

Massachusetts Water Resources Authority

Water and Sewer Revenue Bonds

New Issue Report

Ratings

New Issues

General Revenue Bonds, Series 2019 B	AA+
General Revenue Refunding Bonds, Series 2019 C (Green Bonds)	AA+

Outstanding Debt

General Revenue Bonds — Senior Lien	AA+
General Revenue Bonds — Subordinate Lien	AA

Rating Outlook

Stable

New Issue Details

Sale Information: Approximately \$125,000,000 General Revenue Bonds, Series 2019 B and \$41,000,000 General Revenue Refunding Bonds, Series 2019C (Green Bonds) via negotiated sale the week of May 6.

Security: The bonds are secured by a first lien on net revenues of the Massachusetts Water Resources Authority (MWRA, or the authority), derived largely from wholesale rates and charges assessed on local units of government. The subordinate lien bonds are payable from a second lien on net authority revenues, subordinate only to the authority's lien securing its senior lien obligations.

Purpose: Proceeds will be used to fund a portion of the authority's capital program, refund a portion of the authority's outstanding bonds for interest savings (without extension of maturity) and pay costs of issuance. **Final Maturity:** Aug. 1, 2043

Key Rating Drivers

Regional Provider of Essential Service: MWRA provides essential wholesale water and wastewater services to a large and diverse service area that encompasses 62 communities located primarily in eastern Massachusetts, including the city of Boston. The service area benefits from strong economic underpinnings.

Strong Payment Protections and Collections: Local governments served by the authority are required to pay for MWRA services as a general obligation, and non-payment is subject to a tested state aid intercept. MWRA has achieved strong collection rates of 100% since its inception.

Stable Financial Performance: The authority continues to generate stable financial margins despite increases in annual debt carrying costs. Financial performance remains stable and within historical norms with Fitch Ratings-calculated debt service coverage averaging 1.1x over the last five years and liquidity remaining sound at about 200 days cash on hand over the same period.

Change in Capital Focus: The authority's capital improvement program (CIP) has recently transitioned from costly court-mandated projects to ongoing rehabilitation and water system redundancy. Water redundancy projects are expected to be substantial and span the next 15 years.

Abundant Capacity: The wholesale system benefits from an ample long-term water supply and sufficient excess water and sewer treatment capacity.

Rating Sensitivities

Escalation in Leverage: Rising capital costs that lead to escalating leverage could result in downward rating pressure for the Massachusetts Water Resources Authority.

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Rating History — Senior Lien

Rating	Action	Outlook/ Watch	Date
AA+	Affirmed	Stable	4/18/19
AA+	Affirmed	Stable	4/23/18
AA+	Affirmed	Stable	4/19/17
AA+	Affirmed	Stable	7/22/16
AA+	Affirmed	Stable	3/18/16
AA+	Affirmed	Stable	10/24/14
AA+	Affirmed	Stable	5/16/14
AA+	Revision	Stable	4/30/10
AA	Upgrade	Stable	3/8/05
AA-	Affirmed	Positive	12/11/03
AA-	Upgrade	Stable	6/7/00
A+	Upgrade	Stable	6/22/98
A	Assigned	Stable	9/14/92

Rating History — Subordinate Lien

Rating	Action	Outlook/ Watch	Date
AA	Affirmed	Stable	4/18/19
AA	Affirmed	Stable	4/23/18
AA	Affirmed	Stable	4/19/17
AA	Affirmed	Stable	7/22/16
AA	Affirmed	Stable	3/18/16
AA	Affirmed	Stable	10/24/14
AA	Affirmed	Stable	5/16/14
AA	Revision	Stable	4/30/10
AA-	Upgrade	Stable	3/8/05
A+	Affirmed	Positive	12/11/03
A+	Upgrade	Stable	10/12/00
A	Assigned		5/21/99

Related Criteria

[Rating Criteria for Public-Sector, Revenue-Supported Debt \(February 2018\)](#)

[U.S. Water and Sewer Rating Criteria \(November 2018\)](#)

Credit Profile

MWRA is a Massachusetts public authority established by an act of the state legislature in 1985 to provide wholesale water and sewer services to about three million people and more than 5,500 large industrial users in 62 metropolitan Boston communities. MWRA is governed by an 11-member board of directors (the board), who are appointed by the governor, Boston's mayor, Quincy's mayor, the Winthrop town council and an advisory board of member community representatives. The authority's executive director is responsible for implementing MWRA programs, policies and procedures at the direction of the board. Four divisions carry out the MWRA's mission.

Large Service Territory with Strong Enforcement Mechanisms

MWRA provides wholesale water and wastewater services to communities located primarily in eastern Massachusetts. Almost 3 million people (or over 40% of the population of the commonwealth) reside in the authority's service area. The largest of these is the City of Boston (IDR 'AAA'/Stable), which contributes approximately 30% of MWRA's revenue derived from rates and charges. Fitch currently rates the Boston Water and Sewer Commission's (BWSC) revenue bonds 'AA+' / Outlook Stable. The service area generally is economically diverse, and wealth levels tend to be above state and national averages.

The 62 local communities included in the service area are required to pay for MWRA services as a general obligation, and rate-setting is not subject to any limitations, including the state's Proposition 2 1/2. These protections, coupled with the authority's ability (pursuant to its enabling act) to utilize a local aid intercept to recover amounts unpaid by one of its member communities (excluding revenues of the BWSC), provide significant revenue protection and are important credit considerations.

Revenue Defensibility

Charges and Rate Affordability

Billing, Collection and Enforcement

MWRA's enabling legislation requires it to set its rates and charges at levels sufficient to pay operations and debt service and to meet its obligations under the bond resolution (i.e. the rate covenant). Based on MWRA's service costs, each member community establishes local water and sewer charges to support both the community's MWRA assessment and the cost of operating its own local water distribution and wastewater collection systems. About 95% of yearly revenues are derived from wholesale assessments to local customers, and rate increases are adopted annually by the board as part of the budget process. Charges are billed directly to the local governments with payments due in 10 monthly installments.

MWRA's charges (referred to as community assessments) typically represent about 45% of the amount that communities bill their customers, although the proportion varies considerably among communities and some do not even size their charges to fully recover all costs. The local communities are required to pay for MWRA's services as a general obligation, and rate-setting is not subject to any limitations, including the state's Proposition 2 1/2. Pursuant to the authority's enabling act, the authority may also use a local aid intercept to recover amounts unpaid by one of its member communities. The local aid intercept was utilized successfully six times between 1990 and 1993, although the amounts that had to be intercepted totaled less than one-tenth of 1% of the authority's revenues for each of those years. The intercept has not been used since.

These protections, coupled with the authority's ability (pursuant to its enabling act) to utilize a local aid intercept to recover amounts unpaid by one of its member communities (excluding revenues of the BWSC), provide significant operating flexibility and are important credit considerations.

High Rates Limit Flexibility

MWRA's high rates are an ongoing credit concern as flexibility continues to diminish. Average combined charges within MWRA, based on the authority's advisory board's most recent rate survey for fiscal 2018, were over \$1,650 per year (based on 120 hundred cubic feet of water usage). This total is 2% of median household income, which is Fitch's affordability threshold. However, the size of needed rate hikes has trended downward in recent years as annual capital spending has begun to decline to a more manageable level. Over the five years through fiscal 2018, the authority raised rates on average a moderate 3.3% annually, and just 3.1% in fiscal 2019.

MWRA's long-term rate forecast also continues to trend below prior estimates. Rates originally projected to climb by as much as 5.2% annually by 2021 are now estimated to increase by 3.7% through fiscal 2023. Actual rate adjustments may be less though as MWRA has prudently been applying surplus revenues to level off near-term escalations in debt service costs.

Operating Risks

Capacity/Compliance with Environmental Laws and Regulations

Water System

The authority's ample water supply is drawn primarily from the Quabbin and Wachusett reservoirs and the Ware River. Under present operating rules the authority's water sources can supply a safe yield of approximately 300 million gallons daily (mgd), which has not been exceeded since 1989. Demand continues to decline due to improvements in water efficiency and increased conservation efforts, making current supply more than sufficient to meet demand through at least 2030. The system operates two relatively new water treatment plants with a combined treatment capacity of 428 mgd, which is more than sufficient capacity to meet the average demand of less than 200 mgd.

Sewer System

Retail customers of the authority collect and convey wastewater to MWRA, which provides transport and treatment through its two wastewater treatment facilities for combined average daily flow treatment capacity of 364 mgd. Average daily flows for the past five years register just over 300 mgd.

Capital Demands and Debt Burden

Substantial Leverage Tempered by Improving Capital Cycle

The spending for capital projects spanning fiscal years 2019–2023 is estimated at just over \$1 billion and includes a significant shift in funding priorities from regulatory compliance projects to renewal and replacement of system assets and water redundancy. Since 2003, the MWRA's board has adopted five year spending caps for capital spending. The 2019–2023 cap of \$984 million is up from the prior 2014–2018 cap of \$791 million. Despite the uptick in expected spending, Fitch believes future capital costs will remain manageable given MWRA's vigilant project oversight and its board's self-imposed spending cap for capital projects.

The authority's CIP remains sizeable but is significantly below historical spending levels, which were driven by the cleanup of Boston Harbor in the 1990s and the completion of the majority of the combined sewer overflow (CSO) control plan in recent years. In December 2015, courts declared MWRA's long-term CSO control plan to be substantially complete.

Funding for capital needs will continue to come almost entirely from long-term borrowings, including revenue bonds and state revolving fund loans. The authority's debt levels have been and will remain high for the foreseeable future due to past borrowings. Debt to net plant is notably high at 93%, debt to funds available for debt service is 12x, and annual debt service costs consume over one-half of gross annual revenues.

Favorably, the authority continues to amortize more principal annually than it anticipates issuing through at least 2020. Even with the planned capital spending, this trend should help to improve the authority's leverage over time and position the authority to handle the additional debt associated with the renewal and redundancy projects.

Financial Profile

Coverage and Financial Performance/Cash and Balance Sheet Considerations

Stable Financial Performance

The authority's financial operations have remained very stable despite escalating debt service. Historical Fitch calculated DSC on senior lien obligations has averaged a strong 1.7x over the three years through audited fiscal 2018. Fitch calculated all-in DSC, which includes subordinate public debt and privately-placed state revolving fund loans, has been low but adequate at 1.1x over the same period. Liquidity, while still solid, dipped slightly to about 200 days cash on hand in fiscal 2018, less than the over 300 days it registered in fiscal 2014.

Management forecasts point to continued stable operations based on the authority's conservative budgeting practices. DSC is expected to remain near historical norms and generate surpluses that the authority expects to use to defease future debt maturities. MWRA's positive variances are driven by conservative budgeting estimates (particularly with regards to variable interest rate costs) and tight expenditure controls.

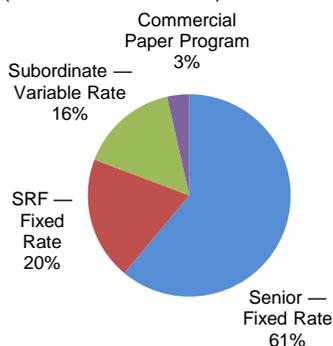
Asymmetric Risk Factors

Contingent and Derivative Obligations

Variable-Rate Debt Discussion and Exposure: The authority's exposure to variable-rate debt and derivatives is fairly sizable, although management's demonstrated ability to prudently monitor debt portfolio performance offsets this risk. Of the total amount of debt outstanding, approximately 16% was variable rate as of March 1, 2019, with each series of variable-rate bonds backed by liquidity agreements and stand-by purchase agreements from a diverse pool of liquidity providers.

Swaps Discussion and Exposure: Over 40% of the authority's outstanding variable-rate debt is hedged through floating-to-fixed rate swaps. All outstanding swaps were originally entered into during the 1998–2002 timeframe. The outstanding notional amount totaled \$433,695,000 as of March 1, 2019, and a March 8, 2019 recent mark-to-market value of the swaps totaled negative \$84,559,546. Regular swap termination payments are on parity with subordinate bonds, and events resulting in automatic termination are considered remote. Unrestricted cash adjusted for swap exposure remained at a healthy level in fiscal 2018, equal to 179 days.

MWRA Debt Breakdown
(Fixed versus Variable)



Source: Massachusetts Water Resources Authority (MWRA).

Covenants

Security

Outstanding bonds are secured by senior and subordinated liens on net authority revenues derived largely from wholesale rates and charges assessed to local units of government.

State Aid Intercept

In the event of nonpayment by a local entity to MWRA, the state treasurer may intercept state aid to certain localities to cover the assessment.

Rate Covenant and Parity Issuance Test

Rates and charges, including operating and rate stabilization reserve withdrawals, must equal at least 1.2x annual senior lien debt service and at least 1.1x subordinated lien debt service. Debt service assistance by the commonwealth is effectively treated as a reduction in debt service requirements under MWRA's covenant tests. MWRA may adjust the senior lien debt service covenant to at least 1.1x annually, provided this action does not result in a rating downgrade on any series of outstanding authority debt. The additional bonds tests are similar to the rate covenant requirements.

Debt Service Reserve Fund

The debt service reserve requirement is a 50% of maximum annual debt service standard three-prong lesser of test: 10% of original net proceeds of bonds, 125% of average annual debt service on bonds or the maximum annual debt service. Reserves are funded with cash from bond proceeds and are contained in a general debt service reserve fund (DSRF) available for all series of senior bonds.

Flow of Funds

All revenues received by the authority are deposited in the revenue fund held by the trustee and deposited in the following order of priority: for operating and maintenance expenses; for senior debt service; for subordinate debt service; for the senior DSRF; for the subordinate DSRF; for commonwealth obligations; and to the rebate fund.

Operating and Insurance Reserve Funds

The operating reserve requirement is at least one-sixth of annual operating expenses. The current balance totals \$40 million. The insurance fund level is determined by an outside consultant and currently has a balance of \$14 million.

Renewal and Replacement Fund

The manner in which the renewal and replacement (R&R) fund requirement is funded was changed under an amended indenture. Instead of funding the current requirement of \$35 million with cash under the original indenture, MWRA will now fund \$10 million with cash and use capacity under its commercial paper program or a committed line of credit established by the authority for the purpose of capital spending to fund the remainder. The R&R fund is for catastrophic events and has never been tapped.

Crew

Management prepares detailed annual budget and capital expenditure recommendations. A 10-year financial forecast included in the annual budget contains capital financings and rate increases necessary to fund operating and capital expenditures. The authority maintains detailed operating and financial procedures, including the manner in which rates are to be set annually, which are included in the budget document. MWRA's policies also detail items such as monitoring of budgeted operating and capital variances. In September 2012, the board reauthorized the practice of allocating positive capital variance to the bond defeasance account toward the reduction of annual debt service requirements.

Massachusetts Water Resources Authority — Financial Summary

(\$000, Audited Years Ended June 30)	2019	2020	2021	2022	2023	2024
Operating Statement						
Operating Revenues	754,384	781,527	809,150	836,943	863,623	891,488
Non-Operating Revenues Available for Debt Service	13,559	15,504	16,366	16,677	18,234	19,287
Total Revenues Available for Debt Service (Net RSF)	767,943	797,031	825,516	853,620	881,857	910,775
Operating Expenditures (Excluding Depreciation)	260,503	273,411	282,868	291,311	299,494	307,957
Net Revenues Available for Debt Service	507,440	523,620	542,648	562,309	582,363	602,818
Senior Lien ADS	272,634	204,716	286,774	278,986	342,441	349,339
All-In ADS	453,102	468,442	479,932	501,118	515,345	509,558
Financial Statistics						
Fitch Calculated Sr. Lien DSC	1.9	2.6	1.9	2.0	1.7	1.7
Fitch Calculated All-In DSC	1.1	1.1	1.1	1.1	1.1	1.2
N.A. – Not available. Note: Fitch may have reclassified certain financial statement items for analytical purposes. Source: Fitch Ratings, Massachusetts Water Resources Authority (MA).						

Massachusetts Water Resources Authority — Financial Summary

(\$000, Audited Years Ended June 30)

	2014	2015	2016	2017	2018
Balance Sheet					
Unrestricted Cash and Investments	95,257	99,482	102,929	61,872	63,866
Other Unrestricted Current Assets	31,310	30,956	31,251	31,338	32,097
Available Restricted Cash and Investments	140,757	97,084	78,418	91,926	93,743
Current Liabilities Payable from Unrestricted Assets	(371,594)	(356,568)	(282,777)	(349,139)	(350,382)
Net Working Capital	(104,270)	(129,046)	(70,179)	(164,003)	(160,676)
Net Fixed Assets	6,073,139	5,935,338	5,776,418	6,023,414	5,948,350
Long-Term Debt Outstanding	6,040,910	5,928,466	5,804,338	5,658,719	5,520,452
Operating Statement					
Operating Revenues	648,017	668,604	696,973	716,776	738,304
Non-Operating Revenues Available for Debt Service	5,433	15,949	19,276	3,124	3,995
Transfers (to)/from the Rate Stabilization Fund	3,500	—	—	—	—
Total Revenues Available for Debt Service (Net RSF xfer)	656,950	684,553	716,249	719,900	742,299
Operating Expenditures (Excluding Depreciation)	273,504	263,403	272,038	286,269	277,857
Depreciation	193,062	194,000	197,128	201,481	202,799
Net Revenues Available for Debt Service	383,446	421,150	444,211	433,631	464,442
Senior Lien ADS	203,338	208,500	272,570	262,093	261,383
All-In ADS	363,370	370,237	387,051	401,523	419,868
Financial Statistics					
Fitch Calculated Senior Lien DSC	1.9	2.0	1.6	1.7	1.8
Fitch Calculated All-In DSC	1.1	1.1	1.2	1.1	1.1
Days Cash on Hand	315	272	243	196	207
Debt/Net Plant (%)	99	100	100	94	93

N.A. – Not available. Note: Fitch may have reclassified certain financial statement items for analytical purposes.
 Source: Fitch Ratings, Massachusetts Water Resources Authority (MA).

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