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Date: December 12, 2018

To: Great Lakes Water Authority Board of Directors

From: Nicolette Bateson, Chief Financial Officer/Treasurer

Re: DWSD Revenue Revision – Update to Comprehensive Annual Financial Report
Supplemental Schedules

Background: Beginning with the June 30, 2018 audited financial statements, GLWA is reporting DWSD estimated year-end revenues as a data point in two supplemental schedules—Schedule of Revenue Requirement (beginning on page 96 of the statements included in the Board packet) and Pledges of Revenue and Debt Service Coverage (beginning on page 141 of the statements provided). These schedules have been expanded in presentation based on feedback from key stakeholders including bondholders and rating agencies. The Detroit Water & Sewerage Department (DWSD) revenue numbers are not reviewed by the Great Lakes Water Authority (GLWA) audit team and as part of *supplemental schedules*, they are referenced in the financial statements as ‘unaudited’.

Analysis: The DWSD and the City of Detroit are finalizing their statements at the same time as GLWA but did provide a preliminary draft to allow GLWA to complete these important schedules. Upon presentation of the final draft schedules by GLWA to the DWSD Finance team on December 10, 2018 GLWA was informed that the preliminary DWSD revenue values for the sewer fund have been positively adjusted by \$10.6 million. We believe this is a material and important change. Since this information was received after the draft GLWA statements were sent to the Board, staff wishes to advise the Board of these desired updates for the final, published comprehensive annual financial report.

Following this memo are the pages of the GLWA financial statements impacted with updated information highlighted in red. The change has replaced a \$6.9 million DWSD sewer revenue shortfall on the Revenue Requirement schedule with a \$3.7 million surplus. It has also improved the Sewer Debt Coverage ratios from 2.04 times for Senior Lien to 2.11, Senior and Second from 1.55 times to 1.61 and All Bonds from 1.22 times to 1.29.

Proposed Action: Receive and file report.

Wastewater System

Our regional wastewater system is also one of the largest in the United States, both in terms of treatment capacity and population served. The wastewater system currently serves an area of 988 square miles located in three southeast Michigan counties, with an estimated population of nearly 2.8 million or approximately 28 percent of Michigan's population. This encompasses 18 wholesale services contracts spanning 76 communities.

The wastewater system consists of one of the largest single-site wastewater treatment plants in the world, three major interceptors, five pump stations, eight Combined Sewer Overflow (CSO) Control Facilities, including five retention treatment basins and three flow-through type facilities, and a conveyance system with 181 miles of trunk sewers and interceptors.

The long-term strategy for the sewer system is a focus on regional efficiencies. The Wastewater Master Planning Process, launched in April 2017 and supported by a Wastewater Master Plan Steering Committee including the Michigan Department of Environmental Quality, holds monthly meetings with stakeholders. The 40-year master planning process is focusing on water quality, leveraging the entire region's existing infrastructure, maximize the use of dynamic wet weather operations, strategic use of green infrastructure, addressing changes in weather patterns and rain event intensities, extensive system modeling including surface water and wastewater treatment, evaluation of resource recovery options and energy reduction opportunities.

Financial Highlights

The publication of this report is on the heels of the return of a "AA" category bond rating for the debt held by GLWA (which was assumed from DWSD on January 1, 2016). In preparing for a bond transaction, on September 5, 2018, Standard & Poor's (S&P) increased GLWA's senior lien water system rating by three notches to AA- and its second lien water system rating by three notches to A+. The rating agency also increased GLWA's senior lien sewer system rating by two notches to A+ and its second lien sewer system was increased by two notches to A.

This rating increase was followed by a successful refunding, on October 3, 2018, of \$155,595,000 of Water Supply System Revenue Bonds and \$257,465,000 of Sewage Disposal System Revenue Bonds (\$81,595,000 in new money and \$175,870,000 in refunding bonds). The net present value savings from the refunding transactions was a total of \$59.42 million, with \$24.90 million for the water fund and \$34.52 million for the sewage disposal fund.

This demonstration of an improved credit rating to secure a lower cost of capital was a key objective in the creation of GLWA.

FY 2018 Results

GLWA is committed to ensuring the long-term sustainability of the water and sewer systems. Below are key financial highlights:

1. **Liquidity** - Strong liquidity with 1,066 days cash on hand for the water system and 432 days for the sewer system as shown on the Schedule of Days Cash in the supplementary information.
2. **Debt Service Coverage** - Excellent debt service coverage for both the water and sewer funds. The water fund reports debt coverage for senior lien bonds at 2.03 times and all bonds at 1.51 times. The sewer fund reports debt coverage for senior lien bonds at 2.11 times and all bonds at 1.29 times. Detail for all debt types can be found in the Debt Service Coverage schedule in the statistical section.

GREAT LAKES WATER AUTHORITY

Management's Discussion and Analysis

There are three general components of a net position or deficit: 1) net investment in capital assets (in its simplest form, capital assets acquired less debt incurred to acquire those assets); 2) restricted (such as legally required bond reserves or net proceeds from bonds restricted for capital spending); and 3) unrestricted.

Net investments in capital assets is the largest component of the net position with a total balance of \$350.7 million (\$60.8 million the water system and \$289.9 for the sewage disposal system). Increases during the year were attributable to the acquisition of assets and repayment of debt which were offset by depreciation expense.

Net position restricted for debt service represents amounts that are required by the related MBO or other third-party agreements to be used for the repayment of debt. The total amount restricted at year end was \$125.2 million with \$23.2 million in the water system and \$102.0 million for the sewage disposal system.

Net position restricted for capital acquisition primarily represents unspent bond proceeds of \$243.2 million in total with \$140.7 million in the water system and \$102.5 million in the sewage disposal system.

The remaining unrestricted deficit is significant: a total of \$903.7 million with \$287.6 million for the water system and \$616.1 for the sewage disposal system. Unrestricted net position (deficit) is generally defined as the net result of the other components of net position. There has been an improvement of \$191.3 million in the unrestricted net position since 2017. This unrestricted deficit is representative of numerous cumulative historical financial activities via the predecessor entity. The largest dollar amounts were driven by swap termination fees paid by debt and capital financed assets that were subsequently written off. Addressing this deficit is a top priority for the GLWA Board and management but recognizes that it will take time. GLWA continues to optimize its operations, focus on financial planning with a biennial budget, annually update the five-year capital and financial plan, and expand its expertise in asset management. Evidence of those efforts are demonstrated by key financial performance measures. These include strong days cash on hand, debt service coverage well above the minimum requirements, achievement of revenue targets, and positive operations and maintenance expense budget variances. The performance measures in the table below are presented in the Supplementary Information section of this report.

Financial Performance Measure	Water	Sewage Disposal
Days cash on hand (Schedule of Days Cash - Liquidity)	1066 days	432 days
Debt service coverage - (all bonds including junior lien state revolving fund junior lien) (Pledges of Revenue and Debt Service Coverage)	1.51x	1.29x
Revenue target (Schedules of Revenue Requirement)	14.7 million or 4.5% positive budget variance	9.3 million or 2.0% positive budget variance
Operations & maintenance budget (Schedules of Operations and Maintenance Expense)	\$6.6 million or 5.75% positive budget variance	\$14.0 million or 7.35% positive budget variance

Revenue Requirement

Budget to Actual - Consolidated Sewer System
For the Year Ended June 30, 2018

The schedule presents a consolidated calculation of revenue requirements for both the GLWA regional sewer system and the DWSD local sewer system based upon budgets adopted by both entities. The revenue requirement components are presented in a manner consistent with the Master Bond Ordinance flow of funds. Individual schedules for both entities (the GLWA Regional Sewer System and the DWSD Local Sewer System) follow. Amounts shaded in grey indicate local system components.

	2018 Budget	2018 Actual [2]	Variance
Revenues			
Regional System Wholesale Revenues - Suburban Wholesale	\$ 267,033,800	\$ 268,978,831	\$ 1,945,031
Regional System Wholesale Revenues - Detroit Customers	178,969,200	178,969,200	-
Industrial Waste Control Charges	14,457,700	14,334,979	(122,721)
Industrial Surcharges	5,099,000	6,908,404	1,809,404
Total Regional System Revenues	465,559,700	469,191,414	3,631,714
DWSD Local System Revenues - Detroit Customers	77,922,900	81,612,282	3,689,382
Miscellaneous Revenue (Local System)	5,000,000	5,089,230	89,230
Other Nonoperating Revenue	-	4,391,145	4,391,145
Total Operating Revenue	548,482,600	560,284,071	11,801,471
Non-Operating Revenue (Regional System)	2,751,000	4,022,582	1,271,582
Total Revenues	\$ 551,233,600	\$ 564,306,653	\$ 13,073,053
Revenue Requirements [1]			
Operations & Maintenance			
Regional System Wholesale Expenses	\$ 191,079,400	\$ 191,079,400	\$ -
Local System Expenses	60,402,000	60,517,992	115,992
GRS Pension allocable to Regional System	10,824,000	10,809,600	(14,400)
GRS Pension allocable to Local System	2,856,000	2,844,200	(11,800)
Total Operations & Maintenance	265,161,400	265,251,192	89,792
<i>Net Revenues as Defined by MBO</i>	<i>286,072,200</i>	<i>299,055,461</i>	<i>12,983,261</i>
Non-Operating Activities			
Debt Service Allocable to Regional System	207,615,500	202,965,506	(4,649,994)
Debt Service Allocable to Local System	27,392,500	26,767,599	(624,901)
GRS Accelerated Pension from Regional System	11,620,700	12,118,599	497,899
GRS Accelerated Pension from Local System	3,066,800	3,197,100	130,300
WRAP Contribution from Regional System	2,391,800	2,391,800	-
WRAP Contribution from Local System	369,000	369,000	-
ER&R Fund Contribution from Regional System [3]	813,600	813,600	-
Contribution to Operating Reserves	1,733,000	1,733,000	-
Total Non-Operating Activities	255,002,900	250,356,204	(4,646,696)
<i>Amount Available for Revenue Financed Capital</i>	<i>31,069,300</i>	<i>48,699,257</i>	<i>17,629,957</i>
Reserve for Revenue Financed Capital from Net Revenues			
Lease Payment	27,500,000	27,500,000	-
Lease Payment Directed to Debt Service	(11,163,400)	(9,166,667)	1,996,733
Amount Available for Revenue Financing Capital and Operating Reserves Regional System [3]	14,732,700	28,193,636	13,460,936
Local System Revenues Available for Local System I&E	-	2,172,288	2,172,288
Local System Revenue Requirement Variance	-	-	-
Total Reserve for Revenue Financed Capital	31,069,300	48,699,257	17,629,957
Total Revenue Requirements	\$ 551,233,600	\$ 564,306,653	\$ 13,073,053

[1] Item is not considered an expense for accounting purposes but is for revenue requirement basis in establishing customer charges.

Actual amounts are based on cash transfers made to the MBO bank accounts that must be funded by revenue.

[2] At the of the issuance of the GLWA, DWSD's audited financial report had not been released. The local system amounts above reflect DWSD's management representation of preliminary financial results for the year ended June 30, 2018.

[3] Transfers are typically made in the subsequent year following the final analysis of yearend results.

GREAT LAKES WATER AUTHORITY

UNAUDITED

Revenue Requirement

Budget to Actual - DWSD Local Sewer System
For the Year Ended June 30, 2018

This schedule presents a calculation of revenue requirements for the DWSD local sewer system based upon the budget adopted by the DWSD Board of Water Commissioners. The revenue requirement components are presented in a manner consistent with the Master Bond Ordinance flow of funds. The Consolidated Sewer System Schedule of Revenue Requirements combines this schedule and the GLWA regional Sewer System Schedule of Revenue Requirements. Amounts shaded in grey indicate local system components.

	2018 Budget [1]	2018 Actual [2]	Variance
Revenues			
DWSD Local System Revenues - Detroit Customers [3]	77,922,900	81,612,282	3,689,382
Miscellaneous Revenue (Local System)	5,000,000	5,089,230	89,230
Total Revenues	\$ 82,922,900	\$ 86,701,512	\$ 3,778,612
Revenue Requirements [4]			
Operations & Maintenance			
Local System	\$ 60,402,000	\$ 60,517,992	115,992
GRS Pension allocable to Local System	2,856,000	2,844,200	(11,800)
Total Operations & Maintenance	63,258,000	63,362,192	104,192
<i>Net Revenues as Defined by MBO</i>	<i>19,664,900</i>	<i>23,339,320</i>	<i>3,674,420</i>
Non-Operating Activities			
Debt Service Allocable to Local System	27,392,500	26,767,599	(624,901)
GRS Accelerated Pension from Local System	3,066,800	3,197,100	130,300
WRAP Contribution from Local System	369,000	369,000	-
Lease Payment Directed to Debt Service [5]	(11,163,400)	(9,166,667)	1,996,733
Revenues Available for Local System I&E	-	2,172,288	2,172,288
Revenue Requirement Variance	-	-	-
Total Non-Operating Activities	19,664,900	23,339,320	3,674,420
Total Revenue Requirements (Local System)	\$ 82,922,900	\$ 86,701,512	\$ 3,778,612

[1] Reflects budget presented in the Series 2018 Bond Official Statement. Adjustments are attributable to reallocation of certain non-operating revenue requirements.

[2] At the time of the issuance of the GLWA CAFR, DWSD's audited June 30, 2018 financial report had not been released. The amounts above reflect DWSD's management representation of preliminary financial results for the year ended June 30, 2018.

[3] Net of bad debt expense.

[4] Item is not considered an expense for accounting purposes but is for revenue requirement basis in establishing customer charges. Actual amounts are based on cash transfers made to the MBO bank accounts that must be funded by revenue.

[5] Lease Payment Allocation

Total Lease Payment	27,500,000	27,500,000	-
Amount Directed to Debt Service	(11,163,400)	(9,166,667)	1,996,733
Balance to be Deposited to Local System I&E Account for Revenue Financed Capital	16,336,600	18,333,333	1,996,733

Pledges of Revenue and Debt Service Coverage

Budget to Actual - Consolidated Sewer System
As of June 30, 2018

The Authority has pledged specific revenue streams to secure the repayment of the revenue bonds and State of Michigan revolving fund loans. The bonds and loans are paid solely from the net revenues of the Sewer System including the retail revenues from the Retail Customers who are serviced under the Water and Sewer Services Agreement with the City of Detroit. The pledged revenues for the fiscal year ending June 30, 2018 were reported by two entities because of the lease agreement between the City of Detroit and Great Lakes Water Authority which became effective on January 1, 2016. The pledged revenue definition in the Great Lakes Water Authority Master Bond Ordinance includes the retail revenues of the City of Detroit Water and Sewerage Department as this revenue is pledged for payment of the bonded debt owed by the Great Lakes Water Authority. A summary of the pledged revenue and the applicable debt as of June 30, 2018 is as follows:

Term of pledged commitment	Sewage Disposal Fund			
	Budget [3]	Actual [4]	Thru 2045 Variance	% Variance
Calculation of Pledged Revenue as defined in Master Bond Ordinance				
Pledged Revenue				
Suburban Wholesale Customers [1]	\$267,033,800	\$ 268,978,831	\$ 1,945,031	1%
Industrial waste charges	14,457,700	14,334,979	(122,721)	-1%
Pollutant surcharges	5,099,000	6,908,404	1,809,404	35%
Subtotal - Regional System Suburban Wholesale Customers	<u>286,590,500</u>	<u>290,222,214</u>	<u>3,631,714</u>	1%
Detroit Customers				
Wholesale Service Charge Revenue [1]	178,969,200	178,969,200	0	0%
Local Service Revenues	77,922,900	81,612,282	3,689,382	5%
Subtotal - Detroit Customers	<u>256,892,100</u>	<u>260,581,482</u>	<u>3,689,382</u>	1%
Total Service Charge Revenue	543,482,600	550,803,696	7,321,096	1%
Other Operating Revenue-GLWA	-	4,391,145	4,391,145	100%
Other Operating Revenue-DWSD	5,000,000	5,089,230	89,230	2%
Earnings on investments net of construction fund investment earnings	2,751,000	4,022,582	1,271,582	46%
Total Revenue	<u>551,233,600</u>	<u>564,306,653</u>	<u>13,073,053</u>	2%
Cash Transfers				
Operations and Maintenance Fund Regional System	201,903,400	\$201,889,000	(14,400)	0%
Operations and Maintenance Fund Local System	63,258,000	\$63,362,192	104,192	0%
Total Cash Transfers to Operations and Maintenance Funds	<u>265,161,400</u>	<u>265,251,192</u>	<u>89,792</u>	0%
Pledged net revenue for the year ending June 30, 2018	<u>\$286,072,200</u>	<u>\$299,055,461</u>	<u>\$12,983,261</u>	5%
Principal and interest funding requirement for the year ending June 30, 2018 [2]:				
Senior Lien Bonds	\$142,376,800	\$141,718,836	(\$657,964)	0%
Second Lien Bonds	43,990,100	43,990,100	-	0%
Total Senior and Second Lien Bonds	<u>186,366,900</u>	<u>185,708,936</u>	<u>(657,964)</u>	0%
Junior Lien Bonds	48,641,100	46,782,877	(1,858,223)	-4%
Total All Bonds	<u>\$235,008,000</u>	<u>\$232,491,813</u>	<u>(\$2,516,187)</u>	-1%
Rate Covenant Debt Service Coverage [2]				
Senior Lien Bonds	2.01	2.11	0.10	5%
Senior and Second Lien Bonds	1.53	1.61	0.08	5%
All Bonds, Including SRF Junior Lien	1.22	1.29	0.07	6%
Amount in restricted cash and investments related to various bond indentures at June 30, 2018		\$ 99,654,216		

[1] Total GLWA Regional System Wholesale Revenue

[2] Computed consistent with rate covenant basis for rate determination purposes. Not applicable for purposes of additional bond test calculations.

[3] The purpose of this information is to show a combined reference to the regional system revenue requirements as approved by the GLWA and the local revenue requirements adopted and amended by DWSD included here for review of budget-to-actual performance in alignment with the Master Bond Ordinance. The DWSD budget reflects budget presented in the Series 2018 Bond Official Statement. Adjustments are attributable to reallocation of certain non-operating revenue requirements.

[4] At the time of the issuance of the GLWA, DWSD's audited financial report had not been released. The local system amounts above reflect DWSD's management representation of preliminary financial results for the year ended June 30, 2018.

GREAT LAKES WATER AUTHORITY

Schedule 16

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Pledges of Revenue and Debt Service Coverage

As of June 30, 2018

	2018 [3]	2017 [4]	2016 [1]
Water Fund			
Pledged revenue	\$ 259,822,619	\$ 272,268,873	\$ 270,117,396
Principal and interest funding requirement [2]			
Senior Lien Bonds	\$127,687,420	\$134,234,660	\$128,177,999
Second Lien Bonds	42,852,813	38,990,023	41,178,843
Total Senior and Second Lien Bonds	170,540,233	173,224,683	169,356,842
Junior Lien Bonds	2,009,658	1,785,328	1,781,683
Total All Bonds	172,549,891	175,010,011	171,138,525
Rate Covenant Debt Service Coverage [2]			
Senior Lien Bonds	2.03	2.03	2.11
Senior and Second Lien Bonds	1.52	1.57	1.59
All Bonds, Including SRF Junion Lien	1.51	1.56	1.58
Sewage Disposal Fund			
Pledged revenue	\$ 299,055,461	\$ 326,300,994	\$ 326,048,837
Principal and interest funding requirement [2]			
Senior Lien Bonds	\$141,718,836	\$ 140,854,010	\$ 140,191,016
Second Lien Bonds	43,990,100	47,918,639	48,944,924
Total Senior and Second Lien Bonds	185,708,936	188,772,649	189,135,940
Junior Lien Bonds	46,782,877	45,782,165	39,434,631
Total All Bonds	232,491,813	234,554,814	228,570,571
Rate Covenant Debt Service Coverage [2]			
Senior Lien Bonds	2.11	2.32	2.33
Senior and Second Lien Bonds	1.61	1.73	1.72
All Bonds, Including SRF Junion Lien	1.29	1.39	1.43

[1] GLWA started operations on January 1, 2016. Includes 6 months under operations of DWSD and 6 months under the operations of GLWA under the Master Bond Ordinances in effect during the respective time periods.

[2] Computed consistent with rate covenant basis for rate determination purposes. Not applicable for purposes of additional bond test.

[3] At the of the issuance of the GLWA, DWSD's audited financial report had not been released. The local system amounts above reflect DWSD's management representation of preliminary financial results for the year ended June 30, 2018.

[4] Pledged revenue was updated for change in what items to include in DWSD revenue. The miscellaneous operating income was removed and the revenue was reduce for bad debt expense reported under operating expenses by DWSD.