



Audit Committee

Friday, July 19, 2019 at 8:00 a.m.

5th Floor Board Room, Water Board Building
735 Randolph Street, Detroit, Michigan 48226
GLWater.org

AGENDA

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF AGENDA
4. APPROVAL OF MINUTES
 - A. June 21, 2019 (Page 1)
5. PUBLIC PARTICIPATION
6. OLD BUSINESS
7. NEW BUSINESS
 - A. Series Ordinance Authorizing the Issuance of Water Supply System Revenue Bonds (Page 6)
8. REPORTS
 - A. Monthly Financial Report for April 2019 (Page 32)
 - B. PFM Financial Advisors Presentation: B&C Note History and Recent Transactions; Refinancing and New Money Opportunities in FY 2020 (Page 33)
 - C. Quarterly Debt Report as of March 31, 2019 (Page 62)
 - D. CFO Updates (verbal)
9. LOOK AHEAD
 - Next Audit Committee Meetings
 - A. Regular Meeting August 16, 2019 at 8:00 a.m.
10. INFORMATION
11. OTHER MATTERS
12. ADJOURNMENT

Note: Page 70 of the binder has been updated.



Great Lakes Water Authority

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

Meeting Minutes - Draft

Audit Committee

Friday, June 21, 2019

8:00 AM

Water Board Building 5th Floor

1. Call To Order

Chairman Daddow called the meeting to order at 8:00 a.m.

2. Quorum Call

Present: 3 - Chairman Robert Daddow, Director Brian Baker, and Director Gary Brown

Note: Director Brown's attendance via teleconference.

3. Approval of Agenda

Chairman Daddow requested a Motion to approve the Agenda.

Motion By: Brian Baker

Support: Gary Brown

Action: Approved

The motion carried by a unanimous vote.

4. Approval of Minutes

A. [2019-258](#) Minutes of May 17, 2019

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [May 17, 2019 Audit Committee Meeting Minutes.pdf](#)

Chairman Daddow requested a Motion to approve the May 17, 2019 Audit Committee Meeting Minutes.

Motion By: Brian Baker

Support By: Gary Brown

Action: Approved

The motion carried by a unanimous vote.

B. [2019-259](#) Minutes of May 29, 2019

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [May 29, 2019 Audit Committee Meeting Minutes.pdf](#)

Chairman Daddow requested a Motion to approve the May 29, 2019 Audit Committee Meeting Minutes.

Motion By: Gary Brown

Support By: Brian Baker

Action: Approved

The motion carried by a unanimous vote.

C. [2019-260](#) Minutes of June 12, 2019

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [June 12, 2019 Audit Committee Meeting Minutes.pdf](#)

Chairman Daddow requested a Motion to approve the June 12, 2019 Audit Committee Meeting Minutes.

Motion By: Brian Baker

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. [2019-261](#) WRAP Reallocation Recommendation

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [WRAP Reallocation Request 6.21.19 Audit Committee DRAFT.pdf](#)
[WRAP Reallocation Tables 2A-2B-3A-3B 6.17.19 FINAL2.pdf](#)
[Wayne Metro Reallocation Request Letter 6.14.19.pdf](#)
[FINAL WRAP WM Reallocation Request June 2019 Power Point 6.13.19 JW.pdf](#)

Motion By: Brian Baker

Support By: Gary Brown

Action: Recommended for Approval to the Board of Directors

Agenda of June 26, 2019

The motion carried by a unanimous vote.

7. New Business**A. [2019-262](#) FY 2020 State Revolving Fund (SRF) Project Plan Submittal for the Detroit Water and Sewerage Department Sewer Rehabilitation Project**

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [Audit Committee Communication DWSD SRF Project Plan 6.21.19.pdf](#)
[DWSD Notice of Public Hearing SRF FY2020 6.19.2019 FINAL.pdf](#)
[Draft Resolution Approving FY 2020 SRF Project Plan.docx](#)
[DWSD FY2020 SRF Project Plan Draft Public Comment.pdf](#)

Motion By: Gary Brown

Support By: Brian Baker

Action: Recommended for Approval to the Board of Directors

Agenda of June 26, 2019

The motion carried by a unanimous vote.

Note: The second "Resolved" on Page 32, second paragraph, first sentence has a typo which will be corrected to reflect "as the" for the Board presentation.

B. [2019-264](#) Investment Market Update

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [Audit Committee Memo June 2019 PFM Market Update](#)
[PFM Market Update June 2019 FINAL with DTH changes](#)

Motion By: Gary Brown

Support By: Brian Baker

Action: Received and Filed

The motion carried by a unanimous vote.

8. Reports**A.** [2019-265](#) Monthly Financial Report for March 2019

Sponsors: Nicolette Bateson

Indexes: Finance

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

Motion By: Brian Baker

Support By: Gary Brown

Action: Received and Filed

The motion carried by a unanimous vote.

B. [2019-266](#) FY 2019 Q3 Construction Work-in-Progress Report

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: [FY 2019 Q3 Construction Work-in-Progress Report March 2019](#)
[CWIP FY 2019 Q3](#)

Motion By: Brian Baker

Support By: Gary Brown

Action: Received and Filed

The motion carried by a unanimous vote.

C. [2019-267](#) Status Report: FY2019 Continuous Improvement Report

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: Contunuous Improvement Memo
[Contunuous Improvement Report](#)

Motion By: Gary Brown

Support By: Brian Baker

Action: Received and Filed

The motion carried by a unanimous vote.

D. CFO Updates (verbal)

Nicolette Bateson, Chief Financial Officer/Treasurer, provided a verbal update on the following topics:

- FSA's Procurement Pipeline distributed to the Audit Committee identifying various scenarios that exist related to questions on tariffs received from vendors at GLWA's Vendor Outreach
- Upcoming Procurements
- Audit Contract

9. Look Ahead

Next Audit Committee Meeting

10. Information

None

11. Other Matters

None

12. Adjournment

Chairman Daddow requested a Motion to adjourn.

Motion By: Gary Brown

Support: Brian Baker

Action: Approved

The motion carried by a unanimous vote.

There being no further business, the meeting was adjourned at 10:05 a.m.



Financial Services Audit Committee Communication

Date: July 19, 2019

To: Great Lakes Water Authority Audit Committee

From: Jon Wheatley, Public Finance Manager

Re: Resolution Regarding Approval of Series Ordinance Authorizing Issuance and Sale of Water Supply System Revenue Bonds an Amount Not to Exceed \$46,000,000 (Ordinance 2019-02)

Background: On May 8, 2019, the Great Lakes Water Authority (“GLWA”) Board of Directors approved the “Resolution of the Great Lakes Water Authority Authorizing Publication of Notice of Intent to Issue Water Supply System Revenue Bonds in a principal amount not to exceed \$160,000,000” (the “Notice of Intent”). This will be the first two series of water bonds from that Notice of Intent and the combined total will be in an amount not to exceed \$46,000,000.

The approval of the attached Series Ordinance by the GLWA Board of Directors is the next formal step required in the bond issuance process. The Series Ordinance authorizes the issuance of the Bonds by GLWA, sets forth the guidelines for the Drinking Water Revolving Fund (DWRf) Bonds, designates the Bonds as 2019 SRF-2 and 2019 SRF-3 Junior Lien Bonds, and authorizes the Chief Executive Officer or the Chief Financial Officer to execute the final terms of the Bonds, paying issuance costs and signing of the Purchase Contract and Sale Order, within the parameters set forth in the Series Ordinance.

Analysis: The two series of bonds authorized by this ordinance will be sold through the state of Michigan’s DWRf program and will be used to finance improvements to the GLWA regional water system and the Detroit Water and Sewerage Department local water system. The GLWA regional project and the DWSD local project are described below:

GLWA Regional Water Project: This project is for the new flow control facility at the Northeast Water Treatment Plant and will provide additional redundancy to both the Northeast and Water Works Park service areas. This project is part of GLWA’s approved Capital Improvement Plan and is included in CIP #122003. Per the Ordinance, this series of bonds will be designated *2019 SRF-2 Junior Lien Bonds*, with a loan amount not to exceed \$33,000,000.

The *2019 SRF-2 Junior Lien Bonds* will be sold to the Michigan Finance Authority (MFA) in a separate series. The current program interest rate for the Drinking Water Revolving Funds (DWRF) is 2.00% and is payable over a 20-year term. Based on the not to exceed amount for this series of \$33.0 million, GLWA could save an estimated \$21.1 million in interest costs and avoided issuance costs, based on a similar open market revenue bond with a 30-year term and 4.50% interest rate, over the life of the 30-year bond issue.

DWSD Local Water Project: This project will continue DWSD's program to improve and replace water mains throughout the City. The improvements will include water mains along Grand River Avenue and the replacement of existing lead service piping. Per the Ordinance, this series of bonds will be designated *2019 SRF-3 Junior Lien Bonds*, with a loan amount not to exceed \$13,000,000.

The *2019 SRF-3 Junior Lien Bonds* will also be sold to the MFA in a separate series. The current program interest rate for the DWRF is 2.00% and is typically payable over a 20-year term however, DWSD qualifies for disadvantaged community status which allows for a 30-year term. Based on the not to exceed amount for this series of \$13.0 million, DWSD could save an estimated \$6.6 million in interest costs and avoided issuance costs, based on a similar open market revenue bond with a 30-year term and 4.50% interest rate, over the life of the 30-year bond issue.

GLWA is the loan applicant on the DWRF loans issued on behalf of DWSD, and DWSD will be the DWRF loan recipient as determined by Michigan Department of Environment, Great Lakes, and Energy (EGLE). All project costs financed by GLWA, on behalf of DWSD, through the DWRF program and resulting principal and interest payments on the bonds will be directly allocable to the DWSD local system.

Budget Impact: The debt service on both the proposed projects is anticipated to start in late FY 2020 with minimal amounts of interest due on each as a result of the projected draw down schedules. A small amount of interest expense was included on the DWSD loan was included in the FY 2020 Budget however, due to the minimal amount anticipated to be drawn on the GLWA loan, no debt service was included in FY 2020 Budget.

Proposed Action: The GLWA Audit Committee recommends that the Great Lakes Water Authority Board approve the resolution for the Approval of Series Ordinance Authorizing Issuance and Sale of Water Supply System Revenue Bonds an Amount Not to Exceed \$46,000,000 as presented, at its Regular Meeting on July 24, 2019.

GREAT LAKES WATER AUTHORITY
ORDINANCE NO. 2019-02

**SERIES ORDINANCE AUTHORIZING ISSUANCE AND SALE OF
WATER SUPPLY SYSTEM REVENUE BONDS IN
AN AGGREGATE AMOUNT NOT TO EXCEED \$46,000,000**

WHEREAS, pursuant to Resolution No. 2015-10-02 adopted by the Board of Directors of the Great Lakes Water Authority (the “Authority”) on October 7, 2015, the Authority Board approved and adopted Master Bond Ordinance No. 2015-01 (as subsequently amended through the date hereof, the “Ordinance”), which authorizes the issuance by the Authority of Water Supply System Revenue Bonds; and

WHEREAS, the Ordinance authorizes the issuance of such Water Supply System Revenue Bonds in one or more Series pursuant to a Series Ordinance authorizing the issuance and sale of such Series; and

WHEREAS, the Authority Board has determined that it is necessary to authorize at this time two or more Series of SRF Junior Lien Bonds (the “2019 SRF-2/3 Junior Lien Bonds”) to provide moneys to pay the costs of the hereinafter described repairs, extensions, enlargements and improvements to the Regional Water System identified in the Capital Improvement Program (the “2019 SRF-2 Project”) and to the Local Water System identified in the Detroit Capital Improvement Program (the “2019 SRF-3 Project”, and collectively with the 2019 SRF-2 Project, the “2019 SRF 2/3 Projects”).

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE GREAT LAKES WATER AUTHORITY AS FOLLOWS:

Section 1. Authority for this Series Ordinance. This Series Ordinance (the “2019 SRF-2/3 Series Ordinance”) is adopted pursuant to Section 1102(1) of the Ordinance.

Section 2. Definitions. Except as otherwise provided in this 2019 SRF-2/3 Series Ordinance, all terms which are defined in Section 101 of the Ordinance shall have the same meanings, respectively, in this 2019 SRF-2/3 Series Ordinance as such terms are given in the Ordinance. In addition, the following terms shall have the following meanings unless the context shall clearly indicate some other meaning:

(a) “2019 SRF-2 Junior Lien Bonds” means the Bonds authorized by Section 5 of this 2019 SRF-2/3 Series Ordinance for the purpose of paying and/or reimbursing costs of the 2019 SRF-2 Project.

(b) “2019 SRF-3 Junior Lien Bonds” means the Bonds authorized by Section 5 of this 2019 SRF 2/3 Series Ordinance for the purpose of paying and/or reimbursing costs of the 2019 SRF-3 Project.

(c) “2019 SRF-2/3 Junior Lien Bonds” means, collectively, the 2019 SRF-2 Junior Lien Bonds and the 2019 SRF-3 Junior Lien Bonds.

(d) “2019 SRF-2 Project” means improvements to the Regional Water System, including but not limited to improvements to the Northeast Water Transmission Main consisting of the replacement of water main and lead service piping.

(e) “2019 SRF-3 Project” means improvements to the Local Water System, including but not limited to improvements to water main replacement in the City consisting of the replacement of water main along Grand River Avenue and the replacement of existing lead service piping.

(f) “2019 SRF-2/3 Projects” means, collectively, the 2019 SRF-2 Project and the 2019 SRF-3 Project.

(g) “Authorized Denomination” means any denomination as determined by an Authorized Officer in the Sale Order.

(h) “Authorized Officer” means either the Chief Executive Officer or the Chief Financial Officer.

(i) “City Authorized Officer” means any officer of DWSD-R designated in a resolution adopted by the Board of Water Commissioners of DWSD-R as authorized to take actions on behalf of the City as described in this 2019 SRF-2/3 Series Ordinance.

(j) “Interest Payment Date” means except as otherwise set forth in the Sale Order each April 1 and October 1.

(k) “Local Construction Fund, Series 2019 SRF-3” means a subaccount of the Construction Fund established in accordance with Section 11 of this 2019 SRF-2/3 Series Ordinance relating to the construction of the 2019 SRF-3 Project to be paid with the proceeds of the 2019 SRF-3 Junior Lien Bonds.

(l) “Local Water System Project Costs” means the costs of acquiring, constructing, equipping, installing and financing the 2019 SRF-3 Project, including Issuance Costs relating to the 2019 SRF-3 Junior Lien Bonds

(m) “Maturity Date” means such dates of maturity of the 2019 SRF-2/3 Junior Lien Bonds as determined in the Sale Order.

(n) “MFA” means the Michigan Finance Authority.

(o) “Person” means any natural person, association, corporation, trust, partnership, joint venture, joint-stock company, municipal corporation, public body or other entity, however organized.

(p) “Project Costs” means, collectively, the Local Water System Project Costs and the Regional Water System Project Costs.

(q) “Purchase Contract” means the Purchase Contract between the MFA and the Authority with respect to the purchase by the MFA and the sale by the Authority of a Series of the 2019 SRF-2/3 Junior Lien Bonds.

(r) “Regional Construction Fund, Series 2019 SRF-2” means a subaccount of the Construction Fund established in accordance with Section 11 of this 2019 SRF-2/3 Series Ordinance relating to the construction of the 2019 SRF-2 Project to be paid with the proceeds of the 2019 SRF-2 Junior Lien Bonds.

(s) “Regional Water System Project Costs” means the costs of acquiring, constructing, equipping, installing and financing the 2019 SRF-2 Project, including Issuance Costs relating to the 2019 SRF-2 Junior Lien Bonds.

(t) “Regular Record Date” means except as otherwise set forth in the Sale Order the fifteenth day of the calendar month immediately preceding an Interest Payment Date.

(u) “Sale Order” means any one or more Sale Orders of an Authorized Officer authorizing acts consistent with the Ordinance and this 2019 SRF-2/3 Series Ordinance necessary and appropriate to complete the sale, execution and delivery of the 2019 SRF-2/3 Junior Lien Bonds and to complete the other transactions contemplated herein.

(v) “Supplemental Agreement” means, collectively, (1) the Supplemental Agreement among the Authority, the MFA and the State of Michigan acting through the Department of Environment, Great Lakes, and Energy, with respect to a Series of the 2019 SRF-2 Junior Lien Bonds; and (2) the Supplemental Agreement among the City, the MFA and the State of Michigan acting through the Department of Environment, Great Lakes, and Energy, and approved and agreed to by the Authority, with respect to a Series of the 2019 SRF-3 Junior Lien Bonds.

(w) “Taxable 2019 SRF-2/3 Junior Lien Bonds” means any 2019 SRF-2/3 Junior Lien Bonds other than Tax-Exempt 2019 SRF-2/3 Junior Lien Bonds.

(x) “Tax-Exempt 2019 SRF-2/3 Junior Lien Bonds” means any 2019 SRF-2/3 Junior Lien Bonds that are Tax-Exempt Bonds.

Section 3. Approval of 2019 SRF-2/3 Projects.

(a) Approval of 2019 SRF-2 Project. It is hereby determined to be necessary for the public health, benefit and welfare of the area served by the Regional Water System to acquire, construct and undertake the 2019 SRF-2 Project, and the 2019 SRF-2 Project is hereby approved and accepted.

(b) Approval of 2019 SRF-3 Project. It is hereby determined to be necessary for the public health, benefit and welfare of the area served by the Local Water System to acquire, construct and undertake the 2019 SRF-3 Project, and the 2019 SRF-3 Project is hereby approved and accepted.

Section 4. Estimated Cost and Period of Usefulness of 2019 SRF-2/3 Projects. The aggregate Project Costs are estimated by the Authority Board to not exceed \$46,000,000, and consist of the following:

(a) The Regional Water System Project Costs are estimated by the Authority Board to not exceed \$33,000,000 and the Regional Water System Project Costs are hereby approved and confirmed. The period of usefulness of the 2019 SRF-2 Project is estimated to be not less than 40 years.

(b) The Local Water System Project Costs are estimated by the Authority Board to not exceed \$13,000,000 and the Local Water System Project Costs are hereby approved and confirmed. The period of usefulness of the 2019 SRF-3 Project is estimated to be not less than 40 years.

Section 5. Authorization of 2019 SRF-2/3 Junior Lien Bonds.

(a) Authorization of Borrowing.

(i) The Authority may borrow an amount not in excess of \$33,000,000, as is finally determined in the Sale Order, and issue the 2019 SRF-2 Junior Lien Bonds in one or more Series, all to evidence such borrowing pursuant to Act 233, Act 94 and the Ordinance, as 2019 SRF-2 Junior Lien Bonds, all as finally determined in the Sale Order. The amount of the 2019 SRF-2 Junior Lien Bonds authorized in this Section 5(a) shall include the amount of the net original issue premium, if any.

(ii) The Authority may borrow an amount not in excess of \$13,000,000, as is finally determined in the Sale Order, and issue the 2019 SRF-3 Junior Lien Bonds in one or more Series, all to evidence such borrowing pursuant to Act 233, Act 94 and the Ordinance, as 2019 SRF-3 Junior Lien Bonds, all as finally determined in the Sale Order. The amount of the 2019 SRF-3 Junior Lien Bonds authorized in this Section 5(b) shall include the amount of the net original issue premium, if any.

(b) Purpose of 2019 SRF-2/3 Junior Lien Bonds.

(i) The 2019 SRF-2 Junior Lien Bonds shall be issued as Additional Bonds for the purpose of paying and/or reimbursing Regional Water System Project Costs.

(ii) The 2019 SRF-3 Junior Lien Bonds shall be issued as Additional Bonds for the purpose of paying and/or reimbursing Local Water System Project Costs.

(c) Priority of Lien. Each Series of the 2019 SRF-2/3 Junior Lien Bonds shall be issued as SRF-2/3 Junior Lien Bonds.

(d) Insufficient Proceeds.

(i) To the extent that proceeds of SRF-2 Junior Lien Bonds are insufficient to pay Regional Water System Project Costs, the insufficiency shall be paid from the proceeds

of future Additional Bonds, if any, and/or moneys of the Regional Water System on hand and legally available therefor, as determined by the Authority Board.

(ii) To the extent that proceeds of the SRF-3 Junior Lien Bonds are insufficient to pay Local Water System Project Costs, the insufficiency shall be paid from the proceeds of future Additional Bonds, if any, and/or moneys of the Local Water System on hand and legally available therefor, as determined by the Board of Water Commissioners of DWSD-R and, in the case of any Additional Bonds, with the concurrence of the Authority Board.

(e) Separate Series. The 2019 SRF-2 Junior Lien Bonds are issuable at one or more times and as one or more separate Series of Bonds in such amounts as determined in the Sale Order. The 2019 SRF-3 Junior Lien Bonds are issuable at one or more times and as one or more separate Series of Bonds in such amounts as determined in the Sale Order. The 2019 SRF-2 Junior Lien Bonds and the 2019 SRF-3 Junior Lien Bonds shall be issued as separate Series.

(f) Taxable and Tax-Exempt 2019 SRF-2/3 Junior Lien Bonds. Each Series of the 2019 SRF-2/3 Junior Lien Bonds may be issued as Taxable 2019 SRF-2/3 Junior Lien Bonds or Tax-Exempt 2019 SRF-2/3 Junior Lien Bonds, or as separate subseries of both, as set forth in the Sale Order.

(g) Source of Payment and Security. The 2019 SRF-2/3 Junior Lien Bonds shall be payable and secured as provided in Section 8.

(h) Applicability of Ordinance. Except as otherwise provided in this 2019 SRF-2/3 Series Ordinance or in the Sale Order, all of the provisions of the Ordinance shall apply to the 2019 SRF-2/3 Junior Lien Bonds as if set forth in full in this 2019 SRF-2/3 Series Ordinance, the purpose of this 2019 SRF-2/3 Series Ordinance being to supplement the Ordinance to authorize the issuance of 2019 SRF-2/3 Junior Lien Bonds for the purposes set forth herein.

Section 6. 2019 SRF-2/3 Junior Lien Bond Details.

(a) Designation.

- (1) The 2019 SRF-2 Junior Lien Bonds shall bear the designations Water Supply System Revenue Bonds, Series 2019-SRF-2 and shall include such other designations, including, without limitation, designations for multiple Series or subseries, as determined by an Authorized Officer as shall be set forth in the Sale Order and not inconsistent with the Ordinance or this 2019 SRF-2/3 Series Ordinance. The 2019 SRF-3 Junior Lien Bonds shall bear the designations Water Supply System Revenue Bonds, Series 2019-SRF-3 and shall include such other designations, including, without limitation, designations for multiple Series or subseries, as determined by an Authorized Officer as shall be set forth in the Sale Order and not inconsistent with the Ordinance or this 2019 SRF-2/3 Series Ordinance.
- (2) If any Series of the 2019 SRF-2/3 Junior Lien Bonds are not issued in 2019, an Authorized Officer is authorized in her discretion to re-designate the year and Series designation of such Series of 2019 SRF-2/3 Junior Lien Bonds

and the various funds and accounts established hereunder to correspond with the year of issuance of such Series of 2019 SRF-2/3 Junior Lien Bonds. Furthermore, an Authorized Officer is authorized to establish designations within the various funds and accounts established hereunder if necessary in order to differentiate such funds and accounts from other similarly named funds and accounts related to other Bonds.

(b) Numbering. Each Series of the 2019 SRF-2/3 Junior Lien Bonds shall be numbered in such manner as shall be determined in the Sale Order.

(c) Principal. Each Series of the 2019 SRF-2/3 Junior Lien Bonds shall be issued in the form of Serial Bonds or Term Bonds, or any combination of Serial Bonds and Term Bonds, in any Authorized Denomination, and the principal thereof shall mature on October 1, or such other date as set forth in the Sale Order, in such years and amounts, and shall be or not be subject to redemption prior to maturity, all as shall be determined in the Sale Order subject to the following limitations:

- (1) No 2019 SRF-2/3 Junior Lien Bonds shall mature later than 40 years after the date of issuance thereof.
- (2) The 2019 SRF-2/3 Junior Lien Bonds shall only be issued with annual principal and interest installments permitted by the Ordinance, including Section 207 thereof.

(d) Interest. 2019 SRF-2/3 Junior Lien Bonds or portions thereof shall bear interest at a rate or rates as set forth in the Sale Order not in excess of 2.50% per annum. Interest on 2019 SRF-2/3 Junior Lien Bonds shall be payable on each Interest Payment Date.

(e) Payment of Principal and Interest. The principal of, premium, if any, and interest on the 2019 SRF-2/3 Junior Lien Bonds shall be payable in lawful money of the United States. Except as otherwise provided in the Sale Order, so long as the 2019 SRF-2/3 Junior Lien Bonds are owned by the MFA, the 2019 SRF-2/3 Junior Lien Bonds are payable as to principal, redemption premium, if any, and interest at The Bank of New York Mellon Trust Company, N.A., or at such other place as shall be designated in writing to the Authority by the MFA (the MFA's Depository"), and the Authority agrees that it will deposit with the MFA's Depository payments of the principal of, premium, if any, and interest on the 2019 SRF-2/3 Junior Lien Bonds in immediately available funds by 12:00 noon at least five Business Days prior to the date on which any such payment is due, whether by maturity, redemption or otherwise. If the 2019 SRF-2/3 Junior Lien Bonds are not registered in the name of the MFA, the principal of and premium, if any, on the 2019 SRF-2/3 Junior Lien Bonds are payable upon the surrender thereof at the corporate trust office of the Trustee and the interest is payable by check or draft drawn on the Trustee and mailed to the registered owners as of the immediately preceding Regular Record Date at their address shown on the registration books of the Authority maintained by the Trustee.

(f) Dating. Each Series of the 2019 SRF-2/3 Junior Lien Bonds shall be dated such date as determined in the Sale Order.

(g) Reserve Requirement. There shall be no Reserve Requirement with respect to the 2019 SRF-2/3 Junior Lien Bonds.

(h) Exchange. The registered owner of any 2019 SRF-2/3 Junior Lien Bond may exchange such 2019 SRF-2/3 Junior Lien Bond for a new 2019 SRF-2/3 Junior Lien Bond or Bonds of the same interest rate, maturity and Priority of Lien in an equal aggregate principal amount in one or more of the Authorized Denominations by surrendering such 2019 SRF-2/3 Junior Lien Bond to be exchanged at the designated office of the Trustee together with an assignment duly executed by the registered owner thereof or his attorney or legal representative in such form as shall be satisfactory to the Trustee. As provided in Section 206 of the Ordinance, the Trustee shall be responsible for the registration, transfer and exchange of 2019 SRF-2/3 Junior Lien Bonds and shall indicate its acceptance of such duties by a document filed with an Authorized Officer concurrently with the delivery of the 2019 SRF-2/3 Junior Lien Bonds.

(i) Execution and Delivery of 2019 SRF-2/3 Junior Lien Bonds. Each Series of the 2019 SRF-2/3 Junior Lien Bonds shall be executed in the name of the Authority by manual or facsimile signature of the Chief Executive Officer of the Authority and countersigned by the manual or facsimile signature of the Secretary of the Authority Board, and shall have the Authority's seal or facsimile thereof affixed or printed thereon. The Chief Financial Officer is authorized to deliver the 2019 SRF-2/3 Junior Lien Bonds to the MFA upon receiving the purchase price therefor in lawful money of the United States.

(j) Form of 2019 SRF-2/3 Junior Lien Bonds. Each Series of the 2019 SRF-2/3 Junior Lien Bonds shall be in substantially the following form, subject to such changes, additions or deletions as determined by the Chief Executive Officer within the parameters of this 2019 SRF-2/3 Series Ordinance:

R-__

**UNITED STATES OF AMERICA
STATE OF MICHIGAN
COUNTIES OF MACOMB, OAKLAND AND WAYNE
GREAT LAKES WATER AUTHORITY
WATER SUPPLY SYSTEM REVENUE BOND,
SERIES 2019-SRF-__**

REGISTERED OWNER: Michigan Finance Authority

PRINCIPAL AMOUNT: \$ _____

INTEREST RATE: _____%

ORIGINAL ISSUE DATE:

The Great Lakes Water Authority, Counties of Macomb, Oakland and Wayne, State of Michigan (the “Issuer”), upon authorization from the Board of Directors of the Issuer (the “Board”), has issued this Bond. The Issuer, for value received, promises to pay, in lawful money of the United States of America, but only from the Pledged Assets (as defined below), to the Registered Owner named above, or registered assigns, the Principal Amount stated above, or so much thereof as shall have been advanced to the Issuer and not prepaid or reduced pursuant to a Purchase Contract between the Issuer and the Michigan Finance Authority (the “MFA”), a Supplemental Agreement by and among the [Issuer][City of Detroit], the MFA and State of Michigan acting through the Department of Environment, Great Lakes, and Energy [and approved and agreed to by the Issuer], and the Order of Approval issued by the Department of Environment, Great Lakes, and Energy. The Principal Amount shall be payable on the dates and in the principal installments set forth in Schedule A attached hereto.

In the event less than the Principal Amount of this Bond is disbursed by the MFA, any portion of the Principal Amount is prepaid as provided herein, or any serial principal payment becomes due before the Issuer has received proceeds from corresponding purchased principal installments of at least a like amount, then the MFA may prepare a new serial principal installment repayment schedule which shall be presented to the Issuer and be effective upon receipt as provided in the Purchase Contract.

Interest on this Bond shall accrue from the Original Issue Date set forth above at the Interest Rate set forth above, only on that portion of installments of the Principal Amount which have been disbursed by the MFA, shall be payable on _____, 201_ and semiannually on each April 1 and October 1 thereafter (each an “Interest Payment Date”).

If the MFA is not the registered owner of this Bond, principal of this Bond is payable upon presentation and surrender at the designated office of U.S. Bank National Association, as Trustee under the Ordinance (as defined below) or such other trustee as the Issuer may hereafter designate by notice mailed to the registered owner not less than 60 days prior to any Interest Payment Date (the “Trustee”).

Interest on this Bond is payable to the registered owner of record as of the close of business on the 15th day of the month immediately preceding any Interest Payment Date as shown on the registration books kept by the Trustee by check or draft mailed by the Trustee to the registered owner at the registered address. Interest on this Bond shall be computed on the basis of a 360-day year comprised of twelve 30-day months. During the time funds are being drawn down by the Issuer under this Bond, the MFA will periodically provide the Issuer with a statement showing the amount of principal that has been advanced and the date of each advance, which statement shall constitute prima facie evidence of the reported information; provided, that no failure on the part of the MFA to provide such a statement or to reflect a disbursement or the correct amount of a disbursement shall relieve the Issuer of its obligation to repay the outstanding principal amount actually advanced [(subject to any principal forgiveness as provided for herein)], all accrued interest thereon, and any other amount payable with respect thereto in accordance with the terms of this Bond.

In the event of a default in the payment of principal or interest hereon when due, whether at maturity, by redemption or otherwise, the amount of such default shall bear interest (the "additional interest") at a rate equal to the rate of interest that is two percent above the MFA's cost of providing funds (as determined by the MFA) to make payment on the bonds of the MFA issued to provide funds to purchase this Bond but in no event in excess of the maximum rate of interest permitted by law. The additional interest shall continue to accrue until the MFA has been fully reimbursed for all costs incurred by the MFA (as determined by the MFA) as a consequence of the Issuer's default. Such additional interest shall be payable on the interest payment date following demand of the MFA. In the event that (for reasons other than the default in the payment of any municipal obligation purchased by the MFA) the investment of amounts in the reserve account established by the MFA for the bonds of the MFA issued to provide funds to purchase this bond fails to provide sufficient available funds (together with any other funds that may be made available for such purpose) to pay the interest on outstanding bonds of the MFA issued to fund such account, the Issuer shall and hereby agrees to pay on demand only the Issuer's pro rata share (as determined by the MFA) of such deficiency as additional interest on this bond.

Notwithstanding any other provision of this Bond, so long as the MFA is the owner of this Bond, (a) this Bond is payable as to principal, premium, if any, and interest at The Bank of New York Mellon Trust Company, N.A., or at such other place as shall be designated in writing to the Issuer by the MFA (the "MFA's Depository"); (b) the Issuer agrees that it will deposit with the MFA's Depository payments of the principal of, premium, if any, and interest on this Bond in immediately available funds by 12:00 noon at least five business days prior to the date on which any such payment is due whether by maturity, redemption or otherwise; in the event that the MFA's Depository has not received the Issuer's deposit by 12:00 noon on the scheduled day, the Issuer shall immediately pay to the MFA as invoiced by the MFA an amount to recover the MFA's administrative costs and lost investment earnings attributable to that late payment; and (c) written notice of any redemption of this Bond shall be given by the Issuer and received by the MFA's Depository at least 40 days prior to the date on which redemption is to be made.

This Bond is one of a series of bonds designated "Water Supply System Revenue Bonds, Series 2019-SRF-__" and is issued pursuant to the provisions of (i) Act 233, Public Acts of Michigan, 1955, as amended ("Act 233"), and Act 94, Public Acts of Michigan, 1933, as amended ("Act 94"), (ii) Master Bond Ordinance No. 2015-01 adopted by the Board on October 7, 2015, as

amended (the “Bond Ordinance”), (iii) the Series Ordinance Authorizing Issuance and Sale of Water Supply System Revenue Bonds in an Aggregate Amount not to Exceed \$46,000,000, adopted by the Board on _____, 2019 (the “Series Ordinance”), and (iv) a Sale Order of the Chief Executive Officer of the Issuer dated _____, 2019 (the “Sale Order,” and, collectively with the Bond Ordinance and the Series Ordinance, the “Ordinance”). This Bond is issued for the purposes set forth in the Series Ordinance and the Sale Order.

For the prompt payment of the principal of and interest on this Bond, and other bonds issued by the Issuer pursuant to the Bond Ordinance, the Issuer has irrevocably pledged the Pledged Assets (as defined in the Bond Ordinance), which includes the revenues of the Water System (as defined in the Bond Ordinance), after provision is made for reasonable and necessary expenses of operation, maintenance and administration of the Water System (the “Net Revenues”), and a statutory lien on the Net Revenues and Pledged Assets is hereby recognized and acknowledged. Such lien is a third lien, subject to obligations heretofore and hereafter issued or incurred under the Bond Ordinance secured by a first or second lien on the Pledged Assets. This Bond is of equal standing on a parity with all other obligations heretofore and hereafter issued or incurred under the Bond Ordinance and secured by a third lien on the Pledged Assets.

For a complete statement of the revenues from which and the conditions under which this Bond is payable, a statement of the conditions under which Additional Bonds (as defined in the Bond Ordinance) of senior or equal standing and Additional Bonds of junior standing may hereafter be issued and the general covenants and provisions pursuant to which this Bond is issued, reference is made to the Bond Ordinance.

This Bond is subject to redemption prior to maturity at the option of the Issuer and with the prior written consent of and upon such terms as may be required by the MFA. That portion of this Bond called for redemption shall not bear interest after the date fixed for redemption, provided funds are on hand with the Trustee to redeem the same.

THIS BOND IS ISSUED UNDER ACT 233 AND ACT 94. IT IS A SELF-LIQUIDATING BOND AND IS NOT A GENERAL OBLIGATION OF THE ISSUER AND DOES NOT CONSTITUTE AN INDEBTEDNESS OF THE ISSUER WITHIN ANY CONSTITUTIONAL OR STATUTORY LIMITATION, BUT IS PAYABLE, BOTH AS TO PRINCIPAL AND INTEREST SOLELY FROM THE PLEDGED ASSETS OF THE WATER SYSTEM. THE PAYMENT OF THE PRINCIPAL OF AND INTEREST ON THIS BOND ARE SECURED BY A STATUTORY LIEN ON THE PLEDGED ASSETS AS DESCRIBED HEREIN.

The Issuer has covenanted and agreed, and hereby covenants and agrees, to fix and maintain, or cause to be fixed and maintained, at all times while any bonds payable from the Pledged Assets of the Water System shall be outstanding, such rates for service furnished by the Water System as shall be sufficient to provide for payment of the interest upon and the principal of this Bond and all other Bonds (as defined in the Bond Ordinance) assumed or issued and to be issued under the Bond Ordinance as and when the same shall become due and payable, to create and maintain a bond redemption fund therefor, including a bond reserve for Bonds other than this Bond, to provide for the payment of expenses of administration and operation and such expenses for maintenance of the Water System as are necessary to preserve the same in good repair and

working order, and to provide for such other expenditures and funds for the Water System, all as are required by the Bond Ordinance.

This Bond is transferable only upon the books of the Issuer kept for that purpose at the office of the Trustee by the registered owner hereof in person, or by his attorney duly authorized in writing, upon the surrender of this Bond together with a written instrument of transfer satisfactory to the Trustee duly executed by the registered owner or his attorney duly authorized in writing, and thereupon a new registered bond or bonds of the same type, in the same aggregate principal amount and of the same maturity shall be issued to the transferee in exchange therefor as provided in the Ordinance and upon the payment of the charges, if any, therein prescribed.

It is hereby certified and recited that all acts, conditions and things required by law precedent to and in the issuance of this Bond have been done and performed by regular and due time and form as required by law.

This Bond is not valid or obligatory for any purpose until the Trustee's Certificate of Authentication hereon has been executed by the Trustee.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the Great Lakes Water Authority, Counties of Macomb, Oakland and Wayne, State of Michigan, has caused this Bond to be signed in its name by the facsimile signatures of its Chief Executive Officer and its Secretary of the Board, and a facsimile of its corporate seal to be printed, impressed or otherwise reproduced hereon, all as of the Original Issue Date.

GREAT LAKES WATER AUTHORITY

By: _____
Chief Executive Officer

Countersigned:

By: _____
Secretary, Board of Directors

[Seal]

CERTIFICATE OF AUTHENTICATION

This Bond is authenticated as the bond designated by the Issuer as “Water Supply System Revenue Bond, Series 2019-SRF-___”.

U.S. Bank National Association,
Trustee

By:_____

Date of Authentication: _____, 2019

ASSIGNMENT

For value received, the undersigned sells, assigns and transfers unto _____ this Bond and all rights hereunder and hereby irrevocably appoints _____ attorney to transfer this Bond on the books kept for registration thereof with full power of substitution in the premises.

Dated: _____

Signature

NOTICE: The signature to this assignment must correspond with the name as it appears on the face of this Bond in every particular.

Schedule A

The principal amounts and maturity dates applicable to the Bond to which this Schedule A is attached are as follows:

Date

Amount

Based on the schedule provided above unless revised as provided in this paragraph, repayment of the Principal Amount shall be made according to such schedule until the full Principal Amount disbursed to the Issuer is repaid; provided, however, that the Issuer shall have no obligation to repay any serial principal installment for which the Issuer did not receive a disbursement of Principal Amount by the date such serial principal installment is due. In the event the Order of Approval issued by the Department of Environment, Great Lakes, and Energy (the "Order") approves a principal amount of assistance less than the amount of this Bond, the MFA shall only disburse principal up to the amount stated in the Order. In the event (1) that the payment schedule described above provides for payment of a total principal amount greater than the amount of assistance approved by the Order, (2) that less than the principal amount of assistance approved by the Order is disbursed to the Issuer by the MFA or (3) of prepayment [or principal forgiveness] of the Bond, the MFA shall prepare a new payment schedule that shall be effective upon receipt by the Issuer.

END OF BOND FORM

Section 7. Concerning the Securities Depository.

(a) As used herein:

“Beneficial Owner” means any Person who indirectly owns 2019 SRF-2/3 Junior Lien Bonds pursuant to the indirect ownership system maintained by a securities depository (the “Securities Depository”) and its Participants, commonly known as the “Book-Entry Only System.”

“Participant” means any Person whose ownership of 2019 SRF-2/3 Junior Lien Bonds is shown on books of the Securities Depository.

(b) The 2019 SRF-2/3 Junior Lien Bonds will initially be registered in the name of the MFA, or such other purchasers as designated in the Sale Order. In the event 2019 SRF-2/3 Junior Lien Bonds are later to be registered in the name of a Securities Depository or its nominee, neither the Authority nor the Trustee shall have any responsibility or obligation to any Participant or to any Beneficial Owner with respect to any matter, including the following:

- (1) the accuracy of the records of the Securities Depository, its nominee or any Participant with respect to any ownership interest in 2019 SRF-2/3 Junior Lien Bonds,
- (2) the delivery to any Participant, Beneficial Owner or any other Person other than the Securities Depository of any notice with respect to: any 2019 SRF-2/3 Junior Lien Bonds, including any notice of redemption, or
- (3) the payment to any Participant, Beneficial Owner or any other Person, other than the Securities Depository of any amount with respect to the principal (and premium, if any) of or interest on any 2019 SRF-2/3 Junior Lien Bonds.

(c) The Trustee shall pay all principal (and premium, if any) of and interest on the 2019 SRF-2/3 Junior Lien Bonds only to or upon the order of the MFA, or the Securities Depository, as applicable, and all such payments shall be valid and effective fully to satisfy and discharge the Authority’s obligations with respect to the principal (and premium, if any) of, and interest on such 2019 SRF-2/3 Junior Lien Bonds to the extent of the sum or sums so paid.

(d) If 2019 SRF-2/3 Junior Lien Bonds become registered in the name of the Securities Depository and (1) the Authority receives a written notice from the Securities Depository to the effect the Securities Depository is unable or unwilling to discharge its responsibilities or (2) the Authority determines that it is in the best interests of the Beneficial Owners of 2019 SRF-2/3 Junior Lien Bonds that they be able to obtain 2019 SRF-2/3 Junior Lien Bonds in certificated form, then, in either event, the Authority shall notify the Trustee and, in the case of clause, (2), the Securities Depository.

(e) Upon discontinuance of the use of the Book-Entry Only System maintained by the Securities Depository, if any, pursuant to subsection (d), above and upon receipt of notice from the Securities Depository containing sufficient information, the Authority shall execute and the Trustee shall authenticate and deliver 2019 SRF-2/3 Junior Lien Bonds in certificated form to

Beneficial Owners in exchange for the beneficial interests of such Beneficial Owners in corresponding principal amounts and in any Authorized Denominations.

(f) Notwithstanding any other provision of this 2019 SRF-2/3 Series Ordinance to the contrary, so long as any 2019 SRF-2/3 Junior Lien Bond is registered in the name of the Securities Depository or its nominee:

- (1) all payments with respect to the principal, premium, if any, and interest on such 2019 SRF-2/3 Junior Lien Bond and all notices of redemption, tender and otherwise with respect to such 2019 SRF-2/3 Junior Lien Bond shall be made and given, respectively, to the Securities Depository as provided in the letter of representations from the Authority to the Securities Depository with respect to such 2019 SRF-2/3 Junior Lien Bonds or any master letter of representations from the Authority to the Securities Depository;
- (2) if less than all of the 2019 SRF-2/3 Junior Lien Bonds of the same type of any maturity are to be redeemed, then the particular 2019 SRF-2/3 Junior Lien Bonds or portions of 2019 SRF-2/3 Junior Lien Bonds of such type and maturity to be redeemed shall be selected by the Securities Depository in any such manner as the Securities Depository may determine;
- (3) all payments with respect to principal of the 2019 SRF-2/3 Junior Lien Bonds and premium, if any and interest on the 2019 SRF-2/3 Junior Lien Bonds shall be made in such manner as shall be prescribed by the Securities Depository; and
- (4) if a 2019 SRF-2/3 Junior Lien Bond is redeemed or tendered in part, then all amounts payable in respect of such redemption or tender shall be paid without presentation and surrender of such 2019 SRF-2/3 Junior Lien Bond pursuant to the procedures of the Securities Depository.

Section 8. Payment of 2019 SRF-2/3 Junior Lien Bonds; Confirmation of Statutory Lien.

(a) The 2019 SRF-2/3 Junior Lien Bonds and the interest thereon shall be payable solely from the Pledged Assets.

(b) To secure payment of the 2019 SRF-2/3 Junior Lien Bonds, the statutory lien upon the whole of the Pledged Assets established by Act 94 and the pledge created in Section 501 of the Ordinance is hereby confirmed in favor of the 2019 SRF-2/3 Junior Lien Bonds as follows: Such lien in favor of the 2019 SRF-2/3 Junior Lien Bonds shall be a statutory third lien on the Pledged Assets of equal standing and Priority of Lien with all issued, to be issued and outstanding SRF-2/3 Junior Lien Bonds.

Section 9. Funds and Accounts; Flow of Funds. Except as otherwise provided in this 2019 SRF-2/3 Series Ordinance, all of the provisions relative to funds and accounts, their maintenance, the flow of funds and other details relative thereto, shall remain as specifically set forth in the Ordinance.

Section 10. Disposition of Proceeds.

(a) Disposition of Accrued Interest and Capitalized Interest. (1) From the proceeds of the sale of the 2019 SRF-2 Junior Lien Bonds there shall be immediately deposited in the SRF Junior Lien Debt Service Account, an amount equal to any accrued interest received on the delivery of the 2019 SRF-2 Junior Lien Bonds and any capitalized interest on the 2019 SRF-2 Junior Lien Bonds, and the Authority may take credit for the amount so deposited against the amount required to be deposited in the SRF Junior Lien Debt Service Account for payment of the next maturing interest payment on the 2019 SRF-2 Junior Lien Bonds.

(2) From the proceeds of the sale of the 2019 SRF-3 Junior Lien Bonds there shall be immediately deposited in the SRF Junior Lien Debt Service Account, an amount equal to any accrued interest received on the delivery of the 2019 SRF-3 Junior Lien Bonds and any capitalized interest on the 2019 SRF-3 Junior Lien Bonds, and the Authority may take credit for the amount so deposited against the amount required to be deposited in the SRF Junior Lien Debt Service Account for payment of the next maturing interest payment on the 2019 SRF-3 Junior Lien Bonds.

(b) Construction Fund. The balance of the proceeds of each Series of the 2019 SRF-2/3 Junior Lien Bonds shall be deposited in the Construction Fund and used to pay Project Costs as provided in Section 11.

Section 11. Construction Fund.

(a) Construction Fund – Regional Water System Improvements.

(1) A subaccount of the Authority Regional Construction Account of the Construction Fund established by the Ordinance shall be established for the 2019 SRF-2 Junior Lien Bonds and designated the “Regional Construction Fund, Series 2019 SRF-2,” and shall be established and maintained as a separate depository account with a Custodian as designated by the Chief Financial Officer.

(2) Moneys in the Regional Construction Fund, Series 2019 SRF-2 shall be applied solely to payment of Regional Water System Project Costs (or to the reimbursement of Regional Water System Project Costs paid by the Authority from other funds prior to the issuance of the 2019 SRF-2 Junior Lien Bonds).

(A) Payments or reimbursements for Regional Water System Project Costs for construction, either on account or otherwise, shall not be made unless the registered engineer in charge of such work shall file with an Authorized Officer a signed statement to the effect that the work has been completed in accordance with the plans and specifications therefor, that it was done in accordance with the contract therefor, that such work is satisfactory and that such work has not been previously paid for.

(B) Payment or reimbursement for Regional Water System Project Costs consisting of Issuance Costs and engineering, legal and financial costs shall be made upon submission of appropriate documentation to an Authorized Officer.

(b) Construction Fund – Local Water System Improvements.

(1) A subaccount of the Detroit Local Construction Account of the Construction Fund established by the Ordinance shall be established for the 2019 SRF-3 Junior Lien Bonds and designated the “Local Construction Fund, Series 2019 SRF-3,” and shall be established and maintained as a separate depository account with a Custodian as designated by a City Authorized Officer.

(2) Moneys in the Local Construction Fund, Series 2019 SRF-3 shall be applied solely to payment of Local Water System Project Costs (or to the reimbursement of Local Water System Project Costs paid by the Authority or the City from other funds prior to the issuance of the 2019 SRF-3 Junior Lien Bonds.

(A) Payments or reimbursements for Local Water System Project Costs for construction, either on account or otherwise, shall not be made unless the registered engineer in charge of such work shall file with a City Authorized Officer a signed statement to the effect that the work has been completed in accordance with the plans and specifications therefor, that it was done pursuant to and in accordance with the contract therefor, that such work is satisfactory and that such work has not been previously paid for.

(B) Payment or reimbursement for Local Water System Project Costs consisting of Issuance Costs and engineering, legal and financial costs shall be made upon submission of appropriate documentation to a City Authorized Officer.

Section 12. Tax Covenant.

(a) The Authority hereby covenants and represents with the registered owners of the Tax-Exempt 2019 SRF-2/3 Junior Lien Bonds, that so long as any of the Tax-Exempt 2019 SRF-2/3 Junior Lien Bonds remain outstanding and unpaid as to either principal or interest, the Authority shall, to the extent permitted by law, take all actions within its control to maintain, and will refrain from taking any action which would impair, the exclusion of the interest on the Tax-Exempt 2019 SRF-2/3 Junior Lien Bonds from gross income for federal income tax purposes under the Code.

(b) The actions referred to in subsection (a), above include, but are not limited to actions relating to any required rebate of arbitrage earnings and the expenditure and investment of proceeds of Tax-Exempt 2019 SRF-2/3 Junior Lien Bonds and moneys deemed to be proceeds of Tax-Exempt 2019 SRF-2/3 Junior Lien Bonds, and to prevent Tax-Exempt 2019 SRF-2/3 Junior Lien Bonds from being or becoming “private activity bonds” as that term is used in the Code.

Section 13. Sale of 2019 SRF-2/3 Junior Lien Bonds; Purchase Contract; Expiration of Referendum Period.

(a) The 2019 SRF-2/3 Junior Lien Bonds shall be sold by negotiated sale to the MFA pursuant to a Purchase Contract in customary form with such changes thereto as an Authorized Officer shall determine are in the best interests of the Authority, within the parameters established by this 2019 SRF-2/3 Series Ordinance. Such determination shall be conclusively established by the Authorized Officer’s execution of the Purchase Contract to the MFA.

(b) The Authority Board hereby determines that the sale of the 2019 SRF-2/3 Junior Lien Bonds by negotiated sale as described in subsection (a) is in the best interests of the Authority and will allow the 2019 SRF-2/3 Junior Lien Bonds to receive a subsidized interest rate through participation in the MFA's Drinking Water Revolving Fund Program.

(c) An Authorized Officer is authorized to accept, on behalf of the Authority, an offer from the MFA to purchase the 2019 SRF-2/3 Junior Lien Bonds subject to the following limitations:

- (1) The interest rate with respect to any Series of the 2019 SRF-2/3 Junior Lien Bonds shall not exceed 2.50%.
- (2) The aggregate purchaser's discount at which any Series of the 2019 SRF-2/3 Junior Lien Bonds shall be sold to the MFA shall not exceed 2.00%.

(d) An Authorized Officer shall confirm in the Sale Order that there was no petition meeting the requirements of Section 33 of Act 94 that was filed with the Secretary of the Authority Board within 45 days of the date of publication of the notice of intent to issue bonds with respect to the 2019 SRF-2/3 Junior Lien Bonds as required by Section 33 of Act 94.

Section 14. Delegation of Authority to and Authorization of Actions of Authorized Officers.

(a) An Authorized Officer shall make all determinations herein provided to be made in the Sale Order and shall make all such determinations in accordance with the best interests of the Authority within the parameters of this 2019 SRF-2/3 Series Ordinance.

(b) In addition to determinations authorized elsewhere in this 2019 SRF-2/3 Series Ordinance, an Authorized Officer shall determine the aggregate principal amount of 2019 SRF-2/3 Junior Lien Bonds to be issued, but not in excess of the aggregate principal amount authorized by this 2019 SRF-2/3 Series Ordinance, on the basis of her evaluation of the maximum amount of 2019 SRF-2/3 Junior Lien Bonds which can be sold, given anticipated interest rates and the revenue coverage requirements with respect to the 2019 SRF-2/3 Junior Lien Bonds and for any other reasons the Authorized Officer deems appropriate.

- (1) Such determination shall also include the redemption provisions for the 2019 SRF-2/3 Junior Lien Bonds.
- (2) An Authorized Officer shall also determine and establish, in accordance with this 2019 SRF-2/3 Series Ordinance, the maturities of each Series of the 2019 SRF-2/3 Junior Lien Bonds, whether such maturities shall be serial or term maturities and the Mandatory Redemption Requirements for any term maturities.

(c) An Authorized Officer is authorized, if necessary, to file applications and to pay the related fees, if any, to the Michigan Department of Treasury at her discretion under Act 34 for one or more orders of approval to issue all or a portion of the 2019 SRF-2/3 Junior Lien Bonds, and such waivers or other Treasury approvals as necessary to implement the sale, delivery and

security for the 2019 SRF-2/3 Junior Lien Bonds as authorized herein, and as required by the Michigan Department of Treasury or Act 34.

(d) An Authorized Officer shall determine in the Sale Order that the requirements set forth in Section 207 of the Ordinance with respect to the issuance of the 2019 SRF-2/3 Junior Lien Bonds as Additional Bonds have been satisfied.

(e) An Authorized Officer is hereby authorized and directed to do and perform any and all other acts and things with respect to the 2019 SRF-2/3 Junior Lien Bonds which are necessary or appropriate to carry into effect, consistent with the Ordinance and this 2019 SRF-2/3 Series Ordinance, the authorizations therein and herein contained including without limitation the securing of ratings by bond rating agencies, and the incurring of reasonable fees costs and expenses incidental to the foregoing, for and on behalf of the Authority.

Section 15. Advancement of Project Costs. At the direction of an Authorized Officer, the Authority may advance certain Project Costs from the Authority's funds prior to the issuance of the 2019 SRF-2/3 Junior Lien Bonds to the extent that such costs are expenditures appropriate for reimbursement under applicable law, including the Code in the case of Tax-Exempt 2019 SRF-2/3 Junior Lien Bonds.

Section 16. Ratification. All determinations and decisions of an Authorized Officer heretofore taken with respect to the issuance and sale of the 2019 SRF-2/3 Junior Lien Bonds as permitted or required by the Ordinance or law are hereby ratified, confirmed and approved.

Section 17. Additional Authorization. The Chief Executive Officer, the Chief Financial Officer, the Chief Administrative and Compliance Officer and the General Counsel of the Authority, any such officials acting in an interim or acting capacity to such officers, their deputies and staff, or any of them, are hereby authorized to execute and deliver such certificates, Supplemental Agreements, other agreements, documents, instruments, opinions and other papers as may be deemed necessary or appropriate to complete the sale, execution and delivery of the 2019 SRF-2/3 Junior Lien Bonds and otherwise give effect to the transactions contemplated by this 2019 SRF-2/3 Series Ordinance, as determined by such officials executing and delivering the foregoing items.

Section 18. 2019 SRF-2/3 Series Ordinance a Contract. The provisions of this 2019 SRF-2/3 Series Ordinance shall constitute a contract between the Authority and each registered owner of an outstanding 2019 SRF-2/3 Junior Lien Bond.

Section 19. Professional Services.

(a) Dickinson Wright PLLC is hereby appointed as Bond Counsel for the 2019 SRF-2/3 Junior Lien Bonds, notwithstanding the periodic representation by Dickinson Wright PLLC in unrelated matters of other parties and potential parties to the issuance of the 2019 SRF-2/3 Junior Lien Bonds.

(b) PFM Financial Advisors LLC is hereby appointed as Financial Advisor for the 2019 SRF-2/3 Junior Lien Bonds, notwithstanding the periodic representation by PFM Financial

Advisors LLC in unrelated matters of other parties and potential parties to the issuance of the 2019 SRF-2/3 Junior Lien Bonds.

(c) The fees and expenses of Dickinson Wright PLLC and PFM Financial Advisors LLC shall be payable as an Issuance Cost from the proceeds of the 2019 SRF-2/3 Junior Lien Bonds or other available funds.

(d) An Authorized Officer is authorized to engage financial and other consultants as she deems necessary or appropriate in connection with the sale, issuance and delivery of the 2019 SRF-2/3 Junior Lien Bonds and to pay the fees and expenses thereof from the proceeds of the 2019 SRF-2/3 Junior Lien Bonds or other available funds.

Section 20. Severability; Headings; and Conflict. If any section, paragraph, clause or provision of this 2019 SRF-2/3 Series Ordinance shall be held invalid, the invalidity of such section, paragraph, clause or provision shall not affect any of the other provisions of this 2019 SRF-2/3 Series Ordinance. The section and paragraph headings in this 2019 SRF-2/3 Series Ordinance are furnished for convenience of reference only and shall not be considered to be part of this 2019 SRF-2/3 Series Ordinance.

Section 21. Publication and Recordation. This 2019 SRF-2/3 Series Ordinance shall be published in full in the Detroit Legal News, a newspaper of general circulation within the geographic boundaries of the Authority qualified under State law to publish legal notices, promptly after its adoption, and shall be maintained in the official records of the Authority and such recording authenticated by the signatures of the Chairperson and Secretary of the Authority Board.

Section 22. Repeal. All ordinances, resolutions, indentures or orders, or parts thereof, in conflict with the provisions of this 2019 SRF-2/3 Series Ordinance are, to the extent of such conflict, repealed.

Section 23. Effective Date. This 2019 SRF-2/3 Series Ordinance shall be effective upon adoption.

Adopted and signed on the 24th day of July, 2019.

GREAT LAKES WATER AUTHORITY

Signed _____
Chairperson

Signed _____
Secretary

BLOOMFIELD 63818-21 2348155v3

Great Lakes Water Authority

Resolution 2019-

**RE: Approval of Series Ordinance Authorizing Issuance and Sale of Water Supply System
Revenue Bonds in an Aggregate Amount not to Exceed \$46,000,000
Ordinance 2019-02**

By Board Member: _____

Whereas There has been presented to the Board of Directors of the Great Lakes Water Authority (the “Authority”) an ordinance entitled “Series Ordinance Authorizing the Issuance and Sale of Water Supply System Revenue Bonds in an Aggregate Amount not to Exceed \$46,000,000” (the “2019 SRF-2/3 Series Ordinance”), which ordinance is a Series Ordinance as defined and described in Master Bond Ordinance No. 2015-01 adopted by the Board of Directors on October 7, 2015, as amended on December 9, 2015, January 27, 2016 and August 10, 2016.

Whereas The Articles of Incorporation of the Authority provide that at least 5 of the 6 members of the Authority Board must vote to approve the 2019 SRF-2/3 Series Ordinance.

Now, Therefore Be It:

Resolved That the 2019 SRF-2/3 Series Ordinance, in the form presented to this meeting, is approved and adopted, and the Chairperson and the Secretary are authorized to authenticate the 2019 SRF-2/3 Series Ordinance in the form approved; **And Be it Further**

Resolved That an affirmative vote of at least 5 members of the Authority Board is necessary for the passage of this Resolution.

Adopted by the Great Lakes Water Authority Board on: _____, 2019

GLWA

Great Lakes Water Authority



Monthly Financial Report Binder

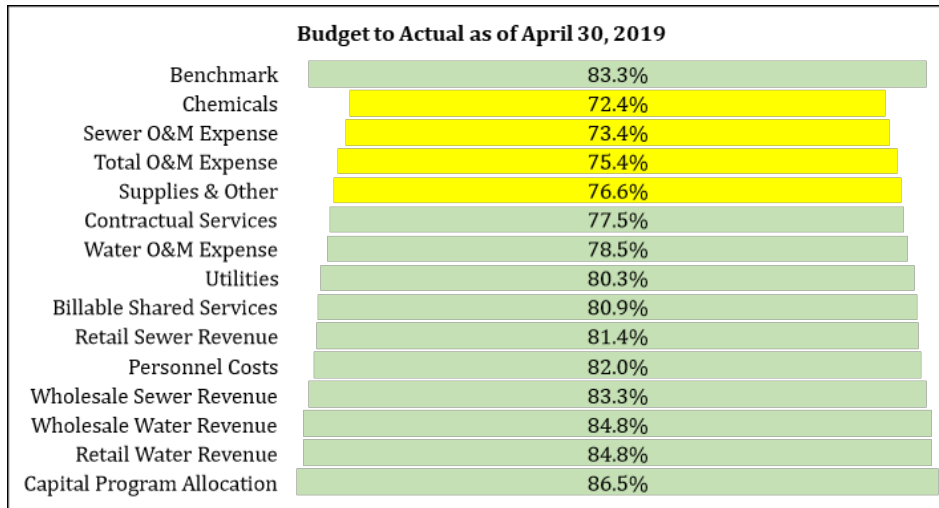
April 2019

**Presented to the
Great Lakes Water Authority
Audit Committee on July 19, 2019**

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Revenue and Expense Budget to Actual¹ – Pro-rata Benchmark of 83.3%



Most categories are within 5% of the pro-rata benchmark.

Chemicals: Expected variance as usage does not follow a consistent monthly budget pattern.

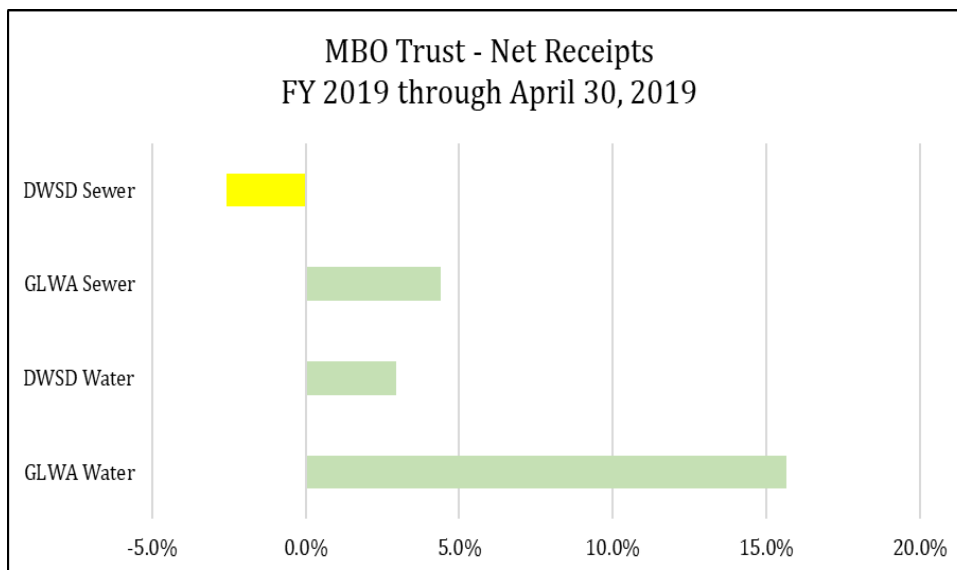
Supplies & Other: Due to timing of one-time or annual purchases in this

category, expenses will not occur evenly throughout the fiscal year.

Sewer Operations & Maintenance (O&M) Expense: The positive variances in Supplies & Other and Chemicals, noted above, also positively impact the overall Sewer O&M Expense.

Total Operations & Maintenance (O&M) Expense: The positive variances in Sewer O&M and the close management of Water O&M Expense is contributing to an overall positive variance to Total O&M Expense.

Master Bond Ordinance (MBO) Trust Net Receipts



Overall net cash flow (receipts) is positive. This means that all legal commitments of the MBO Trust and the lease payment are fully funded to date. The net positive variance contributes to an improving financial position. As of June 1, 2019, DWSD has reduced Sewer O&M

transfers in May and June to support the goal of a positive, net cash flow for FY 2019 and are on track to achieve that goal.

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 also 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 April 2019, the pro-rata benchmark is 83.3% (10 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 2019 revenues are either at or above target and are consistent with the prior year (FY 2018) 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 above target for FY 2019. 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. For example, in FY 2018 the variance reported for the *sewer* system was due, in large part, to fire remediation insurance proceeds received.

4. **Operations & Maintenance Expense:** Actual expenses¹ for *both* systems are less than the pro-rata benchmark; the *water* system is slightly under the pro-rata benchmark for FY 2019 at 78.5%, while the *sewer* system O&M expense is at 73.4%.
5. **Debt Service:** *Both* systems are on target with the pro-rata benchmark; the *water* system is at 83.2%, while the *sewer* system is at 82.9%. The activity is based on the payment schedules that have been adjusted for the State Revolving Fund loans that are still being drawn down. In October 2018, the GLWA had a successful bond sale which will provide a positive budget variance for *both* systems. The budget amendment for this transaction was recorded in January 2019.
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 2018, the DWSD *sewer* shortfall through April 30, 2018, was \$23.2 million (the ending shortfall for FY 2018 was \$24.1 million). A plan for payment of this shortfall is in place with the outer boundary of payment terms being paid over three years plus interest at the three-year treasury rate plus 1.5% with payments beginning in July 2019. For FY 2019, while the DWSD *water* system has positive budgetary cash flow, through April 30, 2019, the DWSD *sewer* system budgetary shortfall is approximately \$5.7 million. It is anticipated that this shortfall will be cured by June 30, 2019 based upon discussion at the May 2019 Reconciliation Committee meeting and related discussions at the administration level. As of June 2019, DWSD has reduced its sewer system O&M transfers in May and June to assist in achieving a goal of positive, net cash flows for FY 2019. The transfers reduced were \$5,676,792 each for a total of \$11,353,584.
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 typically occur later in the year or after year end close when final net revenues is validated.
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)

	FY 2018 BOARD ADOPTED BUDGET	FY 2018 THRU 4/30/2018	Percent Year-to- Date	FY 2019 BOARD ADOPTED BUDGET	FY 2019 AMENDED BUDGET	FY 2019 THRU 4/30/2019	Percent Year-to- Date
Water System							
Revenues							
Wholesale Customer Charges	\$ 310,020	\$ 266,332	85.9%	\$ 307,383	\$ 307,383	\$ 255,759	83.2%
Retail Services Agreement	15,131	12,609	83.3%	20,181	20,181	16,890	83.7%
Investment Earnings	2,969	3,426	115.4%	3,802	9,425	8,190	86.9%
Other Revenues	-	51	0.0%	34	-	21	0.0%
Total Revenues	\$ 328,119	\$ 282,417	86.1%	\$ 331,401	\$ 336,989	\$ 280,860	83.3%
Revenue Requirements							
Operations & Maintenance Expense	\$ 121,563	\$ 92,953	76.5%	\$ 121,563	\$ 121,563	\$ 95,480	78.5%
O&M Legacy Pension	6,048	5,040	83.3%	6,048	6,048	5,040	83.3%
Debt Service	135,464	112,155	82.8%	134,215	131,242	109,176	83.2%
Accelerated Legacy Pension	6,268	5,224	83.3%	6,268	6,268	5,224	83.3%
Extraordinary Repair & Replacement							
Deposit	646	538	83.3%	-	-	-	0.0%
Lease Payment	22,500	18,750	83.3%	22,500	22,500	18,750	83.3%
Operating Reserve Deposit	1,098	915	83.3%	-	-	-	0.0%
Water Residential Assistance Program	1,711	1,426	83.3%	1,673	1,673	1,395	83.3%
Improvement & Extension Fund							
Transfer Pending	32,821	27,351	83.3%	39,134	47,695	39,746	83.3%
Total Revenue Requirements	\$ 328,119	\$ 264,351	80.6%	\$ 331,401	\$ 336,989	\$ 274,810	81.5%
Net Difference		\$ 18,066				\$ 6,050	
<i>Recap of Net Positive Variance</i>							
Revenue Variance		\$ 8,984				\$ 35	
Revenue Requirement Variance		9,082				6,015	
Overall Variance		\$ 18,066				\$ 6,050	

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

	FY 2018 BOARD ADOPTED BUDGET	FY 2018 THRU 4/30/2018	Percent Year-to- Date	FY 2019 BOARD ADOPTED BUDGET	FY 2019 AMENDED BUDGET	FY 2019 THRU 4/30/2019	Percent Year-to- Date
Sewer System							
Revenues							
Wholesale Customer Charges	\$ 267,034	\$ 226,193	84.7%	\$ 271,296	\$ 271,296	\$ 229,128	84.5%
Retail Services Agreement	178,969	149,141	83.3%	181,159	181,159	151,890	83.8%
Industrial Waste Control Charges	14,458	11,950	82.7%	15,006	15,001	7,600	50.7%
Pollutant Surcharges	5,099	5,039	98.8%	-	-	4,686	0.0%
Investment Earnings	2,751	3,499	127.2%	4,086	6,879	8,173	118.8%
Other Revenues	-	3,749	0.0%	480	-	393	0.0%
Total Revenues	\$ 468,311	\$ 399,571	85.3%	\$ 472,027	\$ 474,335	\$ 401,871	84.7%
Revenue Requirements							
Operations & Maintenance Expense	\$ 191,079	\$ 136,467	71.4%	\$ 191,079	\$ 191,079	\$ 140,185	73.4%
O&M Legacy Pension	10,824	9,020	83.3%	10,824	10,824	9,020	83.3%
Debt Service	207,616	169,184	81.5%	214,601	208,389	172,780	82.9%
Accelerated Legacy Pension	11,621	9,684	83.3%	11,621	11,621	9,684	83.3%
Extraordinary Repair & Replacement							
Deposit	814	678	83.3%	-	-	-	0.0%
Lease Payment	27,500	22,917	83.3%	27,500	27,500	22,917	83.3%
Operating Reserve Deposit	1,733	1,444	83.3%	-	-	-	0.0%
Water Residential Assistance Program	2,392	1,993	83.3%	2,374	2,374	1,978	83.3%
DWSD Budget Shortfall Pending	-	23,237	0.0%	-	-	5,747	0.0%
Improvement & Extension Fund							
Transfer Pending	14,733	12,277	83.3%	14,028	22,548	18,790	83.3%
Total Revenue Requirements	\$ 468,311	\$ 386,901	82.6%	\$ 472,027	\$ 474,335	\$ 381,101	80.3%
Net Difference		\$ 12,670				\$ 20,770	
<i>Recap of Net Positive Variance</i>							
Revenue Variance		\$ 9,312				\$ 6,592	
Revenue Requirement Variance		3,358				14,178	
Overall Variance		\$ 12,670				\$ 20,770	

Operations & Maintenance Budget – Major Budget Categories

The year-over-year benchmark ratio as of April 30, 2019, is 83.3% (ten months). When comparing FY 2019 to FY 2018 in **Table 2 – Operations & Maintenance Budget – Major Budget Categories**, it appears spending has increased. This is true in some instances; however, the greater impact is that the Financial Reporting & Accounting Team has implemented a full accrual basis for interim financial statements during the latter half of FY 2018. This variance anomaly has decreased as we approach the final quarter of FY 2019.

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.

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

Major Budget Categories	FY 2018 AMENDED BUDGET	FY 2018 ACTIVITY THRU 4/30/2018	Percent Year-to- Date	FY 2019 BOARD ADOPTED BUDGET	FY 2019 AMENDED BUDGET	FY 2019 ACTIVITY THRU 4/30/2019	Percent Year-to- Date
Water	\$ 73,511	\$ 50,882	69.2%	\$ 66,596	\$ 66,596	\$ 58,552	87.9%
Sewer	124,106	90,023	72.5%	118,319	118,319	90,676	76.6%
Centralized	82,629	70,102	84.8%	99,045	99,045	68,395	69.1%
Administrative	32,305	20,681	64.0%	28,682	28,682	20,849	72.7%
Employee Benefits	-	(2,268)	0.0%	-	-	(2,807)	0.0%
Total O&M Budget	\$ 312,551	\$ 229,419	73.4%	\$ 312,642	\$ 312,642	\$ 235,665	75.4%

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 75.4% which is reasonably within the pro-rata benchmark of 83.3%. This positive variance equates to a dollar amount of \$24.9 million. The expense category commentary is provided below for items highlighted on Table 3.

Personnel Costs: The overall category is slightly lower than the benchmark; coming in at 82.0% through April 2019.

Utilities: The overall category is slightly lower than the benchmark; coming in at 80.3% through April 2019. In comparing FY 2019 to FY 2018 the expenses appear more in line with the budget in FY 2019. This is due in large part to the month-end closing process improvements implemented during the latter half of FY 2018.

Chemicals: This category is lower than the benchmark; coming in at 72.4% through April 2019. This variance is not unexpected as usage varies throughout the year. Staff is working on enhancements to future monthly financial and operational reports to correlate spending with operational metrics.

Supplies & Other: This category is lower than the benchmark; coming in at 76.6% through April 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 slightly lower than the benchmark; coming in at 77.5% through April 2019.

Capital Program Allocation: This category is higher than the benchmark; coming in at 86.5% through April 2019. In July 2018, GLWA launched a time keeping software (including an app), BigTime, to make it easier for team members to report their time spent on direct capital delivery.

Shared Services: This category is slightly lower than the benchmark; coming in at 80.9% through April 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. In December 2018, adjustments were made to both the billings and accounting accruals to bring them in line with the amended shared services budget.

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

Expense Categories	FY 2018 AMENDED	FY 2018 ACTIVITY THRU	Percent Year-to- Date at	FY 2018 ACTIVITY THRU	Percent Year-to- Date at	FY 2019 AMENDED	PRORATED AMENDED BUDGET (10 MONTHS)	FY 2019 ACTIVITY THRU	Percent Year-to- Date	PRORATED BUDGET LESS FY 2019
Entity-wide	BUDGET	4/30/2018	4/30/2018	6/30/2018	6/30/2018	BUDGET		4/30/2019		FY 2019 ACTIVITY
Salaries & Wages	\$ 57,114	\$ 44,825	78.5%	\$ 55,174	81.2%	\$ 62,935	\$ 52,446	\$ 49,580	78.8%	\$ 2,866
Workforce Development	662	489	74.0%	605	80.9%	723	603	627	86.6%	(24)
Overtime	6,517	5,279	81.0%	6,162	85.7%	7,199	5,999	6,314	87.7%	(315)
Employee Benefits	20,999	19,096	90.9%	20,432	93.5%	22,282	18,568	20,591	92.4%	(2,023)
Transition Services	13,865	9,211	66.4%	13,153	70.0%	6,568	5,474	7,417	112.9%	(1,944)
Personnel Transition										
Adjustment	(1,557)	-	0.0%	-	0.0%	-	-	-	0.0%	-
Employee Benefits Fund	-	(2,268)	0.0%	-	0.0%	-	-	(2,807)	0.0%	2,807
Personnel Costs	97,599	76,633	78.5%	95,526	80.2%	99,707	83,089	81,722	82.0%	1,368
Electric	42,324	33,833	79.9%	40,874	82.8%	39,801	33,167	33,122	83.2%	45
Gas	7,030	5,456	77.6%	6,612	82.5%	6,620	5,516	5,983	90.4%	(467)
Sewage Service	2,031	1,155	56.9%	1,716	67.3%	2,502	2,085	1,734	69.3%	352
Water Service	4,588	3,232	70.5%	4,493	71.9%	5,717	4,764	3,030	53.0%	1,734
Utilities	55,972	43,676	78.0%	53,694	81.3%	54,639	45,533	43,870	80.3%	1,663
Chemicals	13,341	10,635	79.7%	12,878	82.6%	14,765	12,304	10,694	72.4%	1,609
Supplies & Other	46,971	22,887	48.7%	34,950	65.5%	34,221	28,517	26,224	76.6%	2,294
Contractual Services	108,480	82,868	76.4%	99,877	83.0%	107,611	89,676	83,350	77.5%	6,326
Capital Program Allocation	(2,013)	(1,070)	53.2%	(1,683)	63.6%	(3,110)	(2,592)	(2,691)	86.5%	100
Shared Services	(10,110)	(6,208)	61.4%	(9,908)	62.7%	(9,272)	(7,726)	(7,502)	80.9%	(224)
Unallocated Reserve	2,311	-	0.0%	-	0.0%	14,081	11,734	-	0.0%	11,734
Total Expenses	\$ 312,551	\$ 229,419	73.4%	\$ 285,333	80.4%	\$ 312,642	\$ 260,535	\$ 235,665	75.4%	\$ 24,870

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 Bond Fund, and Capital Asset Fund*.

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 April 30, 2019
(\$000)

	Water	Sewage Disposal	Total Business- type Activities	Comparative June 30, 2018
Assets				
Cash (a)	\$ 169,599	\$ 203,037	\$ 372,636	\$ 671,753
Investments (a)	414,590	324,606	739,196	343,235
Accounts Receivable	117,101	95,905	213,005	191,359
Due from Other Funds (b)	3,895	-	3,895	32,255
Other Assets (c)	606,690	465,736	1,072,425	985,888
Cash Held FBO DWSD Advance (d)	-	30,086	30,086	18,468
Capital Assets, net of Depreciation	1,696,111	2,471,201	4,167,312	4,402,212
Construction Work in Process (e)	175,850	207,914	383,764	288,052
Total assets	3,183,836	3,798,485	6,982,321	6,933,222
Deferred Outflows (f)	88,191	169,969	258,160	332,992
Liabilities				
Liabilities - Short-Term (g)	164,357	172,318	336,675	270,446
Due to Other Funds (b)	-	3,895	3,895	32,255
Other Liabilities (h)	2,858	6,318	9,176	8,638
Cash Held FBO DWSD	10,898	-	10,898	8,902
Liabilities - Long-Term (i)	3,097,191	3,844,568	6,941,759	6,998,296
Total liabilities	3,275,304	4,027,099	7,302,403	7,318,537
Deferred Inflows (j)	65,497	56,595	122,091	126,432
Total net position (j)	\$ (68,774)	\$ (115,240)	\$ (184,014)	\$ (178,755)

Totals may be off due to rounding

In general, the Statement of Net Position reflects a mature organization with no unexpected trends. Cash balances as of April 30, 2019 are lower when compared to June 30, 2018 (highlighted in gold on Table 1). This is because of the high liquidity needs at June 30, 2018 to meet annual debt and interest payments, legacy pension obligation payments, and annual operational requirements whereas more funds are being invested as of April 30, 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* include restricted amounts and are reported at book value. Investments at June 30, 2018 are reported at market value.
- b. *Due from Other Funds* and *Due to 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. There is an annual balance sheet reclass entry between Cash Held for the benefit of DWSD and the contractual obligation receivable to reduce the receivable for the annual debt service payment. For FY 2019 the impact will be \$33.4 million for the water fund and \$26.3 for the sewer fund and will be reflected in the June 2019 financial report.
- 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 April 2019 Financial Report Binder. Prior year ending balances are provided in the June 30, 2018 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 Ten Months ended April 30, 2019
(\$000)

	Water	Percent of Revenue	Sewage Disposal	Percent of Revenue	Total Business- type Activities	Comparative June 30, 2018
Revenue						
Wholesale customer charges	\$ 261,885	93.9%	\$ 229,128	58.2%	\$ 491,013	\$ 592,096
Local system charges	16,890	6.1%	151,890	38.6%	168,780	194,100
Industrial waste charges	-	0.0%	7,600	1.9%	7,600	14,335
Pollutant surcharges	-	0.0%	4,686	1.2%	4,686	6,908
Other revenues	21	0.0%	393	0.1%	415	4,455
Total Revenues	\$ 278,797	100%	\$ 393,698	100%	\$ 672,495	\$ 811,894
Operating expenses						
Operations and Maintenance	95,480	34.2%	140,185	35.6%	235,665	284,910
Depreciation	118,073	42.4%	142,281	36.1%	260,354	331,242
Total operating expenses	213,553	76.6%	282,467	71.7%	496,020	616,152
Operating income	65,244	23.4%	111,232	28.3%	176,475	195,742
Total Nonoperating (revenue) expense	73,582	26.4%	108,152	27.5%	181,734	271,662
Increase/(Decrease) in Net Position	(8,339)	-3.0%	3,080	0.8%	(5,259)	(75,920)
Net position (deficit), beginning of year	(60,435)		(118,319)		(178,755)	(102,835)
Net position (deficit), end of year	\$ (68,774)		\$ (115,240)		\$ (184,014)	\$ (178,755)

Totals may be off due to rounding

Water Fund

- ✓ The decrease in Water Fund Net Position is \$8.3 million.
- ✓ Wholesale water customer charges of \$261.8 million account for 93.9% of Water System revenues.
- ✓ Operating expenses of \$213.5 million represent 76.6% of total operating revenue. Depreciation is the largest operating expense at \$118.0 million or 55.3% of operating expense.
- ✓ Operating income after operating expenses (including depreciation) equals \$65.2 million or 23.4% of operating revenue. This represents an increase of \$6.4 million over March 2019 year-to-date.

- ✓ The largest category within nonoperating activities is interest expense of \$94.9 million (this equates to the bonded debt interest less the offset from DWSD contractual obligation income).

Sewage Disposal Fund

- ✓ The increase in the Sewage Disposal Fund Net Position is \$3.0 million.
- ✓ Wholesale customer charges of \$229.1 million account for 58.2% 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 \$151.9 million account for 38.6% of total operating revenues. These are also billed at one-twelfth of the annual revenue requirement.
- ✓ Operating expenses of \$282.4 million represent 71.7% of total operating revenue. Depreciation is the largest operating expense at \$142.2 million or 50.4% of total operating expense.
- ✓ Operating income after operating expenses (including depreciation) equals \$111.2 million or 28.3% of operating revenue. This represents an increase of \$12.4 million over March 2019 year-to-date.
- ✓ The largest category within nonoperating activities is interest expense of \$118.9 million (this equates to the bonded debt interest 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 April 2019 Financial Report Binder. Explanatory notes follow this schedule.

**Table 3 – Supplemental Schedule of Operations & Maintenance Expenses
– All Funds Combined
For the Ten Months ended April 30, 2019
(\$000)**

	Water	Percent of Total	Sewage Disposal	Percent of Total	Total Business- type Activities	Percent of Total
Operating expenses						
Personnel						
Salaries & Wages	19,870	20.8%	37,753	26.9%	57,624	24.5%
Overtime	3,535	3.7%	2,780	2.0%	6,315	2.7%
Benefits	9,944	10.4%	7,840	5.6%	17,783	7.5%
Total Personnel	<u>\$ 33,349</u>	<u>34.9%</u>	<u>\$ 48,373</u>	<u>34.5%</u>	<u>\$ 81,722</u>	<u>34.7%</u>
Utilities						
Electric	21,236	22.2%	11,887	8.5%	33,122	14.1%
Gas	1,064	1.1%	4,919	3.5%	5,983	2.5%
Sewage	591	0.6%	1,143	0.8%	1,734	0.7%
Water	1	0.0%	3,029	2.2%	3,030	1.3%
Total Utilities	<u>\$ 22,892</u>	<u>24.0%</u>	<u>\$ 20,978</u>	<u>15.0%</u>	<u>\$ 43,870</u>	<u>18.6%</u>
Chemicals	4,121	4.3%	6,573	4.7%	10,694	4.5%
Supplies and other	8,869	9.3%	17,354	12.4%	26,224	11.1%
Contractual services	35,004	36.7%	48,346	34.5%	83,350	35.4%
Capital program allocation	(1,612)	-1.7%	(1,079)	-0.8%	(2,691)	-1.1%
Shared services allocation	<u>(7,143)</u>	<u>-7.5%</u>	<u>(359)</u>	<u>-0.3%</u>	<u>(7,503)</u>	<u>-3.2%</u>
Operations and Maintenance Expenses	<u>\$ 95,480</u>	<u>100.0%</u>	<u>\$ 140,185</u>	<u>100.0%</u>	<u>\$ 235,665</u>	<u>100.0%</u>

Totals may be off due to rounding.

- ✓ Core expenses for water and sewage disposal systems are utilities (18.6% of total O&M expenses) and chemicals (4.5%).
- ✓ Personnel costs (34.7% 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 (35.4%) includes:
 - Water System costs of sludge removal and disposal services at the Northeast, Southwest and Springwells Water Treatment Plants (approximately \$9.9 million);
 - Sewage Disposal System costs for the operation and maintenance of the biosolids dryer facility (approximately \$12.9 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 Ten Months ended April 30, 2019
(\$000)

	Water	Sewage Disposal	Total Business- type Activities	Comparative June 30, 2018
Nonoperating (Revenue)/Expense				
Interest income contractual obligation	\$ (19,096)	\$ (14,338)	\$ (33,433)	\$ (38,857)
Interest income DWSD Shortfall	-	(888)	(888)	-
Investment earnings	(10,709)	(9,141)	(19,851)	(11,396)
Other nonoperating revenue	(342)	5,983	5,641	(430)
Interest expense				
Bonded debt	95,195	113,979	209,174	255,868
Lease obligation	14,738	18,013	32,751	39,702
Other obligations	4,122	1,327	5,448	4,825
Total interest expense	114,054	133,319	247,373	300,395
Other capital / non-capital expense	312	2,593	2,904	1,684
Amortization, issuance costs, debt	(8,416)	1,383	(7,032)	(8,684)
Amortization, raw water rights	2,972	-	2,972	2,081
(Gain) loss on disposal of capital assets	436	(520)	(84)	(2,463)
Loss on impairment of capital assets	-	-	-	654
Water Residential Assistance Program	385	524	909	3,756
Legacy pension expense	(6,014)	(10,764)	(16,778)	24,922
Total Nonoperating (Revenue)/Expense	\$ 73,582	\$ 108,152	\$ 181,734	\$ 271,662

Totals may be off due to rounding.

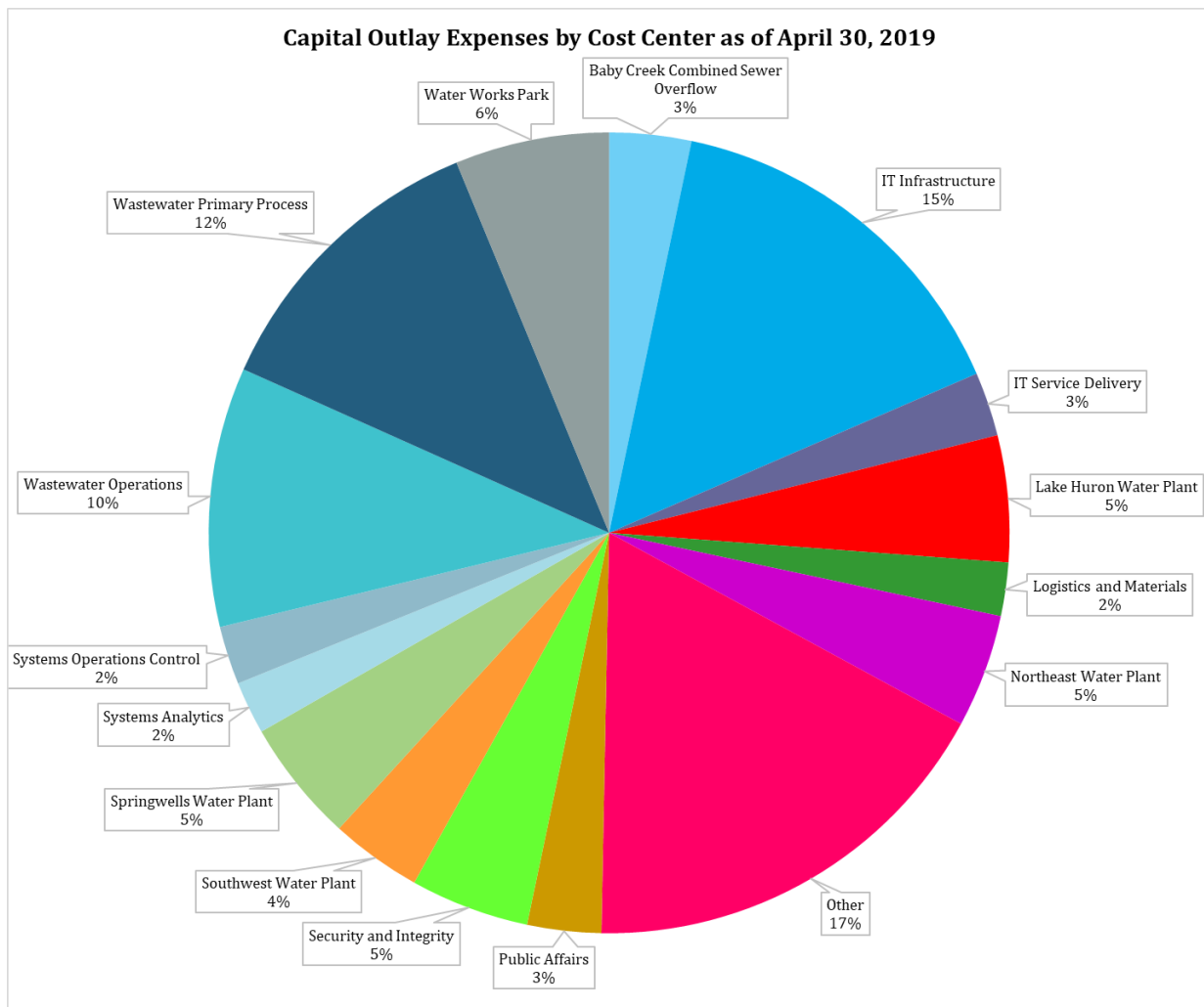
- ✓ Interest income on contractual obligation relates to the portion of the total GLWA debt obligation attributable to DWSD. This interest income offsets the total debt interest expense paid by GLWA on behalf of both entities monthly.
- ✓ Interest income DWSD shortfall represents interest from a budgetary shortfall loan from fiscal years 2016 and 2017 and is paid in accordance with the 2018 Memorandum of Understanding (MOU). The repayment of the shortfall will last for three years.
- ✓ Investment earnings in this report are reflected at book value and may therefore not agree with the Cash and Investment Income section of this Financial Report Binder and the Quarterly Debt Report which present balances at market value.

- ✓ 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.
- ✓ Legacy Pension expense for FY 2019 is currently 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 bad debt 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.



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

Through April 30, 2019, total capital outlay spend is \$14.5 million. Below is a sample list of projects and purchases from the total spend of \$14.5 million:

Water Operations: underground storage tanks, dispenser and management system (\$2.6m); filter upgrade at Water Works Park (\$124k); dual channel permanent flowmeter (\$117k) and gas scrubber (\$95k)

Wastewater Operations: chiller replacement at Water Resource Recovery Facility (WRRF) (\$756k); underground storage tanks, dispenser and management system (\$630k); pump pull-out assembly (\$625k); grit crane (\$563k); WRRF engineering offices design (\$450k); booster pump and expansion tank for Scum building (\$196k) and screw conveyor (\$114k)

Information Technology: low voltage wiring (\$1.4m) and software (\$576k)

Security: security infrastructure (\$690k)

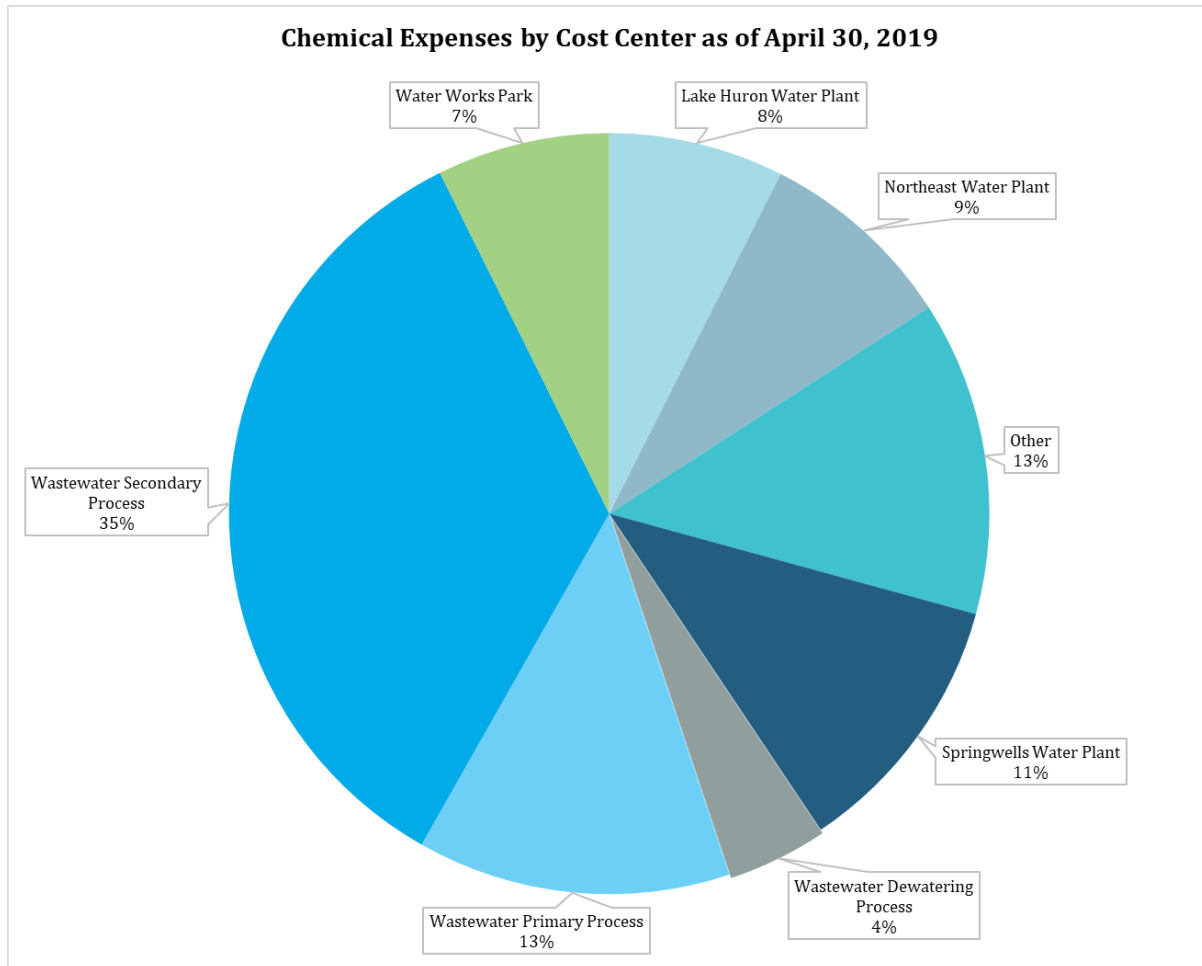
System Analytics: flow meters (\$193k)

CSO Facilities: channel meters (\$470k); chemical feed pump (\$178k); submersible sewage pump (\$144k); chopper pump (\$125k) and chemical induction unit (\$124k)

Centralized & Administrative Facilities: Public Affairs & 13th floor renovation and furniture (\$402k); variable feed drives (\$113k) and VFD upgrade (\$96k)

Chart 2 – Chemical Spend – Water and Sewer System Combined

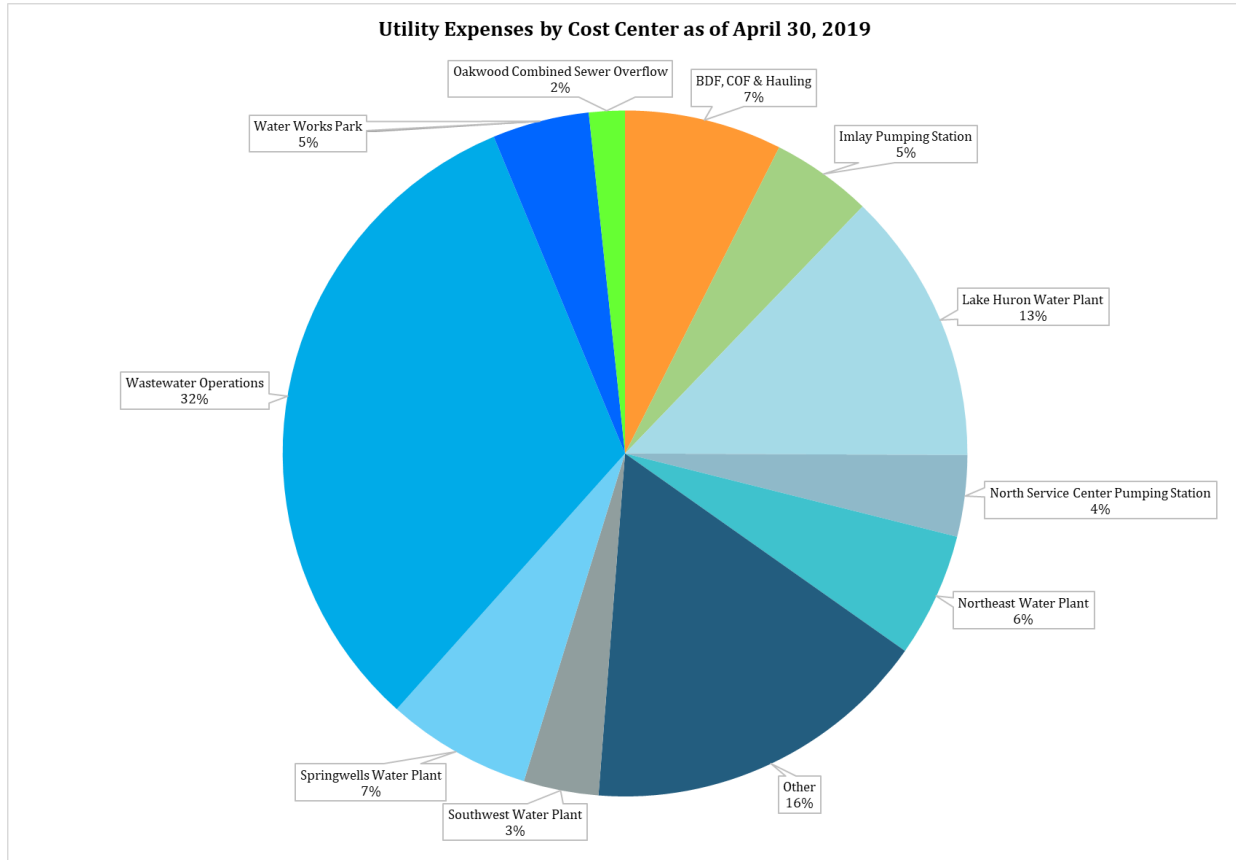
Chemical spend is \$10.7 million through April 30, 2019. The allocation is shown in the chart below.



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 \$43.8 million through April 30, 2019. The allocation is shown in the chart below.



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

Financial Operations KPI

This key performance indicator shown in Chart 1 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 March 2019.

Chart 1 – Bank Reconciliation Completion Status

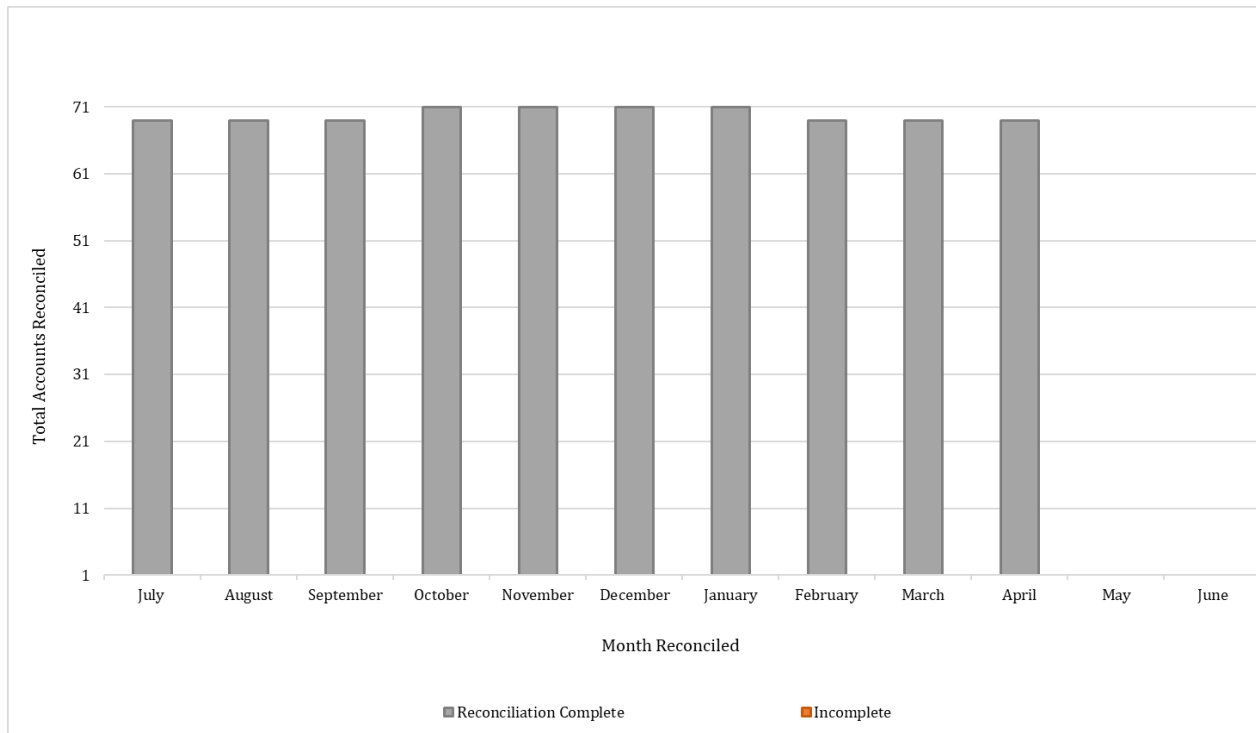


Table 1 – Fiscal Year 2019 Bank Account Rollforward

Total accounts as of July 1, 2018	70
Bank accounts opened	2
Bank accounts closed	(3)
Total accounts as of April 30, 2019	<u>69</u>

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 budget. The revenue requirements are determined based upon the cash needed to meet the financial commitments as required by the MBO.

- 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 Ten Months Ended April 30, 2019

	Water	Sewer	Total
Net Revenue Requirement Budget Variance (a)	\$ 6,050	\$ 20,770	\$ 26,820
Budgetary categories adjustments to financial reporting basis			
Pension delayed accounting election adjustments			
Current year pension transfers/payments recorded as deferral (c)	9,534	17,063	26,597
Prior year pension contribution accounted for in current year (d)	6,014	10,764	16,778
Administrative prepaid adjustment (e)	-	-	-
Debt service (f)	33,077	73,139	106,216
Accelerated pension B&C notes obligation portion (g)	140	314	454
Lease payment (h)	4,012	4,904	8,916
WRAP (i)	1,010	1,454	2,464
DWSD short term allocation (j)	-	5,747	5,747
Improvement & Extension Fund (j)	39,746	18,790	58,536
Nonbudgeted financial reporting categories adjustments			
Depreciation (k)	(118,073)	(142,281)	(260,354)
Amortization (k)	5,444	(1,383)	4,061
Other nonoperating income (k)	340	(5,984)	(5,644)
Other nonoperating expense (k)	(312)	(2,593)	(2,905)
Gain(loss) on disposal of capital assets (k)	(436)	520	84
Raw water rights (l)	2,595	-	2,595
Investment earnings construction fund (m)	2,520	1,856	4,376
Net Position Increase/(Decrease) per Financial Statements (b)	\$ (8,339)	\$ 3,080	\$ (5,259)

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 and Improvement & Extension Fund transfers are shown as an expense for budget purposes but not for financial reporting purposes.
 - (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 which is 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.

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 biennial budget that establishes allowable amounts for construction spending during that period to support a five-year capital improvement plan (CIP). The CIP is a five-year, rolling plan which is updated annually, reviewed, and formally adopted by the GLWA Board of Directors.

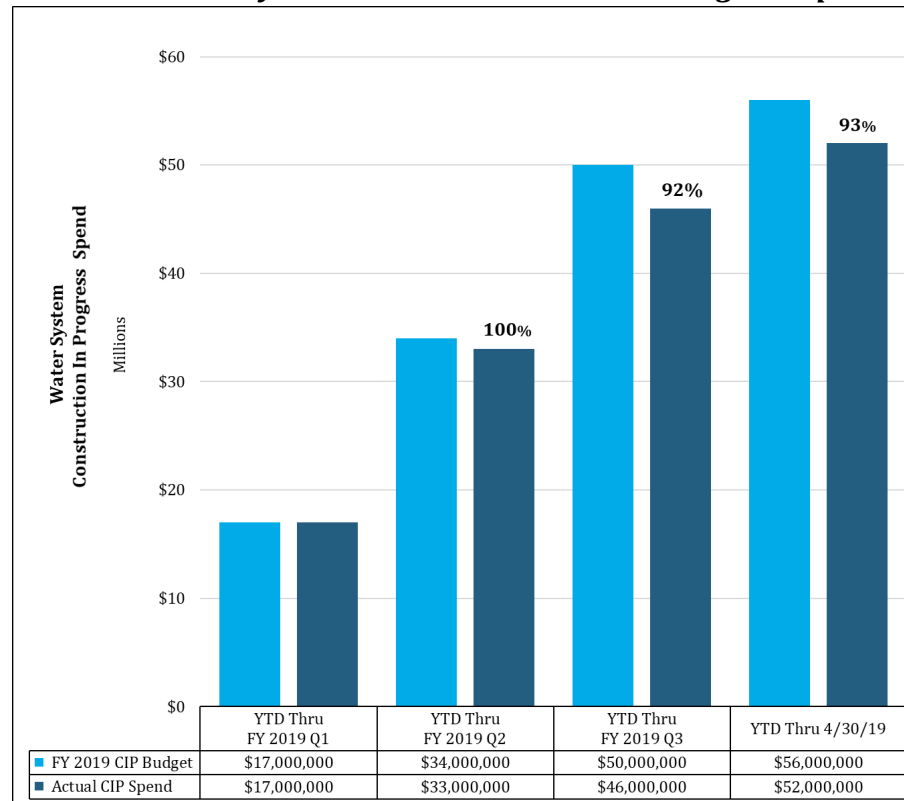
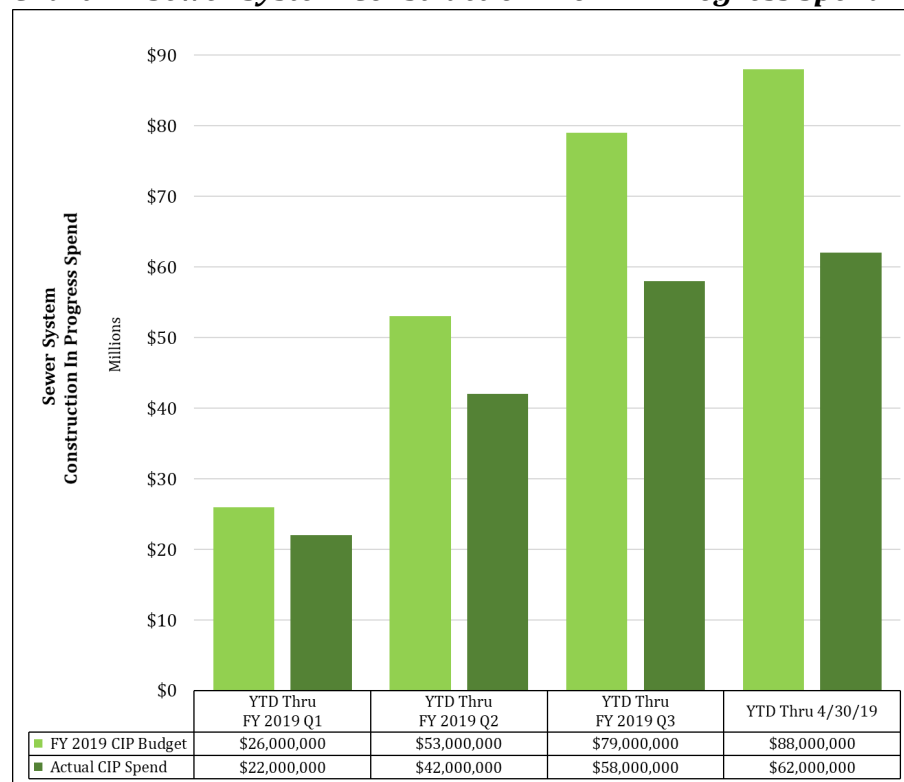
This report presents quarterly and monthly CWIP spending trends against a prorated spending plan. The prorated spending plan is calculated by dividing the total fiscal year 2019 board-approved CIP plan by twelve equal months. It should be noted that these interim reports are prepared on a modified cash basis. Known expenses, where material in nature, have been accrued.

Chart 1 – Water System Construction in Work in Progress Spend

As of April 2019, the Water system incurred nearly \$52 million of construction costs to date. This is 93% of the total fiscal year 2019 prorated, spending plan and continues a trend of on-target spend.

Chart 2 – Sewer System Construction in Work in Progress Spend

As of April 2019, the Sewer system incurred nearly \$62 million of construction costs to date. This is 70% of the total fiscal year 2019 prorated, spending plan and a slight decrease over the prior period.

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 2019 Water MBO Transfers reflects the required transfers for FY 2019 completed through April 1, 2019. The December O&M transfer amount is less than the other months due to correction to bring fiscal year to date transfers to the approved FY 2019 year to date budget. For FY 2019, through April 1, 2019, MBO transfers for Water totaling \$117.0 million have been transferred to accounts held by GLWA.

Table 2 – GLWA FY 2019 Sewer MBO Transfers reflects the required transfers for FY 2019 completed through April 1, 2019. The December O&M transfer amount is less than the other months due to correction to bring fiscal year to date transfers to the approved FY 2019 year to date budget. For FY 2019, through April 1, 2019, MBO transfers for Water totaling \$182.9 million have been transferred to accounts held by GLWA.

Table 3 – GLWA MBO Transfer History reflects historical transfers for FY 2016, FY 2017, FY 2018 and FY 2019 to date.

Table 1 – GLWA FY 2019 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 2019							
July 2018	10,393,475	504,000	891,308	171,683	-	-	11,960,466
August 2018	10,393,475	504,000	891,308	171,683	-	-	11,960,466
September 2018	10,393,475	504,000	891,308	171,683	-	-	11,960,466
October 2018	10,393,475	504,000	891,308	171,683	-	-	11,960,466
November 2018	10,393,475	504,000	891,308	171,683	-	-	11,960,466
December 2018	8,813,927	504,000	891,308	171,683	-	-	10,380,918
January 2019	10,130,217	504,000	891,308	171,683	-	-	11,697,208
February 2019	10,130,217	504,000	891,308	171,683	-	-	11,697,208
March 2019	10,130,217	504,000	891,308	171,683	-	-	11,697,208
April 2019	10,130,217	504,000	891,308	171,683	-	-	11,697,208
Total FY 2019	101,302,170	5,040,000	8,913,080	1,716,830	\$0	\$0	116,972,080

Table 2 – GLWA FY 2019 Sewer MBO Transfers

SEWER							
	Operations & Maintenance	Pension Sub Account	Pension Obligation	WRAP	Budget Stabilization (For Benefit of DWSD)	Extraordinary Repair & Replacement (ER&R)	Total Water
FY 2019							
July 2018	16,093,500	902,000	1,223,958	238,483	-	-	18,457,941
August 2018	16,093,500	902,000	1,223,958	238,483	-	-	18,457,941
September 2018	16,093,500	902,000	1,223,958	238,483	-	-	18,457,941
October 2018	16,093,500	902,000	1,223,958	238,483	-	-	18,457,941
November 2018	16,093,500	902,000	1,223,958	238,483	-	-	18,457,941
December 2018	15,072,198	902,000	1,223,958	238,483	-	-	17,436,639
January 2019	15,923,283	902,000	1,223,958	238,483	-	-	18,287,724
February 2019	15,923,283	902,000	1,223,958	238,483	-	-	18,287,724
March 2019	15,923,283	902,000	1,223,958	238,483	-	-	18,287,724
April 2019	15,923,283	902,000	1,223,958	238,483	-	-	18,287,724
Total FY 2019	159,232,830	\$9,020,000	12,239,580	2,384,830	\$0	\$0	182,877,240

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 (10 months)	101,302,170	5,040,000	8,913,080	1,716,830	-	-	116,972,080
Life to Date	\$405,796,374	\$23,162,300	\$40,203,176	\$7,936,730	\$2,686,900	\$606,000	\$480,391,480
SEWER							
	Operations & Maintenance	Pension Sub Account	Pension Obligation	WRAP	Budget Stabilization (For Benefit of DWSD)	Extraordinary Repair & Replacement (ER&R)	Total Water
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 (10 months)	159,232,830	9,020,000	12,239,580	2,384,830	-	-	182,877,240
Life to Date	\$627,036,626	\$41,520,800	\$54,979,676	\$10,323,434	\$8,246,100	\$779,600	\$742,886,236

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 2019 Water MBO Transfers reflects the required transfers for FY 2019 completed through April 1, 2019. MBO transfers for Water totaling \$48.7 million have been transferred to accounts held by DWSD. For FY 2019, DWSD has requested \$3,972,200 of the lease payment be utilized to offset a portion of debt service. (Note: the original FY 2019 request was for \$3,949,200; the net impact of the revision in the requested amount is reflected in the March - June 2019 transfers.)

Table 5 – DWSD FY 2019 Sewer MBO Transfers reflects the required transfers for FY 2019 completed through April 1, 2019. MBO transfers for Sewer totaling \$77.3 million have been transferred to accounts held by DWSD. For FY 2019, DWSD has requested \$4,415,000 of the lease payment be utilized to offset a portion of debt service. (Note: the original FY 2019 request was for \$4,864,000; the net impact of the revision in the requested amount is reflected in the March - June 2019 transfers.)

Table 6 – DWSD MBO and Lease Payment Transfer History reflects historical transfers for FY 2016, FY 2017, FY 2018 and FY 2019 to date.

Table 4 – DWSD FY 2019 Water MBO Transfers

	WATER			
	<u>Operations & Maintenance</u>	<u>Pension</u>	<u>Lease Payment (I&E Fund)</u>	<u>Total Water</u>
FY 2019				
July 2018	\$ 2,957,025	\$ 356,000	\$ 1,545,900	\$ 4,858,925
August 2018	2,957,025	356,000	1,545,900	4,858,925
September 2018	2,957,025	356,000	1,545,900	4,858,925
October 2018	2,957,025	356,000	1,545,900	4,858,925
November 2018	2,957,025	356,000	1,545,900	4,858,925
December 2018	2,957,025	356,000	1,545,900	4,858,925
January 2019	2,957,025	356,000	1,545,900	4,858,925
February 2019	2,957,025	356,000	1,545,900	4,858,925
March 2019	2,957,025	356,000	1,594,200	4,907,225
April 2019	2,957,025	356,000	1,594,200	4,907,225
Total FY 2019	\$ 29,570,250	\$ 3,560,000	\$ 15,555,600	\$ 48,685,850

Table 5 – DWSD FY 2019 Sewer MBO Transfers

	SEWER			
	<u>Operations & Maintenance</u>	<u>Pension</u>	<u>Lease Payment (I&E Fund)</u>	<u>Total Sewer</u>
FY 2019				
July 2018	\$ 5,676,792	\$ 238,000	\$ 1,886,333	\$ 7,801,125
August 2018	5,676,792	238,000	1,886,333	7,801,125
September 2018	5,676,792	238,000	1,886,333	7,801,125
October 2018	5,676,792	238,000	1,886,333	7,801,125
November 2018	5,676,792	238,000	1,886,333	7,801,125
December 2018	5,676,792	238,000	1,886,333	7,801,125
January 2019	5,676,792	238,000	1,886,333	7,801,125
February 2019	5,676,792	238,000	1,886,333	7,801,125
March 2019	5,676,792	238,000	1,538,734	7,453,526
April 2019	5,676,792	238,000	1,538,734	7,453,526
Total FY 2019	\$ 56,767,920	\$ 2,380,000	\$ 18,168,132	\$ 77,316,052

Table 6 – DWSD MBO and Lease Payment Transfer History

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	\$ 73,121,400
Offset to Debt Service	-	-	(2,326,900)	(2,326,900)
Net MBO Transfer	26,185,600	4,262,700	20,173,100	70,794,500
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 (10 months)				
MBO/Lease Requirement	29,570,250	3,560,000	18,750,000	51,880,250
Offset to Debt Service	-	-	(3,194,400)	(3,194,400)
Net MBO Transfer	29,570,250	3,560,000	15,555,600	48,685,850
Life-to-Date				
MBO/Lease Requirement	124,411,954	16,357,100	86,250,000	247,192,154
Offset to Debt Service	-	-	(7,396,300)	(7,396,300)
Total Water	\$ 124,411,954	\$ 16,357,100	\$ 78,853,700	\$ 239,795,854
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 (10 months)				
MBO/Lease Requirement	56,767,920	2,380,000	22,916,667	82,064,587
Offset to Debt Service	-	-	(4,748,535)	(4,748,535)
Total MBO Transfer	56,767,920	2,380,000	18,168,132	77,316,052
Life-to-Date				
MBO/Lease Requirement	178,595,812	10,959,800	105,416,667	294,972,279
Offset to Debt Service	-	-	(33,906,699)	(33,906,699)
Total Sewer	\$ 178,595,812	\$ 10,959,800	\$ 71,509,968	\$ 261,065,580

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

This report includes the following:

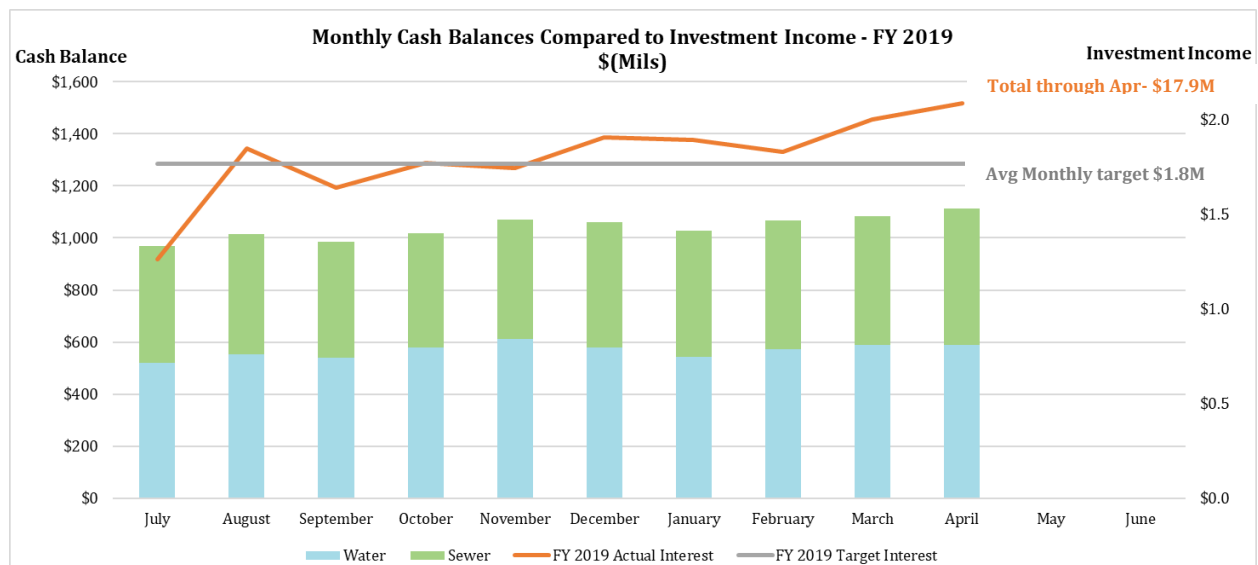
1. Monthly Cash Balances Compared to Investment Income
2. Cash Balance Detail

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 earning through April 2019 of \$17.9 is 85% of the FY 2019 target of \$21.2 million. Even with the current market environment, GLWA expects to meet the FY 2019 target.

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



\$(Mils)	July	August	September	October	November	December	January	February	March	April	May	June
Water	\$521	\$553	\$539	\$579	\$611	\$579	\$544	\$573	\$589	\$590		
Sewer	447	462	445	440	459	481	484	495	495	524		
Total	\$968	\$1,015	\$984	\$1,018	\$1,071	\$1,060	\$1,028	\$1,068	\$1,084	\$1,114		
Investment Income	\$1.3	\$1.8	\$1.6	\$1.8	\$1.7	\$1.9	\$1.9	\$1.8	\$2.0	\$2.1		

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

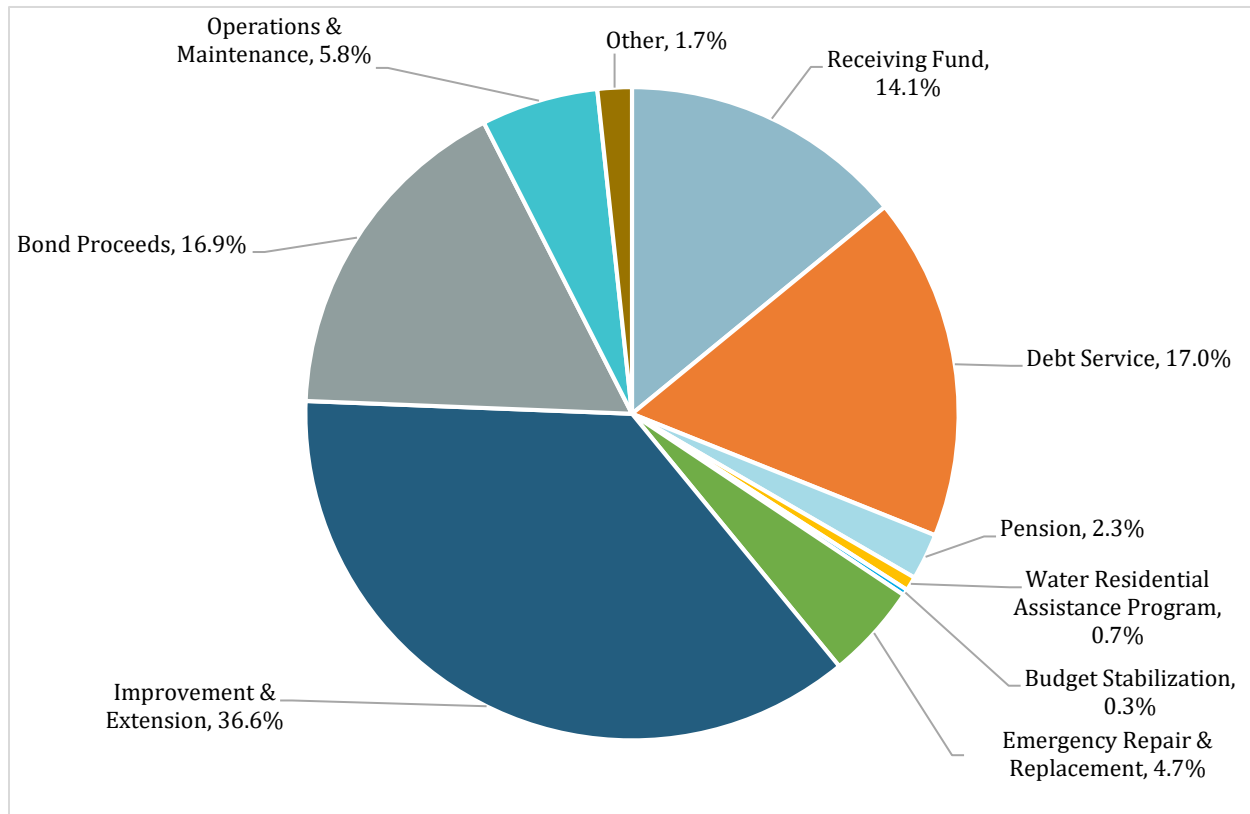
Funds Held Outside Trust:

- 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 April 30, 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 April 30, 2019 is consistent with the prior month at \$590 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 April 30, 2019

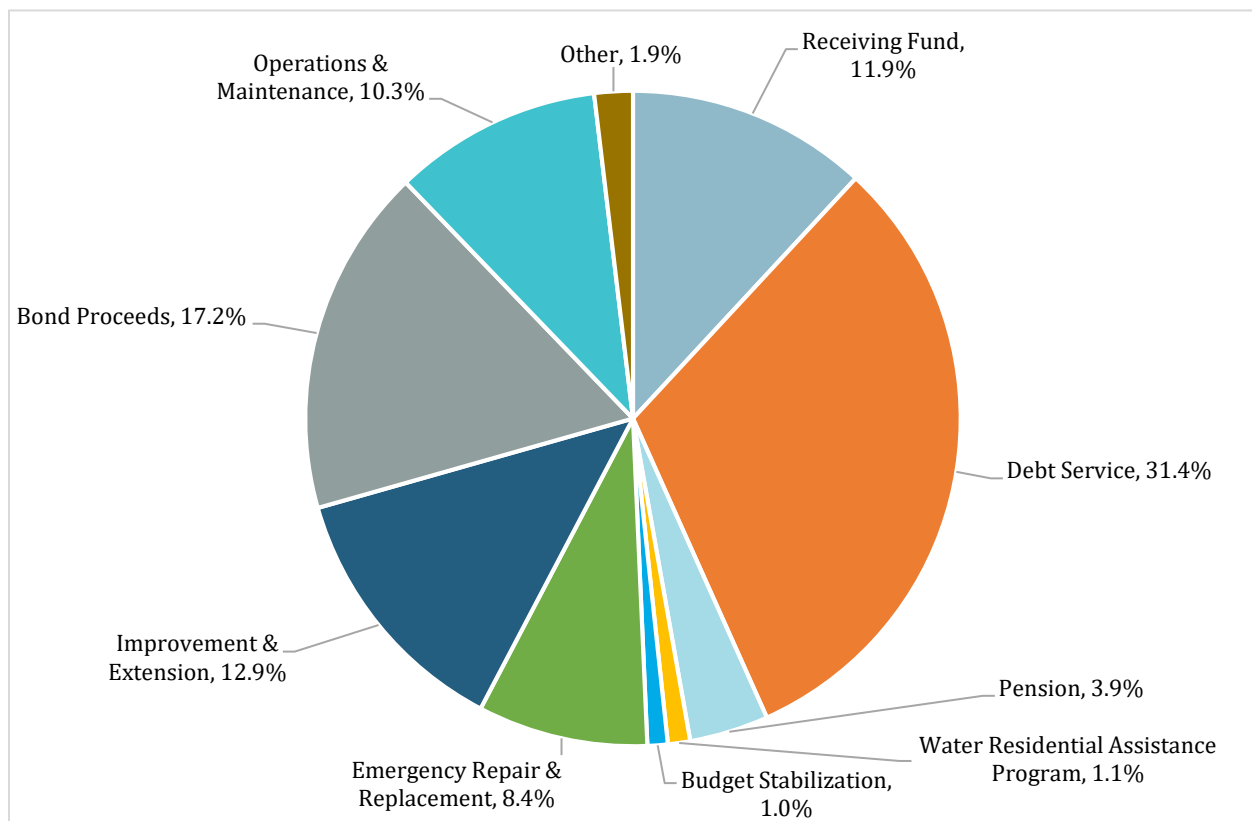


Note: Due to rounding totals may not equal 100%.

Chart 3 – Cash Balances - Sewer Funds as of April 30, 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 April 30, 2019 is \$524 million, which is slightly higher than last month as the debt service balance grows to meet July 1st debt payments.

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 April 30, 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 2019 water usage and billed revenue which are provided by DWSD staff. As of April 30, 2019, the DWSD usage was at 100.23% of the budget and billed revenue was at 103.23% 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.

Note: DWSD shared with the Reconciliation Committee the additional, billings to collections rolling average report requested by the GLWA Audit Committee at the December 21, 2018 meeting. That report was part of the Reconciliation Committee update in the May packet. We will continue to work with DWSD to determine if a monthly format could be included in this report.

Table 1 – DWSD Retail Water Billings

RETAIL WATER CUSTOMERS								
Month (1)	FY 2019 - Budget/Goal			FY 2019 - Actual			FY 2019 - Variance	
	Volume	Revenue	Unit Revenue	Volume	Revenue (2)	Unit Revenue	Volume	Revenue
	Mcf	\$	\$/Mcf	Mcf	\$	\$/Mcf	Mcf	\$
July	269,000	9,424,500	35.04	300,613	10,203,409	33.94	31,613	778,909
August	273,100	9,377,700	34.34	302,476	9,833,149	32.51	29,376	455,449
September	270,500	8,494,300	31.40	221,531	8,996,692	40.61	(48,969)	502,392
October	233,800	8,165,900	34.93	215,104	8,010,524	37.24	(18,696)	(155,376)
November	224,500	7,750,100	34.52	232,770	8,325,013	35.76	8,270	574,913
December	206,500	8,224,900	39.83	202,686	7,659,930	37.79	(3,814)	(564,970)
January	226,600	7,978,800	35.21	227,697	8,250,078	36.23	1,097	271,278
February	216,400	7,980,200	36.88	232,094	8,649,072	37.27	15,694	668,872
March	213,300	8,163,900	38.27	218,435	8,165,904	37.38	5,135	2,004
April	223,100	7,856,900	35.22	208,812	8,014,291	38.38	(14,288)	157,391
May	211,000	9,109,200	43.17					
June	240,200	9,063,600	37.73					
Total	2,808,000	101,590,000	36.18	2,362,218	86,108,062	36.45	5,418	2,690,862
<i>Subtotals ytd</i>	<i>2,356,800</i>	<i>83,417,200</i>	<i>35.39</i>	<i>2,362,218</i>	<i>86,108,062</i>	<i>36.45</i>	<i>5,418</i>	<i>2,690,862</i>
<i>Achievement of Budget</i>				<i>100.23%</i>	<i>103.23%</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
May	8,969,019	8,568,632	400,387	4.67%
June	7,940,939	7,141,568	799,371	11.19%
July	7,375,402	8,357,505	(982,103)	-11.75%
August	8,692,784	9,509,488	(816,704)	-8.59%
September	9,766,449	8,949,906	816,543	9.12%
October	9,015,400	9,528,528	(513,128)	-5.39%
November	7,938,517	8,049,328	(110,811)	-1.38%
December	7,297,698	8,265,636	(967,938)	-11.71%
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%
Rolling, 12-Month Total	100,265,559	100,376,594		
Rolling, 12-Month Average	8,355,463	8,364,716		

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 2019 sewer billed revenue which are provided by DWSD staff. As of April 30, 2019, the DWSD usage was at 104.19% of the budget and billed revenue was at 98.28% 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.

Note: DWSD shared with the Reconciliation Committee the additional, billings to collections rolling average report requested by the GLWA Audit Committee at the December 21, 2018 meeting. That report was part of the Reconciliation Committee update in the May packet. We will continue to work with DWSD to determine if a monthly format could be included in this report.

Table 3 - DWSD Retail Sewer Billings

RETAIL SEWER CUSTOMERS						
Month (1)	FY 2019 - Budget/Goal		FY 2019 - Actual		FY 2019 - Variance	
	Volume	Revenue	Volume	Revenue (2)	Volume	Revenue
	Mcf	\$	Mcf	\$	Mcf	\$
July	242,100	27,423,400	273,862	27,711,606	31,762	288,206
August	244,200	27,232,200	262,525	27,263,163	18,325	30,963
September	239,600	25,367,500	221,660	25,413,790	(17,940)	46,290
October	211,000	25,177,200	205,267	24,092,209	(5,733)	(1,084,991)
November	197,600	23,861,000	205,806	24,176,849	8,206	315,849
December	182,400	25,293,500	193,791	23,787,394	11,391	(1,506,106)
January	198,600	24,852,800	201,171	24,269,509	2,571	(583,291)
February	191,600	25,329,400	220,021	25,455,499	28,421	126,099
March	191,000	25,474,500	205,424	24,510,043	14,424	(964,457)
April	197,300	24,789,700	193,725	23,743,871	(3,575)	(1,045,829)
May	187,300	26,205,200				
June	210,300	26,730,700				
Total	2,493,000	307,737,100	2,183,252	250,423,933	87,852	(4,377,267)
Subtotals ytd	2,095,400	254,801,200	2,183,252	250,423,933	87,852	(4,377,267)
Achievement of Budget/Goal			104.19%	98.28%		

(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
May	18,341,298	20,046,357	(1,705,059)	-8.51%
June	27,591,834	18,005,548	9,586,286	53.24%
July	21,461,926	18,582,964	2,878,962	15.49%
August	21,746,714	24,263,141	(2,516,427)	-10.37%
September	23,727,505	21,320,358	2,407,147	11.29%
October	23,938,933	23,786,903	152,030	0.64%
November	20,624,039	19,485,270	1,138,769	5.84%
December	19,612,154	19,522,952	89,203	0.46%
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%
Rolling 12-Month Total	261,986,292	239,992,882		
Rolling, 12-Month Average	21,832,191	19,999,407		

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 April 30, 2019.

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	286,070	\$ 335.06	\$ 12,022,000 12.5%	\$ 7,325,000 7.6%	\$ 17,993,000 18.8%	\$ 58,509,000 61.0%	\$ 95,849,000 100.0%
Commercial	28,196	1,199.42	7,509,000 22.2%	2,990,000 8.8%	5,983,000 17.7%	17,337,000 51.3%	33,819,000 100.0%
Industrial	4,799	3,149.02	4,007,000 26.5%	1,402,000 9.3%	2,366,000 15.7%	7,337,000 48.6%	15,112,000 100.0%
Tax Exempt Entities	8,105	1,797.77	2,156,000 14.8%	1,150,000 7.9%	3,112,000 21.4%	8,153,000 56.0%	14,571,000 100.0%
Government Entities	2,808	1,494.15	1,076,000 25.6%	313,000 7.5%	883,000 21.0%	1,924,000 45.8%	4,196,000 100.0%
Subtotal - Active Accounts	329,978	\$ 495.63	\$ 26,770,000 16.4%	\$ 13,180,000 8.1%	\$ 30,337,000 18.5%	\$ 93,260,000 57.0%	\$ 163,547,000 100.0%
Inactive Accounts	262,133	81.16	199,000 0.9%	305,000 1.4%	1,046,000 4.9%	19,725,000 92.7%	21,275,000 100.0%
Total	592,111	\$ 312.14	\$ 26,969,000 14.6%	\$ 13,485,000 7.3%	\$ 31,384,000 17.0%	\$ 112,985,000 61.1%	\$ 184,822,000 100.0%
% of Total A/R							
Water Fund	206,730	190.86	\$ 6,097,000	\$ 2,835,000	\$ 5,193,000	\$ 25,331,000	\$ 39,457,000
Sewer Fund	260,767	557.45	\$ 20,872,000	\$ 10,650,000	\$ 26,190,000	\$ 87,654,000	\$ 145,366,000
Total	592,111	312.14	\$ 26,969,000	\$ 13,485,000	\$ 31,384,000	\$ 112,985,000	\$ 184,822,000
Totals from April 30, 2018	578,857	244.20	\$ 20,977,000	\$ 11,424,000	\$ 31,669,000	\$ 77,287,000	\$ 141,356,000

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	80
Emergency	1
Older Contracts	<u>6</u>
Total	<u><u>87</u></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 2019 water billed usage and revenues. As of April 30, 2019, the billed usage was at 101.54% of budget and billed revenue at 103.09% of budget. Billings and usage from the City of Flint are included as they were assumed in the FY 2019 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. The variability in collections month-to-month are associated with timing of the billing cycle. While at times unavoidable, the GLWA billing team is identifying steps to prevent delays wherever possible.

Table 1 – FY 2019 Wholesale Water Billings Report

WHOLESALE WATER CUSTOMERS (2)								
Month (1)	FY 2019 - Budget/Goal			FY 2019 - Actual			FY 2019 - Variance	
	Volume	Revenue	Unit	Volume	Revenue	Unit	Volume	Revenue
	Mcf	\$	\$/Mcf	Mcf	\$	\$/Mcf	Mcf	\$
July	1,632,120	30,347,500	18.59	1,800,256	32,754,760	18.19	168,136	2,407,260
August	1,518,130	29,405,800	19.37	1,490,896	29,776,242	19.97	(27,234)	370,442
September	1,354,440	27,424,800	20.25	1,380,514	28,039,719	20.31	26,074	614,919
October	1,091,580	24,826,000	22.74	1,027,086	24,866,975	24.21	(64,494)	40,975
November	912,260	23,273,500	25.51	938,511	24,145,548	25.73	26,251	872,048
December	1,002,110	23,912,600	23.86	997,281	24,545,455	24.61	(4,829)	632,855
January	1,019,240	24,133,400	23.68	1,001,885	24,622,107	24.58	(17,355)	488,707
February	885,170	23,021,600	26.01	927,982	23,986,734	25.85	42,812	965,134
March	1,000,060	23,933,100	23.93	1,027,131	24,778,252	24.12	27,071	845,152
April	952,450	23,568,200	24.74	950,790	24,166,134	25.42	(1,660)	597,934
May	1,116,620	25,296,500	22.65					
June	1,557,060	29,624,900	19.03					
Total	14,041,240	308,767,900	21.99	11,542,332	261,681,926	22.67	174,772	7,835,426
Subtotals ytd	11,367,560	253,846,500	22.33	11,542,332	261,681,926	22.67	174,772	7,835,426
Achievement of Budget				101.54%	103.09%			

(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
May	30,447,581	22,312,189	8,135,392	36.46%
June	21,815,013	24,337,730	(2,522,716)	-10.37%
July	21,923,590	28,138,726	(6,215,136)	-22.09%
August	31,920,586	25,280,453	6,640,133	26.27%
September	26,037,313	26,757,992	(728,038)	-2.72%
October	27,827,722	38,336,777	(10,509,055)	-27.41%
November	29,238,260	27,261,391	1,976,869	7.25%
December	27,720,646	22,125,972	5,594,674	25.29%
January	23,430,974	32,002,334	(8,533,044)	-26.66%
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%
Rolling 12-Month Total	314,521,757	314,111,917		
Rolling, 12-Month Average	26,210,146	26,175,993		

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 2019 sewer billed revenue. Consistent with expectations as a result of sewer rate simplification, billed revenue is at 100.00% of budget through April 30, 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 2018 to FY 2019 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 6 confirms that these payments are not delinquent as sewer past due balances relate in full to Highland Park.

Table 3 – FY 2019 Wholesale Sewer Billings Report

WHOLESALE SEWER CUSTOMERS						
Month (1)	FY 2019 - Budget/Goal		FY 2019 - Actual		FY 2019 - Variance	
	Volume (2)	Revenue	Volume (2)	Revenue	Volume (2)	Revenue
	Mcf	\$	Mcf	\$	Mcf	\$
July	N/A	22,912,800	N/A	22,912,800	N/A	-
August	N/A	22,912,800	N/A	22,912,800	N/A	-
September	N/A	22,912,800	N/A	22,912,800	N/A	-
October	N/A	22,912,800	N/A	22,912,800	N/A	-
November	N/A	22,912,800	N/A	22,912,800	N/A	-
December	N/A	22,912,800	N/A	22,912,800	N/A	-
January	N/A	22,912,800	N/A	22,912,800	N/A	-
February	N/A	22,912,800	N/A	22,912,800	N/A	-
March	N/A	22,912,800	N/A	22,912,800	N/A	-
April	N/A	22,912,800	N/A	22,912,800	N/A	-
May	N/A	22,912,800	N/A		N/A	
June	N/A	22,912,800	N/A		N/A	
Total		274,953,600		229,128,000		-
<i>Subtotals ytd</i>		<i>229,128,000</i>		<i>229,128,000</i>		<i>0</i>
<i>Achievement of Budget</i>				<i>100.00%</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
May	15,342,700	21,620,300	(6,277,600)	-29.04%
June	28,810,500	21,645,500	7,165,000	33.10%
July	16,179,117	22,732,006	(6,552,889)	-28.83%
August	28,384,600	21,949,300	6,435,300	29.32%
September	22,672,400	21,040,913	1,631,487	7.75%
October	16,105,200	21,902,800	(5,797,600)	-26.47%
November	28,633,300	22,662,700	5,970,600	26.35%
December	24,440,000	23,643,400	796,600	3.37%
January	26,874,927	22,057,972	(8,162,872)	-37.01%
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%
Rolling 12-Month Total	266,930,147	272,900,108		
Rolling, 12-Month Average	22,244,179	22,741,676		

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 March 31, 2019, Highland Park had a delinquent balance of \$40.8 million, including \$31.9 million for wastewater treatment services, \$1.7 million for industrial waste control services, and \$7.2 million for water supply services. It should be noted that Highland Park did make an additional payment on June 27, 2019 for \$1.4 million that will be reflected in the June 2019 Audit Committee report.

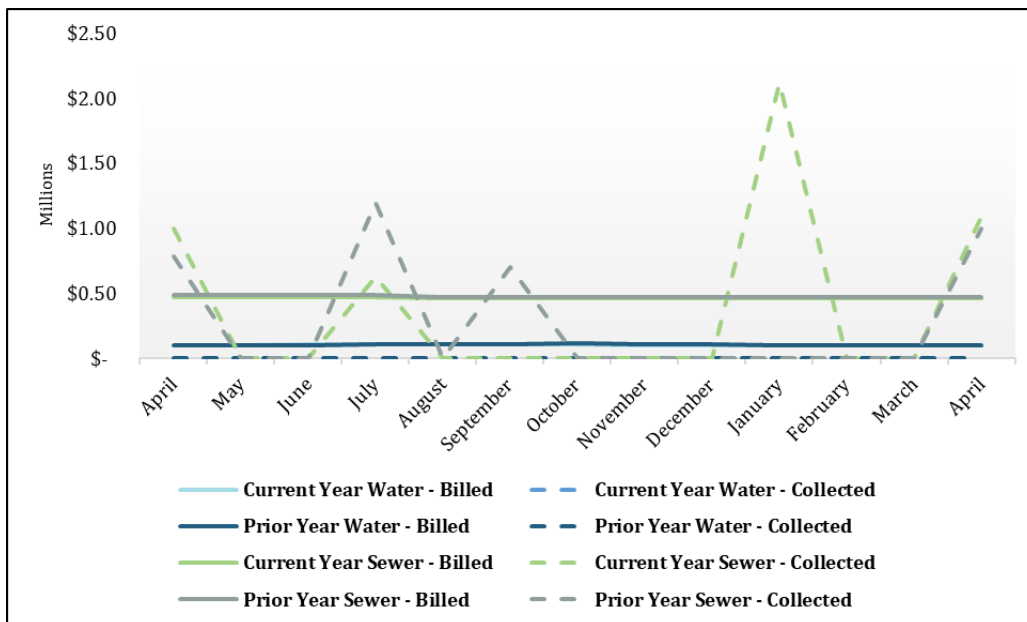
Table 5 - City of Highland Park Billings and Collections provides a life-to-date balance summary of the billing and collection history for Highland Park with detail provided for fiscal year 2019 through April 30, 2019. Please note the numbers below reflect the month the billing was sent and not the month the service was provided. A life-to-date summary is provided as an appendix to this monthly financial report.

Chart 1 - City of Highland Park Billings and Collections - Past Twelve Months is provided to depict Highland Park's most current performance specific to Water and Sewer. Payments received-to-date are applied to Sewer at this time.

Table 5 - City of Highland Park Billings and Collections

	Water	Sewer	IWC	Total
June 30, 2018 Balance	\$ 6,112,248	\$ 31,097,327	\$ 1,624,023	\$ 38,833,598
July 2018 Billing	\$ 109,568	\$ 470,200	\$ 6,754	586,521
July 2018 Payments	-	(629,017)	-	(629,017)
July 31, 2018 Balance	6,221,815	30,938,511	1,630,776	38,791,102
August 2018 Billing	108,651	467,900	4,233	580,784
August 2018 Payments	-	-	-	-
August 31, 2018 Balance	6,330,467	31,406,411	1,635,009	39,371,887
September 2018 Billing	109,780	467,900	4,261	581,941
September 2018 Payments	-	-	-	-
September 30, 2018 Balance	6,440,247	31,874,311	1,639,270	39,953,828
October 2018 Billing	109,298	467,900	4,281	581,479
October 2018 Payments	-	-	-	-
October 31, 2018 Balance	6,549,545	32,342,211	1,643,551	40,535,307
November 2018 Billing	104,007	467,900	3,963	575,869
November 2018 Payments	-	-	-	-
November 30, 2018 Balance	6,653,552	32,810,111	1,647,514	41,111,176
December 2018 Billing	101,944	467,900	3,961	573,805
December 2018 Payments	-	-	-	-
December 31, 2018 Balance	\$ 6,755,496	\$ 33,278,011	\$ 1,651,474	41,684,981
January 2019 Billing	98,430	467,900	3,961	570,290
January 2019 Payments	-	(2,116,727)	-	(2,116,727)
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

Chart 1 - City of Highland Park Water & Sewer Billings and Collections – Past Twelve Months



Note: Current and prior year water billing amounts are very close so the two lines are nearly overlapping when reviewed at this high-level.

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. (Note: percentages vary from 100% due to rounding.)

Table 6 - Wholesale Accounts Receivable Aging Report Summary is a summary of the total, current and non-current receivables by category as of April 30, 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 \$919,501.73 balance that is 46-74 days past due is made up of a \$811,327.57 balance for Dearborn that was paid on May 10, 2019 and \$108,174.16 balance for Inkster that was paid on May 29, 2019.

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	\$ 36,895,538.52	\$ 29,023,212.85	\$ 1,018,400.05	\$ 98,429.60	\$ 6,755,496.02
Sewer	\$ 52,191,179.83	\$ 20,715,199.50	\$ 467,900.00	\$ 467,900.00	\$ 30,540,180.33
IWC	\$ 3,295,936.60	\$ 647,822.19	\$ 77,274.08	\$ 40,332.57	\$ 2,530,507.76
Pollutant Surcharge	\$ 1,293,351.39	\$ 656,490.81	\$ 90,543.42	\$ 51,300.79	\$ 495,016.37
Total	\$ 93,676,006.34	\$ 51,042,725.35	\$ 1,654,117.55	\$ 657,962.96	\$ 40,321,200.48
	100.00%	54.49%	1.77%	0.70%	43.04%

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

	Total	Current	46-74 Days	75-104 Days	>105 Days
Water	\$ 29,744,482.50	\$ 28,824,980.77	\$ 919,501.73	\$ -	\$ -
Sewer	\$ 20,247,299.50	\$ 20,247,299.50	\$ -	\$ -	\$ -
IWC	\$ 1,628,586.93	\$ 639,840.09	\$ 73,341.72	\$ 36,371.76	\$ 879,033.36
Pollutant Surcharge	\$ 1,293,351.39	\$ 656,490.81	\$ 90,543.42	\$ 51,300.79	\$ 495,016.37
Total	\$ 52,913,720.32	\$ 50,368,611.17	\$ 1,083,386.87	\$ 87,672.55	\$ 1,374,049.73
	100.00%	95.19%	2.05%	0.17%	2.60%

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

	Total	Current	46-74 Days	75-104 Days	>105 Days
Water	\$ 29,744,482.50	\$ 28,824,980.77	\$ 919,501.73	\$ -	\$ -
Sewer	\$ 20,247,299.50	\$ 20,247,299.50	\$ -	\$ -	\$ -
IWC	\$ 604,066.53	\$ 567,096.57	\$ 36,969.96	\$ -	\$ -
Pollutant Surcharge	\$ 1,293,351.39	\$ 656,490.81	\$ 90,543.42	\$ 51,300.79	\$ 495,016.37
Total	\$ 51,889,199.92	\$ 50,295,867.65	\$ 1,047,015.11	\$ 51,300.79	\$ 495,016.37
	100.00%	96.93%	2.02%	0.10%	0.95%

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 2019 reflects ten months of activity to date.

Water fund cash receipts exceeded MBO disbursements by 19% through April 30, 2019 with a historical ratio of cash receipts exceeding MBO disbursements at 13% since January 1, 2016.

Sewer fund cash receipts exceeded MBO disbursements by 5% through April 30, 2019 with a historical ratio of cash receipts exceeding MBO disbursements at 3% since January 1, 2016.

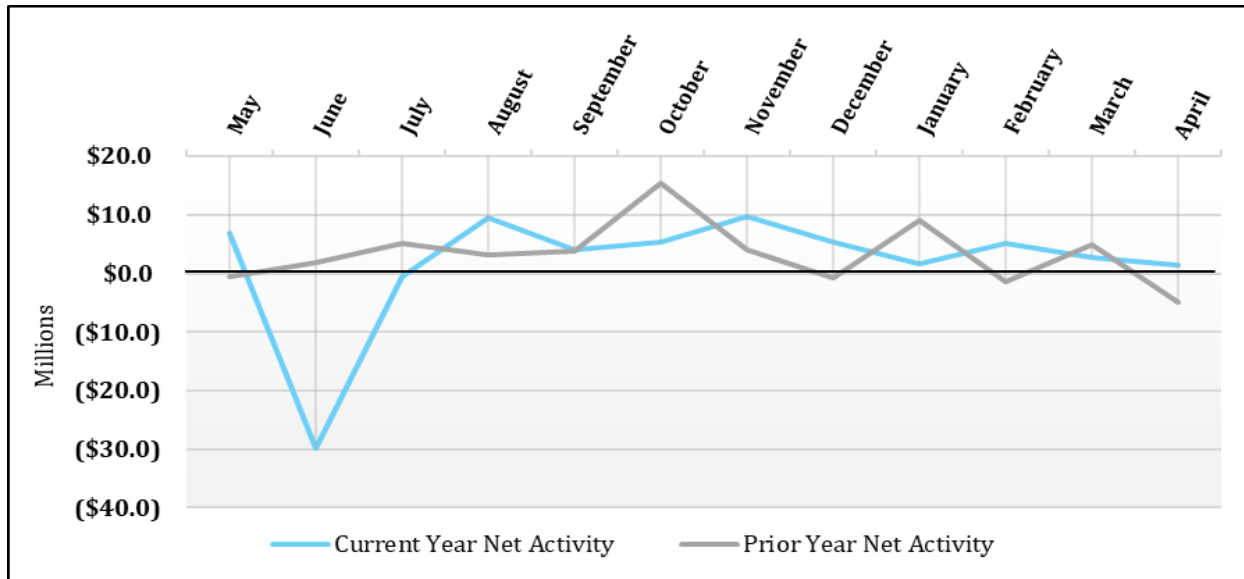
Chart 1 – GLWA 12-Month Net Receipts – Water outlines monthly cash receipt trends across two points of reference for the regional water system—current year and prior year. The black line at the zero highlights the minimum goal for net receipts.

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.

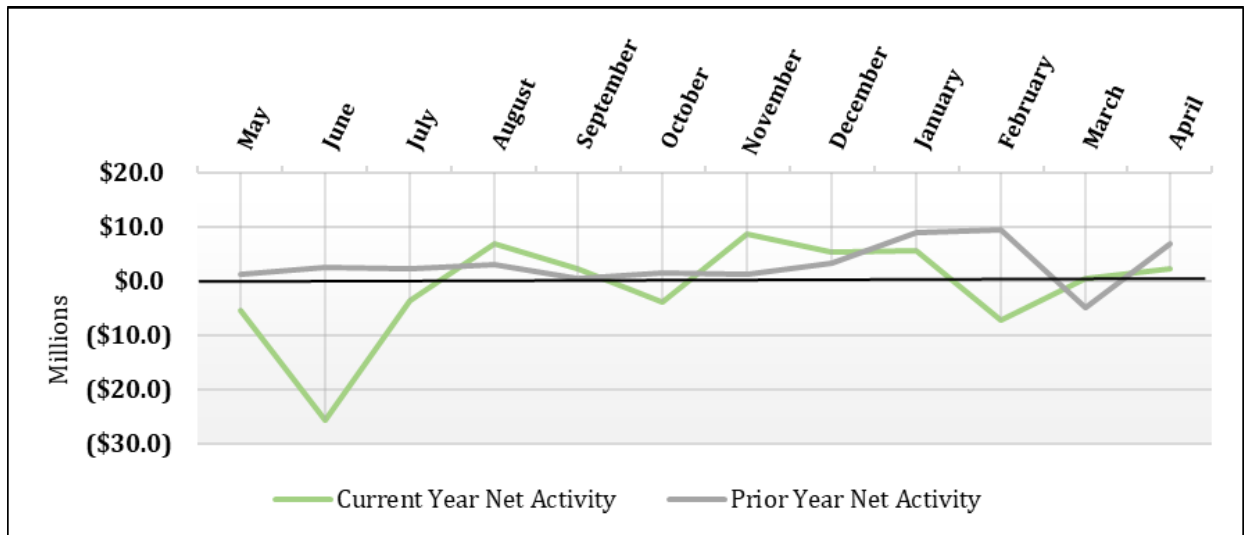
Table 1 – GLWA Net Cash Flows from Trust Receipts & Disbursements

	FY 2016	FY 2017	FY 2018	FY 2019-to- Date	Life-to-Date Total
Water					
1 Receipts	\$ 149,688,711	\$ 352,941,909	\$ 338,452,001	\$ 285,568,610	\$1,126,651,231
2 MOU Adjustments	-	-	-	-	-
3 Adjusted Receipts	149,688,711	352,941,909	338,452,001	285,568,610	1,126,651,231
4 Disbursements	146,256,185	288,777,985	322,804,510	240,885,855	998,724,535
5 Net Receipts	\$ 3,432,526	\$ 64,163,924	\$ 15,647,491	\$ 44,682,755	\$ 127,926,696
6 <i>Ratio of Receipts to Disbursements</i>	102%	122%	105%	119%	113%
Sewer					
7 Receipts	\$ 232,377,715	\$ 469,788,882	\$ 476,269,761	\$ 392,866,287	\$1,571,302,645
8 MOU Adjustments	0	-	-	-	-
9 Adjusted Receipts	232,310,973	469,205,156	476,269,761	392,866,287	1,570,652,177
10 Disbursements	219,538,325	441,443,340	481,601,435	375,611,992	1,518,195,092
11 Net Receipts	\$ 12,839,390	\$ 28,345,543	\$ (5,331,674)	\$ 17,254,295	\$ 53,107,554
12 <i>Ratio of Receipts to Disbursements</i>	106%	106%	99%	105%	103%
Combined					
13 Receipts	\$ 382,066,426	\$ 822,730,791	\$ 814,721,762	\$ 678,434,897	\$2,697,953,876
14 MOU Adjustments	-	-	-	-	-
15 Adjusted Receipts	382,066,426	822,730,791	814,721,762	678,434,897	2,697,953,876
16 Disbursements	365,794,510	730,221,325	804,405,945	616,497,847	2,516,919,627
17 Net Receipts	\$ 16,271,916	\$ 92,509,466	\$ 10,315,817	\$ 61,937,050	\$ 181,034,249
18 <i>Ratio of Receipts to Disbursements</i>	104%	113%	101%	110%	107%

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

Chart 1 – GLWA 12-Month Net Receipts - Water


Note: June 2018 net activity reflects a year-end improvement and extension fund transfer.

Chart 2 – GLWA 12-Month Net Receipts – Sewer


Note: June 2018 net activity reflects a year-end improvement and extension fund transfer.

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 2019 reflects ten months of activity to date.

Water fund cash receipts exceeded MBO disbursements by 3% through April 30, 2019 with a historical ratio of cash receipts exceeding MBO disbursements at 3% since January 1, 2016.

Sewer fund cash receipts fell short of MBO disbursements by 2% through April 30, 2019 with a historic shortfall of 7% since January 1, 2016. FY 2019 activity to date reflects a \$6.5 million sewer lookback adjustment completed in December 2018. This was due from GLWA to DWSD as part of the June 2018 MOU. DWSD reduced the Operations & Maintenance (O&M) transfers in May and June to achieve a goal of a positive net cash flow for FY 2019.

This April report reflects a change to both the water and sewer balances for FY 2018 and FY 2019. GLWA and DWSD have agreed to a report-only reclassification of a yearend, Wayne County tax lien receipt of \$0.48 million for water and \$5.87 million for sewer to align the reporting of this receipt between the two entities. The result is a decrease in the FY 2018 net receipts and an increase in the FY 2019 net receipts.

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

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. At the time of this report preparation, discussions are underway with DWSD regarding a new loan receivable and schedule to address the FY 2018 shortfall of \$24.1 million.

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. The monthly interest component of each payment is transferred directly to GLWA Sewer Improvement & Extension fund.

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-to-Date	Life-to-Date Total
Water						
1	Receipts	\$ 26,201,881	\$ 96,451,105	\$ 101,233,147	\$ 83,890,978	\$ 307,777,111
2	MOU Adjustments	18,446,100	-	-	-	18,446,100
3	Adjusted Receipts	44,647,981	96,451,105	101,233,147	83,890,978	326,223,211
4	Disbursements	47,809,552	93,066,144	93,049,457	81,412,340	315,337,493
5	Net Receipts	\$ (3,161,571)	\$ 3,384,961	\$ 8,183,690	\$ 2,478,638	\$ 10,885,718
6	Ratio of Receipts to Disbursements	93%	104%	109%	103%	103%
Sewer						
7	Receipts	\$ 65,256,734	\$ 233,723,367	\$ 242,104,791	\$ 222,099,475	\$ 763,184,367
8	MOU Adjustments	55,755,100	-	-	6,527,200	62,282,300
9	Adjusted Receipts	121,011,834	233,723,367	242,104,791	228,626,675	825,466,667
10	Disbursements	122,297,300	261,963,973	266,217,825	234,373,999	884,853,097
11	Net Receipts	\$ (1,285,466)	\$ (28,240,606)	\$ (24,113,034)	\$ (5,747,324)	\$ (59,386,430)
12	Ratio of Receipts to Disbursements	99%	89%	91%	98%	93%
Combined						
13	Receipts	\$ 91,458,615	\$ 330,174,472	\$ 343,337,938	\$ 305,990,453	\$1,070,961,478
14	MOU Adjustments	74,201,200	0	-	6,527,200	80,728,400
15	Adjusted Receipts	165,659,815	330,174,472	343,337,938	312,517,653	1,151,689,878
16	Disbursements	170,106,852	355,030,117	359,267,282	315,786,339	1,200,190,590
17	Net Receipts	\$ (4,447,037)	\$ (24,855,645)	\$ (15,929,344)	\$ (3,268,686)	\$ (48,500,712)
18	Ratio of Receipts to Disbursements	97%	93%	96%	99%	96%

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	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
Remaining Balance at April 30, 2019			21,520,780

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
		7,779,220	887,609	8,666,829

Note 2: DWSD has made additional, scheduled loan receivable payments in May and June which will be reflected in Tables 3 and 4 above in each respective month.

Chart 3 – DWSD 12-Month Net Receipts - Water

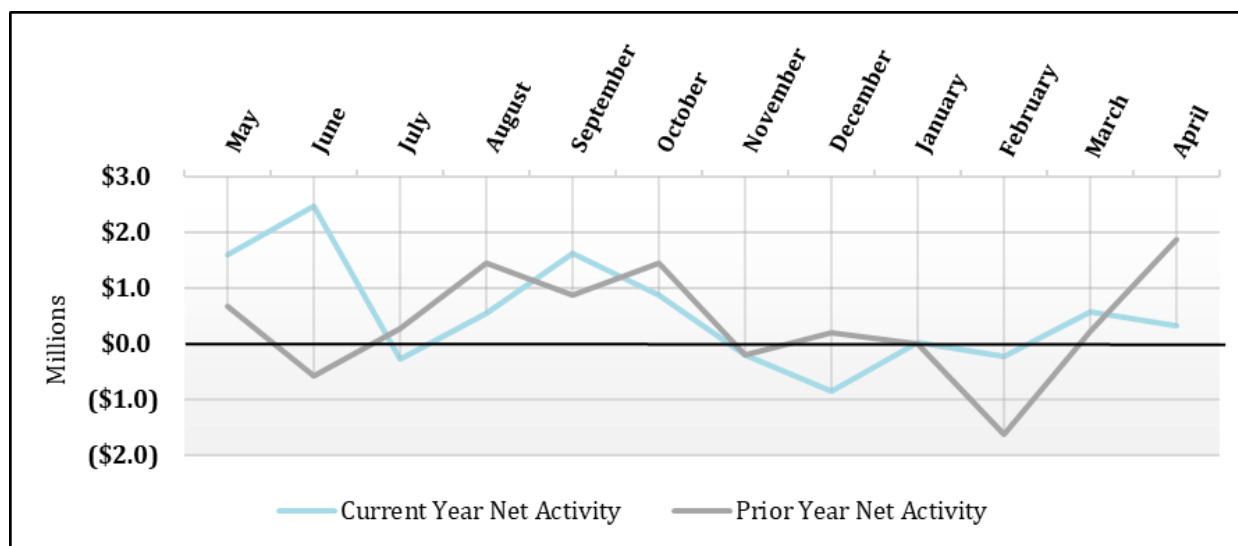
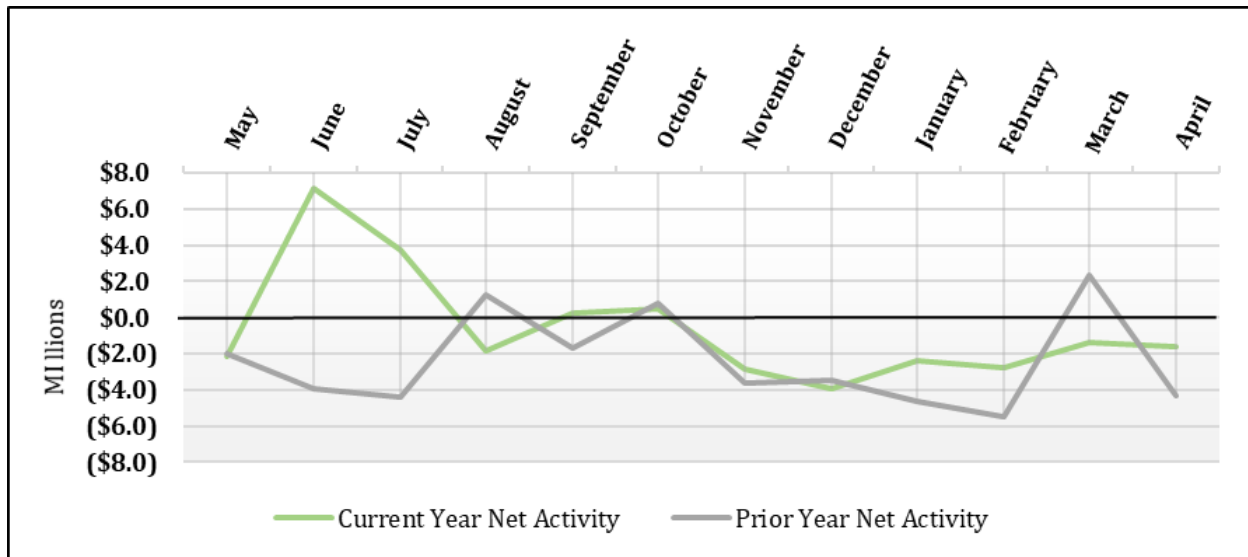


Chart 4 – DWSD 12-Month Net Receipts – Sewer



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 4 – 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 2019 reflects ten months of activity to date.

Water fund cash receipts exceeded MBO disbursements by 15% through April 30, 2019 with a ratio of 111% since January 1, 2016. Sewer fund cash receipts exceeded MBO disbursements by 2% through April 30, 2019 and is functioning at a breakeven status since January 1, 2016.

Table 4 – Combined Net Cash Flows from Trust Receipts & Disbursements

	FY 2016	FY 2017	FY 2018	FY 2019-to-Date	Life-to-Date Total
Water					
1 Receipts	\$ 175,826,163	\$ 448,883,201	\$ 439,685,148	\$ 369,459,588	\$1,433,854,100
2 MOU Adjustments	18,446,100	0	0	0	18,446,100
3 Adjusted Receipts	194,272,263	448,883,201	439,685,148	369,459,588	1,452,300,200
4 Disbursements	194,001,308	381,334,316	415,853,967	322,298,195	1,313,487,786
5 Net Receipts	\$ 270,955	\$ 67,548,885	\$ 23,831,181	\$ 47,161,393	\$ 138,812,414
6 <i>Ratio of Receipts to Disbursements</i>	100%	118%	106%	115%	111%
Sewer					
7 Receipts	\$ 297,567,707	\$ 702,928,523	\$ 718,374,552	\$ 614,965,762	\$2,333,836,544
8 MOU Adjustments	55,755,100	0	0	6,527,200	62,282,300
9 Adjusted Receipts	353,322,807	702,928,523	718,374,552	621,492,962	2,396,118,844
10 Disbursements	341,768,883	702,823,586	747,819,260	609,985,991	2,402,397,720
11 Net Receipts	\$ 11,553,924	\$ 104,937	\$ (29,444,708)	\$ 11,506,971	\$ (6,278,876)
12 <i>Ratio of Receipts to Disbursements</i>	103%	100%	96%	102%	100%
Combined					
13 Receipts	\$ 473,525,041	\$1,152,905,263	\$1,158,059,700	\$ 984,425,350	\$3,768,915,354
14 MOU Adjustments	74,201,200	0	0	6,527,200	80,728,400
15 Adjusted Receipts	547,726,241	1,152,905,263	1,158,059,700	990,952,550	3,849,643,754
16 Disbursements	535,901,362	1,085,251,442	1,163,673,227	932,284,186	3,717,110,217
17 Net Receipts	\$ 11,824,879	\$ 67,653,821	\$ (5,613,527)	\$ 58,668,364	\$ 132,533,537
18 <i>Ratio of Receipts to Disbursements</i>	102%	106%	100%	106%	104%

APPENDIX

GLWA Aged Accounts Receivable- WATER ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ALLEN PARK	\$180,230.29	\$180,230.29	\$0.00	\$0.00	\$0.00
ASH TOWNSHIP	\$67,721.60	\$67,721.60	\$0.00	\$0.00	\$0.00
BELLEVILLE	\$25,773.19	\$25,773.19	\$0.00	\$0.00	\$0.00
BERLIN TOWNSHIP	\$58,873.38	\$58,873.38	\$0.00	\$0.00	\$0.00
BROWNSTOWN TOWNSHIP	\$283,145.25	\$283,145.25	\$0.00	\$0.00	\$0.00
BRUCE TOWNSHIP	\$12,662.96	\$12,662.96	\$0.00	\$0.00	\$0.00
BURTCHVILLE TOWNSHIP	\$22,253.41	\$22,253.41	\$0.00	\$0.00	\$0.00
CANTON TOWNSHIP	\$761,934.16	\$761,934.16	\$0.00	\$0.00	\$0.00
CENTER LINE	\$36,950.00	\$36,950.00	\$0.00	\$0.00	\$0.00
CHESTERFIELD TOWNSHIP	\$323,833.10	\$323,833.10	\$0.00	\$0.00	\$0.00
CLINTON TOWNSHIP	\$647,051.21	\$647,051.21	\$0.00	\$0.00	\$0.00
COMMERCE TOWNSHIP	\$279,707.25	\$279,707.25	\$0.00	\$0.00	\$0.00
DEARBORN	\$2,396,139.50	\$1,584,811.93	\$811,327.57	\$0.00	\$0.00
DEARBORN HEIGHTS	\$291,293.73	\$291,293.73	\$0.00	\$0.00	\$0.00
EASTPOINTE	\$250,268.23	\$250,268.23	\$0.00	\$0.00	\$0.00
ECORSE	\$133,545.58	\$133,545.58	\$0.00	\$0.00	\$0.00
FARMINGTON	\$79,039.15	\$79,039.15	\$0.00	\$0.00	\$0.00
FARMINGTON HILLS	\$701,708.74	\$701,708.74	\$0.00	\$0.00	\$0.00
FERNDAL	\$84,708.57	\$84,708.57	\$0.00	\$0.00	\$0.00
FLAT ROCK	\$101,550.73	\$101,550.73	\$0.00	\$0.00	\$0.00
FLINT	\$381,996.25	\$381,996.25	\$0.00	\$0.00	\$0.00
FRASER	\$93,976.68	\$93,976.68	\$0.00	\$0.00	\$0.00
GARDEN CITY	\$134,025.46	\$134,025.46	\$0.00	\$0.00	\$0.00

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
GIBRALTAR	\$25,361.54	\$25,361.54	\$0.00	\$0.00	\$0.00
GREENWOOD TOWNSHIP	\$42,270.51	\$42,270.51	\$0.00	\$0.00	\$0.00
GROSSE ILE TOWNSHIP	\$105,200.92	\$105,200.92	\$0.00	\$0.00	\$0.00
GROSSE POINTE PARK	\$104,295.43	\$104,295.43	\$0.00	\$0.00	\$0.00
GROSSE POINTE SHORES	\$45,971.53	\$45,971.53	\$0.00	\$0.00	\$0.00
GROSSE POINTE WOODS	\$119,709.96	\$119,709.96	\$0.00	\$0.00	\$0.00
HAMTRAMCK	\$58,065.17	\$58,065.17	\$0.00	\$0.00	\$0.00
HARPER WOODS	\$68,538.25	\$68,538.25	\$0.00	\$0.00	\$0.00
HARRISON TWP	\$119,711.53	\$119,711.53	\$0.00	\$0.00	\$0.00
HAZEL PARK	\$59,493.25	\$59,493.25	\$0.00	\$0.00	\$0.00
HIGHLAND PARK	\$7,151,056.02	\$198,232.08	\$98,898.32	\$98,429.60	\$6,755,496.02
HURON TOWNSHIP	\$117,296.65	\$117,296.65	\$0.00	\$0.00	\$0.00
IMLAY CITY	\$95,397.91	\$95,397.91	\$0.00	\$0.00	\$0.00
IMLAY TOWNSHIP	\$1,103.79	\$1,103.79	\$0.00	\$0.00	\$0.00
INKSTER	\$347,700.87	\$239,526.71	\$108,174.16	\$0.00	\$0.00
KEEGO HARBOR	\$24,447.74	\$24,447.74	\$0.00	\$0.00	\$0.00
LAPEER	\$117,679.78	\$117,679.78	\$0.00	\$0.00	\$0.00
LENOX TOWNSHIP	\$25,982.42	\$25,982.42	\$0.00	\$0.00	\$0.00
LINCOLN PARK	\$196,202.52	\$196,202.52	\$0.00	\$0.00	\$0.00
LIVONIA	\$1,092,335.27	\$1,092,335.27	\$0.00	\$0.00	\$0.00
MACOMB TWP	\$844,292.56	\$844,292.56	\$0.00	\$0.00	\$0.00
MADISON HEIGHTS	\$157,150.64	\$157,150.64	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- WATER ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
MAYFIELD TOWNSHIP	\$3,602.96	\$3,602.96	\$0.00	\$0.00	\$0.00
MELVINDALE	\$113,437.96	\$113,437.96	\$0.00	\$0.00	\$0.00
NEW HAVEN	\$30,241.51	\$30,241.51	\$0.00	\$0.00	\$0.00
NOCWA	\$1,844,226.35	\$1,844,226.35	\$0.00	\$0.00	\$0.00
NORTHVILLE	\$61,689.84	\$61,689.84	\$0.00	\$0.00	\$0.00
NORTHVILLE TOWNSHIP	\$412,395.10	\$412,395.10	\$0.00	\$0.00	\$0.00
NOVI	\$666,680.10	\$666,680.10	\$0.00	\$0.00	\$0.00
OAK PARK	\$113,218.71	\$113,218.71	\$0.00	\$0.00	\$0.00
OAKLAND CO DR COM	\$6,095.69	\$6,095.69	\$0.00	\$0.00	\$0.00
PLYMOUTH	\$83,803.71	\$83,803.71	\$0.00	\$0.00	\$0.00
PLYMOUTH TOWNSHIP	\$660,588.51	\$660,588.51	\$0.00	\$0.00	\$0.00
REDFORD TOWNSHIP	\$249,590.37	\$249,590.37	\$0.00	\$0.00	\$0.00
RIVER ROUGE	\$58,345.29	\$58,345.29	\$0.00	\$0.00	\$0.00
RIVERVIEW	\$142,474.38	\$142,474.38	\$0.00	\$0.00	\$0.00
ROCKWOOD	\$25,203.95	\$25,203.95	\$0.00	\$0.00	\$0.00
ROMEO	\$20,233.14	\$20,233.14	\$0.00	\$0.00	\$0.00
ROMULUS	\$336,469.94	\$336,469.94	\$0.00	\$0.00	\$0.00
ROSEVILLE	\$218,803.00	\$218,803.00	\$0.00	\$0.00	\$0.00
ROYAL OAK TOWNSHIP	\$18,157.53	\$18,157.53	\$0.00	\$0.00	\$0.00
SHELBY TOWNSHIP	\$1,019,077.83	\$1,019,077.83	\$0.00	\$0.00	\$0.00
SOCWA	\$3,605,524.78	\$3,605,524.78	\$0.00	\$0.00	\$0.00
SOUTH ROCKWOOD	\$5,690.60	\$5,690.60	\$0.00	\$0.00	\$0.00
SOUTHGATE	\$162,454.01	\$162,454.01	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- WATER ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ST. CLAIR SHORES	\$248,746.49	\$248,746.49	\$0.00	\$0.00	\$0.00
STERLING HEIGHTS	\$1,128,369.33	\$1,128,369.33	\$0.00	\$0.00	\$0.00
SUMPTER TOWNSHIP	\$56,467.17	\$56,467.17	\$0.00	\$0.00	\$0.00
SYLVAN LAKE	\$18,549.50	\$18,549.50	\$0.00	\$0.00	\$0.00
TAYLOR	\$355,330.25	\$355,330.25	\$0.00	\$0.00	\$0.00
TRENTON	\$177,517.84	\$177,517.84	\$0.00	\$0.00	\$0.00
TROY (SEOC)	\$1,075,149.95	\$1,075,149.95	\$0.00	\$0.00	\$0.00
UTICA	\$43,999.70	\$43,999.70	\$0.00	\$0.00	\$0.00
VAN BUREN TOWNSHIP	\$294,280.39	\$294,280.39	\$0.00	\$0.00	\$0.00
VILLAGE OF ALMONT	\$20,755.75	\$20,755.75	\$0.00	\$0.00	\$0.00
WALLED LAKE	\$78,428.86	\$78,428.86	\$0.00	\$0.00	\$0.00
WARREN	\$834,083.86	\$834,083.86	\$0.00	\$0.00	\$0.00
WASHINGTON TOWNSHIP	\$158,969.00	\$158,969.00	\$0.00	\$0.00	\$0.00
WAYNE	\$503,835.73	\$503,835.73	\$0.00	\$0.00	\$0.00
WEST BLOOMFIELD TWP (C-O)	\$1,622,316.85	\$1,622,316.85	\$0.00	\$0.00	\$0.00
WESTLAND	\$1,006,565.59	\$1,006,565.59	\$0.00	\$0.00	\$0.00
WIXOM	\$188,452.64	\$188,452.64	\$0.00	\$0.00	\$0.00
WOODHAVEN	\$127,593.59	\$127,593.59	\$0.00	\$0.00	\$0.00
YCUA	\$830,468.09	\$830,468.09	\$0.00	\$0.00	\$0.00
TOTAL WATER ACCOUNTS	\$36,895,538.52	\$29,023,212.85	\$1,018,400.05	\$98,429.60	\$6,755,496.02

GLWA Aged Accounts Receivable- SEWER ACCOUNTS

Balances as of 04/30/19

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	\$85,599.50	\$85,599.50	\$0.00	\$0.00	\$0.00
DEARBORN	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
EVERGREEN-FARMINGTON	\$2,881,500.00	\$2,881,500.00	\$0.00	\$0.00	\$0.00
FARMINGTON	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GROSSE POINTE	\$74,100.00	\$74,100.00	\$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	\$330,200.00	\$330,200.00	\$0.00	\$0.00	\$0.00
HARPER WOODS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
HIGHLAND PARK	\$31,943,880.33	\$467,900.00	\$467,900.00	\$467,900.00	\$30,540,180.33
MELVINDALE	\$126,900.00	\$126,900.00	\$0.00	\$0.00	\$0.00
OAKLAND COUNTY GWK DD	\$3,747,700.00	\$3,747,700.00	\$0.00	\$0.00	\$0.00
OMID	\$6,461,100.00	\$6,461,100.00	\$0.00	\$0.00	\$0.00
REDFORD TOWNSHIP	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ROUGE VALLEY	\$4,480,100.00	\$4,480,100.00	\$0.00	\$0.00	\$0.00
WAYNE COUNTY N.E.	\$2,056,000.00	\$2,056,000.00	\$0.00	\$0.00	\$0.00
WAYNE COUNTY-AREA #3	\$4,100.00	\$4,100.00	\$0.00	\$0.00	\$0.00
TOTAL SEWER ACCOUNTS	\$52,191,179.83	\$20,715,199.50	\$467,900.00	\$467,900.00	\$30,540,180.33

GLWA Aged Accounts Receivable- IWC ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ALLEN PARK	\$1,612.35	\$1,612.35	\$0.00	\$0.00	\$0.00
AUBURN HILLS (C-O)	\$19,435.55	\$19,435.55	\$0.00	\$0.00	\$0.00
AUBURN HILLS (E-F)	\$366.30	\$366.30	\$0.00	\$0.00	\$0.00
BERKLEY	\$2,901.33	\$2,901.33	\$0.00	\$0.00	\$0.00
BEVERLY HILLS	\$999.14	\$999.14	\$0.00	\$0.00	\$0.00
BINGHAM FARMS	\$1,066.57	\$1,066.57	\$0.00	\$0.00	\$0.00
BIRMINGHAM (E-F)	\$2,376.69	\$2,376.69	\$0.00	\$0.00	\$0.00
BIRMINGHAM (SEOC)	\$5,588.74	\$5,588.74	\$0.00	\$0.00	\$0.00
BLOOMFIELD HILLS	\$1,539.41	\$1,539.41	\$0.00	\$0.00	\$0.00
BLOOMFIELD TOWNSHIP	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CANTON TOWNSHIP	\$537,003.90	\$38,132.92	\$19,066.46	\$19,066.46	\$460,738.06
CENTER LINE	\$3,683.10	\$3,683.10	\$0.00	\$0.00	\$0.00
CHESTERFIELD TOWNSHIP	\$12,111.59	\$12,111.59	\$0.00	\$0.00	\$0.00
CITY OF FARMINGTON (E-F)	\$279.12	\$279.12	\$0.00	\$0.00	\$0.00
CITY OF FERNDALE	\$8,904.91	\$8,904.91	\$0.00	\$0.00	\$0.00
CITY OF ROCHESTER	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CLARKSTON	\$497.66	\$497.66	\$0.00	\$0.00	\$0.00
CLAWSON	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CLINTON TOWNSHIP	\$25,328.54	\$25,328.54	\$0.00	\$0.00	\$0.00
DEARBORN	\$110,909.88	\$73,939.92	\$36,969.96	\$0.00	\$0.00
DEARBORN HEIGHTS	\$9,242.32	\$9,242.32	\$0.00	\$0.00	\$0.00
DETROIT METRO WC AIRPORT	\$106.64	\$106.64	\$0.00	\$0.00	\$0.00
EASTPOINTE	\$6,454.68	\$6,454.68	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- IWC ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
FARMINGTON	\$4,046.54	\$4,046.54	\$0.00	\$0.00	\$0.00
FARMINGTON HILLS	\$22,945.98	\$22,945.98	\$0.00	\$0.00	\$0.00
FRASER	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GARDEN CITY	\$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	\$2,088.99	\$2,088.99	\$0.00	\$0.00	\$0.00
GROSSE POINTE PARK	\$0.09	\$0.09	\$0.00	\$0.00	\$0.00
GROSSE POINTE SHORES	\$318.17	\$318.17	\$0.00	\$0.00	\$0.00
GROSSE POINTE WOODS	\$2,604.46	\$2,604.46	\$0.00	\$0.00	\$0.00
HAMTRAMCK	\$4,175.13	\$4,175.13	\$0.00	\$0.00	\$0.00
HARPER WOODS	\$1,892.64	\$1,892.64	\$0.00	\$0.00	\$0.00
HARRISON TWP	\$3,166.76	\$3,166.76	\$0.00	\$0.00	\$0.00
HAZEL PARK	\$3,113.44	\$3,113.44	\$0.00	\$0.00	\$0.00
HIGHLAND PARK	\$1,667,349.67	\$7,982.10	\$3,932.36	\$3,960.81	\$1,651,474.40
HUNTINGTON WOODS	\$572.36	\$572.36	\$0.00	\$0.00	\$0.00
INDEPENDENCE	\$4,569.71	\$4,569.71	\$0.00	\$0.00	\$0.00
INKSTER	\$11,119.74	\$11,119.74	\$0.00	\$0.00	\$0.00
KEEGO HARBOR	\$744.67	\$744.67	\$0.00	\$0.00	\$0.00
LAKE ORION	\$803.30	\$803.30	\$0.00	\$0.00	\$0.00
LATHRUP	\$1,406.81	\$1,406.81	\$0.00	\$0.00	\$0.00
LENOX TOWNSHIP	\$325.36	\$325.36	\$0.00	\$0.00	\$0.00
LIVONIA	\$40,319.72	\$40,319.72	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- IWC ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
MACOMB TWP	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MADISON HEIGHTS	\$ (48.00)	\$ (48.00)	\$0.00	\$0.00	\$0.00
MELVINDALE	\$7,259.98	\$7,259.98	\$0.00	\$0.00	\$0.00
NEW HAVEN	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
NORTHVILLE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
NORTHVILLE TOWNSHIP	\$128,854.11	\$9,148.06	\$4,574.03	\$4,574.03	\$110,557.99
NOVI	\$17,404.16	\$17,404.16	\$0.00	\$0.00	\$0.00
OAK PARK	\$6,865.73	\$6,865.73	\$0.00	\$0.00	\$0.00
OAKLAND TOWNSHIP	\$440.84	\$440.84	\$0.00	\$0.00	\$0.00
ORCHARD LAKE VILLAGE	\$440.87	\$440.87	\$0.00	\$0.00	\$0.00
ORION TOWNSHIP (C-O)	\$5,666.71	\$5,666.71	\$0.00	\$0.00	\$0.00
OXFORD TOWNSHIP	\$1,043.46	\$1,043.46	\$0.00	\$0.00	\$0.00
OXFORD VILLAGE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PLEASANT RIDGE	\$273.77	\$273.77	\$0.00	\$0.00	\$0.00
PLYMOUTH	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PLYMOUTH TOWNSHIP	\$358,662.39	\$25,462.54	\$12,731.27	\$12,731.27	\$307,737.31
REDFORD TOWNSHIP	\$11,335.14	\$11,335.14	\$0.00	\$0.00	\$0.00
ROCHESTER HILLS	\$18,280.05	\$18,280.05	\$0.00	\$0.00	\$0.00
ROMULUS	\$926.07	\$926.07	\$0.00	\$0.00	\$0.00
ROSEVILLE	\$14,769.73	\$14,769.73	\$0.00	\$0.00	\$0.00
ROYAL OAK	\$13,529.62	\$13,529.62	\$0.00	\$0.00	\$0.00
ROYAL OAK TOWNSHIP	\$933.32	\$933.32	\$0.00	\$0.00	\$0.00
SHELBY TOWNSHIP	\$12,428.95	\$12,428.95	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- IWC ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
SOUTHFIELD (E-F)	\$28,473.78	\$28,473.78	\$0.00	\$0.00	\$0.00
SOUTHFIELD (SEOC)	\$3,786.44	\$3,786.44	\$0.00	\$0.00	\$0.00
ST. CLAIR SHORES	\$12,022.50	\$12,022.50	\$0.00	\$0.00	\$0.00
STERLING HEIGHTS	\$31,381.14	\$31,381.14	\$0.00	\$0.00	\$0.00
TROY (E-F)	\$384.09	\$384.09	\$0.00	\$0.00	\$0.00
TROY (SEOC)	\$37,352.96	\$37,352.96	\$0.00	\$0.00	\$0.00
UTICA	\$3,010.88	\$3,010.88	\$0.00	\$0.00	\$0.00
VAN BUREN TOWNSHIP	\$2,063.74	\$2,063.74	\$0.00	\$0.00	\$0.00
VILLAGE OF FRANKLIN	\$65.69	\$65.69	\$0.00	\$0.00	\$0.00
WASHINGTON TOWNSHIP	\$1,400.66	\$1,400.66	\$0.00	\$0.00	\$0.00
WATERFORD TOWNSHIP	\$12,392.93	\$12,392.93	\$0.00	\$0.00	\$0.00
WAYNE	\$5,017.87	\$5,017.87	\$0.00	\$0.00	\$0.00
WEST BLOOMFIELD TWP (C-O)	\$1,898.70	\$1,898.70	\$0.00	\$0.00	\$0.00
WEST BLOOMFIELD TWP (E-F)	\$12,623.08	\$12,623.08	\$0.00	\$0.00	\$0.00
WESTLAND	\$23,023.28	\$23,023.28	\$0.00	\$0.00	\$0.00
TOTAL IWC ACCOUNTS	\$3,295,936.60	\$647,822.19	\$77,274.08	\$40,332.57	\$2,530,507.76

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
3M COMPANY	\$7,640.83	\$7,640.83	\$0.00	\$0.00	\$0.00
A & R PACKING CO., LLC	\$2,813.57	\$2,813.57	\$0.00	\$0.00	\$0.00
AACTRON	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
ACADEMY PACKING CO.	\$251.71	\$251.71	\$0.00	\$0.00	\$0.00
ACME RUSTPROOF	\$55.80	\$55.80	\$0.00	\$0.00	\$0.00
ADVANCED RESOURCE RECOVERY	\$5,237.86	\$5,237.86	\$0.00	\$0.00	\$0.00
AEVITAS SPECIALITY SERVICES	\$23,467.72	\$16,560.15	\$6,907.57	\$0.00	\$0.00
ALEXANDER & HORNUNG	\$5,437.47	\$5,437.47	\$0.00	\$0.00	\$0.00
ALEXANDER & HORNUNG	\$20,720.10	\$20,720.10	\$0.00	\$0.00	\$0.00
ALEXANDER & HORNUNG	\$1,001.49	\$1,001.49	\$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.	\$ (89.96)	\$0.00	\$0.00	\$0.00	\$ (89.96)
ALPHA STAMPING COMPANY	\$342.82	\$342.82	\$0.00	\$0.00	\$0.00
AMERICAN WASTE TECH INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
AMERITI MFG. CO.	\$7,522.74	\$7,522.74	\$0.00	\$0.00	\$0.00
ATWATER IN THE PARK	\$37.54	\$37.54	\$0.00	\$0.00	\$0.00
AUTOMOTIVE FINISH	\$4.68	\$4.68	\$0.00	\$0.00	\$0.00
AXLE BREWING COMPANY, LLC	\$135.23	\$135.23	\$0.00	\$0.00	\$0.00
B. NEKTAR MEADERY	\$0.77	\$0.77	\$0.00	\$0.00	\$0.00
BAFFIN BREWING COMPANY	\$108.95	\$0.00	\$0.00	\$108.95	\$0.00
BARON INDUSTRIES	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
BARTZ BAKERY	\$83.86	\$83.86	\$0.00	\$0.00	\$0.00
BASTONE BREWERY	\$44.01	\$44.01	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
BATCH BREWING COMPANY	\$28.88	\$28.88	\$0.00	\$0.00	\$0.00
BAYS MICHIGAN CORPORATION	\$110.76	\$110.76	\$0.00	\$0.00	\$0.00
BEIRUT BAKERY, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
BETTER MADE SNACK FOOD	\$18,305.76	\$18,305.76	\$0.00	\$0.00	\$0.00
BLACK LOTUS BREWING CO.	\$301.01	\$72.32	\$0.00	\$54.24	\$174.45
BOZEK'S MARKET	\$137.08	\$137.08	\$0.00	\$0.00	\$0.00
BREW DETROIT	\$5,692.43	\$5,692.43	\$0.00	\$0.00	\$0.00
BROADWAY MKT CORNED BEEF	\$ (147.59)	\$0.00	\$0.00	\$ (147.59)	\$0.00
BROOKS BREWING, LLC.	\$107.63	\$107.63	\$0.00	\$0.00	\$0.00
BROWN IRON BREWHOUSE	\$75.70	\$34.01	\$0.00	\$41.69	\$0.00
CANTON BREW WORKS	\$276.09	\$77.06	\$0.00	\$56.40	\$142.63
CAPITAL REPRODUCTIONS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CF BURGER CREAMERY	\$14,148.55	\$14,148.55	\$0.00	\$0.00	\$0.00
CHILANGO'S BAKERY	\$2,311.18	\$45.88	\$26.90	\$25.32	\$2,213.08
CINTAS CORP. - MACOMB TWP.	\$46,336.93	\$46,336.93	\$0.00	\$0.00	\$0.00
CINTAS CORPORATION	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CINTAS CORPORATION	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CITY LAUNDRY, INC.	\$21.75	\$14.21	\$7.54	\$0.00	\$0.00
CLASSIC CONTAINER CORP.	\$442.83	\$442.83	\$0.00	\$0.00	\$0.00
COCA-COLA REFRESHMENTS USA,	\$1,083.99	\$1,083.99	\$0.00	\$0.00	\$0.00
COSTCO WHOLESALE STORE	\$2,558.52	\$2,558.52	\$0.00	\$0.00	\$0.00
COSTCO WHOLESALE STORE	\$631.19	\$631.19	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
COSTCO WHOLESALE STORE	\$2,289.21	\$2,289.21	\$0.00	\$0.00	\$0.00
COSTCO WHOLESALE STORE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
COUNTRY FRESH DAIRY CO.	\$3,000.12	\$3,000.12	\$0.00	\$0.00	\$0.00
CROSS CHEMICAL COMPANY, INC.	\$985.11	\$0.00	\$985.11	\$0.00	\$0.00
DARLING INGREDIENTS, INC.	\$5,175.89	\$5,175.89	\$0.00	\$0.00	\$0.00
DAVE'S SAUSAGE FACTORY 2	\$373.49	\$373.49	\$0.00	\$0.00	\$0.00
DEARBORN BREWING	\$49.71	\$49.71	\$0.00	\$0.00	\$0.00
DEARBORN SAUSAGE	\$7,226.49	\$7,226.49	\$0.00	\$0.00	\$0.00
DEARBORN SAUSAGE CO., INC.	\$8,665.61	\$8,665.61	\$0.00	\$0.00	\$0.00
DETROIT BEER	\$106.68	\$106.68	\$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	\$710.45	\$710.45	\$0.00	\$0.00	\$0.00
DETROIT SAUSAGES CO INC	\$19.59	\$19.59	\$0.00	\$0.00	\$0.00
DETRONIC INDUSTRIES, INC.	\$70.83	\$70.83	\$0.00	\$0.00	\$0.00
DIFCO LABORATORIES, INC.	\$22,102.55	\$22,102.55	\$0.00	\$0.00	\$0.00
DIVERSIFIED CHEM TECH. INC.	\$137.98	\$137.98	\$0.00	\$0.00	\$0.00
DOMESTIC UNIFORM RENTAL	\$1,176.85	\$1,176.85	\$0.00	\$0.00	\$0.00
DOMESTIC UNIFORM RENTAL	\$1,504.75	\$1,504.75	\$0.00	\$0.00	\$0.00
DOWNEY BREWING COMPANY	\$49.08	\$49.08	\$0.00	\$0.00	\$0.00
E.W. GROBBEL'S SONS, INC.	\$3,874.61	\$3,874.61	\$0.00	\$0.00	\$0.00
EASTERN MARKET BREWING COMP	\$123.55	\$123.55	\$0.00	\$0.00	\$0.00
ENVIROSOLIDS, L.L.C.	\$22,955.96	\$22,955.96	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
EQ DETROIT, INC.	\$549.61	\$549.61	\$0.00	\$0.00	\$0.00
EQ DETROIT, INC.	\$2,671.97	\$2,671.97	\$0.00	\$0.00	\$0.00
EQ DETROIT, INC.	\$ (1,238.40)	\$0.00	\$0.00	\$0.00	\$ (1,238.40)
EQ DETROIT, INC.	\$ (4,588.68)	\$0.00	\$0.00	\$0.00	\$ (4,588.68)
ETON ST BREWERY- GRIFFIN CLF	\$2,618.30	\$2,618.30	\$0.00	\$0.00	\$0.00
EXTRUDE HONE CORPORATION	\$260.06	\$260.06	\$0.00	\$0.00	\$0.00
EXTRUDEHODE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
FARMINGTON BREWING COMPANY	\$54.70	\$54.70	\$0.00	\$0.00	\$0.00
FAYGO BEVERAGES, INC.	\$617,447.53	\$82,780.95	\$48,541.54	\$40,594.87	\$445,530.17
FORD NEW MODEL PROGRAM	\$832.78	\$832.78	\$0.00	\$0.00	\$0.00
FOUNDERS BREWING COMPANY	\$73.04	\$73.04	\$0.00	\$0.00	\$0.00
FRESH-PAK	\$687.11	\$687.11	\$0.00	\$0.00	\$0.00
FRESH-PAK	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
G2O ENERGY, LLC	\$8,559.68	\$2,710.30	\$1,257.53	\$2,361.81	\$2,230.04
GENERAL LINEN SUPPLY CO.	\$46,984.16	\$11,639.34	\$25,210.63	\$6,309.89	\$3,824.30
GLOBAL TITANIUM, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GRANITE CITY FOOD & BREWERY	\$92.96	\$92.96	\$0.00	\$0.00	\$0.00
GRANITE CITY FOOD & BREWERY	\$42.21	\$42.21	\$0.00	\$0.00	\$0.00
GRANITE CITY FOOD & BREWERY	\$431.11	\$99.13	\$0.00	\$86.66	\$245.32
GREAT BARABOO BREWING CO.	\$ (1,934.37)	\$0.00	\$0.00	\$0.00	\$ (1,934.37)
HACIENDA MEXICAN FOODS	\$7,610.39	\$1,243.82	\$621.91	\$621.91	\$5,122.75
HENKEL CORPORATION	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
HOME STYLE FOOD INC.	\$10,067.94	\$10,067.94	\$0.00	\$0.00	\$0.00
HOMEGROWN BREWING COMPANY	\$63.71	\$63.71	\$0.00	\$0.00	\$0.00
HOOD CLEANERS	\$211.33	\$0.00	\$0.00	\$0.97	\$210.36
HOUGHTON INTERNATIONAL INC.	\$183.85	\$183.85	\$0.00	\$0.00	\$0.00
HOUGHTON INTERNATIONAL INC.	\$151.16	\$151.16	\$0.00	\$0.00	\$0.00
HOUGHTON INTERNATIONAL INC.	\$2,443.10	\$2,443.10	\$0.00	\$0.00	\$0.00
HUNTINGTON CLEANERS	\$741.71	\$741.71	\$0.00	\$0.00	\$0.00
INDUSTRIAL METAL COATING	\$675.08	\$675.08	\$0.00	\$0.00	\$0.00
ISLAMIC SLAUGHTER HOUSE	\$4,581.19	\$2,950.08	\$1,631.11	\$0.00	\$0.00
ITALIAN BUTTER BREAD STICKS	\$7.91	\$7.91	\$0.00	\$0.00	\$0.00
J & G FOOD PRODUCTS, INC.	\$67.14	\$67.14	\$0.00	\$0.00	\$0.00
JAMEX BREWING CO.	\$34.44	\$34.44	\$0.00	\$0.00	\$0.00
KAR NUT PRODUCTS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
KOWALSKI SAUSAGES, CO.	\$1,120.27	\$1,120.27	\$0.00	\$0.00	\$0.00
KUHNHENN BREWING	\$107.63	\$107.63	\$0.00	\$0.00	\$0.00
LA MICHOACANA FLOUR TORTILLA	\$1,059.75	\$1,059.75	\$0.00	\$0.00	\$0.00
LA MICHOACANA FLOUR TORTILLA	\$111.56	\$111.56	\$0.00	\$0.00	\$0.00
LEAR CORPORATION DBA EAGLE C	\$4,617.81	\$0.00	\$4,617.81	\$0.00	\$0.00
LIBERTY STREET PROD. BREWERY	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
LILY'S SEAFOOD GRILL & BREWE	\$51.66	\$51.66	\$0.00	\$0.00	\$0.00
MACDERMID, INC.	\$1,922.17	\$1,922.17	\$0.00	\$0.00	\$0.00
MCNICHOLS POLISHING & ANODIZ	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MELLO MEATS INC, - KUBISCH S	\$83.92	\$83.92	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
METROPOLITAN BAKERY	\$693.05	\$693.05	\$0.00	\$0.00	\$0.00
MIBA HYDRAMECHANICA CORP.	\$173.15	\$173.15	\$0.00	\$0.00	\$0.00
MICHIGAN DAIRY	\$68,740.72	\$68,740.72	\$0.00	\$0.00	\$0.00
MICHIGAN PROD. MACHINING	\$2,507.57	\$2,507.57	\$0.00	\$0.00	\$0.00
MICHIGAN SOY PRODUCTS CO.	\$546.61	\$546.61	\$0.00	\$0.00	\$0.00
MIDWEST WIRE PRODUCTS, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MILANO BAKERY	\$1,324.77	\$1,324.77	\$0.00	\$0.00	\$0.00
MILTON CHILI CO.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
MINNIE MARIE BAKERS, INC	\$2,986.84	\$2,986.84	\$0.00	\$0.00	\$0.00
MISTER UNIFORM & MAT RENTALS	\$103.77	\$0.00	\$0.00	\$0.00	\$103.77
MOTOR CITY BREWING WORKS	\$606.55	\$0.00	\$606.55	\$0.00	\$0.00
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 & MEAT	\$19.28	\$19.28	\$0.00	\$0.00	\$0.00
OAKWOOD BAKERY	\$187.34	\$187.34	\$0.00	\$0.00	\$0.00
PARKER'S HILLTOP BREWER & SE	\$110.04	\$110.04	\$0.00	\$0.00	\$0.00
PELLERITO FOODS INC.	\$1,086.57	\$1,086.57	\$0.00	\$0.00	\$0.00
PEPSI COLA, INC.	\$52,303.75	\$52,303.75	\$0.00	\$0.00	\$0.00
PERSONAL UNIFORM SERVICE, IN	\$34.67	\$34.67	\$0.00	\$0.00	\$0.00
PETRO ENVIRON TECH, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PINE TREE ACRES, INC.	\$28,044.61	\$28,044.61	\$0.00	\$0.00	\$0.00
PLATING SPEC	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
POWER VAC OF MICHIGAN, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PREMIER PLATING, LLC	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
PRODUCTION SPRING, LLC.	\$199.42	\$199.42	\$0.00	\$0.00	\$0.00
QUALA SERVICES, LLC	\$1,725.45	\$1,725.45	\$0.00	\$0.00	\$0.00
RAY'S ICE CREAM CO.	\$46.32	\$46.32	\$0.00	\$0.00	\$0.00
RED SPOT PAINT #409139	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
RIVER ROUGE BREWING COMPANY	\$448.75	\$448.75	\$0.00	\$0.00	\$0.00
ROAK BREWING CO. LLC	\$744.76	\$744.76	\$0.00	\$0.00	\$0.00
ROCHESTER MILLS BEER COMPANY	\$225.75	\$225.75	\$0.00	\$0.00	\$0.00
ROCHESTER MILLS PROD BREWERY	\$4,471.35	\$1,388.30	\$0.00	\$1,077.32	\$2,005.73
RTT	\$24,785.00	\$942.79	\$0.00	\$0.00	\$23,842.21
SEAFARE FOODS, INC.	\$80.88	\$80.88	\$0.00	\$0.00	\$0.00
SHERWOOD BREWING COMPANY	\$908.84	\$0.00	\$89.76	\$0.00	\$819.08
SMITH-WATKINS, LLC	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
SPRAYTEK, INC.	\$17.12	\$17.12	\$0.00	\$0.00	\$0.00
SWEETHEART BAKERY, INC.	\$1,248.95	\$155.72	\$75.72	\$77.14	\$940.37
THE CROWN GROUP-LIVONIA PLAN	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
THE ROYAL OAK BREWERY	\$ (1,289.08)	\$0.00	\$0.00	\$0.00	\$ (1,289.08)
TOM LAUNDRY CLEANERS	\$8.71	\$8.71	\$0.00	\$0.00	\$0.00
TRAFFIC JAM & SNUG	\$51.87	\$20.66	\$0.00	\$31.21	\$0.00
TURRI'S ITALIAN FOODS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TURRI'S ITALIAN FOODS	\$26,762.88	\$26,762.88	\$0.00	\$0.00	\$0.00
U-METCO, INC.	\$1,181.60	\$1,181.60	\$0.00	\$0.00	\$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 04/30/19

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
UNCLE RAYS SNACKS, LLC	\$52,460.34	\$52,460.34	\$0.00	\$0.00	\$0.00
UNCLE RAYS SNACKS, LLC	\$5,406.95	\$5,406.95	\$0.00	\$0.00	\$0.00
UNIQUE LINEN SERVICES, INC.	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
UNITED FISH DISTRIBUTORS	\$5.22	\$5.22	\$0.00	\$0.00	\$0.00
UNITED LINEN SERVICE, LLC.	\$291.63	\$291.63	\$0.00	\$0.00	\$0.00
UNITED MEAT & DELI	\$531.54	\$531.54	\$0.00	\$0.00	\$0.00
US ECOLOGY MICHIGAN	\$282.10	\$282.10	\$0.00	\$0.00	\$0.00
US ECOLOGY ROMULUS, INC.	\$3,474.02	\$3,474.02	\$0.00	\$0.00	\$0.00
USHER OIL SERVICES	\$4,705.29	\$4,705.29	\$0.00	\$0.00	\$0.00
VERNDALE PRODUCTS	\$14,847.77	\$14,847.77	\$0.00	\$0.00	\$0.00
VERNDALE PRODUCTS, INC.	\$4,200.37	\$4,200.37	\$0.00	\$0.00	\$0.00
VERNOR FOOD PRODUCTS	\$ (36.26)	\$0.00	\$ (36.26)	\$0.00	\$0.00
WIGLEY'S MEAT PROCESS	\$654.62	\$654.62	\$0.00	\$0.00	\$0.00
WINTER SAUSAGE MFG. CO.	\$881.23	\$881.23	\$0.00	\$0.00	\$0.00
WINTER SAUSAGE MFG. CO.	\$123.09	\$123.09	\$0.00	\$0.00	\$0.00
WOLVERINE PACKING CO	\$7,466.88	\$7,466.88	\$0.00	\$0.00	\$0.00
WOLVERINE PACKING CO.	\$2,752.79	\$2,752.79	\$0.00	\$0.00	\$0.00
WOODWARD AVENUE BREWERS	\$387.02	\$167.47	\$0.00	\$0.00	\$219.55
TOTAL POLLUTANT SURCHARGE ACCOUNTS	\$1,293,351.39	\$656,490.81	\$90,543.42	\$51,300.79	\$495,016.37

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 (10 Months)	1,038,808	4,681,300	43,327	5,763,435
FY 2019 Payments (10 Months)	<u>-</u>	<u>(3,834,747)</u>	<u>-</u>	<u>(3,834,747)</u>
				-
Balance as of April 30, 2019	<u>\$ 7,151,056</u>	<u>\$ 31,943,880</u>	<u>\$ 1,667,349</u>	<u>\$ 40,762,286</u>



Financial Services Audit Committee Communication

Date: July 19, 2019

To: Great Lakes Water Authority Audit Committee

From: Jon Wheatley, Public Finance Manager

Re: PFM Financial Advisors Presentation: B&C Note History and Recent Transactions;
Refinancing and New Money Opportunities in FY 2020

Background: The included presentation from PFM Financial Advisors provides a summary of GLWA's and DWSD's current allocation of the City of Detroit's B&C Notes as well as the payments remaining on each series of notes. The presentation also includes updates on the Municipal Market Data (MMD) indices, interest rate forecasts and potential refunding strategies for GLWA to consider as we approach the upcoming bond call dates in 2021 and 2022.

Budget Impact: The proposed FY 2020 water and sewer budgets do not include the potential impacts of any refunding bond issues, but to the extent bond refundings are recommended by PFM and approved by the GLWA Board of Directors, the FY 2020 debt service budgets would be amended accordingly, based on actual results.

Proposed Action: Receive and file the PFM presentation.



B Note and C Note History and Recent Transactions; Refinancing and New Money Opportunities in FY2020

Presentation to Audit Committee

Presented by:
Dan Hartman, Managing Director

July 19, 2019

PFM Financial Advisors LLC

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B Note and C Note History and Recent Transactions



Creation and Funding of Detroit General Retirement System Service Corp.

- ◆ In 2005 and 2006 Detroit funded certain UAAL of the General Retirement System (“GRS”) through the creation of the Detroit General Retirement System Service Corporation (the “Service Corporation”) and subsequent multiple issuances of Certificates of Participation (“COPs”)
 - A portion of the proceeds of COPs was irrevocably paid to GRS, fully funding its UAAL, including amounts attributable to DWSD
 - COPs evidenced an undivided proportionate interest in the right to receive payments made by the City under a 2005 Service Contract and 2006 Service Contract (the “Service Contracts”)
- ◆ Detroit also entered into certain interest rate exchange agreements in conjunction with the issuance of COPs (the “COP Swap Agreements”)
- ◆ Pursuant to the Service Contracts and COP Swap Agreements the City paid certain payments to the Service Corporation, calculated to be sufficient to allow the Service Corporation to make payments on the COPs
- ◆ Proportionate share of the Service Payments were allocated and paid by DWSD



Background and History of B Notes and C Notes

- Plan of Adjustment provided for the satisfaction of certain claims, including claims relating to the COPs and post-retirement health benefits for which DWSD was proportionately responsible through the issuance of Financial Recovery Bonds, Series 2014B (“B Notes”) and Financial Recovery Bonds, Series 2014C (“C Notes”)
- Consistent with prior year formulas for allocation of COP liabilities, DWSD responsible for paying an allocable share of the B Notes and C Notes
- Pursuant to the terms of the Lease Agreements, GLWA is required to pay the portion of the B Notes and C Notes allocable to the Regional Water System and Regional Sewer System
 - The City and DWSD are required to pay the portion of the B Notes and C Notes allocable to the Local Water System and Local Sewer System
- Full amount of Local System and Regional System contractual obligation to pay on B Notes and C Notes sits on DWSD balance sheet, with offsetting receivable from GLWA; GLWA balance sheet reflects contractual obligation allocable only to Regional System
- Payment of DWSD and GLWA allocable shares of the debt service on the B Notes and C Notes is made after and subordinate to payment of debt service on all bonded indebtedness and replenishment of debt service reserve fund related to that indebtedness



GLWA and DWSD Allocation of B Notes and C Notes

	B(1) Notes	B(2) Notes	C Notes
Initial Principal Amount	\$616.6 mil	\$15.4 mil	\$88.4 mil
Allocable to Water and Sewer Systems in Aggregate	\$69.4 mil (11.3%)	\$1.3 mil (8.6%)	\$10.2 mil (11.6%)
Allocable to Regional System (71.4%)	\$48.8 mil	\$0.9 mil	\$7.2 mil
Water (22.0%)	\$17.5 mil	\$0.3 mil	\$2.6 mil
Sewer (49.4%)	\$31.3 mil	\$0.6 mil	\$4.6 mil
Allocable to Local System (28.6%)	\$20.6 mil	\$0.4 mil	\$3.0 mil
Water (15.5%)	\$12.4 mil	\$0.2 mil	\$1.8 mil
Sewer (13.0%)	\$8.3 mil	\$0.2 mil	\$1.2 mil



Original Terms of Underlying B Notes and C Notes

	B(1) Notes	B(2) Notes	C Notes
Dated Date	December 10, 2014	December 10, 2014	December 10, 2014
Initial Principal Amount	\$616.6 million	\$15.4 million	\$88.4 million
Final Maturity	April 1, 2044	April 1, 2044	June 30, 2026
Amortization	Interest-only through 2024	Interest-only through 2024	Level payments through final maturity
Optional Redemption	None	None	Callable at any time at par plus accrued interest
Repayment Source	Full faith, credit, and resources of the City	Full faith, credit, and resources of the City	Parking revenues and full faith, credit, and resources of the City
Interest Rate	4.00%	4.00% through 4/1/2034; 6.00% thereafter through final maturity	5.00%



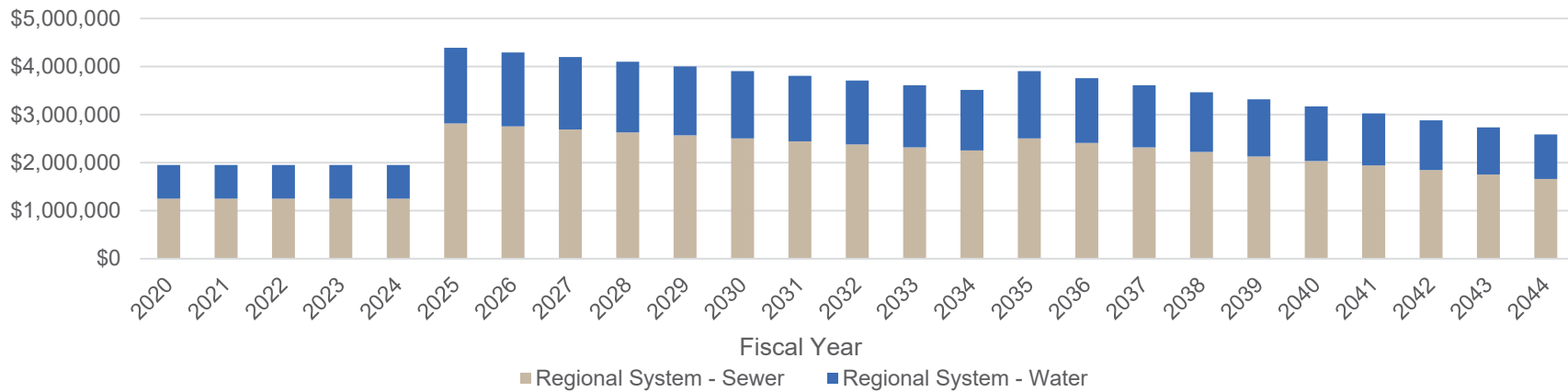
Recent Transactions Relating to Underlying Notes and MOUs

- City of Detroit has executed two transactions that have changed nature of underlying B Note and C Note Obligations:
 - On March 14, 2018, the City funded and escrowed amounts for full repayment of the C Notes at par plus accrued interest using General Funds of Detroit
 - On December 13, 2018, the City issued Financial Recovery Refunding Bonds (“2018 Refunding Bonds”) for the purpose of purchasing a portion of the B Notes
 - Proceeds of the 2018 Refunding Bonds were used to purchase and cancel \$197,652,356 of the B Notes, which had been tendered pursuant to an offer and acceptance of tender offers
- In each case, a portion of the underlying debt is related to DWSD obligations GLWA is contractually obligated to pay via the Lease Agreements
- City of Detroit has entered into two separate MOUs with enterprise funds originally allocated responsibility for repayment of portions of the B Notes and C Notes (B Notes: DWSD, DDOT, Airport, Parking, Library; C Notes: DWSD, DDOT, Library)
- Each MOU commits each enterprise fund to continue payments to the City on allocated B Note and C Note debt according to original terms, with minor adjustments to payment dates

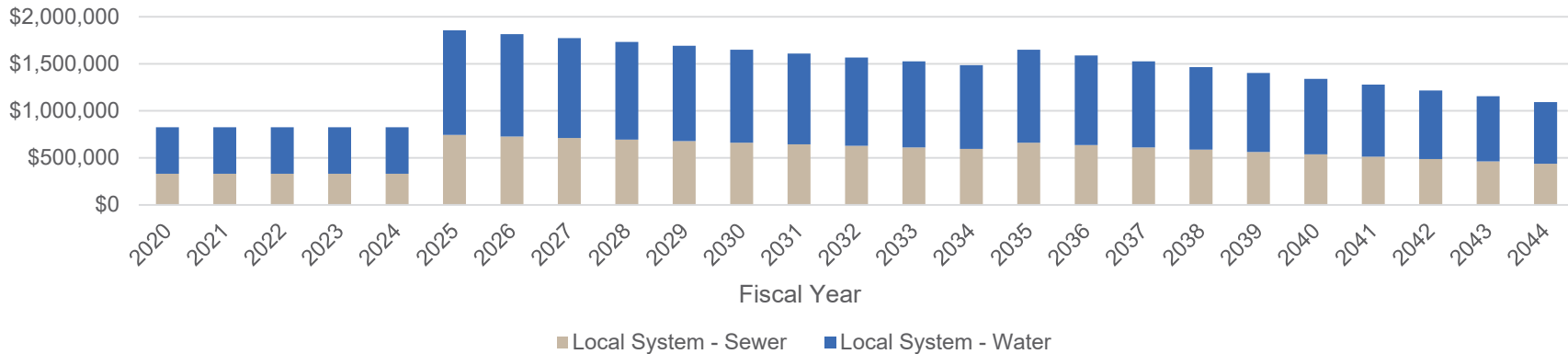


Future Payments on B-1 Notes per MOU – Allocated to Local and Regional Systems

Regional System Payments on B-1 Notes



Local System Payments on B-1 Notes

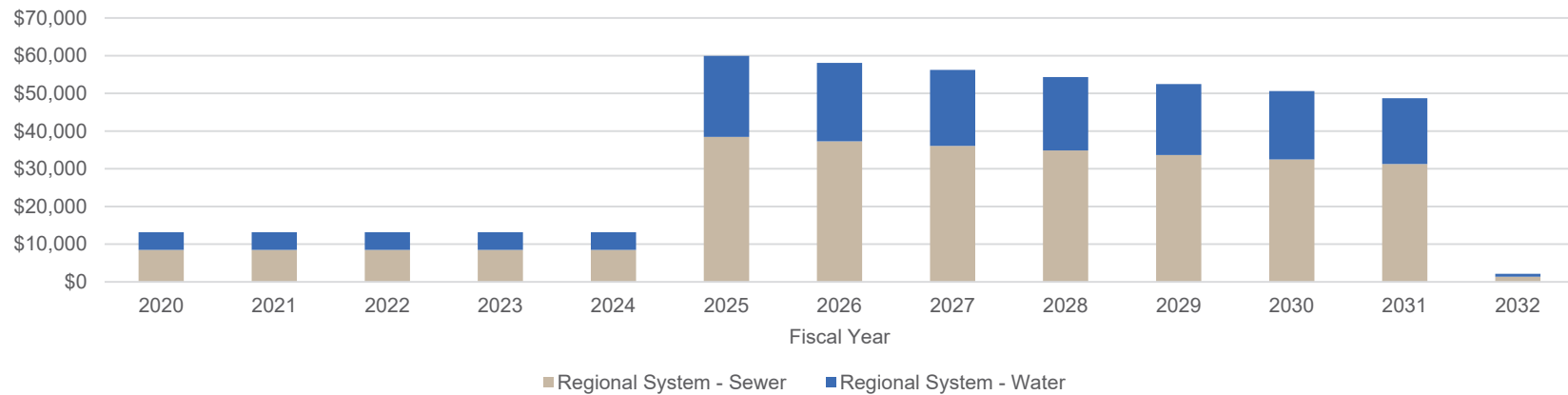


Note: payments shown represent the contractual payments due by DWSD, a portion of which are payable by GLWA pursuant to the terms of the Lease Agreements. Payments aggregate and allocate two payment schedules related to the Water and Sewer systems: the Tendered Portion of the Allocated B(1) Note Debt and the portion of the Allocated B(1) Note Debt that remains outstanding.

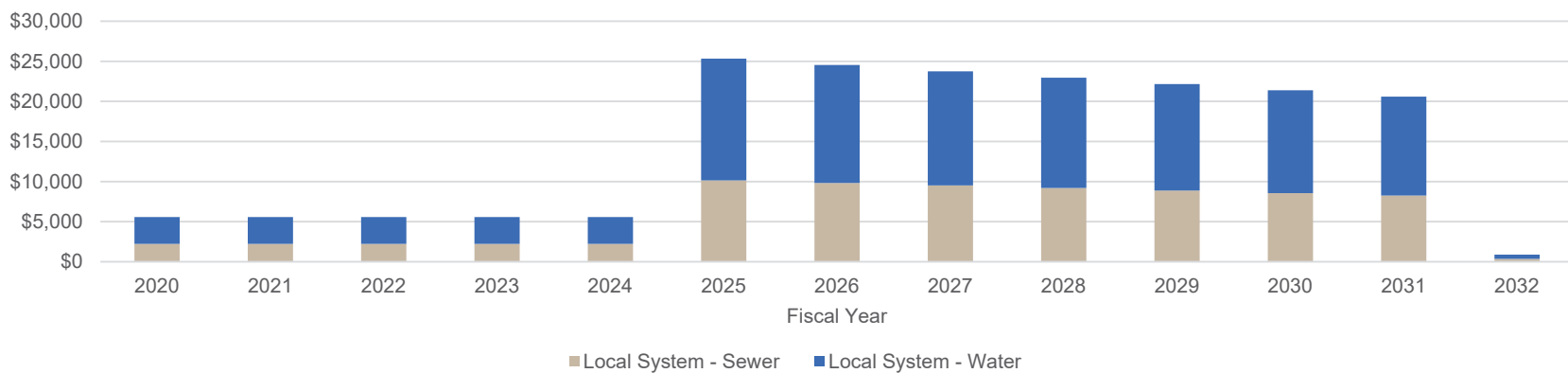


Future Payments on B-2 Notes per MOU – Allocated to Local and Regional Systems

Regional System Payments on B-2 Notes

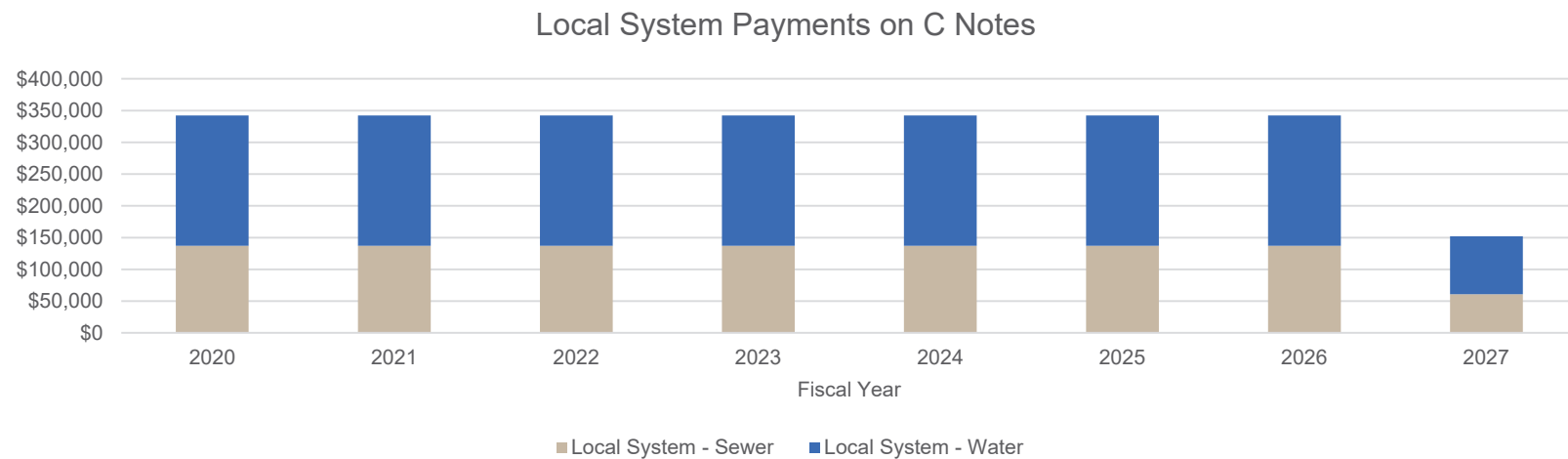
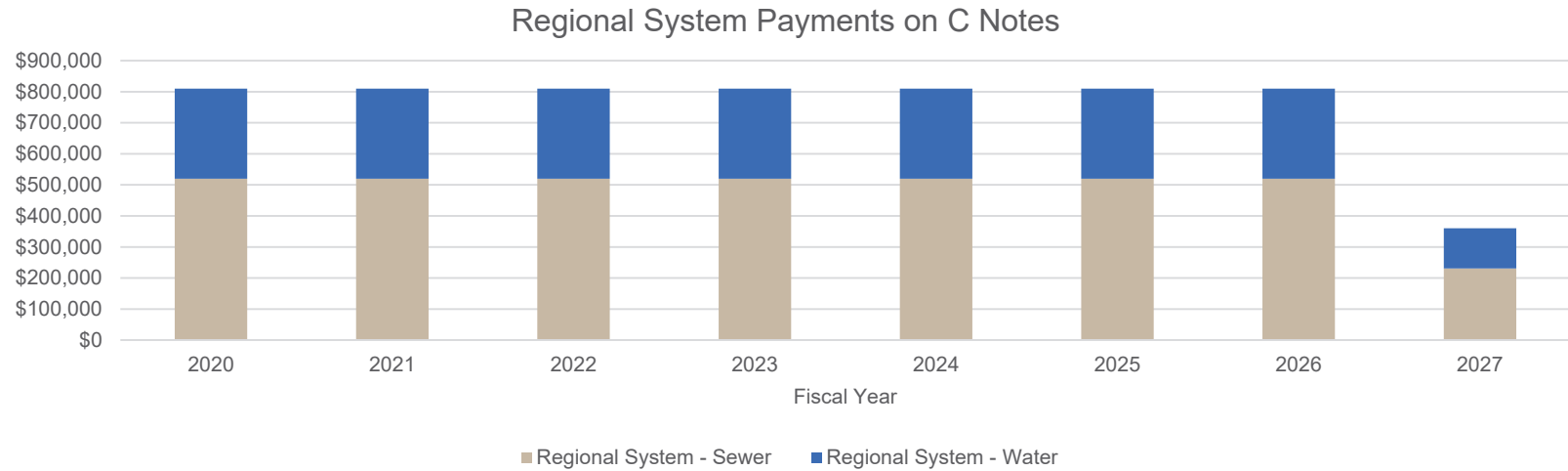


Local System Payments on B-2 Notes





Future Payments on C Notes per MOU – Allocated to Local and Regional Systems



Note: payments shown represent the contractual payments due by DWSD, a portion of which are payable by GLWA pursuant to the terms of the Lease Agreements..



B Note and C Note Summary and Conclusion

- History of B Note and C Note transactions presented as information only; no actions are required at this time
- PFM and GLWA staff continue to monitor the outstanding liability in regards to future opportunities for refinancing and/or prepayment with the City



2019 Refunding Opportunity Update



Current Interest Rate Snapshot

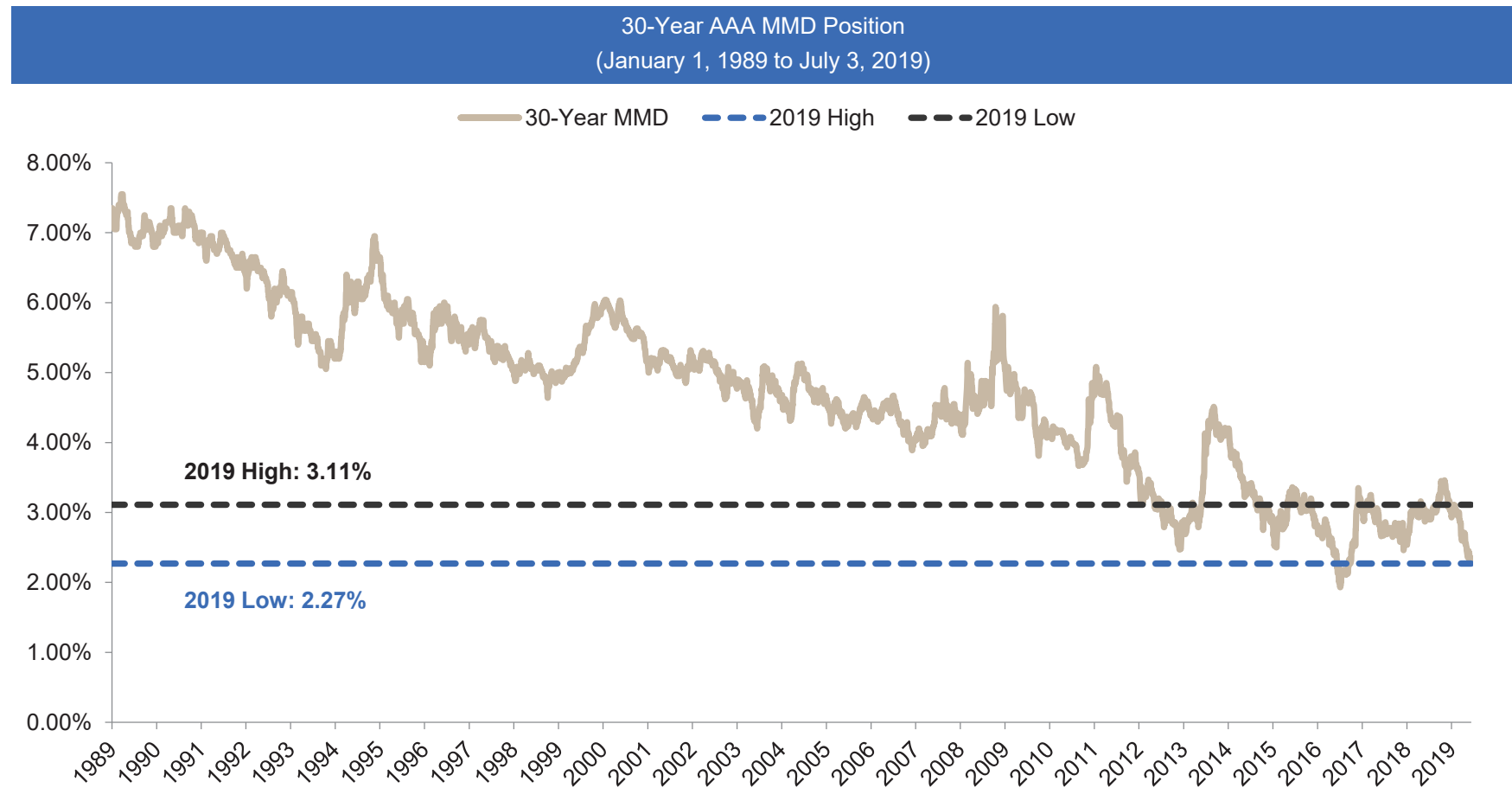
As of July 3, 2019															
Year	Maturity	UST	AAA MMD	AA MMD	AA Spread	A MMD	A Spread	Year	Maturity	UST	AAA MMD	AA MMD	AA Spread	A MMD	A Spread
1-Year	2020	1.91%	1.21%	1.22%	0.01%	1.33%	0.12%	16-Year	2035	-	1.92%	2.10%	0.18%	2.29%	0.37%
2-Year	2021	1.77%	1.22%	1.24%	0.02%	1.39%	0.17%	17-Year	2036	-	1.96%	2.14%	0.18%	2.33%	0.37%
3-Year	2022	1.71%	1.23%	1.26%	0.03%	1.44%	0.21%	18-Year	2037	-	2.00%	2.18%	0.18%	2.37%	0.37%
4-Year	2023	-	1.24%	1.29%	0.05%	1.50%	0.26%	19-Year	2038	-	2.04%	2.22%	0.18%	2.41%	0.37%
5-Year	2024	1.74%	1.28%	1.34%	0.06%	1.57%	0.29%	20-Year	2039	2.25%	2.08%	2.26%	0.18%	2.45%	0.37%
6-Year	2025	-	1.33%	1.41%	0.08%	1.63%	0.30%	21-Year	2040	-	2.12%	2.30%	0.18%	2.49%	0.37%
7-Year	2026	1.83%	1.39%	1.48%	0.09%	1.70%	0.31%	22-Year	2041	-	2.16%	2.34%	0.18%	2.53%	0.37%
8-Year	2027	-	1.46%	1.56%	0.10%	1.78%	0.32%	23-Year	2042	-	2.19%	2.37%	0.18%	2.56%	0.37%
9-Year	2028	-	1.53%	1.64%	0.11%	1.86%	0.33%	24-Year	2043	-	2.21%	2.39%	0.18%	2.58%	0.37%
10-Year	2029	1.96%	1.60%	1.72%	0.12%	1.93%	0.33%	25-Year	2044	-	2.22%	2.40%	0.18%	2.59%	0.37%
11-Year	2030	-	1.67%	1.81%	0.14%	2.00%	0.33%	26-Year	2045	-	2.23%	2.41%	0.18%	2.60%	0.37%
12-Year	2031	-	1.72%	1.88%	0.16%	2.06%	0.34%	27-Year	2046	-	2.24%	2.42%	0.18%	2.61%	0.37%
13-Year	2032	-	1.78%	1.95%	0.17%	2.12%	0.34%	28-Year	2047	-	2.25%	2.43%	0.18%	2.62%	0.37%
14-Year	2033	-	1.83%	2.01%	0.18%	2.18%	0.35%	29-Year	2048	-	2.26%	2.44%	0.18%	2.63%	0.37%
15-Year	2034	2.21%	1.88%	2.06%	0.18%	2.25%	0.37%	30-Year	2049	2.47%	2.27%	2.45%	0.18%	2.64%	0.37%

Source: Thomson Reuters; United States Treasury



Interest Rates in 2019

Long-term interest rates in 2019 have remained within a historically low range, with the 30-year MMD remaining between a maximum of 3.11% and a minimum of 2.27%

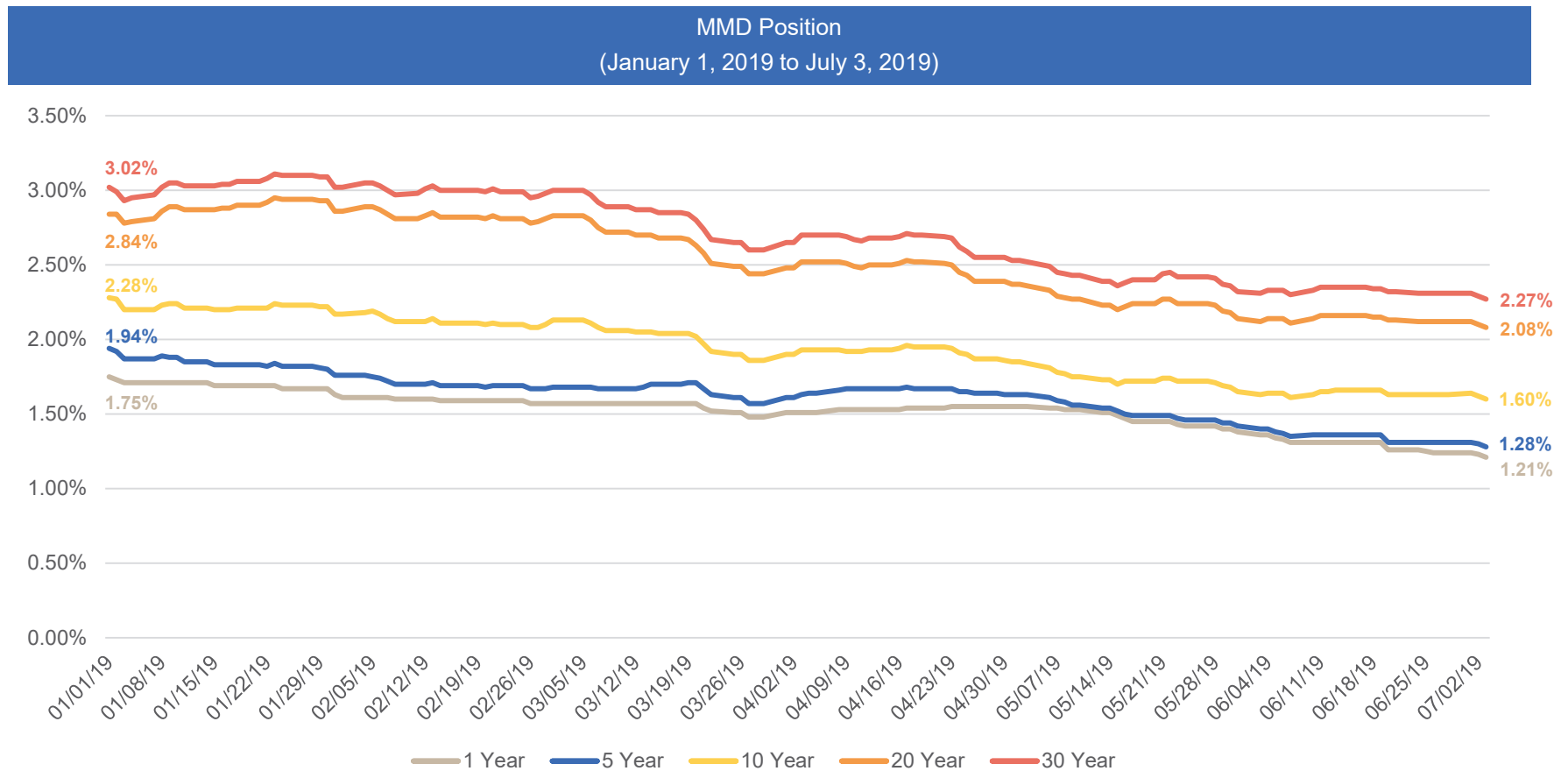


Source: Thomson Reuters



MMD in 2019

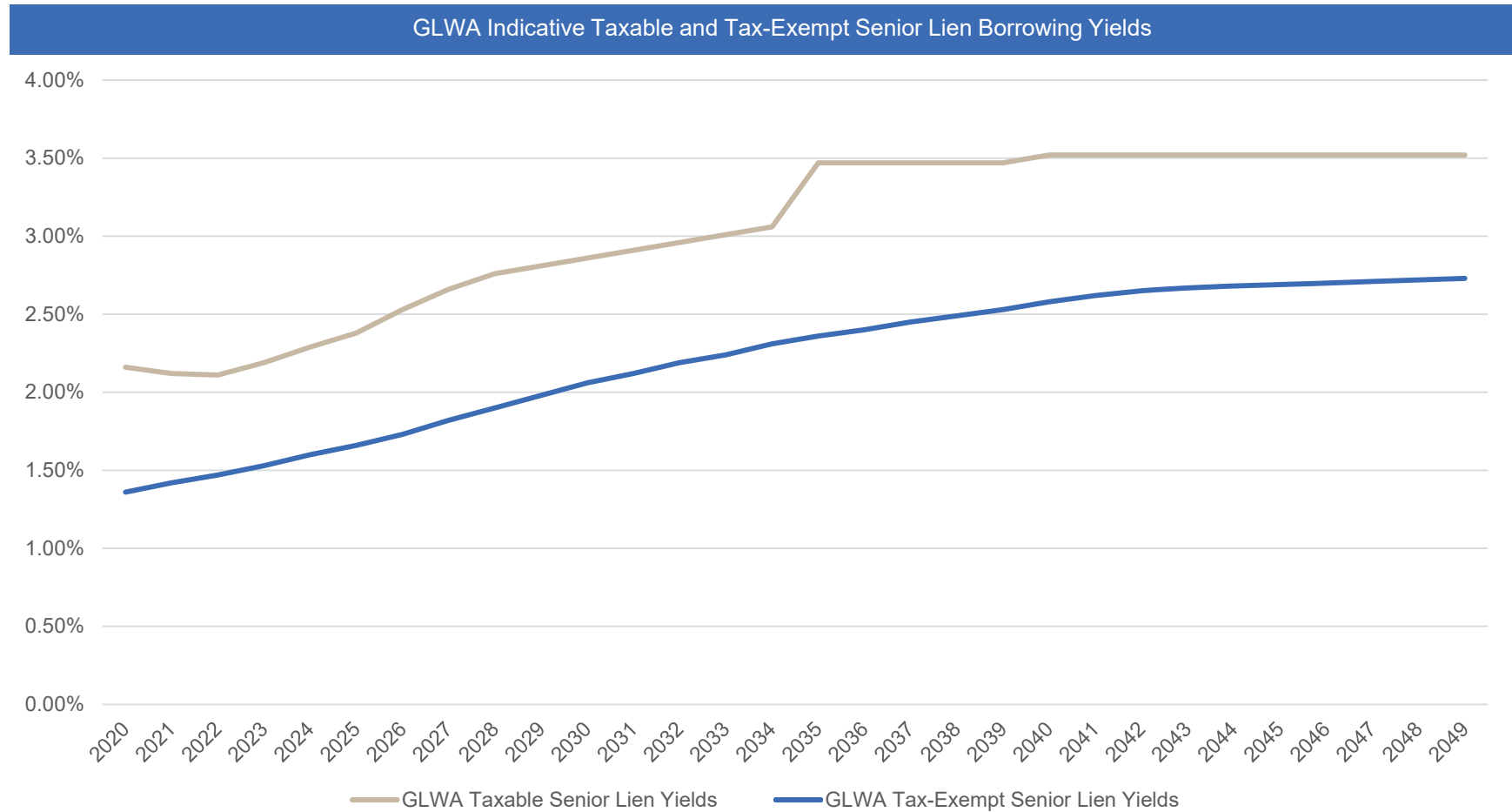
MMD rates in 2019 have steadily declined with reductions of 0.55% - 0.75% across the curve



Source: Thomson Reuters



GLWA Taxable and Tax-Exempt Borrowing Rates





Interest Rate Forecasts

- With recent comments from FOMC members and the current economic outlook, the federal funds futures market is currently pricing a 100% chance of a rate cut at the July 31 FOMC meeting with the market pricing in the potential for three cuts by the end of the year

Bond Yield Forecast (As of July 3, 2019)							
Average Forecasts	Current	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q4 20
30-Year UST	2.47%	2.66%	2.74%	2.79%	2.82%	2.88%	2.90%
10-Year UST	1.96%	2.21%	2.31%	2.37%	2.39%	2.47%	2.49%
5-Year UST	1.75%	2.02%	2.13%	2.17%	2.20%	2.27%	2.29%
2-Year UST	1.78%	1.93%	2.02%	2.07%	2.07%	2.14%	2.15%
3M LIBOR	2.29%	2.31%	2.30%	2.28%	2.25%	2.26%	2.25%
Fed Funds Target Rate (Upper)	2.50%	2.25%	2.15%	2.10%	2.05%	2.05%	2.05%
Fed Funds Target Rate (Lower)	2.25%	1.99%	1.89%	1.84%	1.80%	1.80%	1.79%

Source: Bloomberg



GLWA Fixed Rate Callable Debt (Call Dates Through 2022)

Water						
Series Name	Indenture	Lien	Tax Status	Outstanding (\$000s)	Next Call Date	Callable Par (\$000s)
Series 2011A Senior	Water	Senior	Tax-Exempt	293,970	7/1/2021	289,605
Series 2011B Senior	Water	Senior	Taxable	3,950	7/1/2021	2,295
Series 2011C Senior	Water	Senior	Tax-Exempt	75,145	7/1/2021	74,125

Sewer						
Series Name	Indenture	Lien	Tax Status	Outstanding (\$000s)	Next Call Date	Callable Par (\$000s)
Series 2012A Senior	Sewer	Senior	Tax-Exempt	495,175	7/1/2022	437,795
Series 2014C-1 Senior	Sewer	Senior	Tax-Exempt	123,220	7/1/2022	123,200
Series 2014C-2 Senior	Sewer	Senior	AMT	27,470	7/1/2022	27,450
Series 2005A Sec.(Call Mod) ¹	Sewer	Second	Tax-Exempt	31,785	7/1/2021	31,785
Series 2006B Sec.(Call Mod) ²	Sewer	Second	Tax-Exempt	55,000	7/1/2021	55,000

Note: excludes series of debt with callable amounts of \$100,000 or less outstanding.

1. The call date on \$31.8 million of the series 2005A Sewer Bonds was modified to July 1, 2021.

2. The call date on \$55.0 million of the Series 2006B Sewer Bonds was modified to July 1, 2021.



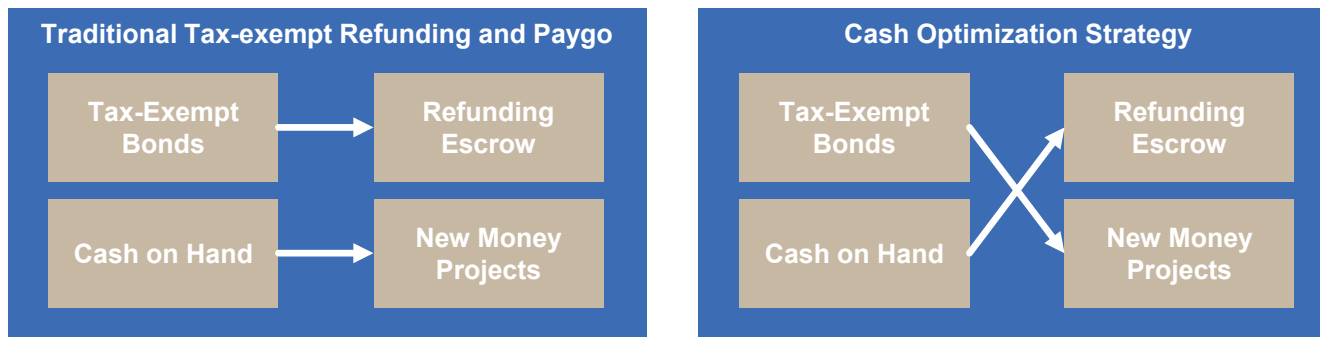
Refunding Opportunities in the Wake of Tax Reform

- The elimination of tax-exempt advance refundings and the subsequent dependence on taxable bonds to advance refund outstanding debt has generally led to increased cost and decreased the viability of issuing traditional advance refunding bonds
- Despite increased borrowing costs, savings is available to GLWA by issuing taxable advance refunding bonds
- While taxable advance refundings allow GLWA to generate debt service savings by taking advantage of current low interest rates, GLWA would forgo the benefit of tax-exempt financing
- If rates stayed the same as they are now, tax-exempt current refunding's at the call dates could generate \$26 million of additional savings for Water and \$69 million of additional savings for Sewer on an NPV basis
- This represents an implied interest rate penalty of up to 120 basis points for “locking in” savings today vs waiting and taking on interest rate risk
- Additional loss of future potential refinancing savings on long-dated bonds (taxable bonds are typically issued as par coupon bonds with a make-whole call option as opposed to tax-exempt premium coupon bonds with a 10 year par call)
- Current refundings (within 90 days of call date on refunded debt) will be more efficient than advance refundings (no additional escrow cost) and ultimately could afford more savings than tax-exempt advance refundings that are no longer permissible due to tax reform
- Does involve more interest rate risk for GLWA between now and current refunding date
- GLWA would get the benefit of “moving down the curve” for financing rates, and could always look at taxable advance refunding options
- Effective on March 1, Department of Treasury suspended the sale of SLGS as part of “extraordinary measures” to prevent the United States from defaulting on its obligations, which requires open market escrows for any defeasance or taxable refunding currently



Indirect Refundings via Cash Optimization Strategies

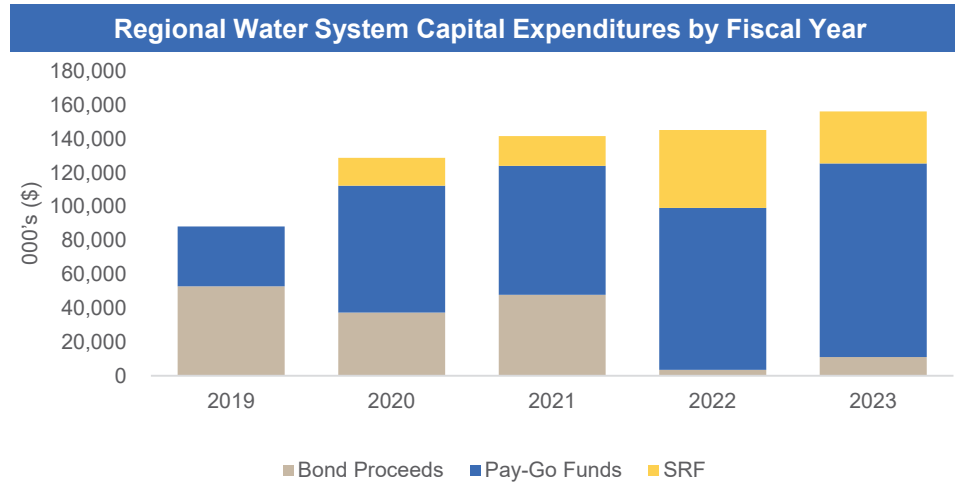
- GLWA could pursue a strategy to optimize the use of cash on hand to defease callable bonds and instead issue tax-exempt new money bonds to fund projects that would have otherwise been funded by pay-go



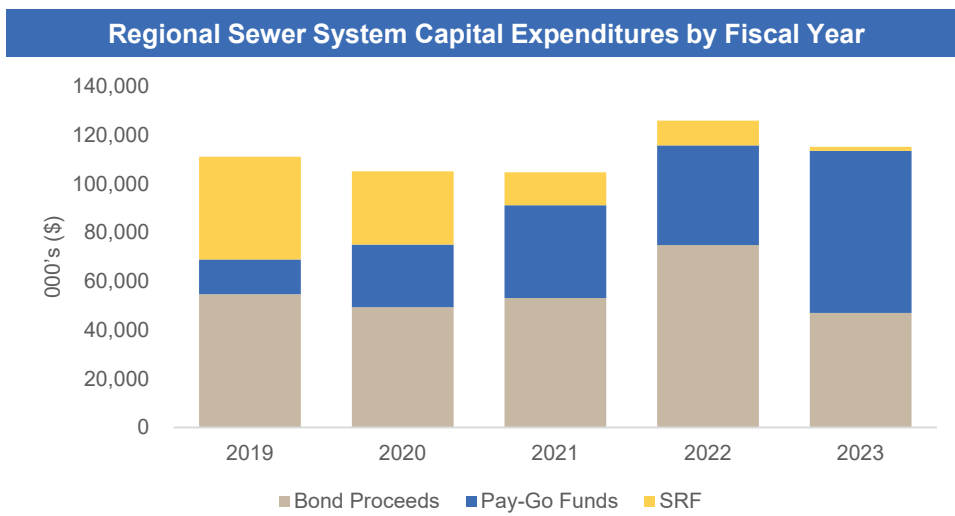
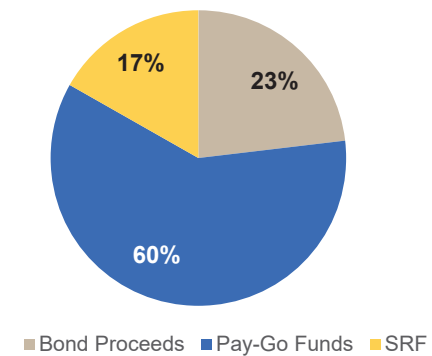
- Benefits:
 - Could allow GLWA to lock in higher savings than a taxable refunding today, while reducing rate risk versus a tax-exempt current refunding later
- General considerations:
 - Executing the call option removes ability to execute a tax-exempt current refunding (with potentially higher savings) later
 - Defeasance escrow must be purchased before the new money bonds are sold, and tax counsel will require some separation between the timing of the defeasance escrow purchase and the sale of the bonds, exposing GLWA to interest rate risk in the intervening period
- GLWA-specific considerations:
 - New money bonds must fund Regional System projects to avoid entanglement of Local System-allocable debt
 - GLWA has limited near-term planned pay-go funding of debt-eligible projects that could be redirected for use in a cash optimization
 - Significant portions of limited I&E pay-go funding available is allocable to Budgeted Capital Outlays and Specifically Designated I&E Projects



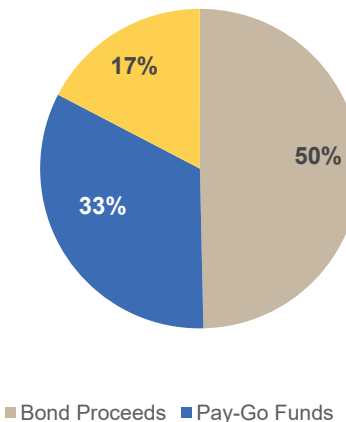
Projected Regional Capital Spending and Sources of Funds



**Regional Water System FY 2019-2023
CIP Application of Funding Sources**



**Regional Sewer System FY 2019-2023
CIP Application of Funding Sources**





Taxable Advance Refunding Candidate Summary

	Sewer System Debt Generating Savings (Taxable Advance Refunding)			Water System Debt Generating Savings (Taxable Advance Refunding)		
Refunded Series	Series	Call Date	Par (\$000s)	Series	Call Date	Par (\$000s)
Senior	2012A	7/1/2022	419,810	2011A	7/1/2021	289,605
	2014C-1	7/1/2022	123,200	2011B	7/1/2021	2,295
	2014C-2	7/1/2022	27,450	2011C	7/1/2021	74,125
Total Senior			570,460			366,025
Second	2005A	7/1/2021	31,785	-	-	-
	2006B	7/1/2021	55,000			
Total Second			86,785			-
Total Refunded			657,245			366,025

Note: Series 2012A Sewer Bonds partially funded Extraordinary Working Capital projects. The ability to refinance the portion of the Series 2012A Bonds related to the Extraordinary Working Capital on a tax-exempt basis is subject to opinion of Tax Counsel.



Water – Senior Series 2011A/B/C (Taxable Advance Refunding)

Water – Senior Lien Series 2011A Refunding Screen (\$ in 000s)									
Candidate				New Yield	PV Savings		Negative Arb. (\$ in 000s)	Savings Efficiency	Breakeven to TE Current Refunding
Maturity	Par (\$ in 000s)	Rate	Call Date		\$ in 000s	%			
7/1/2027	3,930	5.25%	7/1/2021	2.66%	433	11.03%	60	87.90%	0.74%
7/1/2031	14,540	5.00%	7/1/2021	2.83%	1,805	12.41%	264	87.30%	
7/1/2036	27,855	5.00%	7/1/2021	3.29%	3,831	13.75%	727	84.10%	
7/1/2037	20,845	5.75%	7/1/2021	3.47%	4,618	22.15%	613	88.30%	
7/1/2041	222,435	5.25%	7/1/2021	3.49%	40,720	18.31%	6,602	86.00%	
Candidates meeting thresholds									
July 2019	289,605				51,407	17.75%	8,265	86.15%	
March 2019	289,605				23,366	8.07%	9,338	71.40%	
Water – Senior Lien Series 2011B Refunding Screen (\$ in 000s)									
Candidate				New Yield	PV Savings		Negative Arb. (\$ in 000s)	Savings Efficiency	Breakeven to TE Current Refunding
Maturity	Par (\$ in 000s)	Rate	Call Date		\$ in 000s	%			
7/1/2033	2,295	6.00%	7/1/2021	2.62%	352	15.34%	34	91.20%	1.15%
Candidates meeting thresholds									
July 2019	2,295				352	15.34%	34	91.20%	
March 2019	2,295				213	9.28%	46	82.20%	
Water – Senior Lien Series 2011C Refunding Screen (\$ in 000s)									
Candidate				New Yield	PV Savings		Negative Arb. (\$ in 000s)	Savings Efficiency	Breakeven to TE Current Refunding
Maturity	Par (\$ in 000s)	Rate	Call Date		\$ in 000s	%			
7/1/2023	2,000	5.25%	7/1/2021	2.19%	79	3.95%	14	85.10%	0.82%
7/1/2024	10,490	5.25%	7/1/2021	2.29%	655	6.24%	91	87.80%	
7/1/2025	9,645	5.25%	7/1/2021	2.38%	804	8.33%	99	89.00%	
7/1/2027	5,000	5.25%	7/1/2021	2.66%	551	11.03%	76	87.90%	
7/1/2027	4,585	4.50%	7/1/2021	2.66%	326	7.11%	69	82.50%	
7/1/2041	42,405	5.00%	7/1/2021	3.49%	6,298	14.85%	1,252	83.40%	
Candidates meeting thresholds									
July 2019	74,125				8,713	11.75%	1,601	84.47%	
March 2019	74,125				3,294	4.44%	1,924	63.10%	

Assumptions: Matched lien refunding with Delivery Date of October 1, 2019; SLGS escrow; refunding bonds issued with par coupon structure and a make whole call; COI and UD of \$5/\$1000 and \$5/\$1000, respectively; uniform savings structure; no Debt Service Reserve Fund releases or deposits; Interest rates as of July 2, 2019; PV at Arbitrage Yield. Totals show sum of selected bonds. Breakeven to TE Current Refunding column shows uniform increase in tax-exempt yields between now and the call date for the specific series of bonds that would cause the same set of refunding candidates to generate the same level of PV savings on a tax-exempt current refunding basis as a taxable advance refunding.



Base Case Taxable Advance Refunding – Water System

Savings Summary

- Over \$87 million in gross cashflow savings can be achieved (>\$62 million present value)
- Potential to accelerate savings as desired

Refunding Candidates

- Includes all bonds generating >3% savings
- Refunding on a tax-exempt basis not an option under current tax law

Assumptions

- Uninsured, matched lien refunding
- Interest rates as of July 2, 2019
- Contribution of accrued interest from DS fund
- Conservatively assumes no DSRF release
- Hypothetical SLGS escrow as of July 2, 2019
- Savings structured for level aggregate savings
- Par coupon structure
- Assumes make whole call option

Refunding Results

Delivery Date:	10/1/2019
Call Date:	MWC
Advance Refunded Par (\$):	366,025,000
NPV Savings (\$):	62,023,822
NPV Savings as % :	16.94%
Negative Arbitrage (\$) ¹ :	(10,209,232)
Escrow Efficiency ¹ :	85.87%
TIC:	3.43%
WAM:	16.9 yrs
Refunded Bonds WAM:	17.8 yrs

Date	Prior Net Cashflow (\$)	Refunding DS (\$)	Savings (\$)
7/1/2020	19,091,363	16,063,128	3,028,234
7/1/2021	19,091,363	15,050,777	4,040,586
7/1/2022	19,296,363	15,258,925	4,037,438
7/1/2023	21,294,063	17,251,913	4,042,150
7/1/2024	29,626,163	25,588,144	4,038,019
7/1/2025	28,229,938	24,191,704	4,038,234
7/1/2026	18,037,475	13,999,793	4,037,683
7/1/2027	31,553,175	27,510,837	4,042,338
7/1/2028	21,258,125	17,218,670	4,039,455
7/1/2029	21,042,925	17,003,696	4,039,229
7/1/2030	20,293,075	16,252,601	4,040,475
7/1/2031	20,250,375	16,210,745	4,039,631
7/1/2032	20,095,825	16,053,499	4,042,327
7/1/2033	20,039,625	15,999,019	4,040,607
7/1/2034	19,746,925	15,709,154	4,037,771
7/1/2035	19,696,425	15,655,848	4,040,577
7/1/2036	28,909,175	24,868,531	4,040,644
7/1/2037	43,511,675	39,470,381	4,041,294
7/1/2038	73,184,588	69,143,088	4,041,500
7/1/2039	73,186,800	69,145,504	4,041,296
7/1/2040	73,191,225	69,150,224	4,041,001
7/1/2041	71,899,250	67,857,360	4,041,890
	712,525,913	624,653,537	87,872,376

1. Negative arbitrage and escrow efficiency calculated for illustrative purposes assuming earnings cap on investments at refunding bond yield.



Sewer – Senior Series 2012A / 2014C-1 & 2 (Taxable Advance Refunding)

Sewer – Senior Lien Series 2012A Refunding Screen (\$ in 000s)									
Candidate				New Yield	PV Savings		Negative Arb. (\$ in 000s)	Savings Efficiency	Breakeven to TE Current Refunding
Maturity	Par (\$ in 000s)	Rate	Call Date		\$ in 000s	%			
7/1/2023	17,985	5.00%	7/1/2022	2.19%	32	0.17%	237	11.90%	1.18%
7/1/2026	9,170	5.25%	7/1/2022	2.53%	570	6.22%	207	73.30%	
7/1/2027	2,310	5.25%	7/1/2022	2.66%	172	7.47%	61	74.00%	
7/1/2032	65,730	5.00%	7/1/2022	2.76%	7,118	10.83%	2,177	76.60%	
7/1/2039	292,865	5.25%	7/1/2022	3.06%	40,477	13.82%	14,085	74.20%	
7/1/2039	49,735	5.00%	7/1/2022	3.47%	5,514	11.09%	2,386	69.80%	

Candidates meeting thresholds

July 2019	419,810				53,851	12.83%	18,915	74.01%	
March 2019	358,595				16,907	4.71%	17,071	49.80%	

Sewer – Senior Lien Series 2014C-1 Refunding Screen (\$ in 000s)									
Candidate				New Yield	PV Savings		Negative Arb. (\$ in 000s)	Savings Efficiency	Breakeven to TE Current Refunding
Maturity	Par (\$ in 000s)	Rate	Call Date		\$ in 000s	%			
7/1/2044	123,215	5.00%	7/1/2022	3.52%	16,240	13.18%	6,072	72.80%	0.77%

Candidates meeting thresholds

June 2019	123,215				16,240	13.18%	6,072	72.80%	
No Savings in March 2019									

Sewer – Senior Lien Series 2014C-2 Refunding Screen (\$ in 000s)									
Candidate				New Yield	PV Savings		Negative Arb. (\$ in 000s)	Savings Efficiency	Breakeven to TE Current Refunding
Maturity	Par (\$ in 000s)	Rate	Call Date		\$ in 000s	%			
7/1/2044	27,465	5.00%	7/1/2022	3.52%	3,614	13.16%	1,352	72.80%	0.77%

Candidates meeting thresholds

June 2019	27,465				3,614	13.16%	1,352	72.80%	
No Savings in March 2019									

Assumptions: Matched lien refunding with Delivery Date of October 1, 2019; SLGS escrow; refunding bonds issued with par coupon structure and a make whole call; COI and UD of \$5/\$1000 and \$5/\$1000, respectively; uniform savings structure; no Debt Service Reserve Fund releases or deposits; Interest rates as of July 2, 2019; PV at Arbitrage Yield. Totals show sum of selected bonds. Breakeven to TE Current Refunding column shows uniform increase in tax-exempt yields between now and the call date for the specific series of bonds that would cause the same set of refunding candidates to generate the same level of PV savings on a tax-exempt current refunding basis as a taxable advance refunding.



Sewer – Second Series 2005A / 2006B (Taxable Advance Refunding)

Sewer – Second Lien Series 2005A Refunding Screen (\$ in 000s)									
Candidate				New Yield	PV Savings		Negative Arb. (\$ in 000s)	Savings Efficiency	Breakeven to TE Current Refunding
Maturity	Par (\$ in 000s)	Rate	Call Date		\$ in 000s	%			
7/1/2034	15,490	5.00%	7/1/2021	3.16%	2,322	14.99%	369	86.30%	
7/1/2035	16,295	5.00%	7/1/2021	3.57%	1,718	10.54%	503	77.30%	
Candidates meeting thresholds									
June 2019	31,785				4,039	12.71%	872	82.24%	
March 2019	31,785				1,437	4.52%	992	59.20%	

Sewer – Second Lien Series 2006B Refunding Screen (\$ in 000s)									
Candidate				New Yield	PV Savings		Negative Arb. (\$ in 000s)	Savings Efficiency	Breakeven to TE Current Refunding
Maturity	Par (\$ in 000s)	Rate	Call Date		\$ in 000s	%			
7/1/2034	7,890	5.00%	7/1/2021	3.16%	1,183	14.99%	201	83.40%	
7/1/2035	22,980	5.00%	7/1/2021	3.57%	2,422	10.54%	735	73.20%	
7/1/2036	24,130	5.00%	7/1/2021	3.57%	2,736	11.34%	772	74.60%	
Candidates meeting thresholds									
June 2019	55,000				6,341	11.53%	1,642	79.43%	
March 2019	30,870				1,274	4.13%	988	56.30%	

Assumptions: Matched lien refunding with Delivery Date of October 1, 2019; SLGS escrow; refunding bonds issued with par coupon structure and a make whole call; COI and UD of \$5/\$1000 and \$5/\$1000, respectively; uniform savings structure; no Debt Service Reserve Fund releases or deposits; Interest rates as of July 2, 2019; PV at Arbitrage Yield. Totals show sum of selected bonds. Breakeven to TE Current Refunding column shows uniform increase in tax-exempt yields between now and the call date for the specific series of bonds that would cause the same set of refunding candidates to generate the same level of PV savings on a tax-exempt current refunding basis as a taxable advance refunding.



Base Case Taxable Refunding – Sewer System

Savings Summary

- Over \$127 million in gross cashflow savings can be achieved (>\$87 million present value)
- Potential to accelerate savings as desired

Refunding Candidates

- Includes all bonds generating >3% savings
- Refunding on a tax-exempt basis not an option under current tax law

Assumptions

- Uninsured, matched lien refunding
- Interest rates as of July 2, 2019
- Contribution of accrued interest from DS fund
- Conservatively assumes no DSRF release
- Hypothetical SLGS escrow as of July 2, 2019
- Savings structured for level aggregate savings by lien
- Par coupon structure
- Assumes make whole call option

Refunding Results

Delivery Date:	10/1/2019
Call Date:	MWC
Advance Refunded Par (\$):	657,245,000
NPV Savings (\$):	87,691,345
NPV Savings as % :	13.34%
Negative Arbitrage (\$) ¹ :	(28,717,708)
Escrow Efficiency ¹ :	75.33%
TIC:	3.44%
WAM:	17.1 yrs
Refunded Bonds WAM:	18.4 yrs

Date	Prior Net Cashflow (\$)	Refunding DS (\$)	Savings (\$)
7/1/2020	33,623,113	29,547,116	4,075,997
7/1/2021	33,623,113	28,188,123	5,434,990
7/1/2022	33,623,113	28,188,800	5,434,313
7/1/2023	33,633,113	28,197,959	5,435,154
7/1/2024	33,632,613	28,196,487	5,436,126
7/1/2025	33,632,113	28,198,403	5,433,710
7/1/2026	42,801,613	37,368,773	5,432,840
7/1/2027	35,459,688	30,022,419	5,437,269
7/1/2028	39,042,913	33,609,087	5,433,826
7/1/2029	34,246,663	28,814,732	5,431,931
7/1/2030	39,050,163	33,616,487	5,433,676
7/1/2031	46,114,663	40,682,872	5,431,791
7/1/2032	69,649,913	64,218,776	5,431,137
7/1/2033	29,738,913	24,307,790	5,431,123
7/1/2034	54,588,413	49,158,862	5,429,551
7/1/2035	69,206,738	63,775,489	5,431,249
7/1/2036	51,981,888	46,549,408	5,432,480
7/1/2037	132,256,388	127,661,913	4,594,475
7/1/2038	132,253,288	127,657,989	4,595,299
7/1/2039	132,254,275	127,655,644	4,598,632
7/1/2040	34,799,000	30,200,192	4,598,808
7/1/2041	34,795,250	30,195,760	4,599,490
7/1/2042	34,793,500	30,195,000	4,598,500
7/1/2043	34,795,250	30,196,680	4,598,570
7/1/2044	34,581,750	29,984,568	4,597,182
	1,284,177,437	1,156,389,325	127,788,112

1. Negative arbitrage and escrow efficiency calculated for illustrative purposes assuming earnings cap on investments at refunding bond yield.



Summary of Potential Refunding Opportunities

Although significant savings can be achieved through a taxable refinancing today of certain GLWA bonds, PFM would continue to recommend waiting on the refinancing to take advantage of tax-exempt options in late 2020 or early 2021.

- While there is interest rate risk inherent in waiting 18 months to execute a tax-exempt current refunding instead of a near-term taxable refunding, most interest rate projections suggest that waiting is a better choice
 - By issuing taxable refinancing bonds now, GLWA would forego benefits of tax-exemption and “rolling down the yield curve” an additional year, as well as incur negative arbitrage in the escrows
 - Additionally, taxable bonds would result in reduced optionality on refunding bonds themselves (typically par coupon, with a make whole call)
- While potential savings numbers look attractive for a cash optimization refinancing strategy, the strategy requires near-term regional new money projects that would otherwise be financed with cash
 - A significant portion of GLWA’s near-term capital plan is expected to be funded with low interest rate SRF loans
 - Large portion of overall capital spending is related to DWSD

The Quarterly Debt Summary Report includes the following:

1. Key Takeaways
2. Look Ahead – Five Year Capital Financing Plan
3. Existing Debt
4. Debt Service Coverage
5. Potential Refinancing Opportunities

Pursuant to leases that became effective on January 1, 2016, the Great Lakes Water Authority (GLWA) assumed possession and control of the regional assets of both the water supply and sewage disposal systems owned by the City of Detroit (City), which were previously operated by the Detroit Water and Sewerage Department (DWSD). GLWA assumed certain liabilities including State Revolving Fund loans and 100% of the revenue bond debt issued by DWSD prior to January 1, 2016, pursuant to terms of bond issues in calendar years 2014 and 2015, along with a bondholder consent solicitation in 2015.

The bonds are repaid by the revenues of the water and sewage systems including the DWSD retail system (local system) revenues which are the exclusive property of GLWA in accordance with Section 5.7 of each lease agreement. The DWSD is GLWA's agent for purposes of billing and collection of the retail system revenues for both the water and sewer system, as set forth in a water and sewer services agreement between the City and GLWA. All revenue receipts are deposited into a trust and administered in compliance with the Master Bond Ordinance, applicable to each system (referred to herein collectively as the "MBO").

The leases also provide that GLWA will finance local system improvements of DWSD. GLWA is the obligor of 100% of the debt payable which is recorded in GLWA's books. An "obligation receivable" is recorded by GLWA which represents the amount related to the DWSD retail system improvements. Accordingly, DWSD records an "obligation payable" for a like amount.

GLWA maintains detailed records of all debt issuances and how that debt is allocated between the regional system and local system, as well as between the water and sewer systems. GLWA and DWSD regularly reconcile interrelated accounts between the entities.

The lease agreements, water and sewer services agreement, and MBO noted above are available on GLWA's website at www.glwater.org. The above explanation is a synopsis of key points and is not intended to fully represent the agreements or any sub-sections thereof.

Key Takeaways

- ✓ This is the inaugural quarterly debt report prepared for the GLWA. The purpose is to provide a resource for stakeholders and to support management decisions as capital financing needs evolve.
- ✓ GLWA continues to enhance transparency by inclusion of the Debt Summary Report in the Audit Committee Binder quarterly.
- ✓ All Bond Reserve Requirements are fully funded as of the most recent valuation.
- ✓ Currently, GLWA has seven open State Revolving Fund (SRF) loans, three for water and four for sewer.
- ✓ Specific key items of interest include the following along with the balance as of March 31, 2019.

Balance of Key Items as of March 31, 2019 (\$ Millions)		
	Water	Sewer
FY 2019 Approved SRF Projects - Table 5	\$157.0	\$10.3
DWSD Obligation Receivable - Table 6	\$476.1	\$420.0
GLWA Outstanding Debt - Table 7	\$2,284.3	\$3,107.4

Look Ahead - Five Year Capital Financing Plan

The following tables summarize the projected Capital Improvement Program (CIP) funding to be provided by proceeds received from the issuance of new revenue bonds and draws on committed SRF loans. *The financing plan is dynamic and changes with the pace of capital spending and alignment with refunding opportunities.* These schedules are based upon the recently approved FY 2020 to FY 2024 Capital Improvement Plan (CIP) for the regional system by the GLWA Board of Directors and for the local system by the DWSD's Board of Water Commissioners. It is important to note the amounts represented in Revenue Bonds reflect the anticipated par amount of the bonds to be issued and not the net proceeds needed to support the capital plan.

Table 1 - GLWA Projected Financing Needs FY 2020 – FY 2024

Projected Funding Needs for Regional System					
	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Water					
Revenue Bonds	\$ -	\$ -	\$ 62,000,000	\$ 56,000,000	\$ 56,000,000
SRF loan draws	5,531,000	18,367,000	24,115,000	29,615,000	29,994,000
Total projected funding Water	\$ 5,531,000	\$ 18,367,000	\$ 86,115,000	\$ 85,615,000	\$ 85,994,000
Sewer					
Revenue Bonds	\$ 84,000,000	\$ 87,000,000	\$ 91,000,000	\$ 69,000,000	\$ 13,000,000
SRF loan draws	29,342,000	8,280,000	1,343,000	-	-
Total projected funding Sewer	\$ 113,342,000	\$ 95,280,000	\$ 92,343,000	\$ 69,000,000	\$ 13,000,000

Table 2 - DWSD Projected Bond Financing Needs FY 2020 – FY 2024

Projected Funding Needs for Local System					
	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Water					
Revenue Bonds	\$ 100,000,000		\$ 50,000,000	\$ -	\$ 50,000,000
SRF loan draws	\$ 4,020,000	\$ 12,040,000	\$ -	\$ -	\$ -
Total projected funding Water	\$ 104,020,000	\$ 12,040,000	\$ 50,000,000	\$ -	\$ 50,000,000
Sewer					
Revenue Bonds	\$ -	\$ -	\$ 50,000,000	\$ -	\$ -
SRF loans draws	\$ -	\$ -	\$ -	\$ -	\$ -
Total projected funding Sewer	\$ -	\$ -	\$ 50,000,000	\$ -	\$ -

Note: Information presented is as of March 31, 2019. Financing plans continue to evolve based on the needs of the system.

Existing Debt

Current Debt Ratings: Bond ratings are a key measure of an organization's financial strength. Ratings are established by independent agencies that conduct detailed reviews of an organization's operational and financial performance to assist those seeking to invest in an organization through the purchase of bonds. GLWA actively monitors its debt ratings and continually seeks to make operational and financial improvements to improve its bond ratings. Achieving higher ratings will allow GLWA to finance its capital needs at lower interest rates.

Table 3 – Debt Ratings by System provides a summary of the debt ratings assigned in September 2018, in advance of the most recent bond issuances in October 2018, as well as the ratings assigned to the Junior Lien debt in November 2018.

Current Debt Ratings			
	S&P Global Ratings	Moody's Investors Service	Fitch Ratings
Water Supply System Revenue Bonds			
Senior lien	AA-	A2	A
Second lien	A+	A3	A-
Junior lien	A+	N/A	N/A
Outlook	Stable	Stable	Positive
Sewage Disposal System Revenue Bonds			
Senior lien	A+	A2	A
Second lien	A	A3	A-
Junior lien	A	N/A	N/A
Outlook	Positive	Stable	Positive

Debt Allocation: GLWA has over \$2.2 billion in water system debt and \$3.1 billion in sewer system debt for a combined total of over \$5.3 billion. Debt within each system is prioritized according to its security interest, or lien category, with senior lien debt having the highest security interest, followed by second lien and finally junior lien.

Chart 1 - Debt Type by Lien – Water provides a breakdown of the total water system debt for both the regional and local systems by lien type.

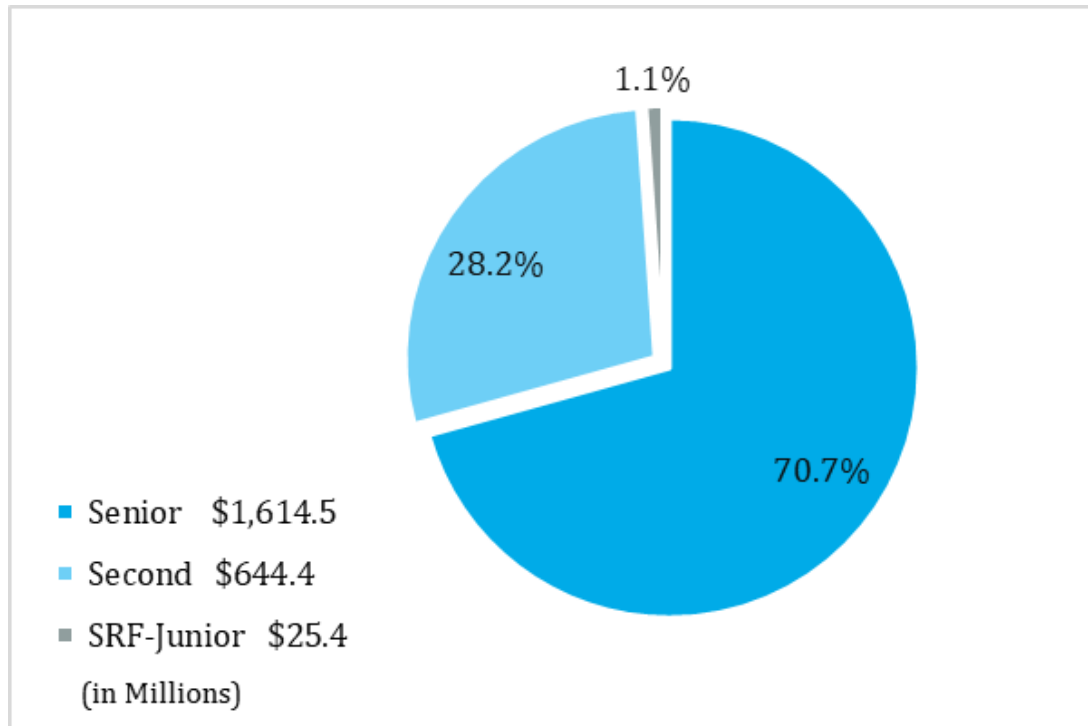


Chart 2 - Debt Type by Lien – Sewer provides a breakdown of the total sewer system debt for both the regional and local systems by lien type.

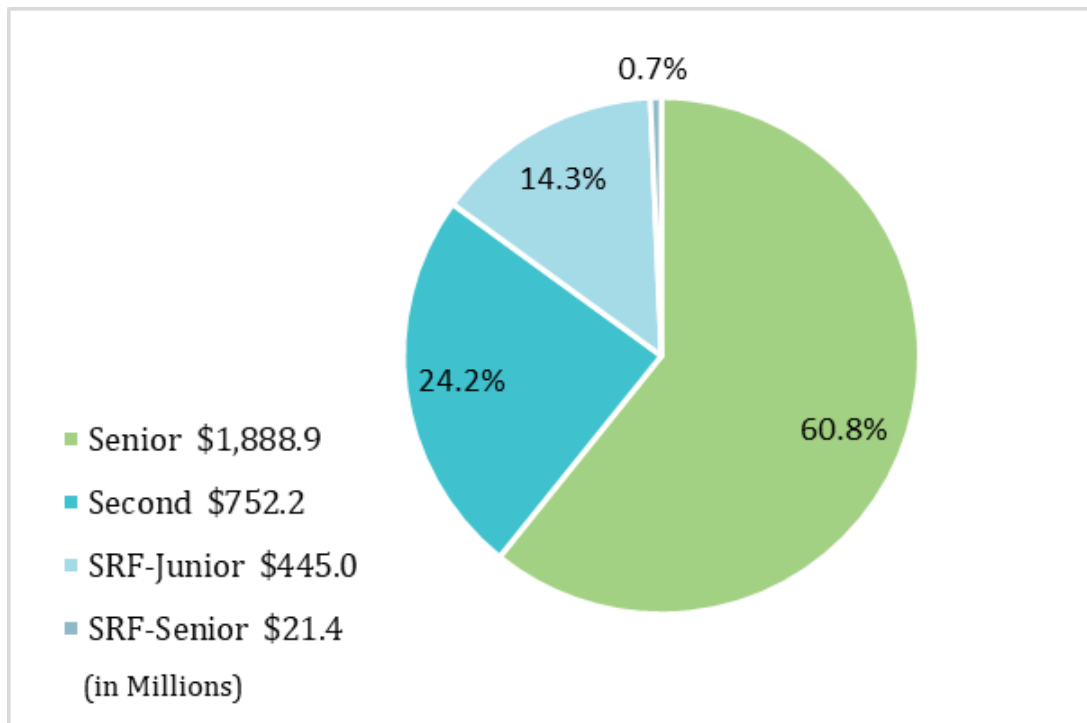


Chart 3 – Annual Debt Service Payments by Lien – Water provides the amortization schedule of combined annual debt service requirements by due dates within the fiscal year.

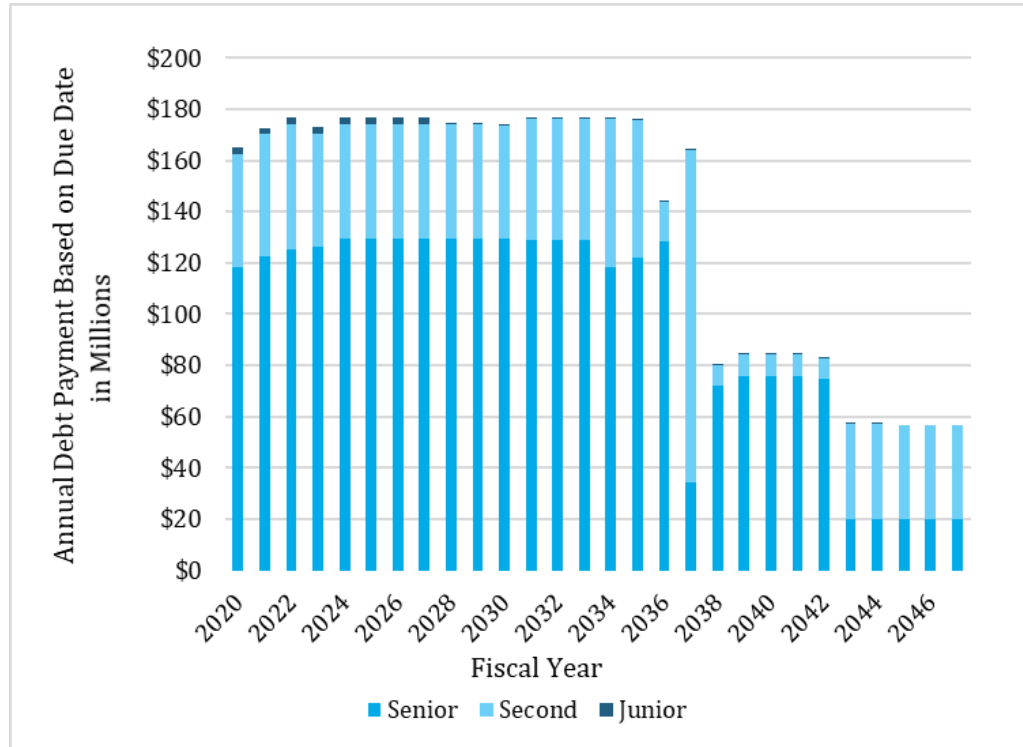
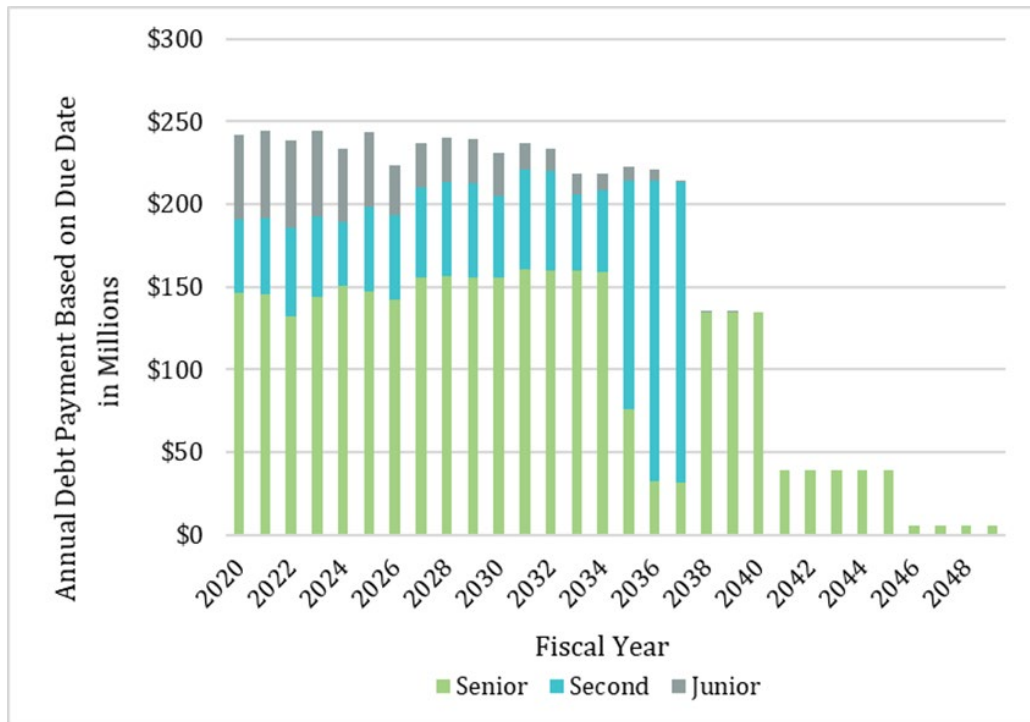


Chart 4 – Annual Debt Service Payments by Lien – Sewer provides the amortization schedule of combined annual debt service requirements by due dates within the fiscal year.



State of Michigan's State Revolving Fund (SRF) Programs: GLWA participates in the State's Clean Water Revolving Fund (CWRF) to finance qualified sewage disposal system projects and the State's Drinking Water Revolving Fund (DWRF) to finance qualified water supply system projects. For the purposes of this report, both water and sewer projects financed through these programs will be referred to as either water or sewer SRF loans.

These loan programs have interest rates that are well below open market interest rates (usually between 2.0% and 2.5%) and are repaid over 20-30 years. Funds are disbursed as construction payments are made. Interest on each loan is based on the amount of funds drawn and not the full loan amount. GLWA must submit project plans to Michigan Department of Environment, Great Lakes, and Energy ("EGLE", and formerly known as the Michigan Department of Environmental Quality or MDEQ) for each project by the annual submission date (May 1 for DWRF and July 1 for CWRF) in order to be considered for the State's funding pool for the following fiscal year.

State Revolving Fund Loans: GLWA's strategy is to maximize its use of SRF loans to finance qualified capital projects. GLWA currently has over \$25.4 million in outstanding water SRF loans and \$466.3 million in outstanding sewer SRF loans.

Table 4 - Active SRF Project Summary provides information regarding each loan including the loan award date which is also referred to as the Order of Approval date by the State of Michigan.

State Loan #	Description	Order of Approval	Project Total (\$ Millions)
SRF Water - DWSD Specific Projects			
7412-01	Water Main Replacement (WS-693A)	8/24/2016	\$10.6
7413-01	Water Main Replacement (WS-697)	8/24/2016	\$5.2
7414-01	Water Main Replacement (WS-698)	6/1/2017	\$8.7
		Total Water	\$24.5
SRF Sewer - GLWA Projects			
5635-01	Aeration System Improvements	8/24/2016	\$19.3
5636-01	Rehab Rectangular Primary Clarifiers, Electrical/Mechanical Buildings and Pipe Gallery	8/24/2016	\$51.3
5651-01	RRO Disinfection (Phase II)	3/13/2015	\$38.5
5655-01	Detroit River Interceptor	8/23/2018	\$17.7
		Total Sewer	\$126.8

Chart 5 - Open State Revolving Fund Loans summarizes all current SRF loans held by GLWA (including financings on behalf of DWSD) that are active (reference Table 4 above for project descriptions). It summarizes the original award amount remaining and the amount drawn down as of March 31, 2019 for each loan.

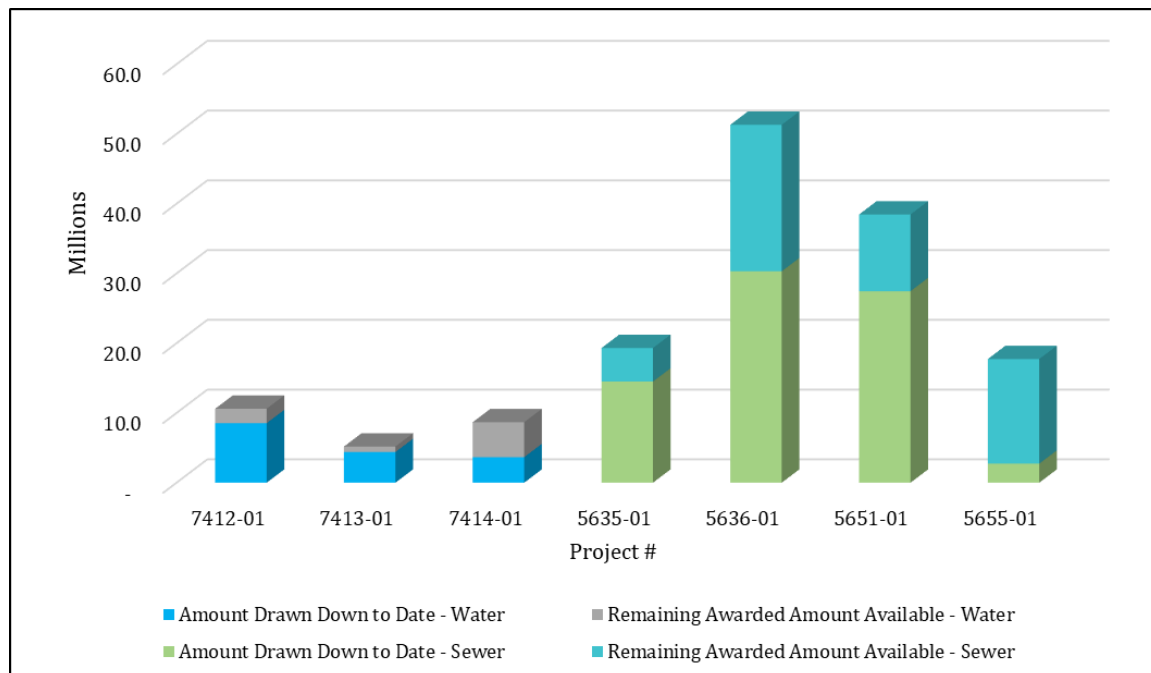


Table 5 - Project Plan Approved by EGLE identifies projects approved by the EGLE but for which applications have not yet been submitted for funding.

Project Owner	Description	Project Total	Anticipated Funding
Water SRF			
GLWA	Water Conveyance System-84" Transmission Main - Segment I "Improvements to Flow Control Station" (1st Loan - FY 19-4th Quarter)	\$ 18,000,000	8/30/2019
GLWA	Water Conveyance System-84" Transmission Main - Segment II+ (2nd loan or more FY 20 - beyond)	115,727,000	8/30/2020
GLWA	Lake Huron Sludge System-Raw Sludge Clarifiers (FY 19-3rd Quarter)	7,241,000	6/7/2019
DWSD	DWSD Water Main Replacement (FY 19-2nd Quarter)	15,982,000	8/30/2019
Total Water SRF		\$ 156,950,000	
Sewer SRF			
GLWA	Ferric Chloride System Rehabilitation (FY 19-4th Quarter)	\$ 10,297,181	3/27/2020
Total Sewer SRF		\$ 10,297,181	

DWSD Obligation Receivable: GLWA holds an obligation receivable from DWSD as an asset to account for the amount due for financing local system capital projects. DWSD carries a like amount of this as an obligation payable on its statement of net assets.

There are three components to the calculation of the DWSD obligation receivable. These are:

- an agreed upon amount for pre-January 1, 2016 (i.e. “pre-bifurcation”) debt as documented in a 2018 Memorandum of Understanding (\$455 million for water system and \$370 million for sewer per agreed-upon amortization schedules),
- new revenue bonds issued after January 1, 2016 to specifically fund the DWSD local system capital improvement projects which are payable based on the allocable share of the actual bonds debt service schedule, and
- SRF loans entered into for specific DWSD capital projects which are payable based on the allocable share of the actual loan payment schedule.

All retail customer revenues are deposited into a trust to fund these financial obligations in accordance with the MBO flow of funds.

Chart 6 - DWSD Obligation Receivable by Type summarizes the total DWSD obligation receivable balance for both Water and Sewer as of March 31, 2019 by pre-bifurcation, revenue bond and SRF component.

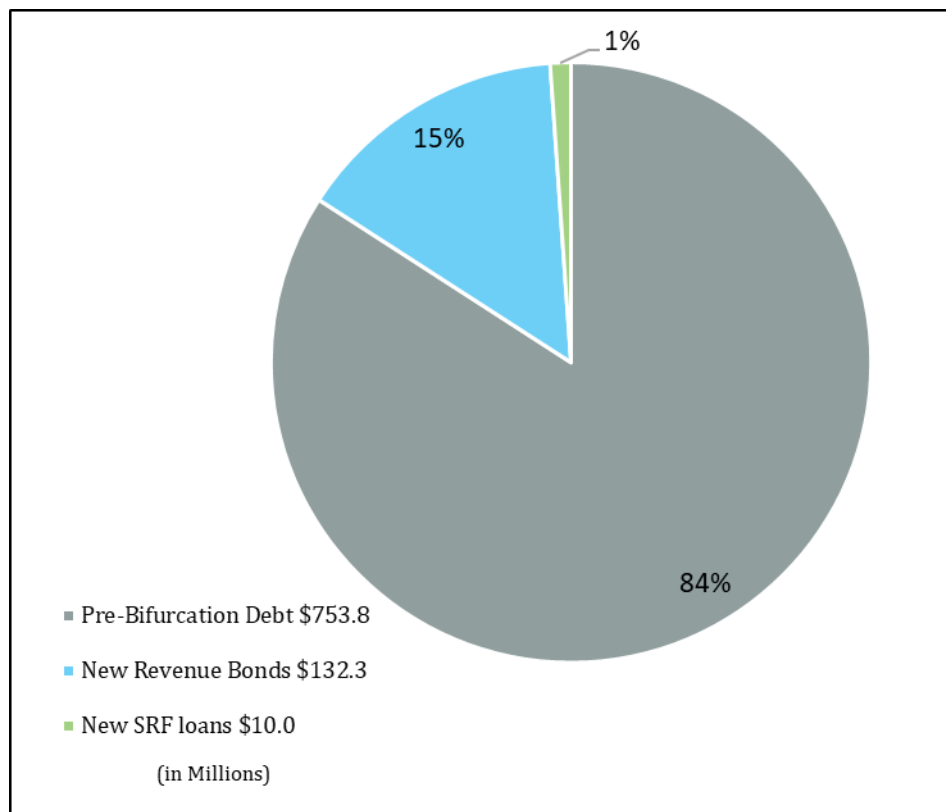
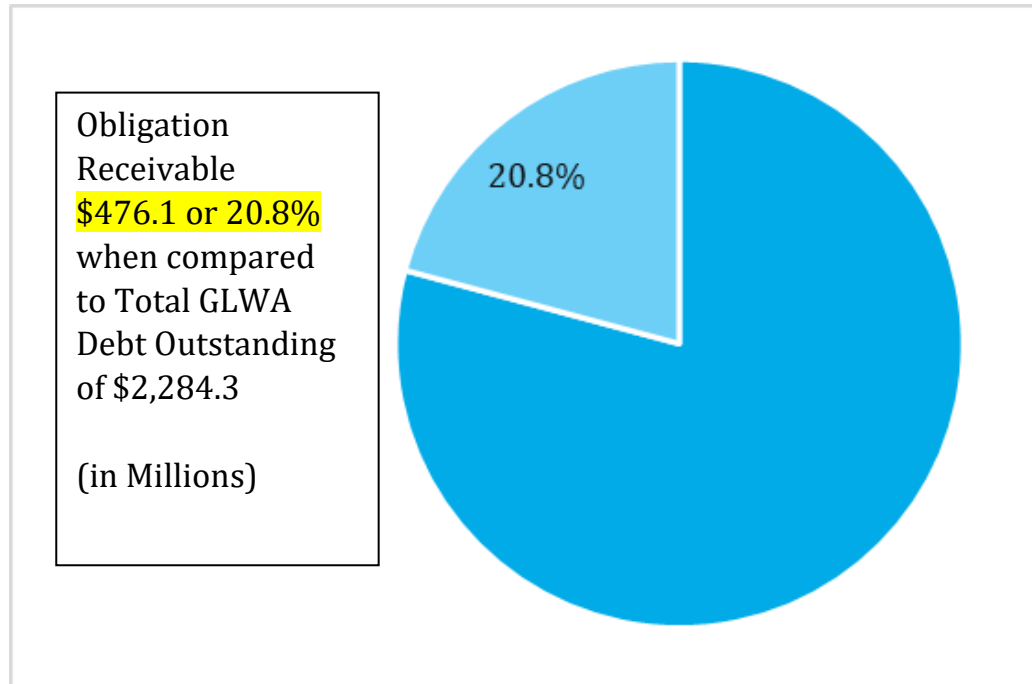


Chart 7 – Obligation Receivable Compared to Total Debt - Water provides context by comparing the Water System Obligation Receivable to the Total Water Debt (excludes unamortized premiums).



Charts #7 & #8 of the Debt Summary Report were updated to properly reflect the Total DWSD Obligations for Water and Sewer shown in Table 6.

Chart 8 – Obligation Receivable Compared to Total Debt - Sewer provides context by comparing the Sewer System Obligation Receivable to the Total Sewer Debt (excludes unamortized premiums).

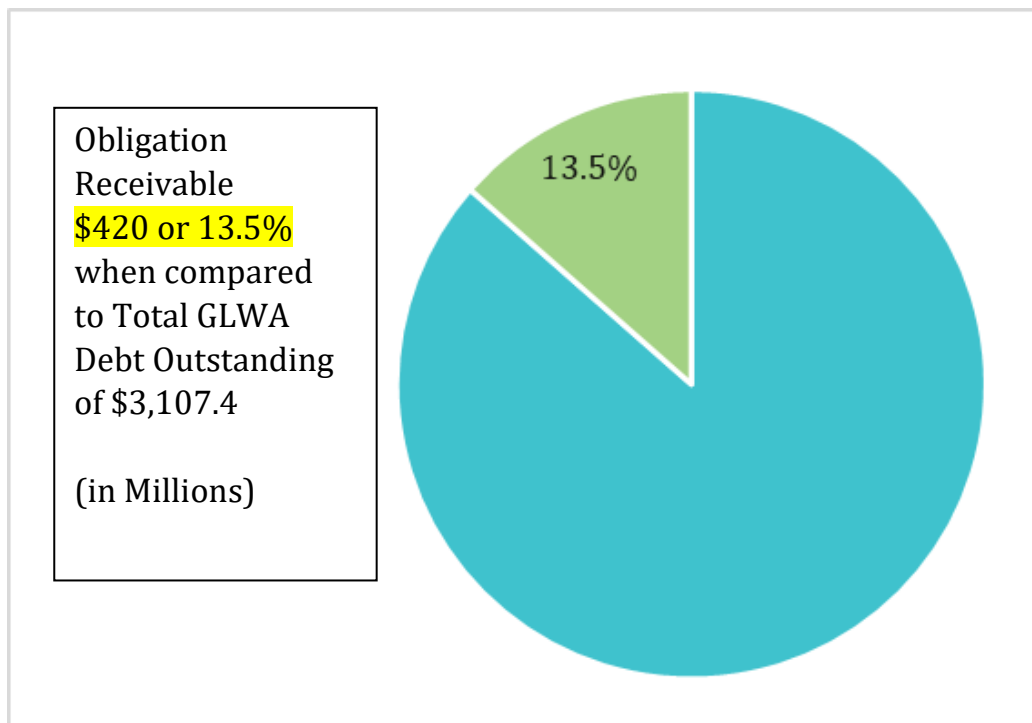


Table 6 - DWSD Obligation Receivable provides obligation receivable detail including fiscal year 2019 beginning balances by debt type and loan issue (for revenue bonds and SRF loans), year-to-date activity and ending balances as of March 31, 2019. Total DWSD debt totals \$930.4 million. This differs slightly from the total in Chart 8 due to the inclusion of unamortized premiums.

(In Thousands)

Debt Type	July 1, 2018			SRF Debt	March 31, 2019
	Beg Balance	Increase	Decrease	Forgiveness	End Balance
DWSD Water					
Pre-Bifurcation Debt	\$ 425,334	\$ -	\$ (9,895)	\$ -	\$ 415,439
Revenue Bond - 2016A	17,725	-	-	-	17,725
Revenue Bond - 2016B	33,015	-	-	-	33,015
SRF 7412-01	4,910	-	-	-	4,910
SRF 7413-01	3,354	40	-	-	3,394
SRF 7414-01	-	1,744	-	(85)	1,658
Total DWSD Obligation	484,337	1,784	(9,895)	(85)	476,141
Unamortized Premiums	6,262		(101)		6,161
Subtotal: Water	490,600	1,784	(9,996)	(85)	482,302
DWSD Sewer					
Pre-Bifurcation Debt	346,828	-	(8,440)	-	338,388
Revenue Bond - 2018A	-	81,595	-	-	81,595
Total DWSD Obligation	346,828	81,595	(8,440)	-	419,983
Unamortized Premiums	-	9,937	(125)	-	9,812
Subtotal: Sewer	346,828	91,532	(8,565)	-	429,795
Total DWSD Debt	\$ 837,428	\$ 93,315	\$ (18,561)	\$ (85)	\$ 912,097

Annual Change in Outstanding Debt: It is the goal of GLWA to ensure the long-term sustainability of the water and sewer systems. One of the best ways to accomplish this is by reducing the debt service payments on existing bonds as well as reducing the amounts of future bond issues using revenue financed capital.

Table 7 - Long-Term Debt Summary provides a detail of GLWA's fiscal year 2019 beginning balances by debt type and loan issues, year-to-date activity, and ending balances as of March 31, 2019. GLWA debt includes financing for both the regional and local share. Most notably is the refunding as shown in the schedule below.

(In Thousands)							
Debt Type	June 30, 2018					Debt	March 31, 2019
	Beg Balance	Increase	Decrease	Refunding	Forgiveness	End Balance	
Water Fund							
Revenue Bonds	\$ 2,284,825	\$ 155,595	\$ (2,785)	\$ (178,735)	\$ -	\$ 2,258,900	
State Revolving Loans	25,436	1,784	(1,775)	-	(85)	25,359	
Total Installment Debt	2,310,261	157,379	(4,560)	(178,735)	(85)	2,284,259	
Unamortized Premiums / Discounts	255,838	19,731	(12,821)	(12,710)	-	250,039	
Subtotal: Water	2,566,099	177,110	(17,381)	(191,445)	(85)	2,534,298	
Sewer Fund							
Revenue Bonds	2,584,065	257,465	(7,555)	(207,690)	-	2,626,285	
Capital Appreciation bonds	17,250	-	(2,470)	-	-	14,780	
State Revolving Loans	475,678	29,413	(38,780)	-	-	466,310	
Total Installment Debt	3,076,993	286,878	(48,805)	(207,690)	-	3,107,375	
Capital Appreciation Bond Discount	(2,266)	-	864	-	-	(1,402)	
Unamortized Premiums / Discounts	155,026	32,322	(11,529)	(22,505)	-	153,313	
Subtotal: Sewer	3,229,752	319,200	(59,470)	(230,195)	-	3,259,287	
Total Combined, Long Term Debt	\$ 5,795,851	\$ 496,310	\$ (76,851)	\$ (421,640)	\$ (85)	\$ 5,793,585	

Debt Service Coverage

GLWA is committed to ensuring the long-term sustainability of the water and sewer systems and has pledged specific revenue streams to secure the repayment of the revenue bonds and SRF loans associated with them. The MBO establishes minimum debt coverage levels at 1.20 for senior lien bonds, 1.10 for second lien bonds and 1.00 for any junior lien bonds, other than second lien bonds. Debt service coverage ratios are inclusive of all debt held on behalf of both GLWA and DWSD.

Table 8: Debt Service Coverage Ratios provides a summary of the debt service coverage ratios for the water and sewer systems as reported in the Comprehensive Annual Financial Report (CAFR) for 2016, 2017 and 2018 as well as ratios based on the adopted FY 2019 Budget and FY 2020 Budget. Debt service coverage is calculated by dividing the Net Revenues for the fiscal year of calculation by the debt service installment requirements on bonds for such fiscal year all for such priority of lien and any higher priority of lien.

Water - Debt Type	MBO				Adopted	Adopted
	Required Minimum	Actual 2016	Actual 2017	Actual 2018	Budget 2019	Budget 2020
Senior Lien Bonds	1.20	2.11	2.03	2.03	2.03	1.94
Senior and second lien bonds	1.10	1.59	1.57	1.52	1.44	1.40
All bonds, including SRF junior lien	1.00	1.58	1.56	1.51	1.41	1.38

Sewer - Debt Type	MBO				Adopted	Adopted
	Required Minimum	Actual 2016	Actual 2017	Actual 2018	Budget 2019	Budget 2020
Senior Lien Bonds	1.20	2.33	2.32	2.11	2.01	2.11
Senior and second lien bonds	1.10	1.72	1.73	1.61	1.55	1.61
All bonds, including SRF junior lien	1.00	1.43	1.39	1.29	1.23	1.26

Potential Refunding Opportunities

In an effort to reduce the annual water and sewer debt service payments, GLWA monitors its outstanding water and sewer debt portfolios to determine if it has the ability to refund existing bond issues with new, lower interest rate bonds. At least once per year, GLWA's registered municipal advisor, PFM Financial Advisors, LLC (PFM) prepares an analysis of GLWA's bond refunding opportunities based on the current municipal interest rate environment and the existing debt service on GLWA's callable bonds. The latest PFM analysis was presented at GLWA's March 15, 2019 Audit Committee meeting.