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CREDIT OPINION
11 April 2019

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Massachusetts Water Resources Authority

Update to credit analysis

Summary

Massachusetts Water Resources Authority (MWRA, Aa1 stable) benefits from the strong credit profile of its service area in which member town's secure their assessments with a general obligation pledge. The MWRA has a long history of slim but very stable annual debt service coverage, satisfactory liquidity, and comprehensive planning of long term capital needs. The authority's conservative and proactive management team help to mitigate a highly leveraged debt position that includes a variable rate component. Positively, the unfunded pension liability is very low. Also contributing to the credit strength is the authority's ability to intercept member municipalities' state aid in the event of non-payment to the MWRA.

Credit strengths

» Strong credit quality and payment history of local government members

» Ability to intercept members' state aid to cure payment delinquencies

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

» Well funded pension plan

Credit challenges

» Large debt position relative to assets

» 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 credit strength of the service area and MWRA's conservative and comprehensive planning of long term capital needs.

Factors that could lead to an upgrade

» Substantial decline in debt relative to assets

» Positive growth trend in annual coverage for senior and total debt service

Factors that could lead to a downgrade

» Increase in the debt ratio

» Material increase in the amount of variable rate debt as a percent of total portfolio

» Narrowing trend in annual debt service coverage

» Failed remarketings leading to accelerated amortization of variable rate debt

» Deterioration of service area's credit profile

Key indicators

Exhibit 1

Massachusetts Water Resources Authority, MA					
System Characteristics					
Asset Condition (Net Fixed Assets / Annual Depreciation)	29 years				
System Size - O&M ($000)	$239,646				
Service Area Wealth: MFI % of US median	96.10%				
Legal Provisions					
Rate Covenant (x)	1.20x				
Debt Service Reserve Requirement	DSRF funded at less than the 3 prong test or a springing DSRF (A)				
Management					
Rate Management	Aaa				
Regulatory Compliance and Capital Planning	Aaa				
Financial Strength					
	2014	2015	2016	2017	2018
Operating Revenue ($000)	$650,957	$671,544	$699,913	$719,716	$741,244
System Size - O&M ($000)	$273,504	$263,403	$272,038	$286,269	$277,857
Net Revenues ($000)	$389,698	$430,519	$485,341	$443,795	$473,042
Net Funded Debt ($000)	$5,383,345	$5,295,751	$5,306,007	$5,107,397	$4,799,903
Annual Debt Service ($000, total debt service)	$356,390	$370,424	$387,051	$401,523	$419,868
Annual Debt Service Coverage (x)	1.1x	1.2x	1.3x	1.1x	1.1x
Cash on Hand	168 days	180 days	179 days	168 days	182 days
Debt to Operating Revenues (x)	8.3x	7.9x	7.6x	7.1x	6.5x

Operating revenues = water and sewer revenue plus change in derivative related accounts; O&M = operations, maintenance, and engineering, general & administrative, and PILOTs; Net revenues = gross revenues and income - O&M; Gross revenues and income = operating revenues, interest income, capital grants and contributions; Net funded debt = Note 6 of audit, long term obligations - (note 4 restricted investments-debt service reserves and debt service - balance sheet, liabilities, current portion of LT debt); Cash on hand = unrestricted cash and investments (balance sheet, cash + investments + intergovernmental loans) x 365/O&M)
Source: Moody's Investors Service and MWRA's audited financial statements

Profile

MWRA is a regional water and sewer enterprise system providing wholesale water and wastewater services to the Boston (Aaa stable) metro-area and water and/or wastewater services to surrounding communities in eastern and central Massachusetts (Aa1 stable).

Detailed credit considerations

Service area and system characteristics: large regional system providing essential service to member communities with strong credit characteristics

MWRA is authorized to provide wholesale water and wastewater services to 62 communities in eastern and central Massachusetts (Aa1 stable), serving approximately three million people representing 44% of the commonwealth's population. Incorporated in the long-term rating is 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 47.4% of 2019 total assessments. After BWSC, the other the top five are the Cities of Newton (4.7%, Aaa stable), Quincy (4.4%, Aa3), Cambridge (3.5%, Aaa stable) and Somerville (3.4%, Aa1). 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 derives water it supplies to 52 local entities primarily 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 until at least 2030. 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, which were phased into service between 1996 and 2000, 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.

MWRA faces long term climate change risk primarily associated with sea level rise and major weather events. The authority has taken proactive measures to protect system assets against these risks. See further discussion on these actions in the Debt and Legal Covenants section below. Additionally, a large portion of the member communities throughout the service area face this long term risk. We will continue to monitor individual members as well as the service area as a whole in assessing climate related risk to the regions water infrastructure.

Debt service coverage and liquidity: satisfactory 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 debt service coverage. From fiscal 2015 through 2019, the combined five year average annual rate increase has been 3.3%. Based on the 2019 current expense budget, estimated future combined rate increases average 3.3% through 2023 (down from 3.7% last year) 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.

Fiscal 2018 senior lien coverage under the resolution was 1.92 times net revenues while total debt service coverage was 1.2 times. The five year average senior lien and total debt service coverage ratios are 1.95 times and 1.2 times, respectively, reflecting the limited but very stable operating results. Additionally, senior coverage under Moody's definition of operations was at 1.8 times and total debt service coverage was 1.1 times. The authority's debt service coverage, as defined by its bond resolution, allows for the recognition of annual transfers from reserves in net revenues. MWRA has not included transfers from reserves in net revenues since 2014.

Operations typically generate sizeable annual surpluses which are usually employed to defease outstanding debt related to future spikes in debt service in order to reduce the need for large rate increases in the future. MWRA maintains healthy reserves for operations, insurance, and renewal and replacement that provide additional operating flexibility. In 2018, the authority deposited $6.5 million into the rate stabilization fund to mitigate anticipated future rate increases due to the replacement of an electric power cable servicing the Deer Island Treatment Plant.

The fiscal 2019 current expense budget totals $767.9 million reflecting an increase of 3.3% over 2018. The increase was driven by a 2.2% increase in capital financings, 3% increase in direct expenses and 18.3% increase in indirect expenses. The indirect cost increase was due to pension contribution, watershed management and a planned deposit into the operating reserve. Capital financing expenses represent 63% of total expenses. The budget was balanced with a 3.1% rate increase and no use of rate stabilization reserve funds. Operations including debt service through February 2019 reflect favorable variance with expenses 1.9% under budget and revenues 0.5% over budget. Debt service coverage is trending at 1.9 times for senior lien and 1.2 times for total debt service.

The proposed 2020 current expense budget indicates an increase of 3.8% over the prior year balanced with a 3.7% rate increase. The budget drivers include salaries, capital needs, and planned contributions toward pension and OPEB liabilities and $2.1 million into the operating reserve.

LIQUIDITY

As of fiscal 2018 year end, unrestricted cash and investments (cash, investments and intergovernmental loans) represented a healthy 182 days cash on hand, bringing the five-year average to 175 days. MWRA has historically maintained a narrower cash position than the rating category median (well over one year's worth) which is mitigated by strong management and consistent application of surplus to debt defeasance.

Additionally, MWRA maintains reserve accounts required under the bond resolution that are characterized as restricted investments in the audit. In the fiscal 2018 audit, the operating and rate stabilization reserves were added to the list of restricted investments. Despite that reallocation, the defined use of those funds under the bond resolution provides additional operating flexibility if needed. As of fiscal 2018 year end, the reserves and balances are: $43 million in the rate stabilization reserve, $26.1 million in the bond redemption fund, $149.9 million in the debt service reserve, $40.1 million in the operating reserve, $14 million in the insurance reserve and $6.7 million in the renewal and replacement reserve.

Debt and legal covenants: modest covenants with strong debt management support highly leveraged position including variable rate exposure

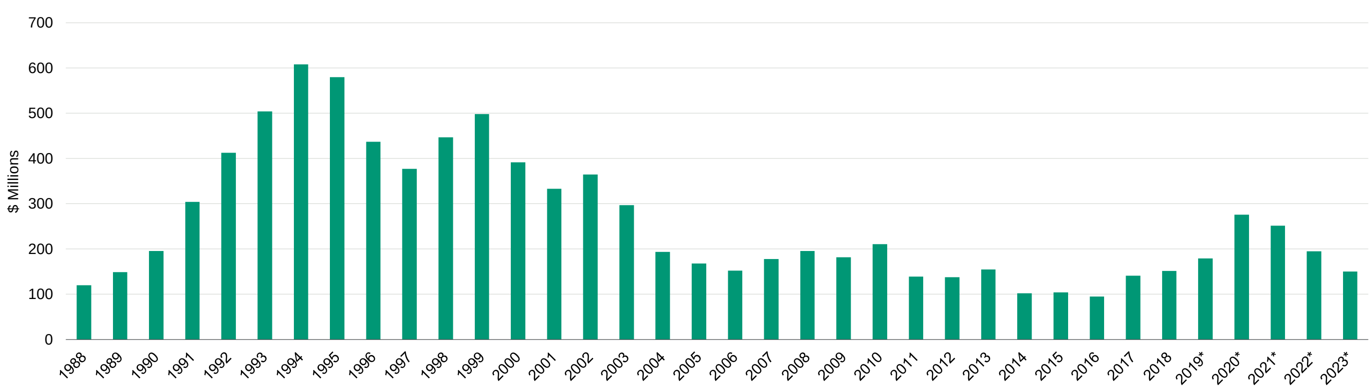
The General Resolution includes a rate covenant of 1.2 times on senior lien debt service and 1.1 times on subordinate debt service. The resolution requires maintenance of a debt service reserve fund equal to the least of (i) 50% of maximum annual Adjusted Debt Service, (ii) 10% of original par, (iii) 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 a debt ratio of 72% (net debt / net fixed assets plus net working capital) and 6.5 times fiscal 2018 operating revenues. As of March 1, 2019, the authority has $3 billion in senior lien general revenue bonds, $979.9 million in SRF loans (subordinate), and $782.2 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 $175 million currently outstanding.

Over the near term, we expect the debt ratio to remain high but at a reduced level compared to historical metrics, given significant completion of compliance related projects and a shift to maintenance and repairs over the last ten years. However, after reaching a capital spending low point in 2016 and 2017, the capital improvement plan (CIP) will accelerate over the medium term in part due to a $1.4 billion redundancy project (see exhibit).

Exhibit 2

MWRA's long term capital spending is trending up but still well below the $269 million per year historical average



*based on the fiscal 2019 capital improvement plan

Source: Massachusetts Water Resources Authority

The fiscal 2019 CIP includes a 2019 budget of $179.2 million and a five year (2019-2023) total amount of capital needs currently at just over $1 billion. Fiscal 2019 also marked the beginning of a new five year base line spending cap of $984.8 million. The first five-year cap was established in 2003 and provides a not to exceed amount as a balanced way to control spending while continuing to invest in the system assets. The majority of the waterworks system capital funding will be going towards major redundancy projects including the Metropolitan Tunnel Redundancy Project, while the wastewater funding is almost entirely funding ongoing asset protection.

Included in the long term planning efforts is the review of potential impacts of climate change. The Deer Island Treatment Plant was designed in 1989 and accounted for a projected two foot sea level rise. The plant is also protected by a large seawall. To date, the authority has identified approximately 18 coastal wastewater facilities that could be affected by storm surge flooding. In response, short term resiliency projects have been completed or are underway, including the installation of protective walls and stop logs surrounding the facilities. Longer term, design facility rehabilitation plans account for a 2.5 foot surge over the 100-year flood elevation. We believe these efforts to date are prudent and expect the authority to continue to expand its climate mitigation planning in the future and that its strong management team will continue the climate resiliency initiatives across the region given its strong management team.

DEBT STRUCTURE

The debt portfolio is 81% fixed rate including the senior general revenue bonds and SRF state loans. Variable rate debt currently represents 16% and commercial paper represents 3.5% of total outstanding debt. Variable rate demand bonds (VRDBs) in the amount of $363 million are hedged with interest rate swaps while the balance of $419 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 other terms.

DEBT-RELATED DERIVATIVES

MWRA has a large and complex interest rate swap portfolio, including five floating-to-fixed swaps. As of March 8, 2018, the entire swap portfolio had a market valuation of negative $84.6 million to MWRA. Early termination events are triggered if MWRA's underlying senior lien rating falls below Baa3.

Two letters of credit support the remaining unhedged VRDBs and expire in August and December 2020. The 2012 Series E and G bonds, 2014 Series A and B, and 2018 Series A and D were all issued through negotiated direct purchase agreements. There are two standby bond purchase agreements totaling $203.7 million with Wells Fargo which has been extended until May 9, 2022 and with Barclays expiring on June 24, 2019. MWRA actively diversifies its variable rate portfolio across providers currently using eight different providers with J.P. Morgan representing the largest share with 23%.

All of MWRA's standby bond purchase agreements and letters of credit have bank bond and default rates based indexed to LIBOR. As agreements have been amended, language has been added to address the need to provide for a different rate index after LIBOR is phased out at the end of 2020. In all cases, MWRA could refund the bonds if it determines that there is a more favorable alternative to the index with which LIBOR is replaced.

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, currently at 95% based on the January 1, 2018 actuarial valuation using a 7.5% discount rate. The fiscal 2018 net pension liability is a small $21 million with a current funding date of 2026 well in advance of most enterprise systems as well as the Commonwealth's mandate of 2040. The 2018 three-year average Moody's adjusted net pension liability is $301.5 million or a low 0.4 times operating revenues.

The authority's 2018 pension contribution was $3.3 million or a small 1.2% of O&M. The contribution was 58% of the 'tread water' benchmark, the contribution amount needed to cover the year's newly accrued service costs and implied interest on the reported net pension liability, resulting in no increase in the unfunded liability. Notably, the three year average of contributions equal 179% of tread water, a reflection of the strong contributions over the years that are well over the actuarial determined contributions (ADC).

The authority has also started to make larger contributions towards its OPEB liability which it funds on a pay-as-you-go basis plus additional contributions into an OPEB trust. The 2018 contribution of $10.1 million equals 89% of the ADC. The 2018 net OPEB liability is $121.2 million based on a 7% discount rate. The fiduciary net position is 19.7% of the total OPEB liability.

Management and governance: Strong management team adhering to comprehensive planning and policies

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

REPORT NUMBER 1169504

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