



# Great Lakes Water Authority

## Series 2018A Sewer System New Money Pricing Summary

September 17, 2018

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## Executive Summary

- ◆ GLWA issued the 2018A Sewer System revenue bonds to finance the requested Local System new money improvements
- ◆ \$81.6 million of new money 2018A Bonds were sold to generate the required \$91 million in proceeds, given a premium of roughly \$9.9 million
- ◆ The 2018A Sewer Bonds amortize over 30 years, with the principal amortization generating level annual debt service of approximately \$5.4 million
- ◆ The 2018A Sewer Bonds had a TIC of 4.03%, well below the long-term interest rate averages of the last thirty years
- ◆ The 2018A Bonds continue to show improvement in the pricing results relative to the benchmark tax-exempt AAA MMD index
  - The 2018A spreads to MMD ranged from 16 to 51 bps above MMD, which was significantly better than the 70-98 bps above MMD required in 2016
- ◆ Investor interest was also strong in the first twenty years, with several maturities generating oversubscription for the offered 2018A bonds; the longer maturities priced well, but generated less orders given investor concern for ongoing rising interest rates

# Great Lakes Water Authority 2018A - Sewage Disposal Order Monitor Analytics

## Quick Statistics

### • Series Overview

### • Account Overview

# Maturities: 21  
Issuance Par:  
\$81,090M

# Accounts: 12  
Total Orders: 69  
# Full Orders: 29

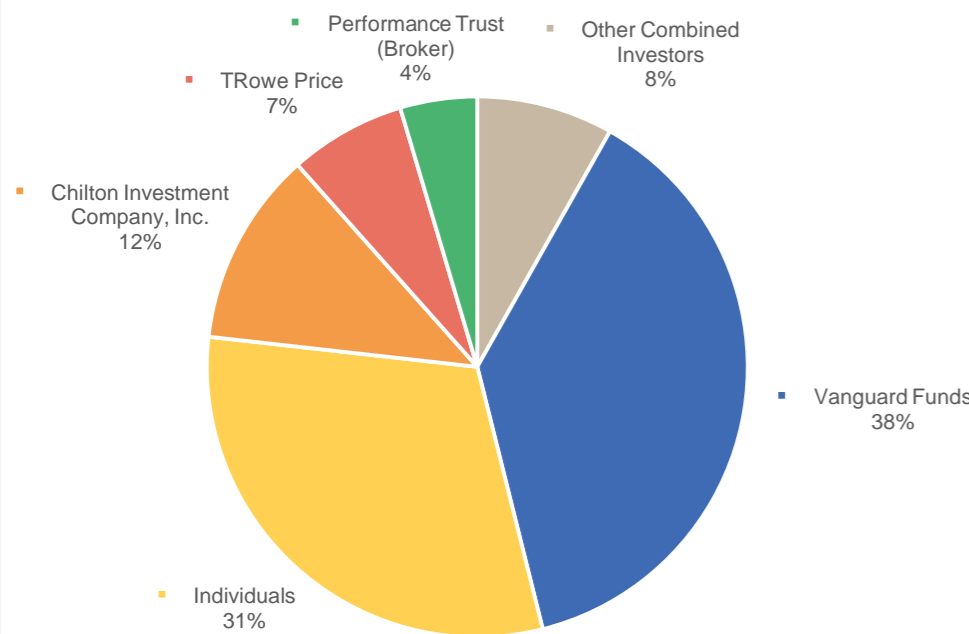
% Subscription:  
137.9%

Total Orders:  
\$111,820M

### • Order Overview

### • Order Statistics

## Total Order Breakdown



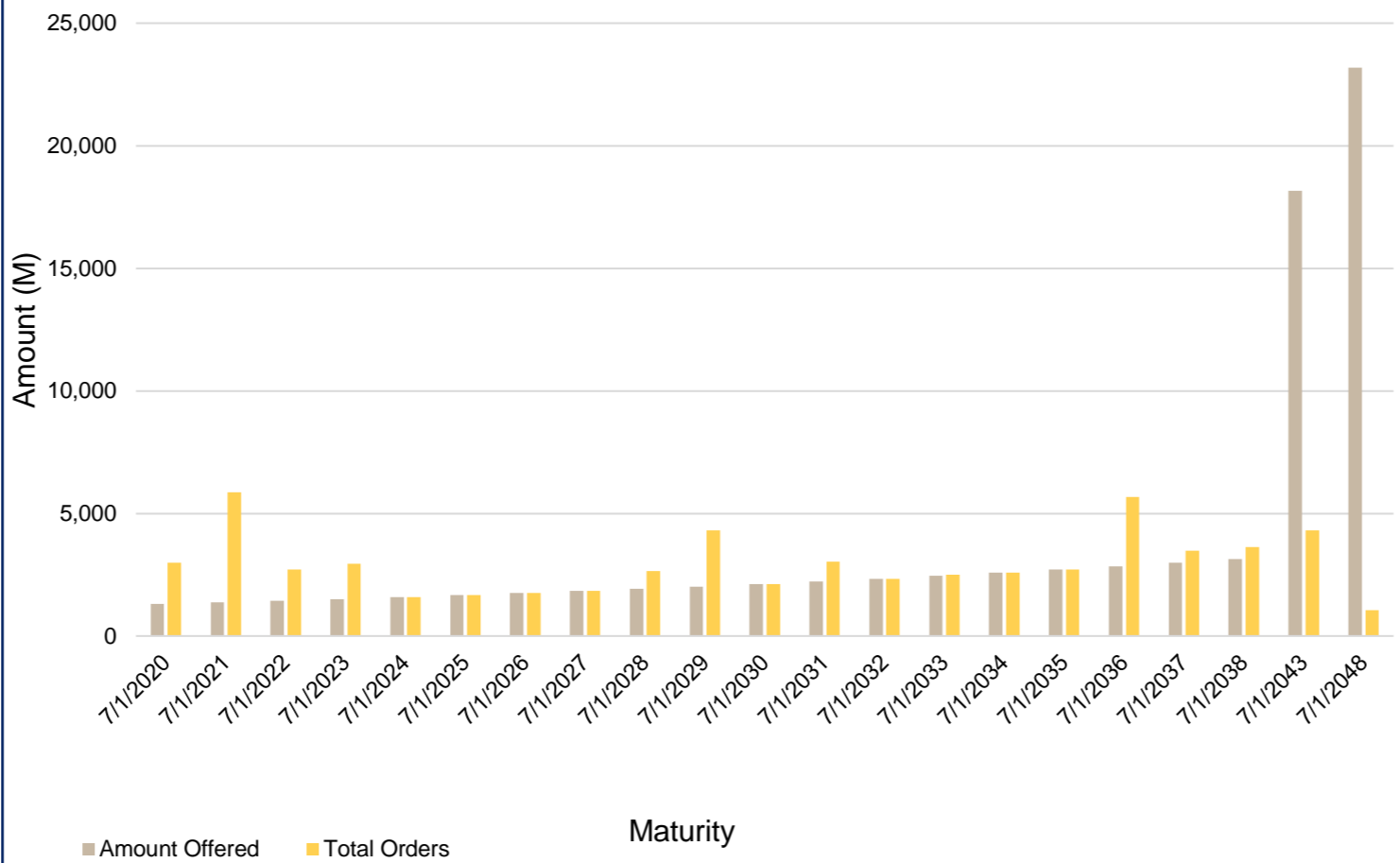
## Top Ten Investors

Accounts	# Orders	# Full Orders	Total Orders (M)	% Par
Vanguard Funds	10	10	\$23,410	28.9%
Individuals	31	7	\$18,925	23.3%
Chilton Investment Company, Inc.	5	5	\$7,190	8.9%
TRowe Price	1	0	\$4,300	5.3%
Performance Trust (Broker)	1	1	\$2,840	3.5%
Bank of America Capital Management	2	0	\$1,500	1.8%
Cumberland Advisors, Inc.	1	1	\$1,365	1.7%
Wasmer, Schroeder & Company, Inc.	1	0	\$800	1.0%
Nuveen Asset Management	1	0	\$500	0.6%
Blackrock Financial Mgmt NY	1	0	\$425	0.5%
			\$61,255	75.5%

## Maturity Overview (Including Stock)

Maturity	Coupon	# Orders	# Full Orders	Total Orders (M)	Par Amount (M)	% Subscription
7/1/2020	3.00%	9	2	\$3,000	\$1,300	230.77%
7/1/2021	4.00%	7	3	\$5,865	\$1,365	429.67%
7/1/2022	4.00%	3	1	\$2,715	\$1,435	189.20%
7/1/2023	4.00%	4	1	\$2,940	\$1,510	194.70%
7/1/2024	5.00%	1	1	\$1,580	\$1,580	100.00%
7/1/2025	5.00%	2	1	\$2,660	\$1,660	160.24%
7/1/2026	5.00%	2	1	\$2,745	\$1,745	157.31%
7/1/2027	5.00%	2	2	\$3,660	\$1,830	200.00%
7/1/2028	5.00%	5	2	\$4,565	\$1,920	237.76%
7/1/2029	5.00%	5	3	\$6,335	\$2,020	313.61%
7/1/2030	5.00%	2	2	\$4,240	\$2,120	200.00%
7/1/2031	5.00%	4	2	\$5,255	\$2,225	236.18%
7/1/2032	5.00%	1	1	\$2,335	\$2,335	100.00%
7/1/2033	5.00%	3	1	\$2,500	\$2,455	101.83%
7/1/2034	5.00%	1	1	\$2,575	\$2,575	100.00%
7/1/2035	5.00%	1	1	\$2,705	\$2,705	100.00%
7/1/2036	5.00%	2	2	\$5,680	\$2,840	200.00%
7/1/2037	5.00%	2	1	\$3,485	\$2,985	116.75%
7/1/2038	5.00%	2	1	\$3,630	\$3,130	115.97%
7/1/2043	5.00%	4	0	\$22,300	\$18,170	122.73%
7/1/2048	5.00%	7	0	\$21,050	\$23,185	90.79%
Total:		69	29	\$111,820	\$81,090	

## Maturity Overview



## Underwriter Overview

Manager	Priority % of Par	Total Priority Amount	# Orders	Retail	Institutional	Total Amount
Citigroup Global	53%	42,990	18	12,440	30,550	42,990
Wells Fargo Sec	19%	15,170	36	15,170	0	45,285
Goldman Sachs	4%	2,935	5	2,935	0	2,935
Morgan Stanley	0%	320	3	320	0	10,320
Ramirez & Co.	0%	240	2	240	0	8,240
J.P. Morgan Sec	0%	50	3	50	0	50
Siebert Cisneros	0%	0	2	0	0	2,000
Total:	76%	61,705	69	31,155	30,550	111,820

Great Lakes Water Authority 2018A - Sewage Disposal Order Detail Analysis																						
Account	7/1/2020	7/1/2021	7/1/2022	7/1/2023	7/1/2024	7/1/2025	7/1/2026	7/1/2027	7/1/2028	7/1/2029	7/1/2030	7/1/2031	7/1/2032	7/1/2033	7/1/2034	7/1/2035	7/1/2036	7/1/2037	7/1/2038	7/1/2043	7/1/2048	Grand Total
	3.00%	4.00%	4.00%	4.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	
	1,300	1,365	1,435	1,510	1,580	1,660	1,745	1,830	1,920	2,020	2,120	2,225	2,335	2,455	2,575	2,705	2,840	2,985	3,130	18,170	23,185	
Vanguard Funds						\$1,660	\$1,745	\$1,830	\$1,920	\$2,020					\$2,575	\$2,705	\$2,840	\$2,985	\$3,130			\$23,410
Individuals	\$1,700	\$2,435	\$1,280	\$630					\$100	\$2,045	\$2,120	\$2,230	\$2,335	\$2,500				\$500			\$1,050	\$18,925
Chilton Investment Company, Inc.	\$1,300	\$1,365	\$1,435	\$1,510	\$1,580																	\$7,190
TRowe Price																				\$4,300		\$4,300
Performance Trust (Broker)																	\$2,840					\$2,840
Bank of America Capital Management		\$700		\$800																		\$1,500
Cumberland Advisors, Inc.		\$1,365																				\$1,365
Wasmer, Schroeder & Company, Inc.												\$800										\$800
Nuveen Asset Management																			\$500			\$500
Blackrock Financial Mgmt NY									\$425													\$425
Eagle Asset Management, Inc.										\$250												\$250
Mainline West LLC									\$200													\$200
Grand Total	\$3,000	\$5,865	\$2,715	\$2,940	\$1,580	\$1,660	\$1,745	\$1,830	\$2,645	\$4,315	\$2,120	\$3,030	\$2,335	\$2,500	\$2,575	\$2,705	\$5,680	\$3,485	\$3,630	\$4,300	\$1,050	\$61,705
Par	\$1,300	\$1,365	\$1,435	\$1,510	\$1,580	\$1,660	\$1,745	\$1,830	\$1,920	\$2,020	\$2,120	\$2,225	\$2,335	\$2,455	\$2,575	\$2,705	\$2,840	\$2,985	\$3,130	\$18,170	\$23,185	\$81,090

**Note:** Data listed in the table above does not include  
Member or Stock Orders.



SOURCES AND USES OF FUNDS

Great Lakes Water Authority  
Sewage Disposal System Revenue Senior Lien Bonds, Series 2018A

Dated Date	10/03/2018
Delivery Date	10/03/2018

Sources:

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Bond Proceeds:	
Par Amount	81,600,000.00
Premium	9,936,931.40
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	91,536,931.40

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Uses:

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Project Fund Deposits:	
Project Fund	91,000,000.00

Delivery Date Expenses:	
Cost of Issuance	279,280.50
Underwriter's Discount	<hr/>
	253,060.89
	532,341.39

Other Uses of Funds:	
Rounding	4,590.01
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	91,536,931.40

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# BOND SUMMARY STATISTICS

## Great Lakes Water Authority Sewage Disposal System Revenue Senior Lien Bonds, Series 2018A

Dated Date	10/03/2018
Delivery Date	10/03/2018
First Coupon	07/01/2019
Last Maturity	07/01/2048
Arbitrage Yield	3.097180%
True Interest Cost (TIC)	4.034306%
Net Interest Cost (NIC)	4.362256%
All-In TIC	4.059390%
Average Coupon	4.986196%
Average Life (years)	19.020
Weighted Average Maturity (years)	19.001
Duration of Issue (years)	12.472
Par Amount	81,600,000.00
Bond Proceeds	91,536,931.40
Total Interest	77,388,331.11
Net Interest	67,704,460.60
Bond Years from Dated Date	1,552,051,666.67
Bond Years from Delivery Date	1,552,051,666.67
Total Debt Service	158,988,331.11
Maximum Annual Debt Service	5,384,000.00
Average Annual Debt Service	5,345,143.74
Underwriter's Fees (per \$1000)	
Average Takedown	2.500000
Other Fee	0.601236
Total Underwriter's Discount	3.101236
Bid Price	111.867488

Bond Component	Par Value	Price	Average Coupon	Average Life	PV of 1 bp change
Serial Bonds	40,065,000.00	113.091	4.956%	12.152	31,383.65
Term 2043	18,245,000.00	111.589	5.000%	22.842	15,873.15
Term 2048	23,290,000.00	111.067	5.000%	27.842	20,029.40
	81,600,000.00			19.020	67,286.20

BOND DEBT SERVICE

Great Lakes Water Authority  
Sewage Disposal System Revenue Senior Lien Bonds, Series 2018A

Period Ending	Principal	Coupon	Interest	Debt Service
07/01/2019			2,984,031.11	2,984,031.11
07/01/2020	1,375,000	3.000%	4,008,400.00	5,383,400.00
07/01/2021	1,415,000	4.000%	3,967,150.00	5,382,150.00
07/01/2022	1,465,000	4.000%	3,910,550.00	5,375,550.00
07/01/2023	1,530,000	4.000%	3,851,950.00	5,381,950.00
07/01/2024	1,590,000	5.000%	3,790,750.00	5,380,750.00
07/01/2025	1,665,000	5.000%	3,711,250.00	5,376,250.00
07/01/2026	1,750,000	5.000%	3,628,000.00	5,378,000.00
07/01/2027	1,840,000	5.000%	3,540,500.00	5,380,500.00
07/01/2028	1,930,000	5.000%	3,448,500.00	5,378,500.00
07/01/2029	2,030,000	5.000%	3,352,000.00	5,382,000.00
07/01/2030	2,130,000	5.000%	3,250,500.00	5,380,500.00
07/01/2031	2,235,000	5.000%	3,144,000.00	5,379,000.00
07/01/2032	2,345,000	5.000%	3,032,250.00	5,377,250.00
07/01/2033	2,465,000	5.000%	2,915,000.00	5,380,000.00
07/01/2034	2,590,000	5.000%	2,791,750.00	5,381,750.00
07/01/2035	2,715,000	5.000%	2,662,250.00	5,377,250.00
07/01/2036	2,850,000	5.000%	2,526,500.00	5,376,500.00
07/01/2037	3,000,000	5.000%	2,384,000.00	5,384,000.00
07/01/2038	3,145,000	5.000%	2,234,000.00	5,379,000.00
07/01/2039	3,300,000	5.000%	2,076,750.00	5,376,750.00
07/01/2040	3,470,000	5.000%	1,911,750.00	5,381,750.00
07/01/2041	3,640,000	5.000%	1,738,250.00	5,378,250.00
07/01/2042	3,820,000	5.000%	1,556,250.00	5,376,250.00
07/01/2043	4,015,000	5.000%	1,365,250.00	5,380,250.00
07/01/2044	4,215,000	5.000%	1,164,500.00	5,379,500.00
07/01/2045	4,425,000	5.000%	953,750.00	5,378,750.00
07/01/2046	4,650,000	5.000%	732,500.00	5,382,500.00
07/01/2047	4,880,000	5.000%	500,000.00	5,380,000.00
07/01/2048	5,120,000	5.000%	256,000.00	5,376,000.00
	81,600,000		77,388,331.11	158,988,331.11