

# Great Lakes Water Authority

*Investment Performance Report – June 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 portfolio's liquidity has increased compared to last quarter with approximately 66% of the total assets maturing overnight.
- **Return** – The overall yield increased to 1.84% as of June 30, 2018 versus 1.72% at March 31, 2018. The Authority earned \$13,207,619 in investment income for fiscal year 2018 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 next fiscal year, we are projecting that the Authority will earn approximately \$17.1 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 6/30/18)
Deposit Account	Comerica	\$56,084	\$56,084	0.25%
Deposit Account - Retainage	First Independence	\$14,437,389	\$14,437,389	0.05%
Deposit Account – Flint Security Deposit	Chase	\$3,756,015	\$3,756,015	0.05%
Deposit Account	Chase	\$47,681,306	\$47,681,306	0.57%
Trust Money Market Fund	U.S. Bank	\$513,826,368	\$513,826,368	1.75%
Money Market Fund	JP Morgan	\$73,311,427	\$73,311,427	1.73%
Local Government Investment Pool	GovMIC	\$22,791,693	\$22,791,693	2.02%
Managed Funds	PFM	\$345,041,454	\$343,234,564	2.25%
<b><u>TOTAL</u></b>		<b><u>\$1,020,901,736</u></b>	<b><u>\$1,126,515,321</u></b>	<b><u>1.84%</u></b>

*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 \$331,914,579 as of 6/30/2018.*

**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 assets concentrated 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 June to cover debt service, debt reserve, and pension obligation payments and requirements
- The aggregate portfolio was yielding 1.84% at the end of June\*
  - This compares to the 1.80% yield of the Bank of America / Merrill Lynch 3-Month U.S. Treasury Bill Index as of 6/30/2018, 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 first quarter of FY 2019, the investment strategy steps to be taken includes seeking opportunities to invest intermediate and longer-term funds based on refined cash flows (specifically for the Water and Sewer Emergency Repair & Replacement Funds, the Water and Sewer Improvement & Extension Funds, and the Water and Sewer Budget Stabilization Funds)
- The Authority will continue to work with its investment advisor to identify strategies 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 \$17.1 million in interest income in FY 2019

\* Current market yield as of June 30, 2018.

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

**ECONOMIC HIGHLIGHTS UPDATE**

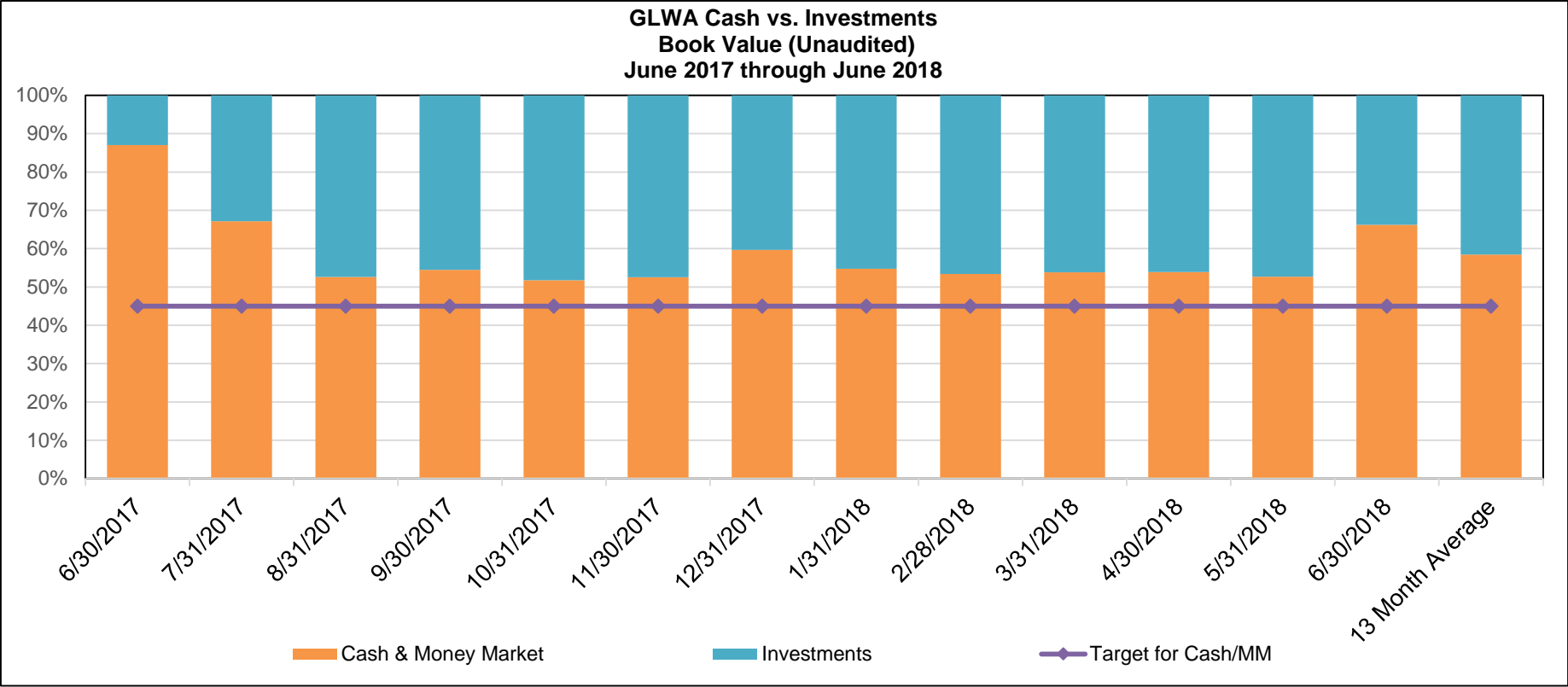
- Federal tax cuts and expanded federal spending accelerated the pace of growth in the second quarter.
- Labor market conditions remained positive as the economy added 213,000 jobs in June; the average for the second quarter was 211,000, which is above the level that is normally required to absorb new entrants into the job market.
- This strength led the Federal Open Market Committee (“FOMC”) to tighten monetary policy again at its June meeting by increasing the overnight Federal Funds target rate by a quarter of a percentage point to a new range of 1.75% to 2.00%, even as most FOMC members warned of the potential increased risks posed by new trade policy.

**ECONOMIC IMPACT ON PORTFOLIO**

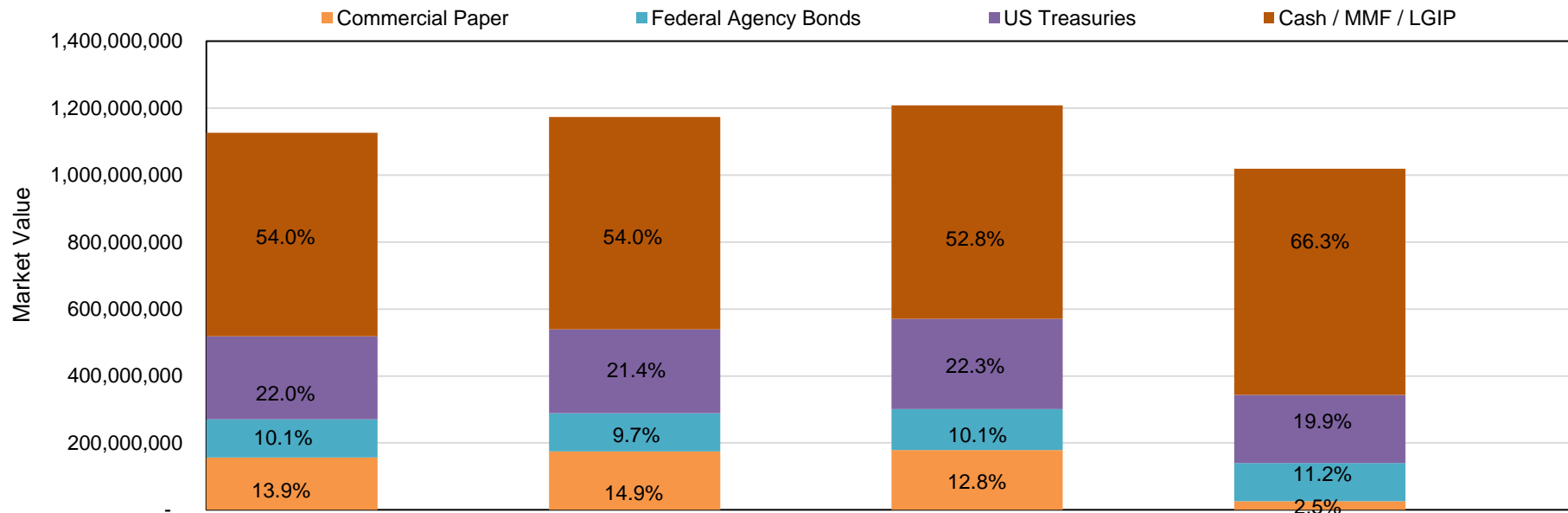
- Given the strength of the U.S. economy, we expect the Fed to hike rates at least once more this year; new tariffs on imported goods could put further pressures on U.S. prices in the short run, thus supporting the Fed’s action of moving rates higher, and that would be beneficial to the Authority’s portfolio.
- Our view in the near term is that the commercial paper sector offers value to the Authority’s portfolio as economic and earnings growth balance the increase in corporate debt levels.
- By contrast, Federal Agency yields remain very close to matched-maturity Treasuries, for the most part, and offer little opportunity for the Authority’s accounts.
- The Fed rate hike in coming months has boosted money market rates well into the 2.00% range and, as bank deposit rates have lagged, short-term Treasuries and commercial paper are quite attractive for the Authority’s liquid funds.

**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 chart below compares the monthly allocation of the portfolio holdings to the 13-month average and the target. The increase in the cash/money market holdings for June of 2018 is related to the fiscal year end debt and pension requirements.



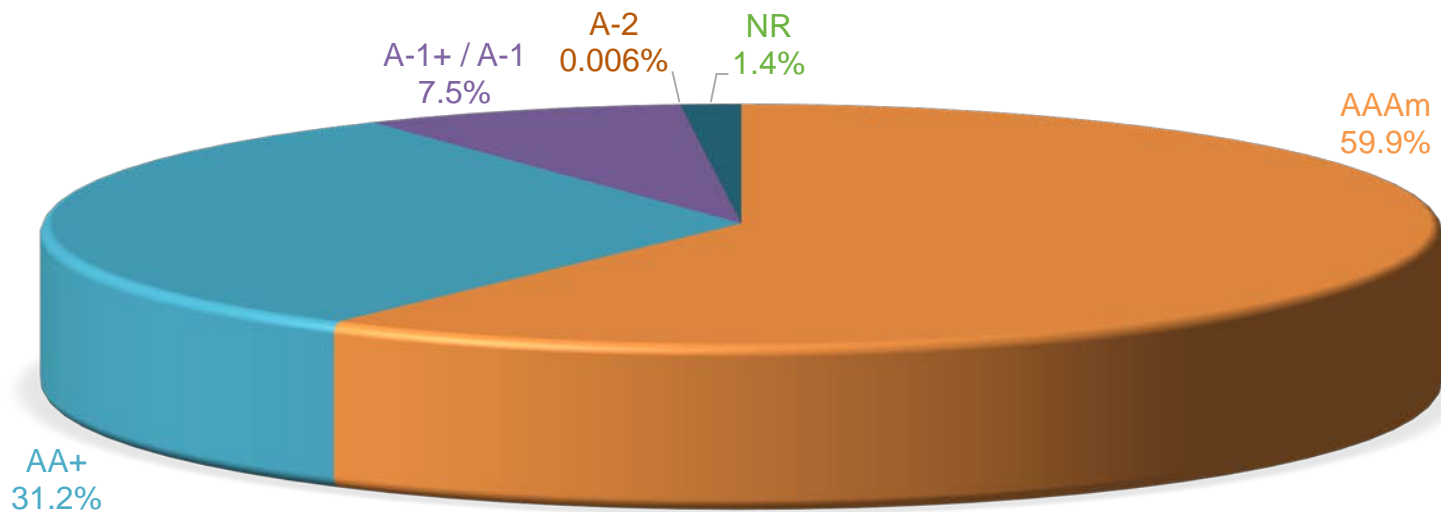
**Great Lakes Water Authority  
Investments – By Security Type**



Security Type	March		April		May		June	
	Market Value	Asset Allocation	Market Value	Asset Allocation	Market Value	Asset Allocation	Market Value	Asset Allocation
Commercial Paper	156,395,705	13.9%	174,725,272	14.9%	178,906,971	14.8%	25,488,959	2.5%
Federal Agencies	113,884,953	10.1%	113,824,690	9.7%	122,008,610	10.1%	114,513,030	11.2%
U.S. Treasuries	248,380,261	22.0%	251,233,046	21.4%	269,652,308	22.3%	203,232,575	19.9%
Cash / MMF / LGIP	607,854,402	54.0%	634,342,810	54.0%	637,960,488	52.8%	675,860,282	66.3%
<b>Total</b>	<b>1,126,515,321</b>	<b>100.0%</b>	<b>1,174,125,818</b>	<b>100.0%</b>	<b>1,208,528,377</b>	<b>100.0%</b>	<b>1,019,094,846</b>	<b>100.0%</b>

*In addition to the totals listed above, there also exists surety bonds in the amount of \$331,914,579 as of June 30, 2018.*

**Great Lakes Water Authority  
Investments – By Credit Quality  
As of June 30, 2018**

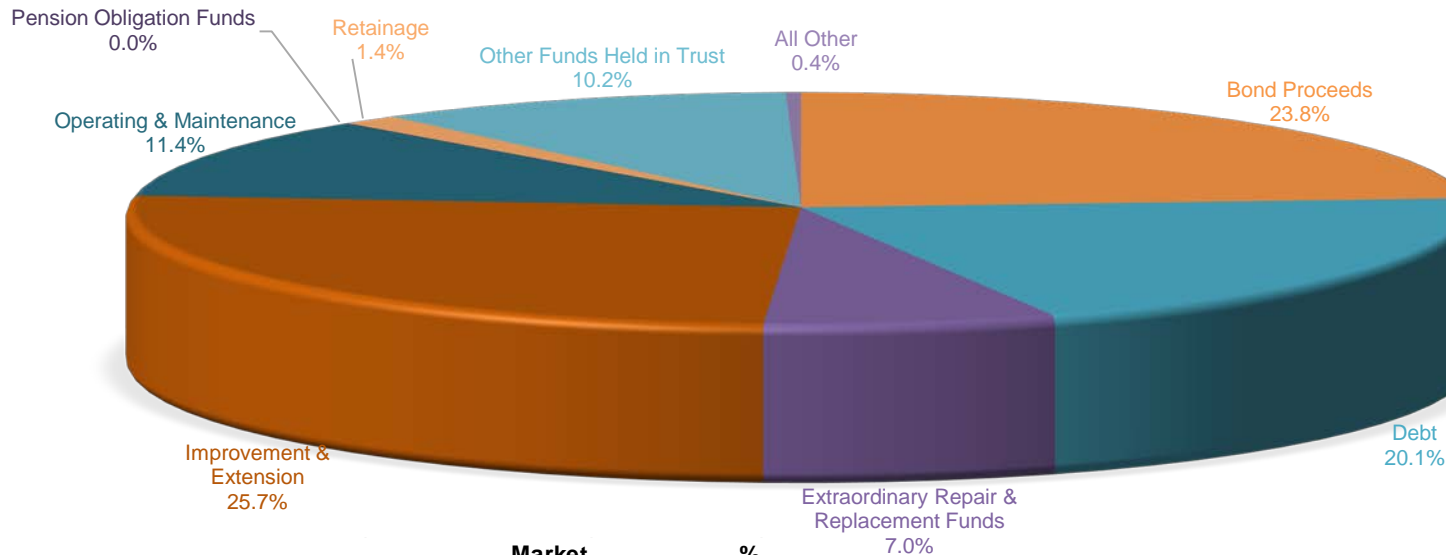


Credit Quality	Market Value	Asset Allocation
<b>Ratings</b>		
AAAm	609,929,488	59.9%
AA+	317,745,606	31.2%
A-1 + / A-1	76,926,280	7.5%
A-2	56,084	0.006%
NR	14,437,389	1.4%
<b>Totals</b>	<b>1,019,094,846</b>	<b>100.0%</b>

*In addition to the totals listed above, there also exists surety bonds in the amount of \$331,914,579 as of June 30, 2018.*



**Great Lakes Water Authority  
Investment Analysis – By Account Purpose  
As of June 30, 2018**



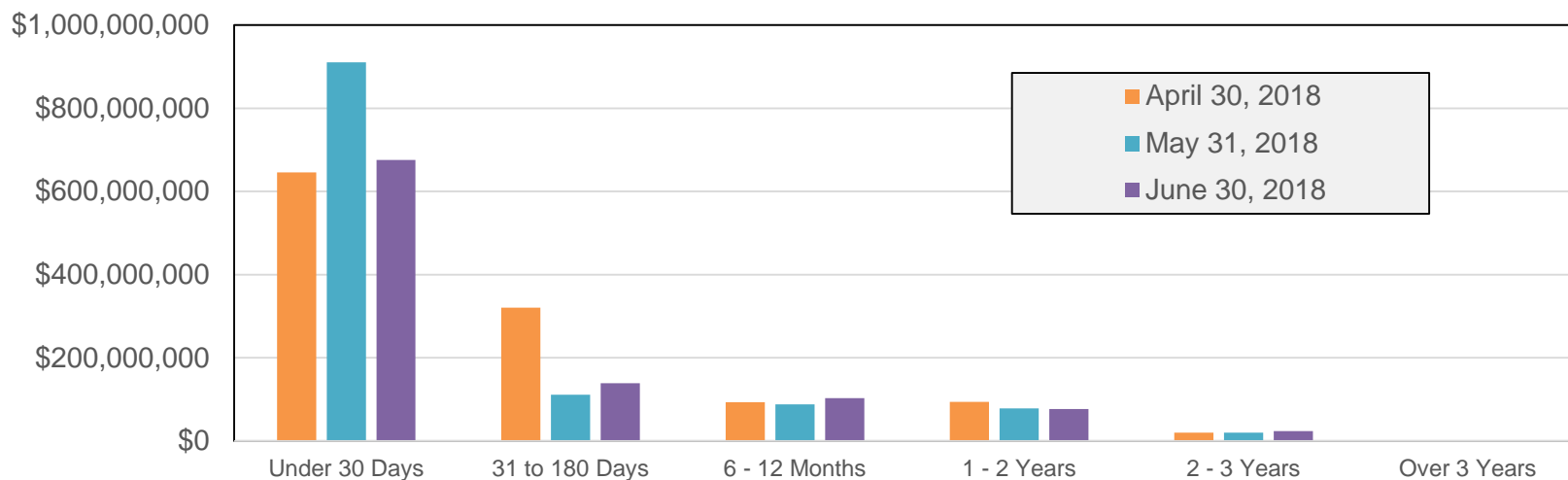
Account Purpose	Market Value	% Allocation
Bond Proceeds	\$ 242,078,019	23.8%
Debt	\$ 205,002,911	20.1%
Extraordinary Repair & Replacement Funds	\$ 71,547,911	7.0%
Improvement & Extension	\$ 262,264,175	25.7%
Operating & Maintenance	\$ 115,724,951	11.4%
Pension Obligation Funds	\$ 474,498	0.0%
Retainage	\$ 14,437,389	1.4%
Other Funds Held in Trust	\$ 103,808,977	10.2%
All Other	\$ 3,756,015	0.4%
<b>Total</b>	<b>\$ 1,019,094,846</b>	<b>100.0%</b>

Other Funds Held in Trust		Market Value	% Allocation
Budget Stabilization Funds	\$	7,000,000	6.7%
Receiving Funds	\$	89,899,856	86.6%
WRAP Funds	\$	6,909,120	6.7%
<b>Total</b>	<b>\$</b>	<b>103,808,977</b>	<b>100.0%</b>

In addition to the totals listed above, there also exists surety bonds in the amount of \$331,914,579 as of June 30, 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	April 30, 2018		May 31, 2018		June 30, 2018	
		%		%		%
Under 30 Days	\$ 645,448,590	55.0%	\$ 910,014,458	75.3%	\$ 675,865,318	66.3%
31 to 180 Days	320,842,044	27.3%	111,380,526	9.2%	139,230,724	13.7%
6 - 12 Months	93,279,973	7.9%	87,899,380	7.3%	103,203,007	10.1%
1 - 2 Years	94,120,648	8.0%	78,741,687	6.5%	76,634,203	7.5%
2 - 3 Years	20,434,563	1.7%	20,492,325	1.7%	24,161,593	2.4%
Over 3 Years	-	0.0%	-	0.0%	-	0.0%
<b>Totals</b>	<b>\$ 1,174,125,818</b>	<b>100.0%</b>	<b>\$ 1,208,528,377</b>	<b>100.0%</b>	<b>\$ 1,019,094,846</b>	<b>100.0%</b>



In addition to the totals listed above, there also exists surety bonds in the amount of \$331,914,579 as of June 30, 2018.

**Great Lakes Water Authority**  
**Investment Accounts – Yield at Cost & Market**  
**As of June 30, 2018**

	As of June 30, 2018		As of March 31, 2018	
	YTM @ Cost	YTM @ Market	YTM @ Cost	YTM @ Market
<b>Bank Deposits</b>				
Comerica	0.25%	0.25%	0.25%	0.25%
First Indenpedence	0.05%	0.05%	0.05%	0.05%
Flint Deposit Account	0.05%	0.05%	0.05%	0.05%
JP Morgan Chase	0.57%	0.57%	0.49%	0.49%
<b>Sub-Total Bank Deposits</b>	<b>0.43%</b>	<b>0.43%</b>	<b>0.30%</b>	<b>0.30%</b>
<b>Money Market Funds / LGIPs</b>				
GovMIC	2.02%	2.02%	1.59%	1.59%
U.S. Bank - First American MMF	1.75%	1.75%	1.50%	1.50%
JP Morgan Securities - Blackrock MMF	1.73%	1.73%	1.43%	1.43%
<b>Sub-Total MMF / LGIPs</b>	<b>1.76%</b>	<b>1.76%</b>	<b>1.50%</b>	<b>1.50%</b>
<b>Investment Portfolios</b>				
Sewage SR Debt Serv 5403	0.00%	0.00%	1.71%	2.15%
Sewage SR Res 5400	1.35%	2.33%	1.31%	2.14%
Sew 2nd Debt Serv 5403	0.00%	0.00%	1.83%	2.20%
Sewage 2nd Res 5481	1.30%	2.29%	1.30%	2.15%
Sew SRF Debt Serv 5410	1.98%	2.17%	1.82%	2.23%
Sewage R & R	1.50%	1.92%	1.39%	1.82%
Sewer Pension Obligation	0.00%	0.00%	1.31%	1.75%
Sewer Bond Fund	1.49%	2.25%	1.37%	2.07%
Sewer O&M Pension Sub Account	0.00%	0.00%	1.39%	1.75%
Water SR Debt Ser 5503	0.00%	0.00%	1.73%	2.18%
Water SR Reserve 5500	1.17%	2.11%	1.13%	2.01%
Water 2nd Debt Serv 5503	0.00%	0.00%	1.80%	2.19%
Water 2nd Res 5581	2.15%	2.36%	2.15%	2.19%
Water SRF Debt Serv 5575	1.98%	2.16%	1.83%	2.23%
Water R & R	1.50%	1.92%	1.39%	1.82%
Water Pension Obligation	0.00%	0.00%	1.32%	1.75%
Water Bond Fund	1.63%	2.29%	1.39%	2.09%
Water O&M Pension Sub Account	0.00%	0.00%	1.39%	1.75%
<b>Sub-Total Investment Portfolios</b>	<b>1.56%</b>	<b>2.25%</b>	<b>1.48%</b>	<b>2.08%</b>
<b><u>Grand Total</u></b>	<b><u>1.61%</u></b>	<b><u>1.84%</u></b>	<b><u>1.45%</u></b>	<b><u>1.72%</u></b>
<b>Short-Term Index</b>				
BoA / ML 3-Month Treasury Index		1.80%		1.61%

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. The Bank of America / Merrill Lynch 3-Month Treasury Bill is an unmanaged index tracking the on-the-run Treasury Bill. The index is produced and maintained by Bank of America / Merrill Lynch & Co. 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 June 30, 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 June 30, 2018				
	<i>Market Value</i>	<i>YTM @ Market</i>	<i>Effective Duration</i>	<i>Weighted Average Maturity</i>
<b>GLWA</b>				
Great Lakes Water Authority	\$1,019,094,846	1.84%	0.27 Years	100 Days
<b>Short/Intermediate-Term Indices</b>				
S&P Rated Government Investment Pool Index		1.70%	0.10 Years	37 Days
BoA / ML 3-Month Treasury Index		1.80%	0.14 Years	90 Days
BoA / ML 6-Month Treasury Index		2.06%	0.39 Years	180 Days
BoA / ML 1-Year Treasury Index		2.34%	0.90 Years	365 Days
BoA / ML 1-3 Year Treasury Index		2.51%	1.80 Years	657 Days
BoA / ML 1-5 Year Treasury Index		2.58%	2.58 Years	942 Days
<b>Peer Analysis (Water Entities / Utilities)</b>				
Alameda County Water District, CA	\$109,795,090	2.70%	2.44 Years	930 Days
Coachella Valley Water District, CA	\$457,516,783	2.60%	1.82 Years	765 Days
District of Columbia Water & Sewer Authority, DC	\$316,778,425	2.25%	0.84 Years	316 Days
DuPage Water Commission, IL	\$136,544,503	2.57%	2.14 Years	984 Days
Fairfax County Water Authority, VA	\$220,489,795	2.45%	1.68 Years	638 Days
San Bernardino Valley Municipal Water District, CA	\$300,931,711	2.63%	1.79 Years	677 Days
Truckee Meadows Water Authority, NV	\$112,022,886	2.42%	1.61 Years	610 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 June 30, 2018

**INVESTMENT INCOME BY MONTH (Unaudited)**

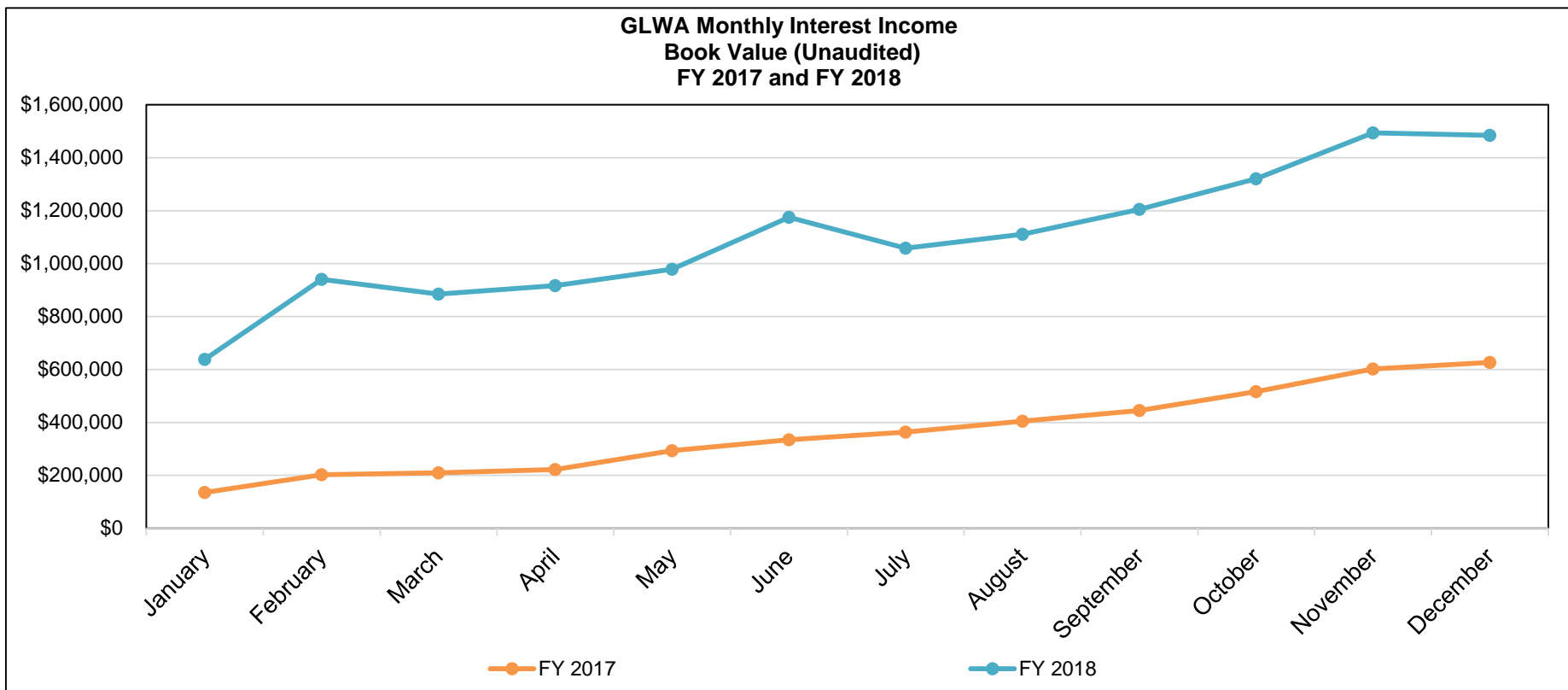
Month	Interest Earned During Period	Realized Gain / Loss	Investment Income
July 2017	\$637,658.61	\$0.00	\$637,658.61
August 2017	\$940,941.92	\$0.00	\$940,941.92
September 2017	\$884,798.87	\$0.00	\$884,798.87
October 2017	\$917,018.83	\$0.00	\$917,018.83
November 2017	\$979,111.10	\$0.00	\$979,111.10
December 2017	\$1,174,533.01	\$0.00	\$1,174,533.01
January 2018	\$1,058,271.07	\$0.00	\$1,058,271.07
February 2018	\$1,111,055.20	\$0.00	\$1,111,055.20
March 2018	\$1,205,317.00	(\$761.09)*	\$1,204,555.91
April 2018	\$1,320,892.80	\$0.00	\$1,320,892.80
May 2018	\$1,493,909.27	\$0.00	\$1,493,909.27
June 2018	\$1,484,872.45	\$0.00	\$1,484,872.45
<b><u>FY 2018 Y-T-D</u></b>	<b><u>\$13,208,380.13</u></b>	<b><u>(\$761.09)</u></b>	<b><u>\$13,207,619.04</u></b>

\* The Authority generally does not realize losses on its investments. However, on March 9, 2018, PFM purchased a 6-month commercial paper investment, thinking that the amount could be fully invested to the October 1<sup>st</sup> payment date. Upon reviewing the Sewage SRF Debt Service account with the Authority in mid-March, it was determined that the amount necessary for the April 1<sup>st</sup> payment was different from what PFM had previously calculated. Therefore, a portion of the commercial paper investment was sold to ensure that the required liquid funds were available on the April 1<sup>st</sup> payment date.

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 earned \$13,207,619 in investment income for fiscal year 2018 on a book value basis compared to \$4,357,728 for fiscal year 2017.
- 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 \$17.1 million.



# Appendix I: Portfolio Holdings

**Great Lakes Water Authority  
Portfolio Holdings  
As of June 30, 2018**

DESCRIPTION	CUSIP	PAR AMOUNT	MATURITY DATE	SETTLEMENT DATE	YTM AT COST	ORIGINAL COST	DAYS TO MATURITY	ACCRUED INTEREST	TOTAL VALUE
<b>Short-Term Bank Deposits / MMF / LGIP</b>									
COMERICA BANK		\$ 56,084	7/1/2018	6/30/2018	0.25%	\$ 56,084	1	\$ -	\$ 56,084
FIRST INDEPENDENCE BANK		14,437,389	7/1/2018	6/30/2018	0.05%	14,437,389	1	-	14,437,389
FLINT DEPOSIT ACCOUNT		3,756,015	7/1/2018	6/30/2018	0.05%	3,756,015	1	-	3,756,015
JP MORGAN CHASE		47,681,306	7/1/2018	6/30/2018	0.57%	47,681,306	1	-	47,681,306
GoMIC		22,791,693	7/1/2018	6/30/2018	2.02%	22,791,693	1	-	22,791,693
U.S. BANK - FIRST AMERICAN MMF		513,826,368	7/1/2018	6/30/2018	1.75%	513,826,368	1	-	513,826,368
JP MORGAN SECURITIES - BLACKROCK MMF		73,311,427	7/1/2018	6/30/2018	1.73%	73,311,427	1	-	73,311,427
<b>Commercial Paper</b>									
Toyota Motor Credit 0 7/31/2018	89233HG6	\$ 5,050,000	7/31/2018	1/2/2018	1.79%	\$ 4,997,859	31	\$ -	\$ 5,041,117
Bank of Tokyo 0 9/17/2018	06538CJH5	123,000	9/17/2018	12/21/2017	1.97%	121,238	79	-	122,416
Bank of Tokyo 0 9/17/2018	06538CJH5	3,029,000	9/17/2018	12/21/2017	1.97%	2,985,610	79	-	3,014,612
GE Capital 0 9/25/2018	36164KJR3	121,000	9/25/2018	1/9/2018	1.89%	119,381	87	-	120,366
JPMorgan Securities 0 9/25/2018	46640QJR3	161,000	9/25/2018	4/6/2018	2.38%	159,192	87	-	160,156
JPMorgan Securities 0 9/25/2018	46640QJR3	123,000	9/25/2018	2/2/2018	2.05%	121,378	87	-	122,355
Toyota Motor Credit 0 9/25/2018	89233HJR6	171,000	9/25/2018	6/7/2018	2.30%	169,809	87	-	170,104
Toyota Motor Credit 0 9/25/2018	89233HJR6	122,000	9/25/2018	3/9/2018	2.25%	120,495	87	-	121,361
Cooperative Rabobank 0 9/25/2018	21687BJR3	1,583,000	9/25/2018	3/13/2018	2.23%	1,564,039	87	-	1,574,705
Dexia Credit Local 0 9/25/2018	25214PFG3	1,977,000	9/25/2018	4/9/2018	2.21%	1,956,675	87	-	1,966,641
GE Capital 0 9/25/2018	36164KJR3	3,026,000	9/25/2018	1/9/2018	1.89%	2,985,507	87	-	3,010,144
JPMorgan Securities 0 9/25/2018	46640QJR3	1,839,000	9/25/2018	4/6/2018	2.38%	1,818,352	87	-	1,829,364
JPMorgan Securities 0 9/25/2018	46640QJR3	3,026,000	9/25/2018	2/2/2018	2.05%	2,986,099	87	-	3,010,144
Toyota Motor Credit 0 9/25/2018	89233HJR6	1,356,000	9/25/2018	3/9/2018	2.25%	1,339,276	87	-	1,348,895
Toyota Motor Credit 0 9/25/2018	89233HJR6	3,897,000	9/25/2018	6/7/2018	2.30%	3,869,851	87	-	3,876,580

In addition to the totals listed above, there also exists surety bonds in the amount of \$331,914,579 as of June 30, 2018.



**Great Lakes Water Authority  
Portfolio Holdings  
As of June 30, 2018**

DESCRIPTION	CUSIP	PAR AMOUNT	MATURITY DATE	SETTLEMENT DATE	YTM AT COST	ORIGINAL COST	DAYS TO MATURITY	ACCRUED INTEREST	TOTAL VALUE
<u>Federal Agencies</u>									
FNMA 1.15 10/30/2018-14	3136G1KL2	\$ 10,000,000	10/30/2018	4/30/2013	1.36%	\$ 9,889,200	122	\$ 19,167	\$ 9,969,400
FNMA 1.375 1/28/2019	3135G0H63	5,200,000	1/28/2019	7/26/2017	1.39%	5,198,908	212	30,189	5,174,359
FNMA 1.375 1/28/2019	3135G0H63	6,695,000	1/28/2019	8/31/2017	1.31%	6,700,758	212	38,868	6,661,987
FNMA 1 2/26/2019	3135G0J53	5,205,000	2/26/2019	7/26/2017	1.39%	5,173,666	241	17,928	5,161,799
FNMA 1 2/26/2019	3135G0J53	6,690,000	2/26/2019	8/31/2017	1.33%	6,657,821	241	23,043	6,634,473
FHLB 1.5 3/8/2019	3133782M2	6,595,000	3/8/2019	8/31/2017	1.34%	6,611,026	251	30,777	6,561,682
FHLB 1.375 3/18/2019	3130AAXX1	5,175,000	3/18/2019	7/26/2017	1.38%	5,174,431	261	20,161	5,141,880
FHLB 1.375 5/28/2019	3130ABF92	5,260,000	5/28/2019	7/26/2017	1.40%	5,257,423	332	6,429	5,213,460
FHLB 1.375 5/28/2019	3130ABF92	5,245,000	5/28/2019	8/31/2017	1.34%	5,248,409	332	6,411	5,198,592
FHLB 1.625 6/14/2019	313379EE5	7,050,000	6/14/2019	9/1/2017	1.38%	7,080,033	349	5,092	6,998,831
FHLMC 0.875 7/19/2019	3137EAE81	5,230,000	7/19/2019	7/26/2017	1.41%	5,176,079	384	20,466	5,147,382
FHLMC 0.875 7/19/2019	3137EAE81	6,720,000	7/19/2019	8/31/2017	1.36%	6,659,386	384	26,297	6,613,844
FHLMC 1.375 8/15/2019	3137EAEH8	5,215,000	8/15/2019	7/26/2017	1.45%	5,206,917	411	26,890	5,153,932
FNMA 1 8/28/2019	3135G0P49	6,715,000	8/28/2019	8/31/2017	1.39%	6,664,100	424	22,756	6,605,176
FNMA 1.75 9/12/2019	3135G0ZG1	4,705,000	9/12/2019	7/26/2017	1.45%	4,734,171	439	24,701	4,666,913
FHLB 1 9/26/2019	3130A9EP2	7,550,000	9/26/2019	8/31/2017	1.39%	7,490,053	453	19,714	7,419,279
FHLMC 1.25 10/2/2019	3137EADM8	5,045,000	10/2/2019	12/28/2017	1.93%	4,985,469	459	15,415	4,968,346
FHLB 2.125 2/11/2020	3130ADN32	3,750,000	2/11/2020	6/28/2018	2.52%	3,726,750	591	31,211	3,727,095
FHLMC 2.5 4/23/2020	3137EAE87	3,750,000	4/23/2020	6/28/2018	2.56%	3,746,288	663	18,490	3,743,449
FHLB 2.625 5/28/2020	3130AECJ7	3,750,000	5/28/2020	6/28/2018	2.57%	3,753,825	698	10,664	3,751,151

In addition to the totals listed above, there also exists surety bonds in the amount of \$331,914,579 as of June 30, 2018.

**Great Lakes Water Authority  
Portfolio Holdings  
As of June 30, 2018**

DESCRIPTION	CUSIP	PAR AMOUNT	MATURITY DATE	SETTLEMENT DATE	YTM AT COST	ORIGINAL COST	DAYS TO MATURITY	ACCRUED INTEREST	TOTAL VALUE
<u><b>U.S. Treasuries</b></u>									
T-Note 0.75 8/31/2018	9128282C3	\$ 5,190,000	8/31/2018	7/26/2017	1.27%	\$ 5,160,806	62	\$ 12,904	\$ 5,180,175
T-Note 0.75 8/31/2018	9128282C3	6,650,000	8/31/2018	7/26/2017	1.27%	6,612,594	62	16,535	6,637,412
T-Note 1 9/15/2018	912828L40	7,018,000	9/15/2018	11/8/2017	1.50%	6,988,393	77	20,406	7,004,525
T-Note 1 9/15/2018	912828L40	121,000	9/15/2018	10/4/2017	1.36%	120,594	77	352	120,768
T-Note 1 9/15/2018	912828L40	122,000	9/15/2018	11/7/2017	1.49%	121,490	77	355	121,766
T-Note 1 9/15/2018	912828L40	176,000	9/15/2018	5/15/2018	1.96%	175,436	77	512	175,662
T-Note 1 9/15/2018	912828L40	9,525,000	9/15/2018	11/8/2017	1.50%	9,484,816	77	27,695	9,506,712
T-Note 1 9/15/2018	912828L40	3,815,000	9/15/2018	5/15/2018	1.96%	3,802,780	77	11,093	3,807,675
T-Note 1 9/15/2018	912828L40	2,993,000	9/15/2018	10/4/2017	1.36%	2,982,945	77	8,702	2,987,253
T-Note 1 9/15/2018	912828L40	2,994,000	9/15/2018	11/7/2017	1.49%	2,981,486	77	8,705	2,988,252
T-Note 0.75 9/30/2018	912828T42	5,160,000	9/30/2018	7/26/2017	1.28%	5,128,355	92	9,622	5,144,293
T-Note 0.75 9/30/2018	912828T42	6,605,000	9/30/2018	7/26/2017	1.28%	6,564,493	92	12,317	6,584,894
T-Note 1.375 9/30/2018	912828RH5	10,220,000	9/30/2018	10/26/2016	0.87%	10,317,809	92	34,939	10,204,466
T-Note 1.375 9/30/2018	912828RH5	7,805,000	9/30/2018	10/26/2016	0.87%	7,879,696	92	26,683	7,793,136
T-Note 0.75 10/31/2018	912828T83	5,215,000	10/31/2018	7/26/2017	1.31%	5,178,536	123	6,483	5,193,405
T-Note 0.75 10/31/2018	912828T83	4,275,000	10/31/2018	8/31/2017	1.26%	4,249,784	123	5,315	4,257,297
T-Note 0.75 10/31/2018	912828T83	2,400,000	10/31/2018	7/26/2017	1.31%	2,383,219	123	2,984	2,390,062
T-Note 1.375 11/30/2018	912828RT9	10,400,000	11/30/2018	7/26/2017	1.32%	10,407,313	153	11,721	10,369,122
T-Note 1 11/30/2018	912828U40	13,370,000	11/30/2018	8/31/2017	1.26%	13,326,652	153	10,959	13,310,463
T-Note 1 3/15/2019	912828P95	793,000	3/15/2019	5/15/2018	2.26%	784,760	258	2,306	786,093
T-Note 1 3/15/2019	912828P95	794,000	3/15/2019	6/7/2018	2.28%	786,277	258	2,309	787,084
T-Note 1 3/15/2019	912828P95	810,000	3/15/2019	4/6/2018	2.10%	801,742	258	2,355	802,945
T-Note 1.25 4/30/2019	912828ST8	5,225,000	4/30/2019	7/26/2017	1.37%	5,214,183	304	10,826	5,179,077

In addition to the totals listed above, there also exists surety bonds in the amount of \$331,914,579 as of June 30, 2018.

**Great Lakes Water Authority  
Portfolio Holdings  
As of June 30, 2018**

DESCRIPTION	CUSIP	PAR AMOUNT	MATURITY DATE	SETTLEMENT DATE	YTM AT COST	ORIGINAL COST	DAYS TO MATURITY	ACCRUED INTEREST	TOTAL VALUE
<b>U.S. Treasuries</b>									
T-Note 1.25 4/30/2019	912828ST8	6,680,000	4/30/2019	8/31/2017	1.31%	6,673,216	304	13,841	6,621,289
T-Note 1.25 5/31/2019	912828XS4	5,180,000	5/31/2019	7/26/2017	1.37%	5,168,669	335	5,307	5,129,008
T-Note 1.25 6/30/2019	912828XV7	6,463,000	6/30/2019	2/28/2018	2.17%	6,385,242	365	-	6,392,295
T-Note 1.625 6/30/2019	912828WS5	146,000	6/30/2019	7/21/2017	1.35%	146,776	365	-	144,934
T-Note 1.625 6/30/2019	912828WS5	1,625,000	6/30/2019	2/27/2017	1.27%	1,638,267	365	-	1,613,138
T-Note 1.25 6/30/2019	912828XV7	159,000	6/30/2019	2/28/2018	2.17%	157,087	365	-	157,261
T-Note 1.25 6/30/2019	912828XV7	5,800,000	6/30/2019	10/11/2017	1.49%	5,776,664	365	-	5,736,548
T-Note 1.625 6/30/2019	912828WS5	4,475,000	6/30/2019	2/10/2017	1.32%	4,506,989	365	-	4,442,333
T-Note 1.25 6/30/2019	912828XV7	195,000	6/30/2019	2/28/2018	2.17%	192,654	365	-	192,867
T-Note 1.25 6/30/2019	912828XV7	10,150,000	6/30/2019	10/11/2017	1.49%	10,109,162	365	-	10,038,959
T-Note 1.625 6/30/2019	912828WS5	2,450,000	6/30/2019	2/27/2017	1.27%	2,470,002	365	-	2,432,115
T-Note 1.5 10/31/2019	912828F62	3,405,000	10/31/2019	6/28/2018	2.43%	3,363,635	488	8,466	3,362,703
T-Note 1.75 11/30/2019	9128283H1	3,350,000	11/30/2019	6/28/2018	2.44%	3,317,809	518	4,805	3,316,239
T-Note 1.75 11/30/2019	9128283H1	3,780,000	11/30/2019	6/28/2018	2.44%	3,743,677	518	5,422	3,741,905
T-Note 1.875 12/31/2019	9128283N8	3,300,000	12/31/2019	6/28/2018	2.46%	3,271,770	549	-	3,270,482
T-Note 1.875 12/31/2019	9128283N8	3,750,000	12/31/2019	6/28/2018	2.46%	3,717,920	549	-	3,716,456
T-Note 2 1/31/2020	9128283S7	3,750,000	1/31/2020	6/28/2018	2.46%	3,723,047	580	31,077	3,721,729
T-Note 2.25 3/31/2020	9128284C1	3,725,000	3/31/2020	6/28/2018	2.49%	3,709,431	640	20,839	3,708,122
T-Note 1.875 6/30/2020	912828VJ6	3,750,000	6/30/2020	6/28/2018	2.52%	3,703,271	731	-	3,701,805
T-Note 1.625 6/30/2020	912828XH8	9,705,000	6/30/2020	10/11/2017	1.61%	9,709,928	731	-	9,532,542
T-Note 1.625 6/30/2020	912828XH8	4,565,000	6/30/2020	2/27/2017	1.54%	4,578,374	731	-	4,483,880
T-Note 1.625 6/30/2020	912828XH8	6,560,000	6/30/2020	10/11/2017	1.61%	6,563,331	731	-	6,443,429

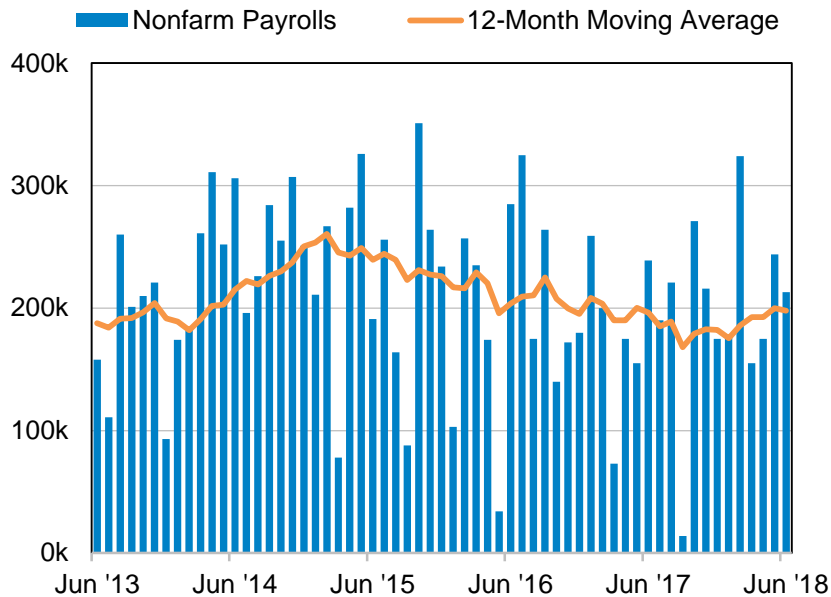
In addition to the totals listed above, there also exists surety bonds in the amount of \$331,914,579 as of June 30, 2018.

# Appendix II: Economic Update

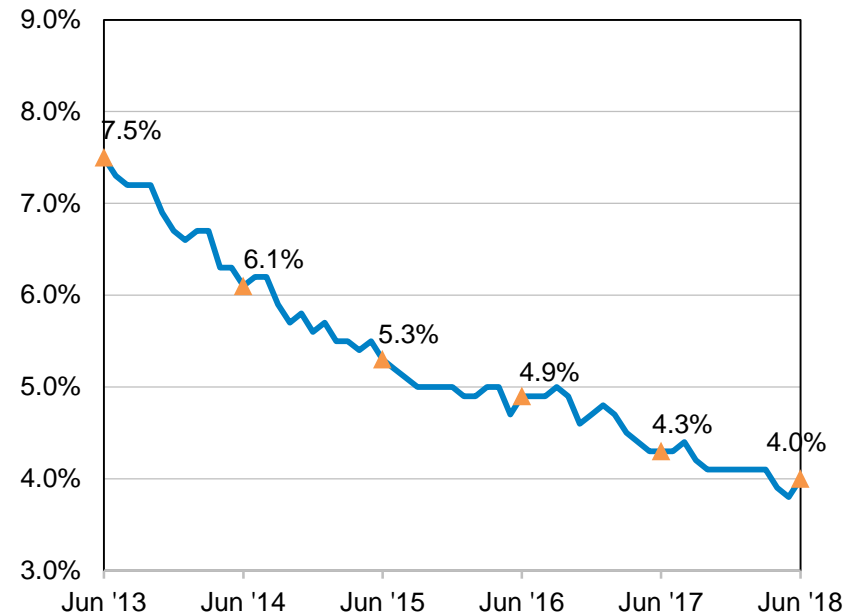
## Labor Market Strengthened Further in June

- The U.S. labor market added 213,000 jobs in June, well above the expected 195,000 jobs
  - The headline unemployment rate rose slightly to 4.0%, but remained near historic lows
  - Wage growth remained modest, with average hourly earnings – a key measure of wage growth – matching May's level of 2.7% year-over-year

**Monthly Change in Nonfarm Payrolls**



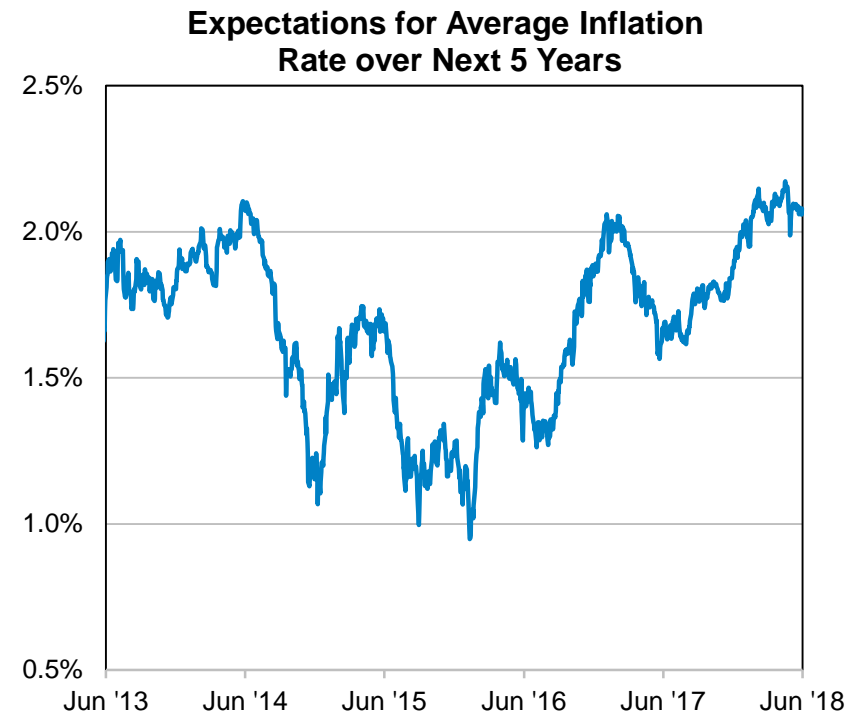
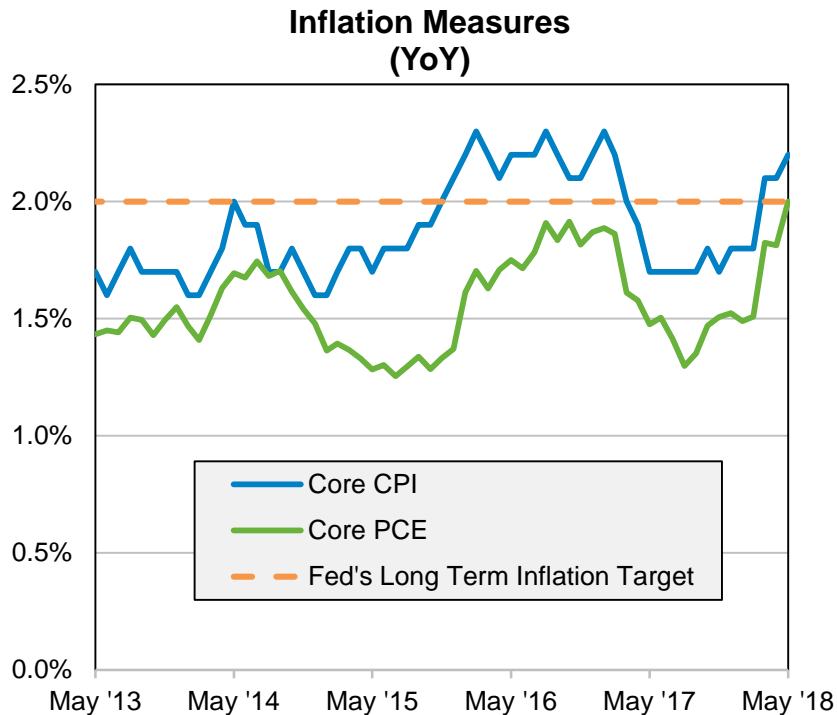
**Unemployment Rate**



Source: Bloomberg as of June of 2018

## Inflation Reaches Fed's 2.0% Target

- The core personal consumption expenditures (“PCE”) price index, the Fed’s preferred measure of inflation, rose to 2.0% year-over-year in May, right at the Fed’s 2.0% target
- Forward-looking inflation expectations remain anchored around the 2.0% level



Source: Bloomberg, latest data available as of June 2018. Inflation expectations based on yield difference between 5-year Treasury note and 5-year Treasury Inflation Protected Securities (TIPS).

## FOMC Statement Highlights

June

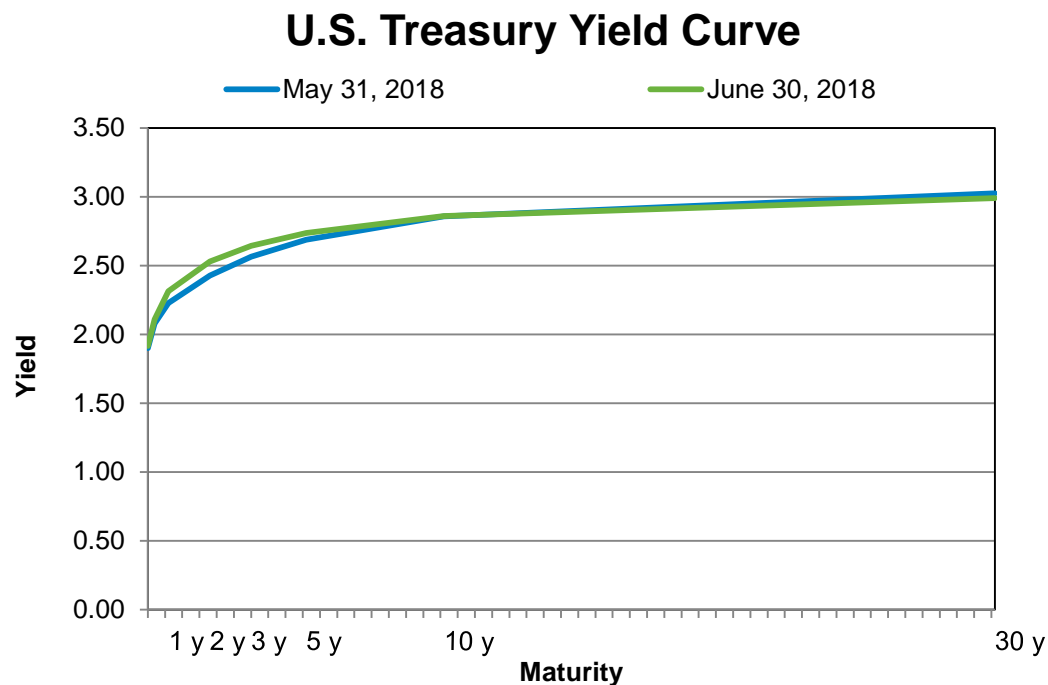
13

- Information received since the FOMC met in May indicates that the labor market has continued to strengthen and that **economic activity has been rising at a solid rate**. Job gains have been strong in recent months, and **the unemployment rate has declined**. Recent data suggest that growth of household spending **has picked up**, and **business fixed investment has continued to grow strongly**.
- In view of realized and expected labor market conditions and inflation, the Committee decided to **raise the target range for the Federal Funds rate by 25 basis points (0.25%) to 1.75% – 2.00%**.
- The Committee noted that **further gradual increases in the target range for the Federal Funds rate will be consistent with sustained expansion** of labor market conditions **and inflation** near the Committee's symmetric 2.0% objective over the medium term.

Source: Federal Reserve

## U.S. Treasury Yields

	<u>5/31/2018</u>	<u>6/30/2018</u>	<u>Change</u>
3 month	1.90%	1.92%	0.02%
6 month	2.08%	2.11%	0.03%
1 year	2.22%	2.31%	0.09%
2 year	2.43%	2.53%	0.10%
3 year	2.55%	2.64%	0.09%
5 year	2.70%	2.74%	0.04%
10 year	2.86%	2.86%	0.00%
30 year	3.03%	2.99%	-0.04%



Source: Bloomberg



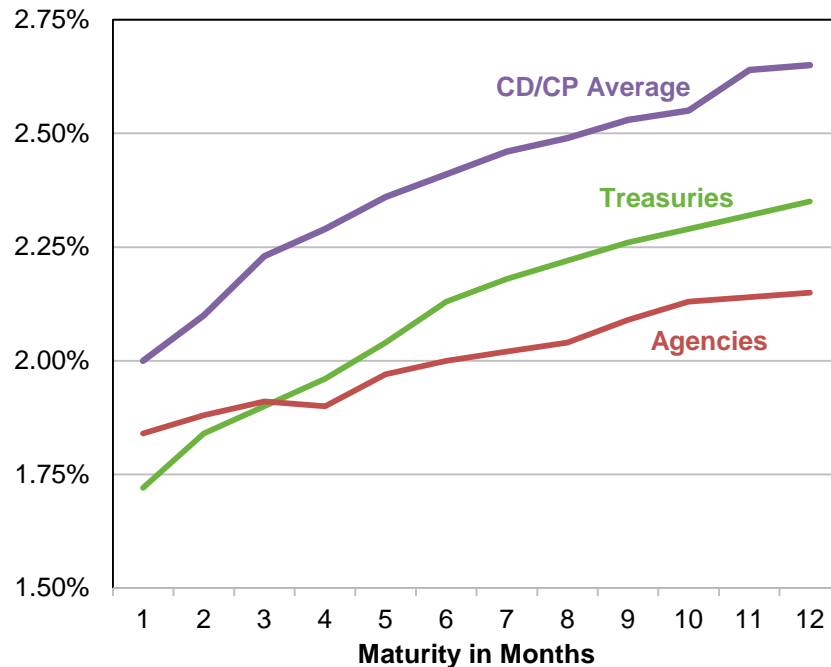
## Current Short-Term Credit Environment

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

**Yield Spread on 6-month Commercial Paper over T-Bill**

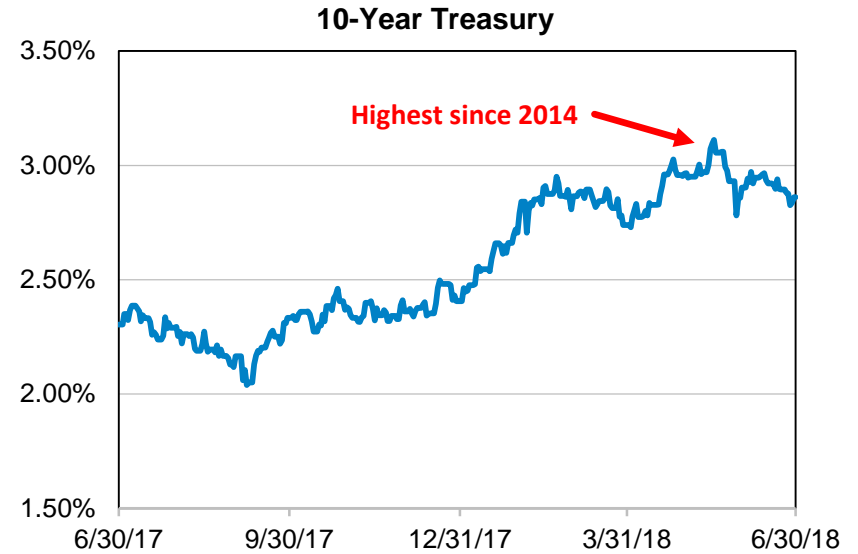
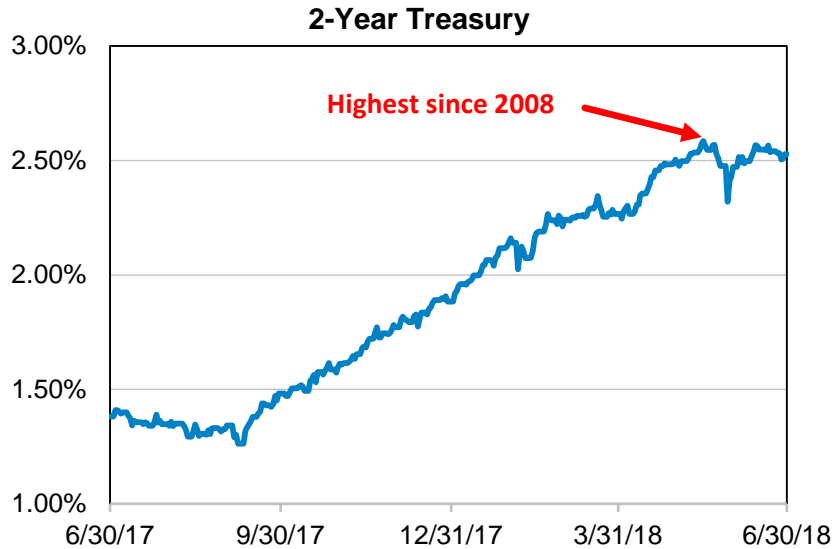


**Money Market Yield Curves**

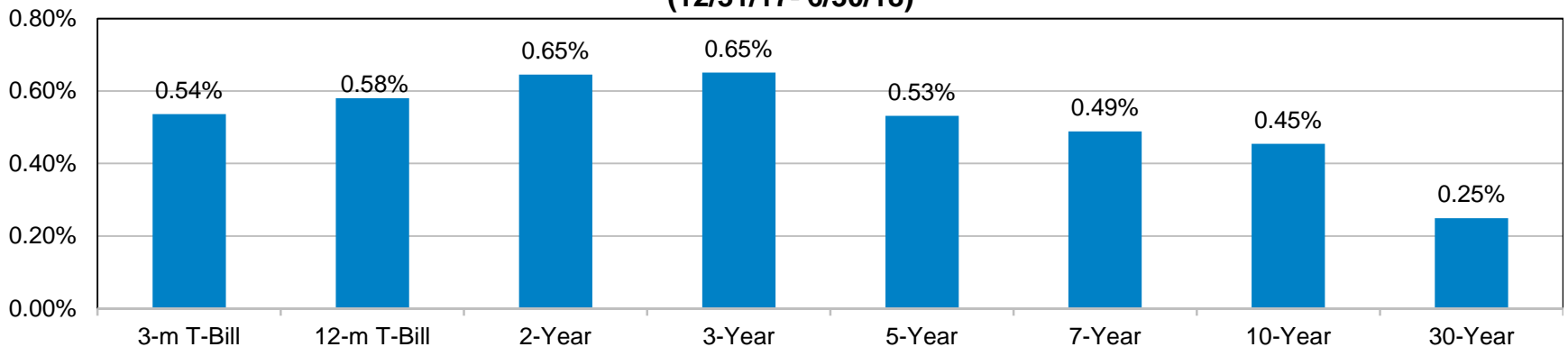


Source: Bloomberg, PFM Trading Desk as of 6/30/18. Not a specific recommendation. 6-month CP yield spread based on A1/P1 rated CP index.

## Rates Up Strongly Year-to-Date



**2018 YTD Change in Yield  
(12/31/17- 6/30/18)**



Source: Bloomberg as of 6/30/18.

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

**FIXED INCOME MARKET – ECONOMIC HIGHLIGHTS**

- Despite the myriad of global headwinds to economic growth, including global trade wars and geopolitical uncertainty, the strength and resolve of domestic economic themes continued to rule the day:
  - U.S. GDP grew at 2.0% in the first quarter of 2018 with year-over-year growth up to 2.8%
  - Inflation trended higher, as the personal consumption expenditures (“PCE”) core price index grew at 2.0% year-over-year for the first time since 2012
  - The labor market saw continued strength as the U.S. unemployment rate reached a multi-decade low of 3.8% (before bouncing back to 4.0% in June), job growth remained robust, and wages trended modestly higher
  - The S&P 500 index grinded out a 3.4% return for the quarter
  - The Fed increased short-term rates by an additional 0.25% in June and is expected to continue to pursue additional gradual rate hikes over the near term
- U.S. Treasury yields increased during the quarter, but the impact varied widely by maturity:
  - Yields on maturities 3 years and under rose by about 20 – 25 basis points (0.20% – 0.25%), the result of the widely anticipated Fed rate hike in June
  - Yields on longer-term maturities rose by much less: the 10-year Treasury rose by 12 basis points while the 30-year Treasury bond rose just 2 basis points (0.02%), the result of modest inflation expectations, moderating growth prospects, and persistently low global interest rates
  - As a consequence, the yield curve flattened to a new post-recession low
- In what we viewed as a well-choreographed interest rate environment, we continued to strategically position portfolios with a modestly-defensive duration bias relative to benchmarks. However, with rates near multi-year highs, there were also opportunities to selectively capture higher yields in some parts of the yield curve when rebalancing portfolios or participating in new issues

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

**FIXED INCOME MARKET – ECONOMIC HIGHLIGHTS**

- Most investment-grade sectors contributed positive excess returns (returns in excess of similar-duration Treasuries) to fixed income portfolios for the quarter.
  - Federal Agency yield spreads remained very narrow throughout the quarter. Limited incremental yield in combination with light issuance and diminishing supply influenced our continued preference to reduce allocations to Agencies. Generally, the Agency sector generated returns similar to Treasuries in the second quarter of 2018, except for longer-maturity issues where wider yield spreads resulted in underperformance.
  - Short-term, high-quality commercial paper investments continued to offer considerable value relative to not only similar-maturity government securities but also somewhat longer Treasury maturities. The combination of incremental income and the interest rate risk protection offered by this sector's shorter duration continued to benefit investment portfolios
- In light of continued economic growth, inflation near the Fed's symmetric target of 2.0%, and strong labor market conditions, the Fed appears poised to raise rates further. As a result of the expectation for 1 or 2 additional hikes in 2018 and 3 to 4 more in 2019, our view remains that the general trend of interest rates will be to increase gradually over the near-term. Therefore, we plan to maintain a defensive duration posture to mitigate a portion of interest rate risk relative to benchmarks.
- The outlook for some of the major investment-grade fixed-income sectors are as follows:
  - Federal Agency securities remain expensive, as most maturities offer less than five basis points of incremental yield relative to U.S. Treasuries. We will continue to reduce exposure to Agencies in maturities where spreads are tight, seeking better value in either Treasuries or other sectors. Over the past quarter, however, the 2 – 3 year portions of the Agency curve experienced modest widening that may create some opportunities in the third quarter of 2018.
  - Short-term money market investors continue to reap the rewards of current monetary policy tightening and higher overnight target rates. Further, the yield curve for high-quality commercial paper is quite steep and attractive, offering opportunities to extend maturities and to add allocations in this space.

## Disclosure

*This material is based on information obtained from sources generally believed to be reliable and available to the public, however PFM Asset Management LLC cannot guarantee its accuracy, completeness or suitability. This material is for general information purposes only and is not intended to provide specific advice or a specific recommendation. All statements as to what will or may happen under certain circumstances are based on assumptions, some but not all of which are noted in the presentation. Assumptions may or may not be proven correct as actual events occur, and results may depend on events outside of your or our control. Changes in assumptions may have a material effect on results. Past performance does not necessarily reflect and is not a guaranty of future results. The information contained in this presentation is not an offer to purchase or sell any securities.*