MOODY'S
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New Issue

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Massachusetts Water Resources Authority

New Issue - Moody's Assigns Aa1 to MWRA's $391M Sr. Lien Rev. Bonds 2017 Ser. B and C; Outlook Stable

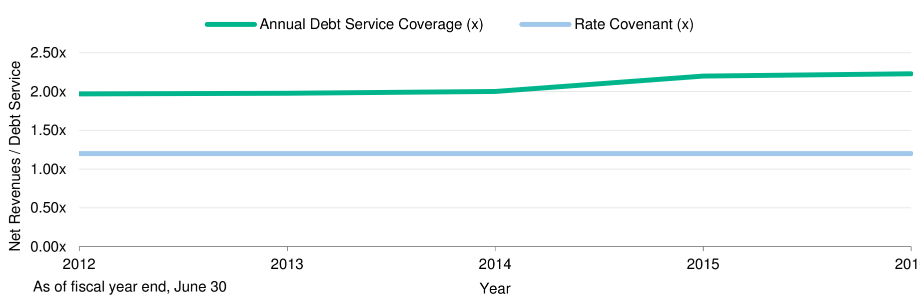
Summary Rating Rationale

Moody's Investors Service has assigned a Aa1 rating to the Massachusetts Water Resources Authority's (MWRA) $80 million General Revenue Bonds, 2017 Series B and $311 million General Revenue Refunding Bonds, 2017 Series C (Green Bonds). Moody's maintains the Aa1 rating on the authority's $3.2 billion of outstanding senior lien general revenue bonds and the Aa2 rating on $895 million of outstanding subordinate general revenue bonds. The outlook is stable.

The Aa1 rating on MWRA's senior lien debt reflects the strong credit profile of the authority's service area, stable debt service coverage levels, and comprehensive fiscal policies. The rating also incorporates MWRA's tested ability to intercept member municipalities' state aid in the event of non-payment to the authority. These credit strengths mitigate a highly leveraged position including a sizeable variable rate component.

The Aa2 rating on subordinate lien debt reflects the bonds' secondary position relative to MWRA's senior lien debt and a weaker rate covenant of 1.1 times on combined senior and subordinate debt service. This includes subordinate fixed-rate loans issued by the Massachusetts Clean Water Trust (Aaa stable).

Exhibit 1
Healthy Coverage Highlights Very Stable Financial Position



As of fiscal year end, June 30
Source: Moody's Investors Service

Credit Strengths

» Strong credit quality and payment history of local government members

» Ability to intercept members' state aid to cure delinquencies

» Strong management of financial operations, capital needs and debt portfolio

» Well funded pension plan

Credit Challenges

» Highly leveraged position

» Reliance on annual rate increases

Rating Outlook

The stable outlook reflects our expectation that financial operations will remain balanced over the near term with manageable annual rate increases. The outlook also incorporates the conservative and comprehensive planning of long term capital needs.

Factors that Could Lead to an Upgrade

» Substantial decline in the debt ratio

» Improved coverage for senior and total debt service

Factors that Could Lead to a Downgrade

» Higher debt ratio with increased exposure to variable rate debt

» Trend of narrow debt service coverage

» Failed remarketings leading to accelerated amortization of variable rate debt

» Deterioration of service area's composite credit strength

Key Indicators

Exhibit 2

Massachusetts Water Resources Authority, MA					
System Characteristics					
Asset Condition (Net Fixed Assets / Annual Depreciation)	29 years				
System Size - O&M (in $000s)	272,038				
Service Area Wealth: MFI % of US median	95.10%				
Legal Provisions					
Rate Covenant (x) (senior lien)	1.20x				
Debt Service Reserve Requirement	DSRF funded at less than 3 prong test or springing DSRF				
Financial Strength					
	2012	2013	2014	2015	2016
Operating Revenue ($000)	602,620	623,213	650,957	671,544	699,913
System Size - O&M (in $000s)	261,510	267,350	273,504	263,403	272,038
Net Funded Debt ($000)	5,531,032	5,511,122	5,383,345	5,295,751	5,306,007
Annual Debt Service Coverage (x)	1.97x	1.98x	2.00x	2.20x	1.78x
Cash on Hand	162 days	170 days	168 days	180 days	179 days
Debt to Operating Revenues (x)	9.8x	9.4x	8.8x	8.3x	7.4x

Operating revenues include changes in derivative related accounts
As of fiscal year end, June 30
Source: Moody's Investors Service

Recent Developments

Since our last credit opinion, MWRA's Board of Directors has authorized preliminary design of a $1.4 billion redundancy project for the metropolitan tunnel system. The project is anticipated to take 17 years and provide two redundancy tunnels north and south of the city tunnel that connects from the Quabbin Reservoir to various connections along the north and south shores. This project, which is included in the fiscal 2017 CIP, is expected to gradually increase overall capital spending over the long term. Positively, capital spending over the last three years has been at a 20 year low given completion of mandated CSO projects.

Detailed Rating Considerations

Service Area and System Characteristics: Large Regional System Providing Essential Service to Member Communities with Strong Credit Characteristics

MWRA provides wholesale water and wastewater services to 61 communities in eastern Massachusetts (Aa1 stable), serving approximately 3 million people, or 44% of the commonwealth's population. Incorporated in the long-term ratings are the authority's strong collection of member assessments supported by historical receipt of 100% of assessments within the levy year, 31% of which come from the Boston Water and Sewer Commission (BWSC, Aa1 stable). Including BWSC, the top five largest customers provide 47.2% of 2017 total assessments. After BWSC, the rest of the top 5 are the Cities of Newton (4.8%, Aaa stable), Quincy (4.6%, Aa3 negative), Cambridge (3.4%, Aaa stable) and Somerville (3.4%, Aa2 positive). Additional credit strength is provided by: MWRA's ability to intercept the majority of the members' monthly 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.

MWRA supplies water to 52 local bodies primarily derived from the Quabbin Reservoir, located 65 miles west of Boston (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 due to continued improvements in water use efficiency. Treatment of much of the system's water by ozonation, UV light 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 115 million gallon Norumbega Covered Storage Facility.

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 Quincy where it is processed into commercially available fertilizer.

Debt Service Coverage and Liquidity: Healthy Coverage and Liquidity Bolstered by Long History of Stable Operations

Financial operations will remain stable over the near term due to continued adoption of regular rate increases that are critical to generating annual operating surpluses and healthy debt service coverage. From fiscal 2012 through 2016, the combined average annual rate increase has been 3.4%. Expected combined rate increases average 3.8% through 2022 to offset increased costs for debt service and operations. We expect the authority to continue to approve predictable and sustainable annual rate increases that will result in strong assessment collections and stable operations.

The authority's debt service coverage, as defined by its bond resolution, allows for the recognition of annual transfers from reserves in net revenues, which MWRA has not used since 2014. Senior lien coverage in 2016, based on Moody's definition of net revenues, was healthy at 1.78 times in fiscal 2016, but below the five year average of 1.99 times. Total debt service coverage was satisfactory at 1.25 times. Coverage from pledged revenues, as defined by MWRA's resolution, was lower at 1.70 and 1.20 times for senior lien and total debt service, respectively. The dip in senior lien coverage is attributable to an increase in senior lien principal payments. We expect coverage to remain around the 1.9 to 2.0 times coverage over the near term.

Operations typically generate sizeable annual surpluses which are usually employed to defease outstanding debt related to future spikes in debt service which can mitigate the need for large rate increases in the future. MWRA also maintains healthy reserves for operations, insurance, and renewal and replacement that provide additional operating flexibility.

The fiscal 2017 current expense budget increased 2.4% over 2016 driven by a 5.2% increase in capital financings and 1.7% increase in direct expenses. Budgeted indirect costs were down 19% from 2016 because of almost $9 million in one-time costs for pension funding and to prepay for watershed land. The budget was balanced with a 3.34% rate increase and no use of rate stabilization reserve funds. As of February 2017, expenditures are trending 0.5% under budget and revenues are up 1.1%.

LIQUIDITY

As of fiscal 2016 year end, unrestricted cash and investments (cash, investments and intergovernmental loans) represented a healthy 179 days cash on hand, bringing the five-year average to 172 days. While strong, MWRA has historically maintained a narrower cash position than the rating category median given its strong management and proactive maintenance of using surplus towards debt defeasance.

Debt and Legal Covenants: Modest Covenants Support Highly Leveraged Position Including Variable Rate Exposure

The General Resolution includes a rate covenant of 1.2 times on senior lien debt service and 1.1 times on subordinate debt service. The resolution requires maintenance of a debt service reserve fund equal to the least of (i) 50% of maximum annual Adjusted Debt Service, (ii) 10% of original par, (iii) 125% of the average annual debt service, or (iv) the maximum annual debt service.

In support of significant capital investments, MWRA has issued a substantial amount of debt and remains highly leveraged with debt amounting to 81.1% of net fixed assets plus net working capital and 7.4 times fiscal 2016 operating revenues. As of the current issuance, the authority has $3.2 billion in senior lien general revenue bonds, $973 million in SRF loans (subordinate), and $895 million in subordinate variable rate revenue bonds. Additionally, MWRA is authorized to issue up to $250 million in tax-exempt commercial paper and draw on $100 million revolving loan with a combined $149 million currently outstanding.

Over the near term, we expect the debt ratio to remain high but at a reduced level compared to prior years, given significant completion of compliance related projects and a shift to maintenance and repairs. However, the 2017 CIP does project that capital expenditures will begin to rise over the medium term in part due to the $1.4 billion redundancy project.

DEBT STRUCTURE

Variable rate debt currently represents 17% of total outstanding debt, down from over 20% in recent years. Variable rate demand bonds in the amount of $414 million are hedged with interest rate swaps while the balance ($481 million) are unhedged. The authority actively manages its capital structure risks including staggering of mandatory tender dates, and diversification of bank and swap counterparties. The potential for debt acceleration is remote given MWRA's good headroom under its covenants and management's very careful attention to debt details.

DEBT-RELATED DERIVATIVES

MWRA has a large and complex interest rate swap portfolio, including five floating-to-fixed swaps. As of March 24, 2017, the entire swap portfolio had a market valuation of negative $109.6 million to MWRA. Early termination events are triggered if MWRA's underlying senior lien rating falls below Baa3.

Two Letters of Credit (LOCs) support the remaining unhedged VRDBs and expire in December 2020. The 2012 Series E, F, and G bonds as well as 2014 Series A and B were all issued through negotiated direct purchase agreements with a diverse group of lenders.

PENSIONS AND OPEB

MWRA contributes to the Massachusetts Water Resources Authority Employees' Retirement Plan, a single-employer, defined benefit plan. The plan is well-funded with a small reported fiscal 2016 net pension liability of only $28.7 million. The plan is expected to be fully funded by 2024, well in advance of most enterprise systems as well as the Commonwealth's mandate of 2040. The 2016 Moody's Adjusted Net Pension Liability is $262 million or a very low 0.37 times operating revenues.

The authority has also started to make larger contributions towards its OPEB liability, contributing 61% of the annual cost in 2016 as well as additional payments into an OPEB trust. As of fiscal 2016 year end, the unfunded liability is $167.7 million.

Management and Governance

MWRA benefits from a strong senior leadership team with comprehensive policies that address financial, capital and debt management. Management updates a ten-year capital plan is updated annually, and maintains financial projections incorporating long-term rate management strategy, use of reserves, and approach to defeasance of debt.

The authority is governed by a diverse, 11-member board of directors, chaired by the Secretary of Energy and Environmental Affairs for the Commonwealth.

Legal Security

The bonds are secured by a senior lien pledge of net system revenues. Additional security for roughly two-thirds of MWRA's revenues is provided by a general obligation pledge of the member communities to make timely assessment payments to the authority, as well as a tested state intercept program.

Use of Proceeds

Series B new money will be deposited into the Construction Fund for capital needs.

Series C will refund, in part, the authority's General Revenue Refunding Bonds 2005 Series A and 2005 Series B, and Multi-Modal Subordinated General Revenue Refunding Bonds, 2008 Series A and 2012 Series F.

Obligor Profile

MWRA is a regional water and sewer enterprise system, providing wholesale water and wastewater services to the Boston (Aaa stable) metro-area and eastern Massachusetts (Aa1 stable).

Methodology

The principal methodology used in this rating was US Municipal Utility Revenue Debt published in December 2014. Please see the Rating Methodologies page on www.moodys.com for a copy of this methodology.

Ratings

Exhibit 3

MASSACHUSETTS WATER RESOURCES AUTHORITY

Issue	Rating
2017 Series B General Revenue Bonds	Aa1
Rating Type	Underlying LT
Sale Amount	$80,000,000
Expected Sale Date	05/03/2017
Rating Description	Revenue: Government Enterprise
2017 Series C General Revenue Refunding Bonds	Aa1
Rating Type	Underlying LT
Sale Amount	$311,000,000
Expected Sale Date	05/03/2017
Rating Description	Revenue: Government Enterprise

Source: Moody's Investors Service

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