,852,874
12 Disbursements	(341,835,625)	(703,407,313)	(725,121,160)	(724,424,942)	(365,399,143)	(2,860,188,183)
13 Receipts Net of Required Transfers	11,553,924	104,936	(6,746,608)	15,185,799	36,566,640	56,664,691
14 I&E Transfer	-	-	(22,698,100)	(22,547,700)	(12,730,800)	(57,976,600)
15 Shortfall Advance	-	-	-	-	-	-
16 Shortfall Repayment (principal)	-	-	-	9,367,355	8,689,920	18,057,275
17 Net Receipts	\$ 11,553,924	\$ 104,936	\$ (29,444,708)	\$ (7,361,901)	\$ 32,525,760	\$ 16,745,367
18 <i>Ratio of Receipts to Required Disbursements (Line 11/Line 12)</i>	103%	100%	99%	102%	110%	102%
Combined						
19 Receipts	\$ 473,525,041	\$ 1,152,905,263	\$ 1,158,059,700	\$ 1,169,545,994	\$ 625,963,651	\$ 4,579,999,649
20 MOU Adjustments	74,201,200	-	-	6,527,200	-	80,728,400
21 Adjusted Receipts	547,726,241	1,152,905,263	1,158,059,700	1,176,073,194	625,963,651	4,660,728,049
22 Disbursements	(535,901,362)	(1,085,251,442)	(1,115,235,427)	(1,111,350,023)	(563,832,509)	(4,411,570,763)
23 Receipts Net of Required Transfers	11,824,879	67,653,821	42,824,273	64,723,171	62,131,142	249,157,286
24 I&E Transfer	-	-	(48,437,800)	(78,649,780)	(27,793,300)	(154,880,880)
25 Shortfall Advance	-	-	-	-	-	-
26 Shortfall Repayment	-	-	-	9,367,355	8,689,920	18,057,275
27 Net Receipts	\$ 11,824,879	\$ 67,653,821	\$ (5,613,527)	\$ (4,559,254)	\$ 43,027,762	\$ 112,333,682
28 <i>Ratio of Receipts to Required Disbursements (Line 21/Line 22)</i>	102%	106%	104%	106%	111%	106%

APPENDIX

GLWA Aged Accounts Receivable- WATER ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ALLEN PARK	\$186,585.70	\$186,585.70	\$0.00	\$0.00	\$0.00
ASH TOWNSHIP	\$66,659.12	\$66,659.12	\$0.00	\$0.00	\$0.00
BELLEVILLE	\$27,625.15	\$27,625.15	\$0.00	\$0.00	\$0.00
BERLIN TOWNSHIP	\$56,745.31	\$56,745.31	\$0.00	\$0.00	\$0.00
BROWNSTOWN TOWNSHIP	\$277,983.55	\$277,983.55	\$0.00	\$0.00	\$0.00
BRUCE TOWNSHIP	\$25,045.16	\$25,045.16	\$0.00	\$0.00	\$0.00
BURTCHVILLE TOWNSHIP	\$23,583.16	\$23,583.16	\$0.00	\$0.00	\$0.00
CANTON TOWNSHIP	\$795,067.62	\$795,067.62	\$0.00	\$0.00	\$0.00
CENTER LINE	\$38,451.83	\$38,451.83	\$0.00	\$0.00	\$0.00
CHESTERFIELD TOWNSHIP	\$646,441.08	\$646,441.08	\$0.00	\$0.00	\$0.00
CLINTON TOWNSHIP	\$581,971.68	\$581,971.68	\$0.00	\$0.00	\$0.00
COMMERCE TOWNSHIP	\$264,571.37	\$264,571.37	\$0.00	\$0.00	\$0.00
DEARBORN	\$2,798,394.80	\$1,645,411.35	\$1,152,983.45	\$0.00	\$0.00
DEARBORN HEIGHTS	\$294,673.08	\$294,673.08	\$0.00	\$0.00	\$0.00
EASTPOINTE	\$255,470.88	\$255,470.88	\$0.00	\$0.00	\$0.00
ECORSE	\$119,141.29	\$119,141.29	\$0.00	\$0.00	\$0.00
FARMINGTON	\$79,165.12	\$79,165.12	\$0.00	\$0.00	\$0.00
FARMINGTON HILLS	\$684,032.89	\$684,032.89	\$0.00	\$0.00	\$0.00
FERNDAL	\$159,748.28	\$159,748.28	\$0.00	\$0.00	\$0.00
FLAT ROCK	\$212,693.75	\$212,693.75	\$0.00	\$0.00	\$0.00
FLINT	\$328,644.94	\$328,644.94	\$0.00	\$0.00	\$0.00
FRASER	\$96,768.19	\$96,768.19	\$0.00	\$0.00	\$0.00
GARDEN CITY	\$141,590.85	\$141,590.85	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- WATER ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
GIBRALTAR	\$27,551.35	\$27,551.35	\$0.00	\$0.00	\$0.00
GREENWOOD TOWNSHIP	\$ (21,039.13)	\$ (21,039.13)	\$0.00	\$0.00	\$0.00
GROSSE ILE TOWNSHIP	\$171,136.73	\$171,136.73	\$0.00	\$0.00	\$0.00
GROSSE POINTE PARK	\$117,279.73	\$117,279.73	\$0.00	\$0.00	\$0.00
GROSSE POINTE SHORES	\$44,784.38	\$44,784.38	\$0.00	\$0.00	\$0.00
GROSSE POINTE WOODS	\$113,845.85	\$113,845.85	\$0.00	\$0.00	\$0.00
HAMTRAMCK	\$65,600.59	\$65,600.59	\$0.00	\$0.00	\$0.00
HARPER WOODS	\$152,470.80	\$152,470.80	\$0.00	\$0.00	\$0.00
HARRISON TWP	\$120,634.87	\$120,634.87	\$0.00	\$0.00	\$0.00
HAZEL PARK	\$59,263.01	\$59,263.01	\$0.00	\$0.00	\$0.00
HIGHLAND PARK	\$7,977,318.07	\$199,504.24	\$107,422.42	\$108,007.06	\$7,562,384.35
HURON TOWNSHIP	\$118,661.66	\$118,661.66	\$0.00	\$0.00	\$0.00
IMLAY CITY	\$131,221.48	\$131,221.48	\$0.00	\$0.00	\$0.00
IMLAY TOWNSHIP	\$1,061.45	\$1,061.45	\$0.00	\$0.00	\$0.00
INKSTER	\$100,004.91	\$100,004.91	\$0.00	\$0.00	\$0.00
KEEGO HARBOR	\$23,425.95	\$23,425.95	\$0.00	\$0.00	\$0.00
LAPEER	\$251,977.62	\$251,977.62	\$0.00	\$0.00	\$0.00
LENOX TOWNSHIP	\$41,101.05	\$41,101.05	\$0.00	\$0.00	\$0.00
LINCOLN PARK	\$197,287.18	\$197,287.18	\$0.00	\$0.00	\$0.00
LIVONIA	\$878,967.44	\$878,967.44	\$0.00	\$0.00	\$0.00
MACOMB TWP	\$924,591.91	\$924,591.91	\$0.00	\$0.00	\$0.00
MADISON HEIGHTS	\$153,799.99	\$153,799.99	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- WATER ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
MAYFIELD TOWNSHIP	\$3,073.42	\$3,073.42	\$0.00	\$0.00	\$0.00
MELVINDALE	\$102,357.39	\$102,357.39	\$0.00	\$0.00	\$0.00
NEW HAVEN	\$28,683.15	\$28,683.15	\$0.00	\$0.00	\$0.00
NOCWA	\$1,687,692.64	\$1,687,692.64	\$0.00	\$0.00	\$0.00
NORTHVILLE	\$137,694.92	\$137,694.92	\$0.00	\$0.00	\$0.00
NORTHVILLE TOWNSHIP	\$838,190.38	\$838,190.38	\$0.00	\$0.00	\$0.00
NOVI	\$664,461.01	\$664,461.01	\$0.00	\$0.00	\$0.00
OAK PARK	\$113,355.22	\$113,355.22	\$0.00	\$0.00	\$0.00
OAKLAND CO DR COM	\$5,497.43	\$5,497.43	\$0.00	\$0.00	\$0.00
PLYMOUTH	\$87,113.03	\$87,113.03	\$0.00	\$0.00	\$0.00
PLYMOUTH TOWNSHIP	\$337,529.73	\$337,529.73	\$0.00	\$0.00	\$0.00
REDFORD TOWNSHIP	\$255,201.13	\$255,201.13	\$0.00	\$0.00	\$0.00
RIVER ROUGE	\$60,647.28	\$60,647.28	\$0.00	\$0.00	\$0.00
RIVERVIEW	\$70,750.75	\$70,750.75	\$0.00	\$0.00	\$0.00
ROCKWOOD	\$22,198.81	\$22,198.81	\$0.00	\$0.00	\$0.00
ROMEO	\$19,822.08	\$19,822.08	\$0.00	\$0.00	\$0.00
ROMULUS	\$330,197.00	\$330,197.00	\$0.00	\$0.00	\$0.00
ROSEVILLE	\$216,278.00	\$216,278.00	\$0.00	\$0.00	\$0.00
ROYAL OAK TOWNSHIP	\$16,293.25	\$16,293.25	\$0.00	\$0.00	\$0.00
SHELBY TOWNSHIP	\$1,013,541.01	\$1,013,541.01	\$0.00	\$0.00	\$0.00
SOCWA	\$3,601,117.54	\$3,601,117.54	\$0.00	\$0.00	\$0.00
SOUTH ROCKWOOD	\$9,113.38	\$9,113.38	\$0.00	\$0.00	\$0.00
SOUTHGATE	\$184,812.80	\$184,812.80	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- WATER ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ST. CLAIR SHORES	\$508,475.69	\$508,475.69	\$0.00	\$0.00	\$0.00
STERLING HEIGHTS	\$1,165,630.88	\$1,165,630.88	\$0.00	\$0.00	\$0.00
SUMPTER TOWNSHIP	\$55,082.66	\$55,082.66	\$0.00	\$0.00	\$0.00
SYLVAN LAKE	\$18,105.93	\$18,105.93	\$0.00	\$0.00	\$0.00
TAYLOR	\$749,943.07	\$749,943.07	\$0.00	\$0.00	\$0.00
TRENTON	\$135,029.82	\$135,029.82	\$0.00	\$0.00	\$0.00
TROY (SEOC)	\$1,035,300.65	\$1,035,300.65	\$0.00	\$0.00	\$0.00
UTICA	\$89,397.66	\$89,397.66	\$0.00	\$0.00	\$0.00
VAN BUREN TOWNSHIP	\$294,454.36	\$294,454.36	\$0.00	\$0.00	\$0.00
VILLAGE OF ALMONT	\$18,661.35	\$18,661.35	\$0.00	\$0.00	\$0.00
WALLED LAKE	\$62,748.11	\$62,748.11	\$0.00	\$0.00	\$0.00
WARREN	\$817,518.25	\$817,518.25	\$0.00	\$0.00	\$0.00
WASHINGTON TOWNSHIP	\$162,545.74	\$162,545.74	\$0.00	\$0.00	\$0.00
WAYNE	\$337,213.59	\$337,213.59	\$0.00	\$0.00	\$0.00
WEST BLOOMFIELD TWP (C-O)	\$1,585,313.25	\$1,585,313.25	\$0.00	\$0.00	\$0.00
WESTLAND	\$968,093.39	\$968,093.39	\$0.00	\$0.00	\$0.00
WIXOM	\$186,757.15	\$186,757.15	\$0.00	\$0.00	\$0.00
WOODHAVEN	\$130,692.20	\$130,692.20	\$0.00	\$0.00	\$0.00
YCUA	\$1,622,496.15	\$1,622,496.15	\$0.00	\$0.00	\$0.00
TOTAL WATER ACCOUNTS	\$39,561,082.94	\$30,630,285.66	\$1,260,405.87	\$108,007.06	\$7,562,384.35

GLWA Aged Accounts Receivable- SEWER ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ALLEN PARK	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CENTER LINE	\$86,099.50	\$86,099.50	\$0.00	\$0.00	\$0.00
DEARBORN	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EVERGREEN-FARMINGTON	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
FARMINGTON	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GROSSE POINTE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GROSSE POINTE FARMS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GROSSE POINTE PARK	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
HAMTRAMCK	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
HARPER WOODS	\$18,300.00	\$18,300.00	\$0.00	\$0.00	\$0.00
HIGHLAND PARK	\$33,646,586.73	\$472,500.00	\$472,500.00	\$472,500.00	\$32,229,086.73
MELVINDALE	\$127,800.00	\$127,800.00	\$0.00	\$0.00	\$0.00
OAKLAND COUNTY GWK DD	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
REDFORD TOWNSHIP	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ROUGE VALLEY	\$4,513,500.00	\$4,513,500.00	\$0.00	\$0.00	\$0.00
WAYNE COUNTY N.E.	\$2,069,800.00	\$2,069,800.00	\$0.00	\$0.00	\$0.00
WAYNE COUNTY-AREA #3	\$4,200.00	\$4,200.00	\$0.00	\$0.00	\$0.00
TOTAL SEWER ACCOUNTS	\$40,466,286.23	\$7,292,199.50	\$472,500.00	\$472,500.00	\$32,229,086.73

GLWA Aged Accounts Receivable- IWC ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ALLEN PARK	\$1,532.83	\$1,532.83	\$0.00	\$0.00	\$0.00
AUBURN HILLS (C-O)	\$10,787.27	\$10,787.27	\$0.00	\$0.00	\$0.00
AUBURN HILLS (E-F)	\$348.14	\$348.14	\$0.00	\$0.00	\$0.00
AUBURN HILLS (C-O) ADMIN	\$1,969.62	\$1,969.62	\$0.00	\$0.00	\$0.00
BLOOMFIELD HILLS	\$1,570.01	\$1,570.01	\$0.00	\$0.00	\$0.00
BLOOMFIELD TOWNSHIP	\$7,197.71	\$7,197.71	\$0.00	\$0.00	\$0.00
CANTON TOWNSHIP	\$684,837.98	\$36,253.88	\$18,126.94	\$0.00	\$630,457.16
DETROIT METRO WC AIRPORT	\$101.40	\$101.40	\$0.00	\$0.00	\$0.00
CENTER LINE	\$3,501.68	\$3,501.68	\$0.00	\$0.00	\$0.00
CHESTERFIELD TOWNSHIP	\$23,156.38	\$23,156.38	\$0.00	\$0.00	\$0.00
CLINTON TOWNSHIP	\$24,303.89	\$24,303.89	\$0.00	\$0.00	\$0.00
DEARBORN	\$105,440.79	\$70,293.86	\$35,146.93	\$0.00	\$0.00
DEARBORN HEIGHTS	\$8,688.29	\$8,688.29	\$0.00	\$0.00	\$0.00
EASTPOINTE	\$12,272.78	\$12,272.78	\$0.00	\$0.00	\$0.00
FARMINGTON	\$3,837.99	\$3,837.99	\$0.00	\$0.00	\$0.00
FARMINGTON HILLS	\$23,142.86	\$23,142.86	\$0.00	\$0.00	\$0.00
CITY OF FARMINGTON (E-F)	\$190.97	\$190.97	\$0.00	\$0.00	\$0.00
CITY OF FERNDALE	\$8,466.90	\$8,466.90	\$0.00	\$0.00	\$0.00
FRASER	\$4,715.20	\$4,715.20	\$0.00	\$0.00	\$0.00
GARDEN CITY	\$5,803.46	\$5,803.46	\$0.00	\$0.00	\$0.00
GROSSE POINTE PARK	\$1,123.85	\$1,123.85	\$0.00	\$0.00	\$0.00
GROSSE POINTE SHORES	\$302.51	\$302.51	\$0.00	\$0.00	\$0.00
GROSSE POINTE WOODS	\$2,458.95	\$2,458.95	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- IWC ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
GROSSE POINTE	\$1,502.41	\$1,502.41	\$0.00	\$0.00	\$0.00
GROSSE POINTE FARMS	\$1,985.75	\$1,985.75	\$0.00	\$0.00	\$0.00
HAMTRAMCK	\$3,968.12	\$3,968.12	\$0.00	\$0.00	\$0.00
HARPER WOODS	\$1,884.35	\$1,884.35	\$0.00	\$0.00	\$0.00
HARRISON TWP	\$3,009.89	\$3,009.89	\$0.00	\$0.00	\$0.00
HAZEL PARK	\$3,063.97	\$3,063.97	\$0.00	\$0.00	\$0.00
INKSTER	\$5,286.32	\$5,286.32	\$0.00	\$0.00	\$0.00
KEEGO HARBOR	\$664.17	\$664.17	\$0.00	\$0.00	\$0.00
LENOX TOWNSHIP	\$618.54	\$618.54	\$0.00	\$0.00	\$0.00
LIVONIA	\$38,731.42	\$38,731.42	\$0.00	\$0.00	\$0.00
MACOMB TWP	\$196.04	\$196.04	\$0.00	\$0.00	\$0.00
MADISON HEIGHTS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MELVINDALE	\$6,901.96	\$6,901.96	\$0.00	\$0.00	\$0.00
NEW HAVEN	\$584.74	\$584.74	\$0.00	\$0.00	\$0.00
NORTHVILLE	\$3,954.60	\$3,883.62	\$70.98	\$0.00	\$0.00
NORTHVILLE TOWNSHIP	\$164,318.05	\$8,696.74	\$4,348.37	\$0.00	\$151,272.94
NOVI	\$16,512.99	\$16,512.99	\$0.00	\$0.00	\$0.00
OAK PARK	\$6,465.94	\$6,465.94	\$0.00	\$0.00	\$0.00
ORION TOWNSHIP (C-O)	\$3,472.95	\$3,472.95	\$0.00	\$0.00	\$0.00
ORION TOWNSHIP (C-O) ADMIN	\$441.69	\$441.69	\$0.00	\$0.00	\$0.00
PLYMOUTH	\$3,707.86	\$3,707.86	\$0.00	\$0.00	\$0.00
PLYMOUTH TOWNSHIP	\$457,375.10	\$24,207.56	\$12,103.78	\$0.00	\$421,063.76

GLWA Aged Accounts Receivable- IWC ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
REDFORD TOWNSHIP	\$10,433.31	\$10,433.31	\$0.00	\$0.00	\$0.00
ROCHESTER HILLS	\$17,515.16	\$17,515.16	\$0.00	\$0.00	\$0.00
SHELBY TOWNSHIP	\$11,963.51	\$11,963.51	\$0.00	\$0.00	\$0.00
LAKE ORION	\$763.88	\$763.88	\$0.00	\$0.00	\$0.00
ROSEVILLE	\$14,054.04	\$14,054.04	\$0.00	\$0.00	\$0.00
ROYAL OAK TOWNSHIP	\$ (887.25)	\$0.00	\$ (887.25)	\$0.00	\$0.00
ROYAL OAK	\$13,102.57	\$13,102.57	\$0.00	\$0.00	\$0.00
ST. CLAIR SHORES	\$11,471.72	\$11,471.72	\$0.00	\$0.00	\$0.00
STERLING HEIGHTS	\$29,934.97	\$29,934.97	\$0.00	\$0.00	\$0.00
TROY (SEOC)	\$35,464.65	\$35,464.65	\$0.00	\$0.00	\$0.00
TROY (E-F)	\$365.04	\$365.04	\$0.00	\$0.00	\$0.00
UTICA	\$5,717.27	\$5,717.27	\$0.00	\$0.00	\$0.00
VAN BUREN TOWNSHIP	\$1,755.91	\$1,755.91	\$0.00	\$0.00	\$0.00
WEST BLOOMFIELD TWP (C-O)	\$1,804.92	\$1,804.92	\$0.00	\$0.00	\$0.00
WEST BLOOMFIELD TWP. (C-O) F	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
WEST BLOOMFIELD TWP (E-F)	\$12,097.02	\$12,097.02	\$0.00	\$0.00	\$0.00
WASHINGTON TOWNSHIP	\$2,682.03	\$2,682.03	\$0.00	\$0.00	\$0.00
WAYNE	\$4,770.87	\$4,770.87	\$0.00	\$0.00	\$0.00
WESTLAND	\$21,569.47	\$21,569.47	\$0.00	\$0.00	\$0.00
BERKLEY	\$3,004.82	\$3,004.82	\$0.00	\$0.00	\$0.00
BEVERLY HILLS	\$949.78	\$949.78	\$0.00	\$0.00	\$0.00
BINGHAM FARMS	\$1,008.93	\$1,008.93	\$0.00	\$0.00	\$0.00
BIRMINGHAM (SEOC)	\$10,645.31	\$10,636.86	\$8.45	\$0.00	\$0.00

GLWA Aged Accounts Receivable- IWC ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
BIRMINGHAM (E-F)	\$2,315.30	\$2,315.30	\$0.00	\$0.00	\$0.00
CLARKSTON	\$263.64	\$263.64	\$0.00	\$0.00	\$0.00
CLARKSTON (C-O) ADMIN	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CLAWSON	\$2,626.26	\$2,626.26	\$0.00	\$0.00	\$0.00
HIGHLAND PARK	\$1,699,128.25	\$7,792.59	\$3,932.63	\$0.00	\$1,687,403.03
HUNTINGTON WOODS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CHARTER TOWNSHIP OF INDEPENI	\$4,650.88	\$4,650.88	\$0.00	\$0.00	\$0.00
INDEPENDENCE (C-O) ADMIN	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
LATHRUP	\$1,336.79	\$1,336.79	\$0.00	\$0.00	\$0.00
OAKLAND TOWNSHIP	\$410.67	\$410.67	\$0.00	\$0.00	\$0.00
ORCHARD LAKE VILLAGE	\$381.94	\$381.94	\$0.00	\$0.00	\$0.00
OXFORD TOWNSHIP	\$961.61	\$961.61	\$0.00	\$0.00	\$0.00
OXFORD VILLAGE	\$1,196.52	\$1,196.52	\$0.00	\$0.00	\$0.00
PLEASANT RIDGE	\$260.26	\$260.26	\$0.00	\$0.00	\$0.00
CITY OF ROCHESTER	\$3,540.55	\$3,540.55	\$0.00	\$0.00	\$0.00
SOUTHFIELD (E-F)	\$27,065.35	\$27,065.35	\$0.00	\$0.00	\$0.00
SOUTHFIELD (SEOC)	\$3,711.24	\$3,711.24	\$0.00	\$0.00	\$0.00
VILLAGE OF FRANKLIN	\$62.53	\$62.53	\$0.00	\$0.00	\$0.00
WATERFORD TOWNSHIP DPW	\$11,831.69	\$11,831.69	\$0.00	\$0.00	\$0.00
WATERFORD TOWNSHIP DPW (ADMI	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ROMULUS	\$880.49	\$880.49	\$0.00	\$0.00	\$0.00

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
TOTAL IWC ACCOUNTS	\$3,631,210.22	\$668,162.50	\$72,850.83	\$0.00	\$2,890,196.89

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
3M COMPANY	\$4,519.46	\$4,519.46	\$0.00	\$0.00	\$0.00
A & R PACKING CO., LLC	\$9,568.58	\$9,568.58	\$0.00	\$0.00	\$0.00
AACTRON	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ACADEMY PACKING CO.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ACME RUSTPROOF	\$68.27	\$68.27	\$0.00	\$0.00	\$0.00
AEVITAS SPECIALITY SERVICES	\$21,655.92	\$21,655.92	\$0.00	\$0.00	\$0.00
ALEXANDER & HORNUNG	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ALEXANDER & HORNUNG	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ALEXANDER & HORNUNG	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ALGAL SCIENTIFIC CORPORATION	\$16,533.05	\$0.00	\$0.00	\$0.00	\$16,533.05
ALL CHEM CORP, LLC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ALPHA STAMPING COMPANY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
AMERICAN WASTE TECH INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
AMERITI MFG. CO.	\$11,263.62	\$11,263.62	\$0.00	\$0.00	\$0.00
ATWATER IN THE PARK	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
AUTOMOTIVE FINISH	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
AXLE BREWING COMPANY, LLC	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
B. NEKTAR MEADERY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
BAFFIN BREWING COMPANY	\$470.45	\$0.00	\$121.80	\$0.00	\$348.65
BARON INDUSTRIES	\$1,671.46	\$1,671.46	\$0.00	\$0.00	\$0.00
BARTZ BAKERY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
BASTONE BREWERY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
BATCH BREWING COMPANY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
BAYS MICHIGAN CORPORATION	\$4.83	\$4.83	\$0.00	\$0.00	\$0.00
BEIRUT BAKERY, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
BETTER MADE SNACK FOOD	\$13,788.26	\$13,788.26	\$0.00	\$0.00	\$0.00
BLACK LOTUS BREWING CO.	\$61.25	\$0.00	\$61.25	\$0.00	\$0.00
BOZEK'S MARKET	\$74.00	\$74.00	\$0.00	\$0.00	\$0.00
BREW DETROIT	\$5,843.53	\$5,843.53	\$0.00	\$0.00	\$0.00
BROADWAY MKT CORNED BEEF	\$17.08	\$17.08	\$0.00	\$0.00	\$0.00
BROOKS BREWING, LLC.	\$108.06	\$0.00	\$108.06	\$0.00	\$0.00
BROWN IRON BREWHOUSE	\$59.87	\$0.00	\$59.87	\$0.00	\$0.00
CADILLAC STRAITS BREWING CO.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CANTON BREW WORKS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CAPITAL REPRODUCTIONS	\$3.13	\$1.51	\$0.00	\$0.00	\$1.62
CF BURGER CREAMERY	\$18,348.07	\$18,348.07	\$0.00	\$0.00	\$0.00
CHILANGO'S BAKERY	\$1,589.96	\$114.20	\$48.26	\$25.74	\$1,401.76
CINTAS CORP. - MACOMB TWP.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CINTAS CORPORATION	\$23,776.86	\$23,776.86	\$0.00	\$0.00	\$0.00
CINTAS CORPORATION	\$11,924.54	\$11,924.54	\$0.00	\$0.00	\$0.00
CITY LAUNDRY, INC.	\$1.20	\$1.20	\$0.00	\$0.00	\$0.00
CLASSIC CONTAINER CORP.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
COCA-COLA REFRESHMENTS USA,	\$1,967.75	\$1,967.75	\$0.00	\$0.00	\$0.00
COSTCO WHOLESALE STORE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
COSTCO WHOLESALE STORE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
COSTCO WHOLESALE STORE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
COSTCO WHOLESALE STORE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
COUNTRY FRESH DAIRY CO.	\$7,303.99	\$3,341.59	\$3,962.40	\$0.00	\$0.00
CROSS CHEMICAL COMPANY, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
DARLING INGREDIENTS, INC.	\$19,866.86	\$19,866.86	\$0.00	\$0.00	\$0.00
DAVE'S SAUSAGE FACTORY 2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
DEARBORN BREWING	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
DEARBORN SAUSAGE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
DEARBORN SAUSAGE CO., INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
DETROIT BEER	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
DETROIT LINEN SERVICE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
DETROIT METRO WC AIRPORT	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
DETROIT RIVERTOWN BREWERY CC	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
DETROIT SAUSAGES CO INC	\$39.84	\$25.61	\$14.23	\$0.00	\$0.00
DETRONIC INDUSTRIES, INC.	\$75.88	\$75.88	\$0.00	\$0.00	\$0.00
DIFCO LABORATORIES, INC.	\$21,498.54	\$21,498.54	\$0.00	\$0.00	\$0.00
DIVERSIFIED CHEM TECH. INC.	\$140.37	\$140.37	\$0.00	\$0.00	\$0.00
DOMESTIC UNIFORM RENTAL	\$1,792.32	\$1,792.32	\$0.00	\$0.00	\$0.00
DOMESTIC UNIFORM RENTAL	\$706.57	\$706.57	\$0.00	\$0.00	\$0.00
DOWNEY BREWING COMPANY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
E.W. GROBBEL'S SONS, INC.	\$4,462.38	\$4,462.38	\$0.00	\$0.00	\$0.00
EASTERN MARKET BREWING COMPF	\$180.65	\$0.00	\$180.65	\$0.00	\$0.00
ENVIROSOLIDS, L.L.C.	\$27,444.06	\$0.00	\$27,444.06	\$0.00	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
EQ DETROIT, INC.	\$1,553.73	\$1,553.73	\$0.00	\$0.00	\$0.00
EQ DETROIT, INC.	\$19,907.60	\$19,907.60	\$0.00	\$0.00	\$0.00
EQ DETROIT, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EQ DETROIT, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ETON ST BREWERY- GRIFFIN CLF	\$ (0.10)	\$0.00	\$0.00	\$ (0.10)	\$0.00
EXTRUDE HONE CORPORATION	\$186.07	\$186.07	\$0.00	\$0.00	\$0.00
EXTRUDEHODE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
FARMINGTON BREWING COMPANY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
FAYGO BEVERAGES, INC.	\$15,008.99	\$15,008.99	\$0.00	\$0.00	\$0.00
FORD NEW MODEL PROGRAM	\$497.99	\$497.99	\$0.00	\$0.00	\$0.00
FOUNDERS BREWING COMPANY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
FRESH-PAK	\$ (62.83)	\$ (62.83)	\$0.00	\$0.00	\$0.00
FRESH-PAK	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
G2O ENERGY, LLC	\$1,961.84	\$1,961.84	\$0.00	\$0.00	\$0.00
GENERAL LINEN SUPPLY CO.	\$16,084.96	\$16,084.96	\$0.00	\$0.00	\$0.00
GLOBAL TITANIUM, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GRANITE CITY FOOD & BREWERY	\$ (100.13)	\$0.00	\$ (100.13)	\$0.00	\$0.00
GRANITE CITY FOOD & BREWERY	\$53.43	\$0.00	\$53.43	\$0.00	\$0.00
GRANITE CITY FOOD & BREWERY	\$185.02	\$0.00	\$90.90	\$0.00	\$94.12
GREAT BARABOO BREWING CO.	\$110.25	\$0.00	\$110.25	\$0.00	\$0.00
HACIENDA MEXICAN FOODS	\$2,732.45	\$1,159.90	\$524.65	\$847.94	\$199.96
HENKEL CORPORATION	\$220.21	\$220.21	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
HOME STYLE FOOD INC.	\$6,042.16	\$6,042.16	\$0.00	\$0.00	\$0.00
HOMEGROWN BREWING COMPANY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
HOODS CLEANERS	\$211.33	\$0.00	\$0.00	\$0.00	\$211.33
HOUGHTON INTERNATIONAL INC.	\$203.63	\$203.63	\$0.00	\$0.00	\$0.00
HOUGHTON INTERNATIONAL INC.	\$128.83	\$128.83	\$0.00	\$0.00	\$0.00
HOUGHTON INTERNATIONAL INC.	\$2,169.30	\$2,169.30	\$0.00	\$0.00	\$0.00
HUNTINGTON CLEANERS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
IDP, INC.	\$169.79	\$169.79	\$0.00	\$0.00	\$0.00
INDUSTRIAL METAL COATING	\$673.64	\$673.64	\$0.00	\$0.00	\$0.00
ISLAMIC SLAUGHTER HOUSE	\$793.71	\$793.71	\$0.00	\$0.00	\$0.00
ITALIAN BUTTER BREAD STICKS	\$11.26	\$11.26	\$0.00	\$0.00	\$0.00
J & G FOOD PRODUCTS, INC.	\$2.85	\$2.85	\$0.00	\$0.00	\$0.00
JAMEX BREWING CO.	\$40.38	\$0.00	\$40.38	\$0.00	\$0.00
KAR NUT PRODUCTS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
KOWALSKI SAUSAGES, CO.	\$860.88	\$860.88	\$0.00	\$0.00	\$0.00
KUHNHENN BREWING	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
LA MICHOACANA FLOUR TORTILLA	\$1,415.12	\$1,415.12	\$0.00	\$0.00	\$0.00
LA MICHOACANA FLOUR TORTILLA	\$69.98	\$69.98	\$0.00	\$0.00	\$0.00
LEAR CORPORATION DBA EAGLE C	\$4,714.62	\$4,714.62	\$0.00	\$0.00	\$0.00
LIBERTY STREET PROD. BREWERY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
LILY'S SEAFOOD GRILL & BREWE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MACDERMID, INC.	\$2,094.92	\$2,094.92	\$0.00	\$0.00	\$0.00
MCCLURE'S PICKLES	\$13,624.62	\$586.06	\$470.46	\$12,568.10	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
MCNICHOLS POLISHING & ANODIZ	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MELLO MEATS INC, - KUBISCH S	\$56.92	\$56.92	\$0.00	\$0.00	\$0.00
METROPOLITAN BAKERY	\$677.19	\$677.19	\$0.00	\$0.00	\$0.00
MIBA HYDRAMECHANICA CORP.	\$183.11	\$183.11	\$0.00	\$0.00	\$0.00
MICHIGAN DAIRY	\$191,717.76	\$191,717.76	\$0.00	\$0.00	\$0.00
MICHIGAN PROD. MACHINING	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MICHIGAN SOY PRODUCTS CO.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MIDWEST WIRE PRODUCTS, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MILANO BAKERY	\$707.60	\$707.60	\$0.00	\$0.00	\$0.00
MILTON CHILI CO.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MINNIE MARIE BAKERS, INC	\$5,835.43	\$5,835.43	\$0.00	\$0.00	\$0.00
MISTER UNIFORM & MAT RENTALS	\$36.15	\$3.49	\$2.78	\$1.75	\$28.13
MOTOR CITY BREWING WORKS	\$1,135.06	\$0.00	\$178.07	\$0.00	\$956.99
NATIONAL CHILI COMPANY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
NORTH CENTER BREWING COMPANY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
NORTHERN LAKES SEAFOOD & MEZ	\$38.44	\$38.44	\$0.00	\$0.00	\$0.00
OAKWOOD BAKERY	\$312.96	\$312.96	\$0.00	\$0.00	\$0.00
PARKER'S HILLTOP BREWER & SE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PELLERITO FOODS INC.	\$2,379.19	\$2,379.19	\$0.00	\$0.00	\$0.00
PEPSI COLA, INC.	\$108,136.55	\$69,790.70	\$38,345.85	\$0.00	\$0.00
PERSONAL UNIFORM SERVICE, IN	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PETRO ENVIRON TECH, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
PINE TREE ACRES, INC.	\$62,854.49	\$62,854.49	\$0.00	\$0.00	\$0.00
PLATING SPEC	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
POWER VAC OF MICHIGAN, INC.	\$170.59	\$170.59	\$0.00	\$0.00	\$0.00
PREMIER PLATING, LLC	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PRODUCTION SPRING, LLC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
QUALA SERVICES, LLC	\$1,256.25	\$1,256.25	\$0.00	\$0.00	\$0.00
RAY'S ICE CREAM CO.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
RED SPOT PAINT #409139	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
RIVER ROUGE BREWING COMPANY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ROAK BREWING CO. LLC	\$757.25	\$0.00	\$757.25	\$0.00	\$0.00
ROCHESTER MILLS BEER COMPANY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ROCHESTER MILLS PROD BREWERY	\$1,543.04	\$0.00	\$1,543.04	\$0.00	\$0.00
RTT	\$27,772.36	\$0.00	\$0.00	\$0.00	\$27,772.36
SEAFARE FOODS, INC.	\$87.91	\$87.91	\$0.00	\$0.00	\$0.00
SHERWOOD BREWING COMPANY	\$934.47	\$0.00	\$100.35	\$0.00	\$834.12
SMITH-WATKINS, LLC	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
SPRAYTEK, INC.	\$30.96	\$30.96	\$0.00	\$0.00	\$0.00
SUPERNATURAL SPIRITS & BREWI	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
SWEETHEART BAKERY, INC.	\$1,869.67	\$158.29	\$88.59	\$75.52	\$1,547.27
THE CROWN GROUP-LIVONIA PLAN	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
THE ROYAL OAK BREWERY	\$ (1,031.09)	\$0.00	\$0.00	\$0.00	\$ (1,031.09)
TOM LAUNDRY CLEANERS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TRAFFIC JAM & SNUG	\$41.66	\$0.00	\$21.00	\$0.00	\$20.66

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
TURRI'S ITALIAN FOODS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TURRI'S ITALIAN FOODS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
U-METCO, INC.	\$1,180.80	\$1,180.80	\$0.00	\$0.00	\$0.00
UNCLE RAYS SNACKS, LLC	\$58,507.87	\$58,507.87	\$0.00	\$0.00	\$0.00
UNCLE RAYS SNACKS, LLC	\$1,964.01	\$1,964.01	\$0.00	\$0.00	\$0.00
UNIQUE LINEN SERVICES, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
UNITED FISH DISTRIBUTORS	\$9.44	\$9.44	\$0.00	\$0.00	\$0.00
UNITED LINEN SERVICE, LLC.	\$277.79	\$277.79	\$0.00	\$0.00	\$0.00
UNITED MEAT & DELI	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
URBANREST BREWING COMPANY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
US ECOLOGY MICHIGAN	\$712.21	\$712.21	\$0.00	\$0.00	\$0.00
US ECOLOGY ROMULUS, INC.	\$3,557.03	\$3,557.03	\$0.00	\$0.00	\$0.00
USHER OIL SERVICES	\$4,536.53	\$4,536.53	\$0.00	\$0.00	\$0.00
VALICOR ENVIROMENTAL SERVICE	\$702.28	\$702.28	\$0.00	\$0.00	\$0.00
VERNDALE PRODUCTS	\$9,028.37	\$9,028.37	\$0.00	\$0.00	\$0.00
VERNDALE PRODUCTS, INC.	\$241.38	\$241.38	\$0.00	\$0.00	\$0.00
VERNOR FOOD PRODUCTS	\$ (36.26)	\$0.00	\$0.00	\$0.00	\$ (36.26)
WIGLEY'S MEAT PROCESS	\$637.48	\$637.48	\$0.00	\$0.00	\$0.00
WINTER SAUSAGE MFG. CO.	\$887.92	\$887.92	\$0.00	\$0.00	\$0.00
WINTER SAUSAGE MFG. CO.	\$145.14	\$145.14	\$0.00	\$0.00	\$0.00
WOLVERINE PACKING CO	\$9,336.65	\$9,336.65	\$0.00	\$0.00	\$0.00
WOLVERINE PACKING CO.	\$3,144.73	\$3,144.73	\$0.00	\$0.00	\$0.00

Balances as of 12/31/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
WOODWARD AVENUE BREWERS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL POLLUTANT SURCHARGE ACCOUNTS	\$820,734.45	\$684,105.38	\$74,227.45	\$13,518.95	\$48,882.67

City of Highland Park Billings and Collections

	<u>Water</u>	<u>Sewer</u>	<u>IWC</u>	<u>Cumulative Total</u>
June 30, 2012 Balance	\$ -	\$ 10,207,956	\$ 852,987	\$ 11,060,943
FY 2013 Billings	485,887	4,987,635	154,444	5,627,966
FY 2013 Payments	<u>(65,652)</u>	<u>(2,206,211)</u>	<u>-</u>	<u>(2,271,863)</u>
				-
June 30, 2013 Balance	\$ 420,235	\$ 12,989,380	\$ 1,007,431	\$ 14,417,046
FY 2014 Billings	1,004,357	6,980,442	161,951	8,146,750
FY 2014 Payments	<u>-</u>	<u>(1,612,633)</u>	<u>-</u>	<u>(1,612,633)</u>
				-
June 30, 2014 Balance	\$ 1,424,592	\$ 18,357,189	\$ 1,169,382	\$ 20,951,163
FY 2015 Billings	1,008,032	5,553,123	165,739	6,726,894
FY 2015 Payments	<u>-</u>	<u>(1,444,623)</u>	<u>-</u>	<u>(1,444,623)</u>
				-
June 30, 2015 Balance	\$ 2,432,625	\$ 22,465,689	\$ 1,335,121	\$ 26,233,435
FY 2016 Billings	1,157,178	5,612,167	106,431	6,875,776
FY 2016 Payments	<u>-</u>	<u>(2,022,335)</u>	<u>-</u>	<u>(2,022,335)</u>
				-
June 30, 2016 Balance	\$ 3,589,803	\$ 26,055,521	\$ 1,441,551	\$ 31,086,875
FY 2017 Billings	1,245,267	5,802,000	101,999	7,149,265
FY 2017 Payments	<u>-</u>	<u>(2,309,186)</u>	<u>-</u>	<u>(2,309,186)</u>
				-
June 30, 2017 Balance	\$ 4,835,070	\$ 29,548,335	\$ 1,543,550	\$ 35,926,954
FY 2018 Billings	1,277,179	5,657,101	80,472	7,014,752
FY 2018 Payments	<u>-</u>	<u>(4,108,108)</u>	<u>-</u>	<u>(4,108,108)</u>
				-
June 30, 2018 Balance	\$ 6,112,248	\$ 31,097,327	\$ 1,624,022	\$ 38,833,597
FY 2019 Billings (12 Months)	1,238,797	5,617,100	51,220	6,907,117
FY 2019 Payments (12 Months)	<u>-</u>	<u>(5,241,583)</u>	<u>-</u>	<u>(5,241,583)</u>
				-
June 30, 2019 Balance	\$ 7,351,045	\$ 31,472,844	\$ 1,675,243	\$ 40,499,132
FY 2020 Billings (6 Months)	626,273	2,830,400	23,886	3,480,559
FY 2020 Payments (6 Months)	<u>-</u>	<u>(656,657)</u>	<u>-</u>	<u>(656,657)</u>
				-
Balance as of December 31, 2019	<u>\$ 7,977,318</u>	<u>\$ 33,646,587</u>	<u>\$ 1,699,129</u>	<u>\$ 43,323,034</u>



Financial Services Audit Committee Communication

Date: March 27, 2020

To: Great Lakes Water Authority Audit Committee

From: Andrew Sosnoski, Manager, Construction Accounting & Financial Reporting

Re: FY 2020 Q2 Construction Work-in-Progress Report through December 31, 2019
(Unaudited)

Background: The quarterly construction work-in-progress (CWIP) provides information and analysis related to the execution of the Great Lakes Water Authority capital improvement program (CIP).

Analysis: The attached documents summarize the FY 2020 Q2 CWIP activity and provides a detailed snapshot to inform decision makers and stakeholders.

Proposed Action: Receive and file this report.



**Construction Work-in-Progress Quarterly Report
(Unaudited)**

As of December 31, 2019

For questions, please contact:

Andrew Sosnoski

Construction Accounting and Financial Reporting Manager

Phone: 313.999.2585

Email: Andrew.Sosnoski@glwater.org

Issued 3.20.2020

Table of Contents

Introduction.....	1
Water system	3
Executive Summary	3
Construction Work-in-Progress Rollforward.....	4
FY 2020 Project Amendment Summary.....	9
Wastewater system	11
Executive Summary	11
Construction Work-in-Progress Rollforward.....	12
FY 2020 Project Amendment Summary.....	17

December 20, 2019**To Our Stakeholders:**

The contents of this report represent the financial presentation of construction work-in-progress activity for the Great Lakes Water Authority (GLWA) as of December 31, 2019. The information in this report presents a detailed snapshot and is important as we track the execution of the FY 2020–2024 Capital Improvement Plan (CIP) and look to inform decision makers as we finalize the FY 2021–2025 CIP.

As we continue to refine this report to better communicate pertinent information to inform decision makers and stakeholders, content and formatting may be changed. With the summary of active projects now regularly being reported to the Capital Planning Committee the project highlights previously being reported have been removed from this report.

Report Contents and Organization

This report is divided into two sections: one for the Water System and one for the Wastewater System as identified in the table of contents. Each section includes analysis and reporting of the following:

Executive Summary: Presentation of spend information is necessary to report our progress on CIP projects.

Construction Work-in-Progress Rollforward: This table provides a list of all projects in the CIP along with financial activity. This table may be used to revisit priorities, workload, and phasing.

Project Amendment Summary: The award of CIP contracts and the related execution thereof may result in deviations from the amount and timing of project activity. Project amendments are prepared to fund the related increase or decrease with either an adjustment to Capital Reserve or Program / Allowance accounts to amend the board approved fiscal year CIP accordingly and to inform decision makers in the development of future Capital Improvement Plans.

Financial Information

All project amounts are unaudited. This means that direct contractor costs are generally included in these totals with most pay estimates entered through December 31, 2019. There may, however, be some pay estimates that lag. The totals do not include indirect overhead.

Budget vs. Plan

Generally, GLWA's CIP projects span two or more fiscal years. The GLWA Board of Directors adopts a biennial "budget" and a five-year capital improvement "plan".

- ✓ The adopted **budget** relates to operations and maintenance expense, annual fixed commitments such as debt service, and incremental adjustments to reserves. The budget provides authority to spend within defined amounts. The budget is also referred to as the "revenue requirement" for the utility.
- ✓ After contracts are awarded at amounts variant from the CIP plan and more reliable anticipated spend data becomes available, the amended budget for the current fiscal year may increase or decrease by way of "Capital Reserve" budget amendments.
- ✓ The five-year capital improvement **plan** is a rolling plan that is updated at an administrative tracking level as projects move from estimated to actual bid numbers. An updated mid-cycle CIP would be presented to the Board for approval if the prioritization strategy was revised and/or the plan was in need of material revisions.
- ✓ In addition, the Board of Directors adopts a capital spending ratio assumption (SRA) which allows the realities of capital program delivery to align with the financial plan. The SRA is an analytical approach to bridge the total dollar amount of projects in the CIP with what can realistically be spent due to limitations beyond GLWA's control and/or delayed for nonbudgetary reasons. Those limitations, whether financial or non-financial, necessitate the SRA for budgetary purposes, despite the prioritization established.

WATER SYSTEM

Executive Summary

The rate of spend is a key performance indicator. The development of the FY 2020-2024 and related CIP Plan for FY 2020 were based on anticipation of FY 2020 activity resulting in 75% of planned spend. The Water System spend for the period ending December 31, 2019 is 41.7% of the FY 2020 prorated board approved CIP, 46.4% of the FY 2020 prorated board approved CIP with project amendments, and 55.6% of the FY 2020 Capital Spending Rate Assumption (SRA). Detailed analysis of the projects for which FY 2020 Board Approved CIP was amended from \$143,247,000 to \$ 128,871,025 is provided in the subsequent Project Amendment Summary section of this report.

Water System Projects		FY 2019 CIP	FY 2019 Activity	FY 2019 Percentage	FY 2020 CIP	FY 2020 Prorated (Six Months)	FY 2020 Activity (Unaudited)	FY 2020 Percentage
FY 2019 Board Approved CIP	\$	66,038,000	\$	61,583,574	93.3%			
FY 2019 Board Approved CIP With Project Amendments		72,348,044		61,583,574	85.1%			
FY 2020 Board Approved CIP					\$ 143,247,000	\$ 71,623,500	\$ 29,887,218	41.7%
FY 2020 Board Approved CIP With Project Amendments					128,871,025	\$ 64,435,513	29,887,218	46.4%
FY 2020 Capital Spend Rate Assumption (SRA)					107,435,250	\$ 53,717,625	29,887,218	55.6%

Construction Work-in-Progress Rollforward

The purpose of the construction work-in-progress (CWIP) rollforward is to analyze the current year activity for each project in relation to the overall capital improvement program as well as the project portfolio overall.

As part of our project life cycle review the CA&FR team identifies when it is appropriate for projects to be capitalized. Projects are to be capitalized when they have been completed in totality or are inclusive of identifiable assets that have been placed in service. Capitalization of project cost occurred in the FY 2020 2nd quarter for the following projects:

<u>Project</u>	<u>Contract</u>	<u>Description</u>
122001	WS-681	42-Inch Parallel Water Main
122009	WS-691	Water System Improvements in Joy Road from Southfield Road to Trinity

\$171.6 million is in CWIP as of December 31, 2019 as shown in the table beginning on the next page.

The order of the report on the subsequent pages is in ascending order by CIP project number.

Great Lakes Water Authority
 Water System Construction Work-in-Progress (CWIP) FY 2020 Rollforward
 Unaudited Activity For the Fiscal Quarter Ended December 31, 2019

Water System Construction Work-in-Progress Quarterly Report

As of December 31, 2019

Project	Project Name	Total Project Plan Estimate From FY 2020 - 2024 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through December 31, 2019	Life to Date Capitalization Through December 31, 2019	CWIP Balance December 31, 2019	Life to Date Activity through December 31, 2019	Life to Date Activity / Total Project Plan
111001	Energy Management: Lake Huron Water Treatment Plant Low Lift Pumping Improvements	\$ 52,388,000	\$ 14,083	\$ 401,000	\$ 493,500	\$ 20,498	\$ -	\$ 34,581	\$ 34,581	0%
111002	LHWTP Backflow Replacement	8,324,000	6,836,980	1,882,000	1,882,000	1,443,750	155,348	8,280,730	8,436,078	101%
111004	Electrical Tunnel Rehabilitation at Lake Huron WTP	4,749,000	2,768,607	4,296,000	1,275,214	1,056,798	-	3,825,405	3,825,405	81%
111006	Replacement of Filter Instrumentation and Raw Water Flow Metering Improvements at Lake	10,789,000	777,960	3,333,000	3,333,000	262,882	-	1,040,842	1,040,842	10%
111007	Lake Huron WTP-Raw Sludge Clarifier and Raw Sludge Pumping System Improvements	9,799,000	639,986	4,660,000	3,738,368	2,117,689	-	2,757,675	2,757,675	28%
111008	LHWTP Architectural Programming - Lab	300,000	-	-	-	110	-	110	110	0%
111009	Lake Huron WTP-35 MGD HLP, Flow Meters	26,106,000	35,864	9,030,000	9,030,000	44,180	-	80,044	80,044	0%
112002	Low Lift Pumping Plant Caisson Rehabilitation at Northeast WTP	1,565,000	1,134,767	203,000	203,000	21,786	-	1,156,553	1,156,553	74%
112003	NE WTP High Lift Pumping Electrical	62,234,000	-	-	-	-	-	-	-	0%
112005	Northeast Water Treatment Plant - Replacement of Covers for Process Water Conduits	813,000	13,356	166,000	310,000	2,022	-	15,378	15,378	2%
112006	Northeast Water Treatment Plant Flocculator Replacements	2,718,000	2,891	1,356,000	1,356,000	28,643	-	31,534	31,534	1%
113002	High Lift Pump Discharge Valve Actuators Replacement at Southwest WTP	5,432,000	2,479,490	2,876,000	3,028,000	1,826,843	-	4,306,334	4,306,334	79%
113003	Replacement of Butterfly Valves	148,286,000	-	-	-	110	-	110	110	0%
113004	Residual Handling Facility's Decant Flow Modifications at Southwest WTP	898,000	-	380,000	380,000	1,822	853,219	1,822	855,041	95%
113006	SW WTP Chloring Scrubber	7,032,000	-	-	-	-	-	-	-	0%
113007	Architectural and Building Mechanical	37,336,000	-	-	-	-	-	-	-	0%
114001	Springwells Water Treatment Plant 1958 Filter Rehabilitation and Auxiliary Facilities	97,288,000	73,955,623	-	1,255,609	3,550,074	22,738,455	77,505,698	100,244,153	103%
114002	Springwells Water Treatment Plant - Low Lift and High Lift Pump Station	114,816,000	2,080,861	5,985,000	6,308,877	725,873	-	2,806,735	2,806,735	2%
114003	Water Production Flow Metering Improvements at NE, SW, and SPW WTP	7,105,000	6,331,921	80,000	713,282	891,578	-	7,223,499	7,223,499	102%
114005	Springwells WTP Admin Building Improvements	8,125,000	10,555	413,000	527,664	437,705	-	448,260	448,260	6%
114006	Replacement of Rapid Mix Units at Springwells WTP 1958 Process Train	1,124,000	0	61,000	61,000	9,390	1,021,039	9,390	1,030,429	92%
114007	Powder Activated Carbon Systems	3,938,000	-	-	-	-	-	-	-	0%
114008	1930 Sedimentation Basin Sluice Gates, Guides & Hoists Improvements at Springwells WTP	17,125,000	195,644	4,153,000	2,185,000	615,597	-	811,240	811,240	5%
114009	Springwells Water Treatment Plant Service Area Redundancy Study	311,000	-	-	-	-	-	-	-	0%
114010	Yard Piping Improvements	110,650,000	3,947	-	-	8,434	-	12,380	12,380	0%

Great Lakes Water Authority
Water System Construction Work-in-Progress (CWIP) FY 2020 Rollforward
Unaudited Activity For the Fiscal Quarter Ended December 31, 2019

Water System Construction Work-in-Progress Quarterly Report

As of December 31, 2019

Project	Project Name	Total Project Plan Estimate From FY 2020 - 2024 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through December 31, 2019	Life to Date Capitalization Through December 31, 2019	CWIP Balance December 31, 2019	Life to Date Activity through December 31, 2019	Life to Date Activity / Total Project Plan
114011	Steam, Condensate Return, and Compressed Air Piping Improvements at Springwells WTP	24,989,000	2,373,087	5,392,000	5,453,373	4,320,279	-	6,693,366	6,693,366	27%
114012	Springwells Water Treatment Plant 1930 Filter Building-Roof Replacement	3,912,000	-	-	-	-	3,911,148	-	3,911,148	100%
114013	Springwells Reservoir Fill Line Improvements	4,732,000	2,829,864	1,551,000	1,551,000	542,116	-	3,371,981	3,371,981	71%
114015	Emergency Grating Replacement at Springwells WTP	3,466,000	-	-	-	-	3,365,903	-	3,365,903	97%
114016	Springwells Water Treatment Plant 1958 Settled Water Conduits Concrete Pavement Replacement	862,000	802	206,000	206,000	2,271	-	3,072	3,072	0%
114017	Springwells Water Treatment Plant Flocculator Drive Replacement	2,328,000	-	-	-	-	-	-	-	0%
115001	Yard Piping, Valves and Venturi Meters Replacement at Water Works Park	53,580,000	1,758,683	17,333,000	17,333,000	475,213	-	2,233,897	2,233,897	4%
115003	Comprehensive Condition Assessment at Waterworks Park WTP	855,000	513,538	153,000	153,000	55,898	-	569,437	569,437	67%
115004	ater Works Park WTP Chlorine System Upgrade	8,771,000	6,685,754	2,047,000	2,047,000	207,182	-	6,892,936	6,892,936	79%
115005	WWP WTP Building Ventilation Improvements	5,071,000	-	507,000	507,000	517	-	517	517	0%
116002	Pennsylvania, Springwells and Northeast Raw Water Supply Tunnel Improvements based on	30,090,000	10,200,085	5,467,000	5,467,000	118,489	-	10,318,574	10,318,574	34%
122001	Parallel 42-Inch Main in 24 Mile Road from Rochester Station to Romeo Plank Road	33,566,000	33,241,721	-	-	-	33,241,721	-	33,241,721	99%
122002	Replacement of Five (5) PRV Pits of Treated Water Transmission System	2,648,000	-	-	-	-	2,785,001	-	2,785,001	105%
122003	New Waterworks Park to Northeast Transmission Main	133,272,000	2,615,193	871,000	658,233	901,588	-	3,516,781	3,516,781	3%
122004	96-inch Main Relocation, Isolation Valves Installations, and New Parallel Main	132,666,000	1,787,389	5,000,000	5,000,000	13,133	-	1,800,523	1,800,523	1%
122005	Replacement Schoolcraft Watermain	18,062,000	141,171	8,100,000	2,328,644	10,589	-	151,760	151,760	1%
122006	Transmission System Water Main Work-Wick Road Parallel Water Main	31,918,000	416,882	18,028,000	8,401,361	754,646	-	1,171,527	1,171,527	4%
122007	Design and Construction of a new Newburgh Road 24" Main along Newburgh Road between Ch	5,239,000	783	-	-	802	-	1,585	1,585	0%
122009	Water System Improvements in Joy Road from Southfield Road to Trinity	107,000	106,881	-	-	-	106,881	-	106,881	100%
122011	Park-Merriman Water Main-Final Phase	8,203,000	986,024	4,737,000	3,937,000	799,486	-	1,785,510	1,785,510	22%
122012	36-inch Water Main in Telegraph Road	9,573,000	-	-	-	-	9,986,284	-	9,986,284	104%
122013	Lyon Township Transmission Main Extension Project	54,426,000	637,635	751,000	2,628,978	1,799,085	-	2,436,720	2,436,720	4%
122016	Downriver Transmission Loop	37,197,000	24,251	297,000	820,965	7,729	-	31,980	31,980	0%

Great Lakes Water Authority
Water System Construction Work-in-Progress (CWIP) FY 2020 Rollforward
Unaudited Activity For the Fiscal Quarter Ended December 31, 2019

Water System Construction Work-in-Progress Quarterly Report

As of December 31, 2019

Project	Project Name	Total Project Plan Estimate From FY 2020 - 2024 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through December 31, 2019	Life to Date Capitalization Through December 31, 2019	CWIP Balance December 31, 2019	Life to Date Activity through December 31, 2019	Life to Date Activity / Total Project Plan
122017	7 Mile/Nevada Transmission Main Rehab and Carrie/Nevada Flow Control Station	20,500,000	-	1,040,000	1,040,000	-	-	-	-	0%
132001	Wick Road Station Rehabilitation	165,000	135,073	-	-	-	-	135,073	135,073	82%
132003	Isolation Gate Valves for Line Pumps for West Service Center Pumping Station	1,814,000	247,754	490,000	1,522,316	771,218	-	1,018,972	1,018,972	56%
132004	Hydraulic Surge Control for North Service Center Pumping Station	215,000	214,771	-	-	-	-	214,771	214,771	100%
132006	Pressure and Control Improvements at the Electric, Ford Road, Michigan, and West Chica	2,929,000	289,594	2,515,000	2,399,138	296,487	-	586,081	586,081	20%
132007	Energy Management: Freeze Protection Pump Installation at Imlay Pumping Station	2,160,000	97,185	592,000	592,000	19,837	-	117,022	117,022	5%
132008	Needs Assessment Study for all Water Booster Pumping Stations	1,677,000	1,838,406	-	-	1,881	-	1,840,287	1,840,287	110%
132010	West Service Center/Duval Rd Division Valve Upgrades	37,136,000	607,504	2,620,000	2,620,000	13,688	-	621,192	621,192	2%
132012	Ypsilanti PS Improvements	9,861,000	20,539	585,000	510,490	3,374	-	23,913	23,913	0%
132014	Adams Road Booster Pumping Improvements	5,674,000	-	-	-	-	-	-	-	0%
132015	Newburgh BPS	12,169,000	2,811	16,000	458,245	1,726	-	4,537	4,537	0%
132016	North Service Center BPS Improvements	24,920,000	-	-	-	-	-	-	-	0%
132017	North Service Center BPS - On-Site & Off	5,076,000	-	6,000	6,000	-	-	-	-	0%
132018	Schoolcraft BPS	10,564,000	-	-	-	-	-	-	-	0%
132019	Wick Road BPS - Switchgear	5,569,000	-	-	-	-	-	-	-	0%
132020	Franklin BPS - Isolation Gate Valves	10,109,000	-	-	-	-	-	-	-	0%
132021	Imlay BPS - Replace VFDs, Pumps & Motors	12,109,000	-	-	-	-	-	-	-	0%
132022	Joy Road BPS - Replace Reservoir Pumps	6,109,000	-	-	-	-	-	-	-	0%
132025	Northwest Booster Station Yard Piping Improvements	5,500,000	971	-	-	-	-	971	971	0%
170100	Allowance: WTP/Pump Station	39,811,000	-	3,000,000	3,000,000	-	-	-	-	0%
170102	Water Production Plant Flow Metering Improvements at NE, SP & SW WTP	-	359,259	-	-	6,302	-	365,561	365,561	100%
170103	Belle Isle Water Supply Intake and Ice Boom Improvements	-	3,278	-	-	-	286,596	3,278	289,874	100%
170104	Orion and Newburgh Pumping Stations Improvements	-	170,664	-	-	7,104	1,907,825	177,768	2,085,593	100%
170109	Inspection of Raw Water Intakes and Tunnels	-	3,102,765	-	-	38,396	-	3,141,161	3,141,161	100%
170110	Raw Water Sampling Improvements	-	2,926	-	-	-	-	2,926	2,926	100%
170121	Franklin PS Valve Rehab	-	38,681	-	-	416,786	-	455,467	455,467	100%
170122	Meter Pit at Brownstown Township	-	133,306	-	-	71,090	-	204,396	204,396	100%
170200	As Needed Construction Materials, Environmental Media and Special Allowance	1,618,000	-	572,000	572,000	-	-	-	-	0%
170201	Construction & Environmental Testing	-	63,443	-	-	(24,045)	-	39,397	39,397	100%

Great Lakes Water Authority
Water System Construction Work-in-Progress (CWIP) FY 2020 Rollforward
Unaudited Activity For the Fiscal Quarter Ended December 31, 2019

Water System Construction Work-in-Progress Quarterly Report

As of December 31, 2019

Project	Project Name	Total Project Plan Estimate From FY 2020 - 2024 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through December 31, 2019	Life to Date Capitalization Through December 31, 2019	CWIP Balance December 31, 2019	Life to Date Activity through December 31, 2019	Life to Date Activity / Total Project Plan
170300	Water Treatment Plant Automation Program	7,740,000	-	1,561,000	1,561,000	-	-	-	-	0%
170301	Water Plant Automation	-	1,657,645	-	-	97,497	-	1,755,142	1,755,142	100%
170400	Water Transmission Improvement Program	110,656,000	-	1,500,000	1,500,000	-	-	-	-	0%
170401	Emergency Bypass Around Ypsilanti Station	-	1,643,165	-	-	15,800	-	1,658,965	1,658,965	100%
170500	Transmission System Valve Assessment and Rehabilitation/Replacement Program	36,704,000	-	4,000,000	4,000,000	-	-	-	-	0%
170502	Transmission System Valve Assessment and Rehabilitation/Replaceme	-	0	-	-	1,288,209	6,029,544	1,288,209	7,317,753	100%
170600	Water Transmission Main Asset Assessment Program	48,500,000	-	3,000,000	3,000,000	-	-	-	-	0%
170800	Reservoir Inspection, Design and Rehabilitation Program	59,164,000	-	5,128,000	632,000	-	-	-	-	0%
170801	Reservoir Inspection, Design and Rehabilitation	-	456,574	-	4,513,500	556,363	-	1,012,938	1,012,938	100%
170900	Suburban Water Meter Pit Rehabilitation and Meter Replacement Program	43,797,000	-	4,000,000	925,000	-	-	-	-	0%
170901	Suburban Water Meter Pit Rehabilitation and Meter Replacement	-	1,237,565	-	3,075,000	1,171,576	-	2,409,140	2,409,140	100%
171400	Energy Management Program	5,787,000	-	-	-	-	-	-	-	0%
171500	Roof Replacement - Var Facilities Program	6,707,000	-	2,657,000	-	-	-	-	-	0%
171501	Roof Replacement - Var Facilities Program	-	119,283	-	2,948,089	1,142,543	-	1,261,826	1,261,826	100%
331001	Roof Replacement - Var Water Facilities	5,425,000	-	-	-	-	-	-	-	0%
341001	Security Infrastructure Improvements	-	962,673	-	1,173,179	916,122	-	1,878,795	1,878,795	100%
351001	Water Facility Lighting Renovations	500,000	6,211	250,000	250,000	457	-	6,667	6,667	1%
361002	Data Center Reliability/Availability Improvements	-	16,080	-	-	-	-	16,080	16,080	100%
380600	General Engineering Services Allowance	95,000	-	-	-	-	-	-	-	0%
380601	General Engineering Services Allowance	-	674	-	-	-	-	674	674	100%
380700	As-needed Engineering Services for Concrete Testing, Geotechnical Soil Borings, other Testing Services, and Related Services Allowance	620,000	-	-	-	-	-	-	-	0%
381000	Energy Management: Electric Metering Improvement Program	2,500,000	-	-	-	-	-	-	-	0%
Grand Total		\$ 1,888,664,000	\$ 175,031,084	\$ 143,247,000	\$ 128,871,025	\$ 29,887,218	\$ 118,844,199	\$ 171,569,699	\$ 290,413,898	15%
		Project Amendments \$ (14,375,975)								

FY 2020 Project Amendment Summary

The purpose of the Project Amendment Summary is to illustrate the amendments to the current fiscal year board approved CIP for each project with an amendment resulting from the use of allowance and program funding for a specific amount necessitated by contract award.

The award of CIP contracts and the related execution thereof may result in deviation from the amount and timing of planned spend. Acknowledging the aforementioned deviation, project amendments are prepared to fund the related increase or decrease either to or from the Capital Reserve to amend the current fiscal year board approved Capital Improvement Plan accordingly and to inform decision makers in the development of future Capital Improvement Plans. Similar to the project amendments prepared for the Capital Reserve, project amendments are also prepared for contracts that are planned or funded by way of the CIP Program and Allowance accounts. As additional contracts are awarded and other project information becomes available additional project amendments to and from the Capital Reserve will be prepared to amend the board approved FY 2020 Capital Improvement Plan.

\$14.4 million of Capital Reserve project amendments have been prepared as of December 31, 2019 as shown in the table on the next page along with project amendments detailing the assignment of funding within Program and Allowance accounts.

The order of the report on the subsequent page is in ascending order by CIP project number.

Great Lakes Water Authority
Water System Project Amendment Summary
Unaudited Activity For the Fiscal Year Ended December 31, 2019

Project	Project	Program / Allowance	Capital Reserve	Grand Total
111001	Energy Management: Lake Huron Water Treatment Plant Low Lift Pumping Improvements	\$	92,500	\$ 92,500
111004	Electrical Tunnel Rehabilitation at Lake Huron WTP		(3,020,786)	(3,020,786)
111007	Lake Huron WTP-Raw Sludge Clarifier and Raw Sludge Pumping System Improvements		(921,633)	(921,633)
112005	Northeast Water Treatment Plant - Replacement of Covers for Process Water Conduits		144,000	144,000
113002	High Lift Pump Discharge Valve Actuators Replacement at Southwest WTP		152,000	152,000
114001	Springwells Water Treatment Plant 1958 Filter Rehabilitation and Auxiliary Facilities		1,255,609	1,255,609
114002	Springwells Water Treatment Plant - Low Lift and High Lift Pump Station		323,877	323,877
114003	Water Production Flow Metering Improvements at NE, SW, and SPW WTP		633,282	633,282
114005	Springwells WTP Admin Building Improvements		114,664	114,664
114008	1930 Sedimentation Basin Sluice Gates, Guides & Hoists Improvements at Springwells WTP		(1,968,000)	(1,968,000)
114011	Steam, Condensate Return, and Compressed Air Piping Improvements at Springwells WTP		61,373	61,373
122003	New Waterworks Park to Northeast Transmission Main		(212,767)	(212,767)
122005	Replacement Schoolcraft Watermain		(5,771,356)	(5,771,356)
122006	Transmission System Water Main Work-Wick Road Parallel Water Main	\$	(9,626,639)	\$ (9,626,639)
122011	Park-Merriman Water Main-Final Phase		(800,000)	(800,000)
122013	Lyon Township Transmission Main Extension Project		1,877,978	1,877,978
122016	Downriver Transmission Loop		523,965	523,965
132003	Isolation Gate Valves for Line Pumps for West Service Center Pumping Station		1,032,316	1,032,316
132006	Pressure and Control Improvements at the Electric, Ford Road, Michigan, and West Chica		(115,862)	(115,862)
132012	Ypsilanti PS Improvements	\$	(74,510)	\$ (74,510)
132015	Newburgh BPS		442,245	442,245
170800	Reservoir Inspection, Design and Rehabilitation Program	(4,496,000)		(4,496,000)
170801	Reservoir Inspection, Design and Rehabilitation	4,496,000	17,500	4,513,500
170900	Suburban Water Meter Pit Rehabilitation and Meter Replacement Program	(3,075,000)		(3,075,000)
170901	Suburban Water Meter Pit Rehabilitation and Meter Replacement	3,075,000		3,075,000
171500	Roof Replacement - Var Water Facilities Program		(2,657,000)	(2,657,000)
171501	Roof Replacement - Var Water Facilities		2,948,089	2,948,089
341001	Security Infrastructure Improvements	\$	1,173,179	\$ 1,173,179
Grand Total		\$ -	\$ (14,375,974)	\$ (14,375,974)

WASTEWATER SYSTEM

Executive Summary

The rate of spend is a key performance indicator. The development of the FY 2020-2024 and related CIP Plan for FY 2020 were based on anticipation of FY 2020 activity resulting in 75% of planned spend. The Water System spend for the period ending December 31, 2019 is 37.1% of the FY 2020 prorated board approved CIP, 38.2% of the FY 2020 prorated board approved CIP with project amendments, and 49.4% of the FY 2020 Capital Spending Rate Assumption (SRA). Detailed analysis of the projects for which FY 2020 Board Approved CIP was amended from \$161,480,000 to \$ 156,584,005 is provided in the subsequent Project Amendment Summary section of this report.

Wastewater System Projects		FY 2019 CIP	FY 2019 Activity	FY 2019 Percentage	FY 2020 CIP	FY 2020 Prorated (Six Months)	FY 2020 Activity (Unaudited)	FY 2020 Percentage
FY 2019 Board Approved CIP	\$	105,183,000	82,133,532	78.1%				
FY 2019 Board Approved CIP With Project Amendments		100,264,934	82,133,532	81.9%				
FY 2020 Board Approved CIP					\$ 161,480,000	80,740,000	29,924,759	37.1%
FY 2020 Board Approved CIP With Project Amendments					156,584,005	78,292,003	29,924,759	38.2%
FY 2020 Capital Spend Rate Assumption (SRA)					121,110,000	60,555,000	29,924,759	49.4%

Construction Work-in-Progress Rollforward

The purpose of the construction work-in-progress (CWIP) rollforward is to analyze the current year activity for each project in relation to the overall capital improvement program as well as the project portfolio overall.

As part of our project life cycle review the CA&FR team identifies when it is appropriate for projects to be capitalized. Projects are to be capitalized when they have been completed in totality or are inclusive of identifiable assets that have been placed in service. Capitalization of project cost occurred in the FY 2020 2nd quarter for the following projects:

<u>Project</u>	<u>Contract</u>	<u>Description</u>
213005	CON-229	Complex I Incineration Heating
260606	1802791	Puritan Fenkell Roof Replacement
331002	1803227	Dewatering Complex II Roof Replacement

\$186.7 million is in CWIP as of December 31, 2019 as shown in the table beginning on the next page.

The order of the report on the subsequent pages is in ascending order by CIP project number.

Great Lakes Water Authority
Wastewater System Construction Work-in-Progress (CWIP) FY 2020 Rollforward
Unaudited Activity For the Fiscal Quarter Ended December 31, 2019

Wastewater System
Construction Work-in-Progress Quarterly Report
As of December 31, 2019

Project	Project Name	Total Project Plan Estimate From FY 2020 - 2024 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through December 31, 2019	Life to Date Capitalization Through December 31, 2019	CWIP Balance December 31, 2019	Life to Date Activity through December 31, 2019	Life to Date Activity / Total Project Plan
171501	Roof Replacement - Var Facilities Program	\$ -	\$ -	\$ -	\$ 83,000	\$ 83,000	\$ -	\$ 83,000	\$ 83,000	100%
211001	Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines, Electrical/Mechanical Building and Pipe Gallery	54,858,000	45,368,717	7,982,000	7,982,000	5,645,273	-	51,013,990	51,013,990	93%
211002	Pump Station No. 2 Pumping Improvments	3,812,000	1,911,850	1,222,000	1,222,000	51,227	-	1,963,077	1,963,077	51%
211004	Pump Station 1 Rack & Grit and MPI Sampling Station 1 Improvements	27,198,000	26,502,582	869,000	869,000	809,970	-	27,312,552	27,312,552	100%
211005	Pump Station No. 2 Improvements	21,599,000	1,002	-	-	(1,002)	-	0	0	0%
211006	Pump Station No. 1 Improvements	22,315,000	6,307	1,803,000	1,803,000	833,334	-	839,641	839,641	4%
211007	Replacement of Bar Racks and Grit Collection System at Pump Station No. 2	17,836,000	628	269,000	269,000	133	-	761	761	0%
211008	Rehabilitation of Ferric Chloride Feed systems at the Pump Station - 1 and Complex B Sludge Lines	10,566,000	200,048	2,950,000	3,950,000	876,828	-	1,076,877	1,076,877	10%
211009	Rehabilitation of the Circular Primary Clarifier Scum Removal System	11,394,000	30	-	-	-	-	30	30	0%
212002	Study, Design, & Construction, Management Services for Modified Detroit River Outfall No. 2 - WRRF	-	10,821,153	-	-	(1,853)	-	10,819,300	10,819,300	100%
212003	Aeration System Improvements	16,682,000	16,356,789	-	-	162,620	-	16,519,409	16,519,409	99%
212004	Project Chlorination/Dechlorination Process Equipment Improvements	5,045,000	192,917	2,345,000	2,903,000	87,859	-	280,776	280,776	6%
212006	PC-797 Rouge River Outfall Disinfection and CS-1781 Oversight Consulting Services Contract	48,033,000	41,691,377	4,583,000	4,731,155	1,013,560	-	42,704,937	42,704,937	89%
212007	Rehabilitation of the Secondary Clarifiers	30,118,000	-	-	-	-	-	-	-	0%
212008	WRRF Rehabilitation of Intermediate Lift	20,833,000	-	229,000	229,000	-	-	-	-	0%
213002	Rehabilitation of Central Offload Facility	16,179,000	-	7,696,000	7,696,000	-	-	-	-	0%
213005	Complex I Incinerators Decommissioning and Reusability	4,452,000	369,648	-	-	22	369,671	-	369,671	8%

Great Lakes Water Authority
Wastewater System Construction Work-in-Progress (CWIP) FY 2020 Rollforward
Unaudited Activity For the Fiscal Quarter Ended December 31, 2019

Wastewater System
Construction Work-in-Progress Quarterly Report
As of December 31, 2019

Project	Project Name	Total Project Plan Estimate From FY 2020 - 2024 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through December 31, 2019	Life to Date Capitalization Through December 31, 2019	CWIP Balance December 31, 2019	Life to Date Activity through December 31, 2019	Life to Date Activity / Total Project Plan
213006	Improvements to Sludge Feed Pumps at Dewatering Facilities	3,726,000	4,856	-	-	-	-	4,856	4,856	0%
213007	Construction of the Improved Sludge Conveyance and Lighting System at the WWTP	20,049,000	10,809,195	8,711,000	8,711,000	3,350,805	-	14,160,000	14,160,000	71%
213008	Rehabilitation of the Wet and Dry Ash Handling Systems	18,505,000	85	111,000	111,000	31,192	-	31,276	31,276	0%
213009	Phosphorous Recovery Facility at the WWRF	-	(99)	-	-	99	-	-	-	100%
214001	Relocation of Industrial Waste Division and Analytical Laboratory Operations	10,968,000	17,017	7,567,000	8,367,000	926,845	2,282,260	943,863	3,226,122	29%
216004	Rehabilitation of Various Sampling Sites and PS# 2 Ferric Chloride System at WWTP	5,576,000	814,368	3,921,000	3,921,000	416,868	-	1,231,236	1,231,236	22%
216006	Rehabilitation of the Screened Final Effluent (SFE) Pump Station and Secondary Water System	24,853,000	17,581	323,000	323,000	16,951	-	34,532	34,532	0%
216007	DTE Primary Electric 3rd Feed Supply Line to the WRRF	7,447,000	2,194,169	1,381,000	1,381,000	-	543,500	2,194,169	2,737,669	37%
216008	Rehabilitation of Screened Final Effluent (SFE) Pump Station	24,948,000	-	1,091,000	1,091,000	-	-	-	-	0%
216009	Logistics & Material Facility	-	-	-	-	2,951	-	2,951	2,951	100%
222001	Intercommunity Relief Sewer Modifications in Detroit Oakwood District	38,031,000	-	-	-	-	-	-	-	0%
222002	Detroit River Interceptor Evaluation and Rehabilitation	49,071,000	10,611,644	10,000,000	4,049,445	5,997,970	-	16,609,614	16,609,614	34%
222003	North Interceptor East Arm (NIEA) Evaluation and Rehabilitation	30,000,000	-	15,000,000	15,000,000	-	-	-	-	0%
222004	Collection System Valve Remote Operation Structures Improvements	87,033,000	4,246	3,500,000	3,500,000	23,863	-	28,109	28,109	0%
232001	Fairview Pumping Station - Replace Four Sanitary Pumps	30,442,000	3,475,448	18,000,000	16,265,405	1,943,244	-	5,418,692	5,418,692	18%
232002	Freud and Connor Creek Pump Station Improvements	162,429,000	5,573,334	17,029,000	17,229,000	318,622	57,734	5,891,956	5,949,691	4%
232003	Northeast Pump Station Improvements	31,500,000	-	7,000,000	7,000,000	-	-	-	-	0%
233002	Collection System In System Storage Devices(ISDs) Improvements	-	235	-	-	-	-	235	235	100%
251002	Wastewater System Wide Instrumentation & Controls Software and Hardware Upgrade	-	71	-	-	-	-	71	71	100%

Great Lakes Water Authority
Wastewater System Construction Work-in-Progress (CWIP) FY 2020 Rollforward
Unaudited Activity For the Fiscal Quarter Ended December 31, 2019

Wastewater System
Construction Work-in-Progress Quarterly Report
 As of December 31, 2019

Project	Project Name	Total Project Plan Estimate From FY 2020 - 2024 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through December 31, 2019	Life to Date Capitalization Through December 31, 2019	CWIP Balance December 31, 2019	Life to Date Activity through December 31, 2019	Life to Date Activity / Total Project Plan
260100	Water Resource Recovery Facility (WRRF), Lift Station & Wastewater Collection System Allowance	34,038,000	-	1,100,000	1,100,000	-	-	-	-	0%
260200	Sewer and Interceptor Evaluation and Rehabilitation Program	192,164,000	-	15,000,000	6,550,048	-	-	-	-	0%
260201	Conveyance System Interceptor Rehab	-	4,810,116	-	7,400,000	3,388,808	9,176,553	8,198,924	17,375,476	100%
260202	Conveyance System Interceptor Rehab	-	17,031	-	-	2,420	-	19,451	19,451	100%
260203	Conveyance System Interceptor Rehab	-	4,642,133	-	-	-	-	4,642,133	4,642,133	100%
260204	Energy Services for Rehabilitation of Conveyance Sewer System	-	133	-	1,049,952	144,555	-	144,688	144,688	100%
260500	CSO Outfall Rehab	89,188,000	-	15,102,000	10,302,925	-	-	-	-	0%
260503	Collection System Backwater Gates	-	760	-	-	-	-	760	760	100%
260504	Rehabilitation of Outfalls - Phase II	-	-	-	3,000,000	252,114	-	252,114	252,114	100%
260505	Rehabilitation of Outfalls - Phase IV	-	-	-	1,799,075	-	-	-	-	100%
260600	CSO Facilities Improvements	63,591,000	-	5,604,000	3,421,000	-	-	-	-	0%
260601	Oakwood Drain Valve Improvements	-	539,857	-	33,000	75,429	-	615,286	615,286	100%
260602	CSO Fire Alarm System Improvements	-	812,407	-	-	176,946	-	989,353	989,353	100%
260603	Conner Creek CSO Basin Rehab	-	4,404,704	-	775,000	1,299,834	-	5,704,538	5,704,538	100%
260605	CSO Facilities CA	-	16,914	-	-	(16,914)	-	-	-	100%
260606	Puritan Fenkell Roof Replacement	-	1,944	-	-	344,596	346,540	-	346,540	100%
260607	Lieb SDF Electrical Improvements	-	241,513	-	450,000	753,668	-	995,181	995,181	100%
260608	Seven Mile RTB - Roof Replacement	-	12,451	-	300,000	375,548	-	387,999	387,999	100%
260609	Seven Mile RTB - Parking Lot / Sitework	-	23,197	-	400,000	15,554	-	38,751	38,751	100%
260610	Baby Creek MAU Replacement	-	1,773	-	-	245,699	-	247,473	247,473	100%
260611	HVAC Improvements At Lieb SDF	-	5,283	-	225,000	13,381	-	18,665	18,665	100%
260613	Baby Creek HVAC Improvements	-	76	-	-	403	-	479	479	100%
260614	CSO Facilities Structural Improvements	-	335,143	-	-	(109,570)	-	225,573	225,573	100%
260615	PF & Lieb CSO Facilities Site & Drainage Improvements	-	-	-	-	1,520	-	1,520	1,520	100%
260617	St. Aubin Chemical Disinfection Improvements	-	-	-	-	49,800	-	49,800	49,800	100%

Great Lakes Water Authority
Wastewater System Construction Work-in-Progress (CWIP) FY 2020 Rollforward
Unaudited Activity For the Fiscal Quarter Ended December 31, 2019

Wastewater System
Construction Work-in-Progress Quarterly Report
As of December 31, 2019

Project	Project Name	Total Project Plan Estimate From FY 2020 - 2024 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through December 31, 2019	Life to Date Capitalization Through December 31, 2019	CWIP Balance December 31, 2019	Life to Date Activity through December 31, 2019	Life to Date Activity / Total Project Plan
331002	Roofing Systems Replacement at GLWA Wastewater Treatment Plant, CSO Retention Treatment Basins (RTB) and Screening Disinfection Facilities (SDF)	9,709,000	802,470	1,092,000	1,092,000	320,586	1,123,056	-	1,123,056	12%
341001	Security Infrastructure Improvements	-	102,924	-	-	-	-	102,924	102,924	100%
380600	General Engineering Services Allowance	1,000	-	-	-	-	-	-	-	0%
380601	General Engineering Services Allowance	-	632	-	-	-	-	632	632	100%
381000	Energy Management: Electric Metering Improvement Program	2,500,000	-	-	-	-	-	-	-	0%
Grand Total		\$ 1,246,689,000	\$ 193,716,659	\$ 161,480,000	\$ 156,584,005	\$ 29,924,759	\$ 190,362,461	\$ 221,802,152	\$ 412,164,613	33%
		Project Amendments				\$ (4,895,995)				

FY 2020 Project Amendment Summary

The purpose of the Project Amendment Summary is to illustrate the amendments to the current fiscal year board approved CIP for each project with an amendment resulting from the use of allowance and program funding for a specific amount necessitated by contract award.

The award of CIP contracts and the related execution thereof may result in deviation from the amount and timing of planned spend. Acknowledging the aforementioned deviation, project amendments are prepared to fund the related increase or decrease either to or from the Capital Reserve to amend the current fiscal year board approved Capital Improvement Plan accordingly and to inform decision makers in the development of future Capital Improvement Plans. Similar to the project amendments prepared for the Capital Reserve, project amendments are also prepared for contracts that are planned or funded by way of the CIP Program and Allowance accounts. As additional contracts are awarded and other project information becomes available additional project amendments to and from the Capital Reserve will be prepared to amend the board approved FY 2020 Capital Improvement Plan.

\$4.9 million of Capital Reserve project amendments have been prepared as of December 31, 2019 as shown in the table on the next page along with project amendments detailing the assignment of funding within Program and Allowance accounts.

The order of the report on the subsequent page is in ascending order by CIP project number.

Great Lakes Water Authority
Wastewater System Project Amendment Summary
Unaudited Activity For the Fiscal Year Ended December 31, 2019

Project	Project	Program / Allowance	Capital Reserve	Grand Total
171501	Roof Replacement - Var Water Facilities		83,000	83,000
211008	Rehabilitation of Ferric Chloride Feed systems at the Pump Station -1 and Complex B Sludge Lines		1,000,000	1,000,000
212004	Chlorination/Dechlorination Process Equipment Improvements		558,000	558,000
212006	PC-797 Rouge River Outfall Disinfection and CS-1781 Oversight Consulting Services Contract	\$	148,155	\$ 148,155
214001	Relocation of Industrial Waste Division and Analytical Laboratory Operations	\$	800,000	\$ 800,000
222002	Detroit River Interceptor Evaluation and Rehabilitation	\$	(5,950,555)	\$ (5,950,555)
232001	Fairview Pumping Station - Replace Four Sanitary Pumps	\$	(1,734,595)	\$ (1,734,595)
232002	Freud and Connor Creek Pump Station Improvements	\$	200,000	\$ 200,000
260200	Sewer and Interceptor Evaluation and Rehabilitation Program	(8,449,952)		(8,449,952)
260201	Conveyance System Interceptor Rehab	7,400,000		7,400,000
260204	Energy Services for Rehabilitation of Conveyance Sewer System	1,049,952		1,049,952
260500	CSO Outfall Rehab	(4,799,075)		(4,799,075)
260504	Rehabilitation of Outfalls - Phase II	3,000,000		3,000,000
260505	Rehabilitation of Outfalls - Phase IV	\$ 1,799,075		\$ 1,799,075
260600	CSO Facilities Improvements	\$ (2,183,000)		\$ (2,183,000)
260601	Oakwood Drain Valve Improvements	\$ 33,000		\$ 33,000
260603	Conner Creek CSO Basin Rehab	\$ 775,000		\$ 775,000
260607	Lieb SDF Electrical Improvements	\$ 450,000		\$ 450,000
260608	Seven Mile RTB - Roof Replacement	\$ 300,000		\$ 300,000
260609	Seven Mile RTB - Parking Lot / Sitework	\$ 400,000		\$ 400,000
260611	HVAC Improvements At Lieb SDF	\$ 225,000		\$ 225,000
Grand Total		\$ -	\$ (4,895,995)	\$ (4,895,995)



Financial Services Audit Committee Communication

Date: March 27, 2020

To: Great Lakes Water Authority Audit Committee

From: Nicolette N. Bateson, CPA, Chief Financial Officer & Treasurer

Re: Rating Agency Upgrades – March 2020

Background: In March 2020, the Great Lakes Water Authority (GLWA) received positive ratings actions from Fitch Ratings, Moody's Investor Service, and Standard & Poor's.

Great Lakes Water Authority Water & Sewerage System Bonds								
Ratings History (Prior to January 1, 2016 the debt was obligation was in the name of DWSD)								
(All ratings are for water and sewage disposal system unless denoted with "W" or "S" respectively.)								
Recent rating agency actions are in green.								
Rating Agency	Standard & Poor's			Moody's			Fitch	
	Rating	Senior	Second	Rating	Senior	Second	Rating	Senior
Outlook		Stable	Stable		Stable	Stable		Stable
Investment Grade								
Strongest	AAA			Aaa			AAA	
	AA+			Aa1			AA+	
	AA			Aa2			AA	
	AA-	3/13/2020 (1)		Aa3			AA-	
	A+	S - 9/5/2018	3/13/2020 (2)	A1	3/13/2020		A+	3/13/2020
	A		S - 9/5/2018	A2	9/4/2018	3/13/2020	A	9/30/2016 (4)
	A-	9/30/2016 (3)		A3	9/30/2016	9/4/2018	A-	9/30/2016 (4)
	BBB+	8/25/2014	9/30/2016 (3)	Baa1	2/9/2016	9/30/2016	BBB+	
			8/25/2014					
	BBB			Baa2		2/9/2016	BBB	9/3/2015
	BBB-			Baa3	8/27/2015		BBB-	8/25/2014
								9/3/2015
Non-Investment Grade								
	BB+			Ba1		8/27/2015	BB+	2/28/2014
	BB			Ba2	8/25/2014		BB	8/25/2014
	BB-			Ba3		8/25/2014	BB-	2/28/2014
	B+			B1			B+	
	B			B2			B	
	B-			B3			B-	
	CCC+			Caa1			CCC+	
	CCC	3/25/2014	3/25/2014	Caa2			CCC	
	CCC-			Caa3			CCC-	
	CC			Ca			CC	
Weakest	C			C			C	
	D						D	

(1) 9/5/2018 Water Rating Affirmed 3/13/2020
 (2) 3/13/2020 Rating for Sewer Senior and Second Lien upgraded to same level as water
 (3) DWSD Rating of 11.9.2015 affirmed for GLWA on 5.23.2016 and affirmed on 9.30.2016
 (4) 9/30/2016 Rating Affirmed 9/4/2018

Updated 3.13.2020

Analysis: This is good news for as GLWA contemplates a refunding transaction in 2020.

1. Fitch Press Release – Water & Sewer
2. Fitch Credit Report – Water & Sewer
3. Moody's Press Release – Water
4. Moody's Press Release – Sewer
5. Moody's Credit Opinion – Water & Sewer
6. Standard & Poor's Research Report – Water
7. Standard & Poor's Research Report – Sewer

Proposed Action: Receive and file report.



Fitch Upgrades Great Lakes Water Auth, MI's Water & Sewer Revs to 'A+' Sen/'A' Sub; Outlook Stable

Fitch Ratings - Austin - 13 March 2020:

Fitch Ratings has assigned the following ratings to revenue bonds issued by the Great Lakes Water Authority, MI (GLWA or the authority):

--Approximately \$39,670,000 Water Supply System Revenue Senior Lien Bonds, Series 2020A, 'A+';

--Approximately \$39,670,000 Water Supply System Revenue Second Lien Bonds, Series 2020B, 'A';

--Approximately \$324,300,000 Water Supply System Revenue Refunding Senior Lien Bonds, Series 2020C (Federally Taxable), 'A+';

--Approximately \$47,000,000 Water Supply System Revenue Refunding Second Lien Bonds, Series 2020D (Federally Taxable), 'A';

--Approximately \$535,975,000 Sewage Disposal System Revenue Refunding Senior Lien Bonds, Series 2020A (Federally Taxable), 'A+';

--Approximately and \$160,280,000 Sewage Disposal System Revenue Refunding Second Lien Bonds, Series 2020B (Federally Taxable), 'A'.

All bonds are scheduled to sell [via negotiation the week of March 16, 2020]. Proceeds will be used to refund certain GLWA sewer system and water system (the systems) debt for interest savings, fund certain water system capital expenditures and pay costs of issuance.

In addition, Fitch has upgraded the following outstanding GLWA bonds, including bonds previously issued by the city of Detroit (the city) and the Michigan Finance Authority, MI on behalf of the Detroit Water and Sewerage Department (DWSD) and assumed by GLWA (all pre-refunding):

--\$1.6 billion in senior lien water revenue bonds to 'A+' from 'A';

--\$668 million in second lien water revenue bonds to 'A' from 'A-';

--\$1.9 billion in senior lien sewer revenue bonds to 'A+' from 'A';

--\$746 million in second lien sewer revenue bonds to 'A' from 'A-'.

The Rating Outlook is revised to Stable from Positive.

SECURITY

Senior lien water and sewer bonds are separately secured by a first lien on net revenues of each respective system. Second lien bonds are separately secured by a second lien on the net revenues of each respective

system after payment of senior lien bonds.

KEY RATING DRIVERS

UPGRADES REFLECT IMPROVED FINANCIALS: The upgrades reflect sustained improvements to the authority's financial profile. Changes in rate-setting practices in recent years as well as accumulation of reserves under the master bond ordinances have enhanced prospects for achieving or beating forecast expectations and help to adequately insulate GLWA from high city of Detroit retail delinquencies.

LEASE REINFORCES SEPARATE OPERATIONS: All system funds and accounts are separate and distinct from other city funds, including Detroit's general fund. The lease of the systems by GLWA provides further assurance that system operations will remain independent of the city.

HIGHLY LEVERAGED DEBT PROFILE: The systems' debt load is expected to remain elevated for the foreseeable future as a result of legacy issuance and moderate ongoing borrowing. However, some shorter-term improvements are possible as the use of pay-as-you-go capital funding should help to moderate debt levels.

EXPANSIVE SERVICE TERRITORY: The systems provide essential services to a broad area. The water system covers almost 40% of Michigan's population, while the sewer system includes about 30% of Michigan's population. The majority of GLWA's revenues come from suburban customers.

STRONG RATE-ADJUSTMENT HISTORY: The governing bodies have instituted annual rate hikes in support of financial and capital needs. Continued annual adjustments are included in the forecast and will be needed to meet rising debt service and sustain financial performance.

RATING SENSITIVITIES

Developments that May, Individually or Collectively, Lead to a Positive Rating Action:

--A decline in leverage metrics coupled with sustained improvements to the authority's operational and financial profiles.

Developments that May, Individually or Collectively, Lead to a Negative Rating Action:

--Increases in debt issuance levels due to revisions in the capital plan or reductions in operating cash flow would be viewed unfavorably given the already high leverage of both systems.

--Failure to maintain the improved operational and financial performance of the authority's water and sewer utilities due to insufficient revenue recovery or higher than expected costs.

CREDIT PROFILE

GLWA entered into 40-year leases of DWSD's water and sewer systems (except for the local city infrastructure), as well as a water and sewer services agreement (combined lease agreements) with the city in

June 2015. The lease agreements became effective on Jan. 1, 2016, at which point GLWA assumed operational control of all leased assets of the regional water and sewer systems; the leases also conveyed an interest in all revenues of both the water and sewer systems (including both the regional and local city retail systems). At the same time, GLWA assumed all liabilities of the water and sewer systems, including all outstanding indebtedness of the city related to the respective systems.

IMPROVED FINANCIALS DRIVE UPGRADES

Audited fiscal 2019 results for the water system yielded Fitch-calculated senior debt service coverage (DSC) of approximately 2.2x, total DSC of 1.6x, and coverage of full obligations of 1.4x (including the DWSD lease-payment transfer and other transfers required under the lease agreements) and liquidity of 718 days cash. Fitch's calculations include both GLWA and DWSD operating revenues and expenses given the requirements under the trust indenture.

Similarly, audited fiscal 2019 results for the sewer system yielded Fitch-calculated senior DSC of approximately 2.3x, total DSC of 1.4x and coverage of full obligations of 1.2x (which includes transfers). Fiscal 2019 days cash was more than six months of operational costs. Financial results for both systems are very favorable for a wholesale provider under Fitch's criteria.

Forecasts provided by the issuer, which Fitch deems reasonable, show sustained improvements in DSC for both systems. Actual results have typically outperformed management forecasts over the past several years, aided by changes to the rate structures (as discussed below), gains in operational efficiencies, and strong cost control. Fitch notes that management's current forecast does not include expected savings from the current transactions, which enhance forecast expectations.

SYSTEM LEVERAGE REMAINS HIGH

Leverage for both systems is elevated and Fitch expects it to remain so for the foreseeable future. This said, leverage ratios should demonstrate some improvements over the next two to five years based on moderating capital improvement plan (CIP) spending and the use of more pay-go funding.

Fiscal 2019 ended with GLWA's long-term debt per capita (inclusive of the lease-related obligations) at a high \$800 for water and \$1,360 for sewer (compared to Fitch's equivalent 'A' median of \$784). For the same period, debt to net plant assets was also elevated for both systems (at 163% and 142% for water and sewer, respectively). Lastly, debt to funds available for debt service was 11.6x and 11.3x for water and sewer versus Fitch's 'A'-median equivalent of 7.6x.

GLWA's revenues fund the DWSD CIPs through the aforementioned lease payments (described further below), debt issued by GLWA for the local projects (including the new money portion related to this sale), and revenue-generated Improvement and Extension Fund contributions. The consolidated GLWA regional and DWSD local 2020-2024 CIPs, including regional budgeted capital outlays and taking into account expected actual spending for GLWA's portion, total \$959 million for water and \$772 million for sewer.

CIP spending is mostly comparable to recent CIPs reviewed by Fitch, though somewhat higher on the water side. Funding for the consolidated CIPs is expected to be provided by approximately 50% debt proceeds and 50% pay-go for the water system and 40% debt/60% pay-go for the sewer system, with the amount of pay-go representing a significant amount of current resources for a wholesale entity.

The goal of GLWA's CIP is implementation of the water and sewer master plans. The water plan's primary focus has been the decommissioning of one of the water treatment plants (accounting for over 15% of system capacity) in order to "right size" the system, along with other system optimization. Although it has created

upfront costs, longer-term operational efficiencies are expected. The more recently finalized sewer master plan identifies five outcomes, including focusing on, among other things, public health and safety.

RATES CONTRIBUTE TO IMPROVED FINANCES

Effective fiscal 2016, GLWA revised its water-rate structure to shift to an increasing amount of fixed monthly charge recovery (60% versus 40% the prior year). These changes were similar to the implementation of a rate simplification initiative for suburban sewer customers effective for fiscal 2015 that identifies each customer's proportionate costs based on historical average shares, with such shares billed monthly and locked in for three years before being subject to recalculation. Although rates are elevated, the primarily fixed-rate nature of each has provided greater revenue stability and enhanced financial performance.

BROAD SERVICE AREA ENHANCES SYSTEM STABILITY

The water system is a regional provider serving around 3.8 million people or almost 40% of Michigan's population, including the city's population of around 675,000. The water system serves the city via DWSD on a retail basis and 112 communities through 87 service contracts and provides service to Genesee County Drain Commissioner through a reciprocal backup contract. The sewer system is also a regional provider serving around 2.8 million people or around 30% of Michigan's population, including the city.

Population and customer growth for both systems experienced annual declines for a number of years. However, recent estimates indicate that the population has stabilized. Wealth levels in the city are low (about 50% the US average), while poverty (36%) and unemployment levels (7.7% as of Dec 2019) are high. However, figures for the metropolitan area overall, which includes the city as well as the suburbs, are generally in line with state and national averages.

LEASE AGREEMENTS PROVIDE FINANCIAL INSULATION

Fitch believes the leases and supporting documents effectively codify the legal separation between the systems and the city, and insulate the systems from being included in any future city bankruptcy proceedings, if one were to occur. DWSD continues to own and operate the city retail water and sewer systems and serves as GLWA's agent with regards to the rate setting, billing and collection of city retail accounts. However, GLWA can terminate DWSD's agent responsibilities in the event of nonperformance by DWSD as described in a Water and Sewer Service Agreement between the city and GLWA.

Key terms of the agreements, which are embedded in GLWA's financial projections, include a \$50 million annual lease payment to the city, although such moneys may only be used at the city's option to fund pay-go capital improvements related to Detroit's local water and sewer systems or DWSD-related debt service associated with the local systems and/or GLWA regional systems. An assistance program is also funded and replenished annually as part of GLWA's budget for low-income customers throughout GLWA's service territory. In addition, a budget stabilization fund is funded from city retail customers to ensure moneys are available to meet the city's portion of GLWA's annual revenue requirement. Deposits required to fund the lease payment and other created accounts like the assistance account occur subsequent to payment of debt service; however, these are added costs that ratepayers must absorb.

Summary of Financial Adjustments

In its analysis, Fitch adjusted GLWA's 'Statement of Revenues, Expenses and Changes in Net Position' to include information from DWSD's 'Statement of Revenues, Expenses and Changes in Net Position'. Fitch also adjusted GLWA's 'Statement of Revenues, Expenses and Changes in Net Position' to treat expenses related to

the lease payment, Water Residential Assistance Program, and pension payments as a transfer out. The adjustments are made to provide greater comparability of GLWA's financial position in accordance with the flow of funds under the bond ordinances and lease-related agreements.

In addition to the sources of information identified in the Revenue-Supported Rating Criteria, this action was additionally informed by information from Lumesis, GLWA, and its agents.

ESG Considerations

ESG issues are credit neutral or have only a minimal credit impact on the entity(ies), either due to their nature or the way in which they are being managed by the entity(ies). For more information on Fitch's ESG Relevance Scores, visit www.fitchratings.com/esg.

RATING ACTIONS			
ENTITY/DEBT	RATING		PRIOR
Great Lakes Water Authority (MI) [Sewer]			
Great Lakes Water Authority (MI) /Sewer Revenues (2nd Lien)/1 LT	LT A ● Upgrade		A- +
Great Lakes Water Authority (MI) /Sewer Revenues/1 LT	LT A+ ● Upgrade		A +
Great Lakes Water Authority (MI) [Water]			
Great Lakes Water Authority (MI) /Water Revenues (2nd Lien)/1 LT	LT A ● Upgrade		A- +
Great Lakes Water Authority (MI) /Water Revenues/1 LT	LT A+ ● Upgrade		A +

Additional information is available on www.fitchratings.com

FITCH RATINGS ANALYSTS

Primary Rating Analyst
Major Parkhurst
Director
+1 512 215 3724
Fitch Ratings, Inc.
111 Congress Avenue Suite 2010
Austin 78701

Secondary Rating Analyst
Eva Rippeteau
Director

+1 212 908 9105

Committee Chairperson
Douglas Scott
Managing Director
+1 512 215 3725

MEDIA CONTACTS

Sandro Scenga
New York
+1 212 908 0278
sandro.scenga@thefitchgroup.com

Applicable Criteria

U.S. Water and Sewer Rating Criteria (pub. 29 Nov 2018)
Public Sector, Revenue-Supported Entities Rating Criteria (pub. 07 Nov 2019)

Additional Disclosures

Dodd-Frank Rating Information Disclosure Form
Solicitation Status
Endorsement Policy

DISCLAIMER

ALL FITCH CREDIT RATINGS ARE SUBJECT TO CERTAIN LIMITATIONS AND DISCLAIMERS. PLEASE READ THESE LIMITATIONS AND DISCLAIMERS BY FOLLOWING THIS LINK: [HTTPS://WWW.FITCHRATINGS.COM/UNDERSTANDINGCREDITRATINGS](https://www.fitchratings.com/understandingcreditratings). IN ADDITION, THE FOLLOWING <https://www.fitchratings.com/site/dam/jcr:6b03c4cd-611d-47ec-b8f1-183c01b51b08/Rating%20Definitions%20-%203%20May%202019%20v3%206-11-19.pdf> DETAILS FITCH'S RATING DEFINITIONS FOR EACH RATING SCALE AND RATING CATEGORIES, INCLUDING DEFINITIONS RELATING TO DEFAULT. PUBLISHED RATINGS, CRITERIA, AND METHODOLOGIES ARE AVAILABLE FROM THIS SITE AT ALL TIMES. FITCH'S CODE OF CONDUCT, CONFIDENTIALITY, CONFLICTS OF INTEREST, AFFILIATE FIREWALL, COMPLIANCE, AND OTHER RELEVANT POLICIES AND PROCEDURES ARE ALSO AVAILABLE FROM THE CODE OF CONDUCT SECTION OF THIS SITE. DIRECTORS AND SHAREHOLDERS RELEVANT INTERESTS ARE AVAILABLE AT [HTTPS://WWW.FITCHRATINGS.COM/SITE/REGULATORY](https://www.fitchratings.com/site/regulatory). FITCH MAY HAVE PROVIDED ANOTHER PERMISSIBLE SERVICE TO THE RATED ENTITY OR ITS RELATED THIRD PARTIES. DETAILS OF THIS SERVICE FOR RATINGS FOR WHICH THE LEAD ANALYST IS BASED IN AN EU-REGISTERED ENTITY CAN BE FOUND ON THE ENTITY SUMMARY PAGE FOR THIS ISSUER ON THE FITCH WEBSITE.

COPYRIGHT

Copyright © 2020 by Fitch Ratings, Inc., Fitch Ratings Ltd. and its subsidiaries. 33 Whitehall Street, NY, NY 10004. Telephone: 1-800-753-4824, (212) 908-0500. Fax: (212) 480-4435. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved. In issuing and maintaining its ratings and in making other reports (including forecast information), Fitch relies on factual information it receives from issuers and underwriters and from other sources Fitch believes to be credible. Fitch conducts a reasonable investigation of the factual information relied upon by it in accordance with its ratings methodology, and obtains reasonable verification of that information from independent sources, to the extent such sources are available for a given security or in a given jurisdiction. The manner of Fitch's factual investigation and the scope of the third-party verification it obtains will vary depending on the nature of the rated security and its issuer, the requirements and practices in the jurisdiction in which the rated security is offered and sold and/or the issuer is located, the availability and nature of relevant public information, access to the management of the issuer and its advisers, the availability of pre-existing third-party verifications such as audit reports, agreed-upon procedures letters, appraisals, actuarial reports, engineering reports, legal opinions and other reports provided by third parties, the availability of independent and competent third-party verification sources with respect to the particular security or in the particular jurisdiction of the issuer, and a variety of other factors. Users of Fitch's ratings and reports should understand that neither an enhanced factual investigation nor any third-party verification can ensure that all of the information Fitch relies on in connection with a rating or a report will be accurate and complete. Ultimately, the issuer and its advisers are responsible for the accuracy of the information they provide to Fitch and to the market in offering documents and other reports. In issuing its ratings and its reports, Fitch must rely on the work of experts, including independent auditors with respect to financial statements and attorneys with respect to legal and tax matters. Further, ratings and forecasts of financial and other information are inherently forward-looking and embody assumptions and predictions about future events that by their nature cannot be verified as facts. As a result, despite any verification of current facts, ratings and forecasts can be affected by future events or conditions that were not anticipated at the time a rating or forecast was issued or affirmed.

The information in this report is provided "as is" without any representation or warranty of any kind, and Fitch does not represent or warrant that the report or any of its contents will meet any of the requirements of a recipient of the report. A Fitch rating is an opinion as to the creditworthiness of a security. This opinion and reports made by Fitch are based on established criteria and methodologies that Fitch is continuously evaluating and updating. Therefore, ratings and reports are the collective work product of Fitch and no individual, or group of individuals, is solely responsible for a rating or a report. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. All Fitch reports have shared authorship. Individuals identified in a Fitch report were involved in, but are not solely responsible for, the opinions stated therein. The individuals are named for contact purposes only. A report providing a Fitch rating is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed or withdrawn at any time for any reason in the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, sell, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issuers, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from US\$1,000 to US\$750,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or insured or guaranteed by a particular insurer or guarantor, for a single annual fee. Such fees are expected to vary from US\$10,000 to US\$1,500,000 (or the applicable currency equivalent). The assignment, publication, or dissemination of a rating by Fitch shall not constitute a consent by Fitch to use its name as an expert in connection with any registration statement filed under the United States securities laws, the Financial Services and Markets Act of 2000 of the United Kingdom, or the securities laws of any particular jurisdiction. Due to the relative efficiency of electronic publishing and distribution, Fitch research may be available to electronic subscribers up to three days earlier than to print subscribers.

For Australia, New Zealand, Taiwan and South Korea only: Fitch Australia Pty Ltd holds an Australian financial

services license (AFS license no. 337123) which authorizes it to provide credit ratings to wholesale clients only. Credit ratings information published by Fitch is not intended to be used by persons who are retail clients within the meaning of the Corporations Act 2001

Fitch Ratings, Inc. is registered with the U.S. Securities and Exchange Commission as a Nationally Recognized Statistical Rating Organization (the "NRSRO"). While certain of the NRSRO's credit rating subsidiaries are listed on Item 3 of Form NRSRO and as such are authorized to issue credit ratings on behalf of the NRSRO (see <https://www.fitchratings.com/site/regulatory>), other credit rating subsidiaries are not listed on Form NRSRO (the "non-NRSROs") and therefore credit ratings issued by those subsidiaries are not issued on behalf of the NRSRO. However, non-NRSRO personnel may participate in determining credit ratings issued by or on behalf of the NRSRO.

SOLICITATION STATUS

The ratings above were solicited and assigned or maintained at the request of the rated entity/issuer or a related third party. Any exceptions follow below.

Endorsement Policy

Fitch's approach to ratings endorsement so that ratings produced outside the EU may be used by regulated entities within the EU for regulatory purposes, pursuant to the terms of the EU Regulation with respect to credit rating agencies, can be found on the EU Regulatory Disclosures page. The endorsement status of all International ratings is provided within the entity summary page for each rated entity and in the transaction detail pages for all structured finance transactions on the Fitch website. These disclosures are updated on a daily basis.

Fitch Updates Terms of Use & Privacy Policy

We have updated our Terms of Use and Privacy Policies which cover all of Fitch Group's websites. [Learn more.](#)

Great Lakes Water Authority, Michigan

Water Supply and Sewage Disposal System Revenue Bonds

New Issue Details

Sale Date: Expected to sell via negotiation the week of March 23, 2020.

Series: \$39,670,000 Water Supply System Revenue Senior Lien Bonds, Series 2020A; \$39,670,000 Water Supply System Revenue Second Lien Bonds, Series 2020B; \$324,300,000 Water Supply System Revenue Refunding Senior Lien Bonds, Series 2020C (Federally Taxable); \$47,000,000 Water Supply System Revenue Refunding Second Lien Bonds, Series 2020D (Federally Taxable); \$535,975,000 Sewage Disposal System Revenue Refunding Senior Lien Bonds, Series 2020A (Federally Taxable); and \$160,280,000 Sewage Disposal System Revenue Refunding Second Lien Bonds, Series 2020B (Federally Taxable).

Purpose: To refund certain Great Lakes Water Authority (GLWA, or the authority) sewer system and water system (the systems) debt for interest savings, fund certain water system capital expenditures and pay issuance costs.

Security: Senior lien water and sewer bonds are separately secured by a first lien on the net revenues of each respective system. Second lien bonds are separately secured by a second lien on the net revenues of each respective system after payment of senior lien bonds.

Key Rating Drivers

Upgrades Reflect Improved Financials: The upgrades reflect sustained improvement to the authority's financial profile. Changes in rate-setting practices in recent years, as well as accumulation of reserves under master bond ordinances, have enhanced the prospects for achieving or beating expectations and are helping to adequately insulate GLWA from high retail delinquencies in the City of Detroit (the city).

Lease Reinforces Separate Operations: All of the systems' funds and accounts are separate and distinct from other city funds, including Detroit's general fund. GLWA's lease of the systems provides further assurance that system operations will remain independent of the city.

Highly Leveraged Debt Profile: The systems' debt load is expected to remain elevated for the foreseeable future due to legacy issuance and moderate ongoing borrowing. However, some shorter term improvements are possible, as the use of pay-as-you-go capital funding is expected to help moderate debt levels.

Expansive Service Territory: The systems provide essential services to a broad area. The water and sewer systems cover almost 40% and 30% of Michigan's population, respectively. The majority of GLWA revenues come from suburban customers.

Strong Rate-Adjustment History: The governing bodies have instituted annual rate hikes to support financial and capital needs. Continuing annual adjustments are included in the forecast and will be needed to meet rising debt service and sustain financial performance.

Ratings

New Issue

\$39,670,000 Water Supply System Revenue Senior Lien Bonds, Series 2020A	A+
\$39,670,000 Water Supply System Revenue Second Lien Bonds, Series 2020B	A
\$324,300,000 Water Supply System Revenue Refunding Senior Lien Bonds, Series 2020C (Federally Taxable)	A+
\$47,000,000 Water Supply System Revenue Refunding Second Lien Bonds, Series 2020D (Federally Taxable)	A
\$535,975,000 Sewage Disposal System Revenue Refunding Senior Lien Bonds, Series 2020A (Federally Taxable)	A+
\$160,280,000 Sewage Disposal System Revenue Refunding Second Lien Bonds, Series 2020B (Federally Taxable)	A

Outstanding Debt

Water Supply System Senior Lien Bonds	A+
Water Supply System Second Lien Bonds	A
Sewage Disposal System Senior Lien Bonds	A+
Sewage Disposal System Second Lien Bonds	A

Rating Outlook

Stable

Applicable Criteria

[Public Sector, Revenue-Supported Entities Rating Criteria \(November 2019\)](#)

[U.S. Water and Sewer Rating Criteria \(November 2018\)](#)

Related Research

[Fitch Upgrades Great Lakes Water Auth, MI's Water & Sewer Revs to 'A+' Sen/'A' Sub; Outlook Stable \(March 2020\)](#)

Analysts

Major Parkhurst
+1 512 215-3724
major.parkhurst@fitchratings.com

Eva Ripperteau
+1 212-908-9105
eva.ripperteau@fitchratings.com

Rating Sensitivities

Developments that May, Individually or Collectively, Lead to a Positive Rating Action:

- a decline in leverage metrics coupled with sustained improvements to the authority's operational and financial profiles.

Developments that May, Individually or Collectively, Lead to a Negative Rating Action:

- increased debt issuance due to capital plan revisions or operating cash flow reductions when factoring the already high leverage of both systems.
- failure to maintain the improved operational and financial performance of the authority's water and sewer utilities due to insufficient revenue recovery or higher-than-expected costs.

Credit Profile

GLWA entered into 40-year leases with Detroit Water & Sewerage Department's (DWSD's) water and sewer systems (except for the local city infrastructure), as well as a water and sewer services agreement (combined lease agreements) with the city in June 2015. The lease agreements became effective on Jan. 1, 2016, at which point GLWA assumed operational control of all leased assets of the regional water and sewer systems. The leases also conveyed an interest in all revenues of both the water and sewer systems (including the regional and local city retail systems). At the same time, GLWA assumed all liabilities of the water and sewer systems, including all outstanding indebtedness of the city related to the respective systems.

Improved Financials Drive Upgrades

Audited fiscal 2019 results for the water system yielded Fitch Ratings-calculated senior debt service coverage (DSC) of approximately 2.2x, total DSC of 1.6x, coverage of full obligations of 1.4x (including the DWSD lease-payment transfer and other transfers required under the lease agreements) and liquidity of 718 days' cash. Fitch's calculations include both GLWA and DWSD operating revenues and expenses due to requirements under the trust indenture.

Similarly, audited fiscal 2019 results for the sewer system yielded Fitch-calculated senior DSC of approximately 2.3x, total DSC of 1.4x and coverage of full obligations of 1.2x (which includes transfers). Fiscal 2019 days' cash exceeded six months of operational costs. Financial results for both systems are very favorable for a wholesale provider under Fitch's criteria.

Forecasts provided by the issuer, which Fitch deems reasonable, show sustained DSC improvement for both systems. Actual results have typically outperformed management forecasts in recent years, aided by changes to rate structures (*as discussed below*), gains in operational efficiencies and strong cost control. Fitch notes that management's current forecast does not factor anticipated savings from the current transactions, which further enhances the forecast expectations.

System Leverage Remains High

Leverage for both systems is elevated, and Fitch expects it to remain so for the foreseeable future. Notwithstanding this, leverage ratios should demonstrate some improvement over the next two to five years based on moderating capital improvement plan (CIP) spending and the use of more pay-as-you-go funding.

Fiscal 2019 ended with GLWA's long-term debt per capita (inclusive of lease-related obligations) at a high \$800 for water and \$1,360 for sewer (compared to Fitch's equivalent 'A' median of \$784). For the same period, debt to net plant assets was also elevated for both systems, at 163% and 142% for water and sewer, respectively. Lastly, debt to funds available for DSC was 11.1x and 11.4x for water and sewer, respectively, versus Fitch's 'A' median equivalent of 7.6x.

GLWA revenues fund the DWSD CIPs through the aforementioned lease payments (*described further below*), debt issued by GLWA for the local projects (including the new-money portion related to this sale) and revenue-generated Improvement and Extension Fund contributions. The consolidated GLWA regional and DWSD local 2020–2024 CIPs, including regional

Rating History – Water Supply System Senior Lien

Rating	Action	Outlook/ Watch	Date
A+	Upgraded	Stable	3/13/20
A	Affirmed	Positive	9/4/18
A	Upgraded	Stable	9/30/16
BBB	Affirmed	Stable	12/15/15
BBB	Upgraded	Stable	9/2/15
BBB–	Upgraded	Stable	9/3/14
BB+	Affirmed	Positive ^a	8/25/14
BB+	Affirmed	Negative ^a	5/30/14
BB+	Affirmed	Negative ^a	2/28/14
BB+	Downgraded	Negative ^a	11/27/13
BBB+	Affirmed	Negative ^a	6/14/13
BBB+	Downgraded	Negative	4/1/13
A	Downgraded	Stable	4/1/11
AA–	Revised	Stable	4/30/10
A+	Affirmed	Negative	4/18/08
A+	Affirmed	Stable	1/28/05
A+	Upgraded	—	10/29/99
A	Assigned	—	11/16/95

^aRating Watch.

Rating History – Water Supply System Second Lien

Rating	Action	Outlook/ Watch	Date
A	Upgraded	Stable	3/13/20
A–	Affirmed	Positive	9/4/18
A–	Upgraded	Stable	9/30/16
BBB–	Affirmed	Stable	12/15/15
BBB–	Upgraded	Stable	9/2/15
BB+	Upgraded	Stable	9/3/14
BB	Affirmed	Positive ^a	8/25/14
BB	Affirmed	Negative ^a	5/30/14
BB	Downgraded	Negative ^a	2/28/14
BBB	Affirmed	Negative ^a	11/27/13
BBB	Affirmed	Negative ^a	6/14/13
BBB	Downgraded	Negative	4/1/13
A–	Downgraded	Stable	4/1/11
A+	Revised	Stable	4/30/10
A	Affirmed	Negative	4/18/08
A	Affirmed	Stable	1/28/05
A	Upgraded	—	10/29/99
A–	Assigned	—	11/16/95

^aRating Watch.

budgeted capital outlays and factoring expected actual spending for GLWA's portion, total \$959 million for water and \$772 million for sewer.

CIP spending is mostly comparable to recent CIPs reviewed by Fitch, although somewhat higher on the water side. Funding for the consolidated CIPs is expected to originate from roughly 58% debt proceeds and 42% pay-as-you-go for the water system coupled with 53% debt/47% pay-as-you-go for the sewer system, with the pay-as-you-go amount representing a significant amount of current resources for a wholesale entity.

The goal of GLWA's CIP is to implement the water and sewer master plans. The water plan's primary focus has been to decommission one of the water treatment plants (accounting for over 15% of system capacity) to "right size" the system, along with other system optimization. Although this has created upfront costs, longer-term operational efficiencies are expected. The more recently finalized sewer master plan identifies five outcomes, including a focus on public health and safety, among other objectives.

Rates Contribute to Improved Finances

Effective fiscal 2016, GLWA revised its water-rate structure to shift to an increasing amount of fixed monthly charge recovery (60% versus 40% for the prior year). These changes were similar to a rate simplification initiative introduced for suburban sewer customers (effective fiscal 2015) that identifies each customer's proportionate costs based on historical average shares, with such shares billed monthly and locked in for three years before being subject to recalculation. Although rates are elevated, the primarily fixed-rate nature of each has provided greater revenue stability and enhanced financial performance.

Broad Service Area Enhances System Stability

The water system is a regional provider, serving about 3.8 million people (or almost 40% of Michigan's population), including the city's population of roughly 675,000. The water system serves the city via DWSD on a retail basis and 112 communities through 87 service contracts, as well as the Genesee County Drain Commissioner through a reciprocal backup contract. The sewer system is also a regional provider, serving around 2.8 million people (or approximately 30% of Michigan's population), including the city.

Population and customer growth for both systems experienced annual declines for a number of years, although recent estimates indicate the population has stabilized. Wealth levels in the city are low (about 50% of the national average), while poverty (36%) and unemployment (7.7% as of December 2019) are high. However, overall figures for the metropolitan area, including the city and its suburbs, are generally in line with state and national averages.

Lease Agreements Provide Financial Insulation

Fitch believes the leases and supporting documents effectively codify the legal separation between the systems and the city, and insulate the systems from being included in any future city bankruptcy proceedings, if such were to occur. DWSD continues to own and operate the city retail water and sewer systems and serves as GLWA's agent for rate-setting, billing and collection of city retail accounts. However, GLWA can terminate DWSD's agent responsibilities in the event of nonperformance by DWSD, as described in a water and sewer service agreement between the city and GLWA.

Key terms of the agreements, which are embedded in GLWA's financial projections, include a \$50 million annual lease payment to the city. However, such moneys may only be used at the city's option to fund pay-go capital improvements related to Detroit's local water and sewer systems or DWSD-related debt service associated with the local systems and/or GLWA regional systems. An assistance program is also funded and replenished annually as part of GLWA's budget for low-income customers throughout GLWA's service territory. In addition, a budget stabilization reserve is funded with proceeds from city retail customers to ensure moneys are available to meet the city portion of GLWA's annual revenue requirement. Deposits necessary to fund the lease payment and other created accounts, such as the assistance account, occur subsequent to debt service payment; however, these are added costs that ratepayers must absorb.

Rating History — Sewage Disposal System Senior Lien

Rating	Action	Outlook/ Watch	Date
A+	Upgraded	Stable	3/13/20
A	Affirmed	Positive	9/4/18
A	Upgraded	Stable	9/30/16
BBB	Affirmed	Stable	12/15/15
BBB	Upgraded	Stable	9/2/15
BBB-	Upgraded	Stable	9/3/14
BB+	Affirmed	Positive ^a	8/25/14
BB+	Affirmed	Negative ^a	5/30/14
BB+	Downgraded	Negative ^a	2/27/14
BBB+	Affirmed	Negative ^a	11/27/13
BBB+	Affirmed	Negative ^a	6/14/13
BBB+	Downgraded	Negative	4/1/13
A-	Downgraded	Stable	5/29/12
A	Downgraded	Stable	4/1/11
AA-	Revised	Stable	4/30/10
A+	Affirmed	Negative	4/18/08
A+	Affirmed	Stable	1/28/05
A+	Upgraded	—	10/29/99
A	Assigned	—	11/16/95

^aRating Watch.

Rating History — Sewage Disposal System Second Lien

Rating	Action	Outlook/ Watch	Date
A	Upgraded	Stable	3/13/20
A-	Affirmed	Positive	9/4/18
A-	Upgraded	Stable	9/30/16
BBB-	Affirmed	Stable	12/15/15
BBB-	Upgraded	Stable	9/2/15
BB+	Upgraded	Stable	9/3/14
BB	Affirmed	Positive ^a	8/25/14
BB	Affirmed	Negative ^a	5/30/14
BB	Downgraded	Negative ^a	2/27/14
BBB+	Upgraded	Negative ^a	11/27/13
BBB	Affirmed	Negative ^a	6/14/13
BBB	Downgraded	Negative	4/1/12
BBB+	Downgraded	Stable	5/29/12
A-	Downgraded	Stable	4/1/11
A+	Revised	Stable	4/30/10
A	Affirmed	Negative	4/18/08
A	Affirmed	Stable	1/28/05
A	Upgraded	—	10/29/99
A-	Assigned	—	11/16/95

^aRating Watch.

Financial Summary – Water Supply System

(\$000, Audited Years Ended June 30)	2015	2016	2017	2018	2019
Balance Sheet					
Unrestricted Cash and Investments	99,145	167,293	267,336	317,090	347,205
Other Unrestricted Current Assets	129,800	117,317	96,900	102,032	111,245
Available Restricted Cash and Investments	1,095	4,363	5,790	15,652	16,474
Current Liabilities Payable from Unrestricted Assets	(202,839)	(151,106)	(136,374)	(139,062)	(145,625)
Net Working Capital	27,201	137,867	233,652	295,710	329,298
Net Fixed Assets	1,949,697	2,143,613	2,039,477	1,933,804	1,858,596
Total Debt	2,515,343	2,977,404	3,078,206	3,115,909	3,038,250
Operating Statement					
Operating Revenues	364,278	432,204	459,925	453,332	433,125
Non-Operating Revenues Available for Debt Service	10,039	392	(450)	5,585	14,869
Total Revenues Available for Debt Service	374,318	432,596	459,474	458,917	447,994
Operating Expenditures (Excluding Depreciation)	127,758	151,942	181,028	199,004	185,003
Depreciation	124,371	122,045	160,505	161,804	161,110
Net Revenues Available for Debt Service	246,560	280,653	278,446	259,913	262,991
Senior ADS	134,821	128,178	134,235	127,687	119,231
All-In ADS	178,924	171,139	175,010	172,550	167,966
Required Transfers	(9,675)	(32,839)	(35,260)	(33,859)	(30,442)
Financial Statistics					
Senior ADS	1.83	2.19	2.07	2.04	2.21
All-In ADS	1.38	1.64	1.59	1.51	1.57
Days' Cash on Hand	286	412	551	610	718
Days' Working Capital	78	331	471	542	650
Debt/Net Plant (%)	129	139	151	161	163
Debt/Funds Available for Debt Service (x)	13.3	12.9	10.6	10.6	11.1
Outstanding Long-Term Debt Per Customer (\$)	662	784	810	820	800
Free Cash/Depreciation (%)	47	63	42	33	40

Notes: Fitch has reclassified certain financial statement items for analytical purposes. Fiscal 2015 reflects DWSD financials. Fiscal years 2016–2019 reflect GLWA only in relation to "Balance Sheet" items and both GLWA/DWSD in relation to "Operating Statement" items.

ADS – Annual debt service.

Sources: Fitch Ratings, GLWA and DWSD.

Financial Summary – Sewer System

(\$000, Audited Years Ended June 30)	2015	2016	2017	2018	2019
Balance Sheet					
Unrestricted Cash and Investments	197,070	188,063	205,179	208,563	236,057
Other Unrestricted Current Assets	241,429	146,602	99,583	105,063	88,158
Available Restricted Cash and Investments	—	8,408	9,101	16,837	21,227
Current Liabilities Payable from Unrestricted Assets	(276,396)	(172,737)	(181,761)	(144,064)	(181,342)
Net Working Capital	162,103	170,336	132,103	186,399	164,100
Net Fixed Assets	2,869,146	2,995,767	2,869,310	2,756,460	2,675,593
Total Debt	3,533,419	4,019,827	3,867,814	3,789,625	3,805,363
Operating Statement					
Operating Revenues	505,672	635,958	779,495	764,713	767,824
Non-Operating Revenues Available for Debt Service	(928)	1,089	(3,993)	4,557	5,542
Total Revenues Available for Debt Service	504,743	639,047	775,502	769,270	773,366
Operating Expenditures (Excluding Depreciation)	195,079	288,339	436,462	445,349	437,829
Depreciation	119,848	152,825	194,349	200,604	180,525
Net Revenues Available for Debt Service	309,665	350,708	339,040	323,921	335,538
Senior ADS	132,541	140,191	140,854	141,719	145,796
All-In ADS	232,613	228,571	234,555	232,492	239,242
Required Transfers	(28,715)	(30,290)	(43,322)	(36,410)	(41,495)
Financial Statistics					
Senior ADS	2.34	2.50	2.41	2.29	2.30
All-In ADS	1.33	1.53	1.45	1.39	1.40
Days' Cash on Hand	369	249	179	185	214
Days' Working Capital	303	216	110	153	137
Debt/Net Plant (%)	123	134	135	137	142
Debt/Funds Available for Debt Service (%)	15.1	13.2	11.4	11.5	11.4
Outstanding Long-Term Debt Per Customer (\$)	1,262	1,436	1,381	1,353	1,359
Free Cash/Depreciation (%)	40	60	31	27	30

Notes: Fitch has reclassified certain financial statement items for analytical purposes. Fiscal 2015 reflects DWSD financials. Fiscal years 2016–2019 reflect GLWA only in relation to "Balance Sheet" items and both GLWA/DWSD in relation to "Operating Statement" items.

ADS – Annual debt service.

Sources: Fitch Ratings, GLWA and DWSD.

The ratings above were solicited and assigned or maintained at the request of the rated entity/issuer or a related third party. Any exceptions follow below.

ALL FITCH CREDIT RATINGS ARE SUBJECT TO CERTAIN LIMITATIONS AND DISCLAIMERS. PLEASE READ THESE LIMITATIONS AND DISCLAIMERS BY FOLLOWING THIS LINK: [HTTPS://FITCHRATINGS.COM/UNDERSTANDINGCREDITRATINGS](https://fitchratings.com/understandingcreditratings). IN ADDITION, RATING DEFINITIONS AND THE TERMS OF USE OF SUCH RATINGS ARE AVAILABLE ON THE AGENCY'S PUBLIC WEB SITE AT WWW.FITCHRATINGS.COM. PUBLISHED RATINGS, CRITERIA, AND METHODOLOGIES ARE AVAILABLE FROM THIS SITE AT ALL TIMES. FITCH'S CODE OF CONDUCT, CONFIDENTIALITY, CONFLICTS OF INTEREST, AFFILIATE FIREWALL, COMPLIANCE, AND OTHER RELEVANT POLICIES AND PROCEDURES ARE ALSO AVAILABLE FROM THE CODE OF CONDUCT SECTION OF THIS SITE. FITCH MAY HAVE PROVIDED ANOTHER PERMISSIBLE SERVICE TO THE RATED ENTITY OR ITS RELATED THIRD PARTIES. DETAILS OF THIS SERVICE FOR RATINGS FOR WHICH THE LEAD ANALYST IS BASED IN AN EU-REGISTERED ENTITY CAN BE FOUND ON THE ENTITY SUMMARY PAGE FOR THIS ISSUER ON THE FITCH WEBSITE.

Copyright © 2020 by Fitch Ratings, Inc., Fitch Ratings Ltd. and its subsidiaries. 33 Whitehall Street, NY, NY 10004. Telephone: 1-800-753-4824, (212) 908-0500. Fax: (212) 480-4435. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved. In issuing and maintaining its ratings and in making other reports (including forecast information), Fitch relies on factual information it receives from issuers and underwriters and from other sources Fitch believes to be credible. Fitch conducts a reasonable investigation of the factual information relied upon by it in accordance with its ratings methodology, and obtains reasonable verification of that information from independent sources, to the extent such sources are available for a given security or in a given jurisdiction. The manner of Fitch's factual investigation and the scope of the third-party verification it obtains will vary depending on the nature of the rated security and its issuer, the requirements and practices in the jurisdiction in which the rated security is offered and sold and/or the issuer is located, the availability and nature of relevant public information, access to the management of the issuer and its advisers, the availability of pre-existing third-party verifications such as audit reports, agreed-upon procedures letters, appraisals, actuarial reports, engineering reports, legal opinions and other reports provided by third parties, the availability of independent and competent third-party verification sources with respect to the particular security or in the particular jurisdiction of the issuer, and a variety of other factors. Users of Fitch's ratings and reports should understand that neither an enhanced factual investigation nor any third-party verification can ensure that all of the information Fitch relies on in connection with a rating or a report will be accurate and complete. Ultimately, the issuer and its advisers are responsible for the accuracy of the information they provide to Fitch and to the market in offering documents and other reports. In issuing its ratings and its reports, Fitch must rely on the work of experts, including independent auditors with respect to financial statements and attorneys with respect to legal and tax matters. Further, ratings and forecasts of financial and other information are inherently forward-looking and embody assumptions and predictions about future events that by their nature cannot be verified as facts. As a result, despite any verification of current facts, ratings and forecasts can be affected by future events or conditions that were not anticipated at the time a rating or forecast was issued or affirmed.

The information in this report is provided "as is" without any representation or warranty of any kind, and Fitch does not represent or warrant that the report or any of its contents will meet any of the requirements of a recipient of the report. A Fitch rating is an opinion as to the creditworthiness of a security. This opinion and reports made by Fitch are based on established criteria and methodologies that Fitch is continuously evaluating and updating. Therefore, ratings and reports are the collective work product of Fitch and no individual, or group of individuals, is solely responsible for a rating or a report. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. All Fitch reports have shared authorship. Individuals identified in a Fitch report were involved in, but are not solely responsible for, the opinions stated therein. The individuals are named for contact purposes only. A report providing a Fitch rating is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed or withdrawn at any time for any reason in the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, sell, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issuers, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from US\$1,000 to US\$750,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or insured or guaranteed by a particular insurer or guarantor, for a single annual fee. Such fees are expected to vary from US\$10,000 to US\$1,500,000 (or the applicable currency equivalent). The assignment, publication, or dissemination of a rating by Fitch shall not constitute a consent by Fitch to use its name as an expert in connection with any registration statement filed under the United States securities laws, the Financial Services and Markets Act of 2000 of the United Kingdom, or the securities laws of any particular jurisdiction. Due to the relative efficiency of electronic publishing and distribution, Fitch research may be available to electronic subscribers up to three days earlier than to print subscribers.

For Australia, New Zealand, Taiwan and South Korea only: Fitch Australia Pty Ltd holds an Australian financial services license (AFS license no. 337123) which authorizes it to provide credit ratings to wholesale clients only. Credit ratings information published by Fitch is not intended to be used by persons who are retail clients within the meaning of the Corporations Act 2001.

Rating Action: Moody's upgrades Great Lakes Water Authority, MI's water revenue bonds to A1 and A2; outlook stable

13 Mar 2020

New York, March 13, 2020 -- Moody's Investors Service has upgraded to A1 from A2 and to A2 from A3 the senior and second lien water revenue ratings, respectively, of the Great Lakes Water Authority (GLWA), MI Water Enterprise. Concurrently, Moody's has assigned an A1 rating to GLWA's \$39.7 million Water Supply System Revenue Senior Lien Bonds, Series 2020A, and \$324.3 million Water Supply System Revenue Refunding Senior Lien Bonds, Series 2020C (Federally Taxable). Moody's has also assigned A2 ratings to the authority's \$40 million Water Supply System Revenue Second Lien Bonds, Series 2020B, and \$47 million Water Supply System Revenue Refunding Second Lien Bonds, Series 2020D (Federally Taxable). The outlook is stable. Inclusive of the current sales, GLWA has \$1.6 billion of senior lien water revenue bonds, \$633.4 million of second lien water revenue bonds, and \$79.5 million of non-rated junior lien state revolving fund (SRF) loans outstanding.

RATINGS RATIONALE

The upgrade of the senior lien revenue debt to A1 reflects continuation of strong operating performance that has resulted in healthy annual debt service coverage and liquidity. Additionally factored are the system's large scale of operations, independent rate setting authority, and sound legal provisions of outstanding revenue debt. At the upgraded rating, these strengths continue to balance the water system's elevated debt burden, as well as its reliance on revenue derived from retail operations within the City of Detroit (Ba3 positive). The upgrade of the second lien water revenue bonds to A2 incorporates the same factors while the lower rating reflects a subordinate claim on pledged net revenue.

RATING OUTLOOK

The stable outlook incorporates our expectation that the system will sustain sound financial metrics despite the likelihood of further borrowing to finance capital improvements.

FACTORS THAT COULD LEAD TO AN UPGRADE

- Sustained expansion and diversification of the service area's economic base
- Growth in revenue that continues to outpace borrowing to moderate leverage of pledged resources
- Improved credit profile of the City of Detroit

FACTORS THAT COULD LEAD TO A DOWNGRADE

- Renewed economic stress that pressures consumption and revenue trends
- Material reduction to the system's liquidity or debt service coverage ratios
- Growth in leverage of the water system's net revenue

LEGAL SECURITY

Outstanding water revenue bonds are secured by either a senior lien or second lien on revenue, net of operating and maintenance expenses, of GLWA's water enterprise operations.

USE OF PROCEEDS

Proceeds from the Series 2020A and Series 2020B bonds will provide financing for capital improvement to the local water system. Proceeds from the sale of the Series 2020C and Series 2020D bonds will be used to refund certain maturities of GLWA's outstanding Water Supply System Revenue Bonds, Series 2011A, 2011B, and 2011C for debt service savings.

PROFILE

The Great Lakes Water Authority (GLWA) is the regional wholesale provider of water and sewer services to southeast Michigan (Aa1 stable). Fully established in 2016, GLWA is an incorporated municipal authority operating under the guidance of a six-member board consisting of one appointee each of the counties of Macomb (Aa1 stable), Oakland (Aaa stable), and Wayne (Baa1 stable), two appointees of the Mayor of Detroit, and one of the Governor of Michigan. The water enterprise treats water from Lake Huron, Lake St. Clair and the Detroit River and distributes it to a service area population of approximately 3.8 million.

METHODOLOGY

The principal methodology used in these ratings was US Municipal Utility Revenue Debt published in October 2017. Please see the Rating Methodologies page on www.moodys.com for a copy of this methodology.

REGULATORY DISCLOSURES

For ratings issued on a program, series, category/class of debt or security this announcement provides certain regulatory disclosures in relation to each rating of a subsequently issued bond or note of the same series, category/class of debt, security or pursuant to a program for which the ratings are derived exclusively from existing ratings in accordance with Moody's rating practices. For ratings issued on a support provider, this announcement provides certain regulatory disclosures in relation to the credit rating action on the support provider and in relation to each particular credit rating action for securities that derive their credit ratings from the support provider's credit rating. For provisional ratings, this announcement provides certain regulatory disclosures in relation to the provisional rating assigned, and in relation to a definitive rating that may be assigned subsequent to the final issuance of the debt, in each case where the transaction structure and terms have not changed prior to the assignment of the definitive rating in a manner that would have affected the rating. For further information please see the ratings tab on the issuer/entity page for the respective issuer on www.moodys.com.

Regulatory disclosures contained in this press release apply to the credit rating and, if applicable, the related rating outlook or rating review.

Please see www.moodys.com for any updates on changes to the lead rating analyst and to the Moody's legal entity that has issued the rating.

Please see the ratings tab on the issuer/entity page on www.moodys.com for additional regulatory disclosures for each credit rating.

Andrew Van Dyck Dobos
Lead Analyst
Regional PFG Chicago
Moody's Investors Service, Inc.
100 N Riverside Plaza
Suite 2220
Chicago 60606
US
JOURNALISTS: 1 212 553 0376
Client Service: 1 212 553 1653

Matthew Butler
Additional Contact
State Ratings
JOURNALISTS: 1 212 553 0376
Client Service: 1 212 553 1653

Releasing Office:
Moody's Investors Service, Inc.
250 Greenwich Street
New York, NY 10007
U.S.A
JOURNALISTS: 1 212 553 0376
Client Service: 1 212 553 1653

© 2020 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. AND/OR ITS CREDIT RATINGS AFFILIATES ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S INVESTORS SERVICE DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S INVESTORS SERVICE CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received

in the rating process or in preparing its Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from \$1,000 to approximately \$2,700,000. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moodys.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY125,000 to approximately JPY250,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

Rating Action: Moody's upgrades Great Lakes Water Authority, MI's sewer revenue bonds to A1 and A2; outlook stable

13 Mar 2020

New York, March 13, 2020 -- Moody's Investors Service has upgraded to A1 from A2 and to A2 from A3 the senior and second lien sewer revenue ratings, respectively, of the Great Lakes Water Authority (GLWA), MI Sewer Enterprise. Concurrently, Moody's has assigned an A1 rating to GLWA's \$536 million Sewage Disposal System Revenue Refunding Senior Lien Bonds, Series 2020A (Federally Taxable). Moody's has also assigned an A2 rating to the authority's \$160.3 million Sewage Disposal System Revenue Refunding Second Lien Bonds, Series 2020B (Federally Taxable). The outlook is stable. Inclusive of the current sales, GLWA has \$1.8 billion of senior lien sewer revenue bonds, \$819.6 million of second lien sewer revenue bonds, and \$494 million of non-rated junior lien state revolving fund (SRF) loans outstanding

RATINGS RATIONALE

The upgrade of the senior lien revenue debt to A1 reflects continuation of strong operating performance that has resulted in healthy annual debt service coverage and liquidity. Additionally factored are the system's large scale of operations, independent rate setting authority, and sound legal provisions of outstanding revenue debt. At the upgraded rating, these strengths continue to balance the sewer system's elevated debt burden, as well as the large share of system-wide revenue generated by retail operations within the City of Detroit (Ba3 positive). The upgrade of the second lien sewer revenue bonds to A2 incorporates the same factors while the lower rating reflects a subordinate claim on pledged net revenue.

RATING OUTLOOK

The stable outlook incorporates our expectation that the system will sustain sound financial metrics despite the likelihood of further borrowing to finance capital improvements.

FACTORS THAT COULD LEAD TO AN UPGRADE

- Sustained expansion and diversification of the service area's economic base
- Growth in revenue that continues to outpace borrowing to moderate leverage of pledged resources
- Improved credit profile of the City of Detroit

FACTORS THAT COULD LEAD TO A DOWNGRADE

- Renewed economic stress that pressures consumption and revenue trends
- Material reduction to the system's liquidity or debt service coverage ratios
- Growth in leverage of the sewer system's net revenue

LEGAL SECURITY

Outstanding sewer revenue bonds are secured by either a senior lien or second lien on revenue, net of operating and maintenance expenses, of GLWA's sewer enterprise operations.

USE OF PROCEEDS

Proceeds from the Series 2020A and Series 2020B bonds will be used to refund certain maturities of GLWA's outstanding Sewage Disposal System Revenue & Refunding Senior Lien Bonds, Series 2012A, Sewage Disposal System Revenue Refunding Bonds, Series 2014C, and Sewerage Disposal System Revenue Second Lien Bonds, Series 2005A and Series 2006B for debt service savings.

PROFILE

The Great Lakes Water Authority (GLWA) is the regional wholesale provider of water and sewer services to southeast Michigan. Fully established in 2016, GLWA is an incorporated municipal authority operating under the guidance of a six-member board consisting of one appointee each of the counties of Macomb (Aa1 stable), Oakland (Aaa stable), and Wayne (Baa1 stable), two appointees of the Mayor of Detroit, and one of the Governor of Michigan (Aa1 stable). The sewer enterprise collects, treats and disposes of wastewater produced by a service area population of approximately 2.8 million.

METHODOLOGY

The principal methodology used in these ratings was US Municipal Utility Revenue Debt published in October 2017. Please see the Rating Methodologies page on www.moodys.com for a copy of this methodology.

REGULATORY DISCLOSURES

For ratings issued on a program, series, category/class of debt or security this announcement provides certain regulatory disclosures in relation to each rating of a subsequently issued bond or note of the same series, category/class of debt, security or pursuant to a program for which the ratings are derived exclusively from existing ratings in accordance with Moody's rating practices. For ratings issued on a support provider, this announcement provides certain regulatory disclosures in relation to the credit rating action on the support provider and in relation to each particular credit rating action for securities that derive their credit ratings from the support provider's credit rating. For provisional ratings, this announcement provides certain regulatory disclosures in relation to the provisional rating assigned, and in relation to a definitive rating that may be assigned subsequent to the final issuance of the debt, in each case where the transaction structure and terms have not changed prior to the assignment of the definitive rating in a manner that would have affected the rating. For further information please see the ratings tab on the issuer/entity page for the respective issuer on www.moodys.com.

Regulatory disclosures contained in this press release apply to the credit rating and, if applicable, the related rating outlook or rating review.

Please see www.moodys.com for any updates on changes to the lead rating analyst and to the Moody's legal entity that has issued the rating.

Please see the ratings tab on the issuer/entity page on www.moodys.com for additional regulatory disclosures for each credit rating.

Andrew Van Dyck Dobos
Lead Analyst
Regional PFG Chicago
Moody's Investors Service, Inc.
100 N Riverside Plaza
Suite 2220
Chicago 60606
US
JOURNALISTS: 1 212 553 0376
Client Service: 1 212 553 1653

Matthew Butler
Additional Contact
State Ratings
JOURNALISTS: 1 212 553 0376
Client Service: 1 212 553 1653

Releasing Office:
Moody's Investors Service, Inc.
250 Greenwich Street
New York, NY 10007
U.S.A
JOURNALISTS: 1 212 553 0376
Client Service: 1 212 553 1653

© 2020 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. AND/OR ITS CREDIT RATINGS AFFILIATES ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S INVESTORS SERVICE DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S INVESTORS SERVICE CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received

in the rating process or in preparing its Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from \$1,000 to approximately \$2,700,000. MCO and Moody's investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moodys.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY125,000 to approximately JPY250,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

CREDIT OPINION

16 March 2020



Contacts

Andrew T. Van Dyck Dobos +1.312.706.9974
AVP-Analyst
 andrew.vandyckdobos@moodys.com

Matthew Butler +1.212.553.7108
VP-Senior Analyst
 matthew.butler@moodys.com

CLIENT SERVICES

Americas 1-212-553-1653
Asia Pacific 852-3551-3077
Japan 81-3-5408-4100
EMEA 44-20-7772-5454

Great Lakes Water Authority, MI

Update following upgrades of water and sewer revenue debt

Summary

The [Great Lakes Water Authority's](#) (GLWA) [water](#) and [sewer](#) enterprises (both senior liens rated A1 stable; both subordinate liens rated A2 stable) have demonstrated strong operating trends and will likely sustain current performance. Both systems have maintained satisfactory annual debt service coverage on senior and subordinate lien revenue debt, and hold healthy liquidity. The authority's experienced management team remains committed to measured revenue growth through annual revenue requirement increases, while at the same time maintaining an affordable rate structure for users. Furthermore, positive economic indicators across each system's service area, including in the [City of Detroit](#) (Ba3 positive), should contribute to customer base resiliency despite ongoing weakness in certain segments. Each system's healthy coverage and strong liquidity balance very high debt burdens. While we anticipate additional borrowing in coming years for capital maintenance and upgrades, sustained financial performance should allow for cash financing a portion of the each system's capital improvement plan, thus moderating any increase in debt.

On March 13, 2020, we upgraded the authority's senior lien water revenue and senior lien sewer revenue debt to A1 from A2. The second lien revenue debt of each system was raised to A2 from A3. The outlook on both systems is stable.

Credit strengths

- » Very large utility systems that provide essential water and wastewater services to a significant portion of the state's population
- » Commitment to annual revenue enhancements to support sound debt service coverage and healthy liquidity
- » Implementation of operational efficiencies, including right-sizing of personnel and treatment capacity

Credit challenges

- » Declining usage trends given economic and demographic weaknesses in portions of the service area, as well as general conservation efforts
- » High leverage will moderate slowly given outstanding capital needs and plans to issue additional debt
- » High combined operating needs and fixed costs leave little margin to miss revenue targets in order to maintain strong liquidity and expand pay-go capital financing

Rating outlook

The stable outlook incorporates our expectation that each system will sustain sound financial metrics despite the likelihood of further borrowing to finance capital improvements.

Factors that could lead to an upgrade

- » Sustained expansion and diversification of the service area's economic base
- » Growth in revenue that continues to outpace borrowing so as to moderate leverage of pledged resources
- » Improved credit profile of the City of Detroit

Factors that could lead to a downgrade

- » Renewed economic stress that pressures consumption and revenue trends
- » Material reduction to the water or sewer system's liquidity or debt service coverage ratios
- » Growth in leverage of the water or sewer system's net revenue

Key indicators

Exhibit 1

Great Lakes Water Authority, MI Water Enterprise			
System Characteristics			
Asset Condition (Net Fixed Assets / Annual Depreciation)	14 years		
System Size - O&M (\$000)	\$163,519		
Service Area Wealth: MFI % of US median	96.80%		
https://mth-cms-meth01-tom-			
Rate Covenant (x)	1.20x		
Debt Service Reserve Requirement	DSRF funded at lesser of standard 3-prong test		
Management			
Rate Management	Aa		
Regulatory Compliance and Capital Planning	A		
Financial Strength			
	2017	2018	2019
Operating Revenue (\$000)	\$428,044	\$425,245	\$407,231
System Size - O&M (\$000)	\$145,627	\$153,910	\$163,519
Net Revenues (\$000)	\$282,417	\$271,335	\$243,712
Outstanding Revenue Debt (\$000)	\$2,358,137	\$2,310,261	\$2,250,181
Annual Debt Service (\$000)	\$175,010	\$172,550	\$167,966
Annual Debt Service Coverage (x)	1.6x	1.6x	1.5x
Cash on Hand	670 days	752 days	775 days
Debt to Operating Revenues (x)	5.5x	5.4x	5.5x

Fiscal 2017 reflects the first year of operations for the Great Lakes Water Authority.

Sources: Audited financial statements of Great Lakes Water Authority and the City of Detroit Water Fund

Exhibit 2

Great Lakes Water Authority, MI Sewer Enterprise			
System Characteristics			
Asset Condition (Net Fixed Assets / Annual Depreciation)	16 years		
System Size - O&M (\$000)	\$244,468		
Service Area Wealth: MFI % of US median	96.80%		
https://mth-cms-meth01-tom-			
Rate Covenant (x)	1.20x		
Debt Service Reserve Requirement	DSRF funded at lesser of standard 3-prong test		
Management			
Rate Management	Aa		
Regulatory Compliance and Capital Planning	A		
Financial Strength			
	2017	2018	2019
Operating Revenue (\$000)	\$557,396	\$561,784	\$550,399
System Size - O&M (\$000)	\$206,554	\$250,577	\$244,468
Net Revenues (\$000)	\$350,842	\$311,207	\$305,931
Outstanding Revenue Debt (\$000)	\$3,144,592	\$3,076,993	\$3,093,347
Annual Debt Service (\$000)	\$234,555	\$232,281	\$239,172
Annual Debt Service Coverage (x)	1.5x	1.3x	1.3x
Cash on Hand	363 days	304 days	352 days
Debt to Operating Revenues (x)	5.6x	5.5x	5.6x

See the coverage section under Debt Service Coverage and Liquidity for more details about what is included in revenues, expenditures, and debt service, and how coverage is calculated under the bond resolution.

Sources: Audited financial statements of Great Lakes Water Authority and the City of Detroit Sewer Fund

Profile

The Great Lakes Water Authority (GLWA) is the regional wholesale provider of water and sewer services to southeast [Michigan](#) (Aa1 stable). Fully established in 2016, GLWA is an incorporated municipal authority operating under the guidance of a six-member board consisting of one appointee each of the counties of [Macomb](#) (Aa1 stable), [Oakland](#) (Aaa stable), and [Wayne](#) (Baa2 stable), two appointees of the Mayor of Detroit, and one of the Governor of Michigan. The water enterprise treats water from Lake Huron, Lake St. Clair and the Detroit River and distributes treated water to a service area population of approximately 3.8 million. The sewer enterprise collects, treats and disposes of wastewater produced by a service area population of approximately 2.8 million.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history.

Detailed credit considerations

Service area and system characteristics: very large service area in southeast Michigan

Each system's large service area and scale of operations are key credit strengths as these attributes result in a broad and diverse customer base. The two systems are leased from the City of Detroit pursuant to lease agreements which stipulate that the term of the lease shall automatically coincide with the life of outstanding debt owed by GLWA. The regional water supply system covers a vast 1,700 square miles in southeast Michigan, providing treated water to 112 communities, while the sewer system covers 950 square miles, providing wastewater services to 79 communities. Approximately 40% of the state's population is serviced by the water utility, while the sewer utility services approximately 30% of the state's roughly 10 million residents.

Each system is a wholesale enterprise whose articles of incorporation allow for direct retail service. Residents and businesses within Detroit are retail customers of the Detroit Water and Sewerage Department (DWSD). Residential and business activity within the City of Detroit has accounted for roughly 20% of annual water revenue over the last three fiscal years (2017-2019), and roughly 45% of sewer revenue. The remainder of water sales are to suburban customers via 87 wholesale customer contracts, while sewer revenue is collected from municipalities via 18 wholesale customer contracts.

Since 2008, 82 of GLWA's wholesale water customers, and 11 of its wholesale sewer customers have signed new model contracts with 30-year terms and automatic 10-year renewals. Water customers that are not on a model contract comprise less than 10% of wholesale billings. The remaining seven wholesale sewer customers not under a model contract are served pursuant to separate long-term contracts that range in term from 10 years to infinite. Customers must provide notice of intent to terminate five years in advance of the end of the contract term. Effective December 1, 2017 the City of Flint entered into the 30-year model contract, which will provide the city with a stable source of quality treated water. The contract was signed in conjunction with a master agreement and regional collaboration among the city and GLWA, as well as the Genesee County Drain Commissioner (GCDC), [Karegnondi Water Authority](#) (KWA; A2 stable), and the State of Michigan. The agreement provides for reciprocal backup water supply from GCDC and GLWA's use of Flint's KWA raw water rights.

Although the creation of the KWA resulted in the exit of GCDC as a wholesale customer, we anticipate the model contracts will ensure a stable customer base for both systems going forward. Stabilization of the regional economy should further support the resiliency of each system's customer base. Since peaking at 15.1% in 2009, the Detroit MSA's unemployment rate has fallen to 3.9% as of December 2019. Median family income has also gradually improved, and is now estimated at 96.8% of the national figure.

Similar to many water systems in the Midwest, usage rates are falling. From 2010 to 2019 the volume of water billed dropped by roughly 16%. At the same time, non-revenue volume produced by the water utility remains very high, driven mainly by leaks or major breaks in the transmission and distribution systems. Over the past five years non-revenue water accounted for approximately a quarter of water produced. Production volumes, however, are not metered, and the previously conducted cost of service study indicates production volumes are likely overstated.

Declining usage can be traced to several factors, including weather trends and conservation efforts. While this trend may stabilize over the long term, sustained upticks in usage are unlikely absent the expansion of the system into new wholesale contract communities. Population in the Detroit MSA fell nearly 4% between 2000 and 2010, and while recent estimates point to flat trends in the service area since, material growth may be unlikely. GLWA has adjusted its rate structure to increase fixed rate charges, which will continue to mitigate downward effects of consumption decline.

Wastewater trends have been more stable as compared to water usage trends. The sewer system's total amount of wastewater treated was 13% higher in 2019 as compared to 2010. Approximately 60% of the treated wastewater comes from wholesale and suburban customers, while the remaining 40% is a result of infiltration. Just like the water systems, GLWA has implemented a simplified sewer rate approach that will eliminate effects of usage fluctuation.

Debt service coverage and liquidity: financial metrics expected to remain healthy

We expect both system's will continue to operate effectively, resulting in the maintenance of sound annual debt service coverage and ample system liquidity. The authority is committed to limiting annual growth in its water and sewer system revenue requirements by 4%, but will adjust service charges, as needed, to meet bond covenants. Reliability of budget estimates are enhanced by the fact that 60% of wholesale water revenue is generated by a fixed monthly charge, as compared to commodity charges which accounts for 40%

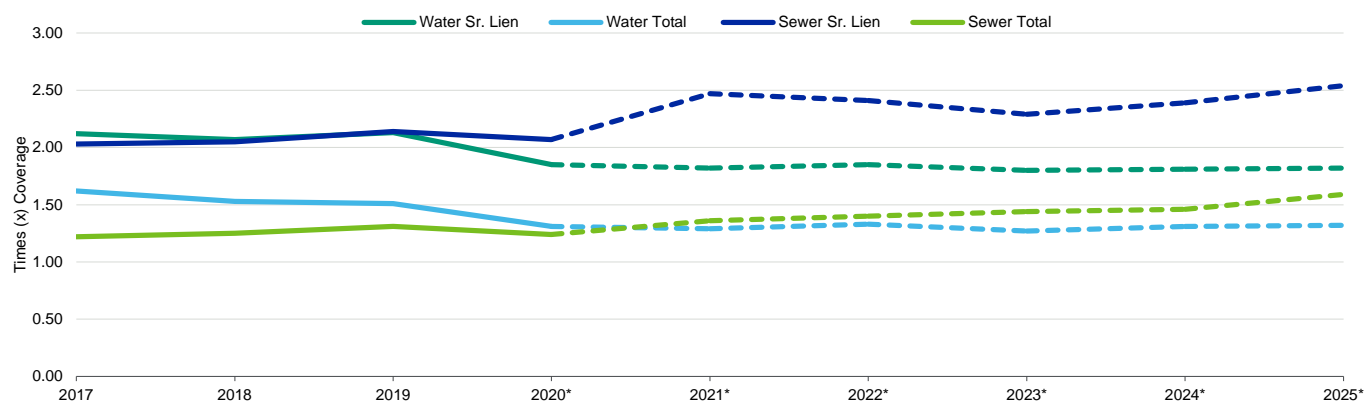
of wholesale revenue. A 100% fixed charge structure is in place for wholesale sewer customers. Each year GLWA conducts an extensive study of both its wholesale service charges and allocated annual revenue requirement to retail water customers, with the purpose of adjusting revenue to reflect the cost of operations, depreciation expense, and return on the rate base.

Significant growth in retail rates in Detroit could challenge the capacity of some of DWSD's customers to pay. Delinquent Detroit retail accounts have remained high, though DWSD has enhanced both collection efforts and customer assistance programs, including participating in GLWA's water residential assistance program (WRAP). Additionally, DWSD funds a budget reserve, per the bond ordinance, to cover shortfalls in retail collections. The significant portion of annual revenue derived from Detroit retail operations remains a key credit challenge that could affect debt service coverage and liquidity. However, in conjunction with GLWA's commitment to manageable revenue requirement increases, DWSD's efforts should limit growth in delinquent retail accounts, especially if moderate economic growth continues.

Fiscal 2019 marked GLWA's third full year in operation. Over the three years the water system's net revenues have provided an average of 1.55x coverage of annual debt service, inclusive of senior lien, second lien, and junior lien revenue debt. Sewer net revenue averaged a slightly lower 1.26x coverage for the same period. Pro forma projections through fiscal 2025 forecast stable coverage levels throughout (see exhibit 3). The projections do not include additional borrowing until 2023, with the exception of a relatively modest amount of subordinate state loans that have already been approved. Additional assumptions include wholesale charges and retail rate increases of 3% annually.

Exhibit 3

Debt service coverage for both systems are projected to remain stable



*Projected

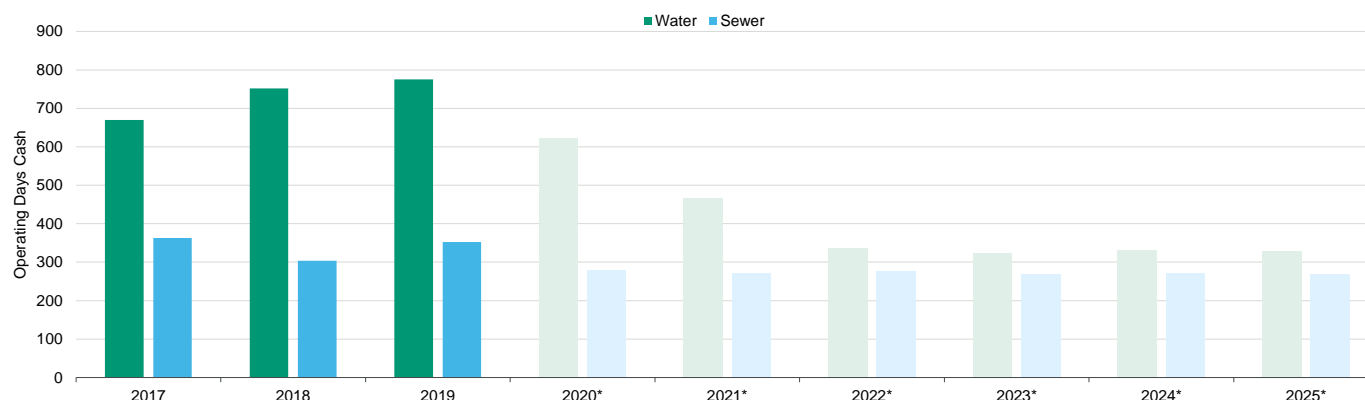
Sources: Great Lakes Water Authority audited financial statements and pro forma projections

Per the master bond ordinance, net revenue includes all money collected from the regional wholesale and local retail water customer payments deposited to a lockbox administered by a third-party trustee. O&M expenses are defined as cash transfers made to the GLWA's and DWSD's respective operation and maintenance funds. The revenue and O&M expenses related to GLWA is reported in its segregated business funds while the revenues and expenses of DWSD are accounted for in Detroit's water and sewer funds, respectively. The bifurcated accounting requires adjustments from reported figures in order to assess coverage under the master bond ordinance.

LIQUIDITY

System liquidity is strong in both enterprise funds and will remain so despite planned spending for capital investments. At the close of fiscal 2019 the water fund had an unrestricted cash and investment balance of \$347.2 million, equivalent to 775 days of water system O&M. The sewer fund had an unrestricted cash and investment balance of \$236.1 million, equivalent to 352 days of sewer system O&M. The two funds also has significant restricted cash assets held for budget stabilization, debt service, and capital. The authority anticipates the water fund and sewer fund will maintain cash at or above \$160 million and \$200 million, respectively through 2025. Each fund plans to use a portion of its cash reserves over the next several years for pay-go capital. This includes roughly \$440 million in pay-go funding for the water system, and \$480 million for the sewer system.

Exhibit 4

System liquidity will remain robust despite planned use of cash for pay-go capital

*Projected

Sources: Great Lakes Water Authority audited financial statements and pro forma projections

Debt and legal covenants: high debt burden could moderate with sustained revenue growth

Leverage of pledged water and sewer revenue is high. The authority is preparing to sell a total of \$80 million in water supply system revenue bonds to finance upgrades to the local system. Additionally, GLWA will be refunding approximately \$390 million in outstanding water revenue debt, and \$740 million of sewer revenue debt that is expected to yield significant savings, and in turn improve future net revenue coverage of annual debt service. Following the issuance of upcoming bonds, both the water and sewer systems' long-term debt leverage across all liens will stand at above average 5.7x fiscal 2019 operating revenue.

Additional capital needs through 2025 include roughly \$1 billion in projects for the water system and \$870 million for the sewer system. In addition to financing these improvements with reserves and surplus revenue, GLWA plans to issue approximately \$450 million in water system revenue bonds and \$255 million in sewer system revenue bonds over the next five years. GLWA's capital improvement plan (CIP) also projects taking on roughly \$275 million in state revolving fund loans. The increase in debt for both systems will be somewhat offset by the amount paid down over the next five years. While we expect each system's debt burden will remain high, sustained revenue growth would make leverage less of a credit challenge going forward.

The authority helps to finance capital projects undertaken in the local systems by issuing bonds on behalf of DWSD. The DWSD owed debt is accounted for as a contractual obligation receivable due to GLWA. Proportional allocation of debt was agreed upon and settled by the memorandum of understanding (MOU) dated June 27, 2018.

DEBT STRUCTURE

Inclusive of the upcoming revenue bond sales, GLWA will have \$1.6 billion of senior lien water revenue bonds, \$712 million of second lien water revenue bonds, and \$79.5 million of junior lien state revolving fund (SRF) loans outstanding. The sewer system is responsible for \$1.8 billion of senior lien sewer revenue bonds, \$745 million of second lien sewer revenue bonds, and \$494 million junior lien state revolving fund (SRF) loans.

All water revenue debt of GLWA is fixed rate. With the exception of the outstanding Series 2006D senior lien bonds, all debt paid from net sewer revenue is fixed rate. The Series 2006D bonds are floating rate notes and make up a modest 8% of total debt paid by sewer revenue.

Legal covenants applied to both systems' revenue debt are equal to one another. GLWA's rate covenant requires net revenue coverage of debt service equal to 120% for senior lien bonds, 110% for second lien bonds, and 100% for any subordinate lien debt. Senior and second lien bonds benefit from debt service reserve funds (DSRF) sized at lessor of the standard three-prong test. As of July 1, 2019, only a modest percentage of each system's senior and second lien DSRF requirements were satisfied with cash. The balances of each are satisfied with various surety or insurance policies.

DEBT-RELATED DERIVATIVES

GLWA is not party to any derivative agreements associated with its pledge of net water or sewer revenue.

PENSIONS AND OPEB

Current employees of GLWA are participants in a defined contribution benefit plan, though many are scheduled to receive accrued pension benefits from the City of Detroit's frozen defined benefit General Retirement System (GRS). Pursuant to the City of Detroit's bankruptcy settlement, GLWA will contribute \$45.4 million annually to GRS through fiscal 2023 to accelerate amortization of the GRS unfunded liability associated with GLWA employees. Less than half of the annual GRS payment is considered O&M and senior to debt service.

Beyond 2023, GLWA's payments to GRS will be based on the actuarial needs of the plan and sized to amortize any unfunded liability associated with GLWA employees. GLWA makes no payments toward accrued retiree healthcare liabilities as the City of Detroit's bankruptcy settlement eliminated those benefits. GLWA established a new defined contribution retiree healthcare savings plan, resulting in no potential unfunded liability.

ESG considerations**ENVIRONMENT**

Environmental considerations play a major factor in the credit profile of both utility systems operated by GLWA. The water system benefits greatly from its readily available access to a vast amount of relatively easily treatable fresh water. The sewer system includes one of the largest single site wastewater treatment plants in the world and treated water discharged from the plant is often cleaner than the surrounding water in the receiving body. Both systems are subject to extensive regulation pursuant to the federal Clean Water Act, the Clean Air Act, the Michigan Natural Resources and Environmental Protection Act, and various administrative rules and regulations. The authority is in material compliance with all existing permits relating to the operation of the regional water and sewer systems.

SOCIAL

Social considerations are a major factor in each system's credit profile. Charge structure adjustments and payment assistance to low-income retail customers should support revenue stability. Additionally, the number of wholesale model contracts entered into points to increased regional collaboration.

GOVERNANCE

Great Lakes Water Authority is governed by a six-member board. While the DWSD retains ownership of all water and sewer enterprise assets throughout the city and suburban service area, it has leased the majority of those assets to GLWA. The authority manages the suburban service territory, while DWSD, as an agent of the GLWA, will continue to manage the retail system in the City of Detroit, including identification of repairs and capital improvements. The current lease term is 40 years, with an option to renew and extend. Crucially, the lease will automatically extend to correspond with scheduled repayment of newly issued revenue debt. Via master bond ordinance, GLWA has assumed all debt obligations previously issued by the City of Detroit and previously secured by DWSD revenue. Pursuant to the lease, the City of Detroit has irrevocably assigned its right, title and interest in all revenue of the sewer and water enterprises to the GLWA. Payments from retail customers within the City of Detroit are deposited directly with the bond trustee.

The board has full authority to set service charges on municipal customers. Rates charged to retail customers in the City of Detroit will be established by the city's Board of Water Commissioners pursuant to an agency agreement with GLWA. A shared services agreement grants the GLWA board the ability to override the city's authority of retail rates and collections should the city not make adjustments sufficient to meet annual revenue requirements. All wholesale customers retain responsibility for levying local charges sufficient to cover costs charged by the GLWA. Pursuant to the memorandum of understanding between GLWA and the DWSD, GLWA assumes an annual increase of not more than 4% in the revenue requirements through fiscal 2025.

The DWSD was under federal court oversight from May 6, 1977 until March 23, 2013. Strategic improvements that began under federal court oversight, and continued thereafter, accelerated once the current management team took control of the DWSD in 2012. That same management team remains in place at GLWA. The management of GLWA has made strides in enhancing operational efficiencies and regional cooperations since its formation. To that end GLWA dramatically right-sized its workforce, reducing full time employees

by over 1,000 over the past several years. Additionally, since system capacity exceeds demand, management has de-rated parts of its treatment plants. This allows the each system to reduce capital costs while preserving flexibility to put the facilities back to use.

© 2020 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. AND/OR ITS CREDIT RATINGS AFFILIATES ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S INVESTORS SERVICE DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S INVESTORS SERVICE CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER. ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing its Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from \$1,000 to approximately \$2,700,000. MCO and Moody's investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY125,000 to approximately JPY250,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

RatingsDirect®

Great Lakes Water Authority, Michigan; Water/Sewer

Primary Credit Analyst:

Scott D Garrigan, New York (1) 312-233-7014; scott.garrigan@spglobal.com

Secondary Contact:

Gregory Dziubinski, Chicago + 1 (312) 233 7085; gregory.dziubinski@spglobal.com

Table Of Contents

Rationale

Stable Two-Year Outlook

Credit Opinion

Great Lakes Water Authority, Michigan; Water/Sewer

Credit Profile

US\$324.305 mil wtr supply sys rev (Rfdg Sr Ln Bnds) ser 2020C due 07/01/2050		
<i>Long Term Rating</i>	AA-/Stable	New
US\$47.0 mil wtr supply sys rev (Rfdg 2nd Ln Bnds) ser 2020D due 07/01/2050		
<i>Long Term Rating</i>	A+/Stable	New
US\$40.0 mil wtr supply sys rev (2nd Ln Bnds) ser 2020B due 07/01/2050		
<i>Long Term Rating</i>	A+/Stable	New
US\$40.0 mil wtr supply sys rev (Sr Ln Bnds) ser 2020A due 07/01/2050		
<i>Long Term Rating</i>	AA-/Stable	New
Great Lakes Wtr Auth wtr (2nd lien)		
<i>Long Term Rating</i>	A+/Stable	Affirmed

Rationale

S&P Global Ratings has assigned its 'AA-' rating to the Great Lakes Water Authority, Mich.'s (GLWA) series 2020A and B water supply system revenue senior-lien bonds, its 'AA-' rating to GLWA's series 2020C water supply system revenue refunding senior-lien bonds, and its 'A+' rating to the authority's series 2020D water supply system revenue refunding second-lien bonds. We have also affirmed our 'AA-' ratings on the authority's existing senior-lien bonds and our 'A+' rating on its existing second-lien bonds. The outlook is stable.

The ratings reflect the application of our wholesale utility criteria following a system approach since GLWA has, in our view, additional financial strengths that could be used to support debt payments if a single participant does not fulfil its payment obligations. These strengths include pledged reserves and unrestricted liquidity available at the wholesaler GLWA level, the ability to adjust revenue requirements to participants as its cost structure changes, and strong management policies related to both the regional and local Detroit systems. The fact that GLWA's service base is large and serves a large percentage of the state's population also supports our view that the ratings should reflect that diversity, with overall economic considerations playing a more prominent role in the credit analysis.

We believe the system's revenue source is unlikely to result in materially delayed collections or significant revenue volatility in the current environment related to COVID-19. While we continue to monitor these events, we do not currently expect it to affect GLWA's ability to maintain budgetary balance and pay debt service costs. For more information, see our article, "COVID-19's Potential Effects In U.S. Public Finance Vary By Sector" (published March 5, 2020 on RatingsDirect).

Credit overview

Also supporting the rating at its current level are the following:

- Oversight through an agency relationship and cooperation with the Detroit Water and Sewer Department (DWSD)

and its governing Board of Water Commissioners that we view as strong and supportive of credit quality. Because of Detroit's economy that we view as very weak and historical collections and bad debt issues, we view both the existence and continuation of these functions as key to the maintenance of the rating at its current level.

- Overall management and governance functions that we also view as supportive of credit quality at the current rating level. GLWA management maintains active communication with both the DWSD retail system and its wholesale customers and has a comprehensive set of internal policies related to, among other things, maintenance of certain financial targets, key performance indicators for both financial and operational metrics, and internal controls.
- Actual financial performance has continued to meet expectations from prior feasibility studies. Now that GLWA has three full fiscal years (2017-2019) of operating as a separate entity from DWSD, and that the effects of various reconciliations and adjustments related to the separation are continuing to decline, we would expect that future variances to the feasibility studies may continue this trend. Given GLWA's comprehensive budgeting practices and strong budgetary oversight of DWSD's operations, we would expect that future financial performance should be largely consistent with the most current projections.
- GLWA is not under any regulatory-driven capital costs from consent orders or decrees. While we view the GLWA system as highly leveraged, the fact that all of the capital improvement plan (CIP) is forward-looking and not mostly being used to cure regulatory infractions is a key credit strength that is supportive of the current rating level.
- Limited future exposure to pension cost escalation from legacy Detroit obligations resulting from prior bankruptcy negotiations. It is our understanding that after the 2023 fiscal year, both GLWA and DWSD pension costs related to legacy pension plans will drop from a total for both water and sewer systems of \$45.4 million (which is a mandated contribution based on Detroit's bankruptcy plan of adjustment) to what is currently projected to be no more than \$7.3 million. These additional payments would be used to retire the remaining unfunded liability from the closed/legacy pension plans that has arisen after the original payments were determined in 2014.
- It has a diverse revenue stream from a large number of wholesale customers.
- Revenues from both wholesale customers and the DWSD retail system that are mostly fixed, which, in our view, significantly insulate GLWA's financial performance from volatility caused by weather and flow variances.

Offsetting these strengths is Detroit's economy, which we consider very weak and which could continue to place downward pressure on utility collection rates in the city, and high system leverage, that we do not believe will abate significantly at least over the two-year outlook horizon.

Stable Two-Year Outlook

The stable outlook reflects our opinion that the rating should not change, at least over the two-year outlook horizon, due to several factors, including the following:

- Our expectation that the water supply system's financial metrics should remain at levels generally consistent with current projections due to GLWA's charge structure that provides a large amount of revenue stability;
- DWSD revenue variances should remain low, given both GLWA's and DWSD's continued efforts to improve collections; and
- Exposure to a large service base that extends beyond the boundaries of the immediate Detroit area, which should help continue to support stable usage trends.

Downside scenario

If economic stress or cost escalations lead to financial results measurably worse than that GLWA currently projects in its current feasibility study, then it could weaken either the outlook, the rating, or both.

Upside scenario

While possible, we currently do not expect to raise the rating in the foreseeable future, absent both financial performance well above what current projections indicate and economic indicators for Detroit that show significant improvement. We believe that both current and projected financial performance and service base characteristics are consistent with the current rating level.

Credit Opinion

Details of legal framework relevant to the credit rating

The bonds are secured by a statutory lien on pledged assets of the system, prioritized by the lien status, which include net revenues of GLWA's sewage disposal system, along with investments credited to the water system and earnings on those investments. The net revenue pledge is constituted from gross revenues of the DWSD retail and the GLWA regional systems, which cover both systems' operating and maintenance (O&M) expenses. A rate covenant stipulates that the GLWA board set rates to produce at least 1.2x coverage of senior-lien debt, 1.1x for second-lien bonds, and 1x for junior-lien bonds. The ability to issue additional bonds exists if net revenues for the previous fiscal year, or net revenues adjusted by approved rate increases and system expansion for the current or next fiscal year, produce coverage of maximum annual debt service (MADS; including the proposed bonds) of at least those levels indicated in the rate covenant for the particular liens.

There is also a debt service reserve (DSR) for senior-lien bonds equal to MADS or the lesser of the standard three-prong test, and for second-lien bonds equal to average annual debt service or the lesser of the three-prong test. On achieving approval from at least 51% of senior- and second-lien bondholders and having appropriate senior-lien ratings from two credit rating agencies no lower than 'AA-' or the equivalent, GLWA, through amendments to the master bond ordinance, has the option to eliminate this reserve requirement on its outstanding and future bonds on any lien for which approval has been granted. If this proposed amendment is approved, we currently view the effects as credit neutral; however, we consider the existence of DSRs as a credit strength to additionally offset any negative revenue variances from the Detroit retail customer class. While we understand the process in the MOU is designed to eliminate these negative variances, we view the existence of the sizable DSRs as additional credit protections given what we view to be the uncertainties related to the economic conditions in Detroit. At the fiscal year ended June 30, 2019, the senior-lien DSR totaled \$122.9 million and the second-plus junior-lien DSRs totaled \$50.9 million; DSR investments consist of cash, securities, and sureties. To date, GLWA has achieved bondholder approval for the above-mentioned amendment from about 34% and over 51% of senior- and second-lien bondholders, respectively.

The statutory lien on pledged assets is well established by state statute under Act 94 of 1933 (as amended).

Under the GLWA master bond ordinance, U.S. Bank N.A. is the trustee.

We view the numerous oversight and control functions that GLWA has over Detroit's retail system as supportive of

both the overall legal framework and the ability of the GLWA regional system to help make the net revenues originating from Detroit's local system more predictable. This, in turn, results in an analysis that focuses more on this framework as opposed to one that benchmarks the rating specifically on our view of DWSD's creditworthiness. The primary three documents that place parameters around this operating relationship between the two entities are the water and sewer lease agreements, and both a service agreement and MOU between GLWA and the Detroit retail system.

The major provisions of both lease agreements that we view as supportive of the overall legal and operational framework include the following:

- Explicit language that requires all revenues collected by Detroit be held in segregated accounts in trust and remitted within five days of receipt to a trustee-held pledged revenue account under the master bond ordinance.
- Requirements that both GLWA and Detroit retail maintain a biennial budget and a five-year CIP.
- In consideration of a lease payment from GLWA for use by the Detroit local system, the use of those funds are restricted to either repayment of debt or capital projects.
- GLWA has the exclusive and direct right to establish all rates and charges, including the retail users within Detroit (although through the service agreement, GLWA delegates its right to set rates to DWSD).
- All vendor and employee contracts related to GLWA operations are assigned to the authority.

The major provisions of the service agreement and MOU that we view as supportive of the overall legal and operational framework include the following:

- If certain performance standards are not met, GLWA can revoke its appointment of Detroit as its agent for collections of revenue requirements.
- GLWA will set revenue requirements for DWSD that are related to the costs for providing services, and, in turn, Detroit will set retail rates in a fashion that meets GLWA's revenue requirement.
- The procedure for resolution of budget shortfalls, as previously mentioned.
- All responsibilities for discharge permit and other environmental compliance requirements are explicitly allocated between Detroit retail and GLWA.
- DWSD is required to submit periodic budget and operational reporting requirements to GLWA and discuss these results at a Reconciliation Committee, which is also the initial mechanism to develop a plan for DWSD to cure any budget shortfalls it experiences.
- The service agreement has an explicit mechanism for dispute resolution.

Economic conditions and customer base

GLWA's water system serves a large population of about 3.8 million across Wayne, Washtenaw, St. Clair, Oakland, Monroe, Macomb, Lapeer, and Genesee counties, covering about 38% of Michigan's population.

We consider Detroit's economy very weak, but the revenue base for both water and sewer is well diversified geographically beyond the city limits. The large amount of inactive accounts in Detroit exacerbates the need for ongoing collection efforts and could affect the large amount of accounts receivable. Management is actively working to

lower its uncollectible accounts, but 48% of Detroit retail accounts are inactive, which we view as a significant number. We note, however, that collections efforts have increased, in our view, since GLWA was formed in 2016, including the introduction of payment plans and GLWA's water residential assistance program (WRAP) for low-income residents.

Looking at the metropolitan area as a whole, however, average economic indicators are much better, with median household effective buying income at about 100% of the U.S. average, and according to the U.S. Bureau of Labor Statistics, the city of Detroit's annual average unemployment rate was under 10% for 2017, the first time since 2001, and was 9.0% for 2018. We believe the metrics for a regional utility indicate a better overall economic base for the service area than looking at the city's economic indicators alone.

A weakening of economic metrics could weaken the credit rating, especially if this were to occur on a more regional scale. A general regional weakening economy would lessen the positive effects that the more diversified revenue and customer base has had on the rating profile.

GLWA charge structure and collection issues

The implementation of model contracts and moving wholesale customers' revenue requirements to a higher level of fixed-cost recovery, is, in our view, a credit strength because it will help prevent revenue fluctuations based solely on metered flow and will help stabilize revenue collections; GLWA's water rate structure has 60% fixed and 40% variable rate components. Management has also maintained a wholesale customer outreach program since 1997.

Management is committed to moderate annual rate increases intended to produce a 4% increase in overall annual revenues, instead of the wide swings in rates in the past. We understand it is hoping to achieve this through implementation of fixed-cost recovery, continued cost reductions, labor force reductions, and the use of cash for capital when appropriate.

A credit weakness is the large amount of past due and inactive accounts in Detroit. DWSD management has a dedicated shut-off program that has been implemented by an outside contractor, although meaningful results will take time, in our view. One benchmark we will look at involves overall budget variances for the DWSD local system as one indication of the progress DWSD is making on collection efforts. GLWA's WRAP is designed to both provide bill assistance and arrange for household water audits to all qualified residents within municipalities that have adopted it (currently including Detroit).

Finances and liquidity

The historical DWSD financial performance has been somewhat volatile, in our view, due primarily to changes in billed versus budgeted volumes and exacerbated by economic stress. Still, in recent years, each system has been able to generate net revenues that cover fixed costs by at least 1x.

For GLWA, our fixed-charge coverage analysis generally follows the presentation in GLWA's master bond ordinance calculation for junior-lien debt service coverage, with additional revenue offsets due to pension payments made to Detroit for its frozen general retirement system expenses and additional fixed costs due to pension note payments made to Detroit for its B and C note payments. Our calculation focuses on how net revenues are covering all of GLWA's fixed costs instead of reporting coverage based on master bond ordinance definitions of operating and nonoperating expenses. We generally view the historical fixed-charge coverage as adequate to good, with the

expectation that coverage will remain relatively steady and generally consistent with recent trends due to the implementation of fixed-cost recovery rates and various management initiatives.

Liquidity of the system has fluctuated, but has generally stayed at levels we would consider good. Projections show a steady unrestricted liquidity position of about \$165 million-\$175 million for the foreseeable future, which takes into account operating reserves, budget stabilization, emergency repair, and improvement and extension fund balances. Because the master bond ordinance allows for any monies in these funds to be used for either O&M expense requirements or debt service shortfalls, we view them as unrestricted liquidity.

Capital and debt

The size and scope of the CIP are credit neutral. We expect that capital costs will continue to be distributed between Detroit's retail system and the regional system as appropriate, and in a manner consistent with the lease and service agreements' allocate costs.

The water system is highly leveraged. We do not expect this condition to abate in the near term and generally view the debt profile as a credit weakness. Total debt service from all revenue bonds and state revolving fund loans currently represents about 100% of O&M expenses, and we do not see this number falling significantly in the near future since additional debt is layered in to fund the CIP.

Ratings Detail (As Of March 16, 2020)

Great Lakes Wtr Auth wtr supply sys rev rfdg (2nd lien bnds) ser 2005-D due 07/01/2029		
Long Term Rating	NR	
Great Lakes Wtr Auth wtr supp sys rev (Sr Lien) ser 1997-A dtd 08/01/1997 due 07/01/1999-2017 2021 2027		
Unenhanced Rating	NR(SPUR)	
Great Lakes Wtr Auth wtr supp sys 2nd lien rfdg bnds ser 2001 C&D dtd 04/01/2001 due 07/01/2033		
Long Term Rating	NR	
Great Lakes Wtr Auth wtr (BAM) (SECMKT)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth wtr (BAM) (SECMKT)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth wtr (BAM) (SECMKT)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth wtr (Sr lien)		
Long Term Rating	AA-/Stable	Affirmed
Great Lakes Wtr Auth wtr (Sr lien)		
Long Term Rating	AA-/Stable	Affirmed
Great Lakes Wtr Auth wtr (Sr lien)		
Long Term Rating	AA-/Stable	Affirmed
Great Lakes Wtr Auth wtr (Sr lien) (AGM)		
Unenhanced Rating	AA-(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth wtr (Sr lien) (MBIA) (National)		
Unenhanced Rating	NR(SPUR)	

Ratings Detail (As Of March 16, 2020) (cont.)

Great Lakes Wtr Auth wtr (Sr lien) (National) (MBIA)		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth wtr (Sr lien) 2005B (BHAC)		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth wtr (Sr Lien)		
<i>Long Term Rating</i>	AA-/Stable	Affirmed
Great Lakes Wtr Auth wtr (2nd lien) (wrap of insured) (AGM & BHAC) (SEC MKT)		
<i>Unenhanced Rating</i>	NR(SPUR)	
Great Lakes Wtr Auth wtr (2nd lien) (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth wtr (2nd lien) (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth wtr (2nd lien) (MBIA)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Great Lakes Wtr Auth wtr (2nd lien) (MBIA) (National)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Michigan Fin Auth, Michigan		
Great Lakes Wtr Auth, Michigan		
Michigan Fin Auth (Great Lakes Wtr Auth) wtr		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) wtr (AGM)		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) wtr (BAM) (SECMKT)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) wtr (National)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR		
<i>Long Term Rating</i>	AA-/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR		
<i>Long Term Rating</i>	A+/Stable	Affirmed
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR (AGM)		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Affirmed

Many issues are enhanced by bond insurance.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

No content (including ratings, credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of Standard & Poor's Financial Services LLC or its affiliates (collectively, S&P). The Content shall not be used for any unlawful or unauthorized purposes. S&P and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for the results obtained from the use of the Content, or for the security or maintenance of any data input by the user. The Content is provided on an "as is" basis. S&P PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence) in connection with any use of the Content even if advised of the possibility of such damages.

Credit-related and other analyses, including ratings, and statements in the Content are statements of opinion as of the date they are expressed and not statements of fact. S&P's opinions, analyses and rating acknowledgment decisions (described below) are not recommendations to purchase, hold, or sell any securities or to make any investment decisions, and do not address the suitability of any security. S&P assumes no obligation to update the Content following publication in any form or format. The Content should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. S&P does not act as a fiduciary or an investment advisor except where registered as such. While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives. Rating-related publications may be published for a variety of reasons that are not necessarily dependent on action by rating committees, including, but not limited to, the publication of a periodic update on a credit rating and related analyses.

To the extent that regulatory authorities allow a rating agency to acknowledge in one jurisdiction a rating issued in another jurisdiction for certain regulatory purposes, S&P reserves the right to assign, withdraw or suspend such acknowledgment at any time and in its sole discretion. S&P Parties disclaim any duty whatsoever arising out of the assignment, withdrawal or suspension of an acknowledgment as well as any liability for any damage alleged to have been suffered on account thereof.

S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

S&P may receive compensation for its ratings and certain analyses, normally from issuers or underwriters of securities or from obligors. S&P reserves the right to disseminate its opinions and analyses. S&P's public ratings and analyses are made available on its Web sites, www.standardandpoors.com (free of charge), and www.ratingsdirect.com (subscription), and may be distributed through other means, including via S&P publications and third-party redistributors. Additional information about our ratings fees is available at www.standardandpoors.com/usratingsfees.

STANDARD & POOR'S, S&P and RATINGSDIRECT are registered trademarks of Standard & Poor's Financial Services LLC.

RatingsDirect®

Great Lakes Water Authority, Michigan; Water/Sewer

Primary Credit Analyst:

Scott D Garrigan, New York (1) 312-233-7014; scott.garrigan@spglobal.com

Secondary Contact:

Gregory Dziubinski, Chicago + 1 (312) 233 7085; gregory.dziubinski@spglobal.com

Table Of Contents

Rating Action

Stable Two-Year Outlook

Credit Opinion

Great Lakes Water Authority, Michigan; Water/Sewer

Credit Profile

US\$536.09 mil swg disp sys rev (Rfdg Sr Ln Bnds) ser 2020A due 07/01/2050		
<i>Long Term Rating</i>	AA-/Stable	New
US\$160.375 mil swg disp sys rev (Rfdg 2nd Ln Bnds) ser 2020B due 07/01/2050		
<i>Long Term Rating</i>	A+/Stable	New
Great Lakes Wtr Auth swg (Sr lien)		
<i>Long Term Rating</i>	AA-/Stable	Upgraded
Great Lakes Wtr Auth swg (2nd lien)		
<i>Long Term Rating</i>	A+/Stable	Upgraded

Rating Action

S&P Global Ratings has assigned its 'AA-' rating to the Great Lakes Water Authority, Mich.'s (GLWA) series 2020A sewage disposal system revenue refunding bonds senior lien and its 'A+' rating to GLWA's series 2020B sewage disposal system revenue refunding second-lien bonds. We have also raised our ratings on the authority's existing senior-lien bonds to 'AA-' from 'A+' and its existing second-lien bonds to 'A+' from 'A'. The outlook is stable.

The upgrade reflects resolution of negative revenue variances from the Detroit Water and Sewer Department (DWSD) local sewer system during the 2018 fiscal year that totaled about \$19.8 million. While future variances could occur, GLWA and DWSD implemented--through a Memorandum of Understanding (MOU) agreed to in 2018--a process to cure any DWSD cumulative negative budgetary variance of more than 2% by repaying the shortfall to GLWA in annual installments over a period not to exceed three years with an additional surcharge based off the U.S. Treasury rate plus 150 basis points. We view this as an important credit factor because GLWA's overall sewage disposal revenue requirements for all of its customer classes are designed to be fixed. Resolving this negative variance, in our view, provides additional certainty that revenue variances from the Detroit retail customer class will be made up in a timely manner. Accumulated shortfalls through 2018 are being amortized over the period ending in the 2022 fiscal year.

The ratings reflect the application of our wholesale utility criteria following a system approach since GLWA has, in our view, additional financial strengths that could be used to support debt payments if a single participant does not fulfil its payment obligations. These strengths include pledged reserves and unrestricted liquidity available at the wholesaler GLWA level, the ability to adjust revenue requirements to participants as its cost structure changes, and strong management policies related to both the regional and the local Detroit systems. The fact that GLWA's service base is large and serves a large percentage of the state's population also supports our view that the ratings should reflect that diversity, with overall economic considerations playing a more prominent role in the credit analysis.

We believe the system's revenue source is unlikely to result in materially delayed collections or significant revenue volatility in the current environment related to COVID-19. While we continue to monitor these events, we do not

presently expect it to affect GLWA's ability to maintain budgetary balance and pay debt service costs. For more information, see our article, "COVID-19's Potential Effects In U.S. Public Finance Vary By Sector" (published March 5, 2020 on RatingsDirect).

Credit overview

Also supporting the rating at its current level are the following:

- Oversight through an agency relationship and cooperation with DWSD and its governing Board of Water Commissioners that we view as strong and supportive of credit quality. Because of Detroit's economy that we view as very weak and historical collections and bad debt issues, we view both the existence and continuation of these functions as key to the maintenance of the rating at its current level.
- Overall management and governance functions that we also view as supportive of credit quality at the current rating level. GLWA management maintains active communication with both the DWSD retail system and its wholesale customers and has a comprehensive set of internal policies related to, among other things, maintenance of certain financial targets, key performance indicators for both financial and operational metrics, and internal controls.
- Actual financial performance has continued to meet expectations from prior feasibility studies. Now that GLWA has three full fiscal years (2017-2019) of operating as a separate entity from DWSD, and that the effect of various reconciliations and adjustments related to the separation is continuing to decline, we would expect that future variances to the feasibility studies may continue this trend. Given GLWA's comprehensive budgeting practices and strong budgetary oversight of DWSD's operations, we would expect that future financial performance should be largely consistent with the most current projections.
- GLWA is not under any regulatory-driven capital costs from consent orders or decrees. While we view the GLWA system as highly leveraged, the fact that all of the capital improvement plan (CIP) is forward-looking and not mostly being used to cure regulatory infractions is a key credit strength that is supportive of the current rating level.
- Limited future exposure to pension cost escalation from legacy Detroit obligations resulting from prior bankruptcy negotiations. It is our understanding that after the 2023 fiscal year, both GLWA and DWSD pension costs related to legacy pension plans will drop from a total for both water and sewer systems of \$45.4 million (which is a mandated contribution based on Detroit's bankruptcy plan of adjustment) to what is currently projected to be no more than \$7.3 million. These additional payments would be used to retire the remaining unfunded liability from the closed/legacy pension plans that has arisen after the original payments were determined in 2014.
- It has a diverse revenue stream from a large number of wholesale customers.
- Revenues from both wholesale customers and the DWSD retail system that are mostly fixed, which, in our view, significantly insulate GLWA's financial performance from volatility caused by weather and flow variances.

Offsetting these strengths is Detroit's economy, which we consider very weak and which could continue to place downward pressure on utility collection rates in the city, and high system leverage that we do not believe will abate significantly at least over the two-year outlook horizon.

Stable Two-Year Outlook

The stable outlook reflects our opinion that the rating should not change, at least over the two-year outlook horizon, due to several factors, including the following:

- Our expectation that the sewage disposal system's financial metrics should remain at levels generally consistent with current projections due to GLWA's charge structure that provides a large amount of revenue stability;
- DWSD revenue variances should remain low, given both GLWA's and DWSD's continued efforts to improve collections; and
- Exposure to a large service base that extends beyond the boundaries of the immediate Detroit area, which should help continue to support stable usage trends.

Downside scenario

If economic stress or cost escalations lead to financial results measurably worse than that GLWA currently projects in its current feasibility study, this could then weaken either the outlook, the rating, or both.

Upside scenario

While possible, we currently do not expect to raise the rating in the foreseeable future, absent both financial performance well above what current projections indicate and economic indicators for Detroit that show significant improvement. We believe that both current and projected financial performance and service base characteristics are consistent with the current rating level.

Credit Opinion

Details of legal framework relevant to the credit rating

The bonds are secured by a statutory lien on pledged assets of the system, prioritized by the lien status, which include net revenues of GLWA's sewage disposal system, along with investments credited to the sewer system and earnings on those investments. The net revenue pledge is constituted from gross revenues of the DWSD retail and the GLWA regional systems, which cover both systems' operating and maintenance (O&M) expenses. A rate covenant stipulates that the GLWA board set rates to produce at least 1.2x coverage of senior-lien debt, 1.1x for second-lien bonds, and 1x for junior-lien bonds. The ability to issue additional bonds exists if net revenues for the previous fiscal year or net revenues adjusted by approved rate increases and system expansion for the current or next fiscal year, produce coverage of maximum annual debt service (MADS; including the proposed bonds) of at least those levels indicated in the rate covenant for the particular liens.

There is also a debt service reserve (DSR) for senior-lien bonds equal to MADS or the lesser of the standard three-prong test, and for second-lien bonds equal to average annual debt service or the lesser of the three-prong test. On achieving approval from at least 51% of senior- and second-lien bondholders and having appropriate senior-lien ratings from two credit rating agencies no lower than 'AA-' or the equivalent, GLWA, through amendments to the master bond ordinance, has the option to eliminate this reserve requirement on its outstanding and future bonds on any lien for which approval has been granted. If this proposed amendment is approved, we currently view the effects as credit neutral; however, we consider the existence of DSRs as a credit strength to additionally offset any negative revenue variances from the Detroit retail customer class. While we understand the process in the MOU is designed to eliminate these negative variances, we view the existence of the sizable DSRs as additional credit protections given what we view to be the uncertainties related to the economic conditions in Detroit. At the fiscal year ended June 30, 2019, the senior-lien DSR totaled \$128.6 million and the second-plus junior-lien DSRs totaled \$74.2 million; DSR

investments consist of cash, securities, and sureties. To date, GLWA has achieved bondholder approval for the above-mentioned amendment from about 21% and over 40% of senior- and second-lien bondholders, respectively.

The statutory lien on pledged assets is well established by state statute under Act 94 of 1933 (as amended).

Under the GLWA master bond ordinance, U.S. Bank N.A. is the trustee.

We view the numerous oversight and control functions that GLWA has over Detroit's retail system as supportive of both the overall legal framework and the ability of the GLWA regional system to help make the net revenues originating from Detroit's local system more predictable. This, in turn, results in an analysis that focuses more on this framework as opposed to one that benchmarks the rating specifically on our view of DWSD's creditworthiness. The primary three documents that place parameters around this operating relationship between the two entities are the water and sewer lease agreements, and both a service agreement and MOU between GLWA and the Detroit retail system.

The major provisions of both lease agreements that we view as supportive of the overall legal and operational framework include the following:

- Explicit language that requires all revenues collected by Detroit be held in segregated accounts in trust and remitted within five days of receipt to a trustee-held pledged revenue account under the master bond ordinance.
- Requirements that both GLWA and Detroit retail maintain a biennial budget and a five-year CIP.
- In consideration of a lease payment from GLWA for use by the Detroit local system, the use of those funds are restricted to either repayment of debt or capital projects.
- GLWA has the exclusive and direct right to establish all rates and charges, including the retail users within Detroit (although through the service agreement, GLWA delegates its right to set rates to DWSD).
- All vendor and employee contracts related to GLWA operations are assigned to the authority.

The major provisions of the service agreement and MOU that we view as supportive of the overall legal and operational framework include the following:

- If certain performance standards are not met, GLWA can revoke its appointment of Detroit as its agent for collections of revenue requirements.
- GLWA will set revenue requirements for DWSD that are related to the costs for providing services, and, in turn, Detroit will set retail rates in a fashion that meets GLWA's revenue requirement.
- The procedure for resolution of budget shortfalls, as previously mentioned.
- All responsibilities for discharge permit and other environmental compliance requirements are explicitly allocated between Detroit retail and GLWA.
- DWSD is required to submit periodic budget and operational reporting requirements to GLWA and discuss these results at a Reconciliation Committee, which is also the initial mechanism to develop a plan for DWSD to cure any budget shortfalls it experiences.
- The service agreement has an explicit mechanism for dispute resolution.

Economic conditions and customer base

GLWA's sewer system serves a large population of about 2.8 million across Wayne, Oakland, and Macomb counties, which covers about 28% of Michigan's population.

We consider Detroit's economy very weak, but the revenue base for both water and sewer is well diversified geographically beyond the city limits. The large amount of inactive accounts in Detroit exacerbates the need for ongoing collection efforts and could affect the large amount of accounts receivable. Management is actively working to lower its uncollectible accounts, but 48% of Detroit retail accounts are inactive, which we view as a significant number. We note, however, that collections efforts have increased, in our view, since GLWA was formed in 2016, including the introduction of payment plans and GLWA's water residential assistance program (WRAP) for low-income residents.

Looking at the metropolitan area as a whole, however, average economic indicators are much better, with median household effective buying income at about 100% of the U.S. average, and according to the U.S. Bureau of Labor Statistics, the city of Detroit's annual average unemployment rate was under 10% for 2017, the first time since 2001, and was 9.0% for 2018. We believe the metrics for a regional utility indicate a better overall economic base for the service area than looking at the city's economic indicators alone.

A weakening of economic metrics could weaken the credit rating, especially if this were to occur on a more regional scale. A general regional weakening economy would lessen the positive effects that the more diversified revenue and customer base has had on the rating profile.

GLWA charge structure and collection issues

The implementation of model contracts and moving wholesale customers' revenue requirements to a higher level of fixed-cost recovery, is, in our view, a credit strength because it will help prevent revenue fluctuations based on metered flow and will help stabilize revenue collections. Management has also maintained a wholesale customer outreach program since 1997.

Management is committed to moderate annual rate increases intended to produce a 4% increase in overall annual revenues, instead of the wide swings in rates in the past. We understand it is hoping to achieve this through implementation of fixed-cost recovery, continued cost reductions, labor force reductions, and the use of cash for capital when appropriate.

A credit weakness is the large amount of past due and inactive accounts in Detroit. DWSD management has a dedicated shut-off program that has been implemented by an outside contractor, although meaningful results will take time, in our view. One benchmark we will look at involves overall budget variances for the DWSD local system as one indication of the progress DWSD is making on collection efforts. GLWA's WRAP is designed to both provide bill assistance and arrange for household water audits to all qualified residents within municipalities that have adopted it (which currently includes Detroit).

Finances and liquidity

The historical DWSD financial performance has been somewhat volatile, in our view, due primarily to changes in billed versus budgeted volumes and exacerbated by economic stress. Still, in recent years, each system has been able to generate net revenues that cover fixed costs by at least 1x.

For GLWA, our fixed-charge coverage analysis generally follows the presentation in GLWA's master bond ordinance calculation for junior-lien debt service coverage, with additional revenue offsets due to pension payments made to Detroit for its frozen general retirement system expenses and additional fixed costs due to pension note payments made to Detroit for its B and C note payments. Our calculation focuses on how net revenues are covering all of GLWA's fixed costs instead of reporting coverage based on master bond ordinance definitions of operating and nonoperating expenses. We generally view the historical fixed-charge coverage as adequate to good, with the expectation that coverage will remain relatively steady and generally consistent with recent trends due to the implementation of fixed-cost recovery rates and various management initiatives.

Liquidity of the system has fluctuated, but has generally stayed at levels we would consider good. Projections show a steady unrestricted liquidity position of about \$210 million-\$220 million for the foreseeable future, which takes into account operating reserves, budget stabilization, emergency repair, and improvement and extension fund balances. Because the master bond ordinance allows for any monies in these funds to be used for either O&M expense requirements or debt service shortfalls, we view them as unrestricted liquidity.

Capital and debt

The size and scope of the CIP are credit neutral. We expect that capital costs will continue to be distributed between Detroit's retail system and the regional system as appropriate, and in a manner consistent with the lease and service agreements' allocate costs.

The sewer system is highly leveraged. We do not expect this condition to abate in the near term and generally view the debt profile as a credit weakness. Total debt service from all revenue bonds and state revolving fund loans currently represents about 125% of O&M expenses, and we do not see this number falling significantly in the near future since additional debt is layered in to fund the CIP.

Ratings Detail (As Of March 16, 2020)		
Great Lakes Wtr Auth swg disp sys sr lien rev & rfdg bnds ser 2003A dtd 05/15/2003 due 07/01/2003-2026 2028 2032		
<i>Unenhanced Rating</i>	NR(SPUR)	
Great Lakes Wtr Auth swg (wrap of insured) (MBIA, National & ASSURED GTY) (SEC MKT)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth swg (Sr lien)		
<i>Long Term Rating</i>	AA-/Stable	Upgraded
Great Lakes Wtr Auth swg (Sr lien) (AGM)		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth swg (Sr lien) (AGM) (SECMKT)		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth swg (Sr lien) (FGIC) (National)		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth swg (2nd lien) (wrap of insured) (FGIC & AGM) (SEC MKT)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth swg (2nd lien) (wrap of insured) (FGIC) (MBIA) (SEC MKT) (National)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded

Ratings Detail (As Of March 16, 2020) (cont.)

Great Lakes Wtr Auth swg (2nd lien) (wrap of insured) (FGIC, AGM & BHAC) (SEC MKT)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth swg (2nd lien) (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth swg (2nd lien) (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth swg (2nd lien) (BAM) (SECMKT)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth swg (2nd lien) (BAM) (SECMKT)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth swg (2nd lien) (BHAC)		
<i>Unenhanced Rating</i>	NR(SPUR)	
Great Lakes Wtr Auth swg (2nd lien) (MBIA) (National)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth swg (2nd lien) (MBIA) (National)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth swr (wrap of insured) (FGIC) (ASSURED GTY - SEC MKT)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Great Lakes Wtr Auth WTRSWR (BHAC)		
<i>Unenhanced Rating</i>	NR(SPUR)	
Great Lakes Wtr Auth WTRSWR (National) (MBIA)		
<i>Unenhanced Rating</i>	NR(SPUR)	
Michigan Fin Auth, Michigan		
Great Lakes Wtr Auth, Michigan		
Michigan Fin Auth (Great Lakes Wtr Auth) swg		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Upgraded
Michigan Fin Auth (Great Lakes Wtr Auth) swg disposal (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Michigan Fin Auth (Great Lakes Wtr Auth) swg disposal (BAM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Michigan Fin Auth (Great Lakes Wtr Auth) swg (BAM) (SECMKT)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Michigan Fin Auth (Great Lakes Wtr Auth) swg (National)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR		
<i>Long Term Rating</i>	AA-/Stable	Upgraded
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR		
<i>Long Term Rating</i>	AA-/Stable	Upgraded
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR		
<i>Long Term Rating</i>	AA-/Stable	Upgraded
Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR		
<i>Unenhanced Rating</i>	AA-(SPUR)/Stable	Upgraded

Ratings Detail (As Of March 16, 2020) (cont.)

Michigan Fin Auth (Great Lakes Wtr Auth) WTRSWR

Long Term Rating

A+/Stable

Upgraded

Many issues are enhanced by bond insurance.

Copyright © 2020 by Standard & Poor's Financial Services LLC. All rights reserved.

No content (including ratings, credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of Standard & Poor's Financial Services LLC or its affiliates (collectively, S&P). The Content shall not be used for any unlawful or unauthorized purposes. S&P and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Content. S&P Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for the results obtained from the use of the Content, or for the security or maintenance of any data input by the user. The Content is provided on an "as is" basis. S&P PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence) in connection with any use of the Content even if advised of the possibility of such damages.

Credit-related and other analyses, including ratings, and statements in the Content are statements of opinion as of the date they are expressed and not statements of fact. S&P's opinions, analyses and rating acknowledgment decisions (described below) are not recommendations to purchase, hold, or sell any securities or to make any investment decisions, and do not address the suitability of any security. S&P assumes no obligation to update the Content following publication in any form or format. The Content should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. S&P does not act as a fiduciary or an investment advisor except where registered as such. While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives. Rating-related publications may be published for a variety of reasons that are not necessarily dependent on action by rating committees, including, but not limited to, the publication of a periodic update on a credit rating and related analyses.

To the extent that regulatory authorities allow a rating agency to acknowledge in one jurisdiction a rating issued in another jurisdiction for certain regulatory purposes, S&P reserves the right to assign, withdraw or suspend such acknowledgment at any time and in its sole discretion. S&P Parties disclaim any duty whatsoever arising out of the assignment, withdrawal or suspension of an acknowledgment as well as any liability for any damage alleged to have been suffered on account thereof.

S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process.

S&P may receive compensation for its ratings and certain analyses, normally from issuers or underwriters of securities or from obligors. S&P reserves the right to disseminate its opinions and analyses. S&P's public ratings and analyses are made available on its Web sites, www.standardandpoors.com (free of charge), and www.ratingsdirect.com (subscription), and may be distributed through other means, including via S&P publications and third-party redistributors. Additional information about our ratings fees is available at www.standardandpoors.com/usratingsfees.

STANDARD & POOR'S, S&P and RATINGSDIRECT are registered trademarks of Standard & Poor's Financial Services LLC.