

The Semiannual Debt Report includes the following:

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

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

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

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

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

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

Key Takeaways

- ✓ The purpose of this report is to provide a resource for stakeholders and to support management decisions as capital financing needs evolve.
- ✓ GLWA continues to enhance transparency by including the Debt Summary Report in the Audit Committee Binder biannually.
- ✓ GLWA has fifteen active State Revolving Fund (SRF) loans, ten for water and five for sewer. On behalf of DWSD, GLWA is administering five projects for water and two for sewer.
- ✓ Existing proceeds from special revenue bonds are depleted. This means that all capital projects as of the date of this report utilize Improvement & Extension funds, except for SRF funded projects.
- ✓ Looking ahead, GLWA completed a revenue bond transaction in September 2022 to support capital needs over the next two years in accordance with the approved capital improvement plan.
- ✓ Other key items of interest include the following balances as of June 30, 2022.

As of June 30, 2022 (\$ Millions)		
	Water	Sewer
FY 2023 Approved SRF Projects - Table 5	\$143.8	\$144.3
DWSD Obligation Receivable - Table 6	\$548.8	\$376.6
GLWA Outstanding Debt - Table 8	\$2,238.3	\$2,819.4

Look Ahead - Five Year Capital Financing Plan

The following tables summarize the projected Capital Improvement Program (CIP) funding to be provided by proceeds received from the issuance of new revenue bonds and draws on committed SRF loans. *The financing plan is dynamic and changes with the pace of capital spending and alignment with refunding opportunities.*

Table 1 is based on the FY 2023 and FY 2024 Biennial Budget adopted by the GLWA Board of Directors and the related Five-Year Financial Plan (FY 2023 through FY 2027). It should be noted existing proceeds from special revenue bonds are depleted as of the date of this report. This means that all capital projects are being funded with Improvement & Extension (I&E) funds, except for SRF funded projects.

Looking ahead, GLWA closed on a revenue bond transaction in September 2022 to support capital needs over the subsequent two years in accordance with the approved capital improvement plan. This transaction provided \$450 million in additional funding with \$225 million supporting the water system and \$225 million supporting the sewer system.

Table 2 is based on the current, local system CIP presented to the DWSD's Board of Water Commissioners at its June 1, 2022 Finance Committee meeting. It is important to note the amounts represented in Revenue Bonds reflect the anticipated par amount of the bonds to be issued and not the net proceeds needed to support the capital plan.

Table 1 - GLWA Projected Bond Financing FY 2023 – FY 2027

Projected Funding Needs for Regional System					
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Water					
Revenue Bonds	\$ 225,000,000	\$ -	\$ 272,000,000	\$ -	\$ 277,000,000
SRF loan draws	\$ 54,992,000	\$ 59,446,000	\$ 21,442,000	\$ 2,400,000	\$ 22,505,000
Total projected funding Water	\$ 279,992,000	\$ 59,446,000	\$ 293,442,000	\$ 2,400,000	\$ 299,505,000
Sewer					
Revenue Bonds	\$ 225,000,000	\$ -	\$ 131,000,000	\$ -	\$ 146,000,000
SRF loan draws	\$ 18,720,000	\$ 10,247,000	\$ 9,785,000	\$ 15,357,000	\$ 7,198,000
Total projected funding Sewer	\$ 243,720,000	\$ 10,247,000	\$ 140,785,000	\$ 15,357,000	\$ 153,198,000

Table 2 - DWSD Projected Bond Financing FY 2023 – FY 2027

Projected Funding Needs for Local System					
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Water					
Revenue Bonds	\$ -	\$ -	\$ -	\$ -	\$ -
SRF loan draws	\$ 23,064,000	\$ 11,100,000	\$ 15,000,000	\$ 8,000,000	\$ -
Total projected funding Water	\$ 23,064,000	\$ 11,100,000	\$ 15,000,000	\$ 8,000,000	\$ -
Sewer					
Revenue Bonds	\$ -	\$ -	\$ -	\$ -	\$ -
SRF loans draws	\$ 24,750,000	\$ 14,050,000	\$ -	\$ -	\$ -
Total projected funding Sewer	\$ 24,750,000	\$ 14,050,000	\$ -	\$ -	\$ -

Note: Information presented is as of June 30, 2022. FY 2023 information has been updated to reflect par value of the September 2022 water and sewer revenue bond transactions.

Existing Debt

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

Table 3 – Debt Ratings by System provides a summary of the debt ratings assigned in August 2022 in advance of the most recent bond refinancing and new money issuance in August 2022.

Current Debt Ratings			
	S&P Global Ratings	Moody's Investors Service	Fitch Ratings
Water Supply System Revenue Bonds			
Senior lien	AA-	A1	A+
Second lien	A+	A2	A
Junior lien	A+	N/A	N/A
Outlook	Stable	Positive	Stable
Sewage Disposal System Revenue Bonds			
Senior lien	AA-	A1	A+
Second lien	A+	A2	A
Junior lien	A+	N/A	N/A
Outlook	Stable	Positive	Postive

Debt Allocation: GLWA has over \$2.4 billion in water system debt and nearly \$2.9 billion in sewer system debt for a combined total of over \$5.3 billion. Debt within each system is prioritized according to its security interest, or lien category, with senior lien debt having the highest security interest, followed by second lien and finally junior lien.

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

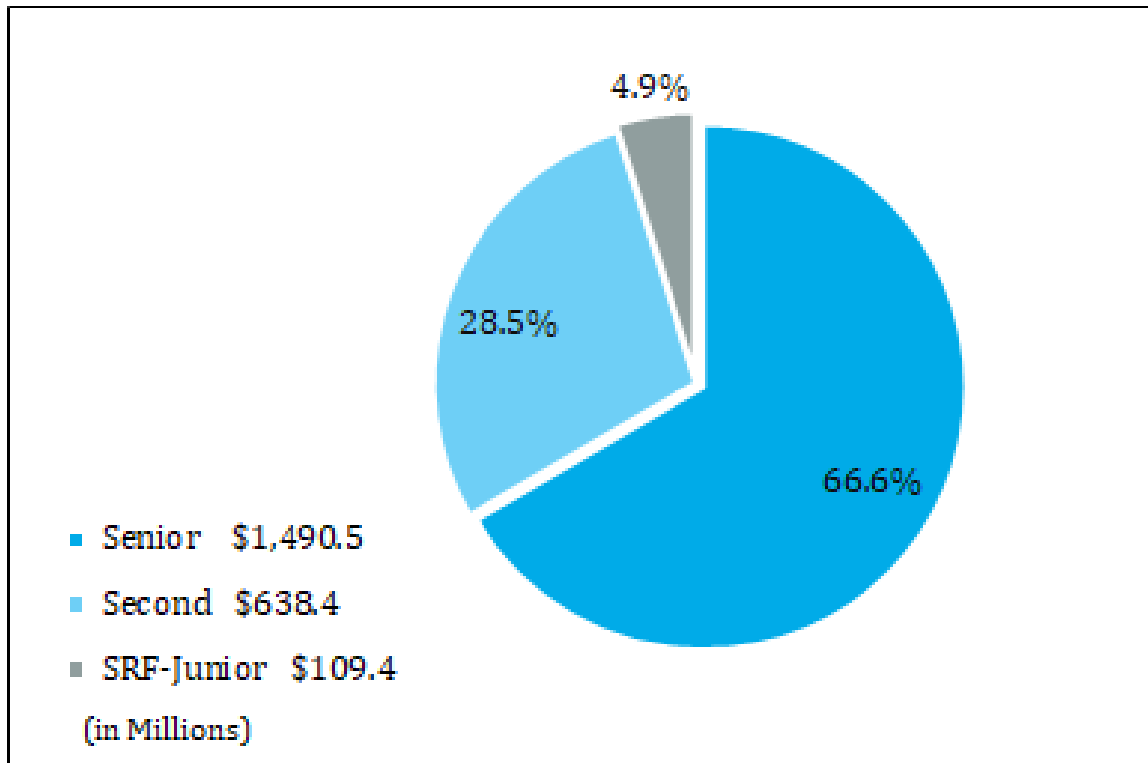


Chart 2 - Debt Type by Lien - Sewer provides a breakdown of the total sewer system debt for both the regional and local systems by lien type.

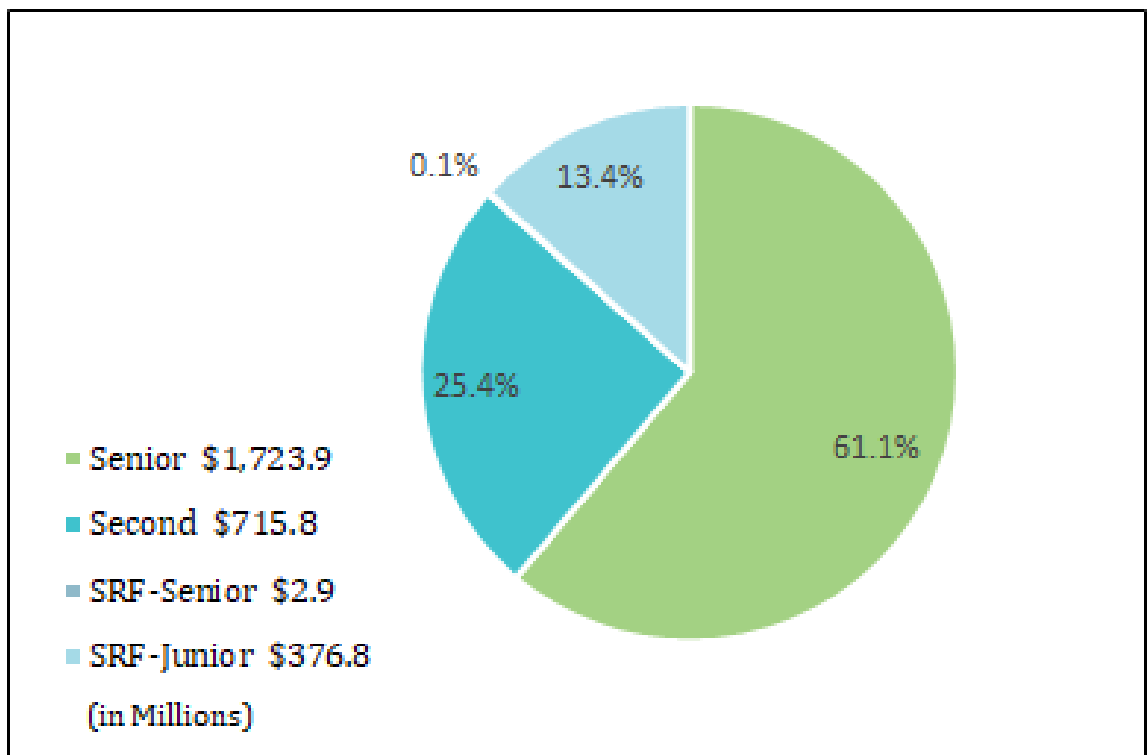


Chart 3 – Annual Debt Service Payments by Lien – Water provides the annual debt service installment requirements for each fiscal year.

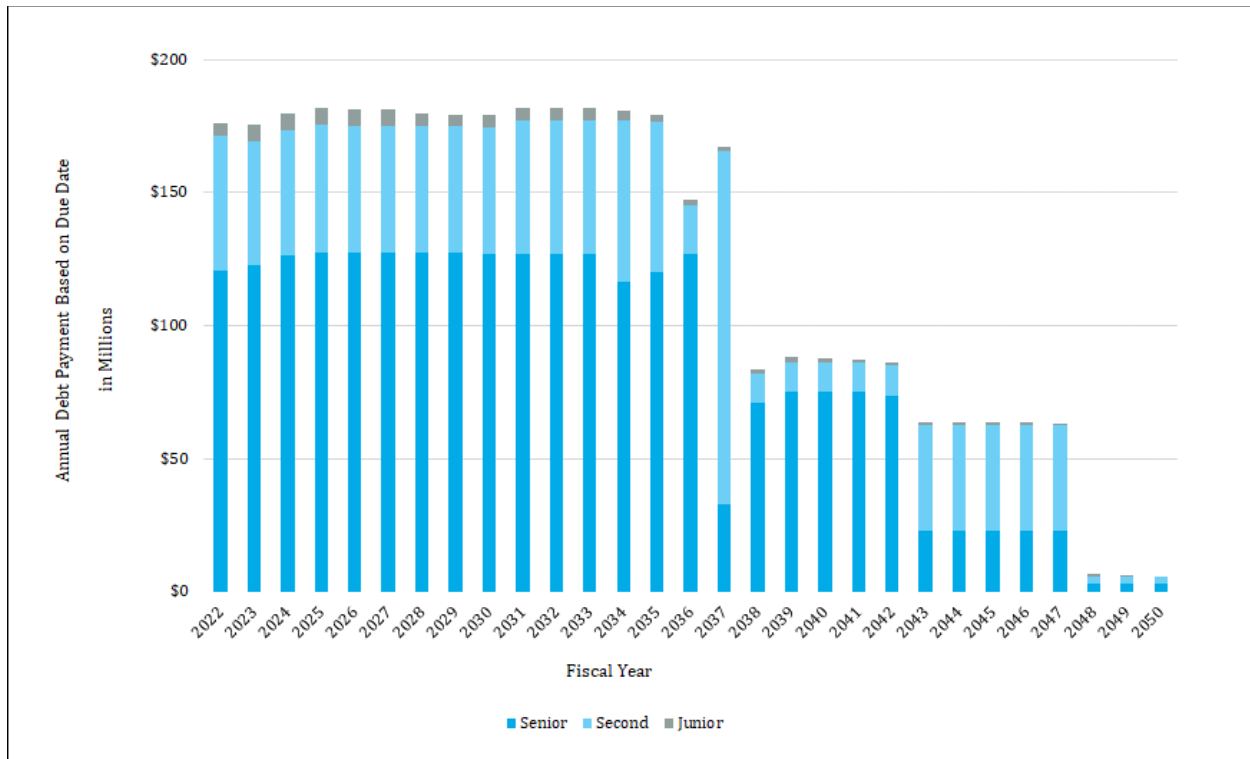
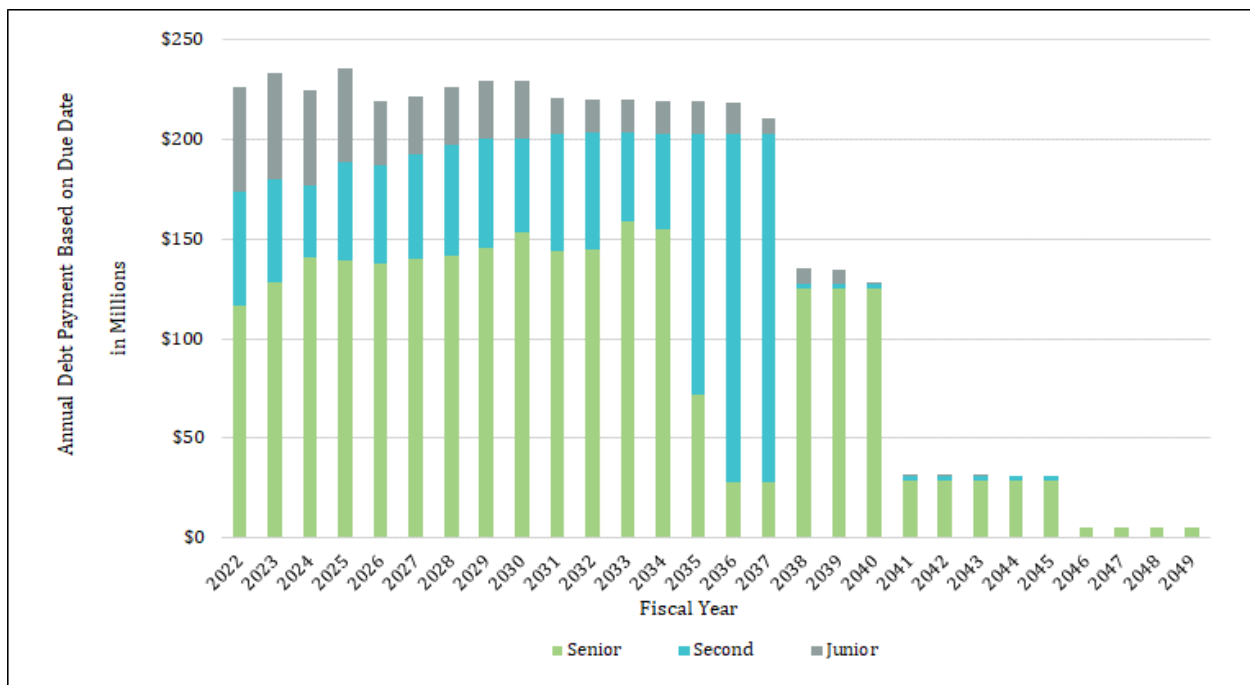


Chart 4 – Annual Debt Service Payments by Lien – Sewer provides the annual debt service installment requirements for each fiscal year.



Note: The figures in these charts reflect the debt service installment requirements for each fiscal year, which are required by the MBO to be set aside monthly in advance of actual payment dates. This information will differ from the Annual Comprehensive Financial Report which reflects when the actual payments are made to the bond paying agent.

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

These loan programs have interest rates that are well below open market interest rates (usually between 1.875% and 2.5%) and are repaid over 20-30 years. For the state’s FY 2022, the DWRF and CWRP program rates are 1.875% for 20-year loans and 2.125% for 30-year loans.

Funds are disbursed as construction payments are made. Interest on each loan is based on the amount of funds drawn and not the full loan amount. GLWA must submit project plans to the Michigan Department of Environment, Great Lakes, and Energy (“EGLE”, and formerly known as the Michigan Department of Environmental Quality or MDEQ) for each project by the annual submission date (July 1 for DWRF and June 1 for CWRP) to be considered for the State’s funding pool for the following fiscal year.

State Revolving Fund Loans: GLWA’s strategy is to maximize its use of SRF loans to finance qualified capital projects. GLWA currently has \$109.4 million in outstanding water SRF loans and \$379.6 million in outstanding sewer SRF loans.

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

State Loan #	Description	Order of Approval	Project Total (\$ Millions)
SRF Water - DWSD Projects			
7447-01	Water Main Replacement (WS-707 & 714)	8/9/2019	\$16.5
7460-01	Water Main Replacement (WS-710 & WS-711)	7/15/2020	\$22.6
7483-01	Water Main Replacement (WS-715 & WS-718)	9/9/2020	\$13.4
7484-01	Water Main Replacement - Jefferson Chalmers (WS-713)	8/6/2021	\$12.8
7548-01	Lead Service Line Water Main Replacement (WS-721)	4/8/2022	\$10.0
SRF Water - GLWA Projects			
7445-01	Northeast Transmission Phase 1	8/9/2019	\$30.0
7445-02	Northeast Transmission Main - Phase 2a	8/7/2020	\$9.0
7445-04	Northeast Transmission Main - Phase 3a	5/28/2021	\$11.9
7461-01	14 Mile Transmission Main Loop - Phase 1	8/7/2020	\$9.0
7461-02	14 Mile Transmission Main Loop - Phase 2	8/6/2021	\$104.7
		Total Water	\$239.8
SRF Sewer - DWSD Projects			
5688-01	Sewer Main Rehab/Rplcmt (DWS-916) - Project A	9/9/2020	\$4.0
5706-01	Sewer Main Replacements - Project B (DWS-917 & DWS-918)	9/9/2021	\$9.2
SRF Sewer - GLWA Projects			
5655-02	Detroit River Interceptor Segment 2	3/27/2020	\$28.4
5655-03	Detroit River Interceptor Segment 3	5/16/2020	\$34.2
5673-01	PS-1 Ferric Chloride System Rehabilitation	2/26/2021	\$12.9
		Total Sewer	\$88.7

Chart 5 - Open State Revolving Fund Loans summarizes all current SRF loans held by GLWA (including financings on behalf of DWSD) that are active (reference Table 4 above for project descriptions). It summarizes the original award amount remaining and the amount drawn down as of June 30, 2022 for each loan. On June 30, 2022, the amount of SRF loans authorized and unissued is \$152.9 million for the Water fund and \$136.2 million for the Sewage Disposal Fund.

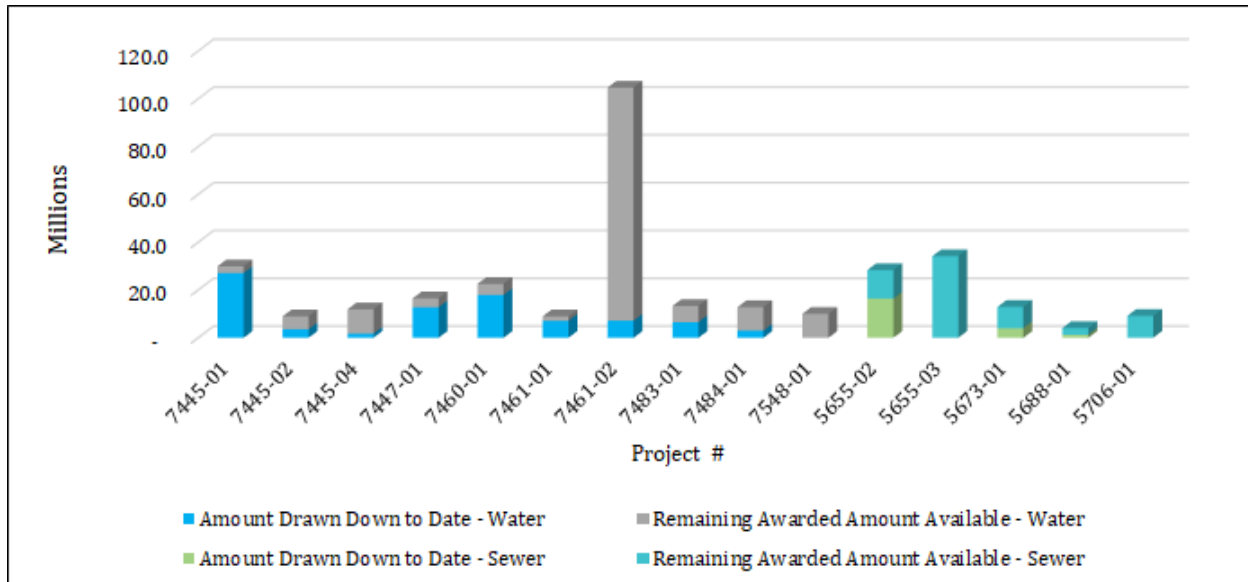


Table 5 - Project Plan Approved by EGLE identifies projects approved by the EGLE but for which applications had not yet been submitted for funding as of June 30, 2022.

Project Owner	Description	Estimated Loan Amount	Anticipated Funding Date
Water SRF			
GLWA	96-inch Water Transmission Main Relocation Project - Phase 1	\$ 36,342,500	Q4.5 FY 2022
GLWA	96-inch Water Transmission Main Relocation Project - Phase 2	\$ 64,230,000	FY 2023
DWSD	Water Main Replacement (WS-732)	\$ 21,100,000	FY 2023
DWSD	Water Main Replacement (WS-733)	\$ 22,100,000	FY 2023

Total Water SRF **\$ 143,772,500**

Sewer SRF			
GLWA	In-System Storage Device and Dam and Valve Remote Evaluation and Rehabilitation	\$ 19,035,000	Q4.5 FY 2022
GLWA	Connor Creek Sewer System Rehabilitation	\$ 50,245,000	Q4 FY 2022
GLWA	Oakwood District Intercommunity Relief Sewer Modification	\$ 75,000,000	FY 2023

Total Sewer SRF **\$ 144,280,000**

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

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

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

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

Chart 6 - DWSD Obligation Receivable by Type summarizes the total DWSD obligation receivable balance for both Water and Sewer as of June 30, 2022 by pre-bifurcation, revenue bond and SRF component.

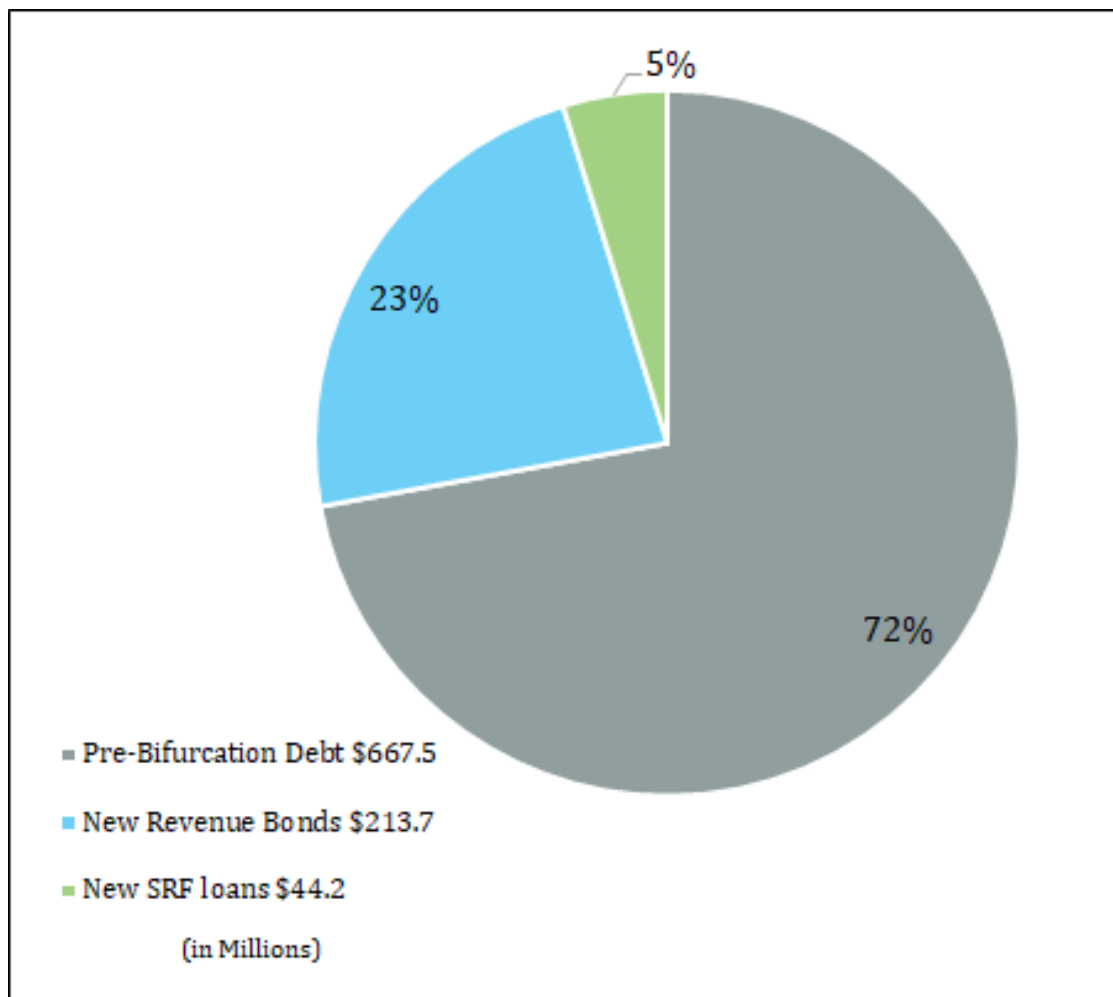


Chart 7 - Obligation Receivable Compared to Total Debt - Water provides context by comparing the Water System Obligation Receivable to the Total Water Debt (excludes unamortized premiums).

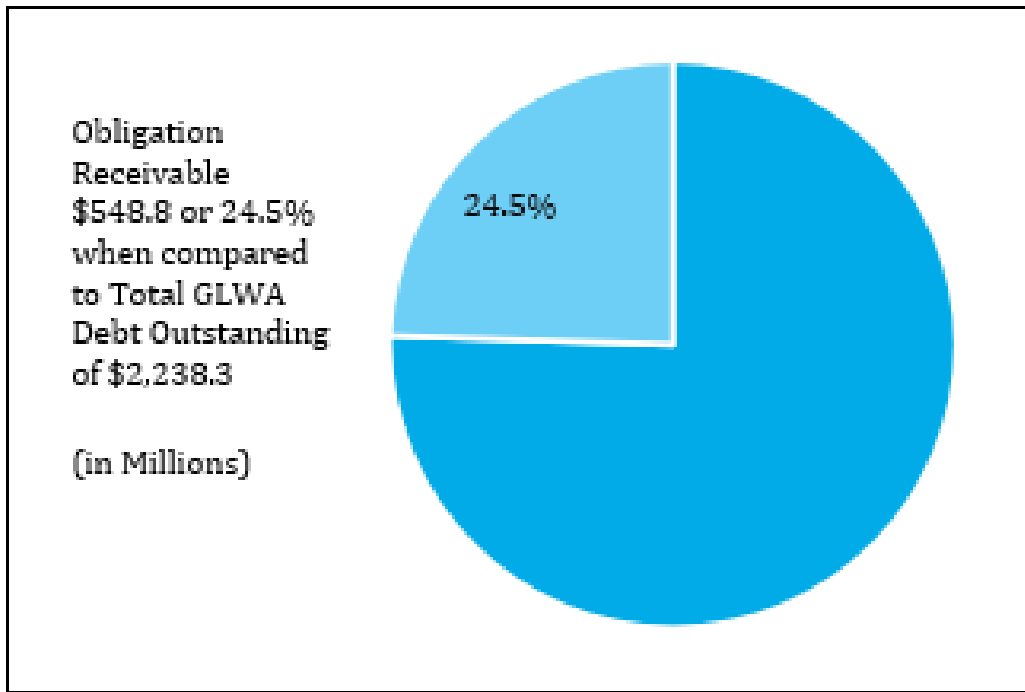


Chart 8 - Obligation Receivable Compared to Total Debt - Sewer provides context by comparing the Sewer System Obligation Receivable to the Total Sewer Debt (excludes unamortized premiums).

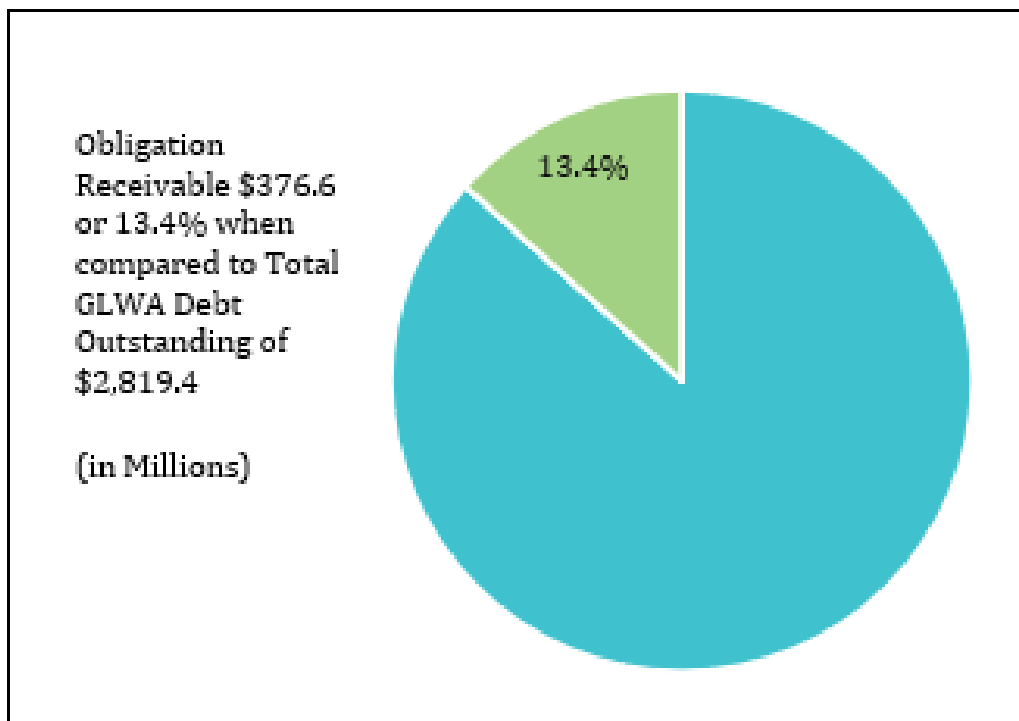


Table 6 - DWSD Obligation Receivable provides obligation receivable detail including fiscal year 2022 beginning balances by debt type and loan issue (for revenue bonds and SRF loans), year-to-date activity and ending balances as of June 30, 2022. Total DWSD debt totals \$925 million. This differs slightly from the total in Chart 6 due to the inclusion of unamortized premiums.

(In Thousands)

Debt Type	July 1, 2021 Beg Balance	Increase	Decrease	SRF Debt Forgiveness	June 30, 2022 End Balance
DWSD Water					
Pre-Bifurcation Debt	\$ 383,841	\$ -	\$ (15,168)		\$ 368,673
Revenue Bond - 2016A	17,725	-	-	-	17,725
Revenue Bond - 2016B	33,015	-	-	-	33,015
Revenue Bond - 2020A	42,445	-	-	-	42,445
Revenue Bond - 2020B	43,135	-	-	-	43,135
SRF 7412-01	4,842	-	(124)	-	4,718
SRF 7413-01	3,139	-	(85)	-	3,054
SRF 7414-01	5,503	-	(155)	-	5,348
SRF 7447-01	7,684	347	(288)	-	7,743
SRF 7460-01	7,718	8,151	-	-	15,869
SRF 7483-01	-	6,528	-	(1,202)	5,326
SRF 7484-01	-	3,018	-	(1,316)	1,701
Total DWSD Obligation	549,046	18,044	(15,820)	(2,518)	548,752
Unamortized Premiums	19,606	-	(739)		18,867
Subtotal: Water	568,652	18,044	(16,559)	(2,518)	567,619
DWSD Sewer					
Pre-Bifurcation Debt	311,584	-	(12,780)	-	298,804
Revenue Bond - 2018A	78,810	-	(1,465)	-	77,345
SRF 5688-01	-	1,288	-	(808)	480
Total DWSD Obligation	390,394	1,288	(14,245)	(808)	376,629
Unamortized Premiums	8,962	-	(392)	-	8,569
Subtotal: Sewer	399,356	1,288	(14,637)	(808)	385,199
Total DWSD Debt	\$ 968,008	\$ 19,332	\$ (31,196)	\$ (3,326)	\$ 952,818

Table 7 – Loan Forgiveness provides a summary of loan principal forgiven on DWSD SRF loans closed after January 1, 2016. EGLE grants principal loan forgiveness on qualified planning costs for disadvantaged communities. Through June 30, 2022, around \$16.4 million or 16% of approved, DWSD SRF loans have been forgiven as a disadvantaged community.

Table 7 - DWSD SRF Loan Forgiveness

State Loan #	Approved Amount	Loan Forgiveness
DWSD Water SRF		
SRF 7412-01	10,605,000	1,000,000
SRF 7413-01	5,180,000	1,000,000
SRF 7414-01	8,675,000	2,000,000
SRF 7447-01	16,500,000	4,711,944
SRF 7460-01	22,570,000	2,031,300
SRF 7483-01	13,355,000	1,201,950
SRF 7484-01	12,845,000	1,316,050
Subtotal: Water	89,730,000	13,261,244
DWSD Sewer SRF		
SRF 5688-01	4,040,000	808,000
SRF 5706-01	9,175,000	2,293,750
Subtotal: Sewer	13,215,000	3,101,750
Total DWSD Debt	\$ 102,945,000	\$ 16,362,994

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

Table 8 - Long-Term Debt Summary provides a detail of GLWA’s fiscal year 2021 beginning balances by debt type and loan issues, year-to-date activity, and ending balances as of June 30, 2022. GLWA debt includes financing for both the regional and local share.

(In Thousands)

Debt Type	June 30, 2021			Debt Forgiveness	June 30, 2022 End Balance
	Beg Balance	Increase	Decrease		
Water Fund					
Revenue Bonds	\$ 2,192,510	\$ -	\$ (63,620)	\$ -	\$ 2,128,890
State Revolving Loans	71,260	43,686	(2,998)	(2,518)	109,429
Total Installment Debt	2,263,770	43,686	(66,618)	(2,518)	2,238,319
Unamortized Premiums / Discounts	176,122	-	(15,112)	-	161,010
Subtotal: Water	2,439,892	43,686	(81,730)	(2,518)	2,399,330
Sewer Fund					
Revenue Bonds	2,515,455	-	(75,710)	-	2,439,745
Capital Appreciation bonds	5,675	-	(5,675)	-	-
State Revolving Loans	416,768	10,503	(46,815)	(808)	379,648
Total Installment Debt	2,937,898	10,503	(128,200)	(808)	2,819,393
Capital Appreciation Bond Discount	(171)	-	171	-	-
Unamortized Premiums / Discounts	62,187	-	(3,545)	-	58,642
Subtotal: Sewer	2,999,914	10,503	(131,574)	(808)	2,878,035
Total Combined, Long Term Debt	\$ 5,439,806	\$ 54,189	\$ (213,305)	\$ (3,326)	\$ 5,277,365

Debt Service Coverage

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

GLWA computes the debt service coverage ratio using two different methodologies. The Rate Covenant Method uses the cash basis in computing pledged revenue and the GAAP Method uses the accrual basis in computing pledged revenue. Pledged revenue is divided by the debt service requirements of each lien on a set aside basis to compute the debt service coverage ratio. The set aside basis is defined as the cash available to make the debt service payments on the due dates. The following table details the components of the pledged revenue for each methodology.

Components of Pledged Revenue	Pledged Revenue Calculation	Rate Covenant Basis	GAAP Basis
Revenues	Addition	Cash basis	Accrual basis
GLWA O&M expenses	Subtraction	Cash basis	Accrual basis
GLWA O&M pension	Subtraction	Cash basis	Cash basis
DWSD O&M expenses & O&M pension	Subtraction	Cash transfers to DWSD	Cash transfers to DWSD

Table 9: Debt Service Coverage Ratios - Water provides a summary of the MBO required minimum, historical, and budgeted debt service coverage ratios for the Water fund.

Debt Service Coverage Water System							
	MBO Required Minimum	Actual 2019	Actual 2020	Actual 2021	Adopted Budget 2022	Adopted Budget 2023	Adopted Budget 2024
Rate Covenant Basis							
Senior Lien Bonds	1.20	2.13	1.94	1.99	1.89	1.80	1.88
Senior and second lien bonds	1.10	1.54	1.39	1.40	1.37	1.33	1.40
All bonds, including SRF junior lien	1.00	1.51	1.37	1.38	1.32	1.27	1.29
GAAP Basis							
Senior Lien Bonds		2.04	1.98	1.99			
Senior and second lien bonds		1.47	1.43	1.40			
All bonds, including SRF junior lien		1.45	1.40	1.38			

Table 10: Debt Service Coverage Ratios - Sewer provides a summary of the MBO required minimum, historical, and budgeted debt service coverage ratios for the Sewer fund.

Debt Service Coverage Sewage Disposal System							
	MBO Required Minimum	Actual 2019	Actual 2020	Actual 2021	Adopted Budget 2022	Adopted Budget 2023	Adopted Budget 2024
Rate Covenant Basis							
Senior Lien Bonds	1.20	2.11	2.15	2.92	2.42	2.17	2.28
Senior and second lien bonds	1.10	1.62	1.64	1.97	1.74	1.74	1.72
All bonds, including SRF junior lien	1.00	1.29	1.29	1.51	1.35	1.37	1.35
GAAP Basis							
Senior Lien Bonds		2.10	2.16	2.55			
Senior and second lien bonds		1.62	1.65	1.72			
All bonds, including SRF junior lien		1.28	1.30	1.32			

Refinancing

To reduce the annual water and sewer debt service payments, GLWA monitors its outstanding water and sewer debt portfolios to determine if it can refund existing bond issues with new, lower interest rate bonds. At least once per year, GLWA's registered municipal advisor, PFM Financial Advisors, LLC (PFM) prepares an analysis of GLWA's bond refunding opportunities based on the current municipal interest rate environment and the existing debt service on GLWA's callable bonds.

In May 2020, GLWA completed a \$463.1 million Water Supply System Revenue and Revenue Refunding bond transaction. This included a \$377.5 million taxable bond refinancing transaction with an additional \$85.6 million in tax-exempt new money to support the DWSD local system capital improvements. The refunding transaction resulted in \$66.5 million of present value savings for the water system. In June 2020, GLWA completed a \$687 million Sewage Disposal System Revenue Refunding taxable bond transaction resulting in present value savings of \$123 million for the sewage disposal system.

As part of the May and June 2020 transactions noted, funds from the refunding bonds have been placed in an irrevocable trust with an escrow agent to pay off this debt on the next available call dates. The bonds to be refunded are considered defeased and have been removed from GLWA's statement of net position.

Table 11: Defeased Debt provides a summary of the debt which has been defeased and the call dates.

Defeased Debt - Sewage Disposal Fund			
Bond Series to be Refunded	Amount	Call Date	Bond Issue Refunded By
Series 2012A	\$ 419,810,000	July 1, 2022	Series 2020A & Series 2020B
Series 2014C-1	\$ 123,200,000	July 1, 2022	Series 2020A & Series 2020B
Series 2014C-2	\$ 27,450,000	July 1, 2022	Series 2020A & Series 2020B
Total Defeased Sewage Disposal Fund Debt	\$ 570,460,000		

The next available refunding opportunity will be for bonds with a call date of July 1, 2024, for both the water fund and sewage disposal fund. Approximately \$434.2 million in water bonds and \$436.5 million in sewer bonds will be callable at that time. GLWA will continue to work with its registered municipal advisor to monitor the potential for refunding these bonds.