CREDIT OPINION
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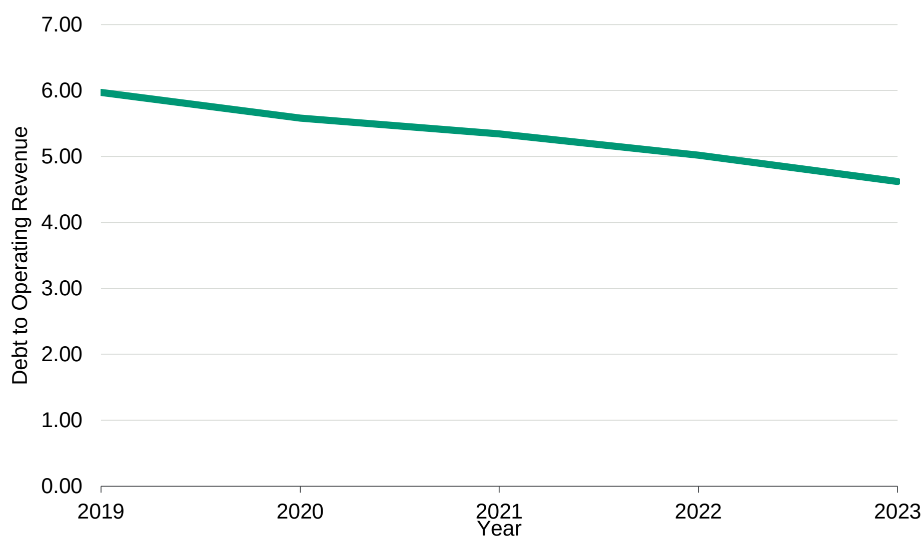
Massachusetts Water Resources Authority

Update to credit analysis

Summary

Massachusetts Water Resources Authority (MWRA, Aa1 stable) benefits from the strong credit profile of its service area and member communities that includes the greater Boston (Aaa stable) metro area. The authority's member communities secure their assessments with a general obligation pledge. The MWRA has a long history of narrow but very stable annual debt service coverage (currently 1.4x in fiscal 2023), satisfactory liquidity averaging around 100 days cash on hand, and comprehensive planning of long-term capital needs. The authority's moderate projected annual rate increases and its use of annual debt defeasance to assist in rate management along with conservative budget management is likely to maintain stable financial metrics over the next few years. The authority's conservative and proactive management team help to mitigate a highly leveraged debt position equal to 4.6x revenue (see exhibit) that includes a declining variable rate component. Also contributing to the credit strength is the authority's ability to intercept member municipalities' state aid in the event of non-payment of assessments.

Exhibit 1
MWRA's debt burden continues to decline but remains elevated for the rating category
Debt to operating revenue by fiscal year



Source: Moody's Ratings

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 plans and debt portfolio

» Well funded pension plan

Credit challenges

» Large debt burden

» Below-average annual debt service coverage and liquidity for the rating category

» Reliance on annual rate increases

Rating outlook

The stable outlook reflects Moody's expectation that financial operations and metrics will remain balanced over the outlook period due to moderate annual rate increases, continued use of debt defeasances, and strong budget management. 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

» Debt to revenue ratio below 2x

» Consistent annual total debt service coverage of at least 2x

» Trend of maintaining at least 500 days cash on hand

Factors that could lead to a downgrade

» Increase in the debt to revenue ratio above 6x

» Weakening trend in annual debt service coverage and liquidity

» Deterioration of the service areas credit profile

Key indicators

Exhibit 2

Massachusetts Water Resources Authority					
System Characteristics					
Asset Condition (Net Fixed Assets / Annual Depreciation)	24 years				
System Size - O&M (in $000s)	$304,160				
Service Area Wealth: MFI % of US median	114.43				
Legal Provisions					
Rate Covenant (x)	1.20x				
Debt Service Reserve Requirement	DSRF funded at less than 3-prong test OR springing DSRF (A)				
Management					
Rate Management	Aaa				
Regulatory Compliance and Capital Planning	Aaa				
Financial Strength					
	2019	2020	2021	2022	2023
Operating Revenue ($000)	$755,336	$778,326	$786,119	$811,854	$836,955
System Size - O&M ($000)	$273,403	$276,963	$294,059	$294,655	$304,160
Net Revenues ($000)	$512,973	$522,840	$493,630	$498,578	$608,359
Net Funded Debt ($000)	$4,510,739	$4,345,805	$4,198,199	$4,076,367	$3,867,775
Annual Debt Service ($000)	$434,678	$466,412	$457,713	$414,555	$431,101
Annual Debt Service Coverage (x)	1.2x	1.1x	1.1x	1.2x	1.4x
Cash on Hand	88.74	93.38	92.69	95.95	101.20
Debt to Operating Revenues (x)	5.97	5.58	5.34	5.02	4.62

Source: Moody's Ratings

Profile

MWRA is a regional water and sewer enterprise system providing wholesale water and wastewater services to the Boston 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 serving members with strong credit characteristics

MWRA is authorized to provide wholesale water and wastewater services to 62 communities in eastern and central Massachusetts, 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, 29.9% of which come from the Boston Water and Sewer Commission (BWSC, Aa1 stable). Including BWSC, the top five largest customers provide 45.8% of 2024 total assessments. After BWSC, the other top five are the cities of Newton (4.6%, Aaa stable), Quincy (4.4%, Aa3), Cambridge (3.6%, Aaa stable) and Somerville (3.3%, Aa1). Additional credit strengths include: MWRA's ability to intercept most 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 54 local entities primarily from the Quabbin Reservoir located 65 miles west of Boston and the Wachusett Reservoir located 35 miles west of Boston, which have a combined capacity of 477 billion gallons. Demand consistently falls below the safe yield level of 300 million gallons per day (MGD) and capacity is expected to be sufficient until at least 2060. Demand continues to decline due to ongoing improvements in water use efficiency changes in plumbing fixtures. The authority's withdrawals have averaged 199 MGD for the last five years. 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 361 MGD (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: limited coverage and liquidity bolstered by sustainable and consistent rate management

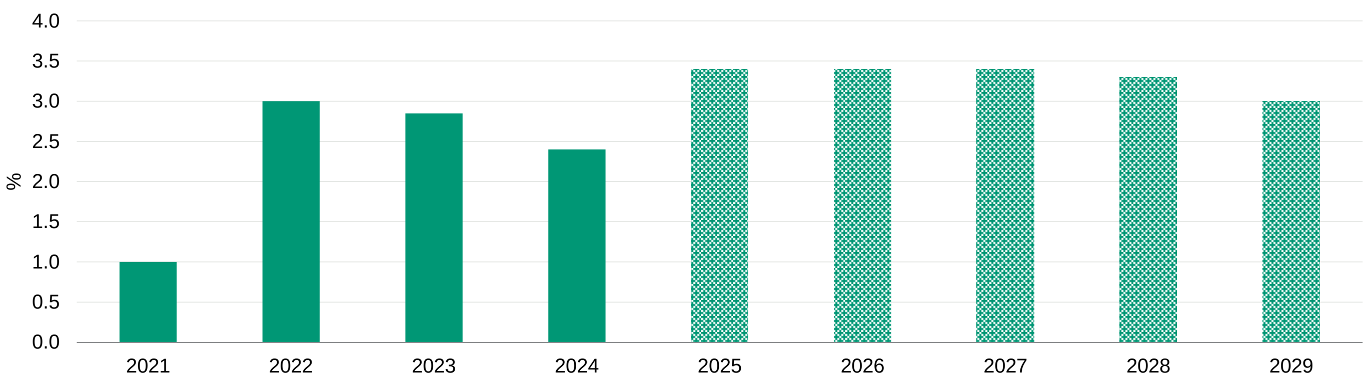
Financial operations will likely reman stable over the next few years with satisfactory debt service coverage and liquidity levels consistent with historical trends. Stable finances are primarily driven by regular annual rate increases and the use of the authority's multi-year defeasance program.

The fiscal 2020 through 2024 five-year average annual combined rate increase equals 2.46%. The fiscal 2024 combined rate increase was 2.4%. Based on the fiscal 2024 current expense budget (CEB) and capital improvement plan (CIP), estimated future combined annual rate increases average 3.4% from 2024 through 2028. We expect the authority to continue to approve predictable and sustainable annual rate increases that will result in strong assessment collections and stable debt service coverage.

Exhibit 3

Combined rate revenue increases are projected to be 3.4% or lower through 2029

Actual and projected annual combined water and sewer rate changes



By fiscal year, FY2025-29 are projections

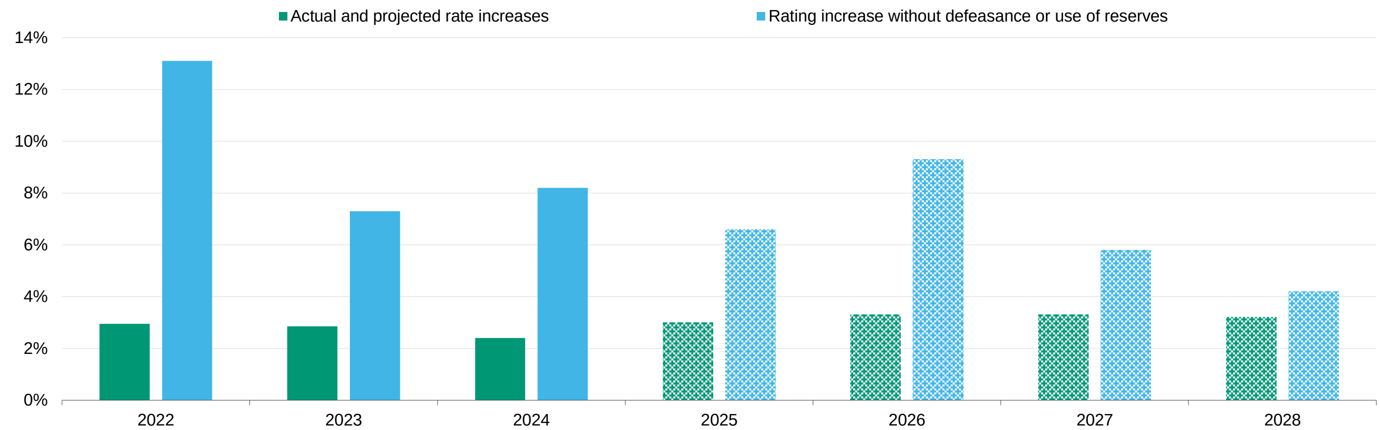
Source: MWRA's final fiscal 2024 current expense budget

Fiscal 2023 audited financials reflect net revenue provided for Moody's calculated senior lien debt service coverage of 2.73x and total debt service coverage of 1.41x. The five year average senior lien and total DSCR's are 2.14x and 1.20x, respectively. Through March 2024, the 2024 CEB is projecting a DSCR of 1.95x for senior and 1.28x for total based on the authority's resolution calculation. The historically very stable coverage helps to mitigate the narrow coverage levels that are below the Aa median of 2.5x, based on 2021 medians for combined water and sewer enterprises.

The proposed fiscal 2025 CEB totals $899.9 million reflecting an increase of 2.9% over 2024. The proposed budget is driven by a 1.5% increase in direct expenses mainly due to increased costs of salaries and maintenance costs. Indirect expenses increased 5.3% to cover a $23.7 million payment to the pension fund, $2.8 million OPEB trust deposit and $2.1 million deposit to the operating reserve. Capital finance increased 3.6% and represents 56% of total expenses. Revenue increases include a projected 3% rate revenue increase and no use of reserves are included.

Operations typically generate sizable annual surpluses which are usually used to defease outstanding debt, and reduce future spikes in debt service in order to limit the need for large rate increases in the future. For example, defeasances generated budgetary savings of $45.7 million in fiscal 2024 and contributed to maintaining a combined rate increase of 2.4% instead of 8.2% increase without defeasance or use of reserves (see exhibit).

Exhibit 4
Defeasances are a key rate management tool for MWRA



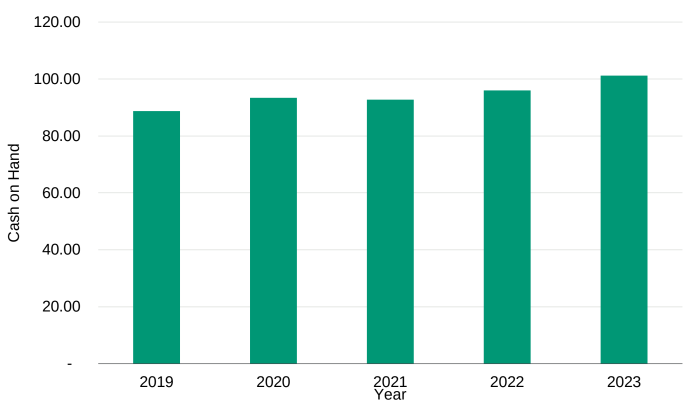
Fiscal 2025-2028 are projections
Source: MWRA

Liquidity

As of fiscal 2023 year end, unrestricted cash and investments totaled $84.3 million, representing a limited 101 days cash on hand and bringing the five year average to 94 days. When adding the $39.3 million balance in the rate stabilization reserve to the liquidity position, the cash position increases to $118.4 million or a more satisfactory 142 days cash on hand and an adjusted five year average of 143 days. The Aa rating category median is 538 days as of 2021 data for rated combined water and sewer enterprises. The strong management team and consistent application of operating surpluses towards debt defeasance helps mitigate the narrow liquidity.

In addition to the rate stabilization reserve, MWRA maintains reserve accounts that are required under the bond resolution and allocated as restricted investments in the audit. As of fiscal 2023 year end, the reserves and balances are: $26.1 million in the bond redemption fund, $169.6 million in the debt service reserve, $49.7 million in the operating reserve, $14 million in the insurance reserve and $10 million in the renewal and replacement reserve.

Exhibit 5
MWRA's days cash on hand by fiscal year



Source: Moody's Ratings

Debt and legal covenants: high debt burden with modest covenants, strong management and capital planning

The General Resolution includes a covenant to set rates that provide coverage 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 (MADS), (ii) 10% of original par, (iii) 125% of the average annual debt service or (iv) the maximum annual debt service. The reserve balance is currently modeled to equal 50% of MADS.

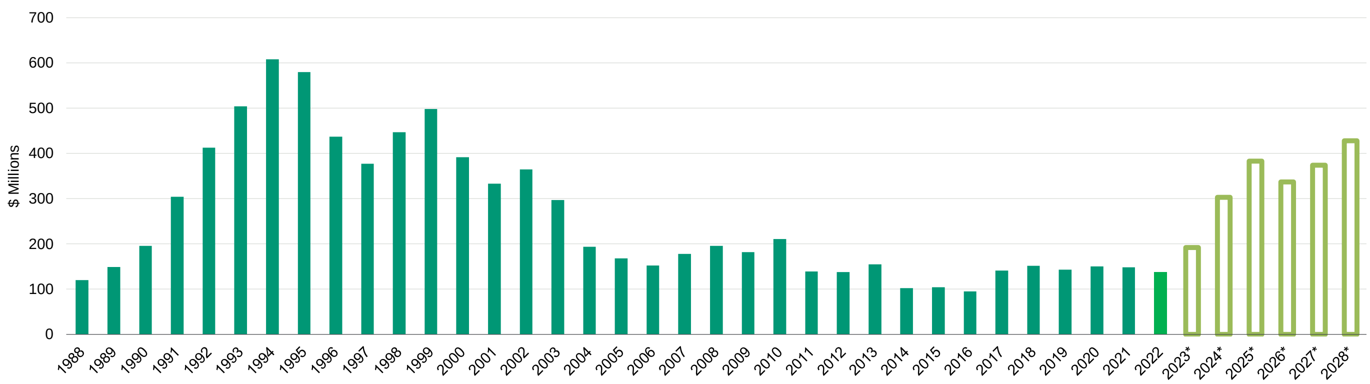
In support of significant capital investments over the last 30 years, MWRA has issued a substantial amount of debt and remains highly leveraged with a debt to operating revenues of 4.6 times at the end of fiscal 2023. As of May 1, 2024, the authority has $2.9 billion in senior lien general revenue bonds, $735 million in SRF loans (subordinate), and $382.4 million in subordinate variable rate revenue bonds outstanding. Additionally, MWRA is authorized to issue up to $150 million in tax-exempt commercial paper and draw on $100 million revolving loan.

The debt ratio will likely remain high but at a reduced level compared to what it has been historically. As of 2016 the debt ratio was over 8 times revenue and has gradually declined to around 5 times in 2022. The debt burden is very high compared to the Aa median of 1.9x revenue. 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 $1.5 billion water tunnel project (see exhibit) that will provide redundant capacity to facilitate maintenance of service when existing facilities require maintenance or are otherwise not useable.

Exhibit 6

MWRA's capital spending is projected to rise over the medium term driven by asset protection and redundancy projects

CIP spending by fiscal year



Source: MWRA's fiscal 2024 capital improvement plan

The fiscal 2025 proposed CIP includes planned expenditures of $377.3 million for the year. It reflects year two of the five year CIP budget period with a proposed spending cap of $1.4 billion during the fiscal 2024-28 time frame. The capital spending priorities continue to be in the areas of asset protection and water system redundancy.

Legal security

The bonds are backed by a senior lien pledge of net system revenues under the terms of the authority's general revenue bond resolution. Roughly 97% of MWRA's revenue is provided by a general obligation pledge of the member communities to make timely assessment payments to the authority. In addition, pursuant to a tested state aid intercept program, MWRA can intercept state aid payable to member communities in the event that they fail to make timely payment of assessments.

Debt structure

The debt portfolio is 87% fixed rate including the senior general revenue bonds and SRF state loans. Variable rate debt currently represents 9.1% and commercial paper represents 4.3% of total outstanding debt. The authority actively manages and diversifies its variable rate portfolio across providers currently using seven different providers. J.P. Morgan represents the largest at 25% of the portfolio. Expiration dates are also staggered with the next expiration scheduled for May 31, 2024. There are four in 2025, one in 2026, one in 2027, and two in 2028, some of which represent final maturity of the bonds.

Debt-related derivatives

In November 2023, MWRA terminated all of its outstanding swap agreements eliminating associated counterparty and credit risks. The total payment associated with the terminations was just under $29 million. The authority projected budget savings of around $8.8 million when compared to projected debt service associated with the agreements.

Pensions and OPEB

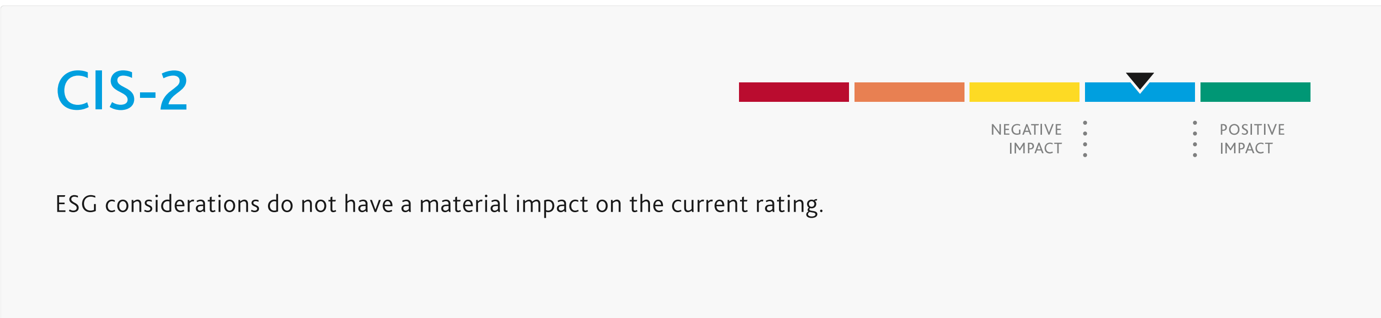
Retirement liabilities are well managed for the authority. MWRA contributes to the Massachusetts Water Resources Authority Employees' Retirement Plan, a single-employer, defined benefit plan. The plan is well-funded, currently at 88% based on the January 1, 2023 actuarial valuation using a 6.9% discount rate. The plan's current funding date is 2030. The 2023 Moody's adjusted net pension liability was $334.5 million equal to a low 0.4 times operating revenue.

The authority also makes strong contributions toward its OPEB liability which it funds on a pay-as-you-go basis plus additional contributions into an OPEB trust. The fiduciary net position equaled 61.5% of the total OPEB liability at the end of fiscal 2023.

ESG considerations

Exhibit 7

ESG credit impact score

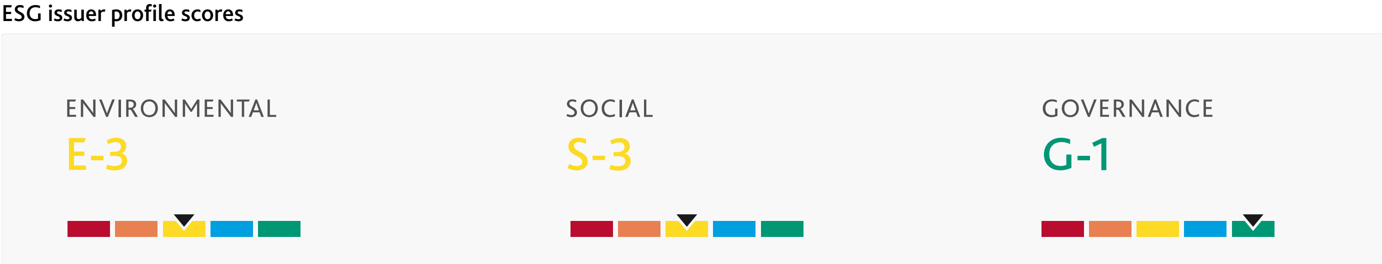


Source: Moody's Ratings

Massachusetts Water Resources Authority's ESG credit impact score of CIS-2 indicates that ESG considerations have a limited impact on its credit rating. This reflects elevated exposure to environmental risks and social risks, and positive governance considerations.

Exhibit 8

ESG issuer profile scores



Source: Moody's Ratings

Environmental

The authority's credit exposure to environmental risks is moderately negative (E-3), reflecting elevated exposure to water management risk. Wastewater and combined water and wastewater utilities have moderately negative exposure to water management considerations given the risk of potential regulatory violations associated with wastewater disposal. Wastewater operations face risks of increased operating costs or capital requirements to address violations. The MWRA is not in violation of any regulations. The authority also has heightened exposure to physical climate risks given the location of its treatment plant and other important infrastructure on Deer Island in the Massachusetts Bay and along the coastline. The authority has limited exposure to carbon transition, natural capital and waste and pollution.

Social

The authority's credit exposure to social risks is moderately negative (S-3). Water utilities have exposure to responsible production risk, which we view as moderately negative across the sector. Testing results reported to the Environmental Protection Agency indicate that most utilities provide clean and safe drinking water. However, water utilities are at risk of health violations resulting from catastrophic events, changes in source water quality, failures in treatment or transmission processes or revised regulations. MWRA does not have any health violations. The authority has limited risks associated with demographic and social trends, customer relations, human capital, and health and safety considerations.

Governance

MWRA's governance considerations are positive (G-1). The authority benefits from srong financial strategy and risk management considerations, and positive management credibility and track record considerations. MWRA has low exposure to organizational structure and compliance and reporting. Exposure to risks associated with board structure, policies and procedures is also limited given broad representation from member communities on the 11-person board.

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