Audit Committee

Friday, June 19, 2020 at 8:00 a.m.

www.GLWater.org

Conference Call Dial-In: Call 866-528-2256 Access Code 9169911

AGENDA

Note: Binders 1 and 2 have been combined in agenda order and document was renumbered.

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF AGENDA
4. APPROVAL OF MINUTES
   A. May 15, 2020 (Page 1)
5. PUBLIC PARTICIPATION
6. OLD BUSINESS
   A. Recap: June 2020 Sewer System Bond Refunding Transaction (Page 6)
   B. Proposed Budget Amendment Policy (Page 19)
7. NEW BUSINESS
   A. Proposed FY 2020 Budget Amendments (Defer to Special Meeting or Board)
   B. Proposed FY 2021 Budget Reductions (Page 23)
   C. Report: General Retirement System Financial Report and Annual Actuarial Valuation for Year End June 30, 2019 (City of Detroit Component II) (Page 30)
8. REPORTS
   A. CFO Report (Page 207))
      i. Special Report from The Foster Group: *Series 2020 Bond Results and Impact on June 17, 2020 FY 2021 – 2022 Forecast Update*
   B. Monthly Financial Report for March 2020 (Page 234)
   C. FY 2020 Q3 Construction Work-in-Progress Report through (Page 235) March 31, 2020
   D. FY 2020 Wholesale Water Usage and Revenue Projections as of (Page 257) June 14, 2020
9. COMMUNICATIONS
   A. *The Procurement Pipeline* for June 2020 (Page 298)
10. LOOK AHEAD
    Next Audit Committee Meetings
    A. Regular Meeting July 17, 2020 at 8:00 a.m.
11. OTHER MATTERS
12. ADJOURNMENT

AGENDA ITEM #4A

Great Lakes Water Authority

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

Meeting Minutes - Draft

Audit Committee

Friday, May 15, 2020 | **8:00 AM** | **Telephonically**

Call in Number: 1-866-528-2256 Access Code: 9169911

Note: Telephonic Meeting

Call in Number: 1-866-528-2256
Access Code: 9169911

1. Call To Order

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

2. Quorum Call

Present: 2 - Chairperson Brian Baker, and Director Gary Brown

3. Approval of Agenda

Chairperson Baker requested a Motion to approve the Agenda.

Motion By: Gary Brown
Support By: Brian Baker
Action: Approved
The motion carried by a unanimous vote.

4. Approval of Minutes

A. 2020-163 Audit Committee Minutes from April 24, 2020

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: 4A Audit Committee Meeting Minutes - April 24, 2020

Chairperson Baker requested a Motion to approve the April 24, 2020 Audit Committee Meeting Minutes.

Motion By: Gary Brown
Support By: Brian Baker
Action: Approved
The motion carried by a unanimous vote.

5. Public Comment

There were no public comments.

6. Old Business

A. 2020-164 Recap: April 2020 Water System Refunding and New Money Transaction

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: 6A1 Recap - April 2020 Water System Refunding and New Money Transaction
6A2 GLWA Audit Committee Post 2020 Water Bond Sale Report 5.1.2020 (Attachment 1)
6A3 S&P Bulletin-GLWA Ratings Unaffected By COVID19 Pandemic Apr-29-2020 (Attachment 2)
6A4 GLWA Press Release- 2020 Ratings Agency Upgrades and Bond Sale (Attachment 3)

Motion By: Gary Brown
Support By: Brian Baker
Action: Received and Filed
The motion carried by a unanimous vote.

B. 2020-165 Proposed Budget Amendment Policy - Continued Discussion

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: 6B Audit Committee Binder 2 - Review Sample Budget Amendment Report 5.15.2020

Motion By: Gary Brown
Support By: Brian Baker
Action: Received and Filed
The motion carried by a unanimous vote.

C. 2020-167 Municipal Advisor Services Contract CS-002 Update

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: 6C1 Municipal Advisor Services Contract Status Update
6C2 GFOA- Selecting and Managing Municipal Advisors
6C3 MSRB- Roles of Financing-Team

Motion By: Gary Brown
Support By: Brian Baker
Action: Received and Filed
The motion carried by a unanimous vote.

7. New Business

A. 2020-166 Drinking Water Revolving Fund Project Plan Submittal for the city of Detroit Water and Sewerage Department Water Main

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: 7A1 Approval of DWSD DWRF Project Plan for FY 2021
7A2 Board Letter- DWSD DWRF Project Plan Approval
7A3 Resolution Approval of DWSD DWRF Project Plan

Motion By: Gary Brown
Support By: Brian Baker
Action: Recommended for Approval to the Board of Directors
Agenda of May 27, 2020
The motion carried by a unanimous vote.

B. 2020-168 DWSD FY 2021 Budget Update

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: 7B1 DWSD FY 2021 Budget Update Cover Memo 5.15.2020
7B2 DWSD Coronavirus Financial Plan BOWC Meeting 2020.05.06

Motion By: Gary Brown
Support By: Brian Baker
Action: Received and Filed
The motion carried by a unanimous vote.

8. Reports

A. CFO Report (Verbal)

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

The COVID-19 response efforts within FSA on FY 2020 - 2021 budget, wholesale and retail cash collection, the 2020 bond transaction, and a potential procurement cooperative with Member Partners.

Motion By: Gary Brown
Support By: Brian Baker
Action: Received and Filed
The motion carried by a unanimous vote.

B. 2020-169 Monthly Financial Report for February 2020

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: 8B - GLWA Monthly Financial Report February 2020

Motion By: Gary Brown
Support By: Brian Baker
Action: Received and Filed
The motion carried by a unanimous vote.

C. 2020-170 Quarterly Investment Report

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: 8C1 Quarterly Investment Report Cover Memo_March 2020 Investment_ Report
8C2 GLWA_Quarterly Investment Report_March 2020

Motion By: Gary Brown
Support By: Brian Baker
Action: Received and Filed
The motion carried by a unanimous vote.

D. 2020-171 Quarterly Debt Report through March 2020

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: 8D1 Quarterly Debt Report as of 3.31.2020

Motion By: Gary Brown
Support By: Brian Baker
Action: Received and Filed
The motion carried by a unanimous vote.

9. Communications

A. 2020-172 The Procurement Pipeline for May 2020

Sponsors: Nicolette Bateson

Indexes: Finance

Attachments: 9A May 2020 Procurement Pipeline

Motion By: Brian Baker
Support By: Gary Brown
Action: Received and Filed
The motion carried by a unanimous vote.

10. Look Ahead

A. The next Audit Committee Meeting is scheduled to be held Friday, June 19, 2020 at 8:00 a.m.

11. Other Matters

None

12. Adjournment

Chairman Baker requested a Motion to Adjourn.

Motion By: Gary Brown
Support By: Brian Baker
Action: Approved.
The motion carried by a unanimous vote.

There being no further business, the meeting was adjourned at 9:50 a.m.

AGENDA ITEM #6A

Financial Services
Audit Committee Communication

Date: June 19, 2020

To: Great Lakes Water Authority Audit Committee

From: Nicolette Bateson, CPA
Chief Financial Officer& Treasurer

Re: Recap: June 2020 Sewer System Bond Refunding Transaction

Background: Over the course of the past year, the Great Lakes Water Authority has monitored a trend of decreasing interest rates to determine if there were financially feasible bond refunding opportunities to secure a lower annual debt service requirement

Analysis: Based on favorable market conditions, on Thursday, June 4, 2020 a successful bond pricing occurred with a closing on Tuesday, June 16, 2020. Key highlights include the following.

1. **Refunding Savings:** Successfully refinanced $657 million of taxable Sewer System Bonds resulting in gross cashflow savings of $221 million ($123 million of present value savings, or an impressive 18.7%) at a very favorable all-in borrowing cost of 3.0%.

2. **Outstanding investor participation:** Over $4.3 billion in orders for the total of $687.5 million in bonds (6.3x oversubscribed). This resulted in a mid-day re-pricing and allowed us to achieve even greater savings for the refunding.

3. **Recent Ratings Upgrades Not Impacted by COVID-19:** The recent rating agency upgrades occurred prior to the declaration of emergency as it relates to COVID-19 in Michigan. Pre-pricing updates to rating agencies focused on efforts take to address the impact of COVID-19. A resulting bulletin was issued by Standard & Poor's which noted GLWA's "efforts to mitigate any revenue losses, including the ability to reprioritize capital projects without weakening environmental compliance, potential use of cash balances to stabilize current operations, while planning for rebuilding them in subsequent fiscal years if needed, the future sewer charge structure to its member partners, and general operating expense adjustments".

The following items are also attached.

- ✓ *Presentation to the Audit Committee Summary of 2020 Sewer System Financing Results* prepared by Citigroup, Siebert Williams Shank & Co. and PFM Financial Advisors (Attachment 1).
- ✓ Standard and Poor's Global Ratings bulletin dated June 3, 2020 titled, "*Great Lakes Water Authority, MI Ratings Unaffected By COVID-19 Pandemic.*" (Attachment 2)

The final official statement for the Sewage Disposal System Revenue Refunding, Series 2020 Official Statement on the Investor Relations Page of GLWA's website.

Proposed Action: Receive and file report.

Great Lakes Water Authority

Presentation to the Audit Committee
Summary of 2020 Sewer System Financing Results

June 19, 2020

Executive Summary

The recent bond transactions for the Sewer System achieved a number of favorable results.

- Successfully refinanced $657 million of outstanding Sewer System Bonds
  - Sewer system net cashflow savings of $221 million ($123 million of present value savings, or 18.7%)
- Rating upgrades were achieved from all three rating agencies continuing the Authority's history of rating success since the stand up
  - Senior lien ratings of AA-/A1/A+ for Water and for Sewer
  - Second lien ratings of A+/A2/A for Water and for Sewer
- Extensive outreach to investors, with an electronic roadshow, investor meetings, and one on one investor calls
  - Over 80 investors reached in the marketing process
  - Nearly 90 different institutional investors placed orders over $4.3 billion for the $687.5 million in bonds offered (6.3x oversubscribed) allowing for a significant tightening of spreads
  - Included multiple international investors based in Canada, Britain, Norway and Taiwan and represents the first international investor participation in a GLWA bond sale
- Since 2014, the GLWA management team, either through GLWA or the predecessor debt obligor DWSD, has executed five refunding transactions (for the water and sewer system combined) that reached the **milestone of $1 billion in debt service savings**

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Goals Set . . . Goals Met

The goals for the Series 2020 financing were achieved and provide the Authority with a strong base with which to weather the current COVID-19 crisis and achieve future financial goals.

- Secure Rating Upgrades
- Highlight Strong Financial Results and Expand the Investor Base for GLWA credits
- Lock-in Favorable Interest Rates and Substantial Savings
- Enhance GLWA's Financial Flexibility

Bond Rating Upgrades Attained Since GLWA's Stand Up

As part of the financing process, the Great Lakes Water Authority team sought and received rating improvements from all three rating agencies continuing a history of rating success since the stand up of the Authority.

Sewer System

S&P

Senior Lien	A- (Stable)	3 notch improvement	AA- (Stable)
Second Lien	BBB+ (Stable)	3 notch improvement	A+ (Stable)

Moody's

Senior Lien	Baa3 (Positive)	5 notch improvement	A1 (Stable)
Second Lien	Ba1 (Positive)	5 notch improvement	A2 (Stable)

Fitch

Senior Lien	BBB (Stable)	4 notch improvement	A+ (Stable)
Second Lien	BBB- (Stable)	4 notch improvement	A (Stable)

Water System

S&P

Senior Lien	A- (Stable)	3 notch improvement	AA- (Stable)
Second Lien	BBB+ (Stable)	3 notch improvement	A+ (Stable)

Moody's

Senior Lien	Baa3 (Positive)	5 notch improvement	A1 (Stable)
Second Lien	Ba1 (Positive)	5 notch improvement	A2 (Stable)

Fitch

Senior Lien	BBB (Stable)	4 notch improvement	A+ (Stable)
Second Lien	BBB- (Stable)	4 notch improvement	A (Stable)

Comprehensive Marketing Outreach

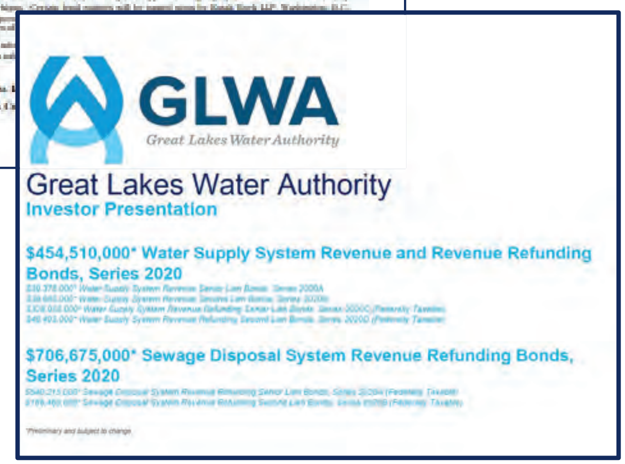
Although a traditional in person roadshow as not possible in light of the COVID-19 crisis, Citi and Siebert utilized an internet roadshow presentation and one-on-one investor calls to educate investors and explain the transaction.

Marketing Outreach

1. Preliminary Official Statement Posted (March 10th)
2. Internet Roadshow (March 10th – June 4th)
   - 84 distinct investors viewed the electronic roadshow
3. Preliminary Official Statement Supplement Posted (June 1st)
   - Provided additional information to potential investors with respect to the impact of COVID-19 on the Authority's operations and financial performance
4. One-on-One Calls with Investors (June 2nd – June 3rd)
5. Multiple individual one-on-one calls with key investors to address their questions ahead of pricing

Results

- Over $4.3 billion of orders were received for the taxable Series 2020A&B Bonds (6.3x oversubscribed)
- Nearly 90 distinct institutional investors placed orders on the Series 2020A&B Bonds
  - Existing holders added to positions
  - New investors came in to buy the System's bonds for the 1st time
  - Variety of account types participated including asset managers, mutual funds, insurance companies, SMAs, and relative value funds
  - International investors from Canada, Norway, Britain and Taiwan also participated; the first international participation in GLWA's sales
- "Top Tier" investors, including the some of the largest bond funds and insurance companies in the municipal market, came in for significant orders



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Summary of Financing Results

The Sewage System Series 2020 Bonds produced a significant amount of savings for GLWA that brings the total across both Water and Sewage Systems to **over $1 billion in debt service savings since 2014.**

- Issued $687.5 million of total bonds including $594.9 million of Senior Lien Bonds and $92.5mm of Second Lien Bonds to achieve $221 million in debt service savings
  - Present Value Savings was $122.9 million (or 18.7% of the refunded par amount)
  - Overall cost of funds, including costs of issuance, was an attractive 3.04%
    - In addition to targeting a good market to issue debt in, GLWA also utilized insurance from Assured Guaranty on a portion of the Second Lien Bonds to further lower the cost of funds
- The $221 million in savings were structured to significantly reduce the prior aggregate Maximum Annual Debt Service of the Sewage System from $223.7 million to $206.5 million
  - In addition to the annual debt service smoothing, the structure also generated $24 million in cash flow savings over the next three years
  - Increased debt service coverage levels on the Sewage System
- Released $33.6 million from the Bond Reserve Funds to reduce the amount of refunding bonds issued and increase future cash flow savings
- Achieved all necessary bondholder consents on the DSRF springing amendment for the potential future elimination of the Sewage System Bond Reserve Funds once GLWA attains two AA category ratings

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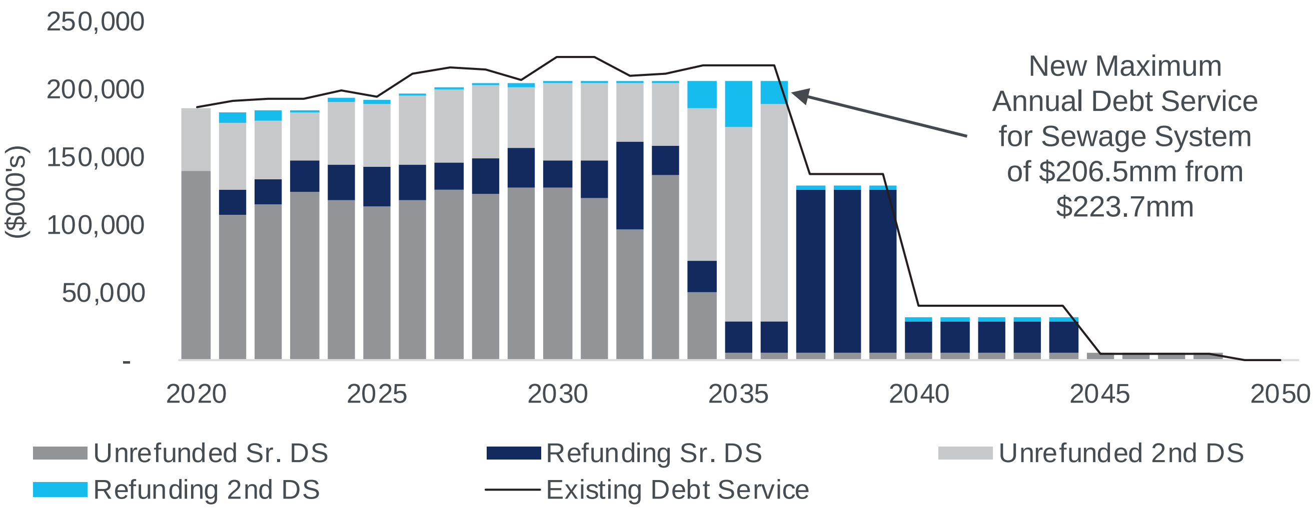
Series 2020 Financing Results and Cash Flow Savings

Through a combination of refunding structure optimization and aggressive pricing, the refunding was able to achieve $221 million of total debt service savings for the Sewage System.

	Series 2020A Sr. Lien Taxable	Series 2020A 2nd Lien Taxable	Aggregate Series 2020 Issuance
Sources			
Par	594,930,000	92,525,000	687,455,000
Debt Service Fund Release	14,641,931	2,169,625	16,811,556
Debt Service Reserve Fund Release	8,454,576	25,142,779	33,597,356
Total Sources	618,026,507	119,837,404	737,863,912
Uses			
Deposit to Escrow Fund	615,473,376	118,896,293	734,369,669
Insurance Premium	-	537,493	537,493
Costs of Issuance (incl. UW Discount)	2,553,132	403,618	2,956,750
Total Uses	618,026,507	119,837,404	737,863,912
Refunding Statistics			
Refunded Principal	570,460,000	86,785,000	657,245,000
Cash Flow Savings	161,792,310	59,247,445	221,039,756
Net PV Savings (@ 3%)	103,976,431	18,904,434	122,880,865
Net PV Savings % of Ref. Par (@ 3%)	18.23%	21.78%	18.70%



Debt Service Savings			
Fiscal Year	Sr. Lien Savings	2nd Lien Savings	Aggregate Savings
Total	161,792,310	59,247,445	221,039,756
2021	5,551,321	2,527,137	8,078,458
2022	5,549,641	2,599,621	8,149,262
2023	5,545,431	2,599,621	8,145,052
2024	3,822,857	2,599,621	6,422,478
2025	10,223	2,599,621	2,609,844
2026	12,216,504	2,599,621	14,816,126
2027	11,469,967	2,599,621	14,069,588
2028	7,786,783	2,599,621	10,386,405
2029	14,102	2,599,621	2,613,723
2030	14,594,830	2,599,621	17,194,452
2031	14,507,536	2,599,621	17,107,157
2032	446,556	2,599,621	3,046,177
2033	3,329,506	2,599,621	5,929,127
2034	3,111,294	8,504,621	11,615,915
2035	3,059,870	8,512,593	11,572,462
2036	2,993,203	8,507,640	11,500,843
2037	8,471,808	-	8,471,808
2038	8,471,988	-	8,471,988
2039	8,473,782	-	8,473,782
2040	8,475,103	-	8,475,103
2041	8,469,982	-	8,469,982
2042	8,469,278	-	8,469,278
2043	8,475,368	-	8,475,368
2044	8,475,377	-	8,475,377

Note: For purposes of this analysis reserve releases are treated as an upfront adjustment (reduction) to PV savings

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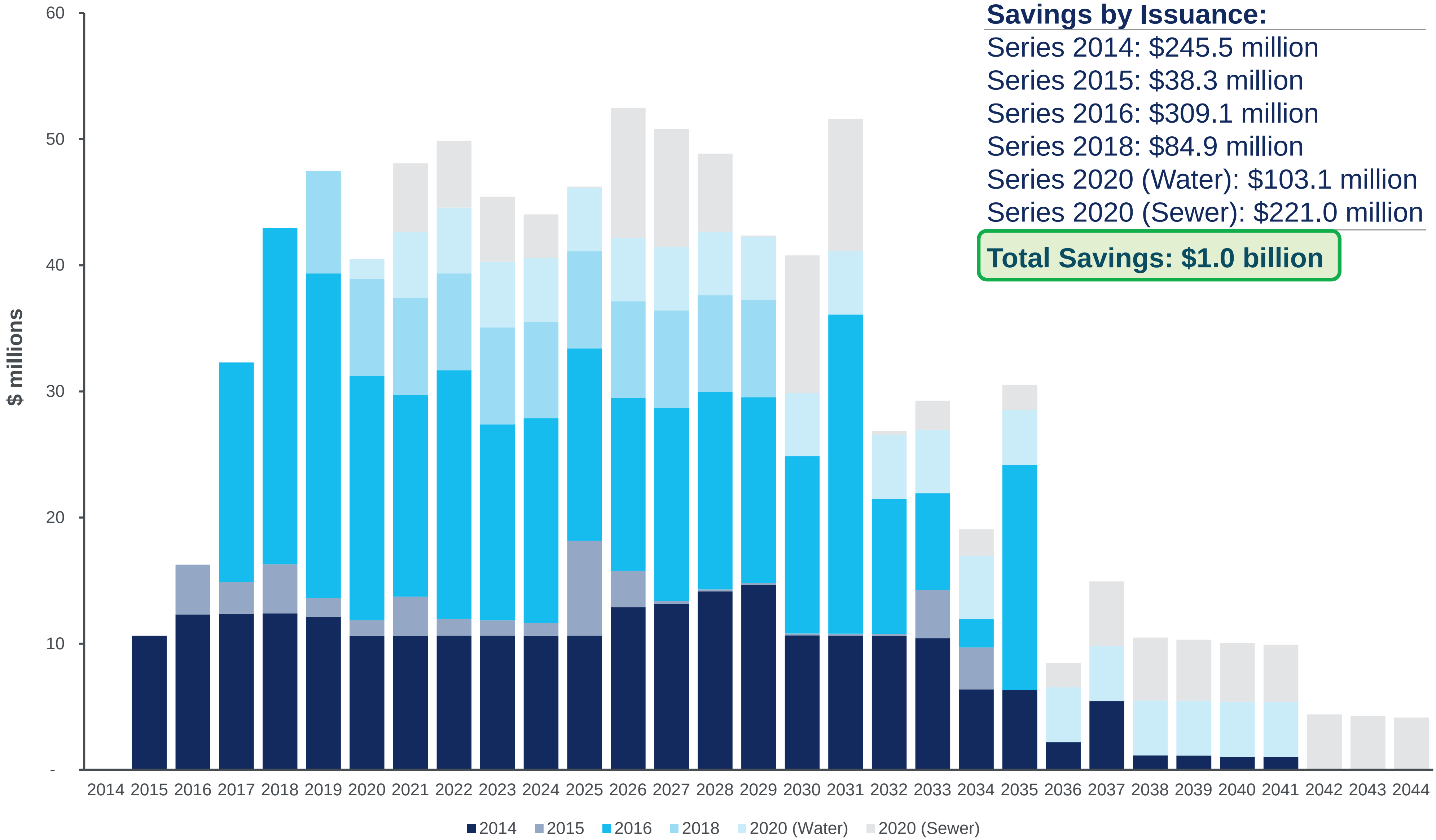
History of Debt Service Savings Achieved Since 2014

Through the leadership of the Authority's management team, the financing team has been able to achieve **over $1 billion of debt service savings** for the Systems since the tender and refunding transaction in 2014.



Savings by Issuance:

Series 2014: $245.5 million
Series 2015: $38.3 million
Series 2016: $309.1 million
Series 2018: $84.9 million
Series 2020 (Water): $103.1 million
Series 2020 (Sewer): $221.0 million

Total Savings: $1.0 billion

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S&P Global
Ratings

RatingsDirect®

Bulletin:

Great Lakes Water Authority, MI Ratings Unaffected By COVID-19 Pandemic

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

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

NEW YORK (S&P Global Ratings) June 3, 2020--S&P Global Ratings said that the COVID-19 pandemic has not affected its 'AA-' rating on the Great Lakes Water Authority (GLWA), Mich.'s senior-lien sewage disposal system revenue bonds or its 'A+' rating on GLWA's second- and junior-lien sewage disposal revenue bonds. (See the full analysis on GLWA, published March 16, 2020 on RatingsDirect.)

GLWA is planning on issuing its series 2020A senior lien and 2020B second lien, both for refunding previously issued sewage disposal system revenue bonds, in a total par amount of approximately $706.7 million.

Although limited revenue volatility is likely for all its customer classes, there will be a more pronounced effect applicable to GLWA's retail customer class (which includes Detroit). That being said, we believe that the system's overall financial position is unlikely to see significant declines related to COVID-19 because of management's ability to reprioritize its capital projects and achieve positive expense variances.

Our belief is supported by GLWA's diverse sewer system revenue base generated from communities that represent about 30% of Michigan's population, and revenue requirements for all of its customer classes are designed to be fixed. We also have observed that the authority has been able to identify an additional $9.9 million in budgetary adjustments that, in our view, should be able to mitigate its currently estimated $1 million revenue shortfall in regional system revenues due to the effects of COVID-19.

Additional year-over-year shortfalls attributable to the Detroit retail sewer system in March and April 2020 total $6.6 million for those two months, but GLWA also reports that collections for May 2020 are $1.4 million better than the figure for 2019. We would expect that retail customer class shortfalls will be likely cured through a process outlined in a Memorandum of Understanding (MOU) agreed to in 2018--a process to cure any Detroit Water and Sewer Dept. cumulative negative budgetary variance of more than 2% by repaying the shortfall to GLWA in annual installments over a period not to exceed three years with an additional surcharge based off the U.S. Treasury rate plus 150 basis points. We view this as an important credit factor because GLWA's overall sewage disposal revenue requirements for all of its customer classes are designed to be fixed. Both the existence and use of this shortfall curing mechanism is supportive of GLWA's overall legal and operational framework, and also supportive of the rating at its current level.

As the pandemic's effects on future budgets are better understood, we will continue to incorporate into our rating analysis management's efforts to mitigate any revenue losses, including the ability to reprioritize capital projects without weakening environmental compliance, potential use of existing cash balances to stabilize current operations while planning for rebuilding them in subsequent fiscal years if needed, the future sewer charge structure to its member partners, and general operating expense adjustments.

Despite these efforts by management to mitigate financial effects due to COVID-19, we will continue to examine both Detroit's and Michigan's overall economic indicators to determine the extent to which they could weaken the rating. For instance, current data seem to indicate that the unemployment rate both within the Detroit metro area and throughout Michigan exceeds 20%. If sustained over a protracted period, this level of economic displacement could have a negative effect on the rating in the future.

For more information on our views related to COVID-19 and the recessionary effects it has exacerbated, see our article, "An Already Historic U.S. Downturn Now Looks Even Worse" (published April 16, 2020 on RatingsDirect).

This report does not constitute a rating action.

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Financial Services
Audit Committee Communication

Date: June 19, 2020

To: Great Lakes Water Authority Audit Committee

From: Nicolette Bateson, CPA
Chief Financial Officer& Treasurer

Re: Proposed Budget Amendment Policy – Continued Discussion

Background: The founding legal documents for the Great Lakes Water Authority (GLWA) provide a structure for budget preparation, adoption, and amendment.

Analysis: The complexity of GLWA's financial oversight and management give cause for the Board of Directors to adopt a budget amendment policy.

On April 24, 2020 a draft budget amendment policy was provided to the Audit Committee for review and discussion.

On May 15, 2020 a companion sample budget amendment report and related budget amendment resolution to demonstrate how the proposed policy would be implemented.

Proposed Action: Recommend that the Board of Directors approve the proposed budget amendment policy.

PROPOSED BUDGET AMENDMENT POLICY

Purpose

The purpose of this budget amendment policy is to define the purpose, reporting, and authorization of budget amendments for the Great Lakes Water Authority (GLWA).

Definitions

Line Item	The highest level of detail in the accounting system which is assigned a budget amount and is used for management of an operational budget. The line item is a four segment general ledger string which includes fund, cost center, account, and function.
Administrative Budget Amendment	A line item level amendment to budgeted amounts which is within the legal spending level authorized by a budget resolution for a given fiscal year.
Account Type	Primary classification of operations and maintenance expenses that is used for budgeting and financial reporting. Identifies the purpose for use of financial resources. Examples include personnel, contractual services, utilities, chemicals, supplies and other expenses, capital program allocation, shared services allocation, centralized services allocation, administrative services allocation, capital outlay, and unallocated reserve.
Appropriation Categories	The purpose for which a spending level authorized by a budget resolution.
Appropriation Level	The legal spending level authorized by a budget resolution.
Board Budget Amendment	An amendment to the annual budget which alters the legal spending level authorized by a budget resolution for a given fiscal year.
Core Purpose	A grouping of line items that describes the core purpose of financial resources that aligns with the revenue charges methodology. Examples include water direct operations, wastewater direct operations, centralized services, and administrative services.
Fiscal Year	The twelve-month period ended June 30th.

Policy

1. **Budget Adoption:** The Board of Directors adopts a biennial budget by resolution which specifies appropriation amounts by the following categories and with reference to supporting schedules that include these categories which may be modified annually.

Fund Type for both Water and Sewer Systems	Appropriation Category
General Operating	Revenue Requirement
General Operating	Revenues from Charges
General Operating	Non-operating Revenue
General Operating	Operations & Maintenance Expense
General Operating	Operations & Maintenance Expense – Legacy Pension
General Operating	Debt Service (principal, interest, and required reserves)
General Operating	Accelerated Legacy Pension Allocation
General Operating	Water Residential Assistance Program
General Operating	Lease Payment
General Operating	Improvement & Extension Fund Contribution
General Operating	Operating Reserve Deposit
General Operating	Extraordinary Repair & Replacement Deposit
Improvement & Extension	Revenue Financed Capital Transfers-In
Improvement & Extension	Capital Outlay
Improvement & Extension	Use of Revenue Financed Capital
Construction Bond	Bond Proceeds
Construction Bond	Earnings on Investments
Construction Bond	Grant Revenues
Construction Bond	Contributions in Aid of Construction
Construction Bond	Project Expenditures

2. **Board Budget Amendment:** To the extent that there is a proposed amendment of the budget among the appropriation categories, the matter is brought to the Audit

Committee for review and consideration of a recommendation to the Board of Directors for their consideration for approval. Board Budget Amendments should be brought to the Audit Committee when identified and no less than quarterly.

3. **Reporting:** Transparency and accountability are foundational to GLWA's mission. A quarterly budget amendment report will include the following analysis.

   a. Board Budget Amendments by System and Fund

Appropriation Category	Quarter 1 Budget Amendment through September 30th	Quarter 2 Budget Amendment through December 31st	Quarter 3 Budget Amendment Through March 31st	Quarter 4 Budget Amendment Through May 31st	Total Amended Budget

   b. Administrative Budget Amendments by Account Type

Appropriation Category	Quarter 1 Budget Amendment through September 30th	Quarter 2 Budget Amendment through December 31st	Quarter 3 Budget Amendment Through March 31st	Quarter 4 Budget Amendment Through May 31st	Total Amended Budget

   c. Administrative Budget Amendments by Core Group

Appropriation Category	Quarter 1 Budget Amendment through September 30th	Quarter 2 Budget Amendment through December 31st	Quarter 3 Budget Amendment Through March 31st	Quarter 4 Budget Amendment Through May 31st	Total Amended Budget

4. This policy may be modified as needed pursuant to Audit Committee review and consideration with a recommended action to the Board of Directors for their consideration for approval.

AGENDA ITEM #7B

Great Lakes Water Authority

Financial Services
Audit Committee Communication

Date: June 19, 2020

To: Great Lakes Water Authority Audit Committee

From: Lisa L Mancini, Financial Planning & Analysis Manager

Re: Proposed FY 2021 budget reductions

Background: On March 11, 2020, the Board adopted Resolution 2020-083, "Resolution Regarding Approval of FY 2021 Schedule of Service Charges" (the Charges). Since the Board took this action, the COVID-19 pandemic has afflicted the United States. In response, the recommendation to defer the effective date for the implementation of the FY 2021 Schedule of Service Charges from July 1, 2020 to October 1, 2020 was presented to the Board of Directors (Board) of the Great Lakes Water Authority (GLWA) at the GLWA board meeting on April 22, 2020. In approving this change, it was the Board's expectation that the Board would receive a plan for operational and budget reduction to the Board by its first meeting in June, 2020 and any necessary amendments to the Budget for Fiscal Year 2020-21 to the Board for its review and approval on or before November 30, 2020.

Analysis: Pending review and recommendation from the Audit Committee, the GLWA Board of Directors will be asked to approve the proposed FY 2021 budget reductions at the June 24, 2020 Board meeting. These budget reductions are based on the deferral of the effective date for the FY 2021 Schedule of Service Charges from July 1, 2020 to October 1, 2020, or by one quarter of the fiscal year which will reduce the revenue available for water operations by approximately three million dollars ($3,000,000) and for sewer operations by two million, six hundred and fifty thousand dollars ($2,650,000).

Table 1 on the following page presents the proposed FY 2021 budget reductions by category. The breakout between Water and Sewer presented in this table includes the allocation of centralized and administrative services. A list of the key items that are included in these categories immediately follows Table 1. The total amount of reductions identified fully accounts for the revenue reduction noted above.

Table 2, which follows the commentary, shows the FY 2021 budget reductions by Service Area (Water Operating Services, Wastewater Operating Services, Centralized Services, and Administrative & Other Services) and by Expense Category.

Table 1: GLWA FY 2021 Operations & Maintenance Budget Reductions

Great Lakes Water Authority
FY 2021 Operations & Maintenance Budget Reductions
As of June 19, 2020

Line #	Category	Water	Sewer	Total
1	Salary and Fringes related to vacancies and other variances	$ 747,000	$ 780,100	$ 1,527,100
2	Salary and Fringes - elimination of FY 2021 wage adjustment	930,300	1,220,500	2,150,800
3	Contractual Services reductions to contracts and other variances	1,034,700	337,500	1,372,200
4	Supplies & Other reductions to contracts and other variances	288,000	312,000	600,000
	FY 2021 Budget Reductions - Expenses	**$ 3,000,000**	**$ 2,650,100**	**$ 5,650,100**

Line #1 –Salary and Fringes related to vacancies and other variances

- A review of the FY 2021 staffing plan showed that there is a total of 21 positions that will either not be filled in FY 2021 or will be filled later in the year than what was originally included in the plan largely due to COVID-19 alternate operating scenario in many areas . This will result in a reduction to the Personnel Costs (Salaries & Wages, Fringe Benefits, and Contractual Transition Services) of $1,527,100.

Line #2 – Salary and Fringes – elimination of FY 2021 wage adjustment

- Wage and benefit adjustments related to merit increases are included within the Operations & Maintenance contingency accounts (Unallocated Reserve) of the financial plan. Holding the Salaries & Wages at the current FY 2020 rates will result in a reduction of $2,150,800 to the FY 2021 financial plan.

Line #3 – Contractual Services reductions to contracts and other variances

- Contractual Operating Services (Springwells Water Plant – cost center 882141 and Northeast Water Plant – cost center 882151; Water System Operations): A review of the history and plans for usage in FY 2021 of the various contracts in this section has resulted in a reduction to the FY 2021 financial plan. Contracts included in this section are Mobile Dredging, "As Needed" Specialty contracts, and Testing and Inspection services. ($709,700)
- Water Transmission System Pipe Integrity Program (Asset Management – cost center 886201; Centralized Service): The start date of this program was delayed due to COVID-19. It is scheduled to begin later in FY 2021 than what was included in the financial plan. ($312,500)
- Environmental Health & Safety Compliance Services (Enterprise Risk Management and Safety – cost center 883401; Administrative Services): This contract is utilized

on an as needed basis. The need for these services will be reduced due to the number of GLWA team members working from home in response to COVID-19. ($250,000)

- Legal fees (General Counsel – cost center 883101; Administrative Services): The FY 2021 budget for this account has been reduced based on a review of its history. ($100,000)

Line #4 – Supplies & Other reductions to contracts and other variances

- Microsoft Desktop Operating Licenses (Information Technology Service Delivery – cost center 883321; Centralized Service): These licenses, previously purchased separately, are now incorporated into the Microsoft Enterprise License Agreement. The result will be a reduction to this budget line item for FY 2021. ($250,000)
- SQL Server Licenses (Information Technology Infrastructure – cost center 883331; Centralized Service): These licenses, previously purchased separately, are now incorporated into the Microsoft Enterprise License Agreement. The result will be a reduction to this budget line item for FY 2021. ($250,000)
- Red Hat Licensing (Information Technology Infrastructure – cost center 883331; Centralized Services): Decommissioned servers have resulted in a reduced number of required licenses from what was included in the FY 2021 budget. ($100,000)

Table 2: GLWA FY 2021 Operations & Maintenance Budget Reductions by Service Area and Expense Category

Service Area and Expense Category	FY 2021 Budget Reductions
A Water System Operations	**$ (1,146,600)**
Contractual Services	(709,700)
Unallocated Reserve	(436,900)
B Wastewater System Operations	**(701,300)**
Unallocated Reserve	(701,300)
C Centralized Services	**(2,382,900)**
Contractual Services	(312,500)
Personnel Costs	(827,500)
Supplies & Other	(600,000)
Unallocated Reserve	(642,900)
D Administrative & Other Services	**(1,419,200)**
Contractual Services	(350,000)
Personnel Costs	(699,500)
Unallocated Reserve	(369,700)
Total Operations & Maintenance Reduction	**$ (5,650,000)**

Proposed Action: The GLWA Audit Committee recommends the approval of the proposed FY 2021 budget reductions as presented.

..Title

Resolution to Approve the Proposed FY 2021 Budget Reductions
..Body

Agenda of: June 24, 2020
Item No.:

TO: The Honorable
Board of Directors
Great Lakes Water Authority

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

DATE: June 24, 2020

RE: **Resolution to Approve the Proposed FY 2021 Budget Reductions**

MOTION

Upon recommendation of Nicolette Bateson, Chief Financial Officer/Treasurer, the Board of Directors (Board) of the Great Lakes Water Authority (GLWA) **Approves the attached Proposed FY 2021 Budget Reductions;** and authorizes the CEO to take such other action as may be necessary to accomplish the intent of this vote.

BACKGROUND

On March 11, 2020, the Board adopted Resolution 2020-083, "Resolution Regarding Approval of FY 2021 Schedule of Service Charges" (the Charges). Since the Board took that action, the COVID-19 pandemic afflicted the United States, causing President Donald Trump to declare a national emergency and Michigan Governor Gretchen Whitmer to declare a state of emergency in Michigan. Further, Governor Whitmer issued Stay Home/ Stay Safe Orders, which currently run through April 30, 2020. In addition, Governor Whitmer issued orders preventing local utilities from discontinuing water service during the declared State of Emergency.

While Michigan has seen positive results from its efforts to slow the spread of the COVID-19 virus, the ultimate duration and impact of the virus continue to remain unclear. Similarly, the duration and effects of the COVID-19 pandemic on the national economy, Michigan economy, and local economies within the GLWA service area remains unknown.

In response to the COVID-19 pandemic, the recommendation to change the effective date for the implementation of 2020-083 “Resolution Regarding Approval of FY 2021 Schedule of Service Charges,” from July 1, 2020 to October 1, 2020 was presented to the Board of Directors (Board) of the Great Lakes Water Authority (GLWA) at the GLWA board meeting on April 22, 2020. In approving this change, it was the Board’s expectation that the Board would receive a plan for operational and budget reduction to the Board by its first meeting in June 2020 and any necessary amendments to the Budget for Fiscal Year 2020-21 to the Board for its review and approval on or before November 30, 2020.

JUSTIFICATION

By delaying the effective date of its adjustment to the Charges by one quarter of the fiscal year, GLWA member partners will experience a 25% percent decrease in the increase to their wholesale water and/or sewer costs. This decrease will allow the member-partner utilities to have the flexibility to adjust their operations and cash flows in order to better provide service to their customers and account for any potential lag in collections. Similarly, GLWA’s is able to make necessary spending and/or budget adjustments as the impact of the current COVID-19 pandemic is better understood. Based on what we know to date, the proposed budget amendments for FY 2021 have been prepared (a) reflecting the impact of the COVID-19 pandemic on GLWA’s operations and revenues and (b) allowing GLWA to continue to operate in a fiscally prudent manner with a balanced budget. Attached is a communication to the Audit Committee dated June 19, 2020 which outlines the corresponding plan to address the budget reduction.

BUDGET IMPACT

The delay of the effective date of the FY 2021 Schedule of Service Charges will reduce the revenue available for water operations by approximately $3,000,000 and for sewer operations by $2,650,000. The plan for the proposed FY 2021 budget reductions, attached, fully addresses this revenue reduction with corresponding expense reductions for the combined total of $5,650,000.

COMMITTEE REVIEW

This matter was reviewed by the GLWA Audit Committee at its meeting on June 19, 2020. The Audit Committee ***[insert action after Audit Committee]*** the proposed FY 2021 budget reductions as presented.

SHARED SERVICES IMPACT

This item does not impact the shared services agreement between GLWA and DWSD.

Financial Services
Audit Committee Communication

Date: June 19, 2020

To: Great Lakes Water Authority Audit Committee

From: Kim Garland, CPA, Reporting & Compliance Manager

Re: General Retirement System Financial Report and Annual Actuarial Valuation for Year End June 30, 2019 (City of Detroit Component II)

Background: The Great Lakes Water Authority (GLWA) assumed a portion of the legacy pension commitment assigned to the Detroit Water & Sewerage Department (DWSD) pursuant to the terms of the regional water and sewer system leases. For this reason, GLWA monitors activity related to the City of Detroit General Retirement System (GRS). While there are two plans managed by GRS, GLWA is impacted by only the Component II plan. Component II was closed as of June 30, 2014 under the City of Detroit bankruptcy plan of adjustment and is commonly referred to as the 'legacy plan'.

The following reports have been presented to the GRS Board and are attached.

1. Letter from the GRS external audit firm to those charged with governance for the General Retirement System of the City of Detroit for the year ending June 30, 2019
2. Audited Financial Report for the General Retirement System of the City of Detroit (dated November 26, 2019)
3. GASB Statement No. 67 and 68 Accounting and Financial Reporting of Financial Plans of Component II June 30, 2018 (dated November 8, 2019)
4. Annual Actuarial Valuation as of June 30, 2019 (dated February 26, 2020)

While the external auditor letter (#1 above) to those charged with governance did highlight some areas for improvement, the overall financial audit for the GRS combined plans received an unqualified opinion for the year ending June 30, 2019. This balance of this discussion will focus on the remaining reports: the results of the Audited Financial Report (#2 above) and GASB Statement No. 67 and 68 Report (#3 above) which are based on prior year actuarial results and serve as the basis for the DWSD and GLWA pension expense and liability to be reported in FY 2020,. Finally, we will address the most recent June 30, 2019 Actuarial Valuation Report (#4 above) which provide insight into future pension expense and liability expectations.

Analysis: As reported in the GASB Statement No. 67 and 68 Accounting and Financial Report, and shown below in Table 1, the June 30, 2019 Component II Net Pension Liability increased from $832.7 million to $934.7 million as of June 30, 2018 (approximately 12%).

Table 1: GASB Statement No. 67 and 68 Report - Executive Summary

Executive Summary
as of June 30, 2019

Actuarial Valuation Date	June 30, 2018
Measurement Date of the Net Pension Liability	June 30, 2019
Employer's Fiscal Year Ending Date (GASB No. 68 Reporting Date)	June 30, 2020
Membership	
Number of	
- Retirees and Beneficiaries	11,684
- Inactive, Nonretired Members	3,236
- Active Members	3,018
- Total	17,938
Covered Payroll	$ 149,373,313
Net Pension Liability	
Total Pension Liability	$ 2,733,602,681
Plan Fiduciary Net Position	1,798,906,827
Net Pension Liability	$ 934,695,854
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	65.81%
Net Pension Liability as a Percentage of Covered Payroll	625.74%
Development of the Single Discount Rate	
Single Discount Rate	7.38%
Long-Term Expected Rate of Investment Return	7.38%
Long-Term Municipal Bond Rate*	3.13%
Last year ending June 30 in the 2020 to 2119 projection period for which projected benefit payments are fully funded	2119
Total Pension Expense	$ 122,330,696

Source: GASB Statement Nos. 67 and 68 Accounting and Financial Reporting for Pension Plans of Component II, June 30, 2019 (dated November 8, 2019), p 1.

The June 30, 2019 pension liability increase is largely attributed to the decline in actual net investment income of 2.64% as compared to June 30, 2018 of 8.64% and to the expected rate of return of 7.38%. Also, during the year ended June 30, 2019 other provisions such as the Annuity Saving Fund interest credits added approximately $9.9 million to the liability for 2017 and 2018 fiscal year. This topic will be discussed in greater detail at a future Audit Committee meeting.

GLWA
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The GASB Statement No. 67 and 68 Accounting and Financial Report also provides a breakdown by unit as shown below in Table 2. The DWSD unit reflects the combined DWSD and GLWA pension obligation. on June 30, 2019 the DWSD Net Pension Liability increased from $187.7 million to $189.1 million at June 30, 2018 (approximately 0.7%). This increase is a result of benefit payments exceeding contributions and net investment income.

Table 2: GASB Statement No. 67 and 68 Report - DWSD Changes in Net Pension Liability

Schedule of Changes in Net Pension Liability and Related Ratios Current Period Fiscal Year Ended June 30, 2019*

	General	DOT	DWSD	Library	Total
A. Total Pension Liability					
1. Service Cost	$ -	$ -	$ -	$ -	$ -
2. Interest on the Total Pension Liability	106,206,939	30,424,159	52,205,387	6,653,158	195,489,643
3. Changes of benefit terms	-	-	-	-	-
4. Difference between expected and actual experience of the Total Pension Liability	10,605,505	(1,582,543)	4,924,609	(350,671)	13,596,900
5. Changes of assumptions	0	0	0	0	0
6. Benefit payments, including refunds of employee contributions^	(138,650,989)	(36,531,401)	(66,156,352)	(7,451,273)	(248,790,015)
7. Net change in Total Pension Liability	$ (21,838,545)	$ (7,689,785)	$ (9,026,356)	$ (1,148,786)	$ (39,703,472)
8. Total Pension Liability – Beginning	1,508,443,898	430,517,183	740,468,240	93,876,832	2,773,306,153
9. Total Pension Liability – Ending	**$ 1,486,605,353**	**$ 422,827,398**	**$ 731,441,884**	**$ 92,728,046**	**$ 2,733,602,681**
B. Plan Fiduciary Net Position					
1. Contributions – employer	$ 22,765,012	$ 109,988	$ 42,900,000	$ 2,500,000	$ 68,275,000
2. Contributions – employee	-	-	-	-	-
3. Net investment income	26,329,196	5,625,171	13,078,852	2,136,788	47,170,007
4. Benefit payments, including refunds of employee contributions	(138,650,989)	(36,531,401)	(66,156,352)	(7,451,273)	(248,790,015)
5. Pension Plan Administrative Expense	(2,566,338)	(326,107)	-	(131,498)	(3,023,943)
6. Other	(2,384,050)	(2,234,841)	(169,942)	(559,031)	(5,347,864)
7. Net change in Plan Fiduciary Net Position	$ (94,507,169)	$ (33,357,190)	$ (10,347,442)	$ (3,505,014)	$ (141,716,815)
8. Plan Fiduciary Net Position – Beginning	1,094,225,823	209,280,239	552,728,316	84,389,264	1,940,623,642
9. Plan Fiduciary Net Position – Ending	**$ 999,718,654**	**$ 175,923,049**	**$ 542,380,874**	**$ 80,884,250**	**$ 1,798,906,827**
C. Net Pension Liability	**$ 486,886,699**	**$ 246,904,349**	**$ 189,061,010**	**$ 11,843,796**	**$ 934,695,854**
D. Plan Fiduciary Net Position as a percentage of the Total Pension Liability	**67.25%**	**41.61%**	**74.15%**	**87.23%**	**65.81%**
E. Covered-employee payroll	**$ 95,912,366**	**$ 23,056,792**	**$ 19,014,424**	**$ 11,389,731**	**$ 149,373,313**
F. Net Pension Liability as a percentage of covered-employee payroll	**507.64%**	**1070.85%**	**994.30%**	**103.99%**	**625.74%**

**Totals may not add due to rounding.*

On January 24, 2017, under a pension reporting agreement, the parties agreed that 70.3 percent of the liability allocated to the DWSD unit in the table above was attributable to GLWA regional operations and 29.7 percent to DWSD. This is the basis of allocation for future pension contributions with additional breakdowns within each entity between Water and Sewer funds summarized as follows and applied to the current June 30, 2019 liability.

Entity	Percent		Liability Allocation
DWSD - Water	17.8%	$	33,652,860
DWSD - Sewer	11.9%	$	47,643,374
GLWA - Water	25.2%	$	22,498,260
GLWA - Sewer	45.1%	$	85,266,515
	100.0%	**$**	**189,061,008**

Through June 30, 2023 as part of the City of Detroit bankruptcy plan of adjustment (POA), GLWA and DWSD contribute $2.5 million annually towards administrative expenses for the combined plan. GRS allocates 60% of overall administrative expenses to Component II and 40% to Component I. A breakdown of overall pension administrative expense is provided in the GRS Annual Financial Report Statement of Changes in Fiduciary Net Position by Division shown in Table 3 below.

Table 3: Statement of Changes in Fiduciary Net Position by Division

Combined Plan for the General Retirement System of the City of Detroit

Statement of Changes in Fiduciary Net Position by Division - Legacy Defined Benefit Plan

For the Year Ended June 30, 2019

	DWSD Subdivisions		General Retirement System - Divisions				
	GLWA	DWSD-R	DWSD - Division Total (all DWSD Subdivisions)	General Division	DOT	Library	Total - General Retirement System (all Divisions)
Beginning Net Position - July 1, 2018	$ 388,568,003	$ 164,160,312	$ 552,728,315	$ 1,094,225,824	$ 209,280,239	$ 84,389,264	$ 1,940,623,642
Additions:							
Investment income:							
Interest and dividends	6,642,004	2,806,081	9,448,085	19,307,301	4,420,066	1,619,795	34,795,247
Net increase in fair value of investments	4,441,159	1,876,279	6,317,438	12,217,909	2,096,851	899,554	21,531,752
Net unrealized gain on collateralized securities	2,745	1,160	3,905	7,550	1,296	556	13,307
Investment related expenses	(1,891,475)	(799,101)	(2,690,576)	(5,203,567)	(893,042)	(383,117)	(9,170,302)
Net investment income	9,194,433	3,884,419	13,078,852	26,329,193	5,625,171	2,136,788	47,170,004
Contributions:							
Employer contributions:							
Originating from DWSD:							
Regular pension contribution	30,158,700	12,741,300	42,900,000	-	-	-	42,900,000
Contribution for administrative expenses	1,757,500	742,500	2,500,000	-	-	-	2,500,000
DWSD transfer to General Division for administrative expenses	(1,757,500)	(742,500)	(2,500,000)	2,500,000	-	-	-
Total contributions originating from DWSD	30,158,700	12,741,300	42,900,000	2,500,000	-	-	45,400,000
Contributions from other divisions	-	-	-	20,000,000	-	2,500,000	22,500,000
Total employer contributions	30,158,700	12,741,300	42,900,000	22,500,000	-	2,500,000	67,900,000
Foundation for Detroit's Future	-	-	-	265,012	109,988	-	375,000
Total contributions	30,158,700	12,741,300	42,900,000	22,765,012	109,988	2,500,000	68,275,000
ASF recoupment interest	1,267,161	535,344	1,802,505	3,339,736	1,157,478	138,248	6,437,967
Other income	103,278	43,632	146,910	256,516	27,298	13,877	444,601
Total additions	40,723,572	17,204,695	57,928,267	52,690,457	6,919,935	4,788,913	122,327,572
Deductions:							
Member refunds and withdrawals	1,532,924	647,622	2,180,546	6,739,916	4,265,720	450,102	13,636,284
Retirees' pension and annuity benefits	44,974,991	19,000,814	63,975,805	131,911,076	32,265,681	7,001,171	235,153,733
General and administrative expenses	605,479	255,800	861,279	1,705,055	326,107	131,498	3,023,939
ASF Recoupment Write-off	603,798	255,090	858,888	1,442,867	854,064	58,935	3,214,754
Transfer of general and administrative expenses to General Division	(605,479)	(255,800)	(861,279)	861,279	-	-	-
Transfer to Component I (Transition Cost)	886,110	374,359	1,260,469	4,537,435	2,565,552	652,221	9,015,677
Total deductions	47,997,823	20,277,885	68,275,708	147,197,628	40,277,124	8,293,927	264,044,387
Net Increase (Decrease) in Net Position Held in Trust	(7,274,251)	(3,073,190)	(10,347,441)	(94,507,171)	(33,357,189)	(3,505,014)	(141,716,815)
End of Year Net Position Restricted for Pensions - June 30, 2019	**$ 381,293,752**	**$ 161,087,122**	**$ 542,380,874**	**$ 999,718,653**	**$ 175,923,050**	**$ 80,884,250**	**$ 1,798,906,827**

Source: Audited Financial Report for the General Retirement System of the City of Detroit (dated November 26, 2019), p 40.

GLWA
Great Lakes Water Authority

Of the $2.5 million paid by GLWA and DWSD, $861 thousand is attributable to the current year and is transferred to the General Division. The remainder is recorded as a prepaid toward future administrative expenses after June 30, 2024 summarized in Table 4 below.

Table 4: Schedule of DWSD/GLWA Contributions Toward Administrative Expenses

Combined Plan for the General Retirement System of the City of Detroit

Schedule of DWSD/GLWA Contributions Toward Administrative Expenses as Compared to Actual DWSD/GLWA Allocable Administrative Expenses

For the Year Ended June 30, 2019

	DWSD Division Total	
	GLWA	DWSD-R
Amount Paid in Excess of Administrative Expenses Otherwise Allocable - June 30, 2018	$ 3,219,095	$ 1,359,991
DWSD/GLWA contribution for administrative expenses in accordance with plan of adjustment and bankruptcy order	1,757,500	742,500
Administrative expenses otherwise allocable to DWSD/GLWA	(605,479)	(255,800)
Cumulative Amount Paid in Excess of Administrative Expenses Otherwise Allocable - June 30, 2019	**$ 4,371,116**	**$ 1,846,691**

Source: Audited Financial Report for the General Retirement System of the City of Detroit (dated November 26, 2019), p 41.

Under the POA, GLWA and DWSD make combined, Component II annual pension payments of $45.4 million, of which $2.5 million is specific to administrative expenses discussed previously. Shifting focus to the current June 30, 2019 Actuarial Valuation, those fixed payments are reduced after June 30, 2023 with a tail liability.

The actual amount of this remaining, unfunded liability will vary based upon plan performance and forecasts of the outstanding liability at that time. The June 30, 2019 Actuarial Report estimates the **total** Component II unfunded actuarial accrued liability (UAAL) for June 30, 2020 to be $1,090.9 million with $198.6 million for the DWSD-GLWA share.

Funded ratio is a metric used to measure a plan's ability to cover future obligations based on projected contributions. The Component II funded ratio for the period ending June 30, 2019 is 62.77% down from 66.25% the prior year with best practice benchmarks being a 75% minimum and 100% maximum funded ratio. This declining ratio implies investment earnings and contributions are not keeping pace with distributions.

As noted above, the POA established a funding policy for GLWA and DWSD. Adoption of a funding policy by the City of Detroit is necessary to reduce the UAAL moving forward. Two funding options available to the City are proposed in the Actuarial Report which ultimately impact the amount of the tail liability that GLWA and DWSD will be responsible for beginning in FY 2024. Table 5 below summarizes this UAAL by unit and provides a range for annual contribution requirements beginning in FY 2024.

Table 5: Unfunded Actuarial Accrued Liability (UAAL)

Unfunded Actuarial Accrued Liability (UAAL)

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total
UAAL as of June 30, 2019	$ 558.2	$ 268.4	$ 226.2	$ 14.3	$ 1,067.2
Anticipated POA Contribution (EOY)	2.8	0.1	42.9	2.5	48.3
Anticipated Expenses@	-	-	-	-	-
Interest at 6.75%	37.7	18.1	15.3	1.0	72.0
Projected UAAL as of June 30, 2020	$ 593.1	$ 286.4	$ 198.6	$ 12.8	$ 1,090.9
Anticipated POA Contributions for FY2021	**2.8**	**0.1**	**42.9**	**2.5**	**48.3**
Estimated Employer Contributions for FY 2024 #!					
Alternate 1:Level Principal	**$ 71.9**	**$ 35.1**	**$ 10.5**	**$ 0.8**	**$ 118.2**
Alternate 2:Level Dollar##	**$ 56.0**	**$ 27.3**	**$ 8.2**	**$ 0.6**	**$ 92.1**

Totals may not add due to rounding.

@ *In accordance with Plan Document, the mandated 6.75% rate of return is net of investment and administrative expenses.*

Assuming the POA contributions through 2023 and a 30-year closed amortization thereafter. When determining the Fiscal Year 2024 illustrative amounts, only the total contributions and the DWSD contributions are stipulated in the POA. The remaining amounts were allocated to the other groups as described on page 2. A different allocation would result in different results by group.

! *Total employer contributions, including amounts paid by employer but funded from other sources as required by POA.*

Contributions at this level may not be sufficient to prevent fund depletion prior to satisfaction of all benefit payments. This scenario is included at System's request (see page 4).

Source: Annual Actuarial Valuation of Component II, June 30, 2019 (dated February 26, 2020), p 3.

Budget Impact: Based on the funding policy ultimately adopted by the City of Detroit, the annual contribution for GLWA and DWSD tail liability combined ranges from $8.2 million to $10.5 million. The prior year actuarial placed that range between $5.7 and $7.4 million for the fiscal years beginning July 1, 2023. Until that time, GLWA and DWSD will continue to make the combined $42.9 million contribution per year plus an additional $2.5 million per year in administrative expenses as stipulated in the POA and discussed in the analysis section of this report.

GLWA will continue to monitor and report on Component II activity, specifically as it relates to funding policy actions taken by the City of Detroit. GLWA has also engaged an independent actuarial firm to review the current valuation and the impacts of any funding policy actions taken by the City and GRS. The firm and GLWA staff will report to the GLWA Audit Committee on these findings when they become available. In addition, GLWA staff continues to attend the monthly GRS Board meetings to monitor and report on the current events and impact on the Plan's investment assets.

Proposed Action: Receive and file this report.

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November 26, 2019

To the Board of Trustees and
Investment Committee
General Retirement System
of the City of Detroit

We have audited the financial statements of the Combined Plan for the General Retirement System of the City of Detroit (the "Combined Plan") as of and for the year ended June 30, 2019 and have issued our report thereon dated November 26, 2019. Professional standards require that we provide you with the following information related to our audit, which is divided into the following sections:

Section I - Internal Control Related Matters Identified in an Audit

Section II - Required Communications with Those Charged with Governance

Section III - Other Recommendations and Related Information

Section I includes any deficiencies we observed in the Combined Plan's accounting principles or internal control that we believe are significant. Current auditing standards require us to formally communicate annually matters we note about the Combined Plan's accounting policies and internal control. The Combined Plan has been diligent in its efforts to remedy many of the previously identified internal control deficiencies. Due to its efforts, the condition of the accounting records at the start of the audit continues to improve.

Section II includes information that current auditing standards require independent auditors to communicate to those individuals charged with governance. We will report this information annually to the board of trustees and investment committee of the Combined Plan.

Section III presents recommendations related to internal control, procedures, and other matters noted during our current year audit. These comments are offered in the interest of helping the Combined Plan in its efforts toward continuous improvement, not just in the areas of internal control and accounting procedures, but also in operational or administrative efficiency and effectiveness.

We would like to take this opportunity to thank the Combined Plan's staff for the cooperation and courtesy extended to us during our audit. More so than the recent past, the Combined Plan was prepared at the commencement of the audit and met all key milestone dates throughout the audit process. The attention and priority given to this very important and significant work resulted in the Combined Plan's continued improvement in the timeliness of issuing its audited financial statements, well ahead of all reporting deadlines. The assistance and professionalism of the Combined Plan's staff is invaluable and greatly appreciated.

This report is intended solely for the use of the board of trustees, the investment committee, and management of the General Retirement System of the City of Detroit and is not intended to be and should not be used by anyone other than these specified parties.

To the Board of Trustees and
Investment Committee
General Retirement System
of the City of Detroit

November 26, 2019

We welcome any questions you may have regarding the following communications, and we would be willing to discuss any of these or other questions that you might have at your convenience.

Very truly yours,

Plante & Moran, PLLC

Michelle Watterworth

Michelle M. Watterworth

Ali Hijazi

Ali H. Hijazi

Spencer Tawa

Spencer Tawa

Section I - Internal Control Related Matters Identified in an Audit

In planning and performing our audit of the financial statements of the Combined Plan as of and for the year ended June 30, 2019, in accordance with auditing standards generally accepted in the United States of America, we considered the Combined Plan's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Combined Plan's internal control. Accordingly, we do not express an opinion on the effectiveness of the Combined Plan's internal control.

Our consideration of internal control was for the limited purpose described in the preceding paragraph and was not designed to identify all deficiencies in internal control that might be significant deficiencies or material weaknesses, and, therefore, material weaknesses or significant deficiencies may exist that were not identified. However, as discussed below, we identified certain deficiencies in internal control that we consider to be material weaknesses and other deficiencies that we consider to be significant deficiencies.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis.

A material weakness is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis.

We consider the following deficiencies in the Combined Plan's internal control to be material weaknesses:

Controls Over the Combined Plan's Census Data and Actuarial Valuation Process (Repeat Finding)

The Combined Plan has to accumulate and transmit voluminous member data to the actuary. The actuary then uses this information to prepare the actuarial valuation, which impacts the calculation of the annual required contribution (ARC) and the actuarial accrued liability (AAL) for funding purposes and, under GASB Statement No. 67, impacts the total pension liability disclosed in your financial statements. It is key that the information that is provided to the actuary is complete and accurate in order to ensure that the funding levels, AAL, and disclosures under GASB Statement No. 67, including the total pension liability, are also accurate.

- **Controls Over Actuarial Reporting** - The Combined Plan provides information on an annual basis to the actuary in order for the actuary to compute the total pension liability under GASB Statement No. 67, as well as the ARC and AAL for funding purposes. The information provided by the Combined Plan includes data for all participants in the Combined Plan, such as pay information, date of birth, date of hire, etc. and enables the actuary to project the present value of future benefit payments. The Combined Plan accumulates member data based on information from the City of Detroit, Michigan (the "City") as well as data the Combined Plan independently obtains. The Combined Plan relies on data it extracts from the City of Detroit, Michigan's databases primarily for active and deferred members. The Combined Plan is responsible for data on retirees, as it will obtain additional information when a member commences retirement.

Section I - Internal Control Related Matters Identified in an Audit (Continued)

Prior to providing the information to the actuary, the Combined Plan does perform certain tests on the data. While the Combined Plan has taken steps to provide more accurate and complete data and has begun working with the City to collaborate on maintaining and providing accurate data, we did not notice this issue dissipating, as our testing continued to discover several instances of errors in the data or missing data that resulted in incomplete information. The following table lists the issues found during the audit and related recommendations to resolve:

Issue	Recommendation
Frozen Accrued Benefits (Component II) - As Component II is frozen as of June 30, 2014, a calculation of individuals' frozen accrued benefits for active and deferred members can be performed and provided to the actuary. Based on our understanding, the Combined Plan performed an average final compensation (AFC) and service year review on members in lieu of computing accrued benefits. The actuary is estimating accrued benefits based on AFC, service year, and sick bank data provided by the Combined Plan, so this review would encompass the elements of the calculation of the frozen accrued benefits. Despite this review, during our testing, we identified certain discrepancies in the AFC and service years provided to the actuary.	The Combined Plan should put a process in place to ensure that the average final compensation and service years are accurate, which will ultimately ensure that the actuary's calculation of the total pension liability of Component II results in a proper estimate of that liability.
Completeness and Accuracy of Census Data (Components I and II) - Based on our testing, it was noted some members were either improperly included or excluded from the data sent to the actuary. Also, we noted some key employee data was missing for members, and demographic information for some members was incorrect.	As the Component I and II census data is retained in the same database, the Combined Plan should have a process in place to accurately determine which members are eligible for each plan. Also, as the Combined Plan obtains a significant amount of data from the City of Detroit, Michigan, we recommend a review of census data prior to sending it to the actuary to identify any missing data and work with the City to obtain such data.
Active Pay Amount (Component I) - The actuary uses an active member's current pay in its calculation of determining a member's estimated future benefit. Based on our testing, we noted some discrepancies between the pay information provided to the actuary and pay information from the City.	The Combined Plan should work with the City to obtain the proper payroll data and extract the proper compensation information needed, based on the Plan of Information. In addition, the Combined Plan should perform sample testing on the data sent to the actuary to ensure it is providing the proper compensation information.

Section I - Internal Control Related Matters Identified in an Audit (Continued)

Issue	Recommendation
Member Classifications (Components I and II) - During testing, it was noted that some members were incorrectly classified between the three statuses (active, deferred, or retired). Incorrect classification leads to inaccurate actuarial calculations being performed on those members.	The Combined Plan should strengthen the process of classifying individuals within the census data. With some of this information derived from data received from the City, the Combined Plan should work with the City to gain more accurate member status.
Death Audit (Components I and II) - It was noted a death audit was not performed on the deferred members list sent to the actuary. These issues could lead to the pension liability being misstated due to incomplete or inaccurate information.	We encourage the Combined Plan to put in place more comprehensive procedures to further ensure the accuracy of this census data being used by the actuary.

In addition, based on discussions with the actuary and review of the actuarial valuations, it was noted that significant work is performed on the original census data provided by the Combined Plan that ultimately is used in the valuations. The actuary indicated it needed to make several manual adjustments and assumptions to create data used for the valuation (after conferring with the Combined Plan's staff on any changes to the data). This included removing ineligible individuals and reclassifying individuals between the different statuses (active, deferred, or retired). The Combined Plan should implement more comprehensive procedures to provide the actuary complete and accurate data from the onset.

Controls Over the Combined Plan's Information Technology Processes (Repeat Finding)

The Combined Plan has complex modifiable information technology that integrates with the City of Detroit, Michigan's various payroll databases. The Combined Plan's IT department is independent of the City and the Combined Plan's other departments. The security provided by the IT system is important to the validity and the accuracy of the data maintained, including the census information provided to the actuary. Although the Combined Plan is currently in the process of modifying the information technology system, we offer the following, which the Combined Plan should keep in mind as it continues to fully implement the new ERP system:

- Use of automated logs - The Combined Plan uses customized software for a majority of the Combined Plan's needs, which includes maintaining the census data and benefits calculation application, which are managed internally by the Combined Plan's IT personnel and can be modified by the IT department. For all changes to that software, there should be an automated log maintained listing those changes, and no single individual should be able to effect a change without proper authorization. Currently, the Combined Plan does have a process to review, authorize, and track changes, but it is not automated, and, therefore, is subject to human error and possible circumvention.

Section I - Internal Control Related Matters Identified in an Audit (Continued)

- Master file changes - Additionally, it is recommended that the Combined Plan implement processes to ensure that master file changes are documented, authorized, and reviewed. The lack of this documentation could result in unauthorized and undocumented changes that go undetected by the Combined Plan.

- Segregation of duties - Segregation of duty controls provide a separation of users with access to program source code and users with the ability to make or implement changes into the production environment. The ability to make or implement program source code changes should be limited to individuals who cannot access and edit source code. The lack of this control could result in inaccurate or unauthorized changes.

  In addition, it was noted two individuals in the accounting department have administrative rights to the financial software. Furthermore, for these two individuals, the financial software does not currently require one person to prepare a journal entry and another person to post (approve) the entry to the software; it could be the same person performing both functions even though the Combined Plan's internal policy is that the person preparing entries should ask another person to post those entries as part of the approval process. Given the ability to effectuate changes in the financial software system, there is a risk that, without appropriate mitigating controls, inappropriate changes or journal entries could be made within the financial system that go undetected. Such changes could have an impact on the accuracy of the Combined Plan's external financial reporting. The accounting software currently does track the preparer and approver of an entry. A review by the accounting department of reports produced by the financial software summarizing who is preparing and who is posting journal entries would be an appropriate added control.

A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance. We consider the following deficiencies in the Combined Plan's internal control to be significant deficiencies:

Controls over Component I (Hybrid) Contributions Received from the City of Detroit, Michigan

- **Employer Contributions** - We noted the Combined Plan relies on wage information that comes from the City in order to calculate the amount of employer contributions to the Hybrid Plan. The Combined Plan currently uses this wage information to derive pensionable wages and calculates the amount the City owes. The Combined Plan calculates the pensionable wages by utilizing only those payroll codes that would be considered for pensionable wages (i.e., overtime wages should be excluded from pensionable wages). This amount is billed to the City each quarter. During the year, it was discovered the reports generated by the Combined Plan in the past may have had some calculation errors. The amount is not material, and errors resulted in both overbilled and underbilled invoices. These errors were largely a result of the manual nature of the process and the staffing changes that took place within the area responsible for running the reports. Our understanding is the Combined Plan is working through an analysis to quantify the amount of these errors; a preliminary analysis by the Combined Plan supports that the dollar error is not material to the Combined Plan's financial statements.

Section I - Internal Control Related Matters Identified in an Audit (Continued)

The Combined Plan should also work with the City to verify the codes that are used to calculate pensionable wages are proper. In addition, the Combined Plan should consider whether independently testing/verifying these pensionable wages would benefit the Combined Plan by further ensuring the base amount on which contributions are calculated are complete and accurate.

- **Employee Contributions** - The Combined Plan receives employee contributions directly from the City. The City deducts the amount from the employee and remits to the Combined Plan periodically. The Combined Plan's IT department collects data on these contributions to properly track the contributions by individual. Currently, there is a weekly analysis performed comparing the cash received by the Combined Plan to a weekly IT report. These procedures have shown variances that should be followed up with the City until they are resolved to ensure the Combined Plan is receiving the proper amount of funds, which are being credited to an individual's account.

  It was also noted during the year that the Combined Plan noted some members were not paying the proper mandatory contribution, or in some cases, not making any payment. The Combined Plan worked with the City to have these corrections made. We understand the Combined Plan has identified additional members and is continuing to work with the City to ensure corrections are made. We encourage the Combined Plan to continue to have controls in place to monitor the deductions and work with the City to ensure mandatory contributions are being properly deducted from members' pay and remitted to the Combined Plan.

Controls Over the Annuity Savings Fund Recoupment Receivable

During our audit procedures on the annuity savings fund (ASF) recoupment receivable, a journal entry of approximately $2.7 million was identified to decrease the receivable balance related to interest being forgiven in the current year. In the current year, the board approved a resolution on March 20, 2019 to not require the individuals who retired between July 2014 and June 2019 to pay interest for the period from their retirement date through June 2019, when their recoupment deduction amount was calculated and commenced. While it was noted that the members' deductions were properly calculated without the forgiven interest amount, the interest was not removed from the Combined Plan's accounting records.

In addition, during audit procedures, we identified two individuals who began receiving a pension recoupment deduction and were not previously accounted for as part of the receivable list for the deferred vested individuals.

Both of these errors exist due to the existence of parallel systems being used to track these recoupment balances. In addition to the recoupment receivable listing maintained by accounting, there is separate independent recordkeeping maintained within the IT system. No reconciliation of the two parallel systems is being performed. We recommend the Combined Plan reconcile the accounting records with the IT records to ensure the completeness of the accounting records and the accuracy of the related amounts recorded.

Section I - Internal Control Related Matters Identified in an Audit (Continued)

Controls Over Reserve Funds

In accordance with the Combined Plan's provisions, the Combined Plan is required to set aside and track separate reserve funds. See Note 6 to the financial statements for descriptions of the required reserve funds. Due to significant follow-up and due diligence performed by the current accounting department, it was discovered that the reserves balances disclosed in the financial statements in the past had not been properly tracked by the prior accountants. Both accounting and IT have been tracking reserve balances, with accounting using a roll-forward methodology and IT tracking individual balances by person. In the past, the former accountants felt the IT balance could not be relied upon and, therefore, no reconciliation was performed between the two sets of records. In the current year, the accounting department spent significant time investigating possible reasons for the differences in the two tracking mechanisms, and after significant research concluded errors in the accounting roll-forward process had occurred in the past. Subsequently, adjustments were made to the accounting records to reflect the correct ASF balances for financial reporting purposes only. This does not impact the accuracy of individual member balances. Going forward, we recommend the Combined Plan continue to reconcile the two sets of records to ensure the Combined Plan is tracking the required reserves in accordance with the Combined Plan and that inputs agree to the actual amounts credited to individuals.

Section II - Required Communications with Those Charged with Governance

Our Responsibility Under U.S. Generally Accepted Auditing Standards

As stated in our engagement letter dated March 26, 2019, our responsibility, as described by professional standards, is to express an opinion about whether the financial statements prepared by management with your oversight are fairly presented, in all material respects, in conformity with U.S. generally accepted accounting principles. Our audit of the financial statements does not relieve you or management of your responsibilities. Our responsibility is to plan and perform the audit to obtain reasonable, but not absolute, assurance that the financial statements are free of material misstatement.

As part of our audit, we considered the internal control of the Combined Plan. Such considerations were solely for the purpose of determining our audit procedures and not to provide any assurance concerning such internal control.

We are responsible for communicating significant matters related to the audit that are, in our professional judgment, relevant to your responsibilities in overseeing the financial reporting process. However, we are not required to design procedures specifically to identify such matters.

Planned Scope and Timing of the Audit

We performed the audit according to the planned scope and timing previously communicated to you in our letter about planning matters on August 12, 2019.

Significant Audit Findings

Qualitative Aspects of Accounting Practices

Management is responsible for the selection and use of appropriate accounting policies. In accordance with the terms of our engagement letter, we will advise management about the appropriateness of accounting policies and their application. The significant accounting policies used by the Combined Plan are described in Note 1 to the financial statements. No new accounting policies were adopted, and the application of existing policies was not changed during year.

We noted no transactions entered into by the Combined Plan during the year for which there is a lack of authoritative guidance or consensus.

There are no significant transactions that have been recognized in the financial statements in a different period than when the transaction occurred.

Accounting estimates are an integral part of the financial statements prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected.

The financial statements include investments valued at approximately $63,000,000 (3 percent of net position) at June 30, 2019, whose fair values have been estimated by management in the absence of readily determinable market values.

Section II - Required Communications with Those Charged with Governance (Continued)

The valuation of alternative investments constitutes a very sensitive and significant estimate affecting the financial statements. Management uses various means to value the investments, including utilizing a third-party valuation firm, confirmations from the investment managers, periodic appraisals, guidance from real estate advisors, etc. These estimates are very subjective and highly sensitive to change. We believe management's estimates are in accordance with GAAP.

The financial statement disclosures and required supplemental information schedules contain information about the Combined Plan's total pension liability. In order to determine the total pension liability, the actuary must apply certain assumptions, which are highly sensitive to estimation. The most sensitive estimates used in the valuation were as follows:

- Assumed long-term rate of return - For the purpose of GASB Statement No. 67, as of June 30, 2019, the Combined Plan is currently using 7.38 percent for the assumed long-term expected rate of return based on information provided by the Combined Plan's investment advisor combined with calculations performed by the Combined Plan. This assumed rate of return of 7.38 percent was also the single discount rate used at the beginning of the year. Nationally, this long-term rate of return assumption has garnered significant public attention, with many being critical of the average return assumption used by plans across the United States, which, according to a February 2019 National Association of State Retirement Administrators (NASRA) study, was 7.27 percent. Nationally, the trend continues to show a continued decline in this assumption, and we believe that trend will continue. We encourage the Combined Plan to continue to be critical of this significant assumption, watch the trends nationally, and reevaluate the return assumption annually with a critical eye. Please note that this assumption related to the long-term assumed rate of return is for financial reporting purposes only; the Plan of Adjustment requires that the projected rate of return for funding purposes be 6.75 percent.

- Single discount rate calculation - The calculation of the single discount rate under GASB Statement No. 67, which is calculated using the long-term assumed rate of return as one of many assumptions, is highly sensitive to estimates the actuary makes about future contributions and future benefit payments. Inherent in those assumptions is some subjectivity surrounding the projection of future contributions, since the Combined Plan does not have an explicit written funding policy dictating contributions after 2023, although we understand that there is a committee activity working on defining such a policy. The assumption made in these calculations is that the actuarially assumed contributions will be made at rates sufficient to fund the benefits by amortizing the unfunded liability over a closed 30-year period.

- Accuracy of census data elements - The actuarial valuation relies heavily on the accuracy of the census data provided by the Combined Plan. We tested the accuracy of this data and noted some errors in the data; however, we do not believe the magnitude of these errors would materially impact the results of the valuation. Additionally, the Combined Plan's actuary still has not been provided with the calculations of the frozen accrued benefits for active members, which is key to estimating the total pension liability (TPL) disclosed within these financial statements for Component II. The actuary estimated these amounts based on updated other information provided by the Combined Plan in order to determine the TPL. Based on our testing, we believe those estimates resulted in a materially accurate TPL.

- Mortality assumptions - The assumptions about mortality were estimated by the actuary based on the results of an experience study issued in February 2015. Generally, the actuary used the RP-2014 Blue Collar Annuitant Table for males and females, projected on a fully generational basis.

Section II - Required Communications with Those Charged with Governance (Continued)

- Other assumptions - All other assumptions in the actuarial valuation are based on an experience study for the period from 2002-2007. We are aware the Combined Plan has decided to wait and perform the next experience study for the period from July 1, 2015 through June 30, 2020 in order to avoid any results that could be skewed due to the City's bankruptcy.

We evaluated the key factors and assumptions used to develop the estimates above and determined that they are reasonable in relation to the financial statements taken as a whole.

Disclosure of these assumptions and resultant sensitivity of the discount rate can be found in Notes 7 and 8 to the financial statements.

The disclosures in the financial statements are neutral, consistent, and clear. Certain financial statement disclosures are particularly sensitive because of their significance to financial statement and schedule users. The most sensitive disclosures affecting the financial statements and the schedules are the disclosures related to GASB Statement No. 67, including the actuarial valuation results.

Difficulties Encountered in Performing the Audit

We are required to inform those charged with governance of any serious difficulties encountered in dealing with management related to the performance of the audit. We encountered no significant difficulties in dealing with management in performing and completing our audit.

Disagreements with Management

For the purpose of this letter, professional standards define a disagreement with management as a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements or the auditor's report. We are pleased to report that no such disagreements arose during the course of our audit.

Corrected and Uncorrected Misstatements

Professional standards require us to accumulate all known and likely misstatements identified during the audit, other than those that are trivial, and communicate them to the appropriate level of management. None of the misstatements detected as a result of audit procedures and corrected by management were material, either individually or in the aggregate, to the financial statements taken as a whole. The attached schedule summarizes uncorrected misstatements of the financial statements. Management has determined that their effects are immaterial, both individually and in the aggregate, to the financial statements taken as a whole.

Significant Findings or Issues

We generally discuss a variety of matters, including the application of accounting principles and auditing standards, business conditions affecting the Combined Plan, and business plans and strategies that may affect the risks of material misstatement, with management each year prior to our retention as the Combined Plan's auditors. However, these discussions occurred in the normal course of our professional relationship, and our responses were not a condition of our retention.

Management Representations

We have requested certain representations from management that are included in the management representation letter dated November 26, 2019.

Section II - Required Communications with Those Charged with Governance (Continued)

Management Consultations with Other Independent Accountants

In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a "second opinion" on certain situations. If a consultation involves application of an accounting principle to the Combined Plan's financial statements or a determination of the type of auditor's opinion that may be expressed on those statements, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

Attachment

Client: Combined Plan for the General Retirement System of the City of Detroit
Opinion Unit: Combined Plan
Y/E: 6/30/2019

SUMMARY OF UNRECORDED POSSIBLE ADJUSTMENTS

The effect of misstatements and classification errors identified would be to increase (decrease) the reported amounts in the financial statement categories identified below:

Ref. #	Description of Misstatement	Current Assets	Long-term Assets	Current Liabilities	Long-term Liabilities	Equity	Additions	Deductions	Net Income Statement Impact
FACTUAL MISSTATEMENTS:									
A1	Fair value decrease adjustment for investment in Gateway	$ (830,000)					$ (830,000)		$ (830,000)
A2	Fair value increase adjustment for investment in USPF II Institutional Fund	891,713					891,713		891,713
JUDGMENTAL ADJUSTMENTS:									
B1	None								
PROJECTED ADJUSTMENTS:									
C1	None								
		-	$ -	$ -	$ -	$ -	-	$ -	-
	Total	$ 61,713	$ -	$ -	$ -	$ -	$ 61,713	$ -	$ 61,713

PASSED DISCLOSURES AND FINANCIAL STATEMENT PRESENTATION ISSUES:

D1	Money-weighted rate of return, net of investment expenses - The Combined Plan calculated return is 3.28 percent. We are unable to audit this rate of return.
D2	The total pension liability, as calculated by the actuary, is based on census information that is either incomplete or inaccurate. The total pension liability would be different had accurate and complete information been provided to the actuary.
D3	Employer and employee contributions received from the City may have some calculation errors. The amount of the error is unknown, but it is not expected to be material.

Section III - Other Recommendations and Related Information

During our audit, we noted areas where we believe there are opportunities for the Combined Plan to further strengthen internal control or to increase operating efficiencies. Our observations on those areas are presented below for your consideration:

Benefit Payment Classification

The Combined Plan processes monthly benefit payments for each retiree that are summarized and journalized in a monthly entry. These monthly payroll entries are based on the plan to which (Component II or I) each retiree is coded. During testing, it was identified that some individuals' pensions are incorrectly classified between Component I and Component II. While the number of individuals incorrectly classified was insignificant, we recommend the Combined Plan implement a control to ensure proper classification of members in the IT system.

Information Technology Processes

- During our testing, we noted no formal process to disable access for terminated individuals. We recommend the Combined Plan have a formal process for HR to fill out a termination form and send to IT and perform it timely. In addition, all new hires should be also timely documented.

- Currently, there is no formal process to fill out a production release form. Usually a member of the IT department will inform Ray Tchou to review a production change. Ray is the only individual with the ability to release a production change. We recommend the Combined Plan have a formal policy for individuals to submit a production release form to document change requests.

- It was noted there are administrative user profiles that remained in the Combined Plan for users no longer employed at the Combined Plan. These profiles have remained active, as staff need to access old files. In addition, we noted duplicate administrative user profiles for current employees. We recommend the Combined Plan perform a user profile review and only allow one user profile for each current employee.

Benefit Payment Calculations

Pension factors are used in calculating an individual's pension payment based on age and option selected. Currently, the pension factor used in the calculation of benefit payments is using an old mortality table (1984 table) and an 7.5 percent rate of return. Pension factors should get updated with a newer mortality table (RP-2014 Mortality Table is currently being used in the actuarial valuations) and rate of return of 6.75 percent (current rate of return used for funding purposes, as stipulated by the Plan of Adjustment). Our understanding is the Combined Plan will update these amounts once the benefit calculation software is implemented.

Combined Plan for the General Retirement System of the City of Detroit

Financial Report
with Supplemental Information
June 30, 2019

Combined Plan for the General Retirement System of the City of Detroit

Contents

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Independent Auditor's Report

To the Board of Trustees
Combined Plan for the General Retirement
System of the City of Detroit

Report on the Financial Statements

We have audited the accompanying financial statements of the Combined Plan for the General Retirement System of the City of Detroit (the "Combined Plan") as of and for the year ended June 30, 2019 and the related notes to the financial statements, which collectively comprise the Combined Plan's basic financial statements, as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the Combined Plan for the General Retirement System of the City of Detroit as of June 30, 2019 and the changes in its fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

To the Board of Trustees
Combined Plan for the General Retirement
System of the City of Detroit

Other Matters

Required Supplemental Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and other required supplemental information, as identified in the table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, which considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplemental information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Supplemental Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the Combined Plan for the General Retirement System of the City of Detroit's basic financial statements. The other supplemental information, as identified in the table of contents, is presented for the purpose of additional analysis and is not a required part of the basic financial statements.

The other supplemental information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the other supplemental information is fairly stated in all material respects in relation to the basic financial statements as a whole.

Report on Summarized Comparative Information

We have previously audited the Combined Plan for the General Retirement System of the City of Detroit's June 30, 2018 financial statements, and we expressed an unmodified audit opinion on those audited financial statements in our report dated November 28, 2018. In our opinion, the summarized comparative information presented herein as of and for the year ended June 30, 2018 is consistent, in all material respects, with the audited financial statements from which it has been derived.

Plante & Moran, PLLC

November 26, 2019

Combined Plan for the General Retirement System of the City of Detroit

Management's Discussion and Analysis

As management of the General Retirement System of the City of Detroit (DGRS or the "System"), we offer readers this narrative overview and analysis of the financial activities for the year ended June 30, 2019.

Using This Annual Report

This annual report consists of three parts: (1) management's discussion and analysis (this section), (2) the basic financial statements, and (3) the required supplemental information. The financial statements also include notes that explain some of the information in the financial statements and provide more detailed data. The financial statements are followed by sections of required supplemental information that further explain and support the information in the financial statements.

Financial Highlights

- U.S. economic data remained broadly positive during the fiscal year. Financial markets, however, experienced tremendous volatility as evolving trade policy disputes, a protracted government shutdown, and an apparent disconnect between the Federal Reserve Board and U.S. capital markets caused uncertainty and confusion. In light of this uncertainty, DGRS has revised its asset allocation, and we are moving forward strategically to continue to protect the System's assets for the future benefit of our members.
- We are also utilizing technology to better our operations and improve customer service for our membership. We have contracted with UHY and Procentia to assist us with the implementation of a new pension ERP system designed to address our member services need. The new system will allow members access to numerous online self-service features, such as payroll deductions updates, direct deposit changes, address changes, annuity balance look-up, and pension benefit estimates. The ERP system will provide additional reporting features for our employees and also improve the accuracy of the information provided to our actuaries

Condensed Financial Information

The tables below compare key financial information in a condensed format between the current year and the prior year:

	2019	2018
Assets	$ 2,042,715,457	$ 2,154,047,497
Liabilities	101,162,439	105,153,824
Fiduciary Net Position Restricted for Pensions	**$ 1,941,553,018**	**$ 2,048,893,673**

Combined Plan for the General Retirement System of the City of Detroit

Management's Discussion and Analysis (Continued)

		2019	2018
Additions			
Net investment income		$ 50,262,545	$ 164,656,382
Securities lending income:			
Interest and dividends		506,851	343,472
Net unrealized gain on collateralized securities		14,241	131,443
Total securities lending income		521,092	474,915
Contributions:			
Employer		80,105,699	82,662,138
Employee		15,570,185	14,140,618
State and foundation		375,000	375,000
Total contributions		96,050,884	97,177,756
ASF recoupment interest		6,437,967	6,622,392
Transfer from Component II to Component I		9,015,677	-
Other income		496,101	1,250,828
Total additions		162,784,266	270,182,273
Deductions			
Retirees' pension and annuity benefits		236,271,384	240,328,824
Member refunds and withdrawals		16,657,103	16,132,158
Transfer to Component I from Component II		9,015,677	-
General and administrative expenses		4,966,003	5,485,108
ASF recoupment write-off		3,214,754	906,524
Total deductions		270,124,921	262,852,614
Net (Decrease) Increase in Net Position Held in Trust		**$ (107,340,655)**	**$ 7,329,659**

Fund Overview, Membership, and Governance

The General Retirement System of the City of Detroit consists of defined benefit pension plans and defined contribution plans for the nonuniformed employees of the City of Detroit, Michigan (the "City"), composed of Component I and Component II, which are memorialized in a document titled the Combined Plan for the General Retirement System of the City of Detroit, Michigan, made effective July 1, 2014, as amended and restated December 8, 2014 (the "Combined Plan"). This discussion and its accompanying financial statements are primarily concerned with Component I, a new pension plan created by the City effective July 1, 2014 for active nonuniformed employees of the City to earn pension benefits on and after that date (also referred to as the "Hybrid Plan"), and Component II, the legacy pension plan where benefits were earned through June 30, 2014 (the "Legacy Plan").

As discussed in greater detail below, at the conclusion of the 2014 fiscal year, the City "froze" Component II. The "freeze" of Component II, which was the pension plan that existed as of June 30, 2014, means that no further benefit accruals occurred after that date, and no new employees are allowed to participate as members.

DGRS exists to pay benefits to its members. Members of the System include active nonuniformed city employees, retirees, and their beneficiaries. Active members still employed with the City on and after July 1, 2014 earn service credit that entitles them to receive benefits in the future in Component I, but not in Component II, which, as noted above, has been frozen. Both the employer and municipal plan sponsor for the System, the City, and actively employed members have historically contributed to the System (the employee contributions were voluntary prior to July 1, 2014). Retirees, their beneficiaries, and disabled members are those currently receiving benefits, though the City elected in fiscal year 2015 to transition new disability claims from the benefit program administered by the System to one administered by a third-party insurance carrier.

Component I of DGRS is a newly created plan (effective July 1, 2014), with more active members earning service credit than members eligible to receive or receiving benefits. As of June 30, 2018, there were 5,629 active members, with 247 retirees and 1021 terminated plan members entitled to but not yet receiving benefits.

Component II of DGRS is a relatively mature plan in that there are more members receiving current benefits than active members. As of June 30, 2018, in Component II there were 3,018 active members, with 11,684 members receiving benefits and 3,236 terminated plan members entitled to but not yet receiving benefits. On June 30, 2014, the emergency manager of the City of Detroit, Michigan issued Order No. 30, which froze Component II. After that date, no new employees were allowed to participate in Component II, and benefit accruals for members with respect to service rendered prior to July 1, 2014 were frozen based on the member's years of service, average final compensation, and the pension multiplier formula as of the freeze date. Employees working after July 1, 2014 are now earning service credit in the Hybrid Plan, or Component I.

By way of background, a brief review of the City's migration from the Legacy Plan to the Hybrid Plan is appropriate. On June 30, 2014, the emergency manager of the City of Detroit, Michigan issued Order No. 30, which froze Component II. After that date, no new employees were allowed to participate in Component II, and benefit accruals for members with respect to service rendered prior to July 1, 2014 were frozen based on the member's years of service, average final compensation, and the pension multiplier formula as of the freeze date. Employees working after July 1, 2014 are now earning service credit in the Hybrid Plan, or Component I. On July 1, 2014, the City first published the Combined Plan with the city clerk. By August 1, 2014, the City completed the payroll information systems project transitions required to allow now mandatory employee contributions to be contributed to Component I.

On October 19, 2014, the emergency manager issued Order No. 43, which amended and restated the Combined Plan. On December 8, 2014, before leaving office, the emergency manager issued Order No. 44, which again amended and restated the Combined Plan. According to Order No. 44, the latest amendments and restatements to the Combined Plan conformed the combined plan terms to the requirements of the City's bankruptcy plan and made clarifying modifications. The Combined Plan is available at DGRS's website, www.rscd.org.

In December 2014, DGRS governance was modified as part of the City's bankruptcy plan. DGRS is governed by a board of trustees (the "Board"). Although DGRS' investment management is now the ultimate responsibility of a seven-member investment committee (the "Investment Committee"), the Board maintains its role as the governing board vested with responsibility for the general administration, management, and operation of the System, with which the Investment Committee assists, pursuant to Michigan law.

The Board is composed of 10 members. Five members are elected by the active membership to serve six-year terms. A sixth member is elected by the retiree membership to serve a two-year term. A seventh member is appointed by the mayor of the City of Detroit, Michigan from the citizens of the City to serve a six-year term. The three remaining members serve ex officio, these members being the mayor of the City (or designee), the city treasurer, and one representative from the Detroit City Council. Expirations of terms of elected trustees are staggered, while the remaining trustees serve in accordance with their office or as a designee of an office.

The Investment Committee has five independent members appointed to initial terms with staggered expirations, which terms will all eventually become six years. Two additional members, one active and one retired, serve on the Investment Committee based on appointment by the Board. The Investment Committee will be in place through at least December 2034.

Contributions to the System

Historically, both the City and active employees have made regular contributions to the System, though employee contributions were optional in Component II, essentially before July 1, 2014, though there was a period of transition due to the City's aging information technology infrastructure, which meant that voluntary employee contributions to Component II continued through July 2014, and mandatory employee contributions to Component I from active payroll were implemented as of August 1, 2014.

Basic pension and disability benefits in Component II had been funded through employer contributions plus investment earnings on those contributions, but employee contributions are mandatory in Component I. The required employer contributions had been determined by the System's actuaries using the entry age normal cost method, which is still the case. Assumptions used by the actuaries are subject to experience testing every five years, which is also still the case. Effective December 10, 2014, as part of the resolution of the Chapter 9 case, the investment return assumption and discount rate used by the System's actuary for the purpose of determining the System's assets and liabilities for funding purposes was fixed at 6.75 percent through the period ending June 30, 2023. This applies to both Component I and Component II.

The obligations for contributions to support Component II of the System through 2023 are determined as fixed amounts by the provisions in the Plan of Adjustment. Pursuant to the Plan of Adjustment, the System is expected to receive contributions of a total of $718.6 million through fiscal year 2023. The Plan of Adjustment calls for the System to receive $98.8 million from the State of Michigan; $428.5 million from DWSD; $31.7 million from UTGO settlement proceeds; the present value equivalent or actual contribution of $50 million from the DIA and its foundation donors during a 10-year period ending in 2024; the present value equivalent or actual contribution of $18.3 million per year from 2025 through 2034 from certain foundations; and $114.6 million from the other city-related employer contribution sources, such as the General Fund, Detroit Library Commission, and COBO Authority, over a 10-year period covering fiscal year 2014 through fiscal year 2023. After 2023, the City and various other employer constituents, such as the library, DWSD, and COBO Authority, will retain responsibility for the full funding obligations of Component II of the System, consistent with Michigan law.

The Plan of Adjustment allows for certain of the Legacy Plan's funding obligations to DGRS through 2034 to be met by prepayment of the present value equivalent using a discount rate of 6.75 percent. In the fiscal year ended June 30, 2016, a portion of the DIA obligation to make annual $5 million contributions over 10 years ending in 2034 was prepaid. This present value prepayment resulted in DGRS receiving $32,511,827 on June 30, 2016 from the DIA, which represents the present value, using a 6.75 percent discount rate, of $4,625,000 per year for the nine years remaining on that annual $5,000,000 commitment ending in 2024. Pursuant to the Plan of Adjustment, DGRS still expects to receive the equivalent or actual remaining $375,000 per year from the DIA for that 10-year period ending in 2024 and also did receive, on June 30, 2016, the amount of $375,000 in satisfaction of the fiscal year 2016 obligation from the DIA that was not prepaid.

In addition, the City was to remit payments on the UTGO Stub Bonds to the Combined Plan through 2028. In fiscal year 2017, the City of Detroit, Michigan refunded all of its outstanding UTGO Stub Bonds. Upon refunding, the payments to the Combined Plan were accelerated, with a majority of the outstanding balance paid to the Combined Plan in fiscal year 2017; as a result, the Combined Plan received approximately $7.7 million in the ISP and $18.3 million in Component II related to this transaction.

With respect to Component I, the Hybrid Plan, nonuniformed employees who are members of DGRS are now required to make mandatory contributions of 4 percent of pay toward their defined benefit pensions earned with the City, and the City contributes an additional 5 percent of pay. The City no longer counts overtime in the calculation of its employer contribution.

The City is also setting aside an additional 0.75 percent of payroll to meet the premium payments required for the disability insurance established with a third-party carrier. DGRS is not administering those third-party-carrier-managed disability benefits.

On June 30, 2019, the City met its obligation for Component I employer contributions by contributing $12,205,699 to DGRS.

Impact of City of Detroit, Michigan Collective Bargaining and Bankruptcy Pension Adjustments

Pursuant to Emergency Manager Order No. 30, the existing Component II defined contribution plan and defined benefit plan were frozen, preventing any future accruals or new members in Component II effective June 30, 2014.

Combined Plan for the General Retirement System of the City of Detroit

Management's Discussion and Analysis (Continued)

The following changes became effective July 1, 2014, with the advent of Component I:

- The Hybrid Plan's defined benefit plan commenced with mandatory contributions of 4 percent of base pay. The City contributes 5 percent of employee base pay, not including overtime.
- A new Hybrid Plan defined contribution plan commenced for the annuity savings fund. Employees may make voluntary annuity savings fund contributions of up to 7 percent of total after-tax pay. Interest will be credited at the actual net investment rate of return of DGRS, but will, in no event, be lower than 0 percent or higher than 5.25 percent.
- The Hybrid Plan provides that future duty disability and nonduty disability retirement allowances for members who become disabled after July 1, 2014 move to a commercial insurance program through the City.

Benefit Payments

The System exists to pay the benefits that its members have earned pursuant to benefits promised by the City, subject to the Chapter 9 case benefit adjustments going forward in the Legacy Plan and the new promises in the Hybrid Plan. Benefits are paid monthly. In fiscal year 2019, DGRS paid out $252.9 million in benefits, consisting of $236.3 million in benefits to retirees and beneficiaries plus $16.7 million in refunds of annuity savings fund balances and mandatory contributions. The benefits and refunds represent approximately 13 of the net position of the System as of June 30, 2019. Employer, foundation, and employee contributions were $96.1 million, or 5 percent of the net position of the System. The excess of benefits over contributions of $156.9 million is funded through investment income. The public capital markets represent the primary source of opportunities to earn investment income.

Asset Allocation

The Board and Investment Committee of DGRS believe that the principal determinant of total fund investment performance over long periods of time is asset allocation. DGRS' asset allocation is built upon the foundation that the obligations of the System to pay the benefits promised to its members are very long-term obligations. Accordingly, the Board and Investment Committee must make investment decisions that they believe will be the most beneficial to the System over many years, not just one or two years.

DGRS has established asset allocation policies that are expected to deliver investment income over a very long period of time to satisfy the obligations to pay the benefits promised to the members of the System. The following is a summary of the DGRS asset allocation policy as of June 30, 2019:

Asset Class	Target Allocation
Global equity	43.00 %
Global fixed income	20.00
Real estate/Real assets	15.00
Private equity	8.00
Hedge funds	5.00
Diversifying strategies	8.00
Cash	1.00

DGRS' asset allocation policies comply with Michigan law.

Investment Results

DGRS calculates investment results on a time-weighted Global Investment Performance Standard (GIPS) basis, unless explicitly stated otherwise. All returns for periods of one year or greater have been annualized.

Total Fund Composite

DGRS' total fund composite return for the year was 3.4 percent, net of fees and expenses using a time-weighted methodology. The fund returned 7.8 and 5.5 percent for its three-year and five-year annualized returns, respectively, net of fees and expenses.

DGRS' well-diversified global portfolio performed in line with most asset classes. During fiscal year 2019, equity market returns were below expectations due to a steep decline in all equity markets during the fourth quarter of calendar year 2018. These equity markets have rebounded in the first half of calendar year 2019, and this rebound, along with maintaining a well-diversified portfolio across several asset classes, contributed to the total fund's positive performance for the fiscal year.

As part of the resolution of the City of Detroit, Michigan's Chapter 9 bankruptcy case, the discount rate assumption used to meet current and future benefit obligations was set at 6.75 percent through the period ending June 30, 2023. This discount rate assumption provided in the Chapter 9 case does not purport to establish an investment return assumption or discount rate for purposes of, or in accordance with, generally accepted accounting principles. Although the fund's return for this year fell below this assumption, the fund's longer-term return expectation, which this assumption is intended to characterize, still exceeds this assumption.

Total plan returns, net of fees and expenses, for the recent prior fiscal years ended June 30 are shown below:

2018	6.50 %
2017	14.10
2016	1.40
2015	2.60
2014	14.50
2013	11.70
2012	0.10
2011	19.70

Money-weighted Rate of Return

GASB Statement No. 67 requires the disclosure of the annual money-weighted rate of return. A money-weighted rate of return (as opposed to the time-weighted rate of return discussed in the previous section) considers both the size and timing of cash flows over the course of the year to determine an internal rate of return (sometimes referred to as IRR). This return is calculated net of expenses and uses cash flows determined on a monthly basis. The DGRS money-weighted rate of return for the year using end-of-the-month cash flows was 3.28 percent.

Requests for Further Information

This financial report is intended to provide a general overview of the System's finances and investment results in relation to actuarial projections. It shows the System's accountability for the money it receives from employer and employee contributions. If you have questions about this report or need additional information, we welcome you to contact the System's office or visit its website at www.rscd.org.

Combined Plan for the General Retirement System of the City of Detroit

Statement of Fiduciary Net Position

June 30, 2019

	Component II Plan (Legacy)		Component I Plan (Hybrid)	
	Defined Benefit Fund	Income Stabilization Fund	Defined Benefit Fund	Total Combined Plan
Assets				
Cash and cash equivalents (Note 3)	$ 51,631,035	$ 1,747,959	$ 49,781,983	$ 103,160,977
Investments: (Notes 3 and 4)				
Global equities	885,323,140	5,534,624	33,566,775	924,424,539
Global fixed income	214,961,897	1,375,933	9,299,188	225,637,018
Real estate	282,387,466	1,923,152	17,426,716	301,737,334
Private equity	100,942,901	691,391	6,395,351	108,029,643
Diversifying strategies	159,862,697	1,094,949	10,128,288	171,085,934
Receivables:				
Investment income	900,819	5,579	32,051	938,449
Contribution (Note 1)	-	-	3,045,431	3,045,431
Other receivables	73,872	-	-	73,872
ASF recoupment receivable (Note 1)	101,914,441	-	-	101,914,441
Notes receivable from participants	3,948,146	-	-	3,948,146
Receivables from investment sales	8,458,421	57,766	528,913	9,045,100
Cash and investments held as collateral for securities lending: (Note 3)				
Asset-backed securities	13,738,513	94,099	870,420	14,703,032
Repurchase agreements	15,025,184	102,912	951,938	16,080,034
U.S. corporate floating rate	53,183,911	364,273	3,369,529	56,917,713
Capital assets - Net (Note 1)	1,197,282	-	776,512	1,973,794
Total assets	1,893,549,725	12,992,637	136,173,095	2,042,715,457
Liabilities				
Accrued expenses	4,887,486	6,966	354,038	5,248,490
Payables for investment purchases	7,247,661	48,602	423,337	7,719,600
Due to the City of Detroit, Michigan	1,508,399	-	-	1,508,399
Amounts due to broker under securities lending agreements (Note 3)	80,999,352	554,790	5,131,808	86,685,950
Total liabilities	94,642,898	610,358	5,909,183	101,162,439
Net Position - Restricted for pensions	**$ 1,798,906,827**	**$ 12,382,279**	**$ 130,263,912**	**$ 1,941,553,018**

See notes to financial statements.

Combined Plan for the General Retirement System of the City of Detroit

Statement of Changes in Fiduciary Net Position

Year Ended June 30, 2019
(with comparative totals for the year ended June 30, 2018)

	Component II Plan (Legacy)		Component I Plan (Hybrid)		
	Defined Benefit Fund	Income Stabilization Fund	Defined Benefit Fund	Total Combined Plan 2019	2018
Additions					
Investment income:					
Interest and dividends	$ 34,317,288	$ 226,000	$ 1,835,031	$ 36,378,319	$ 30,402,704
Net increase in fair value of investments	21,531,752	173,810	2,044,111	23,749,673	143,441,109
Investment-related expenses	(9,170,302)	(60,282)	(634,863)	(9,865,447)	(9,187,431)
Net investment income	46,678,738	339,528	3,244,279	50,262,545	164,656,382
Securities lending income:					
Interest and dividends	477,959	3,152	25,740	506,851	343,472
Net unrealized gain on collateralized securities	13,307	91	843	14,241	131,443
Net securities lending income	491,266	3,243	26,583	521,092	474,915
Contributions: (Note 2)					
Employer	67,900,000	-	12,205,699	80,105,699	82,662,138
Employee	-	-	15,570,185	15,570,185	14,140,618
Foundation	375,000	-	-	375,000	375,000
Total contributions	68,275,000	-	27,775,884	96,050,884	97,177,756
ASF recoupment interest (Note 1)	6,437,967	-	-	6,437,967	6,622,392
Transfer from Component II to Component I (Note 9)	-	-	9,015,677	9,015,677	-
Other income	444,601	889	50,611	496,101	1,250,828
Total additions - Net	122,327,572	343,660	40,113,034	162,784,266	270,182,273
Deductions					
Retirees' pension and annuity benefits	235,153,733	599,086	518,565	236,271,384	240,328,824
Member refunds and withdrawals	13,636,284	-	3,020,819	16,657,103	16,132,158
Transfer to Component I from Component II (Note 9)	9,015,677	-	-	9,015,677	-
General and administrative expenses	3,023,939	-	1,942,064	4,966,003	5,485,108
ASF recoupment write-off	3,214,754	-	-	3,214,754	906,524
Total deductions	264,044,387	599,086	5,481,448	270,124,921	262,852,614
Net (Decrease) Increase in Net Position Held in Trust	(141,716,815)	(255,426)	34,631,586	(107,340,655)	7,329,659
Net Position Restricted for Pensions - Beginning of year	1,940,623,642	12,637,705	95,632,326	2,048,893,673	2,041,564,014
Net Position Restricted for Pensions - End of year	**$ 1,798,906,827**	**$ 12,382,279**	**$ 130,263,912**	**$ 1,941,553,018**	**$ 2,048,893,673**

See notes to financial statements.

Note 1 - Significant Accounting Policies

Reporting Entity

The City of Detroit, Michigan (the "City") sponsors the Combined Plan for the General Retirement System of the City of Detroit (the "Combined Plan"), which consists of two single-employer retirement plans, as described below.

Component II

This is the legacy plan that is the original defined benefit plan, which includes a defined benefit component and a defined contribution component. Component II generally applies to benefits accrued by members prior to July 1, 2014. On June 30, 2014, as a result of negotiations between the City and the public employee unions, the existing plan benefit formulas were frozen, and no employees were allowed to earn benefits under the existing plan. The emergency manager issued Order No. 30 (General Retirement System of the City of Detroit) on June 30, 2014, which put these changes into effect. Except as specifically provided in the Combined Plan, benefits provided under Component II are frozen effective June 30, 2014.

Component II also includes the Income Stabilization Fund. The fund, which is part of Component II only and established as a special plan of adjustment provision, was established for the sole purpose of paying the Income Stabilization Benefits and Income Stabilization Benefits Plus to eligible pensioners. A portion of the funds received by the Combined Plan from UTGO Stub Bonds tax proceeds is credited to the Income Stabilization Fund. The allocation is based on the aggregate payments to plan assignees included in the Eighth Amended Plan for the Adjustment of Debts of the City of Detroit (the "POA"). After 2022, the Investment Committee may recommend to the board that a portion or all of the assets that exceed income stabilization benefits (including Income Stabilization Benefits Plus) to be paid in the future be used to fund regular pension payments.

Nonemployer Contributing Entity within Component II

On September 9, 2014, a memorandum of understanding (the "MOU") was entered into by the emergency manager and mayor of the City of Detroit, Michigan; the county executive of each of the charter counties of Wayne and Macomb, Michigan; the County of Oakland, Michigan; and the governor of the State of Michigan. The purpose of the MOU was to establish a framework for the creation of a regional authority (known as Great Lakes Water Authority - GLWA) pursuant to Act 233 of 1955 to operate, control, and improve the regional assets of the water supply system and the sewage disposal system owned by the City.

Pursuant to the MOU, the City of Detroit, Michigan and GLWA entered into two lease agreements: the Regional Water Supply System Lease dated June 12, 2015 and the Regional Sewage Supply System Lease dated June 12, 2015. Under the provisions of the lease agreements, GLWA leases the regional assets of the City for a period of at least 40 years.

Pursuant to the lease agreements, on December 1, 2015, a triparty agreement between the City of Detroit, Michigan; the General Retirement System of the City of Detroit (GRS); and GLWA was signed. Per the POA and Section 4.3 of the lease agreements, GLWA is required to pay a portion of the pension obligation that will be allocable to the Detroit Water and Sewer Department (DWSD). The purpose of the pension reporting agreement is to set forth in determining the funding status for the DWSD pension pool and for GRS to agree to provide GLWA with certain actuarial and other reports to enable GLWA to properly manage and pay its portion of the pension obligation that is allocable to DWSD.

Note 1 - Significant Accounting Policies (Continued)

Effective January 1, 2016, GLWA was launched. Accordingly, the prior DWSD division was split into two - one representing the ongoing DWSD department, now referenced as DWSD-Retail (DWSD-R), and another to represent the Great Lakes Water Authority (GLWA). In accordance with the pension reporting agreement, the net position and liabilities of DWSD were allocated to DWSD-R and GLWA in accordance with written directions received from DWSD-R and GLWA. Per written directions, GLWA is to be allocated 70.3 percent of the net position and liabilities of DWSD. Because GLWA has no employees or retirees in the Combined Plan, GLWA is considered a nonemployer contributing entity in accordance with GASB Statement No. 67.

The financial statements of the Combined Plan reflect the net position and pension liabilities of the plan as a whole, which includes the portion allocable to GLWA. While the allocation of the net pension liability as of June 30, 2019 has not yet been finalized, GLWA's portion of the total Component II net pension liability of $832,682,511 at June 30, 2018 was $131,981,167, with the remainder allocable to the City of Detroit, Michigan and related entities.

Component I

As of July 1, 2014, all current and future employees participate in the new hybrid pension plan, or Component I. Active city employees who participated in the legacy plan will receive the benefits they have earned under the plan through June 30, 2014 plus an additional benefit under the new hybrid plan formula, assuming all vesting requirements are met.

Combined Plan Reporting

The Combined Plan is a separate and independent trust qualified under applicable provisions of the Internal Revenue Code; it is an independent entity (separate and distinct from the employer/plan sponsor) as required by (1) state law and (2) Internal Revenue Code provisions setting forth qualified plan status. The trustees of the Combined Plan have a fiduciary obligation and legal liability for any violations of fiduciary duties as independent trustees. The Combined Plan provides retirement, disability, and survivor benefits to plan members and beneficiaries.

The financial statements for the Combined Plan are also reported in the financial statements of the City of Detroit, Michigan as a pension trust fund. The assets of the pension trust funds include no securities of or loans to the City or other related parties.

These financial statements include comparative columns for 2018. Such information is not meant to be a complete presentation in conformity with accounting principles generally accepted in the United States of America. Accordingly, such information should be read in conjunction with the plan's financial statements for the year ended June 30, 2018.

Plan Sponsor Financial Condition - Impact on the Combined Plan

In the past, the City of Detroit, Michigan (the "plan sponsor") has experienced significant financial difficulty and liquidity concerns. As of June 2013, the City had defaulted on approximately $36 million of pension contributions due to the Combined Plan. During fiscal year 2014, the City did not pay any employer contributions into the Combined Plan, despite the fact that there were actuarially required contributions.

In February 2013, the governor appointed a financial review team, which determined that a local government financial emergency existed in the City. This culminated in bankruptcy proceedings, which the City initiated in July 2013. Part of the federal court's ruling in December 2013 indicated that the bankruptcy status usurped whatever protections may be offered to governmental pensions under the Michigan Constitution. On December 10, 2014, the City exited from bankruptcy through confirmation of the Eighth Amended Plan for the Adjustment of Debts of the City of Detroit (the "POA"). The POA specifies certain provisions pertinent to the legacy and hybrid plans, including contributions and benefits.

Note 1 - Significant Accounting Policies (Continued)

In fiscal year 2019, the contributions received by the Combined Plan were made in accordance with the provisions of the POA. See Note 10 for significant changes that were implemented by the Combined Plan under the POA.

Summary of Significant Accounting Policies

The following is a summary of the significant accounting policies used by the Combined Plan for the General Retirement System of the City of Detroit.

Accounting and Reporting Principles

The Combined Plan follows accounting principles generally accepted in the United States of America (GAAP) applicable to governmental units. Accounting and financial reporting pronouncements are promulgated by the Governmental Accounting Standards Board.

Basis of Accounting

The Combined Plan uses the economic resources measurement focus and the full accrual basis of accounting. Revenue is recorded when earned, and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows. Plan member contributions are recognized in the period in which the contributions are due. Employer contributions are recognized when due pursuant to legal requirements. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

Specific Balances and Transactions

Cash and Cash Equivalents

The Combined Plan considers cash on hand, demand deposits, and short-term investments with an original maturity of three months or less when purchased to be cash equivalents.

Investments

Investments are reported at fair value or estimated fair value. Short-term investments are reported at cost, which approximates fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. Mortgages are valued on the basis of future principal and interest payments. The fair value of real estate investments is based on periodic appraisals, as well as the judgment of independent real estate advisors and management. Investments that do not have an established market value are reported at estimated fair value determined by the Combined Plan's management.

Approximately $63,000,000, or 3 percent, of the Combined Plan's net position as of June 30, 2019 does not have a readily determinable market value and has been estimated by management.

Investments for which market quotations are readily available are generally priced by the custodian using nationally recognized pricing services and practices. For investments that do not have readily observable market prices, including but not limited to private equity, public and private real estate, alternatives, and direct loans, management's estimate of their fair value is based on information provided by investment managers, general partners, real estate advisors, and other means. These sources are held to a standard of reasonable care in verifying that the valuations presented reasonably reflect the underlying fair value of the investments. A variety of factors is considered in the valuation process, including the nature of the investment, local market conditions, trading values on public exchanges for comparable investments, and current and projected operating performance. However, due to the inherent uncertainty and the degree of judgment involved in determining fair value for such investments, the values reflected in the financial statements may differ significantly from values that would have been used had a readily determinable market value for the investments existed, and the difference could be material.

Note 1 - Significant Accounting Policies (Continued)

Contributions Receivable

At June 30, 2019, there was $3,045,431 in employer contributions receivable. This amount relates to fiscal year 2019 Component I contributions and was paid in July 2019.

ASF Recoupment Receivable - Component II (Legacy)

For members who elected to make employee contributions into the defined contributions-style program, referred to as the annuity saving fund (ASF), between July 1, 2003 and June 30, 2013, the POA called for recoupment of amounts that the City calculated were "excess interest" credited to individual ASF accounts. In 2011, the City Council adopted an ordinance that limited ASF interest credits to the plan's actual net investment return, with a cap of 7.9 percent and a floor of 0 percent. The POA calculation of excess interest applies the interest formula in the 2011 ordinance to the July 1, 2003 - June 30, 2013 recoupment period, recouping all interest paid in excess of the lower of 7.9 percent or the plan's actual return for that year, with a cap on the recoupment amount of 20 percent of the highest ASF balance in this period. The recoupment amount is also capped at 15.5 percent of the retiree's monthly pension check. The City offered a limited lump sum or a monthly payment option. Repayment of these excess interest amounts is not optional. As of June 30, 2019, the Combined Plan has approximately $101.9 million to be collected. The receivable will be collected, with 6.75 percent interest, as a reduction to monthly pension benefits for those with recoupment balances outstanding.

Receivable/Payable from Investment Sales/Purchases

The Combined Plan liquidated investments prior to year end and reported a receivable from investment sales at June 30, 2019 in the amount of $9,045,100. The proceeds from the sales were received subsequent to year end. In addition, the Combined Plan purchased investments prior to year end and reported a payable from investment purchases at June 30, 2019 in the amount of $7,719,600. This amount was paid subsequent to year end.

Notes Receivable from Participants

In Component II (Legacy), any active general employee who is or has been a participant in the 1973 defined contribution plan (annuity savings fund) may be eligible for the employee loan program. The minimum amount of the loan was established at $1,000. The maximum loan is the lesser of 50 percent of the member's account balance in the annuity saving fund or $10,000. Members can borrow as either a general purpose loan payable in 1 to 5 years or a residential loan payable in 1 to 15 years. A member can have only two outstanding loans. The balance of these loans for the year ended June 30, 2019 was $3,948,146. The balance is measured at the unpaid principal balance plus any accrued but unpaid interest. Participant notes receivable are written off when deemed uncollectible.

Although Component I (Hybrid) allows participant loans, there are none outstanding at June 30, 2019.

Capital Assets

Capital assets for the Combined Plan include software, office equipment, and furniture. Depreciation expense is calculated by allocating the net cost of the assets over their estimated useful lives.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the Unites States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of additions and deductions during the reporting period. Actual results could differ from those estimates.

Note 2 - Pension Plan Description

Component II (Legacy Plan) and Component I (Hybrid Plan)

Plan Administration

The Combined Plan's governance was modified in December 2014 as part of the City's bankruptcy plan. The Combined Plan's board of trustees and Investment Committee administer the Combined Plan for the General Retirement System of the City of Detroit Pension Plan - a single-employer defined benefit and defined contribution plan that provides retirement benefits, as well as survivor and disability benefits, for plan members and beneficiaries. Plan members include active employees, retirees, and beneficiaries from various departments within the City of Detroit, Michigan. Benefit terms have been established by contractual agreements between the Combined Plan and the employees' collective bargaining unit, as modified by the POA. Future amendments are subject to the same process. However, pursuant to the POA, pension benefit terms presently expressed in the Combined Plan are not subject to amendment before June 30, 2023, unless an amendment is required to maintain the tax-qualified status of the Combined Plan. The obligation to contribute to and maintain the Combined Plan was established by the city charter and negotiations with the employees' collective bargaining units.

The board is composed of 10 members. Five members of the board are elected by the active membership to serve six-year terms. One member is elected by the retiree membership to serve a two-year term. One member is appointed by the mayor of the City of Detroit, Michigan from the citizens of the City to serve a six-year term. Three members serve ex officio, these members being the mayor of the City (or designee), the city treasurer, and one representative from the Detroit City Council. Expirations of terms of elected trustees are staggered.

The Investment Committee has five independent members appointed to initial terms with staggered expirations, which terms will all eventually become six years. Two additional members, two active members, and two retired members serve on the Investment Committee based on appointment by the board. The Investment Committee will be in place through at least December 2034.

Benefits Provided

The Combined Plan provides retirement, disability, and death benefits. Benefit terms had been established by negotiations between the City Council and the employees' collective bargaining unit and subject to amendment by the City Council. Further changes to benefits were provided for under the POA.

Employees Covered by Benefit Terms

The following members were covered by the benefit terms:

	Component II (Legacy Plan)	Component I (Hybrid Plan)
Date of member count	June 30, 2018	June 30, 2018
Inactive plan members or beneficiaries currently receiving benefits	11,684	247
Inactive plan members entitled to but not yet receiving benefits	3,236	1,021
Active plan members	3,018	5,629
Total employees covered by the plan	17,938	6,897

As of June 30, 2014, Component II has been frozen. As of that date, no new participants were allowed to enter the plan, and no new benefit accruals were allowed for existing participants.

After July 1, 2014, active members will retain existing service credit in the Legacy Plan but will only earn existing service credit in the new Hybrid Plan.

Note 2 - Pension Plan Description (Continued)

Contributions

Article 9, Section 24 of the State of Michigan Constitution requires that financial benefits arising on account of employee service rendered in each year be funded during that year. Accordingly, in the past, the Combined Plan had retained an independent actuary to determine the annual contribution. The actuarially determined rate was the estimated amount necessary to finance the costs of benefits earned by plan members during the year, with an additional amount to finance any unfunded accrued liability. However, until 2024, contributions are based on specific provisions in accordance with the Plan of Adjustment.

Employer and Nonemployer Contributing Entity Contributions

Component II

For Component II, during fiscal year 2019, employer contributions are not actuarially determined, but rather are determined by the provisions of the POA detailed under Exhibit II.B.3.r.ii.A of the POA. Included within contributions for fiscal year 2019 in Component II are contributions from the Foundation for Detroit's Future (the "Foundation") in the amount of $375,000 and $67.9 million of contributions from the City, City-related entities, and GLWA.

Component I

For Component I, during fiscal year 2019, employer contributions are not actuarially determined, but rather are determined by the provisions of the Combined Plan detailed under Section 9.3 of Component I. Per Section 9.3, commencing on July 1, 2014 and ending on June 30, 2023, the City is required to contribute 5 percent of compensation of active members. A portion of the employer's annual contribution for each plan year, as determined by the City, shall be credited to the rate stabilization fund reserve, with the remainder allocated to the pension accumulation fund reserve. During fiscal year 2019, the City and related entities contributed $12,205,699 into the Hybrid Plan. Beginning in 2024, the employer contributions will be actuarially determined based on the amount necessary to fund the plan on an actuarial basis.

Because there were no actuarially determined contributions for Component I, there is no required schedule of city contributions included within these financial statements.

Employee Contributions

Component II

Contribution requirements of plan members were historically established and amended by the board of trustees in accordance with the city charter, union contracts, and plan provisions. For the year ended June 30, 2019, there were no employee contributions into Component II, as the plan was frozen as of June 30, 2014.

Component I

Contribution requirements of plan members are established in Sections 9.3 and 10.1 of Component I of the Combined Plan. For the year ended June 30, 2019, the required active member contribution rate for employees was 4.0 percent of annual pay. Additionally, employees can make voluntary contributions of 3 percent, 5 percent, or 7 percent of annual pay. During fiscal year 2019, the plan received mandatory and voluntary employee contributions of $15,570,185.

Note 2 - Pension Plan Description (Continued)

Fiscal Responsibility Provision

To safeguard the long-term actuarial and financial integrity of the Combined Plan, in the event the funding level of Component I projected over a five-year period falls below 100 percent, certain remedial actions are required, as set forth in Section 9.5 of Component I of the Combined Plan, including elimination of COLA, transfers from the rate stabilization fund reserve to the pension accumulation fund reserve, and increases in mandatory employee contributions from 4 percent to 5 percent.

In the event the funding level of Component I is projected to fall below 80 percent, additional remedial actions are required, including further increasing the mandatory employee contributions to 6 percent and the potential for reducing the retirement allowance.

As of June 30, 2019, the enactment of the remedial actions has not been required based on actuarial projections of the funding levels.

Note 3 - Deposits and Investments

The Combined Plan is authorized by Michigan Public Act 314 of 1965, as amended, to invest in certain reverse repurchase agreements, stocks, diversified investment companies, annuity investment contracts, real estate leased to public entities, mortgages, real estate, debt or equity of certain small businesses, certain state and local government obligations, and certain other specified investment vehicles.

The investment policy adopted by the Board is in accordance with Public Act 196 of 1997 and has authorized investments according to Michigan Public Act 314 of 1965, as amended. The Combined Plan's deposits and investment policies are in accordance with statutory authority.

The Combined Plan invests in various investment securities. Investment securities are exposed to various risks, such as interest rate, market, credit risks, and overall market volatility. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term, and such changes could materially affect the amounts reported on the statement of changes in fiduciary net position.

The Combined Plan's cash and investments are subject to several types of risk, which are examined in more detail below:

Custodial Credit Risk of Bank Deposits

Custodial credit risk is the risk that, in the event of a bank failure, the Combined Plan's deposits may not be returned to it. The Combined Plan does not have a deposit policy for custodial credit risk. Approximately $4.3 million of the Combined Plan's checking account balances was uninsured and uncollateralized at June 30, 2019. The Combined Plan believes that, due to the dollar amounts of cash deposits and the limits of FDIC insurance, it is impractical to insure all deposits. As a result, the Combined Plan evaluates each financial institution with which it deposits funds and assesses the level of risk of each institution; only those institutions with an acceptable estimated risk level are used as depositories.

Interest Rate Risk

Interest rate risk is the risk that the value of investments will decrease as a result of a rise in interest rates. The Combined Plan's investment policy does not restrict investment maturities.

Note 3 - Deposits and Investments (Continued)

At year end, the Combined Plan had the following investments and maturities:

Investment Type	Fair Value (in thousands)	Less Than 1 Year	1-5 Years	6-10 Years	More Than 10 Years
Convertible or exchangeable securities*	$ 60,514	$ 1,466	$ 39,111	$ 12,768	$ 7,169

*Not all fixed-income securities are subject to interest rate risk.

Credit Risk

State law limits investments in commercial paper to the top two ratings issued by nationally recognized statistical rating organizations. The Combined Plan has no investment policy that would further limit its investment choices.

At June 30, 2019, the credit quality ratings of debt securities (other than the U.S. government) as rated by Moody's are as follows:

Investment (in thousands)	Aa3	A2	Baa1	Baa2	Baa3	Ba2	Ba3 or lower	NR
Convertible or exchangeable securities	$ 215	$ 809	$ 1,449	$ 2,532	$ 3,017	$ 1,608	$ 4,309	$ 56,765
Mutual funds	-	-	-	-	180	-	-	30,746
Total	$ 215	$ 809	$ 1,449	$ 2,532	$ 3,197	$ 1,608	$ 4,309	$ 87,511

Foreign Currency Risk

Foreign currency risk is the risk that an investment denominated in the currency of a foreign country could reduce its U.S. dollar value as a result of changes in foreign currency exchange rates. The Combined Plan does not restrict the amount of investments in foreign currency.

Note 3 - Deposits and Investments (Continued)

The following securities are subject to foreign currency risk:

Currency (in thousands)	Equity	Cash	Forward Contracts, Including Receivable (Payable)	Net Investment Receivable
Australian dollar	$ -	$ 5	$ -	$ -
Brazil real	1,587	-	-	-
British pound sterling	6,077	-	-	-
Canadian dollar	1,800	2	-	-
Czech koruna	891	11	-	-
Euro currency unit	32,516	192	-	-
Hong Kong dollar	3,295	-	-	-
Indonesian rupiah	175	-	(16)	23
Japanese yen	11,810	56	(22)	-
Mexican peso	1,443	-	-	-
New Taiwan dollar	5,224	-	-	-
Norwegian krone	3,977	48	-	-
Singapore dollar	2,185	-	-	-
South Korean won	1,795	-	-	-
Swiss franc	2,626	137	-	-
Ukraine hryvana	1	-	-	-
Total	$ 75,402	$ 451	$ (38)	$ 23

Securities Lending

As permitted by state statutes and under the provisions of a securities lending authorization agreement, the Combined Plan lends securities to broker-dealers and banks for collateral that will be returned for the same securities in the future. The Combined Plan's custodial bank manages the securities lending program and receives cash, government securities, or irrevocable bank letters of credit as collateral. The custodial bank does not have the ability to pledge or sell collateral securities unless the borrower defaults. Borrowers are required to deliver collateral for each loan equal to not less than 102 percent of the market value of the loaned securities.

As of June 30, 2019, the collateral provided was 101.09 percent of the market value of the loaned securities, which is less than the required 102 percent.

The Combined Plan did not impose any restrictions during the fiscal year on the amount of loans made on its behalf by the custodial bank. There were no failures by any borrowers to return loaned securities or pay distributions thereon during the fiscal year. Moreover, there were no losses during the fiscal year resulting from a default of the borrowers or custodial bank.

The Combined Plan and the borrower maintain the right to terminate all securities lending transactions on demand. The cash collateral received on each loan was invested, together with the cash collateral of other lenders, in an investment pool. The average duration of such investment pool as of June 30, 2019 was 23 days. Because the loans are terminable on demand, their duration did not generally match the duration of the investments made with cash collateral. On June 30, 2019, the Combined Plan had no credit risk exposure to borrowers. The collateral held (at cost) and the fair market value of the underlying securities on loans for the Combined Plan as of June 30, 2019 were $86,685,950 and $85,748,875, respectively.

Note 3 - Deposits and Investments (Continued)

The following represents the balances relating to the securities lending transactions as of June 30, 2019; investments are reported at fair value:

Securities Lent	Underlying Securities
U.S. corporate fixed income	$ 8,753,163
U.S. equities	71,427,448
Non-U.S. equities	5,568,264
Total	$ 85,748,875

The fair market value of the collateral pool related to securities lending at June 30, 2019 was $87,700,779. The investments were in asset-backed securities, floating-rate notes, and repurchase agreements. Approximately 76 percent of these securities had a duration of less than 1 year, 20 percent had a duration between 1 and 3 years, and 4 percent had a duration over 15 years.

The credit ratings of the securities lending collateral pool held at June 30, 2019, as rated by S&P, are as follows:

Ratings	Amount
AAA	$ 11,323,161
AA	16,437,534
A	40,480,179
CC	2,402,171
D	996,946
NR	16,060,788
Total	$ 87,700,779

Note 4 - Fair Value Measurements

In accordance with GASB Statement No. 72, *Fair Value Measurement and Application*, the notes to the financial statements now include enhanced disclosures about fair value measurement, the level of fair value hierarchy, and valuation techniques.

The Combined Plan categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs. Investments that are measured at fair value using net asset value per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy below.

In instances whereby inputs used to measure fair value fall into different levels in the fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest level input that is significant to the valuation. The Combined Plan's assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each asset.

Note 4 - Fair Value Measurements (Continued)

The Combined Plan has the following recurring fair value measurements as of June 30, 2019:

	Assets Measured at Fair Value on a Recurring Basis at June 30, 2019			
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Balance at June 30, 2019
Debt securities:				
Corporate bonds	$ -	$ 60,514,257	$ -	$ 60,514,257
Asset-backed securities	-	14,703,032	-	14,703,032
Corporate floating rate notes	-	56,917,713	-	56,917,713
Total debt securities	-	132,135,002	-	132,135,002
Equity securities:				
Common stock	625,513,158	-	-	625,513,158
Preferred stock	4,664,467	5,401,443	-	10,065,910
Total equity securities	630,177,625	5,401,443	-	635,579,068
Private equity funds	-	-	2,800,000	2,800,000
Partnership investments	-	-	2,711,000	2,711,000
Real estate private equity funds	-	-	8,200,000	8,200,000
Real estate-related investments	-	-	48,879,450	48,879,450
Total	$ 630,177,625	$ 137,536,445	$ 62,590,450	830,304,520
Investments measured at NAV:				
International equity fund				320,774,019
Fixed-income funds				155,234,073
Hedge funds				171,085,933
Real estate funds				222,618,020
Private equity funds				102,518,648
Total investments measured at NAV				972,230,693
Total investments measured at fair value				$ 1,802,535,213

A total of $16,080,034 of repurchase agreements recorded at amortized cost is not included in the fair value table above.

Equity securities classified in Level 1 are valued using prices quoted in active markets for those securities.

The fair value of preferred stock and debt securities at June 30, 2019 was determined primarily based on Level 2 inputs. The Combined Plan estimates the fair value of these investments using other inputs, such as interest rates and yield curves, that are observable at commonly quoted intervals for identical or similar assets.

The fair value of the remaining investments at June 30, 2019 was determined primarily based on Level 3 inputs. The Combined Plan estimates the fair value of these investments using the Combined Plan's own pricing estimate methodology, pricing models, discounted cash flow methodologies, or similar techniques taking into account the characteristics of the asset.

The valuation method for investments measured at net asset value (NAV) per share (or its equivalent) is presented in the following table.

Note 4 - Fair Value Measurements (Continued)

Investments in Entities that Calculate Net Asset Value per Share

The Combined Plan holds shares or interests in investment companies whereby the fair value of the investments is measured on a recurring basis using net asset value per share (or its equivalent) of the investment companies as a practical expedient.

As of June 30, 2019, the fair value, unfunded commitments, and redemption rules of those investments are as follows:

	Fair Value	Unfunded Commitments	Redemption Frequency, if Eligible	Redemption Notice Period
International equity funds	$ 320,774,019	$ -	Monthly	Up to 30 days
Fixed-income funds	155,234,073	-	Daily	10 business days
Hedge funds	171,085,933	-	Quarterly	100 days
Real estate funds	222,618,020	635,461	Quarterly	90 days
Private equity funds	102,518,648	42,530,780	N/A	N/A
Total investments measured at NAV	$ 972,230,693	$ 43,166,241		

Multiple funds are held in each category. For reporting purposes, the redemption frequency and redemption notice period provided are the most restrictive of any of the funds in the category.

The international equity funds class includes investments in funds that invest predominantly in equity securities of non-U.S. companies. The funds invest in developed and emerging market countries and utilize investments across the capitalization spectrum from large to small companies. The fair values of the investments in this class have been estimated using net asset value per share of the investments.

The fixed-income funds class includes investments in funds that invest predominantly in fixed-income instruments in the U.S. and developed and emerging market countries. The funds invest across a diverse group of security types, including government, corporate, and mortgage-backed debt, and across the credit quality spectrum of investment grade and high yield. The fair values of the investments in this class have been estimated using net asset value per share of the investments.

The hedge funds class includes investments in funds that achieve capital appreciation through multimanager and/or multistrategy investments. Within this group of funds, there is exposure to investment strategies, including, but not limited to, credit, event-driven, equity, and relative value. The funds have the ability to invest across all markets and across all asset classes to implement their various strategies. The fair values of the investments in this class have been estimated using net asset value per share of the investments. Approximately 1 percent of the value of the investments in the hedge fund class above is in the process of being liquidated by the fund manager. Distributions from each fund will be received as the underlying investments of the fund are liquidated. It is estimated that the underlying investments of the fund will be liquidated over the next 12 to 18 months.

The real estate funds class includes investments in funds whose objective is to operate a core portfolio of real estate investments predominantly located in the U.S. The funds acquire ownership in underlying investments either through direct real estate ownership or ownership in real estate companies or the equity of real estate investment trusts. The funds predominantly target purchases in office, industrial, retail, or multifamily real estate classes. The fair values of the investments in this class have been estimated using net asset value per share of the investments (or its equivalent).

Note 4 - Fair Value Measurements (Continued)

The private equity funds class is an alternative investment class and consists of investments in companies that are not listed on a public exchange. The General Retirement System of the City of Detroit maintains a diversified portfolio of private equity investments by both style (buyout, turnaround, venture capital, etc.) and vintage year exposure. With its private equity allocation, the General Retirement System of the City of Detroit seeks to take advantage of the illiquidity premium associated with these private equity investments. The fair values of the investments in this class have been estimated using net asset value per share of the investments (or its equivalent).

Note 5 - Pension Plan Investments - Policy and Rate of Return

Component II (Legacy Plan) and Component I (Hybrid Plan)

Investment Policy

The assets of Component II and I are commingled and invested together, as allowed by the POA. The Combined Plan'policy in regard to the allocation of invested assets is established and may be amended by governance by a majority vote of its members. It is the policy of the governance to pursue an investment strategy that manages risk through the prudent diversification of the portfolio across a broad selection of distinct asset classes. The Combined Plan's investment policy discourages the use of cash equivalents, except for liquidity purposes, and aims to refrain from dramatically shifting asset class allocations over short time spans. The following was the governance's adopted asset allocation policy as of June 30, 2019:

Asset Class	Target Allocation
Global equity	43.00 %
Global fixed income	20.00
Real estate/real assets	15.00
Private equity	8.00
Hedge funds	5.00
Diversifying strategies	8.00
Cash	1.00
Total	100.00 %

Rate of Return

For the year ended June 30, 2019, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 3.28 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Note 6 - Pension Plan Reserves

Component II (Legacy Plan)

In accordance with Combined Plan for the General Retirement System of the City of Detroit and state law, the following reserves are required to be set aside within the Component II (Legacy) pension plan:

The annuity reserve fund is an accumulation of transfers that is made from the annuity savings fund when an employee retires, becomes disabled, or if a surviving spouse elects an annuity rather than a lump-sum payout of accumulated employee contributions.

The pension reserve fund represents funded pension benefits available for retired members and is funded by actuarially determined transfers from the pension accumulation fund. The transfers from the pension accumulation fund to the pension reserve fund for fiscal year 2019 retirements have not yet been determined.

Note 6 - Pension Plan Reserves (Continued)

The employee reserve (annuity savings fund or ASF) is credited as employee contributions are received throughout the year; ASF maintains a record of the amount contributed by each employee and credits interest annually at a rate approved by the board. During fiscal year 2019, the board approved the interest rate at 5.25 percent. Eligible active members may elect to withdraw their accumulated (annuity) contributions plus investment earnings. Upon retirement, a member can elect to annuitize or receive a lump sum of their accumulated contribution and interest earnings. When an employee retires, becomes disabled, or if a surviving spouse elects an annuity rather than a lump-sum payout of accumulated employee contributions, the balance is transferred to the annuity reserve fund. See Note 10 for disclosure of significant changes to the ASF going forward.

The pension accumulation fund is the fund that will accumulate reserves for the pensions and other benefits payable from the contributions made by the City, including various departments thereof, and certain third parties pursuant to the POA and from which pensions and other benefits will be paid on account of members with prior service credit and transfers, as provided in Section E-18. Contributions to the pension accumulation fund from the effective date of the POA through fiscal year 2023 shall be made only in the amounts and from the sources identified in the POA.

The expense fund is the fund that will be credited with all money provided by the City to pay the administrative expenses of the Combined Plan and from which all the expenses necessary in connection with the administration and operation of the Combined Plan will be paid. At year end, this reserve balance is zero, as all employer contributions were credited to the pension accumulation fund.

The income fund shall be the fund to which all interest, dividends, and other income derived from the investments of Component II of the Combined Plan will be credited. Transfers from the income fund will be made to credit earnings and losses to various reserves of the Combined Plan in accordance with the provisions of Component II of the combined plan document. Amounts credited to the income fund in excess of amounts needed to credit earnings and losses of the Combined Plan, as provided in Component II, for any plan year shall be transferred to the pension accumulation fund and used to pay retirement allowances and other benefits on account of members. During fiscal year 2019, the income fund reserve was not utilized, and all investment income was credited to the pension accumulation fund.

The balances of the reserve accounts for Component II (excluding the Income Stabilization Fund) as of June 30, 2019 are included in the table below. The reserve balances as of June 30, 2019 shown below do not include the current year transfer amount related to fiscal year 2019 retirements for amounts that are transferred from the pension accumulation fund to the pension reserve fund.

The balances of the reserve accounts at June 30, 2019 are as follows:

	Required Reserve	Amount Funded
Annuity savings fund	$ 120,248,768	$ 120,248,768
Pension reserve fund	1,912,821,780	1,689,006,631
Annuity reserve fund	-	(10,348,572)
Pension accumulation fund	N/A	-

Component I (Hybrid Plan)

In accordance with the Combined Plan for the General Retirement System of the City of Detroit and state law, the following reserves are required to be set aside within the Component I (Hybrid) pension plan:

The accumulated mandatory employee contribution fund shall be the fund in which shall be accumulated the contributions of members to provide their retirement allowances. Upon the retirement, termination, or death of a member with a vested retirement allowance, the member's accumulated mandatory employee contributions shall be deemed to be part of the pension reserve that shall be used to pay the member's retirement allowance.

Note 6 - Pension Plan Reserves (Continued)

The accumulated voluntary employee contribution fund shall be the fund in which shall be accumulated the voluntary after-tax contributions of members together with earnings thereon.

The pension accumulation fund shall be the fund in which shall be accumulated reserves for the retirement allowances and other benefits payable from that portion of the employer's annual contribution that is not credited to the rate stabilization fund and amounts transferred to Component I and from which shall be paid retirement allowances and other benefits on account of members. During fiscal year 2019, all employer contributions were directed by the City into the pension accumulation fund, and no amounts were credited to the rate stabilization fund.

The rate stabilization fund shall be the fund that shall be credited with the employer's annual contributions in excess of the amount of the employer's contribution that is credited to the pension accumulation fund and amounts transferred to Component I, as provided in Section E-16(C) of Component II. See Note 9 for details on the transfer provisions related to transfers between Component II and Component I. During fiscal year 2019, no amounts were credited to the rate stabilization fund. Therefore, this reserve balance is zero.

The medical benefit fund shall be the fund that will be credited with contributions made for the purpose of funding medical benefits. During the year, no such contributions were made, and, therefore, this reserve balance is zero.

The expense fund shall be the fund to which will be credited any money provided by the employers to pay the administrative expenses of the Combined Plan and from which certain expenses incurred in connection with the administration and operation of the Combined Plan will be paid. At year end, this reserve balance is zero, as all employer contributions were credited to the pension accumulation fund.

The income fund shall be the fund to which all interest, dividends, and other income derived from the investments of Component I of the Combined Plan will be credited. Transfers from the income fund will be made to credit earnings and losses to various reserves of the Combined Plan in accordance with the provisions of Component I of the combined plan document. Amounts credited to the income fund in excess of amounts needed to credit earnings and losses of the Combined Plan, as provided in Component I, for any plan year shall be transferred to the pension accumulation fund. During fiscal year 2019, investment income was transferred to other reserve funds, and, therefore, this reserve balance at June 30, 2019 remains unfunded.

The balances of the reserve accounts for Component I as of June 30, 2019 are included in the table below. As of June 30, 2019, not all transfers from the accumulated mandatory employee contribution fund to the pension accumulation fund for retirements have occurred.

The balances of the above reserves for Component I that were funded as of June 30, 2019 are as follows:

	Required Reserve	Amount Funded
Accumulated mandatory employee contribution fund	$ 36,689,212	$ 36,689,212
Accumulated voluntary employee contribution fund	24,083,200	24,083,200
Pension accumulation fund	-	69,491,500

Note 7 - Net Pension Liability for Component II (Legacy Plan)

The net pension liability has been measured as of June 30, 2019 and is composed of the following:

Total pension liability	$ 2,733,602,681
Plan fiduciary net position	1,798,906,827
City's pension liability	$ 934,695,854
Plan fiduciary net position as a percentage of the total pension liability	65.81 %

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of June 30, 2018, which used updated procedures to roll forward the estimated liability to June 30, 2019. The valuation used the following actuarial assumptions applied to all periods included in the measurement:

Inflation	N/A	
Salary increases	N/A	No inflation assumption or salary increases due to plan freeze as of June 30, 2014
Investment rate of return	7.38%	Net of pension plan investment expense, including inflation

Note that the long-term assumed rate of return used for the purpose of the GASB Statement No. 67 valuations were determined in accordance with generally accepted accounting principles. This should not be confused with the provisions in the Plan of Adjustment, which established a 6.75 percent assumed rate of return for the purpose of the various provisions within the plan; the Plan of Adjustment did not attempt to dictate the long-term rate of return to be used for accounting purposes.

Based on an experience study from 2008-2013 issued in February 2015, the mortality table assumption was based on the RP-2014 Blue Collar Annuitant Table for males and females. The tables are projected to be fully generational based on the two-dimensional sex-distinct mortality scale MP-2014.

The actuarial assumptions, other than mortality and the investment rate of return, used in the June 30, 2018 valuation to calculate the total pension liability as of June 30, 2019 were based on the results of an actuarial experience study for the period from 2002-2007.

Attribution period: As addressed more fully in Note 10, as of June 30, 2014, the plan was frozen such that no new benefit accruals were allowed, and no new members could join. Starting on July 1, 2014, the participants in this legacy plan (Component II) will now be earning benefits under a newly created defined benefit plan (Component I). GASB Statement No. 67 requires that the service costs of all pensions be attributed through all assumed exit ages through retirement. Neither GASB Statement No. 67 nor any other GASB standard has set forth guidance specifically related to frozen plans with successor plans in place. Absent any guidance to the contrary, due to the status as a frozen plan combined with the fact that individuals are now earning service in a new defined benefit pension plan, the retirement date for the purpose of attribution was assumed to be June 30, 2014 for all members. Therefore, the total pension liability at June 30, 2019 is equal to the present value of projected benefit payments.

Discount Rate

The discount rate used to measure the total pension liability as of June 30, 2019 was 7.38 percent, which was also the single discount rate used at the beginning of the year. The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the current contribution rate and that city contributions will be made at rates equal to the difference between actuarially determined contribution rates and the employee rate.

Note 7 - Net Pension Liability for Component II (Legacy Plan) (Continued)

Projected Cash Flows

Based on the above assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current active and inactive employees at both the beginning of the year and the end of the year. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability. The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the current contribution rate. Contributions to the Combined Plan are projected to be at the minimum amounts required by the Plan of Adjustment through 2023, followed by actuarially determined contributions beginning in 2024. While no funding policy has been adopted by the City of Detroit, Michigan, the projection of cash flows assumes full funding of contributions such that the plan's net position will be sufficient to make all benefit payments. The Combined Plan believes that the funding practice adopted by the City will be consistent with the underlying objective used in the projection to develop the single discount rate.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of geometric real rates of return as of June 30, 2019 for each major asset class included in the pension plan's target asset allocation, as disclosed in the investment footnote, are summarized in the following table:

Asset Class	Long-term Expected Real Rate of Return
Global equity	5.26 %
Global fixed income	3.73
Real assets	4.56
Private equity	7.97
Hedge funds	4.26
Diversifying strategies	3.03
Cash	0.39

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability, calculated using the discount rate of 7.38 percent, as well as what the net pension liability would be if it were calculated using a discount rate that is 1 percentage point lower (6.38 percent) or 1 percentage point higher (8.38 percent) than the current rate:

	1 Percent Decrease (6.38%)	Current Discount Rate (7.38%)	1 Percent Increase (8.38%)
Net pension liability	$ 1,170,300,202	$ 934,695,854	$ 732,845,325

Note 8 - Net Pension Liability of the City for Component I (Hybrid Plan)

The net pension liability of the City has been measured as of June 30, 2019 based on benefits in force as of that date and is composed of the following:

Total pension liability	$ 134,403,855
Plan fiduciary net position	130,263,912
City's net pension liability	$ 4,139,943
Plan fiduciary net position as a percentage of the total pension liability	96.92 %

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of June 30, 2018, which used updated procedures to roll forward the estimated liability to June 30, 2019. The following are the significant assumptions:

Wage inflation assumption was 2 percent for five years, 2.5 percent for the next five years, and 3 percent thereafter.

The investment rate of return (net of pension plan investment expense, including inflation) applied to the beginning of year total pension liability was 7.38 percent, which was also the assumed long-term rate of return as of the end of year. The rates were determined in accordance with generally accepted accounting principles. This should not be confused with the provisions in the Plan of Adjustment, which established a 6.75 percent assumed rate of return for the purpose of the various provisions within the plan; the Plan of Adjustment did not attempt to dictate the long-term rate of return to be used for accounting purposes.

Based on an experience study from 2008-2013 issued in February 2015, the mortality table assumption was based on the RP-2014 Blue Collar Annuitant Table for males and females. The tables are projected to be fully generational based on the two-dimensional sex-distinct mortality scale MP-2014.

Cost of living adjustments (COLA): This plan has a postretirement COLA feature known as the Variable Pension Improvement Factor (VPIF) of a 2 percent simple COLA. It can be granted beginning on July 1, 2018 only if the five-year projection shows the plan's funded status at 100 percent based upon 6.75 percent future investment return. For the purpose of the total pension liability, the actuary assumed a 0.50 percent simple COLA beginning on July 1, 2019 to model the potential average COLA over time. Had no COLA been assumed, the net pension asset would have been $(198,532). Had the full 2 percent COLA been assumed, the net pension liability would have been $17,209,500.

There were no changes in benefit provisions during the year affecting the total pension liability.

Other than mortality and the investment rate of return, the actuarial assumptions used in the June 30, 2018 valuation to calculate the total pension liability as of June 30, 2019 were based on the results of an actuarial experience study for the period from 2002-2007 modified as necessary to account for the difference in eligibility of this new plan.

Discount Rate

The discount rate used to measure the total pension liability as of June 30, 2019 was 7.38 percent, which was also the single discount rate used at the beginning of the year. The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the current contribution rate and that city contributions will be made at rates equal to the difference between actuarially determined contribution rates and the employee rate.

Note 8 - Net Pension Liability of the City for Component I (Hybrid Plan) (Continued)

Projected Cash Flows

Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current active and inactive employees at both the beginning of the year and the end of the year. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability. The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the current contribution rate. Contributions to the Combined Plan are projected to be at the minimum amounts required by the Plan of Adjustment through 2023, followed by actuarially determined contributions beginning in 2024. While no funding policy has been adopted by the City of Detroit, Michigan, the projection of cash flows assumes full funding of contributions such that the plan's net position will be sufficient to make all benefit payments. The Combined Plan believes that the funding practice adopted by the City will be consistent with the underlying objective used in the projection to develop the single discount rate.

The long-term expected rate of return on future pension plan investments is the same as Component II given that the assets are commingled (see Note 7).

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the City, calculated using the discount rate of 7.38 percent, as well as what the City's net pension liability would be if it were calculated using a discount rate that is 1 percentage point lower (6.38 percent) or 1 percentage point higher (8.38 percent) than the current rate:

	1 Percent Decrease (6.38%)	Current Discount Rate (7.38%)	1 Percent Increase (8.38%)
Net pension liability (asset) of the City	$ 22,662,194	$ 4,139,943	$ (10,876,114)

Note 9 - Commitments

When the Combined Plan enters into various investments, it may not completely fund the entire investment at the beginning. Rather, it enters into commitments to fund remaining capital amounts at certain points in time. At June 30, 2019, the remaining capital funding commitment for the Combined Plan is approximately $43 million.

In addition, the Combined Plan document setting forth the Legacy Plan (Component II) contains a provision for the transfer of certain excess investment returns to the new Hybrid Plan (Component I). In any plan year during the period beginning on or after July 1, 2014 and ending on June 30, 2023, if the annual rate of return credited to member annuity savings fund accounts is less than the actual rate of return net of expenses of the Plan's invested assets for the second plan year preceding the plan year in which the annual rate of return is credited, the excess earned shall be transferred to the pension accumulation fund maintained under Component I of the Combined Plan and will be used to fund transition costs related to Component I. The transition cost is a measure of the liability that Component I of the Combined Plan has at its inception due to the fact that members in Component I receive vesting and eligibility credit under Component I for service that was earned prior to July 1, 2014 and is otherwise credited to members under Component II. Such transition costs have been calculated by the plan's actuary. Yearly transfers to fund these costs are required in the second year following the year in which the return is earned based on a two-year "lookback"; therefore, for example, any transfers based on the plan year ended June 30, 2017 will be calculated and transferred during the plan year ended June 30, 2019.

Note 9 - Commitments (Continued)

Based on these provisions, for the plan year ended June 30, 2019, $9,015,677 was transferred from Component II to Component I toward the transition costs. No transfers were made in previous years based on the provisions.

Note 10 - City of Detroit's Chapter 9 Bankruptcy Plan of Adjustment and Continuing Impact on the Plan

In March 2013, after enduring years of financial difficulty, the City of Detroit, Michigan filed for bankruptcy protection. The Eighth Amended Plan for Adjustment of Debts of the City of Detroit (the "Plan of Adjustment") was filed with the Bankruptcy Court on October 22, 2014. In November 2014, after a confirmation hearing lasting several weeks, the Bankruptcy Court confirmed the Plan of Adjustment (the "POA"), which became effective December 10, 2014.

Legacy Plan (Component II)

The pension settlement, as part of the Plan of Adjustment, compromised pension claims and provided funding support for legacy pension benefit obligations under the General Retirement System of the City of Detroit (DGRS or the "System") Component II from the State of Michigan, the Detroit Institute of Arts, and certain foundation donors. The Plan of Adjustment also required certain governance changes for DGRS. Those governance changes included establishment of the Investment Committee effective December 10, 2014, which officially marked the beginning of implementation of the Plan of Adjustment, although DGRS had for months already undertaken contingency planning for all of the pension adjustments. In addition to governance changes, the POA requires of the System, through its board of trustees and Investment Committee, certain periodic and interim reporting obligations to the City, the Foundation for Detroit's Future, and the State of Michigan. Although there were some delays in meeting certain obligations because of new actuarial reporting requirements for governmental systems, which in turn impacted the preparation of the System's audited financial statements, the System believes it has ultimately met its special reporting obligations in fiscal year 2016 and continued to do so in fiscal years 2017, 2018, and 2019.

For DGRS, with respect to Component II benefit adjustments, the pension settlement (for which benefit levels were and are contingent on other factors, including receipt of outside contributions) provided for the following:

- A loss of cost of living adjustments (COLAs), or escalators, paid after July 1, 2014
- A 4.5 percent cut to the remaining accrued pension benefit after the COLA loss
- For DGRS members who participated in the annuity savings fund plan between 2003 and 2013, subject to certain caps, recoupment of certain amounts of interest deemed by the City to be in excess of that which should have been credited to individual ASF accounts, referred to as "ASF Recoupment." ASF Recoupment, like other provisions of the pension settlement, was not optional. Most members will pay their ASF Recoupment by a monthly deduction from their future pension benefits for a set term of months, including interest calculated at 6.75 percent. All members were offered a lump-sum cash option, which was limited in the aggregate to $30 million in member recoupment. In fiscal year 2016, the Bankruptcy Court approved certain additional members whose application submissions were not timely received to participate in the lump-sum cash option.
- The possibility of restoration of certain pension benefit cuts, based on a program for the most financially vulnerable pensioners and beneficiaries through the State of Michigan Treasury Department, as well as a new feature of Component II allowing restoration depending on the System's funding level over time

Note 10 - City of Detroit's Chapter 9 Bankruptcy Plan of Adjustment and Continuing Impact on the Plan (Continued)

- An Income Stabilization Program (the "ISF Program") was established as part of the State Contribution Agreement, another facet of the pension settlement. The ISF Program, supported by city funds arising from an unlimited tax general obligation bonds settlement, is intended to ensure that the most financially vulnerable retirees and beneficiaries do not fall below the poverty line as a result of bankruptcy-related pension changes. Beginning on March 1, 2015, certain DGRS members also received benefit pension cut restoration under the ISF Program administered by DGRS, pursuant to the State Contribution Agreement, based on eligibility and benefit payments calculated by the State of Michigan. Following the close of the fiscal year ended June 30, 2016 and pursuant to Component II of the Combined Plan and the State Contribution Agreement, the System implemented the first annual ISF Program benefit adjustments effective July 1, 2016.

- The POA also discusses a restoration plan. Terms of the pension restoration are contained in Exhibit II.B.3.r.ii.C of the POA, and the terms govern how accrued pensions, including COLA benefits that were reduced as a part of the POA, may be restored over the 30-year period following the confirmation order. The Investment Committee will supervise the restoration process in accordance with the restoration plan. The restoration plan shall be deemed a part of Component II. The funding levels have not been attained as of June 30, 2019 for the restoration process to initiate.

Going forward, the obligations for contributions to support Component II of the System through 2023 are determined as fixed amounts by the provisions in the Plan of Adjustment. Pursuant to the Plan of Adjustment, the System is expected to receive contributions totaling $718.6 million through fiscal year 2023. The Plan of Adjustment calls for the System to receive $98.8 million from the State of Michigan; $428.5 million from DWSD; $31.7 million from UTGO settlement proceeds; the actual or present value equivalent of $50 million from the DIA and its foundation donors; and $114.6 million from the other city-related employer contribution sources, such as the General Fund, Detroit Library Commission, and COBO Authority, over a 10-year period covering fiscal year 2014 through fiscal year 2023. Between 2025 and 2034, DGRS will receive $18.3 million per year from certain foundation donors. After 2023, the City, and various other employer constituents, such as the Library, DWSD, and COBO Authority, will retain responsibility for the full funding obligations of Component I of the System, consistent with Michigan law.

In fiscal year 2017, DGRS received from the City, its employer-related contribution sources, and the DIA and its foundation donors all contributions required by the Plan of Adjustment. The City was to remit payments on the UTGO Stub Bonds to the Combined Plan through 2028. In fiscal year 2017, the City of Detroit, Michigan refunded all of its outstanding UTGO Stub Bonds. Upon refunding, the payments to the Combined Plan were accelerated, with a majority of the outstanding balance paid to the Combined Plan in fiscal year 2017; as a result, the Combined Plan received approximately $9.4 million in the ISF and $18.3 million in the Component II Defined Benefit Fund related to this transaction.

DGRS continues to implement the POA, which includes ongoing compliance and additional reporting requirements by the board and the Investment Committee, annual review of benefit levels, and essentially provides for a 40-year plan to close the DGRS Legacy Component II underfunded liability. ASF Recoupment, in particular, is a notable facet of the Plan of Adjustment that will continue to be implemented as members apply for Component II pension benefits over time.

Note 11 - City of Detroit Commitment to Future Funding

In anticipation of significant actuarially required contributions commencing in fiscal year 2024, the City, independent of the Combined Plan, has established a Retiree Protection Trust Fund (the "Trust"). The Trust, a permanent irrevocable trust under Sections 115 and 414(d) of the Internal Revenue Code, is to receive, maintain, and invest city funds restricted for future deposits to the General Retirement System Plan and the Police and Fire Retirement System Plan as part of an effort to manage and stabilize future required city contributions to the plans. The City has set aside $130 million for this Trust as of June 30, 2019 for future contributions to the General Retirement System Plan and the Police and Fire Retirement System Plan. Contributions to the Combined Plan will be recognized as the City makes distributions from this independent trust to the Combined Plan.

Required Supplemental Information

Combined Plan for the General Retirement System of the City of Detroit

Required Supplemental Information
Schedule of Changes in the Net Pension Liability and Related Ratios (Legacy Plan)

Last Six Fiscal Years

	2019	2018	2017	2016	2015	2014
Total Pension Liability						
Service cost	$ -	$ -	$ -	$ -	$ -	$ 32,736,019
Interest	195,489,643	192,359,745	201,919,236	214,011,164	263,007,329	242,611,073
Changes in benefit terms	-	-	-	-	(731,824,895)	(113,311,571)
Differences between expected and actual experience	13,596,902	34,154,327	(27,508,380)	(43,719,112)	24,644,530	-
Changes in assumptions	-	(110,274,515)	76,925,957	90,034,927	(101,559,893)	(271,190,194)
Benefit payments, including refunds	(248,790,017)	(253,442,630)	(267,249,539)	(292,282,179)	(297,538,990)	(397,733,807)
Net Change in Total Pension Liability	(39,703,472)	(137,203,073)	(15,912,726)	(31,955,200)	(843,271,919)	(506,888,480)
Total Pension Liability - Beginning of year	2,773,306,153	2,910,509,226	2,926,421,952	2,958,377,152	3,801,649,071	4,308,537,551
Total Pension Liability - End of year	**$ 2,733,602,681**	**$ 2,773,306,153**	**$ 2,910,509,226**	**$ 2,926,421,952**	**$ 2,958,377,152**	**$ 3,801,649,071**
Plan Fiduciary Net Position						
Contributions - Employer, state, and foundation	$ 68,275,000	$ 68,275,000	$ 91,238,402	$ 104,792,657	$ 189,282,094	$ 25,126,131
Contributions - Employee	-	-	-	-	609,073	10,241,761
Net investment income (loss)	47,170,004	155,423,193	206,896,568	(12,450,547)	93,054,981	289,789,607
Administrative expenses	(3,023,939)	(3,313,418)	(6,021,837)	(3,742,618)	(4,617,194)	(11,237,767)
Benefit payments, including refunds	(248,790,017)	(253,442,630)	(267,249,539)	(292,282,179)	(297,538,991)	(397,733,807)
Other (includes ASF recoupment)	(5,347,863)	6,952,522	8,324,074	5,945,783	135,280,369	-
Net Change in Plan Fiduciary Net Position	(141,716,815)	(26,105,333)	33,187,668	(197,736,904)	116,070,332	(83,814,075)
Plan Fiduciary Net Position - Beginning of year	1,940,623,642	1,966,728,975	1,933,541,307	2,131,278,211	2,015,207,879	2,099,021,954
Plan Fiduciary Net Position - End of year	**$ 1,798,906,827**	**$ 1,940,623,642**	**$ 1,966,728,975**	**$ 1,933,541,307**	**$ 2,131,278,211**	**$ 2,015,207,879**
Net Pension Liability - Ending	**$ 934,695,854**	**$ 832,682,511**	**$ 943,780,251**	**$ 992,880,645**	**$ 827,098,941**	**$ 1,786,441,192**
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	65.81 %	69.98 %	67.57 %	66.07 %	72.04 %	53.01 %
Covered Payroll	$ 141,646,750	$ 149,373,313	$ 141,454,717	$ 185,147,364	$ 188,210,536	$ 238,669,871
Net Pension Liability as a Percentage of Covered Payroll	659.88 %	557.45 %	667.20 %	536.27 %	439.45 %	748.50 %

GASB Statement No. 67 was implemented on June 30, 2014 and does not require retroactive implementation. Data will be added as information is available until 10 years of such information is available.

See notes to required supplemental information schedules.

Combined Plan for the General Retirement System of the City of Detroit

Required Supplemental Information
Schedule of Investment Returns (Legacy and Hybrid Plans)

Last Six Fiscal Years

Years Ended June 30

	2019	2018	2017	2016	2015	2014*
Annual money-weighted rate of return - Net of investment expense	3.28 %	6.70 %	12.60 %	1.10 %	2.40 %	16.30 %

*GASB Statement No. 67 was implemented on June 30, 2014 and does not require retroactive implementation. Data will be added as information is available until 10 years of such information is available.

Fiscal years 2014 and 2015 do not include information related to the Hybrid Plan. The Hybrid Plan was effective July 1, 2014 and for the first year (fiscal year 2015) did not invest in anything other than cash and cash equivalents.

See notes to required supplemental information schedules.

Combined Plan for the General Retirement System of the City of Detroit

Required Supplemental Information
Schedule of Pension Contributions (Legacy Plan)

Last Ten Fiscal Years
Years Ended June 30

	2019*	2018*	2017*	2016*	2015*	2014	2013	2012	2011	2010
Actuarially determined contribution	$ -	$ -	$ -	$ -	$ -	$ 72,643,307	$ 62,297,432	$ 64,065,214	$ 55,138,011	$ 37,338,960
Contributions in relation to the actuarially determined contribution	-	-	-	-	-	25,126,131	26,515,782	64,065,214	55,138,011	37,338,960
Contribution Deficiency	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ (47,517,176)**	**$ (35,781,650)**	**$ -**	**$ -**	**$ -**
Covered Payroll	$ -	$ -	$ -	$ -	$ -	$ 238,669,871	$ 213,291,089	$ 257,992,240	$ 303,379,482	$ 334,343,506
Contributions as a Percentage of Covered Payroll	- %	- %	- %	- %	- %	10.53 %	12.43 %	24.83 %	18.17 %	11.17 %

*The contributions starting with fiscal year 2015 were determined by the provisions of the POA; the contributions were not actuarially determined and, therefore, not subject to disclosure in accordance with GASB Statement No. 67 within this schedule.

Notes to Schedule of Pension Contributions (Legacy Plan)

Actuarial valuation information relative to the determination of contributions:

N/A - Starting in fiscal year 2015, contributions are not actuarially determined.

See notes to required supplemental information schedules.

Combined Plan for the General Retirement System of the City of Detroit

Required Supplemental Information
Schedule of Changes in the City's Net Pension Liability and Related Ratios (Hybrid Plan)

Last Five Fiscal Years

	2019	2018	2017	2016	2015
Total Pension Liability					
Service cost	$ 20,171,596	$ 17,056,732	$ 18,417,036	$ 18,302,706	$ 19,318,576
Interest	7,531,400	5,438,061	4,084,390	2,495,896	695,469
Differences between expected and actual experience	7,556,858	4,546,865	(4,667,487)	(1,263,760)	(1,202,108)
Changes in assumptions	-	(5,758,189)	2,780,462	2,111,451	-
Voluntary employee contributions	5,804,274	5,302,650	5,043,347	5,213,744	5,775,885
Benefit payments, including refunds	(3,539,384)	(2,390,592)	(2,134,809)	(2,287,214)	-
Net Change in Total Pension Liability	37,524,744	24,195,527	23,522,939	24,572,823	24,587,822
Total Pension Liability - Beginning of year	96,879,111	72,683,584	49,160,645	24,587,822	-
Total Pension Liability - End of year	**$ 134,403,855**	**$ 96,879,111**	**$ 72,683,584**	**$ 49,160,645**	**$ 24,587,822**
Plan Fiduciary Net Position					
Contributions - Employer	$ 12,205,699	$ 14,673,644	$ 9,484,992	$ 9,048,831	$ 8,811,369
Mandatory employee contributions	9,765,911	8,837,967	7,752,058	7,345,515	6,970,544
Net investment income (loss)	3,270,862	8,445,590	9,109,732	(76,608)	20,690
Administrative expenses	(1,942,064)	(2,171,693)	(2,648,385)	(3,094,197)	(1,481,590)
Voluntary employee contributions	5,804,274	5,302,650	5,043,347	5,213,744	5,786,488
Benefit payments, including refunds of mandatory contributions	(1,920,550)	(1,308,550)	(1,021,847)	(1,031,060)	(10,603)
Refunds based on voluntary contributions	(1,618,834)	(1,082,042)	(1,112,962)	(1,256,154)	-
Other	9,066,288	12,436	61,834	6,586	-
Net Change in Plan Fiduciary Net Position	34,631,586	32,710,002	26,668,769	16,156,657	20,096,898
Plan Fiduciary Net Position - Beginning of year	95,632,326	62,922,324	36,253,555	20,096,898	-
Plan Fiduciary Net Position - End of year	**$ 130,263,912**	**$ 95,632,326**	**$ 62,922,324**	**$ 36,253,555**	**$ 20,096,898**
City's Net Pension Liability - Ending	**$ 4,139,943**	**$ 1,246,785**	**$ 9,761,260**	**$ 12,907,090**	**$ 4,490,924**
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	96.92 %	98.71 %	86.57 %	73.75 %	81.74 %
Covered Payroll	$ 224,726,503	$ 246,173,916	$ 199,307,987	$ 185,147,364	$ 180,069,852
City's Net Pension Liability as a Percentage of Covered Payroll	1.84 %	0.51 %	4.90 %	6.97 %	2.49 %

See notes to required supplemental information schedules.

June 30, 2019

Benefit Changes

Legacy Plan

In 2014, the pension plan was frozen. No new employees are allowed to participate in the plan. All benefits for actives were frozen as of June 30, 2014 based on service and average final compensation accrued as of that date.

In 2015, benefits were reduced by 4.5 percent, and the cost of living adjustments were eliminated.

Changes in Assumptions

Legacy Plan

In 2014, amounts reported as changes of assumptions resulted from adjustment of the discount rate from 5.88 percent to 7.2 percent and updating the mortality tables from RP-2000 Combined Table to RP-2014 Blue Collar Mortality Table, and adjustments for longevity and unused sick leave were eliminated.

Legacy and Hybrid Plan

In 2015, amounts reported as changes of assumptions resulted from adjustment of the discount rate from 7.2 percent to 7.61 percent.

In 2016, amounts reported as changes of assumptions resulted from adjustment of the discount rate from 7.61 percent to 7.23 percent.

In 2017, amounts reported as changes of assumptions resulted from adjustment of the discount rate from 7.23 percent to 6.91 percent.

In 2018, amounts reported as changes of assumptions resulted from adjustment of the discount rate from 6.91 percent to 7.38 percent.

Other Supplemental Information

Combined Plan for the General Retirement System of the City of Detroit

Statement of Changes in Fiduciary Net Position by Division - Legacy Defined Benefit Plan

For the Year Ended June 30, 2019

	DWSD Subdivisions		General Retirement System - Divisions				
	GLWA	DWSD-R	DWSD - Division Total (all DWSD Subdivisions)	General Division	DOT	Library	Total - General Retirement System (all Divisions)
Beginning Net Position - July 1, 2018	$ 388,568,003	$ 164,160,312	$ 552,728,315	$ 1,094,225,824	$ 209,280,239	$ 84,389,264	$ 1,940,623,642
Additions:							
Investment income:							
Interest and dividends	6,642,004	2,806,081	9,448,085	19,307,301	4,420,066	1,619,795	34,795,247
Net increase in fair value of investments	4,441,159	1,876,279	6,317,438	12,217,909	2,096,851	699,554	21,531,752
Net unrealized gain on collateralized securities	2,745	1,160	3,905	7,550	1,296	556	13,307
Investment related expenses	(1,891,475)	(799,101)	(2,690,576)	(5,203,567)	(893,042)	(383,117)	(9,170,302)
Net investment income	9,194,433	3,884,419	13,078,852	26,329,193	5,625,171	2,136,788	47,170,004
Contributions:							
Employer contributions:							
Originating from DWSD:							
Regular pension contribution	30,158,700	12,741,300	42,900,000	-	-	-	42,900,000
Contribution for administrative expenses	1,757,500	742,500	2,500,000	-	-	-	2,500,000
DWSD transfer to General Division for administrative expenses	(1,757,500)	(742,500)	(2,500,000)	2,500,000	-	-	-
Total contributions originating from DWSD	30,158,700	12,741,300	42,900,000	2,500,000	-	-	45,400,000
Contributions from other divisions	-	-	-	20,000,000	-	2,500,000	22,500,000
Total employer contributions	30,158,700	12,741,300	42,900,000	22,500,000	-	2,500,000	87,900,000
Foundation for Detroit's Future	-	-	-	265,012	109,988	-	375,000
Total contributions	30,158,700	12,741,300	42,900,000	22,765,012	109,988	2,500,000	68,275,000
ASF recoupment interest	1,267,161	535,344	1,802,505	3,339,736	1,157,478	138,248	6,437,967
Other income	103,278	43,632	146,910	256,516	27,298	13,877	444,601
Total additions	40,723,572	17,204,695	57,928,267	52,690,457	6,919,935	4,788,913	122,327,572
Deductions:							
Member refunds and withdrawals	1,532,924	647,622	2,180,546	6,739,916	4,265,720	450,102	13,636,284
Retirees' pension and annuity benefits	44,974,991	19,000,814	63,975,805	131,911,076	32,265,681	7,001,171	235,153,733
General and administrative expenses	605,479	255,800	861,279	1,705,055	326,107	131,498	3,023,939
ASF Recoupment Write-off	603,798	255,090	858,888	1,442,887	854,064	58,935	3,214,754
Transfer of general and administrative expenses to General Division	(605,479)	(255,800)	(861,279)	861,279	-	-	-
Transfer to Component I (Transition Cost)	886,110	374,359	1,260,469	4,537,435	2,585,552	652,221	9,015,677
Total deductions	47,997,823	20,277,885	68,275,708	147,197,828	40,277,124	8,293,927	264,044,387
Net Increase (Decrease) in Net Position Held in Trust	(7,274,251)	(3,073,190)	(10,347,441)	(94,507,171)	(33,357,189)	(3,505,014)	(141,716,815)
End of Year Net Position Restricted for Pensions - June 30, 2019	$ 381,293,752	$ 161,087,122	$ 542,380,874	$ 999,718,653	$ 175,923,050	$ 80,884,250	$ 1,798,906,827

Combined Plan for the General Retirement System of the City of Detroit

Schedule of DWSD/GLWA Contributions Toward Administrative Expenses as Compared to Actual DWSD/GLWA Allocable Administrative Expenses

For the Year Ended June 30, 2019

	DWSD Division Total	
	GLWA	DWSD-R
Amount Paid in Excess of Administrative Expenses Otherwise Allocable - June 30, 2018	$ 3,219,095	$ 1,359,991
DWSD/GLWA contribution for administrative expenses in accordance with plan of adjustment and bankruptcy order	1,757,500	742,500
Administrative expenses otherwise allocable to DWSD/GLWA	(605,479)	(255,800)
Cumulative Amount Paid in Excess of Administrative Expenses Otherwise Allocable - June 30, 2019	**$ 4,371,116**	**$ 1,846,691**

Allocation Between Divisions

The Combined Plan's allocation methodology to allocate fiscal year 2019 activity between the four main divisions (General Division, DOT, DWSD, and Library) is dependent upon each revenue or expense type. Below is a description of the allocation methodology used by the Combined Plan. Where applicable, the allocation methodology outlined in the pension reporting agreement was utilized.

Investment Income - Investment income (including income from securities lending activity) and investment expenses were allocated to the divisions, with the exception of the allocation between DWSD-R and GLWA, based on the net position of each division compared to total net position (excluding the Annuity Savings Fund) as of fiscal year ended June 30, 2018. The investment income and expenses allocated were after adjusting for interest credited to the Annuity Savings Fund.

Administrative Expenses - In accordance with Section 2.3 of the pension reporting agreement, DWSD-R and GLWA's collective allocable share of administrative expenses of approximately $861,000 has been allocated to the general division. Correspondingly, the expenses transferred to the general division are offset by a $2.5 million contribution made by DWSD-R and GLWA, collectively, for administrative expenses, which was credited to the general division. This will occur until 2023, at which point the City and GLWA will mutually determine and resolve whether any aggregate over- or underpayment will impact the obligation of DWSD-R and GLWA to make payments to GRS under the pension reporting agreement.

Contributions - In fiscal year 2019, the Plan received contributions from the divisions and the Foundation for Detroit's Future. The employer contributions were allocated between the divisions according to which division the contribution was received from, with the exception of DWSD-R and GLWA's collective payments of $45,400,00, which were allocated as outlined in the POA and/or the pension reporting agreement (see below). Of the total payment of $45,400,000, $2,500,000 reflects DWSD-R and GLWA's agreed-upon share of administrative expenses which, per the pension reporting agreement, is to be transferred to the credit of the general division. The payment from the Foundation was allocated based on a common understanding from the bankruptcy proceedings, which was ultimately determined by the City of Detroit and agreed to by the other divisions. The Foundation proceeds were allocated solely to the general division and DOT in proportion to their respective net pension liability as determined by the City's actuary as of June 30, 2018.

ASF Recoupment - Revenue from the ASF recoupment was allocated between the divisions, other than between DWSD-R and GLWA, according to the division under which the individual's ASF earnings were originally accumulated and paid out.

Member Refunds, Withdrawals, Retirees' Pension, and Annuity Benefits - These deductions were allocated, other than the allocation between DWSD-R and GLWA, based on the original division from which benefits were being provided and withdrawals were being made.

Transfer to Component I (Transition Cost) - The transfer amount to Component I for transition costs were allocated to the divisions, with the exception of the allocation between DWSD-R and GLWA, based on the Annuity Savings Fund balance of each division compared to total Annuity Savings Fund as of fiscal year ended June 30, 2018.

Allocation between DWSD-R and GLWA - Once the above activity was allocated to the divisions, the DWSD division was further subdivided between DWSD-R and GLWA in accordance with the pension reporting agreement, which stipulated such allocation would be dictated to the Plan by DWSD-R and GLWA. Per those instructions, the Plan allocated the DWSD activity between GLWA (70.3 percent) and DWSD-R (29.7 percent).

The General Retirement System of the City of Detroit

GASB Statement Nos. 67 and 68 Accounting and Financial Reporting for Pension Plans of Component II

June 30, 2019

GRS Retirement Consulting

800.521.0498 | P: 248.799.9000 | F: 248.799.9020 | www.grsconsulting.com

November 8, 2019

Board of Trustees
The General Retirement System of the City of Detroit

Dear Board Members:

This report provides information required for the General Retirement System of the City of Detroit in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67 "Financial Reporting for Pension Plans" and Statement No. 68 "Employer Reporting for Pension Plans." These calculations have been made on a basis that is consistent with our understanding of this Statement. This information is subject to the System's Auditor's review. Please let us know if the System's Auditor recommends any changes.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of satisfying the requirements of GASB Statement Nos. 67 and 68. The calculation of the plan's liability for this report is not applicable for funding purposes of the plan. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement Nos. 67 and 68 may produce significantly different results. In particular, this is not a funding report and nothing in this report should be construed as a funding recommendation. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

This report is based upon information, furnished to us by System staff, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. This report is based on the valuation date of June 30, 2018. The total pension liability was rolled-forward from the valuation date to the plan year ending June 30, 2019 using generally accepted actuarial principles. The asset information as of June 30, 2019 was provided by the System. This information was checked for internal consistency, but it was not audited by Gabriel, Roeder, Smith & Company. A description of the adjustments made to the data is incorporated in this report (either directly or by reference). GRS is not responsible for the accuracy of the data provided by the Retirement System. This report is based upon estimates of frozen accrued benefits. Future measurements based on final calculation of benefit amounts will differ.

At the direction of the System and approval of the System's Auditor, the long-term expected return on assets used to determine the discount rate is 7.38%, net of investment expenses, as of June 30, 2019, the same rate, net of investment expenses, as of June 30, 2018. We have reviewed this assumption based on the System's asset allocation and have determined it is reasonable for the purpose of the measurement being taken.

The benefit provisions reflected in this valuation for the development of the end of year Total Pension Liability (TPL) are those in effect for Component II as of the end of the plan year on June 30, 2019. We understand that Component I is a separate plan for GASB Nos. 67 and 68 purposes and will, therefore, be disclosed in a separate report.

To the best of our knowledge, the information contained within this report is accurate and fairly represents the actuarial position of the System on the measurement date for purposes of GASB Statement Nos. 67 and 68 reporting. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

The signing individuals are independent of the plan sponsor.

David T. Kausch and Judith A. Kermans are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,

David T. Kausch

David T. Kausch, FSA, EA, FCA, MAAA, PhD
Senior Consultant and Chief Actuary

Judith A. Kermans

Judith A. Kermans, EA, FCA, MAAA
Senior Consultant and President

Kenneth G. Alberts

Kenneth G. Alberts
Consultant

DTK/JAK/KGA:sc

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SECTION A

EXECUTIVE SUMMARY

Executive Summary
as of June 30, 2019

Actuarial Valuation Date	June 30, 2018
Measurement Date of the Net Pension Liability	June 30, 2019
Employer's Fiscal Year Ending Date (GASB No. 68 Reporting Date)	June 30, 2020
Membership	
Number of	
- Retirees and Beneficiaries	11,684
- Inactive, Nonretired Members	3,236
- Active Members	3,018
- Total	17,938
Covered Payroll	$ 149,373,313
Net Pension Liability	
Total Pension Liability	$ 2,733,602,681
Plan Fiduciary Net Position	1,798,906,827
Net Pension Liability	$ 934,695,854
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	65.81%
Net Pension Liability as a Percentage of Covered Payroll	625.74%
Development of the Single Discount Rate	
Single Discount Rate	7.38%
Long-Term Expected Rate of Investment Return	7.38%
Long-Term Municipal Bond Rate*	3.13%
Last year ending June 30 in the 2020 to 2119 projection period for which projected benefit payments are fully funded	2119
Total Pension Expense	$ 122,330,696

Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	$ -	$ -
Changes in assumptions	-	-
Net difference between projected and actual earnings on pension plan investments	103,828,623	44,828,858
Total	$ 103,828,623	$ 44,828,858

**Source: Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 28, 2019. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax-exempt securities.*

Discussion

Changes to the Actuarial Assumptions

There were no changes in actuarial assumptions. For purposes of determining the Total Pension Liability (TPL) as of June 30, 2019, we note the following differences from the assumptions used in the June 30, 2018 funding valuation:

- At the direction of the System and approval of the Systems' Auditor, the long-term expected return on assets was 7.38% net of investment expenses, as of June 30, 2019 (it was 6.75% net of investment and administrative expenses, in the June 30, 2018 funding valuation, as required by the Plan of Adjustment).
- The June 30, 2018 funding valuation included approximately $9.9 million in liabilities to account for an anticipated excess ASF earnings transfer to Component I expected to occur in the future as a result of FY 2018 investment performance. We have discussed this additional liability with the Plan's auditor who indicated that the excess earnings transfer should not be included as a liability in the GASB 67/68 reports until it actually occurs. As such, the excess earnings transfer is not included as a liability in this report. Please see the funding valuation for more details.
- Administrative expenses are assumed to be shared 60% with Component II and 40% with Component I. This was reflected in our modeling, where appropriate.

All other actuarial assumptions were the same as those used in the June 30, 2018 actuarial valuation (the funding valuation). Assumptions were the same as those used in the June 30, 2018 GASB Statement Nos. 67 and 68 valuation.

Changes to the Benefit Provisions

There were no changes in benefit provisions during the year.

Data Approximations and Assumptions

A description of the data approximations and assumptions used in completing this report are included in the June 30, 2018 funding valuation report.

Administrative Expenses

We allocated 60% of the expenses to Component II and 40% to Component I, consistent with this year's allocation as shown in the assets.

Discussion

Development of Employer Proportionate Shares

As instructed, we have developed the proportionate employer shares as follows:

- General, DOT, DWSD, and Library have contribution rates assessed on separate relationships and are therefore accounted for separately under Paragraph 49 of GASB No. 68.
- The component units in the General Division were 1) General City; 2) Parking; and 3) Airport.
- Proportionate shares in the General Division were determined by prorating based on the Total Pension Liability.

Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain information, such as notes regarding accounting policies and investments, is not included in this report and the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

Financial Statements

GASB Statement No. 68 requires state or local governments to recognize the net pension liability and the pension expense on their financial statements. The net pension liability is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to the General Retirement System of the City of Detroit subsequent to the measurement date of June 30, 2019.

The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the certain changes in the liability and investment experience.

Discussion

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position in accordance with GASB Statement No. 67. The *statement of fiduciary net position* presents the assets and liabilities of the pension plan at the end of the pension plan's reporting period. The *statement of changes in fiduciary net position* presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expenses, and net increase or decrease in the fiduciary net position.

Notes to Financial Statements

GASB Statement No. 68 requires the notes of the employer's financial statements to disclose the total pension expense, the pension plan's liabilities and assets, and deferred outflows and inflows of resources related to pensions.

GASB Statement Nos. 67 and 68 require the notes of the financial statements for the employers and pension plans to include certain additional information. The list of disclosure items should include:

- a description of benefits provided by the plan;
- the type of employees and number of members covered by the pension plan;
- a description of the plan's funding policy, which includes member and employer contribution requirements;
- the pension plan's investment policies;
- the pension plan's fiduciary net position and the net pension liability;
- the net pension liability using a discount rate that is 1% higher and 1% lower than used to calculate the total pension liability and net pension liability for financial reporting purposes;
- significant assumptions and methods used to calculate the total pension liability;
- inputs to the discount rates; and
- certain information about mortality assumptions and the dates of experience studies.

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- the composition of the pension plan's Board and the authority under which benefit terms may be amended;
- a description of how fair value is determined;
- information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables, and insurance contracts excluded from plan assets; and
- annual money-weighted rate of return.

Discussion

Required Supplementary Information

GASB Statement No. 67 requires a 10-year fiscal history of:

- sources of changes in the net pension liability;
- information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered-employee payroll; and
- a comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. The net pension liability and pension expense should be measured as of the pension plan's fiscal year end (measurement date) on a date that is within the employer's prior fiscal year. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2018, rolled to the plan year end of June 30, 2019.

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.38%; the municipal bond rate is 3.13% (based on the daily rate closest to but not later than the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting Single Discount Rate is 7.38%.

The expected rate of return was provided by the Retirement System and approved by the System's auditor.

Discussion

Limitation of Assets as a Percent of Total Pension Liability Measurements

This report includes a measure of the plan fiduciary net position as a percent of total pension liability (65.81% as of June 30, 2019). Unless otherwise indicated, with regard to any such measurements presented in this report:

(1) This measurement is not intended to be a funded ratio or a measure of funded progress.
(2) This measurement is inappropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations.
(3) The measurement is inappropriate for assessing the need for or amount of future employer contributions.

Limitations of Project Scope

Actuarial Standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entities to make required contributions when due. Such an evaluation was not within the scope of this project and is not within our area of expertise. Consequently, we have not made such an evaluation.

ASF Recoupments

The reported June 30, 2019 assets included a receivable, computed by the System's auditors, that accounts for future ASF recoupments. We understand this amount was originally determined as of June 30, 2015 and updated to June 30, 2019 in accordance with GAAP accounting.

Other Comments

During the year ending June 30, 2019 a $23.6 million transfer was made from the Pension Accumulation Fund (PAF) to the Annuity Savings Fund (ASF). This transfer caused an increase in the TPL (and NPL) of an equal amount since liabilities for the ASF are equal to the reserve balance. We have detailed this amount separately in some cases, but have generally treated it like an experience gain/loss for purposes of the deferred inflows/outflows and the pension expense.

SECTION B

FINANCIAL STATEMENTS

This information is subject to the System's Auditor's review. Please let us know if the System's Auditor recommends any changes.

Statement of Fiduciary Net Position
as of June 30, 2019

Assets	
Cash and Cash Equivalents	$ 51,631,036
Receivables	115,241,526
Investments at Fair Value	1,643,478,100
Cash and Investments held as collateral for securities lending	81,947,607
Capital Assets - Net	1,197,282
Total Assets	$ 1,893,495,551
Liabilities	
Accounts Payable	$ 94,588,724
Total Liabilities	$ 94,588,724
Net Position Restricted for Pensions	$ 1,798,906,827
ASF Reserve	$ 120,248,768
Other Reserves	1,678,658,059
Plan Fiduciary Net Position	$ 1,798,906,827

Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2019

Additions		
Contributions		
Employer	$	67,900,000
Employee		-
Foundation Contribution		375,000
Total Contributions	$	68,275,000
Investment Income		
Investment Income	$	47,170,007
Net Investment Income	$	47,170,007
Other Income (Including ASF Interest)^	$	6,882,567
Total Additions	$	122,327,574
Deductions		
Benefit Payments, including Refunds of Employee Contributions	$	248,790,015
Pension Plan Administrative Expense		3,023,943
Other (including ASF writeoffs and transfers to Comp I)		12,230,431
Total Deductions	$	264,044,389
Net Increase in Net Position	$	(141,716,815)
Net Position Restricted for Pensions		
Beginning of Year	$	1,940,623,642
End of Year	$	1,798,906,827

^ *Following discussions with the auditor, we understand that for purposes of determining the Pension Expense for GASB Statement No. 68, ASF Interest should be treated as Other Changes in Plan Fiduciary Net Position and recognized immediately.*

Statement of Pension Expense Under GASB Statement No. 68
Fiscal Year Ended June 30, 2019*

A. Expense	General	DOT	DWSD	Library	Total
1. Service Cost	$ -	$ -	$ -	$ -	$ -
2. Interest on the Total Pension Liability	106,206,939	30,424,159	52,205,387	6,653,158	195,489,643
3. Current-Period Benefit Changes	-	-	-	-	-
4. Employee Contributions (made negative for addition here)	-	-	-	-	-
5. Projected Earnings on Plan Investments (made negative for addition here)	(76,295,004)	(14,006,433)	(39,926,919)	(6,019,745)	(136,248,101)
6. Pension Plan Administrative Expense	2,566,338	326,107	-	131,498	3,023,943
7. Other Changes in Plan Fiduciary Net Position	2,384,050	2,234,841	169,942	559,031	5,347,864
8. Recognition of Outflow (Inflow) of Resources due to Liabilities	10,605,505	(1,582,543)	4,924,609	(350,671)	13,596,900
9. Recognition of Outflow (Inflow) of Resources due to Assets	23,180,396	4,848,304	11,280,614	1,811,133	41,120,447
10. Total Pension Expense	**$ 68,648,224**	**$ 22,244,435**	**$ 28,653,633**	**$ 2,784,404**	**$ 122,330,696**

**Totals may not add due to rounding.*

Statement of Outflows and Inflows Arising from Current Reporting Period Fiscal Year Ended June 30, 2019*

A. Outflows (Inflows) of Resources due to Liabilities	General	DOT	DWSD	Library	Total
1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	$ 10,605,505	$ (1,582,543)	$ 4,924,609	$ (350,671)	$ 13,596,900
2. Assumption Changes (gains) or losses	$ -	$ -	$ -	$ -	$ -
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	1.0000	1.0000	1.0000	1.0000	1.0000
4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the difference between expected and actual experience of the Total Pension Liability	$ 10,605,505	$ (1,582,543)	$ 4,924,609	$ (350,671)	$ 13,596,900
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	$ -	$ -	$ -	$ -	$ -
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	$ 10,605,505	$ (1,582,543)	$ 4,924,609	$ (350,671)	$ 13,596,900
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the difference between expected and actual experience of the Total Pension Liability	$ -	$ -	$ -	$ -	$ -
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	$ -	$ -	$ -	$ -	$ -
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	$ -	$ -	$ -	$ -	$ -
B. Outflows (Inflows) of Resources due to Assets					
1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	$ 49,965,808	$ 8,381,262	$ 26,848,067	$ 3,882,957	$ 89,078,094
2. Recognition period for Assets {in years}	5.0000	5.0000	5.0000	5.0000	5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	$ 9,993,162	$ 1,676,252	$ 5,369,613	$ 776,591	$ 17,815,619
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	$ 39,972,646	$ 6,705,010	$ 21,478,454	$ 3,106,366	$ 71,262,475

**Totals may not add due to rounding.*

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods
Fiscal Year Ended June 30
General

A. Outflows and Inflows of Resources Due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ 10,605,505	$ -	$ 10,605,505
2. Due to Assets	$ 34,944,224	11,763,828	23,180,396
3. Total	$ 45,549,729	$ 11,763,828	$ 33,785,901

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ 10,605,505	$ -	$ 10,605,505
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	$ 34,944,224	11,763,828	23,180,396
4. Total	$ 45,549,729	$ 11,763,828	$ 33,785,901

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ -	$ -	$ -
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	$ 58,885,631	26,679,565	32,206,066
4. Total	$ 58,885,631	$ 26,679,565	$ 32,206,066

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources General Total
2020	$ 17,142,319
2021	(1,770,666)
2022	6,841,253
2023	9,993,160
2024	-
Thereafter	-
Total	$ 32,206,066

Recognition of Deferred Outflows and Inflows of Resources
Fiscal Year Ended June 30, 2019
General

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2015	$ 18,703,738	1.0000	$ -	$ -	0.0000
2016	(29,429,615)	1.0000	-	-	0.0000
2017	(23,006,975)	1.0000	-	-	0.0000
2018	3,041,504	1.0000	-	-	0.0000
2019	10,605,505	1.0000	10,605,505	-	0.0000
Total			**$ 10,605,505**	**$ -**	
Deferred Outflow (Inflow) due to Assumption Changes					
2015	$ (55,704,947)	1.0000	$ -	$ -	0.0000
2016	49,169,719	1.0000	-	-	0.0000
2017	41,844,061	1.0000	-	-	0.0000
2018	(59,163,587)	1.0000	-	-	0.0000
2019	-	1.0000	-	-	0.0000
Total			**$ -**	**$ -**	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2015	$ 30,190,382	5.0000	$ 6,038,078	$ -	0.0000
2016	94,564,921	5.0000	18,912,984	18,912,985	1.0000
2017	(43,059,585)	5.0000	(8,611,917)	(17,223,834)	2.0000
2018	(15,759,553)	5.0000	(3,151,911)	(9,455,731)	3.0000
2019	49,965,808	5.0000	9,993,162	39,972,646	4.0000
Total			**$ 23,180,396**	**$ 32,206,066**	

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30 DOT

A. Outflows and Inflows of Resources Due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ -	$ 1,582,543	$ (1,582,543)
2. Due to Assets	$ 6,839,035	1,990,731	4,848,304
3. Total	$ 6,839,035	$ 3,573,274	$ 3,265,761

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ -	$ 1,582,543	$ (1,582,543)
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	$ 6,839,035	1,990,731	4,848,304
4. Total	$ 6,839,035	$ 3,573,274	$ 3,265,761

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ -	$ -	$ -
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	$ 10,538,175	4,397,893	6,140,282
4. Total	$ 10,538,175	$ 4,397,893	$ 6,140,282

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources
2020	$ 3,518,686
2021	(314,478)
2022	1,259,820
2023	1,676,254
2024	-
Thereafter	-
Total	$ 6,140,282

Recognition of Deferred Outflows and Inflows of Resources
Fiscal Year Ended June 30, 2019
DOT

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2015	$ 12,036,135	1.0000	$ -	$ -	0.0000
2016	(3,435,546)	1.0000	-	-	0.0000
2017	(5,802,247)	1.0000	-	-	0.0000
2018	32,573,900	1.0000	-	-	0.0000
2019	(1,582,543)	1.0000	(1,582,543)	-	0.0000
Total			**$ (1,582,543)**	**$ -**	
Deferred Outflow (Inflow) due to Assumption Changes					
2015	$ (14,340,139)	1.0000	$ -	$ -	0.0000
2016	12,849,218	1.0000	-	-	0.0000
2017	11,022,689	1.0000	-	-	0.0000
2018	(17,236,637)	1.0000	-	-	0.0000
2019	-	1.0000	-	-	0.0000
Total			**$ -**	**$ -**	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2015	$ 6,648,084	5.0000	$ 1,329,616	$ -	0.0000
2016	19,165,833	5.0000	3,833,167	3,833,165	1.0000
2017	(7,871,494)	5.0000	(1,574,299)	(3,148,597)	2.0000
2018	(2,082,160)	5.0000	(416,432)	(1,249,296)	3.0000
2019	8,381,262	5.0000	1,676,252	6,705,010	4.0000
Total			**$ 4,848,304**	**$ 6,140,282**	

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30 DWSD

A. Outflows and Inflows of Resources due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ 4,924,609	$ -	$ 4,924,609
2. Due to Assets	$ 16,662,417	5,381,803	11,280,614
3. Total	$ 21,587,026	$ 5,381,803	$ 16,205,223

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ 4,924,609	$ -	$ 4,924,609
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	$ 16,662,417	5,381,803	11,280,614
4. Total	$ 21,587,026	$ 5,381,803	$ 16,205,223

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ -	$ -	$ -
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	$ 29,983,796	12,199,292	17,784,504
4. Total	$ 29,983,796	$ 12,199,292	$ 17,784,504

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources
2020	$ 8,493,152
2021	(12,189)
2022	3,933,926
2023	5,369,615
2024	-
Thereafter	-
Total	$ 17,784,504

Recognition of Deferred Outflows and Inflows of Resources
Fiscal Year Ended June 30, 2019
DWSD

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2015	$ (607,587)	1.0000	$ -	$ -	0.0000
2016	(7,203,304)	1.0000	-	-	0.0000
2017	3,370,105	1.0000	-	-	0.0000
2018	(456,059)	1.0000	-	-	0.0000
2019	4,924,609	1.0000	4,924,609	-	0.0000
Total			**$ 4,924,609**	**$ -**	
Deferred Outflow (Inflow) due to Assumption Changes					
2015	$ (28,150,723)	1.0000	$ -	$ -	0.0000
2016	25,074,531	1.0000	-	-	0.0000
2017	21,554,914	1.0000	-	-	0.0000
2018	(30,363,241)	1.0000	-	-	0.0000
2019	-	1.0000	-	-	0.0000
Total			**$ -**	**$ -**	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2015	$ 13,937,310	5.0000	$ 2,787,462	$ -	0.0000
2016	42,526,710	5.0000	8,505,342	8,505,342	1.0000
2017	(19,730,574)	5.0000	(3,946,115)	(7,892,229)	2.0000
2018	(7,178,439)	5.0000	(1,435,688)	(4,307,063)	3.0000
2019	26,848,067	5.0000	5,369,613	21,478,454	4.0000
Total			**$ 11,280,614**	**$ 17,784,504**	

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods
Fiscal Year Ended June 30
Library

A. Outflows and Inflows of Resources Due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ -	$ 350,671	$ (350,671)
2. Due to Assets	$ 2,509,800	698,667	1,811,133
3. Total	$ 2,509,800	$ 1,049,338	$ 1,460,462

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ -	$ 350,671	$ (350,671)
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	$ 2,509,800	698,667	1,811,133
4. Total	$ 2,509,800	$ 1,049,338	$ 1,460,462

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ -	$ -	$ -
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	$ 4,421,021	1,552,108	2,868,913
4. Total	$ 4,421,021	$ 1,552,108	$ 2,868,913

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources
2020	$ 1,392,579
2021	77,925
2022	621,816
2023	776,593
2024	-
Thereafter	-
Total	$ 2,868,913

Recognition of Deferred Outflows and Inflows of Resources
Fiscal Year Ended June 30, 2019
Library

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2015	$ (5,487,755)	1.0000	$ -	$ -	0.0000
2016	(3,650,647)	1.0000	-	-	0.0000
2017	(2,069,263)	1.0000	-	-	0.0000
2018	(1,005,018)	1.0000	-	-	0.0000
2019	(350,671)	1.0000	(350,671)	-	0.0000
Total			**$ (350,671)**	**$ -**	
Deferred Outflow (Inflow) due to Assumption Changes					
2015	$ (3,364,084)	1.0000	$ -	$ -	0.0000
2016	2,941,459	1.0000	-	-	0.0000
2017	2,504,293	1.0000	-	-	0.0000
2018	(3,511,050)	1.0000	-	-	0.0000
2019	-	1.0000	-	-	0.0000
Total			**$ -**	**$ -**	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2015	$ 2,092,765	5.0000	$ 418,553	$ -	0.0000
2016	6,573,279	5.0000	1,314,656	1,314,655	1.0000
2017	(2,719,454)	5.0000	(543,891)	(1,087,781)	2.0000
2018	(773,879)	5.0000	(154,776)	(464,327)	3.0000
2019	3,882,957	5.0000	776,591	3,106,366	4.0000
Total			**$ 1,811,133**	**$ 2,868,913**	

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods
Fiscal Year Ended June 30
Total

A. Outflows and Inflows of Resources Due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ 15,530,114	$ 1,933,214	$ 13,596,900
2. Due to Assets	$ 60,955,476	19,835,029	41,120,447
3. Total	$ 76,485,590	$ 21,768,243	$ 54,717,347

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ 15,530,114	$ 1,933,214	$ 13,596,900
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	$ 60,955,476	19,835,029	41,120,447
4. Total	$ 76,485,590	$ 21,768,243	$ 54,717,347

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ -	$ -	$ -
2. Assumption Changes	-	-	-
3. Net Difference between projected and actual earnings on pension plan investments	$ 103,828,623	44,828,858	58,999,765
4. Total	$ 103,828,623	$ 44,828,858	$ 58,999,765

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources
2020	$ 30,546,736
2021	(2,019,408)
2022	12,656,815
2023	17,815,622
2024	-
Thereafter	-
Total	$ 58,999,765

Schedule of Proportionate Employer Share for Year Ended June 30, 2019 General Subgroup*

				Deferred Outflows of Resources				
TPL	Employer	Prop. Share	Net Pension Liability	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes of Assum.	Changes in Proportion and Differences Between Employer Cont. and Share of Cont.	Total Deferred Outflows of Resources
$ 1,462,522,347	General City	98.38%	$ 478,999,135	$ -	$ 57,931,684	$ -	$ -	$ 57,931,684
20,961,135	Parking	1.41%	6,865,102	-	830,287	-	-	830,287
3,121,871	Airport	0.21%	1,022,462	-	123,660	-	-	123,660
$ 1,486,605,353	***Total for All Employers***	**100.00%**	**$ 486,886,699**	**$ -**	**$ 58,885,631**	**$ -**	**$ -**	**$ 58,885,631**

	Deferred Inflows of Resources					Pension Expense		
Employer	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes of Assum.	Changes in Proportion and Differences Between Employer Cont. and Share of Cont.	Total Deferred Inflows of Resources	Prop. Share of Plan Pension Expense	Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributins and Proportionate	Total Employer Pension Expense
General City	$ -	$ 26,247,356	$ -	$ -	$ 26,247,356	$ 67,536,123	$ 213,656	$ 67,749,779
Parking	-	376,182	-	-	376,182	967,940	(166,406)	801,534
Airport	-	56,027	-	-	56,027	144,161	(47,250)	96,911
Total for All Employers	**$ -**	**$ 26,679,565**	**$ -**	**$ -**	**$ 26,679,565**	**$ 68,648,224**	**$ -**	**$ 68,648,224**

** Totals may not add due to rounding.*

Schedule of Proportionate Employer Share for Year Ended June 30, 2019 General Subgroup*

Employer	Employer Allocation Percentage	Schedule of Deferred Inflows and Outflows 2020	2021	2022	2023	2024	Thereafter	Total
General City	98.38%	$ 16,864,613	$ (1,741,981)	$ 6,730,425	$ 9,831,271	$ -	$ -	$ 31,684,328
Parking	1.41%	241,707	(24,966)	96,462	140,904	-	-	454,106
Airport	0.21%	35,999	(3,718)	14,367	20,986	-	-	67,633
TOTAL	100.00%	$ 17,142,319	$ (1,770,666)	$ 6,841,253	$ 9,993,160	$ -	$ -	$ 32,206,066

** Totals may not add due to rounding.*

Determination of Employer Contribution Allocation for Year Ended June 30, 2019

Employer	General City	Parking	Airport	General Total	DOT	DWSD	Library	Total
Contributions Before General Breakdown				$ 22,765,012	$ 109,988	$ 42,900,000	$ 2,500,000	$ 68,275,000
General Employer Allocation Percent	100.00%	0.00%	0.00%	100.00%	N/A	N/A	N/A	N/A
Times General Total	22,765,012	22,765,012	22,765,012	22,765,012	N/A	N/A	N/A	N/A
Contribution Allocation Dollar	$ 22,765,012	$ -	$ -	$ 22,765,012	$ 109,988	$ 42,900,000	$ 2,500,000	$ 68,275,000

We understand that the General contributions should be split between the General component units (General City, Parking, and Airport) according to the above schedule. Please let us know if a different allocation should be used.

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in Net Pension Liability and Related Ratios Current Period

Fiscal Year Ended June 30, 2019*

A. Total Pension Liability	General	DOT	DWSD	Library	Total
1. Service Cost	$ -	$ -	$ -	$ -	$ -
2. Interest on the Total Pension Liability	106,206,939	30,424,159	52,205,387	6,653,158	195,489,643
3. Changes of benefit terms	-	-	-	-	-
4. Difference between expected and actual experience of the Total Pension Liability	10,605,505	(1,582,543)	4,924,609	(350,671)	13,596,900
5. Changes of assumptions	0	0	0	0	0
6. Benefit payments, including refunds of employee contributions^	(138,650,989)	(36,531,401)	(66,156,352)	(7,451,273)	(248,790,015)
7. Net change in Total Pension Liability	$ (21,838,545)	$ (7,689,785)	$ (9,026,356)	$ (1,148,786)	$ (39,703,472)
8. Total Pension Liability – Beginning	1,508,443,898	430,517,183	740,468,240	93,876,832	2,773,306,153
9. Total Pension Liability – Ending	**$ 1,486,605,353**	**$ 422,827,398**	**$ 731,441,884**	**$ 92,728,046**	**$ 2,733,602,681**
B. Plan Fiduciary Net Position					
1. Contributions – employer	$ 22,765,012	$ 109,988	$ 42,900,000	$ 2,500,000	$ 68,275,000
2. Contributions – employee	-	-	-	-	-
3. Net investment income	26,329,196	5,625,171	13,078,852	2,136,788	47,170,007
4. Benefit payments, including refunds of employee contributions	(138,650,989)	(36,531,401)	(66,156,352)	(7,451,273)	(248,790,015)
5. Pension Plan Administrative Expense	(2,566,338)	(326,107)	-	(131,498)	(3,023,943)
6. Other	(2,384,050)	(2,234,841)	(169,942)	(559,031)	(5,347,864)
7. Net change in Plan Fiduciary Net Position	$ (94,507,169)	$ (33,357,190)	$ (10,347,442)	$ (3,505,014)	$ (141,716,815)
8. Plan Fiduciary Net Position – Beginning	1,094,225,823	209,280,239	552,728,316	84,389,264	1,940,623,642
9. Plan Fiduciary Net Position – Ending	**$ 999,718,654**	**$ 175,923,049**	**$ 542,380,874**	**$ 80,884,250**	**$ 1,798,906,827**
C. Net Pension Liability	**$ 486,886,699**	**$ 246,904,349**	**$ 189,061,010**	**$ 11,843,796**	**$ 934,695,854**
D. Plan Fiduciary Net Position as a percentage of the Total Pension Liability	**67.25%**	**41.61%**	**74.15%**	**87.23%**	**65.81%**
E. Covered-employee payroll	**$ 95,912,366**	**$ 23,056,792**	**$ 19,014,424**	**$ 11,389,731**	**$ 149,373,313**
F. Net Pension Liability as a percentage of covered-employee payroll	**507.64%**	**1070.85%**	**994.30%**	**103.99%**	**625.74%**

**Totals may not add due to rounding.*

A Special Funding Situation may occur if a non-city entity has a legal obligation to contribute directly to the Retirement System. The Net Pension Liability shown here has not been adjusted for any potential special funding situation.

Schedules of Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios Multiyear

Ultimately 10 Fiscal Years will be Displayed

Fiscal year ending June 30,	2019	2018	2017	2016	2015	2014
Total Pension Liability						
Service Cost	$ -	$ -	$ -	$ -	$ -	$ 32,736,019
Interest on the Total Pension Liability	195,489,643	192,359,745	201,919,236	214,011,164	263,007,329	242,611,073
Benefit Changes	-	-	-	-	(731,824,895)	(113,311,571)
Difference between Expected and Actual Experience	13,596,900	34,154,327	(27,508,380)	(43,719,112)	24,644,530	-
Assumption Changes	-	(110,274,515)	76,925,957	90,034,927	(101,559,893)	(271,190,194)
Benefit Payments	(235,153,732)	(239,301,938)	(242,938,006)	(242,470,451)	(253,217,949)	(253,683,194)
Refunds*	(13,636,283)	(14,140,692)	(24,311,533)	(49,811,728)	(44,321,041)	(144,050,613)
Net Change in Total Pension Liability	(39,703,472)	(137,203,073)	(15,912,726)	(31,955,200)	(843,271,919)	(506,888,480)
Total Pension Liability - Beginning	2,773,306,153	2,910,509,226	2,926,421,952	2,958,377,152	3,801,649,071	4,308,537,551
Total Pension Liability - Ending (a)	$ 2,733,602,681	$ 2,773,306,153	$ 2,910,509,226	$ 2,926,421,952	$ 2,958,377,152	$ 3,801,649,071
Plan Fiduciary Net Position						
Employer Contributions	$ 67,900,000	$ 68,275,000	$ 91,238,402	$ 104,792,657	$ 189,282,095	$ 25,126,131
Employee Contributions	-	-	-	-	609,073	10,241,761
Pension Plan Net Investment Income	47,170,007	155,423,193	206,896,567	(7,865,094)	93,054,978	289,789,607
Benefit Payments	(235,153,732)	(239,301,938)	(242,938,006)	(242,470,451)	(253,217,949)	(253,683,194)
Refunds*	(13,636,283)	(14,140,692)	(24,311,533)	(49,811,728)	(44,321,041)	(144,050,613)
Pension Plan Administrative Expense	(3,023,943)	(3,313,418)	(6,021,837)	(3,742,618)	(7,556,822)	(11,237,767)
Other	(4,972,864)	6,952,522	8,324,075	1,360,330	138,219,998	-
Net Change in Plan Fiduciary Net Position	(141,716,815)	(26,105,333)	33,187,668	(197,736,904)	116,070,332	(83,814,075)
Plan Fiduciary Net Position - Beginning	1,940,623,642	1,966,728,975	1,933,541,307	2,131,278,211	2,015,207,879	2,099,021,954
Plan Fiduciary Net Position - Ending (b)	$ 1,798,906,827	$ 1,940,623,642	$ 1,966,728,975	$ 1,933,541,307	$ 2,131,278,211	$ 2,015,207,879
Net Pension Liability - Ending (a) - (b)	$ 934,695,854	$ 832,682,511	$ 943,780,251	$ 992,880,645	$ 827,098,941	$ 1,786,441,192
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	65.81 %	69.98 %	67.57 %	66.07 %	72.04 %	53.01 %
Covered-Employee Payroll	$ 149,373,313	$ 141,454,717	$ 143,882,722	$ 200,722,197	$ 203,507,079	$ 213,291,083
Net Pension Liability as a Percentage of Covered-Employee Payroll	625.74 %	588.66 %	655.94 %	494.65 %	406.42 %	837.56 %
Notes to Schedule:	N/A	N/A	N/A	N/A	N/A	N/A

** For FY 2017, includes approximately $2.9 million of adjusted loan balances that were treated as refunds of ASF contributions.*

A Special Funding Situation may occur if a non-city entity has a legal obligation to contribute directly to the Retirement System. The Net Pension Liability shown here has not been adjusted for any potential funding situation. Our understanding is that the City makes all the employer contributions into the fund, even though the City may receive monies from other entities as a result of the POA.

Schedules of Required Supplementary Information
Schedule of the Net Pension Liability Multiyear

Ultimately 10 Fiscal Years will be Displayed

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll*	Net Pension Liability as a % of Covered Payroll
2014	$ 3,801,649,071	$ 2,015,207,879	$ 1,786,441,192	53.01%	$ 213,291,083	837.56%
2015	2,958,377,152	2,131,278,211	827,098,941	72.04%	203,507,079	406.42%
2016	2,926,421,952	1,933,541,307	992,880,645	66.07%	200,722,197	494.65%
2017	2,910,509,226	1,966,728,975	943,780,251	67.57%	143,882,722	655.94%
2018	2,773,306,153	1,940,623,642	832,682,511	69.98%	141,454,717	588.66%
2019	2,733,602,681	1,798,906,827	934,695,854	65.81%	149,373,313	625.74%

* *Covered payroll shown is the reported payroll on the actuarial valuation date (census date). Actual covered payroll paid during the year was unavailable.*

Schedule of Contributions Multiyear

Ultimately 10 Fiscal Years will be Displayed

FY Ending June 30,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll*	Actual Contribution as a % of Covered Payroll
2014	$80,627,791	$ 25,126,131	$55,501,660	$213,291,083	11.78%
2015	N/A	189,282,095	N/A	203,507,079	93.01%
2016	N/A	104,792,657	N/A	200,722,197	52.21%
2017	N/A	91,238,402	N/A	143,882,722	63.41%
2018	N/A	68,275,000	N/A	141,454,717	48.27%
2019	N/A	68,275,000	N/A	149,373,313	45.71%

** Covered payroll shown is the reported payroll from the actuarial valuation date (census date). Actual covered payroll paid during the year was unavailable.*

Notes to Schedule of Contributions

Contribution Requirement: Required contributions to the Plan through FY 2023 are provided in the POA. Certain agreements (as allowed for in the POA) have resulted in some of the contributions being accelerated. The schedule below details our understanding of the remaining contributions required by the POA.

Contribution Source

	For DWSD Liabilities		For Other Liabilities					
Fiscal Year	**DWSD**	**Transfers**	**UTGO**	**State**	**DIA**	**Other**	**Transfers from DWSD**	**Total**
2020	$ 45.4	$ (2.5)	$ -	$ -	$ 0.4	$ 2.5	$ 2.5	$ 48.3
2021	45.4	(2.5)	-	-	0.4	2.5	2.5	48.3
2022	45.4	(2.5)	-	-	0.4	2.5	2.5	48.3
2023	45.4	(2.5)	-	-	0.4	2.5	2.5	48.3

We have assumed the contributions outlined above as called for in the POA (with adjustments) will not change. An estimate of the probability of those payments being made was outside the scope of this project, not required by Actuarial Standards, and was not made.

Beginning with Fiscal Year 2024, employer contributions will be actuarially determined.

Schedule of Investment Returns

This information should be provided by the plan's investment consultant.

SECTION D

NOTES TO FINANCIAL STATEMENTS

Single Discount Rate

A Single Discount Rate of 7.38%, net of investment expenses, was used to measure the total pension liability as of June 30, 2019. This Single Discount Rate was based on the expected rate of return on pension plan investments of 7.38% as directed by the System and approved by the System's Auditor. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions ceased as of June 30, 2014, and that employer contributions will be made at rates equal to those set by the final Plan of Adjustment through June 30, 2023 and contributions consistent with PERSIA and the intention to fully fund the System by 2053 as determined in the bankruptcy (POA). Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 7.38%, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher.

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

	1% Decrease 6.38%	Current Single Discount Rate Assumption 7.38%	1% Increase 8.38%
Total Pension Liability (TPL)	$2,969,207,029	$2,733,602,681	$2,531,752,152
Net Position Restricted for Pensions	1,798,906,827	1,798,906,827	1,798,906,827
Net Pension Liability (NPL)	$1,170,300,202	$ 934,695,854	$ 732,845,325

Users of this report should be aware that, in the actuary's judgement, a discount rate of 8.38% would not be a reasonable assumption for funding purposes.

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	11,684
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	3,236
Active Plan Members	3,018
Total Plan Members	17,938

Additional information regarding the plan population may be found in the June 30, 2018 actuarial valuation of the System.

Additional Note

Potential future asset transfers from this Plan to Component I for payment of Transition Costs were not included in this calculation.

SECTION E

SUMMARY OF BENEFITS

Summary of Benefit Provisions Evaluated

Component II Frozen Benefits

All Component II benefits are frozen as of June 30, 2014 based on service and average final compensation accrued as of that date and the provisions of the Detroit General Retirement System as it existed on June 30, 2014. Frozen benefits are further reduced by 4.5% and all future Cost-of-Living Adjustments ("COLAs") were eliminated. Benefits resulting from the Annuity Savings Fund and benefits paid from the Annuity Reserve Fund were subject to a separate reduction described as a "Claw-back." Details of the claw-back provision are complicated and can be found in the Eighth Amended Plan of Adjustment. The benefits evaluated in this report are the frozen reduced benefits after the claw-back. Component II benefits are payable after separation from service, upon meeting the eligibility conditions of the plan as it existed on June 30, 2014, regardless of whether the individual is eligible to receive a Component I benefit at that time.

Our understanding of the June 30, 2014 plan provisions is provided below for completeness. The material below does not have legal standing and is not intended to cover all potential situations that could occur. If there are discrepancies between the description below, and appropriate legal documents, the latter necessarily govern.

Age and Service Pension

Eligibility - Any age (minimum age 55 for non-EMS members hired after 1995) with 30 years of service (25 for EMS members), or age 60 with 10 years of service, or age 65 with 8 years of service.

Annual Amount - **EMS Members:** Sum of a) a basic pension of $12 for each of the first 10 years of service, plus b) a pension equal to 2.0% of AFC multiplied by years of service. Maximum benefit is 90% of AFC.

Other Members: Sum of a) a basic pension of $12 for each of the first 10 years of service, plus b) a pension equal to the first 10 years of service multiplied by 1.6% of AFC, plus 1.8% of AFC for each year of service greater than 10 years up to 20 years, plus 2.0% of AFC for each year of service greater than 20 years up to 25 years, plus 2.2% of AFC for each year of service greater than 25 years. Future benefit accruals for certain active members (depending on bargaining unit) were reduced to 1.5% of final average compensation per year of service.

Type of Average Final Compensation (AFC) - Highest 3 consecutive years out of the last 10. Pension benefits will not be diminished if compensation is reduced because of a fiscal emergency. Effective July 1, 1999, in computing the AFC, a member shall have the option of adding the value of 25% of unused accrued sick leave to the earnings used in computing the AFC. Longevity is added to AFC in accordance with the following schedule: $150 after 5 years, $300 after 10 years, $450 after 15 years, $600 after 20 years, and $750 after 25 years.

Early Retirement

Eligibility - Any age with 25 or more years of service (min. age 55 for members hired after 1995).

Annual Amount - Same as regular retirement but actuarially reduced.

Summary of Benefit Provisions Evaluated (Continued)

Deferred Retirement (Vested Benefit)

Eligibility - Hired prior to 7-1-80: Age 40 with 8 years of service. Hired on or after 7-1-80: Any age with 10 years of service.

Benefit Commencement - APTE hired prior to July 1, 1988: Benefit begins at the age the member would have become eligible for regular retirement if service had continued. ***SAAA, Non-Union and lawyers hired prior to June 30, 1986:*** Benefit begins at the age the member would have become eligible for regular retirement. ***Others:*** Benefits based on service rendered by June 30, 1986 begin at the age the member would have become eligible for regular retirement. Benefits based on service rendered after July 1, 1986 begin at age 62.

Annual Amount - Same as regular retirement but based on average final compensation and service at the time of termination.

Duty Disability Retirement

Eligibility - Service related disability before eligibility for service retirement prior to July 1, 2014. No service requirement.

Annual Amount - An annuity which is the actuarial equivalent of the accumulated contributions at date of disability plus a pension of two-thirds of average final compensation at time of disability. The maximum annual pension is $5,700 ($9,000 for EMS). At the earliest of when the member would have accrued 30 years of service credit (25 for EMS) or age 60, the annuity is recomputed assuming contributions would have continued at a salary level equal to final compensation. The pension is recomputed with additional service credit granted from the date of disability to age 60 (or 30 years of service credit) or June 30, 2014, whichever is earlier. Benefits payable prior to conversion/re-computation, if any, were assumed to be paid outside the trust.

Non-Duty Disability Retirement

Eligibility - Disability from any cause before age 60 with 10 or more years of service prior to July 1, 2014.

Annual Amount - Computed in the same manner as a regular retirement benefit. Maximum annual pension to age 60 is $6,000. Benefit is recomputed at age 60 with no maximum. Benefits payable prior to age 60, if any, were assumed to be paid from outside the trust.

Duty Death Before Retirement

Eligibility - Death from service related causes. No age or service requirements.

Annual Amount - One-third of final compensation as of June 30, 2014 to the surviving spouse for life or until remarriage, plus an equal share of 1/4 of final compensation to each unmarried child under age 18. If there is no eligible spouse, eligible children each receive 1/4 of final compensation; if there are more than 2 such children, each child shares an equal part of 1/2 of final compensation. Maximum total amount for spouse and children is $9,000 annually. If there is no eligible spouse or children, dependent parents each receive 1/6 of deceased's final compensation, to a total maximum of $600 annually.

Summary of Benefit Provisions Evaluated (Concluded)

Non-Duty Death Before Retirement

Eligibility - Death-in-service at any age with 15 years of service; or after age 60 with 10 years of service; or after age 65 with 8 years of service.

Annual Amount - To Surviving Spouse: Computed as a regular retirement benefit but reduced in accordance with a 100% joint and survivor election for members with 20 or more years of service. For members with 15 years of service but less than 20, benefit is reduced in accordance with a 50% joint and survivor election. To Dependent Children if no Surviving Spouse: $9,000 payable to age 19 of the youngest child or for life if child is physically or mentally impaired for members with 20 or more years of service ($6,000 if less than 20 years of service).

Post-Retirement Cost-of-Living Adjustments

Benefit is increased annually by 2.25% of the **original** pension amount at retirement. Post-retirement cost-of-living increases were eliminated on future accruals for certain active members (depending on bargaining unit).

Member Contributions

Members had the option of choosing one of four contribution amounts: (1) 0%; (2) 3.0% of compensation up to the Social Security wage base, plus 5.0% of compensation in excess of the Social Security wage base; (3) 5.0% of total compensation; or (4) 7.0% of total compensation. Member contributions can be paid as a lump sum or annuitized at retirement to provide an annuity in addition to the pension (which is not affected by the level of member contributions).

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Summary of Assumptions and Methods Used for GASB Actuarial Valuations Adopted by Board of Trustees

All assumptions are estimates of future experience except as noted. The rationale for the assumptions is based on experience studies where noted.

Economic Assumptions

The investment return rate used in making the valuation was 7.38% per year, compounded annually (net after investment expenses) as of June 30, 2019. This assumption was provided by the Retirement System.

Price inflation is not directly used in the valuation. For purposes of assessing the reasonability of the investment return assumptions, we assumed price inflation of 2.50% per year.

Non-Economic Assumptions

The mortality table used to measure retired life mortality was 100% of the RP-2014 Blue Collar Annuitant Table set-forward 1 year for males and 100% of the RP-2014 Blue Collar Annuitant Table set-forward 1 year for females. Tables were extended below age 50 with a cubic spline to the published Juvenile rates. Pre-retirement mortality is based on the corresponding Employee tables with corresponding set forward. The tables are projected to be fully generational, based on the 2-dimensional, sex distinct mortality improvement scale MP-2014 (which was published and intended to be used with RP-2014). 75% of all deaths-in-service are assumed to be non-duty related. This table was first used as of June 30, 2014. For disabled members, the same tables are used. The rationale for the mortality assumption is based on the 2008-2013 Mortality Experience Study issued February 4, 2015.

The probabilities of retirement for members eligible to retire are shown on pages 34 and 35. These probabilities were revised for the June 30, 2008 valuation. The rationale is based on the 2002-2007 Experience Study.

The probabilities of separation from service (including *disability)* are shown for sample ages on page 36. These probabilities were revised for the June 30, 2008 valuation. The rationale is based on the 2002-2007 Experience Study.

Single Life Retirement Values
Based on RP-2014 Blue Collar
100% of Male Rates Set-Forward 1 Year
100% of Female Rates Set-Forward 1 Year

Sample Attained Ages in 2018	Future Life Expectancy (years)	
	Men	Women
45	38.62	41.96
50	33.66	36.91
55	28.90	32.01
60	24.35	27.26
65	20.05	22.69
70	16.07	18.38
75	12.45	14.42
80	9.26	10.91

Rationale for assumption is based upon a 2008 to 2013 study of mortality experience dated February 4, 2015.

Probabilities of Age/Service Retirement for Members Eligible to Retire

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year With Unreduced Benefits		
	EMS	D.O.T.	Others
45	25%		
46	25%		
47	25%		
48	22%		
49	20%		
50	18%	55%	50%
51	15%	50%	50%
52	15%	50%	45%
53	15%	50%	45%
54	15%	55%	40%
55	15%	50%	30%
56	15%	50%	30%
57	15%	50%	30%
58	15%	50%	30%
59	15%	55%	40%
60	40%	40%	25%
61	30%	30%	25%
62	30%	30%	25%
63	30%	30%	25%
64	30%	30%	25%
65	30%	30%	35%
66	30%	30%	30%
67	30%	30%	25%
68	30%	50%	25%
69	30%	50%	25%
70	100%	100%	20%
71			20%
72			20%
73			20%
74			20%
75			20%
76			20%
77			20%
78			20%
79			20%
80			100%
Ref	537	1648	1647

Rationale for assumption is 2002 to 2007 Experience Study. Additional retirement rates for Component I (Hybrid Plan) eligibility are not reflected in this valuation due to materiality.

Probabilities of Early Retirement for Members Eligible for Early Retirement

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year With Reduced Benefits
55	7%
56	8%
57	9%
58	10%
59	12%
60	12%
61	12%
62	12%
63	12%
64	12%
Ref	1649

Rationale for assumption is based upon a 2002 to 2007 Experience Study.

Sample Rates of Separation from Active Employment Before Retirement

Sample Ages	Years of Service	% of Active Members Separating Within Next Year			
		Withdrawal			
				Others	
		EMS	D.O.T.	Men	Women
ALL	0	11.00%	18.00%	18.00%	20.00%
	1	10.00%	16.00%	15.00%	16.00%
	2	8.00%	14.00%	13.00%	14.00%
	3	8.00%	11.00%	11.00%	12.00%
	4	7.00%	9.00%	10.00%	10.00%
25	5 & Over	6.70%	8.00%	7.60%	7.60%
30		5.90%	7.60%	7.22%	7.22%
35		5.20%	5.56%	5.28%	5.28%
40		4.40%	4.26%	4.05%	4.05%
45		3.40%	3.69%	3.51%	3.51%
50		2.40%	3.50%	3.33%	3.33%
55		2.00%	3.50%	3.33%	3.33%
60		0.00%	3.50%	3.33%	3.33%
Ref		338 1068	143 212	584 212 x 0.95	188 212 x 0.95

Sample Ages	% of Active Members Becoming Disabled Within Next Year			
	D.O.T.		Others	
	Ordinary	Duty	Ordinary	Duty
25	0.02%	0.03%	0.01%	0.25%
30	0.05%	0.08%	0.04%	0.29%
35	0.14%	0.21%	0.11%	0.34%
40	0.27%	0.42%	0.21%	0.39%
45	0.51%	0.79%	0.40%	0.45%
50	0.66%	1.03%	0.51%	0.52%
55	0.76%	1.18%	0.59%	0.60%
60	0.86%	1.34%	0.67%	0.70%
Ref	23 x 0.45	23 x 0.70	23 x 0.35	423 x 0.90

Rationale for assumption is based upon a 2002 to 2007 Experience Study.

Miscellaneous and Technical Assumptions

Benefit Service Exact Fractional service is used to determine the amount of benefit payable.

Decrement Operation Disability and mortality decrements do not operate during the first 5 years of service. Disability and withdrawal also do not operate during retirement eligibility.

Decrement Timing Decrements of all types are assumed to occur mid-year.

Eligibility Testing Eligibility for benefits is determined based upon the age nearest birthday and rounded service on the date the decrement is assumed to occur.

Forfeitures None.

Marriage Assumption 100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.

Normal Form of Benefit Straight life is the normal form of benefit. The Board adopted assumptions for Actuarial Equivalence to be an 80%/20% unisex blend of RP-2014 mortality (Male/Female) with Blue Collar Adjustment, set ahead 1 year for males and females, projected 11 years with MP-2014, an interest rate of 6.75, and no COLA for optional forms of payment and early retirement reduction. Assumptions for annuitizing member contributions are the same except for using a 60%/40% unisex blend and a 5.25% assumed rated of interest. Prior to that, actuarial equivalent factors were based on 7.5% interest and 1984 Group Annuity Mortality table.

Service Credit Accruals Service accruals stop as of June 30, 2014 for measurement of Component II liabilities. However, future service in Component I may be used to satisfy benefit eligibility requirement in Component II. Members who became duty disabled prior to June 30, 2014 are assumed to get projected service from date of disability to conversion date. Members who become disabled after June 30, 2014 are assumed to get their frozen accrued benefit as of June 30, 2014 at date of conversion.

Administrative Expenses 3.00% of Component I payroll. 60% was allocated to Component II and 40% to Component I.

Sick Leave Sick leave banks as of June 30, 2014 were included in the 2014 data file provided by the System.

Member Contributions Member contributions to this Component II plan are assumed to have ceased with the bankruptcy.

Pop-Up Benefits For current retirees with a pop-up benefit, the value of the pop-up was estimated by valuing a non-pop-up option and increasing the associated liabilities by 2%.

Rationale for assumption is based upon a 2002 to 2007 Experience Study, modified as necessary for changes in data or administration.

SECTION G

CALCULATION OF THE SINGLE DISCOUNT RATE

Calculation of the Single Discount Rate at End of Year

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.38%; the municipal bond rate is 3.13%; and the resulting Single Discount Rate is 7.38% as of June 30, 2019.

The tables in this section provide background for the development of the Single Discount Rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities). For purposes of determining the discount rate as of June 30, 2019, the employer contributions for the 10-year period ending June 30, 2023 were set by the 8th Amended Plan of Adjustment (POA), as adjusted by subsequent agreements. Subsequent employer contributions were determined by a closed 30-year level principle amortization of any unfunded actuarial accrued liability using 7.38% interest, net of investment expenses, consistent with the 100% funded target by 2053 in the POA and State Law.

Rates of Return: Note that these projections are specifically used to determine the SDR and should not be interpreted as a funding recommendation. The 7.38% rate of return was before administrative expenses. Therefore, the projections assumed that any administrative expenses incurred by the plan will directly increase employer contributions beginning with FY 2024. The rate is net of investment expenses.

Administrative Expenses: For purposes of the projection using a 7.38% rate of return, administrative expenses were assumed to be related to payroll. Payroll was increased by an assumed wage inflation as of June 30, 2014 of 2.00% for 5 years, 2.50% for the next 5 years and 3.00% thereafter. Since benefits are frozen, the wage inflation assumption does not affect anything other than the administrative expenses.

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years.

Unfunded Actuarial Accrued Liabilities. Actual employer contributions through June 30, 2023 are set by the POA. The amortization period and method after 2023 has not yet been established by the Board.

Calculation of the Single Discount Rate at End of Year

The **Present Values of Projected Benefit Payments** table shows the development of the SDR. It breaks down the benefit payments into present values for funded and unfunded portions (if any) and shows the equivalent total at the SDR. For purposes of determining the discount rate as of June 30, 2019, the benefit payments reflect the plan provisions in force as of June 30, 2019.

Single Discount Rate Development
Projection of Contributions
End of Year

Fiscal Year Ending June 30,	Projected Contributions from Current Employees	Projected Service Cost	Administrative Expense Contributions	Projected UAL Contributions	Projected Total Contributions
2020	$ -	$ -	$ 4,003,491	$ 44,271,509	$ 48,275,000
2021	-	-	3,688,290	44,586,710	48,275,000
2022	-	-	3,442,571	44,832,429	48,275,000
2023	-	-	3,254,127	45,020,873	48,275,000
2024	-	-	3,099,688	107,116,448	110,216,136
2025	-	-	2,956,312	104,656,836	107,613,148
2026	-	-	2,825,200	102,197,224	105,022,424
2027	-	-	2,682,735	99,737,611	102,420,346
2028	-	-	2,528,771	97,277,999	99,806,770
2029	-	-	2,377,390	94,818,387	97,195,777
2030	-	-	2,236,895	92,358,774	94,595,669
2031	-	-	2,103,031	89,899,162	92,002,193
2032	-	-	1,974,356	87,439,550	89,413,906
2033	-	-	1,850,063	84,979,938	86,830,001
2034	-	-	1,733,748	82,520,325	84,254,073
2035	-	-	1,625,976	80,060,713	81,686,689
2036	-	-	1,524,318	77,601,101	79,125,419
2037	-	-	1,426,282	75,141,489	76,567,771
2038	-	-	1,333,444	72,681,876	74,015,320
2039	-	-	1,246,058	70,222,264	71,468,322
2040	-	-	1,162,953	67,762,652	68,925,605
2041	-	-	1,084,383	65,303,039	66,387,422
2042	-	-	1,008,841	62,843,427	63,852,268
2043	-	-	936,579	60,383,815	61,320,394
2044	-	-	866,984	57,924,203	58,791,187
2045	-	-	798,070	55,464,590	56,262,660
2046	-	-	729,851	53,004,978	53,734,829
2047	-	-	661,273	50,545,366	51,206,639
2048	-	-	589,765	48,085,753	48,675,518
2049	-	-	518,372	45,626,141	46,144,513
2050	-	-	451,213	43,166,529	43,617,742
2051	-	-	387,805	40,706,917	41,094,722
2052	-	-	328,668	38,247,304	38,575,972
2053	-	-	275,206	35,787,692	36,062,898
2054	-	-	228,115	-	228,115
2055	-	-	187,180	-	187,180
2056	-	-	151,718	-	151,718
2057	-	-	121,361	-	121,361
2058	-	-	96,002	-	96,002
2059	-	-	75,057	-	75,057
2060	-	-	57,734	-	57,734
2061	-	-	43,143	-	43,143
2062	-	-	31,272	-	31,272
2063	-	-	22,185	-	22,185
2064	-	-	15,584	-	15,584
2065	-	-	10,930	-	10,930
2066	-	-	7,657	-	7,657
2067	-	-	5,346	-	5,346
2068	-	-	3,726	-	3,726
2069	-	-	2,587	-	2,587

Employer contributions as shown may differ substantially from those determined by a funding valuation.

Single Discount Rate Development
Projection of Plan Fiduciary Net Position
End of Year

Fiscal Year Ending June 30,	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected ASF Refund	Projected Administrative Expenses	Projected Investment Earnings at 7.38% (5.25% for ASF)	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)	(g)=(a)+(b)-(c)-(d)-(e)+(f)
2020	$ 1,798,906,827	$ 48,275,000	$ 246,539,972	$ 15,364,239	$ 4,003,491	$ 122,469,013	$ 1,703,743,138
2021	1,703,743,138	48,275,000	245,085,260	15,364,239	3,688,290	115,711,351	1,603,591,701
2022	1,603,591,701	48,275,000	242,863,029	15,364,239	3,442,571	108,621,459	1,498,818,321
2023	1,498,818,321	48,275,000	240,187,961	15,364,239	3,254,127	101,215,925	1,389,502,920
2024	1,389,502,920	110,216,136	237,493,538	15,364,239	3,099,688	95,731,311	1,339,492,902
2025	1,339,492,902	107,613,148	234,701,767	15,364,239	2,956,312	92,299,594	1,286,383,327
2026	1,286,383,327	105,022,424	231,605,211	15,364,239	2,825,200	88,663,143	1,230,274,244
2027	1,230,274,244	102,420,346	227,934,289	15,364,239	2,682,735	84,839,793	1,171,553,120
2028	1,171,553,120	99,806,770	223,716,795	15,364,239	2,528,771	80,857,847	1,110,607,933
2029	1,110,607,933	97,195,777	218,946,994	15,364,239	2,377,390	76,746,901	1,047,861,989
2030	1,047,861,989	94,595,669	213,996,253	-	2,236,895	72,923,681	999,148,191
2031	999,148,191	92,002,193	208,749,796	-	2,103,031	69,429,607	949,727,165
2032	949,727,165	89,413,906	203,293,223	-	1,974,356	65,890,955	899,764,446
2033	899,764,446	86,830,001	197,494,767	-	1,850,063	62,324,717	849,574,334
2034	849,574,334	84,254,073	191,277,716	-	1,733,748	58,756,868	799,573,812
2035	799,573,812	81,686,689	184,593,749	-	1,625,976	55,219,934	750,260,710
2036	750,260,710	79,125,419	177,678,054	-	1,524,318	51,742,130	701,925,887
2037	701,925,887	76,567,771	170,493,233	-	1,426,282	48,346,277	654,920,419
2038	654,920,419	74,015,320	163,189,239	-	1,333,444	45,052,849	609,465,904
2039	609,465,904	71,468,322	155,625,146	-	1,246,058	41,883,309	565,946,331
2040	565,946,331	68,925,605	147,897,980	-	1,162,953	38,862,477	524,673,480
2041	524,673,480	66,387,422	140,090,346	-	1,084,383	36,010,370	485,896,544
2042	485,896,544	63,852,268	132,210,219	-	1,008,841	33,345,089	449,874,842
2043	449,874,842	61,320,394	124,375,340	-	936,579	30,881,505	416,764,822
2044	416,764,822	58,791,187	116,587,330	-	866,984	28,631,104	386,732,797
2045	386,732,797	56,262,660	108,832,730	-	798,070	26,606,647	359,971,305
2046	359,971,305	53,734,829	101,181,949	-	729,851	24,819,794	336,614,128
2047	336,614,128	51,206,639	93,721,443	-	661,273	23,277,283	316,715,334
2048	316,715,334	48,675,518	86,472,114	-	589,765	21,982,347	300,311,320
2049	300,311,320	46,144,513	79,484,629	-	518,372	20,935,835	287,388,666
2050	287,388,666	43,617,742	72,785,502	-	451,213	20,135,797	277,905,490
2051	277,905,490	41,094,722	66,396,146	-	387,805	19,578,365	271,794,625
2052	271,794,625	38,575,972	60,334,265	-	328,668	19,257,941	268,965,606
2053	268,965,606	36,062,898	54,615,294	-	275,206	19,167,289	269,305,292
2054	269,305,292	228,115	49,249,561	-	228,115	18,089,768	238,145,499
2055	238,145,499	187,180	44,241,127	-	187,180	15,971,697	209,876,069
2056	209,876,069	151,718	39,591,819	-	151,718	14,053,919	184,338,169
2057	184,338,169	121,361	35,297,829	-	121,361	12,324,850	161,365,190
2058	161,365,190	96,002	31,351,966	-	96,002	10,772,455	140,785,680
2059	140,785,680	75,057	27,744,484	-	75,057	9,384,434	122,425,629
2060	122,425,629	57,734	24,462,814	-	57,734	8,148,400	106,111,215
2061	106,111,215	43,143	21,491,868	-	43,143	7,052,073	91,671,421
2062	91,671,421	31,272	18,814,849	-	31,272	6,083,440	78,940,012
2063	78,940,012	22,185	16,413,760	-	22,185	5,230,885	67,757,137
2064	67,757,137	15,584	14,269,798	-	15,584	4,483,293	57,970,633
2065	57,970,633	10,930	12,363,723	-	10,930	3,830,132	49,437,041
2066	49,437,041	7,657	10,676,129	-	7,657	3,261,516	42,022,429
2067	42,022,429	5,346	9,187,852	-	5,346	2,768,258	35,602,834
2068	35,602,834	3,726	7,880,365	-	3,726	2,341,879	30,064,349
2069	30,064,349	2,587	6,736,049	-	2,587	1,974,613	25,302,913

Employer contributions as shown may differ substantially from those determined by a funding valuation.

Single Discount Rate Development
Projection of Plan Fiduciary Net Position
End of Year (Concluded)

Fiscal Year Ending June 30,	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected ASF Refund	Projected Administrative Expenses	Projected Investment Earnings at 7.38% (5.25% for ASF)	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)	(g)=(a)+(b)-(c)-(d)-(e)+(f)
2070	$ 25,302,913	$ 1,784	$ 5,738,341	$ -	$ 1,784	$ 1,659,379	$ 21,223,951
2071	21,223,951	1,224	4,871,735	-	1,224	1,389,760	17,741,977
2072	17,741,977	837	4,121,776	-	837	1,159,971	14,780,172
2073	14,780,172	567	3,475,134	-	567	964,827	12,269,865
2074	12,269,865	381	2,919,623	-	381	799,700	10,149,941
2075	10,149,941	253	2,444,143	-	253	660,482	8,366,280
2076	8,366,280	166	2,038,630	-	166	543,545	6,871,195
2077	6,871,195	108	1,694,029	-	108	445,697	5,622,863
2078	5,622,863	65	1,402,237	-	65	364,146	4,584,772
2079	4,584,772	31	1,156,089	-	31	296,456	3,725,139
2080	3,725,139	11	949,277	-	11	240,510	3,016,372
2081	3,016,372	2	776,261	-	2	194,474	2,434,586
2082	2,434,586	-	632,201	-	-	156,759	1,959,144
2083	1,959,144	-	512,868	-	-	125,997	1,572,274
2084	1,572,274	-	414,528	-	-	101,010	1,258,755
2085	1,258,755	-	333,892	-	-	80,795	1,005,658
2086	1,005,658	-	268,083	-	-	64,501	802,077
2087	802,077	-	214,606	-	-	51,415	638,887
2088	638,887	-	171,329	-	-	40,940	508,497
2089	508,497	-	136,450	-	-	32,582	404,629
2090	404,629	-	108,450	-	-	25,931	322,110
2091	322,110	-	86,051	-	-	20,653	256,712
2092	256,712	-	68,196	-	-	16,474	204,990
2093	204,990	-	54,016	-	-	13,171	164,145
2094	164,145	-	42,794	-	-	10,563	131,914
2095	131,914	-	33,947	-	-	8,505	106,471
2096	106,471	-	27,003	-	-	6,879	86,347
2097	86,347	-	21,570	-	-	5,591	70,368
2098	70,368	-	17,328	-	-	4,565	57,604
2099	57,604	-	14,020	-	-	3,743	47,327
2100	47,327	-	11,438	-	-	3,078	38,968
2101	38,968	-	9,411	-	-	2,535	32,092
2102	32,092	-	7,805	-	-	2,085	26,372
2103	26,372	-	6,517	-	-	1,710	21,565
2104	21,565	-	5,461	-	-	1,394	17,497
2105	17,497	-	4,575	-	-	1,125	14,047
2106	14,047	-	3,816	-	-	898	11,129
2107	11,129	-	3,157	-	-	707	8,679
2108	8,679	-	2,582	-	-	547	6,644
2109	6,644	-	2,080	-	-	415	4,979
2110	4,979	-	1,644	-	-	308	3,643
2111	3,643	-	1,272	-	-	223	2,593
2112	2,593	-	962	-	-	157	1,788
2113	1,788	-	708	-	-	106	1,186
2114	1,186	-	507	-	-	69	749
2115	749	-	351	-	-	43	441
2116	441	-	234	-	-	24	230
2117	230	-	151	-	-	12	91
2118	91	-	94	-	-	3	-
2119	-	-	-	-	-	0	0

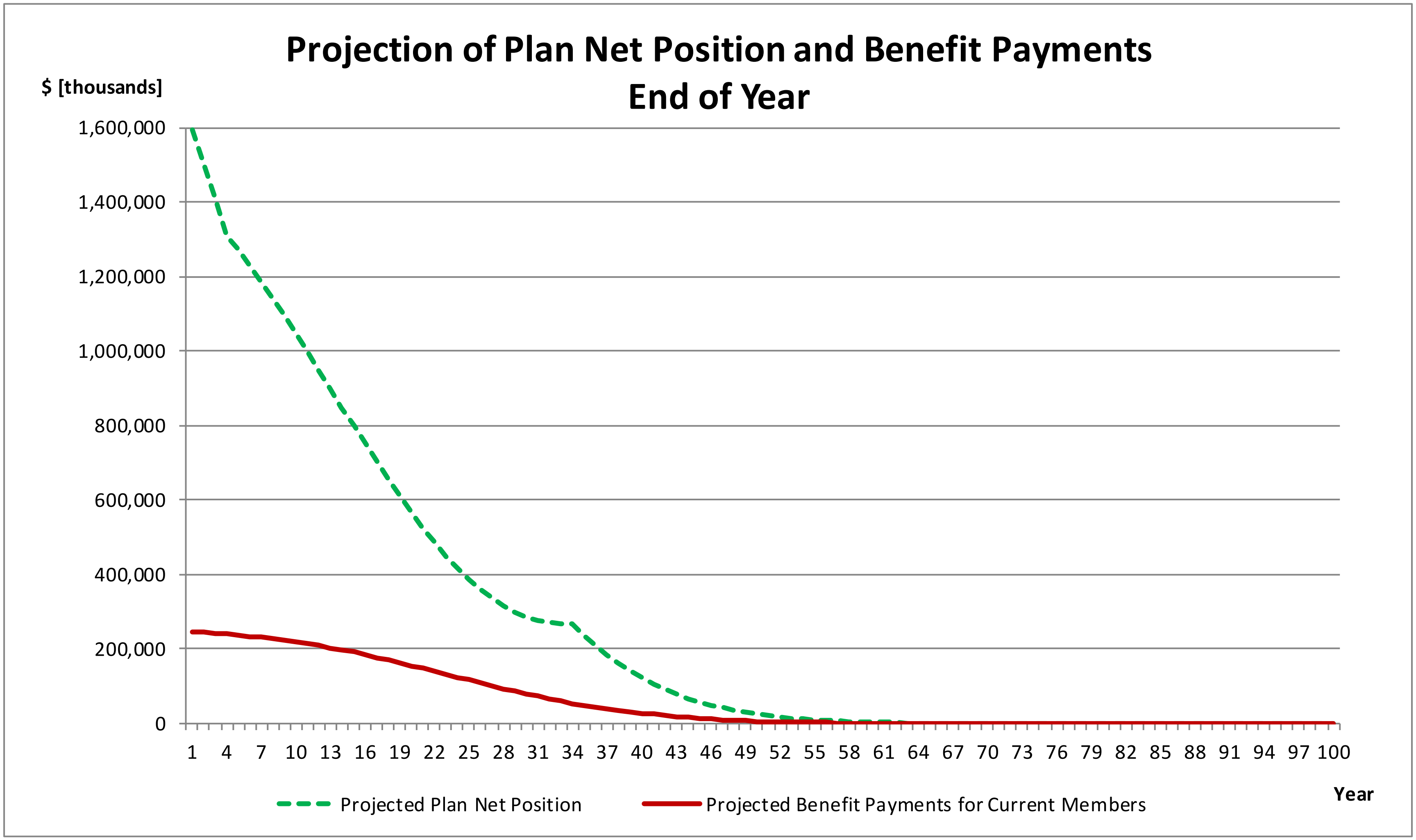
Employer contributions as shown may differ substantially from those determined by a funding valuation.

Single Discount Rate Development
Present Values of Projected Benefits
End of Year
(Excluding ASF)

Fiscal Year Ending June 30,	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=(c)/(1+sdr)^(a-.5)
2020	$ 1,678,658,059	$ 246,539,972	$ 246,539,972	$ -	$ 237,917,092	$ -	$ 237,917,092
2021	1,592,943,701	245,085,260	245,085,260	-	220,258,204	-	220,258,204
2022	1,502,737,684	242,863,029	242,863,029	-	203,260,462	-	203,260,462
2023	1,408,431,860	240,187,961	240,187,961	-	187,205,815	-	187,205,815
2024	1,310,133,561	237,493,538	237,493,538	-	172,383,819	-	172,383,819
2025	1,271,719,043	234,701,767	234,701,767	-	158,649,118	-	158,649,118
2026	1,230,813,731	231,605,211	231,605,211	-	145,796,208	-	145,796,208
2027	1,187,549,636	227,934,289	227,934,289	-	133,623,907	-	133,623,907
2028	1,142,347,862	223,716,795	223,716,795	-	122,137,687	-	122,137,687
2029	1,095,631,790	218,946,994	218,946,994	-	111,318,332	-	111,318,332
2030	1,047,861,989	213,996,253	213,996,253	-	101,323,568	-	101,323,568
2031	999,148,191	208,749,796	208,749,796	-	92,046,433	-	92,046,433
2032	949,727,165	203,293,223	203,293,223	-	83,479,609	-	83,479,609
2033	899,764,446	197,494,767	197,494,767	-	75,524,820	-	75,524,820
2034	849,574,334	191,277,716	191,277,716	-	68,120,070	-	68,120,070
2035	799,573,812	184,593,749	184,593,749	-	61,221,546	-	61,221,546
2036	750,260,710	177,678,054	177,678,054	-	54,877,927	-	54,877,927
2037	701,925,887	170,493,233	170,493,233	-	49,039,683	-	49,039,683
2038	654,920,419	163,189,239	163,189,239	-	43,712,800	-	43,712,800
2039	609,465,904	155,625,146	155,625,146	-	38,821,604	-	38,821,604
2040	565,946,331	147,897,980	147,897,980	-	34,358,370	-	34,358,370
2041	524,673,480	140,090,346	140,090,346	-	30,307,849	-	30,307,849
2042	485,896,544	132,210,219	132,210,219	-	26,637,198	-	26,637,198
2043	449,874,842	124,375,340	124,375,340	-	23,336,428	-	23,336,428
2044	416,764,822	116,587,330	116,587,330	-	20,371,737	-	20,371,737
2045	386,732,797	108,832,730	108,832,730	-	17,709,766	-	17,709,766
2046	359,971,305	101,181,949	101,181,949	-	15,333,205	-	15,333,205
2047	336,614,128	93,721,443	93,721,443	-	13,226,516	-	13,226,516
2048	316,715,334	86,472,114	86,472,114	-	11,364,732	-	11,364,732
2049	300,311,320	79,484,629	79,484,629	-	9,728,432	-	9,728,432
2050	287,388,666	72,785,502	72,785,502	-	8,296,238	-	8,296,238
2051	277,905,490	66,396,146	66,396,146	-	7,047,836	-	7,047,836
2052	271,794,625	60,334,265	60,334,265	-	5,964,218	-	5,964,218
2053	268,965,606	54,615,294	54,615,294	-	5,027,828	-	5,027,828
2054	269,305,292	49,249,561	49,249,561	-	4,222,261	-	4,222,261
2055	238,145,499	44,241,127	44,241,127	-	3,532,202	-	3,532,202
2056	209,876,069	39,591,819	39,591,819	-	2,943,753	-	2,943,753
2057	184,338,169	35,297,829	35,297,829	-	2,444,109	-	2,444,109
2058	161,365,190	31,351,966	31,351,966	-	2,021,687	-	2,021,687
2059	140,785,680	27,744,484	27,744,484	-	1,666,105	-	1,666,105
2060	122,425,629	24,462,814	24,462,814	-	1,368,071	-	1,368,071
2061	106,111,215	21,491,868	21,491,868	-	1,119,317	-	1,119,317
2062	91,671,421	18,814,849	18,814,849	-	912,549	-	912,549
2063	78,940,012	16,413,760	16,413,760	-	741,379	-	741,379
2064	67,757,137	14,269,798	14,269,798	-	600,242	-	600,242
2065	57,970,633	12,363,723	12,363,723	-	484,322	-	484,322
2066	49,437,041	10,676,129	10,676,129	-	389,472	-	389,472
2067	42,022,429	9,187,852	9,187,852	-	312,142	-	312,142
2068	35,602,834	7,880,365	7,880,365	-	249,322	-	249,322
2069	30,064,349	6,736,049	6,736,049	-	198,471	-	198,471

Single Discount Rate Development
Present Values of Projected Benefits
End of Year
(Excluding ASF) (Concluded)

Fiscal Year Ending June 30,	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=(c)/(1+sdr)^(a-.5)
2070	$ 25,302,913	$ 5,738,341	$ 5,738,341	$ -	$ 157,454	$ -	$ 157,454
2071	21,223,951	4,871,735	4,871,735	-	124,488	-	124,488
2072	17,741,977	4,121,776	4,121,776	-	98,086	-	98,086
2073	14,780,172	3,475,134	3,475,134	-	77,014	-	77,014
2074	12,269,865	2,919,623	2,919,623	-	60,256	-	60,256
2075	10,149,941	2,444,143	2,444,143	-	46,976	-	46,976
2076	8,366,280	2,038,630	2,038,630	-	36,489	-	36,489
2077	6,871,195	1,694,029	1,694,029	-	28,237	-	28,237
2078	5,622,863	1,402,237	1,402,237	-	21,767	-	21,767
2079	4,584,772	1,156,089	1,156,089	-	16,713	-	16,713
2080	3,725,139	949,277	949,277	-	12,780	-	12,780
2081	3,016,372	776,261	776,261	-	9,732	-	9,732
2082	2,434,586	632,201	632,201	-	7,381	-	7,381
2083	1,959,144	512,868	512,868	-	5,577	-	5,577
2084	1,572,274	414,528	414,528	-	4,198	-	4,198
2085	1,258,755	333,892	333,892	-	3,149	-	3,149
2086	1,005,658	268,083	268,083	-	2,354	-	2,354
2087	802,077	214,606	214,606	-	1,755	-	1,755
2088	638,887	171,329	171,329	-	1,305	-	1,305
2089	508,497	136,450	136,450	-	968	-	968
2090	404,629	108,450	108,450	-	716	-	716
2091	322,110	86,051	86,051	-	529	-	529
2092	256,712	68,196	68,196	-	391	-	391
2093	204,990	54,016	54,016	-	288	-	288
2094	164,145	42,794	42,794	-	213	-	213
2095	131,914	33,947	33,947	-	157	-	157
2096	106,471	27,003	27,003	-	116	-	116
2097	86,347	21,570	21,570	-	87	-	87
2098	70,368	17,328	17,328	-	65	-	65
2099	57,604	14,020	14,020	-	49	-	49
2100	47,327	11,438	11,438	-	37	-	37
2101	38,968	9,411	9,411	-	28	-	28
2102	32,092	7,805	7,805	-	22	-	22
2103	26,372	6,517	6,517	-	17	-	17
2104	21,565	5,461	5,461	-	13	-	13
2105	17,497	4,575	4,575	-	10	-	10
2106	14,047	3,816	3,816	-	8	-	8
2107	11,129	3,157	3,157	-	6	-	6
2108	8,679	2,582	2,582	-	5	-	5
2109	6,644	2,080	2,080	-	4	-	4
2110	4,979	1,644	1,644	-	3	-	3
2111	3,643	1,272	1,272	-	2	-	2
2112	2,593	962	962	-	1	-	1
2113	1,788	708	708	-	1	-	1
2114	1,186	507	507	-	1	-	1
2115	749	351	351	-	0	-	0
2116	441	234	234	-	0	-	0
2117	230	151	151	-	0	-	0
2118	91	94	94	-	0	-	0
2119	0	-	-	-	-	-	-
				Totals	$ 2,613,353,913	$ -	$ 2,613,353,913


Projection of Plan Net Position and Benefit Payments
End of Year
$ [thousands]
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76 79 82 85 88 91 94 97 100
Year
Projected Plan Net Position
Projected Benefit Payments for Current Members

SECTION H

GLOSSARY OF TERMS

Glossary of Terms

Actuarial Accrued Liability (AAL)	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."
Actuarial Assumptions	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
Accrued Service	Service credited under the system which was rendered before the date of the actuarial valuation.
Actuarial Equivalent	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
Actuarial Gain (Loss)	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
Actuarial Present Value (APV)	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.
Actuarial Valuation	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions.
Actuarial Valuation Date	The date as of which an actuarial valuation is performed.
Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)	A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.

Glossary of Terms

AFC	Average Final Compensation.
Amortization Payment	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
Amortization Method	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be "open" (meaning, reset each year) or "closed" (the number of years remaining will decline each year).
APTE	Association of Professional and Technical Employees.
ASF	Annuity Savings Fund.
Cost-of-Living Adjustments	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
Covered-Employee Payroll	The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
Deferred Inflows and Outflows	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
DIA	Detroit Institute of Art.
Discount Rate	For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: 1. The benefit payments to be made while the pension plans' fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and 2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

Glossary of Terms

D.O.T.	Department of Transportation.
DWSD	Detroit Water and Sewerage Department.
EMS	Emergency Medical Service.
Entry Age Actuarial Cost Method (EAN)	The EAN is a funding method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.
GASB	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
GLWA	Great Lakes Water Authority.
Fiduciary Net Position	The fiduciary net position is the value of the assets of the trust.
Long-Term Expected Rate of Return	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.
Money-Weighted Rate of Return	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.
Multiple-Employer Defined Benefit Pension Plan	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Municipal Bond Rate	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
Net Pension Liability (NPL)	The NPL is the liability of employers and non-employer contribution entities to plan members for benefits provided through a defined benefit pension plan.

Glossary of Terms

Non-Employer Contribution Entities	Non-employer contribution entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB Accounting statement plan members are not considered non-employer contribution entities.
Normal Cost	The actuarial present value of the pension trust benefits allocated to the current year by the actuarial cost method. Also known as service cost.
POA	The 8th Amended Plan for the Adjustment of the Debt of the City of Detroit.
SAAA	Senior Accountants, Analysts, and Appraisers Association.
UTGO	Unlimited Tax General Obligation.

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The General Retirement System of the City of Detroit

Annual Actuarial Valuation of Component II
June 30, 2019

800.521.0498 | P: 248.799.9000 | www.grsconsulting.com

February 26, 2020

Board of Trustees
The General Retirement System of the City of Detroit

Dear Board Members:

This report provides key results from the **Annual Actuarial Valuation** of the annuity and pension liabilities of the General Retirement System of the City of Detroit – Component II benefits. The date of the valuation was **June 30, 2019.**

The City of Detroit filed for bankruptcy on July 18, 2013. A final Plan of Adjustment ("POA") was confirmed on November 7, 2014 and the official exit from bankruptcy was on December 10, 2014. In connection with the POA, very significant changes were made to the benefits that the General Retirement System provides and to the contributions that it will receive. In particular, the benefits provided by the Retirement System were divided into two separate plans, referred to as "Component I" and "Component II." The benefits provided in each component are effective July 1, 2014 and are described in detail in Emergency Manager Order No. 44, dated December 8, 2014. In very general terms, Component I provides benefits for service rendered on and after July 1, 2014 and Component II provides benefits for service rendered prior to July 1, 2014.

The results provided herein relate solely to the Component II benefits. Component I benefits will be the subject of a separate report. The purposes of the valuation are to measure the funding progress of Component II in accordance with the terms of the POA and to provide illustrative actuarially determined contribution amounts, given POA conditions and assumptions for Fiscal Year 2021 for Component II, for comparison with the contribution amounts provided in the POA. The results of the valuation are not applicable for other purposes. In particular, the information provided in this report is not suitable for financial reporting in connection with GASB Statement No. 67. Such information is provided in a separate report. Information regarding potential benefit restoration as allowed for in the POA will also be provided in a separate report, at the Board's request.

The contribution amounts on page 5 include POA stipulated contributions plus two illustrative contribution amounts from alternate funding policies. Users of this report should be aware that contributions made at these amounts do not guarantee benefit security.

This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as: plan experience differing from that anticipated by the economic and demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

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The valuation was based upon records maintained and furnished by the Retirement System staff concerning active members, retirees and beneficiaries, and financial accounts as of the valuation date. Data was checked for year-to-year consistency, but was not audited by the actuary. We are not responsible for the completeness or accuracy of the data. Certain necessary data was not available in time to be considered in this report and, therefore, it was necessary for us to use approximations. Please see related discussion in the Comments section as well as the Data section of this report.

The assumptions used in the valuations concerning future experience are summarized in Section D of this report. Except for the assumed rate of investment return, the actuarial assumptions used for the valuation are set by the Board based upon advice of the actuary and other parties. The assumed rate of investment return was set to 6.75% in the POA and is, therefore, a "prescribed assumption set by another party" as discussed in Actuarial Standard of Practice No. 4. In our judgement, all of the actuarial assumptions used for the valuation are reasonable for purposes of the measurement being made.

This report has been prepared by individuals who have substantial experience valuing public sector retirement systems. To the best of our knowledge, this report is complete and accurate and was made in accordance with Actuarial Standards of Practice promulgated by the Actuarial Standards Board.

The signing individuals are independent of the plan sponsor.

David T. Kausch and Judith A. Kermans are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

This report does not evaluate the plan sponsor's ability or willingness to make contributions to the Retirement System. Given the funded level of Component II, plan sponsor contributions are critical if further benefit reductions are to be avoided. Indeed, the employer contributions set forth in the POA are expected to lead to a decrease in the funded status through June 30, 2023 (as contemplated by the POA), even if all assumptions are met.

Respectfully submitted,

David T Kausch

David T. Kausch, FSA, EA, FCA, MAAA, PhD

Judith A. Kermans

Judith A. Kermans, EA, FCA, MAAA

Kenneth G. Alberts

Kenneth G. Alberts

DTK/JAK/KGA:dj

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SECTION A

VALUATION RESULTS

Executive Summary

($ in Millions)

Valuation Date		June 30, 2019		June 30, 2018
Contributions For Fiscal Year Ending		June 30, 2021		June 30, 2020
POA Mandated Employer Contributions	$	48.3	$	48.3
Membership				
Number of:				
Active Members		2,793		3,018
Retirees and Beneficiaries		11,557		11,684
Inactive, Nonretired Members		3,209		3,236
Total		17,559		17,938
Valuation Payroll	$	142.2	$	149.4
Assets				
Market Value (1)	$	1,798.9	$	1,940.6
Return on Market Value (net of administrative expenses)		2.64 %		8.64 %
Actuarial Information				
Actuarial Accrued Liability (2)	$	2,866.1	$	2,929.1
Unfunded Actuarial Accrued Liability: (2) - (1)		1,067.2		988.4
Funded Ratio: (1) / (2)		62.77 %		66.25 %
Risk Metrics				
Actuarial Accrued Liability Divided by Payroll		20.2		19.6
Market Value of Assest Divided by Payroll		12.6		13.0

Valuation Results

Required contributions to the Plan through FY 2023 are provided in the POA. Certain agreements (as allowed for in the POA) have resulted in some of the contributions being accelerated. The schedule below details our understanding of the remaining contributions required by the POA.

Contribution Source
($ Millions)

	For DWSD Liabilities		For Other Liabilities					
Fiscal Year	**DWSD**	**Transfers**	**UTGO**	**State**	**DIA**	**Other**	**Transfers from DWSD**	**Total**
2020	45.4	(2.5)	-	-	0.4	2.5	2.5	48.3
2021	45.4	(2.5)	-	-	0.4	2.5	2.5	48.3
2022	45.4	(2.5)	-	-	0.4	2.5	2.5	48.3
2023	45.4	(2.5)	-	-	0.4	2.5	2.5	48.3

We have assumed the contributions outlined above as called for in the POA (with adjustments) will not change. An estimate of the probability of those payments being made was outside the scope of this project, not required by Actuarial Standards, and was not made.

In order to develop divisional valuation results in accordance with POA provisions, we allocated the above contributions to the various divisions as instructed by the Retirement System staff. This was done by allocating DWSD transfer amounts to the General City division and remaining DWSD contributions to the DWSD division; allocating $2.5 million per year to the Library; and allocating remaining contributions to DOT and General in proportion to their unfunded liabilities as of June 30, 2019.

The chart below shows this allocation.

	General	**D.O.T.**	**Subtotal**	**Library**	**DWSD**	**Totals**
	$ Thousands					
Unfunded Liabilities (6/30/2019)	$ 558,215	$ 268,414	$ 826,629	$ 14,287	$ 226,237	$1,067,153
% of Subtotal	67.5%	32.5%	100.0%	N/A	N/A	
FY 2020 Contributions	$ 253	$ 122	$ 375	$ 2,500	$ 45,400	$ 48,275
Transfers	$ 2,500	$ -	$ 2,500	$ -	$ (2,500)	$ -
FY 2020 UAAL Contributions	**$ 2,753**	**$ 122**	**$ 2,875**	**$ 2,500**	**$ 42,900**	**$ 48,275**

A different allocation procedure would produce different results. If a different allocation procedure should be used, please let us know and we will revise this report.

Valuation Results (Continued)

Unfunded Actuarial Accrued Liability (UAAL)

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total
UAAL as of June 30, 2019	$ 558.2	$ 268.4	$ 226.2	$ 14.3	$ 1,067.2
Anticipated POA Contribution (EOY)	2.8	0.1	42.9	2.5	48.3
Anticipated Expenses@	-	-	-	-	-
Interest at 6.75%	37.7	18.1	15.3	1.0	72.0
Projected UAAL as of June 30, 2020	$ 593.1	$ 286.4	$ 198.6	$ 12.8	$ 1,090.9
Anticipated POA Contributions for FY2021	**2.8**	**0.1**	**42.9**	**2.5**	**48.3**
Estimated Employer Contributions for FY 2024 #!					
Alternate 1:Level Principal	**$ 71.9**	**$ 35.1**	**$ 10.5**	**$ 0.8**	**$ 118.2**
Alternate 2:Level Dollar##	**$ 56.0**	**$ 27.3**	**$ 8.2**	**$ 0.6**	**$ 92.1**

Totals may not add due to rounding.

@ *In accordance with Plan Document, the mandated 6.75% rate of return is net of investment and administrative expenses.*

\# *Assuming the POA contributions through 2023 and a 30-year closed amortization thereafter. When determining the Fiscal Year 2024 illustrative amounts, only the total contributions and the DWSD contributions are stipulated in the POA. The remaining amounts were allocated to the other groups as described on page 2. A different allocation would result in different results by group.*

! *Total employer contributions, including amounts paid by employer but funded from other sources as required by POA.*

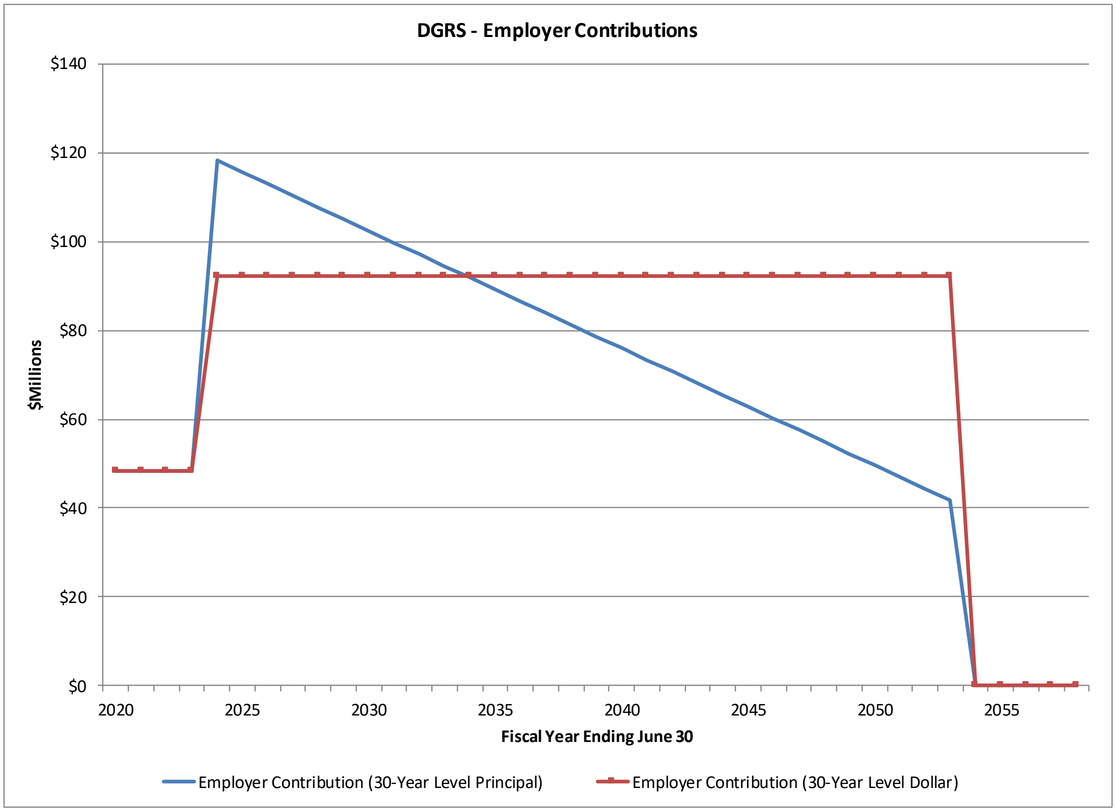
***Contributions at this level may not be sufficient to prevent fund depletion prior to satisfaction of all benefit payments. This scenario is included at System's request (see page 4).***

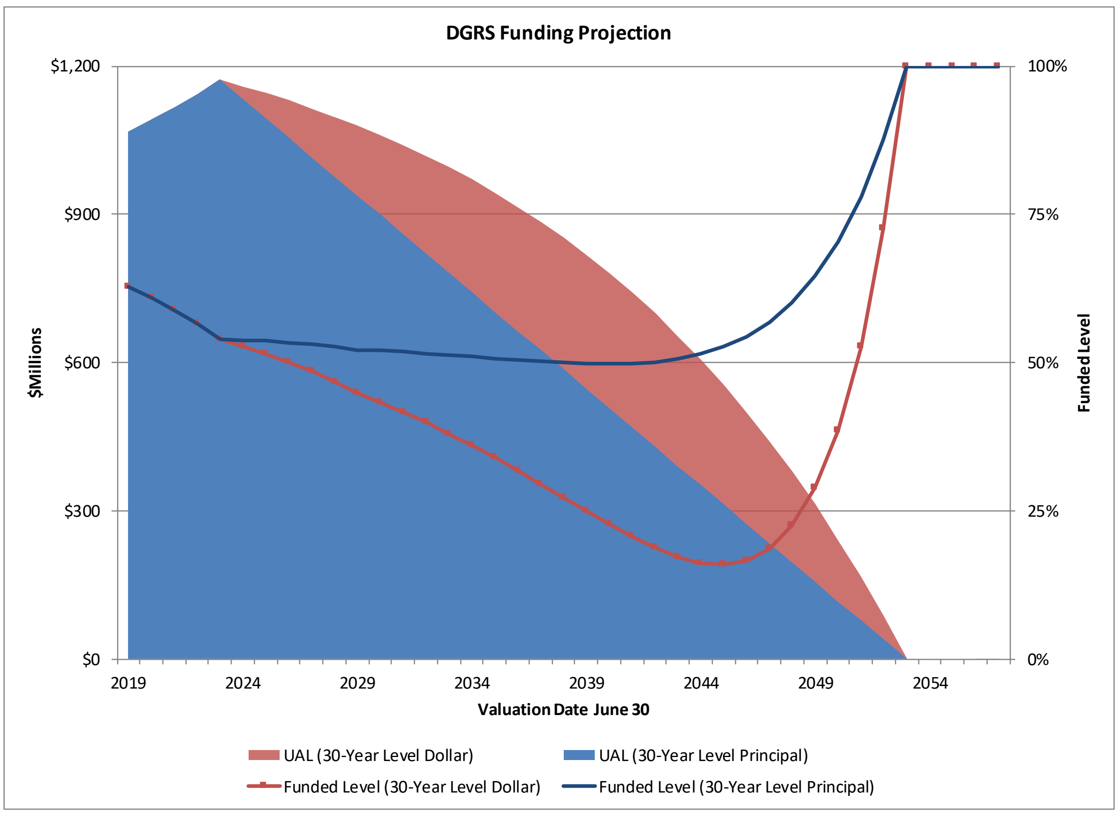
The POA contributions are well below actuarially determined amounts and, as such, result in a defunding of the plan between now and June 30, 2023, which was contemplated by the POA. In fact, the anticipated POA contributions do not project benefit restoration even if all assumptions are met (including the POA mandated assumed rate of return of 6.75%).

Also, the FY 2020 to 2023 contributions are less than the amount of nominal interest that accrues on the UAAL.

The Estimated Employer Contribution for FY 2024 is based on a projection of results assuming only the POA contributions are made and all future experience between the valuation date and FY 2024 is as assumed. Actual experience will result in changes to this estimate and the final result (from the June 30, 2022 actuarial valuation) could be materially different than shown above.

We understand that the City has set aside additional money in a side fund to be contributed to the pension plans in the future. This potential additional contribution has not been taken into account in this valuation.





Notes: 30-year amortization periods are assumed to begin in FY 2024.
30-year level dollar may result in fund depletion and pay-as-you-go funding before the end of the 30-year period. Under this scenario, the Plan is only 16% funded in 2045.

Valuation Results (Continued)

We have recommended that the Board establish a funding policy for the contribution determinations on and after fiscal year 2024. The Board has begun the process. Once that process has been completed we will incorporate the adopted policy into future valuation reports. Until that process is completed, we will continue to show the following two possible policies.

In the chart below, the first policy funds the UAAL over the expected remaining active service life of this group. The second policy is similar to the Board's pre-bankruptcy policy, but with accelerated principle payments of the UAAL to prevent insolvency prior to the end of the funding period. The illustrations are intended to show that there are a broad range of possible funding policies, but are not intended to provide a specific recommendation or a minimum or maximum level of contributions.

Funding Policy 1 is based on amortizing the UAAL over the average remaining service life of active members (7 years for general; 6 years for DOT; 7 years for DWSD; and 7 years for Library) using level dollar amortization.

Funding Policy 2 is based on amortizing the UAAL with level principal payments over a closed 30-year period plus interest. This method is also known as level principal declining interest amortization.

Illustrative Contribution Shortfall

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total
(1) Illustrative Contribution for FY 2021 (Funding Policy 1)	**$ 109.1**	**$ 59.6**	**$ 36.5**	**$ 2.3**	**$ 207.6**
(2) Illustrative Contribution for FY 2021 (Funding Policy 2)	**59.8**	**28.9**	**20.0**	**1.3**	**110.0**
(3) Actual Contributions for FY 2021 (POA)	**2.8**	**0.1**	**42.9**	**2.5**	**48.3**
Fiscal Year 2021 Shortfall - Funding Policy 1: (1) - (3)	**$ 106.3**	**$ 59.5**	**$ (6.4)**	**$ (0.2)**	**$ 159.3**
Fiscal Year 2021 Shortfall - Funding Policy 2: (2) - (3)	**$ 57.0**	**$ 28.8**	**$ (22.9)**	**$ (1.2)**	**$ 61.7**

We understand the Employer continues to set aside money in a separate side fund account to contribute to the Pension Plans in the future. Since the account is outside of the trust fund and the portion of the fund this Plan will receive (vs. the Police and Fire Group) has not been determined, we have not taken those assets into account in our calculations. We commend the Employer for taking proactive steps to manage the estimated increase in funding requirements beginning in FY 2024 from a budgeting perspective. In the meantime, we recommend continued consideration of increasing contributions actually deposited into the trust.

In addition, as the Board works through the funding policy, we would suggest considering a funding period less than 30 years. Given the fact that not all of the retiree liabilities are funded, a period of 15 years or less should be considered.

Valuation Results (Concluded)

Present Value	June 30, 2019	June 30, 2018
Accrued Pension Liabilities (Employer Financed)		
Retirees and beneficiaries	$2,091,442,091	$2,137,530,791
Inactive members future deferred pensions	256,076,056	262,312,745
Active members	292,534,990	312,344,059
Total accrued pensions	2,640,053,137	2,712,187,595
Pension fund balances	1,689,006,631	1,835,845,241
Unfunded accrued pension liabilities	$ 951,046,506	$ 876,342,354
Accrued Annuity Liabilities (Member Financed)		
Retirees and beneficiaries Future annuities	$ 105,757,686	$ 108,453,718
Member annuities & future refunds	120,248,768	108,420,640
Total accrued annuity liabilities	226,006,454	216,874,358
Annuity fund balances	109,900,196	104,778,401
Unfunded accrued annuity liabilities*	$ 116,106,258	$ 112,095,957
Totals		
Actuarial Accrued Liabilities (AAL)	**$2,866,059,591**	**$2,929,061,953**
Market Value of Assets (MVA)	**1,798,906,827**	**1,940,623,642**
Unfunded Actuarial Accrued Liabilities (UAAL)	**$1,067,152,764**	**$ 988,438,311**
POA Funded Status	**62.8%**	**66.3%**

* *Liabilities are gross before accounting for ASF claw-back. Assets currently include a receivable of approximately $101.9 million related to the ASF claw-back. We believe the receivable is included in the Pension fund balances.*

Historical Results ($ Millions)

	2017	2016	2015	2014
Total AAL	$2,995.8	$3,032.3	$3,139.1	$3,222.4
MVA	1,966.7	1,933.5	2,131.3	2,015.2
UAAL	1,029.1	1,098.8	1,007.8	1,207.1
POA Funded Status	65.6%	63.8%	67.9%	62.5%

Funded Ratio - POA

		Defined Benefit	ASF	Total
A	Actuarial Accrued Liability (AAL)	$2,745,810,823	$120,248,768	$2,866,059,591
B	Market Value of Assets	$1,678,658,059	$120,248,768	$1,798,906,827
C	Unfunded Actuarial Accrued Liability (A-B)	$1,067,152,764	$ 0	$1,067,152,764
D	Funded Ratio (B/A)	61.1%	100.0%	62.8%

The POA Funded Ratio measurement above is an expected return-based measurement of the pension obligation. It is based upon the mandated 6.75% interest rate assumption (assumption prescribed by the POA). It determines an amount (AAL) that will be sufficient to provide benefits if the portfolio earns the expected 6.75% return on assets and all other assumptions are met. This measure is appropriate for assessing the need for or amount of future contributions (if all assumptions are met). This measure is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligation, in other words, of transferring the obligation to a third party in a market value type transaction.

Funded Ratio - Solvency

		Defined Benefit	ASF	Total
A	Market-Based Liability (MBL)	$3,952,857,325	$120,248,768	$4,073,106,093
B	Market Value of Assets	$1,678,658,059	$120,248,768	$1,798,906,827
C	Unfunded Market-Based Liability (A-B)	$2,274,199,266	$ 0	$2,274,199,266
D	Funded Ratio (B/A)	42.5%	100.0%	44.2%

The Solvency Funded Ratio is a market-based measurement of the pension obligation. It estimates the amount (MBL) the plan would need to invest in low risk securities to provide the benefits with greater certainty. For this purpose, the MBL is computed at 3.13% interest as of June 30, 2019, based on the long-term municipal bond rate ("20-Year Municipal GO AA Index" rate from the Fidelity Index as of June 28, 2019). We are not able to assess the credit quality of the plan sponsor and, as such, no adjustment has been made for the credit quality of the plan sponsor. This measure may not be appropriate for assessing the need for or amount of future contributions. This measure may not be appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligation.

The difference between the two measures (POA and Solvency) is one illustration of the savings the sponsor anticipates by taking on the risk in a diversified portfolio.

Comments

Experience

Experience was less favorable than assumed during the year ending June 30, 2019. The chart below shows the estimated gain by division.

Development of Actuarial Gain/(Loss)

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total
(1) UAAL as of June 30, 2018 (BOY)	$ 500.1	$ 244.7	$ 229.6	$ 14.0	$ 988.4
(2) Actual POA Contribution (EOY)	22.8	0.1	42.9	2.5	68.3
(3) Interest at 6.75%	33.8	16.5	15.5	0.9	66.7
(4) Projected UAAL* as of June 30, 2019	$ 511.1	$ 261.1	$ 202.2	$ 12.4	$ 986.9
(5) Actual UAAL* as of June 30, 2019	558.2	268.4	226.2	14.3	1,067.2
Gain (Loss): (4) - (5)	$ (47.1)	$ (7.3)	$ (24.0)	$ (1.9)	$ (80.3)
Gain (Loss) From Investments	$ (41.9)	$ (6.7)	$ (20.6)	$ (3.2)	$ (72.4)
Gain (Loss) from ASF Audit Transfers	$ (11.4)	$ (1.9)	$ (5.9)	$ (0.9)	$ (20.0)
Gain (Loss) from Excess Interest Transfers (Inc. FY 2019)	$ (1.3)	$ (0.6)	$ (0.5)	$ (0.2)	$ (2.5)
Gain (Loss) From Liabilities	$ 7.5	$ 1.9	$ 2.9	$ 2.4	$ 14.7

* *Unfunded actuarial accrued liability.*

Source of Actuarial Gain/(Loss)

	Gain (Loss) in Period	
Type of Risk Area	**Totals ($ in Millions)**	**Percent of Liabilities**
Data Improvements	(7.3)	(0.3)%
ASF Audit Transfers	(20.0)	(0.7)%
Excess Interest Transfers (Inc. FY 2019)	(2.5)	(0.1)%
Risks Related to Experience		
Economic Risk Areas:		
Investment Return	(72.4)	(2.6)%
Demographic Risk Areas:		
Full and Reduced Service Retirements	9.7	0.3 %
Death Benefits^	0.1	0.0 %
Disability Benefits	(0.2)	0.0 %
Other Terminations	7.2	0.3 %
Post-Retirement Mortality	5.1	0.2 %
Total Gain (or Loss) Related to Experience	(50.5)	(1.8)%
Total Gain (or Loss) During Period	(80.3)	(2.8)%
Beginning of Year Accrued Liabilities	2,820.6	100.0 %

^ *Estimate may not be accurate due to limitations related to the data provided.*

Comments (Continued)

Experience (Continued)

The estimated FY 2024 contributions are very sensitive to changes in year-to-year experience. The chart below reconciles our estimate from the June 30, 2018 valuation to our estimate from this valuation (June 30, 2019).

The June 30, 2019 loss primarily due to investments decreased the funded percent more than expected and puts additional strain on the plan. For example, the projected funded level decreases to a minimum of about 16% funded in 2045 under the 30-year, level dollar contribution scenario, down from 23% based on the 2018 valuation. This means that the 30-year, level dollar scenario has an increased risk of the assets being depleted.

Reconciliation of Projected June 30, 2024 Contributions – Level Principal

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total*
Estimated FY 2024 Employer Contribution (Level Principal) from 6/30/18 Valuation	$ 66.5	$ 33.3	$ 7.3	$ 0.5	$ 107.7
Gain (Loss) From Investments	5.5	0.9	2.7	0.4	9.5
Gain (Loss) from ASF Audit Transfers	1.5	0.2	0.8	0.1	2.6
Gain (Loss) from Excess Interest Transfers (Inc. FY 2019)	0.2	0.1	0.1	-	0.3
Gain (Loss) From Liabilities	(1.0)	(0.2)	(0.4)	(0.3)	(1.9)
Modified Contributions (see below)	-	-	-	-	-
Actual FY 2019 Contribution above/(below) Expected	(0.9)	0.9	-	-	-

* *Totals may not add due to rounding.*

Reconciliation of Projected June 30, 2024 Contributions – Level Dollar

	($ Millions)				
	General City	D.O.T.	DWSD	Library	System Total*
Estimated FY 2024 Employer Contribution (Level Dollar) from 6/30/18 Valuation	$ 51.8	$ 26.0	$ 5.7	$ 0.4	$ 83.9
Gain (Loss) From Investments	4.3	0.7	2.1	0.3	7.4
Gain (Loss) from ASF Audit Transfers	1.2	0.2	0.6	0.1	2.0
Gain (Loss) from Excess Interest Transfers (Inc. FY 2019)	0.1	0.1	-	-	0.3
Gain (Loss) From Liabilities	(0.8)	(0.2)	(0.3)	(0.2)	(1.5)
Modified Contributions (see below)	-	-	-	-	-
Actual FY 2019 Contribution above/(below) Expected	(0.7)	0.7	-	-	-

* *Totals may not add due to rounding.*

Demographic Experience

	Number Count		
	Actual A	Expected E	A/E%
Retirement (including early)	80	262	31%
Disability	0	19	0%
Vested Terminations	145	57	255%
Other Terminations (including pre-retirement death)	131	43	303%
Post-Retirement Death	457	443	103%

Comments (Continued)

Retirements

Retirements were less than one-third the number expected. If this is an anomaly this year, it might result in losses in future years.

Vested Terminations were nearly three times the number expected. If this is an anomaly this year, it might result in losses in future years.

New Members

We continue to see active members added to the Legacy data. We have assumed these were either data corrections or re-hires. We have observed this every year since 2014. The change this year is included in the "Data Improvements" source of losses on page 8. This year 131 members were added as active to this plan. This resulted in an increase in accrued liabilities of approximately $6.5 million, after accounting for those members that were known to come from the deferred and retiree rolls.

Annuity Savings Fund (ASF) Claw-Back Data

For the June 30, 2015 valuation, the System's auditors determined a receivable in accordance with GAAP accounting that was included in the reported June 30, 2015 assets. The reported assets for the June 30, 2019 status valuation also included a receivable for the remaining claw-back payments. We have assumed this information, received by the System's auditors, was reasonable. This assumption is in compliance with the Actuarial Standards of Practice.

Annuity Savings Fund (ASF) Claw-Back Calculation

During FY 2019, the Board took corrective action to begin collecting ASF claw-back amounts for members who retired between 2015 and 2019 without a prior claw-back. The action included forgiving a certain portion of interest that would have otherwise been collected. This resulted in an experience loss of approximately $3.2 million.

Annuity Savings Fund (ASF) Audit

As a result of an audit of the financial statements compared to the member data, $23.6 million was transferred from the PAF to the ASF during the year ending June 30, 2019. Since the ASF balance is equal to the ASF accrued liability, the UAAL of the System increased by the $23.6 million as a result of this transfer.

Annuity Reserve Fund (ARF)

Typically, we would compare the Annuity Reserve Fund (ARF) to the ARF liabilities and recommend a transfer if liabilities exceed assets. However, the annuity claw-back receivable created by the Bankruptcy (which relates to the ARF and the ASF) makes this analysis much more complicated. If the System would like us to perform this calculation, we will need additional information not routinely provided for the valuation. Please let us know if this is needed.

In general, assets were reviewed for reasonableness. During that review, we discovered that the ARF does not appear to have been credited any interest. As a result, we recommend that all the reserve amounts be reviewed.

Comments (Continued)

Plan Provisions

Section B-1 (b) of the plan provides that members who terminate employment and are subsequently rehired before incurring a six-year break in service are eligible to earn additional vesting and eligibility service under the plan. For purposes of this valuation, we have assumed no terminated members will be rehired in the future. Rehires will, therefore, cause a loss when they occur.

Great Lakes Water Authority (GLWA) Members

For this valuation (6/30/2019) we received a separate file indicating the June 30, 2014 DWSD status of members. Any members that were indicated as being DWSD division members on that file were valued under the DWSD for this valuation, regardless of the division reported on the main valuation data (which we understand to be the division as of June 30, 2019 in the Component I plan).

Allocation of Contributions Between General and DOT

Our understanding of the allocation of contributions between General and DOT is discussed on page 2 of this report. Based on the reported assets, a different allocation method appears to have been used in FY 2019. If the System supplies us with this asset allocation method actually used, we can incorporate that method in future valuations.

Annuity Savings Fund (ASF) Interest Credits

The ASF fund is credited with the lesser of 5.25% interest and the total fund earnings. We understand that any earnings in excess of 5.25% (that otherwise would have been credited to the ASF fund if not for the 5.25% cap) will be transferred to Component I assets, to the extent needed, for funding of transition liability. Since ASF liabilities are equal to ASF balances, we did not model any such future excess earnings as part of this valuation. However, since the fund earned approximately 9% during FY 2018, we expect that there will be a transfer of excess ASF interest in FY 2020. Approximately $4.1 million was added to the liabilities in this report to account for anticipated excess earnings expected to occur as a result of return on assets in the 2018 fiscal year. We have discussed this additional liability with the Plan’s accountants and have been instructed that the excess earnings should not be included as a liability in the GASB 67 and 68 reports.

In FY 2019, approximately $9.0 million was transferred from Component II (Legacy) to Component I (Hybrid) due to excess interest earned in FY 2017. This was the first year of such a transfer. The amount was approximately $2.5 million more than we had estimated in the June 30, 2018 valuation. We believe the difference relates to an audit of the ASF balances which resulted in the System increasing the ASF reserve. This also resulted in a revision to our estimate of the transfer expected to occur in FY 2020 (from $3.4 million to $4.1 million).

We understand that the System has adopted a procedure for computing the ASF interest credits lagging the actual experience of the assets. We have not reviewed or audited this procedure.

Comments (Continued)

Estimated Excess Interest Transfers

Fiscal Year Transfer is Expected (A)	ASF Balance BOY (B)	Assumed ASF Payment (C)	ASF Balance EOY (D)	FY 2 Years Prior to Transfer: Year (E)	FY 2 Years Prior to Transfer: Estimated Return (F)	Investment Return Excess Percent (G) = (F) - 5.25%	ASF Return Excess (H) = (G) x (B)	Estimated Component I Funded Transition Cost Status (I)	Resulting Percent Transfer (J)	Assets to be Trasferred Out (BOY) (K) = (H) x (J)
2020	$ 120,248,768	$ 15,364,239	$ 110,799,437	2018	8.64%	3.39%	$ 4,076,433	<100%	100%	$ 4,076,433
2021	110,799,437	15,364,239	100,854,016	2019	2.64%	0.00%	-	<100%	100%	-

We understand this calculation will be performed by staff and may be different than shown above. The estimates above are used to approximate the effect on UAAL.

Section E-16(c) of the Combined General Plan is shown below:

In any Plan Year during the period beginning on or after July 1, 2014 and ending June 30, 2023 in which the annual rate of return credited to the accounts of members investing in the Annuity Savings Fund as provided in paragraph (b) is less than the actual rate of return net of expenses of the Retirement System's invested assets for the second Plan Year immediately preceding the Plan Year in which the annual rate of return is credited ("ASF Return Excess"), an amount equal to the value of the ASF Return Excess shall be transferred to the Pension Accumulation Fund maintained under Component I of the Combined Plan and shall be used to fund the Transition Cost relating to Component I. The Transition Cost is a measure of the liability that Component I of the Retirement System has at its inception; due to the fact that at its inception, members in Component I of the Retirement System receive vesting and eligibility credit under Component I for service that was earned prior to July 1, 2014 and is otherwise credited to members under Component II of the Retirement System. Transition Cost is calculated by the Plan Actuary. In the event there is an ASF return excess for a Plan Year following the Plan Year in which such transfers have fully funded the Transition Costs relating to Component I, fifty percent (50%) of such ASF Return Excess shall be transferred to the Pension Accumulation Fund maintained under Component II and the remaining fifty percent (50%) of such ASF Return Excess shall be transferred to Component I and credited to the Rate Stabilization Fund maintained under Component I. "Transition Cost" shall be determined by the Plan Actuary.

Comments (Continued)

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

Comments (Continued)

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2019	2018
Ratio of the market value of assets to total payroll*	6.4	7.4
Ratio of actuarial accrued liability to payroll*	10.2	11.1
Ratio of actives to retirees and beneficiaries	0.2	0.2
Ratio of net cash flow to market value of assets	-10.5%	-9.5%
Duration of the actuarial accrued liability	8.7	8.9

** Payroll for this purpose is Component I payroll of $280.1 million for 2019 and $263.3 million for 2018.*

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Comments (Continued)

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make benefits payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Duration of Actuarial Accrued Liability

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the liability would increase approximately 10% if the assumed rate of return were lowered 1%.

Additional Risk Assessment

The Solvency Liability shown on page 7 may be considered as a risk assessment. Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, and stress tests. We included additional risk assessments in the funding policy discussions based on the 2017 actuarial valuation. We can update those at the Board's request.

Census Data and Approximations

Data was reported separately for Component I and Component II. Additional time was needed to reconcile these two data sets as they came from different source data. Processing time for the valuation could be shortened if data for future valuations is reconciled before being provided to GRS. We would be happy to work with the Retirement System staff to help them provide the information that is needed for the valuation. Additional information about the data approximations and assumptions may be found on page 23.

Actuarial Assumptions

The Retirement System routinely has five-year experience studies in accordance with the City ordinance. The last experience study for the period from July 1, 2007 through June 30, 2012 was started but not completed due to the bankruptcy. We conducted a review of the mortality experience in 2013. We recommend that the System consider the experience study schedule. The next experience study would be scheduled for the period from July 1, 2012 through June 30, 2017. However, in order to avoid distortions from the bankruptcy, the next experience study could be scheduled to begin just after the City emerged from bankruptcy. This, however, would suggest a study based on the period July 1, 2015 through June 30, 2020. We understand the Board has chosen to follow this suggestion and has scheduled the next experience study to begin subsequent to the June 30, 2020 valuation.

Comments (Concluded)

Restoration

This valuation assumes no future restoration of Component II benefits (consistent with the expectation of the POA). Any future restoration will be reflected beginning in the next valuation after being granted.

DWSD (Water/Sewer) Projections

Based on this valuation, the DWSD (Water/Sewer) division is not expected to be fully funded by 2024. As a result, their contributions will continue to be needed in FY 2024 (see page 3 for estimated FY 2024 contributions) to fund DWSD liabilities.

Future Results

While FY 2020 investment performance has not yet been provided to us, the S&P 500 and the Dow Jones Industrial Average have so far both returned substantially more than 6.75%. If the Retirement System's experience is similar, this should result in upward pressure on the funded status and downward pressure on the FY 2024 contribution requirements.

The POA mandated contributions for FY 2020 and beyond are expected to defund the Retirement System, even if all assumptions are realized. In FY 2020 through FY 2023, the POA mandated contributions are expected to be approximately 67% of the interest on the projected UAAL. This defunding was contemplated in the POA.

Recommendation

We recommend that every potential action be taken to generate contributions to the Retirement System above those provided in the POA. Benefit payments to retirees in the Plan were almost $250 million compared to FY 2019 contribution of $68.3 million. See benefit projections on page 27.

Prior Recommendation

We understand that the Retirement System has undergone a service and AFC audit on active member data in lieu of computing frozen accrued benefits.

Prior Recommendation

The Board is currently working on the development of a funding policy for FY 2024 and beyond.

Conclusion

The funded status of the plan decreased this year from 66.3% to 62.8% as a result of:

- Defunding of the plan due to contributions substantially less than the actuarially determined amounts would have been. This defunding was mandated by the POA;
- Poor investment experience; and
- ASF activity as discussed on page 11.

Liability by Division - POA

($ Thousands)

	General	D.O.T.	DWSD	Library	Totals
Accrued Pension Liabilities					
Retirees and beneficiaries	$1,136,697	$300,097	$599,339	$ 55,310	$2,091,443
Inactive members future deferred pensions	139,341	31,041	80,207	5,487	256,076
Active members	161,233	72,770	36,110	22,422	292,535
Total accrued pension liabilities	1,437,271	403,908	715,656	83,219	2,640,054
Pension fund balances	944,403	145,468	525,821	73,314	1,689,006
Unfunded accrued pension liabilities	492,868	258,440	189,835	9,905	951,048
Accrued Annuity Liabilities					
Retirees and beneficiaries#	58,793	10,424	33,258	3,283	105,758
Members annuities & future refunds	61,870	30,005	19,704	8,670	120,249
Total accrued annuity liabilities	120,663	40,429	52,962	11,953	226,007
Annuity fund balances	55,316	30,455	16,559	7,570	109,900
Unfunded accrued annuity liabilities#	65,347	9,974	36,403	4,383	116,107
Totals					
Actuarial Accrued Liabilities	1,557,934	444,337	768,618	95,172	2,866,061
Accrued Assets	999,719	175,923	542,380	80,884	1,798,906
Funded Ratio	64.2%	39.6%	70.6%	85.0%	62.8%
Unfunded Actuarial Accrued Liabilities	**$ 558,215**	**$268,414**	**$226,238**	**$ 14,288**	**$1,067,155**

Totals may be off slightly due to rounding.

 # Liabilities are shown gross, before the annuity savings claw-back. The pension fund balance includes a receivable of approximately $101.9 million for future claw-back payments.

SECTION B

FUND ASSETS

Statement of Plan Assets
(Reported Assets at Market Value)

Market Value - June 30, 2019	
Cash and Cash Equivalents	$ 51,631,036
Investments at Fair Value	1,643,478,100
Receivables	115,241,526
Cash and Investments held as collateral for securities lending	81,947,607
Capital Assets- Net	1,197,282
Accounts Payable	(94,588,724)
Total Current Assets	**$ 1,798,906,827**

Market Value of Assets

Reserve Accounts
(Market Value)

Funds	Fund Balances June 30, 2019	Fund Balances June 30, 2018
Annuity Savings	$ 120,248,768	$ 108,420,640
Annuity Reserve	(10,348,572)	(3,642,239)
Pension Accumulation	(223,815,149)	(117,705,957)
Pension Reserve	1,912,821,780	1,953,551,198
Total Fund Balances	**$ 1,798,906,827**	**$1,940,623,642**

Revenues and Expenditures
(Market Value)

	Pension Funds	Annuity Funds	Total Funds
Balance, July 1, 2018	$1,835,845,240	$104,778,402	$1,940,623,642
Prior valuation audit adjustment	1	$ (1)	0
Market Value July 1, 2018	$1,835,845,241	$104,778,401	$1,940,623,642
Revenues			
Employer Contributions	67,900,000	0	67,900,000
Employee Contributions	0	0	0
Foundation Contributions	375,000	0	375,000
Annuity Interest	6,437,966	0	6,437,966
Investment Income (Net of Investment Expenses)	41,547,812	5,622,191	47,170,003
Transfer In (ASF from PAF to tie to System Report)	0	23,611,981	23,611,981
Transfer In (ASF from PAF)	0	129,555	129,555
Other Income	605,738	(161,137)	444,601
Total	$ 116,866,516	$ 29,202,590	$ 146,069,106
Expenditures			
Benefit Payments	224,709,220	10,444,512	235,153,732
Refund of Member Contributions	0	13,636,283	13,636,283
ASF Recoupment Write Off	3,214,754	0	3,214,754
Transfer Out (PAF to ASF to tie System Report)	23,611,981	0	23,611,981
Transfer Out (Transition Cost $9,015,677)	9,145,232	0	9,145,232
Administrative Expenses	3,023,939	0	3,023,939
Total	$ 263,705,126	$ 24,080,795	$ 287,785,921
Market Value June 30, 2019	$1,689,006,631	$109,900,196	$1,798,906,827
Market Value Rate of Return (Net of all expenses)	2.5%	5.2%	2.6%
Net Cash Flow as Percent of Assets	(10.3)%	(0.3)%	(9.8)%

Rates of return are dollar weighted estimates assuming contributions occur at the end of the year and remaining items are mid-year cash flows. “ASF Recoupment Interest” and “Other” items are treated as investment cash flows.

Note that interest credits to the ASF (and other reserves) are determined by plan provisions and Board policy (including any timing issues) as calculated by Retirement System staff.

Allocation of Assets Used for Valuation by Reserve Account and Division

	June 30, 2018	Adjustment	Contributions	Benefit Payments	Other	Investment Return (Net of All Expenses)	June 30, 2019
Annuity Savings Fund							
General	$ 54,566,238	$ 0	$ 0	$ (6,739,915)	$ 11,290,218	$ 2,753,433	$ 61,869,974
D.O.T.	30,852,797	0	0	(4,265,720)	1,838,413	1,579,074	30,004,564
DWSD	15,158,137	0	0	(2,180,547)	5,837,869	888,682	19,704,141
Library	7,843,468	0	0	(450,102)	875,721	401,002	8,670,089
Totals	108,420,640	0	0	(13,636,284)	19,842,221	5,622,191	120,248,768
Annuity Reserve Fund							
General	(2,652,058)	0	0	(5,903,156)	2,000,840	0	(6,554,374)
D.O.T.	656,362	0	0	(875,512)	669,918	0	450,768
DWSD	(825,765)	0	0	(3,247,767)	928,822	0	(3,144,710)
Library	(820,778)	0	0	(418,076)	138,598	0	(1,100,256)
Totals	(3,642,239)	0	0	(10,444,511)	3,738,178	0	(10,348,572)
Pension Accumulation Fund							
General	(24,208,026)	(100,442,331)	22,765,012	0	(15,675,108)	21,009,426	(96,551,027)
D.O.T.	(90,557,713)	(32,333,206)	109,988	0	(4,743,172)	3,719,989	(123,804,114)
DWSD	(28,059,583)	(45,727,473)	42,900,000	0	(6,936,633)	12,190,169	(25,633,520)
Library	25,119,365	(5,476,792)	2,500,000	0	(1,573,348)	1,604,287	22,173,512
Totals	(117,705,957)	(183,979,802)	68,275,000	0	(28,928,261)	38,523,871	(223,815,149)
Pension Reserve Fund							
General	1,066,519,669	100,442,331	0	(126,007,919)	0	0	1,040,954,081
D.O.T.	268,328,794	32,333,206	0	(31,390,169)	0	0	269,271,831
DWSD	566,455,527	45,727,473	0	(60,728,037)	0	0	551,454,963
Library	52,247,208	5,476,792	0	(6,583,095)	0	0	51,140,905
Totals	1,953,551,198	183,979,802	0	(224,709,220)	0	0	1,912,821,780
Retirement System Totals	$1,940,623,642	$ 0	$68,275,000	$ (248,790,015)	$ (5,347,862)	$ 44,146,062	$1,798,906,827

SECTION C

PARTICIPANT DATA

Reconciliation of Raw Data

Active Members

A) Count reported in Legacy file	2,952
B) In Legacy file but not in Hybrid file	(21)
C) Hired after plan closed	(94)
D) Non-active Status	(22)
E) Agency "88"	(22)
F) Non-eligible class code & bargaining unit	-
G) No hire date in Hybrid file	-
H) Zero salary in Hybrid file	-
I) Number of records to value	2,793

Inactive Vested Members

A) Number of records reported on data file	3,314
B) In Legacy active file but not otherwise in database and not in Hybrid active file	3
C) Valued as inactive in prior year and would not have otherwise been valued in Legacy this year	10
D) Valued as a vested active member in prior year but not in this year's active file and would not have otherwise been valued in Legacy this year	31
E) Less than 8 years of vesting service	(149)
F) Number of records to value	3,209

Retired Members and Beneficiaries

A) Number of records reported on data file	43,696
B) Number of records in P/F plan	(16,344)
C) Records not currently in receipt of benefits based on reported status codes	(15,481)
D) Component I (Hybrid) Records	(314)
E) Number of records valued	11,557

Reconciliation of Year-to-Year Data as of June 30, 2019

	Active		Term.	Retirees		Totals
	Count	Pay#	Count	Count	Monthly Benefits	Count
2018	**3,018**	**$149,373,313**	**3,236**	**11,684**	**$18,695,491**	**17,938**
Change in Pay/Pensions	N/A	4,007,800	N/A	N/A	(107,402)	
Rehired (Not Vested)	95	4,904,226	-			95
Rehired (Vested)	36	1,558,261	(30)	(6)	(10,218)	-
New Beneficiary				94	90,014	94
Retired	(80)	(3,907,381)	(134)	235	344,035	21
Non-Duty Disabled				-	-	-
Duty Disabled				-	-	-
Assumed Death/Removals			(11)	(457)	(621,537)	(468)
Vested Term	(145)	(7,397,273)	148			3
Non-Vested Terminated	(131)	(6,323,886)				(131)
Data Adjustment	-	-	-	7	12,961	7
2019	**2,793**	**$142,215,060**	**3,209**	**11,557**	**$18,403,344**	**17,559**

 # This represents current pay and is not used for the Component II (Legacy) valuation.

Data Approximations and Assumptions

Active

For active members, frozen AFC amounts and frozen service as of June 30, 2014 was reported. For purposes of this valuation, we matched the June 30, 2019 actives to the active data reported for the June 30, 2014 valuation to check against AFC as of June 30, 2014. In cases where the frozen AFC as reported in the 2019 data file was less than 75% of the AFC as reported on the 2014 data file, the AFC as reported on the 2014 data file was used. This boundary was determined after an analysis of the raw AFC data showed that the AFC for several members was unreasonably low. In cases where AFC was reported in to be $0 in both the current data file and the 2014 data file, the current salary was used in place of the AFC.

Deferred

Data provided for deferred vested members was incomplete. As part of the processing of deferred member data, in cases where AFC was incomplete, we used $30,000 to estimate the AFC. Since vesting service is not directly provided on the file, we estimated vesting service based on reported Component II (Legacy) benefit service increased by Component I (Hybrid) benefit service as reported on the corresponding Component I (Hybrid) file. Members with estimated vesting service of less than 8 years were assumed to be non-vested and were not valued. We estimated the commencement date with the following rules:

- Age 55 if 30 or more years of service and hired before July 1986;
- Age 60 if less than 30 years of service, but more than 10 years of service and hired before 1986; and
- Age 62 for all others.

Entire amount of deferred benefits was assumed to commence at the same time regardless of the date of hire.

Retired and Beneficiary

It is our understanding that the current pension amount provided in the retiree data includes the 4.5% reduction as mandated in the POA. However, for members that retired prior to July 2015, the other pension amounts provided in the data (original pension amount, equated pension amount, and prior year's pension amount) did not reflect the 4.5% reduction and, as such, were reduced by 4.5% when valuing any related liability. Other adjustments/assumptions include:

- In cases where the benefit is identified to be a joint and survivor benefit and a beneficiary is not listed in the data, it was assumed that male spouses were 3 years older than females;
- Benefits for dependent children are assumed to cease at age 21; and
- For non-converted disabled members, converted benefits are:
  - assumed to commence at age 60; and
  - estimated, based on reported service and projected service from the date of disability to age 60.

Please see our correspondence dated January 31, 2020 for additional information regarding data reconciliation, processing instructions, and assumptions regarding unresolved issues. Note, this letter disclosed our remaining data processing procedures and assumptions and details our reconciliation and final valuation data. System staff has approved the detail and final data disclosed in this letter.

Summary of Member Data
June 30, 2019

Active Members

	General	D.O.T.	DWSD	Library	Totals^
Number	1,667	542	358	226	2,793
% Change in active members	(8.2)%	(6.9)%	(5.8)%	(5.8)%	(7.5)%
Annual payroll ($ millions)	$ 91.4	$ 21.4	$ 18.5	$ 10.8	$ 142.1
Average pay	$54,836	$39,568	$51,725	$47,963	$50,918
% Change in average pay	3.8 %	(0.1)%	3.4 %	1.1 %	2.9 %

^ *May not add due to rounding.*

Retired Members and Survivor Beneficiaries

	General	D.O.T.	DWSD	Library	Totals
Number	6,828	1,637	2,771	321	11,557
Annual benefits ($ millions) #	$ 129.4	$ 31.7	$ 63.3	$ 6.7	$ 231.1
Average benefits #	$18,949	$19,354	$22,858	$20,979	$20,000
% Change in reported average benefit	(0.1)%	0.1 %	(1.5)%	(1.8)%	(0.5)%

Includes annuities. Does not include reductions resulting from the annuity claw-backs.

Inactive Vested Members

	General	D.O.T.	DWSD	Library	Totals
Number	1,805	397	918	89	3,209
Average AFC	$38,968	$41,888	$48,194	$32,983	$41,802
Average service	15.7	15.3	15.6	14.4	15.6
Annual benefits ($ millions)	$ 18.0	$ 4.1	$ 11.3	$ 0.7	$ 34.1
Average benefits	$9,971	$10,270	$12,348	$ 7,955	$10,632
% Change in average service	(1.0)%	(2.2)%	(1.5)%	0.8 %	(1.3)%
% Change in average AFC	(1.4)%	(1.4)%	(0.4)%	(0.2)%	(1.2)%

Active Members as of June 30, 2019
by Attained Age and Years of Service
Retirement System Totals

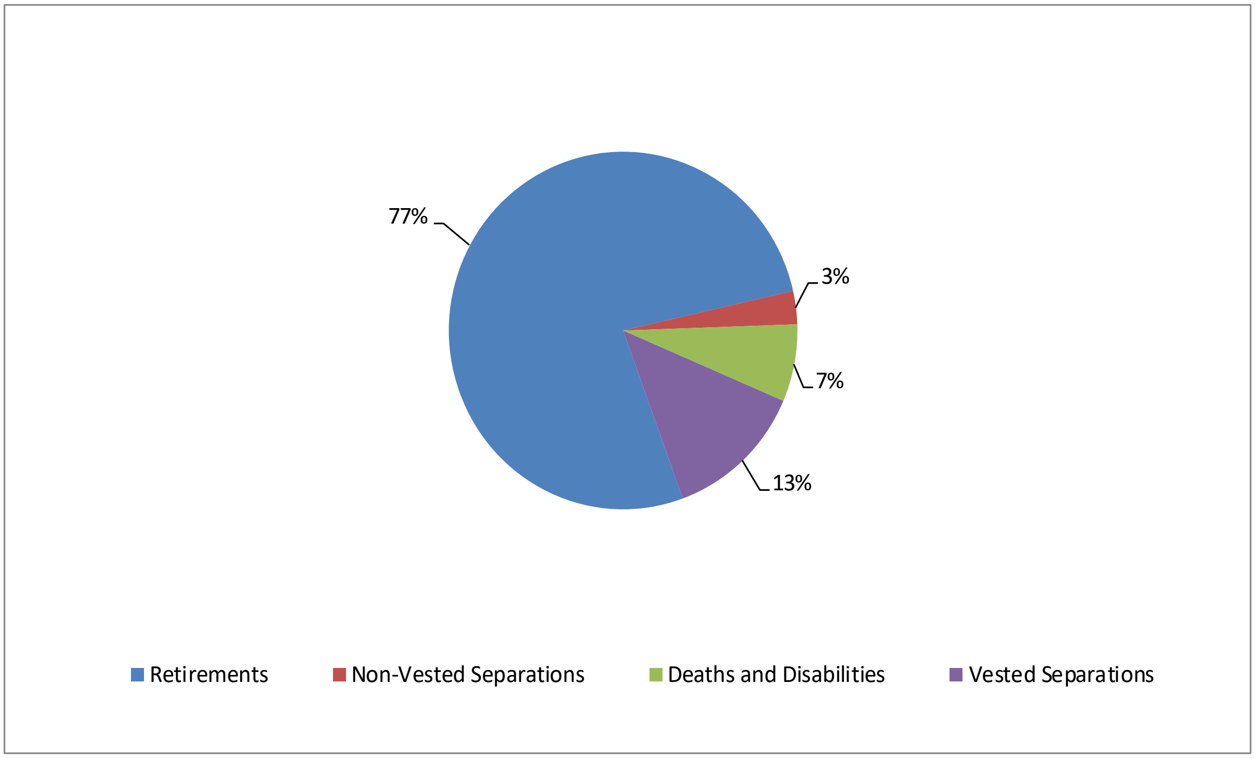
Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	3	2						5	$ 143,416
25-29	11	13	3					27	1,111,083
30-34	14	44	16	1				75	3,392,765
35-39	13	39	41	36	1			130	6,077,416
40-44	16	46	55	90	38	4		249	12,412,119
45-49	17	51	76	119	131	24	1	419	21,456,901
50-54	9	43	68	134	214	69	52	589	30,636,987
55-59	14	47	58	115	182	103	153	672	33,745,022
60-64	7	27	40	76	92	64	139	445	23,249,486
65-69	3	20	20	12	26	9	35	125	6,895,493
70-74	0	6	4	7	9	2	9	37	2,235,146
75-79	1	1	2	5	3	1	7	20	859,226
Totals	**108**	**339**	**383**	**595**	**696**	**276**	**396**	**2,793**	**$142,215,060**

Group Averages:

Age: 52.7 years
Benefit Service: 15.2 years
Eligibility Service: 19.6 years
Annual Pay: $50,918

Service shown in this schedule is Legacy Benefit service plus Hybrid Benefit service. Hybrid service provided on the data file was reduced by two months to account for additional service granted past the valuation date.

Expected Terminations from Active Employment for Current Active Members



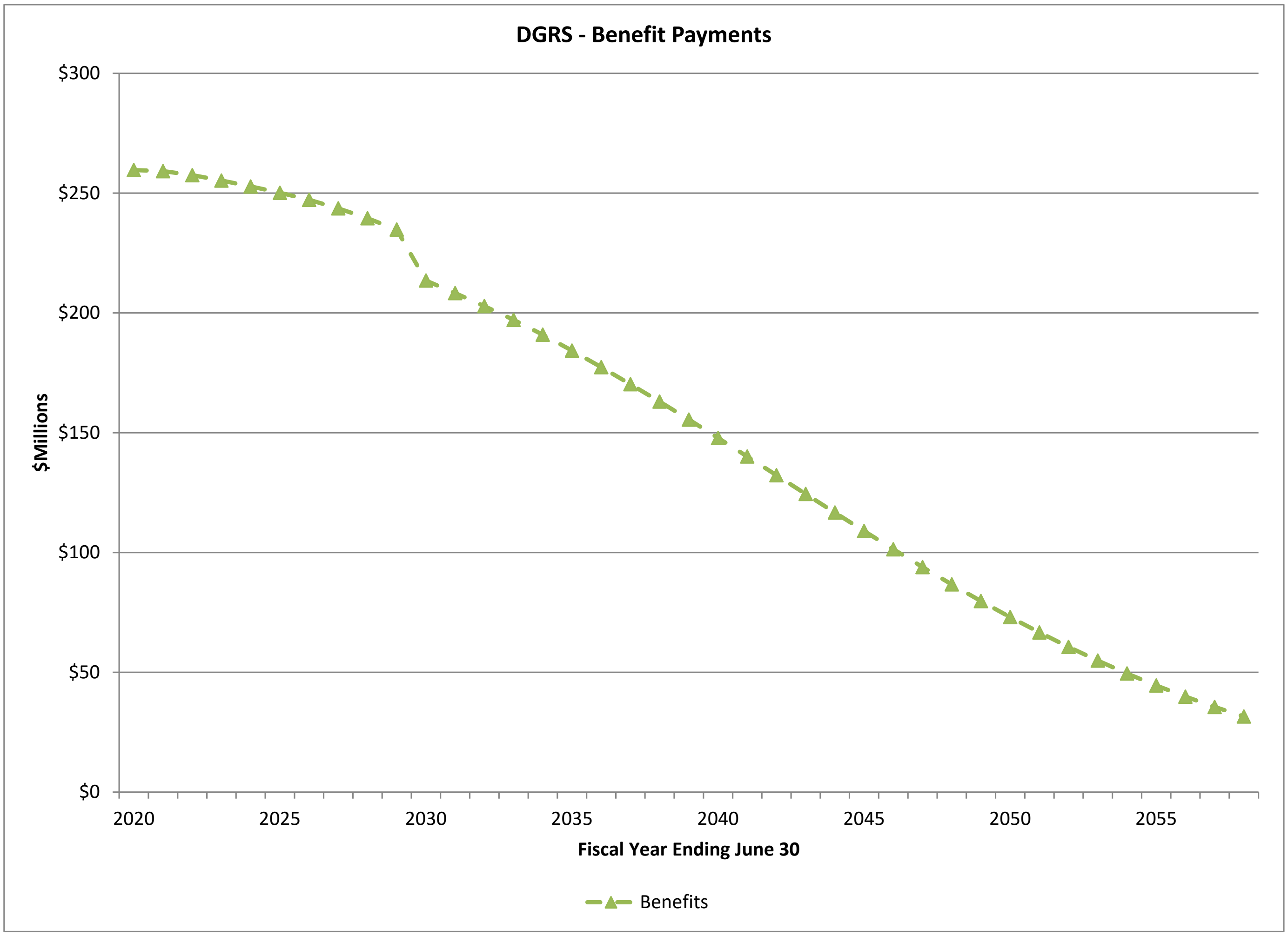
The chart shows the expected future development of the present population in simplified terms. The Retirement System presently covers 2,793 active members. Eventually, 77 people are expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. 2,529 people are expected to receive monthly retirement benefits either by retiring directly from active service, or by retiring from vested deferred status. 187 people are expected to become eligible for benefits as a result of death-in-service or disability.

Actual versus expected retirements for the 2019 fiscal year is shown below:

Year Ended June 30,	Expected	Actual
2019	262	80

Expected Benefit Payments

Shown below is a graph of projected benefit payments remaining in the Retirement System.



Retirees and Beneficiaries June 30, 2019
Tabulated by Attained Ages
Retirement System Totals

Attained Ages	Age & Service# No.	Age & Service# Monthly Allowances	Disability No.	Disability Monthly Allowances	Death-in-Service No.	Death-in-Service Monthly Allowances	Totals No.	Totals Monthly Allowances
Under 20*	7	$ 8,819	0	$ 0	2	$ 1,216	9	$ 10,035
20-24	1	3,627					1	3,627
25-29	6	6,943					6	6,943
30-34	13	5,269	0	0			13	5,269
35-39	10	5,333	1	761	2	2,811	13	8,905
40-44	13	10,003	9	3,918	1	773	23	14,694
45-49	49	47,537	21	14,448	4	1,853	74	63,838
50-54	213	359,029	58	45,309	12	13,687	283	418,025
55-59	596	1,129,438	126	109,140	25	25,892	747	1,264,470
60-64	1,601	3,054,757	249	328,785	38	45,808	1,888	3,429,350
65-69	2,082	3,693,559	188	220,578	43	58,809	2,313	3,972,946
70-74	1,969	3,555,259	154	176,881	37	66,216	2,160	3,798,356
75-79	1,334	2,151,055	68	63,619	32	37,178	1,434	2,251,852
80-84	919	1,286,501	50	43,052	26	28,507	995	1,358,060
85-89	663	826,649	21	17,764	36	36,057	720	880,470
90-94	552	608,277	29	20,889	36	29,630	617	658,796
95 and Over	238	238,834	3	2,803	20	16,071	261	257,708
Totals	**10,266**	**$16,990,889**	**977**	**$1,047,947**	**314**	**$364,508**	**11,557**	**$18,403,344**

* *May include records with defective birth dates.*
\# *Includes survivor beneficiaries of deceased retirees.*

Retirees and Beneficiaries June 30, 2019
Tabulated by Year of Retirement

Year of Retirement	No.	Monthly Allowances Total	Monthly Allowances Average
1950 & before	4	$ 7,141	$1,785
1951-1955	3	4,535	1,512
1956-1960	1	329	329
1961-1965	8	3,457	432
1966-1970	24	10,578	441
1971-1975	78	47,499	609
1976-1980	245	178,463	728
1981-1985	506	506,780	1,002
1986-1990	660	708,013	1,073
1991-1995	1,193	1,480,205	1,241
1996-2000	1,440	2,149,378	1,493
2001-2005	1,895	3,557,795	1,877
2006-2010	2,072	3,901,192	1,883
2011-2015	2,469	4,318,743	1,749
2016	399	717,334	1,798
2017	246	353,341	1,436
2018	229	332,819	1,453
2019	85	125,742	1,479
Totals	**11,557**	**$18,403,344**	**$1,592**

SECTION D

METHODS AND ASSUMPTIONS

Summary of Assumptions and Methods Used for Actuarial Valuations Adopted by the Board of Trustees

All assumptions are estimates of future experience except as noted. The rationale for the assumptions is based on experience studies where noted.

Economic Assumptions

The investment return rate used in making the valuation was 6.75% per year, compounded annually (net after investment and administrative expenses). This assumption is prescribed by the Eighth Amended Plan for the Adjustment of Debts of the City of Detroit (POA).

Price inflation is not directly used in the valuation. For purposes of assessing the reasonability of the investment return assumptions, we assumed price inflation of 2.50% per year.

Non-Economic Assumptions

The mortality table used to measure retired life mortality was 100% of the RP-2014 Blue Collar Annuitant Table for set-forward 1 year for males and 100% of the RP-2014 Blue Collar Annuitant Table set-forward 1 year for females. Tables were extended below age 50 with a cubic spline to the published Juvenile rates. Pre-retirement mortality is based on the corresponding Employee tables with corresponding set-forward. The tables are projected to be fully generational, based on the 2-dimensional, sex distinct mortality improvement scale MP-2014 (which was published and intended to be used with RP-2014). 75% of all deaths-in-service are assumed to be non-duty related. This table was first used as of June 30, 2014. For disabled members, the same tables are used. The rationale for the mortality assumption is based on the 2008-2013 Mortality Experience Study issued February 4, 2015.

The probabilities of retirement for members eligible to retire are shown on pages 33 and 34. These probabilities were revised for the June 30, 2008 valuation. The rationale is based on the 2002-2007 Experience Study.

The probabilities of separation from service (including *death-in-service* and *disability*) are shown for sample ages on page 35. These probabilities were revised for the June 30, 2008 valuation. The rationale is based on the 2002-2007 Experience Study.

Summary of Assumptions and Methods Used for Actuarial Valuations Adopted by the Board of Trustees (Concluded)

Funding Methods

The unit credit cost method was used in determining age & service pension liabilities, vesting liabilities, and casualty pension liabilities. Under this method, there is no normal cost since benefits are frozen and there are no future accruals and actuarial accrued liability is the present value of each individual's accrued benefit.

Unfunded Actuarial Accrued Liabilities. Actual employer contributions through June 30, 2023 are set by the POA. The amortization period and method after 2023 has not yet been established by the Board.

Employer contribution dollars were assumed to be paid at the end of the employer fiscal year.

Present assets are set equal to the Market Value.

The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

Single Life Retirement Values

Based on RP-2014 Blue Collar
100% of Male Rates Set-Forward 1 Year
100% of Female Rates Set-Forward 1 Year

Sample Attained Ages in 2019	Future Life Expectancy (Years)	
	Men	Women
45	38.73	42.07
50	33.77	37.01
55	29.00	32.10
60	24.45	27.35
65	20.14	22.78
70	16.15	18.46
75	12.52	14.50
80	9.33	10.98

Probabilities of Age/Service Retirement for Members Eligible to Retire

Retirement Ages	Percent of Eligible Active Members Retiring within Next Year with Unreduced Benefits		
	EMS	D.O.T.	Others
45	25%		
46	25%		
47	25%		
48	22%		
49	20%		
50	18%	55%	50%
51	15%	50%	50%
52	15%	50%	45%
53	15%	50%	45%
54	15%	55%	40%
55	15%	50%	30%
56	15%	50%	30%
57	15%	50%	30%
58	15%	50%	30%
59	15%	55%	40%
60	40%	40%	25%
61	30%	30%	25%
62	30%	30%	25%
63	30%	30%	25%
64	30%	30%	25%
65	30%	30%	35%
66	30%	30%	30%
67	30%	30%	25%
68	30%	50%	25%
69	30%	50%	25%
70	100%	100%	20%
71			20%
72			20%
73			20%
74			20%
75			20%
76			20%
77			20%
78			20%
79			20%
80			100%
Ref	537	1648	1647

Rationale for assumption is 2002 to 2007 Experience Study. Additional retirement rates for Component I (Hybrid Plan) eligibility are not reflected in this valuation due to materiality.

Probabilities of Early Retirement for Members Eligible for Early Retirement

Retirement Ages	Percent of Eligible Active Members Retiring within Next Year with Reduced Benefits
55	7%
56	8%
57	9%
58	10%
59	12%
60	12%
61	12%
62	12%
63	12%
64	12%
Ref	1649

Rationale for assumption is 2002 to 2007 Experience Study.

Sample Rates of Separation from Active Employment Before Retirement

Sample Ages	Years of Service	% of Active Members Separating within Next Year			
		Withdrawal			
				Others	
		EMS	D.O.T.	Men	Women
ALL	0	11.00%	18.00%	18.00%	20.00%
	1	10.00%	16.00%	15.00%	16.00%
	2	8.00%	14.00%	13.00%	14.00%
	3	8.00%	11.00%	11.00%	12.00%
	4	7.00%	9.00%	10.00%	10.00%
25	5 & Over	6.70%	8.00%	7.60%	7.60%
30		5.90%	7.60%	7.22%	7.22%
35		5.20%	5.56%	5.28%	5.28%
40		4.40%	4.26%	4.05%	4.05%
45		3.40%	3.69%	3.51%	3.51%
50		2.40%	3.50%	3.33%	3.33%
55		2.00%	3.50%	3.33%	3.33%
60		0.00%	3.50%	3.33%	3.33%
Ref		338	143	584	188
		1068	212	212 x 0.95	212 x 0.95

Sample Ages	% of Active Members Becoming Disabled within Next Year			
	D.O.T.		Others	
	Ordinary	Duty	Ordinary	Duty
25	0.02%	0.03%	0.01%	0.25%
30	0.05%	0.08%	0.04%	0.29%
35	0.14%	0.21%	0.11%	0.34%
40	0.27%	0.42%	0.21%	0.39%
45	0.51%	0.79%	0.40%	0.45%
50	0.66%	1.03%	0.51%	0.52%
55	0.76%	1.18%	0.59%	0.60%
60	0.86%	1.34%	0.67%	0.70%
Ref	23 x 0.45	23 x 0.70	23 x 0.35	423 x 0.90

Rationale for assumption is 2002 to 2007 Experience Study.

Miscellaneous and Technical Assumptions

Benefit Service	Exact Fractional service is used to determine the amount of benefit payable.
Decrement Operation	Disability and mortality decrements do not operate during the first five years of service. Disability and withdrawal do not operate during retirement eligibility.
Decrement Timing	Decrements of all types are assumed to occur mid-year.
Eligibility Testing	Eligibility for benefits is determined based upon the age nearest birthday and rounded service on the date the decrement is assumed to occur.
Forfeitures	None.
Incidence of Contributions	Contributions are assumed to be received at the end of the year.
Marriage Assumption	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Normal Form of Benefit	Straight life is the normal form of benefit. The Board adopted assumptions for Actuarial Equivalence to be an 80%/20% unisex blend of RP-2014 mortality (Male/Female) with Blue Collar Adjustment, set ahead one year for males and females, projected 11 years with MP-2014, an interest rate of 6.75%, and no COLA for optional forms of payment and early retirement reduction. Assumptions for annuitizing member contributions are the same except for using a 60%/40% unisex blend and a 5.25% assumed rated of interest. Prior to that, actuarial equivalent factors were based on 7.5% interest and 1984 Group Annuity Mortality table.
Service Credit Accruals	Service accruals stop as of June 30, 2014 for measurement of Component II liabilities. However, future service in Component I may be used to satisfy benefit eligibility requirement in Component II. Members who became duty disabled prior to June 30, 2014 are assumed to get projected service from date of disability to conversion date. Member who become disabled after June 30, 2014 are assumed to get their frozen accrued benefit as of June 30, 2014 at date of conversion.
Administrative Expenses	The investment return assumption is mandated to be net of investment and administrative expense in the plan document. No other provision for administrative expenses is included in this valuation.
Sick Leave	Sick leave banks as of June 30, 2014 were included in the 2014 data file provided by the System.
Member Contributions	Member contributions to this Component II plan are assumed to have ceased with the bankruptcy.
Pop-Up Benefits	For current retirees with a pop-up benefit, the value of the pop-up was estimated by valuing a non-pop-up option and increasing the associated liabilities by 2%.

Rationale for assumption is 2002 to 2007 Experience Study, modified as necessary for changes in data or administration.

SECTION E

PLAN PROVISIONS

Summary of Benefit Provisions Evaluated

Component II Frozen Benefits

All Component II benefits are frozen as of June 30, 2014 based on service and average final compensation accrued as of that date and the provisions of the Detroit General Retirement System as it existed on June 30, 2014. Frozen benefits are further reduced by 4.5% and all future cost-of-living adjustments ("COLAs") were eliminated. Benefits resulting from the Annuity Savings Fund and benefits paid from the Annuity Reserve Fund were subject to a separate reduction described as a "Claw-back." Details of the claw-back provision are complicated and can be found in the Eighth Amended Plan of Adjustment. The benefits evaluated in this report are the frozen reduced benefits after adjusting the assets for the claw-back. Component II benefits are payable after separation from service, upon meeting the eligibility conditions of the plan as it existed on June 30, 2014, regardless of whether the individual is eligible to receive a Component I benefit at that time.

Our understanding of the June 30, 2014 plan provisions is provided below for completeness. The material below does not have legal standing and is not intended to cover all potential situations that could occur. If there are discrepancies between the description below and appropriate legal documents, the latter necessarily govern.

Age and Service Pension

Eligibility - Any age (minimum age 55 for non-EMS members hired after 1995) with 30 years of service (25 for EMS members), or age 60 with 10 years of service, or age 65 with 8 years of service.

Annual Amount - **EMS Members:** Sum of a) a basic pension of $12 for each of the first 10 years of service, plus b) a pension equal to 2.0% of AFC multiplied by years of service. Maximum benefit is 90% of AFC.

Other Members: Sum of a) a basic pension of $12 for each of the first 10 years of service, plus b) a pension equal to the first 10 years of service multiplied by 1.6% of AFC, plus 1.8% of AFC for each year of service greater than 10 years up to 20 years, plus 2.0% of AFC for each year of service greater than 20 years up to 25 years, plus 2.2% of AFC for each year of service greater than 25 years. Future benefit accruals for certain active members (depending on bargaining unit) were reduced to 1.5% of final average compensation per year of service.

Type of Average Final Compensation (AFC) - Highest 3 consecutive years out of the last 10. Pension benefits will not be diminished if compensation is reduced because of a fiscal emergency. Effective July 1, 1999, in computing the AFC, a member shall have the option of adding the value of 25% of unused accrued sick leave to the earnings used in computing the AFC. Longevity is added to AFC in accordance with the following schedule: $150 after 5 years, $300 after 10 years, $450 after 15 years, $600 after 20 years, and $750 after 25 years.

Early Retirement

Eligibility - Any age with 25 or more years of service (min. age 55 for members hired after 1995).

Annual Amount - Same as regular retirement but actuarially reduced.

Summary of Benefit Provisions Evaluated (Continued)

Deferred Retirement (Vested Benefit)

Eligibility - Hired prior to 7-1-80: Age 40 with 8 years of service. Hired on or after 7-1-80: Any age with 10 years of service.

Benefit Commencement - APTE hired prior to July 1, 1988: Benefit begins at the age the member would have become eligible for regular retirement if service had continued. ***SAAA, Non-Union and lawyers hired prior to June 30, 1986:*** Benefit begins at the age the member would have become eligible for regular retirement. ***Others:*** Benefits based on service rendered by June 30, 1986 begin at the age the member would have become eligible for regular retirement. Benefits based on service rendered after July 1, 1986 begin at age 62.

Annual Amount - Same as regular retirement but based on average final compensation and service at the time of termination.

Duty Disability Retirement

Eligibility - Service related disability before eligibility for service retirement prior to and July 1, 2014. No service requirement.

Annual Amount - An annuity which is the actuarial equivalent of the accumulated contributions at date of disability plus a pension of two-thirds of average final compensation at time of disability. The maximum annual pension is $5,700 ($9,000 for EMS). At the earliest of when the member would have accrued 30 years of service credit (25 for EMS) or age 60, the annuity is recomputed assuming contributions would have continued at a salary level equal to final compensation. The pension is recomputed with additional service credit granted from the date of disability to age 60 (or 30 years of service credit) or June 30, 2014, whichever is earlier. **Benefits payable prior to conversion/re-computation, if any, were assumed to be paid outside the trust.**

Non-Duty Disability Retirement

Eligibility - Disability from any cause before age 60 with 10 or more years of service prior to July 1, 2014.

Annual Amount - Computed in the same manner as a regular retirement benefit. Maximum annual pension to age 60 is $6,000. Benefit is recomputed at age 60 with no maximum. **Benefits payable prior to age 60, if any, were assumed to be paid from outside the trust.**

Duty Death Before Retirement

Eligibility - Death from service related causes. No age or service requirements.

Annual Amount - One-third of final compensation as of June 30, 2014 to the surviving spouse for life or until remarriage, plus an equal share of 1/4 of final compensation to each unmarried child under age 18. If there is no eligible spouse, eligible children each receive 1/4 of final compensation; if there are more than 2 such children, each child shares an equal part of 1/2 of final compensation. Maximum total amount for spouse and children is $9,000 annually. If there is no eligible spouse or children, dependent parents each receive 1/6 of deceased's final compensation, to a total maximum of $600 annually.

Summary of Benefit Provisions Evaluated (Concluded)

Non-Duty Death Before Retirement

Eligibility - Death-in-service at any age with 15 years of service; or after age 60 with 10 years of service; or after age 65 with 8 years of service.

Annual Amount - To Surviving Spouse: Computed as a regular retirement benefit but reduced in accordance with a 100% joint and survivor election for members with 20 or more years of service. For members with 15 years of service but less than 20, benefit is reduced in accordance with a 50% joint and survivor election. To Dependent Children if no Surviving Spouse: $9,000 payable to age 19 of the youngest child or for life if child is physically or mentally impaired for members with 20 or more years of service ($6,000 if less than 20 years of service).

Post-Retirement Cost-of-Living Adjustments

Benefit is increased annually by 2.25% of the **original** pension amount at retirement. Post-retirement cost-of-living increases were eliminated on future accruals for certain active members (depending on bargaining unit).

Member Contributions

Members have the option of choosing one of four contribution amounts: (1) 0%; (2) 3.0% of compensation up to the Social Security wage base, plus 5.0% of compensation in excess of the Social Security wage base; (3) 5.0% of total compensation; or (4) 7.0% of total compensation. Member contributions can be paid as a lump sum or annuitized at retirement to provide an annuity in addition to the pension (which is not affected by the level of member contributions).

SECTION F

GLOSSARY

Glossary

Actuarial Accrued Liability. The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

Accrued Service. The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent. A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

AFC. Average Final Compensation.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

APTE. Association of Professional and Technical Employees.

ASF. Annuity Savings Fund

Contribution Budgeting Liability. An expected return-based measure of pension obligation.

DIA. Detroit Institute of Art.

D.O.T. Department of Transportation.

DWSD. Detroit Water and Sewerage Department.

EMS. Emergency Medical Service.

Glossary

Experience Gain (Loss). A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

GASB. The Governmental Accounting Standards Board.

GLWA. Great Lakes Water Authority.

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

PAF. Pension Accumulation Fund.

Plan of Adjustment or POA. The 8^{th} Amended Plan for the Adjustment of the Debt of the City of Detroit.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

SAAA. Senior Accountants, Analysts, and Appraisers Association.

Solvency Liability. A market-based measure of the present value of accrued benefits at a municipal bond discount rate unadjusted for the credit quality of the plan sponsor.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

UTGO. Unlimited Tax General Obligation.

Valuation Assets. The value of current plan assets recognized for valuation purposes.

AGENDA ITEM #8A

Financial Services
Audit Committee Communication

Date: June 19, 2020

To: Great Lakes Water Authority Audit Committee

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

Re: CFO Update

Background: This month, we provide an update on three key topics.

1. Special Report from The Foster Group: Series 2020 Bond Results and Impact on June 17, 2020 FY 2021 – 2022 Forecast Update
2. Update: Detroit Water & Sewerage Department (DWSD) Retail Receipt Cash Logs
3. Progress: Selection of Water Residential Assistance Program (WRAP) Technical Advisor

Analysis: Please note the following updates.

1. Special Report from The Foster Group: Series 2020 Bond Results and Impact on June 17, 2020 FY 2021 – 2022 Forecast Update

   The above report, attached, provides additional budgetary considerations beyond the FY 2021 budget amendments presented earlier on this agenda. The cautionary statement is that there continues to be several simultaneous moving conditions. As we reach the FY 2020 year-end, we were closing on the recent sewer bond refunding transaction this week and are continuing to assess impacts of the evolving COVID-19 pandemic impact on GLWA operations and general economic conditions. The bottom-line message to our team is that we remain nimble in our financial plan.

2. Update: Detroit Water & Sewerage Department (DWSD) Retail Receipt Cash Logs

   Post-declaration of the COVID-19 pandemic, the retail system experienced a decline is cash receipts. See attached report which presents improvements in May 2020 and month to date for June 2020.

3. Progress: Selection of Water Residential Assistance Program (WRAP) Technical Advisor

This week, we selected a technical advisor, Public Sector Consultants, to support the evaluation of WRAP as we prepare for an upcoming WRAP program provider services. Presently, the contract is being finalized with a start date expected in the next ten days. The proposal response and presentation are attached. We look forward to working with PSC as they have experience with other similar programs throughout the state. The evaluation of the program will include focus groups including the GLWA Board.

Proposed Action: Receive and file this report.

TFG
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MEMORANDUM

Series 2020 Bond Results and Impact on FY 2021 – 2022 Forecast Update

June 17, 2020

To: Nicolette Bateson

From: Bart Foster

You have asked for executive summary commentary regarding the impact of the results of the Series 2020 Water and Sewer Revenue Refunding Bonds transactions on the financial forecasts for GLWA. The intent of this memorandum is to offer observations on the impact of those transactions, as well as other developments during the pursuit of same, with specific focus on fiscal years 2021 and 2022, those covered by the recently approved GLWA biennial budget. It is our understanding that the developments discussed herein will be evaluated in support of a potential FY 2021 budget amendment to be considered in the first quarter of that fiscal year.

<u>Executive Summary</u>

- Despite jittery market conditions related to COVID-19 and other matters, the GLWA Series 2020 Water and Sewer Bonds were successfully issued and produced a similar amount of savings to those envisioned when the process was started in the fall of 2019.
- The debt service savings in FYs 2021 and 2022 provided by the transactions are slightly greater than those originally projected.
- Compared to the original budget request, the FY 2021 budget and charges review process resulted in reduced charge increases, and a deferral of the implementation of those charges. These developments created a reduction in originally budgeted revenues of approximately $5 million for Water and $8.5 million for Sewer.
- The FY 2021 debt service savings provided by the transactions are approximately equal to the reductions in originally requested budgeted revenues noted above.

<u>Some Details</u>

Let's start at the beginning of the process. In September 2019 the Audit Committee (and subsequently the full Board) was briefed on potential savings that could be achieved via issuance of the Series 2020 Bonds. At the time the net present value savings were estimated at approximately $77 million for Water and $121 million of Sewer. Estimated annual savings in the FY 2021 and FY 2022 biennial budget years were $4.8 million for Water and $7.0

million for Sewer. Original budget planning documents included the impact of achieving these savings. Based on advice from the finance team, GLWA opted to prepare the FY 2021 budget that did not reflect any savings, with the understanding that if/when they were achieved the "top line" revenue budget would remain intact and the debt service savings would accrue to bottom line contributions to Improvement and Extension ("I&E") Fund reserves.

This approach resulted in an "Original Budget Request" proposal, dated 2/12/20, which included revenue requirement increases of 1.1% for Water and 2.5% for Sewer, and proposed charges of 3.8% for Water and 3.2% for Sewer designed to support the budget increase. The Original Budget Request is summarized in the Lines 1 and 2 of the attached exhibit[1], which also includes the FY 2022 planning level figures for the biennial budget. This original plan produced budgeted bottom line I&E contributions as shown highlighted in grey in Column 7 on the exhibit. At this point in time, the budget plan was to use any debt service savings achieved as part of the transaction to increase the amounts available for I&E reserves while not impacting top line revenue or any other budget element.

Via the deliberative process of the Board's review, modifications to the original budget request were made. On March 11 the Board approved service charge increases that reflected a reduction of 0.5% from the originally proposed Water charge increase and 1.25% from the originally proposed Sewer charge increase. The Board's action further instructed GLWA to balance the budget by reducing the I&E contributions to offset the reductions in budgeted charge revenues. The impact of these decisions is illustrated on Lines 3 and 4 of the exhibit. The revenue reductions shaded in green are offset by reduced I&E contributions shaded in grey. The resulting FY 2021 and FY 2022 biennial budget approved by the Board is summarized on Lines 5 and 6.

During the budget deliberation process GLWA was actively pursuing the Series 2020 refunding transactions, with an intention of executing them in late March. In early March the estimated achievable savings for both the Water and Sewer systems were actually moderately greater than those originally estimated in the fall of 2019. It is our understanding that the budget decision to reduce charges was made in part because the potential debt service savings were deemed to be readily achievable.

Subsequently, the COVID-19 pandemic emerged and created instability in the credit markets and in day to day business activity. As a result, the Series 2020 Bonds were put on hold as it was not possible to achieve the savings goals established by GLWA. In addition, GLWA and the Board decided to postpone implementation of the FY 2021 Water and Sewer charges from July 1, 2020 to October 1, 2020. This decision was made in order to provide some short-term financial relief to Member Partners to deal with the unknown potential impacts of COVID-19. It was formally approved by Board action on April 22. The impact of this decision created a reduction FY 2021 budgeted revenues of $3.2 million for Water and $2.6 million for Sewer, as show on Line 7 of the exhibit. The Board's action instructed GLWA to work towards a balanced FY 2021 budget via a proposed budget amendment to be considered in the first

[1] Note the exhibit contains 3 pages: Water, Sewer, Combined Water and Sewer

quarter of the fiscal year. It is our understanding that GLWA intends to propose budgeted reductions in operation and maintenance expense, and to maintain the approved level of deposits to I&E Reserves. This approach is also depicted on Line 7. The green shaded reductions in FY 2021 charge revenue are offset by the identical reductions in O&M Expense. Note that for forecasting purposes we've assumed that the resulting lower FY 2021 O&M expense levels will impact future O&M levels, and therefore FY 2022 shows a reduction as well, as shown on Line 8.

These adjustments result in the "4/22 Adjusted Plan" depiction of the forecast, shown in Lines 9 and 10. This summarizes the version of the forecast we prepared while the GLWA finance team continuing to monitor the credit markets.

The markets turned favorable for the Water transaction in late April, and the Series 2020 Water Bonds closed on May 12, 2020. For market reasons I'll leave to others to explain[2], the potential Sewer transaction did not provide adequate savings at that time. The markets finally turned favorable for the Sewer transaction in early June, and the Series 2020 Sewer Bonds closed yesterday, June 16, 2020. The results of the Series 2020 bonds on the forecast for FY 2021 and FY 2022 are shown shaded in green on Lines 11 and 12. For FY 2021, the Water debt service savings are $5.5 million, all of which accrues to the I&E "bottom line." The FY Sewer debt service refunding savings are $8.1 million, but are slightly offset by increases in the interest rate on some outstanding variable rate debt, and by modifications to estimated State Revolving Fund Loan debt service that were adjusted as part of our review. The net "budget" debt service savings totals $7.4 million for FY 2021, again all of which accrues to the I&E "bottom line."

In essence, the adjustments to the forecast illustrated on Lines 7 and 11 of the exhibit represent our understanding of the potential FY 2021 budget amendment GLWA will be proposing in the first quarter of the fiscal year. These adjustments produce the "6/17 Working Forecast" figures on Lines 13 and 14. Given the ongoing uncertainty of the potential impacts of COVID-19 on utility business matters, we believe other elements should continue to be evaluated as part of the review process of the potential amendment. Such elements include water sales, collection of receipts, execution of capital programs, and investment earnings.

We look forward to participating in that ongoing review and we are prepared to discuss this matter at your convenience.

[2] Largely related to longer call dates and negative arbitrage . . .

GLWA Biennial Budget Crosswalk Summary - *$ millions*

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
		Revenue			Revenue Requirements					Debt Svc	
		Charges	Non-Op	Total	O&M	Debt Svc	MBO Reqts	I&E Reserves (a)	Total	Coverage	Comment
	WATER SYSTEM										
	2/13 Original Budget Request										
1	FY 2021	338.6	4.8	**343.4**	137.1	143.2	36.5	*26.6*	**343.4**	*1.40*	
2	FY 2022	349.9	3.9	**353.7**	139.6	141.2	36.6	*36.3*	**353.7**	*1.47*	
	Review Adjustments										
3	FY 2021	(1.8)	-	**(1.8)**	-	-	(0.0)	*(1.8)*	**(1.8)**	*(0.01)*	*Lower Charge Increase offset by I&E reduction*
4	FY 2022	(1.8)	(0.1)	**(1.8)**	-	-	(0.0)	*(1.8)*	**(1.8)**	*(0.01)*	*Lower Charge Increase offset by I&E reduction*
	3/11 Approved Budget										
5	FY 2021	336.8	4.8	**341.6**	137.1	143.2	36.5	*24.8*	**341.6**	*1.39*	*Moderate DS Covg reduction*
6	FY 2022	348.1	3.8	**351.9**	139.6	141.2	36.6	*34.5*	**351.9**	*1.46*	*Moderate DS Covg reduction*
	Deferred Implementation										
7	FY 2021	(3.2)	-	**(3.2)**	(3.2)	-	(0.0)	*-*	**(3.2)**	*(0.00)*	*Reduced revenues offset by reduced O&M target*
8	FY 2022	-	-	-	(3.3)	-	-	*3.3*	-	*0.02*	*Reduced FY 2021 O&M reduces forecast baseline*
	4/22 Adjusted Plan										
9	FY 2021	333.6	4.8	**338.4**	133.9	143.2	36.5	*24.8*	**338.4**	*1.39*	*No Impact on Net Revenues / DS Covg*
10	FY 2022	348.1	3.8	**351.9**	136.4	141.2	36.6	*37.8*	**351.9**	*1.48*	*Moderate Reserve / DS Covg increase*
	2020 Bond Adjustments										
11	FY 2021	-	-	-	-	(5.5)	-	*5.5*	-	*0.06*	*Debt Service Savings accrue to bottom line*
12	FY 2022	(0.1)	0.1	**(0.0)**	-	(5.2)	(0.0)	*5.2*	**(0.0)**	*0.06*	*Debt Service Savings accrue to bottom line*
	6/17 Working Forecast										
13	FY 2021	333.6	4.8	**338.4**	133.9	137.7	36.5	*30.4*	**338.4**	*1.44*	*Six point increase in Regional DS Covg ratio*
14	FY 2022	348.0	3.9	**351.9**	136.4	136.0	36.6	*43.0*	**351.9**	*1.54*	*Six point increase in Regional DS Covg ratio*

(a) Deposits to I&E Reserves are designed to "balance the budget" via the MBO Flow of Funds

GLWA Biennial Budget Crosswalk Summary - *$ millions*

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
		Revenue			Revenue Requirements					Debt Svc	
		Charges	Non-Op	Total	O&M	Debt Svc	MBO Reqts	I&E Reserves	Total	Coverage	Comment
	SEWER SYSTEM										
	2/13 Original Budget Request										
1	FY 2021	487.0	5.6	**492.6**	184.9	209.7	52.4	*45.5*	**492.6**	*1.42*	
2	FY 2022	502.0	5.4	**507.4**	188.9	215.4	52.5	*50.5*	**507.4**	*1.43*	
	Review Adjustments										
3	FY 2021	(5.9)	-	**(5.9)**	-	-	(0.0)	*(5.8)*	**(5.9)**	*(0.03)*	*Lower Charge Increase offset by I&E reduction*
4	FY 2022	(6.0)	(0.1)	**(6.0)**	-	-	(0.0)	*(6.0)*	**(6.0)**	*(0.03)*	*Lower Charge Increase offset by I&E reduction*
	3/11 Approved Budget										
5	FY 2021	481.2	5.6	**486.8**	184.9	209.7	52.4	*39.7*	**486.8**	*1.39*	*Moderate DS Covg reduction*
6	FY 2022	496.0	5.3	**501.4**	188.9	215.4	52.5	*44.5*	**501.4**	*1.40*	*Moderate DS Covg reduction*
	Deferred Implementation										
7	FY 2021	(2.6)	-	**(2.6)**	(2.6)	-	(0.0)	-	**(2.6)**	*(0.00)*	*Reduced revenues offset by reduced O&M target*
8	FY 2022	-	-	-	(2.7)	-	-	*2.7*	-	*0.01*	*Reduced FY 2021 O&M reduced forecast baseline*
	4/22 Adjusted Plan										
9	FY 2021	478.5	5.6	**484.1**	182.3	209.7	52.3	*39.7*	**484.1**	*1.39*	*No Impact on Net Revenues / DS Covg*
10	FY 2022	496.0	5.3	**501.4**	186.3	215.4	52.5	*47.2*	**501.4**	*1.41*	*Moderate Reserve / DS Covg increase*
	2020 Bond Adjustments										
11	FY 2021	-	-	-	-	(7.4)	-	*7.4*	-	*0.05*	*Debt Service Savings accrue to bottom line (b)*
12	FY 2022	0.6	(0.6)	**0.0**	-	(6.4)	(0.0)	*6.4*	**0.0**	*0.04*	*Debt Service Savings accrue to bottom line (b)*
	6/17 Working Forecast										
13	FY 2021	478.5	5.6	**484.1**	182.3	202.3	52.3	*47.1*	**484.1**	*1.44*	*Five point increase in Regional DS Covg ratio*
14	FY 2022	496.6	4.8	**501.4**	186.3	209.0	52.4	*53.6*	**501.4**	*1.46*	*Four point increase in Regional DS Covg ratio*

(a) Deposits to I&E Reserves are designed to "balance the budget" via the MBO Flow of Funds
(b) Actual refinancing savings ~ $8.1 million offset by change in variable rate on existing bonds and refined SRF evaluation

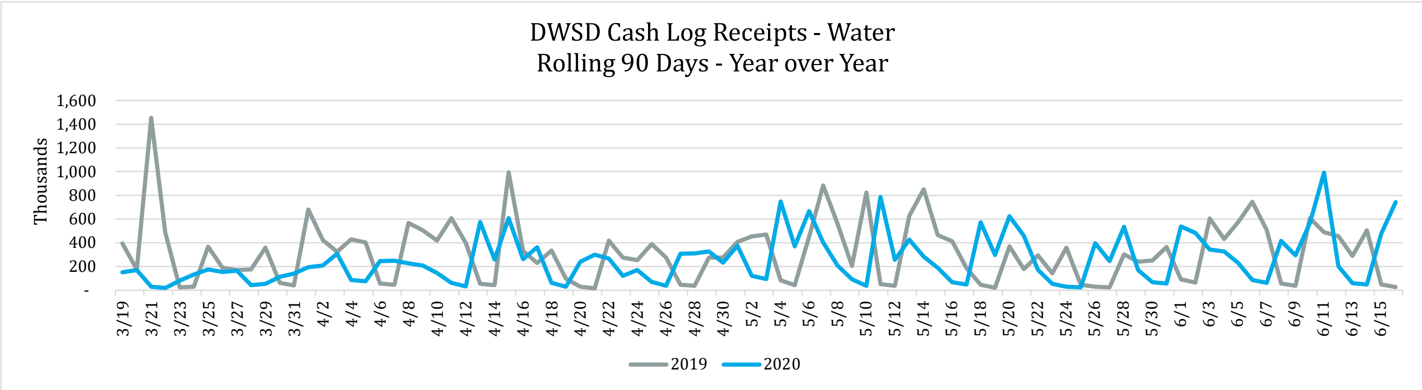
GLWA Biennial Budget Crosswalk Summary - *$ millions*

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
		Revenue			Revenue Requirements					Debt Svc	
		Charges	Non-Op	Total	O&M	Debt Svc	MBO Reqts	I&E Reserves	Total	Coverage	Comment
	WATER + SEWER										
	2/13 Original Budget Request										
1	FY 2021	825.6	10.4	**836.0**	322.1	352.9	88.9	*72.1*	**836.0**		
2	FY 2022	851.8	9.3	**861.1**	328.6	356.6	89.1	*86.9*	**861.1**		
	Review Adjustments										
3	FY 2021	(7.6)	-	**(7.6)**	-	-	(0.0)	*(7.6)*	**(7.6)**		*Lower Charge Increase offset by I&E reduction*
4	FY 2022	(7.7)	(0.1)	**(7.8)**	-	-	(0.0)	*(7.8)*	**(7.8)**		*Lower Charge Increase offset by I&E reduction*
	3/11 Approved Budget										
5	FY 2021	818.0	10.4	**828.4**	184.9	209.7	52.4	*381.3*	**828.4**		*Moderate DS Covg reduction*
6	FY 2022	844.1	9.2	**853.2**	188.9	215.4	52.5	*396.4*	**853.2**		*Moderate DS Covg reduction*
	Deferred Implementation										
7	FY 2021	(5.8)	-	**(5.8)**	(5.8)	-	(0.0)	*-*	**(5.8)**		*Reduced revenues offset by reduced O&M target*
8	FY 2022	-	-	-	(5.9)	-	-	*5.9*	-		*Reduced FY 2021 O&M reduced forecast baseline*
	4/22 Adjusted Plan										
9	FY 2021	812.1	10.4	**822.5**	182.3	209.7	52.3	*378.1*	**822.5**		*No Impact on Net Revenues / DS Covg*
10	FY 2022	844.1	9.2	**853.2**	186.3	215.4	52.5	*399.1*	**853.2**		*Moderate Reserve / DS Covg increase*
	2020 Bond Adjustments										
11	FY 2021	-	-	-	-	(12.9)	-	*12.9*	-		*Debt Service Savings accrue to bottom line (b)*
12	FY 2022	0.5	(0.5)	**0.0**	-	(11.6)	(0.0)	*11.7*	**0.0**		*Debt Service Savings accrue to bottom line (b)*
	6/17 Working Forecast										
13	FY 2021	812.1	10.4	**822.5**	182.3	202.3	52.3	*385.5*	**822.5**		*Five point increase in Regional DS Covg ratio*
14	FY 2022	844.6	8.6	**853.2**	186.3	209.0	52.4	*405.5*	**853.2**		*Four point increase in Regional DS Covg ratio*

(a) Deposits to I&E Reserves are designed to "balance the budget" via the MBO Flow of Funds

(b) Actual refinancing savings ~ $13.6 million offset by change in variable rate on existing bonds and refined SRF evaluation

DWSD Cash Log Receipts through June 16, 2020



Monthly Analysis

	2019	2020	Difference	
May:	9,654,603	8,856,274	(798,329)	-8%
April:	9,225,296	6,563,586	(2,661,711)	-29%
March:	9,325,101	7,917,587	(1,407,514)	-15%
February:	8,645,312	9,229,561	584,249	7%
January:	8,569,406	10,097,681	1,528,275	18%

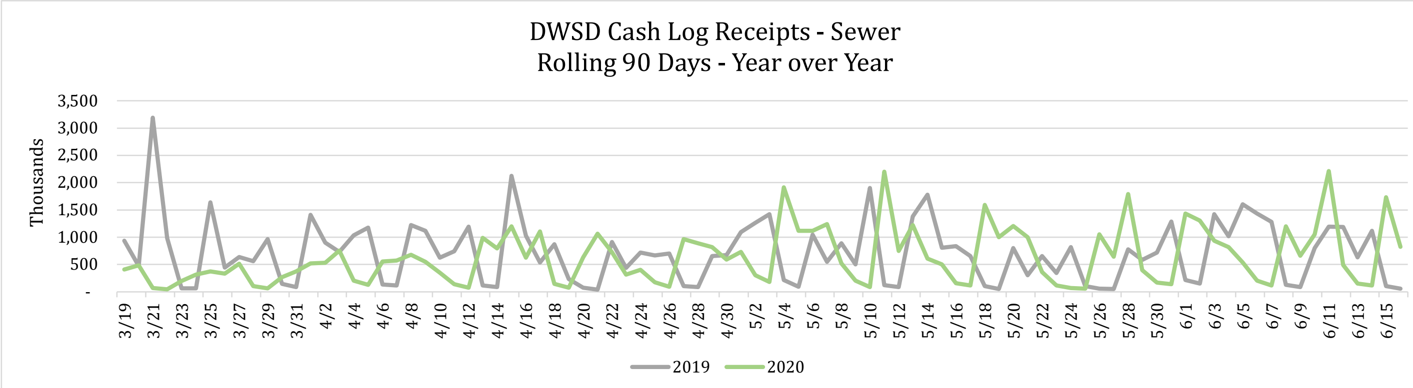
Source file name: DWSD Cash Log Trend Analysis.xlsx

DWSD Water System Cash Log Receipts - Weekly Analysis

	2019	2020	Difference	Variance
March 1-7	2,855,457	3,493,555	638,098	22%
March 8-14	2,078,951	2,183,016	104,065	5%
March 15-21	2,494,822	1,175,608	(1,319,213)	-53%
March 22-28	1,436,964	761,985	(674,978)	-47%
March 29-31	458,908	303,423	(155,485)	-34%
March Total	**9,325,101**	**7,917,587**	**(1,407,514)**	-15%
April 1-4	1,854,689	793,536	(1,061,153)	-57%
April 5-11	2,597,922	1,203,140	(1,394,782)	-54%
April 12-18	2,384,998	2,157,967	(227,031)	-10%
April 19-25	1,482,309	1,195,776	(286,532)	-19%
April 26-30	905,378	1,213,166	307,788	34%
April Total	**9,225,296**	**6,563,586**	**(2,661,711)**	-29%
May 1-2	859,323	494,827	(364,497)	-42%
May 3-9	2,692,038	2,575,037	(117,000)	-4%
May 10-16	3,261,898	2,045,126	(1,216,772)	-37%
May 17-23	1,233,687	2,224,124	990,437	80%
May 24-31	1,607,657	1,517,160	(90,497)	-6%
May Total	**9,654,603**	**8,856,274**	**(798,329)**	-8%
June 1-6	2,510,662	2,002,019	(508,643)	-20%
June 7-13	2,437,227	2,593,174	155,947	6%
June 14-16	579,139	1,267,762	688,623	119%
June to Date	**5,527,029**	**5,862,955**	**335,926**	6%

The purpose of this metric is to indicate the relative decrease in DWSD Water Cash Receipt Activity during the current 2020 pandemic in comparison to receipts over the same period in 2019. This % difference can be used as an assumption to drive potential net receipt projections.

The DWSD Cash Log does not take into account credit transfers between water and sewer or reductions due to NSF/Chargeback/Adjustment activity. A separate analysis is available to review net receipt activity.



Monthly Analysis

	2019	2020	Difference	
May:	21,292,676	22,585,148	1,292,472	6%
April:	20,478,348	16,687,255	(3,791,093)	-19%
March:	21,466,652	18,712,086	(2,754,566)	-13%
February:	20,259,062	22,233,662	1,974,600	10%
January:	20,571,500	22,857,168	2,285,668	11%

Source file name: DWSD Cash Log Trend Analysis.xlsx

DWSD Sewer System Cash Log Receipts - Weekly Analysis

	2019	2020	Difference	Variance
March 1-7	5,919,603	7,591,669	1,672,067	28%
March 8-14	4,291,732	5,069,028	777,296	18%
March 15-21	5,660,020	3,455,685	(2,204,335)	-39%
March 22-28	4,390,574	1,887,509	(2,503,065)	-57%
March 29-31	1,204,724	708,195	(496,529)	-41%
March Total	**21,466,652**	**18,712,086**	**(2,754,566)**	-13%
April 1-4	4,070,370	2,012,914	(2,057,456)	-51%
April 5-11	5,141,021	2,973,404	(2,167,617)	-42%
April 12-18	5,962,369	4,940,489	(1,021,880)	-17%
April 19-25	3,082,831	3,399,254	316,423	10%
April 26-30	2,221,757	3,361,194	1,139,437	51%
April Total	**20,478,348**	**16,687,255**	**(3,791,093)**	-19%
May 1-2	2,356,163	1,039,285	(1,316,879)	-56%
May 3-9	4,715,988	6,307,341	1,591,352	34%
May 10-16	6,912,801	5,525,000	(1,387,800)	-20%
May 17-23	2,908,869	5,397,576	2,488,707	86%
May 24-31	4,398,855	4,315,947	(82,908)	-2%
May Total	**21,292,676**	**22,585,148**	**1,292,472**	6%
June 1-6	5,837,818	5,234,634	(603,184)	-10%
June 7-13	5,308,152	5,886,139	577,987	11%
June 14-16	1,286,928	2,672,289	1,385,361	108%
June to Date	**12,432,899**	**13,793,062**	**1,360,163**	11%

The purpose of this metric is to indicate the relative decrease in DWSD Water Cash Receipt Activity during the current 2020 pandemic in comparison to receipts over the same period in 2019. This % difference can be used as an assumption to drive potential net receipt projections.

The DWSD Cash Log does not take into account credit transfers between water and sewer or reductions due to NSF/Chargeback/Adjustment activity. A separate analysis is available to review net receipt activity.

GLWA Great Lakes Water Authority	Procurement Form (FOR)			
	Effective Date: 5/1/2019	**Document #:** FSA_PRO_FOR_0021	**Revision Date:** N/A	**Revision#:** 0
Document Title: Evaluation Criteria - RFB			**Document Owner/Department:** Procurement Team	

Evaluation Criteria – ITQ

Instructions: Submit your firm's response in the sequence as listed below.

1. Experience and Qualification

   a. Describe the general character of work performed by your firm.

   Public Sector Consultants is an objective, nonpartisan research and consulting firm based in Lansing and Detroit. Our services have been used to advance innovative solutions to difficult public policy challenges in Michigan and beyond for more than 40 years. Offering a full suite of services in research, implementation, facilitation, and evaluation, PSC has served hundreds of local, state, and federal government agencies, nonprofit organizations, and private businesses. Since our founding in 1979, PSC has built a reputation as the consulting firm of choice for anyone working to better people's lives.

   Clients use PSC's research, management, analytical, and advisory capacities to develop and implement policies and strategic plans; improve internal management; identify stakeholder priorities and address conflicts between corporate and community interests; and identify political, regulatory, and economic factors influencing corporate and agency decisions.
   The firm is experienced in staffing complex organizations, managing sizable contracts, adhering to deadlines, and providing professional and clearly written reports. PSC has more than 60 employees and a roster of affiliated consultants.

   PSC has been conducting program evaluations for more than 20 years. The firm is well versed in a variety of process and impact evaluation methods, including developing theories of change and logic models, qualitative and quantitative data collection using tools such as focus groups and multimode surveys, in-depth informant interviews, cost-effectiveness analyses, and comprehensive data analyses to yield deep insights and actionable findings. The strengths of the PSC evaluation strategy include the consistent focus on supporting project and program success, timely progress measurement, and informing the policy framework in which projects and programs operate. Specifically, PSC has a long history of conducting program evaluations for Michigan's public energy utilities, assessing customer service programs and providing program design consultation services.

   b. How many years' experience in work similar to the character to the scope of Work under this solicitation has your firm had.

   ______20___ as a Contractor/Consultant/Supplier ________20+____ as a Sub-Contractor

2. References - **References should reflect municipal agencies similar to GLWA and include recent projects of similar scope, size, and complexity as required by the minimum qualifications listed in this solicitation.**

   a. Firm - Provide three (3) client references using Tables below.

Project Name: Evaluation of the Michigan Energy Assistance Program	
Client Name (Project Owner): DTE Energy	Contact Person: Winston Feeheley
Telephone No.: 1 (517) 230-4145	Email Address: winston.feeheley@dteenergy.com

	Procurement Form (FOR)			
GLWA Great Lakes Water Authority	**Effective Date:** 5/1/2019	**Document #:** FSA_PRO_FOR_0021	**Revision Date:** N/A	**Revision#:** 0
Document Title: Evaluation Criteria - RFB			**Document Owner/Department:** Procurement Team	

Project Description: Public Sector Consultants was engaged by DTE Energy to conduct an evaluation of the Michigan Energy Assistance Program (MEAP). This evaluation built on research conducted by PSC in 2015 and 2016 and was designed to assess progress in addressing the objectives and outcomes of the MEAP program. To provide a more comprehensive view of the success and reach of energy assistance programs, PSC expanded its 2017 evaluation approach to include other energy assistance programs including Michigan's Home Heating Credit (HHC) and the State Emergency Relief (SER) program. PSC's research was guided by a multi sector steering committee who reviewed and provided input on evaluation design and helped to engage stakeholders to participate in the evaluation process. PSC's evaluation took place in two phases. First, the team analyzed customer account data for recipients of energy assistance to determine the overall effects of energy assistance funding. Additionally, PSC's analysis created the opportunity for comparative analysis of the effectiveness of different program approaches. The second aspect of PSC's approach was review of secondary information such as grant reports and conduct interviews with key stakeholders. PSC prepared a final evaluation report summarizing key observations and presented this report to stakeholders.	
Prime or Subcontractor for this project: n/a	
Start Date: 3/2017	End Date: 12/2017

Project Name: Community Action Agency Needs Assessment	
Client Name (Project Owner): Kent County	Contact Person: Susan Cervantes
Telephone No.:	Email Address: susan.cervantes@kentcountymi.gov
Project Description: Kent County Community Action (KCCA) contracted with PSC to conduct a community needs assessment to assess service gaps, identify resources to address these gaps, support organizational strategic planning, develop program priorities, and assist with program evaluation. PSC—in partnership with KCCA—collected data specific to poverty as it relates to age, gender, and race; presented key findings on the causes and conditions of poverty in the community; helped secure formal acceptance of the assessment from KCCA's governing board; and adhered to Community Services Block Grant Organizational Standards for this work. PSC's findings were developed to assist KCCA and its stakeholders in strategic planning discussions and to identify priority areas.	
Prime or Subcontractor for this project: n/a	
Start Date: 2/2019	End Date: 11/2019

Project Name: Demand Response Market Assessment	
Client Name (Project Owner): MI Public Service Commission	Contact Person: Shay Gaffey

	Procurement Form (FOR)			
GLWA Great Lakes Water Authority	**Effective Date:** 5/1/2019	**Document #:** FSA_PRO_FOR_0021	**Revision Date:** N/A	**Revision#:** 0
Document Title: Evaluation Criteria - RFB			**Document Owner/Department:** Procurement Team	

Telephone No.: 517-335-1971	Email Address: gaffeys@michigan.gov
Project Description: PSC conducted a market assessment to determine awareness and interest of large commercial and industrial customers (i.e., entities with demand higher than one Megawatt in a single location) in demand response programs or programs that encourage utility customers to reduce or shift electricity usage during peak periods in response to time-based rates or other forms of financial incentives. Coordinating with the utilities in the state, PSC gathered commercial and industrial customer load characteristics, business categorization, program participation history, and contact information. PSC conducted surveys and in-depth interviews that covered topics including: characteristics of large commercial and industrial operations throughout Michigan; awareness of and experience participating in DR programs; preference for different program or rate designs; and the adoption of technologies that could enable participation in demand response programs including energy management systems, storage, and on-site generation. Results of the study were used to inform the Statewide Demand Response Potential Study and policies and programs designed to improve the electric system efficiency throughout the state.	
Prime or Subcontractor for this project: n/a	
Start Date: 6/2017	End Date: 12/2017

Firm's Name: Public Sector Consultants Solicitation Number: ITQ 2001694

GLWA Water Residential Assistance Program Advisor

Public Sector Consultants

June 16, 2020

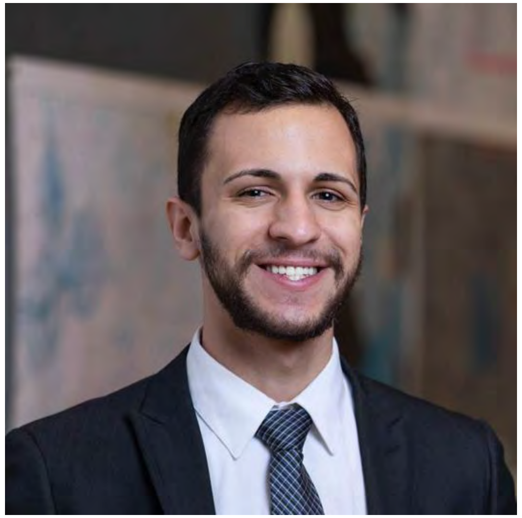
PUBLICSECTORCONSULTANTS.COM

About the Firm

Public Sector Consultants is a nonpartisan research and public policy consulting firm.

- We strive to improve the quality of life for residents of Michigan and beyond through the development and implementation of innovative, actionable public policies.

Project Team


Approach to the Work

Goal: Assess WRAP operations and achievements of key objectives and develop recommendations to strengthen the WRAPs effectiveness

- Task One — Review the current state of the WRAP
- Task Two — Define the project timeline and facilitation strategy
- Task Three — Develop program evaluation framework
- Task Four — Collect relevant data
- Task Five — Facilitate focus group meetings
- Task Six — Develop the final report
- Task Seven — Advisory to the WRAP administrator RFP

Task One: Review Current State of WRAP

- Establish a baseline understanding of WRAP
  - Document program goals
  - Define operational characteristics
  - Determine the program's reach
- Review relevant documentation provided by GLWA project team and WRAP administrator
- Timeline: June - July

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Task Two: Define Project Timeline and Facilitation Strategy

- Initial kick-off meeting with GLWA Staff to establish a project timeline and goals for this evaluation
  - PSC will prepare a draft project timeline in advance of the kick-off meeting
- Align on communication protocols and facilitation strategy for planned focus group meetings.
  - PSC will share a proposed format for focus groups
  - PSC will solicit input from GLWA staff and the third party facilitator on the focus group strategy

- Timeline: July or as soon as feasible upon execution of a contract

Task Three: Develop Program Evaluation Framework

Process Evaluation – Assess how the program is working

- Assess how the program operates based on review of available data and input provided by stakeholders
- Consult with GLWA staff to define program performance measures.
- Develop evaluation framework

Outcome Evaluation – Assess the effectiveness of the program

- Determine whether the program is meeting its objectives
- Consult with GLWA staff to identify the desired impact of the program
- Develop evaluation framework

Timeline: July-August

Task Four: Collect Data

- Identify appropriate contacts for coordination with the program administrator.
- Define available data collected by WRAP administrator, GLWA, or other project partners. Examples of desired data:
  - Data related to program administration (e.g., time, staff costs, and expenses)
  - Data related to performance measures (e.g., subcontractor and general performance data)
  - Data kept for WRAP participants
  - Data kept for participating communities
- Timeline: July

Task Five: Facilitate Three Focus Group Meetings

- How should the WRAP's success be defined?
- What aspects of WRAP are working well?
- What aspects could be improved?
- What changes should be incorporated into future iterations of the WRAP?

- Timeline: July

Task Six: Develop Final Report

- PSC will produce a final report containing the following components:
  - Executive Summary detailing the evaluation's findings
  - Summary of WRAP design features, areas for improvement, and recommended changes
  - Discussion of program effectiveness measures and success to date based on available data
  - Recommendations for program changes, with associated cost and who will be responsible for implementation
- Timeline: August

Task Seven: Ongoing Consultant Support

- Provide ongoing support for the development of the WRAP administrator request for proposals

Questions?


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Monthly Financial Report Binder

March 2020

Presented to the
Great Lakes Water Authority
Audit Committee on June 19, 2020

TABLE OF CONTENTS

Financial Report
Executive Summary Dashboard
for the Month Ended March 31, 2020

Key Financial Metrics

The table below presents a summary of key metrics found in this monthly financial report.

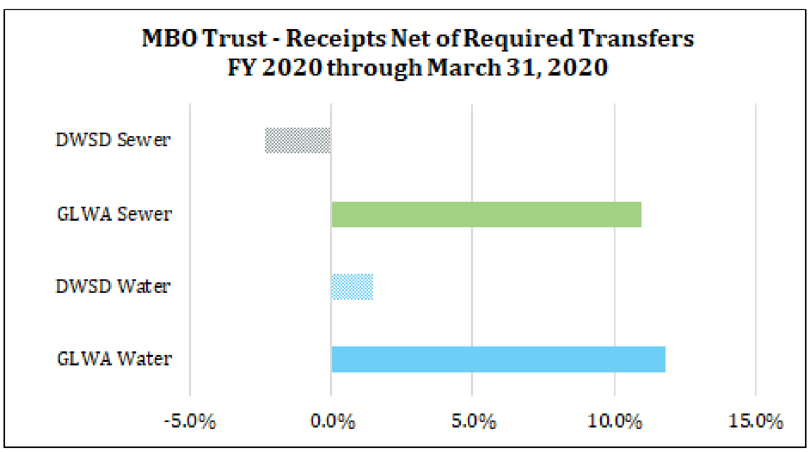
The indicators below focus on a financial risk management lens of preventing a budget shortfall. Green indicates no risk of a budget shortfall; yellow indicates a potential shortfall by year-end; and red indicates a likely budget shortfall by year-end. That being said, each of these variances is monitored by GLWA management and, where appropriate, operating and/or budget priorities are re-evaluated.

As of March 31, 2020				
Metric	FY 2020 Budget	FY 2020 Actual	Variance from Financial Plan	Report Page Reference
Wholesale Water Billed Revenue ($M)	$238.7	$234.0	-2%	40
Wholesale Water Billed Usage (mcf)	10,603,000	10,068,000	-5%	
Wholesale Sewer Billed Revenue ($M)	$200.9	$200.9	0%	42
Wholesale Water Operations & Maintenance ($M)	$98.6	$97.1	-2%	4
Wholesale Sewer Operations & Maintenance ($M)	$140.3	$125.4	-11%	
Investment Income ($M)	$13.1	$15.2	16%	31
Water Prorated Capital Spend w/SRA* ($M)	$81.0	$49.0	-40%	25
Sewer Prorated Capital Spend w/SRA* ($M)	$91.0	$54.0	-41%	

*SRA refers to the capital spending ratio assumption which allows capital program delivery realities to align with the financial plan.

Master Bond Ordinance (MBO) Trust Net Receipts

Net cash flow receipts are positive for GLWA Water and Sewer. This means that all legal commitments of the MBO Trust and the lease payment are fully funded to date – and that positive cash flow is available for additional capital program funding in subsequent year(s). DWSD Water report positive cash flows for March. DWSD Sewer reported a net receipts shortfall of $4.7 million for March 2020 falling 2.3% below receipts necessary to fund required disbursements. GLWA and DWSD staff are meeting regularly to discuss steps to mitigate this shortfall as outlined in the 2018 MOU.



Prospective COVID-19 financial impacts are being monitored closely and are addressed in the monthly CFO Report section of the June 19, 2020 Audit Committee binder.

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

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

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

Revenue Requirement Budget Basis Analysis

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

Table 1A – <u>Water</u> Revenue Requirement Budget and ***Table 1B – <u>Sewer</u> 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 March 2020, the pro-rata benchmark is 75.0% (9 of 12 months of the fiscal year).

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

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

4. ***Operations & Maintenance Expense:*** Actual expenses[1] for *both* systems have variances from the pro-rata benchmark. The *water* system is slightly under the pro-rata benchmark for FY 2020 at 73.8%. The *sewer* system O&M expenses, at 67.0%, is less than the pro-rata benchmark.
5. ***Debt Service:*** *Both* systems are less than the pro-rata benchmark for FY 2020; the *water* system is at 72.1%; while the *sewer* system is at 73.2%. The activity is based on the payment schedules adjusted for the State Revolving Fund loans that are still being drawn down. In addition, the monies invested in FY 2019 realized a higher return than projected. This gain was applied to the debt requirements which reduced the payments for July and August.
6. ***DWSD Budget Shortfall Pending:*** To the extent that the local (DWSD) system experiences budgetary shortfalls as defined by the Water & Sewer Services Agreement, the GLWA budget is impacted.[2] Steps to proactively detect, and ideally prevent, this shortfall scenario were put into place with the 2018 Memorandum of Understanding (dated June 27, 2018). For FY 2019, DWSD *sewer* had a shortfall through March 31, 2019, of $10.7 million (FY 2019 ended with a small surplus). In order to achieve the goal of positive, net cash flows for FY 2019, DWSD reduced its *sewer* system O&M transfers in May and June. The transfers reduced were $5,676,792 each for a total of $11,353,584. For FY 2020, the DWSD *water* system has budgetary surplus of $1.1 million and the DWSD *sewer* system has a budgetary shortfall of $4.7 million through March 31, 2020. GLWA and DWSD staff are meeting regularly to discuss steps to mitigate this shortfall as outlined in the 2018 MOU.
7. ***Improvement & Extension (I&E) Fund Transfer Pending:*** The contribution to the I&E Fund is for improvements, enlargements, extensions or betterment of the Water System. Transfers to the I&E Fund from net revenues are now completed monthly.
8. ***Other Revenue Requirements:*** The remaining revenue requirements for *both* systems are funded on a 1/12th basis each month in accordance with the Master Bond Ordinance.
9. ***Overall:*** Total revenue requirements for *both* systems are in line with the benchmark.

---

[1]The 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)

Water System	FY2019 AMENDED BUDGET	FY 2019 THRU 3/31/2019	Percent Year-to-Date	FY 2020 BOARD ADOPTED BUDGET	FY 2020 AMENDED BUDGET	FY 2020 THRU 3/31/2020	Percent Year-to-Date
Revenues							
Suburban Wholesale Customer Charges	$ 307,383	$ 231,991	75.5%	$ 309,285	$ 309,285	$ 228,970	74.0%
Retail Service Charges	20,181	15,245	75.5%	21,296	21,296	15,972	75.0%
Investment Earnings	9,425	7,228	76.7%	9,084	9,084	5,469	60.2%
Other Revenues	-	25	0.0%	-	-	2	0.0%
Total Revenues	$ 336,989	$ 254,488	75.5%	$ 339,664	$ 339,664	$ 250,414	73.7%
Revenue Requirements							
Operations & Maintenance Expense	$ 121,563	$ 87,172	71.7%	$ 131,491	$ 131,491	$ 97,062	73.8%
General Retirement System Legacy Pension	6,048	4,536	75.0%	6,048	6,048	4,536	75.0%
Debt Service	131,242	98,121	74.8%	137,558	137,558	99,168	72.1%
General Retirement System Accelerated Pension	6,268	4,701	75.0%	6,268	6,268	4,701	75.0%
Extraordinary Repair & Replacement Deposit	-	-	0.0%	-	-	-	0.0%
Water Residential Assistance Program Contribution	1,673	1,255	75.0%	1,698	1,698	1,274	75.0%
Lease Payment	22,500	16,875	75.0%	22,500	22,500	16,875	75.0%
Operating Reserve Deposit	-	-	0.0%	3,976	3,976	2,982	75.0%
Improvement & Extension Fund Transfer Pending	47,695	35,771	75.0%	30,126	30,126	22,594	75.0%
Total Revenue Requirements	$ 336,989	$ 248,431	73.7%	$ 339,664	$ 339,664	$ 249,192	73.4%
Net Difference		$ 6,057				$ 1,222	
Recap of Net Positive Variance							
Revenue Variance		$ 1,746				$ (4,335)	
Revenue Requirement Variance		4,311				5,557	
Overall Variance		$ 6,057				$ 1,222	

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

Sewer System	FY 2019 AMENDED BUDGET	FY 2019 THRU 3/31/2019	Percent Year-to-Date	FY 2020 BOARD ADOPTED BUDGET	FY 2020 AMENDED BUDGET	FY 2020 THRU 3/31/2020	Percent Year-to-Date
Revenues							
Suburban Wholesale Customer Charges	$ 271,296	$ 206,215	76.0%	$ 272,324	$ 272,324	$ 201,485	74.0%
Retail Service Charges	181,159	137,256	75.8%	185,807	185,807	139,355	75.0%
Industrial Waste Control Charges	15,001	6,853	45.7%	13,744	13,744	6,210	45.2%
Pollutant Surcharges	-	4,264	0.0%	-	-	4,683	0.0%
Investment Earnings	6,879	7,292	106.0%	8,731	8,731	6,345	72.7%
Other Revenues	-	349	0.0%	-	-	343	0.0%
Total Revenues	$ 474,335	$ 362,228	76.4%	$ 480,605	$ 480,605	$ 358,421	74.6%
Revenue Requirements							
Operations & Maintenance Expense	$ 191,079	$ 126,956	66.4%	$ 187,057	$ 187,057	$ 125,352	67.0%
General Retirement System Legacy Pension	10,824	8,118	75.0%	10,824	10,824	8,118	75.0%
Debt Service	208,389	156,072	74.9%	215,739	215,739	158,006	73.2%
General Retirement System Accelerated Pension	11,621	8,716	75.0%	11,621	11,621	8,716	75.0%
Extraordinary Repair & Replacement Deposit	-	-	0.0%	-	-	-	0.0%
Water Residential Assistance Program Contribution	2,374	1,781	75.0%	2,403	2,403	1,802	75.0%
Lease Payment	27,500	20,625	75.0%	27,500	27,500	20,625	75.0%
Operating Reserve Deposit	-	-	0.0%	-	-	-	0.0%
DWSD Budget Shortfall Pending	-	10,654	0.0%	-	-	4,715	0.0%
Improvement & Extension Fund Transfer Pending	22,548	16,911	75.0%	25,462	25,462	19,096	75.0%
Total Revenue Requirements	$ 474,335	$ 349,832	73.8%	$ 480,605	$ 480,605	$ 346,430	72.1%
Net Difference		$ 12,396				$ 11,991	
Recap of Net Positive Variance							
Revenue Variance		$ 6,477				$ (2,033)	
Revenue Requirement Variance		5,919				14,024	
Overall Variance		$ 12,396				$ 11,991	

Operations & Maintenance Budget – Major Budget Categories

The year-over-year benchmark ratio as of March 31, 2020, is 75.0% (nine months). When comparing FY 2020 to FY 2019 in ***Table 2 – Operations & Maintenance Budget – Major Budget Categories***, it appears that overall spending is consistent.

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

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

Major Budget Categories	FY 2019 AMENDED BUDGET	FY 2019 ACTIVITY THRU 3/31/2019	Percent Year-to-Date	FY 2020 BOARD ADOPTED BUDGET	FY 2020 AMENDED BUDGET	FY 2020 ACTIVITY THRU 3/31/2020	Percent Year-to-Date
Water	$ 66,596	$ 53,745	80.7%	$ 66,021	$ 66,021	$ 52,759	79.9%
Sewer	118,319	82,109	69.4%	115,985	115,985	78,819	68.0%
Centralized	99,045	62,071	62.7%	106,914	106,914	68,985	64.5%
Administrative	28,683	18,769	65.4%	29,628	29,628	20,778	70.1%
Employee Benefits	-	(2,514)	0.0%	-	-	1,075	0.0%
Total O&M Budget	$ 312,642	$ 214,179	68.5%	$ 318,548	$ 318,548	$ 222,414	69.8%

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 69.8% which is reasonably within the pro-rata benchmark of 75.0%. This positive variance equates to a dollar amount of $16.5 million. The expense category commentary is provided below for items highlighted on Table 3.

Personnel Costs: The overall category is on target with the pro-rata benchmark; coming in at 75.1% through March 2020.

Utilities: The overall category is higher than the benchmark; coming in at 76.3% through March 2020. This variance is not unexpected as usage varies throughout the year.

- **Electric** is higher than the benchmark, coming in at 79.5%. This increase is primarily due to the pumps being required to run longer than normal as a result of the wet weather that Michigan has been experiencing. In addition, the first three months of GLWA's fiscal year (July, August, and September) are typically peak months for the usage of electricity. June, the last month of GLWA's fiscal year, is typically a peak month as well.
- **Gas** is coming in at 60.6% which is lower than the benchmark of 75.0%. A review of the accounts has confirmed that the usage is variable throughout the year.
- **Water service** is lower than the benchmark, coming in at 67.0%. While usage does vary throughout the year, a review of the accounts has shown that the water service bills are coming in lower for Wastewater Operations. Processing efficiencies using the new chemical building has reduced the use of potable water during wet weather events.

Chemicals: This category is on target with the pro-rata benchmark; coming in at 75.8% through March 2020.

Supplies & Other: This category is lower than the benchmark; coming in at 64.6% through March 2020. 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. A review of this category is being conducted.

Contractual Services: The overall category is lower than the benchmark; coming in at 72.4% through March 2020. Variances in this category are not unexpected as the usage of contracts varies throughout the year (projects scheduled to begin during the latter half of the year as well as contracts that are on an as needed basis). Budget amendments will be processed for those projects in which the actual start dates have been delayed from that in which they were budgeted.

Capital Program Allocation: This category is lower than the benchmark; coming in at 68.1% through March 2020. The amount in the Capital Program Allocation account is shown as negative as this is a "contra" account which represents an offset to the Personnel Costs section of the Operations & Maintenance (O&M) budget. A new element this year is the addition of contracted AECOM Capital Program Management services. The variance is due to two primary reasons. First, through March 31, 2020, GLWA team member hours posted to projects is 2% less than the prior year. This is due to increased focus on large maintenance projects versus capital projects. Second, no AECOM fees have been incurred that have been identified for capitalization.

Shared Services: This category is higher than the benchmark; coming in at 78.8% through March 2020. The shared services reimbursement is comprised of both labor (tracked via BigTime) and expenses, such as annual fees for software licensing. Staff from both GLWA and DWSD have been working together to evaluate and refine the budget for the shared services agreements. Based on these evaluations, adjustments have been made to both the billings and accounting accruals to more accurately reflect the forecasted activity for FY 2020. A budget amendment was entered in December 2019 to adjust the shared services budget to this revised FY 2020 forecast.

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

Expense Categories Entity-wide	FY 2019 AMENDED BUDGET	FY 2019 ACTIVITY THRU 3/31/2019	Percent Year-to-Date at 3/31/2019	FY 2019 ACTIVITY THRU 6/30/2019	Percent Year-to-Date at 6/30/2019	FY 2020 AMENDED BUDGET	FY 2020 PRORATED AMENDED BUDGET (9 MONTHS)	FY 2020 ACTIVITY THRU 3/31/2020	Percent Year-to-Date	PRORATED BUDGET LESS FY 2020 ACTIVITY
Salaries & Wages	$ 63,631	$ 44,594	70.1%	$ 59,922	74.4%	$ 68,233	$ 51,174	$ 48,008	70.4%	$ 3,166
Workforce Development	751	563	74.9%	794	70.9%	1,001	751	833	83.2%	(82)
Overtime	7,612	5,730	75.3%	7,554	75.9%	6,153	4,615	5,729	93.1%	(1,114)
Employee Benefits	23,656	18,517	78.3%	21,998	84.2%	22,957	17,218	17,932	78.1%	(714)
Transition Services	8,572	6,202	72.4%	8,322	74.5%	6,048	4,536	4,796	79.3%	(260)
Employee Benefits Fund	-	(2,514)	0.0%	-	0.0%	-	-	1,075	0.0%	(1,075)
Personnel Costs	*104,221*	*73,091*	*70.1%*	*98,589*	74.1%	*104,392*	*78,294*	*78,372*	*75.1%*	*(78)*
Electric	39,019	30,330	77.7%	39,103	77.6%	38,386	28,789	30,529	79.5%	(1,739)
Gas	6,631	5,390	81.3%	6,568	82.1%	6,451	4,838	3,909	60.6%	929
Sewage Service	2,491	1,599	64.2%	2,094	76.4%	1,847	1,385	1,525	82.6%	(140)
Water Service	3,648	2,782	76.2%	3,631	76.6%	3,658	2,743	2,451	67.0%	292
Utilities	*51,789*	*40,101*	*77.4%*	*51,396*	78.0%	*50,341*	*37,756*	*38,413*	*76.3%*	*(657)*
Chemicals	13,385	9,505	71.0%	13,276	71.6%	13,899	10,424	10,529	75.8%	(105)
Supplies & Other	36,226	22,541	62.2%	37,121	60.7%	37,263	27,947	24,075	64.6%	3,872
Contractual Services	100,856	78,090	77.4%	101,873	76.7%	107,012	80,259	77,428	72.4%	2,831
Capital Program Allocation	(3,356)	(2,387)	71.1%	(3,381)	70.6%	(3,515)	(2,637)	(2,395)	68.1%	(242)
Shared Services	(9,005)	(6,762)	75.1%	(7,139)	94.7%	(5,089)	(3,817)	(4,008)	78.8%	191
Unallocated Reserve	18,524	-	0.0%	-	0.0%	14,246	10,684	-	0.0%	10,684
Total Expenses	$ 312,642	$ 214,179	68.5%	$ 291,734	73.4%	$ 318,548	$ 238,911	$ 222,414	69.8%	$ 16,497

The Basic Financial Statements report includes the following four tables.

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

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

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

Statement of Net Position – All Funds Combined

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

Table 1 – Statement of Net Position - All Funds Combined
As of March 31, 2020
($000)

	Water	Sewage Disposal	Total Business-type Activities	Comparative June 30, 2019
Assets				
Cash - unrestricted (a)	$ 88,819	$ 128,875	$ 217,694	$ 309,016
Cash - restricted (a)	57,581	74,809	132,389	261,999
Investments - unrestricted (a)	296,174	160,874	457,049	274,246
Investments - restricted (a)	118,728	173,725	292,453	185,831
Accounts Receivable	78,304	77,025	155,329	208,914
Due from (to) Other Funds (b)	(465)	465		2,890
Other Assets (c)	598,626	449,899	1,048,524	1,046,518
Cash Held FBO DWSD Advance (d)	-	4,093	4,093	
Capital Assets, net of Depreciation	1,329,010	2,262,607	3,591,617	3,747,784
Land	292,799	123,846	416,645	417,657
Construction Work in Process (e)	191,470	227,567	419,037	368,748
Total assets	3,051,047	3,683,784	6,734,831	6,823,603
Deferred Outflows (f)	90,761	172,195	262,956	273,596
Liabilities				
Liabilities - Short-Term (g)	137,909	177,907	315,816	321,270
Due to (from) Other Funds (b)	-	-	-	2,890
Other Liabilities (h)	2,777	6,396	9,173	9,097
Cash Held FBO DWSD (d)	3,302	-	3,302	2,807
Liabilities - Long-Term (i)	3,030,871	3,731,500	6,762,371	6,853,419
Total liabilities	3,174,859	3,915,802	7,090,661	7,189,483
Deferred Inflows (f)	57,364	51,780	109,145	108,541
Total net position (j)	$ (90,416)	$ (111,604)	$ (202,019)	$ (200,825)

Totals may be off due to rounding

In general, the Statement of Net Position - Draft reflects a mature organization with no unexpected trends. Cash balances as of March 31, 2020 are lower when compared to June 30, 2019 (highlighted in gold on Table 1). This is because of the high liquidity needs at June 30, 2019 to meet annual debt and interest payments, legacy pension obligation payments, and annual operational requirements whereas more funds are being invested as of March 31, 2020.

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

Footnotes to Statement of Net Position

a. *Cash and Investments* are reported at book value. Investments at June 30, 2019 are reported at market value. The March 31, 2020 values differ from the Cash and Investment section of this Financial Report Binder due to timing of certain items recognized on a cash versus accrual basis.
b. *Due from (to) Other Funds* and *Due to (from) Other Funds* is shown at the gross level for sub-fund activity.
c. *Other Assets* primarily consists of the contractual obligation receivable from DWSD related to reimbursement of bonded indebtedness for local system improvements.
d. *Cash Held FBO Advance (for benefit of) DWSD* and *Cash Held FBO DWSD* represents the net difference between DWSD retail cash received from customers and net financial commitments as outlined in the Master Bond Ordinance.
e. *Construction Work in Process* represents the beginning balance of CWIP plus any construction spending during the fiscal year. The balance will fluctuate based on the level of spend less any capitalizations or write-offs.
f. *Deferred Inflow* and *Deferred Outflow* relate to financing activity and GLWA's share of the legacy General Retirement System (GRS) pension obligation.
g. *Liabilities - Short-term* include accounts payable, retainage payable, and certain accrued liabilities. Some items, such as compensated absences and worker's compensation, are reviewed periodically but are only adjusted on an interim basis if there is a material change.
h. *Other Liabilities* account for the cash receipts set aside for the Budget Stabilization Fund and the Water Residential Assistance Program.
i. *Liabilities – Long-term* include bonds payable, lease payable, and legacy General Retirement System pension liabilities.
j. *Net Position Deficit* is defined by accounting standards as the residual of all other elements presented in a statement of financial position. It is the difference between (a) assets and deferred outflows of resources and (b) liabilities and deferred inflows of resources. A net deficit occurs when the liabilities and deferred inflows exceed assets and deferred outflows. GLWA's net deficit is largely driven by an increase in depreciation

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

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

This statement, shown in Table 2, is presented in summary format. The accrual basis of revenues and operations and maintenance expense vary from the revenue requirement basis presented in the *Budget to Actual Analysis* and the *Wholesale Billings, Receivables & Collections* sections of the March 2020 Financial Report Binder. Prior year ending balances are provided in the June 30, 2019 column as a reference for comparative purposes. Explanatory notes follow this statement.

Table 2 – Statement of Revenues, Expenses and Changes in Net Position – All Funds Combined
For the Nine Months ended March 31, 2020
($000)

	Water	Percent of Revenue	Sewage Disposal	Percent of Revenue	Total Business-type Activities	Comparative June 30, 2019
Revenue						
Wholesale customer charges	$ 233,960	93.6%	$ 201,485	57.2%	$ 435,444	$ 584,172
Local system charges	15,972	6.4%	139,355	39.6%	155,327	201,341
Industrial waste charges	-	0.0%	6,210	1.8%	6,210	9,106
Pollutant surcharges	-	0.0%	4,683	1.3%	4,683	5,933
Other revenues	2	0.0%	343	0.1%	345	528
Total Revenues	**$ 249,934**	**100%**	**$ 352,076**	**100%**	**$ 602,010**	**$ 801,079**
Operating expenses						
Operations and Maintenance	97,200	38.9%	126,536	35.9%	223,736	293,863
Depreciation	97,669	39.1%	116,397	33.1%	214,066	309,115
Total operating expenses	**194,869**	**78.0%**	**242,932**	**69.0%**	**437,802**	**602,978**
Operating income	55,064	22.0%	109,144	31.0%	164,208	198,101
Total Nonoperating (revenue) expense	68,598	27.4%	96,805	27.5%	165,403	220,170
Increase/(Decrease) in Net Position	**(13,534)**	**-5.4%**	**12,339**	**3.5%**	**(1,195)**	**(22,070)**
Net position (deficit), beginning of year	(76,882)		(123,943)		(200,825)	(178,755)
Net position (deficit), end of year	$ (90,416)		$ (111,604)		$ (202,019)	$ (200,825)

Totals may be off due to rounding

Water Fund

- ✓ The decrease in Water Fund Net Position is $13.5 million.
- ✓ Wholesale water customer charges of $233.9 million account for 93.6% of Water System revenues.
- ✓ Operating expenses of $194.8 million represent 78.0% of total operating revenue. Depreciation is the largest operating expense at $97.6 million or 50.1% of operating expense.
- ✓ Operating income after operating expenses (including depreciation) equals $55.0 million or 22.0% of operating revenue.
- ✓ The largest category within nonoperating activities is bonded debt interest expense of $66.8 million (this equates to the bonded debt interest expense less the offset from DWSD contractual obligation income).

Sewage Disposal Fund

- ✓ The increase in the Sewage Disposal Fund Net Position is $12.3 million.
- ✓ Wholesale customer charges of $201.4 million account for 57.2% of Sewer System revenues. Wholesale customer charges are billed one-twelfth each month based on an agreed-upon historical average "share" of each customer's historical flows which are formally revisited on a periodic basis. The result is no revenue shortfall or overestimation.
- ✓ Local system (DWSD) charges of $139.3 million account for 39.6% of total operating revenues. These are also billed at one-twelfth of the annual revenue requirement.
- ✓ Operating expenses of $242.9 million represent 69.0% of total operating revenue. Depreciation is the largest operating expense at $116.4 million or 47.9% of total operating expense.
- ✓ Operating income after operating expenses (including depreciation) equals $109.1 million or 31.0% of operating revenue.
- ✓ The largest category within nonoperating activities is bonded debt interest expense of $88.9 million (this equates to the bonded debt interest expense less the offset from DWSD contractual obligation income).

Supplemental Schedule of Operations & Maintenance Expenses – All Funds Combined

This Supplemental Schedule of Operations & Maintenance Expenses (O&M) schedule is shown below in Table 3. This accrual basis of operations and maintenance expense may vary from the revenue requirement basis presented in the *Budget to Actual Analysis* section of the March 2020 Financial Report Binder. Explanatory notes follow this schedule.

Table 3 – Supplemental Schedule of Operations & Maintenance Expenses – All Funds Combined
For the Nine Months ended March 31, 2020
($000)

	Water	Percent of Total	Sewage Disposal	Percent of Total	Total Business-type Activities	Percent of Total
Operating expenses						
Personnel						
Salaries & Wages	17,934	18.5%	35,703	28.2%	53,637	24.0%
Overtime	3,350	3.4%	2,378	1.9%	5,729	2.6%
Benefits	12,519	12.9%	6,487	5.1%	19,007	8.5%
Total Personnel	$ 33,803	34.8%	$ 44,569	35.2%	$ 78,372	35.0%
Utilities						
Electric	19,447	20.0%	11,081	8.8%	30,529	13.6%
Gas	815	0.8%	3,094	2.4%	3,909	1.7%
Sewage	351	0.4%	1,174	0.9%	1,525	0.7%
Water	1	0.0%	2,450	1.9%	2,451	1.1%
Total Utilities	$ 20,614	21.2%	$ 17,799	14.1%	$ 38,413	17.2%
Chemicals	4,085	4.2%	6,444	5.1%	10,529	4.7%
Supplies and other	8,577	8.8%	15,498	12.2%	24,075	10.8%
Contractual services	35,401	36.4%	43,349	34.3%	78,750	35.2%
Capital Adjustment	-	0.0%	-	0.0%	-	0.0%
Capital program allocation	(1,522)	-1.6%	(873)	-0.7%	(2,395)	-1.1%
Shared services allocation	(3,760)	-3.9%	(249)	-0.2%	(4,008)	-1.8%
Operations and Maintenance Expenses	**$ 97,200**	**100.0%**	**$ 126,536**	**100.0%**	**$ 223,736**	**100.0%**

Totals may be off due to rounding.

- ✓ Core expenses for water and sewage disposal systems are utilities (17.2% of total O&M expenses) and chemicals (4.7%).
- ✓ Personnel costs (35.0% 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 (35.2%) includes:
    - Water System costs of sludge removal and disposal services at the Northeast, Southwest and Springwells Water Treatment Plants (approximately $6.6 million);
    - Sewage Disposal System costs for the operation and maintenace of the biosolids dryer facility (approximately $11.6 million); and
    - Centralized and adminisitrative contractual costs allocated to both systems for information technology, building maintenace, 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 Nine Months ended March 31, 2020 ($000)

	Water	Sewage Disposal	Total Business-type Activities	Comparative June 30, 2019
Nonoperating (Revenue)/Expense				
Interest income contractual obligation	$ (16,767)	$ (13,643)	$ (30,410)	$ (40,673)
Interest income DWSD Shortfall	-	(1,036)	(1,036)	(1,104)
Investment earnings	(6,570)	(6,305)	(12,875)	(26,518)
Other nonoperating revenue	(13)	(10)	(23)	(420)
Interest expense				-
Bonded debt	83,630	102,557	186,187	250,966
Lease obligation	13,117	16,032	29,150	39,264
Other obligations	3,633	1,180	4,812	6,368
Total interest expense	100,380	119,769	220,149	296,597
Other non-capital expense	-	-	-	-
Memoram of Understanding	-	-	-	6,527
Capital Contribution	-	(5,960)	(5,960)	-
Amortization, issuance costs, debt	(12,116)	1,405	(10,712)	(3,995)
Amortization, raw water rights	2,675	-	2,675	3,567
(Gain) loss on disposal of capital assets	(1)	1,192	1,191	(81)
Loss on impairment of capital assets	-	-	-	1,025
Water Residential Assistance Program	1,010	1,392	2,402	2,024
Legacy pension expense	-	-	-	(16,778)
Total Nonoperating (Revenue)/Expense	**$ 68,598**	**$ 96,805**	**$ 165,403**	**$ 220,170**

Totals may be off due to rounding.

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

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

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

FY 2019 Items of note:

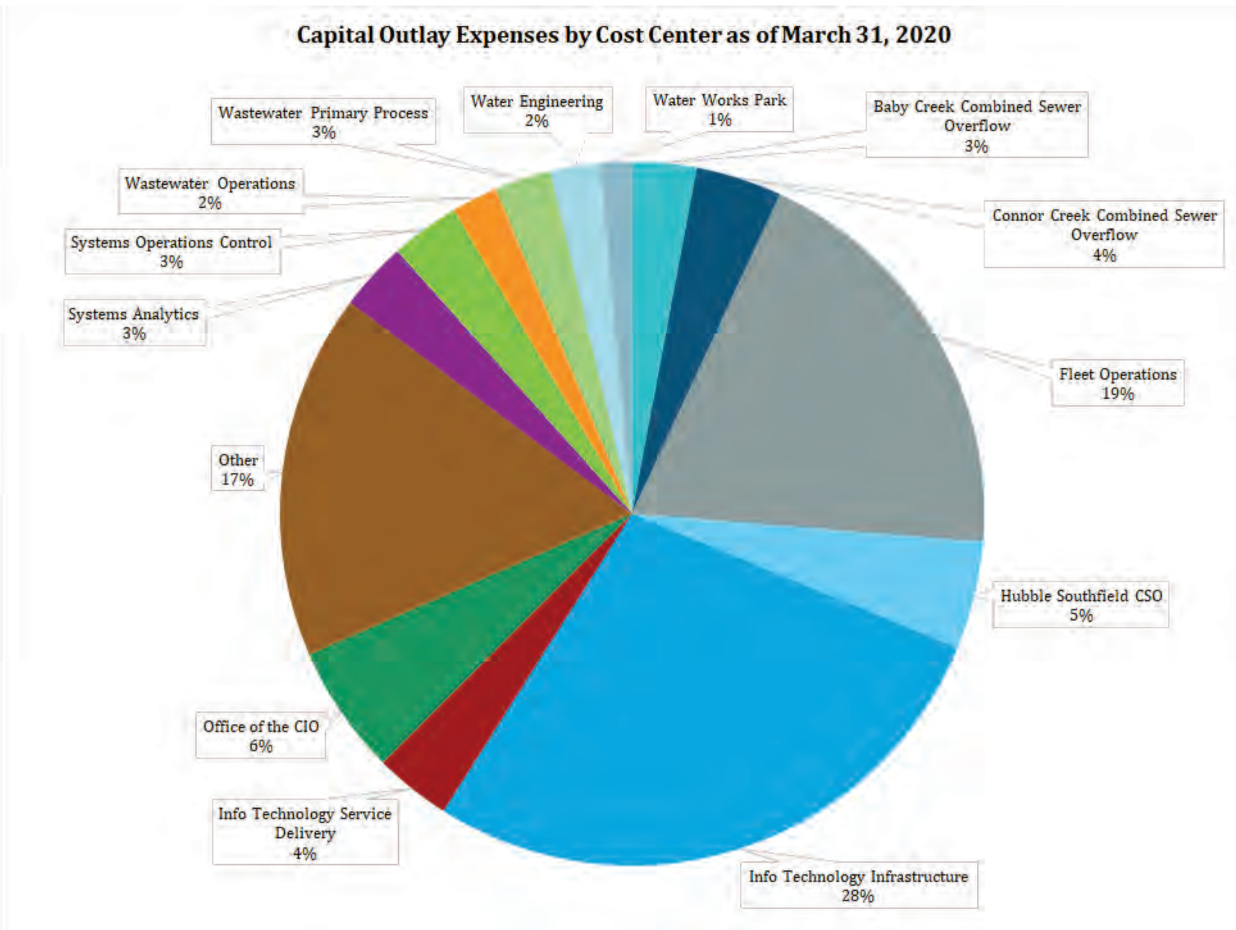
- ✓ Legacy Pension expense is reflected as income due to changes in actuarial assumptions and rates from the June 30, 2018 City of Detroit General Retirement System Component II audited financial statement.
- ✓ Sewer Other Non-operating expense includes the 2018 MOU Item 8a from June 27, 2018 for a final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

Financial Activity Charts

Chart 1 – Capital Outlay – Water and Sewer System Combined

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

Through March 31, 2020, total capital outlay spend is $11.0 million. Following this chart is a sample list of projects and purchases from the total spend of $11.0 million:



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

Water Operations: Water Works Park South Garage renovation ($171k); actuators ($108k); power monitor ($90k); submersible pressure sensor ($83k); various Water location building improvements ($80k); turbid meters ($54k) for Southwest Water

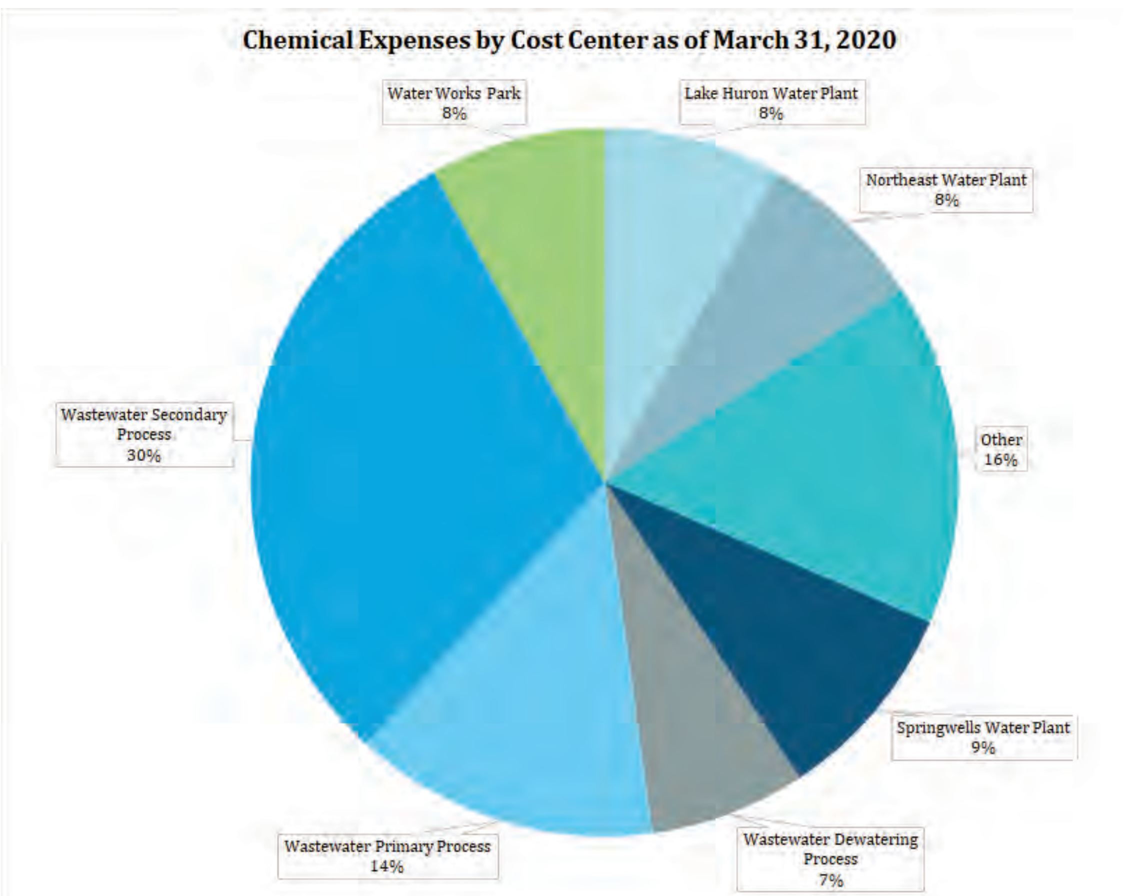
Treatment Plant; HVAC controls upgrade ($52k) for the Imlay Pumping Station and skid steer loader ($44k).

Wastewater Operations: Accusonic flow meters ($540k); pumps at various CSO's ($267k); pinion gears ($254k); chemical induction unit ($179k); Transformer C structure at Water Resource Recovery Facility ($143k); boilers ($131k); chemical feed pump ($96k); Flygt pump ($78k); water heater for Scum building ($76k); low lift elevator repair ($59k) and skid steer loader ($44k).

Centralized & Administrative Facilities: Low voltage wiring services ($2.2m); trucks and vehicles ($2.0m); IT & 17th floor renovation and furniture ($636k); IT software ($436k); IT computers ($274k); Sewer meter support ($211k); transmitters ($118k); multimeter ($91k); IT premium hardware support ($74k); supplies ($60k) and 2nd Floor furniture at CSF ($50k); 'other' category expenses include: bathroom renovation ($83k) for the Logistics and Materials team.

Chart 2 – Chemical Spend – Water and Sewer System Combined

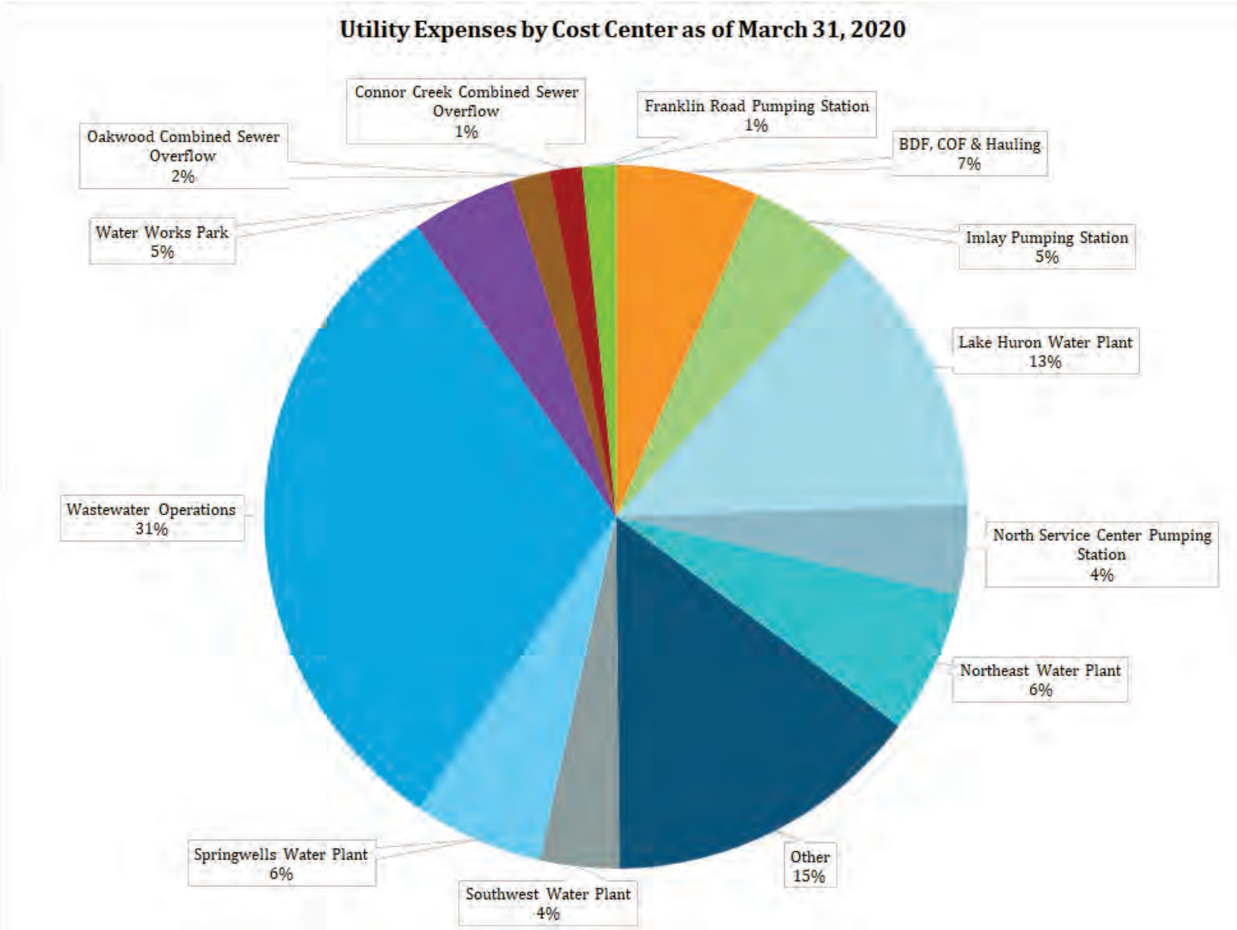
Chemical spend is $10.5 million through March 31, 2020. The allocation is shown in the chart below and remains consistent with prior periods.



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

Chart 3 – Utility Spend – Water and Sewer System Combined

Utility spend is $38.4 million through March 31, 2020. The allocation is shown in the chart below and consistent with prior periods.



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

Financial Operations KPI

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

There were no changes in accounts from February 2020.

Chart 1 – Bank Reconciliation Completion Status

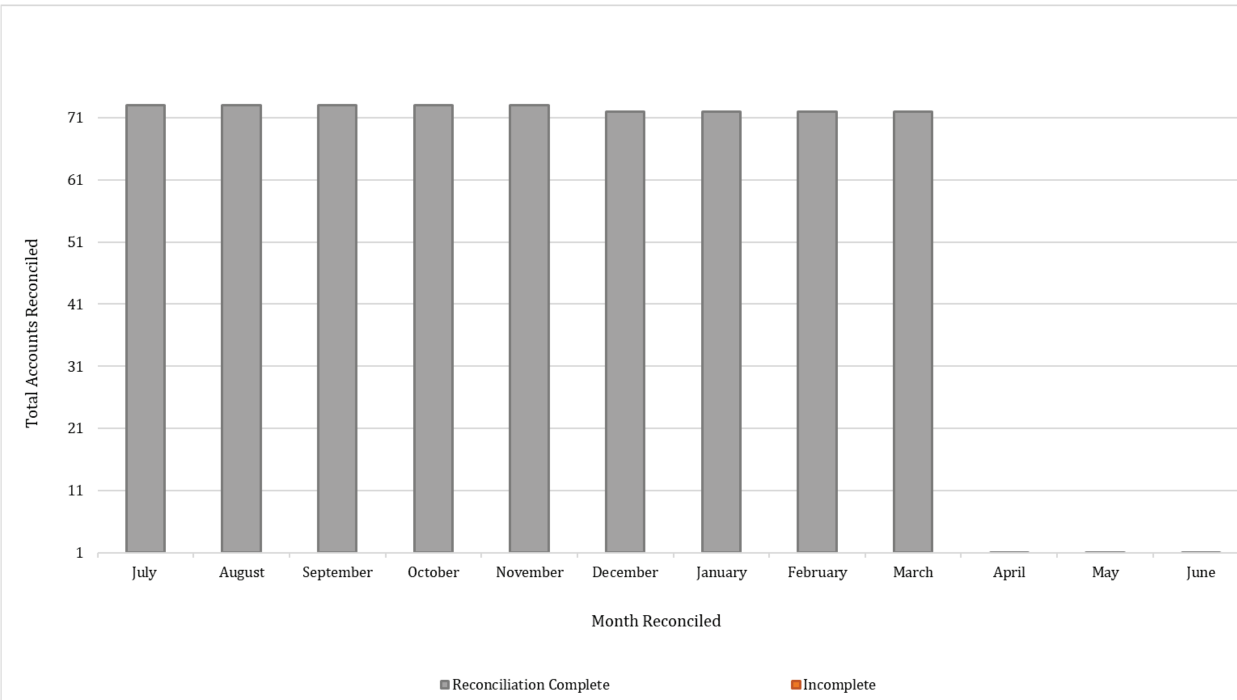


Table 1 – Fiscal Year 2020 GL Cash Account Rollforward

Total GL Cash accounts as of July 1, 2019	71
New GL Cash accounts	2
Inactivated GL Cash accounts	(1)
Total GL Cash accounts as of March 31, 2020	72

The monthly Budget to Financial Statements Crosswalk includes the following.

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

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

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

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

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

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

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

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

Table 1 – Crosswalk Budget Basis to Financial Reporting Basis ($000)
For the Nine Months Ended March 31, 2020

	Water	Sewer	Total
Net Revenue Requirement Budget Variance (a)	$ 1,222	$ 11,991	$ 13,213
Budgetary categories adjustments to financial reporting basis			
Pension delayed accounting election adjustments			
Current year pension transfers/payments recorded as deferral (c)	8,581	15,357	23,938
Prior year pension contribution accounted for in current year (d)	-	-	-
Administrative prepaid adjustment (e)	-	-	-
Debt service (f)	32,305	69,092	101,397
Accelerated pension B&C notes obligation portion (g)	133	297	430
Lease payment (h)	3,758	4,593	8,351
WRAP (i)	264	410	674
DWSD short term allocation (j)	-	4,715	4,715
Operating Reserve Deposit (j)	2,982	-	2,982
Improvement & Extension Fund (j)	22,456	17,912	40,368
Nonbudgeted financial reporting categories adjustments			
Depreciation (k)	(97,669)	(116,397)	(214,066)
Amortization (k)	9,441	(1,405)	8,036
Other nonoperating income (k)	11	11	22
Other nonoperating expense (k)	-	-	-
Gain(loss) on disposal of capital assets (k)	1	(1,192)	(1,191)
Raw water rights (l)	1,880	-	1,880
Investment earnings construction fund (m)	1,101	995	2,096
Capital contribution (n)	-	5,960	5,960
Net Position Increase/(Decrease) per Financial Statements (b)	$ (13,534)	$ 12,339	$ (1,195)

Table 2- Explanatory Notes for Crosswalk

(a) Source: Budget to Actual Table 1A and Table 1B in Monthly Financial Binder

(b) Source: Basic Financial Statements Table 2 in Monthly Financial Binder

(c) Current year pension payments are an expense for budget purposes but not for financial reporting purposes.

(d) Prior year pension payments are accounted for in the current year financial statements.

(e) The administrative fee is part of the O&M Legacy Pension shown as an expense for budget purposes. For financial reporting purposes part of the administrative fee is considered prepaid based on the prior year General Retirement System audit information and therefore not an expense for the current year financial reporting. The prepaid portion is adjusted in June each year.

(f) Debt service (principal and interest payments) are shown as an expense for budget purposes. Most of the adjustment relates to principal payments which are not an expense for financial reporting purposes. A portion of the adjustment relates to interest expense variances on state revolving fund debt due to the timing of payment draws. The cash set aside basis for interest expense generally is the same as the accrual basis for financial reporting.

(g) The accelerated pension payment includes the obligation payable for the B&C notes. The pension portion is included in item (c) above. This adjustment relates to the B&C note obligation payments. The principal and interest cash basis payments are treated as an expense for budget purposes. The principal portion is not an expense for financial reporting purposes. For financial reporting purposes interest is expensed on an accrual basis which is different from the cash basis.

(h) The lease payment is included as an expense for budget and includes both principal and interest payments. Most of the adjustment relates to the principal payments which are not an expense for financial reporting purposes. A portion of the adjustment relates to interest expense which is recorded on an accrual basis for financial reporting which is different from the cash basis.

(i) WRAP is shown as an expense for budget purposes. For financial reporting purposes the expense is not recognized until the funds have been transferred to the WRAP administrator. The adjustment shown is the amount of current year transfers that have not been transferred to the WRAP administrator. Note that there are funds from the prior year that have not been transferred to the WRAP administrator.

(j) The DWSD short term allocation, Operating Reserve Deposit, and Improvement & Extension Fund transfers are shown as an expense for budget purposes but not for financial reporting purposes. For FY 2020, the Sewer Improvement and Extension Fund adjustments also reflect $1.2 million in Sewer Improvement and Extension Fund expenses relating to repairs paid for through the Sewer Improvement and Extension Fund. The Water Improvement and Extension Fund also reflects $138 thousand in Water Improvement and Extension expenses relating to repairs paid for through the Water Improvement and Extension Fund. These are consolidated expenses for financial reporting purposes but are not reflected in the current Operations and Maintenance budget expenses.

(k) Certain nonoperating income and expenses are reported in financial statements only.

(l) The water service contract with Flint includes a license for raw water rights which has been recorded as an asset and liability by the Authority. The contract provides a credit to Flint as Flint satisfies its monthly bond payment obligation to KWA. This KWA credit is treated as a noncash payment of principal and interest on the liability recorded for the raw water rights. For budget, wholesale customer charges are net of the anticipated KWA credits to Flint as that is the cash that will be received and available to meet the budgeted revenue requirements. For financial reporting basis the Flint wholesale charges are recorded at the total amount billed. When the KWA credit is issued, the receivable from Flint is reduced and the principal and interest payments on the liability for the raw water rights are recorded as a noncash transaction. Most of the adjustment shown relates to the principal reduction made for the credits applied which are not an expense for financial reporting basis.

(m) Investment earnings from the construction fund are not shown as revenue in the budget and are shown as revenue in the financial statements. Construction fund investment earnings are excluded from the definition of revenue for budget purposes as they are used for construction costs and are not used to meet the revenue requirements in the budget.

(n) The capital contribution is a one-time payment made to GLWA by the Oakland Macomb Interceptor Drainage District (OMIDD) as part of a contract amendment to the OMIDD Wastewater Disposal Services Contract.

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

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

Construction Work in Progress

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

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

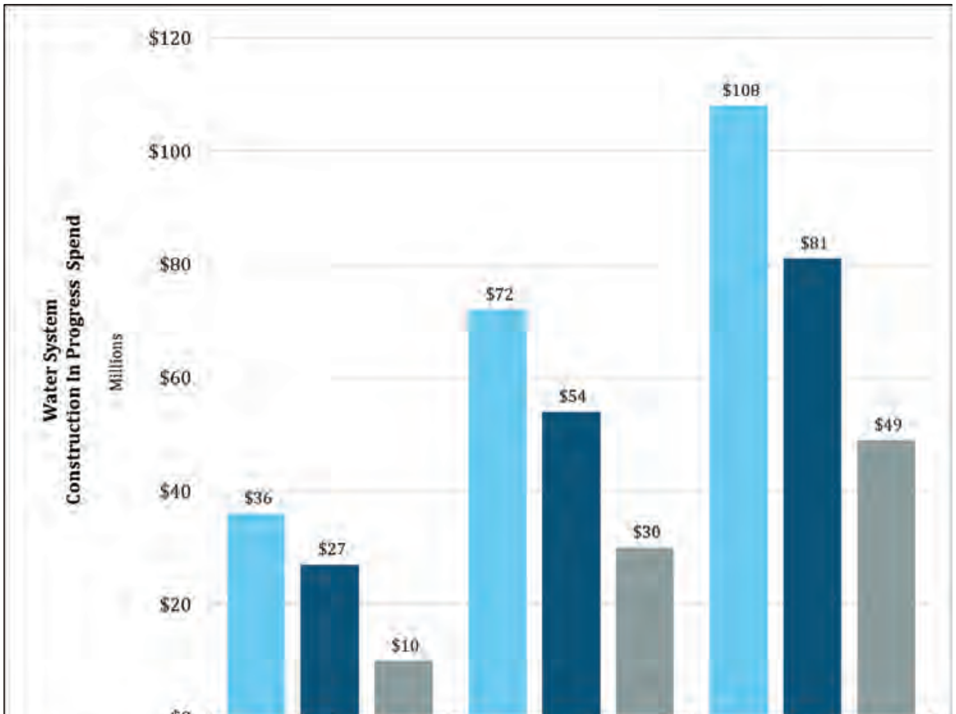
Chart 1 – Water System Construction in Work in Progress Spend

As of March 2020, the Water system incurred nearly $49 million of construction costs to date. This is 45% of the fiscal year 2020 prorated total CIP through March and 60% of the financial plan which is labeled as the FY 2020 CIP w/SRA in the chart below. It is anticipated that the gap will be reduced by the end of the fiscal year.

Chart 2 – Sewer System Construction in Work in Progress Spend

As of March 2020, the Sewer system incurred nearly $54 million of construction costs to date. This is 45% of the fiscal year 2020 prorated total CIP through March and 59% of the financial plan which is labeled as the FY 2020 CIP w/SRA in the chart below. It is anticipated that the gap will be reduced by the end of the fiscal year.

Chart 1 – Water System Construction Work in Progress Spend



	YTD Thru FY 2020 Q1	YTD Thru FY 2020 Q2	YTD Thru FY 2020 Q3
FY 2020 CIP	$36,000,000	$72,000,000	$108,000,000
FY 2020 CIP w/ SRA	$27,000,000	$54,000,000	$81,000,000
Actual CIP Spend	$10,000,000	$30,000,000	$49,000,000

Chart 2 – Sewer System Construction Work in Progress Spend

	YTD Thru FY 2020 Q1	YTD Thru FY 2020 Q2	YTD Thru FY 2020 Q3
FY 2020 CIP	$39,000,000	$81,000,000	$121,000,000
FY 2020 CIP w/ SRA	$29,000,000	$61,000,000	$91,000,000
Actual CIP Spend	$14,000,000	$30,000,000	$54,000,000

This report includes the following.

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

MBO Transfers to Accounts Held by GLWA

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

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

> ***Table 1 – GLWA FY 2020 Water MBO Transfers*** reflects the required transfers for FY 2020 completed through March 2, 2020. MBO transfers for water totaling $112.7 million have been transferred to GLWA accounts.
>
> ***Table 2 – GLWA FY 2020 Sewer MBO Transfers*** reflects the required transfers for FY 2020 completed through March 2, 2020. MBO transfers for sewer totaling $161.6 million have been transferred to GLWA accounts.
>
> ***Table 3 – GLWA MBO Transfer History*** reflects historical transfers for FY 2016 through FY 2020 to date.

Table 1 – GLWA FY 2020 Water MBO Transfers

WATER	Operations & Maintenance	Pension Sub Account	Pension Obligation	WRAP	Budget Stabilization (For Benefit of DWSD)	Extraordinary Repair & Replacement (ER&R)	Total Water
FY 2020							
July 2019	10,957,542	504,000	891,308	165,067	-	-	12,517,917
August 2019	10,957,542	504,000	891,308	165,067	-	-	12,517,917
September 2019	10,957,542	504,000	891,308	165,067	-	-	12,517,917
October 2019	10,957,542	504,000	891,308	165,067	-	-	12,517,917
November 2019	10,957,542	504,000	891,308	165,067	-	-	12,517,917
December 2019	10,957,542	504,000	891,308	165,067	-	-	12,517,917
January 2020	10,957,542	504,000	891,308	165,067	-	-	12,517,917
February 2020	10,957,542	504,000	891,308	165,067	-	-	12,517,917
March 2020	10,957,542	504,000	891,308	165,067	-	-	12,517,917
Total FY 2020	$98,617,878	$4,536,000	$8,021,772	$1,485,603	$0	$0	$112,661,253

Table 2 – GLWA FY 2020 Sewer MBO Transfers

SEWER	Operations & Maintenance	Pension Sub Account	Pension Obligation	WRAP	Budget Stabilization (For Benefit of DWSD)	Extraordinary Repair & Replacement (ER&R)	Total Sewer
FY 2020							
July 2019	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
August 2019	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
September 2019	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
October 2019	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
November 2019	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
December 2019	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
January 2020	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
February 2020	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
March 2020	15,588,100	902,000	1,223,959	240,608	-	-	17,954,667
Total FY 2020	$140,292,900	$8,118,000	$11,015,631	$2,165,472	$0	$0	$161,592,003

Table 3 – GLWA MBO Transfer History

GLWA MBO Transfer History

WATER	Operations & Maintenance	Pension Sub Account	Pension Obligation	WRAP	Budget Stabilization (For Benefit of DWSD)	Extraordinary Repair & Replacement (ER&R)	Total Water
Total FY 2016	$71,052,000	$6,037,100	$10,297,200	$1,983,300	$2,326,900	$606,000	$92,302,500
Total FY 2017	111,879,600	6,037,200	10,297,200	2,077,200	360,000	-	130,651,200
Total FY 2018	121,562,604	6,048,000	10,695,696	2,159,400	-	-	140,465,700
Total FY 2019	121,562,604	6,048,000	10,695,696	2,061,000	-	-	140,367,300
Total FY 2020 (9 months)	98,617,878	4,536,000	8,021,772	1,485,603	-	-	112,661,253
Life to Date	$524,674,686	$28,706,300	$50,007,564	$9,766,503	$2,686,900	$606,000	$616,447,953

SEWER	Operations & Maintenance	Pension Sub Account	Pension Obligation	WRAP	Budget Stabilization (For Benefit of DWSD)	Extraordinary Repair & Replacement (ER&R)	Total Sewer
Total FY 2016	$100,865,600	$10,838,400	$14,025,800	$2,523,400	$5,591,700	$779,600	$134,624,500
Total FY 2017	175,858,800	10,838,400	14,026,800	2,654,400	2,654,400	-	206,032,800
Total FY 2018	191,079,396	10,824,000	14,687,496	2,760,804	-	-	219,351,696
Total FY 2019	191,079,396	10,824,000	14,687,496	2,870,992	-	-	219,461,884
Total FY 2020 (9 months)	140,292,900	8,118,000	11,015,631	2,165,472	-	-	161,592,003
Life to Date	$799,176,092	$51,442,800	$68,443,223	$12,975,068	$8,246,100	$779,600	$941,062,883

MBO Required and Lease Payment Transfers to DWSD

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

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

Table 4 – DWSD FY 2020 <u>Water</u> MBO Transfers reflects the required transfers for FY 2020 completed through March 2, 2020. MBO transfers for Water totaling $43.4 million have been transferred to accounts held by DWSD. For FY 2020, DWSD has requested that $3,548,000 of the lease payment be utilized to offset a portion of debt service of which one-twelfth is applied monthly.

Table 5 – DWSD FY 2020 <u>Sewer</u> MBO Transfers reflects the required transfers for FY 2020 completed through March 2, 2020. MBO transfers for Sewer totaling $67.0 million have been transferred to accounts held by DWSD. For FY 2020, DWSD has requested that $5,032,700 of the lease payment be utilized to offset a portion of debt service of which one-twelfth is applied monthly. DWSD has also requested that for December 2019 – June 2020, $1 million be withheld each month from the Operations & Maintenance transfer to address FY 2020 projected shortfall in retail revenue collections. Lastly, Operations & Maintenance transfers of $2.6 million in December 2019 and $4.5 million in February 2020 have been returned from DWSD to address the FY 2020 projected shortfall. This return of funds adjusts the total MBO transfers through March 2, 2020 to $59.9 million.

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

Table 4 – DWSD FY 2020 Water MBO Transfers

WATER				
	Operations & Maintenance	Pension	Lease Payment (I&E Fund)	Total Water
FY 2020				
July 2019	2,888,533	356,000	1,579,333	4,823,866
August 2019	2,888,533	356,000	1,579,333	4,823,866
September 2019	2,888,533	356,000	1,579,333	4,823,866
October 2019	2,888,533	356,000	1,579,333	4,823,866
November 2019	2,888,533	356,000	1,579,333	4,823,866
December 2019	2,888,533	356,000	1,579,333	4,823,866
January 2020	2,888,533	356,000	1,579,333	4,823,866
February 2020	2,888,533	356,000	1,579,333	4,823,866
March 2020	2,888,533	356,000	1,579,333	4,823,866
Total FY 2020	$25,996,797	$3,204,000	$14,213,997	$43,414,794

Table 5 – DWSD FY 2020 Sewer MBO Transfers

SEWER				
	Operations & Maintenance	Pension	Lease Payment (I&E Fund)	Total Sewer
FY 2020				
July 2019	5,778,625	238,000	1,872,275	7,888,900
August 2019	5,778,625	238,000	1,872,275	7,888,900
September 2019	5,778,625	238,000	1,872,275	7,888,900
October 2019	5,778,625	238,000	1,872,275	7,888,900
November 2019	5,778,625	238,000	1,872,275	7,888,900
December 2019	4,778,625	238,000	1,872,275	6,888,900
January 2020	4,778,625	238,000	1,872,275	6,888,900
February 2020	4,778,625	238,000	1,872,275	6,888,900
March 2020	4,778,625	238,000	1,872,275	6,888,900
Total MBO Transfers	48,007,625	2,142,000	16,850,475	67,000,100
Adjustment to MBO Transfers				
December 2019	(2,600,000)	-	-	(2,600,000)
February 2020	(4,500,000)	-	-	(4,500,000)
Total FY 2020	40,907,625	$2,142,000	$16,850,475	59,900,100

Table 6 – DWSD MBO and Lease Payment Transfer History

Transfers to DWSD

WATER

	Operations & Maintenance	Operations & Maintenance Pension	Lease Payment (I&E Fund)	Total Water
FY 2016 *				
MBO/Lease Requirement	$26,185,600	$4,262,700	$22,500,000	$52,948,300
Offset to Debt Service	-	-	(2,326,900)	(2,326,900)
Net MBO Transfer	26,185,600	4,262,700	20,173,100	50,621,400
FY 2017				
MBO/Lease Requirement	33,596,400	4,262,400	22,500,000	60,358,800
Offset to Debt Service	-	-	-	-
Net MBO Transfer	33,596,400	4,262,400	22,500,000	60,358,800
FY 2018				
MBO/Lease Requirement	35,059,704	4,272,000	22,500,000	61,831,704
Offset to Debt Service	-	-	(1,875,000)	(1,875,000)
Net MBO Transfer	35,059,704	4,272,000	20,625,000	59,956,704
FY 2019				
MBO/Lease Requirement	35,484,300	4,272,000	22,500,000	62,256,300
Offset to Debt Service	-	-	(3,972,200)	(3,972,200)
Net MBO Transfer	35,484,300	4,272,000	18,527,800	58,284,100
FY 2020 (9 months)				
MBO/Lease Requirement	25,996,797	3,204,000	16,875,000	46,075,797
Offset to Debt Service	-	-	(2,661,003)	(2,661,003)
Net MBO Transfer	25,996,797	3,204,000	14,213,997	43,414,794
Life-to-Date				
MBO/Lease Requirement	156,322,801	20,273,100	106,875,000	283,470,901
Offset to Debt Service	-	-	(10,835,103)	(10,835,103)
Total Water	**$156,322,801**	**$20,273,100**	**$96,039,897**	**$272,635,798**

SEWER

	Operations & Maintenance	Operations & Maintenance Pension	Lease Payment (I&E Fund)	Total Sewer
FY 2016 *				
MBO/Lease Requirement	$19,774,300	$2,861,800	$27,500,000	$50,136,100
Offset to Debt Service	-	-	(19,991,500)	(19,991,500)
Total MBO Transfer	19,774,300	2,861,800	7,508,500	30,144,600
FY 2017				
MBO/Lease Requirement	41,535,600	2,862,000	27,500,000	71,897,600
Offset to Debt Service	-	-	-	-
Total MBO Transfer	41,535,600	2,862,000	27,500,000	71,897,600
FY 2018				
MBO/Lease Requirement	60,517,992	2,856,000	27,500,000	90,873,992
Offset to Debt Service	-	-	(9,166,664)	(9,166,664)
Total MBO Transfer	60,517,992	2,856,000	18,333,336	81,707,328
FY 2019				
MBO/Lease Requirement	56,767,920	2,856,000	27,500,000	87,123,920
Offset to Debt Service	-	-	(4,415,000)	(4,415,000)
Total MBO Transfer	56,767,920	2,856,000	23,085,000	82,708,920
FY 2020 (9 months)				
MBO/Lease Requirement	48,007,625	2,142,000	20,625,000	70,774,625
Offset to address shortfall	(7,100,000)	-	-	(7,100,000)
Offset to Debt Service	-	-	(3,774,525)	(3,774,525)
Total MBO Transfer	40,907,625	2,142,000	16,850,475	59,900,100
Life-to-Date				
MBO/Lease Requirement	226,603,437	13,577,800	130,625,000	370,806,237
Offsets	(7,100,000)	-	(37,347,689)	(44,447,689)
Total Sewer	**$219,503,437**	**$13,577,800**	**$93,277,311**	**$326,358,548**

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

This report includes the following:

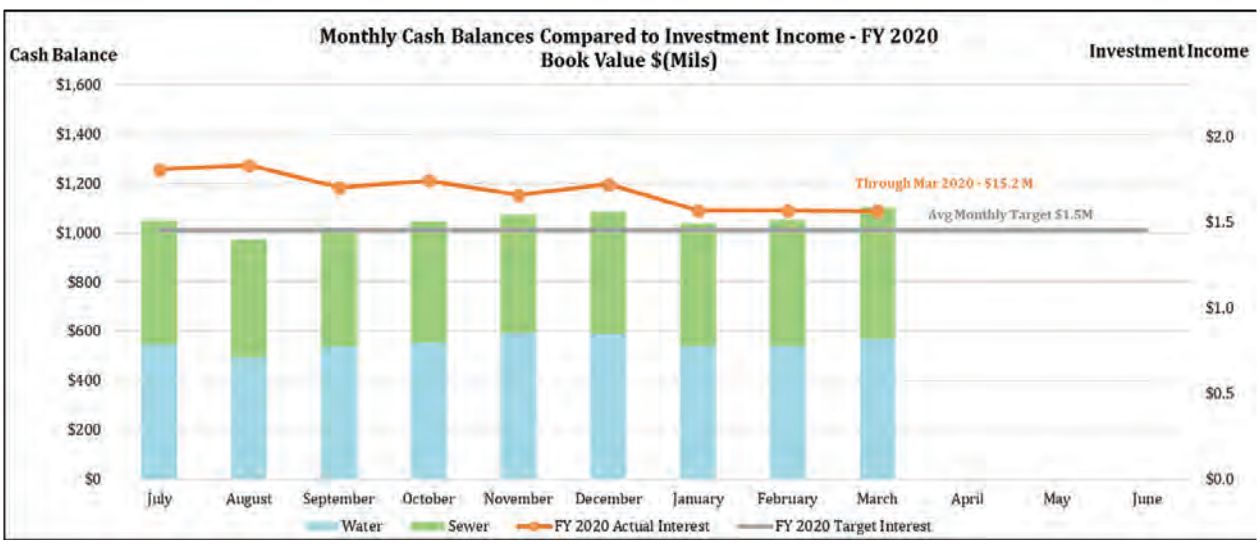
1. Monthly Cash Balances Compared to Investment Income
2. Cash Balance Detail

Monthly Cash Balances Compared to Investment Income

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

Cash and investment balances change each month based on Master Bond Ordinance (MBO) funding requirements, operational needs, capital spending pace, and mandatory debt payments. Investment income fluctuates monthly based on cash and investment balances as well as market conditions and investment strategy. The cumulative investment earnings of $15.2 million through March 2020 is 87% of the FY 2020 target of $17.4 million. As the market environment fluctuates, GLWA will continue to monitor the FY 2020 target.

Chart 1 – Monthly Cash Balances Compared to Investment Income – Through March 2020



$(Mils)	July	August	September	October	November	December	January	February	March	April	May	June
Water	$549	$494	$536	$555	594	592	541	541	566			
Sewer	$501	$479	$464	$489	479	493	498	510	536			
Total	$1,050	$973	$1,000	$1,044	$1,073	$1,085	$1,039	$1,052	$1,102			
Investment Income	$1.8	$1.8	$1.7	$1.7	$1.7	$1.7	$1.6	$1.6	$1.6			

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

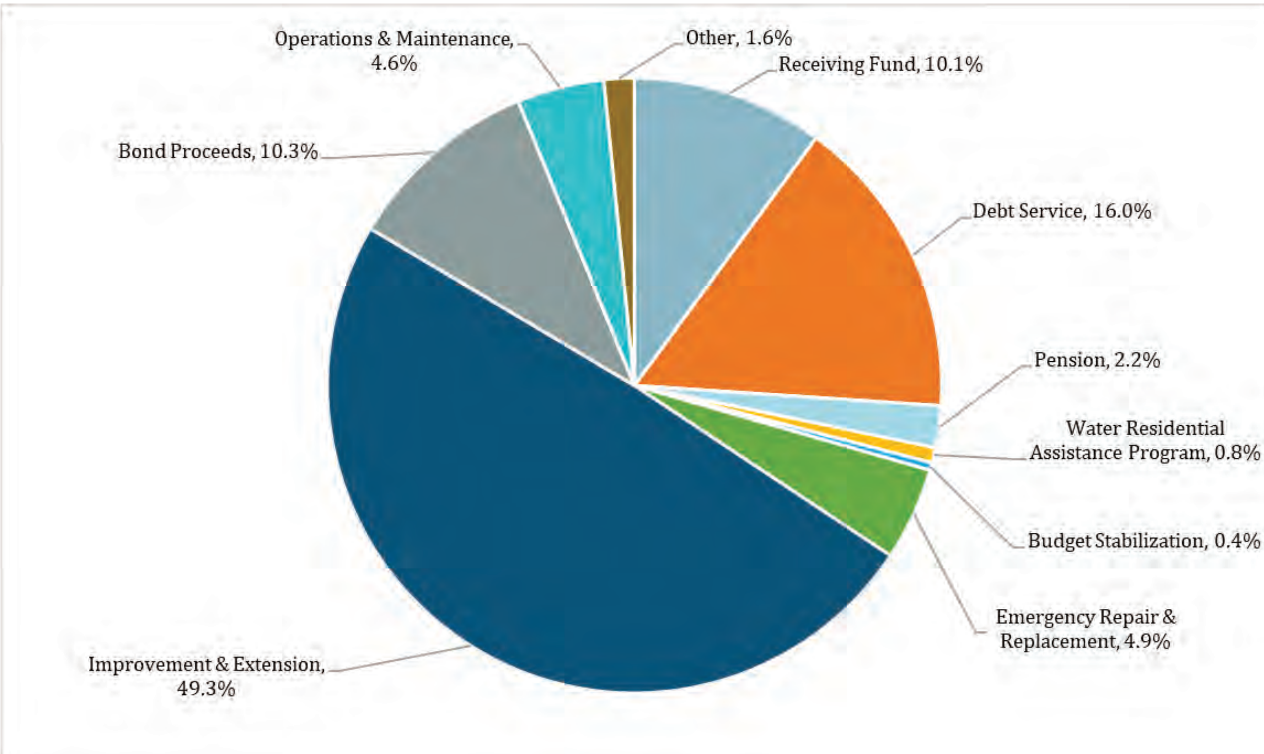
Funds Held Outside Trust:

- 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 March 31, 2020 - Shows the allocation of the balance among the different categories defined in the section above. The total cash balance for Water Funds as of March 31, 2020 is $566 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 March 31, 2020

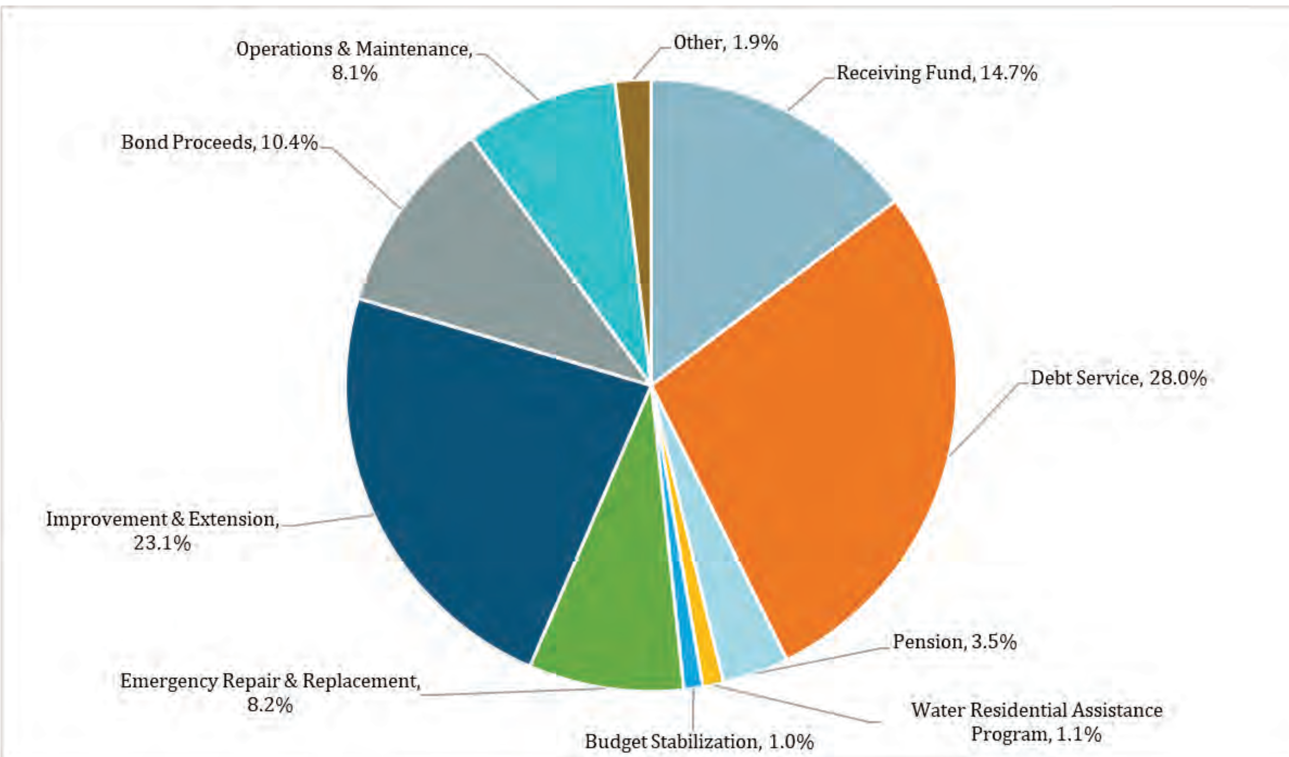


Note: *Due to rounding totals may not equal 100%.*

Chart 3 – Cash Balances - Sewer Funds as of March 31, 2020 - Shows the allocation of the balance among the different funds defined in the section above. The total cash balance for Sewer Funds as of March 31, 2020 is $536 million. Like the Water Funds, the allocation of balances among the I&E, bond proceeds, and debt service reserve funds reflects GLWA's commitment to funding capital improvements and meeting debt reserve requirements while simultaneously increasing I&E resources to fund pay-as-you-go capital funding to reduce long-term debt in the future.

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

Chart 3 – Cash Balances - Sewer Funds as of March 31, 2020



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

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

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

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

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

DWSD Retail Water Billings and Collections

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

> ***Table 1 - DWSD Retail Billings*** shows the FY 2020 water usage and billed revenue which are provided by DWSD staff. As of March 31, 2020, the DWSD usage was at 91.36% of the budget and billed revenue was at 97.59% of budget.

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

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

Table 1 – FY 2020 DWSD Retail Water Billings Report

RETAIL WATER CUSTOMERS								
	FY 2020 - Budget/Goal			FY 2020 - Actual			FY 2020 - Variance	
Month (1)	Volume Mcf	Revenue $	Unit Revenue $/Mcf	Volume Mcf	Revenue (2) $	Unit Revenue $/Mcf	Volume Mcf	Revenue $
July	286,871	9,909,302	34.54	267,054	9,802,572	36.71	(19,817)	(106,730)
August	288,810	9,698,584	33.58	259,489	9,601,097	37.00	(29,321)	(97,487)
September	246,846	9,159,992	37.11	228,961	8,811,834	38.49	(17,885)	(348,158)
October	228,814	8,288,490	36.22	217,031	8,578,738	39.53	(11,783)	290,248
November	218,154	8,078,402	37.03	200,432	7,879,694	39.31	(17,722)	(198,708)
December	216,372	7,975,070	36.86	201,225	7,811,106	38.82	(15,147)	(163,964)
January	228,259	8,282,968	36.29	205,993	7,981,382	38.75	(22,266)	(301,586)
February	225,150	8,294,177	36.84	196,490	7,748,377	39.43	(28,660)	(545,800)
March	222,601	8,159,386	36.65	198,483	7,755,210	39.07	(24,118)	(404,176)
April	215,049	8,120,879	37.76					
May	230,957	8,499,721	36.80					
June	254,554	9,084,129	35.69					
Total	2,862,437	103,551,100	36.18	1,975,158	75,970,010	38.46	(186,719)	(1,876,361)
Subtotals ytd	*2,161,877*	*77,846,371*	*36.01*	*1,975,158*	*75,970,010*	*38.46*	*(186,719)*	*(1,876,361)*
Achievement of Budget				*91.36%*	*97.59%*			

(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**
April	8,475,657	9,226,675	(751,018)	-8.14%
May	8,415,767	8,969,019	(553,252)	-6.17%
June	7,554,457	7,940,939	(386,482)	-4.87%
July	8,093,394	7,858,272	235,122	2.99%
August	8,671,848	8,692,784	(20,936)	-0.24%
September	8,610,801	9,766,449	(1,155,648)	-11.83%
October	9,619,977	9,015,400	604,577	6.71%
November	7,067,667	7,938,517	(870,850)	-10.97%
December	8,597,558	7,297,698	1,299,860	17.81%
January	9,076,091	8,158,817	917,274	11.24%
February	8,281,985	7,927,299	354,686	4.47%
March	6,948,308	8,707,578	(1,759,270)	-20.20%
Rolling, 12-Month Total	99,413,510	101,499,447		
Rolling, 12-Month Average	8,284,459	8,458,287		

DWSD Retail Sewer Billings and Collections

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

Table 3 - DWSD Retail Sewer Billings shows the FY 2020 sewer billed revenue which are provided by DWSD staff. As of March 31, 2020, the DWSD usage was at 94.04% of the budget and billed revenue was at 97.08% of budget.

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

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

Table 3 – FY 2020 DWSD Retail Sewer Billings Report

RETAIL SEWER CUSTOMERS						
	FY 2020 - Budget/Goal		FY 2020 - Actual		FY 2020 - Variance	
Month (1)	Volume Mcf	Revenue $	Volume Mcf	Revenue (2) $	Volume Mcf	Revenue $
July	251,738	28,535,420	244,810	28,049,707	(6,928)	(485,713)
August	258,984	28,327,270	246,989	28,076,649	(11,995)	(250,621)
September	255,527	26,788,442	215,119	26,430,710	(40,408)	(357,732)
October	227,141	26,444,548	238,202	27,549,787	11,061	1,105,239
November	211,617	25,759,684	188,779	24,726,161	(22,838)	(1,033,523)
December	195,192	25,905,017	186,917	24,853,335	(8,275)	(1,051,682)
January	197,099	26,341,264	190,230	24,857,510	(6,869)	(1,483,754)
February	206,164	26,312,394	187,219	24,524,288	(18,945)	(1,788,106)
March	200,672	26,467,728	186,521	24,784,918	(14,151)	(1,682,810)
April	204,606	25,894,612				
May	203,480	27,185,600				
June	218,340	27,376,921				
Total	2,630,560	321,338,900	1,884,786	233,853,065	(119,348)	(7,028,702)
Subtotals ytd	*2,004,134*	*240,881,767*	*1,884,786*	*233,853,065*	*(119,348)*	*(7,028,702)*
Achievement of Budget/Goal			*94.04%*	*97.08%*		

(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**
April	20,930,511	16,159,844	4,770,667	29.52%
May	22,807,283	18,341,298	4,465,985	24.35%
June	20,426,151	21,461,926	(1,035,775)	-4.83%
July	20,940,157	27,332,605	(6,392,448)	-23.39%
August	23,175,643	21,746,714	1,428,929	6.57%
September	21,972,754	23,727,505	(1,754,751)	-7.40%
October	26,321,010	23,938,933	2,382,077	9.95%
November	17,546,180	20,624,039	(3,077,859)	-14.92%
December	25,889,823	19,612,154	6,277,669	32.01%
January	23,512,702	19,612,154	3,900,548	19.89%
February	22,682,982	20,624,039	2,058,943	9.98%
March	19,325,377	22,111,691	(2,786,314)	-12.60%
Rolling 12-Month Total	265,530,573	255,292,902		
Rolling, 12-Month Average	22,127,548	21,274,409		

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 March 31, 2020 with comparative totals from March 31, 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	Balance
Residential	204,477	$ 425.98	$ 12,291,000	$ 6,347,000	$ 15,729,000	$ 52,735,000	$ 87,104,000
			14.1%	*7.3%*	*18.1%*	*60.5%*	*100.0%*
Commercial	20,684	1,522.15	7,126,000	2,087,000	5,100,000	17,171,000	31,484,000
			22.6%	*6.6%*	*16.2%*	*54.5%*	*100.0%*
Industrial	2,137	4,958.74	3,036,000	649,000	1,390,000	5,523,000	10,597,000
			28.6%	*6.1%*	*13.1%*	*52.1%*	*100.0%*
Tax Exempt	3,442	809.98	431,000	167,000	454,000	1,736,000	2,788,000
			15.5%	*6.0%*	*16.3%*	*62.3%*	*100.0%*
Government	65,461	321.39	2,897,000	1,711,000	4,614,000	11,817,000	21,038,000
			13.8%	*8.1%*	*21.9%*	*56.2%*	*100.0%*
Drainage	34,067	783.46	2,302,000	1,193,000	4,309,000	18,886,000	26,690,000
			8.6%	*4.5%*	*16.1%*	*70.8%*	*100.0%*
Subtotal - Active Accounts	**330,268**	**$ 544.11**	**$ 28,083,000**	**$ 12,154,000**	**$ 31,597,000**	**$ 107,867,000**	**$ 179,701,000**
			15.6%	*6.8%*	*17.6%*	*60.0%*	*100.0%*
Inactive Accounts	281,063	99.56	74,000	114,000	1,321,000	26,472,000	27,982,000
			0.3%	*0.4%*	*4.7%*	*94.6%*	*100.0%*
Total	**611,331**	**$ 339.72**	**$ 28,157,000**	**$ 12,268,000**	**$ 32,918,000**	**$ 134,339,000**	**$ 207,682,000**
% of Total A/R			*13.6%*	*5.9%*	*15.8%*	*64.7%*	*100.0%*
Water Fund	230,612	174.46	$ 6,502,000	$ 2,123,000	$ 5,986,000	$ 25,622,000	$ 40,233,000
Sewer Fund	283,778	590.07	$ 21,656,000	$ 10,145,000	$ 26,932,000	$ 108,717,000	$ 167,450,000
Total March 31, 2020 (a)	**611,331**	**339.72**	**$ 28,157,000**	**$ 12,268,000**	**$ 32,918,000**	**$ 134,339,000**	**$ 207,682,000**
Water Fund- Allowance							$ (31,229,000)
Sewer Fund- Allowance							$ (105,854,000)
Total March 31, 2019 Bad Debt Allowance							**$ (137,083,000)**
Comparative - March 2019 (b)	**590,594**	**310.55**	**$ 29,641,000**	**$ 12,519,000**	**$ 31,963,000**	**$ 109,287,000**	**$ 183,410,000**
Difference (a) - (b)	**20,737**	**29.17**	**$ (1,483,000)**	**$ (251,000)**	**$ 954,000**	**$ 25,052,000**	**$ 24,272,000**

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

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

Wholesale Water Billings and Collections

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

Service Arrangement Type

Model Contract	82
Emergency	1
Older Contracts	4
Total	87

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

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

Table 1 - Wholesale Water Billings shows the FY 2020 water billed usage and revenues. As of March 31, 2020, the billed usage was at 94.95% of budget and billed revenue at 98.03% of budget. Billings and usage from the City of Flint *are* included as they were assumed in the FY 2020 Budget.

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

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

Table 1 –FY 2020 Wholesale Water Billings Report

WHOLESALE WATER CUSTOMERS								
	FY 2020 - Budget/Goal			FY 2020 - Actual			FY 2020 - Variance	
Month (1)	Volume *Mcf*	Revenue *$*	Unit Revenue *$/Mcf*	Volume *Mcf*	Revenue *$*	Unit Revenue *$/Mcf*	Volume *Mcf*	Revenue *$*
July	1,777,138	32,544,400	18.31	1,545,631	30,356,570	19.64	(231,507)	(2,187,830)
August	1,549,587	30,383,100	19.61	1,554,426	30,501,606	19.62	4,839	118,506
September	1,368,496	28,270,400	20.66	1,257,111	27,278,750	21.70	(111,385)	(991,650)
October	1,066,653	25,351,200	23.77	1,026,086	25,007,145	24.37	(40,567)	(344,055)
November	917,034	24,049,100	26.22	905,016	23,933,012	26.44	(12,018)	(116,088)
December	1,004,420	24,714,000	24.61	983,589	24,535,948	24.95	(20,831)	(178,052)
January	1,018,192	24,861,000	24.42	945,874	24,246,312	25.63	(72,318)	(614,688)
February	893,007	23,780,800	26.63	878,794	23,689,167	26.96	(14,213)	(91,633)
March	1,008,766	24,753,300	24.54	971,559	24,450,282	25.17	(37,207)	(303,018)
April	948,751	24,262,000	25.57					
May	1,073,966	25,549,300	23.79					
June	1,383,200	28,595,300	20.67					
Total	14,009,210	317,113,900	22.64	10,068,086	233,998,792	23.24	(535,207)	(4,708,508)
Subtotals ytd	*10,603,293*	*238,707,300*	*22.51*	*10,068,086*	*233,998,792*	*23.24*	*(535,207)*	*(4,708,508)*
Achievement of Budget				*94.95%*	*98.03%*			

(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**
April	23,045,654	18,489,754	4,555,900	24.64%
May	20,749,943	30,447,581	(9,697,638)	-31.85%
June	25,676,458	21,815,013	3,861,445	17.70%
July	23,212,979	21,923,590	1,289,389	5.88%
August	28,808,254	31,920,586	(3,112,332)	-9.75%
September	28,336,152	26,037,313	2,298,839	8.83%
October	25,786,774	27,827,722	(2,040,948)	-7.33%
November	29,245,969	29,238,260	7,709	0.03%
December	23,292,382	27,720,646	(4,428,264)	-15.97%
January	25,470,795	23,430,974	2,039,821	8.71%
February	24,629,768	26,147,082	(1,517,314)	-5.80%
March	25,017,989	24,967,264	50,725	0.20%
Rolling 12-Month Total	303,273,117	309,965,785		
Rolling, 12-Month Average	25,272,760	25,830,482		

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	18

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

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

Table 3 - Wholesale Sewer Billings shows the FY 2020 sewer billed revenues. As of March 31, 2020, the billed revenue is at 100% of budget.

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

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

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

Table 3 – FY 2020 Wholesale Sewer Billings Report

WHOLESALE SEWER CUSTOMERS						
	FY 2020 - Budget/Goal		FY 2020 - Actual		FY 2020 - Variance	
Month (1)	Volume (2)	Revenue	Volume (2)	Revenue	Volume (2)	Revenue
	Mcf	*$*	*Mcf*	*$*	*Mcf*	*$*
July	N/A	22,323,183	N/A	22,323,183	N/A	-
August	N/A	22,323,183	N/A	22,323,183	N/A	-
September	N/A	22,323,183	N/A	22,323,183	N/A	-
October	N/A	22,323,183	N/A	22,323,183	N/A	-
November	N/A	22,323,183	N/A	22,323,183	N/A	-
December	N/A	22,323,183	N/A	22,323,183	N/A	-
January	N/A	22,323,183	N/A	22,323,183	N/A	-
February	N/A	22,323,183	N/A	22,323,183	N/A	-
March	N/A	22,323,183	N/A	22,323,183	N/A	-
April	N/A	22,323,183	N/A		N/A	
May	N/A	22,323,183	N/A		N/A	
June	N/A	22,323,183	N/A		N/A	
Total		267,878,196		200,908,647		-
Subtotals ytd		*200,908,647*		*200,908,647*		-
Achievement of Budget				*100.00%*		

(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**
April	23,203,703	27,812,417	(4,608,714)	-16.57%
May	9,284,000	15,342,700	(6,058,700)	-39.49%
June	32,639,436	28,810,500	3,828,936	13.29%
July	27,222,400	16,179,117	11,043,283	68.26%
August	35,153,500	28,384,600	6,768,900	23.85%
September	18,833,257	22,672,400	(3,839,143)	-16.93%
October	29,833,760	16,105,200	13,728,560	85.24%
November	19,428,000	28,633,300	(9,205,300)	-32.15%
December	19,999,642	24,440,000	(4,440,358)	-18.17%
January	17,121,812	26,874,927	(9,753,115)	-36.29%
February	23,284,737	13,895,100	9,389,637	67.58%
March	21,108,100	22,388,600	(1,280,500)	-5.72%
Rolling 12-Month Total	277,112,347	271,538,861		
Rolling, 12-Month Average	23,092,696	22,628,238		

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, 2020, Highland Park had a delinquent balance of $43.5 million, including $33.5 million for wastewater treatment services, $1.7 million for industrial waste control services, and $8.3 million for water supply services.

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

Table 5 - City of Highland Park Billings and Collections

	Water	Sewer	IWC	Total
April 30, 2019 Balance	7,151,056	31,943,880	1,667,350	40,762,286
May 2019 Billing	98,118	467,900	3,963	569,981
May 2019 Payments	-	-	-	-
May 31, 2019 Balance	7,249,174	32,411,780	1,671,312	41,332,267
June 2019 Billing	101,871	467,900	3,931	573,702
June 2019 Payments	-	(1,406,836)	-	(1,406,836)
June 30, 2019 Balance	7,351,045	31,472,844	1,675,243	40,499,132
July 2019 Billing	104,702	467,900	4,121	576,722
July 2019 Payments	-	-	-	-
July 31, 2019 Balance	7,455,746	31,940,744	1,679,363	41,075,854
August 2019 Billing	106,638	472,500	4,026	583,164
August 2019 Payments	-	-	-	-
August 31, 2019 Balance	7,562,384	32,413,244	1,683,389	41,659,018
September 2019 Billing	108,007	472,500	4,014	584,521
September 2019 Payments	-	(656,657)	-	(656,657)
September 30, 2019 Balance	7,670,391	32,229,087	1,687,403	41,586,882
October 2019 Billing	107,422	472,500	3,933	583,855
October 2019 Payments	-	-	-	-
October 31, 2019 Balance	7,777,814	32,701,587	1,691,336	42,170,737
November 2019 Billing	101,003	472,500	3,948	577,451
November 2019 Payments	-	-	-	-
November 30, 2019 Balance	7,878,817	33,174,087	1,695,284	42,748,188
December 2019 Billing	98,501	472,500	3,845	574,846
December 2019 Payments	-	-	-	-
December 31, 2019 Balance	7,977,318	33,646,587	1,699,129	43,323,034
January 2020 Billing	85,342	472,500	3,853	561,695
January 2020 Payments	-	(1,561,812)	-	(1,561,812)
January 31, 2020 Balance	8,062,660	32,557,275	1,702,982	42,322,917
February 2020 Billing	93,589	472,500	3,892	569,981
February 2020 Payments	-	-	-	-
February 28, 2020 Balance	8,156,249	33,029,775	1,706,874	42,892,898
March 2020 Billing	92,950	472,500	3,906	569,356
March 2020 Payments	-	-	-	-
March 31, 2020 Balance	8,249,199	33,502,275	1,710,780	43,462,254

Wholesale Water & Sewer Accounts Receivable Aging Report

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

Table 6 - Wholesale Accounts Receivable Aging Report Summary is a summary of the total, current and non-current receivables by category as of March 31, 2020.

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.

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). GLWA received a final agreement from Wayne County in late February to effectuate a transfer retroactive to July 1, 2018 and is working to process credits as required by the end of June 2020.

Table 6 - Wholesale Accounts Receivable Aging Report Summary

	Total	Current	46-74 Days	75-104 Days	>105 Days
Water	$ 35,252,859.58	$ 27,190,199.69	$ 93,039.60	$ 195,659.40	$ 7,773,960.89
Sewer	$ 46,118,680.78	$ 13,088,906.54	$ 472,500.00	$ 472,500.00	$ 32,084,774.24
IWC	$ 3,605,771.98	$ 547,717.95	$ 52,394.65	$ 38,423.84	$ 2,967,235.54
Pollutant Surcharge	$ 661,141.73	$ 542,055.53	$ 24,851.38	$ 33,724.87	$ 60,509.95
Total	$ 85,638,454.07	$ 41,368,879.71	$ 642,785.63	$ 740,308.11	$ 42,886,480.62
	100.00%	48.31%	0.75%	0.86%	50.08%

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

	Total	Current	46-74 Days	75-104 Days	>105 Days
Water	$ 27,003,660.64	$ 27,003,660.64	$ -	$ -	$ -
Sewer	$ 12,616,406.54	$ 12,616,406.54	$ -	$ -	$ -
IWC	$ 1,894,992.87	$ 539,920.29	$ 48,541.45	$ 34,579.09	$ 1,271,952.04
Pollutant Surcharge	$ 661,141.73	$ 542,055.53	$ 24,851.38	$ 33,724.87	$ 60,509.95
Total	$ 42,176,201.78	$ 40,702,043.00	$ 73,392.83	$ 68,303.96	$ 1,332,461.99
	100.00%	96.50%	0.17%	0.16%	3.16%

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

	Total	Current	46-74 Days	75-104 Days	>105 Days
Water	$ 27,003,660.64	$ 27,003,660.64	$ -	$ -	$ -
Sewer	$ 12,616,406.54	$ 12,616,406.54	$ -	$ -	$ -
IWC	$ 484,724.47	$ 470,762.11	$ 13,962.36	$ -	$ -
Pollutant Surcharge	$ 661,141.73	$ 542,055.53	$ 24,851.38	$ 33,724.87	$ 60,509.95
Total	$ 40,765,933.38	$ 40,632,884.82	$ 38,813.74	$ 33,724.87	$ 60,509.95
	100.00%	99.67%	0.10%	0.08%	0.15%

Note: *percentages vary from 100% due to rounding.*

The Monthly Trust Receipts & Disbursements Report includes the following.

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

GLWA Trust Receipts & Disbursements

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

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

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

Water fund activity exceeded required MBO disbursements by 13% through March 31, 2020 with a historical ratio of cash receipts exceeding MBO disbursements by 15% since January 1, 2016.

Sewer fund cash receipts exceeded disbursements by 12% through March 31, 2020 with a historical ratio of cash receipts exceeding MBO disbursements by 6% since January 1, 2016. FY 2020 activity is high due in part to a one-time capital contribution of $11.9 million by the Oakland Macomb Interceptor Drainage District in December 2019 as part of a recent contract amendment.

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

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

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

		FY 2016	FY 2017	FY 2018	FY 2019	FY 2020 Thru March 31	Life-to-Date Total
	Water						
1	Receipts	$ 149,688,711	$ 352,941,909	$ 338,452,001	$ 336,594,234	$ 255,313,375	$ 1,432,990,230
2	MOU Adjustments	-	-	-	-	-	-
3	Adjusted Receipts	149,688,711	352,941,909	338,452,001	336,594,234	255,313,375	1,432,990,230
4	Disbursements	(146,256,185)	(288,777,985)	(297,064,810)	(289,230,481)	(225,171,335)	(1,246,500,796)
5	Receipts Net of Required Transfers	3,432,526	64,163,924	41,387,191	47,363,753	30,142,040	186,489,434
6	I&E Transfer	-	-	(25,739,700)	(47,695,000)	(22,593,751)	(96,028,451)
7	Net Receipts	$ 3,432,526	$ 64,163,924	$ 15,647,491	$ (331,247)	$ 7,548,289	$ 90,460,983
8	*Ratio of Receipts to Required Disbursements (Line 3/Line 4)*	*102%*	*122%*	*114%*	*116%*	*113%*	*115%*
	Sewer						
9	Receipts	$ 232,377,715	$ 469,788,882	$ 476,269,761	$ 467,743,744	$ 379,097,028	$ 2,025,277,130
10	MOU Adjustments	-	-	-	-	-	-
11	Adjusted Receipts	232,377,715	469,788,882	476,269,761	467,743,744	379,097,028	2,025,277,130
12	Disbursements	(219,538,325)	(441,443,340)	(458,903,335)	(453,406,636)	(337,559,428)	(1,910,851,064)
13	Receipts Net of Required Transfers	12,839,390	28,345,542	17,366,426	14,337,108	41,537,600	114,426,066
14	I&E Transfer	-	-	(22,698,100)	(22,547,700)	(19,096,200)	(64,342,000)
15	DWSD Shortfall Advance	(1,285,466)	(28,014,534)	(24,113,034)	-	-	(53,413,034)
16	Shortfall Repayment (principal)	-	-	-	9,367,355	13,095,749	22,463,104
17	Net Receipts	$ 11,553,924	$ 331,008	$ (29,444,708)	$ 1,156,763	$ 35,537,149	$ 19,134,136
18	*Ratio of Receipts to Required Disbursements (Line 11/Line 12)*	*106%*	*106%*	*104%*	*103%*	*112%*	*106%*
	Combined						
19	Receipts	$ 382,066,426	$ 822,730,791	$ 814,721,762	$ 804,337,978	$ 634,410,403	$ 3,458,267,360
20	MOU Adjustments	-	-	-	-	-	-
21	Adjusted Receipts	382,066,426	822,730,791	814,721,762	804,337,978	634,410,403	3,458,267,360
22	Disbursements	(365,794,510)	(730,221,325)	(755,968,145)	(742,637,117)	(562,730,763)	(3,157,351,860)
23	Receipts Net of Required Transfers	16,271,916	92,509,466	58,753,617	61,700,861	71,679,640	300,915,500
24	I&E Transfer	-	-	(48,437,800)	(70,242,700)	(41,689,951)	(160,370,451)
25	Shortfall Advance	(1,285,466)	(28,014,534)	(24,113,034)	-	-	(53,413,034)
26	Shortfall Repayment	-	-	-	9,367,355	13,095,749	22,463,104
27	Net Receipts	$ 14,986,450	$ 64,494,932	$ (13,797,217)	$ 825,516	$ 43,085,438	$ 109,595,119
28	*Ratio of Receipts to Required Disbursements (Line 21/Line 22)*	*104%*	*113%*	*108%*	*108%*	*113%*	*110%*

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

Chart 1 – GLWA 12-Month Net Receipts - Water

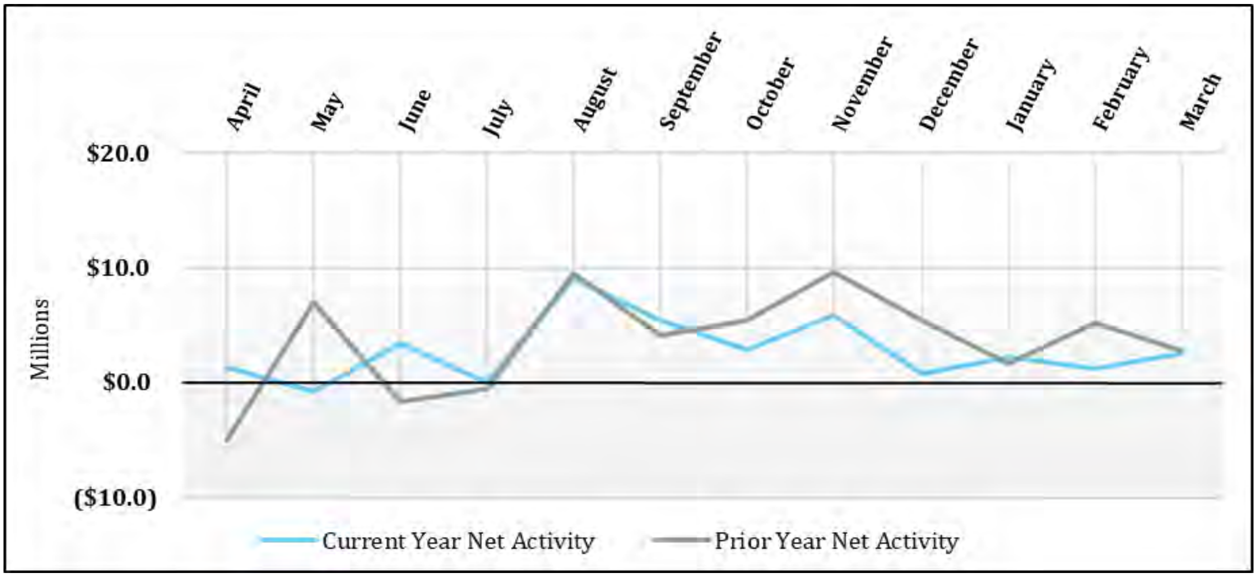
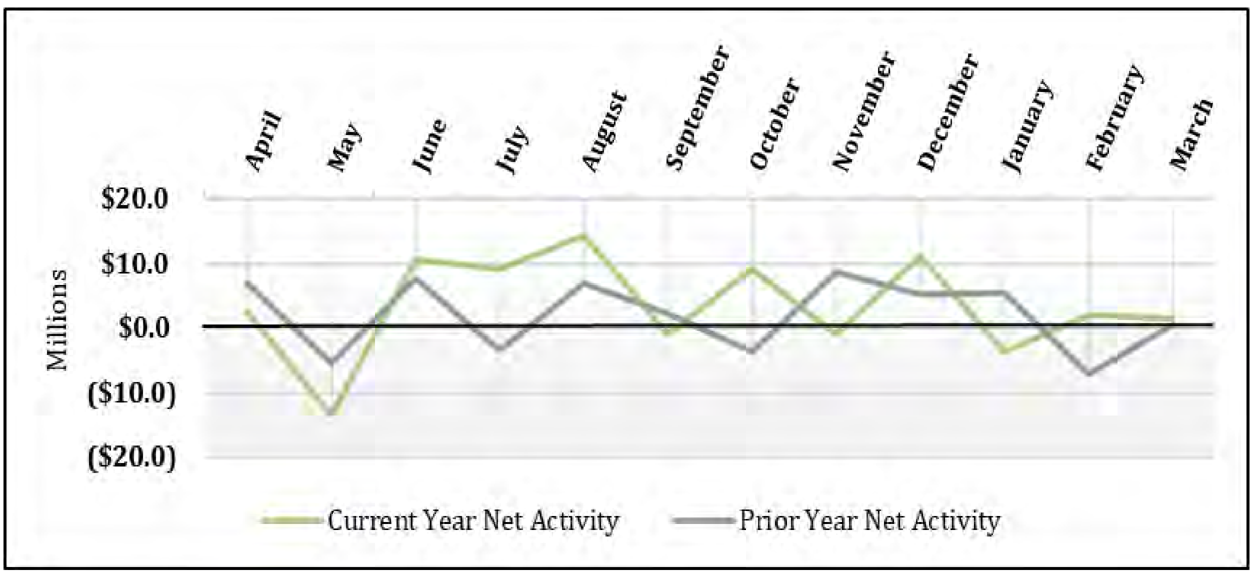


Chart 2 – GLWA 12-Month Net Receipts – Sewer



DWSD Trust Receipts & Disbursements

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

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

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

Water fund cash receipts exceeded required MBO disbursements by 2% through March 31, 2020 with a historical ratio of 3% since January 1, 2016.

Sewer fund cash receipts fell short of required MBO disbursements by 2% through March 31, 2020 with a historic shortfall of 5% since January 1, 2016. DWSD has recognized this issue and proactively implemented plans in December 2019 to resolve that mid-year shortfall.

On December 3, DWSD transferred $2.6 million from Sewer Operations & Maintenance back to the Sewer Receiving Fund, with an additional $4.5 million cash replenishment transfer to GLWA in February 2020; the DWSD Operations & Maintenance budgeted transfer request has been reduced by $1 million each month since December 2019 to further offset future cashflow timing issues.

March cash receipts reflected the initial impact of the COVID-19 pandemic which continues into April. DWSD and GLWA management are closely monitoring these balances and developing plans to address any yearend shortfall resulting from this unforeseen pandemic.

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

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

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

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

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

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

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

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

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

		FY 2016	FY 2017	FY 2018	FY 2019	FY 2020 Thru March 31	Life-to-Date Total
	Water						
1	Receipts	$ 26,201,881	$ 96,451,105	$ 101,233,147	$ 99,868,219	$ 74,995,005	$ 398,749,357
2	MOU Adjustments	18,446,100	-	-	-	-	18,446,100
3	Adjusted Receipts	44,647,981	96,451,105	101,233,147	99,868,219	74,995,005	417,195,457
4	Disbursements	(47,809,552)	(93,066,144)	(93,049,457)	(97,694,600)	(73,876,869)	(405,496,622)
5	Receipts Net of Required Transfers	(3,161,571)	3,384,961	8,183,690	2,173,619	1,118,136	11,698,835
6	I&E Transfer	-	-	-	(8,407,080)	-	(8,407,080)
7	Net Receipts	$ (3,161,571)	$ 3,384,961	$ 8,183,690	$ (6,233,461)	$ 1,118,136	$ 3,291,755
8	*Ratio of Receipts to Required Disbursements (Line 3/Line 4)*	*93%*	*104%*	*109%*	*102%*	*102%*	*103%*
	Sewer						
9	Receipts	$ 65,256,734	$ 233,723,367	$ 242,104,791	$ 265,339,797	$ 201,385,204	$ 1,007,809,893
10	MOU Adjustments	55,755,100	-	-	6,527,200	-	62,282,300
11	Adjusted Receipts	121,011,834	233,723,367	242,104,791	271,866,997	201,385,204	1,070,092,193
12	Disbursements	(122,297,300)	(261,963,973)	(266,217,825)	(271,018,306)	(206,100,693)	(1,127,598,097)
13	Receipts Net of Required Transfers	(1,285,466)	(28,240,606)	(24,113,034)	848,691	(4,715,489)	(57,505,904)
14	I&E Transfer	-	-	-	-	-	-
15	Shortfall Advance from GLWA	1,285,466	28,014,534	24,113,034	-	-	53,413,034
16	Net Receipts (a)	$ -	$ (226,072)	$ -	$ 848,691	$ (4,715,489)	$ (4,092,870)
17	*Ratio of Receipts to Required Disbursements (Line 11/Line 12)*	*99%*	*89%*	*91%*	*100%*	*98%*	*95%*
	Combined						
18	Receipts	$ 91,458,615	$ 330,174,472	$ 343,337,938	$ 365,208,016	$ 276,380,209	$ 1,406,559,250
19	MOU Adjustments	74,201,200	-	-	6,527,200	-	80,728,400
20	Adjusted Receipts	165,659,815	330,174,472	343,337,938	371,735,216	276,380,209	1,487,287,650
21	Disbursements	(170,106,852)	(355,030,117)	(359,267,282)	(368,712,906)	(279,977,562)	(1,533,094,719)
22	Receipts Net of Required Transfers	(4,447,037)	(24,855,645)	(15,929,344)	3,022,310	(3,597,353)	(45,807,069)
23	I&E Transfer	-	-	-	(8,407,080)	-	(8,407,080)
24	Shortfall Advance from GLWA	1,285,466	28,014,534	24,113,034	-	-	53,413,034
25	Net Receipts	$ (3,161,571)	$ 3,158,889	$ 8,183,690	$ (5,384,770)	$ (3,597,353)	$ (801,115)
26	*Ratio of Receipts to Required Disbursements (Line 20/Line 21)*	*97%*	*93%*	*96%*	*101%*	*99%*	*97%*

(a) The $226,072 difference in FY 2017 is due to the June IWC payment from DWSD that was not past due at yearend and the $12,272 rounding difference on the loan receivable.

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 unti July
(29,287,808)	FY 2017 Shortfall-to-Date
29,300,000	**FY 2017 Shortfall-to-Date, Rounded**

Table 3 – FY 2017 DWSD Loan Receivable - Sewer

Date	Transaction	Amount	Balance
6/30/2019	Record FY 16 and FY 17 Loan Receivable		29,300,000
2/8/2019	Loan Receivable Payment *(for the months of Jul - Dec)*	4,635,462	24,664,538
2/22/2019	Loan Receivable Payment *(for the months of Jan - Mar)*	2,353,768	22,310,770
4/15/2019	Loan Receivable Payment *(for the month of Apr)*	789,990	21,520,780
5/8/2019	Loan Receivable Payment *(for the month of May)*	792,705	20,728,075
6/7/2019	Loan Receivable Payment *(for the month of June)*	795,430	19,932,645
7/5/2019	Loan Receivable Payment *(for the month of July)*	798,164	19,134,480
8/8/2019	Loan Receivable Payment *(for the month of August)*	800,908	18,333,572
9/6/2019	Loan Receivable Payment *(for the month of September)*	803,661	17,529,911
10/2/2019	Loan Receivable Payment *(for the month of October)*	806,424	16,723,487
11/4/2019	Loan Receivable Payment *(for the month of November)*	809,196	15,914,291
12/3/2019	Loan Receivable Payment *(for the month of December)*	811,978	15,102,314
1/6/2020	Loan Receivable Payment *(for the month of January)*	814,769	14,287,545
2/4/2020	Loan Receivable Payment *(for the month of February)*	817,570	13,469,975
3/3/2020	Loan Receivable Payment *(for the month of March)*	820,380	12,649,595
		16,650,405	**12,649,595**

Table 4 – FY 2017 DWSD Loan Receivable Payments - Sewer

Date	Transaction	Principal	Interest	Total Paid
2/8/2019	Loan Receivable Payment *(for the months of Jul - Dec)*	4,635,462	564,636	5,200,098
2/22/2019	Loan Receivable Payment *(for the months of Jan - Mar)*	2,353,768	246,280	2,600,049
4/15/2019	Loan Receivable Payment *(for the month of Apr)*	789,990	76,693	866,683
5/8/2019	Loan Receivable Payment *(for the month of May)*	792,705	73,978	866,683
6/7/2019	Loan Receivable Payment *(for the month of June)*	795,430	71,253	866,683
7/5/2019	Loan Receivable Payment *(for the month of July)*	798,164	68,518	866,683
8/8/2019	Loan Receivable Payment *(for the month of August)*	800,908	65,775	866,683
9/6/2019	Loan Receivable Payment *(for the month of September)*	803,661	63,022	866,683
10/2/2019	Loan Receivable Payment *(for the month of October)*	806,424	60,259	866,683
11/4/2019	Loan Receivable Payment *(for the month of November)*	809,196	57,487	866,683
12/3/2019	Loan Receivable Payment *(for the month of December)*	811,978	54,705	866,683
1/6/2020	Loan Receivable Payment *(for the month of January)*	814,769	51,914	866,683
2/4/2020	Loan Receivable Payment *(for the month of February)*	817,570	49,113	866,683
3/3/2020	Loan Receivable Payment *(for the month of March)*	820,380	46,303	866,683
		16,650,405	**1,549,937**	**18,200,342**

Table 5 – FY 2018 DWSD Loan Receivable - Sewer

Date	Transaction	Amount	Balance
6/30/2019	Record FY 18 Loan Receivable		24,113,034
7/15/2019	Loan Receivable Payment *(for the month of July)*	638,978	23,474,056
8/8/2019	Loan Receivable Payment *(for the month of August)*	640,686	22,833,370
9/6/2019	Loan Receivable Payment *(for the month of September)*	642,400	22,190,970
10/2/2019	Loan Receivable Payment *(for the month of October)*	644,118	21,546,852
11/4/2019	Loan Receivable Payment *(for the month of November)*	645,840	20,901,012
12/3/2019	Loan Receivable Payment *(for the month of December)*	647,567	20,253,445
1/6/2020	Loan Receivable Payment *(for the month of January)*	649,299	19,604,146
2/4/2020	Loan Receivable Payment *(for the month of February)*	651,035	18,953,111
3/3/2020	Loan Receivable Payment *(for the month of March)*	652,776	18,300,335
		5,812,699	**18,300,335**

Table 6 – FY 2018 DWSD Loan Receivable Payments - Sewer

Date	Transaction	Principal	Interest	Total Paid
7/15/2019	Loan Receivable Payment *(for the month of July)*	638,978	64,482	703,460
8/8/2019	Loan Receivable Payment *(for the month of August)*	640,686	62,774	703,460
9/6/2019	Loan Receivable Payment *(for the month of September)*	642,400	61,060	703,460
10/2/2019	Loan Receivable Payment *(for the month of October)*	644,118	59,342	703,460
11/4/2019	Loan Receivable Payment *(for the month of November)*	645,840	57,620	703,460
12/3/2019	Loan Receivable Payment *(for the month of December)*	647,567	55,893	703,460
1/6/2020	Loan Receivable Payment *(for the month of January)*	649,299	54,161	703,460
2/4/2020	Loan Receivable Payment *(for the month of February)*	651,035	52,425	703,460
3/3/2020	Loan Receivable Payment *(for the month of March)*	652,776	50,684	703,460
		5,812,699	**518,441**	**6,331,140**

Chart 3 – DWSD 12-Month Net Receipts - Water

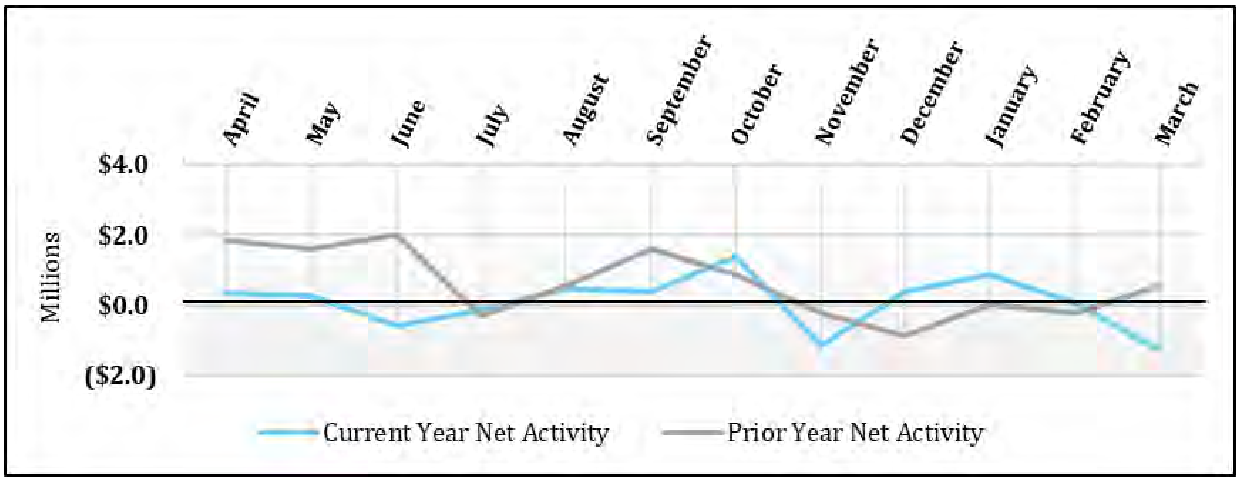
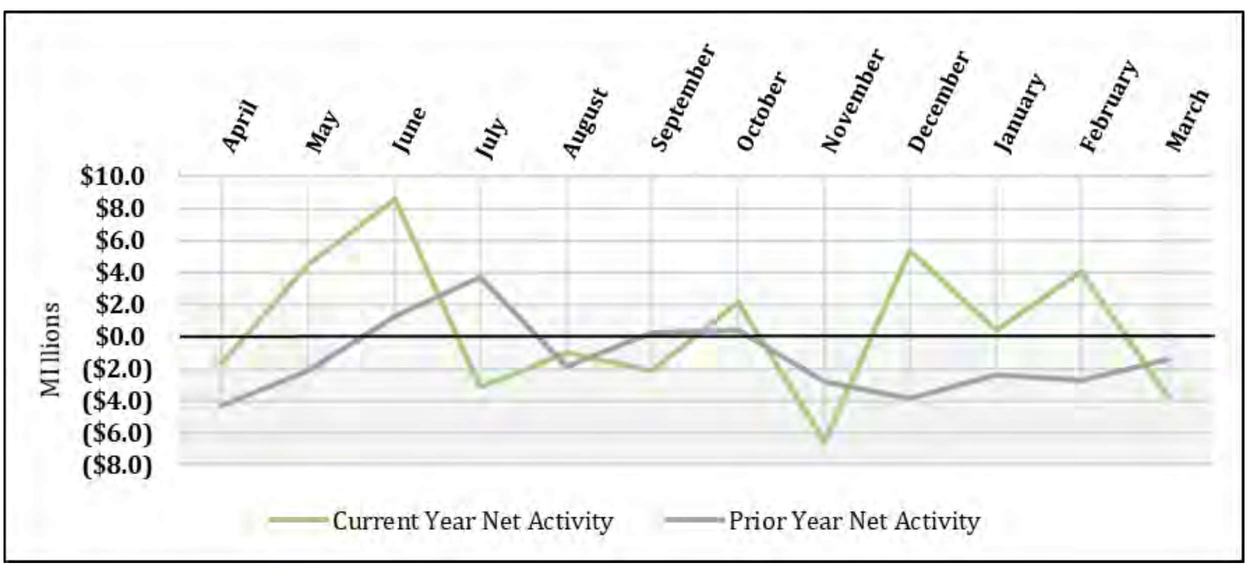


Chart 4 – DWSD 12-Month Net Receipts – Sewer



Combined System Trust Receipts & Disbursements

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

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

Water fund cash receipts exceeded required MBO disbursements by 10% through March 31, 2020 with a historical ratio of cash receipts exceeding MBO disbursements by 12% since January 1, 2016.

Sewer fund cash receipts exceeded required MBO disbursements by 7% through March 31, 2020 and with a historical ratio of cash receipts exceeding MBO disbursements by 2% since January 1, 2016.

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

		FY 2016	FY 2017	FY 2018	FY 2019	FY 2020 Thru March 31	Life-to-Date Total
	Water						
1	Receipts	$ 175,890,592	$ 449,393,014	$ 439,685,148	$ 436,462,453	$ 330,308,380	$ 1,831,739,587
2	MOU Adjustments	18,446,100	-	-	-	-	18,446,100
3	Adjusted Receipts	194,336,692	449,393,014	439,685,148	436,462,453	330,308,380	1,850,185,687
4	Disbursements	(194,065,737)	(381,844,129)	(390,114,267)	(386,925,081)	(299,048,204)	(1,651,997,418)
5	Receipts Net of Required Transfers	270,955	67,548,885	49,570,881	49,537,372	31,260,176	198,188,269
6	I&E Transfer	-	-	(25,739,700)	(56,102,080)	(22,593,751)	(104,435,531)
7	Net Receipts	$ 270,955	$ 67,548,885	$ 23,831,181	$ (6,564,708)	$ 8,666,425	$ 93,752,738
8	*Ratio of Receipts to Required Disbursements (Line 3/Line 4)*	*100%*	*118%*	*113%*	*113%*	*110%*	*112%*
	Sewer						
9	Receipts	$ 297,634,449	$ 703,512,249	$ 718,374,552	$ 733,083,541	$ 580,482,232	$ 3,033,087,023
10	MOU Adjustments	55,755,100	-	-	6,527,200	-	62,282,300
11	Adjusted Receipts	353,389,549	703,512,249	718,374,552	739,610,741	580,482,232	3,095,369,323
12	Disbursements	(341,835,625)	(703,407,313)	(725,121,160)	(724,424,942)	(543,660,121)	(3,038,449,161)
13	Receipts Net of Required Transfers	11,553,924	104,936	(6,746,608)	15,185,799	36,822,111	56,920,162
14	I&E Transfer	-	-	(22,698,100)	(22,547,700)	(19,096,200)	(64,342,000)
15	Shortfall Advance	-	-	-	-	-	-
16	Shortfall Repayment (principal)	-	-	-	9,367,355	13,095,749	22,463,104
17	Net Receipts	$ 11,553,924	$ 104,936	$ (29,444,708)	$ (7,361,901)	$ 30,821,660	$ 15,041,267
18	*Ratio of Receipts to Required Disbursements (Line 11/Line 12)*	*103%*	*100%*	*99%*	*102%*	*107%*	*102%*
	Combined						
19	Receipts	$ 473,525,041	$ 1,152,905,263	$ 1,158,059,700	$ 1,169,545,994	$ 910,790,612	$ 4,864,826,610
20	MOU Adjustments	74,201,200	-	-	6,527,200	-	80,728,400
21	Adjusted Receipts	547,726,241	1,152,905,263	1,158,059,700	1,176,073,194	910,790,612	4,945,555,010
22	Disbursements	(535,901,362)	(1,085,251,442)	(1,115,235,427)	(1,111,350,023)	(842,708,325)	(4,690,446,579)
23	Receipts Net of Required Transfers	11,824,879	67,653,821	42,824,273	64,723,171	68,082,287	255,108,431
24	I&E Transfer	-	-	(48,437,800)	(78,649,780)	(41,689,951)	(168,777,531)
25	Shortfall Advance	-	-	-	-	-	-
26	Shortfall Repayment	-	-	-	9,367,355	13,095,749	22,463,104
27	Net Receipts	$ 11,824,879	$ 67,653,821	$ (5,613,527)	$ (4,559,254)	$ 39,488,085	$ 108,794,005
28	*Ratio of Receipts to Required Disbursements (Line 21/Line 22)*	*102%*	*106%*	*104%*	*106%*	*108%*	*105%*

APPENDIX

GLWA Aged Accounts Receivable- WATER ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ALLEN PARK	$183,472.52	$183,472.52	$0.00	$0.00	$0.00
ASH TOWNSHIP	$67,450.07	$67,450.07	$0.00	$0.00	$0.00
BELLEVILLE	$51,650.37	$51,650.37	$0.00	$0.00	$0.00
BERLIN TOWNSHIP	$56,345.18	$56,345.18	$0.00	$0.00	$0.00
BROWNSTOWN TOWNSHIP	$276,166.40	$276,166.40	$0.00	$0.00	$0.00
BRUCE TOWNSHIP	$21,884.53	$21,884.53	$0.00	$0.00	$0.00
BURTCHVILLE TOWNSHIP	$23,243.01	$23,243.01	$0.00	$0.00	$0.00
CANTON TOWNSHIP	$1,577,830.30	$1,577,830.30	$0.00	$0.00	$0.00
CENTER LINE	$37,779.70	$37,779.70	$0.00	$0.00	$0.00
CHESTERFIELD TOWNSHIP	$322,782.31	$322,782.31	$0.00	$0.00	$0.00
CLINTON TOWNSHIP	$575,839.60	$575,839.60	$0.00	$0.00	$0.00
COMMERCE TOWNSHIP	$0.00	$0.00	$0.00	$0.00	$0.00
DEARBORN	$686,822.24	$686,822.24	$0.00	$0.00	$0.00
DEARBORN HEIGHTS	$296,858.93	$296,858.93	$0.00	$0.00	$0.00
EASTPOINTE	$253,808.40	$253,808.40	$0.00	$0.00	$0.00
ECORSE	$118,036.40	$118,036.40	$0.00	$0.00	$0.00
FARMINGTON	$78,519.38	$78,519.38	$0.00	$0.00	$0.00
FARMINGTON HILLS	$0.00	$0.00	$0.00	$0.00	$0.00
FERNDALE	$172,452.74	$172,452.74	$0.00	$0.00	$0.00
FLAT ROCK	$215,121.65	$215,121.65	$0.00	$0.00	$0.00
FLINT	$299,575.65	$299,575.65	$0.00	$0.00	$0.00
FRASER	$96,451.08	$96,451.08	$0.00	$0.00	$0.00
GARDEN CITY	$133,083.65	$133,083.65	$0.00	$0.00	$0.00

GLWA Aged Accounts Receivable- WATER ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
GIBRALTAR	$26,736.52	$26,736.52	$0.00	$0.00	$0.00
GREENWOOD TOWNSHIP	$49,872.71	$49,872.71	$0.00	$0.00	$0.00
GROSSE ILE TOWNSHIP	$83,194.60	$83,194.60	$0.00	$0.00	$0.00
GROSSE POINTE PARK	$109,475.16	$109,475.16	$0.00	$0.00	$0.00
GROSSE POINTE SHORES	$43,659.19	$43,659.19	$0.00	$0.00	$0.00
GROSSE POINTE WOODS	$109,967.83	$109,967.83	$0.00	$0.00	$0.00
HAMTRAMCK	$66,040.47	$66,040.47	$0.00	$0.00	$0.00
HARPER WOODS	$62,847.28	$62,847.28	$0.00	$0.00	$0.00
HARRISON TWP	$118,336.51	$118,336.51	$0.00	$0.00	$0.00
HAZEL PARK	$57,748.52	$57,748.52	$0.00	$0.00	$0.00
HIGHLAND PARK	$8,249,198.94	$186,539.05	$93,039.60	$195,659.40	$7,773,960.89
HURON TOWNSHIP	$114,087.53	$114,087.53	$0.00	$0.00	$0.00
IMLAY CITY	$107,629.77	$107,629.77	$0.00	$0.00	$0.00
IMLAY TOWNSHIP	$1,263.75	$1,263.75	$0.00	$0.00	$0.00
INKSTER	$97,548.33	$97,548.33	$0.00	$0.00	$0.00
KEEGO HARBOR	$0.00	$0.00	$0.00	$0.00	$0.00
LAPEER	$121,688.93	$121,688.93	$0.00	$0.00	$0.00
LENOX TOWNSHIP	$46,305.54	$46,305.54	$0.00	$0.00	$0.00
LINCOLN PARK	$190,524.88	$190,524.88	$0.00	$0.00	$0.00
LIVONIA	$861,597.63	$861,597.63	$0.00	$0.00	$0.00
MACOMB TWP	$918,334.67	$918,334.67	$0.00	$0.00	$0.00
MADISON HEIGHTS	$144,232.84	$144,232.84	$0.00	$0.00	$0.00

GLWA Aged Accounts Receivable- WATER ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
MAYFIELD TOWNSHIP	$3,318.30	$3,318.30	$0.00	$0.00	$0.00
MELVINDALE	$52,178.77	$52,178.77	$0.00	$0.00	$0.00
NEW HAVEN	$28,508.90	$28,508.90	$0.00	$0.00	$0.00
NOCWA	$1,691,548.17	$1,691,548.17	$0.00	$0.00	$0.00
NORTHVILLE	$66,251.78	$66,251.78	$0.00	$0.00	$0.00
NORTHVILLE TOWNSHIP	$388,215.89	$388,215.89	$0.00	$0.00	$0.00
NOVI	$656,566.68	$656,566.68	$0.00	$0.00	$0.00
OAK PARK	$114,320.95	$114,320.95	$0.00	$0.00	$0.00
OAKLAND CO DR COM	$4,967.68	$4,967.68	$0.00	$0.00	$0.00
PLYMOUTH	$82,350.87	$82,350.87	$0.00	$0.00	$0.00
PLYMOUTH TOWNSHIP	$670,471.73	$670,471.73	$0.00	$0.00	$0.00
REDFORD TOWNSHIP	$252,512.28	$252,512.28	$0.00	$0.00	$0.00
RIVER ROUGE	$60,948.33	$60,948.33	$0.00	$0.00	$0.00
RIVERVIEW	$141,369.31	$141,369.31	$0.00	$0.00	$0.00
ROCKWOOD	$22,005.09	$22,005.09	$0.00	$0.00	$0.00
ROMEO	$38,814.37	$38,814.37	$0.00	$0.00	$0.00
ROMULUS	$344,632.29	$344,632.29	$0.00	$0.00	$0.00
ROSEVILLE	$210,724.66	$210,724.66	$0.00	$0.00	$0.00
ROYAL OAK TOWNSHIP	$0.00	$0.00	$0.00	$0.00	$0.00
SHELBY TOWNSHIP	$1,022,400.94	$1,022,400.94	$0.00	$0.00	$0.00
SOCWA	$3,520,397.29	$3,520,397.29	$0.00	$0.00	$0.00
SOUTH ROCKWOOD	$8,994.43	$8,994.43	$0.00	$0.00	$0.00
SOUTHGATE	$176,290.13	$176,290.13	$0.00	$0.00	$0.00

GLWA Aged Accounts Receivable- WATER ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ST. CLAIR SHORES	$253,152.65	$253,152.65	$0.00	$0.00	$0.00
STERLING HEIGHTS	$1,113,332.50	$1,113,332.50	$0.00	$0.00	$0.00
SUMPTER TOWNSHIP	$53,063.60	$53,063.60	$0.00	$0.00	$0.00
SYLVAN LAKE	$18,028.69	$18,028.69	$0.00	$0.00	$0.00
TAYLOR	$372,931.60	$372,931.60	$0.00	$0.00	$0.00
TRENTON	$138,327.36	$138,327.36	$0.00	$0.00	$0.00
TROY (SEOC)	$1,046,488.98	$1,046,488.98	$0.00	$0.00	$0.00
UTICA	$42,956.80	$42,956.80	$0.00	$0.00	$0.00
VAN BUREN TOWNSHIP	$266,499.47	$266,499.47	$0.00	$0.00	$0.00
VILLAGE OF ALMONT	$18,624.62	$18,624.62	$0.00	$0.00	$0.00
WALLED LAKE	$0.00	$0.00	$0.00	$0.00	$0.00
WARREN	$815,086.36	$815,086.36	$0.00	$0.00	$0.00
WASHINGTON TOWNSHIP	$165,704.18	$165,704.18	$0.00	$0.00	$0.00
WAYNE	$272,438.43	$272,438.43	$0.00	$0.00	$0.00
WEST BLOOMFIELD TWP (C-O)	$1,558,931.41	$1,558,931.41	$0.00	$0.00	$0.00
WESTLAND	$483,151.99	$483,151.99	$0.00	$0.00	$0.00
WIXOM	$186,250.24	$186,250.24	$0.00	$0.00	$0.00
WOODHAVEN	$130,951.42	$130,951.42	$0.00	$0.00	$0.00
YCUA	$1,633,684.73	$1,633,684.73	$0.00	$0.00	$0.00
TOTAL WATER ACCOUNTS	$35,252,859.58	$27,190,199.69	$93,039.60	$195,659.40	$7,773,960.89

GLWA Aged Accounts Receivable- SEWER ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ALLEN PARK	$0.00	$0.00	$0.00	$0.00	$0.00
CENTER LINE	$86,099.50	$86,099.50	$0.00	$0.00	$0.00
DEARBORN	$0.00	$0.00	$0.00	$0.00	$0.00
EVERGREEN-FARMINGTON	$0.00	$0.00	$0.00	$0.00	$0.00
FARMINGTON	$0.00	$0.00	$0.00	$0.00	$0.00
GROSSE POINTE	$0.00	$0.00	$0.00	$0.00	$0.00
GROSSE POINTE FARMS	$0.00	$0.00	$0.00	$0.00	$0.00
GROSSE POINTE PARK	$0.00	$0.00	$0.00	$0.00	$0.00
HAMTRAMCK	$0.00	$0.00	$0.00	$0.00	$0.00
HARPER WOODS	$0.00	$0.00	$0.00	$0.00	$0.00
HIGHLAND PARK	$33,502,274.24	$472,500.00	$472,500.00	$472,500.00	$32,084,774.24
MELVINDALE	$127,800.00	$127,800.00	$0.00	$0.00	$0.00
OAKLAND COUNTY GWK DD	$0.00	$0.00	$0.00	$0.00	$0.00
OMID	$5,793,107.04	$5,793,107.04	$0.00	$0.00	$0.00
REDFORD TOWNSHIP	$21,900.00	$21,900.00	$0.00	$0.00	$0.00
ROUGE VALLEY	$4,513,500.00	$4,513,500.00	$0.00	$0.00	$0.00
WAYNE COUNTY N.E.	$2,069,800.00	$2,069,800.00	$0.00	$0.00	$0.00
WAYNE COUNTY-AREA #3	$4,200.00	$4,200.00	$0.00	$0.00	$0.00
TOTAL SEWER ACCOUNTS	**$46,118,680.78**	**$13,088,906.54**	**$472,500.00**	**$472,500.00**	**$32,084,774.24**

GLWA Aged Accounts Receivable- IWC ACCOUNTS

Balances as of 03/31/20

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
AUBURN HILLS (C-O)	$10,865.01	$10,865.01	$0.00	$0.00	$0.00
AUBURN HILLS (C-O) ADMIN	$1,874.97	$1,874.97	$0.00	$0.00	$0.00
AUBURN HILLS (E-F)	$366.73	$366.73	$0.00	$0.00	$0.00
BERKLEY	$3,004.82	$3,004.82	$0.00	$0.00	$0.00
BEVERLY HILLS	$0.00	$0.00	$0.00	$0.00	$0.00
BINGHAM FARMS	$1,008.93	$1,008.93	$0.00	$0.00	$0.00
BIRMINGHAM (E-F)	$2,303.47	$2,303.47	$0.00	$0.00	$0.00
BIRMINGHAM (SEOC)	$5,318.43	$5,318.43	$0.00	$0.00	$0.00
BLOOMFIELD HILLS	$1,570.01	$1,570.01	$0.00	$0.00	$0.00
BLOOMFIELD TOWNSHIP	$14,332.89	$14,332.89	$0.00	$0.00	$0.00
CANTON TOWNSHIP	$739,218.80	$36,253.88	$18,126.94	$18,126.94	$666,711.04
CENTER LINE	$3,501.68	$3,501.68	$0.00	$0.00	$0.00
CHESTERFIELD TOWNSHIP	$11,633.96	$11,633.96	$0.00	$0.00	$0.00
CITY OF FARMINGTON (E-F)	$190.97	$190.97	$0.00	$0.00	$0.00
CITY OF FERNDALE	$16,933.80	$16,933.80	$0.00	$0.00	$0.00
CITY OF ROCHESTER	$3,540.55	$3,540.55	$0.00	$0.00	$0.00
CLARKSTON (C-O) ADMIN	$131.88	$131.88	$0.00	$0.00	$0.00
CLAWSON	$0.00	$0.00	$0.00	$0.00	$0.00
CLINTON TOWNSHIP	$24,501.62	$24,501.62	$0.00	$0.00	$0.00
DEARBORN	$35,146.93	$35,146.93	$0.00	$0.00	$0.00
DEARBORN HEIGHTS	$9,159.80	$9,159.80	$0.00	$0.00	$0.00
DETROIT METRO WC AIRPORT	$101.40	$101.40	$0.00	$0.00	$0.00

GLWA Aged Accounts Receivable- IWC ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
EASTPOINTE	$6,163.43	$6,163.43	$0.00	$0.00	$0.00
FARMINGTON	$3,829.54	$3,829.54	$0.00	$0.00	$0.00
FARMINGTON HILLS	$23,212.15	$23,212.15	$0.00	$0.00	$0.00
FRASER	$4,715.10	$4,715.10	$0.00	$0.00	$0.00
GARDEN CITY	$5,830.50	$5,830.50	$0.00	$0.00	$0.00
GROSSE POINTE	$0.00	$0.00	$0.00	$0.00	$0.00
GROSSE POINTE FARMS	$0.00	$0.00	$0.00	$0.00	$0.00
GROSSE POINTE PARK	$1,123.85	$1,123.85	$0.00	$0.00	$0.00
GROSSE POINTE SHORES	$302.51	$302.51	$0.00	$0.00	$0.00
GROSSE POINTE WOODS	$0.00	$0.00	$0.00	$0.00	$0.00
HAMTRAMCK	$3,968.12	$3,968.12	$0.00	$0.00	$0.00
HARPER WOODS	$1,867.45	$1,867.45	$0.00	$0.00	$0.00
HARRISON TWP	$3,035.24	$3,035.24	$0.00	$0.00	$0.00
HAZEL PARK	$3,038.62	$3,038.62	$0.00	$0.00	$0.00
HIGHLAND PARK	$1,710,779.11	$7,797.66	$3,853.20	$3,844.75	$1,695,283.50
HUNTINGTON WOODS	$0.00	$0.00	$0.00	$0.00	$0.00
INDEPENDENCE (C-O) ADMIN	$2,326.70	$2,325.43	$1.27	$0.00	$0.00
INKSTER	$5,286.32	$5,286.32	$0.00	$0.00	$0.00
KEEGO HARBOR	$667.55	$667.55	$0.00	$0.00	$0.00
LAKE ORION	$0.00	$0.00	$0.00	$0.00	$0.00
LATHRUP	$1,336.79	$1,336.79	$0.00	$0.00	$0.00
LENOX TOWNSHIP	$309.27	$309.27	$0.00	$0.00	$0.00

GLWA Aged Accounts Receivable- IWC ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
LIVONIA	$38,268.36	$38,268.36	$0.00	$0.00	$0.00
MACOMB TWP	$196.04	$196.04	$0.00	$0.00	$0.00
MADISON HEIGHTS	$0.00	$0.00	$0.00	$0.00	$0.00
MELVINDALE	$3,234.66	$3,234.66	$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	$177,363.16	$8,696.74	$4,348.37	$4,348.37	$159,969.68
NOVI	$16,599.18	$16,599.18	$0.00	$0.00	$0.00
OAK PARK	$6,508.19	$6,508.19	$0.00	$0.00	$0.00
OAKLAND TOWNSHIP	$410.67	$410.67	$0.00	$0.00	$0.00
ORCHARD LAKE VILLAGE	$381.94	$381.94	$0.00	$0.00	$0.00
ORION TOWNSHIP (C-O)	$21.97	$21.97	$0.00	$0.00	$0.00
ORION TOWNSHIP (C-O) ADMIN	$(437.90)	$(437.90)	$0.00	$0.00	$0.00
OXFORD TOWNSHIP	$1,923.22	$1,923.22	$0.00	$0.00	$0.00
OXFORD VILLAGE	$0.00	$0.00	$0.00	$0.00	$0.00
PLEASANT RIDGE	$0.00	$0.00	$0.00	$0.00	$0.00
PLYMOUTH	$0.00	$0.00	$0.00	$0.00	$0.00
PLYMOUTH TOWNSHIP	$493,686.44	$24,207.56	$12,103.78	$12,103.78	$445,271.32
REDFORD TOWNSHIP	$12,076.74	$12,076.74	$0.00	$0.00	$0.00
ROCHESTER HILLS	$17,508.40	$17,508.40	$0.00	$0.00	$0.00
ROMULUS	$880.49	$880.49	$0.00	$0.00	$0.00
ROSEVILLE	$13,961.09	$0.00	$13,961.09	$0.00	$0.00
ROYAL OAK	$13,144.82	$13,144.82	$0.00	$0.00	$0.00

GLWA Aged Accounts Receivable- IWC ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
ROYAL OAK TOWNSHIP	$887.25	$887.25	$0.00	$0.00	$0.00
SHELBY TOWNSHIP	$12,032.80	$12,032.80	$0.00	$0.00	$0.00
SOUTHFIELD (E-F)	$27,100.84	$27,100.84	$0.00	$0.00	$0.00
SOUTHFIELD (SEOC)	$3,711.24	$3,711.24	$0.00	$0.00	$0.00
ST. CLAIR SHORES	$11,476.79	$11,476.79	$0.00	$0.00	$0.00
STERLING HEIGHTS	$30,119.18	$30,119.18	$0.00	$0.00	$0.00
TROY (E-F)	$365.04	$365.04	$0.00	$0.00	$0.00
TROY (SEOC)	$35,552.53	$35,552.53	$0.00	$0.00	$0.00
UTICA	$2,854.41	$2,854.41	$0.00	$0.00	$0.00
VAN BUREN TOWNSHIP	$1,755.91	$1,755.91	$0.00	$0.00	$0.00
VILLAGE OF FRANKLIN	$62.53	$62.53	$0.00	$0.00	$0.00
WASHINGTON TOWNSHIP	$1,358.76	$1,358.76	$0.00	$0.00	$0.00
WATERFORD TOWNSHIP DPW (ADMI	$2,949.18	$2,949.18	$0.00	$0.00	$0.00
WAYNE	$4,770.87	$4,770.87	$0.00	$0.00	$0.00
WEST BLOOMFIELD TWP (E-F)	$12,097.02	$12,097.02	$0.00	$0.00	$0.00
WEST BLOOMFIELD TWP. (C-O) A	$451.26	$451.26	$0.00	$0.00	$0.00
WESTLAND	$0.00	$0.00	$0.00	$0.00	$0.00
TOTAL IWC ACCOUNTS	$3,605,771.98	$547,717.95	$52,394.65	$38,423.84	$2,967,235.54

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
3M COMPANY	$5,155.22	$5,155.22	$0.00	$0.00	$0.00
A & R PACKING CO., LLC	$4,040.40	$4,040.40	$0.00	$0.00	$0.00
AACTRON	$0.00	$0.00	$0.00	$0.00	$0.00
ACADEMY PACKING CO.	$0.00	$0.00	$0.00	$0.00	$0.00
ACME RUSTPROOF	$6.46	$6.46	$0.00	$0.00	$0.00
AEVITAS SPECIALITY SERVICES	$33,087.38	$21,994.18	$11,093.20	$0.00	$0.00
ALEXANDER & HORNUNG	$0.00	$0.00	$0.00	$0.00	$0.00
ALEXANDER & HORNUNG	$0.00	$0.00	$0.00	$0.00	$0.00
ALEXANDER & HORNUNG	$0.00	$0.00	$0.00	$0.00	$0.00
ALGAL SCIENTIFIC CORPORATION	$16,533.05	$0.00	$0.00	$0.00	$16,533.05
ALL CHEM CORP, LLC.	$0.00	$0.00	$0.00	$0.00	$0.00
ALPHA STAMPING COMPANY	$0.00	$0.00	$0.00	$0.00	$0.00
AMERICAN WASTE TECH INC.	$0.00	$0.00	$0.00	$0.00	$0.00
AMERITI MFG. CO.	$17,235.43	$17,235.43	$0.00	$0.00	$0.00
ATWATER IN THE PARK	$0.00	$0.00	$0.00	$0.00	$0.00
AUTOMOTIVE FINISH	$0.00	$0.00	$0.00	$0.00	$0.00
AXLE BREWING COMPANY, LLC	$0.00	$0.00	$0.00	$0.00	$0.00
B. NEKTAR MEADERY	$0.00	$0.00	$0.00	$0.00	$0.00
BAFFIN BREWING COMPANY	$0.00	$0.00	$0.00	$0.00	$0.00
BARON INDUSTRIES	$1,288.08	$1,288.08	$0.00	$0.00	$0.00
BARTZ BAKERY	$0.00	$0.00	$0.00	$0.00	$0.00
BASTONE BREWERY	$0.00	$0.00	$0.00	$0.00	$0.00
BATCH BREWING COMPANY	$0.00	$0.00	$0.00	$0.00	$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
BAYS MICHIGAN CORPORATION	$6.43	$6.43	$0.00	$0.00	$0.00
BEIRUT BAKERY, INC.	$107.77	$107.77	$0.00	$0.00	$0.00
BETTER MADE SNACK FOOD	$12,256.86	$12,256.86	$0.00	$0.00	$0.00
BLACK LOTUS BREWING CO.	$61.25	$0.00	$0.00	$0.00	$61.25
BOZEK'S MARKET	$68.30	$68.30	$0.00	$0.00	$0.00
BREW DETROIT	$5,082.98	$5,082.98	$0.00	$0.00	$0.00
BROADWAY MKT CORNED BEEF	$(63.00)	$(63.00)	$0.00	$0.00	$0.00
BROOKS BREWING, LLC.	$0.00	$0.00	$0.00	$0.00	$0.00
BROWN IRON BREWHOUSE	$0.00	$0.00	$0.00	$0.00	$0.00
CADILLAC STRAITS BREWING CO.	$0.00	$0.00	$0.00	$0.00	$0.00
CANTON BREW WORKS	$0.00	$0.00	$0.00	$0.00	$0.00
CAPITAL REPRODUCTIONS	$3.30	$1.79	$1.51	$0.00	$0.00
CF BURGER CREAMERY	$15,295.18	$15,295.18	$0.00	$0.00	$0.00
CHILANGO'S BAKERY	$1,663.95	$53.08	$20.91	$30.56	$1,559.40
CINTAS CORP. - MACOMB TWP.	$0.00	$0.00	$0.00	$0.00	$0.00
CINTAS CORPORATION	$26,917.19	$26,917.19	$0.00	$0.00	$0.00
CINTAS CORPORATION	$14,509.60	$14,509.60	$0.00	$0.00	$0.00
CITY LAUNDRY, INC.	$20.96	$20.96	$0.00	$0.00	$0.00
CLASSIC CONTAINER CORP.	$0.00	$0.00	$0.00	$0.00	$0.00
COCA-COLA REFRESHMENTS USA,	$1,697.89	$1,697.89	$0.00	$0.00	$0.00
COSTCO WHOLESALE STORE	$0.00	$0.00	$0.00	$0.00	$0.00
COSTCO WHOLESALE STORE	$0.00	$0.00	$0.00	$0.00	$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
COSTCO WHOLESALE STORE	$0.00	$0.00	$0.00	$0.00	$0.00
COSTCO WHOLESALE STORE	$0.00	$0.00	$0.00	$0.00	$0.00
COUNTRY FRESH DAIRY CO.	$0.00	$0.00	$0.00	$0.00	$0.00
CROSS CHEMICAL COMPANY, INC.	$1,046.27	$1,046.27	$0.00	$0.00	$0.00
DARLING INGREDIENTS, INC.	$8,694.20	$8,694.20	$0.00	$0.00	$0.00
DAVE'S SAUSAGE FACTORY 2	$0.00	$0.00	$0.00	$0.00	$0.00
DEARBORN BREWING	$0.00	$0.00	$0.00	$0.00	$0.00
DEARBORN SAUSAGE	$0.00	$0.00	$0.00	$0.00	$0.00
DEARBORN SAUSAGE CO., INC.	$0.00	$0.00	$0.00	$0.00	$0.00
DETROIT BEER CO.	$0.00	$0.00	$0.00	$0.00	$0.00
DETROIT LINEN SERVICE	$0.00	$0.00	$0.00	$0.00	$0.00
DETROIT METRO WC AIRPORT	$0.00	$0.00	$0.00	$0.00	$0.00
DETROIT RIVERTOWN BREWERY CC	$0.00	$0.00	$0.00	$0.00	$0.00
DETROIT SAUSAGES CO INC	$25.62	$17.08	$8.54	$0.00	$0.00
DETRONIC INDUSTRIES, INC.	$92.59	$92.59	$0.00	$0.00	$0.00
DIFCO LABORATORIES, INC.	$48,759.75	$30,035.04	$9,441.01	$9,283.70	$0.00
DIVERSIFIED CHEM TECH. INC.	$163.77	$163.77	$0.00	$0.00	$0.00
DOMESTIC UNIFORM RENTAL	$1,940.04	$1,940.04	$0.00	$0.00	$0.00
DOMESTIC UNIFORM RENTAL	$781.18	$781.18	$0.00	$0.00	$0.00
DOWNEY BREWING COMPANY	$42.00	$0.00	$42.00	$0.00	$0.00
E.W. GROBBEL'S SONS, INC.	$4,320.09	$4,320.09	$0.00	$0.00	$0.00
EASTERN MARKET BREWING COMPA	$181.55	$0.00	$181.55	$0.00	$0.00
ENVIROSOLIDS, L.L.C.	$23,565.68	$0.00	$0.00	$23,565.68	$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
EQ DETROIT, INC.	$2,259.63	$2,259.63	$0.00	$0.00	$0.00
EQ DETROIT, INC.	$11,245.44	$11,245.44	$0.00	$0.00	$0.00
EQ DETROIT, INC.	$0.00	$0.00	$0.00	$0.00	$0.00
EQ DETROIT, INC.	$0.37	$0.37	$0.00	$0.00	$0.00
ETON ST BREWERY- GRIFFIN CLA	$0.00	$0.00	$0.00	$0.00	$0.00
EXTRUDE HONE CORPORATION	$107.55	$107.55	$0.00	$0.00	$0.00
EXTRUDEHODE	$0.00	$0.00	$0.00	$0.00	$0.00
FARMINGTON BREWING COMPANY	$0.00	$0.00	$0.00	$0.00	$0.00
FAYGO BEVERAGES, INC.	$18,335.76	$18,335.76	$0.00	$0.00	$0.00
FORD NEW MODEL PROGRAM	$1,361.06	$1,361.06	$0.00	$0.00	$0.00
FOUNDERS BREWING COMPANY	$0.00	$0.00	$0.00	$0.00	$0.00
FRESH-PAK	$305.30	$305.30	$0.00	$0.00	$0.00
FRESH-PAK	$0.00	$0.00	$0.00	$0.00	$0.00
G2O ENERGY, LLC	$3,780.54	$3,780.54	$0.00	$0.00	$0.00
GENERAL LINEN SUPPLY CO.	$10,225.45	$10,225.45	$0.00	$0.00	$0.00
GLOBAL TITANIUM, INC.	$0.00	$0.00	$0.00	$0.00	$0.00
GRANITE CITY FOOD & BREWERY	$(16.01)	$0.00	$0.00	$0.00	$(16.01)
GRANITE CITY FOOD & BREWERY	$53.43	$0.00	$53.43	$0.00	$0.00
GRANITE CITY FOOD & BREWERY	$(85.95)	$0.00	$(85.95)	$0.00	$0.00
GREAT BARABOO BREWING CO.	$0.00	$0.00	$0.00	$0.00	$0.00
HACIENDA MEXICAN FOODS	$4,153.25	$944.36	$476.44	$530.32	$2,202.13
HENKEL CORPORATION	$302.94	$175.02	$127.92	$0.00	$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
HOME STYLE FOOD INC.	$193.44	$193.44	$0.00	$0.00	$0.00
HOMEGROWN BREWING COMPANY	$0.00	$0.00	$0.00	$0.00	$0.00
HOODS CLEANERS	$211.33	$0.00	$0.00	$0.00	$211.33
HOUGHTON INTERNATIONAL INC.	$536.09	$536.09	$0.00	$0.00	$0.00
HOUGHTON INTERNATIONAL INC.	$257.66	$257.66	$0.00	$0.00	$0.00
HOUGHTON INTERNATIONAL INC.	$2,472.67	$2,472.67	$0.00	$0.00	$0.00
HUNTINGTON CLEANERS	$0.00	$0.00	$0.00	$0.00	$0.00
IDP, INC.	$0.00	$0.00	$0.00	$0.00	$0.00
INDUSTRIAL METAL COATING	$805.73	$805.73	$0.00	$0.00	$0.00
ISLAMIC SLAUGHTER HOUSE	$670.81	$670.81	$0.00	$0.00	$0.00
ITALIAN BUTTER BREAD STICKS	$8.05	$1.61	$1.61	$4.83	$0.00
J & G FOOD PRODUCTS, INC.	$17.08	$17.08	$0.00	$0.00	$0.00
JAMEX BREWING CO.	$81.07	$0.00	$40.69	$0.00	$40.38
KAR NUT PRODUCTS	$1,510.62	$1,510.62	$0.00	$0.00	$0.00
KOWALSKI SAUSAGES, CO.	$599.33	$599.33	$0.00	$0.00	$0.00
KUHNHENN BREWING	$0.00	$0.00	$0.00	$0.00	$0.00
LA MICHOACANA FLOUR TORTILLA	$1,392.44	$1,392.44	$0.00	$0.00	$0.00
LA MICHOACANA FLOUR TORTILLA	$90.75	$90.75	$0.00	$0.00	$0.00
LEAR CORPORATION DBA EAGLE C	$2,859.95	$2,859.95	$0.00	$0.00	$0.00
LIBERTY STREET PROD. BREWERY	$0.00	$0.00	$0.00	$0.00	$0.00
LILY'S SEAFOOD GRILL & BREWE	$0.00	$0.00	$0.00	$0.00	$0.00
MACDERMID, INC.	$3,958.99	$3,958.99	$0.00	$0.00	$0.00
MCCLURE'S PICKLES	$8,521.54	$521.54	$182.81	$228.51	$7,588.68

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
MCNICHOLS POLISHING & ANODIZ	$16.52	$16.52	$0.00	$0.00	$0.00
MELLO MEATS INC, - KUBISCH S	$85.38	$85.38	$0.00	$0.00	$0.00
METROPOLITAN BAKERY	$823.56	$823.56	$0.00	$0.00	$0.00
MIBA HYDRAMECHANICA CORP.	$271.71	$271.71	$0.00	$0.00	$0.00
MICHIGAN DAIRY	$70,721.35	$70,721.35	$0.00	$0.00	$0.00
MICHIGAN PROD. MACHINING	$0.00	$0.00	$0.00	$0.00	$0.00
MICHIGAN SOY PRODUCTS CO.	$0.00	$0.00	$0.00	$0.00	$0.00
MIDWEST WIRE PRODUCTS, INC.	$0.00	$0.00	$0.00	$0.00	$0.00
MILANO BAKERY	$721.20	$721.20	$0.00	$0.00	$0.00
MILTON CHILI CO.	$0.00	$0.00	$0.00	$0.00	$0.00
MINNIE MARIE BAKERS, INC	$3,274.18	$3,274.18	$0.00	$0.00	$0.00
MISTER UNIFORM & MAT RENTALS	$46.61	$4.53	$5.93	$1.40	$34.75
MOTOR CITY BREWING WORKS	$1,313.13	$0.00	$178.07	$0.00	$1,135.06
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 & MEA	$29.77	$29.77	$0.00	$0.00	$0.00
OAKWOOD BAKERY	$326.58	$326.58	$0.00	$0.00	$0.00
PARKER'S HILLTOP BREWER & SE	$0.00	$0.00	$0.00	$0.00	$0.00
PELLERITO FOODS INC.	$1,782.38	$1,782.38	$0.00	$0.00	$0.00
PEPSI COLA, INC.	$39,083.75	$39,083.75	$0.00	$0.00	$0.00
PERSONAL UNIFORM SERVICE, IN	$36.55	$36.55	$0.00	$0.00	$0.00
PETRO ENVIRON TECH, INC.	$0.00	$0.00	$0.00	$0.00	$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
PINE TREE ACRES, INC.	$83,791.05	$83,791.05	$0.00	$0.00	$0.00
PLATING SPEC	$0.00	$0.00	$0.00	$0.00	$0.00
POWER VAC OF MICHIGAN, INC.	$100.35	$100.35	$0.00	$0.00	$0.00
PREMIER PLATING, LLC	$2,518.02	$2,518.02	$0.00	$0.00	$0.00
PRODUCTION SPRING, LLC.	$0.00	$0.00	$0.00	$0.00	$0.00
QUALA SERVICES, LLC	$1,196.09	$1,196.09	$0.00	$0.00	$0.00
RAY'S ICE CREAM CO.	$0.00	$0.00	$0.00	$0.00	$0.00
RED SPOT PAINT #409139	$18.52	$18.52	$0.00	$0.00	$0.00
RIVER ROUGE BREWING COMPANY	$0.00	$0.00	$0.00	$0.00	$0.00
ROAK BREWING CO. LLC	$1,180.47	$0.00	$1,180.47	$0.00	$0.00
ROCHESTER MILLS BEER COMPANY	$285.99	$0.00	$285.99	$0.00	$0.00
ROCHESTER MILLS PROD BREWERY	$2,796.81	$0.00	$1,253.77	$0.00	$1,543.04
ROYAL OAK BREWERY	$(885.14)	$0.00	$0.00	$0.00	$(885.14)
RTT	$27,772.36	$0.00	$0.00	$0.00	$27,772.36
SEAFARE FOODS, INC.	$167.31	$167.31	$0.00	$0.00	$0.00
SHERWOOD BREWING COMPANY	$1,034.82	$0.00	$100.35	$0.00	$934.47
SMITH-WATKINS, LLC	$0.00	$0.00	$0.00	$0.00	$0.00
SPRAYTEK, INC.	$21.95	$21.95	$0.00	$0.00	$0.00
SUPERNATURAL SPIRITS & BREWI	$75.08	$0.00	$75.08	$0.00	$0.00
SWEETHEART BAKERY, INC.	$2,116.55	$167.01	$79.87	$79.87	$1,789.80
THE CROWN GROUP-LIVONIA PLAN	$0.00	$0.00	$0.00	$0.00	$0.00
TOM LAUNDRY CLEANERS	$0.00	$0.00	$0.00	$0.00	$0.00
TRAFFIC JAM & SNUG	$62.66	$0.00	$21.00	$0.00	$41.66

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
TURRI'S ITALIAN FOODS	$0.00	$0.00	$0.00	$0.00	$0.00
TURRI'S ITALIAN FOODS	$0.00	$0.00	$0.00	$0.00	$0.00
U-METCO, INC.	$2,625.76	$2,625.76	$0.00	$0.00	$0.00
UNCLE RAYS SNACKS, LLC	$59,698.88	$59,698.88	$0.00	$0.00	$0.00
UNCLE RAYS SNACKS, LLC	$1,981.18	$1,981.18	$0.00	$0.00	$0.00
UNIQUE LINEN SERVICES, INC.	$0.00	$0.00	$0.00	$0.00	$0.00
UNITED FISH DISTRIBUTORS	$7.08	$7.08	$0.00	$0.00	$0.00
UNITED LINEN SERVICE, LLC.	$573.17	$573.17	$0.00	$0.00	$0.00
UNITED MEAT & DELI	$0.00	$0.00	$0.00	$0.00	$0.00
URBANREST BREWING COMPANY	$0.00	$0.00	$0.00	$0.00	$0.00
US ECOLOGY MICHIGAN	$492.59	$492.59	$0.00	$0.00	$0.00
US ECOLOGY ROMULUS, INC.	$3,030.06	$3,030.06	$0.00	$0.00	$0.00
USHER OIL SERVICES	$5,207.30	$5,207.30	$0.00	$0.00	$0.00
VALICOR ENVIROMENTAL SERVICE	$1,551.36	$1,551.36	$0.00	$0.00	$0.00
VERNDALE PRODUCTS	$5,193.59	$5,193.59	$0.00	$0.00	$0.00
VERNDALE PRODUCTS, INC.	$8,057.24	$8,057.24	$0.00	$0.00	$0.00
VERNOR FOOD PRODUCTS	$(36.26)	$0.00	$0.00	$0.00	$(36.26)
WIGLEY'S MEAT PROCESS	$677.33	$677.33	$0.00	$0.00	$0.00
WINTER SAUSAGE MFG. CO.	$905.00	$905.00	$0.00	$0.00	$0.00
WINTER SAUSAGE MFG. CO.	$147.98	$147.98	$0.00	$0.00	$0.00
WOLVERINE PACKING CO	$6,605.85	$6,605.85	$0.00	$0.00	$0.00
WOLVERINE PACKING CO.	$2,749.15	$2,749.15	$0.00	$0.00	$0.00

GLWA Aged Accounts Receivable- POLLUTANT SURCHARGE ACCOUNTS

Balances as of 03/31/20

Customer Name	Total Due	Current	46 - 74 Days	75 - 104 Days	>105 Days
WOODWARD AVENUE BREWERS	$85.18	$0.00	$85.18	$0.00	$0.00
TOTAL POLLUTANT SURCHARGE ACCOUNTS	$661,141.73	$542,055.53	$24,851.38	$33,724.87	$60,509.95

City of Highland Park Billings and Collections

	Water	Sewer	IWC	Cumulative Total
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	(65,652)	(2,206,211)	-	(2,271,863)
				-
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	-	(1,612,633)	-	(1,612,633)
				-
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	-	(1,444,623)	-	(1,444,623)
				-
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	-	(2,022,335)	-	(2,022,335)
				-
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	-	(2,309,186)	-	(2,309,186)
				-
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	-	(4,108,108)	-	(4,108,108)
June 30, 2018 Balance	$ 6,112,248	$ 31,097,327	$ 1,624,022	$ 38,833,597
FY 2019 Billings (12 Months)	1,238,797	5,617,100	51,220	6,907,117
FY 2019 Payments (12 Months)	-	(5,241,583)	-	(5,241,583)
June 30, 2019 Balance	$ 7,351,045	$ 31,472,844	$ 1,675,243	$ 40,499,132
FY 2020 Billings (9 Months)	898,154	4,247,900	35,537	5,181,591
FY 2020 Payments (9 Months)	-	(2,218,469)	-	(2,218,469)
Balance as of March 31, 2020	**$ 8,249,199**	**$ 33,502,275**	**$ 1,710,780**	**$ 43,462,254**

AGENDA ITEM #8C

Financial Services
Audit Committee Communication

Date: June 19, 2020

To: Great Lakes Water Authority Audit Committee

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

Re: FY 2020 Q3 Construction Work-in-Progress Report through March 31, 2020 (Unaudited)

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

Analysis: The attached documents summarize the FY 2020 Q3 CWIP activity and provides a detailed snapshot to inform decision makers and stakeholders.

Proposed Action: Receive and file this report.

Construction Work-in-Progress Quarterly Report
(Unaudited)

As of March 31, 2020

For questions, please contact:

Andrew Sosnoski, CCIFP
Construction Accounting and Financial Reporting Manager
Phone: 313.999.2585
Email: Andrew.Sosnoski@glwater.org

Issued 6.12.2020

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Construction Work-in-Progress Quarterly Report
As of March 31, 2020

June 19, 2020

To Our Stakeholders:

The contents of this report represent the financial presentation of construction work-in-progress activity for the Great Lakes Water Authority (GLWA) as of March 31, 2020. The information in this report presents a detailed snapshot and is important as we track the execution of the FY 2021–2025 Capital Improvement Plan (CIP) and look to inform decision makers as we draft the FY 2022–2026 CIP.

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

Report Contents and Organization

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

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

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

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

Financial Information

All project amounts are unaudited. This means that direct contractor costs are generally included in these totals with most pay estimates entered through March 31, 2020. There may, however, be some pay estimates that lag. The totals do not include indirect overhead.

Budget vs. Plan

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

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

Water System
Construction Work-in-Progress Quarterly Report
As of March 31, 2020

WATER SYSTEM

Executive Summary

The rate of spend is a key performance indicator. The development of the FY 2020-2024 and related CIP Plan for FY 2020 were based on anticipation of FY 2020 activity resulting in 75% of planned spend. The Water System spend for the period ending March 31, 2020 is 45.4% of the FY 2020 prorated board approved CIP, 52.1% of the FY 2020 prorated board approved CIP with project amendments, and 60.5% of the FY 2020 Capital Spending Rate Assumption (SRA). Detailed analysis of the projects for which FY 2020 Board Approved CIP was amended from $143,247,000 to $ 124,739,357 is provided in the subsequent Project Amendment Summary section of this report.

Water System Projects	FY 2019 CIP	FY 2019 Activity	FY 2019 Percentage	FY 2020 CIP	FY 2020 Prorated (Nine Months)	FY 2020 Activity (Unaudited)	FY 2020 Percentage
FY 2019 Board Approved CIP	**$ 66,038,000**	**$ 61,583,574**	**93.3%**				
FY 2019 Board Approved CIP With Project Amendments	**72,348,044**	**61,583,574**	**85.1%**				
FY 2020 Board Approved CIP				**$ 143,247,000**	**$ 107,435,250**	**$ 48,728,298**	**45.4%**
FY 2020 Board Approved CIP With Project Amendments				**124,739,357**	**93,554,518**	**48,728,298**	**52.1%**
FY 2020 Capital Spend Rate Assumption (SRA)				**107,435,250**	**80,576,438**	**48,728,298**	**60.5%**

Water System
Construction Work-in-Progress Quarterly Report
As of March 31, 2020

Construction Work-in-Progress Rollforward

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

As part of our project life cycle review the CA&FR team identifies when it is appropriate for projects to be capitalized. Projects are to be capitalized when they have been completed in totality or are inclusive of identifiable assets that have been placed in service. Capitalization of project cost occurred in the FY 2020 3rd quarter for the following projects:

Project	Contract	Description
122012	WS-684	36-inch Water Main in Telegraph Road
171501	1803483	Roof Replacement - Var Facilities Program

$**188.9** million is in CWIP as of March 31, 2020 as shown in the table beginning on the next page.

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

GLWA Great Lakes Water Authority

Construction Work-in-Progress Quarterly Report

As of March 31, 2020

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

Project	Project Name	Total Project Plan Estimate From FY 2021 - 2025 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through March 31, 2020	Life to Date Capitalization Through March 31, 2020	CWIP Balance March 31, 2020	Life to Date Activity through March 31, 2020	Life to Date Activity / Total Project Plan
111001	Energy Management: Lake Huron Water Treatment Plant Low Lift Pumping Improvements	$ 55,090,000	$ 14,083	$ 401,000	$ 493,500	$ 24,311	$ -	$ 38,395	$ 38,395	0%
111002	LHWTP Backflow Replacement	9,004,000	6,836,980	1,882,000	1,882,000	1,679,335	155,348	8,516,315	8,671,663	96%
111004	Electrical Tunnel Rehabilitation at Lake Huron WTP	4,136,000	2,768,607	4,296,000	1,275,214	1,123,692	-	3,892,299	3,892,299	94%
111006	Replacement of Filter Instrumentation and Raw Water Flow Metering Improvements at Lake	16,626,000	777,960	3,333,000	3,533,468	268,372	-	1,046,332	1,046,332	6%
111007	Lake Huron WTP-Raw Sludge Clarifier and Raw Sludge Pumping System Improvements	8,937,000	639,986	4,660,000	4,230,554	3,288,935	-	3,928,921	3,928,921	44%
111008	LHWTP Architectural Programming - Lab	1,299,000	-	-	-	110	-	110	110	0%
111009	Lake Huron WTP-35 MGD HLP, Flow Meters	29,226,000	35,864	9,030,000	9,030,000	66,023	-	101,887	101,887	0%
111010	Lake Huron Water Treatment Plant -Filtration	5,632,000	-	-	-	-	-	-	-	0%
111011	Lake Huron WTP Pilot Plant	1,794,000	-	-	-	-	-	-	-	0%
112002	Low Lift Pumping Plant Caisson Rehabilitation at Northeast WTP	1,345,000	1,134,767	203,000	203,000	35,195	1,169,962	-	1,169,962	87%
112003	NE WTP High Lift Pumping Electrical	57,565,000	-	-	-	-	-	-	-	0%
112005	Northeast Water Treatment Plant - Replacement of Covers for Process Water Conduits	1,393,000	13,356	166,000	310,000	167,787	-	181,143	181,143	13%
112006	Northeast Water Treatment Plant Flocculator Replacements	7,111,000	2,891	1,356,000	1,356,000	125,595	-	128,486	128,486	2%
113001	Southwest Water Treatment Plant, Sludge Tre	-	-	-	-	3,876	-	3,876	3,876	100%
113002	High Lift Pump Discharge Valve Actuators Replacement at Southwest WTP	5,886,000	2,479,490	2,876,000	3,028,000	2,142,788	-	4,622,279	4,622,279	79%
113003	Replacement of Butterfly Valves	14,314,000	-	-	-	110	-	110	110	0%
113004	Residual Handling Facility's Decant Flow Modifications at Southwest WTP	822,000	-	380,000	380,000	1,822	853,219	1,822	855,041	104%
113006	SW WTP Chloring Scrubber	4,753,000	-	-	-	5,428	-	5,428	5,428	0%
113007	Architectural and Building Mechanical	98,000	-	-	-	-	-	-	-	0%
114001	Springwells Water Treatment Plant 1958 Filter Rehabilitation and Auxiliary Facilities	101,968,000	73,955,623	-	1,255,609	3,322,302	22,738,455	77,277,925	100,016,380	98%
114002	Springwells Water Treatment Plant - Low Lift and High Lift Pump Station	174,835,000	2,080,861	5,985,000	6,308,877	1,770,374	-	3,851,236	3,851,236	2%
114003	Water Production Flow Metering Improvements at NE, SW, and SPW WTP	8,482,000	6,331,921	80,000	713,282	1,496,601	-	7,828,521	7,828,521	92%
114005	Springwells WTP Admin Building Improvements	8,696,000	10,555	413,000	527,664	845,337	-	855,893	855,893	10%
114006	Replacement of Rapid Mix Units at Springwells WTP 1958 Process Train	1,031,000	0	61,000	61,000	9,390	1,021,039	9,390	1,030,429	100%
114007	Powder Activated Carbon Systems	4,188,000	-	-	-	-	-	-	-	0%
114008	1930 Sedimentation Basin Sluice Gates, Guides & Hoists Improvements at Springwells WTP	14,241,000	195,644	4,153,000	2,185,000	1,700,900	-	1,896,544	1,896,544	13%

Construction Work-in-Progress Quarterly Report

As of March 31, 2020

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

Project	Project Name	Total Project Plan Estimate From FY 2021 - 2025 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through March 31, 2020	Life to Date Capitalization Through March 31, 2020	CWIP Balance March 31, 2020	Life to Date Activity through March 31, 2020	Life to Date Activity / Total Project Plan
114009	Springwells Water Treatment Plant Service Area Redundancy Study	311,000	-	-	-	-	-	-	-	0%
114010	Yard Piping Improvements	112,613,000	3,947	-	-	22,681	-	26,628	26,628	0%
114011	Steam, Condensate Return, and Compressed Air Piping Improvements at Springwells WTP	23,898,000	2,373,087	5,392,000	5,453,373	5,623,057	-	7,996,144	7,996,144	33%
114012	Springwells Water Treatment Plant 1930 Filter Building-Roof Replacement	3,911,000	-	-	-	-	3,911,148	-	3,911,148	100%
114013	Springwells Reservoir Fill Line Improvements	4,821,000	2,829,864	1,551,000	1,551,000	678,514	-	3,508,378	3,508,378	73%
114015	Emergency Grating Replacement at Springwells WTP	3,366,000	-	-	-	-	3,365,903	-	3,365,903	100%
114016	Springwells Water Treatment Plant 1958 Settled Water Conduits Concrete Pavement Replacement	1,764,000	802	206,000	206,000	12,454	-	13,256	13,256	1%
114017	Springwells Water Treatment Plant Flocculator Drive Replacement	9,296,000	-	-	-	-	-	-	-	0%
114018	Springwells Water Treatment Plant - ServiceBu	1,508,000	-	-	-	-	-	-	-	0%
115001	Yard Piping, Valves and Venturi Meters Replacement at Water Works Park	72,019,000	1,758,683	17,333,000	17,464,500	609,622	-	2,368,305	2,368,305	3%
115003	Comprehensive Condition Assessment at Waterworks Park WTP	582,000	513,538	153,000	-	-	-	513,538	513,538	88%
115004	ater Works Park WTP Chlorine System Upgrade	7,440,000	6,685,754	2,047,000	2,068,500	215,345	-	6,901,099	6,901,099	93%
115005	WWP WTP Building Ventilation Improvements	10,141,000	-	507,000	507,000	1,034	-	1,034	1,034	0%
115006	Water Works Park Site/Civil Improvements	5,643,000	-	-	-	-	-	-	-	0%
116002	Pennsylvania, Springwells and Northeast Raw Water Supply Tunnel Improvements based on	61,245,000	10,200,085	5,467,000	5,467,000	594,651	-	10,794,736	10,794,736	18%
122001	Parallel 42-Inch Main in 24 Mile Road from Rochester Station to Romeo Plank Road	33,246,000	33,241,721	-	-	-	33,241,721	-	33,241,721	100%
122002	Replacement of Five (5) PRV Pits of Treated Water Transmission System	2,790,000	-	-	-	-	2,785,001	-	2,785,001	100%
122003	New Waterworks Park to Northeast Transmission Main	157,526,000	2,615,193	871,000	658,233	1,503,872	-	4,119,065	4,119,065	3%
122004	96-inch Main Relocation, Isolation Valves Installations, and New Parallel Main	144,871,000	1,787,389	5,000,000	2,314,936	25,440	-	1,812,829	1,812,829	1%
122005	Replacement Schoolcraft Watermain	18,106,000	141,171	8,100,000	2,328,644	777,545	-	918,716	918,716	5%
122006	Transmission System Water Main Work-Wick Road Parallel Water Main	22,338,000	416,882	18,028,000	8,401,361	2,999,729	-	3,416,611	3,416,611	15%
122007	Design and Construction of a new Newburgh Road 24" Main along Newburgh Road between Ch	21,457,000	783	-	-	1,022	-	1,805	1,805	0%
122009	Water System Improvements in Joy Road from Southfield Road to Trinity	149,000	106,881	-	-	-	106,881	-	106,881	72%
122011	Park-Merriman Water Main-Final Phase	7,625,000	986,024	4,737,000	3,937,000	1,778,346	-	2,764,370	2,764,370	36%

Construction Work-in-Progress Quarterly Report

As of March 31, 2020

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

Project	Project Name	Total Project Plan Estimate From FY 2021 - 2025 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through March 31, 2020	Life to Date Capitalization Through March 31, 2020	CWIP Balance March 31, 2020	Life to Date Activity through March 31, 2020	Life to Date Activity / Total Project Plan
122012	36-inch Water Main in Telegraph Road	9,959,000	-	-	-	(0)	9,986,284	(0)	9,986,284	100%
122013	Lyon Township Transmission Main Extension Project	73,941,000	637,635	751,000	2,628,978	2,482,029	-	3,119,665	3,119,665	4%
122016	Downriver Transmission Loop	37,744,000	24,251	297,000	820,965	13,401	-	37,652	37,652	0%
122017	7 Mile/Nevada Transmission Main Rehab and Carrie/Nevada Flow Control Station	60,577,000	-	1,040,000	1,040,000	1,517	-	1,517	1,517	0%
122018	Garland, Hurlbut, Bewick Water Transmission	44,577,000	-	-	-	-	-	-	-	0%
132001	Wick Road Station Rehabilitation	135,000	135,073	-	-	-	-	135,073	135,073	100%
132003	Isolation Gate Valves for Line Pumps for West Service Center Pumping Station	1,979,000	247,754	490,000	1,522,316	1,430,319	-	1,678,073	1,678,073	85%
132004	Hydraulic Surge Control for North Service Center Pumping Station	215,000	214,771	-	-	-	-	214,771	214,771	100%
132006	Pressure and Control Improvements at the Electric, Ford Road, Michigan, and West Chica	3,279,000	289,594	2,515,000	2,399,138	847,257	-	1,136,851	1,136,851	35%
132007	Energy Management: Freeze Protection Pump Installation at Imlay Pumping Station	5,199,000	97,185	592,000	472,742	24,020	-	121,206	121,206	2%
132008	Needs Assessment Study for all Water Booster Pumping Stations	1,838,000	1,838,406	-	-	(162,965)	-	1,675,441	1,675,441	91%
132010	West Service Center/Duval Rd Division Valve Upgrades	37,705,000	607,504	2,620,000	600,000	17,053	-	624,557	624,557	2%
132012	Ypsilanti PS Improvements	31,617,000	20,539	585,000	510,490	122,016	-	142,556	142,556	0%
132014	Adams Road Booster Pumping Improvements	27,536,000	-	-	-	-	-	-	-	0%
132015	Newburgh BPS	30,677,000	2,811	16,000	458,245	104,284	-	107,095	107,095	0%
132016	North Service Center BPS Improvements	45,342,000	-	-	-	2,213	-	2,213	2,213	0%
132017	North Service Center BPS - On-Site & Off	-	-	6,000	6,000	-	-	-	-	100%
132019	Wick Road BPS - Switchgear	2,940,000	-	-	-	-	-	-	-	0%
132020	Franklin BPS - Isolation Gate Valves	2,442,000	-	-	-	-	-	-	-	0%
132021	Imlay BPS - Replace VFDs, Pumps & Motors	13,000	-	-	-	-	-	-	-	0%
132022	Joy Road BPS - Replace Reservoir Pumps	55,000	-	-	-	-	-	-	-	0%
132025	Northwest Booster Station Yard Piping Improvements	1,000	971	-	-	-	-	971	971	97%
132026	Franklin Pumping Station Valve Replacement	1,411,000	-	-	-	-	-	-	-	0%
170100	Allowance: WTP/Pump Station	70,164,000	-	3,000,000	3,000,000	-	-	-	-	0%
170102	Water Production Plant Flow Mettering Improvements at NE, SP & SW WTP	-	359,259	-	-	9,179	-	368,439	368,439	100%
170103	Belle Isle Water Supply Intake and Ice Boom Improvements	-	3,278	-	-	-	286,596	3,278	289,874	100%
170104	Orion and Newburgh Pumping Stations Improvements	-	170,664	-	-	7,846	1,907,825	178,510	2,086,335	100%
170109	Inspection of Raw Water Intakes and Tunnels	-	3,102,765	-	-	43,676	-	3,146,441	3,146,441	100%
170110	Raw Water Sampling Improvements	-	2,926	-	-	(2,926)	-	-	-	100%
170121	Franklin PS Valve Rehab	-	38,681	-	-	772,241	-	810,922	810,922	100%
170122	Meter Pit at Brownstown Township	-	133,306	-	-	71,090	-	204,396	204,396	100%

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Construction Work-in-Progress Quarterly Report

As of March 31, 2020

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

Project	Project Name	Total Project Plan Estimate From FY 2021 - 2025 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through March 31, 2020	Life to Date Capitalization Through March 31, 2020	CWIP Balance March 31, 2020	Life to Date Activity through March 31, 2020	Life to Date Activity / Total Project Plan
170200	As Needed Construction Materials, Environmental Media and Special Allowance	1,815,000	-	572,000	572,000	-	-	-	-	0%
170201	Construction & Environmental Testing	-	63,443	-	-	(22,324)	-	41,119	41,119	100%
170300	Water Treatment Plant Automation Program	18,728,000	-	1,561,000	1,561,000	-	-	-	-	0%
170301	Water Plant Automation	-	1,657,645	-	-	97,497	-	1,755,142	1,755,142	100%
170400	Water Transmission Improvement Program	28,157,000	-	1,500,000	1,500,000	-	-	-	-	0%
170401	Emergency Bypass Around Ypsilanti Station	-	1,643,165	-	-	15,800	-	1,658,965	1,658,965	100%
170500	Transmission System Valve Assessment and Rehabilitation/Replacement Program	26,469,000	-	4,000,000	4,000,000	-	-	-	-	0%
170502	Transmission System Valve Assessment and Rehabilitation/Replaceme	-	0	-	-	1,957,691	6,029,544	1,957,691	7,987,235	100%
170600	Water Transmission Main Asset Assessment Program	30,753,000	-	3,000,000	3,000,000	-	-	-	-	0%
170800	Reservoir Inspection, Design and Rehabilitation Program	59,076,000	-	5,128,000	632,000	-	-	-	-	0%
170801	Reservoir Inspection, Design and Rehabilitation	-	456,574	-	4,513,500	1,298,340	-	1,754,914	1,754,914	100%
170900	Suburban Water Meter Pit Rehabilitation and Meter Replacement Program	10,301,000	-	4,000,000	925,000	-	-	-	-	0%
170901	Suburban Water Meter Pit Rehabilitation and Meter Replacement	-	1,237,565	-	3,075,000	2,636,770	-	3,874,335	3,874,335	100%
171500	Roof Replacement - Var Facilities Program	23,673,000	-	2,657,000	-	-	-	-	-	0%
171501	Roof Replacements - Var Facilities Program	0	119283.4	0	2948089	1913096.7	360429.59	1671950.51	2032380.1	100%
341001	Security Infrastructure Improvements	10,650,000	962,673	-	1,173,179	2,127,799	-	3,090,472	3,090,472	29%
351001	Water Facility Lighting Renovations	556,000	6,211	250,000	250,000	457	-	6,667	6,667	1%
361002	Data Center Reliability/Availability Improvements	-	16,080	-	-	-	-	16,080	16,080	100%
380600	General Engineering Services Allowance	56,000	-	-	-	-	-	-	-	0%
380601	General Engineering Services Allowance	-	674	-	-	(674)	-	-	-	100%
380700	As-needed Engineering Services for Concrete Testing, Geotechnical Soil Borings, other Testing Services, and Related Services Allowance	2,130,000	-	-	-	-	-	-	-	0%
381000	Energy Management: Electric Metering Improvement Program	3,435,000	-	-	-	-	-	-	-	0%
Grand Total		**$ 1,970,283,000**	**$ 175,031,084**	**$ 143,247,000**	**$ 124,739,357**	**$ 48,728,298**	**$ 120,374,591**	**$ 188,880,388**	**$ 309,254,979**	**16%**
				Project Amendments	**$ (18,507,643)**					

FY 2020 Project Amendment Summary

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

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

$18.5 million of Capital Reserve project amendments have been prepared as of March 31, 2020 as shown in the table on the next page along with project amendments detailing the assignment of funding within Program and Allowance accounts.

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

GLWA Great Lakes Water Authority

Great Lakes Water Authority
Water System Project Amendment Summary
Unaudited Activity For the Fiscal Year Ended March 31, 2020

Project	Project	Program / Allowance	Capital Reserve	Grand Total
111001	Energy Management: Lake Huron Water Treatment Plant Low Lift Pumping Improvements		$ 92,500	$ 92,500
111004	Electrical Tunnel Rehabilitation at Lake Huron WTP		(3,020,786)	(3,020,786)
111006	Replacement of Filter Instrumentation and Raw Water Flow Metering Improvements at Lake		$ 200,468	$ 200,468
111007	Lake Huron WTP-Raw Sludge Clarifier and Raw Sludge Pumping System Improvements		(429,446)	(429,446)
112005	Northeast Water Treatment Plant - Replacement of Covers for Process Water Conduits		144,000	144,000
113002	High Lift Pump Discharge Valve Actuators Replacement at Southwest WTP		152,000	152,000
114001	Springwells Water Treatment Plant 1958 Filter Rehabilitation and Auxiliary Facilities		1,255,609	1,255,609
114002	Springwells Water Treatment Plant - Low Lift and High Lift Pump Station		323,877	323,877
114003	Water Production Flow Metering Improvements at NE, SW, and SPW WTP		633,282	633,282
114005	Springwells WTP Admin Building Improvements		114,664	114,664
114008	1930 Sedimentation Basin Sluice Gates, Guides & Hoists Improvements at Springwells WTP		(1,968,000)	(1,968,000)
114011	Steam, Condensate Return, and Compressed Air Piping Improvements at Springwells WTP		61,373	61,373
115001	Yard Piping, Valves and Venturi Meters Replacement at Water Works Park	$ 131,500		$ 131,500
115003	Comprehensive Condition Assessment at Waterworks Park WTP	$ (153,000)		$ (153,000)
115004	Water Works Park WTP Chlorine System Upgrade	$ 21,500		$ 21,500
122003	New Waterworks Park to Northeast Transmission Main		(212,767)	(212,767)
122004	96-inch Main Relocation, Isolation Valves Installations, and New Parallel Main		$ (2,685,064)	$ (2,685,064)
122005	Replacement Schoolcraft Watermain		(5,771,356)	(5,771,356)
122006	Transmission System Water Main Work-Wick Road Parallel Water Main		$ (9,626,639)	$ (9,626,639)
122011	Park-Merriman Water Main-Final Phase		(800,000)	(800,000)
122013	Lyon Township Transmission Main Extension Project		1,877,978	1,877,978
122016	Downriver Transmission Loop		523,965	523,965
132003	Isolation Gate Valves for Line Pumps for West Service Center Pumping Station		1,032,316	1,032,316
132006	Pressure and Control Improvements at the Electric, Ford Road, Michigan, and West Chica		(115,862)	(115,862)
132007	Energy Management: Freeze Protection Pump Installation at Imlay Pumping Station		$ (119,258)	$ (119,258)
132010	West Service Center/Duval Rd Division Valve Upgrades		$ (2,020,000)	$ (2,020,000)
132012	Ypsilanti PS Improvements		$ (74,510)	$ (74,510)

GLWA Great Lakes Water Authority

Construction Work-in-Progress Quarterly Report
As of March 31, 2020

Great Lakes Water Authority
Water System Project Amendment Summary
Unaudited Activity For the Fiscal Year Ended March 31, 2020

Project	Project	Program / Allowance	Capital Reserve	Grand Total
132015	Newburgh BPS		442,245	442,245
170800	Reservoir Inspection, Design and Rehabilitation Program	(4,496,000)		(4,496,000)
170801	Reservoir Inspection, Design and Rehabilitation	4,496,000	17,500	4,513,500
170900	Suburban Water Meter Pit Rehabilitation and Meter Replacement Program	(3,075,000)		(3,075,000)
170901	Suburban Water Meter Pit Rehabilitation and Meter Replacement	3,075,000		3,075,000
171500	Roof Replacement - Var Facilities Program		$ (2,657,000)	$ (2,657,000)
171501	Roof Replacements - Var Facilities Program		$ 2,948,089	$ 2,948,089
341001	Security Infrastructure Improvements		$ 1,173,179	$ 1,173,179
Grand Total		**$ -**	**$ (18,507,642)**	**$ (18,507,642)**

GLWA Great Lakes Water Authority

Wastewater System
Construction Work-in-Progress Quarterly Report
As of March 31, 2020

WASTEWATER SYSTEM

Executive Summary

The rate of spend is a key performance indicator. The development of the FY 2020-2024 and related CIP Plan for FY 2020 were based on anticipation of FY 2020 activity resulting in 75% of planned spend. The Water System spend for the period ending March 31, 2020 is 44.4% of the FY 2020 prorated board approved CIP, 46% of the FY 2020 prorated board approved CIP with project amendments, and 59.1% of the FY 2020 Capital Spending Rate Assumption (SRA). Detailed analysis of the projects for which FY 2020 Board Approved CIP was amended from $161,480,000 to $155,792,005 is provided in the subsequent Project Amendment Summary section of this report.

Wastewater System Projects	FY 2019 CIP	FY 2019 Activity	FY 2019 Percentage	FY 2020 CIP	FY 2020 Prorated (Nine Months)	FY 2020 Activity (Unaudited)	FY 2020 Percentage
FY 2019 Board Approved CIP	$ 105,183,000	82,133,532	78.1%				
FY 2019 Board Approved CIP With Project Amendments	100,264,934	82,133,532	81.9%				
FY 2020 Board Approved CIP				$ 161,480,000	121,110,000	53,719,104	44.4%
FY 2020 Board Approved CIP With Project Amendments				155,792,005	116,844,004	53,719,104	46.0%
FY 2020 Capital Spend Rate Assumption (SRA)				121,110,000	90,832,500	53,719,104	59.1%

Wastewater System
Construction Work-in-Progress Quarterly Report
As of March 31, 2020

Construction Work-in-Progress Rollforward

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

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

Project	Contract	Description
171501	1803483	Roof Replacement - Var Facilities Program
212003	PC-796	Aeration System Improvements
260602	DB-261	CSO Fire Alarm System Improvements
260607	1802475	Lieb SDF Electrical Improvements

$**226.4** million is in CWIP as of March 31, 2020 as shown in the table beginning on the next page.

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

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

Wastewater System
Construction Work-in-Progress Quarterly Report
As of March 31, 2020

Project	Project Name	Total Project Plan Estimate From FY 2021 - 2025 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through March 31, 2020	Life to Date Capitalization Through March 31, 2020	CWIP Balance March 31, 2020	Life to Date Activity through March 31, 2020	Life to Date Activity / Total Project Plan
171501	Roof Replacements - Var Facilities Program	$ -	$ -	$ -	$ 83,000	$ 83,000	$ 83,000	$ -	$ 83,000	100%
211001	Rehabilitation of Primary Clarifiers Rectangular Tanks, Drain Lines, Electrical/Mechanical Building and Pipe Gallery	55,069,000	45,368,717	7,982,000	7,982,000	6,947,230	-	52,315,947	52,315,947	95%
211002	Pump Station No. 2 Pumping Improvments	3,772,000	1,911,850	1,222,000	1,222,000	91,741	-	2,003,591	2,003,591	53%
211004	Pump Station 1 Rack & Grit and MPI Sampling Station 1 Improvements	28,273,000	26,502,582	869,000	869,000	1,108,591	-	27,611,173	27,611,173	98%
211005	Pump Station No. 2 Improvements	34,050,000	1,002	-	-	(1,002)	-	-	-	0%
211006	Pump Station No. 1 Improvements	26,776,000	6,307	1,803,000	1,803,000	1,138,676	-	1,144,982	1,144,982	4%
211007	Replacement of Bar Racks and Grit Collection System at Pump Station No. 2	76,596,000	628	269,000	269,000	2,066	-	2,694	2,694	0%
211008	Rehabilitation of Ferric Chloride Feed systems at the Pump Station - 1 and Complex B Sludge Lines	10,825,000	200,048	2,950,000	3,950,000	1,276,973	-	1,477,021	1,477,021	14%
211009	Rehabilitation of the Circular Primary Clarifier Scum Removal System	13,249,000	30	-	-	175	-	204	204	0%
211010	Rehabilitation of Sludge Processing Complexes A and B	14,039,000	-	-	-	-	-	-	-	0%
211011	WRRF PS1 Screening and Grit Improvements	100,747,000	-	-	-	-	-	-	-	0%
212002	Study, Design, & Construction,Management Services for Modified Detroit River Outfall No. 2 - WRRF	-	10,821,153	-	-	(832)	-	10,820,320	10,820,320	100%
212003	Aeration System Improvements	16,492,000	16,356,789	-	-	168,086	16,524,875	-	16,524,875	100%
212004	ProjectChlorination/Dechlorination Process Equipment Improvements	5,766,000	192,917	2,345,000	2,903,000	1,000,366	-	1,193,283	1,193,283	21%
212006	PC-797 Rouge River Outfall Disinfection and CS-1781 Oversight Consulting Services Contract	44,440,000	41,691,377	4,583,000	4,731,155	2,011,023	-	43,702,401	43,702,401	98%
212007	Rehabilitation of the Secondary Clarifiers	30,141,000	-	-	-	-	-	-	-	0%
212008	WRRF Rehabilitation of Intermediate Lift	81,514,000	-	229,000	229,000	1,047	-	1,047	1,047	0%
212009	WRRF Aeration Improvements 3 and 4	73,763,000	-	-	-	-	-	-	-	0%

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

Wastewater System
Construction Work-in-Progress Quarterly Report
As of March 31, 2020

Project	Project Name	Total Project Plan Estimate From FY 2021 - 2025 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through March 31, 2020	Life to Date Capitalization Through March 31, 2020	CWIP Balance March 31, 2020	Life to Date Activity through March 31, 2020	Life to Date Activity / Total Project Plan
212010	WRRF Conversion of Disinfection of all Flow to Sodium Hypochlorite and Sodium Bisulfite	5,986,000	-	-	-	-	-	-	-	0%
213002	Rehabilitation of Central Offload Facility	-	-	7,696,000	7,696,000	-	-	-	-	100%
213005	Complex I Incinerators Decommissioning and Reusability	-	369,648	-	-	22	369,671	-	369,671	100%
213006	Improvements to Sludge Feed Pumps at Dewatering Facilities	4,651,000	4,856	-	-	894	-	5,750	5,750	0%
213007	Construction of the Improved Sludge Conveyance and Lighting System at the WWTP	19,946,000	10,809,195	8,711,000	9,011,000	6,062,905	-	16,872,100	16,872,100	85%
213008	Rehabilitation of the Wet and Dry Ash Handling Systems	18,543,000	85	111,000	111,000	43,269	-	43,353	43,353	0%
213009	Phosphorous Recovery Facility at the WWRF	-	(99)	-	-	99	-	-	-	100%
214001	Relocation of Industrial Waste Division and Analytical Laboratory Operations	14,001,000	17,017	7,567,000	8,367,000	3,978,401	2,282,260	3,995,419	6,277,678	45%
216004	Rehabilitation of Various Sampling Sites and PS# 2 Ferric Chloride System at WWTP	5,729,000	814,368	3,921,000	3,921,000	672,430	-	1,486,798	1,486,798	26%
216006	Rehabilitation of the Screened Final Effluent (SFE) Pump Station and Secondary Water System	24,512,000	17,581	323,000	323,000	17,703	-	35,284	35,284	0%
216007	DTE Primary Electric 3rd Feed Supply Line to the WRRF	5,823,000	2,194,169	1,381,000	1,381,000	129,827	543,500	2,323,996	2,867,496	49%
216008	Rehabilitation of Screened Final Effluent (SFE) Pump Station	24,954,000	-	1,091,000	1,091,000	873	-	873	873	0%
216009	Logistics & Material Facility	2,768,000	-	-	-	114,532	-	114,532	114,532	4%
216010	WRRF Facility Optimization	10,338,000	-	-	-	-	-	-	-	0%
222001	Intercommunity Relief Sewer Modifications in Detroit Oakwood District	53,512,000	-	-	-	-	-	-	-	0%
222002	Detroit River Interceptor Evaluation and Rehabilitation	81,676,000	10,611,644	10,000,000	4,049,445	8,234,248	-	18,845,892	18,845,892	23%
222003	North Interceptor East Arm (NIEA) Evaluation and Rehabilitation	-	-	15,000,000	15,000,000	-	-	-	-	100%
222004	Collection System Valve Remote Operation Structures Improvements	41,126,000	4,246	3,500,000	3,500,000	223,465	-	227,710	227,710	1%
232001	Fairview Pumping Station - Replace Four Sanitary Pumps	37,276,000	3,475,448	18,000,000	16,265,405	8,164,882	-	11,640,330	11,640,330	31%

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

Wastewater System
Construction Work-in-Progress Quarterly Report
As of March 31, 2020

Project	Project Name	Total Project Plan Estimate From FY 2021 - 2025 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through March 31, 2020	Life to Date Capitalization Through March 31, 2020	CWIP Balance March 31, 2020	Life to Date Activity through March 31, 2020	Life to Date Activity / Total Project Plan
232002	Freud and Connor Creek Pump Station Improvements	222,099,000	5,573,334	17,029,000	17,229,000	430,012	57,734	6,003,345	6,061,080	3%
232003	Northeast Pump Station Improvements	-	-	7,000,000	7,000,000	-	-	-	-	100%
232004	CONDITION ASSESSMENT AT BLUE HILL PUMP STATION	286,000	-	-	-	-	-	-	-	0%
233002	Collection System In System Storage Devices(ISDs) Improvements	-	235	-	-	-	-	235	235	100%
233003	Rouge River In-system Storage Devices	46,797,000	-	-	-	-	-	-	-	0%
251002	Wastewater System Wide Instrumentation & Controls Software and Hardware Upgrade	-	71	-	-	-	-	71	71	100%
260100	Water Resource Recovery Facility (WRRF), Lift Station & Wastewater Collection System Allowance	-	-	1,100,000	1,100,000	-	-	-	-	100%
260200	Sewer and Interceptor Evaluation and Rehabilitation Program	154,643,000	-	15,000,000	6,550,048	-	-	-	-	0%
260201	Conveyance System Interceptor Rehab	-	4,810,116	-	7,400,000	4,077,255	9,176,553	8,887,371	18,063,924	100%
260202	Conveyance System Interceptor Rehab	-	17,031	-	-	5,344	-	22,375	22,375	100%
260203	Conveyance System Interceptor Rehab	-	4,642,133	-	-	-	-	4,642,133	4,642,133	100%
260204	Energy Services for Rehabilitation of Conveyance Sewer System	-	133	-	1,049,952	755,870	-	756,002	756,002	100%
260500	CSO Outfall Rehab	64,406,000	-	15,102,000	10,302,925	-	-	-	-	0%
260503	Collection System Backwater Gates	-	760	-	-	-	-	760	760	100%
260504	Rehabilitation of Outfalls - Phase II	-	-	-	3,000,000	1,141,388	-	1,141,388	1,141,388	100%
260505	Rehabilitation of Outfalls - Phase IV	-	-	-	1,799,075	627,878	-	627,878	627,878	100%
260506	Pilot Regulator Orifice Expansion	-	-	-	-	75,102	-	75,102	75,102	100%
260600	CSO Facilities Improvements	152,943,000	-	5,604,000	2,940,613	-	-	-	-	0%
260601	Oakwood Drain Valve Improvements	-	539,857	-	33,000	101,842	-	641,699	641,699	100%
260602	CSO Fire Alarm System Improvements	-	812,407	-	-	205,284	997,619	20,072	1,017,691	100%
260603	Conner Creek CSO Basin Rehab	-	4,404,704	-	1,255,387	1,671,917	-	6,076,621	6,076,621	100%
260605	CSO Faciliaties CA	-	16,914	-	-	(16,914)	-	-	-	100%

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

Wastewater System
Construction Work-in-Progress Quarterly Report
As of March 31, 2020

Project	Project Name	Total Project Plan Estimate From FY 2021 - 2025 CIP	CWIP Balance July 1, 2019	FY 2020 Board Approved CIP	FY 2020 Board Approved CIP With Project Amendments	FY 2020 Activity through March 31, 2020	Life to Date Capitalization Through March 31, 2020	CWIP Balance March 31, 2020	Life to Date Activity through March 31, 2020	Life to Date Activity / Total Project Plan
260606	Puritan Fenkell Roof Replacement	-	1,944	-	-	344,596	346,540	-	346,540	100%
260607	Lieb SDF Electrical Improvements	-	241,513	-	450,000	791,141	1,032,508	146	1,032,655	100%
260608	Seven Mile RTB - Roof Replacement	-	12,451	-	300,000	484,248	496,699	-	496,699	100%
260609	Seven Mile RTB - Parking Lot / Sitework	-	23,197	-	400,000	87,508	-	110,705	110,705	100%
260610	Baby Creek MAU Replacement	-	1,773	-	-	273,378	-	275,151	275,151	100%
260611	HVAC Improvements At Lieb SDF	-	5,283	-	225,000	19,937	-	25,221	25,221	100%
260613	Baby Creek HVAC Improvements	-	76	-	-	7,377	-	7,453	7,453	100%
260614	CSO Facilities Structural Improvements	-	335,143	-	-	(63,069)	-	272,074	272,074	100%
260615	PF & Lieb CSO Facilities Site & Drainage Improvements	-	-	-	-	7,320	-	7,320	7,320	100%
260616	Baby Creek SCO Anchor & Wedge Improvements	-	-	-	-	648,275	-	648,275	648,275	100%
260617	St. Aubin Chemical Disinfection Improvements	-	-	-	-	131,693	-	131,693	131,693	100%
260618	Oakwood HVAC Improvements	-	-	-	-	17,284	-	17,284	17,284	100%
270001	Pilot CSO Netting Facility	7,769,000	-	-	-	-	-	-	-	0%
270002	Meldrum Sewer Diversion and VR-15 Improvements	6,079,000	-	-	-	-	-	-	-	0%
270003	Long Term CSO Control Plan	5,794,000	-	-	-	94,268	-	94,268	94,268	2%
277001	Baby Creek Outfall Improvements Project	2,237,000	-	-	-	3,686	-	3,686	3,686	0%
331002	Roofing Systems Replacement at GLWA Wastewater Treatment Plant, CSO Retention Treatment Basins (RTB) and Screening Disinfection Facilities (SDF)	9,745,000	802,470	1,092,000	1,092,000	320,586	1,123,056	-	1,123,056	12%
341001	Security Infrastructure Improvements	-	102,924	-	-	5,211	-	108,134	108,134	100%
341002	Security Infrastructure Improvements	2,630,000	-	-	-	-	-	-	-	0%
380600	General Engineering Services Allowance	(51,000)	-	-	-	-	-	-	-	0%
380601	General Engineering Services Allowance	-	632	-	-	-	-	632	632	100%
381000	Energy Management: Electric Metering Improvement Program	3,435,000	-	-	-	-	-	-	-	0%
Grand Total		**$ 1,645,165,000**	**$ 193,716,659**	**$ 161,480,000**	**$ 156,884,005**	**$ 53,719,104**	**$ 208,650,621**	**$ 226,461,795**	**$ 435,112,416**	**26%**
				Project Amendments $	**(4,595,995)**					

Wastewater System
Construction Work-in-Progress Quarterly Report
As of March 31, 2020

FY 2020 Project Amendment Summary

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

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

$4.6 million of Capital Reserve project amendments have been prepared as of March 31, 2020 as shown in the table on the next page along with project amendments detailing the assignment of funding within Program and Allowance accounts.

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

Great Lakes Water Authority
Wastewater System Project Amendment Summary
Unaudited Activity For the Fiscal Year Ended March 31, 2020

Project	Project	Program / Allowance	Capital Reserve	Grand Total
171501	Roof Replacements - Var Facilities Program		$ 83,000	$ 83,000
211008	Rehabilitation of Ferric Chloride Feed systems at the Pump Station -1 and Complex B Sludge Lines		1,000,000	1,000,000
212004	Chlorination/Dechlorination Process Equipment Improvements		558,000	558,000
212006	PC-797 Rouge River Outfall Disinfection and CS-1781 Oversight Consulting Services Contract		$ 148,155	$ 148,155
213007	Construction of the Improved Sludge Conveyance and Lighting System at the WWTP		$ 300,000	$ 300,000
214001	Relocation of Industrial Waste Division and Analytical Laboratory Operations		$ 800,000	$ 800,000
222002	Detroit River Interceptor Evaluation and Rehabilitation		$ (5,950,555)	$ (5,950,555)
232001	Fairview Pumping Station - Replace Four Sanitary Pumps		$ (1,734,595)	$ (1,734,595)
232002	Freud and Connor Creek Pump Station Improvements		$ 200,000	$ 200,000
260200	Sewer and Interceptor Evaluation and Rehabilitation Program	(8,449,952)		(8,449,952)
260201	Conveyance System Interceptor Rehab	7,400,000		7,400,000
260204	Energy Services for Rehabilitation of Conveyance Sewer System	1,049,952		1,049,952
260500	CSO Outfall Rehab	(4,799,075)		(4,799,075)
260504	Rehabilitation of Outfalls - Phase II	3,000,000		3,000,000
260505	Rehabilitation of Outfalls - Phase IV	$ 1,799,075		$ 1,799,075
260600	CSO Facilities Improvements	$ (2,663,387)		$ (2,663,387)
260601	Oakwood Drain Valve Improvements	$ 33,000		$ 33,000
260603	Conner Creek CSO Basin Rehab	$ 1,255,387		$ 1,255,387
260607	Lieb SDF Electrical Improvements	$ 450,000		$ 450,000
260608	Seven Mile RTB - Roof Replacement	$ 300,000		$ 300,000
260609	Seven Mile RTB - Parking Lot / Sitework	$ 400,000		$ 400,000
260611	HVAC Improvements At Lieb SDF	$ 225,000		$ 225,000
Grand Total		**$ -**	**$ (4,595,995)**	**$ (4,595,995)**

AGENDA ITEM #8D

GLWA Great Lakes Water Authority

Financial Services
Audit Committee Communication

Date: June 19, 2020

To: Great Lakes Water Authority Audit Committee

From: Jon Wheatley, Public Finance Manager

Re: FY 2020 Wholesale Water Usage and Revenue Projections as of June 14, 2020

Background: During the course of FY 2020, GLWA has experienced a negative sales variance. This is believed to have been largely due to wet weather conditions in peak months in the first quarter of FY 2020 followed by an ongoing trend of reduced demand in non-peak months. Further, this analysis attempts to address the impact of the COVID-19 Pandemic on water demand. The purpose of this memo is to report the most current information to better understand the budget impact and need for corresponding budget amendments.

Justification: Prior to the governor's stay at home order related to the COVID-19 Pandemic in March 2020, GLWA's FY 2020 wholesale water usage was 5.4% below budget and revenues were 2.1% below budget (see **Table 1 - FY 2020 Budget Vs. Actual Wholesale Water Usage and Revenue** below) based on actual billed amounts. Since then, GLWA has shared the following analysis.

April 24, 2020 – Audit Committee Meeting: GLWA Financial Planning & Analysis Manager Lisa L Mancini prepared an April22, 2020 memo entitled, *Operations & Maintenance Budget Impacts of COVID-19 FY 2020 Contingency & Continuity Resources* which that identifies how projected water revenue shortfalls of approximately $6.4 million, (2.1%) will be addressed within the current budget. This analysis was based on data available through April 21, 2020.

May 28, 2020 –One Water Partnership Meeting (copy attached): Projected FY 2020 wholesale water usage forecasted to be 5.5% below budget with related projected revenues to be approximately $6.6. million (2.1%) below budget. This analysis was based on data available through May 21, 2020.

June 14, 2020 – Data for June 19, 2020 Audit Committee meeting: GLWA has continued to monitor wholesale water usage to project the potential impact to wholesale water revenues. **Table 1** below shows the projected FY 2020 usage and revenue through June 30, 2020, based on WAMR data through June 14, 2020. The key takeaways from this new information include the following.

- ✓ Usage for June 2020 is projected to be 6.6% above budgeted amounts.
- ✓ Revenue for June 2020 is projected to be $1.0 million (3.5%) above budgeted amounts.
- ✓ Total usage for FY 2020 is projected to be 4.0% below budgeted amounts.
- ✓ Total revenue for FY 2020 is projected to be $4.65 million (1.5%) below budgeted amounts.

Table 1- FY 2020 Budget vs. Actual Wholesale Water Usage and Revenue

	FY 2020 - Budget		FY 2020 - Actuals			FY 2020 - Variance				
		Variance								
Month	Volume	Revenue	Volume	Revenue		Volume	Volume	Revenue	Revenue	
	Mcf	*$*	*Mcf*	*$*		*Mcf*	*%*	*$*	*%*	
July	1,777,138	32,544,400	1,545,631	30,356,570	(1)	(231,507)	-13.0%	(2,187,830)	-6.7%	(1)
August	1,549,587	30,383,100	1,554,426	30,501,606	(1)	4,839	0.3%	118,506	0.4%	(1)
September	1,368,496	28,270,400	1,257,111	27,278,750	(1)	(111,385)	-8.1%	(991,650)	-3.5%	(1)
October	1,066,653	25,351,200	1,026,086	25,007,145	(1)	(40,567)	-3.8%	(344,055)	-1.4%	(1)
November	917,034	24,049,100	905,016	23,933,012	(1)	(12,018)	-1.3%	(116,088)	-0.5%	(1)
December	1,004,420	24,714,000	983,589	24,535,948	(1)	(20,831)	-2.1%	(178,052)	-0.7%	(1)
January	1,018,192	24,861,000	945,874	24,246,312	(1)	(72,318)	-7.1%	(614,688)	-2.5%	(1)
February	893,007	23,780,800	878,794	23,689,167	(1)	(14,213)	-1.6%	(91,633)	-0.4%	(1)
March	1,008,766	24,753,300	971,559	24,450,300	(2)	(37,207)	-3.7%	(303,000)	-1.2%	(2)
April	948,751	24,262,000	884,232	23,797,762	(2)	(64,519)	-6.8%	(464,238)	-1.9%	(2)
May	1,073,966	25,549,300	1,017,100	25,070,600	(3)	(56,866)	-5.3%	(478,700)	-1.9%	(3)
June	1,383,200	28,595,300	1,474,700	29,596,400	(4)	91,500	6.6%	1,001,100	3.5%	(4)
Total	14,009,210	317,113,900	13,444,119	312,463,572		(565,091)	-4.0%	(4,650,328)	-1.5%	

Achievement of Budget Through December	*94.64%*	*97.76%*
Achievement of Budget Through February	*94.81%*	*97.94%*
Achievement of Budget Through March	*94.95%*	*98.03%*
Achievement of Budget Through April	*94.81%*	*98.03%*
Achievement of Budget Through May	*94.80%*	*98.04%*
Achievement of Budget Through June	*95.75%*	*98.43%*

(1) Actual, reported in Audit Committee Financial Report
(2) Actual billed amounts, not reported
(3) Projected, using May WAMR data through 5.31.2020
(4) Projected, using June 2020 usage and revenue projections

Budget Impact: The projected negative revenue variance is expected to be offset by Operations & Maintenance expense savings identified in the April 22, 2020 Audit Committee memo.

Proposed Action: Receive and file this report.

One Water Partnership Meeting

May 28, 2020

GLWA
Great Lakes Water Authority

Agenda

- Welcome & Agenda Review
- GLWA: From Response to Recovery
- Water System Flow Observations
- Financial Update
- Updates & Announcements
- Closing Remarks

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GLWA: From Response to Recovery

Sue McCormick

Chief Executive Officer

Response to Recovery: An Evolution

GLWA has been successful in its response to the COVID-19 pandemic because we have understood that like with any crisis, our response must evolve as the situation has evolved. That will remain true as we move forward from here.

But the fact is, we are a resilient organization, well-supported by strong relationships and provisions in place made in consultation with our Member Partners, Regulators and Other Stakeholders.

Collaboration is in our DNA as we work together within the GLWA team or with our partners. Thank you for adapting so quickly to engaging through remote platforms and doing it in numbers greater than before. The benefit of our collective is that we can leverage each other's experience and share knowledge. That has served us well in these unprecedented circumstances.

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So what have we done

<u>There are certainly KEYS TO OUR SUCCESS</u>

- Immediate opening of our Emergency Operations Center (EOC)
  - Daily calls have kept all areas in sync and provided for quick and seamless adjustments; allowed us to be one step ahead of practices that came out as orders (local, state and federal agencies)
- Clear, honest and concise communication
  - Board of Directors/Team Members/Member Partners
  - Weekly CEO Updates
  - Operational changes and updates
  - Thanks to our team members (social media/banners/facility monitors)
- Immediate action by our Procurement Team to secure commitment from our Vendor Community to ensure adequate supply of critical item

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Response to Recovery: An Evolution

KEY TO OUR SUCCESS - ESTABLISHED PRIORITIES:

Safeguard team members health and ensure the continuity of operations and service levels to our member partners

Actions:

- Suspended non-critical business travel
- Suspended non-critical contractor travel to GLWA facilities
- Placed team members on flexible work arrangements where possible
- Provided a $1/hr. to front-line, operational team members on-site
- Instituted a Visitor Questionnaire at GLWA facilities
- Implemented temperature checks at GLWA facilities
- Required PPE and enhanced sanitation at all GLWA facilities
- Providing on-site testing for all GLWA team members working on-site at GLWA facilities (Phase 1) and those returning to the workplace (Phase 2)

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Response to Recovery: An Evolution

KEY TO OUR SUCCESS

- Provide for the overall health and well-being of team members
  - Mental health resources available in GLWA's Employee Assistance Program
  - Wellness resources available from GLWA's healthcare providers
  - Mindfulness and meditation resources available from the state of Michigan (www.headspace.com/MI)
  - Distress hotlines available from state and federal agencies
  - Family wellness resources from state and federal agencies

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Response to Recovery: Preparing for the 'New Normal'

The situation is stabilizing, and we are shifting our focus from response to recovery.

- Priorities are the same: ***Safeguard team members health and assure the continuity of operations and service levels to our member partners***

- Taking a gradual and measured approach to assure we don't create a problem where there is not one now

GLWA Great Lakes Water Authority

Response to Recovery: Preparing for the New Normal

RECOVERY/RECONSTITUTION

- We are developing GLWA's COVID-19 Safe Workplace Standards which consider six main elements to be applied at GLWA facilities:
  - ➢ Team member testing
  - ➢ Health screenings and monitoring
  - ➢ Workplace physical changes, practices and distancing
  - ➢ Use of PPE such as face coverings and masks
  - ➢ Worksite and vehicle cleaning
  - ➢ Distribution of Supplies
- We will follow the City of Detroit established guidelines for the facilities where we share occupancy with DWSD.

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Response to Recovery: Preparing for the New Normal

- We are following CDC guidelines and the Governor's Executive Orders
- Each facility is being evaluated and each Area, Group and Team is identifying priorities for team member return from remote workspaces.
- Some facilities have significant physical challenges
- Plans are being reviewed by:
    - Our Executive Leadership Team
    - Our Emergency Operations Center Group
    - Our COVID-19 Task Force
- We anticipate first written plans may become available in the next few weeks
- All plans are subject to change based on ongoing evaluation (Evolution)

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Water System Flow Observations

Suzanne Coffey, P.E.

Chief Planning Officer

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Key Takeaways

What's been observed?

- Wholesale water use has been lower than expected many of the months this Fiscal Year (FY 2020).
- Overall we are projecting that wholesale water use will be down about 5% for FY 2020.
- Our data does not show that the pandemic has had a significant impact on the wholesale customer class's water usage.

What does that mean for member partners?

FY 2020 wholesale water revenues estimated to be under budget approx. $6.6 M

  - Largely due to the declining overall usage, not COVID-19

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Observations

FY 2020 Wholesale Water Usage

Lower Than Budgeted Usage

July through February

- Started off the fiscal year with July usage being 13% lower than budgeted
- August was the only month thus far that had higher than budgeted usage
- Less than 1% higher than budgeted
- Fall and Winter months had lower than expected use.
  - May be somewhat attributed to mild winter/fewer watermain breaks
- In total, this period experienced about 5% lower than budgeted usage

Since March

- March was on par with the fiscal year average of 5% lower than budgeted usage
- April was about 6% lower than budgeted
- The first two weeks of May are back to the fiscal year average of about 5% lower than budgeted

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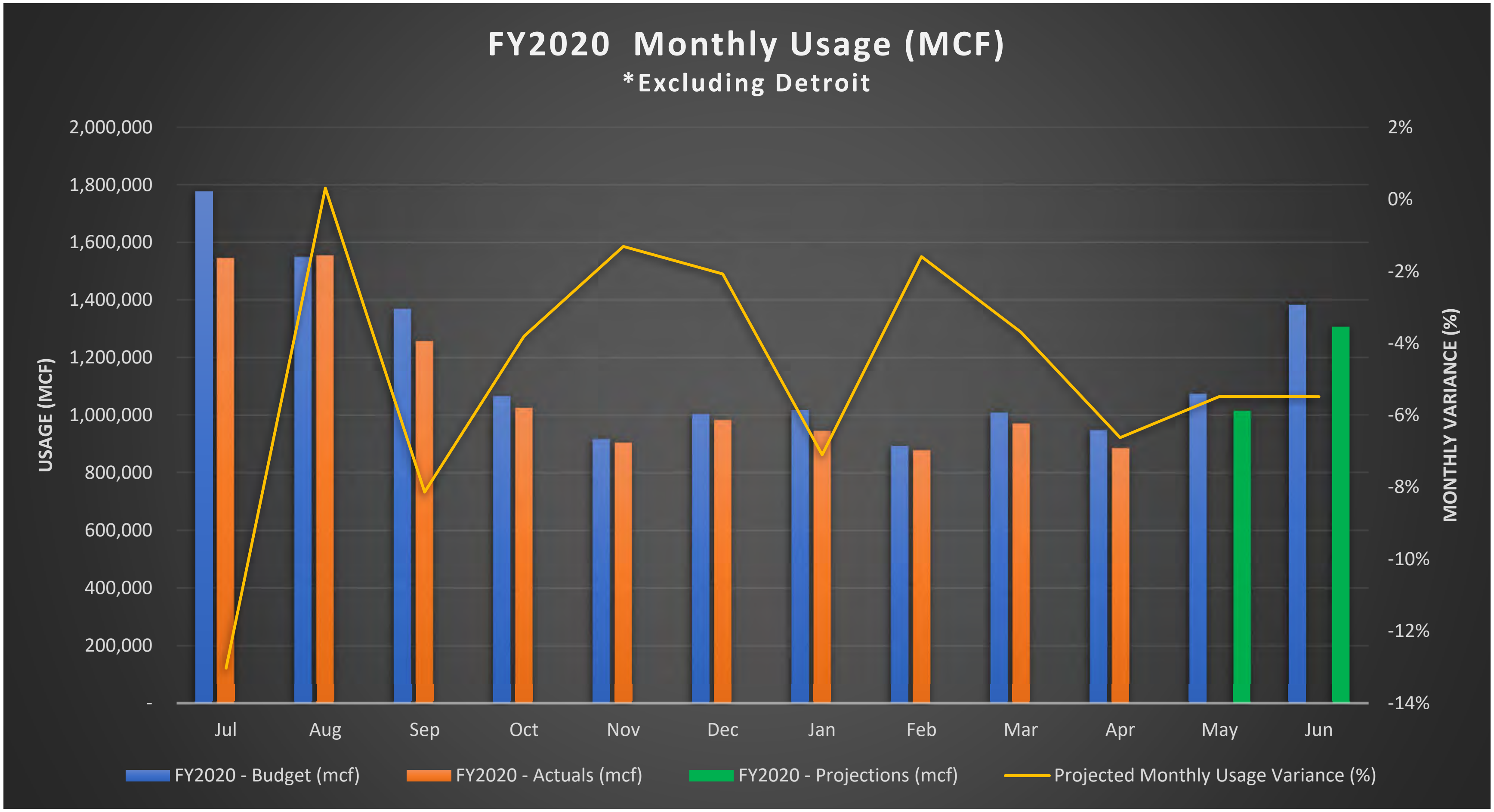
FY 2020 Wholesale Water Usage Budget, Actual & Variances - Fiscal Year



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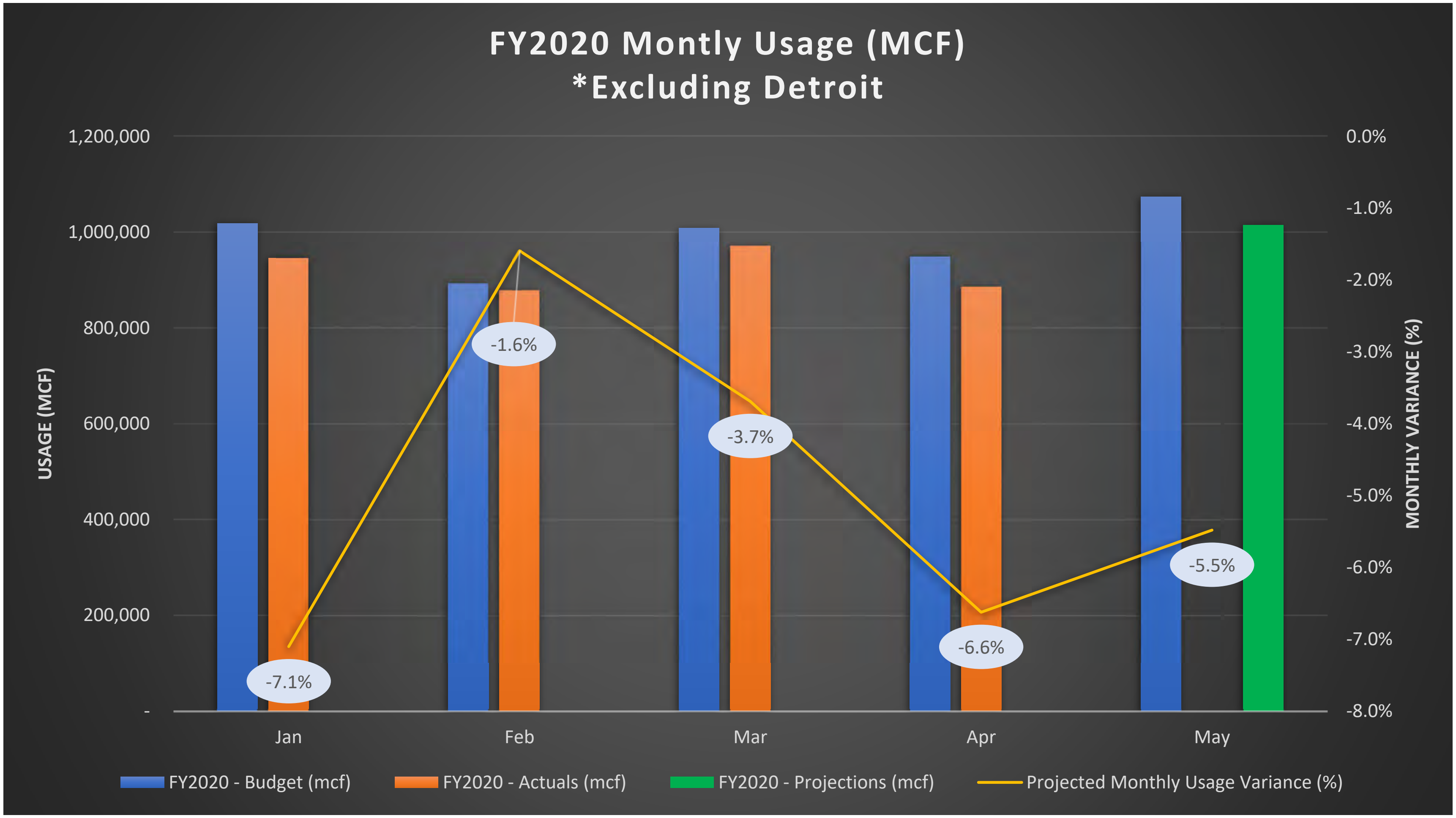
*Actual usage through May 14

** May and June projections based on May data

FY 2020 Wholesale Water Usage Budget, Actual & Variances – Jan through May



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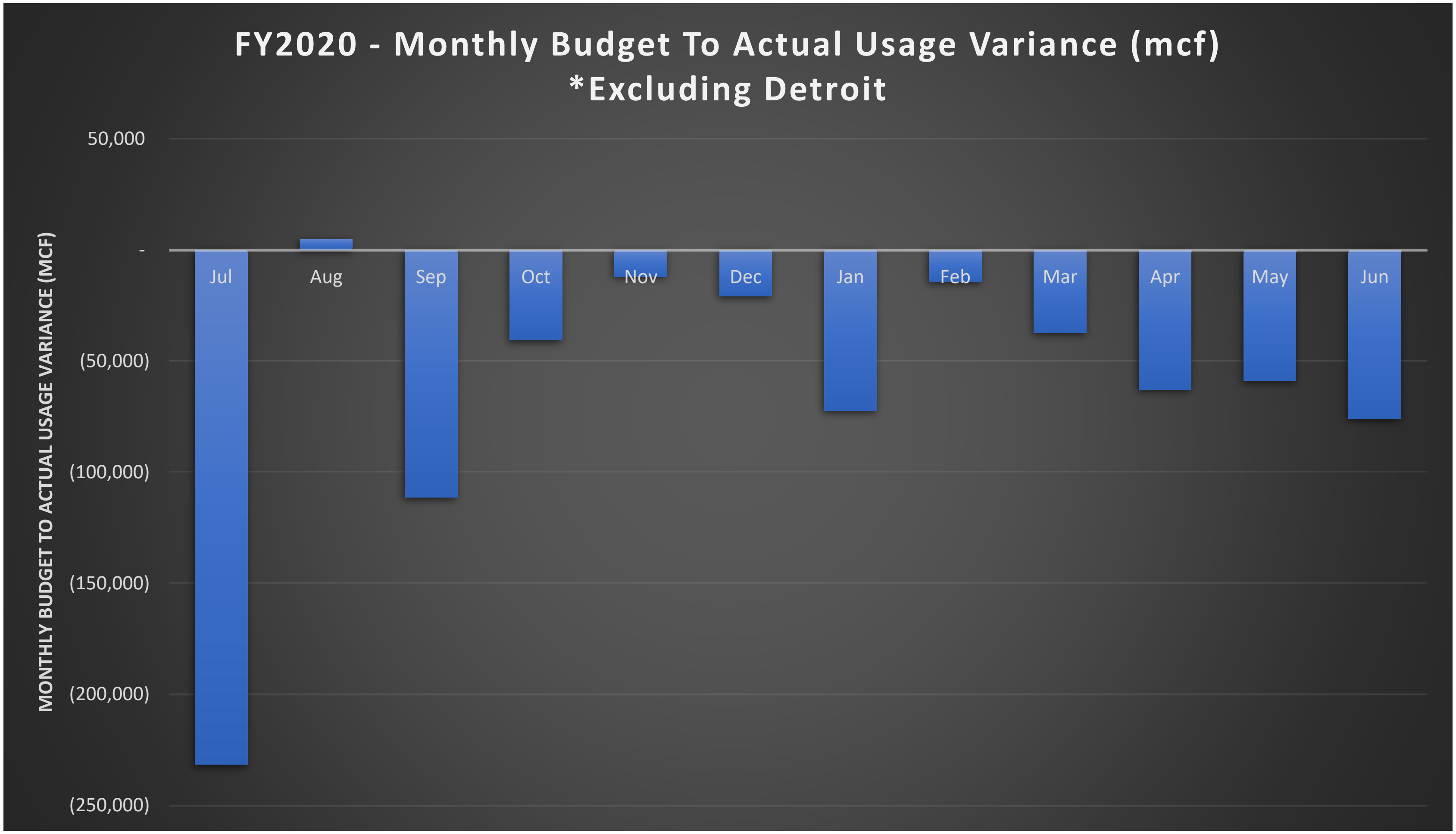
*Actual usage through May 14

** May and June projections based on May data

FY 2020 Wholesale Water Usage Budget to Actual Variances - Monthly



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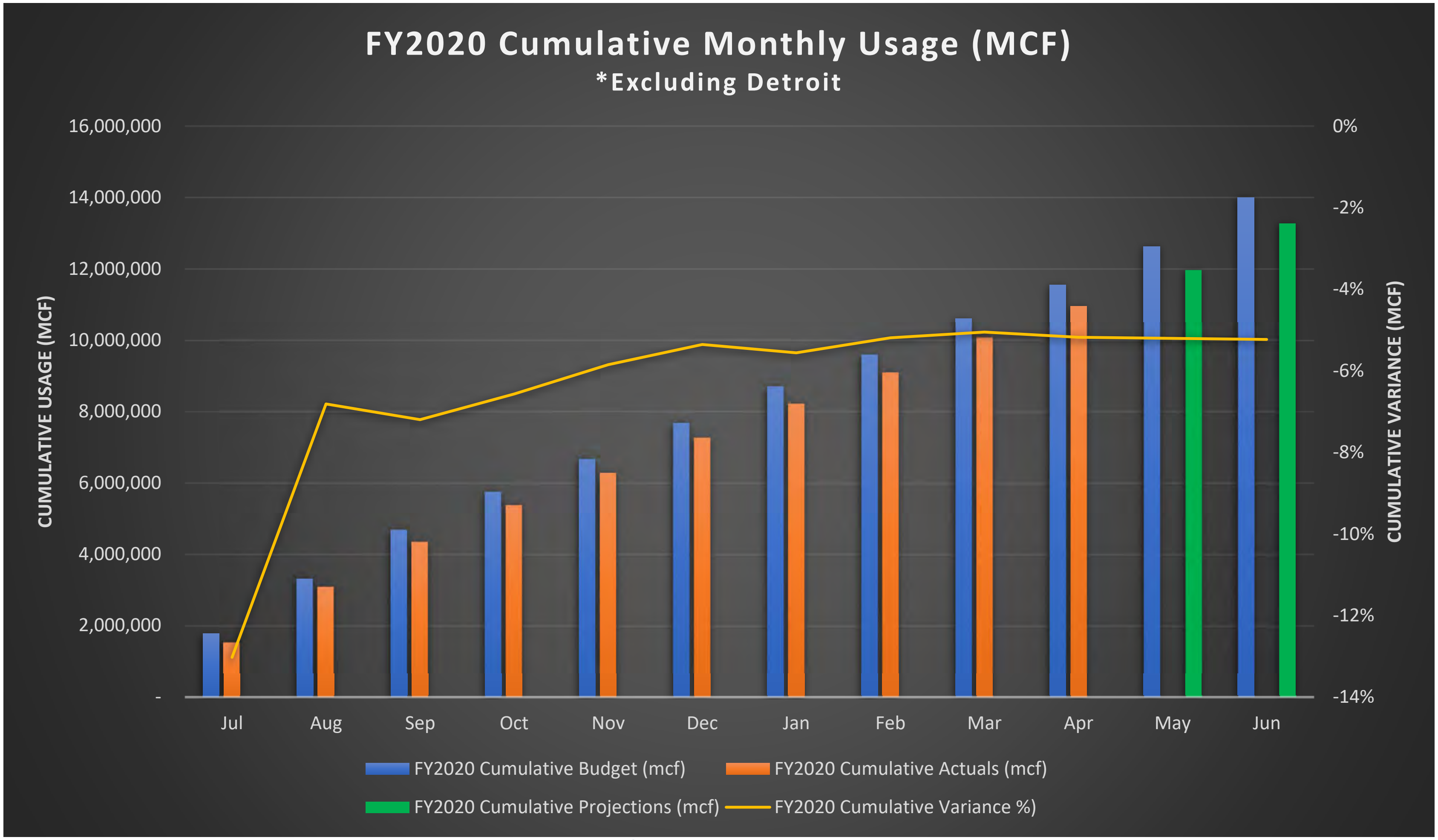
*Actual usage through May 14

** May and June projections based on May data

FY 2020 Wholesale Water Usage Budget, Actual & Variances - Cumulative



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*Actual usage through May 14

** May and June projections based on May data

FY 2020 Wholesale Water Usage

Key Takeaways

- FY 2020 usage is projected to remain at about 5% lower than budgeted
- We are not seeing a clear impact on wholesale usage from the pandemic

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Questions?

Financial Updates

Nicolette Bateson, CPA

Chief Financial Officer & Treasurer

Financial Services Update - Takeaways

- ✓ FY 2020 Headlines
  - Declining water sales trend continues
  - COVID-19 Pandemic impacts GLWA "expenses" more than revenues
- ✓ FY 2021 Headline – Defer FY 2021 Charge Adjustment from July 1st to October 1st
- ✓ Good news! Bond Ratings Upgrades
- ✓ More good news! Successful Water System Bond Refunding
- ✓ Plan, Do, Check, Act: WRAP Program Review
- ✓ Adapting to New Normal
  - ✓ Audit Committee meetings continue
  - ✓ Aligning Vendor, GLWA, City of Detroit COVID-19 Safety Standards
  - ✓ Move from paper transactions
  - ✓ All other initiatives continue

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Declining Water Sales Trend Continues

- FY 2020 forecast reflects a 5% negative wholesale water system revenue variance (~ $6.5 million)
- Most of this variance ($4.7 million or 72%) occurred from July 2019 thru March 2020
- Revenue impact varies by Member Partner community
- Reminder: water revenue requirement is billed 60% equal monthly fixed amount and 40% commodity/usage based)
- Impact for FY 2022 Charges: Rolling, historical 36-month cycle that drives units of service calculation

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COVID-19 impacts GLWA "expense"

Background

- ✓ Expenses (a/k/a revenue requirement) include GLWA Operations and Maintenance as well as GLWA's debt service and other financial obligations
- ✓ Connection to DWSD budget and collection performance based on the foundational lease agreements.
  - ✓ DWSD annual revenue requirement is fixed
    - Unlike wholesale 60% fixed and 40% commodity
  - ✓ The DWSD "bill" is paid via retail customer receipts being deposited into Master Bond Ordinance Trust Account
  - ✓ In addition to service charges, this includes defined obligations such as debt service for pre-effective date local system improvements
  - ✓ *If DWSD collections are not at breakeven level with these financial obligations, GLWA provides the budgetary cashflow to bridge the shortfall*

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Revenue Forecast Based on WAMR Data Through May 21, 2020

BUDGET VS. ACTUAL USAGE AND REVENUE

BASED ON WAMR DATA AS OF MAY 21, 2020

Month	FY 2020 - Budget Volume Mcf	FY 2020 - Budget Variance Revenue $	FY 2020 - Actuals Volume Mcf	FY 2020 - Actuals Revenue $	FY 2020 - Variance Volume Mcf	FY 2020 - Variance Volume %	FY 2020 - Variance Revenue $	FY 2020 - Variance Revenue %
July	1,777,138	32,544,400	1,545,631	30,356,570	(231,507)	-13.0%	(2,187,830)	-6.7%
August	1,549,587	30,383,100	1,554,426	30,501,606	4,839	0.3%	118,506	0.4%
September	1,368,496	28,270,400	1,257,111	27,278,750	(111,385)	-8.1%	(991,650)	-3.5%
October	1,066,653	25,351,200	1,026,086	25,007,145	(40,567)	-3.8%	(344,055)	-1.4%
November	917,034	24,049,100	905,016	23,933,012	(12,018)	-1.3%	(116,088)	-0.5%
December	1,004,420	24,714,000	983,589	24,535,948	(20,831)	-2.1%	(178,052)	-0.7%
January	1,018,192	24,861,000	945,874	24,246,312	(72,318)	-7.1%	(614,688)	-2.5%
February	893,007	23,780,800	878,794	23,689,167	(14,213)	-1.6%	(91,633)	-0.4%
March	1,008,766	24,753,300	971,559	24,450,300	(37,207)	-3.7%	(303,000)	-1.2%
April	948,751	24,262,000	885,900	23,733,000	(62,851)	-6.6%	(529,000)	-2.2%
May	1,073,966	25,549,300	1,000,500	24,883,300	(73,466)	-6.8%	(666,000)	-2.6%
June	1,383,200	28,595,300	1,288,600	27,849,900	(94,600)	-6.8%	(745,400)	-2.6%
Total	14,009,210	317,113,900	13,243,087	310,465,010	(766,123)	-5.5%	(6,648,890)	-2.1%

Achievement of Budget Through December	*94.64%*	*97.76%*
Achievement of Budget Through February	*94.81%*	*97.94%*
Achievement of Budget Through March	*94.95%*	*98.03%*
Achievement of Budget Through April	*94.82%*	*98.01%*
Achievement of Budget Through June	*94.53%*	*97.90%*

Negative Revenue Variance- Jan to March:	(4,708,490)
Negative Revenue Variance- April to June:	(1,940,400)
Total	(6,648,890)

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Step One: Address GLWA Direct Budget

- ✓ Wholesale revenue shortfall
- ✓ Investment income shortfall
- ✓ COVID-19 expenses
- ✓ Reductions in all categories of expense

Great Lakes Water Authroity
Operations & Maintenance Budget Impacts of COVID-19
FY 2020 Contingency & Continuity Resources
As of April 21, 2020

Line #	Category	Water	Sewer	Total
1	*Vacant Positions*			*98*
2	*Salary As orginally budgeted for those vacant positions*			*$ 5,914,000*
3	Vacant Salary - As adjusted earlier in FY 2020 within line item versus use of contingency for merit, progression, and market	$ 1,340,000	$ 1,517,000	$ 2,857,000
4	Vacant Fringes based on Line 3 above	352,000	354,000	706,000
5	Cashflow - pause on start/defer project	409,000	613,000	1,022,000
6	Cashflow - slower project pace	354,000	1,256,000	1,610,000
7	Budget - Other (cancel; amend; reduction or positive cost variance)	2,010,000	3,047,000	5,057,000
8	Cashflow - Capital Program Management progress	(312,000)	(288,000)	(600,000)
9	Increased expenses as a result of COVID-19	(721,000)	(1,079,000)	(1,800,000)
10	Designate Use of Unallocated Reserve as of January 31, 2020	3,983,000	4,500,000	8,483,000
11	***Subtotal - Expenses***	***7,415,000***	***9,920,000***	***17,335,000***
12	Wholesale Water Revenue Variance through March 2020	(4,600,000)	-	(4,600,000)
13	Wholesale Water Revenue Variance estimated April through June 2020	(1,800,000)	-	(1,800,000)
14	Investment Income	(1,000,000)	(1,000,000)	(2,000,000)
15	***Subtotal - Revenues***	***(7,400,000)***	***(1,000,000)***	***(8,400,000)***
16	**FY 2020 Contingency & Continuity Resources After Adjustments**	**$ 15,000**	**$ 8,920,000**	**$ 8,935,000**

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Step Two: DWSD Budget Shortfall

- ✓ COVID-19 has impacted DWSD retail system collections
- ✓ GLWA and DWSD staff communicate regularly to mitigate this shortfall
- ✓ Remedies as outlined in the 2018 MOU
- ✓ This will likely require a budget amendment to reduce I&E contribution to fund the shortfall which will be repaid at a later date (amount under evaluation)

Water System							
Cash Collection Period (millions)		**2019**		**2020**		**Difference**	
Prior to Declaration of COVID-19 Pandemic Emergency							
January	$	8.57	$	10.10	$	1.53	17.8%
February	$	8.65	$	9.23	$	0.58	6.8%
Declaration of COVID-19 Pandemic Emergency Mid-Month							
March	$	9.33	$	7.92	$	(1.41)	-15.1%
Ongoing Pandemic Operating Scenario							
April	$	9.23	$	6.56	$	(2.66)	-28.9%
May to Date (5.26.2020)	$	8.48	$	7.79	$	(0.69)	-8.2%

Sewer System							
Cash Collection Period (millions)		**2019**		**2020**		**Difference**	
Prior to Declaration of COVID-19 Pandemic Emergency							
January	$	20.6	$	22.9	$	2.29	11.1%
February	$	20.3	$	22.2	$	1.97	9.7%
Declaration of COVID-19 Pandemic Emergency Mid-Month							
March	$	21.5	$	18.7	$	(2.75)	-12.8%
Ongoing Pandemic Operating Scenario							
April	$	20.5	$	16.7	$	(3.79)	-18.5%
May to Date (5.26.2020)	$	17.9	$	19.5	$	1.57	8.8%

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FY 2021 Headline – Defer FY 2021 Charge Adjustment from July 1st to October 1st

- ✓ On March 11, 2020 the GLWA Board approved water and sewer charge schedules for Fiscal Year 2021.
- ✓ On April 22, 2020, the GLWA Board approved a delay in the effective date of the approved Fiscal Year 2021 charges from July 1, 2020 to October 1, 2020 to provide budget relief to Member Partner communities as a result of COVID-19 challenges.
- ✓ The budget impact of this delay is estimated at $3.2 million for the water system and $2.6 million for the sewer system.
  - ✓ The GLWA budget will be amended in the first quarter of Fiscal Year 2021 for this revenue reduction. The associated expense reductions will be presented to the GLWA Board in June 2020.

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Good news! Bond Rating Upgrades

S&P Global Ratings	
Water: **Affirmed** senior at AA- and second lien at A+. **Sewer:** **Upgraded** senior by one notch to AA- and second lien sewer system to A+. **Outlook:** Stable	**Comments:** Wholesaler serving a large area (not dependent on any single entity to fulfill its financial commitments), comprehensive budgeting practices, and a capital improvement plan (CIP) that is forward-looking and not tied to regulatory compliance mandates.
Moody's Investors Service	
Upgraded both water system and sewer system senior lien ratings one notch to A1 and both its second lien ratings one notch to A2. **Outlook:** Stable	**Comments:** Strong operating trends, healthy liquidity, and an "experienced management team [that] remains committed to measured revenue growth through annual revenue requirement increases, while at the same time maintaining an affordable rate structure ...".
Fitch Ratings	
Upgraded both water system and sewer system senior lien bonds by one notch to A+, and its second lien bonds by one notch to an A. **Outlook:** Stable GLWA Great Lakes Water Authority	**Comments:** "reflects sustained improvement to the Authority's financial profile," citing stable charge setting practices, accumulation of cash reserves, and prospects for achieving or beating expectations help to insulate GLWA from potential credit risks. Also cited GLWA's plans to use pay-as-you-go capital funding to moderate debt levels as a key factor in this outlook adjustment.

More good news!
Successful Water System Bond Refunding

- ✓ **Savings for the Region and Low-Cost Financing for DWSD Water CIP**

- ✓ ***Scope:*** April 30, 2020, $463 million bond sale, which included $377.5 million of a taxable refunding of outstanding GLWA water system debt, and approximately $85.5 million par amount in new water system bonds with a premium generating $100 for DWSD local water system improvements.

- ✓ ***Savings:*** *GLWA regional water system will realize a net cash flow savings of approximately $103 million over the life of the refinanced bonds; translates to a present value of these future savings to be over $66 million.*

- ✓ ***Competitive:*** The new money bonds for the DWSD provided the lowest long-term cost of new money borrowing since the Authority's inception on January 1, 2016.

- ✓ ***Strong Investor Interest***
  - ✓ Over $1.6 billion in investor orders for the $463 million in bonds offered which allowed GLWA to secure lower yields at final pricing.
  - ✓ Nearly 50 separate institutional investors placed orders for the water system refunding and more than 30 institutions placed orders for the Water New Money sale. In addition, retail orders were placed on behalf of several individual retail investors.

- ✓ ***Ratings:*** Pre-COVID 19 ratings upgrades remained in place.

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Plan, Do, Check, Act: WRAP Program Review

The current contract for Water Residential Assistance Program Third Party Administrator (CS-010) with Wayne Metro will expire on December 31, 2020.

Consistent with GLWA Board Procurement Policy, a competitive solicitation will be sought so that a contract is not in place with a vendor for more than five years.

Two-step approach:

1. Currently soliciting technical advisor services to review current program strengths and areas for improvements
   - ✓ Includes Member Partner engagement (details forthcoming)
2. Feedback from technical advisor and stakeholders will shape the scope for a competitive request for proposal

GLWA Great Lakes Water Authority

Adapting to the New Normal

- ✓ Audit Committee meetings continue
- ✓ Aligning Vendor, GLWA, City of Detroit COVID-19 safety standards
    - ✓ Vendor Resource Guide on GLWA website
- ✓ Move from paper transactions
    - ✓ Emailing of monthly invoices
    - ✓ Look for an upcoming request to go with paperless payment
    - ✓ Enhanced data security
- ✓ All other initiatives continue
    - ✓ Sewer Shares Think Tank continues to meet
    - ✓ **Next up:** Water charges methodology

GLWA
Great Lakes Water Authority

Great Lakes Water Authority

Questions?

Updates & Announcements

Madison Merzlyakov

Closing Remarks

Sue McCormick

Chief Executive Officer

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GLWA

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FY 2020 Water Revenue Forecast

NB1

- Reduced usage affects the portion of the revenue requirement allocated to commodity charge
- Presented estimated revenue variance to GLWA Board of Directors on April 22, 2020
  - ✓ *FY 2020 projected negative revenue variance was $6.4 million*
  - ✓ *Currently estimated FY 2020 negative revenue variance is $6.6 million through 5/21/2020*

Great Lakes Water Authority

FY 2020 Water Revenue Forecast

Variance to FY 2020 Budget

	April 22, 2020 Board Meeting (Before March 2020 Billings)	Estimate Based on May 14, 2020 WAMR Data	Estimate Based on Preliminary May 21, 2020 WAMR Data
Revenue Variance through March 2020	($4,600,000)	($4,700,000)	($4,700,000)
Estimate Variance April through June	(1,800,000)	(1,700,000)	(1,900,000)
Total Estimated FY 2020 Revenue Variance	($6,400,000)	($6,400,000)	($6,600,000)

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Slide 38

NB1 Slide is good but redundant. Do not include in live presentation.
Nicolette Bateson, 5/28/2020

GLWA Great Lakes Water Authority

AGENDA ITEM #9A

Procurement Pipeline

Great Lakes Water Authority (313) 964-9157 **www.glwater.org** **June 2020 - Volume 16**

Welcome to the June edition of *The Procurement Pipeline*, a monthly newsletter designed to provide informative updates on doing business with the Great Lakes Water Authority (GLWA). This edition of *The Pipeline* focuses on the ongoing operational updates regarding COVID-19 testing requirements for vendor personnel and changes to our visitor questionnaire. As GLWA begins to welcome back more vendors to our facilities and project sites in the coming weeks, we remain committed to protecting the health and safety of our shared working environment.

Mandatory COVID-19 Testing for Vendor Personnel — On May 26, 2020, GLWA began COVID-19 testing our team members and concurrently mandated that our vendor community to do the same. Following the recommendations of the Centers for Disease Control and Prevention (CDC), GLWA now requires that all vendor personnel working onsite provide documentation of a negative COVID-19 test result in the 14 days preceding their return to GLWA facilities or project sites. Please see the steps below outlining this process:

1. ***Vendors Initiate Testing***: Viral COVID-19 tests must be performed by a licensed facility and may take up to one week to provide results.
2. ***Vendors Submit Documentation***: Attach negative COVID-19 tests results from the testing facility to the vendor testing form and submit via email to vendortesting@glwater.org.
3. ***GLWA to Provide Clearance for Onsite Services***: The GLWA Procurement Team will provide a list of all vendor personnel cleared for onsite work to your GLWA project manager as well as GLWA Security & Integrity.

COVID-19 testing on a reoccurring 14-day cycle for those who tested negative is **not required** at this time. GLWA thanks our vendor community for their efforts to uphold these testing standards as we collectively work to slow the spread of the virus and maintain workplace safety for all.

COVID-19 Testing Facilities — We have collected the following resources on local testing facilities to help our vendor community find a convenient location for COVID-19 testing.

- Coronavirus Community Care Network Drive Thru Testing: COVID-19 testing is available by appointment to any resident of Wayne, Oakland, or Macomb County at the Joe Dumars Fieldhouse at the State Fairgrounds.
- Michigan.gov COVID-19 Test Finder: This database allows you to input your address to locate a COVID-19 testing facility near you.
- A list of COVID-19 testing facilities for Macomb , Oakland , and Genesee County. Wayne County is directing its residents to the Michigan.gov COVID-19 Test Finder.

Testing eligibility for COVID-19 has been expanded in Michigan to include individuals who are not displaying symptoms. Please note that many facilities require that an appointment be made.

Updated Visitor Questionnaire — On June 5, 2020, the new *GLWA Visitor COVID-19 Questionnaire with COVID-19 Testing Requirements* replaced the existing *GLWA Visitor COVID-19 Questionnaire* issued on March 23. Until further notice, this questionnaire needs to be completed every two weeks and submitted via email to COVID19VisitorQuestionnaire@glwater.org. Any changes to your responses must be immediately reported to the GLWA Project Manager and will necessitate COVID-19 retesting.

COVID-19 Pandemic Resource Guide — For the full GLWA-issued memorandums on vendor testing and the visitor questionnaire, as well as the appropriate forms for each, please refer to the COVID-19 Pandemic Resource Guide. Any additional questions regarding these matters may be directed to procurement@glwater.org.

What's Coming Down the Pipe?

Current Solicitations: Be sure to register in Bonfire to monitor new solicitations and contract awards.

Upcoming Procurements: Next Three to Nine Months - See page 2

Visit GLWA online! See the Vendors page at www.glwater.org or contact us via email at procurement@glwater.org.

Upcoming Solicitations June 2020

Category	Description	Budget Estimate
Water System (next three months)		
Design Build	RFP 20000644 WTP Power Monitor Installation Project	$1,200,000
Design Build	RFP 2001051 Southwest WTP SCADA Infrastructure Upgrade	$3,000,000
Study	1903426 Arc Flash Study	$995,000
Construction	2001456 SPWTP 1958 Settled Water Conduit and Loading Dock Concrete – Springwells Water Treatment Plant (CIP #114016)	$1,652,000
Maintenance Services	5-Year Sludge Removal and Disposal Services at Northeast, Springwell's & Southwest Water Plants	$55,000,000
Design Build	Garland, Hurlbut, Bewick Water Transmission System Rehabilitation	$5,000,000
Construction	1904231 – Flocculator Improvements – Northeast Water Treatment Plant (CIP #112006)	$2,700,000
Engineering	North Service Center Pumping Station Improvements (CIP # 132016)	$10,000,000
Wastewater System (next three months)		
Design	Oakwood HVAC Improvements	$500,000
Design	Study and Design of NWI Relief Sewer to Oakwood RTB	$5,000,000
Design	Rehabilitation of Remaining CSO Outfalls and Some Trunk Sewers	$7,000,000
Construction	Baby Creek Gate Repair	$155,000
Construction	Baby Creek Chemical Feed Tank Repair	$250,000
Water System (next four to nine months)		
Design Build	WTP Ovation Workstation Upgrade Project (CIP 170303)	TBD
Construction	Springwells Water Treatment Plant Medium Voltage Electrical System Replacement (CIP #114002 Project B)	$30,000,000
Design Build	Southwest Water Treatment Plant Chlorine Scrubber and Raw Water Screen Replacement (CIP #113006)	$6,000,000
Wastewater System (next four to nine months)		
Progressive Design Build	Baby Creek Outfall Improvements Projects (CIP #277001)	TBD
Design	St. Aubin Chemical Disinfection & Screening Improvements	TBD
Design	Control System Upgrade – St. Aubin, Lieb, and 7 Mile CSO Facilities	TBD
Maintenance	Crane Services	TBD
Services	Actuator Maintenance	TBD
Maintenance	UPS Maintenance and Repair Services (CSO/WRRF)	TBD
Construction	Rehabilitation of Outfalls – Phase III (B-39)	$7,000,000
Construction	Rehabilitation of Woodward Sewer	$26,000,000
Construction	Rehabilitation of CSO Outfall Backwater Gates	$5,000,000
Enterprise (next four to nine months)		
Information Technology	Project Management Information System	TBD
Facilities	HVAC Repairs and Maintenance	TBD

Vendors should continue to monitor Bonfire for solicitation updates.

Acronyms – Facilities	
WRRF	Water Resource Recovery Facility
CSO	Combined Sewer Overflow