Vermont Municipal Employees' Retirement System

Actuarial Valuation and Review

As of June 30, 2023

This report has been prepared at the request of the Board to assist in administering the Vermont Municipal Employees' Retirement System. The measurements shown in this actuarial valuation may not be applicable for other purposes.

Segal

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October 17, 2023

Board of Trustees
Vermont Municipal Employees' Retirement System
Montpelier, Vermont 05609

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of June 30, 2023, of the Vermont Municipal Employees' Retirement System (VMERS). This report summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the actuarially determined contribution (ADC) requirement for fiscal 2024.

This report was prepared in accordance with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board, at the request of the Board to assist in administering the Retirement System. The census information and financial information on which our calculations were based was prepared by the Office of the State Treasurer. That assistance is gratefully acknowledged.

Segal does not audit the data provided. The accuracy and comprehensiveness of the data is the responsibility of those supplying the data. To the extent we can, however, Segal does review the data for reasonableness and consistency. Based on our review of the data, we have no reason to doubt the substantial accuracy of the information on which we have based this report and we have no reason to believe there are facts or circumstances that would affect the validity of these results.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law.

The actuarial calculations were directed under the supervision of Matthew A. Strom, FSA, MAAA, EA. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of my knowledge, the information supplied in this actuarial valuation is complete and accurate. The investment return and inflation assumptions were selected by the Vermont Pension Investment Committee (VPIC). The remaining actuarial assumptions used in this actuarial valuation were selected by the Board based upon our analysis and recommendations. In my opinion, the assumptions are reasonable and take into account the experience of the Plan and reasonable expectations.

I look forward to reviewing this report and to answering any questions at the next Board meeting.

Sincerely,
Segal

Matthew A. Strom, FSA, MAAA, EA
Senior Vice President and Actuary

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Section 1: Actuarial Valuation Summary

Purpose and basis

This report was prepared by Segal to present a valuation of the System as of June 30, 2023, pursuant to section 5062 of Title 24, Chapter 125, Vermont Statutes Annotated, relating to the Vermont Municipal Employees' Retirement System. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Pension Plan, as administered by the Board;
- The characteristics of covered active members, inactive members, and retired members and beneficiaries as of June 30, 2023, provided by the Office of the State Treasurer;
- The unaudited assets of the System as of June 30, 2023, provided by the Office of the State Treasurer;
- Economic assumptions regarding future salary increases, inflation, and investment earnings;
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.; and
- The funding policy adopted by the Board of Trustees.

Certain disclosure information required by GASB Statements No. 67 and 68 as of June 30, 2023, for the System is provided in separate reports.

Valuation highlights

1. Segal strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and the principal balance. The funding policy outlined in the Vermont State Pension Code and adhered to by the Board meets this standard. Section 5064, subsection (c)(4), of Title 24, Chapter 125, Vermont Statutes Annotated calls for the calculation of an accrued liability contribution rate to be calculated for each membership group, based on the actuarial assumptions and methodology adopted by the Retirement Board. Actuarially determined contribution rates are determined as a percent of payroll and calculated such that the rate for each membership group is sufficient to fully fund that group's actuarial accrued liability by June 30, 2038. These actuarially determined contribution rates determined by the funding policy are compared to the statutory contribution rates as a measure of adequacy, and the contribution rates for both employers and members are updated from time to time, as necessary, to ensure proper funding of the System.

2. Actual employer contributions made during the fiscal year ending June 30, 2023, were $28.5 million, or 65.5% of the actuarially determined contribution of $43.3 million. In the prior fiscal year, actual employer contributions were $25.2 million, or 63.9% of the actuarially determined contribution of $39.5 million. Each year that actual employer contributions are less than the actuarially determined amounts generates contribution losses that must be funded by additional contributions in the future.

3. The average funding policy contribution rate for the fiscal year ending June 30, 2025, is 7.19%. Compared to the projected fiscal 2025 actuarially determined contribution rate of 11.89%[1], there is a contribution rate shortfall of 4.70% in aggregate. Each group has a contribution deficiency. At the November 17, 2020, Board meeting, the Board voted unanimously to authorize employer contribution rate increases of 0.50% each year for a period of four years, beginning July 1, 2022. In 2022, the Legislature passed H.740, which effectively split the Board-authorized increases evenly between members and employers by including an increase in the employee rate of 0.25% for each group for four years, beginning July 1, 2022. If the remaining 0.50% contribution rate increase for the fiscal year ending June 30, 2026, was applied immediately, the contribution rate shortfall for fiscal year ending June 30, 2025, would effectively reduce from 4.70% to 4.20%. Details can be found in *Section 2, Actuarially determined contribution*.

4. The rate of return on the market value of assets was 7.60% for the July 1, 2022, to June 30, 2023, plan year. The return on the actuarial value of assets was 5.75% for the same period due to the recognition of prior years' investment gains and losses. This resulted in an actuarial loss when measured against the assumed rate of return of 7.0%. We advise the Board to continue to monitor actual and anticipated investment returns relative to the assumed long-term rate of return on investments.

[1] The actuarially determined contribution rate is projected to the next fiscal year by taking the rate for the current fiscal year (12.14%) and adjusting for the scheduled member contribution rate increase of 0.25% effective July 1, 2024.

5. The actuarial value of assets is 103.8% of the market value of assets, compared to the prior year where the actuarial value of assets was 105.6% of the market value of assets. The investment experience in the past years has only been partially recognized in the actuarial value of assets. As the deferred net loss is recognized in future years, the actuarially determined cost of the System is likely to increase unless the net loss is offset by future experience. The recognition of the deferred net market loss of $34.3 million will also have an impact on the future funded percentage. If the deferred net loss was recognized immediately in the actuarial value of assets, the actuarially determined contribution rate would increase from 12.14% to about 12.88% of payroll.

6. The actuarial loss from investment experience is $11.2 million.

7. The net experience loss from sources other than investment experience was approximately $28.4 million, or 2.3% of actuarial accrued liability. Net turnover experience resulted in a loss of $1.4 million due to less terminations than expected, compared to an $8.4 million gain in the prior year. Salary and service experience resulted in a loss of $10.8 million due to larger salary increases than expected, similar to the prior year. Lastly, there was a $0.8 million gain due to lower-than-expected actual 2024 COLAs, compared to a loss of $7.2 million in the prior year. The remaining non-investment experience sources were consistent with the prior valuation. Additional detail regarding this loss is shown in *Section 2, Other experience*.

Changes from prior valuation

8. The following actuarial assumptions were approved by the Board and changed with this valuation:
   - Assumed rates of salary increase were adjusted, generally increased, based on plan experience.
   - Administrative expenses assumption was increased from 0.40% of projected to payroll to 0.45% of projected payroll.
   - Mortality assumptions changed as follows:
     - Pre-retirement mortality:
       - For Groups A and B, changed from 40% of PubG-2010 General Employee Amount-Weighted Below Median (sex-specific) tables and 60% of PubG-2010 General Employee Amount-Weighted (sex-specific) tables to 60% of PubG-2010 General Employee Amount-Weighted Below Median (sex-specific) tables and 40% of PubG-2010 General Employee Amount-Weighted (sex-specific) tables.
       - For Group C, changed from 40% of PubG-2010 General Employee Amount-Weighted Below Median (sex-specific) tables and 60% of PubG-2010 General Employee Amount-Weighted (sex-specific) tables to PubG-2010 General Employee Amount-Weighted (sex-specific) tables.
       - For Group D, changed from PubG-2010 General Employee Amount-Weighted Above Median (sex-specific) tables to PubS-2010 Public Safety Employee Amount-Weighted Below Median (sex specific) tables.

- Healthy retiree mortality:
  - For Groups A and B, changed from 104% of 40% PubG-2010 General Healthy Retiree Amount-Weighted Below Median (sex-specific) tables and 60% of PubG-2010 General Healthy Retiree Amount-Weighted (sex-specific) tables to PubG-2010 General Healthy Retiree Amount-Weighted Below Median (sex-specific) tables with 90% and 87% adjustments for males and females, respectively.
  - For Group C, changed from 104% of 40% PubG-2010 General Healthy Retiree Amount-Weighted Below Median (sex-specific) tables and 60% of PubG-2010 General Healthy Retiree Amount-Weighted (sex-specific) tables to PubG-2010 General Healthy Retiree Amount-Weighted (sex-specific) tables.
  - For Group D, changed from PubG-2010 General Healthy Retiree Amount-Weighted (sex-specific) tables to PubS-2010 Public Safety Retiree Amount-Weighted Below Median (sex-specific) tables.
- Healthy beneficiary mortality:
  - For Groups A, B, and C, changed from 70% of the Pub-2010 Contingent Survivor Amount-Weighted Below Median (sex-specific) tables and 30% of the Pub-2010 Contingent Survivor Amount-Weighted (sex-specific) tables to Pub-2010 Contingent Survivor Amount-Weighted Below-Median (sex-specific) tables.
  - For Group D, changed from Pub-2010 Contingent Survivor Amount-Weighted (sex-specific) tables to Pub-2010 Contingent Survivor Amount-Weighted Below-Median (sex-specific) tables.
- Disabled retiree Mortality:
  - For Group D, changed from PubNS-2010 Non-Safety Disabled Retiree Amount-Weighted (sex-specific) tables to PubS-2010 Safety Disabled Retiree Amount-Weighted (sex-specific) tables.
- Mortality improvement scale was changed from generational projection using scale MP-2019 to generational projection using scale MP-2021 for all assumptions.

- Assumed active retirement rates for all groups were adjusted based on plan experience.
- Assumed termination rates were adjusted based on plan experience. Rates are now split between Groups A and B, and C and D.
- Assumed disability rates were adjusted based on plan experience. Rates are now split between Groups A and B, and C and D.

As a result of these assumption changes, the normal cost decreased by $0.1 million, and the actuarial accrued liability increased by $3.7 million.

9. The funded percentage (the ratio of the actuarial value of assets to actuarial accrued liability) is 75.06%, compared to the prior year's funded percentage of 77.05%. This percentage is one measure of funding status and its history is a measure of funding progress. Using the market value of assets, the funded percentage is 72.34%, compared to 72.97% as of the prior valuation date. These measurements are not necessarily appropriate for assessing the sufficiency of System assets to cover the estimated cost of settling the System's benefit obligation or the need for or the amount of future contributions.

10. The actuarially determined contribution for the upcoming year (fiscal year ending June 30, 2024) is $50.2 million. The actuarially determined contribution as a percentage of payroll increased from 11.60% of payroll to 12.14% of payroll. The actuarially determined contribution is equal to the System's employer normal cost, plus the amount necessary to amortize the unfunded actuarial accrued liability as of June 30, 2023, over a period ending on June 30, 2038, assuming that the amortization period will remain closed and that the amortization payment will increase annually at the rate of 3% over the preceding year.

11. The unfunded actuarial accrued liability is $314.5 million, which is an increase of $48.5 million since the prior valuation.

Risk

12. It is important to note that this actuarial valuation is based on financial and demographic data as of June 30, 2023. The Plan's funded status does not reflect short-term fluctuations of the market, but rather is based on the market values on the last day of the plan year. Moreover, this actuarial valuation does not include any possible short-term or long-term impacts on mortality of the covered population that may emerge after June 30, 2023, due to COVID-19. Segal is available to prepare projections of potential outcomes of market conditions and other demographic experience upon request.

13. Since the actuarial valuation results are dependent on a given set of assumptions, there is a risk that emerging results may differ significantly as actual experience proves to be different from the assumptions. We have included a discussion of various risks that may affect the System in *Section 2, Risk*.

GASB

14. This report constitutes an actuarial valuation for the purpose of determining the actuarially determined contribution under the System's funding policy and measuring the progress of that funding policy. The Net Pension Liability and Pension Expense under Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68, for inclusion in the plan and employer's financial statements as of June 30, 2023, and June 30, 2024, will be provided separately. The actuarially determined contribution in this valuation is expected to be used as the actuarially determined contribution for GASB financial reporting.

Summary of key valuation results

		2023	2022
Contributions for plan year beginning July 1:	• Funding policy contribution rate	6.94%	6.67%
	• Actuarially determined employer contributions as a percent of payroll[1]	12.14%	11.60%
	• Contribution rate excess/(shortfall)	−5.20%	−4.93%
Actuarial cost method measures for plan year beginning July 1:	• Unfunded liability to be amortized through June 30, 2038	$314,507,491	$266,055,606
	• Normal contribution rates for plan year beginning July 1		
	– Employee normal contribution rate	6.822%	6.549%
	– Employer normal contribution rate	5.377%	5.568%
	– Total normal contribution rate	12.199%	12.117%
Actuarial accrued liability (EAN) for plan year beginning July 1:	• Total actuarial accrued liability	$1,260,908,766	$1,159,279,879
	• Employer normal cost dollars	22,217,403	20,802,944
	• Employer normal cost rate	5.377%	5.568%
Assets for plan year beginning July 1:	• Market value of assets (MVA)	$912,113,032	$845,979,471
	• Actuarial value of assets (AVA)	946,401,275	893,224,273
	• Actuarial value of assets as a percentage of market value of assets	103.76%	105.58%
Funded status (EAN) for plan year beginning July 1:	• Unfunded actuarial accrued liability based on MVA	$348,795,734	$313,300,408
	• Funded percentage on MVA basis	72.34%	72.97%
	• Unfunded actuarial accrued liability based on AVA	$314,507,491	$266,055,606
	• Funded percentage on AVA basis	75.06%	77.05%
	• Remaining amortization period (years)	15	16
Key assumptions:	• Investment return	7.00%	7.00%
	• Inflation rate	2.30%	2.30%
Demographic data for plan year beginning July 1:	• Number of retired members and beneficiaries	4,431	4,149
	• Number of deferred members as reported by the System	1,095	1,048
	• Number of inactive members as reported by the System	4,544	3,997
	• Number of active members	8,393	8,059
	• Total payroll	$392,231,749	$355,708,896
	• Average payroll	46,733	44,138
	• Total monthly benefits for all retired members and beneficiaries	4,388,927	3,887,934
	• Average monthly benefit for all retired members and beneficiaries	991	937

[1] For fiscal years ending June 30, 2024, and June 30, 2023, respectively.

Summary of key June 30, 2023, valuation results by group

		Group A	Group B	Group C	Group D	Total
Contributions:	• Current funding policy rate[1]	5.250%	6.750%	8.500%	11.100%	6.935%
	• Actuarially determined rate	8.000%	11.900%	17.283%	15.972%	12.138%
	• Excess/(shortfall)	−2.750%	−5.150%	−8.783%	−4.872%	−5.203%
Actuarial cost method measures:	• Unfunded actuarial accrued liability	$43,888,314	$157,201,118	$91,029,143	$22,388,916	$314,507,491
	• Normal contribution rates					
	– Employee rate	3.750%	6.125%	11.250%	12.600%	6.822%
	– Employer rate	4.167%	5.376%	6.491%	7.138%	5.377%
	– Total rate	7.917%	11.501%	17.741%	19.738%	12.199%
Actuarial accrued liability:	• Total actuarial accrued liability	$237,273,859	$638,679,352	$298,636,480	$86,319,075	$1,260,908,766
	• Employer normal cost dollars	4,238,714	11,508,388	4,863,210	1,607,092	22,217,403
	• Employer normal cost rate	4.167%	5.376%	6.491%	7.138%	5.377%
Assets:	• Market value of assets (MVA)	$186,379,161	$464,034,214	$200,085,696	$61,613,961	$912,113,032
	• Actuarial value of assets (AVA)	193,385,545	481,478,234	207,607,337	63,930,159	946,401,275
Funded status:	• Unfunded liability on MVA basis	$50,894,698	$174,645,138	$98,550,784	$24,705,114	$348,795,734
	• Funded percentage on MVA basis	78.55%	72.66%	67.00%	71.38%	72.34%
	• Unfunded liability on AVA basis	$43,888,314	$157,201,118	$91,029,143	$22,388,916	$314,507,491
	• Funded percentage on AVA basis	81.50%	75.39%	69.52%	74.06%	75.06%
Demographic data:	• Retired members and beneficiaries	1,613	2,179	550	89	4,431
	• Deferred members as reported by the System	592	434	51	18	1,095
	• Inactive members as reported by the System	1,808	2,405	258	73	4,544
	• Active members	2,644	4,438	1,044	267	8,393
	• Total payroll	$96,528,696	$203,208,335	$71,116,716	$21,378,002	$392,231,749
	• Average payroll	36,509	45,788	68,119	80,067	46,733

[1] Current funding policy rates are as of July 1, 2023.

Important information about actuarial valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal relies on a number of input items. These include:

Plan provisions	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
Member information	An actuarial valuation for a plan is based on data provided to the actuary by the System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
Financial Information	Part of the cost of a plan will be paid from existing assets — the balance will need to come from future contributions and investment income. The valuation is based on the asset values as of the valuation date, typically reported by the Office of the State Treasurer. A snapshot as of a single date may not be an appropriate value for determining a single year's contribution requirement, especially in volatile markets. Plan sponsors often use an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
Actuarial assumptions	In preparing an actuarial valuation, Segal starts by developing a forecast of the benefits to be paid to existing plan members for the rest of their lives and the lives of their beneficiaries. This requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of members in each year, as well as forecasts of the Plan's benefits for each of those events. In addition, the benefits forecasted for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The forecasted benefits are then discounted to a present value, typically based on an estimate of the rate of return that is expected to be achieved on the plan's assets. All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which assumptions are selected within that range. That is, there is no right answer (except with hindsight). It is important for any user of an actuarial valuation to understand and accept this constraint. The actuarial model may use approximations and estimates that will have an immaterial impact on our results. In addition, the actuarial assumptions may change over time, and while this may have a significant impact on the reported results, it does not mean that the previous assumptions were unreasonable or wrong.

Section 1: Actuarial Valuation Summary

Models	Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the models, and reviews test lives and results, under the supervision of the responsible actuary.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

The actuarial valuation is prepared at the request of the System and Board. Segal is not responsible for the use or misuse of its report, particularly by any other party.
An actuarial valuation is a measurement at a specific date — it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of financial measurements, except where otherwise noted.
Actuarial results in this report are not rounded, but that does not imply precision.
If the System is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The System should look to its other advisors for expertise in these areas.
While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.
Segal's report shall be deemed to be final and accepted by the System upon delivery and review. Trustees should notify Segal immediately of any questions or concerns about the final content.

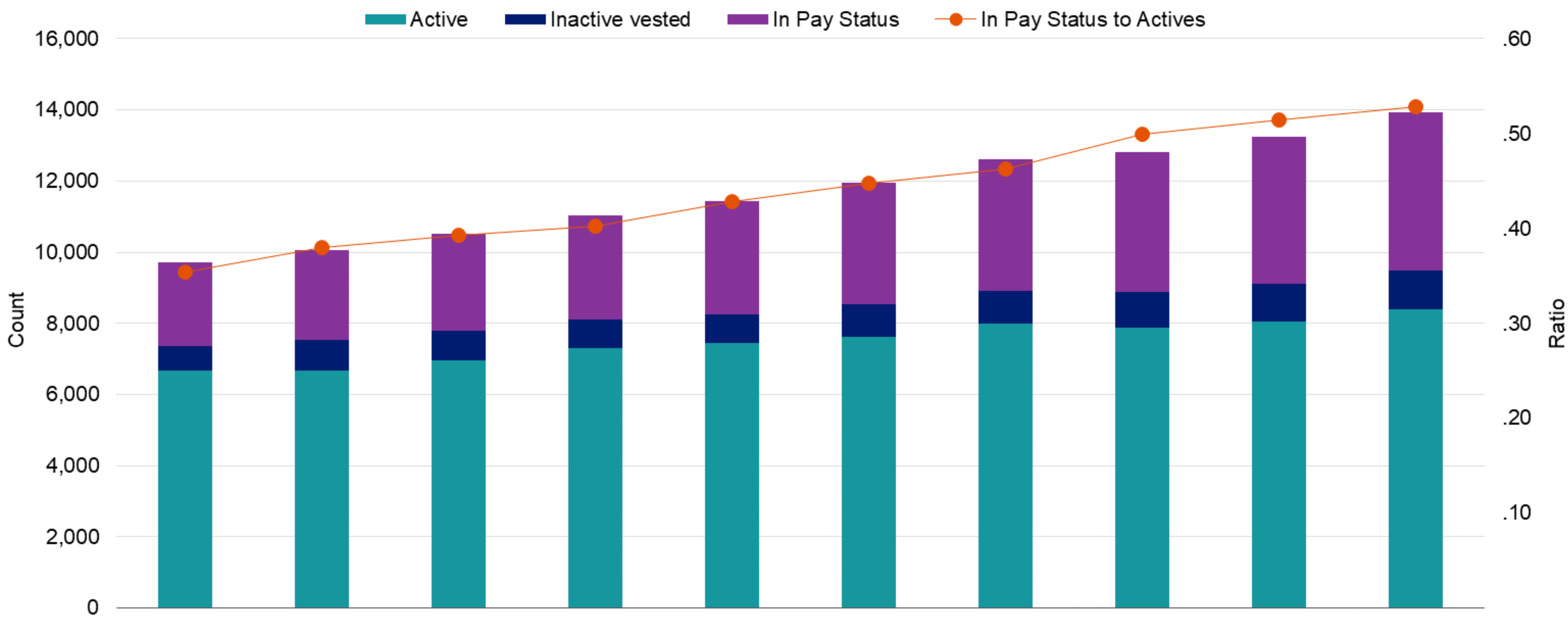
As Segal has no discretionary authority with respect to the management or assets of the System, it is not a fiduciary in its capacity as actuaries and consultants with respect to the System.

Section 2: Actuarial Valuation Results

Member data

This section presents a summary of significant statistical data on covered members.

Member Population as of June 30



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
In Pay Status	2,359	2,539	2,734	2,942	3,189	3,415	3,693	3,938	4,149	4,431
Deferred[1]	692	837	811	797	798	896	927	998	1,048	1,095
Active	6,664	6,685	6,966	7,302	7,452	7,630	7,987	7,879	8,059	8,393
Ratio[2]	0.35	0.38	0.39	0.40	0.43	0.45	0.46	0.50	0.51	0.53

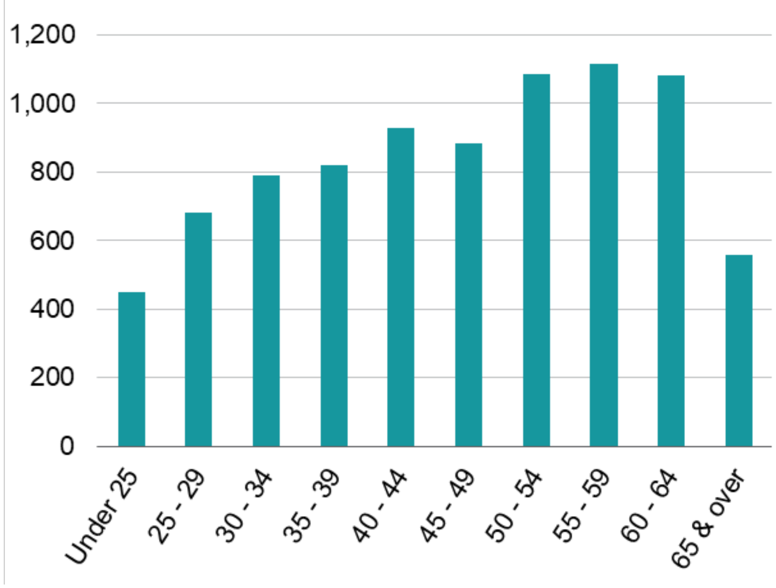
[1] Excludes inactive members as reported by the System.
[2] Effective for the June 30, 2023, actuarial valuation, all historical ratios were updated to reflect the ratio of in pay status members to active members.

Active members

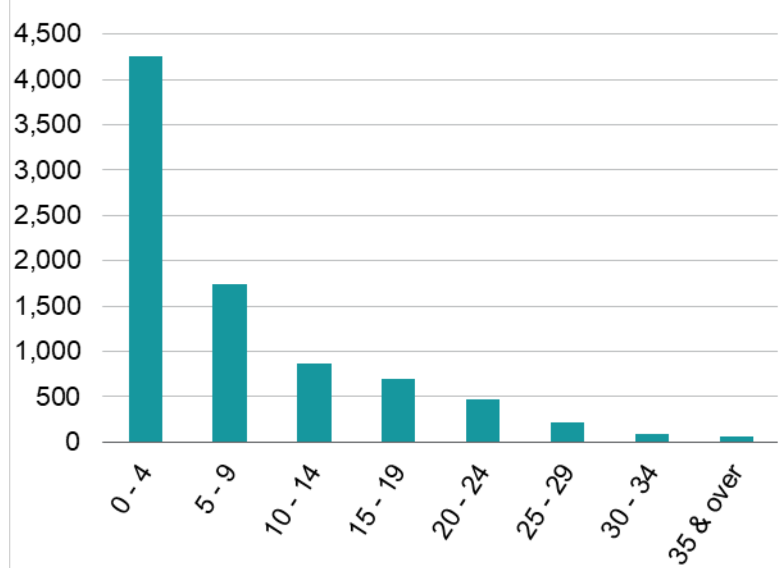
As of June 30	2023	2022	Change
Active members	8,393	8,059	4.1%
Average age	47.0	47.3	−0.3
Average years of creditable service	7.8	8.1	–0.3
Average payroll	$46,733	$44,138	5.9%

Distribution of Active Members as of June 30, 2023

Actives by Age



Actives by Years of Service



Inactive and deferred members

In this year's valuation, there were 4,544 inactive members as reported by the System. A member is reported as inactive if they have withdrawn from active employment within the three-year period preceding the valuation date, or if they withdrew prior to the three-year period preceding the valuation date, but do not have a vested right to a deferred or immediate vested benefit and have not taken a refund of their employee contributions.

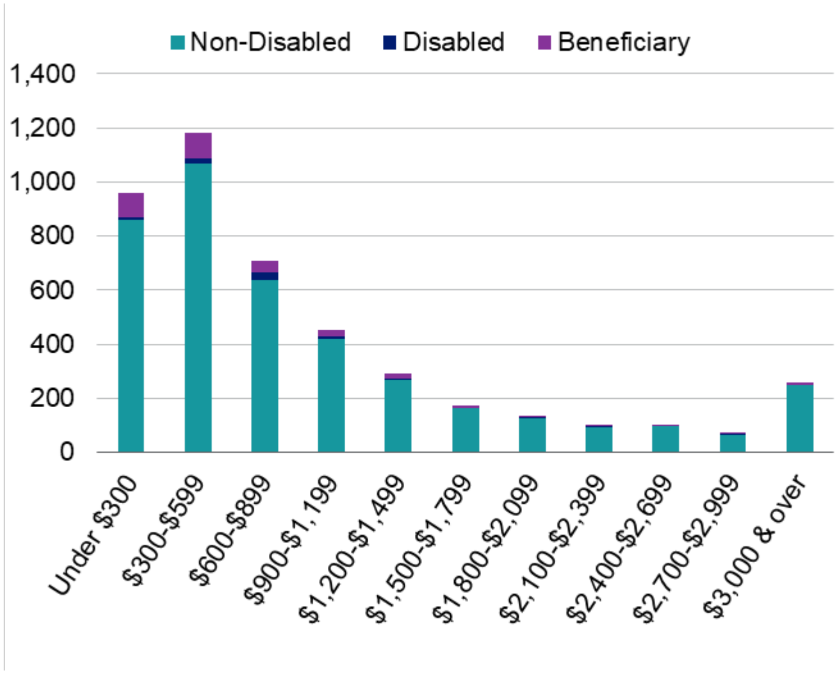
In addition, there were 1,095 deferred members as reported by the System. A member is reported as deferred if they have withdrawn from active employment prior to the three-year period preceding the valuation date and have a vested right to a deferred or immediate vested benefit.

Retired members and beneficiaries

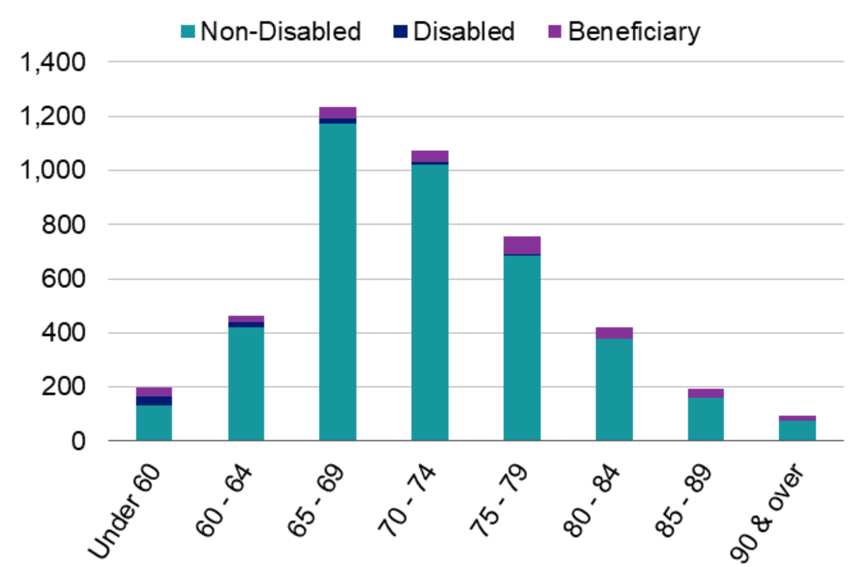
As of June 30	2023	2022	Change
Retired members (including disability)	4,132	3,864	6.9%
Average age	72.1	71.9	0.2
Average amount	$1,010	$955	5.8%
Beneficiaries	299	285	4.9%
Total monthly amount	$4,388,927	$3,887,934	12.9%

Distribution of Pensioners as of June 30, 2023

Pensioners by Type and Monthly Amount



Pensioners by Type and Age



Historical plan population

Member Data Statistics: 2014 – 2023

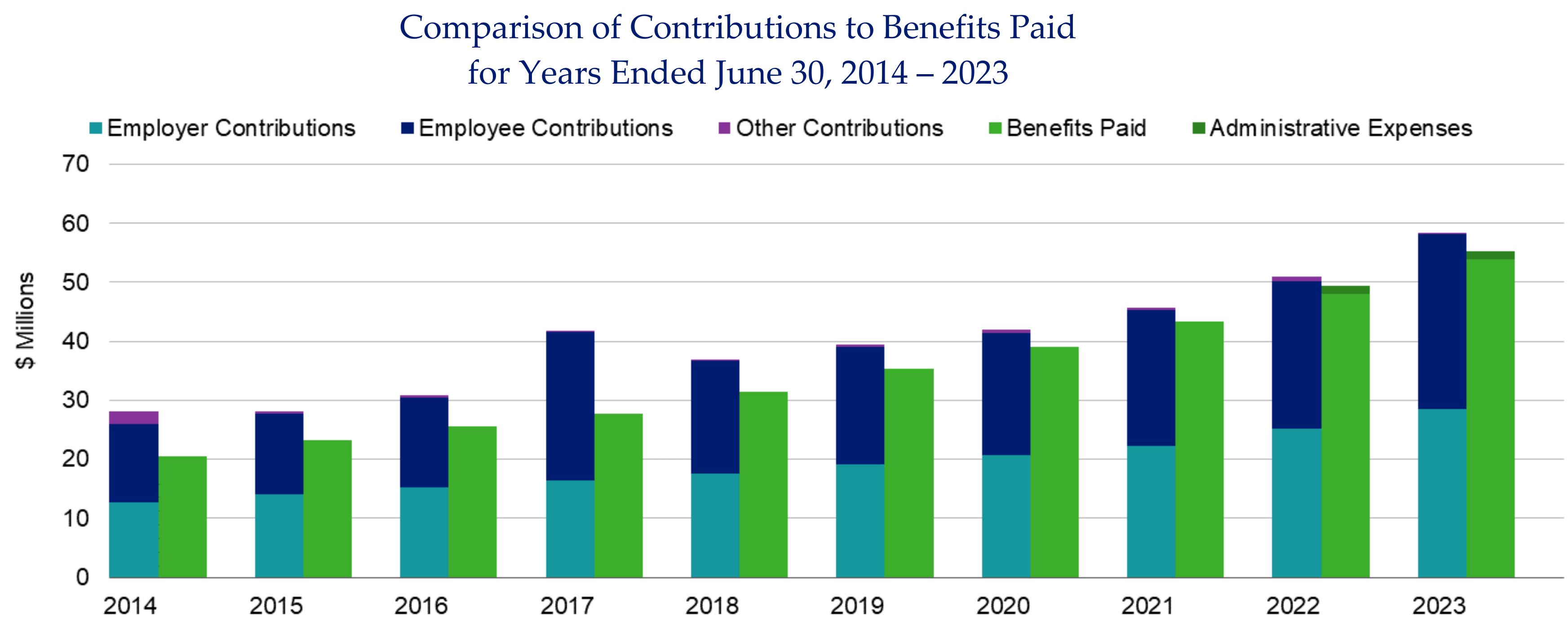
As of June 30	Active Members: Count	Active Members: Average Age	Active Members: Average Service	Retired Members[1]: Count	Retired Members[1]: Average Age	Retired Members[1]: Average Monthly Amount
2014	6,664	48.9	9.1	2,177	71.2	$693
2015	6,685	48.7	9.1	2,329	71.3	718
2016	6,966	48.5	9.0	2,523	71.4	738
2017	7,302	48.4	8.8	2,731	71.4	773
2018	7,452	48.3	8.6	2,962	71.3	828
2019	7,630	48.0	8.5	3,173	71.4	855
2020	7,987	47.9	8.3	3,435	71.6	891
2021	7,879	47.7	8.4	3,670	71.8	916
2022	8,059	47.3	8.1	3,864	71.9	955
2023	8,393	47.0	7.8	4,132	72.1	1,010

[1] Not including beneficiaries.

Financial information

Retirement plan funding anticipates that, over the long term, both contributions and investment earnings (less investment fees and administrative expenses) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components. Employer and member contributions have exceeded benefits for the most recent period shown. Benefits were 0.95 times employer and member contributions.

Additional financial information, including a summary of these transactions for the valuation year, is presented in *Section 3, Exhibits C, D* and *E*.



Section 2: Actuarial Valuation Results

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Vermont Pension Investment Commission has adopted an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuation is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. The asset method provides a degree of conservatism to increase the likelihood that benefits are funded. The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

Determination of Actuarial Value of Assets for Year Ended June 30, 2023

			Original Amount[1]	Percent Deferred	Unrecognized Amount[2]	
1	Market value of assets, June 30, 2023					$912,113,032
2	Calculation of unrecognized return					
	(a)	Year ended June 30, 2023	$5,048,306	80%	$4,038,645	
	(b)	Year ended June 30, 2022	−145,322,072	60%	−87,193,243	
	(c)	Year ended June 30, 2021	133,751,919	40%	53,500,768	
	(d)	Year ended June 30, 2020	−23,172,070	20%	−4,634,414	
	(e)	Year ended June 30, 2019	−9,847,339	0%	0	
	(f)	Total unrecognized return			−$34,288,243	
3	Preliminary actuarial value: **1 − 2f**					$946,401,275
4	Adjustment to be within 20% corridor					0
5	Final actuarial value of assets as of June 30, 2023: **3 + 4**					$946,401,275
6	Actuarial value as a percentage of market value: **5 ÷ 1**					103.76%
7	Amount deferred for future recognition: **1 − 5**					−$34,288,243

[1] Total return minus expected return on a market value basis
[2] Recognition at 20% per year over five years

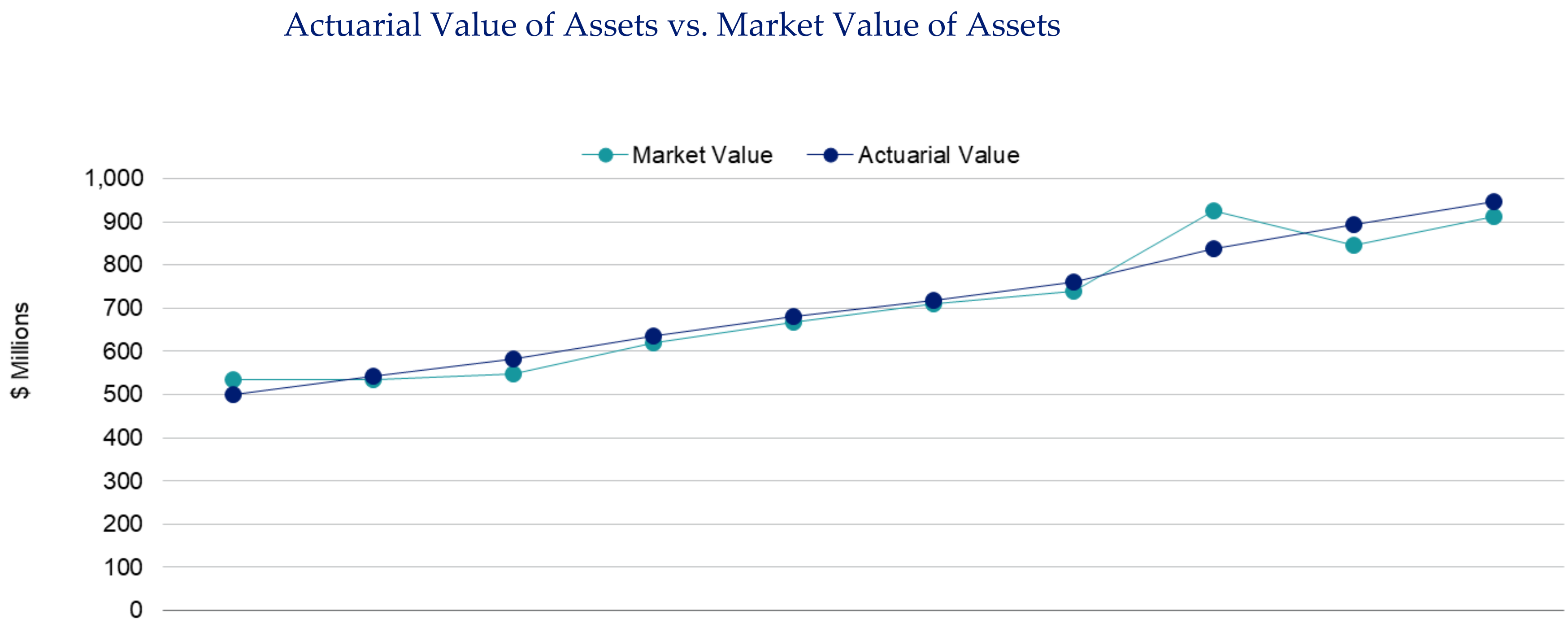
Section 2: Actuarial Valuation Results

The following table presents an allocation of total valuation assets to each member group. The amounts shown for reallocation of surplus for members transferring among groups were derived by estimation of the contributions made on behalf of these members in their prior groups and accumulation of these amounts with interest at the historical rates of return calculated for the System.

Allocation of Actuarial Value of Assets as of June 30, 2023

	Group A	Group B	Group C	Group D	Total
Valuation assets as of June 30, 2022:	$185,654,365	$455,383,030	$194,094,571	$58,092,307	$893,224,273
Contributions:	$8,973,955	$27,513,070	$16,108,177	$5,556,759	$58,151,961
Income:	10,602,206	26,137,471	11,212,780	3,420,978	51,373,435
Benefit payments:	−10,394,173	−26,408,587	−13,117,340	−2,398,882	−52,318,982
Expenses:	−527,402	−1,293,639	−551,379	−165,027	−2,537,447
Net transfers:	−310,101	−760,633	−324,199	−97,032	−1,491,965
Surplus reallocation for transferring members:	−613,305	907,522	184,727	478,944	0
Valuation assets as of June 30, 2023:	$193,385,545	$481,478,234	$207,607,337	$63,930,159	$946,401,275

Asset history for years ended June 30

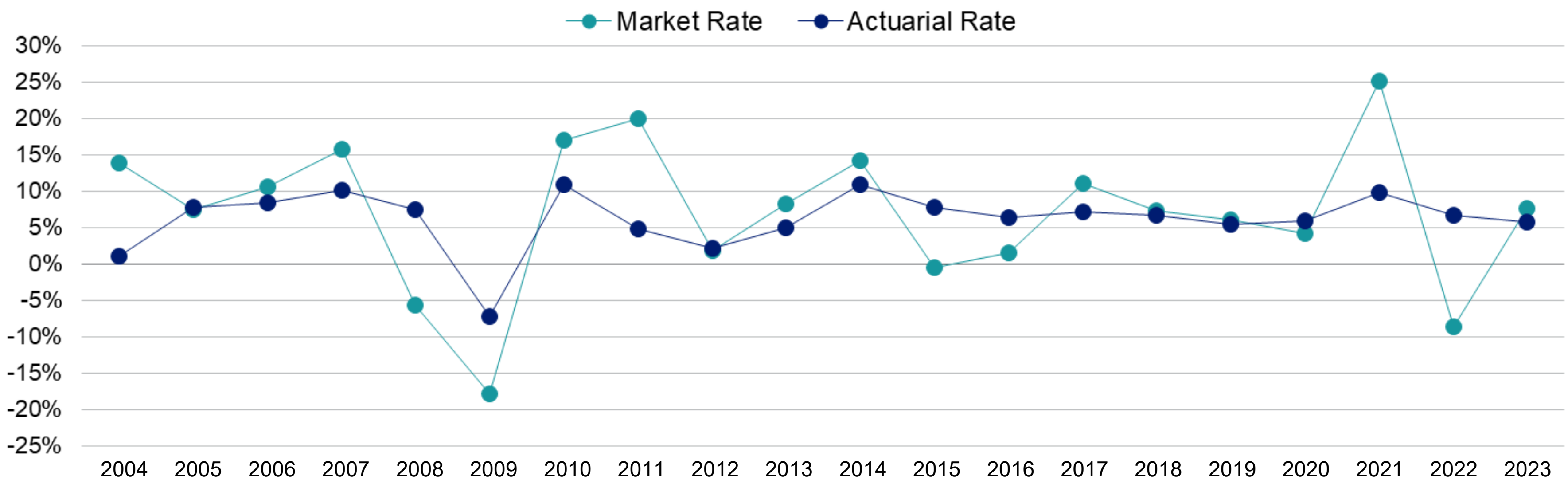


	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Actuarial Value[1]	$500.6	$543.8	$581.6	$634.7	$680.0	$718.3	$761.5	$837.1	$893.2	$946.4
Market Value[1]	534.5	535.9	547.0	619.5	667.8	709.5	740.1	926.0	846.0	912.1
Ratio	0.94	1.01	1.06	1.02	1.02	1.01	1.03	0.90	1.06	1.04

[1] In millions

Historical investment returns

Market and Actuarial Rates of Return for Years Ended June 30



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Market rate	13.8%	7.5%	10.6%	15.7%	-5.7%	-17.9%	17.0%	19.9%	1.9%	8.2%	14.1%	-0.5%	1.3%	11.1%	7.3%	6.0%	4.2%	25.1%	-8.7%	7.6%
Actuarial rate	1.1%	7.8%	8.4%	10.1%	7.4%	-7.3%	10.9%	4.8%	2.2%	5.0%	10.9%	7.8%	6.1%	7.1%	6.7%	5.4%	5.9%	9.9%	6.7%	5.8%
Assumed rate	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.5%	8.5%	8.5%	8.5%	8.5%	7.95%	7.95%	7.5%	7.5%	7.0%	7.0%	7.0%	7.0%

Average Rates of Return	Actuarial Value	Market Value
Most recent five-year average return:	6.73%	6.16%
Most recent ten-year average return:	7.09%	6.32%
Most recent fifteen-year average return:	6.21%	6.15%
Most recent twenty-year average return:	6.34%	6.33%

Actuarial experience

To calculate the actuarially determined contribution (ADC), assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the ADC will decrease relative to the previous year. On the other hand, the ADC will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single years' experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The net experience loss is $39,608,121, which includes $11,215,389 from investment losses and $28,392,732 in losses from all other sources. The net experience variation from individual sources other than investments was 2.3% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

Actuarial Experience for Year Ended June 30, 2023

1	Net loss from investments[1]	−$11,215,389
2	Gain on administrative expenses	251,510
3	Net loss from other experience	−28,644,242
4	Net experience loss: **1 + 2 + 3**	−$39,608,121

[1] Details on next page

Investment experience

Actuarial planning is long term. The obligations of a pension plan are expected to continue for the lifetime of all its participants.

The assumed long-term rate of return of 7.00% considers past experience, the System's asset allocation policy, and future expectations.

Investment Experience

		Year Ended June 30, 2023	
		Market Value	**Actuarial Value**
1	Investment income	$64,329,994	$51,373,435
2	Average value of assets	846,881,255	894,126,057
3	Rate of return: **1 ÷ 2**	7.60%	5.75%
4	Assumed rate of return	7.00%	7.00%
5	Expected investment income: **2 x 4**	$59,281,688	$62,588,824
6	Actuarial gain/(loss): **1 – 5**	$5,048,306	−$11,215,389

Administrative expenses

Administrative expenses for the year ending June 30, 2023, totaled $1,302,636, as compared to the assumption of $1,494,362.

Contributions

Contributions for the year ended June 30, 2023, totaled $58,242,862 compared to the projected amount of $67,808,338. This resulted in a loss of $9,900,266 for the year, with interest.

Other experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among members,
- retirement experience (earlier or later than projected),
- mortality (more or fewer deaths than projected),
- the number of disability retirements (more or fewer than projected),
- actual COLAs paid (more or less than assumed), and
- salary and service increases (greater or smaller than projected).

The net loss from this other experience for the year ended June 30, 2023, amounted to $28,644,242.

Liability Changes Due to Demographic Experience for Year Ended June 30

	2019	2020	2021	2022	2023
Net turnover	−$3,643,639	−$6,643,287	−$1,910,229	$8,419,883	−$1,402,050
Retirement	−6,418,409	−4,895,347	−2,674,401	−3,610,731	−7,724,194
Mortality	−1,150,243	−3,822,241	515,840	216,665	−1,784,365
Disability retirements	58,501	−108,472	−192,529	−52,895	−252,483
Salary/service increases	1,849,148	5,013,461	1,670,345	−10,247,586	−10,849,123
COLA experience[1]	1,463,253	3,060,227	−4,281,130	−7,223,911	813,080
Miscellaneous[2]	−4,408,256	−2,305,236	407,804	−5,611,146	−7,445,107
Total	−$12,249,645	−$9,700,895	−$6,464,300	−$18,109,721	−$28,644,242

[1] COLA experience gain for 2023 is due to actual 2024 COLAs being less than expected (1.10% actual vs 1.10% expected for Group A, 1.10% actual vs 1.20% expected for Groups B, C, and D).

[2] Miscellaneous gains and losses are comprised of all demographic gains and losses that are not individually listed in the table above. Some of the largest attributing items typically include data updates, show-up/drop-off records (records that were not previously valued, or records that were previously valued that are no longer being valued), and actual timing of cash flows being different than assumed.

Actuarial assumptions

Effective for the June 30, 2023, actuarial valuation, the following assumptions were updated:

- Assumed rates of salary increase were adjusted, generally increased, based on plan experience.
- Administrative expenses assumption was increased from 0.40% of projected to payroll to 0.45% of projected payroll.
- Mortality assumptions changed as follows:
  - Pre-retirement mortality:
    - For Groups A and B, changed from 40% of PubG-2010 General Employee Amount-Weighted Below Median (sex-specific) tables and 60% of PubG-2010 General Employee Amount-Weighted (sex-specific) tables to 60% of PubG-2010 General Employee Amount-Weighted Below Median (sex-specific) tables and 40% of PubG-2010 General Employee Amount-Weighted (sex-specific) tables.
    - For Group C, changed from 40% of PubG-2010 General Employee Amount-Weighted Below Median (sex-specific) tables and 60% of PubG-2010 General Employee Amount-Weighted (sex-specific) tables to PubG-2010 General Employee Amount-Weighted (sex-specific) tables.
    - For Group D, changed from PubG-2010 General Employee Amount-Weighted Above Median (sex-specific) tables to PubS-2010 Public Safety Employee Amount-Weighted Below Median (sex specific) tables.
  - Healthy retiree mortality:
    - For Groups A and B, changed from 104% of 40% PubG-2010 General Healthy Retiree Amount-Weighted Below Median (sex-specific) tables and 60% of PubG-2010 General Healthy Retiree Amount-Weighted (sex-specific) tables to PubG-2010 General Healthy Retiree Amount-Weighted Below Median (sex-specific) tables with 90% and 87% adjustments for males and females, respectively.
    - For Group C, changed from 104% of 40% PubG-2010 General Healthy Retiree Amount-Weighted Below Median (sex-specific) tables and 60% of PubG-2010 General Healthy Retiree Amount-Weighted (sex-specific) tables to PubG-2010 General Healthy Retiree Amount-Weighted (sex-specific) tables.
    - For Group D, changed from PubG-2010 General Healthy Retiree Amount-Weighted (sex-specific) tables to PubS-2010 Public Safety Retiree Amount-Weighted Below Median (sex-specific) tables.
  - Healthy beneficiary mortality:
    - For Groups A, B, and C, changed from 70% of the Pub-2010 Contingent Survivor Amount-Weighted Below Median (sex-specific) tables and 30% of the Pub-2010 Contingent Survivor Amount-Weighted (sex-specific) tables to Pub-2010 Contingent Survivor Amount-Weighted Below-Median (sex-specific) tables.
    - For Group D, changed from Pub-2010 Contingent Survivor Amount-Weighted (sex-specific) tables to Pub-2010 Contingent Survivor Amount-Weighted Below-Median (sex-specific) tables.

- Disabled retiree Mortality:
  - For Group D, changed from PubNS-2010 Non-Safety Disabled Retiree Amount-Weighted (sex-specific) tables to PubS-2010 Safety Disabled Retiree Amount-Weighted (sex-specific) tables.
- Mortality improvement scale was changed from generational projection using scale MP-2019 to generational projection using scale MP-2021 for all assumptions.

- Assumed active retirement rates for all groups were adjusted based on plan experience.
- Assumed termination rates were adjusted based on plan experience. Rates are now split between Groups A and B, and C and D.
- Assumed disability rates were adjusted based on plan experience. Rates are now split between Groups A and B, and C and D.

As a result of these assumption changes, the normal cost decreased by $0.1 million, and the actuarial accrued liability increased by $3.7 million. Details on actuarial assumptions and methods are in *Section 4, Exhibit I*.

Plan provisions

There are no plan provision changes reflected in this report. A summary of plan provisions is in *Section 4, Exhibit II*.

Development of unfunded actuarial accrued liability

Development of Unfunded Actuarial Accrued Liability for Year Ended June 30, 2023

1	Unfunded actuarial accrued liability at beginning of year		$266,055,606
2	Normal cost at beginning of year		43,761,950
3	Total contributions		−58,242,862
4	Interest on **1**, **2** & **3**		19,648,728
5	Expected unfunded actuarial accrued liability		$271,223,422
6	Changes due to:		
	(a) Net experience (gain)/loss	$39,608,121	
	(b) Assumptions	3,675,948	
	(c) Funding method	0	
	(d) Plan provisions	0	
	Total changes		43,284,069
7	Unfunded actuarial accrued liability at end of year		$314,507,491

Actuarially determined contribution

The actuarially determined contribution is equal to the employer normal cost payment and a payment on the unfunded actuarial accrued liability. As of July 1, 2023, the actuarially determined contribution for fiscal year ending June 30, 2024, is $50,155,033, or 12.138% of payroll.

The statute governing the System specifies the funding policy used to calculate the actuarially determined contribution based on a closed amortization period ending on June 30, 2038, assuming that the amortization amount will increase annually at the rate of 3% over the preceding year. As of July 1, 2023, there are 15 years remaining on this schedule.

The contribution requirement as of July 1, 2023, is based on the data previously described, the actuarial assumptions and Plan provisions described in *Section 4*, including all changes affecting future costs adopted at the time of the actuarial valuation, actuarial gains and losses, and changes in the actuarial assumptions.

Actuarially Determined Contribution Requirement

		Year Beginning July 1			
		2023		2022	
		Amount	% of Payroll	Amount	% of Payroll
1	Total normal cost, adjusted for timing[1]	$48,548,551	11.749%	$43,773,351	11.717%
2	Administrative expenses	1,859,405	0.450%	1,494,362	0.400%
3	Expected employee contributions	−28,190,553	−6.822%	−24,464,769	−6.549%
4	Employer normal cost: **1 + 2 + 3**	$22,217,403	5.377%	$20,802,944	5.568%
5	Actuarial accrued liability	1,260,908,766		1,159,279,879	
6	Actuarial value of assets	946,401,275		893,224,273	
7	Unfunded actuarial accrued liability: **5 − 6**	$314,507,491		$266,055,606	
8	Payment on unfunded actuarial accrued liability, adjusted for timing[1]	27,937,630	6.761%	22,540,625	6.034%
9	Actuarially determined contribution requirement: **4 + 8**	$50,155,033	12.138%	$43,343,569	11.602%
10	Projected payroll	413,201,090		373,590,492	

[1] Contributions are assumed to be paid at the middle of the year.

Actuarially determined contribution by group

The following table shows a comparison of the projected Actuarially Determined Contribution for the fiscal year ending June 30, 2025, to the projected funding policy rates for the same period, by group.

Actuarially Determined Contribution by Group for Fiscal Year Ending June 30, 2025

		Group A	Group B	Group C	Group D	Total
1	Normal contributions					
	(a) Member[1]	4.000%	6.375%	11.500%	12.850%	7.072%
	(b) Employer	3.917%	5.126%	6.241%	6.888%	5.127%
	(c) Total	7.917%	11.501%	17.741%	19.738%	12.199%
2	Payment on unfunded liability through June 30, 2038	3.833%	6.524%	10.792%	8.834%	6.761%
3	Actuarially determined contribution rate: **1b + 2**	7.750%	11.650%	17.033%	15.722%	11.888%
4	Current funding policy contribution rate	5.500%	7.000%	8.750%	11.350%	7.185%
5	Contribution excess/(shortfall): **4 − 3**	−2.250%	−4.650%	−8.283%	−4.372%	−4.703%

We recommend that the Board set future contribution rates to ultimately target the rates specified in item 3 in the table above. At the November 17, 2020, Board meeting, the Board voted unanimously to authorize employer contribution rate increases of 0.50% each year for a period of four years, beginning July 1, 2022. In 2022, the Legislature passed H.740, which effectively split the Board-authorized increases evenly between members and employers by including an increase in the employee rate of 0.25% for each group for four years, beginning July 1, 2022.

The difference between the current funding policy rate and the actuarially determined contribution rate is a shortfall of 4.703% of payroll in the aggregate. If the remaining 0.50% contribution rate increase was applied immediately, the contribution shortfall would effectively reduce to 4.203%. Projected payroll for fiscal 2024 is $413,201,090.

[1] Includes one 0.25% member contribution rate increase per group, as defined in H.740.

Amortization schedule for unfunded actuarial accrued liability

A schedule of projected future unfunded actuarial accrued liability amortization payments, which, if made, would amortize the unfunded actuarial accrued liability by 2038, is shown below. Because the current funding policy rates are lower than the actuarially determined contribution rates, we have projected the funded percentage based on the funding policy rates. As shown below, the funded percentage increases through 2038, where the projected funded percentage is 78.91%.

As of July 1	Balance	Amortization Payment (Year Following)	Projected Funded Percentage if Contributions are Based on Current Contribution Rates[1]
2023	$314,507,491	$27,937,630	75.06%
2024	307,624,106	28,775,759	75.33%
2025	299,391,916	29,639,032	75.65%
2026	289,690,497	30,528,203	76.08%
2027	278,390,213	31,444,049	76.45%
2028	265,351,551	32,387,371	76.80%
2029	250,424,403	33,358,992	77.11%
2030	233,447,302	34,359,761	77.39%
2031	214,246,599	35,390,554	77.63%
2032	192,635,587	36,452,271	77.86%
2033	168,413,556	37,545,839	78.05%
2034	141,364,787	38,672,214	78.24%
2035	111,257,473	39,832,381	78.42%
2036	77,842,561	41,027,352	78.59%
2037	40,852,517	42,258,173	78.75%
2038	0	0	78.91%

[1] At the November 17, 2020, Board meeting, the Board voted unanimously to authorize employer contribution rate increases of 0.50% each year for a period of four years, beginning July 1, 2022. In 2022, the Legislature passed H.740, which effectively split the Board-authorized increases evenly between members and employers by including an increase in the employee rate of 0.25% for each group for four years, beginning July 1, 2022. The funded percentages shown in the table above assume that the Actuarial Value of Assets earns 7% per year in each future year and do not reflect the $34.3 million of deferred net investment losses as of the June 30, 2023, valuation date. For comparison, the projected funded percentage in 2038 based on the Market Value of Assets is 75.32%.

History of employer contributions

A history of the most recent years of contributions is shown below.

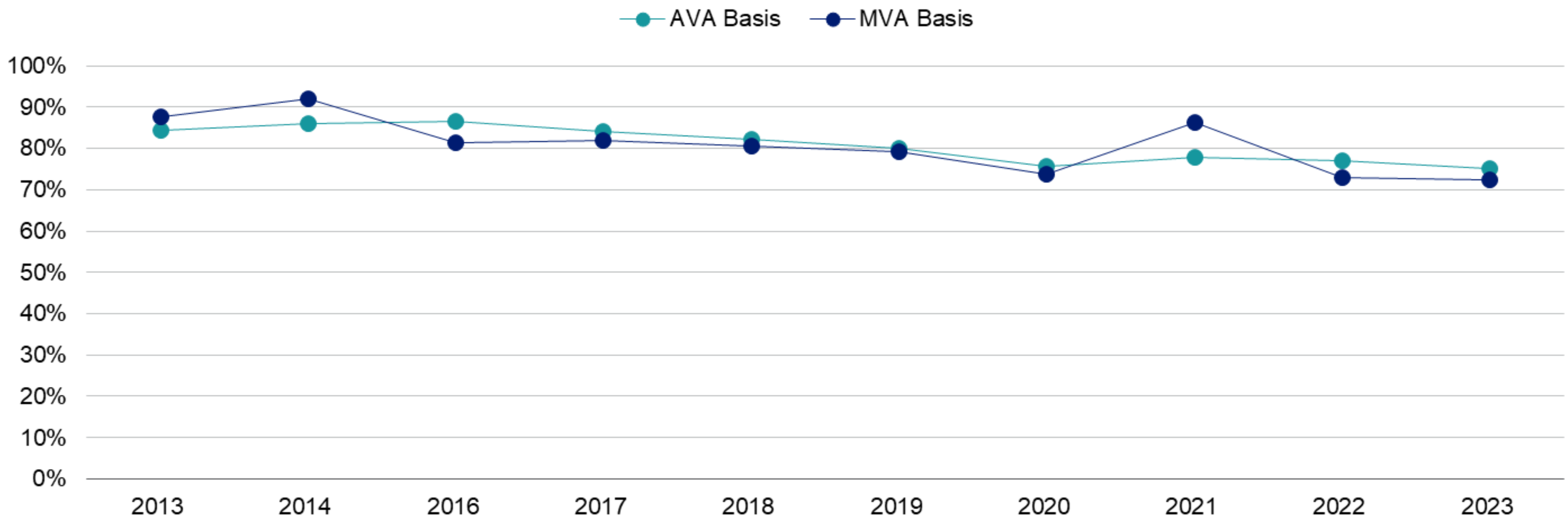
History of Employer Contributions: 2015 – 2024

Fiscal Year Ended June 30	Actuarially Determined Contribution: Amount	Actuarially Determined Contribution: Percentage of Payroll[1]	Actual Employer Contribution: Amount	Actual Employer Contribution: Percentage of Payroll[1]	Percent Contributed
2015	$11,956,121	4.93%	$14,136,067	5.83%	118.23%
2016[2]	15,235,742	N/A	15,235,742	N/A	100.00%
2017	12,895,672	4.64%	16,481,881	5.93%	127.81%
2018	15,066,601	5.22%	17,519,690	6.07%	116.28%
2019	17,263,214	5.67%	19,202,981	6.31%	111.24%
2020	22,618,468	7.04%	20,680,856	6.44%	91.43%
2021	36,722,301	10.67%	22,297,570	6.48%	60.72%
2022	39,451,313	11.31%	25,217,676	7.23%	63.92%
2023	43,343,569	11.60%	28,456,017	7.62%	65.65%
2024	50,155,033	12.14%	--	--	--

[1] Based on expected payroll
[2] While no formal actuarial valuation was produced for the fiscal year ended June 30, 2015, contribution rates for the year were developed by the actuary.

History of funded percentage

A history of the most recent years of funded percentage as of June 30th is shown below.



* No formal actuarial valuation was produced for the fiscal year ended June 30, 2015. Therefore, no funded percentage is shown as of June 30, 2015.

Actuarial balance sheet

An overview of the System's funding is provided by an Actuarial Balance Sheet, which compares the total liabilities (current and future) to the total assets (current and future). The liabilities are calculated by determining the amount and timing of all future payments that will be made by the System for current members. These payments are discounted at the valuation interest rate to the date of the valuation, thereby determining the present value of all benefits, referred to as the "liability" of the System.

Second, this liability is compared to the assets. The "assets" for this purpose include the net amount of assets already accumulated by the System, the present value of future member contributions, the present value of future employer normal cost contributions, and the present value of future employer amortization payments for the unfunded actuarial accrued liability.

Actuarial Balance Sheet

	Year Ended	
	June 30, 2023	**June 30, 2022**
Liabilities		
• Present value of benefits for retired members and beneficiaries	$589,654,207	$526,609,714
• Present value of benefits for inactive former members	92,593,422	82,579,636
• Present value of benefits for active members	916,856,815	853,630,464
Total liabilities	**$1,599,104,444**	**$1,462,819,814**
Assets		
• Total valuation value of assets	$946,401,275	$893,224,273
• Present value of future contributions by members	233,390,591	207,050,583
• Present value of future employer contributions[1] for:		
• Entry age cost/employer normal contributions	104,805,087	303,539,935
• Unfunded actuarial accrued liability	314,507,491	266,055,606
Total of current and future assets	**$1,599,104,444**	**$1,462,819,814**

[1] Based on actuarially determined contribution rates, not the current contribution rates

Low-Default-Risk Obligation Measure

In December 2021, the Actuarial Standards Board issued a revision of Actuarial Standard of Practice No. 4 (ASOP 4) *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*. One of the revisions to ASOP 4 requires the disclosure of a Low-Default-Risk Obligation Measure (LDROM) when performing a funding valuation. The LDROM presented in this report is calculated using the same methodology and assumptions used to determine the Actuarial Accrued Liability (AAL) used for funding, except for the discount rate. The LDROM is required to be calculated using “a discount rate…derived from low-default-risk fixed income securities whose cash flows are reasonably consistent with the pattern of benefits expected to be paid in the future.”

The LDROM is a calculation assuming a plan’s assets are invested in an all-bond portfolio, generally lowering expected long-term investment returns. The discount rate selected and used for this purpose is the Bond Buyer General Obligation 20-year Municipal Bond Index Rate, published at the end of each week. The last published rate in June of the measurement period, by The Bond Buyer (www.bondbuyer.com), is 3.65% for use effective June 30, 2023. This is the rate used to determine the discount rate for valuing reported public pension plan liabilities in accordance with Governmental Accounting Standards when plan assets are projected to be insufficient to make projected benefit payments, and the 20-year period reasonably approximates the duration of such plans. The LDROM is not used to determine a plan’s funded status or Actuarially Determined Contribution Rates. The plan’s expected return on assets, currently 7.00%, is used for these calculations.

As of June 30, 2023, the LDROM for the system is $1.98 billion. The difference between the plan’s AAL of $1.26 billion and the LDROM, or $0.72 billion, can be thought of as the increase in the AAL if the entire portfolio were invested in low-default-risk securities. Alternatively, this difference could also be viewed as representing the expected savings from investing in the plan’s diversified portfolio compared to investing only in low-default-risk securities.

ASOP 4 requires commentary to help the intended user understand the significance of the LDROM with respect to the funded status of the plan, plan contributions, and the security of participant benefits. In general, if plan assets were invested exclusively in low-default-risk securities, the funded status would be lower and the Actuarially Determined Contribution would be higher. While investing in a portfolio with low-default-risk securities may be more likely to reduce investment volatility and the volatility of employer contributions, it also may be more likely to result in higher employer contributions or lower benefits.

Risk

Since the actuarial valuation results are dependent on a given set of assumptions and data as of a specific date, there is a risk that emerging results may differ significantly as actual experience differs from the assumptions.

Below is a brief discussion of some of the risks that may affect the System. This discussion is focused on funding-related risks, but similar concerns may apply to risks regarding the level of expense and liabilities reported for System accounting purposes as well.

There are external factors including legislative or financial reporting changes that could impact the System's funding and disclosure requirements. While we do not assume any changes in such external factors, it is important to understand that they could have significant consequences for the System.

In 2019, the Board engaged Segal to perform a detailed analysis of the potential range of the impact of risks relative to the System's future financial condition. This study included an overview of risks that affect the System and stakeholders, as well as various stochastic and deterministic modeling scenarios, primarily focusing on investment returns.

A detailed risk assessment is important for VMERS because:

- The current positive cash flow position of the System could be reversed by relatively small deviations from assumed future experience or simply as the result of the ongoing maturity of the plan over time.
- Investment volatility could affect plan sustainability and require increased contributions from members and/or employers.
- Most actuarial assumptions have been revised and updated since the last detailed risk analysis was performed.
- The risks identified below show significant potential for variability.

The following risks could significantly affect the System's future condition:

- **Investment Risk** (the risk that returns will be different than expected)

  If the prior year's investment performance resulted in a market value of assets that is 10% different than the current value, it would result in a change of $91.2 million in the asset value. A 10% increase in assets would cause the unfunded actuarial accrued liability using the market value of assets to decrease from $348.8 million to $257.6 million. Likewise, a 10% decrease in the asset value would cause the unfunded actuarial accrued liability to increase from $348.8 million to $440.0 million.

  Since the System's assets are much larger than contributions, investment performance may create volatility in the actuarially determined contribution requirements. For example, for each 1% difference in actual return, the actuarially determined contribution would increase or decrease by 0.18% of payroll, disregarding the effects of the five-year phase-in of investment gains and losses.

To illustrate the potential for future investment volatility, the single year market value rate of return over the last 20 years has ranged from a low of −17.88% to a high of 25.07%.

- **Longevity Risk** (the risk that mortality experience will be different than expected)

  The actuarial valuation includes an expectation of future improvement in life expectancy. Emerging plan experience that does not match these expectations will result in either an increase or decrease in the actuarially determined contribution.

  The current mortality assumptions represent our best estimate of the mortality rates for this plan; however, a 10% reduction in the assumed mortality rates results in an increase in the liabilities of roughly 3% for most plans. For VMERS, a 3% liability increase would result in an increase in the unfunded accrued liability of $37.8 million. The unfunded accrued liability (market value of assets basis) would increase from $348.8 million to $386.6 million.

- **Demographic Risk** (the risk that member experience will be different than assumed)

  Examples of this risk include:

  – Actual retirements occurring earlier or later than assumed. The value of retirement plan benefits is sensitive to the rate of benefit accruals and any early retirement subsidies that apply.

  – More or less active member turnover than assumed.

  – Salary increases more or less than assumed.

- **Maturity Measures**

As pension plans mature, the cash need to fulfill benefit obligations will increase over time. Therefore, cash flow projections and analysis should be performed to assure that the Plan's asset allocation is aligned to meet emerging pension liabilities.

– Over the past ten years, the ratio of in-pay-status members to active members has increased from a low of 0.35 to a high of 0.53. Currently the System has an in-pay-status to active member ratio of 0.53.

– As of June 30, 2023, the in-payment-status actuarial accrued liability represents 47% of the total actuarial accrued liability. In addition, the actuarial accrued liability for inactive vested members represents 7% of the total. The higher the non-active actuarial accrued liability is as a percent of the total liability, the greater the danger of volatility in results.

– For the prior year, benefits paid were $4.3 million less than contributions received, or 0.5% of the market value of assets. As the System matures and benefits paid exceed contributions received, cash will be needed from the investment portfolio to meet benefit payments.

- **Actual Experience Over the Last Five Years and Implications for the Future**

Plan Year Ended	Investment Gain/(Loss)	Administrative Expense Gain/(Loss)	All Other Gains and (Losses)
2019	−$14,044,110	N/A	−$12,249,645
2020	−11,255,517	N/A	−9,700,895
2021	21,858,431	N/A	−6,464,300
2022	−2,912,871	$145,431	−18,109,721
2023	−11,215,389	251,510	−28,644,242

– Past experience can help demonstrate the sensitivity of key results to the System's actual experience. Over the past five years:

- The investment gain(loss) for a year (actuarial basis) has ranged from a loss of $14.0 million to a gain of $21.9 million.
- The non-investment gain(loss) for a year has ranged from a loss of $28.4 million to a loss of $6.5 million.

– The funded percentage on the actuarial value of assets has ranged from a low of 75.1% to a high of 86.5% over the past ten years.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage

Category	As of June 30 2023	2022	Change From Prior Year
Active members in valuation:			
• Number	8,393	8,059	4.1%
• Average age	47.0	47.3	-0.3
• Average years of service	7.8	8.1	-0.3
• Total payroll	$392,231,749	$355,708,896	10.3%
• Average payroll	46,733	44,138	5.9%
• Total active vested members	4,140	4,082	1.4%
Inactive members			
• Number of deferreds as reported by the System	1,095	1,048	4.5%
• Number of inactives as reported by the System	4,544	3,997	13.7%
Retired members:			
• Number in pay status	4,044	3,778	7.0%
• Average age	72.3	72.1	0.2
• Average monthly benefit	$1,012	$958	5.6%
Disability retirees:			
• Number in pay status	88	86	2.3%
• Average age	63.4	63.2	0.2
• Average monthly benefit	$915	$838	9.2%
Beneficiaries:			
• Number in pay status	299	285	4.9%
• Average age	73.8	74.1	-0.3
• Average monthly benefit	$728	$695	4.7%

Exhibit B: Reconciliation of Member Data

	Active Members	Deferreds	Inactives	Disability Retirees	Retired Members	Beneficiaries	Total
Number as of July 1, 2022	**8,059**	**1,048**	**3,997**	**86**	**3,778**	**285**	**17,253**
• New members	1,542	N/A	373	0	9	2	1,926
• Inactives as reported by the System	-1,030	N/A	1,030	N/A	N/A	N/A	0
• Deferreds as reported by the System	N/A	139	-139	N/A	N/A	N/A	0
• Retirements	-220	-66	-52	0	338	N/A	0
• New disabilities	-4	0	-1	5	N/A	N/A	0
• Return to work from disability	0	N/A	N/A	0	N/A	N/A	0
• Died with beneficiary	-5	-2	0	-1	-18	26	0
• Died without beneficiary	-5	-1	-1	-1	-54	-16	-78
• Refunds of contributions	-131	-9	-493	-2	-9	0	-644
• Rehire	187	-14	-173	N/A	0	N/A	0
• Certain period expired	N/A	N/A	0	0	0	-1	-1
• Data adjustments	0	0	3	1	0	3	7
Number as of July 1, 2023	**8,393**	**1,095**	**4,544**	**88**	**4,044**	**299**	**18,463**

Exhibit C: Summary Statement of Income and Expenses on a Market Value Basis

		Year Ended June 30, 2023		Year Ended June 30, 2022
Net assets at market value at the beginning of the year		$845,979,471		$926,034,330
Contribution income:				
• Employer contributions	$28,456,017		$25,217,676	
• Member contributions	29,695,944		25,025,242	
• Less administrative expenses	−1,302,636		−1,302,589	
Net contribution income		*$56,849,325*		*$48,940,329*
Other income		$90,901		$650,984
Investment income:				
• Interest, dividends and other income	$7,928,640		$6,689,467	
• Asset appreciation	56,401,354		−87,174,094	
• Less investment fees	−1,234,811		−1,023,138	
Net investment income		*$63,095,183*		*−$81,507,765*
Total income available for benefits		**$120,035,409**		**−$31,916,452**
Less benefit payments:				
• Benefits	−$49,180,570		−$44,227,059	
• Refunds of contributions	−2,541,299		−2,541,159	
• Death claims	−597,113		−387,362	
• Transfer to other pension trust funds	−1,582,866		−982,827	
Net benefit payments		*−$53,901,848*		*−$48,138,407*
Change in reserve for future benefits		**$66,133,561**		**−$80,054,859**
Net assets at market value at the end of the year		**$912,113,032**		**$845,979,471**

Exhibit D: Summary Statement of Plan Assets

		June 30, 2023		June 30, 2022
Cash equivalents		$15,462,004		$5,407,263
Total accounts receivable		26,183,303		15,733,247
Prepaid expenses		45,045		43,984
Capital assets, net of depreciation		119,924		229,667
Investments:				
• Fixed income	$42,756,326		$48,155,258	
• Equities	26,359,227		73,932,086	
• Mutual and commingled funds	588,552,646		558,488,401	
• Real estate and venture capital	236,391,293		154,043,839	
Total investments at market value		$894,059,492		$834,619,584
Total assets		$935,869,768		$856,033,745
Total liabilities		−$23,756,736		−$10,054,274
Net assets at market value		**$912,113,032**		**$845,979,471**
Net assets at actuarial value		**$946,401,275**		**$893,224,273**

Exhibit E: Development of the Fund through June 30, 2023

Year Ended June 30	Employer Contributions	Member Contributions	Net Other Income	Net Investment Return[1]	Admin. Expenses	Benefit Payments[2]	Market Value of Assets at Year-End	Actuarial Value of Assets at Year-End	Actuarial Value as a Percent of Market Value
2013	$12,014,186	$15,060,665	$170,381	$34,838,507	-$749,447	-$18,687,932	$463,186,430	$446,235,922	96.34%
2014	12,805,737	13,233,728	2,142,868	64,346,116	-588,022	-20,601,380	534,525,477	500,557,919	93.65%
2015	14,136,067	13,587,975	384,009	-2,358,518	-1,056,094	-23,315,174	535,903,742	543,768,156	101.47%
2016	15,235,742	15,226,948	351,434	6,776,933	-890,802	-25,588,884	547,015,114	581,611,235	106.32%
2017	16,481,881	25,210,413	149,556	59,486,928	-1,030,159	-27,803,390	619,510,342	634,690,493	102.45%
2018	17,519,690	19,166,537	271,783	43,889,050	-1,064,034	-31,444,463	667,848,905	680,005,147	101.82%
2019	19,202,981	19,777,956	450,746	38,740,356	-1,158,070	-35,397,043	709,465,831	718,337,020	101.25%
2020	20,680,856	20,771,304	459,660	29,113,786	-1,354,418	-39,084,124	740,052,895	761,505,976	102.90%
2021	22,297,570	23,074,402	365,222	184,850,097	-1,248,638	-43,357,218	926,034,330	837,095,639	90.40%
2022	25,217,676	25,025,242	650,984	-81,507,765	-1,302,589	-48,138,407	845,979,471	893,224,273	105.58%
2023	28,456,017	29,695,944	90,901	63,095,183	-1,302,636	-53,901,848	912,113,032	946,401,275	103.76%

[1] On a market basis, net of investment fees.
[2] Includes “transfers to other pension trust funds”

Exhibit F: Definition of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Actuarial Accrued Liability for Actives:	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial Accrued Liability for Pensioners:	The single-sum value of lifetime benefits to existing pensioners. This sum takes into account life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Actuarial Cost Method:	A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the actuarially determined contribution.
Actuarial Gain or Loss:	A measure of the difference between actual experience and expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge that may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield actuarial liabilities that are larger than projected. Actuarial gains will shorten the time required for funding the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.
Actuarially Equivalent:	Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value (APV):	The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is: Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.) Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and Discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits:	The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation:	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB, such as the Actuarially Determined Contribution (ADC) and the Net Pension Liability.
Actuarial Value of Assets (AVA):	The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded percentage and the ADC.
Actuarially Determined:	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.
Actuarially Determined Contribution (ADC):	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the System's funding policy. The ADC consists of the Employer Normal Cost and the Amortization Payment.
Amortization Method:	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.
Amortization Payment:	The portion of the pension plan contribution, or ADC, that is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Assumptions or Actuarial Assumptions:	The estimates upon which the cost of the Fund is calculated, including: Investment return - the rate of investment yield that the Fund will earn over the long-term future; Mortality rates - the death rates of employees and pensioners; life expectancy is based on these rates; Retirement rates - the rate or probability of retirement at a given age; Withdrawal rates - the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; Salary increase rates - the rates of salary increase due to inflation and productivity growth.
Closed Amortization Period:	A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Open Amortization Period.
Decrements:	Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.
Defined Benefit Plan:	A retirement plan in which benefits are defined by a formula applied to the member's compensation and/or years of service.
Defined Contribution Plan:	A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.
Employer Normal Cost:	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Experience Study:	A periodic review and analysis of the actual experience of the Fund that may lead to a revision of one or more Actuarial Assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.
Funded Ratio:	The ratio of the Actuarial Value of Assets (AVA) to the Actuarial Accrued Liability (AAL). Plans sometimes calculate a market funded percentage, using the market value of assets (MVA), rather than the AVA.
GASB 67 and GASB 68:	Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves.

Investment Return:	The rate of earnings of the Fund from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.
Net Pension Liability:	The Net Pension Liability is equal to the Total Pension Liability minus the Plan Fiduciary Net Position.
Normal Cost:	That portion of the Actuarial Present Value of pension plan benefits and expenses allocated to a valuation year by the Actuarial Cost Method. Any payment with respect to an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated.
Open Amortization Period:	An open amortization period is one that is used to determine the Amortization Payment, but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period with level percentage of payroll is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never decrease, but will become smaller each year, in relation to covered payroll, if the Actuarial Assumptions are realized.
Plan Fiduciary Net Position:	Market value of assets.
Total Pension Liability (TPL):	The actuarial accrued liability under the entry age normal cost method and based on the blended discount rate as described in GASB 67 and 68.
Unfunded Actuarial Accrued Liability (UAAL):	The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative, in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.
Valuation Date or Actuarial Valuation Date:	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.

Exhibit I: Actuarial Assumptions and Methods

Rationale for Assumptions: The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the Actuarial Experience Study dated September 18, 2023 (as prepared by Segal) and in the Economic Experience Study (as prepared by the Gabriel Roeder Smith actuarial consulting firm) adopted by the Vermont Pension Investment Commission during their meeting on July 25, 2023.

Inflation: 2.30%.

Investment Return: 7.00%.

The investment return assumption is a long-term estimate derived from historical data, current and recent market expectations, and professional judgment. As part of the analysis, a building block approach was used that reflects inflation expectations and anticipated risk premiums for each of the portfolio's asset classes, as well as the System's target asset allocation.

Salary Increases: Varying service based rates depending on years of service:

Years of Service	Annual Rate of Salary Increase (%)	Years of Service	Annual Rate of Salary Increase (%)	Years of Service	Annual Rate of Salary Increase (%)
0	6.21	13	4.84	26	4.40
1	6.21	14	4.82	27	4.35
2	6.21	15	4.80	28	4.32
3	6.04	16	4.77	29	4.29
4	5.86	17	4.75	30	4.26
5	5.69	18	4.72	31	4.24
6	5.52	19	4.70	32	4.21
7	5.34	20	4.67	33	4.18
8	5.25	21	4.65	34	4.15
9	5.15	22	4.62	35	4.13
10	5.06	23	4.56	36	4.10
11	4.96	24	4.51	37+	4.07
12	4.86	25	4.46		

Cost-of-Living Adjustments:	Assumed to occur on January 1 following one year of retirement at the rate of 1.10% per annum for Group A members and 1.20% per annum for Groups B, C and D members (beginning at Normal Retirement eligibility age for members who elect reduced early retirement, at age 62 for members of Groups A, B, and D who receive a disability retirement benefit, and at age 55 for members of Group C who receive a disability retirement benefit). The January 1, 2024, COLA is expected to be 1.10% for Group A and 1.10% for Groups B, C, and D.
Mortality Rates:	*Pre-retirement:* • Groups A/B: 60% PubG-2010 General Employee Amount-Weighted Below-Median and 40% of PubG-2010 General Employee Amount-Weighted, with generational projection using Scale MP-2021. • Group C: PubG-2010 General Employee Amount-Weighted, with generational projection using scale MP-2021. • Group D: PubS-2010 Public Safety Employee Amount-Weighted Below-Median, with generational projection using scale MP-2021. *Healthy Post-retirement - Retirees*: • Groups A/B: PubG-2010 General Healthy Retiree Amount-Weighted Below Median Table with credibility adjustments of 90% and 87% for the Male and Female tables, respectively, with generational projection using scale MP-2021. • Group C: PubG-2010 General Healthy Retiree Amount-Weighted Table, with generational projection using scale MP-2021. • Group D: PubS-2010 Public Safety Retiree Amount-Weighted Below-Median Table, with generational projection using scale MP-2021. *Healthy Post-retirement - Beneficiaries*: • All Groups: Pub-2010 Contingent Survivor Amount-Weighted Below-Median Table, with generational projection using scale MP-2021. *Disabled Post-retirement*: • Groups A/B/C: PubNS-2010 Non-Safety Disabled Retiree Amount-Weighted Table with generational projection using Scale MP-2021. • Group D: PubS-2010 Safety Disabled Retiree Amount-Weighted Table with generational projection using Scale MP-2021. The tables with the generational projection to the ages of members as of the measurement date reasonably reflect the mortality experience of the System as of the measurement date. The mortality rates were based on historical and current demographic data, adjusted to reflect health characteristics of the underlying groups and estimated future experience and professional judgment. The mortality tables were then adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

Withdrawal from Service before Retirement:

Assumed annual rates of withdrawal are as follows:

Group A and B

Years of Service	Unisex Rate (%)
0 - 2	18.50
3	16.50
4	14.50
5	12.50
6	10.50
7	8.50
8	8.30
9	8.10
10	7.90
11	7.70
12	7.50
13	7.20
14	6.90
15	6.60
16	6.30
17 - 22	6.00
23	5.80
24	5.60
25	5.40
26	5.20
27+	5.00

Group C and D

Years of Service	Unisex Rate (%)
0-2	16.00
3	14.20
4	12.40
5	10.60
6	8.80
7	7.00
8	6.30
9	5.60
10	4.90
11	4.20
12+	3.50

Section 4: Actuarial Valuation Basis

Disability Incidence:

Representative values of the assumed annual rates of disability incidence are as follows:

	Group A and B Rate (%)[1]		Group C and D Rate (%)[1]	
Age	**Male**	**Female**	**Male**	**Female**
25	0.0190	0.0060	0.0120	0.0030
30	0.0250	0.0080	0.0150	0.0030
35	0.0320	0.0100	0.0200	0.0040
40	0.0570	0.0180	0.0350	0.0080
45	0.0950	0.0300	0.0580	0.0130
50	0.1710	0.0540	0.1040	0.0230
55	0.3420	0.1080	0.2070	0.0450
60	0.5990	0.1890	0.3620	0.0790
65	0.5990	0.1890	0.3620	0.0790

[1] Disability rates stop after age 55 with 5 or more years of service for Group B, C and D members and after age 55 with 35 or more years of service for Group A members.

Retirement Rates:

Retirement Group A

Age	Male	Female	Age	Male	Female
55	1.00%	2.00%	63	15.00%	10.00%
56	1.00	4.00	64	25.00	17.50
57	2.00	4.00	65	25.00	17.50
58	2.00	4.00	66	25.00	20.00
59	6.00	5.00	67	25.00	20.00
60	7.00	5.00	68	25.00	22.50
61	7.00	6.00	69	25.00	25.00
62	15.00	8.00	70	100.00	100.00

Retirement Rates: *continued*

	Retirement Group B				
Age	Male	Female	Age	Male	Female
55	4.00%	3.00%	63	20.00%	12.50%
56	4.00	3.00	64	22.50	20.00
57	4.00	3.00	65	25.00	30.00
58	4.00	3.00	66	25.00	30.00
59	4.00	4.00	67	25.00	17.50
60	4.00	4.00	68	25.00	20.00
61	10.00	10.00	69	25.00	25.00
62	20.00	12.50	70	100.00	100.00

	Retirement Group C		
Age	Unisex	Age	Unisex
55	22.50%	63	12.50%
56	7.50	64	20.00
57	7.50	65	40.00
58	12.50	66	40.00
59	12.50	67	30.00
60	12.50	68	30.00
61	7.50	69	30.00
62	20.00	70	100.00

	Retirement Group D		
Age	Unisex	Age	Unisex
50	10.00%	58	25.00%
51	10.00	59	25.00
52	10.00	60	5.00
53	10.00	61	5.00
54	10.00	62	5.00
55	25.00	63	5.00
56	25.00	64	5.00
57	25.00	65	5.00

Section 4: Actuarial Valuation Basis

Retirement Rates: *continued*	Rates shown are for members with 5 or more years of service (unless otherwise indicated). For members with less than 5 years of service, 0% is assumed.
Inactive Members as Reported by the System:	Not Vested: Valuation liability equals 100% of accumulated contributions. Vested: Valuation liability is based on accrued benefit and members are assumed to retire 10% of the time each year from their Early Retirement Age until their Normal Retirement Age, then 100% of the time at their Normal Retirement age, with a deferred vested benefit.
Deferred Members as Reported by the System:	Assumed to retire 10% of the time each year from their Early Retirement Age until their Normal Retirement Age, then 100% of the time at their Normal Retirement age, with a deferred vested benefit.
Future Administrative Expenses:	0.45% of projected payroll.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, Members are assumed to be male.
Percent Married:	85% of male members and 50% of female members are assumed to be married.
Age of Spouse:	Females three years younger than males.
Benefit Elections:	• Non-Group D: All members are assumed to elect the single life annuity option with a refund of contributions guarantee. • Group D: Single members are assumed to elect single life annuity. Married members are assumed to elect the 70% joint & survivor option.
Actuarial Value of Assets:	A smoothing method is used, under which the value of assets for actuarial purposes equals market value less a five-year phase-in of the differences between actual and assumed investment return. The value of assets for actuarial purposes may not differ from market value of assets by more than 20%.
Actuarial Cost Method:	Entry Age Actuarial Cost Method. Entry Age is the age at date of employment or, if date is unknown, current age minus years of service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary, with Normal Cost determined using the plan of benefits applicable to each member. (Adopted effective June 30, 2020)
Modeling:	Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Deterministic cost projections are based on a proprietary forecasting model. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the models, and reviews test lives and results, under the direction of the supervising actuary.

Justification for Changes in Actuarial Assumptions:	Effective for the June 30, 2023, actuarial valuation, the following actuarial assumptions were changed according to past experience and future expectations: • Salary Increase, • Death After Retirement, • Death in Active Service, • Termination Before Retirement, • Disability Incidence, • Retirement, and • Administrative Expenses

Exhibit II: Summary of Plan Provisions

This exhibit summarizes the major provisions of the System included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Effective Date:	July 1, 1975.
Creditable Service:	Service as a member plus purchased service.
Membership:	Full time employees of participating municipalities. Municipality elects coverage under Groups A, B, C or D provisions.
Average Final Compensation (AFC):	• Group A — Average annual compensation during highest 5 consecutive years. • Groups B/C — Average annual compensation during highest 3 consecutive years. • Group D — Average annual compensation during highest 2 consecutive years.
Normal Retirement - Eligibility:	• Group A — Earlier of age 65 with 5 years of service or age 55 with 35 years of service. • Group B — Earlier of age 62 with 5 years of service or age 55 with 30 years of service. • Groups C/D — Age 55 with 5 years of service.
Normal Retirement - Amount:	• Group A — 1.4% of AFC times service. • Group B — 1.7% of AFC times service as a Group B member plus percentage earned as a Group A member times AFC. • Group C — 2.5% of AFC times service as a Group C member plus percentage earned as a Group A or B member times AFC. • Group D — 2.5% of AFC times service as a Group D member plus percentage earned as a Group A, B or C member times AFC. • Maximum benefit is 60% of AFC for Groups A and B and 50% of AFC for Groups C and D. The above amounts include the portion of the allowance provided by member contributions.
Early Retirement - Eligibility:	• Groups A/B — Age 55 with 5 years of service. • Group C — None. • Group D — Age 50 with 20 years of service.
Early Retirement - Amount:	Normal retirement allowance based on service and AFC at early retirement, reduced by 6% for each year commencement precedes Normal Retirement Age for Group A and B members; payable without reduction to Group D members.

Section 4: Actuarial Valuation Basis

Vesting:	All groups – 5 years of service. Allowance beginning at normal retirement age based on AFC and service at termination. The AFC is to be adjusted annually by one-half of the percentage change in the Consumer Price Index, subject to the limits on “Post-Retirement Adjustments” described below.
Disability Retirement - Eligibility:	• All groups – 5 years of service and disability as determined by Retirement Board.
Disability Retirement - Amount:	• All groups – Immediate allowance based on AFC and service to date of disability. Children’s benefit of 10% of AFC payable to up to three minor children (or children up to age 23 if enrolled in full-time studies) of a disabled Group D member.
Death Benefit - Eligibility:	• All groups – Death after 5 years of service.
Death Benefit - Amount:	• Groups A/B/C Reduced early retirement allowance under 100% survivor option commencing immediately or, if greater, survivor’s benefit under disability allowance computed as of date of death. • Group D 70% of the unreduced accrued benefit, plus children’s benefit.
Post-Retirement Adjustments:	• Group A Allowances in pay status for at least one year increased on each January 1 by one-half of the percentage increase in Consumer Price Index, but not more than 2%. If receiving an Early Retirement benefit, no increases until after reaching attaining Normal Retirement eligibility. If receiving a Disability Retirement benefit, no increases until after attaining age 62. • Groups B/C/D Allowances in payment for at least one year increased on each January 1 by one-half of the percentage increase in Consumer Price Index, but not more than 3%. If receiving an Early Retirement benefit, no increases until after reaching attaining Normal Retirement eligibility. If receiving a Disability Retirement benefit, no increases until after attaining age 62 (age 55 for Group C).
Retirement Stipend:	$25 per month payable at the option of the Retirement Board.
Optional Benefit and Death after Retirement:	• Groups A/B/C A lifetime allowance or actuarially equivalent 50% or 100% joint and survivor allowance with refund of contribution guarantee. • Group D A lifetime allowance or 70% contingent annuitant option with no reduction.
Refund of Contributions:	Upon termination, if the member so elects, or if no other benefit is payable, the member’s accumulated contributions with interest are refunded.

Section 4: Actuarial Valuation Basis

Member Contribution Rates:	• Group A 3.75% effective July 1, 2023; 4.00% effective July 1, 2024; 4.25% effective July 1, 2025, and thereafter. • Group B 6.125% effective July 1, 2023; 6.375% effective July 1, 2024; 6.625% effective July 1, 2025, and thereafter. • Group C 11.25% effective July 1, 2023; 11.50% effective July 1, 2024; 11.75% effective July 1, 2025, and thereafter. • Group D 12.60% effective July 1, 2023; 12.85% effective July 1, 2024; 13.10% effective July 1, 2025, and thereafter.
Employer Contribution Rates:	• Group A 5.25% effective July 1, 2023; 5.50% effective July 1, 2024; 5.75% effective July 1, 2025, and thereafter. • Group B 6.75% effective July 1, 2023; 7.00% effective July 1, 2024; 7.25% effective July 1, 2025, and thereafter. • Group C 8.50% effective July 1, 2023; 8.75% effective July 1, 2024; 9.00% effective July 1, 2025, and thereafter. • Group D 11.10% effective July 1, 2023; 11.35% effective July 1, 2024; 11.60% effective July 1, 2025, and thereafter.
Changes in Plan Provisions:	Aside from the future contribution rate increases shown above, there were no other changes in plan provisions since the prior valuation.

Section 5: Additional Summary Tables of Member Data

Table 1A: Members in Active Service as of June 30, 2023, by Age, Years of Creditable Service, and Average Payroll – All Employee Groups

		Years of Creditable Service							
Age	**Total**	**0-4**	**5-9**	**10-14**	**15 - 19**	**20 - 24**	**25 - 29**	**30 - 34**	**35 & over**
Under 25	449	444	5	- -	- -	- -	- -	- -	- -
	$30,318	$29,970	$61,172	- -	- -	- -	- -	- -	- -
25 - 29	683	590	89	4	- -	- -	- -	- -	- -
	$39,911	$37,463	$54,881	$67,778	- -	- -	- -	- -	- -
30 - 34	788	570	187	30	1	- -	- -	- -	- -
	$44,898	$38,599	$60,245	$67,667	$82,147	- -	- -	- -	- -
35 - 39	818	489	207	88	33	1	- -	- -	- -
	$48,517	$38,701	$55,980	$74,862	$76,594	$58,769	- -	- -	- -
40 - 44	928	507	219	115	66	21	- -	- -	- -
	$47,873	$38,202	$53,271	$59,336	$76,897	$71,055	- -	- -	- -
45 - 49	882	416	218	108	84	47	9	- -	- -
	$49,600	$39,401	$51,102	$60,539	$68,146	$69,594	$75,860	- -	- -
50 - 54	1,090	405	270	131	154	81	34	12	3
	$51,334	$41,107	$50,945	$57,072	$64,637	$57,719	$72,780	$63,388	$69,839
55 - 59	1,117	367	227	163	162	100	67	21	10
	$49,801	$38,958	$50,308	$56,345	$58,308	$48,885	$64,242	$73,591	$54,207
60 - 64	1,082	304	200	153	135	152	74	36	28
	$47,959	$40,901	$47,730	$51,557	$52,066	$47,186	$53,996	$52,146	$69,607
65 & over	556	163	119	69	66	65	33	26	15
	$44,330	$34,139	$48,649	$43,201	$48,396	$43,119	$56,616	$48,362	$79,367
Total	8,393	4,255	1,741	861	701	467	217	95	56
	$46,733	$37,847	$52,476	$57,817	$61,387	$52,164	$61,408	$57,271	$69,484

Table 1B: Members in Active Service as of June 30, 2023, by Age, Years of Creditable Service, and Average Payroll – Group A

		Years of Creditable Service							
Age	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	126	125	1	- -	- -	- -	- -	- -	- -
	$23,348	$23,307	$28,588	- -	- -	- -	- -	- -	- -
25 - 29	205	187	18	- -	- -	- -	- -	- -	- -
	$29,525	$28,528	$39,881	- -	- -	- -	- -	- -	- -
30 - 34	219	171	42	6	- -	- -	- -	- -	- -
	$32,490	$30,643	$37,977	$46,725	- -	- -	- -	- -	- -
35 - 39	266	188	58	15	5	- -	- -	- -	- -
	$35,167	$32,589	$39,198	$50,092	$40,557	- -	- -	- -	- -
40 - 44	287	168	63	36	15	5	- -	- -	- -
	$38,183	$34,666	$42,704	$45,439	$43,058	$32,541	- -	- -	- -
45 - 49	264	138	71	25	16	12	2	- -	- -
	$37,246	$32,927	$42,801	$42,750	$35,954	$41,474	$54,217	- -	- -
50 - 54	328	126	93	39	37	22	6	5	- -
	$40,329	$35,820	$43,479	$39,611	$41,747	$46,838	$45,929	$55,094	- -
55 - 59	353	118	65	47	52	40	17	7	7
	$39,199	$34,523	$39,331	$45,117	$38,670	$37,723	$48,275	$53,885	$52,681
60 - 64	373	106	69	50	45	55	25	17	6
	$40,494	$36,488	$39,946	$46,329	$42,592	$37,865	$44,783	$39,711	$61,650
65 & over	223	66	40	31	28	29	12	15	2
	$36,339	$30,139	$38,410	$36,857	$39,454	$38,063	$40,129	$42,761	$51,991
Total	2,644	1,393	520	249	198	163	62	44	15
	$36,509	$31,893	$40,840	$43,617	$40,408	$39,179	$45,255	$44,754	$56,177

Table 1C: Members in Active Service as of June 30, 2023, by Age, Years of Creditable Service, and Average Payroll – Group B

		Years of Creditable Service							
Age	**Total**	**0-4**	**5-9**	**10-14**	**15 - 19**	**20 - 24**	**25 - 29**	**30 - 34**	**35 & over**
Under 25	231	230	1	- -	- -	- -	- -	- -	- -
	$27,677	$27,552	$56,328	- -	- -	- -	- -	- -	- -
25 - 29	325	277	44	4	- -	- -	- -	- -	- -
	$36,508	$34,637	$45,445	$67,778	- -	- -	- -	- -	- -
30 - 34	377	276	89	11	1	- -	- -	- -	- -
	$43,015	$37,004	$59,477	$57,058	$82,147	- -	- -	- -	- -
35 - 39	374	235	92	34	12	1	- -	- -	- -
	$43,908	$37,161	$51,141	$64,227	$61,768	$58,769	- -	- -	- -
40 - 44	495	283	127	53	24	8	- -	- -	- -
	$45,871	$37,201	$52,941	$59,024	$72,706	$72,710	- -	- -	- -
45 - 49	479	240	120	58	37	20	4	- -	- -
	$47,700	$39,380	$50,991	$58,672	$65,348	$62,006	$54,305	- -	- -
50 - 54	586	224	147	68	73	45	20	6	3
	$48,459	$38,068	$49,176	$58,774	$57,062	$54,544	$70,213	$68,369	$69,839
55 - 59	643	217	138	94	85	51	44	11	3
	$50,732	$39,157	$52,235	$55,414	$59,667	$53,216	$65,307	$79,409	$57,769
60 - 64	630	178	115	90	80	87	42	18	20
	$49,520	$41,681	$49,223	$52,747	$53,330	$50,161	$54,301	$59,010	$69,845
65 & over	298	89	71	34	31	35	18	10	10
	$48,802	$36,195	$54,333	$47,181	$53,692	$46,763	$66,545	$54,910	$81,171
Total	4,438	2,249	944	446	343	247	128	45	36
	$45,788	$36,692	$51,750	$56,436	$58,759	$52,833	$62,292	$64,333	$71,984

Table 1D: Members in Active Service as of June 30, 2023, by Age, Years of Creditable Service, and Average Payroll – Group C

		Years of Creditable Service							
Age	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	71	69	2	- -	- -	- -	- -	- -	- -
	$46,209	$45,638	$65,913	- -	- -	- -	- -	- -	- -
25 - 29	115	98	17	- -	- -	- -	- -	- -	- -
	$59,296	$55,590	$80,663	- -	- -	- -	- -	- -	- -
30 - 34	141	92	40	9	- -	- -	- -	- -	- -
	$60,880	$50,729	$78,342	$87,025	- -	- -	- -	- -	- -
35 - 39	137	52	48	26	11	- -	- -	- -	- -
	$75,691	$58,842	$79,745	$91,525	$100,224	- -	- -	- -	- -
40 - 44	112	51	22	18	18	3	- -	- -	- -
	$70,111	$54,194	$71,755	$74,737	$104,442	$94,913	- -	- -	- -
45 - 49	103	33	23	21	19	4	3	- -	- -
	$75,343	$62,845	$71,137	$82,046	$85,267	$87,536	$119,029	- -	- -
50 - 54	146	51	24	21	36	10	3	1	- -
	$77,622	$63,546	$83,306	$76,066	$94,892	$75,371	$83,499	$74,966	- -
55 - 59	111	30	24	22	21	7	4	3	- -
	$73,624	$51,887	$68,961	$84,309	$93,457	$69,000	$91,363	$98,237	- -
60 - 64	73	18	16	12	8	10	7	- -	2
	$67,727	$54,364	$70,569	$59,163	$77,898	$72,558	$85,069	- -	$91,103
65 & over	35	8	8	4	7	1	3	1	3
	$57,178	$44,259	$49,398	$58,540	$60,708	$62,172	$62,985	$66,906	$91,608
Total	1,044	502	224	133	120	35	20	5	5
	$68,119	$54,365	$75,259	$79,905	$91,911	$75,981	$87,874	$87,317	$91,406

Table 1E: Members in Active Service as of June 30, 2023, by Age, Years of Creditable Service, and Average Payroll – Group D

		Years of Creditable Service							
Age	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	21	20	1	- -	- -	- -	- -	- -	- -
	$47,457	$45,374	$89,119	- -	- -	- -	- -	- -	- -
25 - 29	38	28	10	- -	- -	- -	- -	- -	- -
	$66,374	$61,660	$79,574	- -	- -	- -	- -	- -	- -
30 - 34	51	31	16	4	- -	- -	- -	- -	- -
	$67,911	$60,675	$77,734	$84,698	- -	- -	- -	- -	- -
35 - 39	41	14	9	13	5	- -	- -	- -	- -
	$86,375	$71,820	$86,856	$97,929	$96,227	- -	- -	- -	- -
40 - 44	34	5	7	8	9	5	- -	- -	- -
	$85,547	$50,573	$96,271	$89,294	$89,383	$92,606	- -	- -	- -
45 - 49	36	5	4	4	12	11	- -	- -	- -
	$91,822	$64,369	$86,560	$85,881	$92,584	$107,544	- -	- -	- -
50 - 54	30	4	6	3	8	4	5	- -	- -
	$99,883	$91,701	$80,588	$112,544	$103,470	$109,143	$108,839	- -	- -
55 - 59	10	2	- -	- -	4	2	2	- -	- -
	$99,800	$85,054	- -	- -	$100,181	$91,284	$122,300	- -	- -
60 - 64	6	2	- -	1	2	- -	- -	1	- -
	$107,602	$84,172	- -	$114,642	$111,312	- -	- -	$140,000	- -
65 & over	- -	- -	- -	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -	- -	- -	- -
Total	267	111	53	33	40	22	7	1	- -
	$80,067	$61,265	$83,283	$94,607	$96,192	$102,961	$112,685	$140,000	- -

Table 2A: Summary of Retired Member and Beneficiary Data by Attained Age All Employee Groups

	Service Pensioners		Disability Pensioners		Beneficiaries	
Age	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	$0	1	$17,990	3	$18,951
36	0	0	0	0	1	7,181
37	0	0	0	0	0	0
38	0	0	0	0	2	9,667
39	0	0	0	0	1	3,288
40	0	0	0	0	0	0
41	0	0	0	0	1	1,977
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	1	8,798	1	7,425
45	0	0	0	0	0	0
46	0	0	2	21,938	1	2,593
47	0	0	0	0	2	5,510
48	0	0	1	28,739	1	6,674
49	0	0	0	0	3	5,859
50	0	0	0	0	2	23,188
51	1	54,748	5	54,670	1	21,256
52	1	2,541	3	52,165	0	0
53	2	66,413	0	0	3	34,791
54	1	41,172	4	31,705	0	0
55	21	492,477	1	5,427	3	32,741
56	16	373,128	3	48,045	2	11,961
57	24	719,676	5	66,224	1	11,103
58	35	733,787	4	62,279	2	12,813
59	33	749,356	1	34,477	2	40,605
60	46	878,588	4	26,438	4	99,336
61	40	683,621	2	12,622	7	56,227
62	94	1,919,922	6	108,384	6	66,604
63	100	1,711,321	4	38,250	5	59,339
64	139	2,155,026	5	46,993	2	18,708
65	179	2,252,791	4	21,294	7	61,007

Table 2A: Summary of Retired Member and Beneficiary Data by Attained Age All Employee Groups *(continued)*

	Service Pensioners		Disability Pensioners		Beneficiaries	
Age	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	233	$3,312,756	2	$6,134	7	$60,312
67	219	2,934,145	4	43,441	11	176,920
68	276	3,644,512	1	11,189	10	140,109
69	266	3,412,901	5	44,688	9	77,909
70	214	2,292,679	4	67,253	7	96,093
71	211	2,599,813	1	3,937	7	51,010
72	201	2,284,508	3	17,997	13	134,841
73	187	1,963,070	2	9,166	8	83,658
74	211	2,004,904	1	14,286	6	67,086
75	177	1,759,714	1	4,344	14	103,953
76	162	1,566,247	1	13,402	15	109,502
77	127	1,386,335	0	0	12	87,258
78	131	1,184,322	2	16,989	10	63,282
79	88	741,951	2	13,044	11	93,159
80	93	924,444	0	0	7	29,764
81	93	807,819	0	0	6	23,091
82	70	590,261	0	0	6	25,383
83	61	582,887	1	4,709	9	55,402
84	58	550,805	1	4,855	14	129,411
85	38	267,224	0	0	9	76,702
86	42	368,354	1	3,973	8	81,229
87	32	269,220	0	0	5	51,149
88	29	213,208	0	0	5	24,116
89	17	142,606	0	0	7	48,916
90	16	109,031	0	0	6	41,391
91	10	50,095	0	0	5	13,591
92	21	131,738	0	0	3	23,543
93	9	41,597	0	0	2	13,122
94	7	51,768	0	0	1	3,352
≥ 95	13	67,291	0	0	3	6,454
Total	4,044	$49,090,770	88	$965,847	299	$2,610,512

Table 2B: Summary of Retired Member and Beneficiary Data by Attained Age Group A

	Service Pensioners		Disability Pensioners		Beneficiaries	
Age	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	$0	0	$0	2	$11,906
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	1	2,950
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	1	4,389
48	0	0	0	0	0	0
49	0	0	0	0	2	4,750
50	0	0	0	0	1	6,930
51	0	0	1	12,008	0	0
52	0	0	0	0	0	0
53	0	0	0	0	1	23,404
54	0	0	2	15,175	0	0
55	1	2,428	1	5,427	0	0
56	0	0	0	0	0	0
57	1	9,248	2	6,106	0	0
58	1	12,742	0	0	1	3,333
59	3	7,430	0	0	0	0
60	8	38,744	2	12,307	2	15,187
61	4	21,696	2	12,622	4	31,969
62	14	72,499	2	23,756	0	0
63	13	106,606	2	17,176	2	3,129
64	29	243,266	3	28,361	0	0
65	61	425,748	3	16,852	4	22,103

Table 2B: Summary of Retired Member and Beneficiary Data by Attained Age Group A *(continued)*

	Service Pensioners		Disability Pensioners		Beneficiaries	
Age	**Number**	**Annual Allowance**	**Number**	**Annual Allowance**	**Number**	**Annual Allowance**
66	70	$404,334	2	$6,134	3	$18,867
67	77	566,682	1	6,560	3	10,538
68	106	900,865	1	11,189	2	5,150
69	101	749,546	2	11,107	3	13,880
70	87	532,597	1	8,225	4	22,549
71	86	600,606	0	0	2	6,383
72	79	543,549	1	2,154	6	19,340
73	71	433,488	1	2,538	0	0
74	98	538,024	1	14,286	3	34,567
75	76	450,634	1	4,344	3	6,870
76	77	445,184	1	13,402	6	36,120
77	57	400,245	0	0	4	30,850
78	66	400,504	1	7,270	6	33,401
79	39	201,471	1	5,961	1	3,967
80	33	228,911	0	0	4	10,608
81	36	218,903	0	0	3	6,741
82	30	150,362	0	0	2	6,502
83	25	191,264	0	0	5	15,278
84	26	149,796	1	4,855	4	29,069
85	13	48,802	0	0	3	11,459
86	15	91,692	1	3,973	1	3,257
87	10	49,981	0	0	1	12,373
88	14	61,688	0	0	3	12,215
89	6	68,841	0	0	2	6,358
90	9	54,375	0	0	2	8,543
91	5	24,720	0	0	3	8,240
92	9	38,045	0	0	1	4,800
93	6	18,032	0	0	0	0
94	3	11,589	0	0	1	3,352
≥ 95	7	32,022	0	0	3	6,454
Total	1,472	$9,547,156	36	$251,790	105	$517,781

Table 2C: Summary of Retired Member and Beneficiary Data by Attained Age Group B

	Service Pensioners		Disability Pensioners		Beneficiaries	
Age	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	$0	0	$0	0	$0
36	0	0	0	0	1	7,181
37	0	0	0	0	0	0
38	0	0	0	0	1	6,717
39	0	0	0	0	1	3,288
40	0	0	0	0	0	0
41	0	0	0	0	1	1,977
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	1	4,737	1	2,593
47	0	0	0	0	1	1,122
48	0	0	0	0	1	6,674
49	0	0	0	0	1	1,109
50	0	0	0	0	0	0
51	0	0	1	21,274	1	21,256
52	1	2,541	0	0	0	0
53	1	14,724	0	0	2	11,387
54	0	0	2	16,530	0	0
55	4	80,857	0	0	3	32,741
56	2	40,188	1	3,202	2	11,961
57	2	38,743	3	60,117	1	11,103
58	16	400,312	1	3,631	1	9,480
59	7	146,576	1	34,477	2	40,605
60	14	175,714	2	14,131	0	0
61	15	202,676	0	0	3	24,258
62	53	868,001	4	84,628	6	66,604
63	65	1,007,105	2	21,074	2	15,604
64	81	1,038,763	1	10,773	1	1,578
65	92	1,074,181	1	4,442	2	23,859

Table 2C: Summary of Retired Member and Beneficiary Data by Attained Age Group B *(continued)*

	Service Pensioners		Disability Pensioners		Beneficiaries	
Age	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	125	$1,802,821	0	$0	3	$25,895
67	115	1,582,710	3	36,880	7	147,670
68	136	1,796,991	0	0	5	48,462
69	133	1,780,449	2	14,720	3	35,279
70	110	1,376,383	3	59,028	2	57,478
71	102	1,468,428	1	3,937	3	25,835
72	110	1,391,921	2	15,843	6	95,446
73	96	1,095,634	1	6,628	6	51,925
74	93	1,027,986	0	0	2	26,364
75	84	950,531	0	0	10	81,031
76	70	759,472	0	0	7	47,988
77	57	711,401	0	0	8	56,407
78	55	572,392	1	9,719	3	24,072
79	44	487,989	1	7,083	8	73,617
80	45	392,820	0	0	2	15,768
81	49	482,162	0	0	3	16,350
82	32	317,047	0	0	4	18,882
83	29	290,067	1	4,709	3	22,186
84	25	243,139	0	0	8	81,424
85	24	211,502	0	0	5	50,927
86	25	259,579	0	0	7	77,972
87	19	183,512	0	0	3	34,818
88	12	86,644	0	0	2	11,901
89	10	63,035	0	0	4	32,841
90	6	47,186	0	0	4	32,848
91	4	18,559	0	0	2	5,350
92	11	91,953	0	0	2	18,743
93	3	23,565	0	0	1	7,806
94	4	40,179	0	0	0	0
≥ 95	6	35,269	0	0	0	0
Total	1,987	$24,681,707	35	$437,564	157	$1,526,382

Table 2D: Summary of Retired Member and Beneficiary Data by Attained Age Group C

	Service Pensioners		Disability Pensioners		Beneficiaries	
Age	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	$0	0	$0	0	$0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	1	8,798	1	7,425
45	0	0	0	0	0	0
46	0	0	1	17,201	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	1	16,258
51	0	0	2	11,072	0	0
52	0	0	1	2,961	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	8	245,178	0	0	0	0
56	12	278,939	2	44,843	0	0
57	20	665,614	0	0	0	0
58	12	232,455	2	30,093	0	0
59	17	459,409	0	0	0	0
60	13	383,123	0	0	2	84,149
61	13	272,824	0	0	0	0
62	23	859,940	0	0	0	0
63	19	490,514	0	0	1	40,606
64	24	727,705	1	7,859	1	17,129
65	22	587,862	0	0	1	15,045

Table 2D: Summary of Retired Member and Beneficiary Data by Attained Age Group C *(continued)*

	Service Pensioners		Disability Pensioners		Beneficiaries	
Age	**Number**	**Annual Allowance**	**Number**	**Annual Allowance**	**Number**	**Annual Allowance**
66	31	$863,940	0	$0	1	$15,550
67	25	735,838	0	0	1	18,712
68	32	829,447	0	0	2	78,979
69	31	838,722	0	0	2	11,615
70	16	357,753	0	0	1	16,066
71	22	499,440	0	0	2	18,792
72	11	280,683	0	0	1	20,055
73	20	433,947	0	0	2	31,733
74	20	438,894	0	0	1	6,156
75	16	300,744	0	0	1	16,052
76	15	361,591	0	0	2	25,393
77	12	258,833	0	0	0	0
78	10	211,426	0	0	1	5,808
79	5	52,491	0	0	1	3,940
80	15	302,713	0	0	1	3,388
81	8	106,755	0	0	0	0
82	8	122,852	0	0	0	0
83	7	101,557	0	0	1	17,938
84	7	157,870	0	0	2	18,918
85	1	6,920	0	0	1	14,316
86	2	17,083	0	0	0	0
87	3	35,726	0	0	1	3,958
88	3	64,876	0	0	0	0
89	1	10,730	0	0	1	9,718
90	1	7,470	0	0	0	0
91	1	6,816	0	0	0	0
92	1	1,739	0	0	0	0
93	0	0	0	0	1	5,316
94	0	0	0	0	0	0
≥ 95	0	0	0	0	0	0
Total	507	$12,610,422	10	$122,827	33	$523,014

Table 2E: Summary of Retired Member and Beneficiary Data by Attained Age Group D

	Service Pensioners		Disability Pensioners		Beneficiaries	
Age	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	$0	1	$17,990	1	$7,045
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	1	28,739	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	1	54,748	1	10,315	0	0
52	0	0	2	49,204	0	0
53	1	51,688	0	0	0	0
54	1	41,172	0	0	0	0
55	8	164,013	0	0	0	0
56	2	54,001	0	0	0	0
57	1	6,071	0	0	0	0
58	6	88,279	1	28,556	0	0
59	6	135,941	0	0	0	0
60	11	281,007	0	0	0	0
61	8	186,426	0	0	0	0
62	4	119,482	0	0	0	0
63	3	107,096	0	0	0	0
64	5	145,292	0	0	0	0
65	4	164,999	0	0	0	0

Table 2E: Summary of Retired Member and Beneficiary Data by Attained Age Group D *(continued)*

	Service Pensioners		Disability Pensioners		Beneficiaries	
Age	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	7	$241,662	0	$0	0	$0
67	2	48,915	0	0	0	0
68	2	117,208	0	0	1	7,519
69	1	44,184	1	18,861	1	17,136
70	1	25,946	0	0	0	0
71	1	31,340	0	0	0	0
72	1	68,354	0	0	0	0
73	0	0	0	0	0	0
74	0	0	0	0	0	0
75	1	57,805	0	0	0	0
76	0	0	0	0	0	0
77	1	15,856	0	0	0	0
78	0	0	0	0	0	0
79	0	0	0	0	1	11,635
80	0	0	0	0	0	0
81	0	0	0	0	0	0
82	0	0	0	0	0	0
83	0	0	0	0	0	0
84	0	0	0	0	0	0
85	0	0	0	0	0	0
86	0	0	0	0	0	0
87	0	0	0	0	0	0
88	0	0	0	0	0	0
89	0	0	0	0	0	0
90	0	0	0	0	0	0
91	0	0	0	0	0	0
92	0	0	0	0	0	0
93	0	0	0	0	0	0
94	0	0	0	0	0	0
≥ 95	0	0	0	0	0	0
Total	78	$2,251,485	7	$153,666	4	$43,334

Table 3: Summary of Retired Member and Beneficiary Data by Year of Retirement – All Employee Groups

Year of Retirement	Number	Annual Allowance	Average Annual Allowance
≤ 1970	0	$0	$0
1971	0	0	0
1972	0	0	0
1973	0	0	0
1974	0	0	0
1975	0	0	0
1976	0	0	0
1977	0	0	0
1978	0	0	0
1979	0	0	0
1980	1	1,819	1,819
1981	0	0	0
1982	1	849.96	849.96
1983	0	0	0
1984	0	0	0
1985	1	1,030	1,030
1986	0	0	0
1987	0	0	0
1988	1	1,746	1,746
1989	2	3,822	1,911
1990	3	16,488	5,496
1991	9	36,744	4,083
1992	5	30,417	6,083
1993	13	77,512	5,962
1994	14	87,164	6,226
1995	24	172,779	7,199
1996	17	111,022	6,531
1997	27	150,529	5,575
1998	34	218,848	6,437
1999	29	216,733	7,474
2000	27	193,576	7,169

Table 3: Summary of Retired Member and Beneficiary Data by Year of Retirement – All Employee Groups *(continued)*

Year of Retirement	Number	Annual Allowance	Average Annual Allowance
2001	40	$294,126	$7,353
2002	49	415,339	8,476
2003	53	437,921	8,263
2004	70	643,576	9,194
2005	73	649,347	8,895
2006	75	764,892	10,199
2007	118	979,556	8,301
2008	102	1,010,736	9,909
2009	113	937,190	8,294
2010	141	1,534,370	10,882
2011	165	1,942,307	11,772
2012	173	1,910,754	11,045
2013	195	2,392,201	12,268
2014	231	2,500,500	10,825
2015	224	2,638,116	11,777
2016	230	2,477,517	10,772
2017	312	4,149,608	13,300
2018	296	4,112,307	13,893
2019	329	4,149,496	12,612
2020	334	4,637,263	13,884
2021	339	4,493,294	13,255
2022	339	4,728,651	13,949
2023	222	3,546,987	15,977
Total	4,431	$52,667,130	$11,886

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