

MOODY'S

INVESTORS SERVICE

New Issue: Moody's assigns Aa2 to MWRA's (MA) \$114.8M Subordinate Rev. Bonds and affirms Aa2/VMIG 1 to \$50M Sub. Rev. Bonds; outlook stable

Global Credit Research - 16 May 2014

Senior lien debt affirmed at Aa1; Subordinated debt affirmed at Aa2; total of \$4.52 billion in rated debt

MASSACHUSETTS WATER RESOURCES AUTHORITY
Combined Water & Sewer Enterprise
MA

Moody's Rating

ISSUE	RATING
Multi-Modal Subordinated General Revenue Refunding Bonds, 2014 Series B	Aa2
Sale Amount	\$64,755,000
Expected Sale Date	05/20/14
Rating Description	Revenue: Government Enterprise

Multi-Modal Subordinated General Revenue Refunding Bonds, 2014 Series A	Aa2
Sale Amount	\$50,000,000
Expected Sale Date	05/20/14
Rating Description	Revenue: Government Enterprise

Moody's Outlook STA

Opinion

NEW YORK, May 16, 2014 – Moody's Investors Service has assigned a Aa2 rating to the Massachusetts Water Resources Authority's (MWRA) \$50 million Multi-Modal Subordinated General Revenue Refunding Bonds, 2014 Series A and \$64.8 million Multi-Modal Subordinated General Revenue Refunding Bonds, 2014 Series B. Moody's has affirmed a VMIG 1 rating to \$50 million in Multi-Modal Subordinated General Revenue Refunding Bonds, 2008 Series F. Concurrently, Moody's has affirmed the Aa1 rating assigned to the authority's \$3.5 billion of outstanding senior lien general revenue bonds and the Aa2 rating assigned to the authority's \$1.02 billion of outstanding subordinated general revenue bonds. The outlook is stable.

The 2014 Series A and B bonds are being issued through a negotiated direct-purchase agreement with Bank of America, N.A. (rated A2 stable). Proceeds from the bonds will be used to refund roughly \$114.8 million of the MWRA's 2008 Series F bonds, which were previously supported with an expiring Bank of Nova Scotia (rated Aa2 stable) Standby Bond Purchase Agreements (SBPA's). Liquidity support for the remaining \$50 million in 2008 Series F bonds is being provided in the form of a standby bond purchase agreement with The Bank of New York Mellon (rated Aa2 stable). The bonds are secured by a subordinate lien pledge of net system revenues and benefit from satisfactory structural provisions including a 1.1 times rate covenant on total debt (senior and subordinate). Additional security is provided for two-thirds of MWRA's revenues, because of the underlying strength of the member communities' general obligation pledges to make timely assessment payments to the authority as well as a tested state intercept program.

SUMMARY RATINGS RATIONALE

The Aa2 subordinate lien rating incorporates the bonds' subordinate position relative to MWRA's senior lien debt and the weaker legal covenant, which requires rate revenue coverage of 1.1 times on combined senior and subordinated debt service, including subordinated fixed-rate loans issued to the authority by the State Revolving Fund (Massachusetts Water Pollution Abatement Trust, rated Aaa stable).

The short-term VMIG 1 rating of the Massachusetts Water Resources Authority Multi-Modal Subordinated General Revenue Refunding Bonds, 2008 Series F (the Bonds) is derived from: (i) the credit quality of The Bank of New York Mellon (the Bank) as provider of liquidity support in the form of a standby bond purchase agreement (the SBPA) for the Bonds; and, (ii) Moody's assessment of the likelihood of an early termination of the SBPA without a final mandatory tender.

The Aa1 senior lien rating recognizes the stable credit strength of the authority's service area, a high, but manageable debt burden with significant variable rate exposure, and satisfactory debt service coverage levels. Also factored into the rating are the authority's reliance on regular rate increases to support debt service and anticipated capital needs.

The stable outlook reflects MMRA's sound financial performance characterized by prudent budget control, long-term planning, and a strong professional management team. Also incorporated in the stable outlook are the authority's expected maintenance of sound reserve levels after the upcoming release of debt service reserve funds under the amended bond resolution, expected in fiscal year 2016. Further, the stable outlook incorporates MMRA's plan to achieve full funding of its pension and OPEB liabilities, as well as the Authority's prudent practice of appropriating surplus revenues to early debt defeasance.

STRENGTHS

- Strong credit quality and payment history of local government members
- Availability of intercept of members' state aid to cure delinquencies
- Effective management of financial performance, capital needs and debt profile
- Satisfactory debt service coverage
- Ample water supply and well-maintained treatment facilities

CHALLENGES

- High debt ratio
- Significant exposure to risks associated with variable-rate debt and swap agreements
- Pending resolution changes allowing reductions in debt service and other reserves
- Reliance on regular rate increases for the foreseeable future
- Limited ability to expand service area

DETAILED CREDIT DISCUSSION

SHORT TERM CREDIT DISCUSSION

The short-term VMIG 1 rating of the Massachusetts Water Resources Authority Multi-Modal Subordinated General Revenue Refunding Bonds, 2008 Series F (the Bonds) is derived from: (i) the credit quality of The Bank of New York Mellon (the Bank) as provider of liquidity support in the form of a standby bond purchase agreement (the SBPA) for the Bonds; and, (ii) Moody's assessment of the likelihood of an early termination of the SBPA without a final mandatory tender. Events that would cause the SBPA to terminate without a mandatory purchase of the Bonds funded by the Bank are directly related to the credit of the Massachusetts Water Resources Authority (the Authority). Accordingly, the likelihood of any such event occurring is reflected in the long-term rating assigned to the Bonds. Moody's currently rates the Bank's long-term and short-term other senior obligations (OSO) Aa2 and P-1, respectively.

The Bank's obligations under the SBPA can be automatically terminated or suspended as a result of the occurrence of: (i) failure by the Authority to pay principal and/or interest on the Bonds, or on any parity debt; (ii) certain bankruptcy and insolvency events of the Authority; (iii) a final non-appealable judgment determining any provision of the SBPA, bonds or resolutions related to the payment of principal or interest on the bonds or the security pledge ceases to be valid, binding or fully enforceable on the Authority; (iv) withdrawal, suspension or downgrade of the long-term rating on the Bonds below investment grade by each rating agency then rating the Bonds; (v) either (a) the declaration by the Authority of a debt moratorium on repayment of principal and interest on

the Bonds or any parity debt, or (b) declaration by the Commonwealth of Massachusetts or another governmental authority with appropriate jurisdiction with respect to the Bonds of a debt moratorium on repayment of the Bonds or all indebtedness of the Authority; or, (vi) a final nonappealable judgment in excess of \$25 million against the Authority continues unsatisfied and unstayed for a period of 60 days.

The Bonds will remain in the weekly rate mode in which interest is paid on the first business day of each month. The resolution permits conversion of the Bonds, in whole, to the daily, commercial paper or term rate modes. The Bonds will be subject to mandatory tender upon any such conversion. Moody's rating of the Bonds applies only to Bonds in the weekly rate mode.

Bonds in the weekly rate mode are subject to optional tender on any business day upon bondholders notice to the tender agent and remarketing agent seven (7) days prior to the tender date. The Bonds are subject to mandatory tender on the following dates: (i) each interest rate mode conversion date; (ii) the fifth business day preceding the expiration date of the SBPA; (iii) the fifth business day preceding termination date of the SBPA; and, (iv) the substitution date of the SBPA.

The SBPA will cover full principal plus 34 days of interest at 12%, the maximum rate applicable to the Bonds, and will provide sufficient coverage for the Bonds while they are in the weekly rate mode. Moody's short-term rating will terminate upon conversion to any other rate mode. The SBPA will be available to pay purchase price to the extent remarketing proceeds received are insufficient.

Draws made on the SBPA received at or prior to 11:00 a.m., New York City time, will be honored by 2:00 p.m., New York City time, on the same business day. Draws made under the SBPA will be reinstated upon reimbursement of such drawings.

The commitment under the SBPA will terminate upon the earliest to occur of: (i) May 20, 2017, the stated expiration date; (ii) the date on which no Bonds are outstanding; (iii) the business day immediately succeeding the date on which all Bonds have been converted to an interest rate mode other than the weekly mode; (iv) the date which is 30 days following receipt by the trustee of a notice of termination of the SBPA as a result of an event of default under the SBPA; (v) the business immediately succeeding the liquidity facility substitution date; or (vi) the date on which available commitment has been reduced to zero.

HIGH DEBT RATIO WITH SUBSTANTIAL VARIABLE-RATE RISK

MVRA's outstanding debt totals a sizeable \$5.57 billion, slightly below its legislatively established debt limit of \$6.45 billion, largely reflecting completion in the last decade of \$7.7 billion in water and wastewater treatment facilities. Including this issuance, variable-rate debt represents a significant 21.7% of total outstanding debt, and includes commercial paper (\$144 million, 2.6% of total debt) and variable rate demand bonds (VRDBs, \$1.07 billion, 19.1%). The authority's fiscal 2013 debt ratio of 81.5% is well above norms for utilities rated by Moody's, but not unusual for systems providing wholesale operations and having to fund capital requirements associated with environmental consent decrees. The authority's debt burden is expected to remain elevated as principal is amortized slowly, at roughly 40% within ten years (80% within 20 years), reflecting the long useful life of the system's recently completed treatment plants.

Authority officials remain generally conservative in budgeting for debt service, including an assumption for unhedged variable-rate interest that was maintained at 3.25% for fiscal 2014. This rate is based on a 20-year historical average and has been reduced gradually since fiscal 2007 from the peak of 4.75%. The reduction somewhat limits MVRA's flexibility to manage unanticipated increases in debt service costs should interest rates begin to rise. The authority plans to issue up to \$170 million of debt annually in support of its \$718 million, five-year capital improvement program; the majority of projects focus on wastewater treatment improvements, as well as water transmission and distribution. In the near term, MVRA plans to issue approximately \$107 million of subordinated fixed-rate SRF loans and \$200 million of senior lien fixed-rate bonds in 2014, and 2015 respectively, to provide financing for capital projects and retirement of commercial paper. Future refundings to achieve debt service savings, reduce variable rate exposure and mitigate future rate increases are likely as market conditions allow savings exceeding 4% of refunded principal.

Of the \$1.02 billion of outstanding variable rate debt, a sizeable \$534.4 million (52% of variable-rate debt) is hedged with interest rate swaps while the remaining \$628.33 million, including \$144 million of outstanding commercial paper, is unhedged. The March 31, 2014 aggregate mark-to-market value of MVRA's swaps is a negative \$127.7 million. MVRA's current debt profile is structured and actively managed so that inherent variable-rate risks are somewhat mitigated by the diversity in swap counterparties and SBPA providers, as well as the authority's solid cash position, ability to borrow temporarily from various reserve funds, and the ability to issue long-term debt for

swap termination payments. Also offsetting debt structure risk is management's demonstrated ability to monitor its debt portfolio performance and to replace or reassign swap and credit enhancement providers, generate additional assessment revenue through timely interim assessments and curtail operating expenditures to maintain the authority's sound financial position and debt service coverage.

DIVERSE LIQUIDITY PROVIDER AND SWAP COUNTERPARTY MIX

MMRA has entered into five floating-to-fixed swap agreements covering several series of outstanding variable rate bonds with a total notional amount of \$604.8 million. All of the agreements are structured to match maturity with the original swap termination dates. Swap payments are on parity with subordinated debt service payments, termination payments are subordinate to all debt service payments. Most recent mark-to-market valuations (March 31, 2014) indicate an aggregate liability to MMRA of approximately \$127.7 million. Early termination events are triggered if MMRA's underlying senior lien rating falls below Baa3. Although that risk is remote at this time, payments could be bonded or partially funded with capacity in MMRA's commercial paper program, which has \$156 million available, net of its \$50 million required environmental emergency reserve.

Six SBPAs provide credit support for the authority's Series 2008 A, C, E, and F bonds totaling \$631.8 million in outstanding variable rate obligations. Maturities are staggered with various maturity dates occurring between November, 2014 and May 2017.

Letters of Credit (LOC) issued by Landesbank Hessen-Thüringen GZ (rated A2 stable) support the remaining \$93.7 million of VRDBs and expire in December 2015. MMRA's 1994 commercial paper program is supported by a LOC with Bayerische Landesbank (BayernLB, rated A3 stable) and the agreement is scheduled to expire on November 30, 2015. The MMRA's 1999 commercial paper program is supported by a LOC with State Street Bank and Trust Company (rated Aa3 stable) with an agreement expiration of September 2015.

The 2012 Series E, 2012 Series F, and 2012 Series G bonds, were all issued through negotiated direct purchase agreements with Citibank, RBC Capital Markets, LLC (RBC, A2/stable outlook), and Wells Fargo, respectively. The Citibank agreement covering \$62.83 million of 2012 Series E bonds has a three year term, and will bear interest at an variable rate of SIFMA Municipal Swap Index plus 55 basis points. The agreement may be terminated by Citibank, with all outstanding debt being immediately accelerated, if any number of covenants are violated, including if the Authority is downgraded below A3. The RBC agreement covering \$60.3 million of 2012 Series F bonds has a three year term, and will bear interest at an variable rate of SIFMA Municipal Swap Index plus 60 basis points, although this may be increased should the MMRA's rating be downgraded. The agreement may be terminated by RBC if any number of covenants are violated. RBC may accelerate all outstanding debt within seven days if the authority is downgraded below Baa3, or 180 days if the Authority is downgraded below A3. The Wells Fargo agreement covering \$55.3 million in 2012 Series G bonds has a five year term, and will bear interest at an variable rate of SIFMA Municipal Swap Index plus 70 basis points, although this may be increased should the MMRA's rating be downgraded. The agreement may be terminated by Wells Fargo with all outstanding debt being immediately accelerated, if any number of covenants are violated, including if the Authority is downgraded below A3.

The 2014 Series A and B bonds were issued through a negotiated direct purchase agreement with Banc of America Preferred Funding Corporation (a subsidiary of Bank of America, N.A.). The series A bonds covering \$50 million have a three year term, and will bear interest at an variable rate of 70% of one-month London Interbank Offered Rate (LIBOR). The 2014 series B bonds covering \$64.8 million have a five year term, and will also bear interest at an variable rate of 70% of one-month LIBOR.

FINANCIAL FLEXIBILITY RELIES ON MODERATE RATE INCREASES

The authority's financial performance is expected to remain stable, although the adoption of regular rate increases is critical to generating annual surpluses and strong debt service coverage. Annual operations and hefty debt service obligations have historically been sustained by annual rate increases averaging 4% since 2000, with much of annual operating surpluses transferred to augment various reserves, to increase optional contributions toward long-term liabilities, and to defease outstanding debt. The authority's primary revenue source is rates and charges assessed on 61 member communities (weighted average GO rating is Aa2); assessments accounted for a 95.5% of fiscal 2014 revenues. Senior debt service coverage has comfortably exceeded MMRA's senior lien rate covenant and additional bonds test of 1.2 times, although total debt service coverage hovers closer to the total rate covenant and additional bonds test of 1.1 times.

MMRA's debt service coverage, as defined by its bond resolution, allows for the recognition of annual transfers from reserves in net revenues, which MMRA commonly uses. Consequently, coverage as defined by the

resolution is generally higher than Moody's net revenue calculation for all revenue systems, which does not include reserve transfers. Senior lien coverage, based on Moody's definition of net revenues, was healthy at 1.98 times in fiscal 2013. Total net revenue debt service coverage was more narrow at 1.06 times in fiscal 2013. Coverage in fiscal 2013 from pledged revenues, as defined by MMVRA's resolution, was strong at 2.1 times and 1.18 times for senior lien and total debt service, respectively. Projected senior lien and subordinate coverage for fiscal 2014 is 2.07 times and 1.16 times, respectively.

Operations typically generate sizeable annual surpluses which have averaged \$24.3 million since 2007. Surpluses are usually employed to defease outstanding debt related to future spikes in debt service which can mitigate the need for large rate increases. Reflecting a 3% rate increase, fiscal 2013 operations produced a sizeable \$28.4 million surplus, \$25.4 of which was used for debt defeasance.

The fiscal 2014 current expense budget (CEB) included a rate increase of 3.5%. The authority also elected to make a \$6.6 million additional payment to its retirement system.

The fiscal 2015 CEB is based on a rate increase of 3.6%, and future rate increases are projected to range from 2.6% to 6% through fiscal 2019. While MMVRA's total coverage remains generally lower than that of comparably-rated utilities, the authority's credit profile is strengthened by historical 100% collection rates and the availability of the commonwealth's local aid intercept program for assessments.

AMENDED GENERAL RESOLUTION RELEASES DEBT SERVICE AND OTHER RESERVES IN FY2016

MMVRA is expected to maintain a sound financial position with ample liquidity, a critical factor in managing variable-rate and swap termination or acceleration events should market disruption and financial institution instability recur in the future. The authority maintains several reserve accounts which totaled roughly \$410.6 million in fiscal 2013, including an unrestricted operating reserve of \$38.8 million, equivalent to roughly two months' of expenses. MMVRA's cash position is satisfactory, representing roughly 46.6% of O&M or 170 days of operations. Moody's expects that MMVRA will maintain its solid financial position given its conservative budgeting, planned regular rate increases and the anticipated maintenance of satisfactory reserve levels.

While historically MMVRA has not needed to significantly reduce its rate stabilization and bond redemption funds, the authority continues to project depletion of both funds by 2022 to smooth future rate increases and reduce outstanding debt associated with the highly-leveraged system. Economic recovery at the state and local levels is expected to lag general economic recovery and could exert pressure on MMVRA's ability to impose regular rate increases and augmentation of reserves. MMVRA's amended bond resolution, adopted in 2007 and now projected to take effect in fiscal 2016, permits the release of substantial reserves which were largely pledged exclusively to senior-lien debt service. Management plans to use the released cash primarily to defease debt and will set aside reserves to smooth future spikes in debt service. Exhaustion of rate stabilization and bond redemption funds, combined with the anticipated release of up to \$111 million in debt service and other reserve funds under MMVRA's amended resolution, could result in diminished flexibility and capacity to absorb future financial pressures and may have a negative impact on long-term credit strength.

REGIONAL SYSTEMS CAPITAL INVESTMENTS PROVIDE ESSENTIAL SERVICE TO EASTERN MASSACHUSETTS

MMVRA provides wholesale water and wastewater services to 61 communities in eastern Massachusetts (rated Aa1 stable), serving approximately 2.8 million people, or 43% of the Commonwealth's population. Incorporated in the long-term ratings are MMVRA's strong historical collection of assessments supported by historical receipt of 100% of assessments within the levy year, one-third of which come from the Boston Water and Sewer Commission (rated Aa1 stable). Additional credit strength is provided by: MMVRA's ability to intercept the majority of the members' quarterly state aid payments; the authority's stable membership with lack of alternative sources; independent rate-setting authority; and the essential nature of the services provided. Water is supplied to 53 communities and is primarily derived from the Quabbin Reservoir, located 65 miles west of Boston (rated Aaa stable) and the Wachusett Reservoir, located 35 miles west of Boston, with a combined capacity of 477 billion gallons. Demand consistently falls below the safe yield level of 300 million gallons per day and capacity is expected to be sufficient for at least 20 years. Treatment of much of the system's water by ozonation and chlorination is provided at the system's John J. Carroll Treatment Plant.

Transmission and covered storage facilities include the 17.6-mile MetroWest Water Supply Tunnel and the 155 million gallon Norumbega Covered Storage Facility. Completion of these projects improved the system's security and compliance with the federal Safe Drinking Water Act. The authority's capital improvement plan (CIP) has shifted focus to maintenance and rehabilitation of pipelines, pumping facilities, and expansion of the system's

central monitoring system.

Wastewater collection and treatment are provided to 43 communities, with a major treatment facility located on Deer Island in Boston Harbor. The \$3.8 billion Deer Island plant and 9.5-mile effluent outfall tunnel were phased into service beginning between 1996 and 2000, and allow for average flow of 310 million gallons per day (with peak capacity of 1,270 mgd). Sludge is piped to the authority's pelletization plant in the City of Quincy (rated Aa3) where it is processed into commercially available fertilizer. The MMRA's preliminary \$718 million 2014 to 2018 Capital Improvement Plan (CIP) calls for a substantial continued investment in facility maintenance. Favorably, the amount of MMRA's CIP that is mandated by regulatory agency deadlines has fallen to a manageable 36% from over 80% in the previous decade. Importantly, the MMRA anticipates paying more in principal that it will issue to fund the CIP, which will result in a decline in the Authority's total outstanding debt. It is estimated that total outstanding debt will decrease by \$351 million during the course of the 5-year plan.

Outlook

The stable outlook reflects Moody's expectation that MMRA will maintain positive operations, sound reserve levels, active management of its variable rate portfolio, healthy debt service coverage and steady progress toward funding long-term pension and OPEB liabilities. Critical to maintaining the stable outlook will be authority's ability to maintain financial flexibility after the amended bond resolution and release of reserves takes effect.

WHAT COULD MAKE THE RATING GO UP

- Improved coverage for senior and total debt service
- Substantial enhancement of service area's composite credit strength
- Lower debt ratio
- Reduced exposure to risks associated with variable rate debt and derivative agreements

WHAT COULD MAKE THE RATING GO DOWN

- Significant reduction of cash reserves and financial flexibility after amended bond resolution takes effect
- A prolonged period of minimal rate increases, shifting funding of capital needs and long-term liabilities to the future
- Failure to reduce debt burden as planned
- Higher debt ratio or increased exposure to variable rate debt
- Acceleration of debt amortization due to failed remarketings
- Deterioration of service area's composite credit strength
- Reduction in debt service coverage
- Failure to effect mid-year rate adjustments or expenditure controls when necessary

WHAT COULD CHANGE THE SHORT TERM RATING-UP

Not Applicable.

WHAT COULD CHANGE THE SHORT TERM RATING-DOWN

The short-term rating on the Bonds would be lowered if Moody's were to downgrade the short-term OSO rating of the Bank and could be lowered if Moody's were to downgrade the long-term rating of the Authority.

KEY DATA AND RATIOS

Type of System: Water and Sewer Treatment and Transmission

Population of Service Area: 2.8 million

Local Bodies assessed wholesale rates and charges (fiscal 2014): 61

Rate Revenue Collections within 30 days of due dates (fiscal 2013): 100%

Total Operating Revenues (fiscal 2013): \$623.4 million

Debt Ratio (fiscal 2013): 81.5%

Amortization of Principal:

10 years 40%

20 years 80%

30 years 98%

Coverage of Senior Debt, per resolution (fiscal 2013): 2.1 times

Coverage of Senior & Subordinated Debt, per resolution (fiscal 2013): 1.18 times

Operating Ratio (fiscal 2013): 42.9%

Rate Revenue Increase (fiscal 2014): 3.5%

Average Annual Rate Revenue Increase (fiscal 2010-2014): 3%

Post-Sale Senior Lien Debt Outstanding: \$3.5 billion

Post-Sale Variable Rate Subordinated Debt Outstanding: \$1.02 billion

Subordinated State Revolving Fund Loans Outstanding: \$1.05 Billion

Commercial Paper Outstanding: \$144 million

RATING METHODOLOGY

The principal methodology used in the long term rating was Analytical Framework For Water And Sewer System Ratings published in August 1999. The principal methodology used in the short term rating was Variable Rate Instruments Supported by Conditional Liquidity Facilities published in May 2013. Please see the Credit Policy page on www.moodys.com for a copy of these methodologies.

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