

CREDIT OPINION

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City of Madison, WI; Madison, WI Sewer Enterprise; Madison, WI Water Enterprise

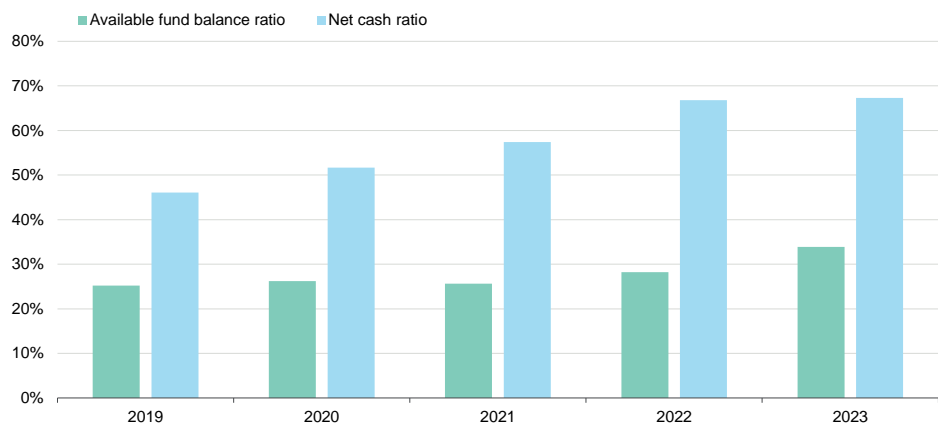
Update to credit analysis

Summary

[Madison](#) (Aaa stable) benefits from a strong and diverse economic base with significant institutional presence derived from its status as the state capital and site of the University of Wisconsin's flagship campus. Economic development remains strong and has resulted in material property tax growth, somewhat offsetting the city's limited revenue raising flexibility. The financial position is solid, supported by strong fiscal management. Leverage and fixed costs are moderate.

The [Madison Water Enterprise](#) (Aa2 stable) and the [Madison Sewer Enterprise](#) (Aa2 stable) benefit from the institutional stability embedded in the city's economic base and solid legal provisions. Liquidity and coverage have improved in recent years, supported by regular rate increases. Leverage is moderate for both systems but likely to grow due to the capital intensive nature of the enterprises.

Exhibit 1
Solid financial position



Sources: Madison (City of) WI's financial statements and Moody's Ratings

Credit strengths

- » Strong and diverse economic base serves as the seat of government for the state, county, and city, as well as the state's flagship university
- » Solid financial position across both governmental and business-type activities
- » Independent sewer rate-setting authority, subject to City Council approval

Credit challenges

- » Limited revenue raising flexibility due to state-imposed property tax levy limits
- » Water rates must be approved by the Wisconsin Public Service Commission

Rating outlook

The stable outlook reflects the expectation that the credit quality will remain strong, supported by continued economic growth, long-standing government and higher education presences within the city and continued financial stability.

Factors that could lead to an upgrade

- » Not applicable (issuer)
- » Sustained strengthening of debt service coverage to levels above 3.0x (water and sewer)

Factors that could lead to a downgrade

- » Material narrowing of available fund balance or net cash ratios to levels below 25%
- » Increase in the long-term liabilities ratio to levels nearing 300%
- » Weakening of debt service coverage to levels materially below 2.0x (water and sewer)
- » Narrowing of system liquidity to levels closer to 150 days cash on hand (water and sewer)

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody's.com> for the most updated credit rating action information and rating history.

Key indicators

Exhibit 2

Madison (City of) WI

	2020	2021	2022	2023	Aaa Medians
Economy					
Resident income ratio (%)	108.5%	105.7%	104.6%	N/A	170.6%
Full Value (\$000)	\$33,036,794	\$32,940,368	\$38,606,699	\$42,648,777	\$8,680,662
Population	258,366	265,447	268,516	N/A	36,119
Full value per capita (\$)	\$127,868	\$124,094	\$143,778	N/A	N/A
Annual Growth in Real GDP	-2.4%	5.4%	1.8%	N/A	4.9%
Financial Performance					
Revenue (\$000)	\$574,754	\$628,947	\$691,521	\$772,111	\$101,733
Available fund balance (\$000)	\$150,304	\$160,722	\$194,989	\$262,107	\$62,520
Net unrestricted cash (\$000)	\$297,080	\$361,223	\$461,664	\$519,724	\$88,880
Available fund balance ratio (%)	26.2%	25.6%	28.2%	33.9%	61.7%
Liquidity ratio (%)	51.7%	57.4%	66.8%	67.3%	91.1%
Leverage					
Debt (\$000)	\$881,274	\$856,735	\$873,765	\$885,921	\$68,781
Adjusted net pension liabilities (\$000)	\$841,727	\$1,070,528	\$1,020,860	\$511,903	\$105,726
Adjusted net OPEB liabilities (\$000)	\$79,592	\$80,620	\$65,282	\$77,022	\$11,674
Other long-term liabilities (\$000)	\$66,976	\$69,048	\$69,375	\$69,327	\$3,903
Long-term liabilities ratio (%)	325.3%	330.2%	293.5%	200.0%	258.2%
Fixed costs					
Implied debt service (\$000)	\$56,736	\$63,110	\$60,091	\$61,024	\$4,899
Pension tread water contribution (\$000)	\$12,439	\$8,963	\$10,031	N/A	\$3,333
OPEB contributions (\$000)	\$3,529	\$3,239	\$3,706	\$3,461	\$503
Implied cost of other long-term liabilities (\$000)	\$4,306	\$4,796	\$4,843	\$4,845	\$262
Fixed-costs ratio (%)	13.4%	12.7%	11.4%	10.3%	11.2%

For definitions of the metrics in the table above please refer to the [US Cities and Counties Methodology](#) or see the Glossary in the Appendix below. Metrics represented as N/A indicate the data were not available at the time of publication. The medians come from our most recently published [US Cities and Counties Median Report](#).

The real GDP annual growth metric cited above is for the Madison, WI Metropolitan Statistical Area Metropolitan Statistical Area.

Sources: US Census Bureau, Madison (City of) WI's financial statements and Moody's Ratings, US Bureau of Economic Analysis

Exhibit 3

Madison (City of) Sewer Enterprise, WI					
System Characteristics					
Asset Condition (Net Fixed Assets / Annual Depreciation)	52 years				
System Size - O&M (\$000)	\$41,128				
Service Area Wealth: MFI % of US median	120.43%				
Legal Provisions					
Rate Covenant (x)	1.25x				
Debt Service Reserve Requirement	DSRF funded at the lesser of the standard 3-prong test (Aa)				
Management					
Rate Management	Aa				
Regulatory Compliance and Capital Planning	Aa				
Financial Strength					
	2019	2020	2021	2022	2023
Operating Revenue (\$000)	\$40,947	\$42,740	\$47,618	\$50,965	\$55,563
System Size - O&M (\$000)	\$33,094	\$33,278	\$37,745	\$38,222	\$41,128
Net Revenues (\$000)	\$8,867	\$10,221	\$11,036	\$14,856	\$16,115
Net Funded Debt (\$000)	\$37,999	\$50,921	\$41,643	\$49,731	\$44,345
Annual Debt Service (\$000)	\$6,230	\$5,042	\$10,538	\$5,715	\$6,888
Annual Debt Service Coverage (x)	1.4x	2.0x	1.0x	2.6x	2.3x
Cash on Hand	98 days	180 days	145 days	238 days	228 days
Debt to Operating Revenues (x)	0.9x	1.2x	0.9x	1.0x	0.8x

Sources: US Census Bureau, Madison (City of) WI Sewer Enterprise's financial statements and Moody's Ratings

Exhibit 4

Madison (City of) Water Enterprise, WI					
System Characteristics					
Asset Condition (Net Fixed Assets / Annual Depreciation)	28 years				
System Size - O&M (\$000)	\$18,871				
Service Area Wealth: MFI % of US median	120.43%				
Legal Provisions					
Rate Covenant (x)	1.25x				
Debt Service Reserve Requirement	DSRF funded at the lesser of the standard 3-prong test (Aa)				
Management					
Rate Management	A				
Regulatory Compliance and Capital Planning	Aa				
Financial Strength					
	2019	2020	2021	2022	2023
Operating Revenue (\$000)	\$43,945	\$44,930	\$48,112	\$48,140	\$57,796
System Size - O&M (\$000)	\$16,474	\$16,949	\$16,649	\$18,182	\$18,871
Net Revenues (\$000)	\$29,073	\$28,530	\$31,447	\$29,673	\$42,151
Net Funded Debt (\$000)	\$203,272	\$193,783	\$182,275	\$167,125	\$154,378
Annual Debt Service (\$000)	\$16,968	\$14,057	\$15,624	\$18,358	\$17,298
Annual Debt Service Coverage (x)	1.7x	2.0x	2.0x	1.6x	2.4x
Cash on Hand	113 days	221 days	332 days	352 days	570 days
Debt to Operating Revenues (x)	4.6x	4.3x	3.8x	3.5x	2.7x

Sources: US Census Bureau, Madison (City of) WI Water Enterprise's financial statements and Moody's Ratings

Profile

Madison is the state capital of [Wisconsin](#) (Aa1 stable) and is home to the flagship campus of the University of Wisconsin. It is the state's second largest city with an estimated population of about 287,000.

The Madison water system and sewer system are enterprises of the city. The sewer system provides wastewater collection to about 71,000 customers within the City of Madison. The water system provides water treatment and distribution to over 71,000 customers within the City of Madison, as well as the adjacent villages of Maple Bluff and Shorewood Hills, and a portion of the [City of Fitchburg](#) (Aaa).

Detailed credit considerations

Economy: large, diverse tax base serves as economic hub

Madison has a strong and diversified economy, supported by its status as the state capital, a regional economic center and the institutional presence of the University of Wisconsin's flagship campus. Residents and nearby commuters have access to employment opportunities across large governmental, health care, technology, and insurance sectors. Larger employers in the city include the State of Wisconsin (45,000 employees) as well as the University of Wisconsin and its affiliated health care facilities (about 41,000 employees). Regional economic growth slightly outpaces the nation.

Residential development remains strong with several large housing projects underway. Additionally, Madison's Metro Transit is undergoing a redesign to provide improved service to all areas of the city. Amongst its many goals, the redesign supports the city's goal of using 100% renewable energy sources and becoming carbon neutral by the year 2030. The first line of the new bus rapid transit system is slated to open this fall. The expansion of the transit system is also expected to facilitate development along transit lines and increase access to areas of the city with available housing.

Moderately-sized utilities benefit from institutional presence

The customer base is about 85% residential for both systems and has modestly grown over the past five years. The water utility treats and distributes groundwater sourced from 23 deep wells with a combined pumping capacity of 64.5 million gallons per day (MGD) and maintains 33 reservoirs and standpipes with a combined storage capacity of 43 million gallons. Despite the expanding customer base, water consumption has generally been declining because of conservation efforts. The system size is consistent with the rating category median, with annual water operating and maintenance (O&M) expenses of about \$19 million in fiscal 2023 (year-end December 31).

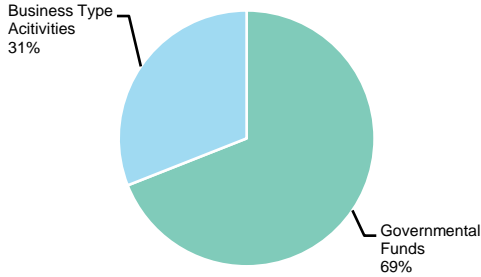
The sewer enterprise provides sewer collection services to a service area largely coterminous with the city, pumping waste to the Madison Metropolitan Sewerage District (MMSD) for treatment. The sewer system is comprised of 760 miles of sanitary sewer mains and 29 sanitary sewerage lift stations. The system size is above the median for the rating category, with annual sewer O&M expenses of about \$41 million in fiscal 2023 (year-end December 31).

Financial operations: solid financial position supported by prudent management

Madison's financial position is expected remain solid, supported by steadily growing property tax revenue stemming from continued development and sound utility operations. Business-type activities make up just over 30% of total revenue (see Exhibit 5) and include the city's water utility, sewer utility, stormwater utility, transit utility and nonmajor enterprises (parking utility, convention center, and golf courses).

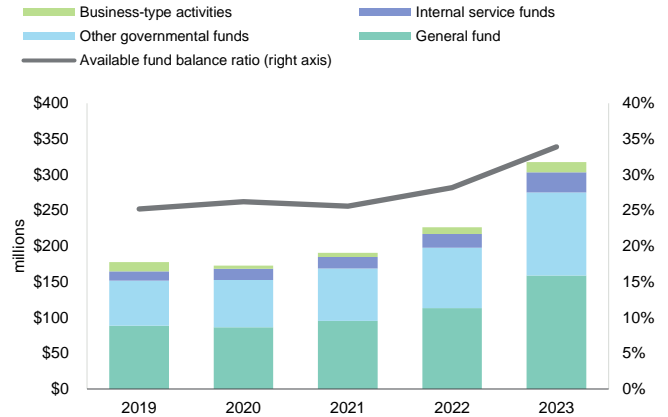
The adopted fiscal 2024 (year-end December 31) operating budget includes a \$9.2 million use of fund balance, however management reports strong investment income and personnel savings through July and anticipates closing the year at least balanced. The city is in the preliminary stages of preparing its fiscal 2025 budget, which currently includes a \$22 million deficit. Management is exploring several options to close the budget gap, including reducing services offered to the public, increasing charges for services and fees, approaching voters for a property tax increase, or some combination thereof. Madison closed fiscal 2023 with a solid available fund balance ratio of 34% (see Exhibit 6).

Exhibit 5
Business-type activities account for about 30% of total revenue



Sources: Madison (City of) WI's financial statements and Moody's Ratings

Exhibit 6
Strengthened financial position



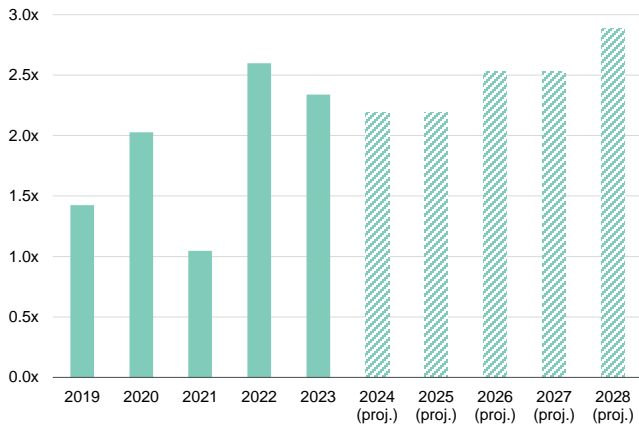
Sources: Madison (City of) WI's financial statements and Moody's Ratings

Satisfactory debt service coverage on revenue bonds

Annual debt service coverage (DSC) will likely remain strong for both enterprises. The sewer system benefits from unlimited rate setting authority and regular rate increases resulted in annual DSC of 2.3x in fiscal 2023. Absent any additional rate increases, coverage will remain above 2.2x because the debt service schedule is fairly level through 2028 (see Exhibit 7).

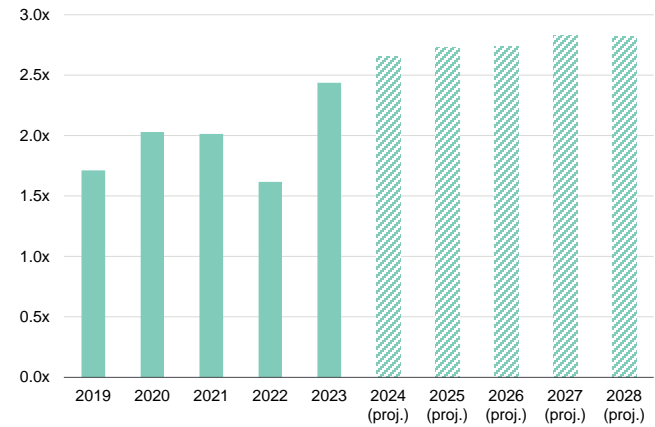
The water system's DSC improved to 2.4x in fiscal 2023 following a 18% water rate increase. Rate increases for Wisconsin water utilities require the approval of the Wisconsin PSC and management will likely be conducting a rate study and applying for a rate increase during the next few years as borrowing for water projects continue. While the water utility is somewhat limited in its ability to quickly raise rates in response to rising costs, DSC is expected to remain solid over the next several years because of fairly level debt service through fiscal 2028 (see Exhibit 8).

Exhibit 7
Coverage on sewer revenue bonds will remain strong



2021 coverage fell to 1.0x due to a refunding. Net of the refunding payment, coverage was a solid 1.8x.
Sources: Madison (City of) WI Sewer Enterprise's financial statements and Moody's Ratings

Exhibit 8
Improved coverage on water revenue bonds following 2023 rate increase



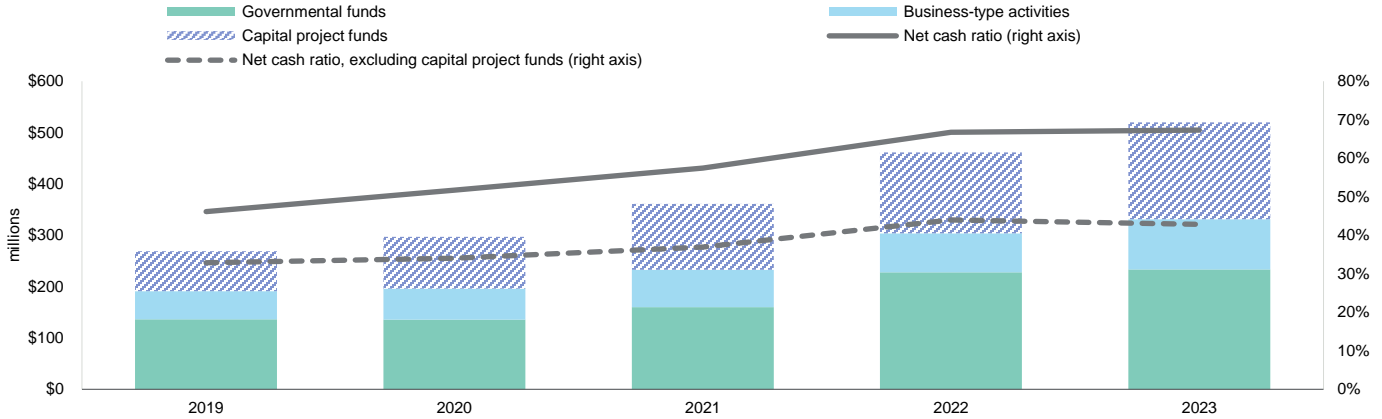
Sources: Madison (City of) WI Water Enterprise's financial statements and Moody's Ratings

Liquidity

The city closed fiscal 2023 with a net cash position of \$520 million, or 67% of revenue, inclusive of \$189 million in its capital project funds. Typically, these funds consist of unspent bond proceeds and are restricted in use to particular projects. Net of the capital project funds, citywide liquidity is a still strong 43% of revenue (see Exhibit 9).

Exhibit 9

Strong liquidity across all funds

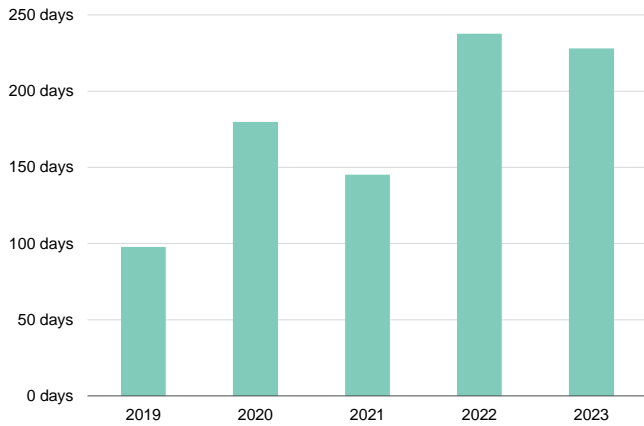


Sources: Madison (City of) WI's financial statements and Moody's Ratings

The sewer system closed fiscal 2023 with \$25.7 million in unrestricted cash, equal to a solid 228 days cash on hand (see Exhibit 10). The water system closed fiscal 2023 with \$29.5 million in unrestricted cash, equal to a very strong 570 days cash on hand. In fiscal 2024, the water utility used \$12 million of reserves to pay off a portion of its outstanding bond anticipation note (BAN), bringing days cash on hand back in line with historical levels at 338 days (see Exhibit 11).

Exhibit 10

Sewer system liquidity is strong



Sources: Madison (City of) WI Sewer Enterprise's financial statements and Moody's Ratings

Exhibit 11

Improved water system liquidity, despite use of reserves in 2024



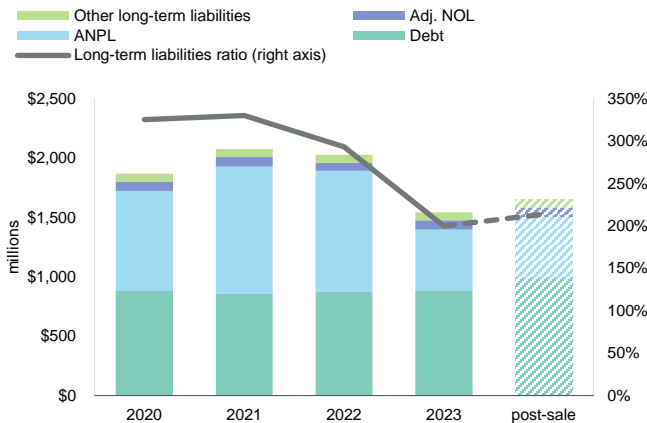
Sources: Madison (City of) WI Water Enterprise's financial statements and Moody's Ratings

Leverage: moderate leverage

Madison's long-term liabilities ratio will remain in line with peers despite regular borrowing to address capital needs because of the rapid amortization of outstanding debt and relatively modest pension liabilities. The city is in the process of issuing three series of general obligation unlimited tax (GOULT) notes for various capital projects throughout the city. Post-sale, its long-term liabilities ratio will be about 214% of revenue (see Exhibit 12). Fixed costs will remain slightly above 10% (see Exhibit 13).

Exhibit 12

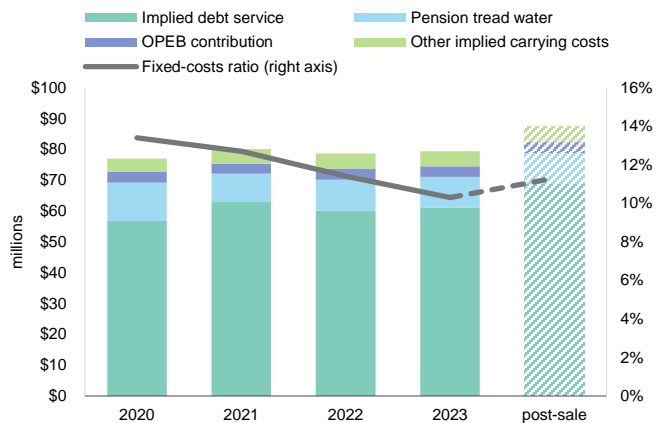
Post-sale leverage is moderate



Sources: Madison (City of) WI's financial statements and Moody's Ratings

Exhibit 13

Fixed costs will grow slightly



Sources: Madison (City of) WI's financial statements and Moody's Ratings

Legal security

The city's GOULT debt is backed by its full faith and credit pledge, and is payable from ad valorem taxes unlimited as to rate or amount.

Debt service on the sewer system's revenue debt is payable from net revenue of the sewer utility. Legal provisions include a 1.25x rate covenant, an additional bonds test of 1.25x maximum annual debt service (MADS) coverage, and a debt service reserve fund funded at the lesser of 10% of principal amount or MADS.

Debt service on the water system's revenue debt is payable from net revenue of the water utility. Legal provisions include a 1.25x rate covenant, an additional bonds test of 1.25x MADS coverage, and a debt service reserve fund funded at the lesser of MADS, 10% of original principal amount, or 125% of average annual debt service for all outstanding bonds.

Debt structure

All of the city's debt is fixed rate. Amortization is very rapid with 91% of the city's general obligation debt scheduled to be paid off over the next ten years.

Debt-related derivatives

The city is not a party to any debt-related derivatives.

Pensions and OPEB

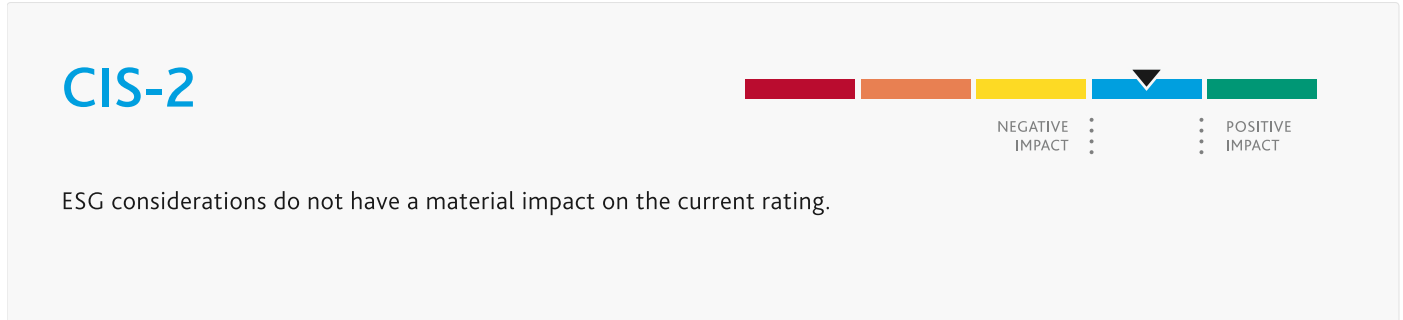
Wisconsin cities' liabilities for employee retirement benefits predominantly stem from their participation in the Wisconsin Retirement System (WRS). Pension risks for local governments that participate in WRS have generally remained low over time, in part due to a mechanism by which the retirement system shares some investment risk with retirees. Contributions by governments in aggregate to the WRS have also consistently tracked near or above our tread water indicator, helping to constrain liability growth. Madison's other post-employment benefits (OPEB) obligations do not pose a material cost to the city. The OPEB liability reflects an implicit rate subsidy for retirees who pay to remain on the city's health care plan, which are funded on a pay-as-you-go basis.

ESG considerations

Madison (City of) WI's ESG credit impact score is CIS-2

Exhibit 14

ESG credit impact score

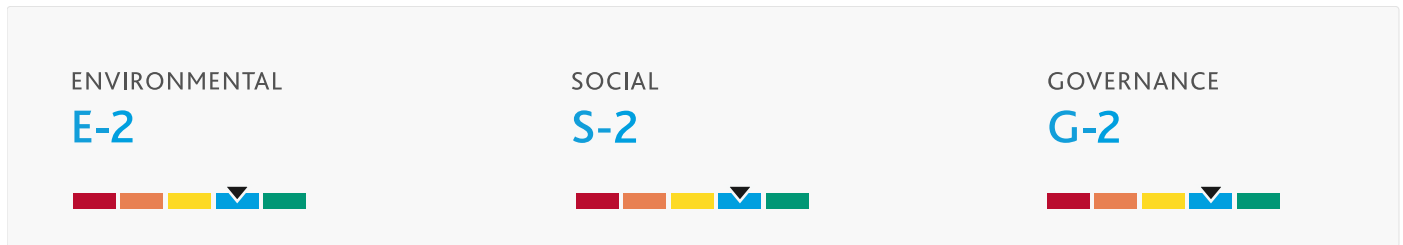


Source: Moody's Ratings

Madison's ESG Credit Impact Score is neutral-to-low (**CIS-2**), reflecting neutral to low exposure to environmental, social, and governance risks.

Exhibit 15

ESG issuer profile scores



Source: Moody's Ratings

Environmental

The city's E issuer profile score is neutral-to-low (**E-2**), reflecting low exposure to environmental risks, including heat stress, water stress, and extreme rainfall. Madison maintains a comprehensive sustainability plan to adapt to changing environmental, social and economic conditions over time. Initiatives include improving water quality, reducing waste, and increasing the use renewable energy.

Social

The S issuer profile score is neutral-to-low (**E-2**), reflecting population growth, a diverse labor market, and strong educational attainment. Health metrics are also favorable: nearly 96% of the city's population has health insurance compared to the national rate of 91%. Overall demographics and educational attainment are strengths. Residents have easy access to basic services and the county scores favorably in health and safety.

Governance

Madison's G issuer profile score is neutral-to-low (**G-2**). The city is limited in its ability to raise revenue, however management utilizes a conservative budgetary approach and multi-year capital planning to maintain operating reserves in compliance with its formal fund balance policy.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moodys.com. In order to view the latest scores, please click [here](#) to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

Rating methodology and scorecard factors

The US Cities and Counties Methodology includes a scorecard, which summarizes the rating factors generally most important to city and county credit profiles. Because the scorecard is a summary, and may not include every consideration in the credit analysis for a specific issuer, a scorecard-indicated outcome may or may not map closely to the actual rating assigned.

The assigned rating differs from the scorecard-indicated outcome and incorporates other considerations, including the city's rapidly growing economy, institutional presence, and strong fiscal management.

Exhibit 16

Madison (City of) WI

	Measure	Weight	Score
Economy			
Resident income ratio	104.6%	10.0%	Aa
Full value per capita	158,831	10.0%	Aa
Economic growth metric	0.1%	10.0%	Aaa
Financial Performance			
Available fund balance ratio	33.9%	20.0%	Aa
Liquidity ratio	67.3%	10.0%	Aaa
Institutional Framework			
Institutional Framework	A	10.0%	A
Leverage			
Long-term liabilities ratio	200.0%	20.0%	Aa
Fixed-costs ratio	10.3%	10.0%	Aa
Notching factors			
No notchings applied			
Scorecard-Indicated Outcome			Aa2
Assigned Rating			Aaa

The Economic Growth metric cited above compares the five-year CAGR of real GDP for Madison, WI Metropolitan Statistical Area Metropolitan Statistical Area to the five-year CAGR of real GDP for the US.

Sources: US Census Bureau, Madison (City of) WI's financial statements and Moody's Ratings

Appendix

Exhibit 17

Key Indicators Glossary

	Definition	Typical Source*
Economy		
Resident income ratio	Median Household Income (MHI) for the city or county, adjusted for Regional Price Parity (RPP), as a % of the US MHI	MHI: US Census Bureau - American Community Survey 5-Year Estimates RPP: US Bureau of Economic Analysis
Full value	Estimated market value of taxable property in the city or county	State repositories; audited financial statements; continuing disclosures
Population	Population of the city or county	US Census Bureau - American Community Survey 5-Year Estimates
Full value per capita	Full value / population	
Economic growth metric	Five year CAGR of real GDP for Metropolitan Statistical Area or county minus the five-year CAGR of real GDP for the US	Real GDP: US Bureau of Economic Analysis
Financial performance		
Revenue	Sum of revenue from total governmental funds, operating and non-operating revenue from total business-type activities, and non-operating revenue from internal services funds, excluding transfers and one-time revenue, e.g., bond proceeds or capital contributions	Audited financial statements
Available fund balance	Sum of all fund balances that are classified as unassigned, assigned or committed in the total governmental funds, plus unrestricted current assets minus current liabilities from the city's or county's business-type activities and internal services funds	Audited financial statements
Net unrestricted cash	Sum of unrestricted cash in governmental activities, business type activities and internal services fund, net of short-term debt	Audited financial statements
Available fund balance ratio	Available fund balance (including net current assets from business-type activities and internal services funds) / Revenue	
Liquidity ratio	Net unrestricted cash / Revenue	
Leverage		
Debt	Outstanding long-term bonds and all other forms of long-term debt across the governmental and business-type activities, including debt of another entity for which it has provided a guarantee disclosed in its financial statements	Audited financial statements; official statements
Adjusted net pension liabilities (ANPL)	Total primary government's pension liabilities adjusted by Moody's to standardize the discount rate used to compute the present value of accrued benefits	Audited financial statements; Moody's Investors Service
Adjusted net OPEB liabilities (ANOL)	Total primary government's net other post-employment benefit (OPEB) liabilities adjusted by Moody's to standardize the discount rate used to compute the present value of accrued benefits	Audited financial statements; Moody's Investors Service
Other long-term liabilities (OLTL)	Miscellaneous long-term liabilities reported under the governmental and business-type activities entries	Audited financial statements
Long-term liabilities ratio	Debt + ANPL + ANOL + OLTL / Revenue	
Fixed costs		
Implied debt service	Annual cost to amortize city or county's long-term debt over 20 years with level payments	Audited financial statements; official statements; Moody's Investors Service
Pension tread water contribution	Pension contribution necessary to prevent reported unfunded pension liabilities from growing, year over year, in nominal dollars, if all actuarial assumptions are met	Audited financial statements; Moody's Investors Service
OPEB contribution	City or county's actual contribution in a given period	Audited financial statements
Implied cost of OLTL	Annual cost to amortize city or county's other long-term liabilities over 20 years with level payments	Audited financial statements; Moody's Investors Service
Fixed-costs ratio	Implied debt service + Pension tread water + OPEB contributions + Implied cost of OLTL / Revenue	

*Note: If typical data source is not available then alternative sources or proxy data may be considered. For more detailed definitions of the metrics listed above please refer to the [US Cities and Counties Methodology](#).

Source: Moody's Ratings

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