

The Teachers' Pension and Annuity Fund of New Jersey

GASB 67 Report as of June 30, 2023

Produced by Cheiron

February 2024

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**TEACHERS' PENSION AND ANNUITY FUND OF NEW JERSEY
GASB 67 REPORTING FOR JUNE 30, 2023 MEASUREMENT DATE**

SECTION I – BOARD SUMMARY

The purpose of this report is to provide accounting and financial disclosure information under Governmental Accounting Standards Board Statement 67 for the Teachers' Pension and Annuity Fund of New Jersey (TPAF, Plan or Fund). This information includes:

- Projection of the Total Pension Liability (TPL) from the valuation date to the measurement date,
- Calculation of the Net Pension Liability (NPL) at the discount rate as well as discount rates 1% higher and lower than the discount rate, and
- Changes in the Net Pension Liability.

Highlights

The reporting date for the TPAF is June 30, 2023. Measurements as of the reporting date are based on the fair value of assets as of June 30, 2023 and the Total Pension Liability as of the valuation date, July 1, 2022, updated to June 30, 2023. We are not aware of any significant events between the valuation date and the measurement date that are measurable at this time, so the update procedures only include the addition of service cost and interest cost offset by actual benefit payments.

The following table provides a summary of the key results during this reporting period.

Table I-1 Summary of Results		
Measurement Date	June 30, 2023	June 30, 2022
Total Pension Liability	\$ 78,240,143,092	\$ 76,317,117,835
Plan Fiduciary Net Position	<u>27,130,181,268</u>	<u>24,640,530,532</u>
Net Pension Liability	\$ 51,109,961,824	\$ 51,676,587,303

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SECTION II – CERTIFICATION

The purpose of this report is to provide accounting and financial reporting information under GASB 67 for the Teachers' Pension and Annuity Fund of New Jersey (TPAF). This report is for the use of TPAF, the Division of Pensions and Benefits (DPB) and their auditors in preparing financial reports in accordance with applicable law and accounting requirements. This report is not appropriate for other purposes, including the measurement of funding requirements for TPAF and estimating the price to settle TPAF's obligations.

In preparing our report, we relied on information (some oral and some written) supplied by the DPB. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23, Data Quality.

Future actuarial measurements may differ significantly from the current measurements 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.

For purposes of this report, the calculation of the Total Pension Liability and the projection of the Plan's contributions and benefit payments as of June 30, 2023 were based on the recommended demographic assumptions of the July 1, 2018 – June 30, 2021 Experience Study, which was approved by the Board of Trustees on December 1, 2022.

This report was prepared using census data as of the July 1, 2022 valuation date and financial information as of the June 30, 2023 measurement date.

Based on the State Treasurer's recommendation, the investment return assumption used to determine the actuarially determined contributions is 7.00% per annum.

In accordance with Paragraph 40 of GASB Statement No. 67, the projection of the Plan's fiduciary net position is based on a long-term expected rate of return of 7.00% per annum. The discount rate used to measure the Total Pension Liability is 7.00% as of June 30, 2023 and is described in Section III of the report.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

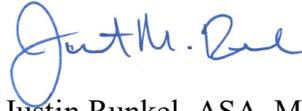
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SECTION II – CERTIFICATION

This report was prepared for TPAF for the purposes described herein and for the use by the plan auditor in completing an audit related to the matters herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to such other users.



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SECTION III – DETERMINATION OF DISCOUNT RATE

The discount rate used to measure the Total Pension Liability was 7.00% as of June 30, 2022 and June 30, 2023. As discussed with the DPB, the projection of cash flows used to determine the discount rate as of June 30, 2023 assumed:

- In accordance with Paragraph 40 of GASB Statement No. 67, the projection of the Plan's fiduciary net position is based on a long-term expected rate of return of 7.00% per annum.
- In accordance with Paragraph 41 of GASB Statement No. 67, the projection of the Plan's contributions and benefit payments are based on the same assumptions used to determine the expected contributions for the Fund. The demographic assumptions are based on the recommendations of the July 1, 2018 – June 30, 2021 Experience Study, which was approved by the Board of Trustees on December 1, 2022.

Based on the State Treasurer's recommendation, the investment return assumption used to determine the actuarially determined contributions is 7.00% per annum.

- It is assumed that the State will contribute 100% of the actuarially determined contribution and Non-Contributory Group Insurance Premium Fund (NCGIPF) contribution. The 100% contribution rate is the total State contribution rate expected to be paid in fiscal year ending June 30, 2024 with respect to the actuarially determined contribution for the fiscal year ending June 30, 2024 for all State-administered retirement systems.
- Consistent with Chapter 83, P.L. 2016, it is assumed that the State will make pension contributions in equal amounts at the end of each quarter.
- In accordance with Chapter 98, P. L. 2017, TPAF receives 77.78% of the proceeds of the Lottery Enterprise for a period of 30 years. Revenues received from lottery proceeds are assumed to be contributed to the Fund on a monthly basis.
- It is assumed that Local employers' contributions are expected to be received on April 1st, 21 months after the associated valuation date.
- The NCGIPF contributions are assumed to be paid monthly.
- Annual administrative expenses are assumed to be 0.28% of expected pension benefit payments.

The Fiduciary Net Position (FNP) includes Local employers' contributions receivable as reported in the financial statements provided to us by the DPB. In determining the discount rate in Appendix D, the FNP at the beginning of each year does not reflect receivable contributions as those amounts are not available at the beginning of the year to pay benefits. The receivable contributions for the current year include receivable contributions of \$2,497,428 for Local employers' Early Retirement Incentive (ERI).

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SECTION III – DETERMINATION OF DISCOUNT RATE

In the event the Plan's fiduciary net position was no longer sufficient to make future benefit payments, municipal bond rates of 3.54% as of June 30, 2022 and 3.65% as of June 30, 2023 would be used to develop the blended GASB discount rate. As selected by the State Treasurer, the rates are based on the Bond Buyer GO 20-Bond Municipal Bond Index.

As of June 30, 2023, based on the assumptions above, the pension Plan's fiduciary net position is expected to be sufficient to make all projected future benefit payments for current Plan members; therefore, the GASB discount rate as of June 30, 2023 is equal to the long-term rate of return of 7.00%. Similarly, the GASB discount rate as of June 30, 2022 was equal to the long-term rate of return of 7.00%. The assumed discount rates have been determined in accordance with the method prescribed by GASB Statement No. 67. See Appendix D for the determination of the discount rate.

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SECTION IV – PROJECTION OF TOTAL PENSION LIABILITY

The Total Pension Liability at the end of the measurement year, June 30, 2023, is measured as of a valuation date of July 1, 2022 and projected to June 30, 2023. The TPL and service cost were calculated using the Entry Age Normal Cost Method as prescribed by GASB 67. All TPL amounts shown in Table IV-1 below include liabilities attributable to the NCGIPF. In addition, net employer transfer contributions and net member transfer contributions with accumulated interest are added to the June 30, 2023 TPL.

There were no significant events during the projection period of which we are aware. Because the TPL shown in the prior report was measured as of July 1, 2021 and projected to June 30, 2022, it will not match the amounts measured as of July 1, 2022 that are shown in this exhibit.

The following table shows the projection of the TPL at discount rates equal to the rate used for disclosure and plus and minus one percent from the rate used for disclosure.

Table IV-1			
Projection of Total Pension Liability from Valuation to Measurement Date			
Discount Rate	6.00%	7.00%	8.00%
Total Pension Liability, 7/1/2022			
Actives	\$ 36,502,394,998	\$ 31,129,501,840	\$ 26,711,961,573
Deferred Vested	57,124,482	49,584,862	43,451,129
Retirees	48,909,134,719	45,318,939,539	42,188,659,137
Total	\$ 85,468,654,199	\$ 76,498,026,241	\$ 68,944,071,839
Service Cost	1,745,372,426	1,364,281,690	1,077,354,704
Benefit Payments	(4,908,764,941)	(4,908,764,941)	(4,908,764,941)
Transfer Contributions - Employer	1,826,219	1,826,219	1,826,219
Transfer Contributions - Member	3,142,365	3,142,365	3,142,365
Interest	5,087,870,597	5,281,631,518	5,409,335,816
Total Pension Liability, 6/30/2023	\$ 87,398,100,865	\$ 78,240,143,092	\$ 70,526,966,002

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SECTION V – NOTE DISCLOSURES

The following table shows the changes in the Total Pension Liability, the Plan Fiduciary Net Position (i.e., fair value of Fund assets), and the Net Pension Liability during the Measurement Year.

Table V-1 Change in Net Pension Liability			
	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at 6/30/2022	\$ 76,317,117,835	\$ 24,640,530,532	\$ 51,676,587,303
Changes for the year:			
Service cost	1,364,281,690		1,364,281,690
Interest	5,268,967,929		5,268,967,929
Changes of benefits	0		0
Differences between expected and actual experience	193,571,995		193,571,995
Changes of assumptions	0		0
Contributions - employer (appropriations)		3,207,731,000	(3,207,731,000)
Contributions - employer (NCGIPF)		55,182,358	(55,182,358)
Contributions - employer (lottery)		910,026,000	(910,026,000)
Contributions - member		933,033,324	(933,033,324)
Transfers from other systems - employer	1,826,219	1,826,219	0
Transfers from other systems - member	3,142,365	3,142,365	0
Employer contribution - delayed enrollments	0	449,590	(449,590)
Employer contribution - delayed appropriations	0	0	0
Net investment income		2,300,606,725	(2,300,606,725)
Benefit payments	(4,908,764,941)	(4,908,764,941)	0
Administrative expense		(13,581,904)	13,581,904
Net changes	<u>1,923,025,257</u>	<u>2,489,650,736</u>	<u>(566,625,479)</u>
Balances at 6/30/2023	<u>\$ 78,240,143,092</u>	<u>\$ 27,130,181,268</u>	<u>\$ 51,109,961,824</u>

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SECTION V – NOTE DISCLOSURES

Changes in the discount rate affect the measurement of the TPL. Lower discount rates produce a higher TPL and higher discount rates produce a lower TPL. Because the discount rate does not affect the measurement of assets, the percentage change in the NPL can be very significant for a relatively small change in the discount rate. The following table shows the sensitivity of the NPL to the discount rate.

Table V-2 Sensitivity of Net Pension Liability to Changes in Discount Rate			
	1% Decrease 6.00%	Discount Rate 7.00%	1% Increase 8.00%
Total Pension Liability	\$ 87,398,100,865	\$ 78,240,143,092	\$ 70,526,966,002
Plan Fiduciary Net Position	<u>27,130,181,268</u>	<u>27,130,181,268</u>	<u>27,130,181,268</u>
Net Pension Liability	<u>\$ 60,267,919,597</u>	<u>\$ 51,109,961,824</u>	<u>\$ 43,396,784,734</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	31.0%	34.7%	38.5%

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SECTION VI – REQUIRED SUPPLEMENTARY INFORMATION

The schedule below shows the changes in NPL and related ratios required by GASB for the current and prior year.

Table VI-1		
Schedule of Changes in Net Pension Liability and Related Ratios		
	FYE 2023	FYE 2022
<u>Total Pension Liability</u>		
Service cost	\$ 1,364,281,690	\$ 1,195,044,307
Interest (includes interest on service cost)	5,268,967,929	5,146,965,905
Changes of benefit terms	0	0
Differences between expected and actual experience	193,571,995	(20,645,797)
Changes of assumptions	0	110,219,657
Transfers from other systems - employer	1,826,219	1,626,394
Transfers from other systems - member	3,142,365	7,760,894
Benefit payments, including refunds of member contributions	<u>(4,908,764,941)</u>	<u>(4,822,987,222)</u>
Net change in total pension liability	\$ 1,923,025,257	\$ 1,617,984,138
Total pension liability - beginning	<u>76,317,117,835</u>	<u>74,699,133,697</u>
Total pension liability - ending	<u>\$ 78,240,143,092</u>	<u>\$ 76,317,117,835</u>
<u>Plan fiduciary net position</u>		
Contributions - employer (appropriations)	\$ 3,207,731,000	\$ 3,271,136,000
Contributions - employer (NCGIPF)	55,182,358	56,578,899
Contributions - employer (lottery)	910,026,000	864,201,913
Contributions - member	933,033,324	907,326,471
Transfers from other systems - employer	1,826,219	1,626,394
Transfers from other systems - member	3,142,365	7,760,894
Employer contribution - delayed enrollments	449,590	395,540
Employer contribution - delayed appropriations	0	0
Net investment income	2,300,606,725	(2,166,014,956)
Benefit payments, including refunds of member contributions	(4,908,764,941)	(4,822,987,222)
Administrative expense	<u>(13,581,904)</u>	<u>(12,635,916)</u>
Net change in plan fiduciary net position	\$ 2,489,650,736	\$ (1,892,611,983)
Plan fiduciary net position - beginning	<u>24,640,530,532</u>	<u>26,533,142,515</u>
Plan fiduciary net position - ending	<u>\$ 27,130,181,268</u>	<u>\$ 24,640,530,532</u>
Net pension liability - ending	<u>\$ 51,109,961,824</u>	<u>\$ 51,676,587,303</u>
Plan fiduciary net position as a percentage of the total pension liability	34.68%	32.29%
Covered payroll	\$ 11,866,192,351	\$ 11,509,652,923
Net pension liability as a percentage of covered payroll	430.72%	448.98%

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SECTION VI – REQUIRED SUPPLEMENTARY INFORMATION

Since an Actuarially Determined Contribution (ADC) is calculated, the following schedule is required. An ADC is a contribution amount determined in accordance with Actuarial Standards of Practice. Amounts shown for the ADC and actual contributions in the following table include the amounts payable from the Lottery Enterprise. These amounts also include the Non-Contributory Group Insurance Premium Fund costs.

Table VI-2 Schedule of Employer Contributions		
	FYE 2023	FYE 2022
Actuarially Determined Contribution*	\$ 4,001,746,562	\$ 3,877,974,331
Contributions in Relation to the Actuarially Determined Contribution	<u>4,172,939,358</u>	<u>4,191,916,812</u>
Contribution Deficiency/(Excess)	\$ (171,192,796)	\$ (313,942,481)
Covered Payroll	\$ 11,866,192,351	\$ 11,509,652,923
Contributions as a Percentage of Covered Payroll	35.17%	36.42%

* Includes NCGIPF

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SECTION VI – REQUIRED SUPPLEMENTARY INFORMATION

The following summarizes key methods and assumptions used to determine the Actuarially Determined Contribution for FYE 2023.

Valuation Date:	July 1, 2021
Timing:	Actuarial determined contributions are calculated as of the July 1 preceding the fiscal year in which contributions are made.
Actuarial cost method:	Projected Unit Credit
Amortization method:	Level dollar
Remaining amortization period:	28 years
Asset valuation method:	5-year smoothing of difference between market value and expected actuarial value
Investment rate of return:	7.00%, net of investment expenses
Salary increases:	Service-based rates scaling from 3.05% at enrollment to 1.55% through period ending June 30, 2026; Service-based rates scaling from 4.25% at enrollment to 2.75% following June 30, 2026
Mortality:	<p><i>Pre-Retirement:</i> The Pub-2010 Teachers Above-Median Income Employee mortality table [<i>PubT-2010(A) Employee</i>] as published by the Society of Actuaries with a 93.9% adjustment for males and 85.3% adjustment for females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2018. All pre-retirement deaths are assumed to be ordinary deaths.</p> <p><i>Post-Retirement Healthy Lives:</i> The Pub-2010 Teachers Above-Median Income Healthy Retiree mortality table [<i>PubT-2010(A) Healthy Retiree</i>] as published by the Society of Actuaries with a 114.7% adjustment for males and 99.6% adjustment for females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2018.</p> <p><i>Disabled Lives:</i> The Pub-2010 Non-Safety Disabled Retiree mortality table [<i>PubNS-2010 Disabled Retiree</i>] as published by the Society of Actuaries with a 106.3% adjustment for males and 100.3% adjustment for females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2018.</p>

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APPENDIX A – MEMBERSHIP INFORMATION

Plan Membership		
	July 1, 2022	July 1, 2021
Contributing Actives	143,071	141,521
Non-Contributing Members	15,085	14,526
Terminated Vested	316	354
Inactive Receiving Benefits	<u>111,420</u>	<u>109,677</u>
Total	269,892	266,078
Annual Compensation for Contributing Actives	\$ 11,866,192,351	\$ 11,509,652,923
Annual Retirement Allowances for Those Receiving Benefits	\$ 4,673,383,001	\$ 4,578,893,564

* QDRO recipients are excluded from the counts.

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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

- 1. Investment Rate of Return for determining Actuarially Determined Contributions** 7.00% per annum, compounded annually.
- 2. Long-Term Expected Rate of Return** 7.00% per annum, compounded annually.
- 3. Interest Crediting Rate on Accumulated Deductions** 7.00% per annum, compounded annually. Interest credits are assumed to end upon termination.
- 4. GASB 67 Effective Discount Rate**
 - June 30, 2022: 7.00% per annum, compounded annually.
 - June 30, 2023: 7.00% per annum, compounded annually.
- 5. Price Inflation** 2.75% per annum, compounded annually.
- 6. Wage Inflation** 3.25% per annum, compounded annually.
- 7. Cost-of-Living Adjustments (COLAs)** No future COLAs are assumed. Previously granted COLAs are included in the data.

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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

8. Salary Increases Salary increases vary by years of service. Annual salary increases are shown below.

Years of Service	Rate
0-2	4.25%
3	4.40
4	4.55
5	4.70
6	4.85
7	5.00
8	5.15
9	5.30
10	5.40
11	5.50
12-16	5.65
17	4.90
18	4.50
19	4.25
20	4.05
21	3.85
22	3.65
23	3.45
24	3.25
25	3.05
26	2.95
27-28	2.85
29+	2.75

Salary increases are assumed to occur on October 1.

Non-contributing members reported with a salary are assumed to have no future salary increases.

9. 401(a)(17) Pay Limit \$305,000 in 2022 increasing 2.75% per annum, compounded annually.

10. Social Security Wage Base \$147,000 in 2022 increasing 3.25% per annum, compounded annually.

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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

11. Termination

Termination rates are as follows:

Service	Rates
0	6.75%
1	6.75
2	5.50
3	4.50
4	4.00
5	3.00
6	2.75
7	2.50
8	2.50
9	2.25
10	2.25
11	2.10
12	1.95
13	1.65
14	1.35
15	1.05
16	1.00
17	0.90
18	0.70
19	0.55
20	0.55
21	0.50
22	0.40
23	0.30
24-29	0.30

No termination is assumed after attainment of retirement eligibility.

70% of members with 10 or more years of service at termination are assumed to elect a deferred retirement benefit.

All other members are assumed to receive a refund of Accumulated Deductions with credited interest.

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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

12. Disability

Disability rates are as follows:

Age	Ordinary Disability	Accidental Disability	Age	Ordinary Disability	Accidental Disability
20	0.005%	0.006%	48	0.135%	0.006%
21	0.005	0.006	49	0.145	0.006
22	0.005	0.006	50	0.160	0.006
23	0.005	0.006	51	0.175	0.006
24	0.005	0.006	52	0.190	0.006
25	0.005	0.006	53	0.210	0.006
26	0.005	0.006	54	0.225	0.006
27	0.005	0.006	55	0.245	0.006
28	0.005	0.006	56	0.295	0.006
29	0.005	0.006	57	0.345	0.006
30	0.005	0.006	58	0.390	0.006
31	0.010	0.006	59	0.440	0.006
32	0.015	0.006	60	0.495	0.006
33	0.020	0.006	61	0.515	0.006
34	0.030	0.006	62	0.520	0.006
35	0.040	0.006	63	0.570	0.006
36	0.050	0.006	64	0.620	0.006
37	0.060	0.006	65	0.670	0.006
38	0.070	0.006	66	0.725	0.006
39	0.080	0.006	67	0.780	0.006
40	0.085	0.006	68	0.835	0.006
41	0.090	0.006	69	0.890	0.006
42	0.095	0.006	70	0.950	0.006
43	0.095	0.006	71	1.010	0.006
44	0.105	0.006	72	1.070	0.006
45	0.110	0.006	73	1.130	0.006
46	0.120	0.006	74	1.190	0.006
47	0.130	0.006			

Accidental disability rates apply at all ages.

Ordinary disability rates apply upon attainment of 10 years of service until the attainment of age 55 with at least 25 years of service.

Members are assumed to receive the greater of the applicable disability benefit or the early or service retirement benefit, depending on eligibility.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Tier 4 and Tier 5 members are not eligible for the Ordinary or Accidental Disability benefits, but the disability rates still apply. Such members terminating under the disability decrement are assumed to separate from service and elect a deferred retirement benefit.

13. Mortality

Pre-Retirement Mortality (Non-Annuitants): The Pub-2010 Teachers Above-Median Income Employee mortality table [*PubT-2010(A) Employee*] as published by the Society of Actuaries with a 93.9% adjustment for males and 85.3% adjustment for females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2021. All pre-retirement deaths are assumed to be ordinary deaths.

Healthy Retirees and Beneficiaries (Healthy Annuitants): The Pub-2010 Teachers Above-Median Income Healthy Retiree mortality table [*PubT-2010(A) Healthy Retiree*] as published by the Society of Actuaries with a 114.7% adjustment for males and 99.6% adjustment for females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2021.

Disabled Retirees (Disabled Annuitants): The Pub-2010 Non-Safety Disabled Retiree mortality table [*PubNS-2010 Disabled Retiree*] as published by the Society of Actuaries with a 106.3% adjustment for males and 100.3% adjustment for females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2021.

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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

14. Retirement

Retirement rates for Tier 1-4 members are as follows:

Age	Less Than 25 Years of Service	25 Years of Service	26 or More Years of Service
< 50	N/A	1.5%	1.5%
50	N/A	1.5	1.5
51	N/A	2.0	2.0
52	N/A	3.0	2.5
53	N/A	4.0	3.0
54	N/A	6.0	3.5
55	N/A	10.0	13.0
56	N/A	18.0	17.0
57	N/A	18.0	17.0
58	N/A	20.0	17.0
59	N/A	25.0	17.0
60	4.0	25.0	20.0
61	6.0	25.0	22.0
62	6.0	33.0	27.0
63	8.0	42.0	30.0
64	8.0	42.0	30.0
65	12.0	42.0	30.0
66	18.0	55.0	35.0
67	18.0	55.0	40.0
68	18.0	55.0	30.0
69	18.0	55.0	30.0
70	18.0	55.0	30.0
71	18.0	55.0	30.0
72	18.0	55.0	30.0
73	18.0	55.0	30.0
74	18.0	55.0	30.0
75	100.0	100.0	100.0

Rates apply upon retirement eligibility by tier.

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Retirement rates for Tier 5 members are as follows:

Age	Less Than 25 Years of Service	25 Years of Service	26 to 29 Years of Service	30 Years of Service	31 or More Years of Service
< 50	N/A	N/A	N/A	1.5%	1.5%
50	N/A	N/A	N/A	1.5	1.5
51	N/A	N/A	N/A	2.0	2.0
52	N/A	N/A	N/A	3.0	2.5
53	N/A	N/A	N/A	4.0	3.0
54	N/A	N/A	N/A	6.0	3.5
55	N/A	N/A	N/A	10.0	13.0
56	N/A	N/A	N/A	18.0	17.0
57	N/A	N/A	N/A	18.0	17.0
58	N/A	N/A	N/A	20.0	17.0
59	N/A	N/A	N/A	25.0	17.0
60	N/A	N/A	N/A	25.0	20.0
61	N/A	N/A	N/A	25.0	22.0
62	N/A	N/A	N/A	33.0	27.0
63	N/A	N/A	N/A	42.0	30.0
64	N/A	N/A	N/A	42.0	30.0
65	12.0	42.0	42.0	42.0	30.0
66	18.0	55.0	35.0	35.0	35.0
67	18.0	55.0	40.0	40.0	40.0
68	18.0	55.0	30.0	30.0	30.0
69	18.0	55.0	30.0	30.0	30.0
70	18.0	55.0	30.0	30.0	30.0
71	18.0	55.0	30.0	30.0	30.0
72	18.0	55.0	30.0	30.0	30.0
73	18.0	55.0	30.0	30.0	30.0
74	18.0	55.0	30.0	30.0	30.0
75	100.0	100.0	100.0	100.0	100.0

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

- 15. Family Composition Assumptions** For members not currently in receipt, 60% of members are assumed married to spouses of the opposite sex. Males are assumed to be two years older than females.
- For purposes of the optional form of payment death benefit for members currently in receipt, beneficiary status is based on the beneficiary allowance reported. If no beneficiary date of birth is provided, the beneficiary is assumed to be the member's spouse of the opposite sex with males assumed to be two years older than females.
- No additional dependent children or parents are assumed.
- 16. Form of Payment** Current actives are assumed to elect the Maximum Option.
- 17. Data** Information provided by the prior actuary was relied upon for the purposes of setting the status of and valuing non-contributing records. For non-contributing terminated members, a deferred retirement benefit is estimated, when applicable, based on the last known salary. For non-contributing members with incomplete information, the benefit is based on the Annuity Savings Fund.
- Deferred beneficiaries were reported separately from other non-contributing members for the first time in 2021. The benefit is based on the Annuity Savings Fund.
- For current beneficiaries with incomplete information, reasonable assumptions were made based on information available in prior years.
- Inactive participants receiving benefits according to the 2021 data but omitted from the 2022 data are assumed to have died without a beneficiary.
- Tier 4 and 5 members on long-term disability appeared on the active data for the first time in 2019. The number of members on long-term disability is immaterial for valuation purposes. Therefore, we valued these members as regular contributing and non-contributing members while we gain clarity on what happens with these members.
- 18. Rationale for Assumptions** The demographic and economic assumptions used in this report, except for the investment return assumption, reflect the results of the July 1, 2018 – June 30, 2021 Experience Study, which was approved by the Board of Trustees on December 1 2022. The investment return assumption was recommended by the State Treasurer. We find the investment return assumption to be reasonable based on the System's current asset allocation and the capital market outlook of the New Jersey Division of Investment.

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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

19. Projection Basis This report includes projections of future assets, benefit payments and contributions for the purpose of determining the GASB 67 discount rate.

The projections are based on the census data as of July 1, 2022 and the financial information as of June 30, 2023. The projections assume continuation of the plan provisions and actuarial assumptions in effect as of July 1, 2023 and do not reflect the impact of any changes in benefits or actuarial assumptions that may be adopted after July 1, 2023 unless otherwise indicated. While the assumptions individually are reasonable for the underlying valuation that supports the projections, specifically for projection purposes, they are also considered reasonable in the aggregate.

20. Changes in Assumptions since Last Valuation None.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

The actuarial methods used for determining State contributions are described below.

1. Actuarial Cost Method

The actuarial cost method for funding calculations is the Projected Unit Credit Cost Method. Non-contributory active members only use the Unit Credit Cost Method.

The actuarial liability is calculated as the actuarial present value of the projected benefits linearly allocated to periods prior to the valuation year based on service. Refunds are valued as the Accumulated Deductions with interest as of the valuation date provided by the Division of Pensions and Benefits. The unfunded actuarial liability is the actuarial liability on the valuation date less the actuarial value of assets.

In accordance with Chapter 78, P.L. 2011:

- Beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period.
- Beginning with the July 1, 2019 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over a closed 30 year period (i.e., for each subsequent actuarial valuation the amortization period shall decrease by one year).
- Beginning with the July 1, 2029 actuarial valuation, when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for the valuation year using a 20-year amortization period.

To the extent that the amortization period remains an open period in future years and depending upon the specific circumstances, it should be noted that in the absence of emerging actuarial gains or contributions made in excess of the actuarially determined contribution, any existing unfunded accrued liability may not be fully amortized in the future.

The non-contributory group life insurance benefit is funded separately through a term cost.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

2. Asset Valuation Method

For the purposes of determining contribution rates, an actuarial value of assets is used that dampens the volatility in the market value of assets, resulting in a smoother pattern of contributions.

The actuarial value of assets is adjusted to reflect actual contributions and benefit payments and administrative expenses, and an assumed rate of return on the previous year's assets and current year's cash flow at the prior year's actuarial valuation interest rate, with a further adjustment to reflect 20% of the difference between the resulting value and the actual market value of Fund assets.

3. Contributions

Chapter 83, P.L. 2016 requires the State to make the required pension contributions on a quarterly basis in each fiscal year according to the following schedule: at least 25% by September 30, at least 50% by December 31, at least 75% by March 31, and at least 100% by June 30. As such, contributions are assumed to be made on a quarterly basis with the first contribution 15 months after the associated valuation date, with the exception of the FYE 2022 contribution. For FYE 2022 only, we assumed that the entire contribution was made in a single payment on July 1, 2021 based on information provided by the DPB.

Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, allows the TPAF to receive 77.78% of the proceeds of the Lottery Enterprise, based upon their members' past or present employment in schools and institutions in the State for a term of 30 years. Revenues from Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, are assumed to be contributed to the trust on a monthly basis. The State's pension contribution is reduced by the product of the allocable percentage for the TPAF, the adjustment percentage, and the special asset value.

Contributions payable in the fiscal year starting on the valuation date are included in the actuarial value of assets as receivable contributions, discounted by the applicable valuation interest rate.

Legislation has provided for additional benefits and/or funding requirements which are included in this valuation and are described as follows.

Early Retirement Incentive Programs

State and Local employers which elected to participate in various early retirement incentive programs authorized by NJ Statute make contributions to cover the cost of these programs over amortization periods elected by the employer to the extent permitted by NJ Statute.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Chapter 133, P.L. 2001

Chapter 133, P.L. 2001 increased the accrual rate from 1/60 to 1/55. In addition, it lowered the age required for a veteran benefit equal to 1/55 of highest 12-month Compensation for each Year of Service from 60 to 55.

Chapter 133, P.L. 2001 established the Benefit Enhancement Fund (BEF) to fund the additional annual employer normal contribution due to the Statute's increased benefits. (Chapter 353, P.L. 2001 extended this coverage to this Statute's additional annual employer normal contribution.) If the assets in the BEF are insufficient to cover the normal contribution for the increased benefits for a valuation period, the State will pay such amount. As of July 1, 2022, there are no assets in the BEF.

4. Valuation Software

Cheiron utilizes ProVal, an actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have reviewed ProVal and have a basic understanding of it and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this actuarial valuation.

5. Changes in Methods since the Last Valuation

None.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

This summary of Plan provisions provides an overview of the major provisions of the TPAF used in the actuarial valuation. It is not intended to replace the more precise language of the NJ State Statutes, Title 18A, Chapter 66, and if there is any difference between the description of the plan herein and the actual language in the NJ State Statutes, the NJ State Statutes will govern.

1. Eligibility for Membership

Employees appointed to positions requiring certification by the New Jersey Department of Education as members of a regular teaching or professional staff of a public school system in New Jersey are required to enroll as a condition of employment. Employees of the Department of Education holding unclassified, professional and certificated titles are eligible for membership. Temporary or substitute employees are not eligible. The eligible employee must be scheduled to work at least 32 hours per week effective May 22, 2010, per Chapter 1, P.L. 2010.

- a) Class B (or Tier 1) Member: Any member hired prior to July 1, 2007.
- b) Class D (or Tier 2) Member: Any member hired on or after July 1, 2007 and before November 2, 2008.
- c) Class E (or Tier 3) Member: Any member hired after November 1, 2008 and before May 22, 2010.
- d) Class F (or Tier 4) Member: Any member hired after May 21, 2010 and before June 28, 2011.
- e) Class G (or Tier 5) Member: Any member hired on or after June 28, 2011.

2. Plan Year

The 12-month period beginning on July 1 and ending on June 30.

3. Years of Service

A year of service for each year an employee is a Member of the Retirement System plus service, if any, covered by a prior service liability. Tier 4 members must be scheduled to work at least 32 hours per week, Tier 3 members must have an annual salary of \$7,500 (indexed for inflation) and other members must have an annual salary of \$500.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

4. Compensation

Base salary upon which contributions by a Member to the Annuity Savings Fund were based. Chapter 113, P.L. 1997 provides that Compensation cannot exceed the compensation limitation of Section 401(a)(17) of the Internal Revenue Code. Chapter 103, P.L. 2007 provides that for a Tier 2, 3, 4 or 5 Member, Compensation cannot exceed the annual maximum wage contribution base for Social Security, pursuant to the Federal Insurance Contribution Act.

5. Final Compensation

The average annual compensation upon which contributions by a Member are made for the three consecutive years of service immediately preceding retirement, or the highest three fiscal years of service, if greater. Chapter 1, P. L. 1997 provides that for a Tier 4 or Tier 5 Member, Final Compensation is the average annual compensation upon which contributions by a Member are made for the five consecutive years of service immediately preceding retirement, or the highest five fiscal years of service, if greater.

6. Final Year Compensation

The compensation upon which contributions by a Member to the Annuity Savings Fund are based in the last year of service.

7. Accumulated Deductions

The sum of all amounts deducted from the compensation of a Member or contributed by the Member or on the Member's behalf without interest.

8. Interest Credits on Accumulated Deductions

Members receive interest credits while contributing and for the first two years of inactivity. The rate depends on the type of benefit. Prior to July 1, 2018, members received interest credits for the entire period of inactivity until retirement or death.

9. Member Contributions

Each Member contributes a percentage of Compensation. Effective October 1, 2011, Chapter 78, P.L. 2011 set the member contribution rate at 6.5% and increased it by 1/7 of 1% each July thereafter until it attained an ultimate rate of 7.5% on July 1, 2018.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

10. Benefits

- a) **Service Retirement:** For a Tier 1 or Tier 2 Member, age 60. For a Tier 3 or Tier 4 Member, age 62. For a Tier 5 Member, age 65.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total allowance of:

- (1) For a Tier 1, 2 or 3 Member, 1/55 of Final Compensation for each Year of Service.
- (2) For a Tier 4 or 5 Member, 1/60 of Final Compensation for each Year of Service.

- b) **Early Retirement:** Prior to eligibility for Service Retirement. For a Tier 1, 2, 3 or 4 Member, 25 Years of Service. For a Tier 5 Member, 30 Years of Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total allowance of:

- (1) For a Tier 1 Member, the Service Retirement benefit reduced by 1/4 of one percent for each month the retirement date precedes age 55.
- (2) For a Tier 2 Member, the Service Retirement benefit reduced by 1/12 of one percent for each month the retirement date precedes age 60 through age 55 and by 1/4 of one percent for each month the retirement date precedes age 55.
- (3) For a Tier 3 or 4 Member, the Service Retirement benefit reduced by 1/12 of one percent for each month the retirement date precedes age 62 through age 55 and by 1/4 of one percent for each month the retirement date precedes age 55.
- (4) For a Tier 5 Member, the Service Retirement benefit reduced by 1/4 of one percent for each month the retirement date precedes age 65.

- c) **Veteran Retirement:** Age 55 with 25 Years of Service or Age 60 with 20 Years of Service for a qualified military veteran who retires directly from active service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total allowance of the greater of:

- (1) 54.5% of highest 12-month Compensation, or
- (2) For a member who is at least age 55 with 35 Years of Service, 1/55 of highest 12-month Compensation for each Year of Service.

Veterans may receive a Service Retirement benefit if greater.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

- d) **Deferred Retirement:** Termination of service prior to eligibility for Service Retirement with 10 Years of Service.

Benefit is either:

- (1) A refund of Accumulated Deductions plus, if the member has completed three years of service, interest accumulated at 2.0% per annum; or
- (2) A deferred life annuity, commencing at age 60 for a Tier 1 or Tier 2 Member, age 62 for a Tier 3 or Tier 4 Member or age 65 for a Tier 5 Member, comprised of a member annuity plus an employer pension which together will provide a total allowance of the Service Retirement benefit based on Final Compensation and Years of Service at date of termination.

For Members who die during the deferral period, the benefit is a return of Accumulated Deductions with credited interest.

- e) **Non-Vested Termination:** Termination of service prior to eligibility for Service Retirement and less than 10 Years of Service.

Benefit is a refund of Accumulated Deductions plus, if the member has completed three Years of Service, interest accumulated at 2.0% per annum.

- f) **Death Benefits**

- (1) **Ordinary Death Before Retirement:** Death of an active contributing Member
Benefit is equal to:

- a. Lump sum payment equal to 150% of Final Year Compensation, also known as the non-contributory group life insurance benefit, plus
- b. Accumulated Deductions with credited interest.

- (2) **Accidental Death Before Retirement:** Death of an active Member resulting from injuries received from an accident during performance of duty and not a result of willful negligence. Benefit is equal to:

- a. Lump sum payment equal to 150% of Final Year Compensation, also known as the non-contributory group life insurance benefit, plus
- b. Spouse life annuity of 50% of Final Year Compensation payable until spouse's death or remarriage. If there is no surviving spouse or upon death or remarriage, a total of 20% (35%, 50%) of Final Year Compensation payable to one (two, three or more) dependent child(ren). If there is no surviving spouse or dependent child(ren), 25% (40%) of Final Year Compensation to one (two) dependent parent(s). If there is no surviving spouse, dependent child(ren) or parent(s), the benefit is a refund of Accumulated Deductions with credited interest.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

(3) Death After Retirement: Death of a retired Member. Benefit is equal to:

- a. Lump sum payment equal to 3/16 of Final Year Compensation for a Member retired under service, early, veteran or deferred retirement with 10 Years of Service. For a Member receiving a disability benefit, lump sum payment of 150% of Final Year Compensation if death occurs prior to age 60 and 3/16 of Final Compensation if death occurs after age 60. This benefit is also known as the non-contributory group life insurance benefit, plus
- b. Any survivor benefit due under the Member's optional form of payment election. Previously granted COLAs also apply to life annuities.

Members are also eligible for a voluntary, employee-paid life insurance policy, known as the contributory group life insurance policy. This benefit is not paid through the Fund and is not considered for valuation purposes.

g) **Disability Retirement**

(1) Ordinary Disability Retirement: 10 Years of Service and totally and permanently incapacitated from the performance of normal or assigned duties. Only available to Tier 1, 2 and 3 Members.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total allowance of:

- a. 1.64% of Final Compensation for each Year of Service; or
- b. 43.6% of Final Compensation.

(2) Accidental Disability Retirement: Total and permanent incapacitation as a direct result of a traumatic event occurring during and as a result of the performance of regular or assigned duties. Only available to Tier 1, 2 and 3 Members.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total allowance of 72.7% of the Compensation at the date of injury.

The pension portion of the benefit will be offset for any periodic Workers' Compensation benefits.

Tier 4 and Tier 5 Members are eligible for long-term disability coverage. This benefit is not paid through the Fund and is not considered for valuation purposes. Both Member and employer contributions to the Fund continue while on long-term disability, with the policy covering the Member portion. The long-term disability benefit equals 60% of Final Year Compensation and may be offset for other periodic benefits, such as Workers' Compensation, short-term disability or Social Security. The long-term disability benefit may continue through the earlier of age 70 or commencement of a retirement benefit under the Fund.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

11. Optional Forms of Payment

The member may elect the following forms of payment.

- a) Maximum Option: Single life annuity with a return of the balance of the Accumulated Deductions with credited interest.
- b) Option 1: Single life annuity with a return of the balance of the initial reserve.
- c) Option 2: 100% joint and survivor annuity.
- d) Option 3: 50% joint and survivor annuity.
- e) Option 4: Other percentage joint and survivor annuity.
- f) Option A: 100% pop-up joint and survivor annuity.
- g) Option B: 75% pop-up joint and survivor annuity.
- h) Option C: 50% pop-up joint and survivor annuity.
- i) Option D: 25% pop-up joint and survivor annuity.

12. Cost-of-Living Adjustments

Also known as Pension Adjustments. Provided annually to retirees and survivors after 24 months of retirement prior to July 1, 2011. Chapter 78, P.L. 2011 eliminated future adjustments effective July 1, 2011. Adjustments may be reinstated in the future subject to certain conditions outlined in Chapter 78, P.L. 2011.

13. Changes in Plan Provisions since Last Valuation

None.

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APPENDIX D – DETERMINATION OF DISCOUNT RATE

Table 1 - Projection of the Pension Plan's Fiduciary Net Position
(In Thousands)
Projections Commence June 30, 2023

Year	Projected Beginning Fiduciary Net Position	Projected Member Contributions	Projected Employer Contributions	Projected Lottery Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings	Projected Ending Fiduciary Net Position
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h) = (a) + (b) + (c) + (d) - (e) - (f) + (g)
1	\$ 27,127,684	\$ 894,070	\$ 3,416,213	\$ 867,755	\$ 5,013,969	\$ 13,895	\$ 1,875,382	\$ 29,153,241
2	29,153,241	890,905	3,458,207	875,751	5,111,806	14,162	2,015,069	31,267,205
3	31,267,205	886,442	3,504,879	882,943	5,216,185	14,447	2,160,769	33,471,604
4	33,471,604	880,241	3,545,440	891,786	5,328,326	14,754	2,312,370	35,758,361
5	35,758,361	872,393	3,579,486	899,574	5,447,578	15,080	2,469,229	38,116,383
6	38,116,383	863,179	3,607,769	908,412	5,570,994	15,419	2,630,773	40,540,104
7	40,540,104	852,048	3,631,079	925,676	5,701,149	15,775	2,796,779	43,028,761
8	43,028,761	838,835	3,648,138	934,943	5,839,118	16,154	2,966,553	45,561,957
9	45,561,957	823,493	3,649,086	944,302	5,982,488	16,548	3,138,771	48,118,574
10	48,118,574	806,032	3,646,341	953,755	6,135,191	16,968	3,312,141	50,684,683
11	50,684,683	786,502	3,639,445	963,303	6,293,939	17,406	3,485,793	53,248,382
12	53,248,382	764,873	3,629,025	972,946	6,457,125	17,856	3,658,960	55,799,206
13	55,799,206	741,469	3,614,717	982,686	6,621,029	18,308	3,831,041	58,329,783
14	58,329,783	716,834	3,597,385	992,523	6,780,834	18,750	4,001,727	60,838,669
15	60,838,669	691,324	3,578,460	1,002,458	6,935,315	19,177	4,171,009	63,327,428
16	63,327,428	665,248	3,558,799	1,012,493	7,079,809	19,577	4,339,190	65,803,773
17	65,803,773	639,223	3,539,421	1,022,628	7,210,608	19,939	4,506,984	68,281,483
18	68,281,483	613,486	3,521,079	1,032,865	7,327,743	20,263	4,675,384	70,776,289
19	70,776,289	587,195	3,504,236	1,043,204	7,433,995	20,558	4,845,377	73,301,748
20	73,301,748	558,684	3,488,166	1,053,646	7,537,641	20,847	5,017,550	75,861,306
21	75,861,306	527,113	3,471,105	1,064,193	7,643,146	21,142	5,191,915	78,451,344
22	78,451,344	492,389	3,451,860	1,074,845	7,751,589	21,445	5,368,149	81,065,554
23	81,065,554	455,158	3,429,974	1,085,604	7,860,555	21,751	5,545,904	83,699,889
24	83,699,889	415,638	3,405,623	1,096,470	7,971,208	22,062	5,724,869	86,349,219
25	86,349,219	375,002	4,119,869	0	8,079,396	22,367	5,885,943	88,628,270
26	88,628,270	334,096	4,090,336	0	8,182,850	22,658	6,039,729	90,886,923
27	90,886,923	292,738	4,059,321	0	8,283,198	22,941	6,192,141	93,124,985
28	93,124,985	251,616	4,026,617	0	8,375,504	23,201	6,255,103	91,849,616
29	91,849,616	210,251	3,977,615	0	8,464,296	23,451	6,155,667	90,125,402
30	90,125,402	171,048	3,928,002	0	8,537,373	23,656	6,029,866	88,115,289
31	88,115,289	137,358	3,878,033	0	8,575,899	23,765	5,885,634	85,848,651
32	85,848,651	108,610	3,828,098	0	8,572,353	23,754	5,725,200	83,361,451
33	83,361,451	84,627	3,778,502	0	8,544,033	23,674	5,550,460	80,673,334
34	80,673,334	65,007	3,728,281	0	8,482,155	23,499	5,363,079	77,814,047
35	77,814,047	49,138	3,678,371	0	8,389,674	23,237	5,165,016	74,811,661
36	74,811,661	36,485	3,628,359	0	8,268,071	22,893	4,958,154	71,693,694
37	71,693,694	26,535	3,578,365	0	8,120,124	22,475	4,744,297	68,485,791
38	68,485,791	18,913	3,528,463	0	7,947,645	21,988	4,525,152	65,212,687
39	65,212,687	13,227	3,478,846	0	7,752,791	21,437	4,302,355	61,897,886
40	61,897,886	9,096	3,429,624	0	7,537,206	20,829	4,077,471	58,564,043
41	58,564,043	6,179	3,380,372	0	7,303,874	20,170	3,851,960	55,231,510
42	55,231,510	4,140	3,331,642	0	7,054,647	19,467	3,627,158	51,919,334
43	51,919,334	2,736	3,282,970	0	6,792,655	18,729	3,404,270	48,643,925
44	48,643,925	1,797	3,234,975	0	6,520,755	17,963	3,184,329	45,419,309
45	45,419,309	1,172	3,187,380	0	6,240,820	17,176	2,968,241	42,258,106
46	42,258,106	751	3,140,944	0	5,954,484	16,371	2,756,822	39,171,768
47	39,171,768	462	3,095,479	0	5,663,156	15,553	2,550,818	36,170,818
48	36,170,818	266	3,050,862	0	5,368,096	14,725	2,350,915	33,265,040
49	33,265,040	136	3,007,012	0	5,070,562	13,891	2,157,754	30,463,490
50	30,463,490	60	2,963,869	0	4,771,771	13,055	1,971,923	27,774,514
51	27,774,514	15	2,921,396	0	4,473,173	12,221	1,793,955	25,205,485
52	25,205,485	1	2,880,550	0	4,176,082	11,392	1,624,318	22,762,881
53	22,762,881	0	2,840,323	0	3,882,068	10,572	1,463,413	20,451,976
54	20,451,976	0	2,800,696	0	3,592,681	9,767	1,311,552	18,276,775
55	18,276,775	0	2,761,661	0	3,309,306	8,980	1,168,969	16,240,120
56	16,240,120	0	2,722,226	0	3,033,281	8,214	1,035,817	14,343,668
57	14,343,668	0	2,683,422	0	2,765,877	7,474	912,169	12,587,908
58	12,587,908	0	2,644,262	0	2,508,237	6,762	798,020	10,972,190
59	10,972,190	0	2,605,776	0	2,261,391	6,082	693,289	9,494,783
60	9,494,783	0	2,567,995	0	2,026,227	5,435	597,827	8,152,943

**TEACHERS' PENSION AND ANNUITY FUND OF NEW JERSEY
GASB 67 REPORTING FOR JUNE 30, 2023 MEASUREMENT DATE**

APPENDIX D – DETERMINATION OF DISCOUNT RATE

Table 1 - Projection of the Pension Plan's Fiduciary Net Position
(In Thousands)

Projections Commence June 30, 2023

Year	Projected Beginning Fiduciary Net Position	Projected Member Contributions	Projected Employer Contributions	Projected Lottery Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings	Projected Ending Fiduciary Net Position
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h) = (a) + (b) + (c) + (d) - (e) - (f) + (g)
61	8,152,943	0	86,938	0	1,803,485	4,823	511,416	6,942,989
62	6,942,989	0	81,638	0	1,593,786	4,249	433,779	5,860,371
63	5,860,371	0	76,123	0	1,397,610	3,714	364,580	4,899,750
64	4,899,750	0	70,424	0	1,215,339	3,218	303,435	4,055,053
65	4,055,053	0	64,592	0	1,047,258	2,762	249,910	3,319,535
66	3,319,535	0	58,676	0	893,524	2,347	203,529	2,685,869
67	2,685,869	0	52,737	0	754,188	1,972	163,780	2,146,225
68	2,146,225	0	46,843	0	629,178	1,637	130,119	1,692,372
69	1,692,372	0	41,069	0	518,283	1,342	101,980	1,315,796
70	1,315,796	0	35,488	0	421,145	1,085	78,782	1,007,837
71	1,007,837	0	30,191	0	337,250	864	59,940	759,855
72	759,855	0	25,255	0	265,893	677	44,876	563,415
73	563,415	0	20,753	0	206,204	522	33,031	410,474
74	410,474	0	16,739	0	157,147	395	23,882	293,552
75	293,552	0	13,239	0	117,567	294	16,944	205,874
76	205,874	0	10,256	0	86,253	214	11,785	141,448
77	141,448	0	7,774	0	61,985	153	8,028	95,112
78	95,112	0	5,759	0	43,584	107	5,350	62,530
79	62,530	0	4,164	0	29,949	73	3,486	40,159
80	40,159	0	2,935	0	20,087	48	2,218	25,176
81	25,176	0	2,013	0	13,137	31	1,378	15,399
82	15,399	0	1,343	0	8,368	20	835	9,189
83	9,189	0	870	0	5,188	12	494	5,352
84	5,352	0	546	0	3,128	7	285	3,048
85	3,048	0	332	0	1,835	4	161	1,703
86	1,703	0	196	0	1,048	2	90	938
87	938	0	112	0	584	1	49	514
88	514	0	62	0	319	1	27	283
89	283	0	33	0	173	0	15	158
90	158	0	18	0	93	0	8	91
91	91	0	9	0	51	0	5	54
92	54	0	5	0	28	0	3	33
93	33	0	3	0	16	0	2	21
94	21	0	1	0	10	0	1	14
95	14	0	1	0	6	0	1	9
96	9	0	0	0	4	0	1	6
97	6	0	0	0	3	0	0	4
98	4	0	0	0	2	0	0	3
99	3	0	0	0	1	0	0	2
100	2	0	0	0	1	0	0	1
101	1	0	0	0	1	0	0	1
102	1	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0
109	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0	0
112	0	0	0	0	0	0	0	0
113	0	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0

**TEACHERS' PENSION AND ANNUITY FUND OF NEW JERSEY
GASB 67 REPORTING FOR JUNE 30, 2023 MEASUREMENT DATE**

APPENDIX D – DETERMINATION OF DISCOUNT RATE

Table 2 - Actuarial Present Values of Projected Benefit Payments

(In Thousands)

Projections Commence June 30, 2023

* From Table 1 - Projection of the Pension Plan's Fiduciary Net Position, column (a)

** From Table 1 - Projection of the Pension Plan's Fiduciary Net Position, column (e)

Year	Projected Fiduciary Net Position*	Projected Benefit Payments for current Plan	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	Present Value of "Funded" Benefit Payments	Present Value of "Unfunded" Benefit Payments	Present Value of Benefit Payments Using the Single Discount Rate
(a)	(b)	(c)	(d) = (c) if (b) >= (c)	(e) = (c) - (d)	(f) = (d) / (1+7.00%)^[(a) - .5]	(g) = (e) / (1+3.65%)^[(a) - .5]	(h) = (c) / (1+7.00%)^[(a) - .5]
1	\$ 27,127,684	\$ 5,013,969	\$ 5,013,969	\$ 0	\$ 4,847,187	\$ 0	\$ 4,847,187
2	29,153,241	5,111,806	5,111,806	0	4,618,476	0	4,618,476
3	31,267,205	5,216,185	5,216,185	0	4,404,469	0	4,404,469
4	33,471,604	5,328,326	5,328,326	0	4,204,821	0	4,204,821
5	35,758,361	5,447,578	5,447,578	0	4,017,691	0	4,017,691
6	38,116,383	5,570,994	5,570,994	0	3,839,918	0	3,839,918
7	40,540,104	5,701,149	5,701,149	0	3,672,551	0	3,672,551
8	43,028,761	5,839,118	5,839,118	0	3,515,353	0	3,515,353
9	45,561,957	5,982,488	5,982,488	0	3,366,043	0	3,366,043
10	48,118,574	6,135,191	6,135,191	0	3,226,133	0	3,226,133
11	50,684,683	6,293,939	6,293,939	0	3,093,092	0	3,093,092
12	53,248,382	6,457,125	6,457,125	0	2,965,690	0	2,965,690
13	55,799,206	6,621,029	6,621,029	0	2,842,028	0	2,842,028
14	58,329,783	6,780,834	6,780,834	0	2,720,208	0	2,720,208
15	60,838,669	6,935,315	6,935,315	0	2,600,168	0	2,600,168
16	63,327,428	7,079,809	7,079,809	0	2,480,693	0	2,480,693
17	65,803,773	7,210,608	7,210,608	0	2,361,237	0	2,361,237
18	68,281,483	7,327,743	7,327,743	0	2,242,612	0	2,242,612
19	70,776,289	7,433,995	7,433,995	0	2,126,289	0	2,126,289
20	73,301,748	7,537,641	7,537,641	0	2,014,892	0	2,014,892
21	75,861,306	7,643,146	7,643,146	0	1,909,434	0	1,909,434
22	78,451,344	7,751,589	7,751,589	0	1,809,837	0	1,809,837
23	81,065,554	7,860,555	7,860,555	0	1,715,214	0	1,715,214
24	83,699,889	7,971,208	7,971,208	0	1,625,569	0	1,625,569
25	86,349,219	8,079,396	8,079,396	0	1,539,843	0	1,539,843
26	88,628,270	8,182,850	8,182,850	0	1,457,533	0	1,457,533
27	90,886,923	8,283,198	8,283,198	0	1,378,885	0	1,378,885
28	93,124,985	8,375,504	8,375,504	0	1,303,038	0	1,303,038
29	91,849,616	8,464,296	8,464,296	0	1,230,703	0	1,230,703
30	90,125,402	8,537,373	8,537,373	0	1,160,120	0	1,160,120
31	88,115,289	8,575,899	8,575,899	0	1,089,117	0	1,089,117
32	85,848,651	8,572,353	8,572,353	0	1,017,445	0	1,017,445
33	83,361,451	8,544,033	8,544,033	0	947,742	0	947,742
34	80,673,334	8,482,155	8,482,155	0	879,326	0	879,326
35	77,814,047	8,389,674	8,389,674	0	812,839	0	812,839
36	74,811,661	8,268,071	8,268,071	0	748,652	0	748,652
37	71,693,694	8,120,124	8,120,124	0	687,155	0	687,155
38	68,485,791	7,947,645	7,947,645	0	628,560	0	628,560
39	65,212,687	7,752,791	7,752,791	0	573,037	0	573,037
40	61,897,886	7,537,206	7,537,206	0	520,656	0	520,656
41	58,564,043	7,303,874	7,303,874	0	471,531	0	471,531
42	55,231,510	7,054,647	7,054,647	0	425,646	0	425,646
43	51,919,334	6,792,655	6,792,655	0	383,027	0	383,027
44	48,643,925	6,520,755	6,520,755	0	343,640	0	343,640
45	45,419,309	6,240,820	6,240,820	0	307,371	0	307,371
46	42,258,106	5,954,484	5,954,484	0	274,083	0	274,083
47	39,171,768	5,663,156	5,663,156	0	243,620	0	243,620
48	36,170,818	5,368,096	5,368,096	0	215,820	0	215,820
49	33,265,040	5,070,562	5,070,562	0	190,521	0	190,521
50	30,463,490	4,771,771	4,771,771	0	167,565	0	167,565
51	27,774,514	4,473,173	4,473,173	0	146,803	0	146,803
52	25,205,485	4,176,082	4,176,082	0	128,087	0	128,087
53	22,762,881	3,882,068	3,882,068	0	111,279	0	111,279
54	20,451,976	3,592,681	3,592,681	0	96,247	0	96,247
55	18,276,775	3,309,306	3,309,306	0	82,855	0	82,855
56	16,240,120	3,033,281	3,033,281	0	70,976	0	70,976
57	14,343,668	2,765,877	2,765,877	0	60,485	0	60,485
58	12,587,908	2,508,237	2,508,237	0	51,263	0	51,263
59	10,972,190	2,261,391	2,261,391	0	43,194	0	43,194
60	9,494,783	2,026,227	2,026,227	0	36,170	0	36,170

**TEACHERS' PENSION AND ANNUITY FUND OF NEW JERSEY
GASB 67 REPORTING FOR JUNE 30, 2023 MEASUREMENT DATE**

APPENDIX D – DETERMINATION OF DISCOUNT RATE

Table 2 - Actuarial Present Values of Projected Benefit Payments
(In Thousands)

Projections Commence June 30, 2023

* From Table 1 - Projection of the Pension Plan's Fiduciary Net Position, column (a)

** From Table 1 - Projection of the Pension Plan's Fiduciary Net Position, column (e)

Year	Projected Beginning Fiduciary Net Position*	Projected Benefit Payments for current Plan	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	Present Value of "Funded" Benefit Payments	Present Value of "Unfunded" Benefit Payments	Present Value of Benefit Payments Using the Single Discount Rate
(a)	(b)	(c)	(d) = (c) if (b) >= (c)	(e) = (c) - (d)	(f) = (d) / (1+7.00%) ^[(a) - .5]	(g) = (e) / (1+3.65%) ^[(a) - .5]	(h) = (c) / (1+7.00%) ^[(a) - .5]
61	8,152,943	1,803,485	1,803,485	0	30,088	0	30,088
62	6,942,989	1,593,786	1,593,786	0	24,850	0	24,850
63	5,860,371	1,397,610	1,397,610	0	20,366	0	20,366
64	4,899,750	1,215,339	1,215,339	0	16,551	0	16,551
65	4,055,053	1,047,258	1,047,258	0	13,329	0	13,329
66	3,319,535	893,524	893,524	0	10,628	0	10,628
67	2,685,869	754,188	754,188	0	8,384	0	8,384
68	2,146,225	629,178	629,178	0	6,537	0	6,537
69	1,692,372	518,283	518,283	0	5,032	0	5,032
70	1,315,796	421,145	421,145	0	3,822	0	3,822
71	1,007,837	337,250	337,250	0	2,860	0	2,860
72	759,855	265,893	265,893	0	2,107	0	2,107
73	563,415	206,204	206,204	0	1,527	0	1,527
74	410,474	157,147	157,147	0	1,088	0	1,088
75	293,552	117,567	117,567	0	761	0	761
76	205,874	86,253	86,253	0	522	0	522
77	141,448	61,985	61,985	0	350	0	350
78	95,112	43,584	43,584	0	230	0	230
79	62,530	29,949	29,949	0	148	0	148
80	40,159	20,087	20,087	0	93	0	93
81	25,176	13,137	13,137	0	57	0	57
82	15,399	8,368	8,368	0	34	0	34
83	9,189	5,188	5,188	0	20	0	20
84	5,352	3,128	3,128	0	11	0	11
85	3,048	1,835	1,835	0	6	0	6
86	1,703	1,048	1,048	0	3	0	3
87	938	584	584	0	2	0	2
88	514	319	319	0	1	0	1
89	283	173	173	0	0	0	0
90	158	93	93	0	0	0	0
91	91	51	51	0	0	0	0
92	54	28	28	0	0	0	0
93	33	16	16	0	0	0	0
94	21	10	10	0	0	0	0
95	14	6	6	0	0	0	0
96	9	4	4	0	0	0	0
97	6	3	3	0	0	0	0
98	4	2	2	0	0	0	0
99	3	1	1	0	0	0	0
100	2	1	1	0	0	0	0
101	1	1	1	0	0	0	0
102	1	0	0	0	0	0	0
103	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0
109	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0
112	0	0	0	0	0	0	0
113	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0
					\$ 92,193,845	\$ 0	\$ 92,193,845

APPENDIX E – GLOSSARY OF TERMS

1. Actuarially Determined Contribution

A target or recommended contribution for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

2. Actuarial Valuation Date

The date as of which an actuarial valuation is performed. This date may be up to 24 months prior to the measurement date and up to 30 months prior to the employer's reporting date.

3. Entry Age Actuarial Cost Method

The actuarial cost method required for GASB 67 calculations. Under this method, the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Service Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future service costs is called the Total Pension Liability.

4. Measurement Date

The date as of which the Total Pension Liability and Plan Fiduciary Net Position are measured. The Total Pension Liability may be projected from the Actuarial Valuation Date to the Measurement Date. The Measurement Date must be the same as the Reporting Date for the plan.

5. Net Pension Liability

The liability of employers and nonemployer contributing entities for employees for benefits provided through a defined benefit pension plan. It is calculated as the Total Pension Liability less the Plan Fiduciary Net Position.

6. Plan Fiduciary Net Position

The fair or market value of assets.

7. Reporting Date

The last day of the plan or employer's fiscal year.

APPENDIX E – GLOSSARY OF TERMS

8. Service Cost

The portion of the actuarial present value of projected benefit payments that is attributed to the current period of employee service in conformity with the requirements of GASB 67. The Service Cost is the normal cost calculated under the entry age actuarial cost method.

9. Total Pension Liability

The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of GASB 67. The Total Pension Liability is the actuarial liability calculated under the entry age actuarial cost method. This measurement generally is not appropriate for estimating the cost to settle the Plan's liabilities.