FINAL REPORT

RATE SUFFICIENCY ANALYSIS

PREPARED FOR

City of St. Louis, Missouri, Water Division

28 MAY 2015

BLACK & VEATCH
Building a world of difference.

BLACK & VEATCH CORPORATION
16305 SWINGLEY RIDGE ROAD, SUITE 200,
CHESTERFIELD, MO 63017
+1 636-288-2892 | LEMOINEPR@BV.COM

May 28, 2015

Mr. Curtis B. Skouby, P.E.
Director of Public Utilities / Water Commissioner
City of St. Louis, Water Division
1640 S. Kingshighway Blvd.
St. Louis, Missouri 63110-2285

Subject: Adequacy of Current Water Utility Revenues Letter Report

Dear Mr. Skouby,

Black & Veatch Corporation ("Black & Veatch") is pleased to present this letter report concerning the sufficiency of current water utility rates for the City of St. Louis Water Division. This report updates our March 2013 report.

In preparation of this report, we have reviewed the records and reports of the Water Division, reviewed the City's Indenture of Trust, and conducted financial analyses for the purpose of addressing the adequacy of current Water Division rates.

As will be discussed within this report, revenue increases are projected to be required in the last three years of the 2015-2019 study period in order to provide sufficient funding for all operating and capital expenses and to maintain required fund balances. An important driver of the projected revenue increase requirement is the historical and anticipated continued decline in metered water usage. This is a trend that is being experienced by water utilities across the country, and is being experienced in St. Louis as well. In addition, the number of flat rate accounts has also declined over the past several years, and it is anticipated that such decline will continue during the study period.

While revenues under existing rates are projected to continue to decline, the Water Division's annual expenditures are projected to increase. Annual operating expenditures are projected to increase in order to adequately maintain the Water Division. In addition, the Water Division is projecting the need for certain important capital projects, required in order to allow the utility to maintain itself as a sound, viable utility. Under the City's current plan, these capital projects are to be funded by a mix of existing fund balances, low interest loans, revenue bonds, and annual revenues ("pay-as-you-go" financing). In accordance with that plan, debt service on the anticipated revenue bond issuance is projected to begin in fiscal year 2017.

The Water Division has historically managed operation and maintenance expenses ("O&M") with little to no increase over prior years, which in the past has helped defer the need for rate increases. However, sizable increases in O&M in fiscal years 2013 and 2014 have occurred in part due to completion of important deferred maintenance from fiscal years 2009 through 2012. In fiscal year 2013, O&M increased 6.4 percent over fiscal year 2012, and in fiscal year 2014, O&M increased an additional 10.0 percent over fiscal year 2013. Future O&M is projected

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to increase at the general rate of inflation, recognizing the need for continued attention to operation and maintenance activities throughout the Water Division.

Based on our analyses, and under the assumptions described in this report, the following findings are presented:

1. Throughout the study period, the Water Division's net revenues are projected to be sufficient, including 7.5, 5.0, and 5.0 percent revenue increases in fiscal years 2017, 2018 and 2019 respectively, as indicated in this report, to continue to comply with the requirements outlined in the Master Indenture, taking into account the outstanding debt and planned additional revenue bonds and debt instruments to be issued during the study period. However, these calculated increases still result in a negative operating fund balance in fiscal year 2017. For this reason, the City should consider a rate increase sooner than fiscal year 2017 to reduce or eliminate the negative annual operating results and further stabilize the fund balance over the study period.
2. The Water Division's operating balance is maintained at or above 90 days of operating and maintenance expenses throughout the study period.
3. Annual debt service coverage requirements are exceeded and are maintained above 150 percent throughout the forecast period.
4. Based on the City's financing plan, the Water Division will need to issue approximately \$17.2 million in revenue bonds in fiscal year 2017 to fund the Capital Improvement Program proposed by Water Division management.

We wish to acknowledge the cooperation and assistance provided by Water Division staff during this engagement. This opportunity to be of service to the Water Division is greatly appreciated. If you have any questions about this report, please call Pam Lemoine at (636) 288-2892 or Jeff Dykstra at (407) 419-3586.

Very truly yours,

BLACK & VEATCH CORPORATION

Les K. Lampe

Les Lampe
Vice President

Enclosure

cc: Ms. Perla Burk, City of St. Louis Water Division
Ms. Pam Lemoine, Principal Consultant, Black & Veatch Corporation
Mr. Jeff Dykstra, Manager, Black & Veatch Corporation

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1.0 Introduction

1.1 PURPOSE AND LIMITATIONS

Black & Veatch Corporation (Black & Veatch) was engaged by the City of St. Louis, Missouri, Water Division (the "Water Division") to study, through financial analyses, the revenues and revenue requirements of the Water Division from July 1, 2014 through June 30, 2019 (the "Study Period"), comprising the Water Division's fiscal years 2015-2019. The purpose of this report (the "Report") is to summarize findings of the financial analyses and to provide recommendations that result regarding the sufficiency of the Water Division's water rate revenue as compared to the requirements of the Master Indenture and other financial criteria as set forth in the Report.

In conducting its analyses and in forming an opinion of future operating expenses and revenues summarized in this Report, Black & Veatch has made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. Such assumptions and methodologies are summarized in this Report. While Black & Veatch believes the assumptions are reasonable and the projection methodology valid, actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that actually occur. The methodology utilized by Black & Veatch in performing the analysis follows generally accepted water industry practices for such projections.

Use of this report or reliance on any information contained herein constitutes a waiver of and release of Black & Veatch from and against all claims and liabilities, including, but not limited to, liability for special, incidental, indirect, or consequential damages in connection with such use. In addition, use of this report or any information contained herein constitutes agreement to defend and hold Black & Veatch harmless from and against any claims and liability in connection with such use to the extent permitted by law.

1.2 PRIMARY ASSUMPTIONS

In preparation of this Report, Black & Veatch has relied on certain historical, financial, and statistical data supplied by the Water Division and not within the control of Black & Veatch. While Black & Veatch considers such data to be reliable, Black & Veatch has not made an analysis or independently verified the validity of such data. While Black & Veatch believes that the information, data, and opinions contained herein will be reliable under the conditions and subject to the limitations set forth herein, Black & Veatch does not guarantee the accuracy thereof to the extent that such information, data, or opinions were based on information provided by others.

The following are primary assumptions used in the forecast of future expenses and revenues:

1. The City's estimates of content, scheduling, and cost of the five year capital improvement program (the "CIP") present a reasonable projection of the future construction program.

2. City staff will recommend the indicated revenue increases to the Board of Aldermen in time for their stated implementation.

3. The Board of Aldermen will approve the indicated revenue increases and the issuance of the proposed new debt in fiscal year 2017 required to finance the CIP.

4. Debt service for the revenue bonds proposed to be issued will be approximately as estimated.

5. The City will provide a minimum operating reserve balance by the end of the Study Period that is at least equal to the next 90 days of operating expenditures.

6. There will be no significant changes in water sales from the projections shown herein.

7. There will be no material changes in federal and state laws or regulations that would adversely affect the City's ability to secure tax-exempt financing for its Water Division, place more stringent limitations on water quality, materially increase the cost of constructing or operating the water system, or otherwise adversely affect operating of the water system.

8. Local and regional economic conditions will remain relatively stable.

2.0 Revenue Adequacy Under Existing Rates

A comparison summary of revenues under existing rates and revenue requirements is shown in Table 1. This summary table demonstrates the extent to which the City is expected to comply with the rate covenants of the Master Indenture for fiscal years 2015 through 2019 under current rates. Rate increases of 11.0 and 12.0 percent in fiscal years 2010 and 2011 respectively, in addition to the repayment of outstanding debt refunded through the Series 2011 Water Revenue Refunding Bonds, have improved the ability of the Water Division to meet rate covenant requirements for debt service coverage during the Study Period.

Under the current rate structure, the City is projected to have sufficient adjusted fiscal year 2016 net revenues to meet the more restrictive additional bonds coverage test for fiscal year 2017. However, projected net revenues in fiscal years 2018 through 2020 will not be sufficient to meet this requirement. This test must be met to allow for the planned issuance of revenue bonds in 2017 required to finance proposed capital improvement projects in fiscal years 2017, 2018, and 2019. The additional bonds test requires net revenues for the prior fiscal year, as adjusted for any rate increase adopted prior to the sale of additional bonds, to provide at least 125 percent of the maximum annual debt service requirement, including debt service on any proposed bonds. As indicated by Table 1, debt service coverage is well above the 125 percent limit in fiscal year 2015 through 2017, falling to its lowest point of 248 percent in fiscal year 2017, but does not meet this requirement in the years thereafter without adopted rate increases. To maintain its position to meet these coverage requirements over the long term, and to retain and/or improve the water utility's current bond rating, Black & Veatch recommends that the City establish a policy to maintain a ***minimum*** annual debt service coverage target of 150 percent.

While revenues are projected to meet rate covenant debt service requirements, without rate increases in or before fiscal year 2017, the Water Division's net annual operating fund balance will be negative beginning in fiscal year 2015, and the operating fund balance drops below the minimum of 90 days of operation and maintenance expense by fiscal year 2017.

While substantial operating fund balances are available to absorb short term annual revenue shortfalls, 7.5, 5.0 and 5.0 percent rate increases are required in fiscal years 2017, 2018, and 2019 respectively to help ensure that the operating fund balance remains at or above 90 days of operation and maintenance expenses, while allowing sufficient funding for the capital projects included in the CIP. This is critical not only for the financial stability of the Water Division, but also to demonstrate to the bond market and rating agencies that the City is committed to maintaining the financial health of the Water Division. While these minimal rate increases should result in an operating fund balance of approximately 90 days of O&M for each fiscal year of the Study Period, as will be discussed in this Report, the fund balance is projected to erode from current levels. Such a precipitous decline in fund balance, even though it is in part due to the cash funding of capital projects, could be a concern to rating agencies. Therefore, the City should consider a rate increase sooner than fiscal year 2017 to reduce or eliminate the negative annual operating results and further stabilize the fund balance over the Study Period. A detailed discussion of the methodology used both for Table 1 and a similar table (Table 3) showing the effect of proposed revenue increases is presented in the following pages of this Report.

Table 1 Operating Flow of Funds under Existing Rates

Line No.		2015	2016	2017	2018	2019
		$	$	$	$	$
	Water Sales Revenue at Existing Rates					
1	Retail (a)	48,714,000	48,352,000	47,993,000	47,637,000	47,284,000
2	Wholesale (b)	3,381,000	3,364,000	3,347,000	3,330,000	3,313,000
	Additional Retail Water Sales Revenue:					
	Year / Proposed Retail Rate Increase / Months Effective					
3	2015 / 0.0% / 12	0	0	0	0	0
4	2016 / 0.0% / 12		0	0	0	0
5	2017 / 0.0% / 12			0	0	0
6	2018 / 0.0% / 12				0	0
7	2019 / 0.0% / 12					0
8	Total Additional Water Sales Revenue	0	0	0	0	0
9	Total Water Sales Revenue	52,095,000	51,716,000	51,340,000	50,967,000	50,597,000
	Other Revenue					
10	Other Operating Revenue	3,353,000	3,387,000	3,421,000	3,455,000	3,490,000
11	Interest Income (c)	74,800	69,800	59,900	40,400	7,200
12	Net Other Nonoperating Revenues (d)	824,000	824,000	824,000	824,000	824,000
13	Total Revenue	56,346,800	55,996,800	55,644,900	55,286,400	54,918,200
14	Operation and Maintenance Expense (e)	45,931,000	47,551,000	49,232,000	50,980,000	52,793,000
15	Gross Receipts Tax (f)	3,382,000	3,361,000	3,340,000	3,320,000	3,300,000
16	Net Revenue	7,033,800	5,084,800	3,072,900	986,400	(1,174,800)
	Debt Service Payments					
	Revenue Bond Debt Service Deposits (g)					
17	Existing	0	0	0	0	0
18	Proposed	0	0	690,600	1,381,300	1,381,300
19	Total Debt Service Deposits	0	0	690,600	1,381,300	1,381,300
	DNR Loan Debt Service Payment					
20	Existing	276,800	547,500	549,200	552,700	554,100
21	Proposed	0	0	0	0	0
22	Total DNR Loan Payment	276,800	547,500	549,200	552,700	554,100
23	Total Debt Service Payments	276,800	547,500	1,239,800	1,934,000	1,935,400
24	Routine Annual Improvements	2,126,000	2,126,000	2,126,000	2,126,000	2,126,000
25	Transfer from Ordinance Funds	0	0	0	0	0
26	Transfer to Construction Funds	5,243,000	4,100,000	2,500,000	2,500,000	2,500,000
27	Net Annual Balance	(612,000)	(1,688,700)	(2,792,900)	(5,573,600)	(7,736,200)
28	Balance Available at Beginning of Year (h)	15,133,000	14,521,000	12,832,300	10,039,400	4,465,800
29	Balance Available at End of Year	14,521,000	12,832,300	10,039,400	4,465,800	(3,270,400)
30	Debt Service Payments (i)	4,125,500	547,500	1,239,800	1,934,000	1,935,400
31	Debt Service Coverage (j)	170%	929%	248%	51%	-61%

Notes:

(a) Includes net revenue from metered and flat rate customers. Revenue is projected to decrease at an average annual rate of 1.0 percent per year for metered customers and 0.5 percent for flat rate customers.
(b) Revenue is projected to decrease at an average annual rate of 0.5 percent per year for wholesale customers.
(c) Interest income is based on the average balance of funds available for investment and an average annual interest rate of 0.5 percent. Also includes interest earned on the Bond and Interest Account.
(d) Includes net miscellaneous nonoperating revenue and interest expense on consumer deposits.
(e) Excludes depreciation expense.
(f) Equal to 6.0 percent of gross operating revenue.
(g) Deposits to the Bond and Interest Account.
(h) FY 2015 beginning balance includes the following funds: Waterworks, O&M, Water Replacement, and Contingent funds, and reflects audited year-end 2014 numbers.
(i) Actual payments to the bondholders.
(j) Net revenue (Line 16) divided by debt service payments made to bondholders (Line 30).

3.0 Revenue and Revenue Requirements

3.1 REVENUE

Revenue for the Water Division is derived principally from charges for treated water service, which includes flat rate water sales, metered water sales, and wholesale water service. Metered water sales historically were the largest source of water revenue for the City, but beginning in 2009, flat rate water sales have exceeded metered water sales. This is likely due in part to declining water usage for metered water customers, which is a trend that is being experienced by utilities across the country.

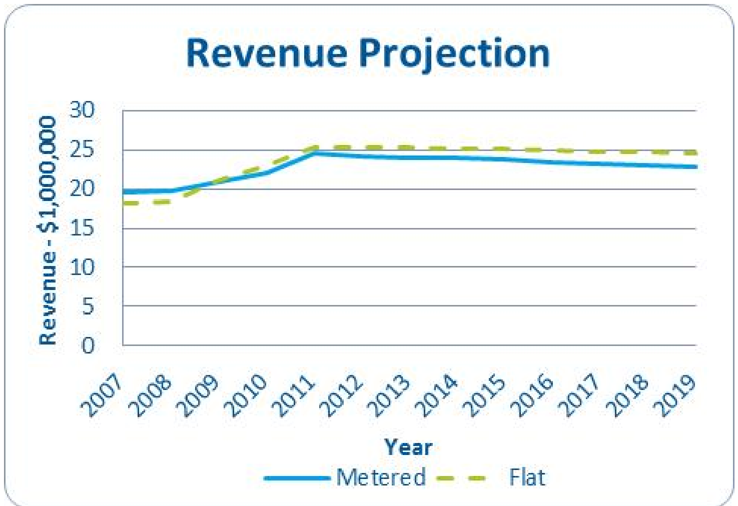

Figure 1 Projected Flat Rate and Metered Water Sales

Metered and flat rate retail water sales revenues are projected based on revenues actually received under existing rates during fiscal year 2014 and the first seven months of fiscal year 2015 along with recognition of observed trends in billed water sales volumes and customer accounts from the most recent seven years of customer billing information. Based upon these analyses, water revenue from metered customers is projected to decrease approximately 1.0 percent per year and water revenue from flat rate customers is projected to decrease approximately 0.5 percent annually.

The revenue projection graph in Figure 1 above shows the change in revenue due to usage changes and various rate increases in fiscal years 2008, 2010, and 2011 and the projection under the current rates as of July 2014 for the five year period of fiscal years 2015 through 2019.

Revenue from wholesale customers is projected to decrease approximately 0.5 percent per year over 2014 revenue. Wholesale customer usage increased sharply in fiscal year 2012 largely because of a significant drought in the region which caused wholesale customers to turn to the City for a larger portion of their source of supply than they traditionally had obtained. The result was a 41.0 percent increase in wholesale revenue for 2012. Wholesale revenues decreased sharply in fiscal year 2013 and remained steady in fiscal year 2014.

The last water rate increase of 12.0 percent was enacted in fiscal year 2011. A history of the retail water rate increases enacted by the City over the past 20 years is shown in Figure 2. As indicated in Figure 2, the City has not adjusted water rates on a routine annual basis.

Historic Water Rate Increases

Fiscal Year	Increase	Compounded
1996	13.0%	37.9%
1997	7.0%	47.5%
1998	0.0%	47.5%
1999	0.0%	47.5%
2000	0.0%	47.5%
2001	0.0%	47.5%
2002	0.0%	47.5%
2003	0.0%	47.5%
2004	9.0%	60.8%
2005	4.5%	68.0%
2006	0.0%	68.0%
2007	0.0%	68.0%
2008	19.0%	99.9%
2009	0.0%	99.9%
2010	11.0%	121.9%
2011	12.0%	148.6%
2012	0.0%	148.6%
2013	0.0%	148.6%
2014	0.0%	148.6%
2015	0.0%	148.6%
Annual Avg.	3.78%	

Figure 2 Historic Water Rate Increases

3.2 REVENUE REQUIREMENTS

The revenue required to adequately provide for the continued operation of the Water Division must be sufficient to meet the cash requirements for system operation. Revenue requirements include: (1) operating and maintenance expense; (2) gross receipts taxes paid to the City; (3) debt service (consisting of principal and interest payments) on existing and proposed bonds and the projected state of Missouri Department of Natural Resources low interest loan program; and (4) expenditures for routine and major capital improvements met from annual revenues. Projections of the cash requirements to meet these system expenditures for the Study Period are developed in this section.

3.2.1 Operating and Maintenance Expense

The elements of operating and maintenance expense for the Water Division include the annual expense associated with supply and purification, transmission and distribution, power and pumping, administrative and general, and customer accounting. Each of these cost categories includes salaries and wages, materials and supplies, support services, and other services. Some of the categories include additional costs for chemicals, purchased power, and the cost of service line maintenance. Actual audited costs recorded for fiscal year 2014 were used in this analysis. Projections for fiscal years 2015 through 2019 are based on actual 2014 costs with assumed inflation allowances ranging between 1.0 and 5.0 percent per year based on the expenditure category. The result of these projections is an average increase in total operating and maintenance expenses of approximately 3.5 percent per year over the Study Period.

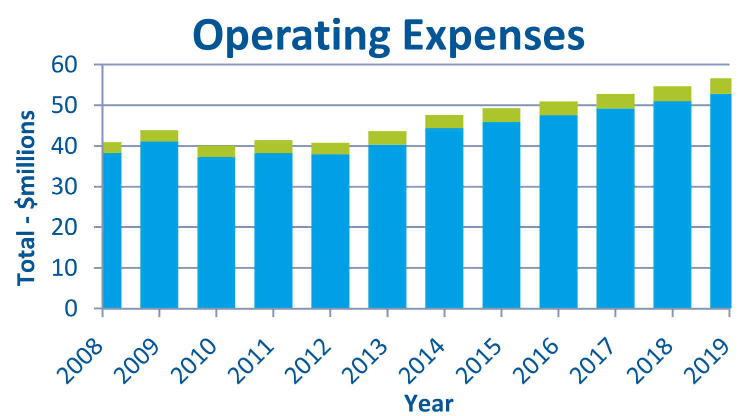

Figure 3 Operating Expenses

Operating and maintenance expense also includes costs for other City department services, the additional year end adjustment for expenses incurred due to the Collector of Revenue and the cost of community services. Total operating and maintenance expense is projected to increase from $45.9 million in fiscal year 2015 to approximately $52.8 million in fiscal year 2019, as shown in Figure 3.

3.2.2 Gross Receipts Tax

Gross receipts tax payable by the Water Division is equal to 6 percent of gross water revenue. An additional 4 percent gross receipts tax, which is shown as a separate line item on each water bill, is paid directly to the City's General Fund and does not affect the rate design process of the Water Division. Gross water revenue is equal to total retail water sales revenue, wholesale water sales revenue, interest income, and all other operating and nonoperating revenue. Based on projected revenues, gross receipts tax payments will decrease from $3.4 million in fiscal year 2015 to $3.3 million in fiscal year 2019 as shown in Table 1 if rate increases are not implemented during the Study Period. The Operating Expenses figure shows the projection of total operating expenses, which consist of total operating and maintenance expense and gross receipts tax payments based on projected revenues with proposed rate increases as depicted in Table 3.

3.2.3 Routine Annual Improvements

Expenditures for routine annual capital improvements include those costs that tend to be routinely incurred each year for on-going improvements or repairs as well as normal replacements such as vehicles and office equipment. Since the costs of these improvements are a continuing expense to be met each year, the Water Division appropriately finances these expenditures from current water revenues. These expenditures are originally recorded as operating and maintenance expenses but are capitalized during each year and deducted from the Water Division's annual operating and maintenance expense. Routine annual improvements are projected to remain at $2.1 million throughout the forecast period.

3.2.4 Major Capital Improvements

Figure 4 summarizes the proposed major capital improvements from fiscal years 2015 through 2019, as prepared by Water Division. The total cost of improvements included in the proposed financing plan is currently estimated to be $42.3 million. Major projects include distribution and transmission main replacement and improvements ($11.7 million), Chain of Rocks Wash Water Pump Station ($6 million), miscellaneous plant improvements ($7.7 million), Stacy Reservoir emergency by-pass valving and improvements ($2 million), building improvements ($1.2 million), other improvements ($1.2 million), and O&M capitalized for major Capital Improvement Projects ($12.5 million). Water Division staff has determined that these capital projects are needed to improve operations, provide system redundancy and replace aging infrastructure.

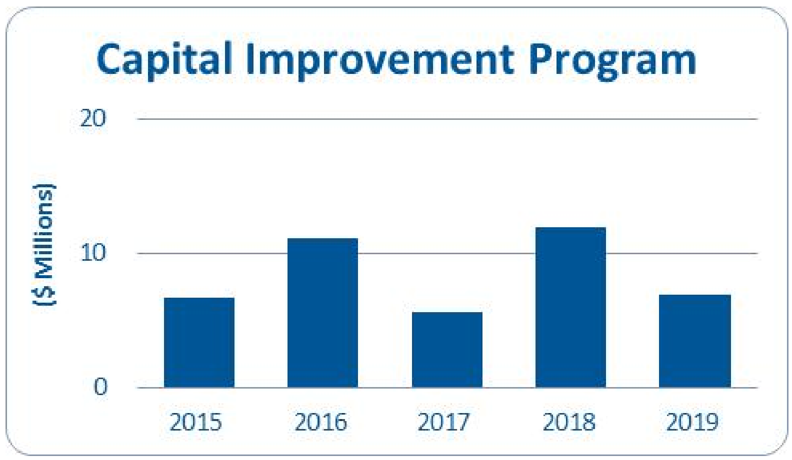

Figure 4 Capital Improvement Program Expense

3.2.5 Major Capital Improvement Financing

Table 2 presents the proposed CIP financing plan proposed by the City and summarizes the projected source and application of funds over the six year Study Period. This plan anticipates that proposed capital improvements will be financed from a combination of available funds on hand, annual operating revenues resulting from additional rate increases, revenue bonds, up to a $9.4 million loan from the state of Missouri Department of Natural Resources ($940,000 of which was drawn in fiscal year 2014), and interest income.

The beginning of year balances for fiscal year 2015, as shown in Table 2, is based on audited financial statements. The unencumbered balance available at the beginning of fiscal year 2015 was $19.5 million. This includes monies held in the Water Ordinances, Water Bond Ordinance, and Unappropriated Construction Funds accounts. Total cash financing of major capital improvements from annual revenues is anticipated to total $16.8 million for the Study Period. Interest income is projected to provide about $585,800 during this period and is determined based on average beginning and ending fund balances shown on Lines 1 and 13 of Table 2 and an average annual interest rate of 0.5 percent per year. A revenue bond issue in the amount of $17.2 million in fiscal year 2017 is shown on Line 5 of Table 2. These bonds are expected to finance approximately 40.2

percent of the total five year CIP costs. The amount of the proposed issue was developed considering capital program needs, current policies, other sources of capital improvement program financing, and debt service coverage requirements related to the issuance of revenue bonds.

Table 2 Capital Flow of Funds

Line No.		2015	2016	2017	2018	2019
		$	$	$	$	$
	Source of Funds					
1	Beginning of Year Balance	19,485,000	19,582,700	19,680,900	33,714,300	24,409,600
2	Cash Financing of Improvements	5,243,000	4,100,000	2,500,000	2,500,000	2,500,000
3	Projected DNR Loan	1,460,000	7,000,000	0	0	0
4	Interest Income	97,700	98,200	133,400	145,300	111,200
5	Proposed Revenue Bonds	0	0	17,213,500	0	0
6	Total	26,285,700	30,780,900	39,527,800	36,359,600	27,020,800
	Application of Funds					
7	Major Capital Improvements	6,703,000	11,100,000	5,600,000	11,950,000	6,950,000
8	Revenue Bond Issuance Cost	0	0	172,100	0	0
9	DNR Loan Issuance Cost	0	0	0	0	0
10	Purchase of Surety Bond	0	0	41,400	0	0
11	Transfers Out	0	0	0	0	0
12	Total	6,703,000	11,100,000	5,813,500	11,950,000	6,950,000
13	End of Year Balance	19,582,700	19,680,900	33,714,300	24,409,600	20,070,800

The application of funds shows that $42.3 million total CIP expenditures are expected for fiscal years 2015 through 2019. Lines 8, 9, and 10 of Table 2 allows for costs that are typically associated with the issuance of revenue bonds. The costs to issue the proposed revenue bonds in fiscal year 2017 are estimated to total $213,500 during the Study Period. This estimate assumes issuance costs are equal to 1.0 percent of the principal amounts borrowed. In addition, Black & Veatch assumes that the City would purchase a surety bond, which the City estimated to cost 3.0 percent of the expected maximum debt service payment for the fiscal year 2017 revenue bond issue. Although surety bonds are assumed for this analysis, it is not intended to preclude the option of satisfying a debt reserve requirement by establishing a debt service reserve fund should the City find this to be a more preferable option.

3.2.6 Debt Service Requirements

The final payment for the Series 2011 Refunding Revenue Bonds was made in July of 2014 (FY 2015). One new revenue bond is projected to be issued within the Study Period, with Series 2017 bonds assumed to be issued on January 1, 2017. Projected annual debt service requirements on the proposed revenue bonds assume equal annual principal and interest payments with 20 year maturities and an average annual interest rate of 5.0 percent. In addition, the City received $940,000 from the state of Missouri Department of Natural Resources in fiscal year 2014 and began making principal and interest payments that year. Annual debt service on the retired Series 2011 Refunding Revenue Bonds, projected new bonds, and the Department of Natural Resources loan is expected to decrease from $4.1 million in fiscal year 2015 to $1.9 million in fiscal year 2019.

3.2.7 Operating Reserve

The operating reserve is a cash balance maintained in the Operating Fund to accommodate fluctuations in annual revenues and expenditures. Black & Veatch recommends that the Water Division establish a policy to require a minimum operating reserve is set equal to 90 days or approximately 25.0 percent of annual operating and maintenance expense.

3.3 SUMMARY OF REVENUE AND REVENUE REQUIREMENTS

A pro forma cash flow statement showing projected revenues and revenue requirements for the Water Division during fiscal years 2015 through 2019 is presented in Table 3. Water revenues must be at least sufficient to finance the costs of operating and maintenance, gross receipts taxes, routine annual capital improvements, and debt service costs on existing and future revenue bonds, while maintaining adequate operating reserves and complying with all applicable revenue bond coverage requirements. Annual revenue can also be used to provide partial cash financing of major capital improvements.

Lines 1 and 2 of Table 3 show actual and projected revenue under existing rates attributable to the respective retail and wholesale customers. Lines 3 through 7 show projected increases in retail water sales revenues assumed to be in effect for the number of months indicated for each fiscal year. Indicated rate increases are required for fiscal years 2017, 2018, and 2019 to meet projected revenue requirements, maintain the operating reserve, and provide the required annual debt service coverage of 125 percent to enable the utility to issue additional revenue bonds for the planned capital improvement projects. These annual revenue increases are necessary to continue to comply with the requirements set forth in Sections 210(b) and 810C(b) of the City's Water Revenue Bond Indenture of Trust and are also designed to maintain a minimum balance in the Operating Fund at least equal to a 90 day operating reserve. The indicated revenue increases are calculated to be the minimum increases required by the Water Division to meet the Indenture of Trust requirements and to maintain a 90 day operating reserve.

As indicated on Line 5 of Table 3, a 7.5 percent increase effective July 1, 2016 is proposed to produce the additional revenue required to pay additional debt service on the new bonds, provide adequate debt service coverage, cash finance a portion of the capital improvement program for fiscal year 2017 while maintaining the available fund balances to their desired levels, and lessen the effect on future revenue increases. Additional full-year revenue increases of 5.0 percent in both fiscal years 2018 and 2019 are also indicated on Lines 6 and 7 of Table 3. These increases are projected to put the City in position to meet minimum required debt service coverage if operating and maintenance expense unexpectedly increases, water sales revenue decreases below the projected levels, or by the occurrence of any other changes that affect net revenues other than currently projected in this Report. However, it should be noted that these minimal rate increases will not fully eliminate the negative annual operating fund balances in fiscal years 2015 through 2017. To eliminate the negative annual operating fund balance, the City could consider implementing a rate increase earlier, or implement a larger rate increase(s) to further stabilize the operating fund. In addition, because this analysis results in a fiscal year 2019 year end balance equal to approximately 90 days of O&M expenses, it is likely that further rate increases will be required in future years to continue to meet the 90 days of O&M expenses reserve fund balance.

Other operating revenue available for the Water Division is projected to increase slightly from $3.4 million in fiscal year 2015 to $3.5 million in fiscal year 2019. Interest income earned on available funds is shown on Line 11 of Table 3. The interest income shown in Table 2 is not included in Line 11 of Table 3 because such construction related interest earnings are not available for debt service coverage. Projected interest income amounts are based on a 0.5 percent annual interest rate applied to average beginning and end of year fund balances. Funds available for this interest calculation include the Waterworks Revenue Fund, Waterworks Operation and Maintenance Account, Water Replacement and Improvement Account, and the Water Contingent Account, which comprise the amounts shown in Lines 28 and 29 of Table 3. Interest income also includes amounts earned on monies deposited and retained by the Bond and Interest Account during each year and any residual interest earned on the Water Bond Reserve Fund. Other nonoperating revenue is shown on Line 12 and consists of miscellaneous nonoperating revenue and the interest expense on customer deposits in excess of nonoperating expenditures. Total Water Division revenue is shown on Line 13 of Table 3.

Operating and maintenance expense and gross receipts tax payments are shown on Lines 14 and 15 of Table 3. The projected gross receipts tax payments are greater than those shown in Table 1 because of the proposed retail revenue increases. Line 16 shows the net revenue remaining after deducting operating and maintenance expense and gross receipts tax from total revenue. This net revenue is available for debt service coverage and other purposes.

Debt service requirements on existing revenue bonds reflect the monthly deposits made to the Bond and Interest Account and are shown on Line 17 of Table 3. Existing debt service is projected to end in fiscal year 2016 as the Series 2011 Refunding Bonds expired in fiscal year 2015 and the final debt service payment was made. Additional debt service payments associated with the Department of Natural Resources loan began in fiscal year 2015 and are shown on Line 20 of Table 3. Additional revenue bonds are expected to be issued in fiscal year 2017 to help finance the CIP. As indicated on Lines 18 and 21 of Table 3, the debt service requirement on these future debt issuances is projected to increase from $0 in fiscal year 2015 to approximately $1.4 million in fiscal years 2018 and 2019.

The costs for routine annual improvements, transfer from Ordinance Funds, and the funds available to cash finance part of the CIP are shown on Lines 23, 24 and 25, respectively, of Table 3. The net annual balance shown on Line 26 of Table 3 is equal to net revenue (Line 16) less total debt service (Line 23), less routine annual improvements (Line 24), plus transfers from Ordinance Funds (Line 25), and less cash financing of major capital improvements (Line 26). Balances indicated for the combined fund balances included in Table 3 are shown on Lines 28 and 29. The beginning of year balance for fiscal year 2015 matches the balance reported by the Water Division for the combined funds for fical year 2014.

Debt service coverage is reported on Line 31 of Table 3. Debt service coverage is equal to net revenue (Line 16) divided by total revenue bond principal and interest payments made to the bondholders (Line 30). The Indenture of Trust requires that the City maintain an annual debt service coverage ratio of at least 110 percent. Under the proposed revenue adjustments, this targeted level is exceeded in each year of the Study Period, as shown on Line 31. To allow for possible fluctuations in revenue and operating expenses, such as may occur periodically due to unexpected decreased water sales and possible unexpected increases in costs of system operating, and to maintain the ability to meet the more restrictive 125 percent additional bonds coverage test, it is suggested that a future coverage level of at least 150 percent should be recognized for rate design purposes. This will provide a greater margin above the minimum coverage requirements.

Table 3 Operating Flow of Funds under Proposed Rates

Line No.				2015	2016	2017	2018	2019
				$	$	$	$	$
	Water Sales Revenue at Existing Rates							
1	Retail (a)			48,714,000	48,352,000	47,993,000	47,637,000	47,284,000
2	Wholesale (b)			3,381,000	3,364,000	3,347,000	3,330,000	3,313,000
	Additional Retail Water Sales Revenue:							
	Year	Proposed Retail Rate Increase	Months Effective					
3	2015	0.0%	12	0	0	0	0	0
4	2016	0.0%	12		0	0	0	0
5	2017	7.5%	12			3,303,600	3,572,800	3,546,300
6	2018	5.0%	12				2,350,000	2,541,500
7	2019	5.0%	12					2,449,300
8	Total Additional Water Sales Revenue			0	0	3,303,600	5,922,800	8,537,100
9	Total Water Sales Revenue			52,095,000	51,716,000	54,643,600	56,889,800	59,134,100
	Other Revenue							
10	Other Operating Revenue			3,353,000	3,387,000	3,421,000	3,455,000	3,490,000
11	Interest Income (c)			74,800	69,800	67,700	70,000	70,900
12	Net Other Nonoperating Revenues (d)			824,000	824,000	824,000	824,000	824,000
13	Total Revenue			56,346,800	55,996,800	58,956,300	61,238,800	63,519,000
14	Operation and Maintenance Expense (e)			45,931,000	47,551,000	49,232,000	50,980,000	52,793,000
15	Gross Receipts Tax (f)			3,382,000	3,361,000	3,538,000	3,675,000	3,813,000
16	Net Revenue			7,033,800	5,084,800	6,186,300	6,583,800	6,913,000
	Debt Service Payments							
	Revenue Bond Debt Service Deposits (g)							
17	Existing			0	0	0	0	0
18	Proposed			0	0	690,600	1,381,300	1,381,300
19	Total Debt Service Deposits			0	0	690,600	1,381,300	1,381,300
	DNR Loan Debt Service Payment							
20	Existing			276,800	547,500	549,200	552,700	554,100
21	Proposed			0	0	0	0	0
22	Total DNR Loan Payment			276,800	547,500	549,200	552,700	554,100
23	Total Debt Service Payments			276,800	547,500	1,239,800	1,934,000	1,935,400
24	Routine Annual Improvements			2,126,000	2,126,000	2,126,000	2,126,000	2,126,000
25	Transfer from Ordinance Funds			0	0	0	0	0
26	Transfer to Construction Funds			5,243,000	4,100,000	2,500,000	2,500,000	2,500,000
27	Net Annual Balance			(612,000)	(1,688,700)	320,500	23,800	351,600
28	Balance Available at Beginning of Year (h)			15,133,000	14,521,000	12,832,300	13,152,800	13,176,600
29	Balance Available at End of Year			14,521,000	12,832,300	13,152,800	13,176,600	13,528,200
30	Debt Service Payments (i)			4,125,500	547,500	1,239,800	1,934,000	1,935,400
31	Debt Service Coverage (j)			170%	929%	499%	340%	357%

Notes:

(a) Includes net revenue from metered and flat rate customers. Revenue is projected to decrease at an average annual rate of 1.0 percent per year for metered customers and 0.5 percent for flat rate customers.
(b) Revenue is projected to decrease at an average annual rate of 0.5 percent per year for wholesale customers.
(c) Interest income is based on the average balance of funds available for investment and an average annual interest rate of 0.5 percent. Also includes interest earned on the Bond and Interest Account.
(d) Includes net miscellaneous nonoperating revenue and interest expense on consumer deposits.
(e) Excludes depreciation expense.
(f) Equal to 6.0 percent of gross operating revenue.
(g) Deposits to the Bond and Interest Account.
(h) FY 2015 beginning balance includes the following funds: Waterworks, O&M, Water Replacement, and Contingent funds, and reflects audited year-end 2014 numbers.
(i) Actual payments to the bondholders.
(j) Net revenue (Line 16) divided by debt service payments made to bondholders (Line 30).

3.4 RATE SUFFICIENCY

The results of the financial analysis based on the current rates, as provided in Table 1, show that under the assumptions stated in the Report the current rates do not generate sufficient revenue to meet the requirements of the Indenture of Trust and other financial criteria, including maintaining a reserve equal to 90 days of O&M expenses, and these current revenues result in negative net annual balances.

Black & Veatch calculated increased rates designed to provide revenue that would meet the requirements of the Indenture of Trust and other financial criteria. As previously stated, the increases indicated in this Report are calculated to be the minimum required by the Water Division. Table 2 shows a significant depletion of fund balances available for future capital improvement projects and Line 27 of Table 3 shows negative annual balances for fiscal years 2015 and 2016. The negative annual balances draw the projected fund balances down to the 90 day allowance for the operating reserve. Based on the projected revenue shortfall in fiscal years 2015 and 2016, Black & Veatch recommends that the City consider implementing a rate increase sooner than fiscal year 2017 and/or implementing a rate increase higher than the minimum level indicated in this analysis. In addition, as previously stated, Black & Veatch recommends that the Water Division maintain a minimum operating reserve level of 90 days of operation & maintenance expenses.