

CREDIT OPINION

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Contacts

Coley J Anderson +1.312.706.9961
 VP-Senior Analyst
 coley.anderson@moodys.com

Benjamin J VanMetre +1.312.706.9951
 VP-Senior Analyst
 ben.vanmetre@moodys.com

CLIENT SERVICES

Americas 1-212-553-1653
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City of Cincinnati, OH

Update to credit analysis

Summary

The [City of Cincinnati](#) (Aa2 stable) maintains strong credit quality that is expected to be sustained by substantial federal stimulus, strong multi-year budgeting practices and projected growth in income tax receipts. The city's economy continues to benefit from its role as the economic center of southwest [Ohio](#) (Aa1 stable) and home to large corporate, healthcare and higher education institutions. The city's income tax base is broad and applies to non-residents who work in the city. Income tax collections weakened modestly during the pandemic, but the city used portions of its federal stimulus allocation to offset lost revenue. Income tax revenue through January has exceeded budgetary estimates and will help sustain a sound financial position. The city's primary credit challenge is above average long-term leverage.

The [City of Cincinnati, OH's Water Enterprise](#) (Aaa stable) benefits from a very large and diverse service area in southwest Ohio and northern [Kentucky](#) (Aa3 stable), ample liquidity, solid annual debt service coverage, unlimited rate-setting authority and strong capital planning. These credit strengths are balanced against the system's moderate leverage.

Credit strengths

- » Diverse regional economic center anchored by numerous corporate headquarters, healthcare organizations and higher education institutions (issuer)
- » Healthy reserves supported by strong budgetary management (issuer)
- » Large service area that extends well beyond the city and includes suburban communities in both southwest Ohio and northern Kentucky via retail and wholesale agreements (water revenue)
- » Well-managed financial operations supported by the Cincinnati City Council's authority and demonstrated willingness to adjust rates to maintain sound debt service coverage and healthy liquidity (water revenue)

Credit challenges

- » Elevated long-term leverage (issuer)
- » Adjusted resident income is weaker than peers (issuer)
- » Leverage is high compared to similarly rated credits but mitigated by the system's strong capital planning process and full compliance with all current environmental regulations (water revenue)

Rating outlook

The outlook on the city is stable because the city will continue to benefit from its strong economy and because we expect cash and fund balance to remain solid, supported by the city's good budget management, federal relief aid and broad revenue base.

The outlook on the water enterprise is stable because we expect the enterprise to maintain sound debt service coverage and healthy liquidity because of the strong management, very large service area and flexibility to adjust rates.

Factors that could lead to an upgrade

- » Continued improvement of resident income levels and economic growth (issuer)
- » Moderation of long-term leverage (issuer)

Factors that could lead to a downgrade

- » Weakening of economic profile (issuer)
- » Growth in long-term leverage (issuer)
- » Weakening of reserve position (issuer)
- » Increased leverage of net water revenue (water revenue)
- » Insufficient adjustments to water rates that weaken debt service coverage or liquidity (water revenue)
- » Declines in the city's fundamental credit quality (water revenue)

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.com> for the most updated credit rating action information and rating history.

Key indicators

Exhibit 1

Cincinnati (City of) OH

	2019	2020	2021	2022	Aa Medians
Economy					
Resident income ratio (%)	68.1%	69.8%	69.5%	N/A	115.4%
Full Value (\$000)	\$16,382,192	\$16,696,159	\$19,005,898	\$19,379,317	\$2,728,197
Population	301,394	302,687	308,664	N/A	23,462
Full value per capita (\$)	\$54,355	\$55,160	\$61,575	N/A	\$108,666
Economic growth metric (%)	N/A	0.6%	0.1%	N/A	-0.6%
Financial Performance					
Revenue (\$000)	\$989,145	\$1,080,356	\$1,228,609	\$1,152,036	\$50,065
Available fund balance (\$000)	\$217,774	\$309,569	\$297,375	\$364,830	\$25,773
Net unrestricted cash (\$000)	\$653,668	\$788,476	\$951,749	\$1,082,362	\$34,793
Available fund balance ratio (%)	22.0%	28.7%	24.2%	31.7%	51.2%
Liquidity ratio (%)	66.1%	73.0%	77.5%	94.0%	69.5%
Leverage					
Debt (\$000)	\$1,277,098	\$1,380,481	\$1,286,849	\$1,355,831	\$35,801
Adjusted net pension liabilities (\$000)	\$2,699,716	\$3,267,291	\$4,072,920	\$3,460,923	\$58,004
Adjusted net OPEB liabilities (\$000)	\$303,481	\$365,506	\$213,497	\$57,467	\$6,701
Other long-term liabilities (\$000)	\$166,626	\$174,512	\$167,325	\$166,664	\$1,659
Long-term liabilities ratio (%)	449.6%	480.2%	467.2%	437.6%	248.8%
Fixed costs					
Implied debt service (\$000)	\$95,585	\$93,113	\$98,860	\$90,259	\$2,504
Pension tread water contribution (\$000)	\$91,918	\$112,799	\$139,003	N/A	\$1,672
OPEB contributions (\$000)	\$22,513	\$26,099	\$22,667	\$22,026	\$193
Implied cost of other long-term liabilities (\$000)	\$12,502	\$12,149	\$12,497	\$11,736	\$113
Fixed-costs ratio (%)	22.5%	22.6%	22.2%	22.8%	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 Economic Growth metric cited above compares the five-year CAGR of real GDP for Cincinnati, OH-KY-IN Metropolitan Statistical Area to the five-year CAGR of real GDP for the US.

Sources: US Census Bureau, Cincinnati (City of) OH's financial statements and Moody's Investors Service, US Bureau of Economic Analysis

Exhibit 2

Cincinnati (City of) Water Enterprise, OH

Cincinnati (City of) Water Enterprise, OH					
System Characteristics					
Asset Condition (Net Fixed Assets / Annual Depreciation)	48 years				
System Size - O&M (\$000)	\$91,801				
Service Area Wealth: MFI % of US median	101.00%				
Legal Provisions					
Rate Covenant (x)	1.15x				
Debt Service Reserve Requirement	DSRF funded at the lesser of the standard 3-prong test (Aa)				
Management					
Rate Management	Aaa				
Regulatory Compliance and Capital Planning	Aa				
Financial Strength					
	2018	2019	2020	2021	2022
Operating Revenue (\$000)	\$161,835	\$158,897	\$174,786	\$181,350	\$180,051
System Size - O&M (\$000)	\$81,274	\$87,021	\$92,234	\$83,752	\$91,801
Net Revenues (\$000)	\$84,455	\$79,662	\$92,556	\$97,735	\$79,938
Net Funded Debt (\$000)	\$421,652	\$404,913	\$447,615	\$434,497	\$487,114
Annual Debt Service (\$000)	\$42,085	\$42,229	\$42,949	\$42,346	\$42,212
Annual Debt Service Coverage (x)	2.0x	1.9x	2.2x	2.3x	1.9x
Cash on Hand	708 days	683 days	721 days	928 days	846 days
Debt to Operating Revenues (x)	2.6x	2.5x	2.6x	2.4x	2.7x

Source: US Census Bureau, Cincinnati (City of) OH's financial statements and Moody's Investors Service, US Bureau of Economic Analysis

Profile

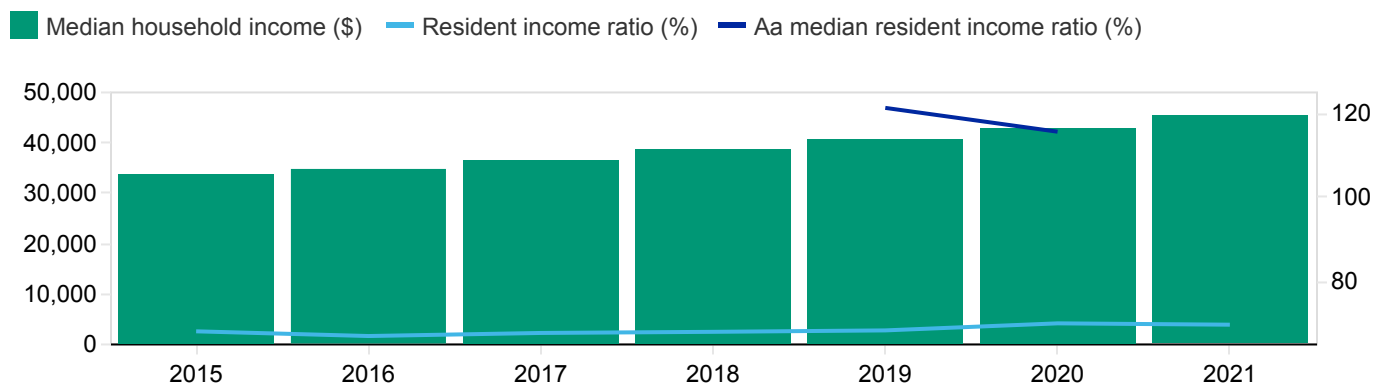
Cincinnati is the economic engine of southwest Ohio. The city is the county seat of [Hamilton County](#) (Aa2 stable) and serves over 300,000 residents. The city provides a broad array of services including public safety, parks and recreation, transportation, community development and various utilities.

The Greater Cincinnati Water Works (GCWW) is a municipally owned and operated utility. The city and most of Hamilton County are served on a retail or metered account basis, while other communities are serviced on a wholesale basis. The city is responsible for the complete administration, operation, maintenance and capital planning for the entire service area. The utility supplies roughly 43 billion gallons of water a year through 3,175 miles of water main to more than 243,000 residential and commercial accounts representing over 1.1 million customers in the Greater Cincinnati area.

Detailed credit considerations**Economy: strong economy expected to remain a credit strength**

Cincinnati will continue to benefit from economic growth that is outpacing the nation, partially because of its role as a regional economic center in southeastern Ohio. The city's population has grown over the last decade, including a notable 2% improvement from 2019 to 2021 during the pandemic. While the tax base is primarily residential, it has a robust commercial component and is home to the corporate headquarters of [Kroger Co.](#) (Baa1 negative) and [Procter & Gamble Company](#) (Aa3 stable). Recent investment in the local economy has increased local wealth metrics (full value per capita) to about \$61,000, which is still lower than similarly rated peers. The city also benefits from important tax-exempt properties, like [University of Cincinnati](#) (Aa3 stable) and [Cincinnati Children's Hospital Medical Center](#) (Aa2 stable), which are key institutions and employers. Cincinnati's economy draws strength from the wider metropolitan area beyond the city boundaries, as the daytime population is about 40% higher than the city's resident population. While adjusted resident income indices trail the nation, it has improved steadily over the last decade. Unemployment levels are roughly in line with state and national medians.

Exhibit 3

Resident Income

Aa medians are only currently available for 2019 and 2020

Source: Moody's Investors Service

The city's water enterprise treats and distributes water, primarily sourced from the Ohio River, to more than one million city and suburban residents in southwest Ohio and northern Kentucky. The GCWW serves nearly all of Hamilton County including both incorporated and unincorporated communities. The system also has retail and wholesale agreements with [Butler County](#) (Aaa stable), [Warren County](#) (Aaa stable), a number of suburban cities such as [Mason](#) (Aaa), Norwood and [Lebanon](#) (Aa2), and the [Boone Florence Water Commission](#) (A1) in Boone County, KY. A number of these agreements extend through 2025 or beyond. Hamilton County recently signed a new 50-year contract for its unincorporated area that runs through 2069.

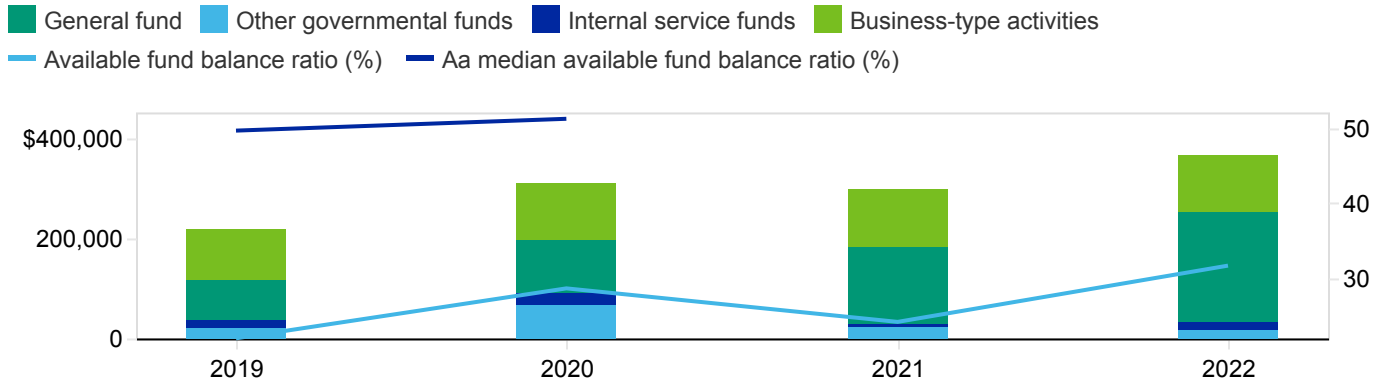
Financial operations: sound financial operations supported by strong budgeting practices

Cincinnati's financial position has been bolstered in recent years by significant federal aid. We expect the city's financial position to remain strong over the next several years because of the continued availability of federal relief aid, expectations for improving income tax receipts and continuation of strong budgeting practices. The city received about \$280 million in federal relief aid under ARPA, which was received in two tranches (May 2021 and June 2022). Over the last two years (fiscal 2021 and 2022) the city allocated nearly \$140 million for certain capital improvements and revenue replacement. When combined with better than expected income tax performance and stability across enterprise operations, the city's total available fund balance and net unrestricted assets grew by \$67 million to \$365 million and a healthy 32% of revenue. Similar results are expected for fiscal 2023 and 2024 because of the remaining ARPA proceeds of \$140 million and expected growth in the city's primary revenue stream. The city's 2023 budget has revised income tax revenue growth up by about 20%.

Income taxes account for a majority of citywide revenue at about 35%. Net of federal relief aid, income tax revenue would account for a larger share of revenue. To some extent from the significant federal relief aid, the city's income tax revenue collections have been resilient throughout the downturn, only realizing declines of 4% and 1% in fiscal years 2021 and 2022 respectively. The stability is partially attributable to House Bill 197, which allowed the city to collect taxes from remote workers during the pandemic state of emergency (Executive Order 2020-01D). There are several lawsuits across the state that have challenged the taxation of remote workers under HB 197. One such lawsuit was recently dismissed in Franklin County, however. The city began withholding income tax revenue for a potential refunding in fiscal 2021, but there is no current indication that refund will be near the level previously expected. For calendar year 2020, the refund is limited to three years. The city's income tax reserve for refunds totals \$50 million.

The city's available fund balance and net current assets would be higher and equivalent to more than 50% of revenue when including certain amounts restricted for general operating purposes including debt service, public safety, park operations and street repair.

Exhibit 4
Fund Balance



Aa medians are only currently available for 2019 and 2020
Source: Moody's Investors Service

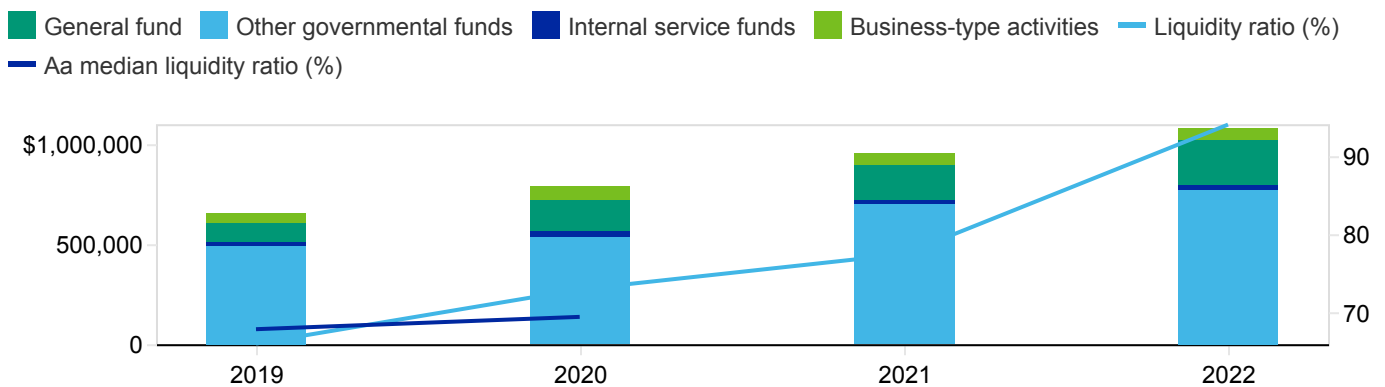
Financial operations at the water enterprise will remain solid because GCWW increases rates annually and has moderate borrowing plans. The system increased rates 3.75% in fiscal 2022 (year-end June 30) and usage was essentially flat from 2021, resulting in a modest decline in total annual debt service coverage to a still healthy 1.9x, partially because of a 9% increase in operations and maintenance expenditures. The city has budgeted for a 9% increase in water revenue in fiscal 2023, incorporating continued rebounding of water usage from the pandemic and recently approved 5.5% rate increase. Additional rate increases of 5.5% have been approved for 2024-2026.

Liquidity

The city-wide unrestricted cash and investment position is robust at nearly \$1.1 billion and a very healthy 94% of revenue. We expect cash to remain stable.

Water enterprise liquidity is similarly strong at \$212 million, which is equivalent to nearly 850 days of operations.

Exhibit 5
Citywide cash position is strong and expected to remain stable



Aa medians are only currently available for 2019 and 2020
Source: Moody's Investors Service

Leverage: long-term leverage is high and a primary credit challenge

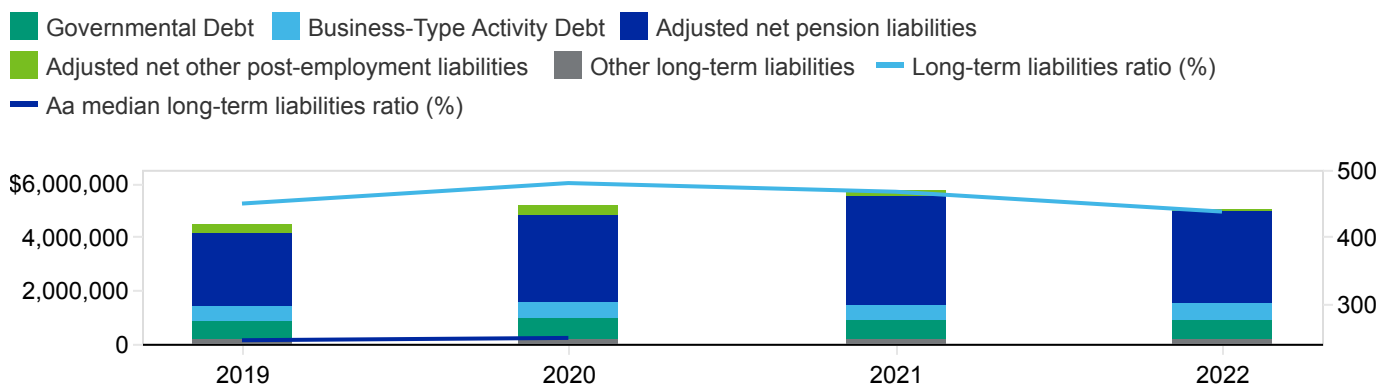
Long-term leverage related to debt, adjusted net pension liabilities (ANPL) and other post employment benefits (OPEB) is high and likely to remain a credit challenge. As of fiscal 2022, long-term leverage was equivalent to 438% of revenue. A majority of the city's

long-term leverage (~70%) is attributable to ANPL and declined in fiscal 2022 because of the current interest rate environment. The city plans to borrow between \$21 million and \$27 million in property-tax-supported bonds annually through 2027 for capital projects.

The water system's fiscal 2022 net funded debt totals about \$434 million, equal to 2.7x revenue. The water system's six year capital improvement plan call for just over \$400 million in total improvements. The system expects to borrow another \$60 million in fiscal 2024 and \$60 million in fiscal 2026. The city expects a majority of the funding will be borrowed through state revolving fund programs. Planned capital spending predominantly focuses on water distribution because treatment capabilities are up to date and provide sufficient capacity. The utility is currently in compliance with all requirements.

Exhibit 6

Total Primary Government - Long Term Liabilities



Aa medians are only currently available for 2019 and 2020

Source: Moody's Investors Service

Legal security and structure

The city's debt consists of general obligation bonds (GO) and nontax revenue bonds. The city's general obligation unlimited tax (GOULT) bonds are backed by the city's full faith and credit pledge and its authorization to levy a property tax unlimited as to rate or amount to pay debt service. The city's nontax revenue debt is backed by the trust estate for each series. The primary revenue for each is nontax revenue, including fines, forfeitures and penalties and licenses and permit fees. All of Cincinnati's long-term debt consists of fixed-rate, amortizing bonds with over 75% repaid within 10 years.

All outstanding water revenue debt consists of fixed-rate, long-term amortizing bonds and state loans. With the exception of outstanding state loans, all of Cincinnati's outstanding water revenue bonds are secured by a senior lien on net revenue of the city's water system. The rate covenant associated with senior lien bonds requires the city to charge rates sufficient to generate net revenue equivalent to at least 115% of annual senior lien debt service. The rate covenant also calls for revenue to meet 100% of total debt service needs, inclusive of any subordinate lien bonds or state loans. The debt service reserve fund requirement is equal to the lesser of either maximum annual debt service (MADS) for all senior lien bonds, 10% of aggregate tax-exempt par outstanding or on a series by series basis, the sum of MADS for taxable series and either the lesser of MADS or 125% average annual debt service for tax-exempt series.

Debt-related derivatives

The city has no derivative exposure.

Pensions and OPEB

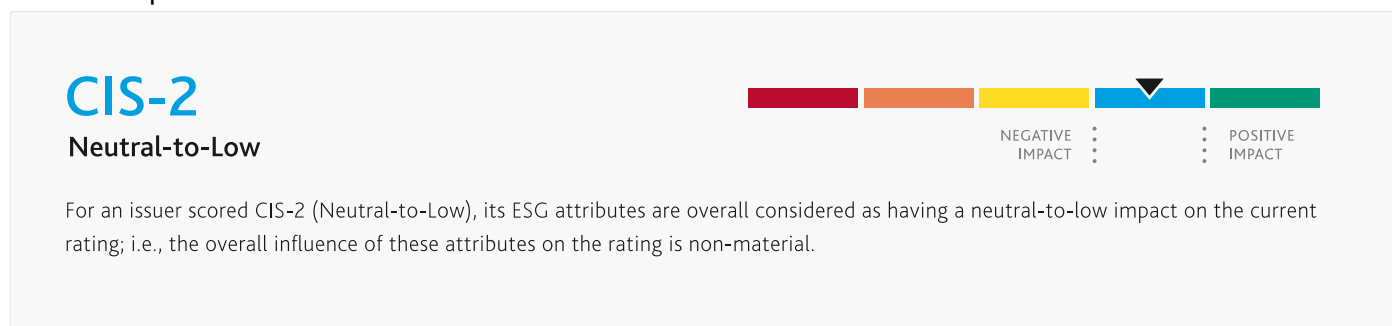
Cincinnati's exposure to unfunded pension liabilities remains elevated. The city participates in one single employer plan administered by the city and two statewide cost-sharing pension plans administered by the state. The city's adjusted net pension liability (ANPL) declined by approximately 15% in 2022, as a result of the application of a higher discount rate (4%) than in prior years including a rate of 2.8% in fiscal 2021. The city's adjusted fixed costs metric is slightly elevated and totaled about 22% of city revenue in fiscal 2022. Most general city employees are members of the Cincinnati Retirement System (CRS). A small number of city employees are members

of the Ohio Public Employees Retirement System (OPERS) while the city's public safety personnel are covered by the Ohio Police and Fire pension system (OP&F). OPERS and OP&F are multiple employer cost-sharing retirement systems covering employees of cities and counties across Ohio. There is broad legal flexibility in Ohio to amend pension benefits, and statute establishes a 30-year target for amortizing the unfunded liabilities of all cost-sharing plans. In 2012, the 30-year target was breached and the state legislature acted by reducing benefits and increasing employee contributions. The state law primarily applies to OPERS and OP&F, who routinely reevaluate the actuarial valuations and adjust benefits and contributions. For example, OP&F recently increased contributions for future years. In addition to state law, CRS is governed by the Collaborative Settlement Agreement (CSA) and municipal code.

ESG considerations

Cincinnati (City of) OH's ESG Credit Impact Score is Neutral-to-Low CIS-2

Exhibit 7
ESG Credit Impact Score



Source: Moody's Investors Service

Cincinnati's ESG CIS impact score is a 2, reflecting neutral-to-low exposure to environmental and social risks, along with a strong governance profile, which support Cincinnati's credit rating, resilience and capacity to respond to shocks.

Exhibit 8
ESG Issuer Profile Scores



Source: Moody's Investors Service

Environmental

City: Cincinnati's overall environmental issuer profile score is neutral-to-low (**E-2**), reflecting a balance between the city's high risk exposure to heat stress and extreme rainfall against its low exposure to water stress and lack of exposure to sea level rise. Additionally, the city has relatively low exposure to carbon transition, natural capital, and waste and pollution.

Water enterprise: The system's credit exposure to environmental risks is neutral-to-low (**E-2**), reflecting neutral-to-low exposure to all environmental risk categories: carbon transition, natural capital, water management, waste and pollution, and physical climate risks.

Social

City: We assess the city's S issuer profile score as neutral to low (**S-2**). Cincinnati has a slightly increasing population, an expanding labor force, and benefits from educational attainment that is in line with peers. The city is an employment hub for southwestern Ohio and is home to the University of Cincinnati along with a number of large hospitals and the headquarters of several Fortune 500

companies. Resident income levels are below the national average, however, and poverty is relatively high. City residents benefit from good access to housing, healthcare, and other basic services.

Water enterprise: Cincinnati Water Enterprise, OH's exposure to social risks is moderately negative (**S-3**). Most water utilities, including Cincinnati Water, have exposure to responsible production risk, which we view as moderately negative across the sector. The utility currently has no water quality violations. 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. The enterprise maintains neutral-to-low exposure to customer relations, human capital, and health and safety considerations. The utility has a slightly increasing population, an expanding labor force and boundaries that extend well beyond that of the city.

Governance

City: Cincinnati's strong governance is reflected in a score of **G-1**. The city has long-established policies in place and in-depth disclosures, which provide a solid level of transparency.

Water Enterprise: Cincinnati Water Enterprise, OH's governance considerations are positive (**G-1**) reflecting strong financial strategy and management credibility and effectiveness. The system maintains a robust master plan that is updated every 10 years and a six-year CIP forecast to identify the capital needs of the distribution and treatment systems. All rate increases require approval of the Cincinnati City Council, which is not subject to any oversight or restrictions. City Council regularly reviews and adjusts water rates to maintain sound debt service coverage and healthy liquidity. Still, utilities overseen by a municipal government, like Cincinnati Water Enterprise, have moderately negative exposure to board structure, policies and procedures risk.

Rating methodology and scorecard factors

The US Cities and Counties Rating 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 difference between the scorecard indicated outcome and the assigned rating reflects the city's status as a regional economic center with a large institutional presence. The city's fund balance is larger when including restricted amounts that are fully available to support operations. It also incorporates the ability to adjust pension benefits to meet funding targets.

Exhibit 9

Cincinnati (City of) OH

	Measure	Weight	Score
Economy			
Resident income ratio	69.5%	10.0%	Baa
Full value per capita	62,785	10.0%	A
Economic growth metric	0.1%	10.0%	Aaa
Financial Performance			
Available fund balance ratio	31.7%	20.0%	Aa
Liquidity ratio	94.0%	10.0%	Aaa
Institutional Framework			
Institutional Framework	Aa	10.0%	Aa
Leverage			
Long-term liabilities ratio	437.6%	20.0%	Baa
Fixed-costs ratio	22.8%	10.0%	Baa
Notching factors			
Potential for significant change in leverage	-0.5		
Scorecard-Indicated Outcome			A2
Assigned Rating			Aa2

Sources: US Census Bureau, Cincinnati (City of) OH's financial statements and Moody's Investors Service

Appendix

Exhibit 10

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 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
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 City and Counties Methodology](#).

Source: Moody's Investors Service

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