



Financial Services Audit Committee Communication

Date: February 15, 2019

To: Great Lakes Water Authority Audit Committee

From: Deirdre Henry, Treasury Manager

Re: Quarterly Investment Report through December 31, 2018 (Unaudited)

Background: As stated in section 14 of the Great Lakes Water Authority (GLWA) Investment Policy, quarterly reporting shall be presented to provide a clear picture of the status of the current GLWA investment portfolio. The attached report, prepared and presented by PFM Asset Management LLC, summarizes portfolio information through December 31, 2018 (unaudited).

Analysis: The Quarterly Investment Report complies with the requirements of Public Act 20 of 1948, as amended and the GLWA Investment Policy. GLWA is investing its funds in a diversified portfolio which includes bank deposits, money market funds, a local government investment pool, U.S. Treasuries, Federal Agencies, and commercial paper. All securities in the portfolio are in compliance with the GLWA investment policy. Key metrics are provided below with additional commentary in the attached report.

- Yield to Market at Cost compared to market index (current quarter compared to prior)
 - As of December 31, 2018: 2.40% vs 2.26% (3-Month Treasury Index)
 - As of September 30, 2018: 2.30% vs 2.02% (3-Month Treasury Index)

- Portfolio Allocation in Cash/Money Market Securities (current quarter compared to prior)
 - As of December 31, 2018: 39%
 - As of September 30, 2018: 34%

As GLWA continues to implement process improvements and more clearly define cash flows, the treasury group will work with PFM Asset Management LLC to identify strategies to maximize investment returns while meeting GLWA standards for safety and liquidity.

Proposed Action: Receive and file report.

Great Lakes Water Authority

Investment Performance Report – December 2018



Table of Contents

I. Executive Summary

II. Investment Strategy

III. Market Overview and Outlook

IV. Portfolio Snapshot

Portfolio Mix

Security Type

Credit Quality

Account Purpose

Maturity Distribution

Yield at Cost and Market

Yield to Maturity vs. Duration

Investment Income by Month

Investment Income Year over Year

VI. Appendix

Portfolio Holdings

Economic Update

Great Lakes Water Authority Executive Summary

PORTFOLIO RECAP

- **Safety** – The overall portfolio is diversified amongst cash, bank deposits, U.S. Treasuries, Federal Agencies, commercial paper, SEC-registered money market funds, and a local government investment pool. The total credit profile of the pool is strong with over 98% of the assets invested in bank deposits or securities that are rated within the two highest short and long-term rating classifications as established by S&P.
- **Liquidity** – The Authority has continued to reduce its weighting to overnight funds, with only 39% of the total assets maturing overnight.
- **Return** – The overall yield increased to 2.40% as of December 31, 2018 versus 2.30% at September 30, 2018. The Authority earned \$10,169,274 in investment income for fiscal year-to-date on a book value basis. Based on the current interest rate environment, the investment income earned for the previous quarter, and assuming that the Authority maintains the same investable balances for the remainder of the fiscal year, we are projecting that the Authority will earn approximately \$20.3 million in investment income for fiscal year 2019.
- **Compliance** – The aggregate portfolio is in compliance with the Authority’s investment policy and Michigan Public Act 20.

AVAILABLE FUNDS (Unaudited)

Type	Financial Institution	Book Value	Market Value	YTM @ Market (as of 12/31/18)
Deposit Account	Comerica	\$434	\$434	0.25%
Deposit Account - Retainage	First Independence	\$16,285,172	\$16,285,172	0.05%
Deposit Account – Flint Security Deposit	Chase	\$3,770,118	\$3,770,118	1.30%
Deposit Account	Chase	\$12,057,153	\$12,057,153	1.30%
Trust Money Market Fund	U.S. Bank	\$259,601,496	\$259,601,496	2.27%
Money Market Fund	JP Morgan	\$51,374,656	\$51,374,656	2.19%
Local Government Investment Pool	GovMIC	\$71,292,089	\$71,292,089	2.38%
Managed Funds	PFM	\$645,931,515	\$645,512,782	2.57%
TOTAL		\$1,060,312,633	\$1,059,893,899	2.40%

The accounts at Comerica Bank get an earnings credit to offset bank fees. The funds and earnings in the Retainage account are held on behalf of the contractors and do not belong to GLWA. The funds and earnings in the Flint Security Deposit account are held on behalf of the City of Flint and do not belong to GLWA. Note that market values move inversely to interest rates, and the recent rise in yields has led to the overall market value being less than the book value. In addition to the totals listed above, there also exists surety bonds in the amount of \$322,809,258 as of 12/31/2018.

**Great Lakes Water Authority
Investment Strategy**

GLWA INVESTMENT STRATEGY

- The portfolio is in compliance with the Authority’s investment policy.
- To date, the Authority has continued to invest its funds in a mixture of short and intermediate-term investments to ensure sufficient liquidity. There was a slight increase in funds maturing overnight at the end of December to cover early January obligations for debt and operations.
- The aggregate portfolio was yielding 2.40% at the end of December.*
 - This compares to the 2.39% yield of the Bank of America / Merrill Lynch 3-Month U.S. Treasury Bill Index as of 12/31/2018, which is a comparable market indicator.
- The Authority continues to implement a disciplined investment plan to provide improved safety and diversification and putting every dollar to work.
- For the third quarter of FY 2019, the Authority’s investment advisor will continue to actively manage specifically benchmarked long-term portfolios with full discretion, subject to the Authority’s investment policy.
- The Authority will continue to work with its investment manager to identify strategies in this volatile market to maximize future investment income while meeting the objectives of safety and liquidity.
- Assuming that the Authority maintains the same investable balances for FY 2019 and the interest rate environment remains in a similar range, we conservatively expect to earn approximately \$20.3 million in interest income in FY 2019.

* Current market yield as of December 31, 2018.

**Great Lakes Water Authority
Market Overview and Outlook**

ECONOMIC HIGHLIGHTS UPDATE

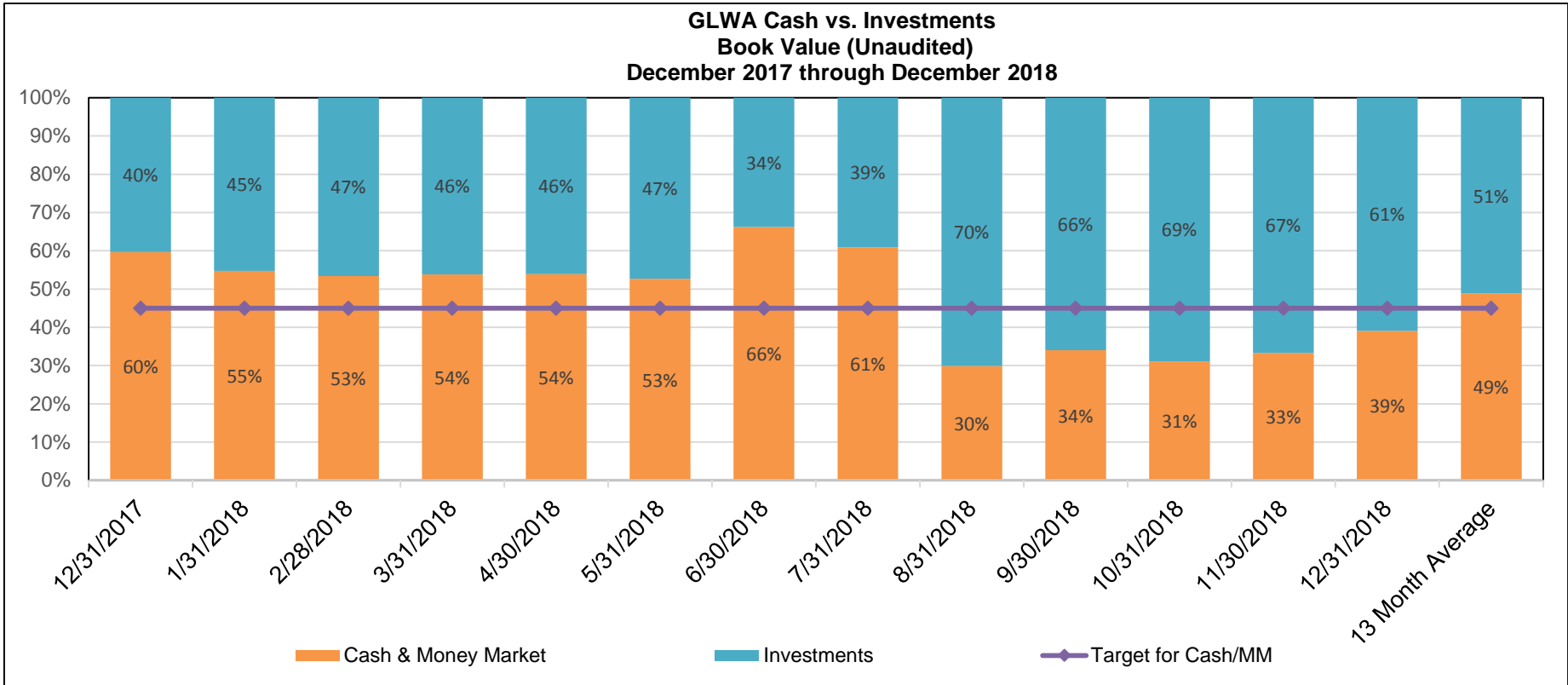
- December was not for the faint of heart as 2018 ended with surging volatility, worldwide equity sell-offs, U.S. Treasury yield curve inversion, trade tensions, and a partial government shutdown. Surprisingly, for the moment, some calm has returned, with the backdrop of “steady-as-she-goes” for the U.S. economy.
- The Federal Reserve is recalibrating its monetary policy. While the median consensus of Fed governors is for two rate hikes in 2019, the market expectation is for none (as measured by Federal Funds futures). Fed Chair Jerome Powell tempered expectations in a recent speech, expressing that the Fed is “prepared to adjust policy quickly and flexibly” if necessary, and other Fed policy makers have joined in tempering expectations.

ECONOMIC IMPACT ON PORTFOLIO

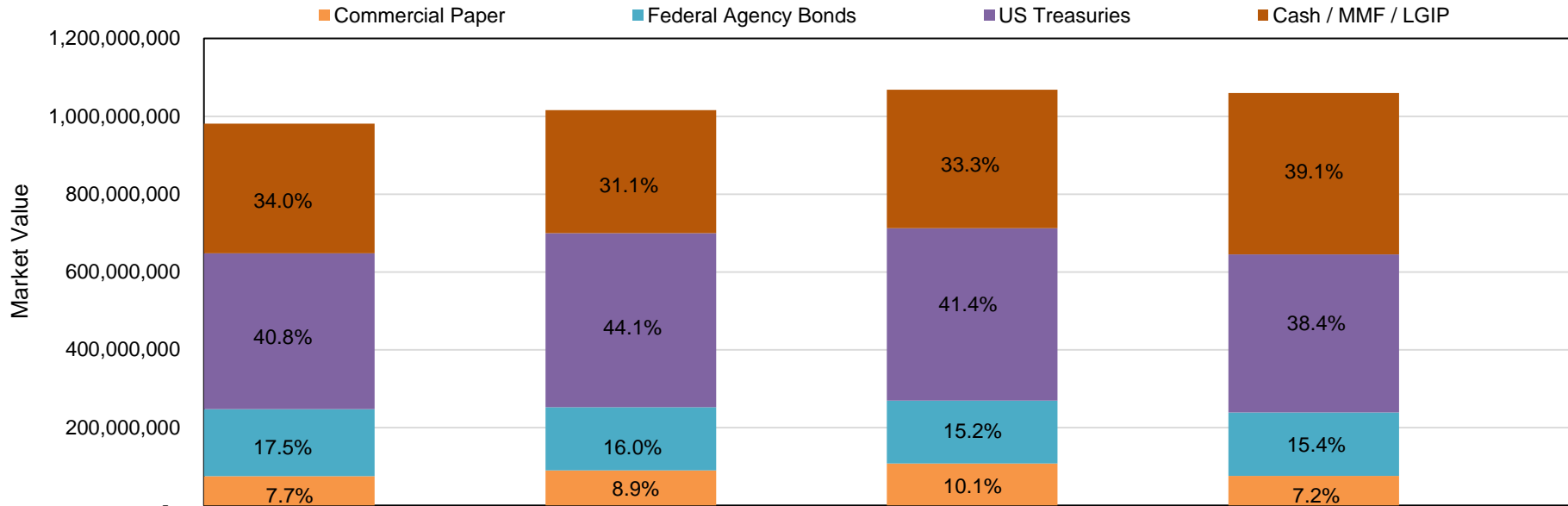
- After narrowing to 12-month lows in the third quarter of calendar year 2018, spreads on commercial paper issuers rebounded in the fourth quarter of calendar year 2018. As a result, the Authority’s portfolios benefited from additional allocations to these high-quality, short-term credit instruments at attractive yields.
- In December, the U.S. Treasury yield curve inverted between two and five-year maturities for the first time since 2007. Yields on maturities greater than two years rallied 25 to 30 basis points, while shorter-term yields were pinned to the steady Federal Funds rate.
- The pace of Fed rate hikes was well-telegraphed throughout 2018, and the prospect of higher rates down the road rewarded investors who maintained a short duration bias, such as GLWA. Now, the path of future rate hikes is less clear. As a result, we will no longer be betting on interest rate increases by employing a short duration bias.
- Cash and money market securities produce the best returns of all sectors in 2018 and were the highest in a decade. For calendar year 2019, supported by the 2.50% overnight Federal Funds rate, the sector is expected to produce comparable returns.

**Great Lakes Water Authority
Portfolio Mix
Cash / Money Market vs. Investments**

- The Authority's liquidity requirements fluctuate each month based on operational requirements, capital funding, and debt payments. Based on a review of historical activity and refinement of cash flow projections, the Authority has set an average target of 45% cash/money market accounts and 55% investments for the portfolio holdings. The 13-month average at December 2018 is close to the target.
- The chart below compares the monthly allocation of the portfolio holdings to the 13-month average and the target. The slight increase in the cash/money market holdings for December of 2018 is related to increased liquidity to meet early January debt payments and operational requirements.



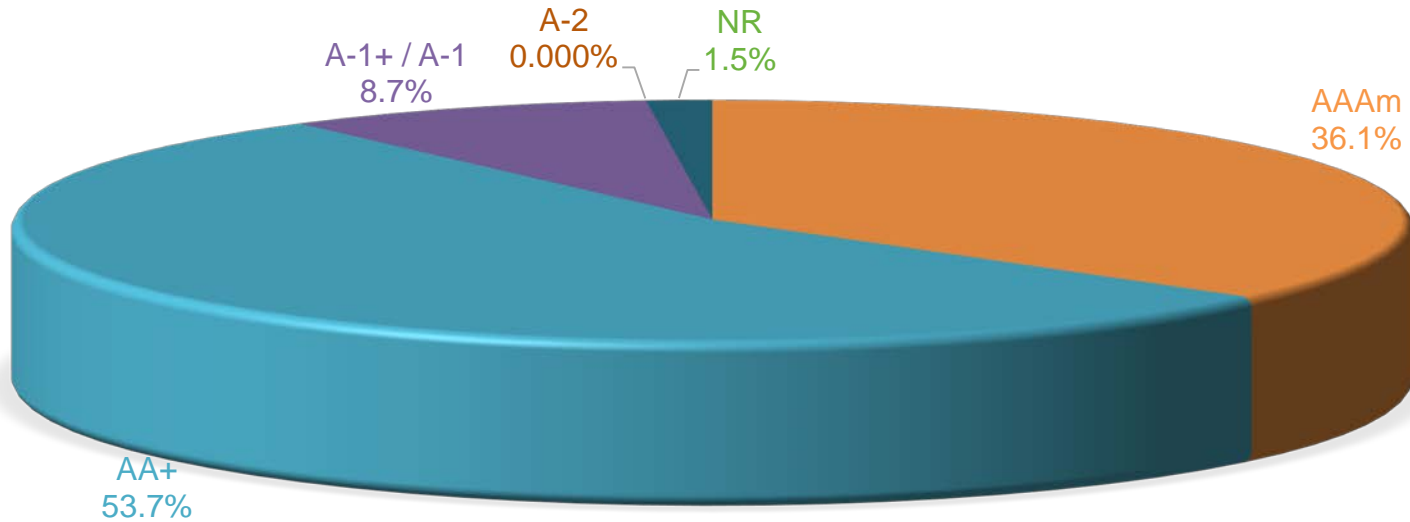
**Great Lakes Water Authority
Investments – By Security Type**



Security Type	September		October		November		December	
	Market Value	Asset Allocation	Market Value	Asset Allocation	Market Value	Asset Allocation	Market Value	Asset Allocation
Commercial Paper	75,609,931	7.7%	90,111,948	8.9%	107,565,791	10.1%	76,085,397	7.2%
Federal Agencies	172,066,823	17.5%	162,046,361	16.0%	162,295,744	15.2%	162,894,722	15.4%
U.S. Treasuries	400,260,370	40.8%	447,588,677	44.1%	442,701,524	41.4%	406,532,663	38.4%
Cash / MMF / LGIP	333,640,087	34.0%	316,050,687	31.1%	356,205,874	33.3%	414,381,117	39.1%
Total	981,577,211	100.0%	1,015,797,673	100.0%	1,068,768,932	100.0%	1,059,893,899	100.0%

In addition to the totals listed above, there also exists surety bonds in the amount of \$322,809,258 as of December 31, 2018.

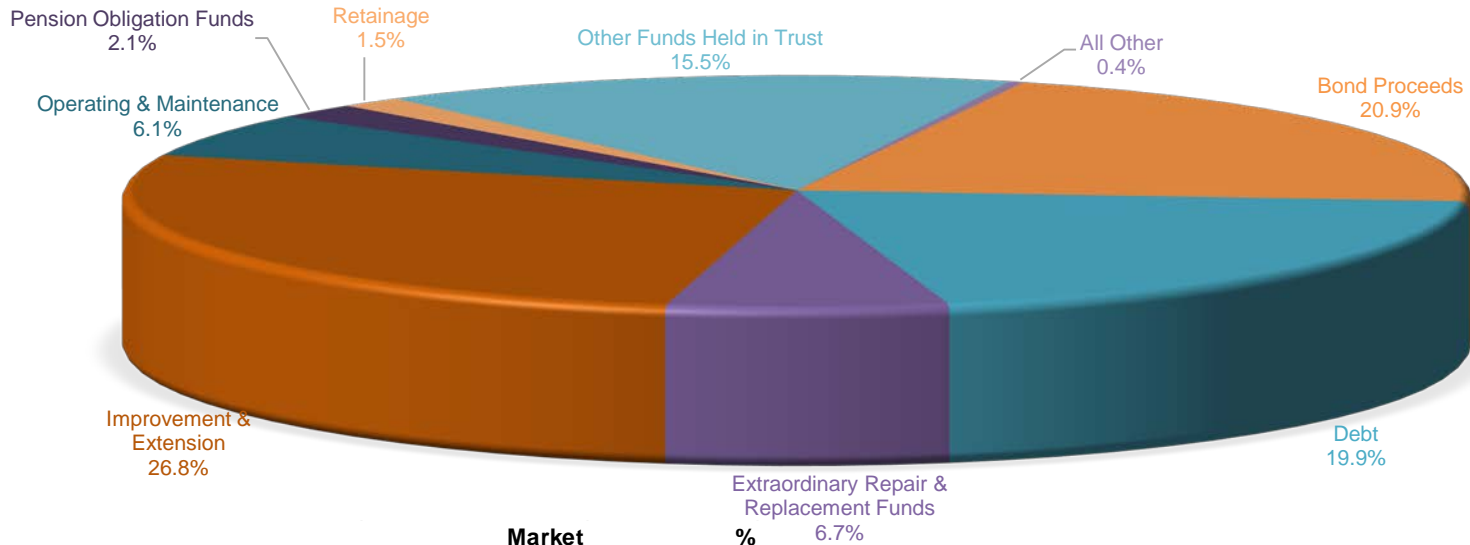
**Great Lakes Water Authority
Investments – By Credit Quality
As of December 31, 2018**



Credit Quality	Market Value	Asset Allocation
Ratings		
AAAm	382,268,241	36.1%
AA+	569,427,385	53.7%
A-1 + / A-1	91,912,668	8.7%
A-2	434	0.000%
NR	16,285,172	1.5%
Totals	1,059,893,899	100.0%

In addition to the totals listed above, there also exists surety bonds in the amount of \$322,809,258 as of December 31, 2018.

**Great Lakes Water Authority
Investment Analysis – By Account Purpose
As of December 31, 2018**



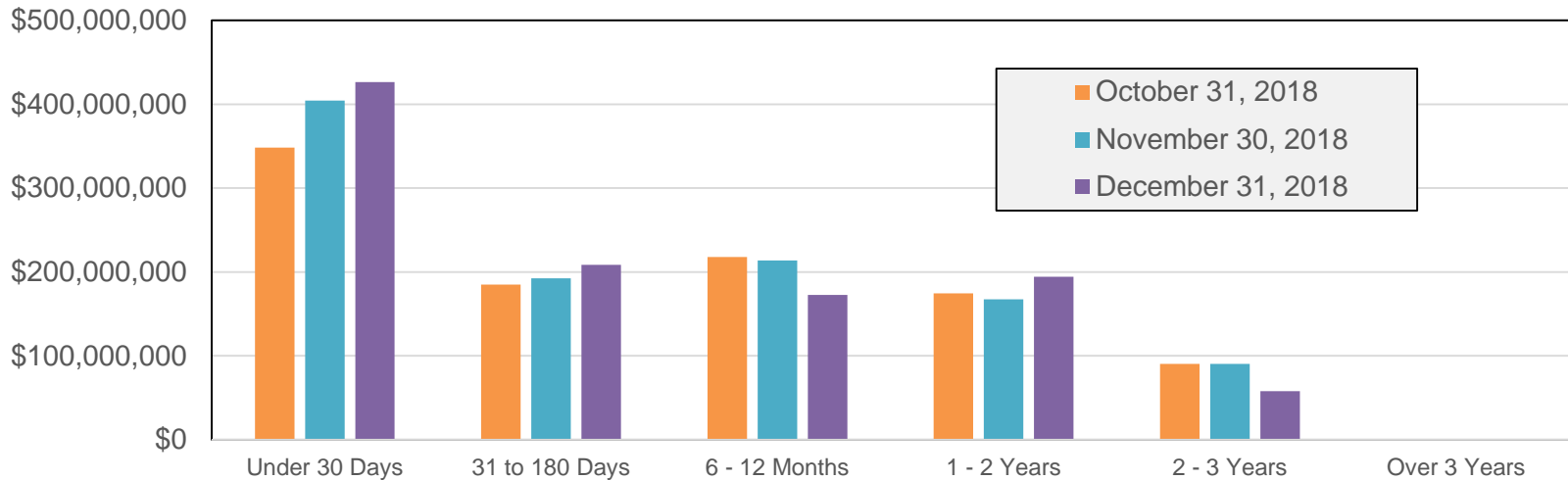
Account Purpose	Market Value	% Allocation
Bond Proceeds	\$ 221,822,752	20.9%
Debt	\$ 210,858,803	19.9%
Extraordinary Repair & Replacement Funds	\$ 71,470,864	6.7%
Improvement & Extension	\$ 284,169,823	26.8%
Operating & Maintenance	\$ 65,141,754	6.1%
Pension Obligation Funds	\$ 21,762,835	2.1%
Retainage	\$ 16,285,172	1.5%
Other Funds Held in Trust	\$ 164,611,778	15.5%
All Other	\$ 3,770,118	0.4%
Total	\$ 1,059,893,899	100.0%

Other Funds Held in Trust	Market Value	% Allocation
Budget Stabilization Funds	\$ 7,486,302	4.5%
Receiving Funds	\$ 147,657,301	89.7%
WRAP Funds	\$ 9,468,175	5.8%
Total	\$ 164,611,778	100.0%

In addition to the totals listed above, there also exists surety bonds in the amount of \$322,809,258 as of December 31, 2018. "All Other" funds includes funds in the Flint Security Deposit account that are held on behalf of the City of Flint and do not belong to GLWA.

Great Lakes Water Authority Investment Analysis – By Maturity

Maturity Distribution	October 31, 2018	%	November 30, 2018	%	December 31, 2018	%
Under 30 Days	\$ 348,408,066	34.3%	\$ 404,460,028	37.8%	\$ 426,271,668	40.2%
31 to 180 Days	184,907,514	18.2%	192,528,328	18.0%	208,515,616	19.7%
6 - 12 Months	217,747,309	21.4%	213,723,539	20.0%	172,711,556	16.3%
1 - 2 Years	174,432,180	17.2%	167,558,613	15.7%	194,487,303	18.3%
2 - 3 Years	90,302,604	8.9%	90,498,424	8.5%	57,907,756	5.5%
Over 3 Years	-	0.0%	-	0.0%	-	0.0%
Totals	\$ 1,015,797,673	100.0%	\$ 1,068,768,932	100.0%	\$ 1,059,893,899	100.0%



In addition to the totals listed above, there also exists surety bonds in the amount of \$322,809,258 as of December 31, 2018.

**Great Lakes Water Authority
Investment Accounts – Yield at Cost & Market
As of December 31, 2018**

	As of December 31, 2018		As of September 30, 2018	
	YTM @ Cost	YTM @ Market	YTM @ Cost	YTM @ Market
Bank Deposits				
Comerica	0.25%	0.25%	0.25%	0.25%
First Indepence	0.05%	0.05%	0.05%	0.05%
Flint Deposit Account	1.30%	1.30%	0.69%	0.69%
JP Morgan Chase	1.30%	1.30%	0.69%	0.69%
Sub-Total Bank Deposits	0.67%	0.67%	0.43%	0.43%
Money Market Funds / LGIPs				
GovMIC	2.38%	2.38%	2.08%	2.08%
U.S. Bank - First American MMF	2.27%	2.27%	1.95%	1.95%
JP Morgan Securities - Blackrock MMF	2.19%	2.19%	1.88%	1.88%
Sub-Total MMF / LGIPs	2.28%	2.28%	1.94%	1.94%
Investment Portfolios				
Sewage SR Debt Serv 5403	1.75%	2.55%	2.38%	2.43%
Sewage SR Res 5400	1.59%	2.53%	1.51%	2.66%
Sew 2nd Debt Serv 5403	2.47%	2.49%	2.35%	2.40%
Sewage 2nd Res 5481	2.47%	2.49%	1.51%	2.67%
Sew SRF Debt Serv 5410	2.85%	2.92%	2.18%	2.40%
Sewage ER & R	1.51%	2.53%	2.61%	2.72%
Sewer Improvement & Extension	2.90%	2.96%	2.53%	2.65%
Sewer Pension Obligation	1.96%	2.54%	2.36%	2.48%
Sewer Wrap Fund	2.60%	2.75%	2.11%	2.34%
Sewer Budget Stabilization Fund	2.60%	2.51%	2.62%	2.74%
Sewer Bond Fund	2.54%	2.52%	1.53%	2.42%
Sewer O&M Pension Sub Account	2.47%	2.48%	2.41%	2.52%
Water SR Debt Ser 5503	2.59%	2.55%	2.37%	2.42%
Water SR Reserve 5500	2.62%	2.52%	1.44%	2.33%
Water 2nd Debt Serv 5503	2.86%	2.94%	2.37%	2.42%
Water 2nd Res 5581	2.49%	2.55%	2.14%	2.54%
Water SRF Debt Serv 5575	2.81%	2.88%	0.00%	0.00%
Water ER & R	2.15%	2.52%	2.61%	2.72%
Water Improvement & Extension	2.66%	2.80%	2.60%	2.71%
Water Pension Obligation	2.60%	2.51%	2.37%	2.49%
Water Wrap Fund	2.60%	2.52%	2.11%	2.34%
Water Budget Stabilization Fund	2.47%	2.48%	2.62%	2.74%
Water Bond Fund	2.59%	2.55%	1.67%	2.49%
Water O&M Pension Sub Account	2.62%	2.52%	2.41%	2.52%
Sub-Total Investment Portfolios	2.32%	2.57%	2.15%	2.58%
Grand Total	2.26%	2.40%	2.02%	2.30%

The accounts at Comerica Bank get an earnings credit to offset bank fees. The earnings in the accounts at First Independence Bank is credited to the contractors and not the Authority. The funds in the Flint Security Deposit account are held on behalf of the City of Flint and the earnings do not belong to GLWA. YTM @ Cost is the expected return, based on the original cost, the annual interest receipts, maturity value and the time period from purchase date to maturity, stated as a percentage, on an annualized basis. YTM @ Market is the rate of return, based on the current market value, the annual interest receipts, maturity value and time period remaining until maturity, stated as a percentage, on an annualized basis.

**Great Lakes Water Authority
Demonstration of Yield to Maturity vs. Duration
As of December 31, 2018**

- The comparison agencies included in the list below were selected based on type and/or other non-performance based criteria to show a broad range of water entities/utilities. This peer group list does not represent an endorsement of any of the public agencies or their services. The types of funds (e.g., bond proceeds, debt service, etc.) and duration of the overall portfolios listed below as well as the various differences in permitted investments and allowable credit capacity in state statutes (i.e., the ability or non-ability to invest in long-term corporate credit) will have a direct impact on the corresponding yields at market.
- The overall yield of the Authority's aggregate portfolio compares favorably to those of other short-term indices (i.e., the S&P LGIP index and the 3-month U.S. Treasury index).
- The Authority does not have a potential for a longer duration portfolio when compared to other similar water entities/utilities as the Authority's covenants limits and restricts its ability in managing assets to a longer-term strategy.

As of December 31, 2018				
	<i>Market Value</i>	<i>YTM @ Market</i>	<i>Effective Duration</i>	<i>Weighted Average Maturity</i>
GLWA				
Great Lakes Water Authority	\$1,059,893,899	2.40%	0.55 Years	204 Days
Short/Intermediate-Term Indices				
S&P Rated Government Investment Pool Index		2.27%	0.08 Years	30 Days
BoA / ML 3-Month Treasury Index		2.39%	0.16 Years	90 Days
BoA / ML 6-Month Treasury Index		2.47%	0.40 Years	180 Days
BoA / ML 1-Year Treasury Index		2.63%	0.90 Years	365 Days
BoA / ML 1-3 Year Treasury Index		2.53%	1.81 Years	661 Days
BoA / ML 1-5 Year Treasury Index		2.51%	2.56 Years	934 Days
Peer Analysis (Water Entities / Utilities)				
Alameda County Water District, CA	\$130,025,702	2.68%	2.43 Years	932 Days
Coachella Valley Water District, CA	\$450,427,986	2.72%	1.69 Years	739 Days
District of Columbia Water & Sewer Authority, DC	\$251,312,054	2.51%	0.93 Years	353 Days
DuPage Water Commission, IL	\$138,737,331	2.60%	2.06 Years	1,007 Days
Fairfax County Water Authority, VA	\$222,236,711	2.56%	1.66 Years	642 Days
San Bernardino Valley Municipal Water District, CA	\$304,932,075	2.76%	1.64 Years	621 Days
Truckee Meadows Water Authority, NV	\$106,789,877	2.53%	1.63 Years	621 Days

The BoA / ML indexes are unmanaged indexes tracking on-the-run Treasuries. These indexes are produced and maintained by Bank of America / Merrill Lynch & Co. Yield to maturity is the rate of return, based on the current market value, the annual interest receipts, maturity value and time period remaining until maturity, stated as a percentage, on an annualized basis.

Great Lakes Water Authority
Investment Income (by Book Value)
As of December 31, 2018

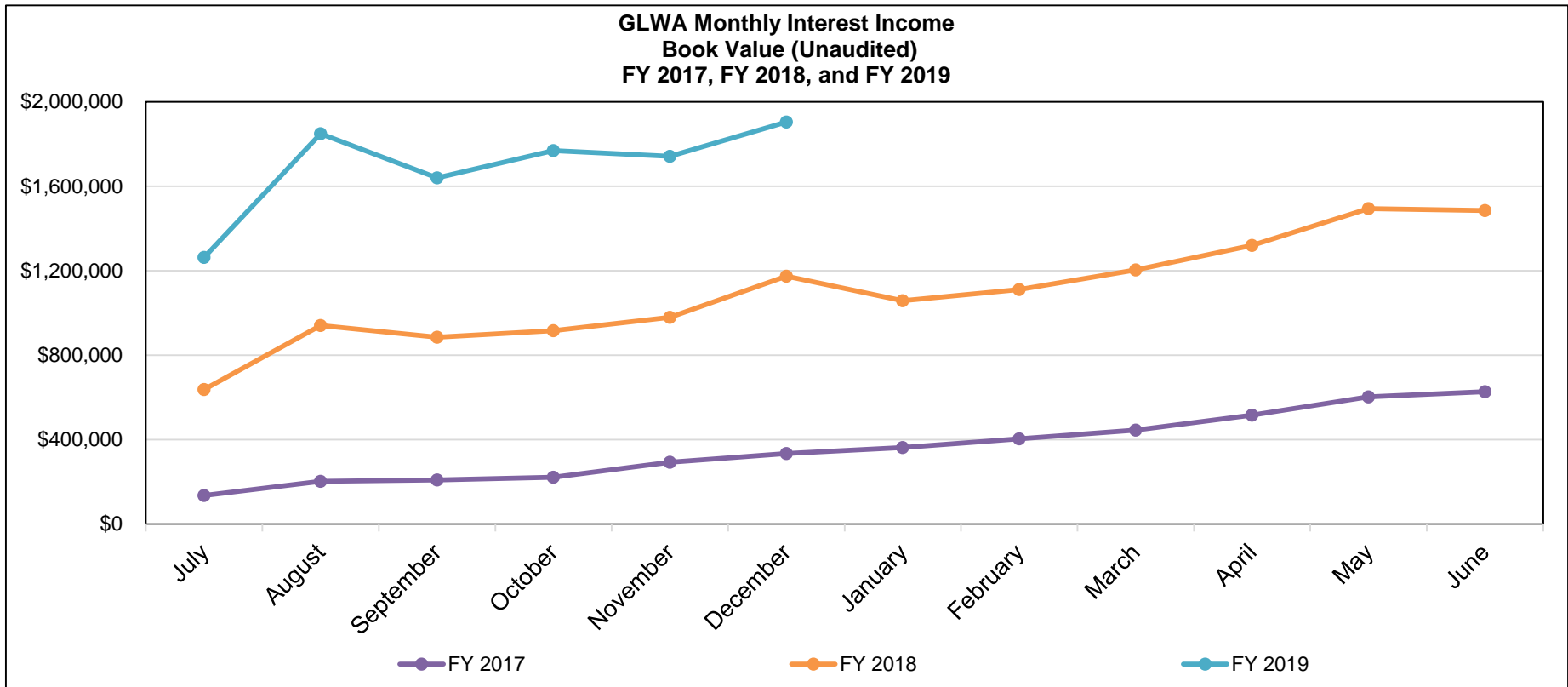
INVESTMENT INCOME BY MONTH (Unaudited)

Month	Interest Earned During Period	Realized Gain / Loss	Investment Income
July 2018	\$1,264,010.74	\$0.00	\$1,264,010.74
August 2018	\$1,849,353.45	\$0.00	\$1,849,353.45
September 2018	\$1,638,462.50	\$1,631.65	\$1,640,094.15
October 2018	\$1,769,202.57	\$0.00	\$1,769,202.57
November 2018	\$1,742,251.26	\$0.00	\$1,742,251.26
December 2018	\$1,904,361.36	\$0.00	\$1,904,361.36
<u>FY 2019 Y-T-D</u>	<u>\$10,167,641.88</u>	<u>\$1,631.65</u>	<u>\$10,169,273.53</u>

These figures are based upon actual interest earned and posted to the Authority's various accounts via book value and does not include any earnings credit rate tied to the Authority's bank deposits.

**Great Lakes Water Authority
Monthly Investment Income**

- The Authority has earned \$10,169,274 in investment income through December for fiscal year 2019 on a book value basis compared to \$5,534,062 for the first six months of fiscal year 2018.
- The monthly investment earnings are continuing on an upward trend as the Authority continues to refine cash flows and work with its investment advisor to identify strategies to maximize future investment income while meeting the objectives of safety and liquidity.
- Projected investment income for fiscal year 2019 is \$20.3 million.



Appendix I: Portfolio Holdings

**Great Lakes Water Authority
Portfolio Holdings
As of December 31, 2018**

DESCRIPTION	CUSIP	PAR AMOUNT	MATURITY DATE	SETTLEMENT DATE	YTM AT COST	ORIGINAL COST	DAYS TO MATURITY	ACCRUED INTEREST	TOTAL VALUE
Short-Term Bank Deposits / MMF / LGIP									
COMERICA BANK		\$ 434	1/1/2019	12/31/2018	0.25%	\$ 434	1	\$ -	\$ 434
FIRST INDEPENDENCE BANK		16,285,172	1/1/2019	12/31/2018	0.05%	16,285,172	1	-	16,285,172
FLINT DEPOSIT ACCOUNT		3,770,118	1/1/2019	12/31/2018	1.30%	3,770,118	1	-	3,770,118
JP MORGAN CHASE		12,057,153	1/1/2019	12/31/2018	1.30%	12,057,153	1	-	12,057,153
GovMIC		71,292,089	1/1/2019	12/31/2018	2.38%	71,292,089	1	-	71,292,089
U.S. BANK - FIRST AMERICAN MMF		259,601,496	1/1/2019	12/31/2018	2.27%	259,601,496	1	-	259,601,496
JP MORGAN SECURITIES - BLACKROCK MMF		51,374,656	1/1/2019	12/31/2018	2.19%	51,374,656	1	-	51,374,656
Commercial Paper									
MUFG Bank NY 0 2/1/2019	62479MP15	\$ 4,005,000	2/1/2019	11/7/2018	2.60%	\$ 3,980,316	32	\$ -	\$ 3,996,229
Prudential Funding 0 2/1/2019	74433HP16	174,000	2/1/2019	12/7/2018	2.51%	173,323	32	-	173,619
MUFG Bank NY 0 2/1/2019	62479MP15	5,068,000	2/1/2019	11/7/2018	2.60%	5,036,764	32	-	5,056,901
Prudential Funding 0 2/1/2019	74433HP16	241,000	2/1/2019	12/7/2018	2.51%	240,063	32	-	240,472
JPMorgan Securities 0 3/22/2019	46640QQN4	218,000	3/22/2019	11/7/2018	2.75%	215,776	81	-	216,642
JPMorgan Securities 0 3/22/2019	46640QQN4	368,000	3/22/2019	10/5/2018	2.54%	363,689	81	-	365,707
Toyota Motor Credit 0 3/22/2019	89233HQN7	213,000	3/22/2019	12/7/2018	2.77%	211,292	81	-	211,673
JPMorgan Securities 0 3/22/2019	46640QQN4	7,196,000	3/22/2019	10/5/2018	2.54%	7,111,711	81	-	7,151,169
JPMorgan Securities 0 3/22/2019	46640QQN4	4,748,000	3/22/2019	11/7/2018	2.75%	4,699,570	81	-	4,718,420
Toyota Motor Credit 0 3/22/2019	89233HQN7	4,809,000	3/22/2019	12/7/2018	2.77%	4,770,428	81	-	4,779,040
ING Funding 0 4/9/2019	4497W1R99	251,000	4/9/2019	7/16/2018	2.62%	246,216	99	-	249,052
ING Funding 0 4/9/2019	4497W1R99	3,049,000	4/9/2019	7/16/2018	2.62%	2,990,884	99	-	3,025,340
ING Funding 0 4/9/2019	4497W1R99	1,352,000	4/9/2019	7/16/2018	2.62%	1,326,230	99	-	1,341,508
ING Funding 0 4/9/2019	4497W1R99	478,000	4/9/2019	7/16/2018	2.62%	468,889	99	-	474,291
ING US Funding 0 6/20/2019	4497W1TL0	5,845,000	6/20/2019	11/7/2018	2.88%	5,741,617	171	-	5,764,339
JPMorgan Securities 0 6/20/2019	46640QTL5	3,609,000	6/20/2019	12/7/2018	2.93%	3,552,700	171	-	3,559,196
Lloyds Bank 0 6/20/2019	53943STL1	1,500,000	6/20/2019	12/7/2018	2.92%	1,476,681	171	-	1,479,300
Lloyds Bank 0 6/20/2019	53943STL1	6,390,000	6/20/2019	12/7/2018	2.92%	6,290,662	171	-	6,301,818
ING US Funding 0 6/20/2019	4497W1TL0	6,293,000	6/20/2019	11/7/2018	2.88%	6,181,693	171	-	6,206,157
Lloyds Bank 0 6/20/2019	53943STL1	2,610,000	6/20/2019	12/7/2018	2.92%	2,569,425	171	-	2,573,982
Lloyds Bank 0 6/20/2019	53943STL1	7,500,000	6/20/2019	12/7/2018	2.92%	7,383,406	171	-	7,396,500
Natixis NY 0 6/20/2019	63873KTL1	1,990,000	6/20/2019	12/21/2018	2.95%	1,960,885	171	-	1,962,538
Natixis NY 0 6/20/2019	63873KTL1	3,240,000	6/20/2019	12/21/2018	2.95%	3,192,596	171	-	3,195,288
JPMorgan Securities 0 6/28/2019	46640QTU5	2,846,000	6/28/2019	12/7/2018	2.93%	2,799,781	179	-	2,804,875
JPMorgan Securities 0 6/28/2019	46640QTU5	2,883,000	6/28/2019	12/7/2018	2.93%	2,836,180	179	-	2,841,341

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**Great Lakes Water Authority
Portfolio Holdings
As of December 31, 2018**

DESCRIPTION	CUSIP	PAR AMOUNT	MATURITY DATE	SETTLEMENT DATE	YTM AT COST	ORIGINAL COST	DAYS TO MATURITY	ACCRUED INTEREST	TOTAL VALUE
Federal Agencies									
FNMA 1.375 1/28/2019	3135G0H63	\$ 5,200,000	1/28/2019	7/26/2017	1.39%	\$ 5,198,908	28	\$ 30,388	\$ 5,195,913
FNMA 1.375 1/28/2019	3135G0H63	6,695,000	1/28/2019	8/31/2017	1.31%	6,700,758	28	39,124	6,689,738
FNMA 1 2/26/2019	3135G0J53	5,205,000	2/26/2019	7/26/2017	1.39%	5,173,666	57	18,073	5,193,403
FNMA 1 2/26/2019	3135G0J53	6,690,000	2/26/2019	8/31/2017	1.33%	6,657,821	57	23,229	6,675,095
FHLB 1.5 3/8/2019	3133782M2	6,595,000	3/8/2019	8/31/2017	1.34%	6,611,026	67	31,051	6,583,413
FHLB 1.375 3/18/2019	3130AAXX1	5,175,000	3/18/2019	7/26/2017	1.38%	5,174,431	77	20,359	5,163,268
FHLB 1.375 5/28/2019	3130ABF92	5,260,000	5/28/2019	7/26/2017	1.40%	5,257,423	148	6,630	5,234,352
FHLB 1.375 5/28/2019	3130ABF92	5,245,000	5/28/2019	8/31/2017	1.34%	5,248,409	148	6,611	5,219,425
FHLB 1.625 6/14/2019	313379EE5	7,050,000	6/14/2019	9/1/2017	1.38%	7,080,033	165	5,410	7,019,438
FHLMC 0.875 7/19/2019	3137EAEB1	5,230,000	7/19/2019	7/26/2017	1.41%	5,176,079	200	20,593	5,180,111
FHLMC 0.875 7/19/2019	3137EAEB1	6,720,000	7/19/2019	8/31/2017	1.36%	6,659,386	200	26,460	6,655,898
FHLMC 1.375 8/15/2019	3137EAEB8	5,215,000	8/15/2019	7/26/2017	1.45%	5,206,917	227	27,089	5,173,103
FNMA 1 8/28/2019	3135G0P49	6,715,000	8/28/2019	8/31/2017	1.39%	6,664,100	240	22,943	6,643,445
FNMA 1.75 9/12/2019	3135G0ZG1	4,705,000	9/12/2019	7/26/2017	1.45%	4,734,171	255	24,930	4,676,229
FHLB 1 9/26/2019	3130A9EP2	7,550,000	9/26/2019	8/31/2017	1.39%	7,490,053	269	19,924	7,458,705
FHLMC 1.25 10/2/2019	3137EADM8	5,045,000	10/2/2019	12/28/2017	1.93%	4,985,469	275	15,590	4,992,870
FHLB 2.125 2/11/2020	3130ADN32	3,750,000	2/11/2020	6/28/2018	2.52%	3,726,750	407	30,990	3,732,435
FHLMC 2.5 4/23/2020	3137EAEM7	3,750,000	4/23/2020	6/28/2018	2.56%	3,746,288	479	17,708	3,744,799
FHLB 2.625 5/28/2020	3130AECJ7	3,750,000	5/28/2020	6/28/2018	2.57%	3,753,825	514	9,023	3,755,411
FHLMC 2.375 2/16/2021	3137EAEL9	3,500,000	2/16/2021	8/8/2018	2.79%	3,465,210	778	31,172	3,487,855
FHLMC 2.375 2/16/2021	3137EAEL9	20,000,000	2/16/2021	8/8/2018	2.79%	19,801,200	778	178,125	19,930,600
FHLMC 2.375 2/16/2021	3137EAEL9	250,000	2/16/2021	8/9/2018	2.78%	247,563	778	2,227	249,133
FHLMC 2.375 2/16/2021	3137EAEL9	685,000	2/16/2021	8/9/2018	2.78%	678,321	778	6,101	682,623
FNMA 2.5 4/13/2021	3135G0U27	3,500,000	4/13/2021	8/8/2018	2.82%	3,471,685	834	18,958	3,497,130
FNMA 2.5 4/13/2021	3135G0U27	20,000,000	4/13/2021	8/8/2018	2.82%	19,838,200	834	108,333	19,983,600
FNMA 2.5 4/13/2021	3135G0U27	250,000	4/13/2021	8/9/2018	2.81%	247,985	834	1,354	249,795
FNMA 2.5 4/13/2021	3135G0U27	3,400,000	4/13/2021	8/8/2018	2.81%	3,372,698	834	18,417	3,397,212
FNMA 2.5 4/13/2021	3135G0U27	685,000	4/13/2021	8/9/2018	2.81%	679,479	834	3,710	684,438
FNMA 2.5 4/13/2021	3135G0U27	5,750,000	4/13/2021	8/8/2018	2.81%	5,703,828	834	31,146	5,745,285

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**Great Lakes Water Authority
Portfolio Holdings
As of December 31, 2018**

DESCRIPTION	CUSIP	PAR AMOUNT	MATURITY DATE	SETTLEMENT DATE	YTM AT COST	ORIGINAL COST	DAYS TO MATURITY	ACCRUED INTEREST	TOTAL VALUE
U.S. Treasuries									
T-Bill 0 2/7/2019	912796QW2	\$ 110,000	2/7/2019	8/31/2018	2.23%	\$ 108,938	38	\$ -	\$ 109,740
T-Bill 0 2/7/2019	912796QW2	198,000	2/7/2019	9/5/2018	2.25%	196,125	38	-	197,533
T-Bill 0 2/7/2019	912796QW2	3,550,000	2/7/2019	8/9/2018	2.23%	3,510,965	38	-	3,541,622
T-Bill 0 2/7/2019	912796QW2	126,000	2/7/2019	9/5/2018	2.25%	124,807	38	-	125,703
T-Bill 0 2/7/2019	912796QW2	605,000	2/7/2019	8/31/2018	2.23%	599,157	38	-	603,572
T-Bill 0 2/7/2019	912796QW2	21,975,000	2/7/2019	8/9/2018	2.23%	21,733,367	38	-	21,923,139
T-Bill 0 2/7/2019	912796QW2	250,000	2/7/2019	8/9/2018	2.23%	247,246	38	-	249,410
T-Bill 0 2/7/2019	912796QW2	3,525,000	2/7/2019	8/9/2018	2.23%	3,486,240	38	-	3,516,681
T-Bill 0 2/7/2019	912796QW2	715,000	2/7/2019	8/9/2018	2.23%	707,124	38	-	713,313
T-Bill 0 2/7/2019	912796QW2	5,800,000	2/7/2019	8/9/2018	2.23%	5,736,224	38	-	5,786,312
T-Note 1 3/15/2019	912828P95	603,000	3/15/2019	8/8/2018	2.27%	598,430	74	1,782	601,312
T-Note 1 3/15/2019	912828P95	904,000	3/15/2019	8/8/2018	2.27%	897,149	74	2,672	901,469
T-Note 1 3/15/2019	912828P95	810,000	3/15/2019	4/6/2018	2.10%	801,742	74	2,394	807,732
T-Note 1 3/15/2019	912828P95	794,000	3/15/2019	6/7/2018	2.28%	786,277	74	2,347	791,777
T-Note 1 3/15/2019	912828P95	793,000	3/15/2019	5/15/2018	2.26%	784,760	74	2,344	790,780
T-Note 1.625 4/30/2019	912828D23	2,000,000	4/30/2019	8/8/2018	2.35%	1,989,609	120	5,477	1,994,380
T-Note 1.25 4/30/2019	912828ST8	5,225,000	4/30/2019	7/26/2017	1.37%	5,214,183	120	11,006	5,203,567
T-Note 1.625 4/30/2019	912828D23	4,000,000	4/30/2019	8/8/2018	2.35%	3,979,219	120	10,953	3,988,760
T-Note 1.25 4/30/2019	912828ST8	6,680,000	4/30/2019	8/31/2017	1.31%	6,673,216	120	14,070	6,652,599
T-Note 1.25 5/31/2019	912828XS4-1	5,180,000	5/31/2019	7/26/2017	1.37%	5,168,669	151	5,514	5,153,494
T-Note 1.25 5/31/2019	912828XS4-2	3,690,000	5/31/2019	10/1/2018	2.49%	3,660,019	151	3,928	3,671,107
T-Note 1.25 5/31/2019	912828XS4-2	3,875,000	5/31/2019	10/1/2018	2.49%	3,843,516	151	4,125	3,855,160
T-Note 0.875 6/15/2019	912828R85-1	508,000	6/15/2019	11/2/2018	2.56%	502,781	166	195	504,289
T-Note 0.875 6/15/2019	912828R85-1	510,000	6/15/2019	9/5/2018	2.40%	504,063	166	196	506,274
T-Note 0.875 6/15/2019	912828R85-1	506,000	6/15/2019	12/4/2018	2.57%	501,513	166	195	502,304
T-Note 0.875 6/15/2019	912828R85-1	508,000	6/15/2019	10/2/2018	2.51%	502,265	166	195	504,289
T-Note 0.875 6/15/2019	912828R85-1	1,077,000	6/15/2019	8/8/2018	2.41%	1,063,117	166	414	1,069,133
T-Note 0.875 6/15/2019	912828R85-1	908,000	6/15/2019	11/2/2018	2.56%	898,672	166	349	901,367
T-Note 0.875 6/15/2019	912828R85-1	912,000	6/15/2019	9/5/2018	2.40%	901,384	166	351	905,338
T-Note 0.875 6/15/2019	912828R85-1	910,000	6/15/2019	10/2/2018	2.51%	899,727	166	350	903,352
T-Note 0.875 6/15/2019	912828R85-1	1,929,000	6/15/2019	8/8/2018	2.41%	1,904,134	166	742	1,914,909
T-Note 0.875 6/15/2019	912828R85-1	906,000	6/15/2019	12/4/2018	2.57%	897,966	166	348	899,382
T-Note 0.875 6/16/2019	912828R85-2	729,000	6/16/2019	8/8/2018	2.41%	719,603	167	280	723,678
T-Note 0.875 6/16/2019	912828R85-2	900,000	6/16/2019	9/5/2018	2.39%	889,523	167	346	893,430
T-Note 0.875 6/16/2019	912828R85-2	896,000	6/16/2019	12/4/2018	2.56%	888,055	167	345	889,459

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Portfolio Holdings
As of December 31, 2018

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U.S. Treasuries									
T-Note 0.875 6/16/2019	912828R85-2	905,000	6/16/2019	10/2/2018	2.49%	894,819	167	348	898,394
T-Note 0.875 6/16/2019	912828R85-2	1,503,000	6/16/2019	11/2/2018	2.55%	1,487,618	167	578	1,492,028
T-Note 0.875 6/16/2019	912828R85-2	1,240,000	6/16/2019	10/2/2018	2.49%	1,226,050	167	477	1,230,948
T-Note 0.875 6/16/2019	912828R85-2	2,143,000	6/16/2019	11/2/2018	2.55%	2,121,068	167	824	2,127,356
T-Note 0.875 6/16/2019	912828R85-2	860,000	6/16/2019	8/8/2018	2.41%	848,914	167	331	853,722
T-Note 0.875 6/16/2019	912828R85-2	1,236,000	6/16/2019	9/5/2018	2.39%	1,221,612	167	475	1,226,977
T-Note 0.875 6/16/2019	912828R85-2	1,230,000	6/16/2019	12/4/2018	2.56%	1,219,093	167	473	1,221,021
T-Note 1.25 6/30/2019	912828XV7-1	20,185,000	6/30/2019	8/8/2018	2.43%	19,975,265	181	-	20,058,844
T-Note 1.25 6/30/2019	912828XV7-1	15,140,000	6/30/2019	8/8/2018	2.43%	14,982,686	181	-	15,045,375
T-Note 1.25 6/30/2019	912828XV7-2	1,700,000	6/30/2019	9/20/2018	2.16%	1,688,115	181	-	1,689,375
T-Note 1.25 6/30/2019	912828XV7-1	4,763,000	6/30/2019	2/28/2018	2.17%	4,705,695	181	-	4,733,231
T-Note 1.625 6/30/2019	912828WS5	135,000	6/30/2019	10/3/2018	2.53%	134,104	181	-	134,388
T-Note 1.625 6/30/2019	912828WS5	146,000	6/30/2019	7/21/2017	1.35%	146,776	181	-	145,339
T-Note 1 6/30/2019	912828TC4	127,000	6/30/2019	7/13/2018	2.36%	125,358	181	-	126,048
T-Note 1 6/30/2019	912828TC4	1,021,000	6/30/2019	7/13/2018	2.36%	1,007,799	181	-	1,013,343
T-Note 1.625 6/30/2019	912828WS5	5,500,000	6/30/2019	10/30/2018	2.56%	5,466,055	181	-	5,475,085
T-Note 1.625 6/30/2019	912828WS5	1,625,000	6/30/2019	2/27/2017	1.27%	1,638,267	181	-	1,617,639
T-Note 1.25 6/30/2019	912828XV7-1	5,800,000	6/30/2019	10/11/2017	1.49%	5,776,664	181	-	5,763,750
T-Note 1.25 6/30/2019	912828XV7-1	159,000	6/30/2019	2/28/2018	2.17%	157,087	181	-	158,006
T-Note 1.625 6/30/2019	912828WS5	4,475,000	6/30/2019	2/10/2017	1.32%	4,506,989	181	-	4,454,728
T-Note 1 6/30/2019	912828TC4	2,059,000	6/30/2019	7/13/2018	2.36%	2,032,378	181	-	2,043,558
T-Note 1.25 6/30/2019	912828XV7-1	195,000	6/30/2019	2/28/2018	2.17%	192,654	181	-	193,781
T-Note 1.25 6/30/2019	912828XV7-1	10,050,000	6/30/2019	10/11/2017	1.49%	10,009,564	181	-	9,987,188
T-Note 1.625 6/30/2019	912828WS5	2,450,000	6/30/2019	2/27/2017	1.27%	2,470,002	181	-	2,438,902
T-Note 1.25 6/30/2019	912828XV7-1	100,000	6/30/2019	9/20/2018	1.49%	99,818	181	-	99,375
T-Note 1.625 8/31/2019	912828D80	3,500,000	8/31/2019	8/8/2018	2.51%	3,467,734	243	19,168	3,476,900
T-Note 1.625 8/31/2019	912828D80	20,000,000	8/31/2019	8/8/2018	2.51%	19,815,625	243	109,530	19,868,000
T-Note 1.625 8/31/2019	912828D80	250,000	8/31/2019	8/9/2018	2.50%	247,715	243	1,369	248,350
T-Note 1.625 8/31/2019	912828D80	3,400,000	8/31/2019	8/8/2018	2.51%	3,368,656	243	18,620	3,377,560
T-Note 1.625 8/31/2019	912828D80	685,000	8/31/2019	8/9/2018	2.50%	678,739	243	3,751	680,479
T-Note 1.625 8/31/2019	912828D80	5,750,000	8/31/2019	8/8/2018	2.51%	5,696,992	243	31,490	5,712,050
T-Note 1.5 10/31/2019	912828F62-2	2,000,000	10/31/2019	8/8/2018	2.56%	1,974,453	304	5,055	1,981,320
T-Note 1.5 10/31/2019	912828F62-1	3,405,000	10/31/2019	6/28/2018	2.43%	3,363,636	304	8,607	3,373,211
T-Note 1.5 10/31/2019	912828F62-2	4,000,000	10/31/2019	8/8/2018	2.56%	3,948,905	304	10,111	3,962,640
T-Note 1.75 11/30/2019	9128283H1	3,350,000	11/30/2019	6/28/2018	2.44%	3,317,809	334	4,993	3,323,696

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**Great Lakes Water Authority
Portfolio Holdings
As of December 31, 2018**

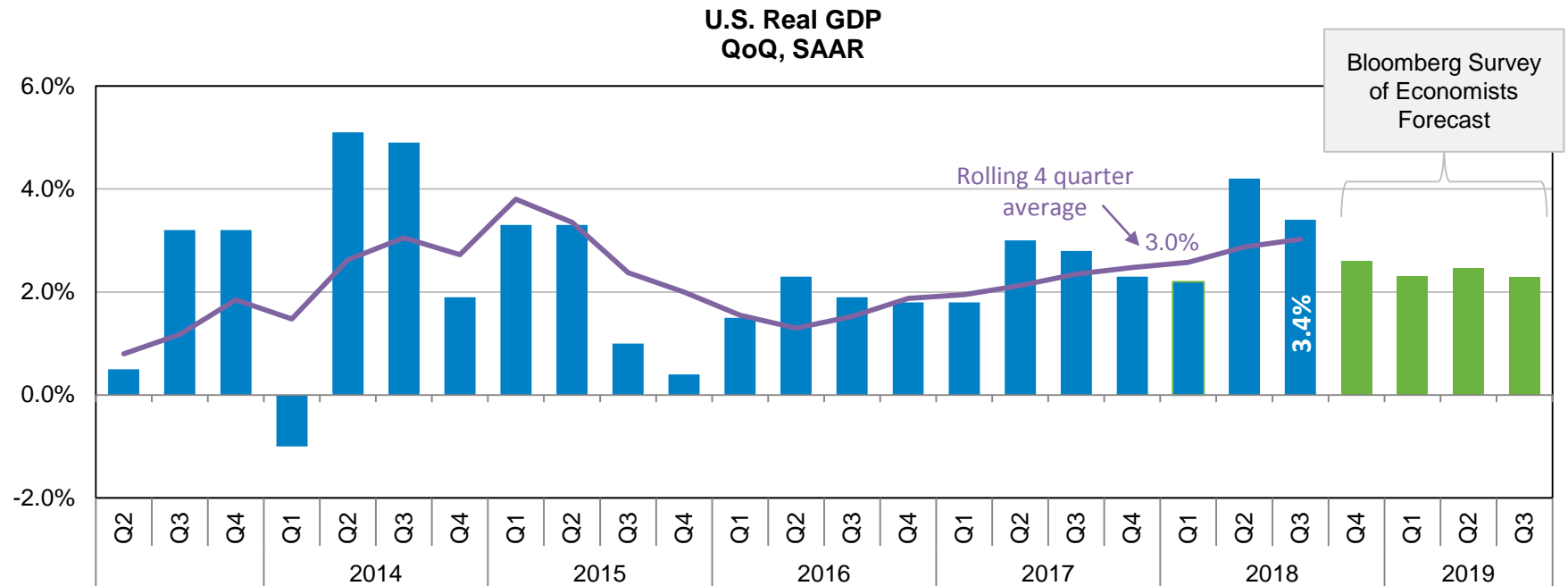
DESCRIPTION	CUSIP	PAR AMOUNT	MATURITY DATE	SETTLEMENT DATE	YTM AT COST	ORIGINAL COST	DAYS TO MATURITY	ACCRUED INTEREST	TOTAL VALUE
U.S. Treasuries									
T-Note 1.75 11/30/2019	9128283H1	3,780,000	11/30/2019	6/28/2018	2.44%	3,743,677	334	5,634	3,750,319
T-Note 1.875 12/31/2019	9128283N8	3,300,000	12/31/2019	6/28/2018	2.46%	3,271,770	365	-	3,276,022
T-Note 1.875 12/31/2019	9128283N8	3,750,000	12/31/2019	6/28/2018	2.46%	3,717,920	365	-	3,722,753
T-Note 2 1/31/2020	9128283S7	3,750,000	1/31/2020	6/28/2018	2.46%	3,723,047	396	31,182	3,725,539
T-Note 2.25 2/29/2020	9128283Y4	3,500,000	2/29/2020	8/8/2018	2.63%	3,479,902	425	26,540	3,485,930
T-Note 2.25 2/29/2020	9128283Y4	20,000,000	2/29/2020	8/8/2018	2.63%	19,885,156	425	151,657	19,919,600
T-Note 2.25 2/29/2020	9128283Y4	250,000	2/29/2020	8/9/2018	2.62%	248,594	425	1,896	248,995
T-Note 2.25 2/29/2020	9128283Y4	3,400,000	2/29/2020	8/8/2018	2.63%	3,380,477	425	25,782	3,386,332
T-Note 2.25 2/29/2020	9128283Y4	685,000	2/29/2020	8/9/2018	2.62%	681,147	425	5,194	682,246
T-Note 2.25 2/29/2020	9128283Y4	5,750,000	2/29/2020	8/8/2018	2.63%	5,716,982	425	43,602	5,726,885
T-Note 2.25 3/31/2020	9128284C1	3,725,000	3/31/2020	6/28/2018	2.49%	3,709,431	456	21,183	3,709,720
T-Note 2.5 5/31/2020	9128284Q0	3,500,000	5/31/2020	8/8/2018	2.66%	3,489,883	517	7,452	3,496,850
T-Note 2.5 5/31/2020	9128284Q0	20,000,000	5/31/2020	8/8/2018	2.66%	19,942,188	517	42,582	19,982,000
T-Note 2.5 5/31/2020	9128284Q0	250,000	5/31/2020	8/9/2018	2.66%	249,297	517	532	249,775
T-Note 2.5 5/31/2020	9128284Q0	3,400,000	5/31/2020	8/8/2018	2.66%	3,390,172	517	7,239	3,396,940
T-Note 2.5 5/31/2020	9128284Q0	685,000	5/31/2020	8/9/2018	2.66%	683,073	517	1,458	684,384
T-Note 2.5 5/31/2020	9128284Q0	5,750,000	5/31/2020	8/8/2018	2.66%	5,733,379	517	12,242	5,744,825
T-Note 1.875 6/30/2020	912828VJ6-1	3,750,000	6/30/2020	6/28/2018	2.52%	3,703,271	547	-	3,712,793
T-Note 1.875 6/30/2020	912828VJ6-2	4,600,000	6/30/2020	10/30/2018	2.81%	4,530,102	547	-	4,554,368
T-Note 1.875 6/30/2020	912828VJ6-2	2,900,000	6/30/2020	7/3/2018	2.54%	2,862,730	547	-	2,871,232
T-Note 1.625 6/30/2020	912828XH8	9,705,000	6/30/2020	10/11/2017	1.61%	9,709,928	547	-	9,573,788
T-Note 2.5 6/30/2020	912828XY1	10,500,000	6/30/2020	10/3/2018	2.81%	10,444,219	547	-	10,491,810
T-Note 1.625 6/30/2020	912828XH8	6,560,000	6/30/2020	10/11/2017	1.61%	6,563,331	547	-	6,471,309
T-Note 1.625 6/30/2020	912828XH8	4,565,000	6/30/2020	2/27/2017	1.54%	4,578,374	547	-	4,503,281
T-Note 2.125 8/31/2020	912828VV9	3,500,000	8/31/2020	8/8/2018	2.69%	3,460,762	609	25,066	3,476,760
T-Note 2.125 8/31/2020	912828VV9	20,000,000	8/31/2020	8/8/2018	2.69%	19,775,781	609	143,232	19,867,200
T-Note 2.125 8/31/2020	912828VV9	250,000	8/31/2020	8/9/2018	2.69%	247,188	609	1,790	248,340
T-Note 2.125 8/31/2020	912828VV9	3,400,000	8/31/2020	8/8/2018	2.69%	3,361,883	609	24,349	3,377,424
T-Note 2.125 8/31/2020	912828VV9	685,000	8/31/2020	8/9/2018	2.69%	677,294	609	4,906	680,452
T-Note 2.125 8/31/2020	912828VV9	5,750,000	8/31/2020	8/8/2018	2.69%	5,685,537	609	41,179	5,711,820
T-Note 2 11/30/2020	912828A42	3,500,000	11/30/2020	8/8/2018	2.72%	3,444,082	700	5,962	3,467,590
T-Note 2 11/30/2020	912828A42	20,000,000	11/30/2020	8/8/2018	2.72%	19,680,469	700	34,066	19,814,800
T-Note 2 11/30/2020	912828A42	250,000	11/30/2020	8/9/2018	2.72%	246,006	700	426	247,685
T-Note 2 11/30/2020	912828A42	3,400,000	11/30/2020	9/17/2018	2.81%	3,341,828	700	5,791	3,368,516
T-Note 2 11/30/2020	912828A42	685,000	11/30/2020	8/9/2018	2.72%	674,056	700	1,167	678,657
T-Note 2 11/30/2020	912828A42	5,750,000	11/30/2020	9/17/2018	2.81%	5,651,621	700	9,794	5,696,755

In addition to the totals listed above, there also exists surety bonds in the amount of \$322,809,258 as of December 31, 2018.

Appendix II: Economic Update

Economic Growth Remains Solid in Third Quarter

- U.S. economic activity continued to expand at a strong pace in the third quarter
 - U.S. gross domestic product (“GDP”) grew at an annual rate of 3.4%, marking the strongest back-to-back quarters since 2014
 - Consumer spending, government spending, and the rebuilding of inventories, offsetting weak business investment, and a drop in U.S exports, were positive contributors
- However, the rise in third quarter growth may not be sustainable, as reflected in moderated future growth forecasts
 - A widening trade deficit and slower housing market activity are expected headwinds

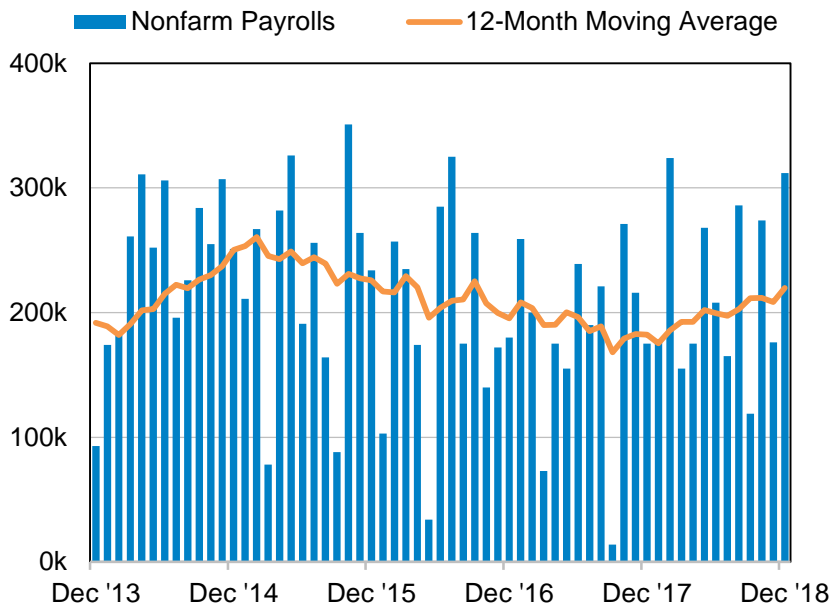


Source: Bloomberg, as of Q3 2018. SAAR is seasonally adjusted annualized rate. Orange denotes rolling four-quarter averages

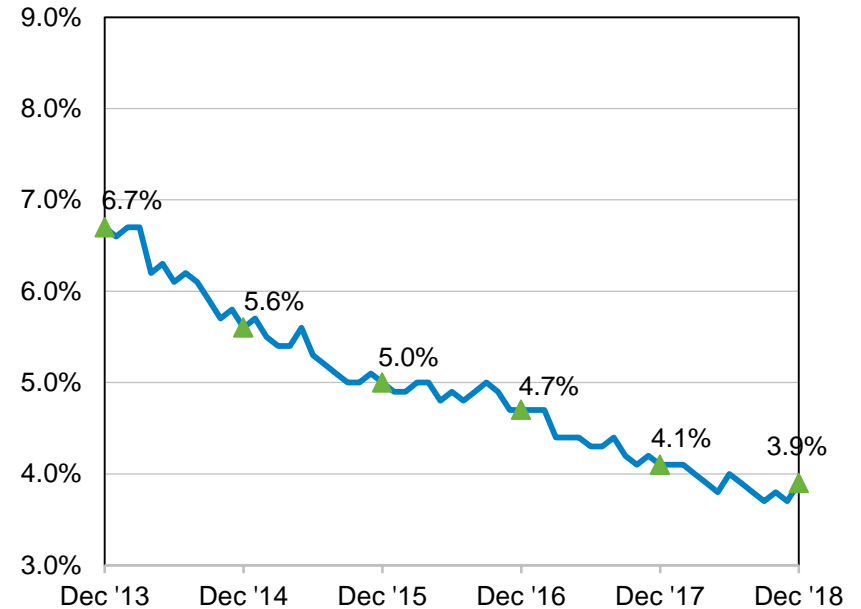
Labor Market Shows Continued Strength in December

- The U.S. economy added 312,000 jobs in December
- Job gains averaged 216,000 per month in 2018
 - The unemployment rate rose to 3.9% in December
 - Average hourly earnings – a key measure of wage growth – rose to 3.2% in December

Monthly Change in Nonfarm Payrolls



Unemployment Rate

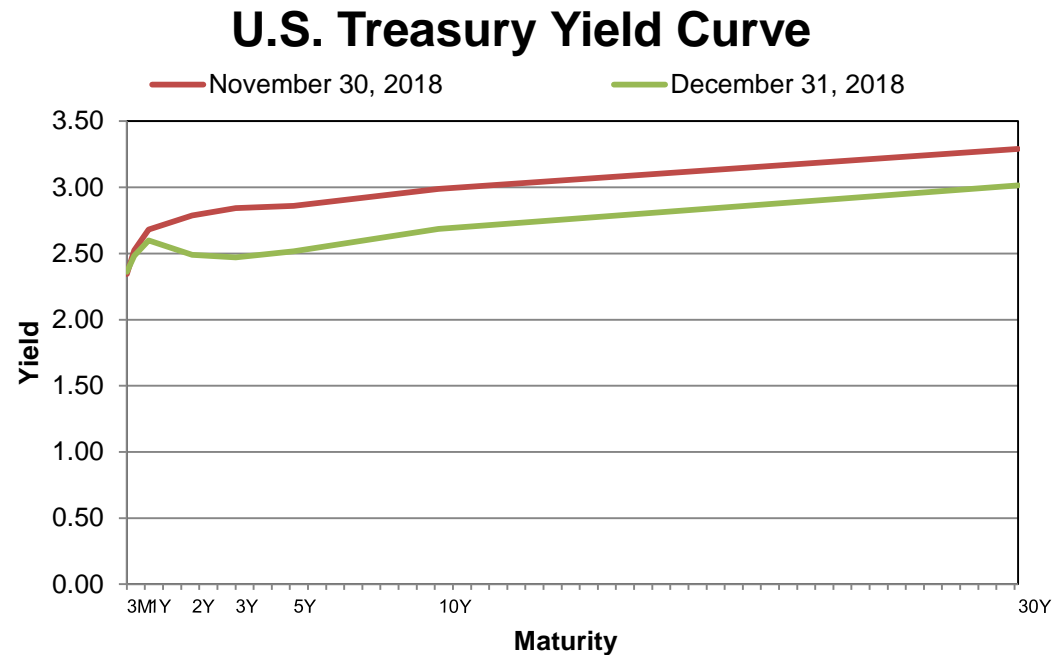


Source: Bloomberg, as of December 2018.

U.S. Treasury Yield Curve

- The U.S. Treasury yield curve is beginning to exhibit a slight inversion
- One-year Treasury notes are yielding higher than intermediate-term notes as of December 31st, 2018, causing the abnormal curvature at the shorter end of the curve

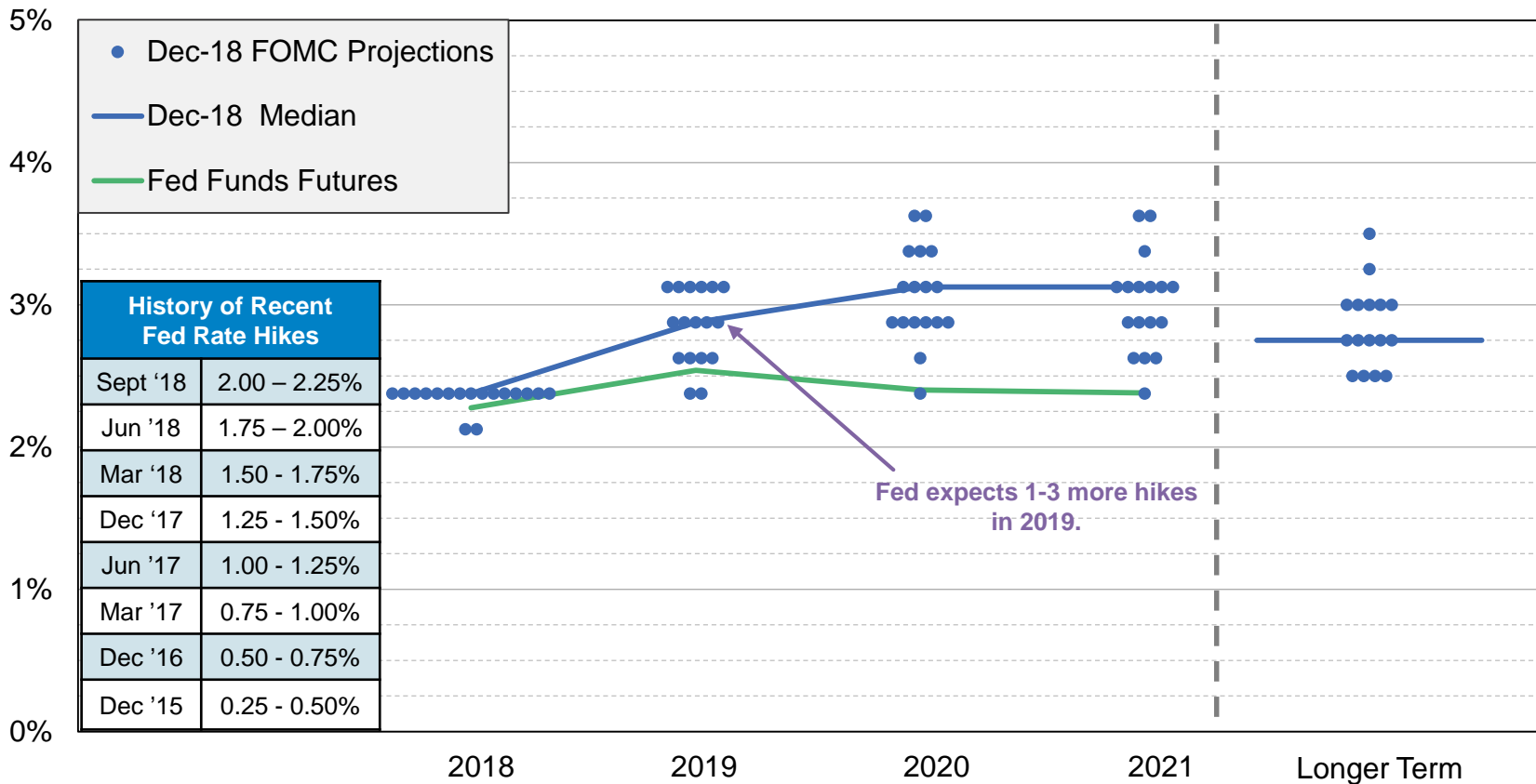
	<u>11/30/18</u>	<u>12/31/18</u>	<u>Change</u>
3 month	2.35%	2.36%	0.02%
6 month	2.52%	2.48%	-0.04%
1 year	2.68%	2.60%	-0.08%
2 year	2.79%	2.49%	-0.30%
3 year	2.84%	2.47%	-0.37%
5 year	2.86%	2.52%	-0.34%
10 year	2.99%	2.69%	-0.30%
30 year	3.29%	3.02%	-0.27%



Source: Bloomberg

FOMC's December "Dot Plot" Appears Mixed For 2019

Fed Participants' Assessments of 'Appropriate' Monetary Policy

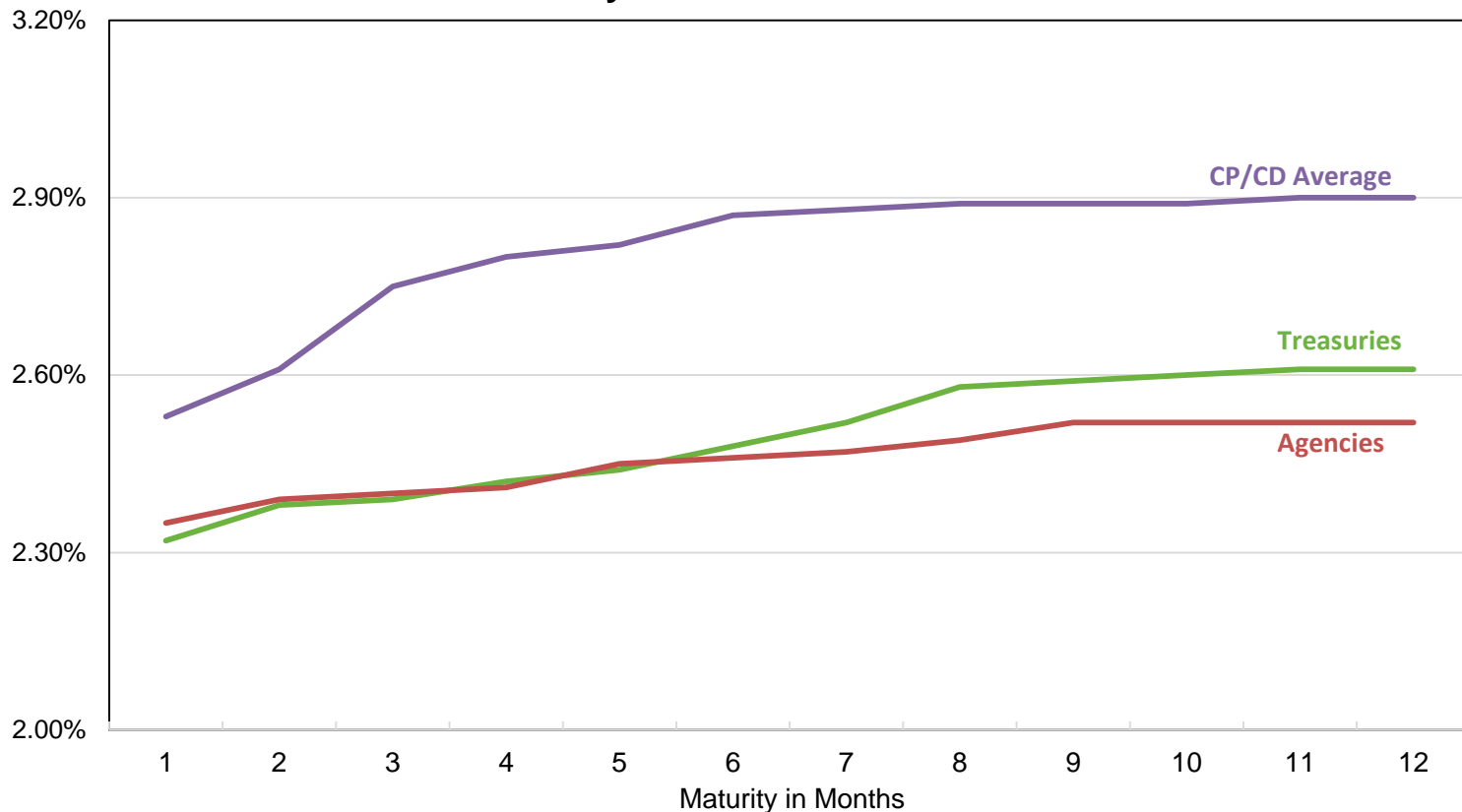


Source: Federal Reserve and Bloomberg. Individual dots represent each Fed members' judgement of the midpoint of the appropriate target range for the Federal Funds rate at each year-end. Fed Funds futures as of 12/19/18.

Current Short-Term Credit Environment

- Commercial paper and negotiable bank CDs remain attractive alternatives to short-term Treasuries, Agencies, bank deposits, and government money market funds

Money Market Yield Curves



Source: Bloomberg, PFMAM Trading Desk, as of 12/31/18. Not a specific recommendation.

**Great Lakes Water Authority
Market Overview and Outlook**

FIXED INCOME MARKET – ECONOMIC HIGHLIGHTS

- Economic conditions, which remain solid, were characterized by:
 - U.S. GDP grew at 3.4% in the third quarter (following 4.2% growth in the second quarter; both figures are the highest since the third quarter of 2014)
 - Inflation continued to hover just shy of the Fed’s objective of 2.0%, as measured by the personal consumption expenditures (“PCE”) core price index
 - Wage growth continued its ascent, maintaining an upward trend and reinforcing the desired trajectory of inflation
 - The labor market remained a tailwind for the economy as the U.S. unemployment rate remained near a 50-year low amid robust job growth
 - Investment-grade credit spreads generally widened to near three-year highs
 - The Fed increased short-term rates by an additional 0.25% in December (the fourth hike of 2018)
 - The pace of future Fed rate hikes is uncertain heading into the new year – while median Fed projections indicate two rate hikes in 2019, market-based measures (i.e., Fed Funds futures) reflect market expectations for no hikes this calendar year
 - Consumer confidence, albeit still elevated, retraced from a two-decade high at year-end as markets digested Fed speak, equity jitters, and the government’s partial shutdown

- U.S. Treasury yields reversed course during the quarter as maturities beyond one year declined by 30 – 40 basis points (0.30% to 0.40%) as investors sought safe havens:
 - The yield curve ended the quarter inverted as the 1-year Treasury (2.60%) out-yielded all tenors out to seven years
 - Short-term Treasury Bill yields rose by 15 – 30 basis points
 - The yield on the 2-year Treasury declined by 33 basis points to end the quarter at 2.49%
 - The yield on the 10-year Treasury declined by 38 basis points to end the quarter at 2.68%

**Great Lakes Water Authority
Market Overview and Outlook**

FIXED INCOME MARKET – ECONOMIC HIGHLIGHTS

- Investors gravitated toward lower-risk assets through the final months of 2018 as volatility surged, stocks lost their footing, credit spreads widened, and the belly of the curve (maturities between one and five years) began trading at rates lower than shorter and longer-term securities (maturities one year or less and maturities greater than five years); U.S. Treasury yields reversed course during the quarter as maturities beyond one year declined by 30 – 40 basis points (0.30% to 0.40%)
- While the path of future Fed rate hikes is less clear than in recent years, the market expects future tightening (additional Fed rate hikes) to be modest; further, political gridlock adds additional uncertainty
- The outlook for some of the major investment-grade fixed-income sectors are as follows:
 - Federal Agency spreads (incremental yield) remain very narrow as most maturities offer less than five basis points (0.05%) of incremental yield relative to U.S. Treasuries
 - Short-term money market investors continue to reap the rewards of current monetary policy as the Fed Funds effective rate now nears 2.50%; short-term commercial paper investments have since normalized following very narrow yield differences at year-end, and once again provide an attractive, high-quality source of incremental income

Disclosure

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