

The Quarterly Debt Summary Report includes the following:

1. Key Takeaways
2. Look Ahead – Five Year Capital Financing Plan
3. Existing Debt
4. Debt Service Coverage
5. 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 an "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.glwater.org. The above explanation is a synopsis of key points and is not intended to fully represent the agreements or any sub-sections thereof.

Key Takeaways

- ✓ 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 quarterly.
- ✓ GLWA has fourteen active State Revolving Fund (SRF) loans, ten for water and four for sewer. On behalf of DWSD, GLWA is administering four projects for water and two for sewer.
- ✓ Existing proceeds from special revenue bonds are depleted. This means that all capital projects are now funded with Improvement & Extension funds, except for SRF funded projects.
- ✓ Other key items of interest include the following balances as of December 31, 2021.

As of December 31, 2021 (\$ Millions)		
	Water	Sewer
FY 2022 Approved SRF Projects - Table 5	\$352.0	\$105.5
DWSD Obligation Receivable - Table 6	\$549.5	\$384.0
GLWA Outstanding Debt - Table 8	\$2,271.4	\$2,870.5

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 2022 and FY 2023 Biennial Budget & Five-Year Financial Plan FY 2022 through FY 2026 approved by the GLWA Board of Directors. It should be noted existing proceeds from special revenue bonds are depleted. This means that all capital projects are now funded with Improvement & Extension (I&E) funds, except for SRF funded projects. It is expected that the I&E funds supplemented with SRF low-interest loan funding will be sufficient to fund the capital program through FY 2022 including an allowance to provide flexibility in the timing of future bond issues.

Table 2 is based on the current local system CIP approved by the DWSD's Board of Water Commissioners. It is important to note the amounts represented in Revenue Bonds reflect the anticipated par amount of the bonds to be issued and not the net proceeds needed to support the capital plan.

Table 1 - GLWA Projected Bond Financing FY 2022 – FY 2026

Projected Funding Needs for Regional System					
	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Water					
Revenue Bonds	\$ -	\$ 205,000,000	\$ -	\$ 195,000,000	\$ -
SRF loan draws	\$ 26,100,000	\$ 16,600,000	\$ 16,600,000	\$ 16,600,000	\$ 15,810,000
Total projected funding Water	\$ 26,100,000	\$ 221,600,000	\$ 16,600,000	\$ 211,600,000	\$ 15,810,000
Sewer					
Revenue Bonds	\$ -	\$ 130,000,000	\$ -	\$ 115,000,000	\$ -
SRF loan draws	\$ 31,992,000	\$ 4,122,000	\$ -	\$ -	\$ -
Total projected funding Sewer	\$ 31,992,000	\$ 134,122,000	\$ -	\$ 115,000,000	\$ -

Table 2 - DWSD Projected Bond Financing FY 2022 – FY 2026

Projected Funding Needs for Local System					
	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Water					
Revenue Bonds		\$ -	\$ -	\$ -	\$ -
SRF loan draws	\$ 25,000,000	\$ 28,500,000	\$ -	\$ -	\$ -
Total projected funding Water	\$ 25,000,000	\$ 28,500,000	\$ -	\$ -	\$ -
Sewer					
Revenue Bonds	\$ -	\$ -	\$ -	\$ -	\$ -
SRF loans draws	\$ 10,000,000	\$ 8,628,000	\$ -	\$ -	\$ -
Total projected funding Sewer	\$ 10,000,000	\$ 8,628,000	\$ -	\$ -	\$ -

Note: Information presented is as of December 31, 2021. Financing plans continue to evolve based on the needs of the system.

Existing Debt

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

Table 3 – Debt Ratings by System provides a summary of the debt ratings assigned in March 2020 in advance of the most recent bond refinancing and new money issuance in May and June 2020.

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	Stable	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	Stable	Stable

Debt Allocation: GLWA has over \$2.3 billion in water system debt and nearly \$2.9 billion in sewer system debt for a combined total of over \$5.2 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.

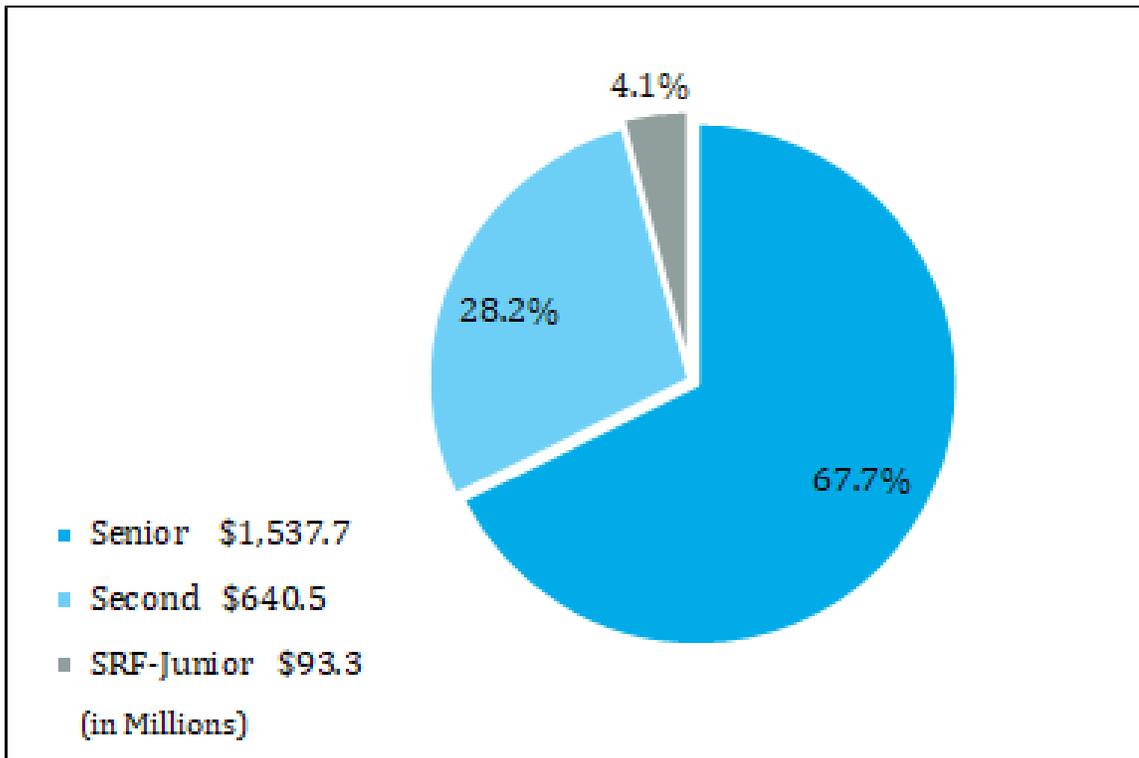


Chart 2 - Debt Type by Lien - Sewer provides a breakdown of the total sewer system debt for both the regional and local systems by lien type.

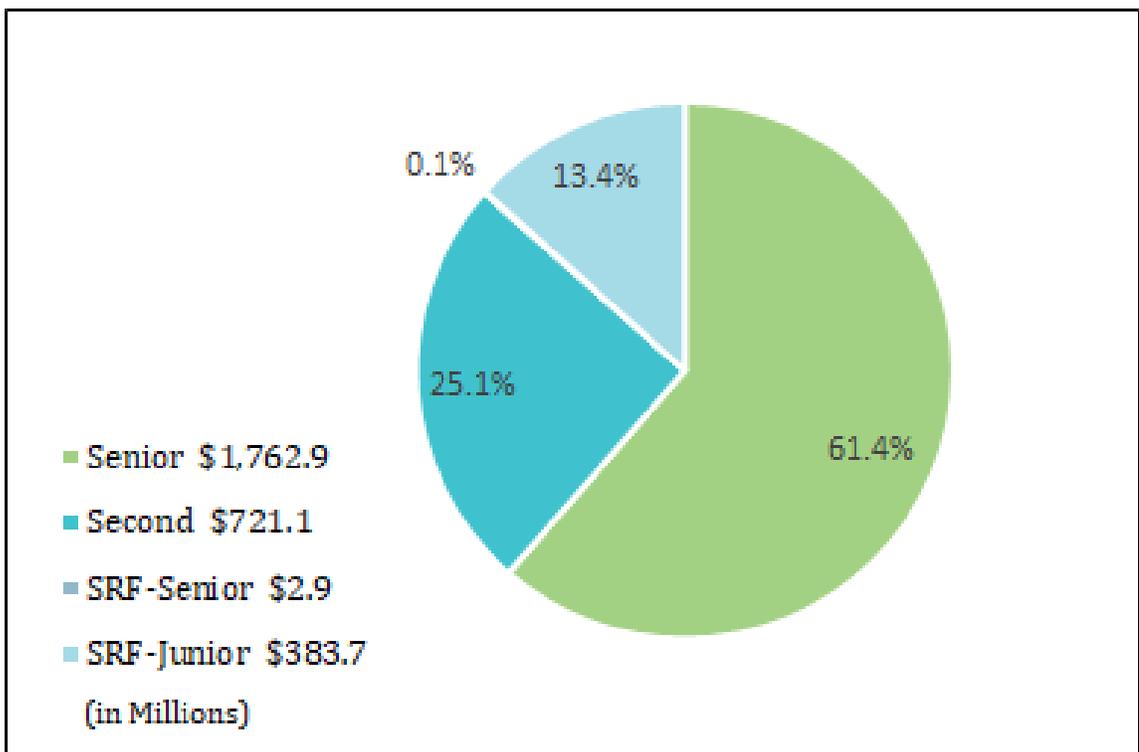


Chart 3 – Annual Debt Service Payments by Lien – Water provides the annual debt service installment requirements for each fiscal year.

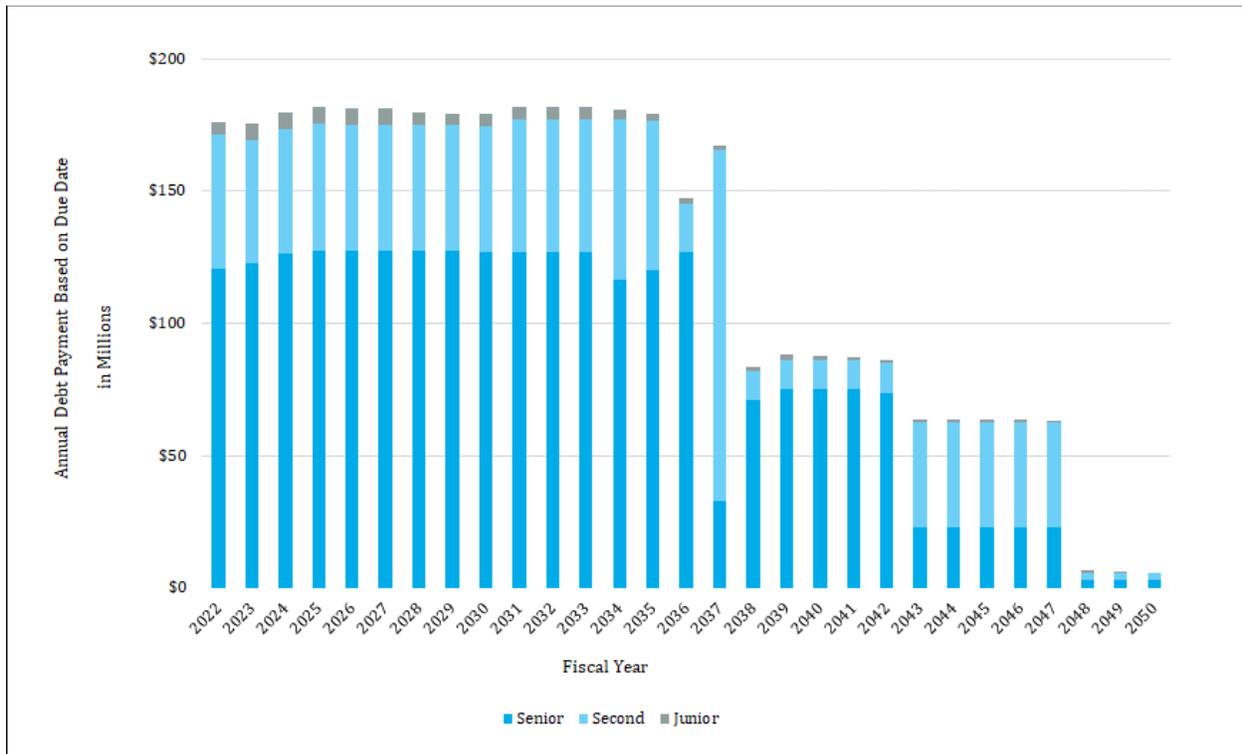


Chart 4 – Annual Debt Service Payments by Lien – Sewer provides the annual debt service installment requirements for each fiscal year.



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 (DWRP) 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 DWRP 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 DWRP 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 \$93.3 million in outstanding water SRF loans and \$386.6 million in outstanding sewer SRF loans.

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

State Loan #	Description	Order of Approval	Project Total (\$ Millions)
SRF Water - DWSD 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
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
7446-01	Lake Huron Sludge System-Raw Sludge Clarifiers	5/17/2019	\$8.3
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	\$238.2
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
5673-01	PS-1 Ferric Chloride System Rehabilitation	2/26/2021	\$12.9
		Total Sewer	\$54.5

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 December 31, 2021 for each loan. On December 31, 2021, the amount of SRF loans authorized and unissued is \$161.0 million for the Water fund and \$38.1 million for the Sewage Disposal Fund.

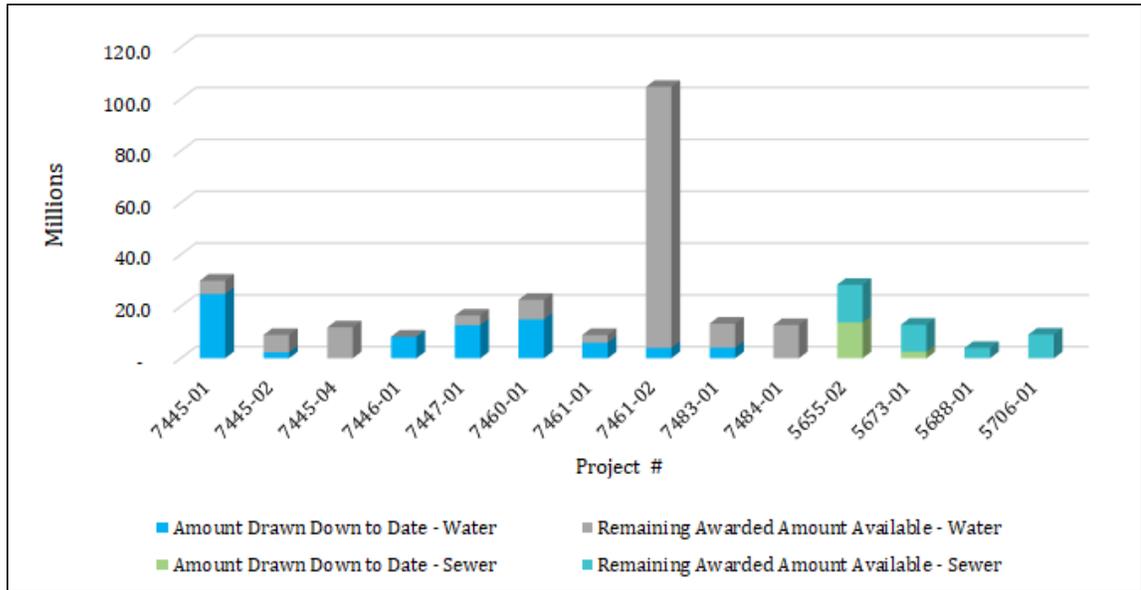


Table 5 - Project Plan Approved by EGLE identifies projects approved by the EGLE but for which applications had not yet been submitted for funding as of December 31, 2021.

Project Owner	Description	Estimated Loan Amount	Anticipated Funding Date
Water SRF			
DWSD	Lead Service Line Water Main Replacement (WS-721)	\$ 1,000,000	2Q 2022
GLWA	96-inch Water Transmission Main Relocation Project - Phase 1	\$ 31,000,000	3.5Q 2022
GLWA	96-inch Water Transmission Main Relocation Project - Phase 2	\$ 111,000,000	4.5Q 2022
GLWA	Ypsilanti Pumping Station	\$ 36,700,000	FY 2023
GLWA	Northeast Transmission Main - Phase 2b	\$ 92,000,000	FY 2023
GLWA	Northeast Transmission Main - Phase 3b	\$ 80,294,000	FY 2024
Total Water SRF		\$ 351,994,000	
Sewer SRF			
GLWA	Detroit River Interceptor - Financial Segment	\$ 38,000,000	3Q 2022
GLWA	Connor Creek Sewer System Rehabilitation	\$ 56,900,000	4Q 2022
GLWA	In-System Storage Device and Dam and Valve Remote Evaluation and Rehabilitation	\$ 10,600,000	1.5Q FY 2023
Total Sewer SRF		\$ 105,500,000	

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 December 31, 2021 by pre-bifurcation, revenue bond and SRF component.

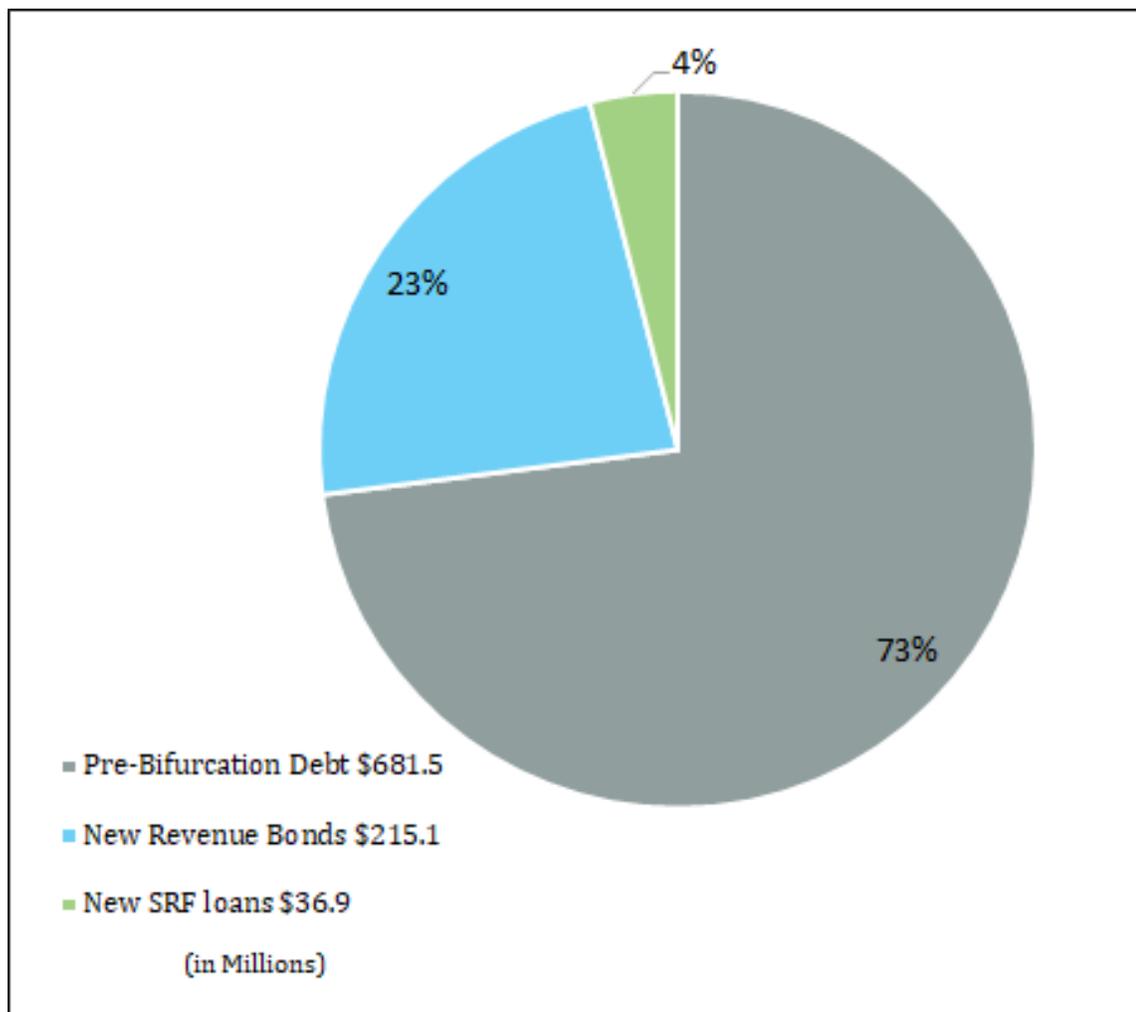


Chart 7 - Obligation Receivable Compared to Total Debt - Water provides context by comparing the Water System Obligation Receivable to the Total Water Debt (excludes unamortized premiums).

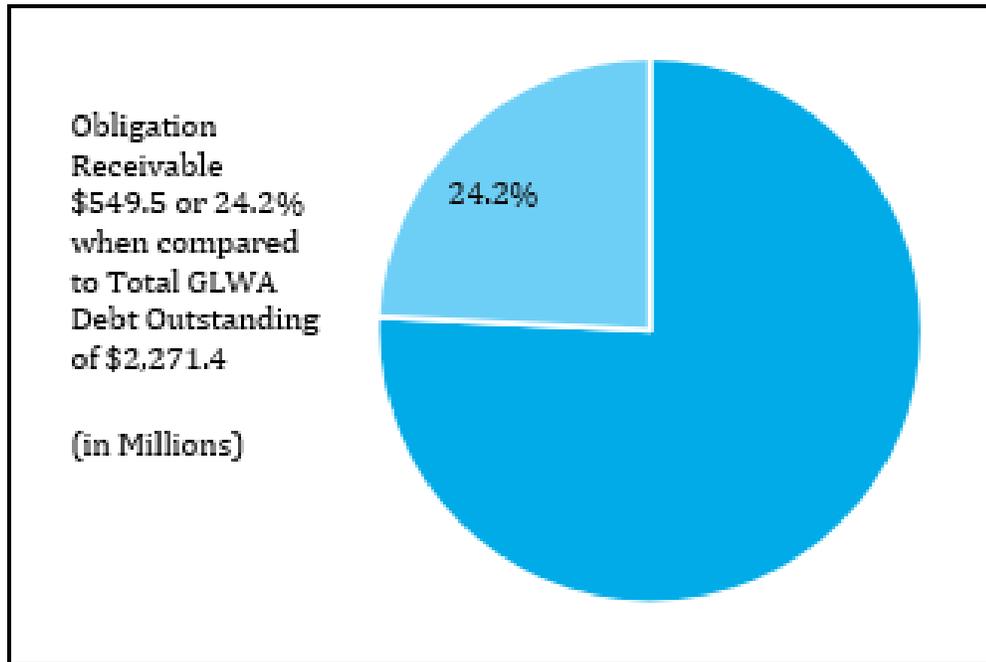


Chart 8 - Obligation Receivable Compared to Total Debt - Sewer provides context by comparing the Sewer System Obligation Receivable to the Total Sewer Debt (excludes unamortized premiums).

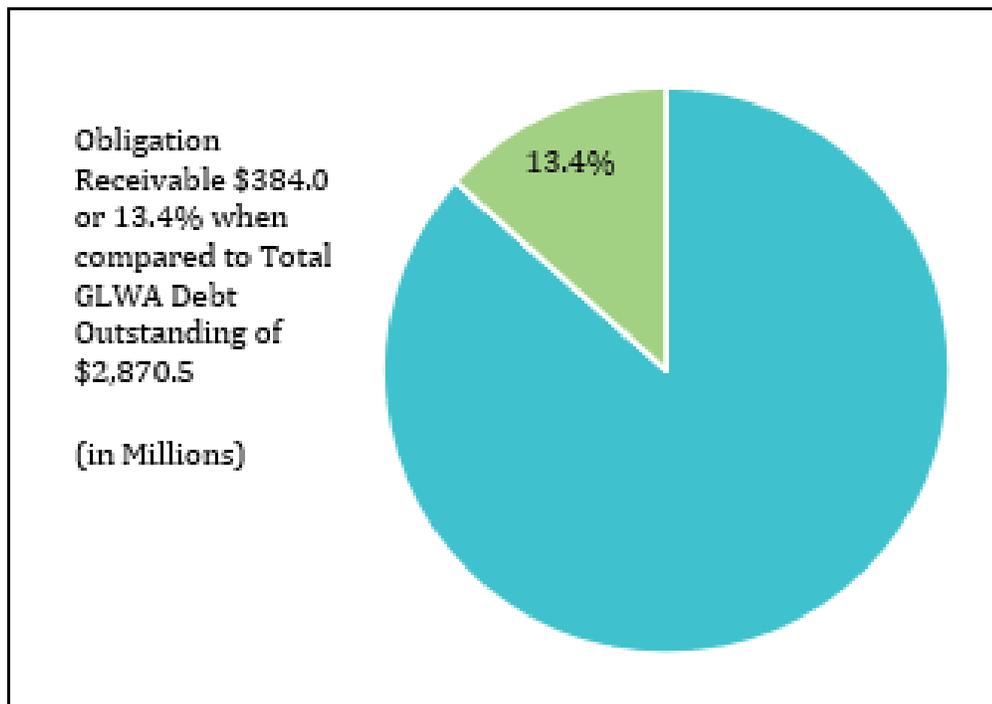


Table 6 - DWSD Obligation Receivable provides obligation receivable detail including fiscal year 2022 beginning balances by debt type and loan issue (for revenue bonds and SRF loans), year-to-date activity and ending balances as of December 31, 2021. Total DWSD debt totals \$962 million. This differs slightly from the total in Chart 6 due to the inclusion of unamortized premiums.

Debt Type	July 1, 2021			SRF Debt Forgiveness	December 31, 2021 End Balance
	Beg Balance	Increase	Decrease		
DWSD Water					
Pre-Bifurcation Debt	\$ 383,841	\$ -	\$ (7,584)		\$ 376,257
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	-	-	-	4,842
SRF 7413-01	3,139	-	-	-	3,139
SRF 7414-01	5,503	-	(155)	-	5,348
SRF 7447-01	7,684	347	(288)	-	7,743
SRF 7460-01	7,718	5,247	-	-	12,965
SRF 7483-01	-	3,219	-	(327)	2,892
Total DWSD Obligation	549,046	8,814	(8,027)	(327)	549,506
Unamortized Premiums	19,606	-	(366)		19,240
Subtotal: Water	568,652	8,814	(8,393)	(327)	568,746
DWSD Sewer					
Pre-Bifurcation Debt	311,584	-	(6,390)	-	305,194
Revenue Bond - 2018A	78,810	-	-	-	78,810
SRF 5688-01	-	46	-	(46)	-
Total DWSD Obligation	390,394	46	(6,436)	(46)	384,004
Unamortized Premiums	8,962	-	(194)	-	8,768
Subtotal: Sewer	399,356	46	(6,630)	(46)	392,771
Total DWSD Debt	\$ 968,008	\$ 8,860	\$ (15,023)	\$ (373)	\$ 961,517

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 December 31, 2021, over \$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 December 31, 2021. GLWA debt includes financing for both the regional and local share.

Debt Type	June 30, 2021			Debt Forgiveness	December 31, 2021	
	Beg Balance	Increase	Decrease		End Balance	
Water Fund						
Revenue Bonds	\$ 2,192,510	\$ -	\$ (14,390)	\$ -	\$ -	\$ 2,178,120
State Revolving Loans	71,260	24,675	(2,343)	(327)		93,265
Total Installment Debt	2,263,770	24,675	(16,733)	(327)		2,271,385
Unamortized Premiums / Discounts	176,122	-	(7,556)	-		168,566
Subtotal: Water	2,439,892	24,675	(24,289)	(327)		2,439,951
Sewer Fund						
Revenue Bonds	2,515,455	-	(31,545)	-		2,483,910
Capital Appreciation bonds	5,675	-	(5,675)	-		-
State Revolving Loans	416,768	5,089	(35,225)	(46)		386,586
Total Installment Debt	2,937,898	5,089	(72,445)	(46)		2,870,496
Capital Appreciation Bond Discount	(171)	-	171	-		-
Unamortized Premiums / Discounts	62,187	-	(1,773)	-		60,415
Subtotal: Sewer	2,999,914	5,089	(74,047)	(46)		2,930,911
Total Combined, Long Term Debt	\$ 5,439,806	\$ 29,764	\$ (98,336)	\$ (373)		\$ 5,370,862

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 Basis uses a pledged revenue on a cash basis methodology and the GAAP Basis uses a pledged revenue on an accrual basis methodology. Pledged revenue is divided by the debt service requirements of each lien on a rate covenant basis to compute the debt service coverage ratio. The rate covenant basis is defined as the cash available to make the debt service payments on the due dates. The table below 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 Fund							
	MBO Required Minimum	Actual 2017	Actual 2018	Actual 2019	Actual 2020	Actual 2021	Adopted Budget 2022
Rate Covenant Basis							
Senior Lien Bonds	1.20	2.03	2.07	2.13	1.94	1.99	1.89
Senior and second lien bonds	1.10	1.57	1.55	1.54	1.39	1.40	1.37
All bonds, including SRF junior lien	1.00	1.56	1.53	1.51	1.37	1.38	1.32
GAAP Basis							
Senior Lien Bonds		2.10	2.12	2.04	1.98	1.99	
Senior and second lien bonds		1.63	1.59	1.47	1.43	1.40	
All bonds, including SRF junior lien		1.61	1.57	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 Fund							
	MBO						Adopted
	Required	Actual	Actual	Actual	Actual	Actual	Budget
	Minimum	2017	2018	2019	2020	2021	2022
Rate Covenant Basis							
Senior Lien Bonds	1.20	2.02	2.04	2.11	2.15	2.92	2.42
Senior and second lien bonds	1.10	1.51	1.56	1.62	1.64	1.97	1.74
All bonds, including SRF junior lien	1.00	1.21	1.25	1.29	1.29	1.51	1.35
GAAP Basis							
Senior Lien Bonds		2.49	2.20	2.10	2.16	2.55	
Senior and second lien bonds		1.86	1.68	1.62	1.65	1.97	
All bonds, including SRF junior lien		1.50	1.34	1.28	1.30	1.51	

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 \$390.4 million in water bonds and \$392.5 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.