



Great Lakes Water Authority

Summary of 2023 Financing Results

\$215,745,000 Water Supply System Revenue and Revenue Refunding Bonds, Series 2023

\$67,210,000 Water Supply System Revenue Refunding Senior Lien Bonds, Series 2023A

\$148,535,000 Water Supply System Revenue Senior Lien Bonds, Series 2023B

\$297,060,000 Sewage Disposal System Revenue and Revenue Refunding Bonds, Series 2023

\$185,235,000 Sewage Disposal System Revenue Refunding Senior Lien Bonds, Series 2023A

\$14,965,000 Sewage Disposal System Revenue Refunding Second Lien Bonds, Series 2023B

\$96,860,000 Sewage Disposal System Revenue Senior Lien Bonds, Series 2023C

Recent bond transactions for the Water System and Sewer System achieved favorable outcomes for GLWA

- Long-term funding procured at fixed interest rates for approximately \$150 million of regional Capital Improvement Program projects for the Water System and \$100 million for the Sewer system
- Achieved all-in cost of new money borrowing consistent with prior issues during a period of increasing interest rates and volatile market: 4.64% for each of the Water System and the Sewer System
- Rating agency upgrades were achieved from both Moody's (Water and Sewer) and Fitch (Sewer), continuing the Authority's positive rating trajectory and credit story
- Extensive outreach to investors was effective and included an electronic investor roadshow and 8 one-on-one investor calls between the Authority and 7 major institutional investors
 - Orders from 80 unique institutional investors totaling \$8.1 billion, including 57 investors that did not participate in GLWA's 2022 transactions
 - Level of interest enabled GLWA to reduce yields on the date of the sale by an average of nearly 0.15% from preliminary morning levels, reducing total debt service by a net present value of approximately \$7.5 million
- Robust tender participation of 35% generates cash flow tender refunding savings of \$45.9 million through 2040 (net present value of \$28.8 million or 8.0% of refunded par)
- Series 2023 bond structures strategically aligned new money debt service requirements with tender refunding savings to achieve overall debt structuring goals lessening burden on budget from new debt for next ten years
 - Complex pricing process, with simultaneous sale of two separate credits (Water and Sewer) on multiple liens (Senior and Second) and with overlapping maturities

Goals Set... Goals Met

The goals for the Series 2023 financings were achieved and provide the Authority with a strong base with which to weather the challenges of a growing capital plan while still achieving future financial goals.



Capture Available Debt Service Savings Through Innovative Tender Refunding Strategy



Acquire Necessary Capital Funding At Favorable Levels



Secure Continued Positive Ratings Trend



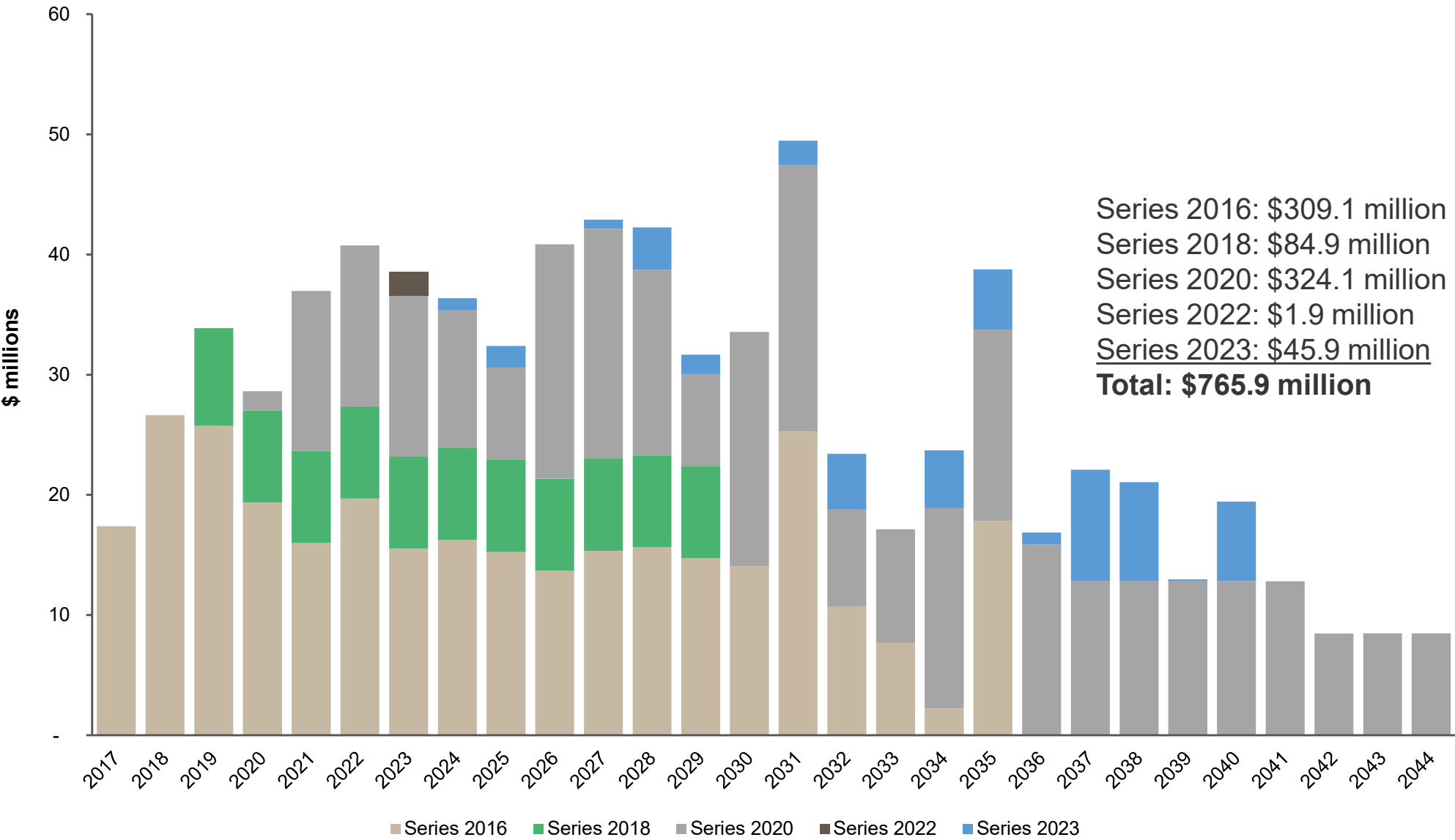
Highlight Continued Strong Financial Results and Expand the Investor Base for GLWA Credits



Enhance GLWA's Financial Flexibility

History of Debt Service Savings Since GLWA Standup

- Through the leadership of the Authority’s management, the financing team has been able to achieve over \$765 million in cash flow debt service savings since the stand-up of GLWA.



Rating Upgrades Achieved

- GLWA and the finance team have conducted an aggressive, multi-year rating agency strategy that resulted in rating upgrades by Moody's and Fitch, **achieving long-term goal of 'AA' category Senior Lien ratings**
 - Water System: Moody's upgrade from A1 to Aa3 on Senior Liens and A2 to A1 on Second Liens
 - Sewer System: Moody's upgrade from A1 to Aa3 on Senior Liens and A2 to A1 on Second Liens and Fitch upgrade from A+ to AA- on Sewer Senior Lien and A to A+ on Sewer Second Lien (Positive Outlook)

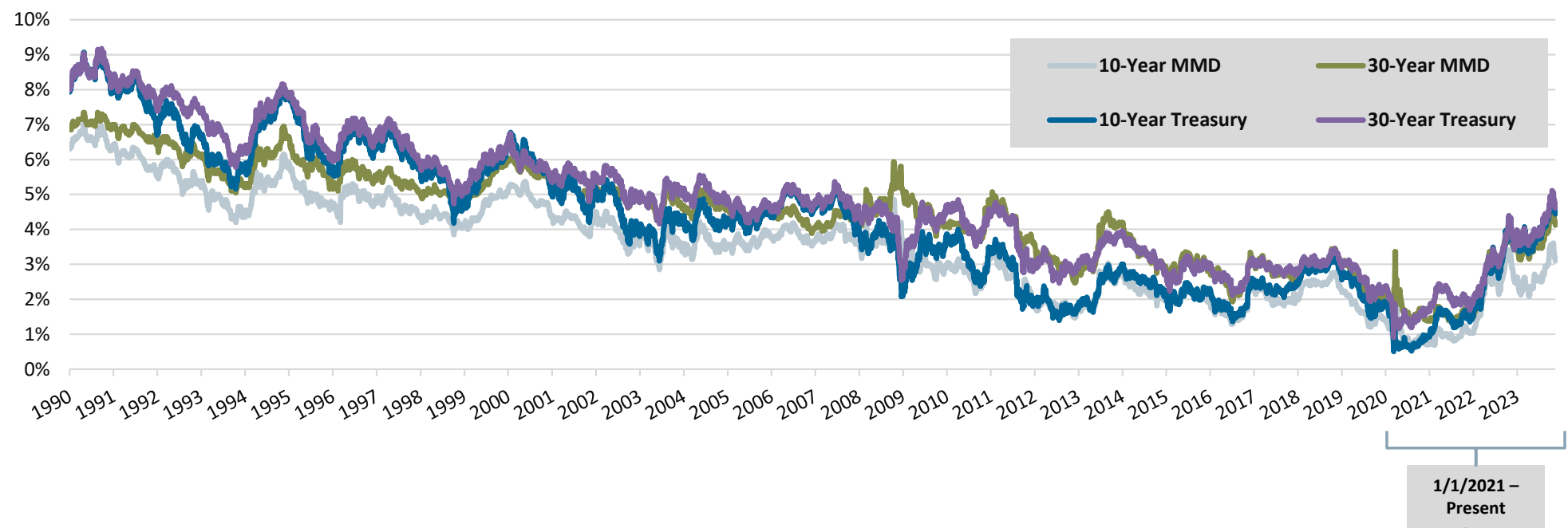
Water System	S&P	Fitch	Moody's
Senior Lien	AA- (stable)	A+ (stable)	Aa3 (stable)
Second Lien	A+ (stable)	A (stable)	A1 (stable)

Sewer System	S&P	Fitch	Moody's
Senior Lien	AA- (stable)	AA- (positive)	Aa3 (stable)
Second Lien	A+ (stable)	A+ (positive)	A1 (stable)

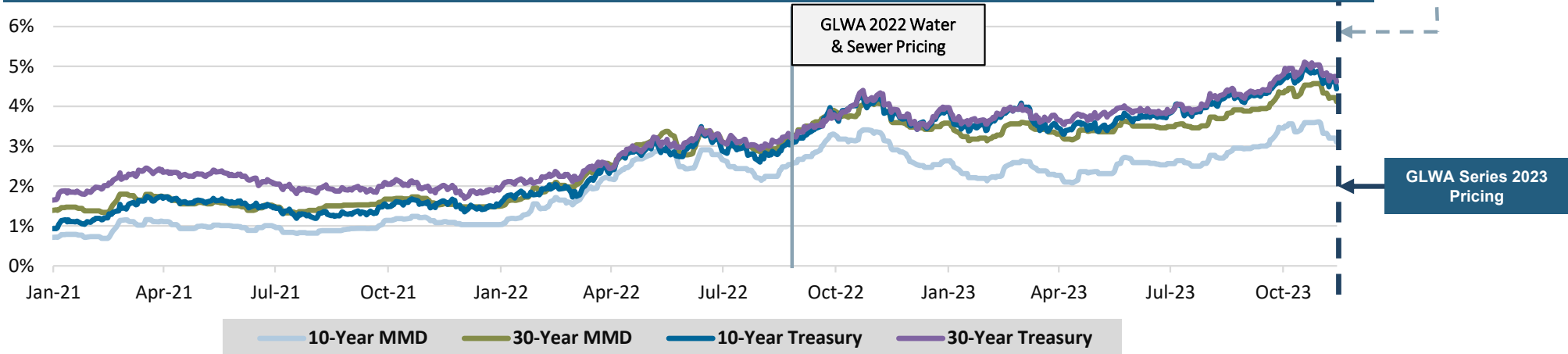
- In connection with the Series 2023 transactions, GLWA hosted each of the rating agencies in Detroit to showcase the strength of management, industry leadership in operations, and the improving economy in the City
 - Full-day meetings included briefing with Executive Leadership Team, bus tour of Detroit, and walk-through of Water Works Park
 - Although preparation for meetings was a significant commitment of GLWA management and finance team time, each of these elements was cited by the rating agencies in their commentary
- In 2020, the Bond Ordinances were amended to give the option to reduce/eliminate the Reserve Requirements upon achieving "AA" category Senior Lien ratings from at least two of the rating agencies
 - Now this criteria has been met, it may impact future transactions
 - A deciding factor will include securing confirmation that ratings will not be reduced as a result of the change in the reserve requirement

10-Year and 30-Year MMD and Treasury Yields

Long Term Interest Rate Landscape Over 30 Years: 10-Year and 30-Year MMD and UST Rates

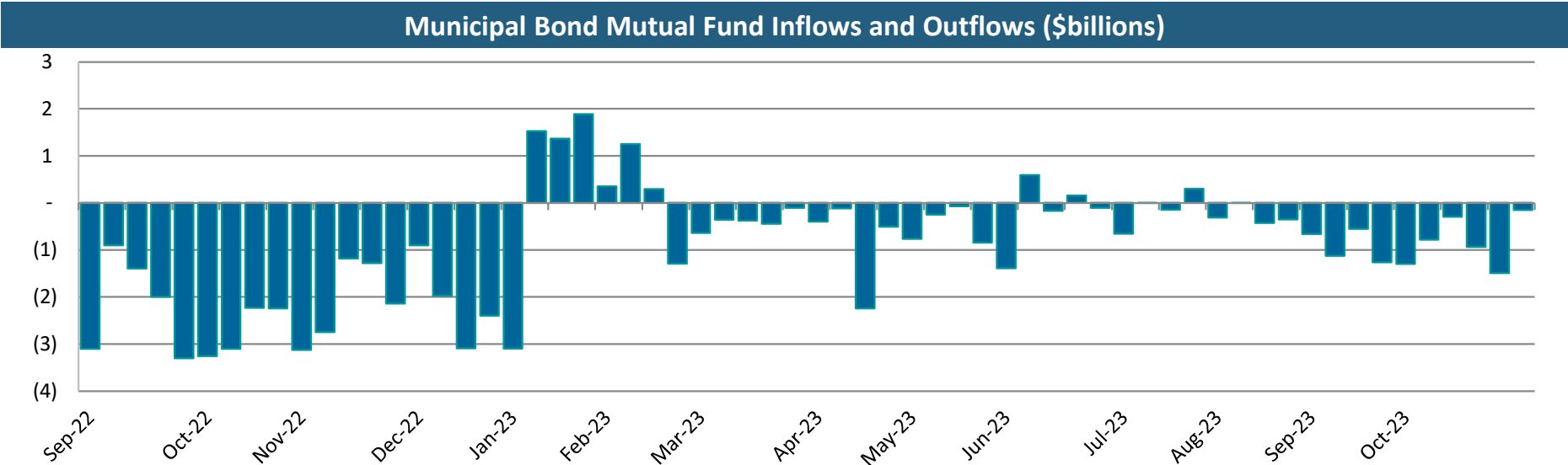
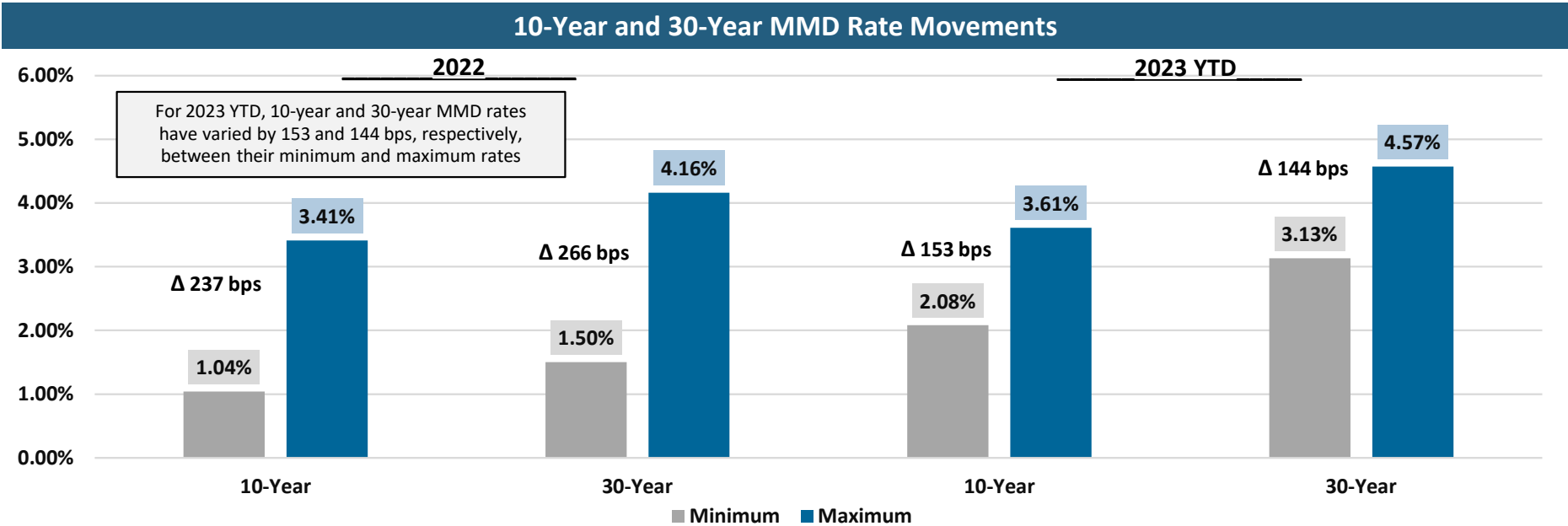


10-Year and 30-Year MMD and UST Rates from 1/1/2021 to Present

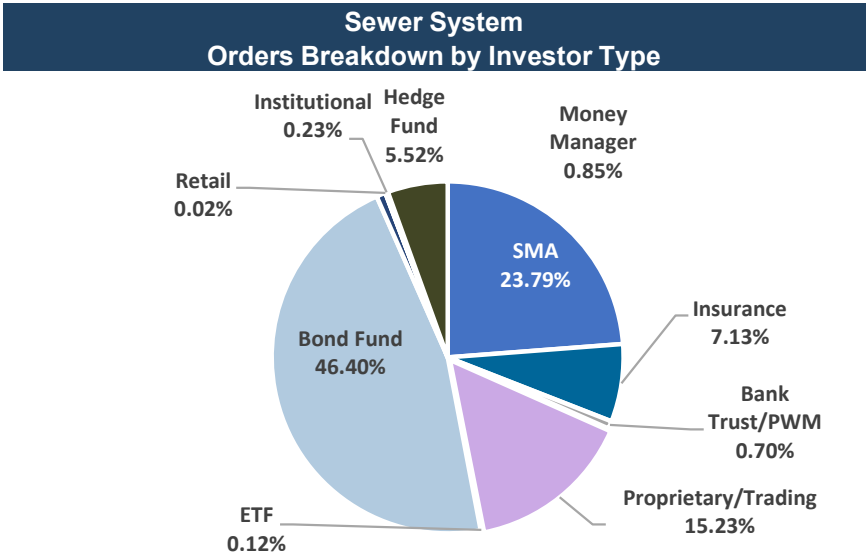
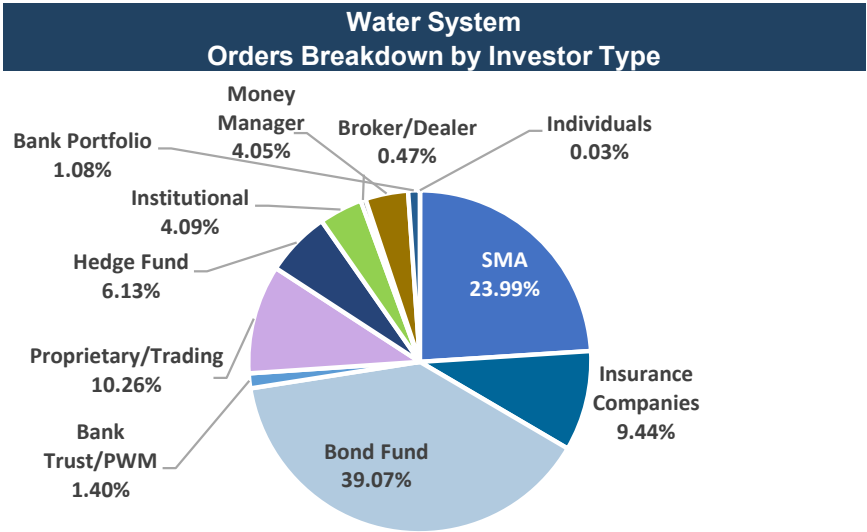


Note: All rates, analyses, and commentary are as of November 14, 2023
Sources: MMD provided by TM3, US Treasury rates provided by US Department of Treasury

Changing Market Fundamentals and Volatility



- An extensive premarketing effort led by Siebert Williams Shank & Co., LLC in the days leading up to the sale generated demand from a wide variety of institutional accounts
 - Marketing outreach efforts included 8 one-on-one investor calls, 92 unique investor views of the POS, and 55 unique investor views of the investor roadshow
 - Of the roadshow viewers, 27 unique investors followed through with orders on either the water or sewer credits
 - All 7 investors requesting one-on-one calls with GLWA management followed through with orders
- **Institutional Orders:**
 - **The Water System** transaction was extremely well received, attracting \$3.17 billion in priority orders
 - 64 unique investors participated, including 47 institutional investors that did not participate in GLWA’s 2022 water transaction
 - **The Sewer System** transaction was extremely well received, attracting \$4.97 billion in priority orders
 - 59 unique investors participated, including 41 institutional investors that did not participate in GLWA’s 2022 sewer transaction
- **Subscriptions:**
 - Orders were received from a mix of investors including insurance companies, bond funds, separately managed accounts (“SMA”), and bank portfolios
 - **Water System:** Subscription levels (excluding stock) ranged from 1.0x to a high of 21.1x for the Senior Lien
 - **Sewer System:** Subscription levels (excluding stock) ranged from 0.0x to a high of 21.4x for the Senior Lien and 12.78x for the Second Lien 2034 maturity



Acronyms

ETF = Exchange Traded Fund
POS = Preliminary Official Statement

PWM = Private Wealth Management
SMA = Separately Managed Account

Tender Refunding Results

The taxable to tax-exempt tender refunding is an element of GLWA's continued focus on prudent management of the debt portfolio, with Series 2023 generating \$45.9 million of unexpected savings

- ***Series 2023 transaction represents one of the largest and most successful liability management transactions in the municipal market this year***
- GLWA invited the holders of \$1.04 billion of Series 2020A and 2020B Sewer Bonds and Series 2020C Water Bonds to sell their bonds back to the Authority at attractive prices below face value
- Holders of \$361.6 million of bonds accepted GLWA's offer, representing an overall participation rate of approximately 35%
 - Participation exceeds planning estimate of 20% and average participation in recent transactions of 25%
- Tender refunding will reduce GLWA debt service by \$45.9 million over the next 17 years, representing a net present value to GLWA of \$28.9 million
 - Savings exceeds most recent estimates provided to the Audit Committee and Board of \$11-14 million
- The major focus of GLWA's strategy was to garner interest in all maturities and for all credits
 - Tenders were submitted for 90% of the maturities (26 out of 29)
- Tender refunding savings is generated from taxable bonds that were never expected to generate additional refunding savings when issued because they were issued at extremely low interest rates with limited economic call option
 - Taxable bonds themselves were issued to refund bonds for significant savings
 - In 2020, GLWA took advantage of historically low interest rates to lock in \$324 million of cashflow savings on a portion of the outstanding Water and Sewer bonds, which required refinancing with taxable bonds
 - Taxable to tax-exempt tender refunding opportunity is driven by the increased difference between GLWA's taxable and tax-exempt borrowing costs since 2020 and not the absolute level of interest rates

Tender Refunding Results (Continued)

Tender Participation by Maturity

Series	Maturity (07/01)	Tendered (\$000s)	% Tendered
Sewer Senior 2020A	2024	\$2,765	36%
	2025	3,365	29%
	2026	2,495	29%
	2027	1,480	64%
	2028	4,285	45%
	2029	2,770	22%
	2030	-	-
	2031	4,135	39%
	2032	20,220	42%
	2033	1,625	24%
	2034	5,255	61%
	2035	3,115	36%
	2036	1,515	17%
	2039 Term	184,720	56%
	2044 Term	11,285	10%
Sewer Second 2020B	2036 Term	20,110	30%
	2044 Term	1,000	7%
Water Senior 2020C	2024	5,860	47%
	2025	2,495	22%
	2026	-	-
	2027	4,650	31%
	2028	3,000	60%
	2029	1,865	38%
	2030	425	10%
	2031	1,050	24%
	2032	175	4%
	2033	-	-
	2034	240	6%
	2041 Term	71,740	24%
Total		\$361,640	35%

Recent Taxable to Tax-Exempt Tender Transactions

Launch Date	Issuer	Outstanding Par (\$000s)	Total Tendered Par (\$000s)	Total Participation
10/27/23	Great Lakes Water Authority	\$1,042,680	\$361,640	35%
10/11/23	Dormitory Authority of The State of New York	1,437,585	126,310	9%
09/29/23	The Water Works Board of the City of Birmingham	200,875	75,660	38%
09/21/23	North Texas Tollway Authority System	466,335	140,420	30%
09/14/23	Utah Transit Authority	263,560	93,825	36%
09/12/23	The State of New York	494,365	133,680	27%
09/11/23	San Diego County Regional Airport Authority	330,945	40,435	12%
09/08/23	Dormitory Authority of The State of New York	1,787,390	246,485	14%
08/31/23	The Ohio State University	600,000	138,433	23%
08/24/23	Stockton Public Financing Authority	52,570	11,135	21%
08/22/23	Regional Transportation District (Colorado)	505,145	154,430	31%
08/18/23	Arizona Transportation Board	415,650	83,045	20%
08/18/23	Michigan State Housing Development Authority	184,930	24,800	13%
08/07/23	State University of New York	782,730	300,965	38%
07/27/23	Chippewa Valley Schools	114,435	21,140	18%
07/21/23	Papio-Missouri River Natural Resources District	50,005	17,945	36%
07/17/23	Leander ISD	303,140	42,690	14%
07/14/23	DASNY	1,066,925	551,530	52%
07/14/23	Gering Public Schools	26,235	2,055	8%

New Money Financing Results

Series 2023 Bonds were sold at an attractive all-in interest rate and will allow the Authority to fund Regional System projects efficiently

- Issued \$148.5 million of new money bonds for the Water System and \$96.9 million for the Sewer System, each meeting the project funding target of \$150 million for the Water System and \$100 million for the Sewer System
 - Series 2023 expected to provide approximately 18 months of funding for the CIP
 - True Interest Cost (TIC) of 4.64% for each of the new money Water System bonds and Sewer System bonds
- Opportunistic issuance of new money at the same time as tender refunding generates efficiencies for GLWA
 - Takes advantage of fixed costs of issuance and substantial management efforts that are already being incurred
 - In the current interest rate environment, there is no negative cost of carry for construction funds on hand because short term investment rates are higher than GLWA's long-term borrowing rate
- New money debt service designed as 30-year level debt service but optimized around tender refunding savings to achieve overall debt structuring goals in alignment with board approved debt policy
 - Resulting structure generates adjusted debt service savings on a level annual basis through 2040, which is the final maturity of refunded debt

Water System - Transaction Overview

- GLWA issued \$215.7 million in Water System Bonds to fund \$150 million for capital improvements and to fund the purchase of tendered bonds for savings
- Tender refunding and new money portions were structured together to optimize transaction cashflows
 - Tender refunding was structured to create level savings through the term of the refunded debt, to the extent possible
 - New money was designed as 30-year level debt service, with principal amortization beginning in 2026
 - Individual components were optimized where necessary to generate combined structure best meeting these goals
- Tender refunding generated over \$7.9 million in NPV savings (~9.0% of refunded par)

Water System Sources and Uses

Sources	Senior Lien	Senior Lien	Aggregate
	Series 2023A	Series 2022B	Series 2023 Bonds
	Tender Refunding	New Money	
Par Amount	67,210,000.00	148,535,000.00	215,745,000.00
Premium	5,736,686.60	9,719,565.65	15,456,252.25
GLWA Cash Contributions ¹	1,966,133.51	-	1,966,133.51
Total	74,912,820.11	158,254,565.65	233,167,385.76

Uses	Senior Lien	Senior Lien	Aggregate
	Series 2023A	Series 2022B	Series 2023 Bonds
	Tender Refunding	New Money	
Tender Purchase	74,146,284.85	-	74,146,284.85
Construction Fund	-	150,000,000.00	150,000,000.00
DSRF Deposit	-	7,211,692.94	7,211,692.94
UWD	264,836.50	472,892.92	737,729.42
COI	501,698.76	569,979.79	1,071,678.55
Total	74,912,820.11	158,254,565.65	233,167,385.76

¹: Represents accrued interest and principal on refunded obligations

Water System Cashflow Impacts				
Fiscal Year	Tender Refunding (Savings)	New Money Principal	New Money Interest	Combined Change in DS
2024	(707,069.97)	-	4,360,447.78	3,653,377.81
2025	(700,936.26)	-	7,620,200.00	6,919,263.74
2026	537,562.04	1,290,000.00	7,620,200.00	9,447,762.04
2027	(1,642,437.96)	3,530,000.00	7,555,700.00	9,443,262.04
2028	(1,639,242.46)	3,705,000.00	7,379,200.00	9,444,957.54
2029	(1,321,142.46)	3,570,000.00	7,193,950.00	9,442,807.54
2030	165,389.30	2,265,000.00	7,015,450.00	9,445,839.30
2031	(448,794.46)	2,990,000.00	6,902,200.00	9,443,405.54
2032	453,978.04	2,235,000.00	6,752,700.00	9,441,678.04
2033	633,781.80	2,170,000.00	6,640,950.00	9,444,731.80
2034	393,781.80	2,520,000.00	6,532,450.00	9,446,231.80
2035	(1,639,030.20)	4,675,000.00	6,406,450.00	9,442,419.80
2036	(1,995,082.26)	5,265,000.00	6,172,700.00	9,442,617.74
2037	(1,639,616.90)	5,175,000.00	5,909,450.00	9,444,833.10
2038	(1,641,728.56)	5,435,000.00	5,650,700.00	9,443,971.44
2039	-	4,765,000.00	5,378,950.00	10,143,950.00
2040	-	5,005,000.00	5,140,700.00	10,145,700.00
2041	-	5,255,000.00	4,890,450.00	10,145,450.00
2042	-	5,515,000.00	4,627,700.00	10,142,700.00
2043	-	5,790,000.00	4,351,950.00	10,141,950.00
2044	-	6,080,000.00	4,062,450.00	10,142,450.00
2045	-	6,400,000.00	3,743,250.00	10,143,250.00
2046	-	6,735,000.00	3,407,250.00	10,142,250.00
2047	-	7,090,000.00	3,053,662.50	10,143,662.50
2048	-	7,460,000.00	2,681,437.50	10,141,437.50
2049	-	7,855,000.00	2,289,787.50	10,144,787.50
2050	-	8,265,000.00	1,877,400.00	10,142,400.00
2051	-	8,700,000.00	1,443,487.50	10,143,487.50
2052	-	9,155,000.00	986,737.50	10,141,737.50
2053	-	9,640,000.00	506,100.00	10,146,100.00
Totals	(11,190,588.51)	148,535,000.00	148,154,060.28	285,498,471.77

Sewer System - Transaction Overview

- GLWA issued \$297.1 million in Sewer System Bonds to fund \$100 million for capital improvements and to fund the purchase of tendered bonds for savings
- Tender refunding and new money portions were structured together to optimize transaction cashflows
 - Tender refunding was structured to create level savings through the term of the refunded debt, to the extent possible
 - New money was designed as 30-year level debt service, with principal amortization beginning in 2026
 - Individual components were optimized where necessary to generate combined structure best meeting these goals
- Tender refunding generated over \$20.8 million in NPV savings (~7.7% of refunded par)

Sewer System Sources and Uses

	Senior Lien	Second Lien	Senior Lien	Aggregate
Sources	Series 2023A Tender Refunding	Series 2023B Tender Refunding	Series 2022C New Money	Series 2023 Bonds
Par Amount	185,235,000.00	14,965,000.00	96,860,000.00	297,060,000.00
Premium	16,422,898.15	1,636,273.10	6,516,996.75	24,576,168.00
DSRF Release	-	209,161.15	-	209,161.15
GLWA Cash Contributions ¹	4,273,743.94	240,383.95	-	4,514,127.89
Total	205,931,642.09	17,050,818.20	103,376,996.75	326,359,457.04

	Senior Lien	Second Lien	Senior Lien	Aggregate
Uses	Series 2023A Tender Refunding	Series 2023B Tender Refunding	Series 2022C New Money	Series 2023 Bonds
Tender Purchase	204,076,611.58	16,888,420.35	-	220,965,031.93
Construction Fund	-	-	100,000,000.00	100,000,000.00
DSRF Deposit	-	-	2,768,408.99	2,768,408.99
UWD	608,653.88	49,396.10	293,090.36	951,140.34
COI	1,246,376.63	113,001.75	315,497.40	1,674,875.78
Total	205,931,642.09	17,050,818.20	103,376,996.75	326,359,457.04

Sewer System Cashflow Impacts				
Fiscal Year	Tender Refunding (Savings)	New Money Principal	New Money Interest	Combined Change in DS
2024	(310,434.42)	-	2,843,479.51	2,533,045.09
2025	(1,098,156.16)	-	4,969,187.50	3,871,031.34
2026	(172,499.06)	-	4,969,187.50	4,796,688.44
2027	888,234.30	-	4,969,187.50	5,857,421.80
2028	(1,888,897.30)	980,000.00	4,969,187.50	4,060,290.20
2029	(283,269.56)	5,000.00	4,920,187.50	4,641,917.94
2030	2,546,700.94	5,000.00	4,919,937.50	7,471,638.44
2031	(1,588,299.06)	730,000.00	4,919,687.50	4,061,388.44
2032	(5,112,573.80)	4,290,000.00	4,883,187.50	4,060,613.70
2033	872,379.20	5,000.00	4,668,687.50	5,546,066.70
2034	(5,228,377.06)	4,620,000.00	4,668,437.50	4,060,060.44
2035	(3,375,120.06)	3,000,000.00	4,437,437.50	4,062,317.44
2036	1,007,127.44	5,000.00	4,287,437.50	5,299,564.94
2037	(7,643,255.30)	7,420,000.00	4,287,187.50	4,063,932.20
2038	(6,608,106.10)	6,755,000.00	3,916,187.50	4,063,081.40
2039	(154,152.10)	640,000.00	3,578,437.50	4,064,285.40
2040	(6,609,152.10)	7,125,000.00	3,546,437.50	4,062,285.40
2041	-	3,425,000.00	3,190,187.50	6,615,187.50
2042	-	3,600,000.00	3,018,937.50	6,618,937.50
2043	-	3,780,000.00	2,838,937.50	6,618,937.50
2044	-	3,965,000.00	2,649,937.50	6,614,937.50
2045	-	4,175,000.00	2,441,775.00	6,616,775.00
2046	-	4,395,000.00	2,222,587.50	6,617,587.50
2047	-	4,625,000.00	1,991,850.00	6,616,850.00
2048	-	4,865,000.00	1,749,037.50	6,614,037.50
2049	-	5,125,000.00	1,493,625.00	6,618,625.00
2050	-	5,390,000.00	1,224,562.50	6,614,562.50
2051	-	5,675,000.00	941,587.50	6,616,587.50
2052	-	5,975,000.00	643,650.00	6,618,650.00
2053	-	6,285,000.00	329,962.50	6,614,962.50
Totals	(34,757,850.20)	96,860,000.00	100,490,117.01	162,592,266.81

Transaction Role	Firm
Issuer	Great Lakes Water Authority
Financial Advisor	PFM Financial Advisors LLC
Bond Counsel	Dickinson Wright, PLLC
Feasibility Consultant	The Foster Group
Trustee	U.S. Bank, N.A.
Senior Bookrunning Manager	Siebert Williams Shank & Co., LLC
Co-Senior Manager	Goldman Sachs & Co. LLC
Co-Managing Underwriters	- Citigroup Global Markets Inc. - JP Morgan Securities LLC - Loop Capital Markets LLC - Morgan Stanley & Co. LLC - Ramirez & Co., Inc. - Wells Fargo Securities
Dealer Managers for Tender	Goldman Sachs & Co. and Siebert Williams Shank & Co.
Underwriter's Counsel	Kutak Rock, LLP
Auditor	Baker Tilly Virchow Krause, LLP