Memorandum

To: Ed Eberle, Wisconsin Department of Administration
From: Sycamore Advisors, LLC
Date: September 3, 2015
Re: Update to April 2015 Memorandum to WDOA on Interest Rate Assumptions

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You requested an update on our April 2015 memorandum to you on interest rates in connection with our work on the phosphorus regulations. As we noted in our previous memo, we are not economists, but we have relied upon publicly available data and projections from well-respected Wall Street economists. We believe the estimates discussed below are conservative and reflect current market practices.

	Municipal Rates (updated 9.1.15)	
1	Current 20 YR AAA MMD	2.90%
2	1 Yr Forward Delivery	0.84%
3	Incremental Credit Spread for AAA	0.25%
	Market Rate for AAA credits	3.99%
	Credit Spread for AA	0.70%
	Rate for AA credits	4.44%
	Credit Spread for A	0.90%
	Rate for A credits	4.64%
	Credit Spread for Baa	1.25%
	Rate for BBB credits	4.99%
	Credit Spread for UnRated Credits	1.75%
4	Rate for UnRated credits	5.74%
5	**Potential Loan Rate for EIF Subsidized Loans (70% of market)**	2.79%
6	**Blended Open Market Rate for Municipal Credits**	5.39%
7	**Blended EIF and Open Market Borrowing Rate for POTWs**	5.13%
	Corporate Rates	
8	**Utilities**	5.50%
9	**General Corporates**	6.80%
10	**Paper**	7.50%

The fundamentals of projecting forward rates based on the current market remain unchanged since April 2015. Wall Street economists continue to anticipate Federal Reserve Board action to raise short-term rates in the 4th quarter of 2015, with the "consensus" of economists projecting the Federal Funds reaching an average of 1.05% by June 2016 up from effectively 0% today.

What has changed in the capital markets since April is the increase in volatility, the decline in energy prices and concerns about the strength of China's economy. These factors have led to widening of credit spreads, a steeper yield curve, and the possible *delay in the timing* of the Fed's decision to raise interest rates.

In addition, the Wisconsin legislature changed the subsidy rate for Clean Water loans, requiring that loans be made at 70% of the State's market rate, down from 75%.

What is clear, and remains true is that borrowing costs for Wisconsin communities and utilities do not operate independently of the larger capital markets universe. Ultimately, the cost of borrowing will largely be dictated by the overall level of interest rates. Rates have been abnormally low following the Great Recession and are largely expected to revert to the historic norm.

The following are a few examples of what Wall Street is saying about interest rates:

> "Slower path for policy tightening." "We think the Fed's confidence returns in time for it to move [to raise interest rates] at the December meeting." *Morgan Stanley*, August 31, 2015.
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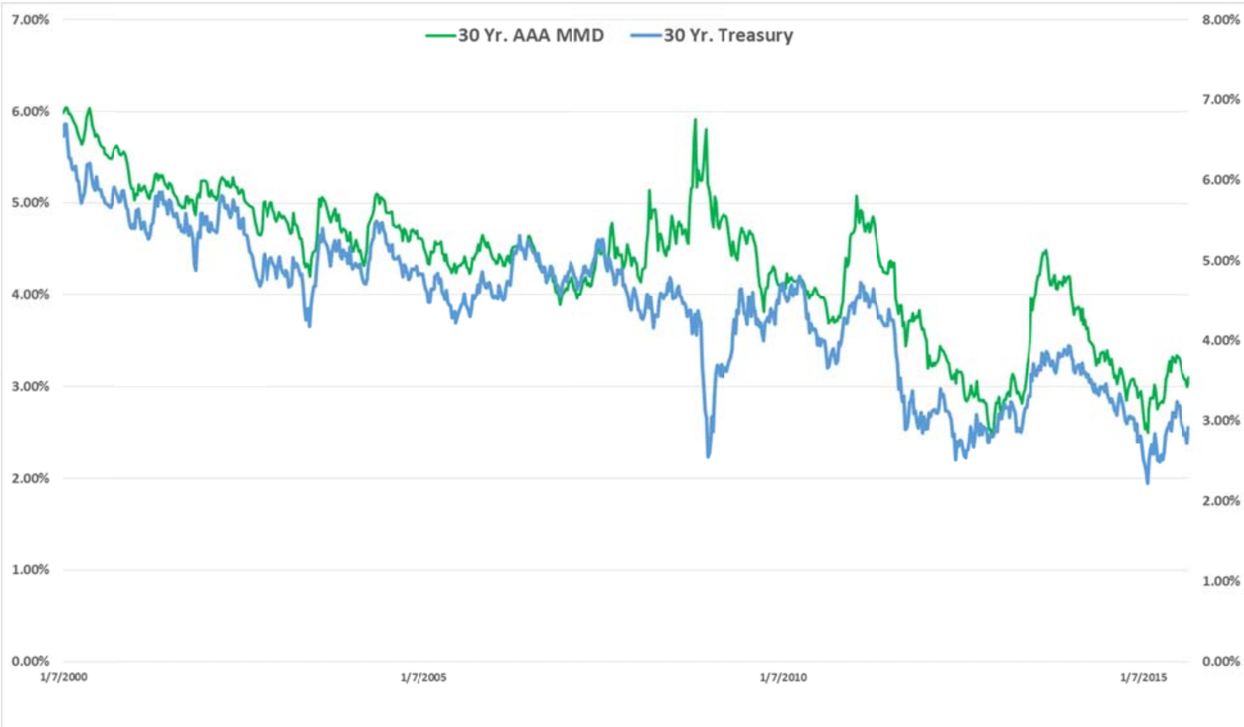
> "Fed Funds futures predicts with a 36% probability that the Fed funds will have its first rate hike move in September and 48% probability that it will occur in October." "Rate hikes are expected to come in late 2015; both Citi and the Street forecast a rising rate environment through the rest of the year." *Citigroup*, August 28, 2015.

In both our original memorandum and in this update, Sycamore has relied upon statements made by Federal Reserve Board officials, historic interest rate data published by the Federal Reserve Board, market data by leading global investment banks. The chart on the following page illustrates rates from 2000 forward, which reflect Federal Reserve policy.

Historical 30 Year AAA MMD and 30 Year Treasury Rates



For AAA rated municipal bonds the historic average MMD borrowing rate is 4.95% over the last 25 years. Since 2000, that average is 4.34% -- which includes periods of two substantial recessions (2001 and 2008-2009). Based on historic rates and ample market data which suggests the Federal Reserve Board will – at some point in the near future – be suspending its policy of monetary easing, we believe a long-term borrowing cost for Wisconsin municipalities of 4.80 to 5.10% is appropriate.