

Great Lakes Water Authority

Investment Performance Report – September 2018



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**Great Lakes Water Authority
Executive Summary**

PORTFOLIO RECAP

- **Safety** – The aggregate 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 overall 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 Standard & Poor's.
- **Liquidity** – The Authority has reduced its weighting to overnight funds from June, with only 34% of the total assets maturing overnight.
- **Return** – The overall yield increased to 2.30% as of September 30, 2018 versus 1.84% at June 30, 2018. The Authority earned \$4,753,458 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 \$19.0 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 9/30/18)
Deposit Account	Comerica	\$15,111	\$15,111	0.25%
Deposit Account - Retainage	First Independence	\$15,308,726	\$15,308,726	0.05%
Deposit Account – Flint Security Deposit	Chase	\$3,760,760	\$3,760,760	0.69%
Deposit Account	Chase	\$17,964,802	\$17,964,802	0.69%
Trust Money Market Fund	U.S. Bank	\$181,744,797	\$181,744,797	1.95%
Money Market Fund	JP Morgan	\$85,923,753	\$85,923,753	1.88%
Local Government Investment Pool	GovMIC	\$28,922,138	\$28,922,138	2.08%
Managed Funds	PFM	\$650,127,747	\$647,937,124	2.58%
<u>TOTAL</u>		<u>\$983,767,834</u>	<u>\$981,577,211</u>	<u>2.30%</u>

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 9/30/2018.

**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 a mixture of short and intermediate-term investments to ensure sufficient liquidity
- The aggregate portfolio was yielding 2.30% at the end of September*
 - This compares to the 2.12% yield of the Bank of America / Merrill Lynch 3-Month U.S. Treasury Bill Index as of 9/30/2018, 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 second quarter of FY 2019, the Authority has taken initial steps to gain support for full discretionary / active management on specific portfolios in which GLWA’s investment advisor would actively manage benchmarked portfolios with full discretion (subject to the Authority’s investment policy)
- The Authority will continue to work with its investment manager to further refine its cash flows and continue 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 \$19.0 million in interest income in FY 2019

* Current market yield as of September 30, 2018.

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

ECONOMIC HIGHLIGHTS UPDATE

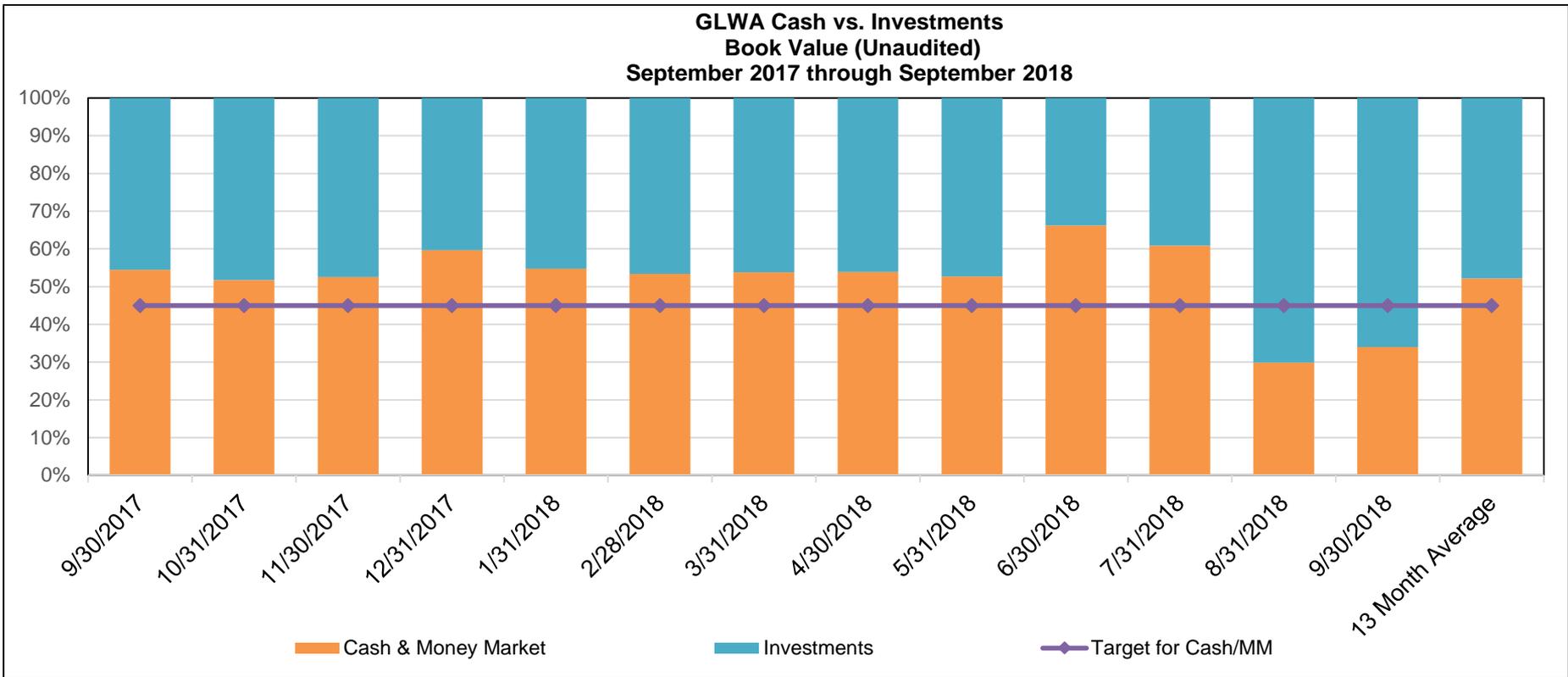
- U.S. growth remained healthy in the third quarter of calendar year 2018 as the unemployment rate hit historical lows, confidence rose further, and stocks surged; this occurred despite ongoing concerns about a trade war with China, a disorderly Brexit, Italian budget concerns, Iran sanctions, a Turkish debt crisis, and other geopolitical risks.
- Amid strong economic fundamentals, the Federal Reserve stayed the course, raising the Federal Funds rate by 0.25% to a new target range of 2.00% – 2.25%; despite the removal of longstanding language from the Federal Open Market Committee (“FOMC”) statement that previously characterized the stance of monetary policy as “accommodative,” updated FOMC forecasts indicated an additional 0.25% hike is expected in December, followed by two to four more hikes in 2019.

ECONOMIC IMPACT ON PORTFOLIO

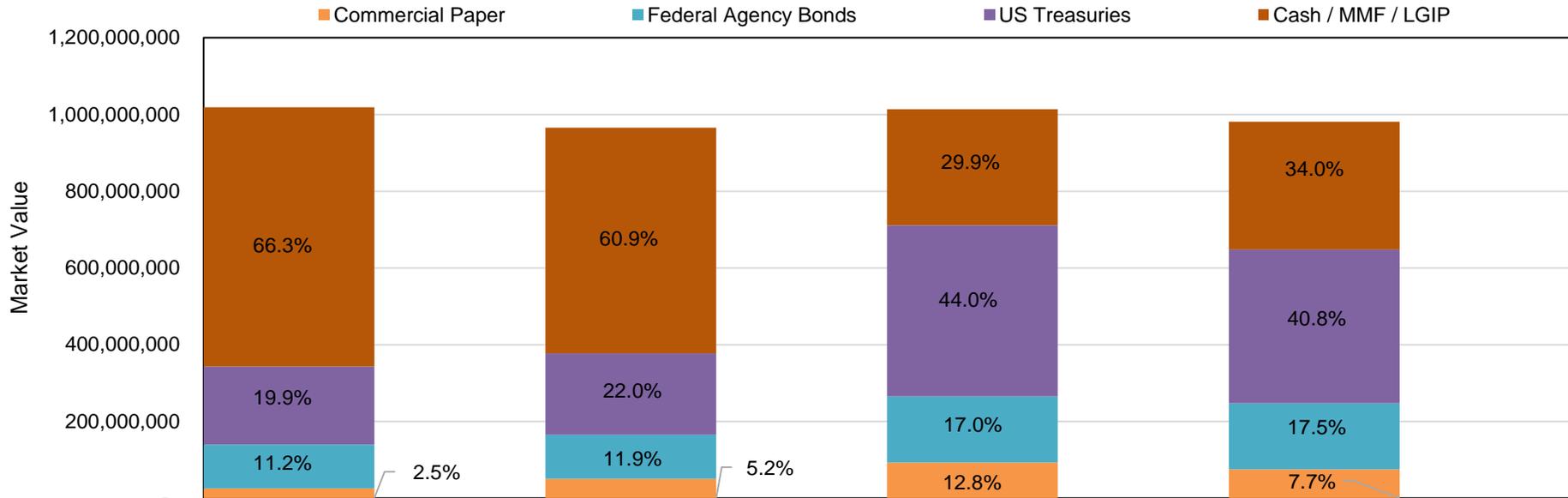
- U.S. Treasury yields rose by 20 – 30 basis points (0.20% to 0.30%) in the quarter, with short-term yields outpacing longer-term yields, and this resulted in a flatter yield curve over the quarter, though the pace of flattening moderated near quarter-end.
- The yield curve remains very flat from a historical perspective (less incentive for investors to increase maturity), and because the yield curve is so flat, holding shorter maturities resulted in very little yield concession for the Authority’s various portfolios.
- Commercial paper yield spreads grinded to one-year lows over the quarter, and as a result, short-term credit instruments now look more expensive relative to U.S. Treasuries; however, they still offer incrementally higher yields relative to similar-maturity government alternatives, particularly for the Authority’s debt accounts.
- While diversification away from Treasury securities has added significant value to the Authority’s portfolios over the last several quarters, very narrow spreads across most investment-grade sectors give us reason to turn a bit more cautious.

**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 decrease in the cash/money market holdings for August and September of 2018 is related to the investment of intermediate and longer-term funds based on refined cash flows.



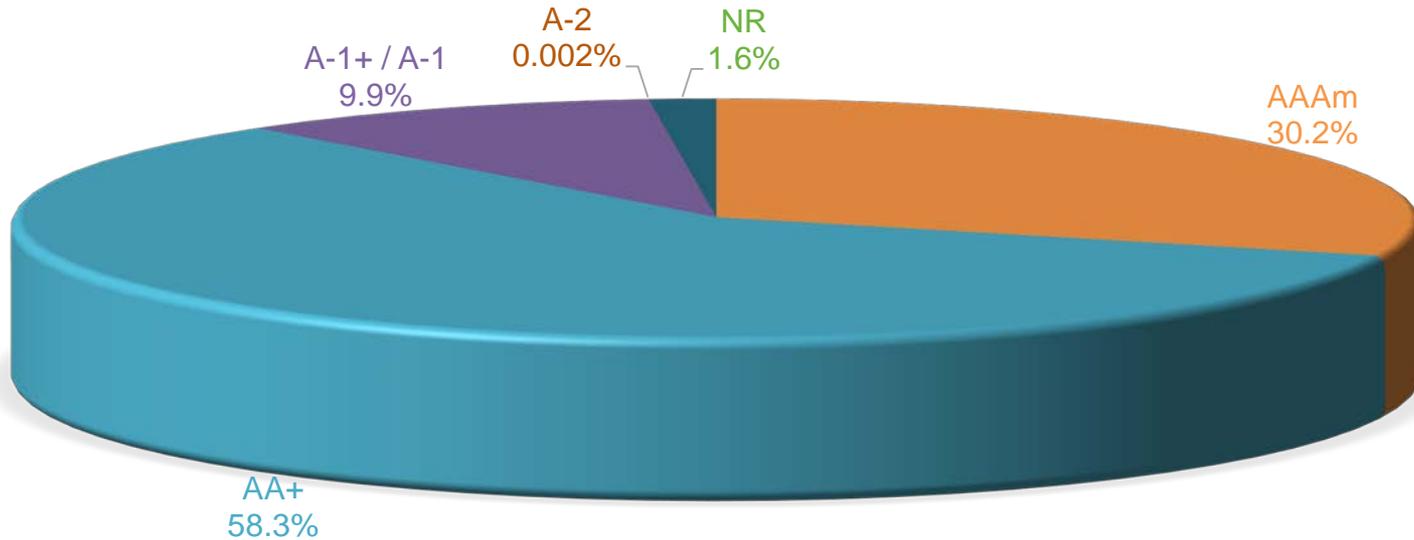
**Great Lakes Water Authority
Investments – By Security Type**



Security Type	June		July		August		September	
	Market Value	Asset Allocation	Market Value	Asset Allocation	Market Value	Asset Allocation	Market Value	Asset Allocation
Commercial Paper	25,488,959	2.5%	50,474,489	5.2%	93,023,256	9.2%	75,609,931	7.7%
Federal Agencies	114,513,030	11.2%	114,547,336	11.9%	172,323,522	17.0%	172,066,823	17.5%
U.S. Treasuries	203,232,575	19.9%	212,553,811	22.0%	445,876,421	44.0%	400,260,370	40.8%
Cash / MMF / LGIP	675,860,282	66.3%	588,330,729	60.9%	302,971,977	29.9%	333,640,087	34.0%
Total	1,019,094,846	100.0%	965,906,365	100.0%	1,014,195,177	100.0%	981,577,211	100.0%

In addition to the totals listed above, there also exists surety bonds in the amount of \$322,809,258 as of September 30, 2018.

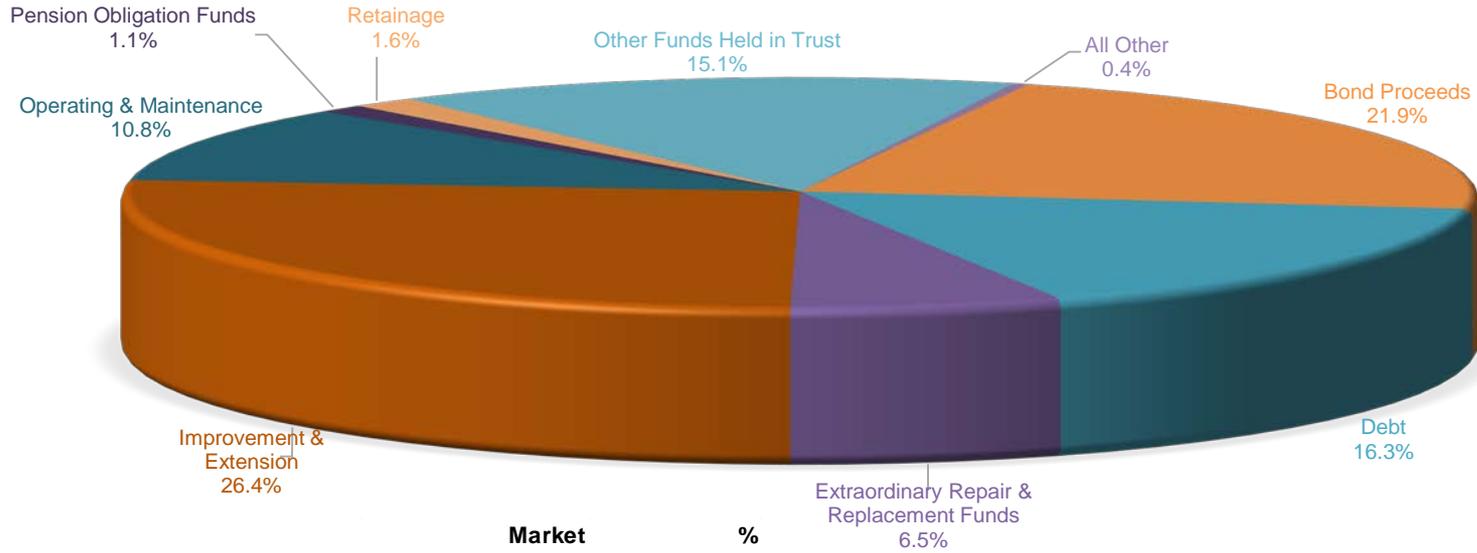
**Great Lakes Water Authority
Investments – By Credit Quality
As of September 30, 2018**



Credit Quality	Market Value	Asset Allocation
Ratings		
AAAm	296,590,688	30.2%
AA+	572,327,193	58.3%
A-1 + / A-1	97,335,493	9.9%
A-2	15,111	0.002%
NR	15,308,726	1.6%
Totals	981,577,211	100.0%

In addition to the totals listed above, there also exists surety bonds in the amount of \$322,809,258 as of September 30, 2018.

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



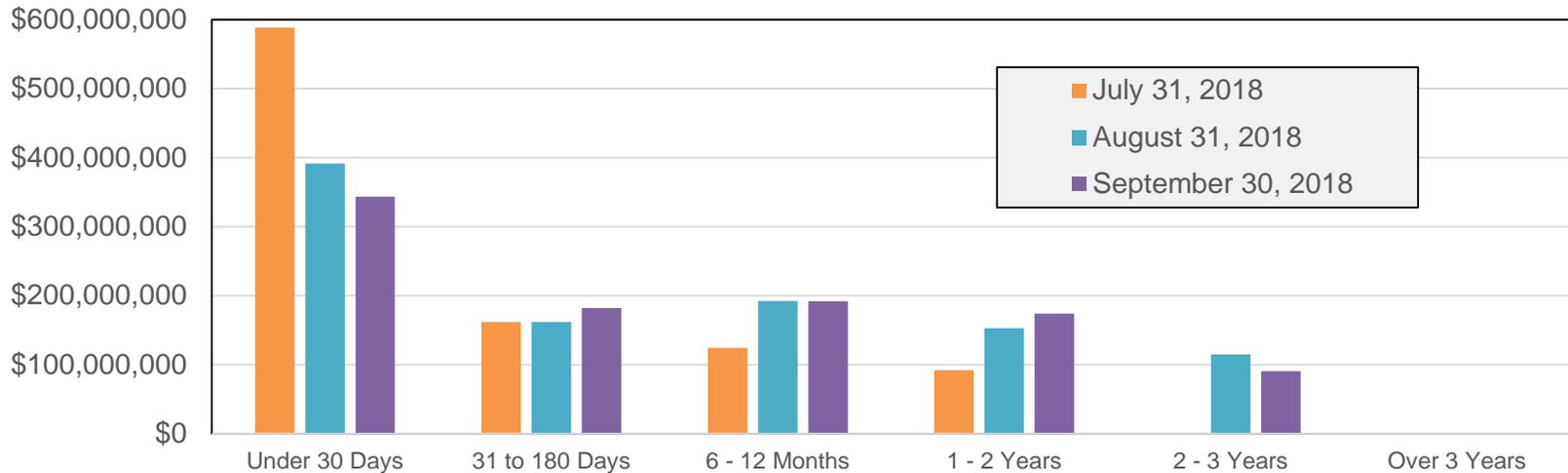
Account Purpose	Market Value	% Allocation
Bond Proceeds	\$ 214,528,410	21.9%
Debt	\$ 160,400,491	16.3%
Extraordinary Repair & Replacement Funds	\$ 63,590,192	6.5%
Improvement & Extension	\$ 258,682,561	26.4%
Operating & Maintenance	\$ 105,719,981	10.8%
Pension Obligation Funds	\$ 11,072,253	1.1%
Retainage	\$ 15,308,726	1.6%
Other Funds Held in Trust	\$ 148,513,836	15.1%
All Other	\$ 3,760,760	0.4%
Total	\$ 981,577,211	100.0%

Other Funds Held in Trust	Market Value	% Allocation
Budget Stabilization Funds	\$ 7,509,413	5.1%
Receiving Funds	\$ 132,823,776	89.4%
WRAP Funds	\$ 8,180,646	5.5%
Total	\$ 148,513,836	100.0%

In addition to the totals listed above, there also exists surety bonds in the amount of \$322,809,258 as of September 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	July 31, 2018	%	August 31, 2018	%	September 30, 2018	%
Under 30 Days	\$ 588,330,729	60.9%	\$ 391,642,004	38.6%	\$ 343,636,143	35.0%
31 to 180 Days	161,747,552	16.7%	161,970,963	16.0%	182,005,362	18.5%
6 - 12 Months	124,010,109	12.8%	192,566,862	19.0%	191,773,049	19.5%
1 - 2 Years	91,817,975	9.5%	153,028,829	15.1%	173,774,627	17.7%
2 - 3 Years	-	0.0%	114,986,518	11.3%	90,388,029	9.2%
Over 3 Years	-	0.0%	-	0.0%	-	0.0%
Totals	\$ 965,906,365	100.0%	\$ 1,014,195,177	100.0%	\$ 981,577,211	100.0%



In addition to the totals listed above, there also exists surety bonds in the amount of \$322,809,258 as of September 30, 2018.

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

	As of September 30, 2018		As of June 30, 2018	
	YTM @ Cost	YTM @ Market	YTM @ Cost	YTM @ Market
Bank Deposits				
Comerica	0.25%	0.25%	0.25%	0.25%
First Independence	0.05%	0.05%	0.05%	0.05%
Flint Deposit Account	0.69%	0.69%	0.57%	0.57%
JP Morgan Chase	0.69%	0.69%	0.57%	0.57%
Sub-Total Bank Deposits	0.43%	0.43%	0.43%	0.43%
Money Market Funds / LGIPs				
GovMIC	2.08%	2.08%	2.02%	2.02%
U.S. Bank - First American MMF	1.95%	1.95%	1.75%	1.75%
JP Morgan Securities - Blackrock MMF	1.88%	1.88%	1.73%	1.73%
Sub-Total MMF / LGIPs	1.94%	1.94%	1.76%	1.76%
Investment Portfolios				
Sewage SR Debt Serv 5403	2.38%	2.43%	0.00%	0.00%
Sewage SR Res 5400	1.51%	2.66%	1.35%	2.33%
Sew 2nd Debt Serv 5403	2.35%	2.40%	0.00%	0.00%
Sewage 2nd Res 5481	1.51%	2.67%	1.30%	2.29%
Sew SRF Debt Serv 5410	2.18%	2.40%	1.98%	2.17%
Sewage ER & R	2.61%	2.72%	1.50%	1.92%
Sewer Improvement & Extension	2.53%	2.65%	0.00%	0.00%
Sewer Pension Obligation	2.36%	2.48%	0.00%	0.00%
Sewer Wrap Fund	2.11%	2.34%	0.00%	0.00%
Sewer Budget Stabilization Fund	2.62%	2.74%	0.00%	0.00%
Sewer Bond Fund	1.53%	2.42%	1.49%	2.25%
Sewer O&M Pension Sub Account	2.41%	2.52%	0.00%	0.00%
Water SR Debt Ser 5503	2.37%	2.42%	0.00%	0.00%
Water SR Reserve 5500	1.44%	2.33%	1.17%	2.11%
Water 2nd Debt Serv 5503	2.37%	2.42%	0.00%	0.00%
Water 2nd Res 5581	2.14%	2.54%	2.15%	2.36%
Water SRF Debt Serv 5575	0.00%	0.00%	1.98%	2.16%
Water ER & R	2.61%	2.72%	1.50%	1.92%
Water Improvement & Extension	2.60%	2.71%	0.00%	0.00%
Water Pension Obligation	2.37%	2.49%	0.00%	0.00%
Water Wrap Fund	2.11%	2.34%	0.00%	0.00%
Water Budget Stabilization Fund	2.62%	2.74%	0.00%	0.00%
Water Bond Fund	1.67%	2.49%	1.63%	2.29%
Water O&M Pension Sub Account	2.41%	2.52%	0.00%	0.00%
Sub-Total Investment Portfolios	2.15%	2.58%	1.56%	2.25%
Grand Total	2.02%	2.30%	1.61%	1.84%

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 September 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 September 30, 2018				
	<i>Market Value</i>	<i>YTM @ Market</i>	<i>Effective Duration</i>	<i>Weighted Average Maturity</i>
GLWA				
Great Lakes Water Authority	\$981,577,211	2.30%	0.67 Years	251 Days
Short/Intermediate-Term Indices				
S&P Rated Government Investment Pool Index		1.87%	0.10 Years	37 Days
BoA / ML 3-Month Treasury Index		2.12%	0.16 Years	90 Days
BoA / ML 6-Month Treasury Index		2.34%	0.41 Years	180 Days
BoA / ML 1-Year Treasury Index		2.65%	0.90 Years	365 Days
BoA / ML 1-3 Year Treasury Index		2.80%	1.80 Years	657 Days
BoA / ML 1-5 Year Treasury Index		2.85%	2.57 Years	938 Days
Peer Analysis (Water Entities / Utilities)				
Alameda County Water District, CA	\$109,233,979	2.91%	2.36 Years	900 Days
Coachella Valley Water District, CA	\$450,391,445	2.80%	1.78 Years	759 Days
District of Columbia Water & Sewer Authority, DC	\$342,659,101	2.47%	0.81 Years	304 Days
DuPage Water Commission, IL	\$136,836,216	2.82%	2.20 Years	1022 Days
Fairfax County Water Authority, VA	\$218,308,753	2.69%	1.69 Years	652 Days
San Bernardino Valley Municipal Water District, CA	\$302,260,993	2.84%	1.74 Years	660 Days
Truckee Meadows Water Authority, NV	\$112,202,198	2.65%	1.71 Years	651 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 September 30, 2018

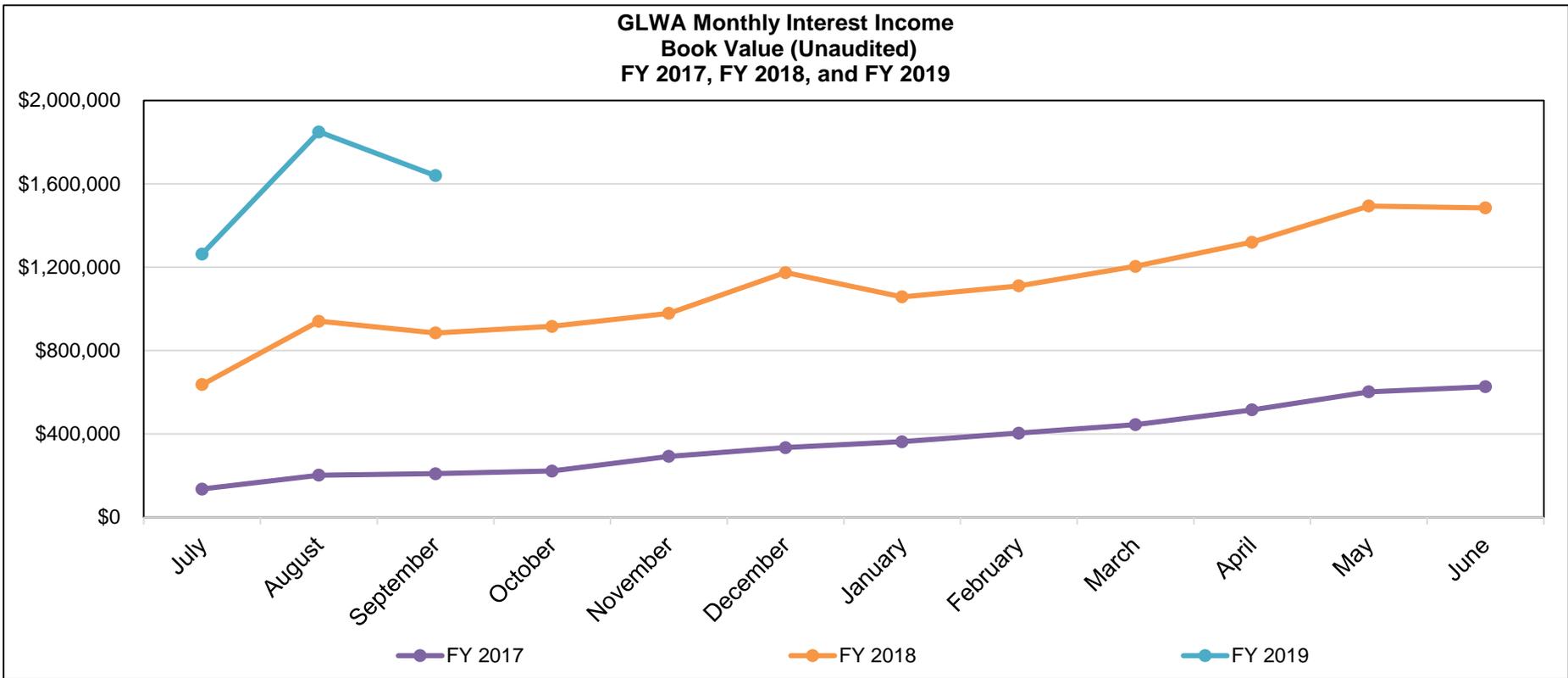
INVESTMENT INCOME BY MONTH (Unaudited)

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
<u>FY 2019 Y-T-D</u>	<u>\$4,751,826.69</u>	<u>\$1,631.65</u>	<u>\$4,753,458.34</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 \$4,753,458 in investment income for fiscal year 2019 on a book value basis compared to \$2,463,399 for the first three 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 \$19.0 million.



Appendix I: Portfolio Holdings

**Great Lakes Water Authority
Portfolio Holdings
As of September 30, 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		\$ 15,111	10/1/2018	9/30/2018	0.25%	\$ 15,111	1	\$ -	\$ 15,111
FIRST INDEPENDENCE BANK		15,308,726	10/1/2018	9/30/2018	0.05%	15,308,726	1	-	15,308,726
FLINT DEPOSIT ACCOUNT		3,760,760	10/1/2018	9/30/2018	0.69%	3,760,760	1	-	3,760,760
JP MORGAN CHASE		17,964,802	10/1/2018	9/30/2018	0.69%	17,964,802	1	-	17,964,802
GoMIC		28,922,138	10/1/2018	9/30/2018	2.08%	28,922,138	1	-	28,922,138
U.S. BANK - FIRST AMERICAN MMF		181,744,797	10/1/2018	9/30/2018	1.95%	181,744,797	1	-	181,744,797
JP MORGAN SECURITIES - BLACKROCK MMF		85,923,753	10/1/2018	9/30/2018	1.88%	85,923,753	1	-	85,923,753
Commercial Paper									
Toyota Motor Credit 0 11/1/2018	89233HL10	\$ 3,460,000	11/1/2018	8/28/2018	2.11%	\$ 3,446,881	32	\$ -	\$ 3,453,080
Toyota Motor Credit 0 11/1/2018	89233HL10	172,000	11/1/2018	9/5/2018	2.07%	171,439	32	-	171,656
Toyota Motor Credit 0 11/1/2018	89233HL10	4,314,000	11/1/2018	8/28/2018	2.11%	4,297,643	32	-	4,305,372
Toyota Motor Credit 0 11/1/2018	89233HL10	240,000	11/1/2018	9/5/2018	2.07%	239,217	32	-	239,520
Credit Agricole 0 12/20/2018	22533UML4	2,150,000	12/20/2018	8/9/2018	2.34%	2,131,572	81	-	2,138,670
Credit Agricole 0 12/20/2018	22533UML4	4,888,000	12/20/2018	8/9/2018	2.34%	4,846,104	81	-	4,862,240
MUFG Bank NY 0 12/20/2018	62479MML4	4,791,000	12/20/2018	9/11/2018	2.33%	4,760,258	81	-	4,765,751
Natixis NY 0 12/20/2018	63873KML8	2,982,000	12/20/2018	7/16/2018	2.45%	2,950,528	81	-	2,966,285
Natixis NY 0 12/20/2018	63873KML8	5,000,000	12/20/2018	8/9/2018	2.35%	4,956,960	81	-	4,973,650
Natixis NY 0 12/20/2018	63873KML8	445,000	12/20/2018	7/16/2018	2.45%	440,304	81	-	442,655
Credit Agricole 0 12/20/2018	22533UML4	3,648,000	12/20/2018	8/9/2018	2.34%	3,616,733	81	-	3,628,775
Credit Agricole 0 12/20/2018	22533UML4	2,314,000	12/20/2018	8/9/2018	2.34%	2,294,166	81	-	2,301,805
MUFG Bank NY 0 12/20/2018	62479MML4	2,040,000	12/20/2018	9/11/2018	2.33%	2,026,910	81	-	2,029,249
MUFG Bank NY 0 12/20/2018	62479MML4	4,370,000	12/20/2018	8/9/2018	2.35%	4,332,383	81	-	4,346,970
Natixis NY 0 12/20/2018	63873KML8	1,173,000	12/20/2018	7/16/2018	2.45%	1,160,620	81	-	1,166,818
Natixis NY 0 12/20/2018	63873KML8	3,053,000	12/20/2018	7/16/2018	2.45%	3,020,779	81	-	3,036,911
Natixis NY 0 12/20/2018	63873KML8	5,000,000	12/20/2018	8/9/2018	2.35%	4,956,960	81	-	4,973,650
BNP Paribas 0 12/31/2018	09659CMX3	3,913,000	12/31/2018	7/13/2018	2.37%	3,869,507	92	-	3,888,974
BNP Paribas 0 12/31/2018	09659CMX3	2,417,000	12/31/2018	7/13/2018	2.37%	2,390,135	92	-	2,402,160
BNP Paribas 0 12/31/2018	09659CMX3	5,125,000	12/31/2018	9/11/2018	2.25%	5,089,761	92	-	5,093,533
MUFG Bank NY 0 12/31/2018	62479MML4	1,923,000	12/31/2018	8/9/2018	2.37%	1,904,924	92	-	1,911,193
BNP Paribas 0 12/31/2018	09659CMX3	3,832,000	12/31/2018	7/13/2018	2.37%	3,789,407	92	-	3,808,472
BNP Paribas 0 12/31/2018	09659CMX3	1,613,000	12/31/2018	9/11/2018	2.25%	1,601,909	92	-	1,603,096
BNP Paribas 0 12/31/2018	09659CMX3	2,053,000	12/31/2018	7/13/2018	2.37%	2,030,181	92	-	2,040,395
ING Funding 0 4/9/2019	4497W1R99	3,049,000	4/9/2019	7/16/2018	2.62%	2,990,884	191	-	3,006,832
ING Funding 0 4/9/2019	4497W1R99	251,000	4/9/2019	7/16/2018	2.62%	246,216	191	-	247,529
ING Funding 0 4/9/2019	4497W1R99	478,000	4/9/2019	7/16/2018	2.62%	468,889	191	-	471,389
ING Funding 0 4/9/2019	4497W1R99	1,352,000	4/9/2019	7/16/2018	2.62%	1,326,230	191	-	1,333,302

In addition to the totals listed above, there also exists surety bonds in the amount of \$322,809,258 as of September 30, 2018.

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

DESCRIPTION	CUSIP	PAR AMOUNT	MATURITY DATE	SETTLEMENT DATE	YTM AT COST	ORIGINAL COST	DAYS TO MATURITY	ACCRUED INTEREST	TOTAL VALUE
Federal Agencies									
FNMA 1.15 10/30/2018-14	3136G1KL2	\$ 10,000,000	10/30/2018	4/30/2013	1.36%	\$ 9,889,200	30	\$ 47,917	\$ 9,991,500
FNMA 1.375 1/28/2019	3135G0H63	5,200,000	1/28/2019	7/26/2017	1.39%	5,198,908	120	12,314	5,184,072
FNMA 1.375 1/28/2019	3135G0H63	6,695,000	1/28/2019	8/31/2017	1.31%	6,700,758	120	15,854	6,674,493
FNMA 1 2/26/2019	3135G0J53	5,205,000	2/26/2019	7/26/2017	1.39%	5,173,666	149	4,916	5,177,575
FNMA 1 2/26/2019	3135G0J53	6,690,000	2/26/2019	8/31/2017	1.33%	6,657,821	149	6,318	6,654,750
FHLB 1.5 3/8/2019	3133782M2	6,595,000	3/8/2019	8/31/2017	1.34%	6,611,026	159	6,045	6,570,684
FHLB 1.375 3/18/2019	3130AAXX1	5,175,000	3/18/2019	7/26/2017	1.38%	5,174,431	169	2,372	5,151,418
FHLB 1.375 5/28/2019	3130ABF92	5,260,000	5/28/2019	7/26/2017	1.40%	5,257,423	240	24,510	5,221,234
FHLB 1.375 5/28/2019	3130ABF92	5,245,000	5/28/2019	8/31/2017	1.34%	5,248,409	240	24,440	5,206,344
FHLB 1.625 6/14/2019	313379EE5	7,050,000	6/14/2019	9/1/2017	1.38%	7,080,033	257	33,732	7,005,592
FHLMC 0.875 7/19/2019	3137EAEB1	5,230,000	7/19/2019	7/26/2017	1.41%	5,176,079	292	9,025	5,161,194
FHLMC 0.875 7/19/2019	3137EAEB1	6,720,000	7/19/2019	8/31/2017	1.36%	6,659,386	292	11,597	6,631,592
FHLMC 1.375 8/15/2019	3137EAEH8	5,215,000	8/15/2019	7/26/2017	1.45%	5,206,917	319	8,963	5,160,639
FNMA 1 8/28/2019	3135G0P49	6,715,000	8/28/2019	8/31/2017	1.39%	6,664,100	332	5,969	6,618,217
FNMA 1.75 9/12/2019	3135G0ZG1	4,705,000	9/12/2019	7/26/2017	1.45%	4,734,171	347	4,117	4,666,250
FHLB 1 9/26/2019	3130A9EP2	7,550,000	9/26/2019	8/31/2017	1.39%	7,490,053	361	839	7,427,690
FHLMC 1.25 10/2/2019	3137EADM8	5,045,000	10/2/2019	12/28/2017	1.93%	4,985,469	367	31,181	4,975,485
FHLB 2.125 2/11/2020	3130ADN32	3,750,000	2/11/2020	6/28/2018	2.52%	3,726,750	499	10,846	3,718,639
FHLMC 2.5 4/23/2020	3137EAE M7	3,750,000	4/23/2020	6/28/2018	2.56%	3,746,288	571	41,927	3,732,600
FHLB 2.625 5/28/2020	3130AECJ7	3,750,000	5/28/2020	6/28/2018	2.57%	3,753,825	606	35,273	3,739,418
FHLMC 2.375 2/16/2021	3137EAE L9	3,500,000	2/16/2021	8/8/2018	2.79%	3,465,210	870	10,160	3,459,750
FHLMC 2.375 2/16/2021	3137EAE L9	20,000,000	2/16/2021	8/8/2018	2.79%	19,801,200	870	58,056	19,770,000
FHLMC 2.375 2/16/2021	3137EAE L9	250,000	2/16/2021	8/9/2018	2.78%	247,563	870	726	247,125
FHLMC 2.375 2/16/2021	3137EAE L9	685,000	2/16/2021	8/9/2018	2.78%	678,321	870	1,988	677,123
FNMA 2.5 4/13/2021	3135G0U27	3,500,000	4/13/2021	8/8/2018	2.82%	3,471,685	926	40,590	3,464,405
FNMA 2.5 4/13/2021	3135G0U27	20,000,000	4/13/2021	8/8/2018	2.82%	19,838,200	926	231,944	19,796,600
FNMA 2.5 4/13/2021	3135G0U27	250,000	4/13/2021	8/9/2018	2.81%	247,985	926	2,899	247,458
FNMA 2.5 4/13/2021	3135G0U27	3,400,000	4/13/2021	8/8/2018	2.81%	3,372,698	926	39,431	3,365,422
FNMA 2.5 4/13/2021	3135G0U27	685,000	4/13/2021	8/9/2018	2.81%	679,479	926	7,944	678,034
FNMA 2.5 4/13/2021	3135G0U27	5,750,000	4/13/2021	8/8/2018	2.81%	5,703,828	926	66,684	5,691,523

In addition to the totals listed above, there also exists surety bonds in the amount of \$322,809,258 as of September 30, 2018.

**Great Lakes Water Authority
Portfolio Holdings
As of September 30, 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 0.75 10/31/2018	912828T83	\$ 5,215,000	10/31/2018	7/26/2017	1.31%	\$ 5,178,536	31	\$ 16,261	\$ 5,209,456
T-Note 0.75 10/31/2018	912828T83	4,275,000	10/31/2018	8/31/2017	1.26%	4,249,784	31	13,330	4,270,456
T-Note 0.75 10/31/2018	912828T83	2,400,000	10/31/2018	7/26/2017	1.31%	2,383,219	31	7,484	2,397,449
T-Note 1.375 11/30/2018	912828RT9	10,400,000	11/30/2018	7/26/2017	1.32%	10,407,313	61	47,667	10,386,490
T-Note 1 11/30/2018	912828U40	13,370,000	11/30/2018	8/31/2017	1.26%	13,326,652	61	44,567	13,344,503
T-Bill 0 2/7/2019	912796QW2	198,000	2/7/2019	9/5/2018	2.25%	196,125	130	-	196,402
T-Bill 0 2/7/2019	912796QW2	110,000	2/7/2019	8/31/2018	2.23%	108,938	130	-	109,112
T-Bill 0 2/7/2019	912796QW2	3,550,000	2/7/2019	8/9/2018	2.23%	3,510,965	130	-	3,521,352
T-Bill 0 2/7/2019	912796QW2	126,000	2/7/2019	9/5/2018	2.25%	124,807	130	-	124,983
T-Bill 0 2/7/2019	912796QW2	21,975,000	2/7/2019	8/9/2018	2.23%	21,733,367	130	-	21,797,662
T-Bill 0 2/7/2019	912796QW2	605,000	2/7/2019	8/31/2018	2.23%	599,157	130	-	600,118
T-Bill 0 2/7/2019	912796QW2	250,000	2/7/2019	8/9/2018	2.23%	247,246	130	-	247,983
T-Bill 0 2/7/2019	912796QW2	3,525,000	2/7/2019	8/9/2018	2.23%	3,486,240	130	-	3,496,553
T-Bill 0 2/7/2019	912796QW2	715,000	2/7/2019	8/9/2018	2.23%	707,124	130	-	709,230
T-Bill 0 2/7/2019	912796QW2	5,800,000	2/7/2019	8/9/2018	2.23%	5,736,224	130	-	5,753,194
T-Note 1 3/15/2019	912828P95	603,000	3/15/2019	8/8/2018	2.27%	598,430	166	250	599,183
T-Note 1 3/15/2019	912828P95	904,000	3/15/2019	8/8/2018	2.27%	897,149	166	375	898,278
T-Note 1 3/15/2019	912828P95	810,000	3/15/2019	4/6/2018	2.10%	801,742	166	336	804,873
T-Note 1 3/15/2019	912828P95	793,000	3/15/2019	5/15/2018	2.26%	784,760	166	329	787,980
T-Note 1 3/15/2019	912828P95	794,000	3/15/2019	6/7/2018	2.28%	786,277	166	329	788,974
T-Note 1.625 4/30/2019	912828D23	2,000,000	4/30/2019	8/8/2018	2.35%	1,989,609	212	13,512	1,990,460
T-Note 1.25 4/30/2019	912828S78	5,225,000	4/30/2019	7/26/2017	1.37%	5,214,183	212	27,154	5,188,874
T-Note 1.625 4/30/2019	912828D23	4,000,000	4/30/2019	8/8/2018	2.35%	3,979,219	212	27,024	3,980,920
T-Note 1.25 4/30/2019	912828S78	6,680,000	4/30/2019	8/31/2017	1.31%	6,673,216	212	34,716	6,633,814
T-Note 1.25 5/31/2019	912828XS4	5,180,000	5/31/2019	7/26/2017	1.37%	5,168,669	243	21,583	5,137,104
T-Note 0.875 6/15/2019	912828R85-1	1,077,000	6/15/2019	8/8/2018	2.41%	1,063,117	258	2,755	1,064,632
T-Note 0.875 6/15/2019	912828R85-1	510,000	6/15/2019	9/5/2018	2.40%	504,063	258	1,305	504,143
T-Note 0.875 6/15/2019	912828R85-1	912,000	6/15/2019	9/5/2018	2.40%	901,384	258	2,333	901,527
T-Note 0.875 6/15/2019	912828R85-1	1,929,000	6/15/2019	8/8/2018	2.41%	1,904,134	258	4,935	1,906,847
T-Note 0.875 6/16/2019	912828R85-2	900,000	6/16/2019	9/5/2018	2.39%	889,523	259	2,302	889,668
T-Note 0.875 6/16/2019	912828R85-2	729,000	6/16/2019	8/8/2018	2.41%	719,603	259	1,865	720,631
T-Note 0.875 6/16/2019	912828R85-2	860,000	6/16/2019	8/8/2018	2.41%	848,914	259	2,200	850,127
T-Note 0.875 6/16/2019	912828R85-2	1,236,000	6/16/2019	9/5/2018	2.39%	1,221,612	259	3,162	1,221,811
T-Note 1.25 6/30/2019	912828XV7-1	20,185,000	6/30/2019	8/8/2018	2.43%	19,975,265	273	63,078	19,992,637
T-Note 1.25 6/30/2019	912828XV7-1	15,140,000	6/30/2019	8/8/2018	2.43%	14,982,686	273	47,313	14,995,716
T-Note 1.25 6/30/2019	912828XV7-2	1,700,000	6/30/2019	9/20/2018	2.16%	1,688,115	273	5,313	1,683,797
T-Note 1.25 6/30/2019	912828XV7-1	4,763,000	6/30/2019	2/28/2018	2.17%	4,705,695	273	14,884	4,717,609
T-Note 1.625 6/30/2019	912828WS5	146,000	6/30/2019	7/21/2017	1.35%	146,776	273	593	145,019
T-Note 1 6/30/2019	912828TC4	1,021,000	6/30/2019	7/13/2018	2.36%	1,007,799	273	2,553	1,009,555
T-Note 1 6/30/2019	912828TC4	127,000	6/30/2019	7/13/2018	2.36%	125,358	273	318	125,576
T-Note 1.625 6/30/2019	912828WS5	1,625,000	6/30/2019	2/27/2017	1.27%	1,638,267	273	6,602	1,614,080
T-Note 1.25 6/30/2019	912828XV7-1	159,000	6/30/2019	2/28/2018	2.17%	157,087	273	497	157,485
T-Note 1.25 6/30/2019	912828XV7-1	5,800,000	6/30/2019	10/11/2017	1.49%	5,776,664	273	18,125	5,744,726
T-Note 1.625 6/30/2019	912828WS5	4,475,000	6/30/2019	2/10/2017	1.32%	4,506,989	273	18,180	4,444,928
T-Note 1 6/30/2019	912828TC4	2,059,000	6/30/2019	7/13/2018	2.36%	2,032,378	273	5,148	2,035,919
T-Note 1.25 6/30/2019	912828XV7-1	10,050,000	6/30/2019	10/11/2017	1.49%	10,009,564	273	31,406	9,954,224

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**Great Lakes Water Authority
Portfolio Holdings
As of September 30, 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 1.25 6/30/2019	912828XV7-1	195,000	6/30/2019	2/28/2018	2.17%	192,654	273	609	193,142
T-Note 1.625 6/30/2019	912828WS5	2,450,000	6/30/2019	2/27/2017	1.27%	2,470,002	273	9,953	2,433,536
T-Note 1.25 6/30/2019	912828XV7-1	100,000	6/30/2019	9/20/2018	1.49%	99,818	273	313	99,047
T-Note 1.625 8/31/2019	912828D80	3,500,000	8/31/2019	8/8/2018	2.51%	3,467,734	335	4,713	3,468,150
T-Note 1.625 8/31/2019	912828D80	20,000,000	8/31/2019	8/8/2018	2.51%	19,815,625	335	26,934	19,818,000
T-Note 1.625 8/31/2019	912828D80	250,000	8/31/2019	8/9/2018	2.50%	247,715	335	337	247,725
T-Note 1.625 8/31/2019	912828D80	3,400,000	8/31/2019	8/8/2018	2.51%	3,368,656	335	4,579	3,369,060
T-Note 1.625 8/31/2019	912828D80	685,000	8/31/2019	8/9/2018	2.50%	678,739	335	922	678,767
T-Note 1.625 8/31/2019	912828D80	5,750,000	8/31/2019	8/8/2018	2.51%	5,696,992	335	7,743	5,697,675
T-Note 1.5 10/31/2019	912828F62-2	2,000,000	10/31/2019	8/8/2018	2.56%	1,974,453	396	12,473	1,974,760
T-Note 1.5 10/31/2019	912828F62-1	3,405,000	10/31/2019	6/28/2018	2.43%	3,363,635	396	21,235	3,362,039
T-Note 1.5 10/31/2019	912828F62-2	4,000,000	10/31/2019	8/8/2018	2.56%	3,948,906	396	24,946	3,949,520
T-Note 1.75 11/30/2019	9128283H1	3,350,000	11/30/2019	6/28/2018	2.44%	3,317,809	426	19,542	3,313,492
T-Note 1.75 11/30/2019	9128283H1	3,780,000	11/30/2019	6/28/2018	2.44%	3,743,677	426	22,050	3,738,806
T-Note 1.875 12/31/2019	9128283N8	3,300,000	12/31/2019	6/28/2018	2.46%	3,271,770	457	15,469	3,265,970
T-Note 1.875 12/31/2019	9128283N8	3,750,000	12/31/2019	6/28/2018	2.46%	3,717,920	457	17,578	3,711,330
T-Note 2 1/31/2020	9128283S7	3,750,000	1/31/2020	6/28/2018	2.46%	3,723,047	488	12,432	3,714,259
T-Note 2.25 2/29/2020	9128283Y4	3,500,000	2/29/2020	8/8/2018	2.63%	3,479,902	517	6,526	3,475,675
T-Note 2.25 2/29/2020	9128283Y4	20,000,000	2/29/2020	8/8/2018	2.63%	19,885,156	517	37,293	19,861,000
T-Note 2.25 2/29/2020	9128283Y4	250,000	2/29/2020	8/9/2018	2.62%	248,594	517	466	248,263
T-Note 2.25 2/29/2020	9128283Y4	3,400,000	2/29/2020	8/8/2018	2.63%	3,380,477	517	6,340	3,376,370
T-Note 2.25 2/29/2020	9128283Y4	685,000	2/29/2020	8/9/2018	2.62%	681,147	517	1,277	680,239
T-Note 2.25 2/29/2020	9128283Y4	5,750,000	2/29/2020	8/8/2018	2.63%	5,716,982	517	10,722	5,710,038
T-Note 2.25 3/31/2020	9128284C1	3,725,000	3/31/2020	6/28/2018	2.49%	3,709,431	548	-	3,696,917
T-Note 2.5 5/31/2020	9128284Q0	3,500,000	5/31/2020	8/8/2018	2.66%	3,489,883	609	29,167	3,483,305
T-Note 2.5 5/31/2020	9128284Q0	20,000,000	5/31/2020	8/8/2018	2.66%	19,942,188	609	166,667	19,904,600
T-Note 2.5 5/31/2020	9128284Q0	250,000	5/31/2020	8/9/2018	2.66%	249,297	609	2,083	248,808
T-Note 2.5 5/31/2020	9128284Q0	3,400,000	5/31/2020	8/8/2018	2.66%	3,390,172	609	28,333	3,383,782
T-Note 2.5 5/31/2020	9128284Q0	685,000	5/31/2020	8/9/2018	2.66%	683,073	609	5,708	681,733
T-Note 2.5 5/31/2020	9128284Q0	5,750,000	5/31/2020	8/8/2018	2.66%	5,733,379	609	47,917	5,722,573
T-Note 1.875 6/30/2020	912828VJ6-1	3,750,000	6/30/2020	6/28/2018	2.52%	3,703,271	639	17,578	3,690,821
T-Note 1.875 6/30/2020	912828VJ6-2	2,900,000	6/30/2020	7/3/2018	2.54%	2,862,730	639	13,594	2,854,238
T-Note 1.625 6/30/2020	912828XH8	9,705,000	6/30/2020	10/11/2017	1.61%	9,709,928	639	39,427	9,510,124
T-Note 1.625 6/30/2020	912828XH8	4,565,000	6/30/2020	2/27/2017	1.54%	4,578,374	639	18,545	4,473,335
T-Note 1.625 6/30/2020	912828XH8	6,560,000	6/30/2020	10/11/2017	1.61%	6,563,331	639	26,650	6,428,275
T-Note 2.125 8/31/2020	912828VV9	3,500,000	8/31/2020	8/8/2018	2.69%	3,460,762	701	6,164	3,454,465
T-Note 2.125 8/31/2020	912828VV9	20,000,000	8/31/2020	8/8/2018	2.69%	19,775,781	701	35,221	19,739,800
T-Note 2.125 8/31/2020	912828VV9	250,000	8/31/2020	8/9/2018	2.69%	247,188	701	440	246,748
T-Note 2.125 8/31/2020	912828VV9	3,400,000	8/31/2020	8/8/2018	2.69%	3,361,883	701	5,988	3,355,766
T-Note 2.125 8/31/2020	912828VV9	685,000	8/31/2020	8/9/2018	2.69%	677,294	701	1,206	676,088
T-Note 2.125 8/31/2020	912828VV9	5,750,000	8/31/2020	8/8/2018	2.69%	5,685,537	701	10,126	5,675,193
T-Note 2 11/30/2020	912828A42	3,500,000	11/30/2020	8/8/2018	2.72%	3,444,082	792	23,333	3,438,085
T-Note 2 11/30/2020	912828A42	20,000,000	11/30/2020	8/8/2018	2.72%	19,680,469	792	133,333	19,646,200
T-Note 2 11/30/2020	912828A42	250,000	11/30/2020	8/9/2018	2.72%	246,006	792	1,667	245,578
T-Note 2 11/30/2020	912828A42	3,400,000	11/30/2020	9/17/2018	2.81%	3,341,828	792	22,667	3,339,854
T-Note 2 11/30/2020	912828A42	685,000	11/30/2020	8/9/2018	2.72%	674,056	792	4,567	672,882
T-Note 2 11/30/2020	912828A42	5,750,000	11/30/2020	9/17/2018	2.81%	5,651,621	792	38,333	5,648,283

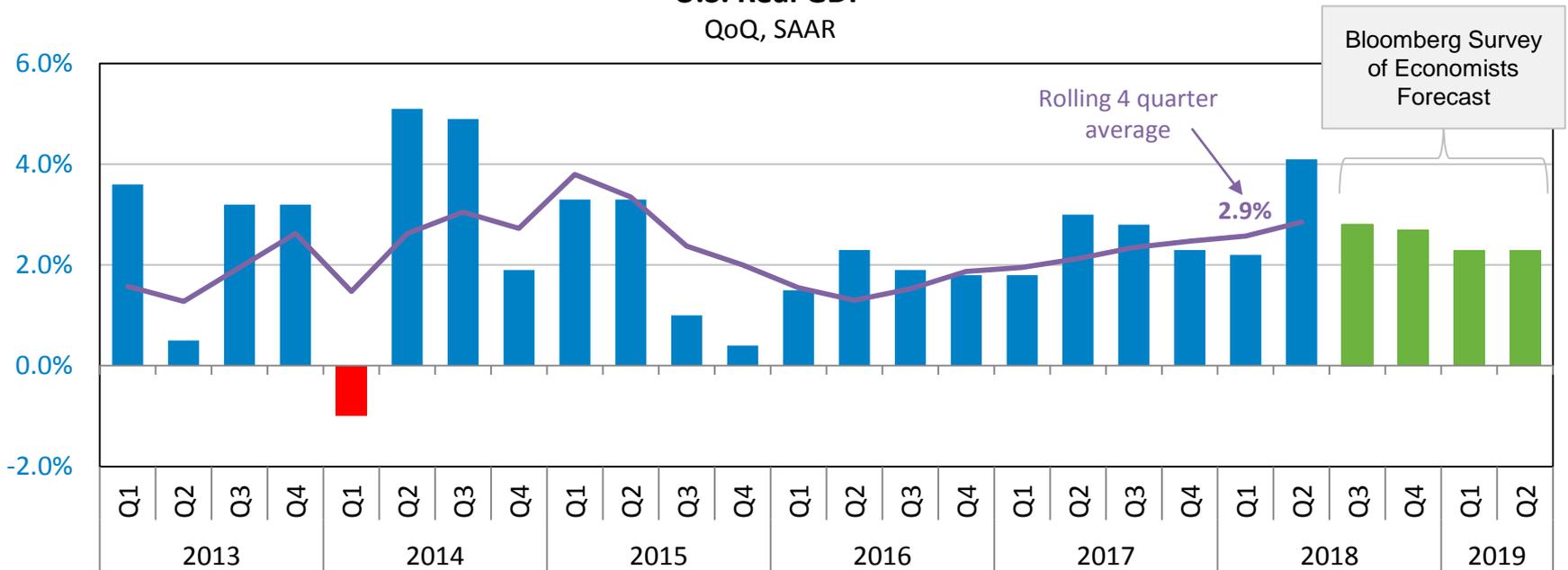
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Appendix II: Economic Update

Economic Growth Accelerated in Second Quarter

- U.S. economic activity expanded at a strong pace in the second quarter
 - The Gross Domestic Product (“GDP”) remained unchanged for the third second quarter reading at 4.2%
 - Contributors to the unchanged GDP reading include a slight downward revision to private inventory investment and a small upward revision to most of the remaining GDP components
- The surge in growth in second quarter is not expected to be sustainable, reflected in moderate future growth forecasts

U.S. Real GDP
QoQ, SAAR

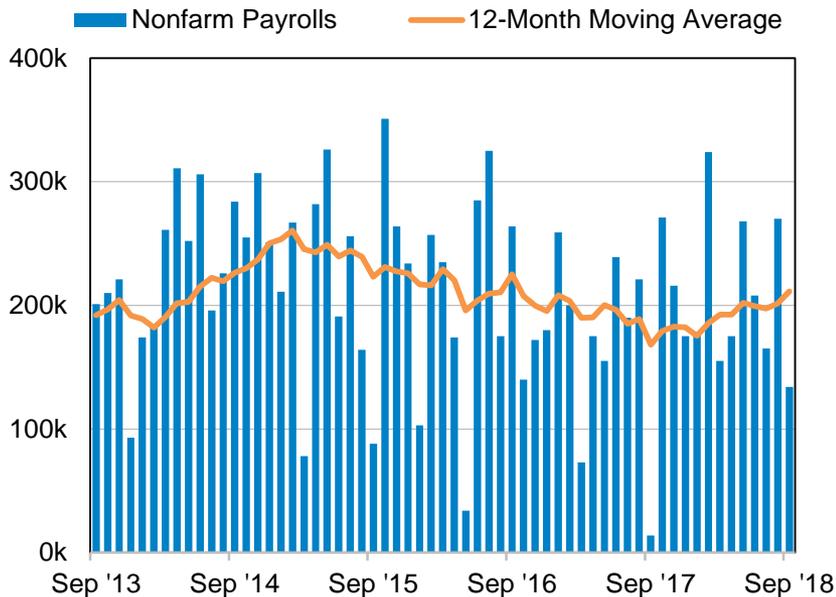


Source: Bloomberg, as of September 2018.

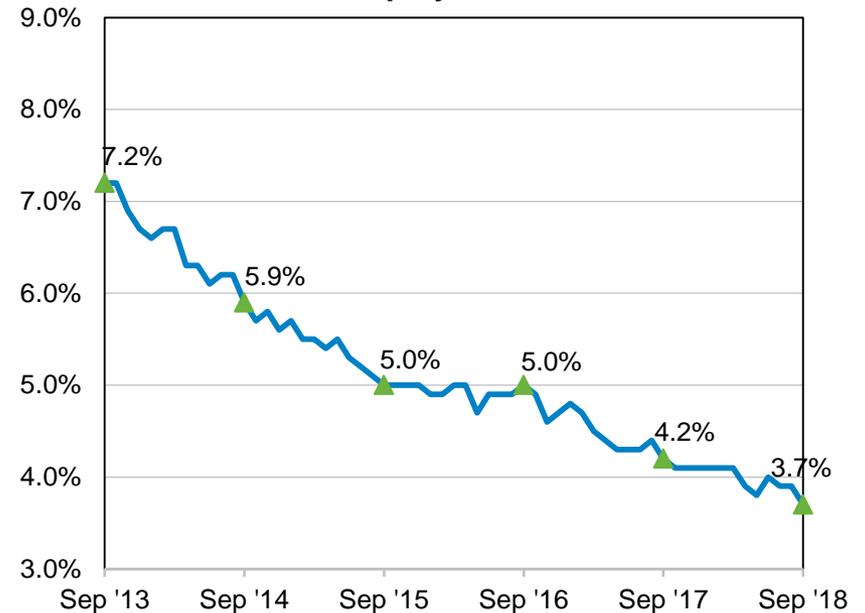
Labor Market Remains Strong in September

- The U.S. economy added 134,000 jobs in September, falling short of expectations
- Job gains have averaged 208,000 per month so far this year
 - The unemployment rate fell to 3.7% in September, the lowest level since 1969
 - Average hourly earnings – a key measure of wage growth – slightly decelerated from the cyclical high of 2.9% in August to 2.8% in September

Monthly Change in Nonfarm Payrolls



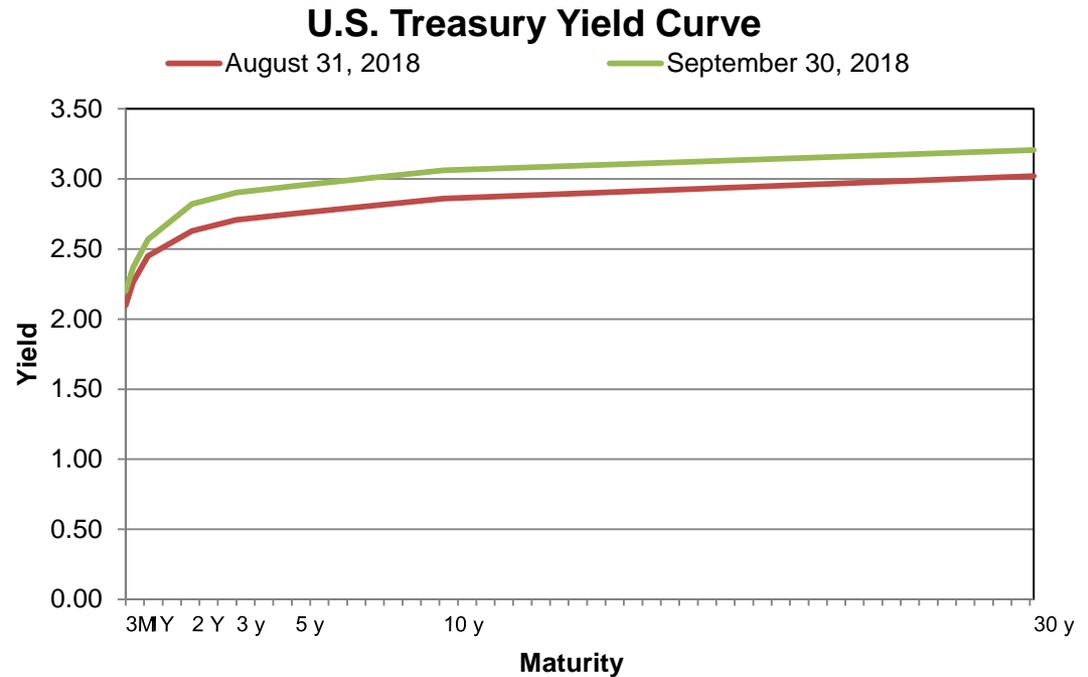
Unemployment Rate



Source: Bloomberg, as of September 2018.

U.S. Treasury Yield Curve Increases

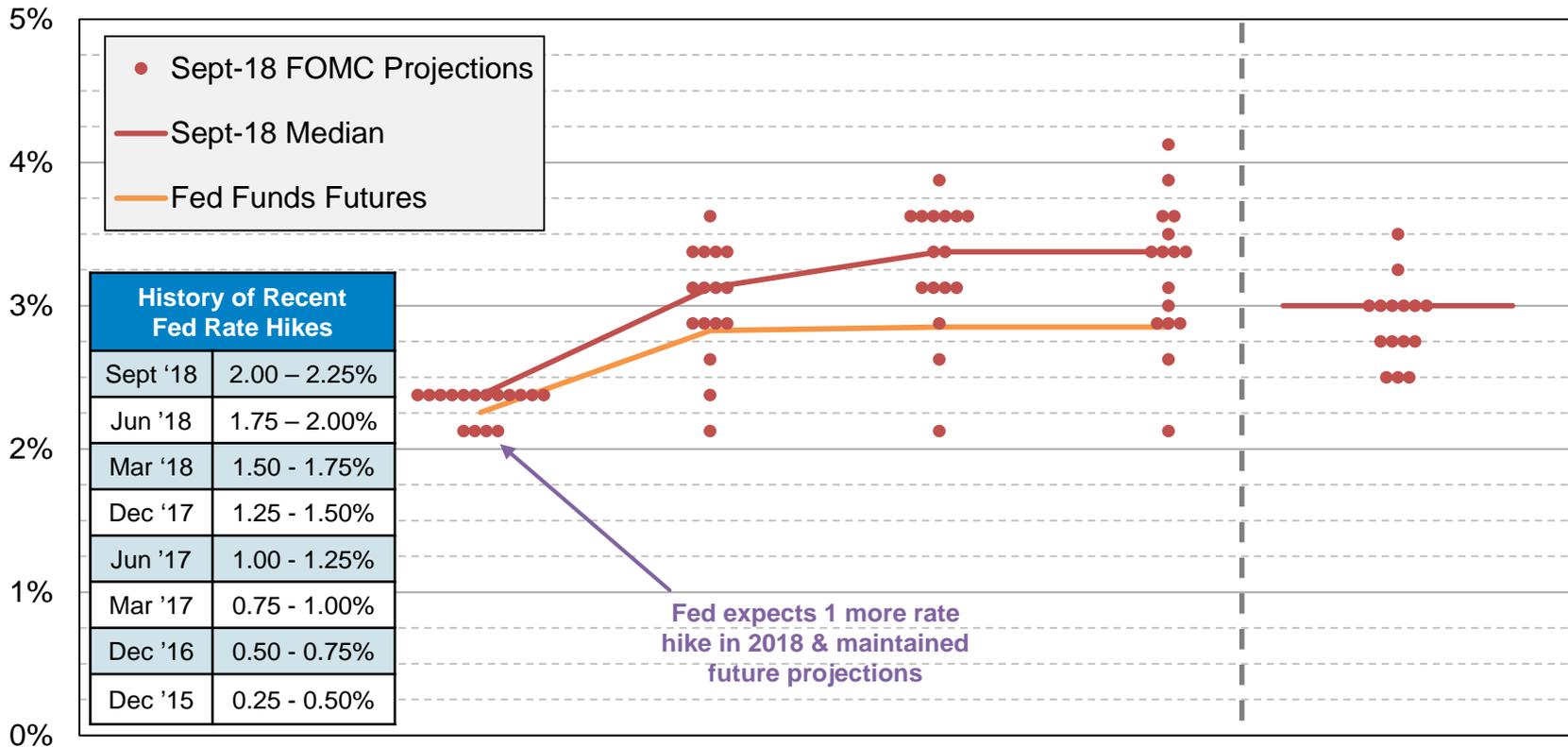
	<u>8/31/2018</u>	<u>9/30/18</u>	<u>Change</u>
3 month	2.10%	2.20%	0.10%
6 month	2.27%	2.37%	0.10%
1 year	2.45%	2.57%	0.12%
2 year	2.63%	2.82%	0.19%
3 year	2.71%	2.90%	0.19%
5 year	2.75%	2.95%	0.20%
10 year	2.86%	3.06%	0.20%
30 year	3.02%	3.21%	0.19%



Source: Bloomberg

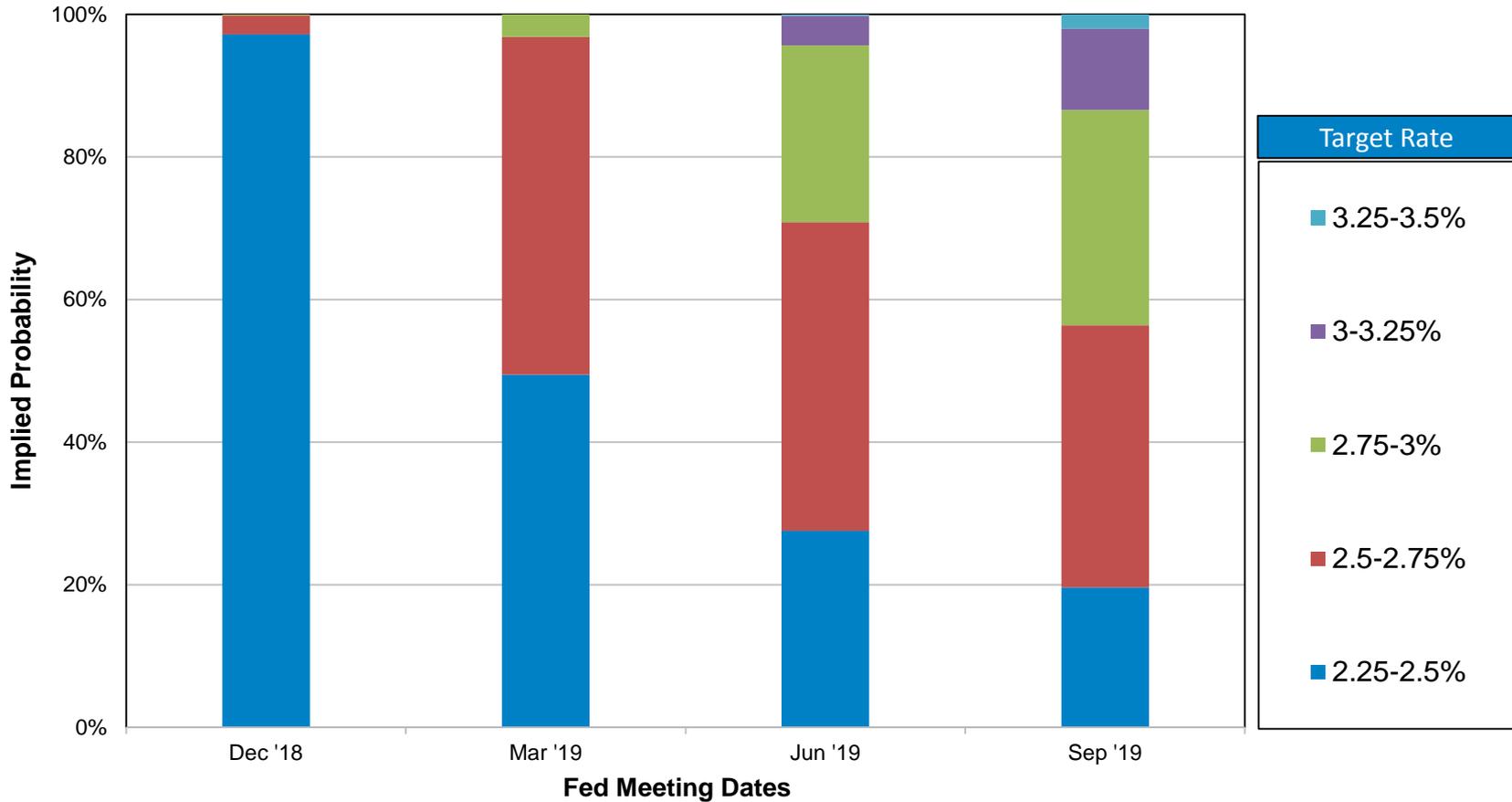
FOMC's "Dot Plot" Projects One More Rate Hike in 2018

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 9/26/18.

Federal Reserve Rate Hike Probabilities

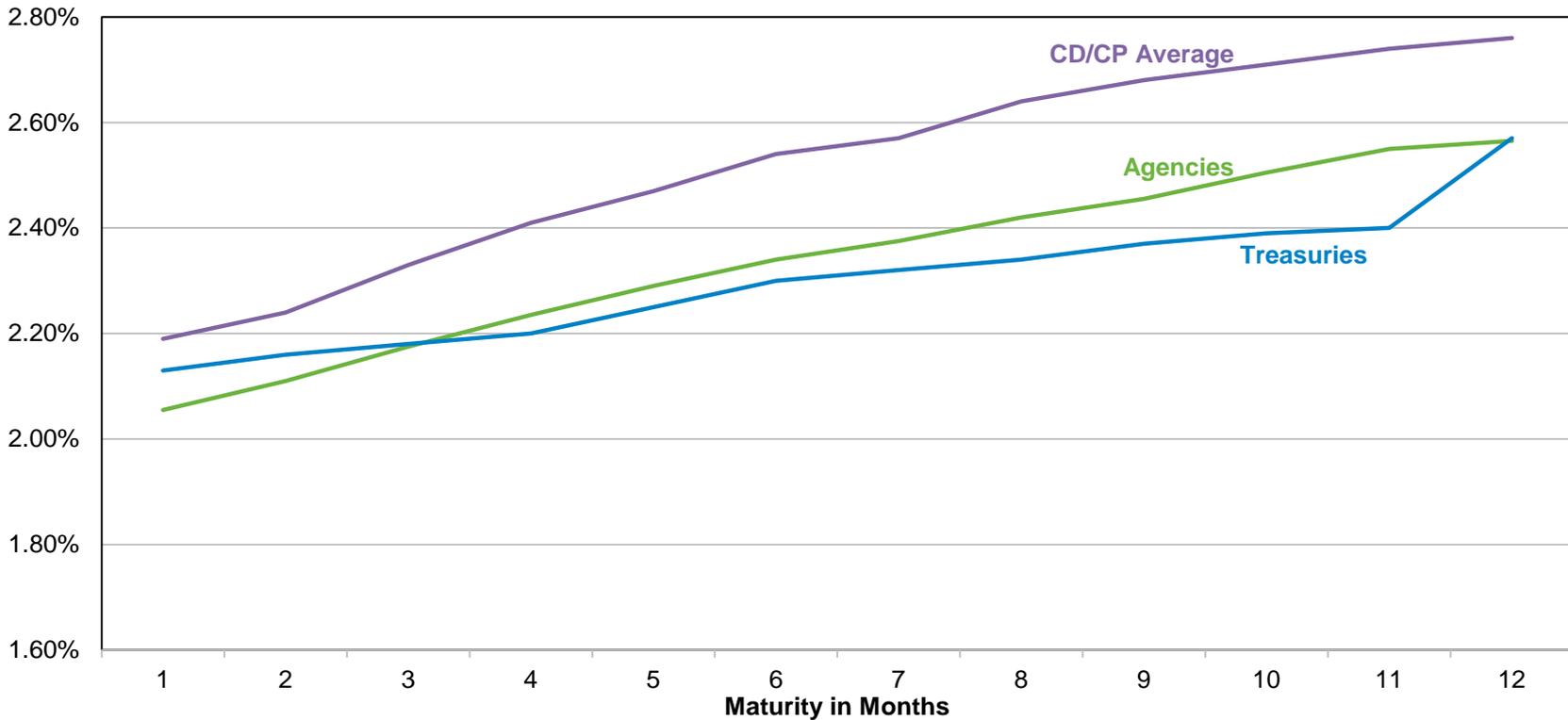


Source: Bloomberg, as of 9/28/18.

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, PFM Trading Desk, as of 9/28/18. Not a specific recommendation.

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

FIXED INCOME MARKET – ECONOMIC HIGHLIGHTS

- Economic conditions were characterized by:
 - Stronger growth in the U.S., propelled by tax cuts and fiscal stimulus
 - A robust labor market, with the U.S. unemployment rate near 48 year lows
 - Core inflation near the Fed’s 2.0% target, while oil prices have surged and wages have begun to trend higher
 - Consumer confidence at a near two-decade high, while measures of manufacturing activity are also very strong
 - A resurging stock market, with the S&P 500 index rising by 7.7% for the third quarter, the largest quarterly gain since the fourth quarter of 2013
 - The Federal Reserve increasing short-term rates 0.25% per quarter, and signaling the expectation they will continue to do so through 2019
 - But additionally, an escalating trade war with China, weakness in emerging market economies and currencies, and also political uncertainty

- U.S. Treasury yields rose 20 – 30 basis points (0.20% – 0.30%) over the quarter as the yield curve flattened further:
 - Short-term Treasury bill yields rose by 25 – 30 basis points
 - The yield on the 2-year Treasury Note rose by 29 basis points to end the quarter at 2.82%
 - The yield on the 10-year Treasury rose by 20 basis points to end the quarter at 3.06%
 - Short-term rates reflected Fed rate hike expectations, while longer-term yields were the result of moderate inflation expectations, persistently low global interest rates, and a negative “term premium”

- After a weaker second quarter, strong economic fundamentals gave investors confidence in corporate and other non-government sectors; most investment-grade sectors contributed positive excess returns (returns in excess of similar-duration Treasuries) to fixed-income portfolios for the quarter

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

FIXED INCOME MARKET – ECONOMIC HIGHLIGHTS

- The incremental yield offered in many sectors relative to U.S. Treasuries has narrowed to a point that analysis indicates the current income cushion may struggle to offset the potential adverse impact of future spread widening
 - As has been the case for some time, Federal Agency yield spreads remained extremely narrow throughout the previous quarter
 - After providing several consecutive quarters of incremental income relative to short-term government alternatives, yield spreads on commercial paper grinded to 12-month tights

- While the Fed's policy actions will depend on future economic data, most market participants believe the current strength of the U.S. economy, coupled with a strong labor market and rising inflation, will cause the Fed to continue raising rates at a pace of about 0.25% hike per quarter well into 2019

- 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
 - Short-term money market investors continue to reap the rewards of current monetary policy tightening; in addition, increased projections for U.S. Treasury debt issuance over the next several quarters may continue to pressure short-term yields higher in both the government and short-term credit spaces

Disclosure

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