

October 10, 2016

MEMORANDUM

To: Ken Guy, Director, King County Finance and Business Operations Division

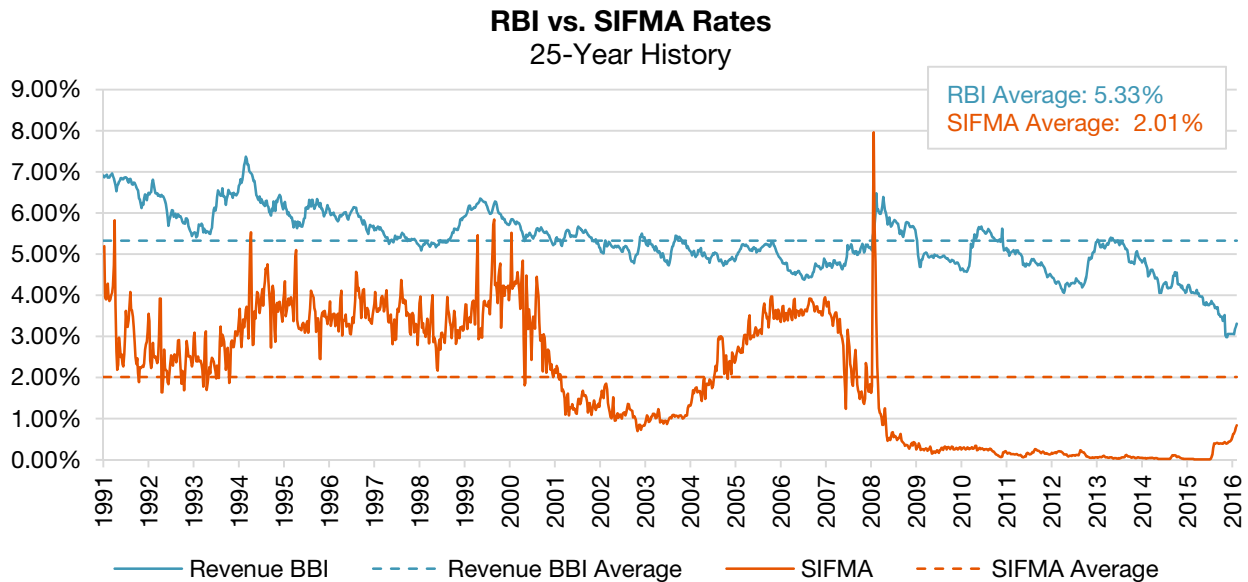
From: Rob Shelley, Managing Director, Piper Jaffray & Co.

Re: WTD Variable Rate Portfolio Overview and Recommendation for 2015 Multi-Modal Bonds

The Wastewater Treatment Division's ("WTD") financial model has long assumed that a portion of its debt portfolio will be issued in variable rate mode. The WTD's debt policy limits the Utility's variable rate debt exposure to an amount equal to 20% of all debt outstanding although 15% is the target used in the Utility's financial model. The financial model assumes that variable rate debt will be issued periodically to maintain exposure at approximately this level. The WTD's initial variable rate issuance was its \$100 million commercial paper program ("CP") in 1996. Over the next almost two decades, the Utility has expanded its variable rate portfolio to a total of \$500 million and into Variable Rate Demand Obligation ("VRDO") and Direct Purchase ("DP") structures. The main reasons for issuing variable debt are two-fold; first, it allows the County to achieve a borrowing cost that historically has been quite a bit lower than traditional fixed rate debt and second, it provides the WTD with a natural hedge against any fluctuation in the earnings on its short-term investments. This memo will discuss each of these rationales for utilizing variable rate debt, provide an overview of the current WTD variable rate debt portfolio, and discuss the results of the overview of this portfolio that took place earlier this year. Following that, it will discuss the recommended next step with regards to the County's 2015 Multi-Modal Bonds.

Lower Borrowing Cost

As indicated in the graph at the top of the next page, interest rates on variable rate tax-exempt bonds (represented by the SIFMA index) have historically been significantly below corresponding fixed rate tax-exempt bonds (as represented by the Revenue BBI). This is primarily due to the fact that in almost all situations the tax-exempt yield curve is positively sloped, meaning that investors demand a higher return the longer they lend an issuer their money. An investor can sell its variable rate bonds back with just a week's notice so this type of investment is at the very short end of the yield curve and therefore warrants the lowest borrowing cost in any given interest rate environment.



The WTD has benefitted significantly over the years from this relationship with its variable rate portfolio. For example, the 2001 variable rate bonds have experienced an average interest rate, including costs, of approximately 1.65% since inception. The WTD's last long-term new money issuance was sold in September of the year. The borrowing cost for this issue was 3.78% which is 177 basis points above the 25-year average for SIFMA, or approximately 125 basis points higher once ongoing support costs are taken into account. For the WTD's \$500 million variable rate portfolio, this difference would translate into interest savings of \$6.25 million per year. While the past performance of this sector of the market is no guarantee that the County will experience similar results on its portfolio going forward, it is reasonable to assume that the County will realize some level of interest rate savings through this approach.

Asset/Liability Hedge

The WTD carries significant fund balances for operating, capital and debt service reserve purposes. These balances are invested in short-term investments through the King County Investment Pool ("KCIP") and the earnings rates on these funds have fluctuated dramatically since the beginning of the financial crisis. In mid-2007, the rate on the KCIP was over 5.00% but as short-term investment rates plummeted beginning in 2008, the Pool earnings rate has fallen as well and currently sits at around 0.85-0.90%. This drop in investment rates has reduced revenues available to the WTD. By issuing variable rate debt, the County establishes a liability, the cost of which will fluctuate similarly to the rates on short-term investments held by the KCIP. This creates an asset/liability hedge where investment revenues and debt service expense should generally fluctuate in a like manner. Due to this offsetting effect, the County's net revenues would be less sensitive to the level of short-term interest rates for the portion of the investment portfolio that is hedged and this helps provide more certainty on the budget front. Going forward, a conservative projection is that the Utility's average cash balances (including an average balance in the bond funds) will be approximately \$250 million. Since investment earnings are at taxable interest rates and interest payments are at lower tax-exempt rates, most hedging programs utilize a ratio of taxable investments to tax-exempt debt of approximately .7/1. Utilizing this ratio, the WTD's assets would justify short-term debt of approximately \$355

million purely from a hedging standpoint. That being said, it is important to note that while both the interest cost associated with the WTD's variable rate debt portfolio and the earnings on the KCIP are impacted by movements in short-term interest rates, they will not move perfectly in tandem. The interest rates on the WTD's variable rate portfolio are reset either weekly or monthly and generally track the very shortest point in the yield curve. The average investment term of the KCIP is closer to a year so while still at the short end of the interest rate curve, its returns will not be as sensitive to interest rate moves as the interest cost on variable rate debt. Over the long-term, there should be a correlation but, in periods of rapid changes in interest rates, there will tend to be a lag before the rate of return on the KCIP catches up.

Overview of the WTD's Existing Variable Rate Portfolio

As mentioned previously, the WTD financial model assumes an outstanding variable rate debt balance equal to approximately 15% of the Utility's outstanding amount of debt. Currently, the WTD's \$500 million of outstanding variable rate debt is approximately \$70 million less than 15% of the Utility's current debt balance of \$3.8 billion. An additional variable rate issuance is scheduled to take place in 2018 in order to bring the total variable rate debt outstanding closer to the 15% policy goal. The following table summarizes the Utility's current portfolio of variable rate debt.

KING COUNTY-SUMMARY OF WTD VARIABLE RATE DEBT PORTFOLIO

Series	Structure	Type of Obligations	Amount Outstanding as of 10/1/2016	Type of Facility	Provider	Expiration	Maturity
2001 Series A&B	VRDO	Junior Lien Obligations	\$100,000,000	Letter of Credit	Landesbank Hessen-Thüringen Girozentrale (Helaba)	9/30/2020	01/01/2032
2010 Series A&B	VRDO	Multi-Modal LTGO/Sewer Revenue Bonds	\$100,000,000	Standby Bond Purchase Agreement	State Street Bank and Trust Company	11/03/2017	01/01/2040
2011	Direct Purchase	Junior Lien Obligations	\$100,000,000	Bondholder's Agreement	US Bank National Association	05/01/2017	01/01/2042
2012	Direct Purchase	Junior Lien Obligations	\$100,000,000	Continuing Covenant Agreement	Wells Fargo Municipal Capital Strategies, LLC	12/27/2016 ⁽¹⁾	01/01/2043
2015 Series A&B	1-Year Note Mode	Junior Lien Obligations	\$100,000,000	N/A	N/A	11/16/2016 ⁽²⁾	01/01/2043

(1) A three-year extension with Wells Fargo is currently in process.

(2) The County is currently in negotiations with State Street Bank to enter into a three-year continuing covenant agreement to facilitate a direct purchase of these bonds on their 11/16/16 mandatory tender date.

In addition to interest rate risk, there are a variety of other risks inherent with the issuance of variable rate debt. Two of the primary risks are bank risk and renewal risk, and the County's portfolio has been set up to mitigate these by utilizing several different banks to limit exposure to one financial institution and by staggering the expiration dates for the various bank credit facilities so that only a limited amount of the portfolio is subject to renewal risk at a time. Additionally, two out of the five variable issues are in the form of a bank direct purchase. These direct loans shield the County from interim exposure to a bank's credit as they are locked in at a fixed spread to the one-month LIBOR rate until the expiration date. With traditional variable rate structures that are remarketed on a weekly basis, deterioration in a supporting bank's credit translates into a wider spread to SIFMA and a higher borrowing cost.

There are two bond issues that will require action by the County later this year. The first is the 2015 multi-modal bonds that were originally sold as a one-year note while the County assessed what approach to implement in the long-term. The results of this assessment will be discussed later in this memo. The second is the 2012 junior lien bonds where the supporting continuing covenant agreement with Wells Fargo will expire at the end of the year. The County is currently negotiating a 3-year extension of this agreement.

Considerations Regarding the WTD's Existing Variable Rate Portfolio

In 2016, the WTD, along with the staff from the Finance and Business Operations Division of the Department of Executive Services and the Office of Performance, Strategy and Budget, reviewed the Utility's approach to variable rate debt as a component of its capital structure. The review focused on the appropriate size of the WTD variable rate program and adjustments to the assumed amortization of variable rate debt.

Size of Variable Rate Portfolio - While the Utility's financial model assumes that the amount of its variable rate debt outstanding will equal 15% of the WTD's outstanding debt, the WTD's current variable rate capacity policy actually allows the issuance of variable rate debt up to 20% of the amount debt outstanding. There are currently no plans to tap into this additional capacity, but, should market conditions present an opportunity in the future, additional variable rate debt is a possibility.

There is no absolute guidance for the appropriate level of variable rate debt as each government entity will have its own unique business reasons and risk tolerance that will play a role in determining what level is appropriate. Absent specific guidance, one place that issuers look to is the opinion of the rating agencies. While rating agencies have backed away from formal guidance on the appropriate level of variable rate debt, traditionally they have been comfortable if no more than 15-20% of an issuer's debt is in variable rate mode. When calculating this ratio, they will focus on the *unhedged* portion of an issuer's variable rate debt. In other words, any variable rate debt that can be matched against a like amount of variable rate assets would not count towards this limitation. As mentioned previously, the WTD has approximate average cash balances of \$250 million which could be viewed as a hedge. This leaves a balance of \$250 million of unhedged variable rate debt, or 6.6% of the WTD's outstanding debt. Using the .7/1 ratio of taxable assets to tax-exempt debt mentioned earlier, the existing portfolio would be hedged for all but approximately \$145 million, or 3.8% of the WTD's outstanding debt. Under either approach, the net amount outstanding is a relatively low figure and one that has received barely a mention from the rating agencies in annual credit discussions with the Utility.

The risks associated with variable rate debt and the ability to mitigate them help drive the determination of an appropriate level of variable rate debt. Strategies regarding how the debt is structured and how it is budgeted for are two approaches that can help mitigate risk. On the structure front, it is important to have a variety of credit support providers. As discussed previously, the County's variable rate portfolio is currently backed by four different banks, with representation from both domestic and foreign institutions. Maintaining limited exposure to one institution or one region limits the concentration risk and the chance that the WTD will be forced to pay an above market interest rate or have a liquidity event. As far as budgeting is

concerned, while it is anticipated that there will be some debt service savings associated with variable rate debt, it is important that an entity not budget in anticipation of actually receiving this full benefit. In keeping with its overall approach to its financial model, the WTD has used very conservative assumptions for the debt service cost associated with its variable rate debt. The current financial plan incorporates an interest rate for variable rate debt of 5.40% (90% of the assumed rate for fixed rate borrowing) which leaves plenty of cushion to absorb any interest rate volatility. As actual interest costs have come in well below this level, additional funds have been available to invest in the capital program which helps reduce sewer rates in future years. This combination of limited concentration risk and a conservative budgeting approach mitigates risk, making the use of variable rate debt more prudent.

Access to inter-fund loans through the KCIP also helps mitigate the risks associated with variable rate debt. In a situation where a particular variable rate issue encounters difficulties, a loan from the pool is available as a temporary funding backstop to retire the bond issue until replacement financing can be obtained. This backstop proved extremely valuable during the financial crisis when one of the County's outstanding variable rate issues encountered bond insurer and bank-related difficulties.

After reviewing the risks and mitigating factors described above, the WTD determined that variable rate debt should continue to play a significant role in its capital structure and that the current size of the portfolio is prudent, affirming its practice of maintaining 15% of its outstanding debt in a variable rate mode.

Amortization of Variable Rate Debt – To date, the WTD's variable rate debt has been structured as bullet maturities. The primary reasons for doing so have been a desire to maintain the Utility's 15% variable rate target and to maximize the economic benefit of the Utility's lowest-cost debt. While there are good reasons for keeping this debt outstanding as long as possible, there are important financial and legal considerations for establishing a plan for retiring it at some point. From a financial standpoint, it is important to align the term of an entity's debt with the useful life of the assets financed. If debt is still outstanding on an asset at the point where it needs to be replaced with a new financing, an issuer has essentially doubled-up on its debt which leads to a higher degree of leverage and an increased share of revenues going towards the payment of debt service. On the legal requirement front, IRS regulations require that the term of tax-exempt bond financing not exceed 120% of the useful life of the asset(s) being financed.

While the WTD's assets do have very long useful lives, given the depreciation schedules utilized for accounting purposes and taking into account both these financial and legal constraints, it may be difficult to justify extending variable rate debt beyond the stated 30-year term. Financially, it also would be very difficult to retire the full amount of the bullet at the maturity date. Given these two factors, establishing some mechanism that begins debt retirement significantly ahead of the stated maturity date would be prudent. Spreading the payments out over a long period of time will help with sewer rate management, and phasing the program in over time will help transition the rate model from the currently imbedded assumption of no variable rate amortization without an immediate shock to the sewer rate.

To offset the reduction in its variable rate portfolio and maintain its 15% variable rate target, the County could establish some type of flexible variable rate debt mechanism that could be used to finance new capital improvements in amounts that matched the variable rate debt amortized. This could be in the form of a line of credit or CP program. Once the balance in this vehicle achieved a certain critical mass it could be refinanced into a more traditional longer-term variable rate debt instrument.

As part of the 2017 rate process, the WTD reviewed a variety of potential variable rate debt amortization possibilities and settled on a plan that begins amortization of a variable rate bond issue at least ten years prior to the issue's final maturity. This approach was incorporated in the 2017 sewer rate that was adopted by Council and the first of these amortization payments is scheduled to occur next year.

Long-term Structure for the WTD's 2015 Multi-Modal Bonds

Following the review and confirmation of the size of the WTD's variable rate debt portfolio, it was determined that converting the 2015 Multi-Modal Bonds to a long-term variable rate structure would be appropriate. As an initial step in that process, a solicitation of banking institutions was conducted for the provision of one or more of the following products: 1) Irrevocable Direct Pay Letter of Credit (LOC), 2) Standby Bond Purchase Agreement (SBPA), and/or 3) Direct Purchase Bank Loan. One potential variable rate approach that was not considered is the issuance of Floating Rate Notes (FRNs). The reason for this is that in the previous 12-18 months the buyer base for this product had shrunk significantly. This resulted in increased pricing for this product to the point that the economics no longer made it a competitive option to achieve the County's goals. Unlike the bank products where pricing is determined as part of the proposal process, the pricing for FRNs is set at market rates at the time of funding. Accordingly, we would only recommend pursuing the FRN approach if it appeared likely that the eventual market rate would be more favorable than the bank product options, and that was not the case.

Proposals were received from nine different banking institutions. In total, the County received six proposals to provide LOCs, five proposals to provide SBPAs, and four proposals to provide direct purchase bank loans. Some banks proposed multiple terms for the facilities, but all offered 3-year terms making that the most comparable term. Furthermore, the pricing for either shorter- or longer- terms did not provide sufficient incentive for the County to pursue them.

The most favorable pricing for each product for the three-year term, reflecting estimated market trading differentials as of May 2016 when the proposals were received, plus ongoing support costs, is shown in the table on the following page.

**Estimated Annual Cost for Best Proposals Received
(3-Year Term)¹**

Facility	Provider	Rates as of May 2016	Historic Rates (10-year Avg)
LOC ²	SMBC	0.870%	1.413%
SBPA ²	MUFG	0.890%	1.433%
Direct Loan	State Street	0.785%	1.381%

¹ Pricing reflects remarketing fees and estimated market trading differential; does not reflect upfront or ongoing rating costs associated with LOCs and SBPAs. LOC and SBPA pricing is based on the SIFMA index; direct loan pricing is based on 70% of LIBOR.

² The Industrial and Commercial Bank of China is a new entry in this market and did provide the most aggressive pricing for both an LOC and a SBPA. They have not yet backed any publicly offered debt so there is no benchmark for where bonds with their backing would trade. Our desk believes that the market premium would be substantial enough that it would not provide the best all-in-cost to the County. Additionally, the County would be exposed to the significant uncertainty associated with the Chinese economy and banking system.

As indicated in the table above, the direct loan proposal from State Street is the most aggressive. Additionally, this proposal is advantageous due to the reduced risks associated with direct purchases generally. In a direct purchase, the bank purchases all of the bonds for its own account for the duration of the agreement. Conversely, LOC- and SBPA-backed weekly floaters are remarketed in the public market each week and, as a result, an issuer is exposed on a weekly basis to any deterioration in the credit-worthiness of the bank supporting the debt. If the market's perception of a bank weakens, that is likely to lead to higher weekly rate resets and a higher borrowing cost for the issuer. This risk is eliminated with the direct purchase mechanism.

One of the considerations we focus on when making a recommendation about a new bank product is how it fits with the County's existing portfolio of bank exposure. As illustrated in the table on page three of this memo, the County currently has four different bank product providers, with facility expiration dates spread throughout the next four years. Adding a State Street direct purchase to this list would double the exposure to that bank which would put the County at risk should the bank decide to exit the municipal banking business. Mitigating this is that with a three-year term for the new agreement, there would be significant separation between the expiration dates associated with the two State Street agreements, meaning that the County would not be left in a situation where it would need to replace the full \$200 million at the same time. Additionally, as described above, with a direct purchase the County would not have any exposure to the market's view of State Street's credit worthiness so it would be unlikely for the County to want to terminate the direct purchase loan agreement early for credit-related reasons.

An additional consideration in this process is the amount of associated transaction costs beyond the direct cost of the facility itself. For an LOC or SPBA, in addition to the remarketing fees captured in the pricing comparison above, the County would also be responsible for paying

upfront and ongoing rating fees. These fees would add approximately 4-5 basis points per year to the cost of these transactions for the three-year term.

Recommendation

For the permanent structure for the 2015 Multi-Modal Bonds, I recommend that the County accept the proposal from State Street for a direct loan for a term of three years. The pricing of their proposal is the most aggressive of all the direct loan proposals. Additionally, their pricing is very comparable to the most aggressive pricing contained in the proposals received for direct pay LOCs and SBPAs. With a direct loan, though, the County would not incur the upfront and ongoing rating expense associated with LOC/SBPA-backed weekly floaters so the proposal from State Street provides the overall lowest cost to the County once transaction costs are accounted for. In addition to being the most cost-effective, the State Street direct loan eliminates several of the risks associated with weekly floaters so it is strongest from a risk perspective as well. The one downside to accepting the State Street proposal is that the County would then have a total of \$200 million in exposure with one banking institution. While this could prove problematic should State Street ever decide to exit the municipal banking business, the staggered expirations of the two facilities would help minimize that concern.

Please contact me at (206) 628-2979 or robert.e.shelley@pjc.com should you have any questions.

Cc: Nigel Lewis, King County Finance and Business Operations Division
Dan Kaplan, King County Wastewater Treatment Division
Shannon Thompson, Piper Jaffray & Co.