Nashville City Teachers Retirement Plan

Actuarial Valuation and Report

July 1, 2022

Contents

Introduction

This report has been prepared for the exclusive use of the Metropolitan Board of Public Education. The report summarizes the results of the actuarial valuation of the Nashville City Teachers Retirement Plan as of July 1, 2022. The purpose of the report is to provide an updated measurement of the plan's liabilities and provide information that will inform the financing of the plan and the financial reporting related to the plan. This report provides actuarial advice and does not constitute legal, accounting, tax or investment advice.

The actuarial calculations contained in the report are built on deterministic actuarial modeling, making a single determination of liabilities and costs. Further, these actuarial calculations are based on a combination of demographic and asset data, as well as assumptions concerning future changes in these data. As such, the actuarial calculations contained herein are an estimate of projected future occurrences.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law. Due to the limited scope of the assignment, we did not perform an analysis of the potential range of such future measurements. A more detailed discussion of plan-related risks is included herein.

Certification

By signature below, I attest the following:

This report has been prepared under my supervision; I am a member of the American Academy of Actuaries, a Fellow of the Society of Actuaries, and a consulting actuary with USI Consulting Group, and have met the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein. To the best of our knowledge this report has been prepared in accordance with generally accepted actuarial standards, including the overall appropriateness of the analysis, assumptions, and results and conforms to appropriate Standards of Practice as promulgated from time to time by the Actuarial Standards Board, which standards form the basis for the actuarial report. We are not aware of any direct or material indirect financial interest or relationship, including investment management or other services that could create, or appear to create, a conflict of interest that would impair the objectivity of our work.

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Summary of Report

An actuarial valuation of the Nashville Teachers City Retirement Plan was performed as of July 1, 2022. The purpose of the valuation was to examine the liabilities and to determine an actuarially determined contribution sufficient to fund the plan. Prior to the implementation of the Guaranteed Payment Program, benefits were financed on a "pay as you go" basis.

Beginning on July 1, 2000, the Plan became a portion of the Guaranteed Payment Program (GPP), an umbrella plan created by the state and local government to ensure actuarially sound funding for a group of five plans supervised by the Metro Benefit Board and the Board of Education. Under the GPP, unfunded liabilities of the aggregate plan are amortized over a period of no more than thirty years. Payments for the Plan move to a payment account from which distributions are paid to the constituent plans of the GPP as necessary to satisfy current benefit needs and to satisfy funding objectives of the GPP. Funding issues that are specific to the GPP are addressed in a separate report.

Comparison of Plan Information from Recent Valuations

	2022	2021*	2020	2019 *	2018 *
Retired Participants					
Number	43	49	56	73	78
Average Age	89.93	89.00	88.10	88.34	87.90
Gross Pensions	$1,728,534	$1,904,761	$2,130,368	$2,616,571	$2,726,243
Total Participants	43	49	56	73	78
Present Value of Future Benefits	$5,835,602	$6,804,559	$7,538,736	$9,313,730	$9,486,708
Actuarial Value of Assets	962,965	962,965	962,965	962,501	922,126
Funded Status	16.50%	14.15%	12.77%	10.33%	9.72%
Assumed Rate of Return	5.50%	5.50%	7.25%	7.25%	7.25%

* Indicates a change in actuarial assumptions and/or actuarial methods.

The Actuarial Computations section sets forth details of the determination of an actuarially determined contribution. The Basis of Valuation section of this report sets forth a summary of benefits provided under the Nashville City Teachers Retirement Plan, summarizes the actuarial assumptions on which the valuation was based, and summarizes the employee data on which this valuation was based.

The Administrative Retirement Committee adopted a change in actuarial assumptions (lowering the discount rate) for 2018 that increased the present value of future benefits by 1.0%. In 2019 the Administrative Retirement Committee adopted a change in actuarial assumptions (updating the mortality assumption) that increased the present value of future benefits by 5.6%. in 2021 the Administrative Retirement Committee adopted a change in actuarial assumptions (lowering the discount rate) that increased the present value of future benefits by 7.3%.

All calculations made in this report have been made utilizing employee data supplied by the Metropolitan Board of Public Education, asset information supplied by the Metropolitan Government of Nashville and Davidson County, and the actuarial assumptions summarized herein.

Actuarial Computations

Determination of Actuarially Determined Contribution

The exhibit below shows the determination of the Actuarially Determined Contribution for the plan year beginning July 1, 2022. The determination is made on an approximate basis.

Present Value of Benefits (Net of State Reimbursements)	
Active Lives	$ 0
Retired Lives	5,835,602
Total	$ 5,835,602
Less Actuarial Value of Assets	(962,965)
Present Value of Future Costs	$ 4,872,637
Amortization Period from Valuation Date *	5.1 Years
Level Dollar Amortization of Future Costs from Valuation Date	1,060,855
Interest Adjustment for Mid-year Payment	29,174
Actuarially Determined Contribution *	$ 1,090,029

* The above determination is an estimate that may be trued-up upon the determination of the actual benefit payments during the year.

Basis of Valuation

Summary of Actuarial Assumptions

Unless noted below, all assumptions are a combination of estimated future experience and estimates inherent in market data or plan experience.

Mortality Rates

110% of the Pub-2010 Teachers mortality table (fully generational) with mortality improvement projected forward from 2010 using mortality improvement scale MP-2018.

Pre-Retirement Decrements

Not applicable

Salary Scale

Not applicable

Discount Rate/Rate of Investment Return

5.50% per annum

Cost of Living Increases

3.00% per annum

Actuarial Valuation Method

Entry Age Normal – with Level Dollar Amortization

Asset Valuation Method

Fair Market Value of Assets

Risk Assessment Associated with Assumptions

Risk Factor	Risk Assessment
Investment	Currently the plan is largely unfunded. However, full funding of the plan is anticipated over the next five years or so if the GPP funding continues at its current pace. Due to the plan's substantial equity exposure, investment returns will likely be much more volatile than liability valuations. Therefore, as the plan becomes better funded, there is a risk that the funded status of the plan, as well as required plan contributions, could be volatile.
Assumed Rate of Return	Due to the plan's estimated duration of 4 to 5, a 1% decrease in the assumed rate of investment return would increase the liability 4% to 5%. More detailed sensitivity analysis is included in the GASB 67 reporting for this plan.
Longevity	Since benefits from the plan must generally be paid as annuities, the plan is sensitive to changes in overall population longevity. As a result, the liabilities will increase if participants live longer than expected and decrease if they live shorter than expected. This risk is largely mitigated due to the maturity of the plan population. All benefits are in pay status and the average participant age exceeds 85.
Other demographic factors	No known significant risks.
Asymmetries in formula	No known significant risks.
Inflation	Inflation is a component of both cost of living allowances (COLAs) and investment returns over a long period. As a result, changes to inflation can affect funded percentages. Retiree benefits are given increases based on increases in the Consumer Price Index (CPI), a measurement of inflation. The risk associated with the COLAs is mitigated since the annual COLA is capped at 3.0%, and the assumed COLA is the maximum 3.0%. So, any impact on plan liabilities due to variations of actual COLAs from assumed COLAs can only result in gains, and not losses.

USI Consulting Group can perform more detailed assessments of these risks as desired by the plan sponsor to provide a better understanding of the risks.

This summary is not a Summary Plan Description or a Plan document. You should not rely solely on this summary in making a determination of eligibility for the Plan or its benefits.

Summary of Provisions of the Plan

Eligibility	All teachers in the Nashville City schools hired prior to April 1, 1963, are eligible under the plan.
Retirement Dates	
a. Normal Retirement Date	Age 60 with 15 years of service, or prior to age 60 with 25 years of service.
b. Early Retirement Date	Completion of 15 years of service.
Retirement Income	
a. Normal	Age 60 with 15 years of service – 2.50% of highest annual salary per year of service, not to exceed 60% of pay; Prior to age 60 with 25 years of service – 2.00% of highest annual salary per year of service, not to exceed 60% of pay.
b. Early	A benefit deferred to age 60, calculated as above.
Normal Form of Payment	Single life annuity
Cost of Living Adjustments	Each July 1, up to 3% of the original retirement benefit is added to a member's retirement benefit. The percentage increase is based on the increase in the Consumer Price Index (all items–United States city average), but will not exceed 3%. In any year when the change of CPI is less than a 1% increase, there is no benefit adjustment made on the following July 1.
Death Benefit	
(After Retirement)	None.

Summary of Participant Data

Distribution of Active Participants - None

Distribution of Inactive Participants with Average Annual Benefit

Age Group	Number	Annual Pensions (Gross) Total	Average
0 - 64	0	$0	$0
65 - 69	0	0	0
70 - 74	0	0	0
75 - 79	0	0	0
80 - 84	6	223,988	37,331
85 - 89	15	610,341	40,689
90+	22	894,205	40,646
TOTAL	43	$1,728,534	$40,198