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January 8, 2020

Memorandum

To: Nicolette Bateson, CPA, Chief Financial Officer/Treasurer
Deirdre Henry, Treasury Manager
Great Lakes Water Authority

From: Brian Quinn, Managing Director
PFM Asset Management LLC

Re: Review of the Great Lakes Water Authority's Five-Year Earnings Projections

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To assist the Great Lakes Water Authority (the "Authority") in developing and maintaining its five year earnings projections, PFM Asset Management LLC ("PFM") has developed the following market assumptions for the intermediate-term. We develop our assumptions by examining economic fundamentals and expected returns and also derive our assumptions based on our projections for economic growth, inflation, interest rates, and other fundamental economic and market conditions. Given the current investing environment and strong fiscal year 2019 returns, our future interest earnings projections are down from expectations this time last year. The modest reductions are driven by slightly lower expected economic growth.

In calendar year 2019, interest rates dropped significantly as global economic growth decelerated and investors' sentiment turned more cautious. In addition, as a result of slowing economic growth, the Federal Reserve and other central banks began to cut interest rates. Consequently, we have meaningfully reduced our intermediate-term fixed income expectations, especially with interest rates lower for a longer period. The slowdown in economic growth has caused central banks, including the Fed, to reverse course and become more accommodative. The slower growth, muted inflation, and continuing risks from trade frictions and political uncertainties are likely to keep the Fed accommodative and interest rates low going into fiscal year 2021.

Furthermore, the yield curve has drawn a significant amount of attention due to its track record of predicting recessions; however, over the next six to twelve months, we do not expect the U.S. to experience a recession. The yield curve, which had inverted, has more recently steepened, and when taken in combination with other fixed income market indicators, is not suggesting a recession.

Interest rates and comparable yields are down profoundly from the start of the calendar year of 2019. Likewise, expected returns for spread products (i.e., commercial paper) have been reduced due to lower starting yields and tighter spreads. For example, driven by lower interest rates versus a year ago, cash is expected to return ~1.52% over fiscal year 2021 and approximately 1.60% over the next five fiscal years (compared to the near 1.75% average that the Authority has earned in cash so far in 2020). It should be noted that the relatively lower returns driven by slower expected interest rate normalization.

Nevertheless, the tables below contain an updated interest earnings projection for the Authority for fiscal years 2021 – 2025 by category. Note that the fiscal year 2019 average balances were used to calculate the following projections as we felt that this was the best proxy that we had available for future balances. In addition, in our calculations, the implied forward rate on the 3-month Treasury Bill was used as the reinvestment assumption for the cash / money market fund accounts. The cash-flow driven funds have a duration of around 0.61 years, and the forward curve on the 6-month Treasury Bill was used for these accounts. The benchmarked managed funds have a duration of about 1.28 years and the forward curve on the 1-year Treasury Note was used for these assets. These projections may be modified in the future depending on changes in the Authority's balance sheet.

Investment Type	Fiscal Year 2019 Average Balance	Average Yield (FY 2021)	Average Yield (FY 2022)	Average Yield (FY 2023)	Average Yield (FY 2024)	Average Yield (FY 2025)
Cash / Money Market	$447,777,915	1.52%	1.53%	1.54%	1.54%	1.81%
Cash-flow Driven Managed Funds	$392,714,691	1.52%	1.53%	1.54%	1.55%	1.80%
Benchmarked Managed Funds	$216,863,701	1.44%	1.53%	1.54%	1.56%	1.79%
Total	***$1,057,356,307***	***1.51%***	***1.53%***	***1.54%***	***1.55%***	***1.80%***

Investment Type	Fiscal Year 2019 Average Balance	Approximate Earnings (FY 2021)	Approximate Earnings (FY 2022	Approximate Earnings (FY 2023)	Approximate Earnings (FY 2024)	Approximate Earnings (FY 2025)
Cash / Money Market	$447,777,915	$6,813,612	$6,838,980	$6,889,567	$6,921,408	$8,102,983
Cash-flow Driven Managed Funds	$392,714,691	$5,977,539	$5,998,310	$6,041,680	$6,094,039	$7,083,595
Benchmarked Managed Funds	$216,863,701	$3,126,420	$3,312,325	$3,334,954	$3,398,937	$3,878,410
Total	***$1,057,356,307***	***$15,917,572***	***$16,149,615***	***$16,266,202***	***$16,414,384***	***$19,064,988***

The Fed cut interest rates in 2019 to low levels and is once again expanding its balance sheet, calling into question how much more it can do if the economy slips into a recession. Though there is a likelihood that rates will rise over the next five years, current interest rates are at a low level. We expect the Fed to hold the key Fed Funds target rate steady well into 2020. Additionally, we also expect the U.S. economy to chug along with growth near 2.0%, and the global economy to improve modestly over the next five years. This implies that interest rates should remain within a narrow trading range for the foreseeable future. The Authority should be cognizant of these variables as it reviews its long-term investment strategy. Please note that PFM takes all of the preceding market and economic information into account when making investment decisions on behalf of the Authority.

PFM would be happy to discuss this memorandum with the Authority further should it have any questions or concerns or need any additional information or clarification.