

Vermont State Employees' Retirement System

Actuarial Valuation and Review

As of June 30, 2022



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

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October 25, 2022

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

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of June 30, 2022, of the Vermont State Employees' Retirement System (VSERS). This report summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirement for the fiscal year ending June 30, 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 Kathleen A. Riley, FSA, MAAA, EA and Matthew A. Strom, FSA, MAAA, EA. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. The assumptions used in this actuarial valuation were selected by the Board based upon our

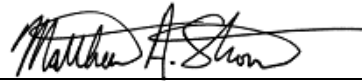
analysis and recommendations. In our opinion, the assumptions are reasonable and take into account the experience of the Plan and reasonable expectations.

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

Sincerely,
Segal



Kathleen A. Riley, FSA, MAAA, EA
Senior Vice President and Chief Actuary



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, 2022, pursuant to section 471, subsection (k), of Title 3, Chapter 16, Vermont Statutes Annotated, relating to the Vermont State 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 System, as administered by the Board;
- The characteristics of covered active members, inactive members, and retired members and beneficiaries as of June 30, 2022, provided by the Office of the State Treasurer;
- The unaudited assets of the System as of June 30, 2022, 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 prescribed by State statute.

Certain disclosure information required by GASB Statements No. 67 and 68 as of June 30, 2022, for the System is provided in separate reports.

Section 1: Actuarial Valuation Summary

Valuation highlights

1. Segal strongly recommends an actuarial funding policy 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 set in the Vermont State Pension Code meets this standard. Section 473, subsection (c)(4), of Title 3, Chapter 16, Subchapter 1, Vermont Statutes Annotated calls for annual payments on the unfunded actuarial accrued liability to be made over a closed period ending on June 30, 2038. The amount of each annual payment is calculated assuming that the amortization period will remain closed and that the amortization amount will increase annually at the rate of 3% over the preceding year.
2. Actual employer contributions made during the fiscal year ending June 30, 2022, were \$197.5 million, or 164.7% of the actuarially determined contribution (ADC) of \$120.0 million. This \$197.5 million contribution includes \$75 million of additional funding from the State as a result of Act 114, which is outlined in “*Changes from prior valuation*” below. In the prior fiscal year, actual employer contributions were \$88.9 million, or 106.0% of the prior year’s actuarially determined contribution.
3. The ADC for the fiscal year ending June 30, 2023, of \$125.9 million, calculated as part of the June 30, 2021, actuarial valuation, was recertified to \$116.0 million at the June 9, 2022, board meeting to reflect the additional funding and benefit changes from Act 114.
4. The rate of return on the market value of assets was –8.66% for the July 1, 2021, to June 30, 2022, plan year. The return on the actuarial value of assets was 5.56% 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.
5. The actuarial value of assets is 105.7% of the market value of assets, compared to the prior year where the actuarial value of assets was 91.4% 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 cost of the System is likely to increase more than expected unless the net loss is offset by future experience. The recognition of the deferred market loss of \$129.2 million will also have an impact on the future funded percentage. If the net deferred losses were recognized immediately in the actuarial value of assets, the actuarially determined contribution rate would increase from 19.99% to about 21.81% of payroll.
6. The actuarial loss from investment experience is \$32.3 million.
7. The net experience loss from sources other than investment experience was approximately \$87.7 million, or 2.5% of the actuarial accrued liability. Of this \$87.7 million loss, \$46.7 million is due to the higher-than-expected actual 2023 COLA and

Section 1: Actuarial Valuation Summary

\$30.7 million is attributable to salary increases that were larger than assumed. Additional detail regarding this loss is shown in *Section 2, Other experience*.

Changes from prior valuation

8. In 2022, the Vermont General Assembly enacted Act No. 114 (S.286), which amended various public pension and other postemployment benefits. As it relates to the Vermont State Employees' Retirement System, Act 114:
 - Increased the contribution rates of active members beginning in fiscal 2023;
 - Modified the cost-of-living-adjustment (COLA) formula and structure;
 - Added a Group G plan that includes facility employees of the Department of Corrections, Department of Corrections employees who provide direct security and treatment services to offenders of a facility for justice-involved youth, and Vermont State Hospital employees or employees of its successor;
 - Increased the normal retirement age and added a longevity incentive for Group C members and increased the normal retirement age and the retirement allowance formula for certain Group D members;
 - Provided a one-time payment of \$75 million in general funds towards the unfunded liability in fiscal 2022 and, beginning in fiscal 2024, provides for annual funding of an additional payment to the actuarially determined contribution, in the amount of \$9 million in fiscal 2024, \$12 million in fiscal 2025, and \$15 million in fiscal 2026 and all subsequent years until the fund reaches 90% funded.

The changes above that impacted the liabilities of the System (excluding the one-time payment of \$75 million) resulted in a decrease in unfunded actuarial accrued liability of \$46.4 million as of June 30, 2022.

9. The funded percentage (the ratio of the actuarial value of assets to actuarial accrued liability) is 69.85%, compared to the prior year's funded percentage of 67.56%. 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 66.10%, compared to 73.92% 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 results of this June 30, 2022, actuarial valuation are used to determine the actuarially determined contribution for the fiscal year ending June 30, 2024, and to estimate the actuarially determined contribution for the fiscal year ending June 30, 2025. The actuarially determined contribution for fiscal 2024 is \$121.9 million, an increase of \$5.9 million from fiscal year 2023. Last year's estimate of the actuarially determined contribution for fiscal 2024 is \$8.0 million more than this year's actual amount. This is due to the implementation of Act 114 and the larger than assumed actual employer contributions, partially offset by

Section 1: Actuarial Valuation Summary

investment losses on an actuarial basis and demographic losses. The estimated fiscal 2025 actuarially determined contribution is \$121.6 million.

11. The unfunded actuarial accrued liability is \$1.038 billion, which is a decrease of \$26.0 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, 2022. 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, 2022, 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, 2022, and June 30, 2023, 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.

Section 1: Actuarial Valuation Summary

Summary of key valuation results

		2022	2021
Actuarially determined employer contributions:	• Actuarially determined employer contributions for fiscal 2024 (and 2023)	\$121,873,370	\$125,938,400 ¹
	• Estimated actuarially determined employer contributions for fiscal 2025 (and 2024)	121,642,588	129,900,967
Actuarial accrued liability for plan year beginning July 1:	• Retired members and beneficiaries	\$2,209,736,910	\$2,034,378,826
	• Deferred members as reported by the System	63,306,594	58,539,643
	• Inactive members as reported by the System	34,968,442	30,597,369
	• Active members	1,136,121,843	1,157,351,839
	• Total	3,444,133,789	3,280,867,677
	• Employer normal cost for plan year beginning July 1	32,821,872	35,635,765
Assets for plan year beginning July 1:	• Market value of assets (MVA)	\$2,276,645,124	\$2,425,222,408
	• Actuarial value of assets (AVA)	2,405,795,708	2,216,499,478
	• Actuarial value of assets as a percentage of market value of assets	105.67%	91.39%
Funded status for plan year beginning July 1:	• Unfunded actuarial accrued liability based on MVA	\$1,167,488,665	\$855,645,269
	• Funded percentage on MVA basis	66.10%	73.92%
	• Unfunded actuarial accrued liability based on AVA	\$1,038,338,081	\$1,064,368,199
	• Funded percentage on AVA basis	69.85%	67.56%
	• Remaining amortization period (years)	16	17
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	7,963	7,716
	• Number of deferred members as reported by System	815	771
	• Number of inactive members as reported by System	2,012	1,716
	• Number of active members	8,324	8,192
	• Total payroll	\$576,951,813	\$552,316,523
	• Average payroll	69,312	67,421
	• Total monthly benefits for all retired members and beneficiaries	14,611,387	13,456,088
	• Average monthly benefit for all retired members and beneficiaries	1,835	1,744

¹ The actuarially determined contribution for the fiscal year ending June 30, 2023, of \$125,938,400 calculated as part of the June 30, 2021, actuarial valuation, was recertified to \$116,038,400 at the June 9, 2022, board meeting to reflect the additional funding and benefit changes from Act 114.

Section 1: Actuarial Valuation Summary

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.

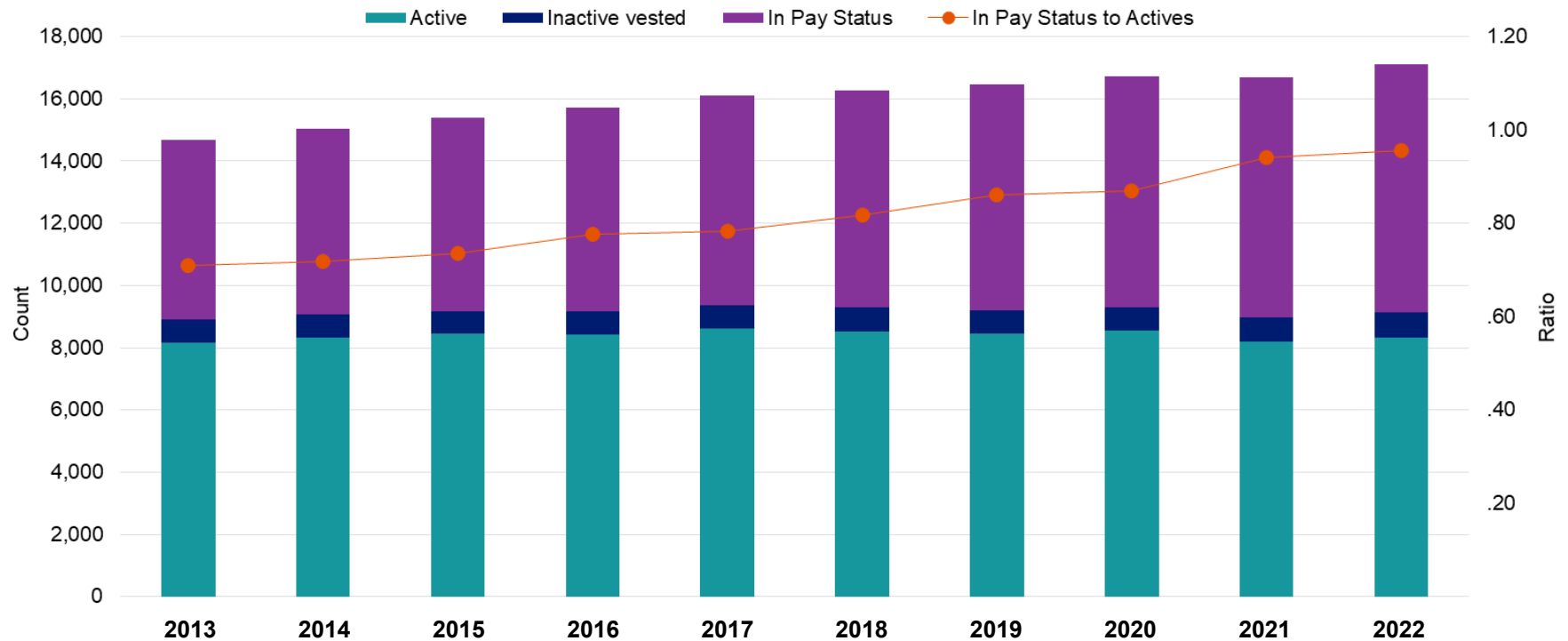
As Segal has no discretionary authority with respect to the management or assets of the System, it is not a fiduciary in its capacity as actuaries and consultants with respect to the System.

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



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
In Pay Status	5,795	5,980	6,204	6,542	6,727	6,974	7,268	7,424	7,716	7,963
Deferred ¹	741	732	735	728	742	753	747	768	771	815
Active	8,158	8,325	8,446	8,436	8,620	8,530	8,443	8,539	8,192	8,324
Ratio ²	0.71	0.72	0.73	0.78	0.78	0.82	0.86	0.87	0.94	0.96

¹ Excludes inactive members as reported by the System.

² Effective for the June 30, 2022, actuarial valuation, all historical ratios were updated to reflect the ratio of in pay status members to active members.

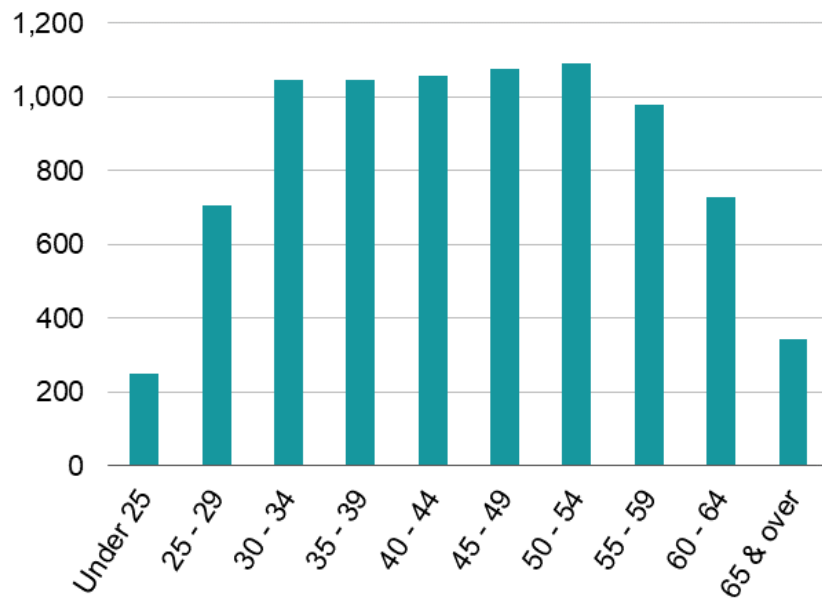
Section 2: Actuarial Valuation Results

Active members

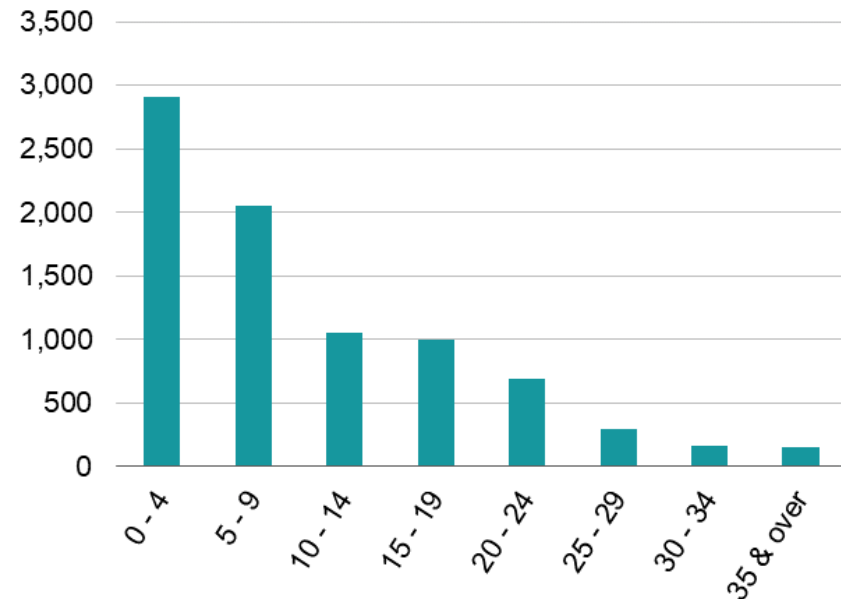
As of June 30	2022	2021	Change
Active members	8,324	8,192	1.6%
Average age	45.3	45.7	-0.4
Average years of creditable service	10.4	10.9	-0.5
Average payroll	\$69,312	\$67,421	2.8%

Distribution of Active Members as of June 30, 2022

Actives by Age



Actives by Years of Service



Section 2: Actuarial Valuation Results

Inactive and deferred members

In this year's valuation, there were 2,012 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 815 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.

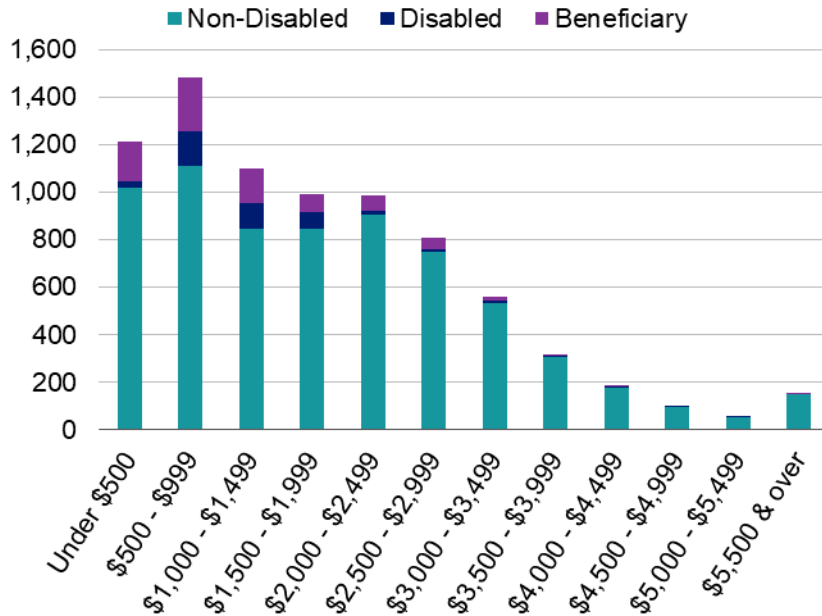
Section 2: Actuarial Valuation Results

Retired members and beneficiaries

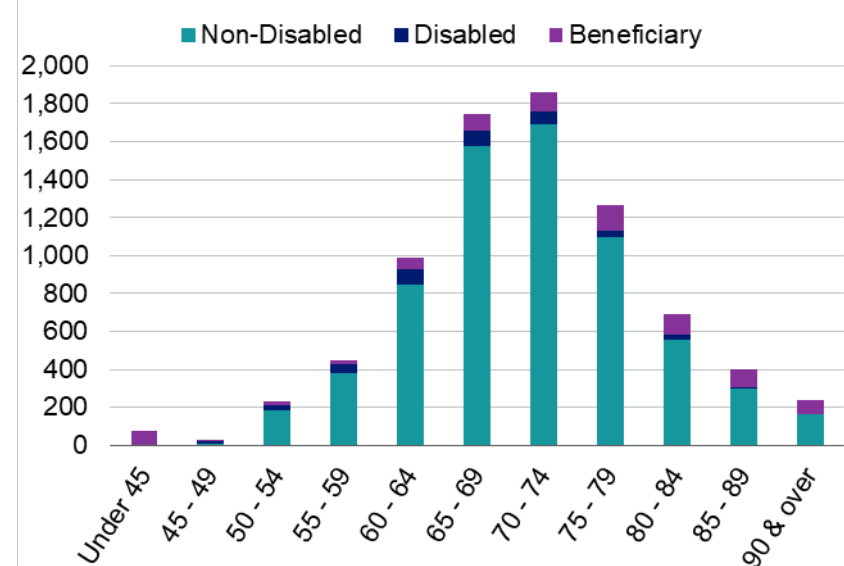
As of June 30	2022	2021	Change
Retired members (including disability)	7,196	6,973	3.2%
Average age	71.2	70.9	0.3
Average amount	\$1,899	\$1,744	8.9%
Beneficiaries	767	743	3.2%
Total monthly amount	\$14,611,387	\$13,456,088	8.6%

Distribution of Pensioners as of June 30, 2022

Pensioners by Type and Monthly Amount



Pensioners by Type and Age



Section 2: Actuarial Valuation Results

Historical plan population

Member Data Statistics: 2013 – 2022

As of June 30	Active Members			Retired Members ¹		
	Count	Average Age	Average Service	Count	Average Age	Average Monthly Amount
2013	8,158	46.2	12.2	5,248	--	\$1,478
2014	8,325	45.2	11.8	5,421	69.7	1,510
2015	8,446	46.5	11.7	5,554	70.0	1,561
2016	8,436	46.2	11.3	5,858	70.1	1,587
2017	8,620	46.0	11.1	6,092	70.3	1,616
2018	8,530	45.9	11.0	6,302	70.4	1,663
2019	8,443	45.7	10.8	6,567	70.6	1,718
2020	8,539	45.6	10.8	6,704	70.9	1,755
2021	8,192	45.7	10.9	6,973	71.0	1,805
2022	8,324	45.3	10.4	7,196	71.2	1,899

¹ Not including beneficiaries.

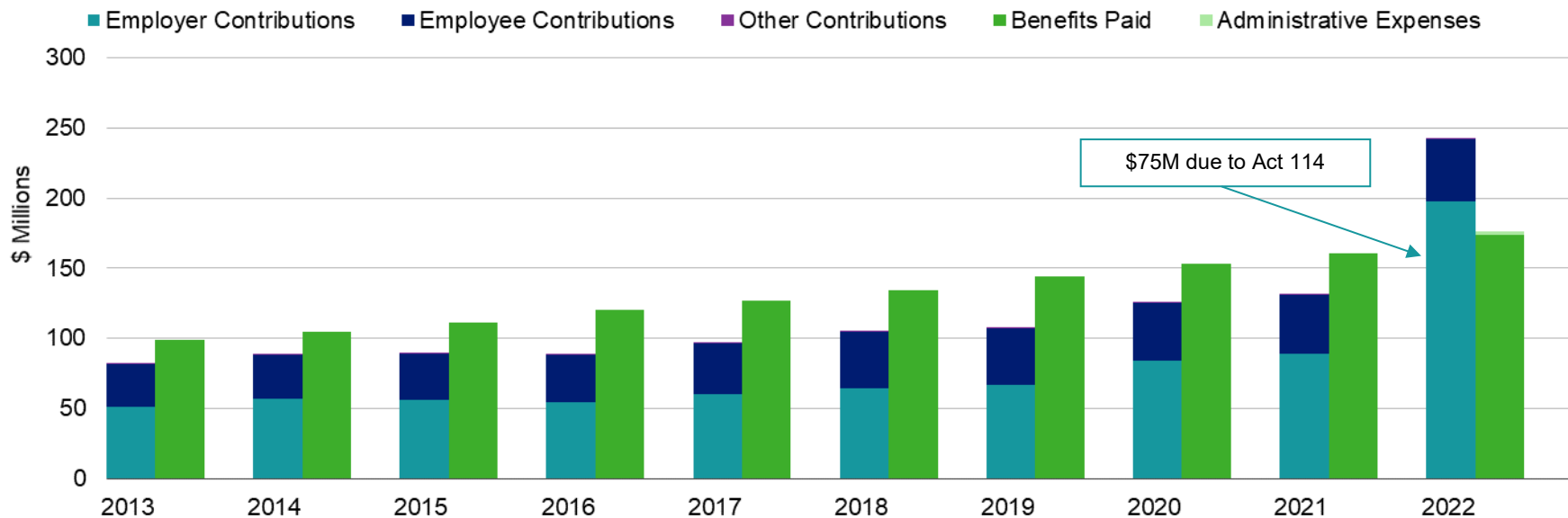
Section 2: Actuarial Valuation Results

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. Benefits have exceeded employer and member contributions for all years shown except for 2022 (due to the additional one-time payment of \$75 million per Act 114).

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

Comparison of Contributions to Benefits and Paid
for Years Ended June 30, 2013 – 2022



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 Board has adopted an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. A characteristic of the asset valuation method is that, over time, it is more likely to produce an actuarial value of assets that is less than the market value of assets. 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, 2022

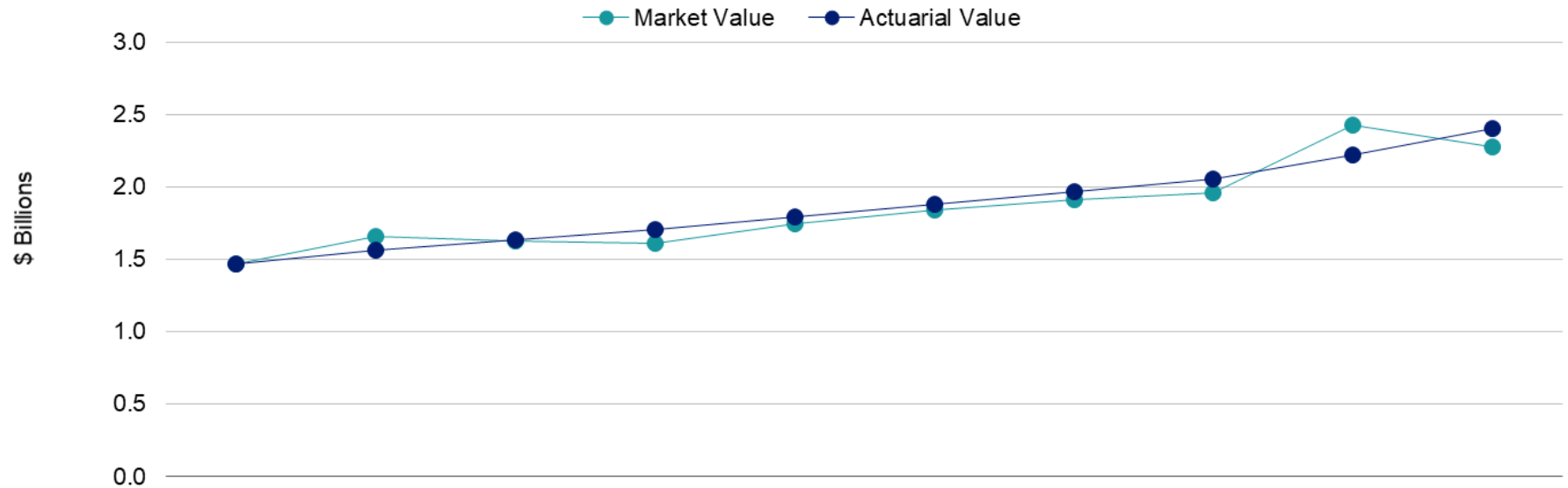
1	Actuarial value of assets, June 30, 2021		\$2,216,499,478
2	Net new money ¹ , including expected investment income (7.00%)		221,583,876
3	Preliminary asset value: 1 + 2		2,438,083,354
4	Smoothing adjustment		
	a) Market value, June 30, 2022	\$2,276,645,124	
	b) Preliminary asset value	2,438,083,354	
	c) Unrecognized appreciation	-161,438,230	
	d) Adjustment	X 20%	<u>-32,287,646</u>
5	Actuarial value of assets, June 30, 2022: 3 + 4d		\$2,405,795,708
6	Actuarial value of assets as a percentage of market value: 5 ÷ 4a		105.67%

¹ Net new money is comprised of contributions, interest, and dividends, less benefit payments and expenses.

Section 2: Actuarial Valuation Results

Asset history for years ended June 30

Actuarial Value of Assets vs. Market Value of Assets



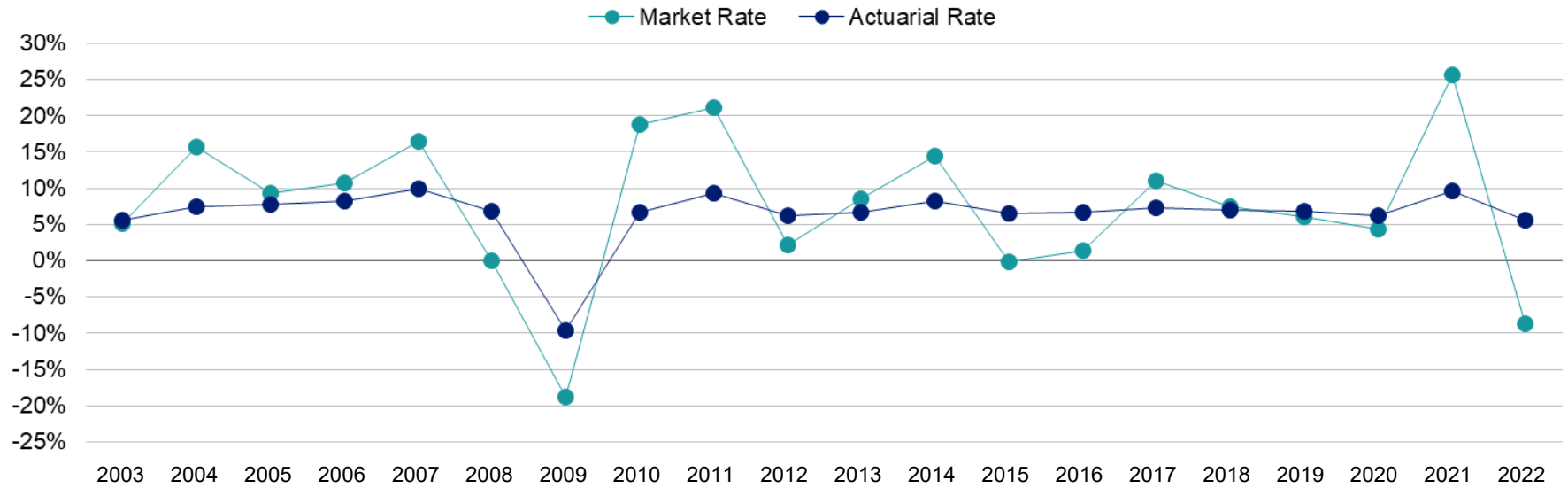
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Actuarial Value ¹	\$1.47	\$1.57	\$1.64	\$1.71	\$1.79	\$1.88	\$1.96	\$2.05	\$2.22	\$2.41
Market Value ¹	1.47	1.66	1.62	1.61	1.75	1.84	1.91	1.96	2.43	2.28
Ratio	1.00	0.95	1.01	1.06	1.03	1.02	1.03	1.05	0.91	1.06

¹ In billions

Section 2: Actuarial Valuation Results

Historical investment returns

Market and Actuarial Rates of Return for Years Ended June 30



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Market rate	5.2%	15.7%	9.3%	10.7%	16.4%	-5.7%	-18.8%	18.8%	21.2%	2.2%	8.6%	14.4%	-0.1%	1.4%	11.0%	7.4%	6.1%	4.3%	25.7%	-8.7%
Actuarial rate	5.6%	7.4%	7.8%	8.3%	10.0%	6.9%	-9.6%	6.7%	9.3%	6.3%	6.7%	8.3%	6.5%	6.7%	7.3%	7.0%	6.8%	6.3%	9.6%	5.6%
Assumed rate	8.0%	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%

Average Rates of Return	Actuarial Value	Market Value
Most recent five-year average return:	7.00%	6.17%
Most recent ten-year average return:	7.04%	6.45%
Most recent fifteen-year average return:	6.15%	5.38%
20-year average return:	6.44%	6.51%

Section 2: Actuarial Valuation Results

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 \$119,964,949, which includes \$32,287,646 from investment losses and \$87,677,303 in losses from all other sources. The net experience variation from individual sources other than investments was 2.5% 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, 2022

1	Net loss from investments ¹	-\$32,287,646
2	Gain on administrative expenses	43,700
3	Net loss from other experience	<u>-87,721,003</u>
4	Net experience loss: 1 + 2 + 3	-\$119,964,949

¹ Details on next page

Section 2: Actuarial Valuation Results

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, 2022	
		Market Value	Actuarial Value
1	Investment income	-\$212,759,808	\$125,113,706
2	Average value of assets	2,457,313,670	2,248,590,740
3	Rate of return: 1 ÷ 2	-8.66%	5.56%
4	Assumed rate of return	7.00%	7.00%
5	Expected investment income: 2 x 4	\$172,011,957	\$157,401,352
6	Actuarial gain/(loss): 1 - 5	-\$384,771,765	-\$32,287,646

Section 2: Actuarial Valuation Results

Administrative expenses

Administrative expenses for the year ending June 30, 2022, totaled \$2,352,151, as compared to the assumption of \$2,314,752.

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).

Liability Changes Due to Demographic Experience for Year Ended June 30

	2018	2019	2020	2021	2022
Net turnover	-\$7,931,592	-\$1,588,998	-\$2,812,974	\$3,446,914	\$13,686,201
Retirement	-17,048,638	-13,424,864	-8,892,489	-19,015,951	-22,922,279
Mortality	-4,854,533	-1,885,105	3,692,473	-4,440,365	10,206,668
Disability retirements	-491,425	291,792	-434,494	-158,342	-1,598,758
Salary/service increases	-7,120,663	344,400	-3,697,977	-4,448,937	-30,740,425
COLA experience ¹	-726,790	11,993,826	23,969,841	-35,588,639	-46,706,996
Miscellaneous ²	<u>-16,190,401</u>	<u>-14,994,521</u>	<u>-2,407,484</u>	<u>-3,195,329</u>	<u>-9,645,414</u>
Total	-\$54,364,042	-\$19,263,470	\$9,416,896	-\$63,400,649	-\$87,721,003

¹ COLA experience loss for 2022 is due to actual 2023 COLAs being greater than expected (5.00% actual vs 2.40% expected for Group A, C, and D members, 2.50% actual vs 1.35% expected for Group F members who retired before July 1, 2008, and 5.00% actual vs 2.40% expected for Group F members who retired after July 1, 2008).

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.

Section 2: Actuarial Valuation Results

Actuarial assumptions

Effective for the June 30, 2022, actuarial valuation, assumed rates of retirement and assumed COLAs were updated to reflect the best estimate of anticipated future experience as a result of the various plan provision changes contained in Act 114. Details on actuarial assumptions and methods are in *Section 4, Exhibit I*.

Plan provisions

Effective for the June 30, 2022, actuarial valuation, the following plan provisions were updated to reflect Act 114:

- Average Final Compensation;
- Normal Retirement – Eligibility;
- Normal Retirement – Amount;
- Early Retirement – Amount;
- Post-Retirement Adjustments; and
- Member Contribution Rates.

A summary of plan provisions is in *Section 4, Exhibit II*.

Section 2: Actuarial Valuation Results

Development of unfunded actuarial accrued liability

Development of Unfunded Actuarial Accrued Liability for Year Ended June 30, 2022

1	Unfunded actuarial accrued liability at beginning of year		\$1,064,368,199
2	Normal cost at beginning of year		72,372,072
3	Total contributions		-243,040,251
4	Interest on 1, 2 & 3		<u>71,065,410</u>
5	Expected unfunded actuarial accrued liability		\$964,765,431
6	Changes due to:		
	(a) Net experience (gain)/loss	\$119,964,949	
	(b) Assumptions	0	
	(c) Funding method	0	
	(d) Plan provisions	<u>-46,392,299</u>	
	Total changes		<u>73,572,650</u>
7	Unfunded actuarial accrued liability at end of year		\$1,038,338,081

Section 2: Actuarial Valuation Results

Actuarially determined contribution

The actuarially determined contribution is equal to the employer normal cost payment and a payment on the unfunded actuarial accrued liability. 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. As of July 1, 2022, there are 16 years remaining on this schedule.

The actuarially determined contribution for the fiscal year ending June 30, 2023, is \$116,038,400 based on the June 30, 2021, actuarial valuation and recertified at the June 9, 2022, board meeting. The results of this June 30, 2022, actuarial valuation with the additional Act 114 contributions are used to determine the actuarially determined contribution for the fiscal year ending June 30, 2024, and to estimate the actuarially determined contribution for the fiscal year ending June 30, 2025, as shown in *Section 2, Actuarially determined contribution for following two fiscal years.*

The preliminary contribution requirement as of July 1, 2022, 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, and actuarial gains and losses.

Preliminary Contribution Requirement

	Year Beginning July 1			
	2022		2021	
	Amount	% of Payroll	Amount	% of Payroll
1 Total normal cost, adjusted for timing ¹	\$74,099,643	12.26%	\$72,547,501	12.54%
2 Administrative expenses	2,416,448	0.40%	2,314,752	0.40%
3 Expected employee contributions	<u>-43,694,219</u>	<u>-7.23%</u>	<u>-39,226,488</u>	<u>-6.78%</u>
4 Employer normal cost: 1 + 2 + 3	\$32,821,872	5.43%	\$35,635,765	6.16%
5 Actuarial accrued liability	3,444,133,789		3,280,867,677	
6 Actuarial value of assets	<u>2,405,795,708</u>		<u>2,216,499,478</u>	
7 Unfunded actuarial accrued liability: 5 - 6	\$1,038,338,081		\$1,064,368,199	
8 Payment on unfunded actuarial accrued liability, adjusted for timing ¹	\$87,969,539	14.56%	\$86,331,362	14.92%
9 Preliminary contribution requirement: 4 + 8	\$120,791,411	19.99%	\$121,967,127	21.08%
10 Projected payroll	\$604,112,062		\$578,687,947	

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

Section 2: Actuarial Valuation Results

Reconciliation of preliminary contribution requirement

Reconciliation of Preliminary Contribution Requirement from July 1, 2021, to July 1, 2022

		Amount	% of Payroll
1	Preliminary Contribution Requirement as of July 1, 2021	\$121,967,128	21.08%
2	Effect of plan amendment(s)	-9,557,331	-1.65%
3	Effect of change in asset method	-	0.00%
4	Effect of expected change in amortization payment due to payroll growth	2,589,941	0.45%
5	Effect of expected change in amortization method	-	0.00%
6	Effect of change in actuarial assumptions	-	0.00%
7	Effect of total contributions (more)/less than actuarially determined contribution	-7,176,864	-1.24%
8	Effect of investment (gain)/loss	2,735,457	0.47%
9	Effect of other gains and losses on accrued liability	7,428,151	1.28%
10	Effect of change in administrative expenses ¹	101,696	0.00%
11	Net effect of other changes, including composition and number of members, payroll ²	<u>2,703,233</u>	<u>-0.40%</u>
12	Total change	-\$1,175,717	-1.09%
13	Preliminary Contribution Requirement as of July 1, 2022: 1 + 12	\$120,791,411	19.99%

¹ The dollar amount of expected administrative expenses increased even though the assumption remained 0.40% of projected payroll.

² The percent of payroll value includes the effect of the change in projected payroll basis.

Section 2: Actuarial Valuation Results

Amortization schedule for unfunded actuarial accrued liability – schedule of contributions required by statute

Unfunded Liability Amortization Schedule

As of July 1	Balance	Additional Act 114 State Contribution ¹ (Year Following)	Amortization Payment ² (Year Following)	Funded Percentage
2022	\$1,038,338,081	\$0	\$84,755,382 ³	69.85%
2023	1,023,350,098	9,000,000	90,903,961	71.16%
2024	991,643,143	12,000,000	92,760,235	72.93%
2025	952,693,334	15,000,000	94,314,197	74.80%
2026	906,306,382	15,000,000	95,508,501	76.76%
2027	855,436,946	15,000,000	96,621,217	78.73%
2028	799,855,647	15,000,000	97,626,040	80.71%
2029	739,344,261	15,000,000	98,487,922	82.70%
2030	673,705,540	15,000,000	99,158,831	84.70%
2031	602,778,114	15,000,000	99,570,549	86.72%
2032	526,459,884	15,000,000	99,621,563	88.74%
2033	444,746,609	0	99,151,072	90.77%
2034	373,316,206	0	102,125,604	92.48%
2035	293,808,794	0	105,189,372	94.26%
2036	205,566,677	0	108,345,053	96.10%
2037	107,883,350	0	111,595,405	98.02%
2038	0	0	0	100.00%

¹ Under Act 114, beginning in FY24, the State is contributing an additional payment that grows to \$15 million in FY26 and remains at that level until the fund reaches 90%.

² The annual payment to amortize the unfunded actuarial liability is calculated based upon installments increasing at a rate of 3% per year.

³ The 2022 amortization payment reflects a \$4.3 million reduction from the amount calculated in the June 30, 2021, actuarial valuation to reflect the estimated impact of plan changes from Act 114 on the unfunded liability payment of the FY23 ADC that was recertified at the June 9, 2022, board meeting.

Section 2: Actuarial Valuation Results

Projection of actuarially determined contribution for following two fiscal years

On the basis of the June 30, 2022, actuarial valuation, the employer normal cost rate is 5.43%. In order to reflect the future member contribution increases per Act 114, the fiscal 2024 employer normal cost rate is reduced by an estimated 48 basis points and the fiscal 2025 employer normal cost rate is reduced by an additional estimated 49 basis points. These reduced employer normal cost rates are applied to the projected payrolls for fiscal 2024 and fiscal 2025, respectively, to determine the employer normal cost for each year. The payment on the unfunded liability is added to the employer normal cost to determine the actuarially determined contribution for the fiscal year ending June 30, 2024, and to estimate the actuarially determined contribution for the fiscal year ending June 30, 2025, as shown below. The final actuarially determined contribution for fiscal 2025 will be determined with the next valuation.

Actuarially Determined Contribution: 2024 – 2025

Fiscal Year Ended June 30	Projected Payroll ¹	Employer Normal Cost Rate	Projected Contributions		
			Employer Normal Cost	Unfunded Liability Payment	Total
2024	\$625,255,984	4.95%	\$30,969,409	\$90,903,961	\$121,873,370
2025	647,139,944	4.46%	28,882,353	92,760,235	121,642,588

¹ In these projections, total payroll is assumed to increase by 3.5% each year.

Section 2: Actuarial Valuation Results

History of employer contributions

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

History of Employer Contributions: 2014 – 2023

Fiscal Year Ended June 30	Actuarially Determined Contribution		Actual Employer Contribution		
	Amount ¹	Percentage of Payroll ²	Amount	Percentage of Payroll ²	Percent Contributed
2014	\$40,217,666	9.98%	\$56,482,985	14.02%	140.44%
2015	44,651,783	10.25%	55,881,364	12.83%	125.15%
2016	46,237,853	10.11%	54,347,060	11.88%	117.54%
2017	48,503,358	10.14%	60,280,480	12.60%	124.28%
2018	52,065,397	10.67%	64,564,323	12.26%	124.01%
2019	62,984,742	11.57%	66,617,894	12.24%	105.77%
2020	78,943,914	14.01%	84,429,972	15.34%	106.95%
2021	83,876,570	14.51%	88,944,172	15.38%	106.04%
2022	119,967,769	20.73%	197,523,008	34.13%	164.65%
2023	116,038,400	19.21%	--	--	--

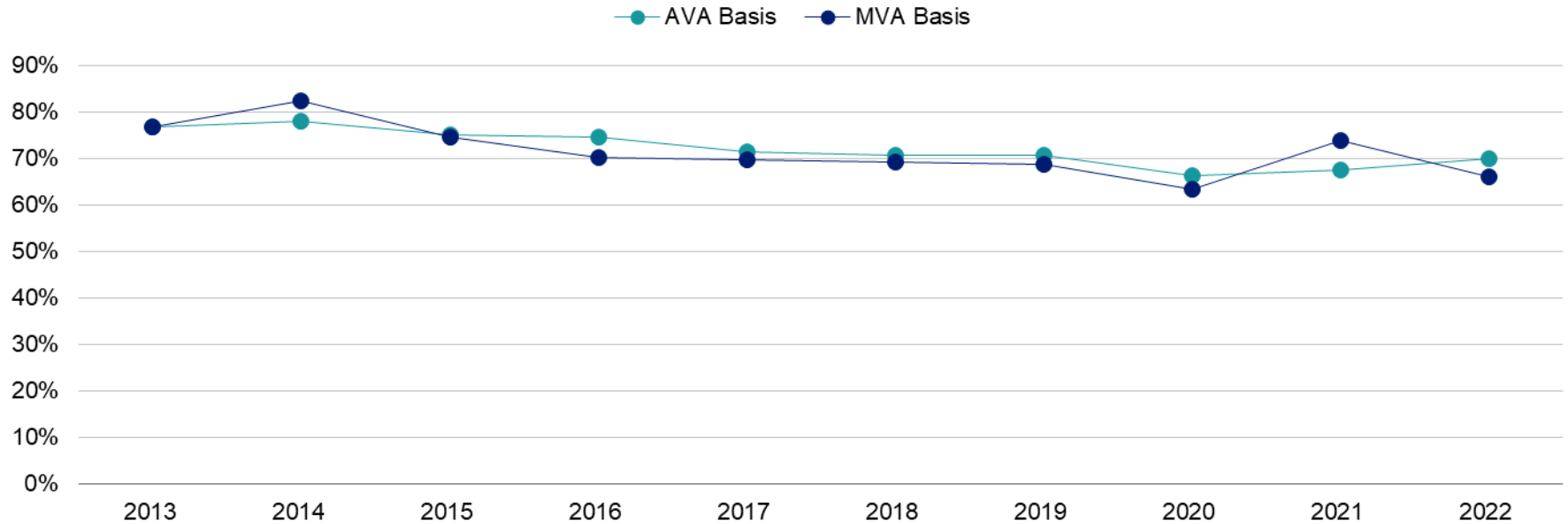
¹ Budgeted contribution amount from prior valuation report.

² Based on expected payroll.

Section 2: Actuarial Valuation Results

History of funded percentage

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



Section 2: Actuarial Valuation Results

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, 2022	June 30, 2021
Liabilities		
• Present value of benefits for retired members and beneficiaries	\$2,209,736,910	\$2,034,378,826
• Present value of benefits for inactive former members	98,275,036	89,137,012
• Present value of benefits for active members	<u>1,792,585,559</u>	<u>1,780,248,655</u>
Total liabilities	\$4,100,597,505	\$3,903,764,493
Assets		
• Total valuation value of assets	\$2,405,795,708	\$2,216,499,478
• Present value of future contributions by members	512,911,558	375,117,172
• Present value of future employer contributions for:		
• Entry age cost	143,552,158	247,779,644
• Unfunded actuarial accrued liability	<u>1,038,338,081</u>	<u>1,064,368,199</u>
Total of current and future assets	\$4,100,597,505	\$3,903,764,493

Section 2: Actuarial Valuation Results

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 VSERS because:

- The negative cash flow position of the System could be exacerbated by relatively small deviations from assumed future experience.
- Retired and inactive members account for more than half of the System's liabilities limiting options for reducing plan liabilities in the event of adverse experience.
- 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 \$245.7 million in the asset value. A 10% increase in assets would cause the unfunded liability (market value basis) to decrease from \$1.038 billion to \$0.810 billion. Likewise, a 10% decrease in the asset value would cause the unfunded liability to increase from \$1.038 billion to \$1.274 billion.
 - 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

Section 2: Actuarial Valuation Results

contribution would increase or decrease by 0.34% 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 market value rate of return over the last 20 years has ranged from a low of -18.80% to a high of 25.71%.

- **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 VSERS, a 3% liability increase would result in an increase in the unfunded accrued liability of \$103.3 million. The unfunded accrued liability (market value of assets basis) would increase from \$1.167 billion to \$1.271 billion.

- **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 0.71 to a high of 0.96. Currently the System has an in-pay-status to active member ratio of 0.96.
- As of June 30, 2022, the retired life actuarial accrued liability represents 64% of the total actuarial accrued liability. In addition, the actuarial accrued liability for inactive and deferred members represents 3% 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 \$69.2 million less than contributions received, or 3.0% of the market value of assets. However, this reflects an additional \$75 million contribution from the State. Typically, as the System matures, more cash will be needed from the investment portfolio to meet benefit payments.

Section 2: Actuarial Valuation Results

- **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)
2018	-\$10,076,141	N/A	-\$54,364,042
2019	-13,757,751	N/A	-19,263,470
2020	-23,939,803	N/A	9,416,896
2021	52,180,733	N/A	-63,400,649
2022	-32,287,646	\$43,700	-87,721,003

- 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 \$32.3 million to a gain of \$52.2 million.
 - The non-investment gain(loss) for a year has ranged from a loss of \$87.7 million to a gain of \$9.4 million.
- The funded percentage on the actuarial value of assets has ranged from a low of 66.4% to a high of 77.9% over the past ten years.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage

Category	As of June 30		Change From Prior Year
	2022	2021	
Active members in valuation:			
• Number	8,324	8,192	1.6%
• Average age	45.3	45.7	-0.4
• Average years of creditable service	10.4	10.9	-0.5
• Total payroll	\$576,951,813	\$552,316,523	4.5%
• Average payroll	69,312	67,421	2.8%
• Total active vested members	5,462	5,523	-1.1%
Inactive members:			
• Number of deferreds as reported by the System	815	771	5.7%
• Number of inactives as reported by the System	2,012	1,716	17.2%
Retired members:			
• Number in pay status	6,800	6,573	3.5%
• Average age	71.5	71.3	0.2
• Average monthly benefit	\$1,931	\$1,837	5.1%
Disability retirees:			
• Number in pay status	396	400	-1.0%
• Average age	66.3	66.0	0.3
• Average monthly benefit	\$1,360	\$1,284	5.9%
Beneficiaries:			
• Number in pay status	767	743	3.2%
• Average age	71.1	70.7	0.4
• Average monthly benefit	\$1,229	\$1,167	5.3%

Section 3: Supplemental Information

Exhibit B: Reconciliation of Member Data

	Active Members	Deferreds	Inactives	Disability Retirees	Retired Members	Beneficiaries	Total
Number as of July 1, 2021	8,192	771	1,716	400	6,573	743	18,395
• New members	1,041	N/A	238	0	14	N/A	1,293
• Inactives as reported by the System	-500	0	500	N/A	N/A	N/A	0
• Deferred as reported by the System	N/A	97	-97	N/A	N/A	N/A	0
• Retirements	-331	-37	-12	N/A	380	N/A	0
• New disabilities	-11	0	0	13	-2	N/A	0
• Return to work from disability	0	N/A	N/A	0	N/A	N/A	0
• Died with beneficiary	-5	0	0	-5	-39	49	0
• Died without beneficiary	-11	-5	-2	-12	-129	-27	-186
• Refunds of contributions	-149	-3	-246	0	0	0	-398
• Rehire	97	-8	-87	N/A	-2	N/A	0
• Certain period expired	N/A	N/A	0	0	0	-12	-12
• Data adjustments	1	0	2	0	5	14	22
Number as of July 1, 2022	8,324	815	2,012	396	6,800	767	19,114

Section 3: Supplemental Information

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

	Year Ended June 30, 2022	Year Ended June 30, 2021
Net assets at market value at the beginning of the year	\$2,425,222,408	\$1,959,066,641
Contribution income:		
• Employer contributions	\$197,523,008	\$88,944,172
• Member contributions	44,654,960	42,113,318
• Less administrative expenses	<u>-2,352,151</u>	<u>-2,280,512</u>
<i>Net contribution income</i>	<i>\$239,825,817</i>	<i>\$128,776,978</i>
Net other income	\$862,283	\$247,033
Investment income:		
• Interest, dividends and other income	\$16,785,884	\$17,698,906
• Asset appreciation	-229,545,692	481,640,356
• Less investment fees	<u>-2,714,103</u>	<u>-1,916,608</u>
<i>Net investment income</i>	<i>-\$215,473,911</i>	<i>\$497,422,654</i>
Total income available for benefits	\$25,214,189	\$626,446,665
Less benefit payments:		
• Benefits	-\$167,690,557	-\$155,493,584
• Refunds of contributions	-4,386,131	-3,650,081
• Death claims	-813,731	-615,965
• Transfers to other pension trust funds	<u>-901,054</u>	<u>-531,268</u>
<i>Net benefit payments</i>	<i>-\$173,791,473</i>	<i>-\$160,290,898</i>
Change in reserve for future benefits	-\$148,577,284	\$466,155,767
Net assets at market value at the end of the year	\$2,276,645,124	\$2,425,222,408

Section 3: Supplemental Information

Exhibit D: Summary Statement of Plan Assets

	June 30, 2022	June 30, 2021
Cash equivalents	\$22,781,883	\$11,604,916
Total accounts receivable	14,883,184	22,485,409
Prepaid expenses	68,602	66,741
Capital assets, net of depreciation	521,831	760,461
Investments:		
• Fixed income	\$128,651,224	\$110,059,937
• Equities	209,763,371	249,360,731
• Mutual and commingled funds	1,496,507,550	1,643,304,253
• Real estate and venture capital	<u>431,376,299</u>	<u>404,646,859</u>
Total investments at market value	\$2,266,298,444	\$2,407,371,780
Total assets	\$2,304,553,944	\$2,442,289,307
Total liabilities	-\$27,908,820	-\$17,066,899
Net assets at market value	\$2,276,645,124	\$2,425,222,408
Net assets at actuarial value	\$2,405,795,708	\$2,216,499,478

Section 3: Supplemental Information

Exhibit E: Development of the Fund through June 30, 2022

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
2012	\$40,302,433	\$27,708,009	\$377,562	\$23,604,774	-\$1,328,919	-\$92,781,097	\$1,378,489,496	\$1,400,779,062	101.62%
2013	51,370,307	29,847,352	638,436	110,717,567	-1,374,643	-99,194,618	1,470,493,897	1,469,169,902	99.91%
2014	56,482,985	31,745,692	453,852	203,720,178	-1,158,183	-104,492,553	1,657,245,868	1,566,075,540	94.50%
2015	55,881,364	33,296,248	423,273	-8,484,694	-2,104,636	-111,396,184	1,624,861,239	1,636,267,663	100.70%
2016	54,347,060	34,055,217	293,444	17,962,425	-1,775,647	-120,093,586	1,609,650,152	1,707,267,941	106.06%
2017	60,280,480	35,966,987	785,504	170,358,016	-2,119,044	-126,479,801	1,748,442,294	1,793,794,733	102.59%
2018	64,564,323	40,423,239	554,842	123,632,169	-2,026,240	-134,090,344	1,841,500,283	1,881,804,847	102.19%
2019	66,617,894	40,818,039	298,872	106,777,462	-2,246,008	-144,296,719	1,909,469,823	1,964,500,825	102.88%
2020	84,429,972	40,902,188	594,069	78,964,510	-2,268,390	-153,025,531	1,959,066,641	2,054,825,853	104.89%
2021	88,944,172	42,113,318	247,033	497,422,654	-2,280,512	-160,290,898	2,425,222,408	2,216,499,478	91.39%
2022	197,523,008	44,654,960	862,283	-215,473,911	-2,352,151	-173,791,473	2,276,645,124	2,405,795,708	105.67%

¹ On a market basis, net of investment fees.

² Includes "other expenses".

Section 3: Supplemental Information

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):	<p>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:</p> <p>Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.)</p> <p>Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and</p> <p>Discounted according to an assumed rate (or rates) of return to reflect the time value of money.</p>

Section 3: Supplemental Information

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.

Section 3: Supplemental Information

Assumptions or Actuarial Assumptions:	The estimates upon which the cost of the Fund is calculated, including: <u>Investment return</u> - the rate of investment yield that the Fund will earn over the long-term future; <u>Mortality rates</u> - the death rates of employees and pensioners; life expectancy is based on these rates; <u>Retirement rates</u> - the rate or probability of retirement at a given age; <u>Withdrawal rates</u> - the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; <u>Salary increase rates</u> - 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 Percentage:	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.

Section 3: Supplemental Information

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.

Section 4: Actuarial Valuation Basis

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 24, 2020 (as prepared by Segal).	
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:	Service	Annual Rate of Salary Increase (%)
	0	5.55%
	5	5.31%
	10	4.77%
	15	4.42%
	20	4.20%
	25	3.99%
	30	3.82%
	35	3.62%
	40+	3.40%

Section 4: Actuarial Valuation Basis

Cost-of-Living Adjustments (COLA):

For active Group A, C, and F members who are first eligible for normal or unreduced early retirement on or after July 1, 2022, and for active Group D members who are first appointed or elected on or after July 1, 2022:

- Group A Assumed to occur on January 1 following two years of retirement at the rate of 2.40% per annum. The January 1, 2023, COLA is expected to be 5.00%¹.
- Group C Assumed to occur on January 1 following two years of retirement at the rate of 2.15% per annum. The January 1, 2023, COLA is expected to be 4.00%¹.
- Group D Assumed to occur on January 1 following two years of retirement at the rate of 2.40% per annum on the first \$75,000 of retirement benefits paid and 1.15% per annum on retirement benefits paid above \$75,000. The January 1, 2023, COLA is expected to be 5.00%¹ on the first \$75,000 of retirement benefits paid and 2.50%¹ on retirement benefits paid above \$75,000.
- Group F Assumed to occur on January 1 following two years of retirement at the rate of 2.25% per annum. For members hired before July 1, 2008, assumed to begin two years after the attainment of age 62 for deferred retirements. For members hired on or after July 1, 2008, assumed to begin two years after the attainment of age 65 for deferred retirements. The January 1, 2023, COLA is expected to be 4.00%¹.

For all other members:

- Groups A/C/D Assumed to occur on January 1 following one year of retirement at the rate of 2.40% per annum. The January 1, 2023, COLA is expected to be 5.00%.
- Groups E/F Assumed to occur on January 1 following one year of retirement at the rate of 1.35% per annum (beginning one year after the attainment of age 62 for deferred retirements) for members who retired on or before June 30, 2008. The January 1, 2023, COLA is expected to be 2.50%.

For members retiring on or after July 1, 2008, assumed to occur on January 1 following one year of retirement at the rate of 2.40% per annum. For members hired before July 1, 2008, assumed to begin one year after the attainment of age 62 for deferred retirements. For members hired on or after July 1, 2008, assumed to begin one year after the attainment of age 65 for deferred retirements. The January 1, 2023, COLA is expected to be 5.00%.

¹These amounts were required to be calculated in 2023 as a result of Act 114; however, they will not be applied to any members in 2023.

Section 4: Actuarial Valuation Basis

Mortality Rates:

Pre-retirement:

- Groups A/F 60% of PubG-2010 General Employee Amount-Weighted Above Median, 40% of PubG-2010 General Employee Amount-Weighted with generational projection using scale MP-2019
- Group C PubS-2010 Public Safety Employee Amount-Weighted with generational projection using scale MP-2019
- Group D* 70% of PubG-2010 General Employee Amount-Weighted Above Median, 30% of PubG-2010 General Employee with generational projection using scale MP-2019

Healthy Post-retirement - Retirees:

- Groups A/F 109% of PubG-2010 General Healthy Retiree Amount-Weighted with generational projection using scale MP-2019
- Group C 40% of PubS-2010 Public Safety Retiree Amount-Weighted Above Median, 60% of PubS-2010 Public Safety Retiree Amount-Weighted with generational projection using scale MP-2019
- Group D PubG-2010 General Healthy Retiree Amount-Weighted Above Median with generational projection using scale MP-2019

Healthy Post-retirement - Beneficiaries:

- Groups A/F Pub-2010 Contingent Survivor Amount-Weighted with generational projection using MP-2019
- Group C 40% of Pub-2010 Contingent Survivor Amount-Weighted Above Median, 60% of Pub-2010 Contingent Survivor Amount-Weighted with generational projection using MP-2019
- Group D Pub-2010 Contingent Survivor Amount-Weighted Above Median with generational projection using MP-2019

Disabled Post-retirement:

- All Groups PubNS-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table with generational projection using scale MP-2019

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 tables were then adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

* 30% of deaths are assumed to be accidental.

Section 4: Actuarial Valuation Basis

Separation from Service before Retirement (Due to Withdrawal and Disability):

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

Rate (%)						
Withdrawal Groups A/D ¹				Disability ²		
Ultimate Rates		Increase Factors				
Age	Male/Female	Service	Male/Female	Age	Groups A/D/F	Group C
25	4.9066%	1	4.000	25	0.0158%	0.0770%
30	3.9275%	3	2.500	30	0.0204%	0.0990%
35	3.2826%	5	1.900	35	0.0272%	0.1325%
40	3.0392%	7	1.600	40	0.0406%	0.1980%
45	2.6920%	9	1.300	45	0.0665%	0.3235%
50	2.2464%			50	0.1055%	0.5455%
55	1.8346%			55	0.1862%	0.9080%
60	3.9019%			60	0.3005%	1.4640%

¹ 20% of disability incidents are assumed to be accidental for Group C and 10% of disability incidents are assumed to be accidental for all other members.

² The Ultimate Rates are multiplied by the Increase Factors during the first 10 years of service.

Withdrawal Group C		
Service	Male	Female
0	10.800%	21.600%
1	6.480%	12.960%
2	5.400%	10.800%
3	3.456%	6.912%
4	3.456%	6.912%
5	3.456%	6.912%
6-19	3.240%	6.480%
20+	0.000%	0.000%

Section 4: Actuarial Valuation Basis

Separation from Service before Retirement (Due to Withdrawal and Disability) (continued):

Withdrawal Group F¹

Ultimate Rates 0-10 Years of Service		Increase Factors		Ultimate Rates ² 10-30 Years of Service	
Age	Male/Female	Service	Male/Female	Age	Male/Female
25	6.3933%	0	2.850	25	4.2200%
30	5.1207%	2	2.300	30	3.3800%
35	4.2723%	4	1.550	35	2.8200%
40	3.9542%	6	1.300	40	2.6100%
45	3.5148%	8	1.150	45	2.3200%
50	2.9240%			50	1.9300%
55	2.4695%			55	1.6300%
60	2.4695%			60	1.6300%

¹ The Ultimate Rates are multiplied by the Increase Factors during the first 10 years of service.

² Withdrawal Rates are 0.00% for all Group F members with 30+ years of service

Retirement Rates:

Retirement Group F¹

Age	Male	Female	Age	Male	Female
40-52	20.00%	10.00%	63	17.50%	15.00%
53	15.00%	10.00%	64	20.00%	15.00%
54	15.00%	10.00%	65	22.50%	20.00%
55	5.00%	5.00%	66	25.00%	30.00%
56	5.00%	5.00%	67	25.00%	30.00%
57	5.00%	5.00%	68	25.00%	30.00%
58	5.00%	7.50%	69	25.00%	30.00%
59	7.50%	7.50%	70+	100.00%	100.00%
60	7.50%	7.50%			
61	15.00%	12.50%			
62	25.00%	25.00%			

¹ All Group A and D members are assumed to retire when first eligible.

Section 4: Actuarial Valuation Basis

Retirement Rates <i>(continued)</i> :	Retirement Group C ²	
	Age	Male/Female
	50	50.00%
	51	10.00%
	52	10.00%
	53	10.00%
	54	5.00%
	55	5.00%
	56	5.00%
	57+	100.00%

² Effective July 1, 2022, the mandatory retirement age for Group C members was increased from age 55 to age 57.

Inactive Members as Reported by the System:	Not Vested: Valuation liability equals 100% of accumulated contributions. Vested: Valuation liability based on accrued benefit and 20% of members are assumed to retire from Early Retirement Age for each year until Normal Retirement Age, then 100% of members are assumed to retire at their Normal Retirement Age with a deferred vested benefit.
Deferred Members as Reported by the System:	Valuation liability based on accrued benefit and 20% of members are assumed to retire from Early Retirement Age for each year until Normal Retirement Age, then 100% of members are assumed to retire at their Normal Retirement Age with a deferred vested benefit.
Future Administrative Expenses:	0.40% 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:	<ul style="list-style-type: none"> • Groups A/D 75.4% of male members and 64.0% of female members are assumed to be married. • Group C 73.3% of male members and 61.0% of female members are assumed to be married. • Group F 71.4% of male members and 63.1% of female members are assumed to be married.
Age of Spouse:	Females three years younger than males.
Benefit Election:	<ul style="list-style-type: none"> • Non-Group C All members are assumed to elect the single life annuity option. • Group C Single members are assumed to elect single life annuity. Married members are assumed to elect the 70% joint & survivor option

Section 4: Actuarial Valuation Basis

Actuarial Value of Assets:	The amount of the assets for valuation purposes equals the preliminary asset value plus 20% of the difference between market and preliminary asset values. The preliminary asset value is equal to the previous year's asset value (for valuation purposes) adjusted for contributions less benefit payments and expenses plus expected investment income. If necessary, a further adjustment is made to ensure that the valuation assets are within 20% of the market value.
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.
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 Change in Actuarial Assumptions:	Effective for the June 30, 2022, actuarial valuation, assumed rates of retirement and assumed COLAs were updated to reflect the best estimate of anticipated future experience as a result of the various plan provision changes contained in Act 114.

Section 4: Actuarial Valuation Basis

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, 1972 (for consolidated system).
Credible Service:	Service as a member plus purchased service.
Average Final Compensation (AFC):	<ul style="list-style-type: none">• Groups A/F Average annual compensation during highest 3 consecutive years.• Group C Average annual compensation during highest 2 consecutive years.• Group D For active members who retire on or after July 1, 2022, and do not meet one of the following two requirements: (1) at least age 57 with 5 or more years of service as a judge in Group D as of June 30, 2022; (2) Group D as of June 30, 2022, with 15 or more years of service:<ul style="list-style-type: none">- Average annual compensation during final 2 years of service. <p>For all other members:</p> <ul style="list-style-type: none">- Annual compensation during final year of service.
Normal Retirement – Eligibility:	<ul style="list-style-type: none">• Group A Earlier of age 65 with 5 years of service or age 62 with 20 years of service.• Group C Age 55.• Group D For members first appointed or elected on or before June 30, 2022:<ul style="list-style-type: none">- Age 62 with 5 years of service. <p>For members first appointed or elected on or after July 1, 2022:</p> <ul style="list-style-type: none">- Age 65 with 5 years of service. <ul style="list-style-type: none">• Group F Age 62 or 30 years of service. For members hired after June 30, 2008, age 65 or a sum of age plus service greater than or equal to 87.
Normal Retirement – Amount:	<ul style="list-style-type: none">• Group A 1.67% of AFC times service.• Group C 2.50% of AFC times service, up to a maximum benefit cap of 50% of AFC. The maximum benefit cap is increased by 1.5% of AFC for each year worked after attaining the later of age 50 or 20 years of benefit service, applied prospectively to service worked after July 1, 2022.

Section 4: Actuarial Valuation Basis

Normal Retirement – Amount <i>(continued)</i> :	<ul style="list-style-type: none"> Group D For active members who retire on or after July 1, 2022, and do not meet one of the following two requirements: (1) at least age 57 with 5 or more years of service as a judge in Group D as of June 30, 2022; (2) Group D as of June 30, 2022, with 15 or more years of service: - 3.33% of AFC times service, up to a maximum benefit cap of 80% of AFC. For all other members: - 3.33% of AFC times service, up to a maximum benefit cap of 100% of AFC. Group F 1.25% of AFC times service prior to January 1, 1991, plus 1.67% of AFC times service after 1990, up to a maximum benefit cap of 50% of AFC. For members hired on or after July 1, 2008, the maximum benefit cap is 60% of AFC. 												
Early Retirement – Eligibility:	<ul style="list-style-type: none"> Groups A/D Age 55 with 5 years of service or 30 years of service. Group C Age 50 with 20 years of service. Group F Age 55 with 5 years of service. 												
Early Retirement – Amount:	<ul style="list-style-type: none"> Group A Actuarial equivalent of normal retirement allowance. For members with 30 years of service, there is no reduction. Group C Same as normal retirement allowance. Group D For members first appointed or elected on or before June 30, 2022: - Normal allowance reduced by 3% for each year commencement precedes age 62. For members first appointed or elected on or after July 1, 2022: - Normal allowance reduced by 3% for each year commencement precedes age 65. Group F For members hired prior to July 1, 2008, no reduction if 30 years of service; otherwise normal allowance reduced by 6% for each year commencement precedes age 62. For members hired on or after July 1, 2008, no reduction if combination of years and service equal 87; other reduced from age 65 based on the following table: <table border="1" data-bbox="961 1101 1614 1343"> <thead> <tr> <th>Years of Service</th> <th>Reduction in Benefit</th> </tr> </thead> <tbody> <tr> <td>35</td> <td>One-eighth of 1% per month</td> </tr> <tr> <td>30</td> <td>One-fourth of 1% per month</td> </tr> <tr> <td>25</td> <td>One-third of 1% per month</td> </tr> <tr> <td>20</td> <td>Five-twelfths of 1% per month</td> </tr> <tr> <td>Less than 20</td> <td>Five-ninths of 1% per month</td> </tr> </tbody> </table>	Years of Service	Reduction in Benefit	35	One-eighth of 1% per month	30	One-fourth of 1% per month	25	One-third of 1% per month	20	Five-twelfths of 1% per month	Less than 20	Five-ninths of 1% per month
Years of Service	Reduction in Benefit												
35	One-eighth of 1% per month												
30	One-fourth of 1% per month												
25	One-third of 1% per month												
20	Five-twelfths of 1% per month												
Less than 20	Five-ninths of 1% per month												

Section 4: Actuarial Valuation Basis

Vesting:	<ul style="list-style-type: none"> All groups – 5 years of service.
Ordinary Disability – Eligibility:	<ul style="list-style-type: none"> All groups – 5 years of service and incapacitated, not work related, for performance of duty.
Ordinary Disability – Amount:	All groups – Immediate allowance based on service to date of disability. Benefit is the greatest of 25% of AFC and unreduced accrued benefit as of date of disability.
Accidental Disability – Eligibility:	All groups – Incapacitated because of work related accident.
Accidental Disability – Amount:	<ul style="list-style-type: none"> Groups A/D/F Immediate allowance equal to the greater of 25% of AFC and unreduced accrued benefit as of date of disability. Group C Immediate allowance equal to 50% of AFC with additional 10% of AFC for each dependent child (up to 30%).
Ordinary Death – Eligibility:	<ul style="list-style-type: none"> Groups A/F Death after eligibility for early retirement or 10 years of service. Groups C/D Death after normal retirement age or 10 years of service.
Ordinary Death – Amount:	<ul style="list-style-type: none"> Groups A/D/F Maximum of reduced allowance under 100% survivor option and disability allowance under 100% disability survivor option, commencing immediately. Group C 70% of the allowance that would have been payable to the member plus additional allowance equal to 10% of AFC for each dependent child (up to 30%).
Accidental Death – Eligibility:	<ul style="list-style-type: none"> Groups A/C/D/F – Death because of work related accident.
Accidental Death – Amount:	<ul style="list-style-type: none"> Groups A/D/F Allowance equal to 25% of AFC payable to spouse. Group C Allowance equal to 35% of AFC payable to spouse plus 10% for each dependent child (up to 30%).

Section 4: Actuarial Valuation Basis

Post-Retirement Adjustments:

For active Group A, C, and F members who are first eligible for normal or unreduced early retirement on or after July 1, 2022, and for active Group D members who are first appointed or elected on or after July 1, 2022:

- Group A Allowances in payment for at least two years, increased on each January 1 by the net percentage increase in Consumer Price Index (CPI). The maximum net percentage increase in CPI is capped at 5%. If the net percentage increase in CPI is less than 1%, members will not receive an increase.
- Group C Allowances in payment for at least two years, increased on each January 1 by the net percentage increase in CPI. The maximum net percentage increase in CPI is capped at 4%. If the net percentage increase in CPI is less than 1%, members will not receive an increase.
- Group D Allowances in payment for at least two years, increased on each January 1 by the net percentage increase in CPI on the first \$75,000 of retirement benefits paid and half of the net percentage increase in CPI on retirement benefits paid above \$75,000. The maximum net percentage increase in CPI is capped at 5%. If the net percentage increase in CPI is less than 1%, members will not receive an increase.
- Group F Allowances in payment for at least two years, increased on each January 1 by the net percentage increase in CPI. The maximum net percentage increase in CPI is capped at 4%. If the net percentage increase in CPI is less than 0%, members will not receive an increase.

For all other members:

- Groups A/C/D Allowances in payment for at least one year, increased on each January 1 by the net percentage increase in CPI. The maximum net percentage increase in CPI is capped at 5%. If the net percentage increase in CPI is less than 1%, members will not receive an increase.
- Groups E/F For members who retired on or before June 30, 2008, allowances in payment for at least one year, increased on each January 1 by half of the net percentage increase in CPI. The maximum net percentage increase in CPI is capped at 5%. If the net percentage increase in CPI is between 0-1%, members will receive a 1% increase. If the net percentage increase in CPI is less than 0%, members will not receive an increase. A Group F member in receipt of an early retirement allowance shall not receive a post-retirement adjustment until such time as the member has attained normal retirement eligibility.

For members who retired on or after July 1, 2008, allowances in payment for at least one year, increased on each January 1 by the net percentage increase in CPI. The maximum net percentage increase in CPI is capped at 5%. If the net percentage increase in CPI is between 0-1%, members will receive a 1% increase. If the net percentage increase in CPI is less than 0%, members will not receive an increase. A Group F member in receipt of an early retirement allowance shall not receive a post-retirement adjustment until such time as the member has attained normal retirement eligibility.

Section 4: Actuarial Valuation Basis

Optional Benefit and Death after Retirement: Lifetime allowance or actuarially equivalent allowance with survivor benefit as elected by member upon retirement. Upon death of a Group C member, an allowance equal to 70% of the member's allowance is continue to the surviving spouse.

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.

Member Contribution Rates: Member contributions as a percentage of earnable compensation are described in the table below:

	Salary Percentile	FY22	FY23	FY24	FY25	FY26	FY27+
Group A	All	6.65%	6.65%	6.65%	6.65%	6.65%	6.65%
Group C	All	8.53%	9.03%	9.53%	10.03%	10.03%	10.03%
Group D	<25 th	6.65%	6.65%	6.65%	6.65%	6.65%	6.65%
	25 th -50 th	6.65%	7.15%	7.65%	8.15%	8.15%	8.15%
	50 th -75 th	6.65%	7.15%	7.65%	8.15%	8.65%	8.65%
	75 th +	6.65%	7.15%	7.65%	8.15%	8.65%	9.15%
Group F	<25 th	6.65%	6.65%	6.65%	6.65%	6.65%	6.65%
	25 th -50 th	6.65%	7.15%	7.65%	8.15%	8.15%	8.15%
	50 th -75 th	6.65%	7.15%	7.65%	8.15%	8.65%	8.65%
	75 th +	6.65%	7.15%	7.65%	8.15%	8.65%	9.15%

Changes in Plan Provisions: Effective for the June 30, 2022, actuarial valuation, the following plan provisions were updated to reflect Act 114:

- Average Final Compensation;
- Normal Retirement – Eligibility;
- Normal Retirement – Amount;
- Early Retirement – Amount;
- Post-Retirement Adjustments; and
- Member Contribution Rates.

Section 5: Additional Summary Tables of Member Data

Table 1A: Members in Active Service as of June 30, 2022, by Age, Years of Service, and Average Payroll – All Employee Groups

Age	Years of Creditable Service								
	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	252	248	4	--	--	--	--	--	--
	\$38,224	\$37,810	\$63,889	--	--	--	--	--	--
25 - 29	703	578	124	1	--	--	--	--	--
	\$52,085	\$48,097	\$70,593	\$62,060	--	--	--	--	--
30 - 34	1,048	574	387	84	3	--	--	--	--
	\$60,670	\$51,324	\$70,324	\$79,290	\$82,045	--	--	--	--
35 - 39	1,046	403	363	207	71	2	--	--	--
	\$66,429	\$51,547	\$72,505	\$80,474	\$78,916	\$65,426	--	--	--
40 - 44	1,061	325	295	193	198	50	--	--	--
	\$70,997	\$51,693	\$71,648	\$79,515	\$89,013	\$88,402	--	--	--
45 - 49	1,074	258	229	149	210	184	41	3	--
	\$76,755	\$52,474	\$72,820	\$82,523	\$89,631	\$93,548	\$90,010	\$66,513	--
50 - 54	1,091	201	221	158	197	164	100	48	2
	\$76,404	\$51,430	\$73,320	\$78,942	\$85,169	\$85,878	\$91,377	\$85,637	\$116,275
55 - 59	978	166	202	111	154	153	91	55	46
	\$76,292	\$57,151	\$71,573	\$76,324	\$81,531	\$83,081	\$90,281	\$88,632	\$83,456
60 - 64	728	111	154	100	121	93	48	42	59
	\$74,913	\$52,900	\$73,985	\$74,769	\$78,479	\$78,324	\$88,440	\$89,308	\$85,049
65 & over	343	44	74	55	48	45	18	18	41
	\$79,790	\$59,638	\$74,482	\$74,754	\$89,887	\$83,775	\$82,630	\$91,958	\$94,969
Total	8,324	2,908	2,053	1,058	1,002	691	298	166	148
	\$69,312	\$50,230	\$72,052	\$78,975	\$85,270	\$86,271	\$89,853	\$87,898	\$87,724

Section 5: Additional Summary Tables of Member Data

Table 1B: Members in Active Service as of June 30, 2022, by Age, Years of Service, and Average Payroll – General Employees – Group A

Age	Years of Creditable Service								
	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	--	--	--	--	--	--	--	--	--
25 - 29	--	--	--	--	--	--	--	--	--
30 - 34	--	--	--	--	--	--	--	--	--
35 - 39	--	--	--	--	--	--	--	--	--
40 - 44	--	--	--	--	--	--	--	--	--
45 - 49	--	--	--	--	--	--	--	--	--
50 - 54	--	--	--	--	--	--	--	--	--
55 - 59	--	--	--	--	--	--	--	--	--
60 - 64	--	--	--	--	--	--	--	--	--
65 & over	1	--	--	--	--	--	--	--	1
	\$63,571	--	--	--	--	--	--	--	\$63,571
Total	1	--	--	--	--	--	--	--	1
	\$63,571	--	--	--	--	--	--	--	\$63,571

Section 5: Additional Summary Tables of Member Data

Table 1C: Members in Active Service as of June 30, 2022, by Age, Years of Service, and Average Payroll – Law Enforcement Personnel – Group C

Age	Years of Creditable Service								
	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	26	26	--	--	--	--	--	--	--
	\$50,004	\$50,004	--	--	--	--	--	--	--
25 - 29	63	52	11	--	--	--	--	--	--
	\$76,611	\$71,605	\$100,277	--	--	--	--	--	--
30 - 34	88	32	39	17	--	--	--	--	--
	\$90,482	\$73,674	\$98,035	\$104,795	--	--	--	--	--
35 - 39	63	8	21	28	6	--	--	--	--
	\$93,104	\$69,256	\$87,663	\$102,942	\$98,030	--	--	--	--
40 - 44	66	6	5	17	34	4	--	--	--
	\$101,744	\$62,360	\$86,437	\$93,636	\$111,911	\$127,988	--	--	--
45 - 49	79	4	4	6	29	32	4	--	--
	\$118,204	\$82,947	\$89,310	\$103,904	\$118,372	\$130,619	\$103,273	--	--
50 - 54	35	--	2	6	17	5	5	--	--
	\$105,573	--	\$98,636	\$82,269	\$110,637	\$105,162	\$119,507	--	--
55 - 59	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
60 - 64	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
65 & over	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
Total	420	128	82	74	86	41	9	--	--
	\$94,531	\$67,509	\$94,561	\$99,632	\$112,870	\$127,258	\$112,292	--	--

Section 5: Additional Summary Tables of Member Data

Table 1D: Members in Active Service as of June 30, 2022, by Age, Years of Service, and Average Payroll – Judges – Group D

Age	Years of Creditable Service								
	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
25 - 29	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
30 - 34	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
35 - 39	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
40 - 44	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
45 - 49	4	2	1	1	--	--	--	--	--
	\$97,888	\$50,487	\$146,725	\$143,852	--	--	--	--	--
50 - 54	9	3	1	3	2	--	--	--	--
	\$123,004	\$52,398	\$176,421	\$143,374	\$171,650	--	--	--	--
55 - 59	13	2	3	4	2	2	--	--	--
	\$165,459	\$97,745	\$176,421	\$176,421	\$179,264	\$181,001	--	--	--
60 - 64	8	--	3	--	3	1	--	1	--
	\$148,237	--	\$176,934	--	\$100,750	\$176,421	--	\$176,421	--
65 & over	17	1	4	5	6	1	--	--	--
	\$153,086	\$176,421	\$156,807	\$126,883	\$163,137	\$185,581	--	--	--
Total	51	8	12	13	13	4	--	1	--
	\$145,841	\$78,760	\$167,537	\$147,236	\$152,531	\$181,001	--	\$176,421	--

Section 5: Additional Summary Tables of Member Data

Table 1E: Members in Active Service as of June 30, 2022, by Age, Years of Service, and Average Payroll – General Employees – Group F

Age	Years of Creditable Service								
	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	226	222	4	--	--	--	--	--	--
	\$36,868	\$36,381	\$63,889	--	--	--	--	--	--
25 - 29	640	526	113	1	--	--	--	--	--
	\$49,671	\$45,773	\$67,703	\$62,060	--	--	--	--	--
30 - 34	960	542	348	67	3	--	--	--	--
	\$57,937	\$50,004	\$67,218	\$72,819	\$82,045	--	--	--	--
35 - 39	983	395	342	179	65	2	--	--	--
	\$64,719	\$51,188	\$71,574	\$76,959	\$77,152	\$65,426	--	--	--
40 - 44	995	319	290	176	164	46	--	--	--
	\$68,957	\$51,492	\$71,393	\$78,151	\$84,266	\$84,960	--	--	--
45 - 49	991	252	224	142	181	152	37	3	--
	\$73,366	\$52,006	\$72,195	\$81,187	\$85,026	\$85,743	\$88,577	\$66,513	--
50 - 54	1,047	198	218	149	178	159	95	48	2
	\$75,029	\$51,415	\$72,614	\$77,511	\$81,765	\$85,272	\$89,896	\$85,637	\$116,275
55 - 59	965	164	199	107	152	151	91	55	46
	\$75,090	\$56,656	\$69,992	\$72,583	\$80,245	\$81,784	\$90,281	\$88,632	\$83,456
60 - 64	720	111	151	100	118	92	48	41	59
	\$74,098	\$52,900	\$71,940	\$74,769	\$77,913	\$77,258	\$88,440	\$87,183	\$85,049
65 & over	325	43	70	50	42	44	18	18	40
	\$76,006	\$56,922	\$69,778	\$69,541	\$79,423	\$81,462	\$82,630	\$91,958	\$95,754
Total	7,852	2,772	1,959	971	903	646	289	165	147
	\$67,467	\$49,350	\$70,525	\$76,487	\$81,673	\$83,083	\$89,154	\$87,361	\$87,889

Section 5: Additional Summary Tables of Member Data

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

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	\$0	0	\$0	64	\$513,222
36	0	0	0	0	2	15,457
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	2	88,831	0	0
40	0	0	1	42,312	0	0
41	0	0	0	0	0	0
42	0	0	1	9,684	1	28,033
43	0	0	0	0	2	9,741
44	0	0	1	17,547	2	20,365
45	0	0	3	70,309	0	0
46	1	21,662	5	114,303	0	0
47	0	0	2	32,771	1	9,649
48	1	30,087	1	8,775	2	12,465
49	6	185,202	3	62,669	2	26,849
50	18	734,391	4	133,178	3	34,495
51	31	1,550,421	4	86,984	2	40,180
52	39	1,591,069	6	89,972	5	120,215
53	44	2,011,878	3	46,669	6	86,986
54	51	2,241,782	10	220,926	3	47,479
55	59	2,347,273	5	122,327	3	40,682
56	73	2,688,741	6	186,332	3	45,338
57	76	2,438,068	12	219,427	3	47,398
58	83	2,724,209	14	257,456	6	121,617
59	88	2,874,958	12	210,381	4	44,449
60	113	3,366,052	22	377,270	11	175,706
61	125	3,657,666	16	285,080	7	148,513
62	170	4,282,063	14	250,679	8	92,664
63	201	4,337,298	12	164,996	9	152,180
64	240	5,764,257	19	319,076	20	353,661
65	290	6,949,876	15	229,639	12	190,095

Section 5: Additional Summary Tables of Member Data

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

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	296	\$6,117,351	10	\$188,315	20	\$355,569
67	320	7,503,411	20	275,406	23	374,047
68	349	7,614,120	16	170,295	18	312,202
69	322	7,826,610	19	294,822	19	328,199
70	340	7,438,422	20	244,671	18	304,494
71	338	7,782,793	14	211,974	21	311,317
72	348	7,665,656	15	209,507	21	365,342
73	328	7,216,880	12	190,331	16	212,111
74	334	6,961,325	11	117,290	24	416,501
75	313	7,420,393	8	198,639	29	509,064
76	213	4,817,124	8	110,990	24	338,914
77	202	4,053,909	7	91,974	28	430,372
78	181	3,745,477	6	86,003	28	413,641
79	186	3,984,221	6	71,765	26	431,632
80	152	3,261,308	5	42,515	31	419,052
81	127	2,108,461	6	69,246	28	387,379
82	116	1,976,741	6	106,092	18	271,768
83	85	1,376,145	2	11,763	20	283,496
84	77	1,370,617	3	56,583	13	154,766
85	63	1,238,815	3	19,522	15	280,104
86	84	1,319,383	0	0	24	368,743
87	58	1,162,160	2	21,554	20	269,333
88	41	715,285	1	9,092	18	234,975
89	56	963,429	1	8,358	13	140,232
90	35	475,387	0	0	17	221,509
91	34	462,373	1	5,076	12	152,482
92	28	367,635	0	0	14	304,151
93	19	238,574	0	0	6	46,228
94	10	126,410	1	5,277	4	56,655
≥ 95	36	451,309	0	0	18	241,596
Total	6,800	\$157,558,678	396	\$6,464,657	767	\$11,313,314

Section 5: Additional Summary Tables of Member Data

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

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	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	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	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
57	0	0	0	0	0	0
58	2	99,864	0	0	0	0
59	0	0	0	0	0	0
60	1	9,443	0	0	0	0
61	0	0	0	0	0	0
62	0	0	0	0	0	0
63	0	0	0	0	0	0
64	2	71,093	0	0	1	7,644
65	0	0	0	0	0	0

Section 5: Additional Summary Tables of Member Data

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

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	0	\$0	0	\$0	1	\$22,796
67	2	59,978	1	6,076	0	0
68	0	0	1	2,291	0	0
69	2	80,516	0	0	1	10,060
70	5	118,996	1	9,199	0	0
71	3	83,991	0	0	0	0
72	3	85,572	0	0	1	47,308
73	3	88,455	1	23,107	1	12,229
74	5	138,929	0	0	1	25,528
75	3	69,594	0	0	2	61,291
76	6	180,817	0	0	0	0
77	0	0	0	0	3	25,768
78	3	99,051	0	0	2	19,878
79	0	0	0	0	1	17,145
80	5	181,953	0	0	2	27,939
81	4	113,540	0	0	5	55,041
82	2	49,246	0	0	0	0
83	4	149,798	0	0	0	0
84	3	85,689	1	13,857	0	0
85	5	113,556	0	0	0	0
86	1	19,873	0	0	1	22,500
87	7	236,080	0	0	0	0
88	3	72,293	0	0	0	0
89	3	90,732	0	0	0	0
90	2	34,854	0	0	2	24,092
91	1	31,136	0	0	2	28,093
92	3	43,066	0	0	1	5,038
93	2	46,192	0	0	1	14,351
94	1	43,481	0	0	1	6,563
≥ 95	2	32,011	0	0	5	38,258
Total	88	\$2,529,799	5	\$54,530	34	\$471,521

Section 5: Additional Summary Tables of Member Data

Table 2C: Summary of Retired Member and Beneficiary Data by Attained Age State Police and Motor Vehicle Inspectors – Group B

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	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	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	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
57	1	7,686	0	0	1	22,057
58	0	0	0	0	0	0
59	0	0	0	0	0	0
60	0	0	0	0	0	0
61	0	0	0	0	0	0
62	0	0	0	0	0	0
63	0	0	0	0	0	0
64	1	12,459	0	0	0	0
65	0	0	0	0	0	0

Section 5: Additional Summary Tables of Member Data

Table 2C: Summary of Retired Member and Beneficiary Data by Attained Age State Police and Motor Vehicle Inspectors – Group B (continued)

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	1	\$9,859	0	\$0	0	\$0
67	0	0	0	0	0	0
68	1	10,703	0	0	0	0
69	0	0	0	0	0	0
70	0	0	0	0	0	0
71	1	5,447	0	0	0	0
72	0	0	0	0	0	0
73	0	0	1	22,934	0	0
74	0	0	0	0	1	14,417
75	1	41,936	0	0	0	0
76	2	72,542	0	0	0	0
77	0	0	0	0	1	14,327
78	0	0	1	23,939	0	0
79	1	9,880	0	0	1	18,937
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	9	\$170,513	2	\$46,873	4	\$69,738

Section 5: Additional Summary Tables of Member Data

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

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	\$0	0	\$0	28	\$276,877
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	2	88,831	0	0
40	0	0	1	42,312	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	1	49,041	0	0
46	1	21,662	2	87,832	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	1	15,991	1	34,242	0	0
50	8	440,534	3	122,554	1	13,473
51	13	836,776	2	56,699	0	0
52	18	937,841	0	0	1	39,832
53	18	997,241	0	0	1	14,189
54	24	1,279,032	2	71,158	1	28,227
55	19	1,049,322	1	49,720	0	0
56	21	1,137,033	3	152,035	0	0
57	21	897,735	1	54,227	0	0
58	18	790,446	1	17,760	1	26,016
59	14	869,884	1	28,821	0	0
60	14	508,092	0	0	1	33,117
61	7	382,222	2	86,906	0	0
62	19	790,068	0	0	0	0
63	14	535,726	0	0	0	0
64	15	813,483	1	39,531	1	22,591
65	19	995,105	1	12,408	1	31,073

Section 5: Additional Summary Tables of Member Data

Table 2D: Summary of Retired Member and Beneficiary Data by Attained Age Law Enforcement Personnel – Group C (continued)

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	15	\$651,033	0	\$0	1	\$39,637
67	18	894,246	0	0	1	25,083
68	7	321,299	0	0	1	34,414
69	14	680,558	2	81,582	2	47,488
70	9	398,519	0	0	1	13,012
71	4	209,491	0	0	1	33,578
72	13	602,415	1	38,890	1	17,979
73	4	158,956	1	34,180	1	26,811
74	8	354,648	0	0	3	124,926
75	11	570,529	3	131,763	3	100,284
76	9	427,867	1	47,370	2	60,033
77	1	30,337	1	38,110	0	0
78	5	210,279	0	0	3	95,794
79	10	515,543	0	0	3	110,706
80	6	310,101	0	0	2	64,792
81	4	158,063	0	0	2	63,570
82	2	98,333	1	33,041	1	41,496
83	1	40,255	0	0	2	54,149
84	2	98,094	1	31,637	1	19,789
85	2	107,838	0	0	1	32,550
86	1	34,597	0	0	2	79,412
87	2	112,259	0	0	2	54,506
88	0	0	0	0	2	62,775
89	2	99,799	0	0	2	63,000
90	0	0	0	0	2	69,313
91	3	114,133	0	0	1	34,428
92	1	47,321	0	0	4	92,649
93	0	0	0	0	0	0
94	0	0	0	0	1	29,997
≥ 95	1	47,482	0	0	2	48,869
Total	419	\$20,592,189	36	\$1,430,652	86	\$2,026,435

Section 5: Additional Summary Tables of Member Data

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

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	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	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	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	1	10,688	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
57	0	0	0	0	0	0
58	0	0	0	0	1	18,571
59	0	0	0	0	0	0
60	0	0	0	0	0	0
61	0	0	0	0	0	0
62	1	96,544	0	0	0	0
63	0	0	0	0	0	0
64	1	28,676	0	0	0	0
65	0	0	0	0	0	0

Section 5: Additional Summary Tables of Member Data

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

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	0	\$0	0	\$0	0	\$0
67	4	304,537	0	0	0	0
68	2	171,368	0	0	0	0
69	6	377,410	0	0	0	0
70	4	292,744	0	0	0	0
71	4	333,888	0	0	0	0
72	4	334,478	0	0	0	0
73	6	430,328	0	0	0	0
74	2	221,746	0	0	0	0
75	3	395,215	0	0	0	0
76	3	69,088	0	0	0	0
77	1	160,179	0	0	1	22,076
78	3	197,913	0	0	0	0
79	5	374,885	0	0	0	0
80	3	288,233	0	0	0	0
81	0	0	0	0	0	0
82	1	83,725	0	0	0	0
83	1	39,275	0	0	0	0
84	1	89,630	0	0	0	0
85	3	191,240	0	0	1	96,366
86	1	68,883	0	0	1	36,847
87	1	110,780	0	0	1	72,144
88	0	0	0	0	0	0
89	1	107,140	0	0	0	0
90	1	40,323	0	0	0	0
91	0	0	0	0	0	0
92	1	43,294	0	0	3	168,782
93	0	0	0	0	0	0
94	0	0	0	0	0	0
≥ 95	2	29,997	0	0	2	83,132
Total	66	\$4,892,206	0	\$0	10	\$497,918

Section 5: Additional Summary Tables of Member Data

Table 2F: Summary of Retired Member and Beneficiary Data by Attained Age General Employees – Groups E/F

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	\$0	0	\$0	36	\$236,345
36	0	0	0	0	2	15,457
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	1	9,684	1	28,033
43	0	0	0	0	2	9,741
44	0	0	1	17,547	2	20,365
45	0	0	2	21,268	0	0
46	0	0	3	26,471	0	0
47	0	0	2	32,771	1	9,649
48	1	30,087	1	8,775	2	12,465
49	5	169,210	2	28,427	2	26,849
50	10	293,857	1	10,623	2	21,022
51	18	713,645	2	30,286	2	40,180
52	20	642,540	6	89,972	4	80,384
53	26	1,014,637	3	46,669	5	72,798
54	27	962,750	8	149,768	2	19,253
55	40	1,297,951	4	72,607	3	40,682
56	52	1,551,708	3	34,297	3	45,338
57	54	1,532,647	11	165,200	2	25,341
58	63	1,833,899	13	239,695	4	77,030
59	74	2,005,075	11	181,560	4	44,449
60	98	2,848,517	22	377,270	10	142,589
61	118	3,275,444	14	198,175	7	148,513
62	150	3,395,451	14	250,679	8	92,664
63	187	3,801,572	12	164,996	9	152,180
64	221	4,838,546	18	279,545	18	323,426
65	271	5,954,772	14	217,230	11	159,022

Section 5: Additional Summary Tables of Member Data

Table 2F: Summary of Retired Member and Beneficiary Data by Attained Age General Employees – Groups E/F (continued)

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	280	\$5,456,459	10	\$188,315	18	\$293,136
67	296	6,244,650	19	269,330	22	348,964
68	339	7,110,750	15	168,004	17	277,788
69	300	6,688,127	17	213,239	16	270,651
70	322	6,628,163	19	235,472	17	291,482
71	326	7,149,975	14	211,974	20	277,740
72	328	6,643,191	14	170,617	19	300,055
73	315	6,539,141	9	110,110	14	173,072
74	319	6,246,002	11	117,290	19	251,629
75	295	6,343,118	5	66,876	24	347,489
76	193	4,066,810	7	63,621	22	278,880
77	200	3,863,393	6	53,863	23	368,202
78	170	3,238,235	5	62,064	23	297,970
79	170	3,083,913	6	71,765	21	284,845
80	138	2,481,020	5	42,515	27	326,321
81	119	1,836,859	6	69,246	21	268,767
82	111	1,745,437	5	73,051	17	230,272
83	79	1,146,817	2	11,763	18	229,347
84	71	1,097,205	1	11,088	12	134,977
85	53	826,181	3	19,522	13	151,188
86	81	1,196,031	0	0	20	229,984
87	48	703,041	2	21,554	17	142,683
88	38	642,992	1	9,092	16	172,201
89	50	665,758	1	8,358	11	77,232
90	32	400,210	0	0	13	128,103
91	30	317,103	1	5,076	9	89,961
92	23	233,954	0	0	6	37,682
93	17	192,382	0	0	5	31,878
94	9	82,929	1	5,277	2	20,095
≥ 95	31	341,819	0	0	9	71,336
Total	6,218	\$129,373,971	353	\$4,932,601	633	\$8,247,702

Section 5: Additional Summary Tables of Member Data

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	1	\$5,038	\$5,038
1971	0	0	0
1972	0	0	0
1973	0	0	0
1974	1	8,314	8,314
1975	0	0	0
1976	0	0	0
1977	1	13,857	13,857
1978	2	30,330	15,165
1979	1	6,647	6,647
1980	4	28,065	7,016
1981	0	0	0
1982	4	81,150	20,288
1983	6	60,582	10,097
1984	4	88,084	22,021
1985	9	153,530	17,059
1986	7	107,935	15,419
1987	19	256,339	13,492
1988	20	356,326	17,816
1989	21	413,648	19,698
1990	42	599,142	14,265
1991	46	916,911	19,933
1992	33	348,693	10,566
1993	65	1,092,771	16,812
1994	32	480,193	15,006
1995	65	879,893	13,537
1996	250	4,573,380	18,294
1997	74	1,430,176	19,327
1998	69	1,182,165	17,133
1999	100	1,887,575	18,876
2000	118	2,178,952	18,466

Section 5: Additional Summary Tables of Member Data

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	126	\$2,050,559	\$16,274
2002	140	2,780,796	19,863
2003	158	3,431,459	21,718
2004	213	4,588,601	21,543
2005	217	4,091,400	18,854
2006	220	4,705,305	21,388
2007	250	5,097,141	20,389
2008	268	6,001,331	22,393
2009	450	10,353,253	23,007
2010	323	7,126,358	22,063
2011	318	6,874,373	21,618
2012	334	7,361,074	22,039
2013	302	6,552,481	21,697
2014	339	7,263,965	21,428
2015	483	10,638,376	22,026
2016	376	8,995,983	23,925
2017	388	9,486,598	24,450
2018	432	10,151,660	23,499
2019	490	11,863,665	24,212
2020	365	8,584,329	23,519
2021	485	12,424,329	25,617
2022	292	7,733,914	26,486
Total	7,963	\$175,336,649	\$22,019

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