

Pennsylvania Public School Employees' Retirement System

Actuarial Valuation Report

June 30, 2024

April 15, 2025

Board of Trustees
Pennsylvania Public School Employees' Retirement System
5 North 5th Street
Harrisburg, PA 17101

Ladies and Gentlemen:

This report presents the results of the annual actuarial valuation of the Pennsylvania Public School Employees' Retirement System (Retirement System or PSERS) as of June 30, 2024.

The valuation takes into account all of the promised benefits to which members are entitled as of June 30, 2024, including pension and survivor benefits, and, as required by the Public School Employees' Retirement Code, 24 Pa. C.S. §8101 et. seq. (Retirement Code), is the basis for the contribution rate for fiscal year 2025/2026. In addition, the contribution rate indicated in the report includes a rate for anticipated employer contributions to the Health Insurance Premium Assistance account for fiscal year 2025/2026, and to the Pennsylvania Employees' Defined Contribution plan (DC Plan) for anticipated Class T-G, Class T-H and Class DC participants on or after July 1, 2025 and prior to July 1, 2026.

As required under Section 8502(j) of the Retirement Code, experience studies are performed once in every five-year period. This valuation was prepared on the basis of the demographic and economic assumptions that were recommended on the basis of an Experience Review covering the period from July 1, 2015 to June 30, 2020, and adopted by the Board of Trustees at its March 5, 2021, June 11, 2021, and August 6, 2021 meetings. The valuation also reflects the recommended changes to the administrative option factors, which were adopted by the Board at its August 6 meeting and implemented July 1, 2022. As mandated by the Retirement Code, these assumptions will remain in effect for valuation purposes until such time as the Board of Trustees adopts revised assumptions and/or administrative option factors.

This report addresses the funding requirements of PSERS only. Financial reporting required under applicable standards of the Governmental Accounting Standards Board (GASB) are addressed in separate reports.

Assets and Membership Data

The Retirement System provided the individual data for members and DC Plan participants used in the valuation. While we did not audit the data, we did perform tests for internal consistency and reasonableness. The amount of assets in the trust fund taken into account in the valuation was based on statements furnished by the Retirement System. The accuracy of the results presented in this report is dependent on the accuracy of the data provided.

Funding Adequacy

The valuation results indicate that the employer contribution rate for fiscal year 2025/2026 is 34.00%, which includes a rate of 0.42% for employer contributions to the DC Plan. This is an estimated average DC contribution rate. The actual employer DC contribution rate applicable to each participating employer will be based on the employer's Class T-G, Class T-H, and Class DC membership/participation.

As of June 30, 2024, the total funded ratio of the plan (for Pensions and Health Insurance Premium Assistance combined) is 64.8%, based on the accrued liability and actuarial value of assets calculated under the funding requirements of Section 8328 of the Retirement Code.

For the tenth consecutive year, the PSERS Board has certified the full employer contribution rate calculated by the actuary. This follows 15 years in which contributions to the Retirement System were statutorily constrained to be less than the actuarially determined amounts. Receipt of the full actuarially determined employer contribution is an essential step to bring PSERS back to a fully funded status. Full actuarial funding from employers, along with member contributions and investment income, are necessary sources of funds for the amortization of the unfunded liability of the Retirement System.

Unless stated otherwise, references to "funded ratio" and "unfunded accrued liability" are measured using the actuarial value of assets. It should be noted that if the same measurements were made using the market value of assets, different funded ratios and unfunded accrued liabilities would result. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the Retirement System if it were to settle (i.e., purchase annuities to cover) a portion or all of its liabilities. Assuming that contributions are made at the level developed in the actuarial valuation and no future experience gains or losses arise, future expected contributions are expected to remain relatively level as a percent of payroll and the Retirement System's funded status is expected to increase.

Financial Results and Membership Data

Detailed summaries of the financial results of the valuation and membership data used in preparing the valuation are shown in the valuation report. The actuaries prepared supporting schedules included in the Actuarial and Statistical Section of the PSERS Annual Comprehensive Financial Report (ACFR) and also provided historical data schedules included in the Financial Section of the ACFR.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Gallagher uses the following:

- The GEMS® Economic Scenario Generator from Conning & Company was used to assess the reasonability of the interest rate used for the valuation. GEMS® uses a multifactor model to create internally consistent, realistic economic scenarios (paths) that reflect the current economic environment as a starting point. Asset class correlations may vary from year to year (just as in the real world), as well as from path to path. The model generates results that are not normally distributed, with fatter tails, and should therefore estimate the probabilities of rare events more realistically than a pure mean-variance model.
- Third-party software in the performance of annual actuarial valuations and projections to calculate the liabilities associated with the provisions of the Retirement System using data and assumptions as of the measurement date under the funding methods specified in this report.
- An internally developed model that applies applicable funding methods and policies to the liabilities derived from the output of the third-party software and other inputs, such as System assets and contributions, to generate many of the exhibits found in this report.

Gallagher has an extensive review process whereby the results of the liability calculations are checked using detailed sample output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other outputs and the internal model are similarly reviewed in detail and at a high level for accuracy, reasonability, and consistency with prior results. Gallagher also reviews the third-party model when significant changes are made to the software or model. The review is performed by experts within the company who are familiar with applicable funding methods as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed. Significant changes to the internal model that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within the company who are familiar with the details of the required changes.

Future actuarial measurements may differ significantly from current measurements due to Retirement System experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in Retirement System provisions or applicable law. Liability models necessarily rely on the use of actuarial assumptions, approximations, and estimates and are sensitive to changes in these actuarial assumptions, approximations and estimates. Small variations in these actuarial assumptions, approximations and estimates may lead to significant changes in actuarial measurements. An analysis of the potential range of such future differences is beyond the scope of this valuation. However, Actuarial Standard of Practice No. 51 (ASOP 51) applies to funding calculations such as those presented in this report and requires certain disclosures of potential risks. Exhibit XI contains an assessment of the key risks applicable to the Retirement System.

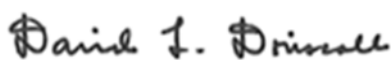
Reasonability of Assumptions

Actuarial Standards of Practice ("ASOPs") 27 and 35 ask the actuary to disclose the information and analysis used to support the actuary's determination that the assumptions selected by the Board do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement. Effective January 1, 2025, ASOPs 27 and 35 have been consolidated into a single standard, which is to be known as ASOP 27. The guidance provided in the consolidated standard regarding the selection of actuarial assumptions does not differ from that provided in ASOPs 27 and 35 before their consolidation. The Board adopted a new set of economic and demographic assumptions for the June 30, 2021 actuarial valuation based on the recommendations outlined by Gallagher in their five-year experience study for the period July 1, 2015 to June 30, 2020. Annually, the actuary reviews the assumptions through discussions with the PSERS staff and analyzing actuarial gain/loss experience. In the case of the Board's selection of the valuation interest rate, or expected return on assets ("EROA"), the actuary has also reviewed the analysis provided by the Retirement System's investment advisors, as well as Gallagher's Financial Risk Management ("FRM") practice, and determined the EROA assumption together with the Retirement System's other economic and demographic assumptions do not conflict with what, in the actuary's professional judgment, is reasonable for the purpose of the measurement.

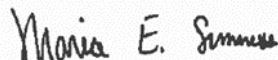
Use of this report for any other purpose than as stated, or by anyone other than the Board of Trustees or the staff of PSERS or employers or its auditors, may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. Gallagher should be asked to review any statement to be made on the basis of the results contained in this report. Gallagher will accept no liability for any such statement made without prior review by Gallagher.

David L. Driscoll, Maria E. Simmers, and Matthew Staback are Fellows of the Society of Actuaries and Members of the American Academy of Actuaries. Salvador Nakar is a Member of the American Academy of Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions concerning it.

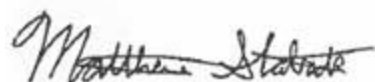
Gallagher Benefit Services, Inc. (hereinafter "Gallagher")



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Pennsylvania Public School Employees' Retirement System

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Executive Summary

This report presents the actuarial valuation as of June 30, 2024, for the Pennsylvania Public School Employees' Retirement System.

The principal valuation results include:

- The employer contribution rate for fiscal year 2025/2026, which is 34.00% (32.96% Pension plus 0.62% Premium Assistance plus 0.42% Act 5 DC contribution).
- The 0.42% Act 5 DC contribution rate is an estimated average employer DC contribution rate. The actual DC contribution rate applicable to each employer will be based on the employer's Class T-G, Class T-H, and Class DC membership/participation.
- The unfunded accrued liability as of June 30, 2024 is \$42.0 billion. The change in unfunded accrued liability from \$42.3 billion in the June 30, 2023 valuation is primarily attributable to:
 - Payment of the full fiscal year 2023/2024 actuarially determined contribution rate
 - Retirement System actuarial experience is a net actuarial loss of \$833 million comprised of the following:
 - Actuarial net experience loss of \$1,110 million in the year ending June 30, 2024
 - Contribution gain of \$277 million

An analysis of the change in the unfunded accrued liability as of June 30, 2024, is discussed in Table 6.

- The total funded ratio of the Retirement System determined as of June 30, 2024, under the funding requirements of Section 8328 of the Retirement Code, is 64.8%, which is based on the accrued liability and the actuarial value of assets for Pensions and Health Insurance Premium Assistance as of that date. The funded ratio as of June 30, 2023 was 63.6%.
- The Act 120 minimum employer pension rate is the normal cost rate of 5.45%.
- For the tenth consecutive year, the PSERS Board has certified the full employer contribution rate calculated by the actuary. This follows 15 years in which contributions to the Retirement System were statutorily constrained to be less than the actuarially determined amounts. This is an essential step to bring PSERS back to a fully funded status. Full actuarial funding from employers, along with member contributions and investment income, are necessary sources of funds for the amortization of the unfunded liability of the Retirement System.
- In accordance with the Act 5-2017 Class T-E, Class T-F, Class T-G, and Class T-H "shared-risk" contribution provision, the contribution rates for Class T-E, Class T-F, Class T-G, and Class T-H members are the basic rates of 7.50%, 10.30%, 5.50% and 4.50%, respectively, for the period July 1, 2024 to June 30, 2027.
 - The next Class T-E, Class T-F, Class T-G and Class T-H shared-risk valuation is to be performed for the 10-year period ending June 30, 2026. The Act 5-2017 member shared-risk contribution rates are discussed on page 8.
- Annual disclosures as of June 30, 2024 in accordance with the Governmental Accounting Standards Board (GASB) Statements No. 67 and 68 for Pensions and Statements No. 74 and 75 for the Health Insurance Premium Assistance Program have been provided in separate reports.

The valuation was completed based upon membership and financial data submitted by the Retirement System. Detailed summaries of the financial results of the valuation and membership data used in preparing the valuation are included in the valuation report. The actuaries prepared supporting schedules included in the Actuarial and Statistical Section of the PSERS Annual Comprehensive Financial Report (ACFR) and also provided historical data schedules included in the Financial Section of the ACFR.

Changes Since Last Year

Legislative and Administrative Changes

The benefit provisions and contribution provisions are summarized in Table 12. There were no legislative or administrative changes since the prior valuation.

Actuarial Assumptions and Methods

The actuarial assumptions and methods are outlined in Table 11. As required under Section 8502(j) of the Retirement Code, experience studies are performed once in every five-year period. This valuation was prepared using demographic, economic, and administrative option factor assumptions that were recommended on the basis of the Experience Review covering the period from July 1, 2015 to June 30, 2020 and adopted by the Board at its March 5, 2021, June 11, 2021, and August 6, 2021 meetings.

There have been no changes in the actuarial assumptions and methods from those used in the prior valuation.

The following is an overview of the economic assumptions since their adoption effective with the June 30, 2021 actuarial valuation:

- Expected rate of return on assets (EROA) of 7.00% - Based on Verus' Capital Market Assumptions, the expected return is 7.8%. Based on Gallagher's 2023 fourth-quarter Capital Market Assumptions, an expected return of approximately 7.7% was developed. Both rates exceed the current 7.00% EROA.
- Payroll growth assumption of 3.25% - The actual increase in the total payroll assumption for the last three valuation years are as follows:

<u>Valuation Year</u>	<u>Contribution for Fiscal Year</u>	<u>Total Payroll</u>	<u>Increase</u>
June 30, 2024	2025/2026	\$16.152 Bil	3.6%
June 30, 2023	2024/2025	\$15.590 Bil	2.2%
June 30, 2022	2023/2024	\$15.260 Bil	5.3%
June 30, 2021	2022/2023	\$14.497 Bil	

- Salary increase assumption of an average of 4.5% - The actual average salary increase among full time continuing actives for the fiscal year 2023/2024 was approximately 5.5%.
- While we recognize the System's policy of completing an experience study every five years, these assumptions will be monitored to determine that they do not significantly differ from what the actuary deems reasonable for the purpose of the measurement.

We have reviewed the assumptions and methods used in completing the June 30, 2024 actuarial valuation along with recent experience. We have determined that these assumptions do not significantly conflict with what, in our professional judgement, are reasonable for the purpose of the measurement and are in compliance with the applicable standards. In our professional judgement, the combined effect of the assumptions is expected to have no significant bias.

Contribution Rates

The results of the valuation as of June 30, 2024 determine the employer contribution rate for fiscal year 2025/2026. The calculated employer contribution rate for the 2025/2026 fiscal year is 34.00%, and the Board of Trustees certified this rate at its December 20, 2024 meeting. The 34.00% Employer Rate includes a rate of 0.42% for employer DC contributions, which is an average estimated rate based on the assumptions outlined in Table 11 for future Class T-G, Class T-H and Class DC membership/participation. Actual employer DC contributions will be based on each employer's actual Class T-G, Class T-H, and Class DC membership/participation.

The average base contribution rate payable by the members is 7.29%. The average base member contribution rate of 7.29% is a pay-weighted average of member rates that vary based on date of hire and Class membership. Effective January 1, 2002, the employee base contribution rate for members who elected to have prior school service and intervening military service converted to Class T-D service increased by 1.25% to 7.50%. Anyone who enrolled after July 1, 2001 and before July 1, 2011 is a member of Class T-D. Any employee who becomes a member after June 30, 2011 and prior to July 1, 2019 is a Class T-E member or, alternatively, may elect to become a Class T-F member. The base contribution rate for Class T-E members is 7.50% of compensation. The base contribution rate for Class T-F members is 10.30% of compensation. Any employee who becomes a member after June 30, 2019, is a Class T-G member or, alternatively, may elect to become a Class T-H member or a Class DC participant. The base contribution rate for Class T-G members is 5.50% for the defined benefit plan and 2.75% for the defined contribution plan and for Class T-H members is 4.50% for the defined benefit plan and 3.00% for the defined contribution plan. Class DC participants contribute 7.50% to the defined contribution plan.

In accordance with Act 5-2017, Class T-E, Class T-F, Class T-G and Class T-H members are subject to a "shared-risk" employee contribution rate, as discussed on page 8.

Reasons for Change in the Employer Rate Calculated by the Actuary

The employer contribution rate calculated by the actuary increased from 33.90% for fiscal year 2024/2025 to 34.00% for fiscal year 2025/2026. The reconciliation of the employer contribution rates by source is as follows:

• FY 2024/2025 employer contribution rate	33.90%
• Decrease due to change in normal rate	(0.23)
• Net increase due to total employer payroll growth and liability experience ¹	0.02
• Increase due to actuarial loss on assets	0.25
• Increase in Act 5 DC employer contribution rate	0.07
• Change in health insurance premium assistance contribution rate	<u>(0.01)</u>
• FY 2025/2026 employer contribution rate	34.00%

1. Reflects increase in total employer payroll and liability losses.

Summary of Principal Results

Summarized below are the principal financial results for the Public School Employees' Retirement System based upon the actuarial valuation as of June 30, 2024. Comparable results from the June 30, 2023 valuation are also shown.

Item	June 30, 2024	June 30, 2023
Demographics		
Active Members		
• Number ¹	255,652	251,732
• Average Annual Pay	\$ 61,319	\$ 59,709
Annuitants		
• Number ²	253,896	249,724
• Average Annual Benefit Payment	\$ 26,392	\$ 26,197
Contribution Rates (as a Percentage of Payroll)	(Fiscal Year 2025/2026)	(Fiscal Year 2024/2025)
Employer Contribution Rate:		
• Total Pension Rate Calculated by Actuary ³	32.96%	32.92%
• Health Insurance Premium Assistance Contribution Rate	0.62	0.63
• Act 5 DC Employer Contribution Rate ⁴	<u>0.42</u>	<u>0.35</u>
• Total Contribution Rate	34.00%	33.90%
• Total Contribution Rate Certified by Board	34.00%	33.90%
• Member Average Base Contribution Rate	<u>7.29</u>	<u>7.37</u>
• Total Rate	41.29%	41.27%
Funded Status⁵		
• Accrued Liability	\$ 119,300.0 Mil	\$ 116,383.9 Mil
• Actuarial Value of Assets	77,318.2	74,044.1
• Market Value of Assets	76,629.4	72,253.0
• Unfunded Accrued Liability		
• Actuarial Value of Assets	\$ 41,981.8	\$ 42,339.8
• Market Value of Assets	42,670.6	44,130.9
• Funded Ratio		
• Actuarial Value of Assets	64.8%	63.6%
• Market Value of Assets	64.2%	62.1%

1. Includes 834 and 912 Class DC participants as of June 30, 2024 and June 30, 2023, respectively.
2. Excludes 2,483 and 2,433 beneficiaries as of June 30, 2024 and June 30, 2023, respectively, who are only entitled to a pending lump sum distribution.
3. The Act 120 minimum pension rate is 5.45% for the June 30, 2024 valuation and is 5.68% for the June 30, 2023 valuation.
4. Average DC contribution rate. Actual rate will vary by employer based on Class T-G, Class T-H, and Class DC membership/participation.
5. Pensions and Health Insurance Premium Assistance combined.

Five-Year History of Principal Financial Results

Five-Year History of Contribution Rates

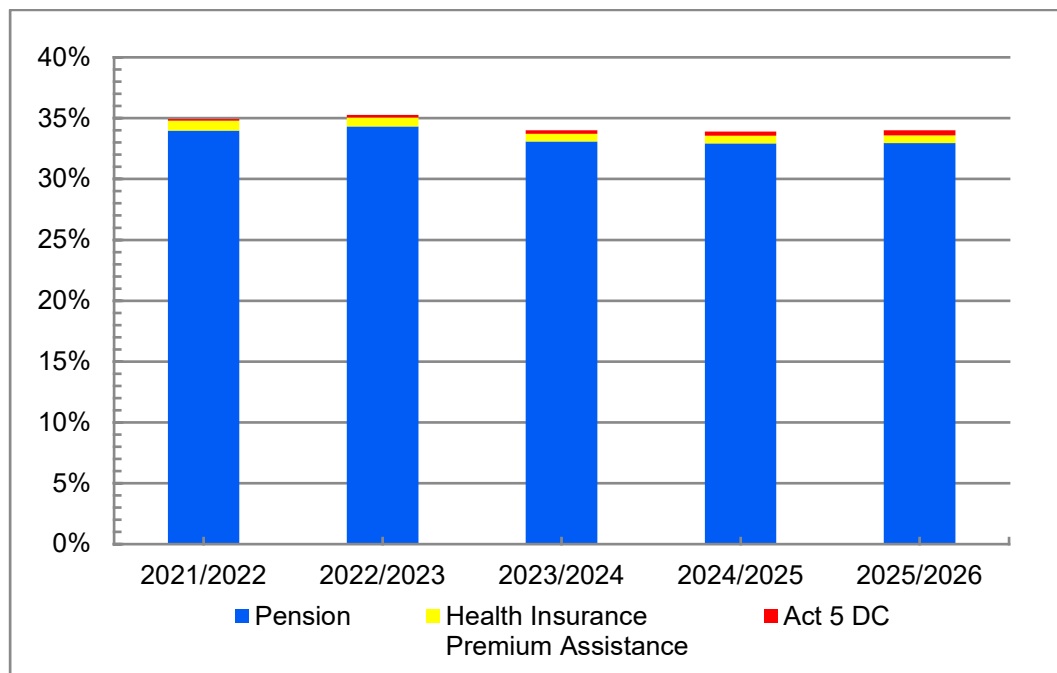
(As a % of Payroll)

Fiscal Year	Member Contributions	Employer Contributions					
		Normal Cost	Unfunded Accrued Liability	Health Insurance Premium Assistance	Act 5 DC Employer Rate ¹	Preliminary Employer Contribution	Final Employer Contribution ²
2025/2026	7.29%	5.45%	27.51%	0.62%	0.42%	34.00%	34.00%
2024/2025	7.37	5.68	27.24	0.63	0.35	33.90	33.90
2023/2024	7.44	5.86	27.23	0.64	0.27	34.00	34.00
2022/2023	7.52	6.07	28.24	0.75	0.20	35.26	35.26
2021/2022	7.56	7.20	26.79	0.80	0.15	34.94	34.94

1. Average DC contribution rate. Actual rate will vary by employer based on Class T-G, Class T-H and Class DC membership/participation.
2. Certified by the Board.

The following chart shows a five-year history of employer contribution rates:

Five-Year History of Employer Contribution Rates



Funded Ratio

The financing objective of the Retirement System is to:

- Fully fund all current costs based on the normal contribution rate determined under the funding method; and
- Liquidate the unfunded accrued liability based on level-percent-of-pay amortization schedules required by the Retirement Code as amended by Act 120-2010, i.e., a schedule of 24 years for the unfunded accrued liability as of June 30, 2010 and each change in the unfunded accrued liability due to actuarial experience after the June 30, 2010 valuation. Any legislation after June 30, 2010, that increases the liability due to benefit enhancements will be funded over 10 years based on level-percent-of-pay amortization.
- As directed by Act 120-2010, the minimum employer pension contribution rate will be the normal cost rate.
- Fully fund the employer contribution to the DC Plan.

The total contribution rate of 34.00% of payroll payable by employers, when taken together with the contributions payable by the members, current assets, and expected future asset returns, is sufficient to achieve the financing objective.

The Retirement System's total funded ratio on this funding basis is measured by comparing the actuarial value of assets (based on a 10-year moving average market value) to the accrued liability. The accrued liability for pensions is the present value of benefits accumulated to date under the Retirement System's funding method and reflects future pay increases for active employees. The accrued liability for Health Insurance Premium Assistance equals the assets in the Health Insurance account.

On this basis, the Retirement System's total funded ratio (for Pensions and Health Insurance Premium Assistance combined) is 64.8% as of June 30, 2024. This funded ratio is based on an actuarial value of assets of \$77.32 billion and an accrued liability of \$119.30 billion. The funded ratio for Pensions alone is 64.8% as of June 30, 2024, based on an actuarial value of assets of \$77.18 billion and an accrued liability of \$119.16 billion.

Reasons for Change in the Total Funded Ratio

The total funded ratio increased from 63.6% as of June 30, 2023, to 64.8% as of June 30, 2024. Employers have been contributing the full actuarially determined contributions since the fiscal year ending June 30, 2017. In addition, the Retirement System received member and employer contributions that were greater than anticipated amounts, which were offset by a net demographic experience loss and returns less than expected on assets measured at actuarial value.

Table 6 provides an analysis of the change in the unfunded accrued liability as of June 30, 2024.

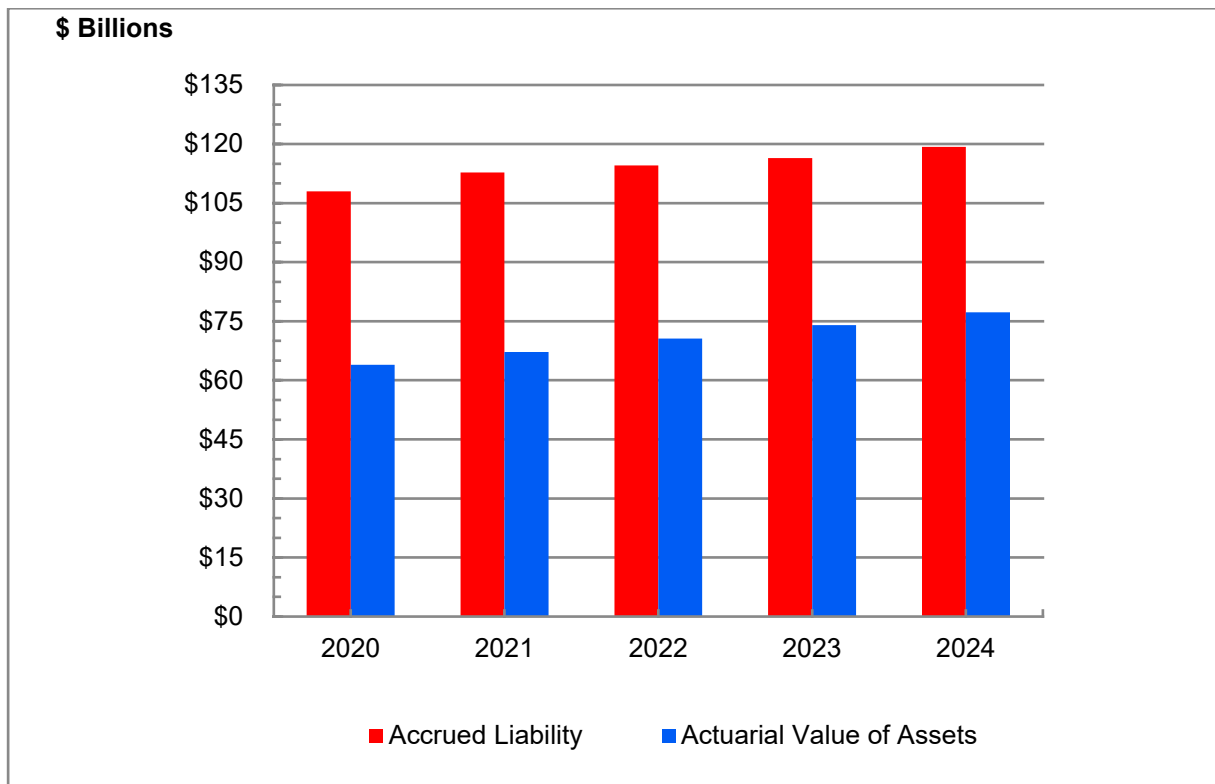
Five-Year History of Total Funded Ratio¹
(\$ Amounts in Millions)

Valuation as of June 30	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio
2024	\$ 119,300.0	\$ 77,318.2	\$ 41,981.8	64.8%
2023	116,383.9	74,044.1	42,339.8	63.6
2022	114,612.3	70,646.8	43,965.5	61.6
2021	112,783.3	67,248.7	45,534.6	59.6
2020	107,963.8	63,929.4	44,034.4	59.2

1. For Pensions and Health Insurance Premium Assistance (under the funding provisions of the Retirement Code).

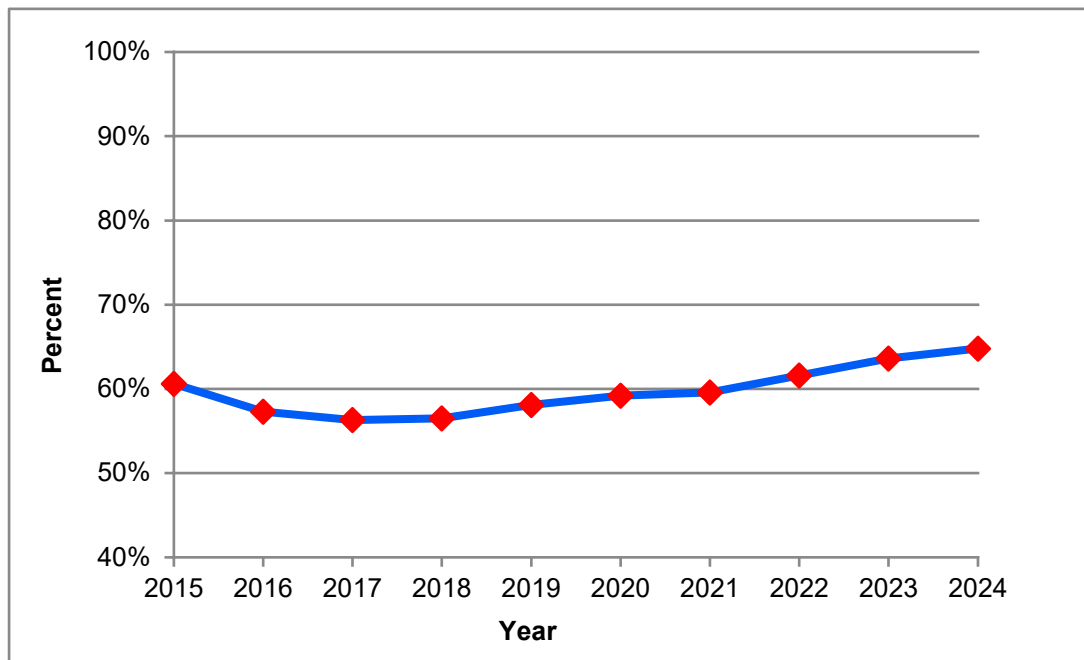
The following chart shows a five-year history of the accrued liability and the actuarial value of assets:

Five-Year History of Accrued Liability and Actuarial Value of Assets



The following chart shows a ten-year history of the total funded ratio based on actuarial value of assets for Pensions and Health Insurance Premium Assistance:

Ten-Year History of Total Funded Ratio (2015 – 2024)



Act 5-2017 Class T-E, Class T-F, Class T-G and Class T-H shared-risk contributions

Commencing with the annual actuarial valuation for the period ending June 30, 2014, and every three years thereafter, the Board compares the actual investment rate of return, net of fees, to the annual interest rate adopted by the Board for the calculation of the normal contribution rate, based on the market value of assets, for the prior ten-year period. Until the Retirement System has accumulated a ten-year period of investment rate of return experience following June 30, 2011, the look-back period used in this calculation will begin not earlier than June 30, 2011. If the annual interest rate adopted by the Board for the calculation of the normal contribution rate is changed during the period used to determine the shared-risk contribution rate, the Board, with the advice of the actuary, shall determine the applicable rate during the entire period, expressed as an annual rate.

The shared-risk contribution rates of Class T-E, Class T-F, Class T-G, and Class T-H members are determined as follows:

- If the actual time-weighted investment rate of return, net of fees, is less than the annual interest rate adopted by the Board by an amount of 1.00% or more, the shared-risk contribution rate of Class T-E and Class T-F members will increase by 0.50% and the shared-risk contribution rate for Class T-G and Class T-H members will increase by 0.75%.

If the actual time-weighted investment rate of return, net of fees, is equal to or exceeds the annual interest rate adopted by the Board by less than 1.00%, the shared-risk contribution rate of Class T-E and Class T-F members will decrease by 0.50% and the shared-risk contribution rate for Class T-G and Class T-H members will decrease by 0.75% provided the total member contribution rate on the date of the actuarial valuation is above the member's basic contribution rate.

- If the actual time-weighted investment rate of return, net of fees, is more than the annual interest rate adopted by the Board by an amount of 1.00% or more, the shared-risk contribution rate of Class T-E and Class T-F members will decrease by 0.50% and the shared-risk contribution rate for Class T-G and Class T-H members will decrease by 0.75%.

If the actual time-weighted investment rate of return, net of fees, is equal to or below the annual interest rate adopted by the Board by less than 1.00%, the shared-risk contribution rate of Class T-E and Class T-F members will increase by 0.50% and the shared-risk contribution rate for Class T-G and Class T-H members will increase by 0.75% provided the total member contribution rate on the date of the actuarial valuation is below the member's basic contribution rate.

The total member contribution rate for Class T-E members shall not be less than 5.50%, nor more than 9.50%. The total member contribution rate for Class T-F members shall not be less than 8.30%, nor more than 12.30%. The total member pension contribution rate for Class T-G members shall not be less than 2.50% nor more than 8.50% and the total member pension contribution rate for Class T-H members shall not be less than 1.50% nor more than 7.50%.

If the Retirement System's total funded ratio based on the actuarial value of assets is at least 100% as of the shared-risk valuation date, the shared-risk contribution rate shall not be greater than zero. There shall be no increase in the member contribution rate if there has not been an equivalent increase to the employer contribution rate over the previous three-year period ending on the shared-risk valuation date. For any fiscal year in which the employer contribution rate is lower than the final contribution rate under section 8328(h), the total member contribution rate for Class T-E, T-F, T-G, and T-H members shall be prospectively reset to the basic contribution rate provided the total member contribution rate is at or above the basic contribution rate. Shared-risk member contributions for Class T-E, Class T-F, Class T-G, and Class T-H service shall not be made in any fiscal year in which the Commonwealth fails to make the annually required contribution to the Retirement System as provided under section 8328.

In accordance with Section 8328 of the Retirement Code, member shared-risk contributions cannot be used to offset the employer normal contribution rate. Instead, any increase or decrease in the unfunded accrued liability due to member shared-risk contributions shall be recognized as part of the Retirement System's actuarial experience and amortized as a level percentage of compensation over a period of 24 years beginning with the second July 1 following the actuarial valuation in which the shared-risk contribution was recognized.

The next Class T-E, Class T-F, Class T-G and Class T-H "shared-risk" valuation is to be performed for the ten-year period ending June 30, 2026.

Rate of Return

The investment return of the trust fund (i.e., total return including both realized and unrealized gains and losses) for fiscal years 2014/2015 through 2023/2024 is shown in the table below.

The rate of return on market value reflects the investment earnings on the market value of assets from the beginning of the fiscal year to the end of the fiscal year.

Fiscal Year	Rate of Return Based on Market Value ¹
2023/2024	8.1%
2022/2023	3.5
2021/2022	2.2
2020/2021	24.6
2019/2020	1.1
2018/2019	6.7
2017/2018	9.3
2016/2017	10.2
2015/2016	1.3
2014/2015	3.1

1. Rates are time-weighted and provided by PSERS' investment consultant.

Table 1

Summary of Results of Actuarial Valuation as of June 30, 2024
(\$ Amounts in Thousands)

Item	June 30, 2024	June 30, 2023
Member Data		
1. Number of Members		
a) Active Members	254,818	250,820
b) Class DC Participants	834	912
c) Vestees ¹	26,331	26,776
d) Annuitants, Beneficiaries and Survivor Annuitants ²	<u>253,896</u>	<u>249,724</u>
e) Total	535,879	528,232
2. Annualized Salaries (\$ Amounts in Thousands) ³	\$ 15,676,376	\$ 15,030,750
3. Annual Annuities (\$ Amounts in Thousands)	\$ 6,700,704	\$ 6,542,014
Valuation Results		
4. Present Value of Future Pension Benefits		
a) Active Members	\$ 69,133,979	\$ 67,251,381
b) Inactive Members	450,553	424,535
c) Vestees	2,810,205	2,713,915
d) Annuitants, Beneficiaries and Survivor Annuitants	<u>63,319,486</u>	<u>62,344,050</u>
e) Total	\$135,714,223	\$132,733,881
5. Present Value of Future Pension Normal Cost		
a) Active Members	\$ 10,018,443	\$ 9,786,472
b) Employer	<u>6,532,262</u>	<u>6,704,196</u>
c) Total	\$ 16,550,705	\$ 16,490,668
6. Pension Accrued Liability		
a) Active Members (4a) - (5c)	\$ 52,583,274	\$ 50,760,713
b) Inactive Members	450,553	424,535
c) Vestees	2,810,205	2,713,915
d) Annuitants, Beneficiaries and Survivor Annuitants	<u>63,319,486</u>	<u>62,344,050</u>
e) Total	\$119,163,518	\$116,243,213
7. Health Insurance Assets for Premium Assistance	\$ 136,448	\$ 140,716
8. Total Accrued Liability for Funding (6) + (7)	\$119,299,966	\$116,383,929
9. Actuarial Value of Assets	\$ 77,318,150	\$ 74,044,124
10. Funded Status (9) / (8)	64.8%	63.6%
11. Unfunded Accrued Liability (8) - (9)	\$ 41,981,816	\$ 42,339,805
12. Total Normal Cost Rate	12.74%	13.05%
13. Member Contribution Rate	7.29%	7.37%
14. Employer Normal Cost Rate (12) - (13)	5.45%	5.68%
Employer Annual Funding Requirement		
15. Employer Contribution Rate Calculated by Actuary		
a) Normal Cost	5.45%	5.68%
b) Unfunded Accrued Liability	<u>27.51</u>	<u>27.24</u>
c) Preliminary Pension Rate	32.96%	32.92%
d) Health Insurance Premium Assistance	0.62	0.63
e) Act 5 DC ⁴	<u>0.42</u>	<u>0.35</u>
f) Total Rate ⁵ = (15c) + (15d) + (15e)	34.00%	33.90%

1. Excludes 163,365 and 156,636 inactive members and non-members as of June 30, 2024 and June 30, 2023, respectively, who are no longer participating and are valued for their accumulated deductions only.

2. Excludes 2,483 and 2,433 beneficiaries as of June 30, 2024 and June 30, 2023, respectively, who are only entitled to a pending lump sum distribution.

3. The salaries shown represent an annual rate of pay for members and Class DC participants who were in active service on the valuation date.

4. Average DC contribution rate. Actual rate will vary by employer based on Class T-G, Class T-H, and Class DC membership/participation.

5. The Act 120 minimum pension rate for the June 30, 2024 valuation is 5.45% and for the June 30, 2023 valuation is 5.68%.

Table 2

Summary of Sources of Employer Contribution Rate as of June 30, 2024
(\$ Amounts in Thousands)

	Funding Period (Years)	Beginning July 1	Initial Liability	6/30/2024 Outstanding Balance	Annual Payment	
					Amount	Percent ¹
1. Amortization of:						
a) Act 120 Fresh Start Unfunded Accrued Liability and Asset Method Change	24	2011	\$ 16,279,283	\$ 15,650,082	\$ 1,866,836	11.56 %
b) 2010 Experience	24	2011	3,419,297	3,274,522	390,605	2.42
c) 2011 Experience	24	2012	564,642	554,825	61,684	0.38
d) 2011 Assumption Changes	24	2012	4,592,397	4,512,551	501,697	3.10
e) 2012 Experience	24	2013	2,372,550	2,398,145	250,211	1.55
f) 2013 Experience	24	2014	2,707,494	2,798,842	275,646	1.71
g) 2014 Experience	24	2015	2,170,432	2,283,167	213,319	1.32
h) 2015 Experience	24	2016	1,941,277	2,069,076	184,194	1.14
i) 2016 Experience	24	2017	2,666,236	2,861,702	243,661	1.51
j) 2016 Assumption Changes	24	2017	2,521,326	2,706,168	230,418	1.43
k) 2017 Experience	24	2018	1,433,915	1,549,533	126,615	0.78
l) 2017 Act 5	24	2018	(6,867)	(7,420)	(606)	0.00
m) 2018 Experience	24	2019	348,881	378,450	29,765	0.18
n) 2019 Experience	24	2020	(527,527)	(572,888)	(43,486)	(0.27)
o) 2020 Experience	24	2021	291,214	315,856	23,195	0.14
p) 2021 Experience	24	2022	(785,001)	(846,532)	(60,271)	(0.37)
q) 2021 Assumption Changes	24	2022	2,772,127	2,989,418	212,841	1.32
r) 2022 Experience	24	2023	(1,036,865)	(1,114,781)	(77,103)	(0.48)
s) 2023 Experience	24	2024	(609,249)	(651,896)	(43,879)	(0.27)
t) 2024 Experience	24	2025	832,996	<u>832,996</u>	<u>58,105</u>	<u>0.36</u>
Total				\$ 41,981,816	\$ 4,443,447	27.51 %
2. Employer Normal Cost Rate						5.45
3. Pension Rate (1) + (2) ²						32.96 %
4. Health Insurance Premium Assistance Rate						0.62
5. Act 5 DC Rate ³						0.42
6. Final Total Employer Contribution Rate Calculated by Actuary: (3) + (4) + (5)						34.00 %

1. Based on Estimated Employer Payroll for Fiscal Year Ending 2026 of \$16,152,000.

2. Cannot be less than the Act 120 Fiscal Year 2026 Minimum Employer Pension Rate (Employer Normal Cost Rate) of 5.45%.

3. Average DC contribution rate. Actual rate will vary by employer based on Class T-G, Class T-H, and Class DC membership/participation.

Table 3

Determination of Health Insurance Premium Assistance Contribution Rate for Fiscal Year 2025/2026
(\$ Amounts in Thousands)

Item				
1.	June 30, 2024 Balance in Health Insurance Premium Assistance Account		\$	136,448
2.	Estimated Fiscal 2024/2025 Contribution			
	(a) Contribution Rate Certified in 2023 Valuation			0.63%
	(b) Estimated Fiscal 2024/2025 payroll		\$	16,032,000
	(c) Estimated Contribution = (a) x (b)		\$	101,002
3.	Estimated Number of Annuitants who:	Are Eligible	Elect Percent	Elect Coverage
	(a) Fiscal 2024/2025	158,300	59.00%	93,397
	(b) Fiscal 2025/2026	159,800	59.00%	94,282
	(c) Fiscal 2026/2027	161,200	59.00%	95,108
4.	Estimated Disbursements:	Administration	Assistance	Total
	(a) Fiscal 2024/2025	\$ 1,285	\$ 112,076	\$ 113,361
	(b) Fiscal 2025/2026	1,324	113,138	114,462
	(c) Fiscal 2026/2027	<u>1,363</u>	<u>114,130</u>	<u>115,493</u>
	(d) Total	\$ 3,972	\$ 339,344	\$ 343,316
5.	Required Fiscal 2025/2026 Contribution (4d) - (1) - (2c); includes interest through 6/30/2025		\$	98,625
6.	Required Health Insurance Premium Assistance Contribution Rate			
	(a) Estimated 2025/2026 Payroll		\$	16,152,000
	(b) Required Health Insurance Premium Assistance Contribution Rate (5) / (6a) (rounded up)			0.62%

Notes:

1. Current estimates of fiscal 2024/2025 membership payroll and administrative expenses, and of fiscal 2025/2026 and fiscal 2026/2027 administrative expenses, were provided by PSERS staff.
2. Beginning in fiscal year 2024/2025, 59% of eligible annuitants are assumed to elect coverage.
3. Premium Assistance payments equal \$100 per month per electing eligible annuitant.

Table 4

Summary of Market Value of Plan Assets as of June 30, 2024
(\$ Amounts in Thousands)

Market Value	
1. Market Value of Assets as of June 30, 2023	\$ 72,253,046
2. Contributions During Fiscal 2023/2024	6,562,796
3. Disbursements During Fiscal 2023/2024	7,840,404
4. Investment Return During Fiscal 2023/2024	
a) Investment Return (Net of Investment Expenses)	\$ 5,710,455
b) Administrative Expenses	<u>56,451</u>
c) Investment Return After Expenses (a) - (b)	\$ 5,654,004
5. Market Value of Assets as of June 30, 2024 (1) + (2) - (3) + (4c)	\$ 76,629,442
6. Rate of Return ¹	8.14%
Asset Allocation by Account	
1. Members' Savings Account	\$ 19,630,600
2. Annuity Reserve Account	63,319,486
3. State Accumulation Account	(6,457,092)
4. Health Insurance Account	<u>136,448</u>
5. Total (1) + (2) + (3) + (4)	\$ 76,629,442

1. The rate of return is provided for informational purposes only. The source of the investment return is PSERS's audited financial statements.

Table 5

Derivation of Actuarial Value of Assets as of June 30, 2024
(\$ Amounts in Thousands)

1. Market Value of Assets as of June 30, 2024							\$ 76,629,442
2. Determination of Deferred Gain (Loss)							
			Return on Assets				
<u>Fiscal Year</u>	<u>Actual</u>	<u>Expected</u>	<u>Difference</u>	<u>Recognized Amount</u>	<u>% Deferred</u>	<u>Deferred Amount</u>	
2023/2024	\$ 5,654,004	\$ 5,138,372	\$ 515,632	\$ 51,563	90.00%	\$ 464,068	
2022/2023	2,744,862	4,904,830	(2,159,968)	(215,997)	80.00	(1,727,974)	
2021/2022	(317,211)	4,668,244	(4,985,455)	(498,546)	70.00	(3,489,819)	
2020/2021	14,704,125	4,588,063	10,116,062	1,011,606	60.00	6,069,637	
2019/2020	955,651	4,395,438	(3,439,787)	(343,979)	50.00	(1,719,893)	
2018/2019	3,580,178	4,179,951	(599,773)	(59,977)	40.00	(239,909)	
2017/2018	4,666,466	4,115,904	550,562	55,056	30.00	165,169	
2016/2017	4,948,659	4,101,830	846,829	84,683	20.00	169,366	
2015/2016	426,974	4,220,500	(3,793,526)	(379,353)	10.00	(379,353)	
2014/2015	1,284,258	4,202,212	<u>(2,917,954)</u>	<u>(291,794)</u>	0.00	<u>0</u>	
			\$ (5,867,378)	\$ (586,738)		\$ (688,708)	
3. Preliminary Actuarial Value of Assets ^{1,2} (1) - (2)							\$ 77,318,150
4. 70% of the Market Value of Assets (1) x 70%							\$ 53,640,609
5. 130% of the Market Value of Assets (1) x 130%							\$ 99,618,275
6. Actuarial Value of Assets: (3) not less than (4) and not greater than (5)							\$ 77,318,150

1. The amounts reported include assets for both Pension and Health Insurance Premium Assistance.
2. The rate of return on the actuarial value of assets was 6.20%. This investment return is based on the change in the actuarial value of assets from the June 30, 2023 valuation to the June 30, 2024 valuation. The actuarial value of assets developed above is a rolling ten-year average. The impact of investment gains and losses is not fully realized in the year the gain or loss arose but is smoothed in over a ten-year period.

Table 6

Analysis of Change in Unfunded Accrued Liability as of June 30, 2024¹
(\$ Amounts in Thousands)

Item	Amount
1. Unfunded Accrued Liability at June 30, 2023	\$ 42,339,805
2. Interest Credit to June 30, 2024	2,963,786
3. Expected Contributions Toward Unfunded Accrued Liability	<u>4,154,771</u>
4. Expected Unfunded Accrued Liability at June 30, 2024 (1) + (2) - (3)	\$ 41,148,820
5. Actual Unfunded Accrued Liability at June 30, 2024	<u>41,981,816</u>
6. Increase (Decrease) from Expected (5) - (4)	\$ 832,996
7. Reasons for Increase (Decrease)	
(a) Experience Losses (Gains)	
(i) Loss from Investment Return on Actuarial Value of Assets	\$ 586,738
(ii) Loss from New Entrants and Pickups	323,296
(iii) Loss from Salary Increases Greater than Expected	147,597
(iv) Loss from Mortality Experience	164,327
(v) Loss from Terminations (retirement/disability/terminations) Experience	45,741
(vi) Gain from Data/Miscellaneous	<u>(157,820)</u>
(vii) Subtotal - Experience Losses (Gains)	\$ 1,109,879
(b) Actual contributions greater than expected	<u>(276,883)</u>
(c) Total	\$ 832,996

1. The amounts reported include assets and liabilities for Pensions only.

Table 7

Schedule of Funding Progress for Pensions¹
(\$ Amounts in Thousands)

Valuation as of June 30	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll ²	Unfunded Accrued Liability as a Percentage of Covered Payroll
2024	\$ 77,181,702	\$ 119,163,518	\$ 41,981,816	64.8 %	\$ 15,643,059	268.4 %
2023	73,903,408	116,243,213	42,339,805	63.6	14,995,870	282.3
2022	70,511,293	114,476,801	43,965,508	61.6	14,397,002	305.4
2021	67,116,157	112,650,825	45,534,668	59.6	14,057,526	323.9
2020	63,798,937	107,833,399	44,034,462	59.2	13,974,295	315.1
2019	61,065,304	105,199,505	44,134,201	58.0	13,671,927	322.8

1. The amounts reported above include assets and liabilities for Pensions.

2. The salaries shown represent an annual rate of pay for the year ended June 30th for members who were in active service on June 30th.

The above schedule is not required by current GASB standards for pension plans. The information is provided for historical perspective as PSERS has transitioned to GASB Statement No. 67.

Table 8

Solvency Test for Pensions
Comparative Summary of Accrued Liability and
Actuarial Value of Assets
(\$ Amounts in Thousands)

Valuation as of June 30	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Member Employer Financed	Actuarial Value of Assets	Portion of Accrued Liability Covered by Valuation Assets		
					(1)	(2)	(3)
2024	\$ 19,630,600	\$ 63,319,486	\$ 36,213,432	\$ 77,181,702	100%	91%	0%
2023	19,188,548	62,344,050	34,710,615	73,903,408	100	88	0
2022	18,802,945	61,869,159	33,804,697	70,511,293	100	84	0
2021	18,156,350	61,168,172	33,326,303	67,116,157	100	80	0
2020	17,558,412	58,415,383	31,859,604	63,798,937	100	79	0
2019	16,839,956	57,413,088	30,946,461	61,065,304	100	77	0

Table 9

Schedule of Employer Contributions for Pensions
(\$ Amounts in Thousands)

Fiscal Year Ended June 30	Actuarially Determined Contribution	Actual Contributions Related to the Actuarially Determined Contribution	Contribution Deficiency (Excess)	Percentage Contributed
2024	\$ 5,249,563	\$ 5,249,563	\$ 0	100.0%
2023	5,237,092	5,237,092	0	100.0
2022	4,985,571	4,985,571	0	100.0
2021	4,752,338	4,752,338	0	100.0
2020	4,671,931	4,671,931	0	100.0

Valuation date: Actuarially determined contributions are calculated as of the June 30 preceding the fiscal year in which contributions are made. That is, the contribution calculated as of the June 30, 2024 actuarial valuation will be made during the fiscal year ended June 30, 2026.

**Schedule of Employer Contributions For
Postemployment Benefits Other Than Pensions**
(\$ Amounts in Thousands)

Fiscal Year Ended June 30	Actuarially Determined Contribution	Actual Contributions Related to the Actuarially Determined Contribution	Contribution Deficiency (Excess)	Percentage Contributed
2024	\$ 113,769	\$ 101,879	\$ 11,890	89.5%
2023	119,084	114,358	4,726	96.0
2022	147,312	116,773	30,539	79.3
2021	133,971	116,365	17,606	86.9
2020	138,776	117,723	21,053	84.8

Valuation date: Actuarially determined contributions are calculated as of the June 30 preceding the fiscal year in which contributions are made. That is, the contribution calculated as of the June 30, 2024 actuarial valuation will be made during the fiscal year ended June 30, 2026.

The Actuarially Determined Contribution is based on the Entry Age Normal Accrued Liability and assets as of the valuation date and a 30-year amortization of the unfunded accrued liability. See the Information Required Under Governmental Accounting Standards Board Statement No. 74 as of June 30, 2024 (published September 13, 2024) for additional information.

Table 10

History and Projection of Contribution Rates and Funded Ratios

Fiscal Year Ending June	Budgeted Total Employer Payroll (thousands)	Contribution Rates ¹								Funded Ratio
		Employee	Employer Normal Cost	Employer Unfunded Liability	Preliminary Employer Pension	Final Employer Pension ²	Act 5 Employer DC ⁶	Employer Health Insurance	Total Employer	
2015 ³	\$ 13,482,000	7.46%	8.46%	17.51%	25.97%	20.50%		0.90%	21.40%	60.6%
2016	13,375,000	7.49	8.38	19.44	27.82	25.00		0.84	25.84	57.3
2017	13,549,000	7.52	8.31	20.89	29.20	29.20		0.83	30.03	56.3
2018 ⁴	13,449,000	7.54	7.70	24.04	31.74	31.74		0.83	32.57	56.5
2019	13,775,000	7.57	7.59	25.01	32.60	32.60		0.83	33.43	58.1
2020	13,880,000	7.59	7.49	25.87	33.36	33.36	0.09%	0.84	34.29	59.2
2021	14,078,000	7.61	7.37	26.14	33.51	33.51	0.18	0.82	34.51	59.6
2022	14,289,000	7.56	7.20	26.79	33.99	33.99	0.15	0.80	34.94	61.6
2023 ⁵	14,497,000	7.52	6.07	28.24	34.31	34.31	0.20	0.75	35.26	63.6
2024	15,260,000	7.44	5.86	27.23	33.09	33.09	0.27	0.64	34.00	64.8
2025	15,590,000	7.37	5.68	27.24	32.92	32.92	0.35	0.63	33.90	*
2026	16,152,000	7.29	5.45	27.51	32.96	32.96	0.42	0.62	34.00	*

1. In general, the Preliminary Employer Pension Rate equals the sum of the rates for the Employer Normal Cost and the Unfunded Liability; and the Final Employer Pension Rate is the greater of the Preliminary Pension Rate and any Pension Rate Floor or Collar stated in the Retirement Code. The Total Employer Rate is the sum of the Final Employer Pension Rate, Act 5 Employer DC Rate and the Employer Health Insurance Premium Assistance Rate.
2. The Final Employer Pension rate is limited by the Act 2010-120 pension rate collars for fiscal years 2014 through 2016.
3. Actuarial assumptions based on a five-year experience review ended June 30, 2010, were used to determine the contributions for the fiscal years ending June 30, 2013, and thereafter, which include an interest rate of 7.50%.
4. Revised actuarial assumptions based on a five-year experience review ended June 30, 2015, were used to determine the contributions for the fiscal years ending June 30, 2018, and thereafter, which include an interest rate of 7.25%.
5. Revised actuarial assumptions based on a five-year experience review ended June 30, 2020, were used to determine the contributions for the fiscal years ending June 30, 2023, and thereafter, which include an interest rate of 7.00%.
6. Act 5 new member assumptions:

<u>Valuation</u>	<u>Class T-G</u>	<u>Class T-H</u>	<u>Class DC</u>
2018-2019	65%	30%	5%
After 2019	98%	1%	1%

The above rate is an average DC contribution rate. Actual rate will vary by employer based on Class T-G, Class T-H, and Class DC membership/participation.

*Not available

Table 11

Description of Actuarial Assumptions and Methods

Assumptions

Interest Rate: 7.00% per annum, compounded annually. The components are 2.50% for inflation and 4.50% for the real rate of return. Actuarial equivalent benefits are determined based on an interest rate of 4.00% per year (since 1960) except, in accordance with Act 5-2017, an interest rate of 7.00% per year is used for Class T-E, Class T-F, Class T-G, and Class T-H members' Option 4 partial withdrawal of accumulated member contributions and certain Class T-G and Class T-H early retirement factors.

Separation from Service: Illustrative rates of assumed separation from service are shown in the following table.

Age	Class T-C and Class T-D Annual Rate of:						
	Withdrawal			Death ¹	Disability	Early Retirement ²	Superannuation Retirement
	Less Than Five Years of Service	Five Years but Less Than 10 Years of Service	10 or More Years of Service				
MALES							
25	21.83%	9.22%	4.55%	.022%	.01%		19.0%
30	14.93	3.84	4.55	.029	.01		
35	15.17	3.77	1.68	.038	.04		
40	16.04	4.44	1.42	.053	.06		
45	15.12	5.17	1.41	.082	.11		
50	15.81	4.96	1.89	.129	.23	14.5%	19.0
55	15.54	4.96	3.63	.194	.37		25.0
60	13.85	6.37	5.49	.289	.37		29.0
65				.447	.11		23.0
70				.699	.08		20.0
75				1.076	.08		25.0
79				1.701	.08		25.0
FEMALES							
25	18.33%	7.47%	3.90%	.008%	.01%		16.0%
30	15.16	5.92	3.90	.013	.02		
35	14.66	5.68	2.83	.019	.03		
40	12.86	5.16	1.67	.030	.06		
45	12.82	5.25	1.60	.046	.11		
50	13.02	5.23	2.08	.069	.18	14.5%	16.0
55	13.43	5.31	3.66	.102	.29		16.0
60	13.81	7.53	5.94	.154	.24		31.0
65				.251	.07		28.0
70				.431	.09		23.0
75				.766	.09		25.0
79				1.239	.09		25.0

1. These base mortality tables will then be projected on a generational basis using the Buck Modified scale MP-2020. Refer to the pre-retirement mortality description below.
2. Early Retirement – Age 55 with 25 years of service, but not eligible for Superannuation retirement.

Table 11
(Continued)

Description of Actuarial Assumptions and Methods

Age	Class T-E, Class T-F, Class T-G and Class T-H Annual Rate of:					
	Withdrawal		Death ¹	Disability	Early Retirement ²	Superannuation Retirement
	Less Than 10 Years of Service	10 or More Years of Service				
MALES						
25	17.02%	4.55%	.022%	.01%		
30	11.25	4.55	.029	.01		
35	12.09	1.68	.038	.04		
40	13.14	1.42	.053	.06		
45	13.87	1.41	.082	.11		
50	13.67	1.89	.129	.23	14.5%	16.3%
55	11.91	3.63	.194	.37		
60	11.19	5.49	.289	.37		
65	11.19		.447	.11		
70	11.19		.699	.08		
75	11.19		1.076	.08		16.3
79	11.19		1.701	.08		16.3
FEMALES						
25	14.54%	3.90%	.008%	.01%		
30	11.68	3.90	.013	.02		
35	12.39	2.83	.019	.03		
40	11.53	1.67	.030	.06		
45	10.99	1.60	.046	.11		
50	10.72	2.08	.069	.18	14.5%	19.5%
55	10.75	3.66	.102	.29		
60	11.62	5.94	.154	.24		
65	11.62		.251	.07		
70	11.62		.431	.09		
75	11.62		.766	.09		19.5
79	11.62		1.239	.09		19.5

1. These base mortality tables will then be projected on a generational basis using the Buck Modified scale MP-2020. Refer to the pre-retirement mortality description below.
2. Early Retirement – prior to eligibility for Superannuation retirement.

Death before Retirement:

Male participants: 50% PubT-2010 Employee (Total Teacher dataset) and 50% PubG-2010 Employee (Total General Employees dataset) Amount Weighted Male Tables, with a 99.0% adjustment, generationally projected with Buck Modified scale MP-2020.

Female participants: 50% PubT-2010 Employee (Total Teacher dataset) and 50% PubG-2010 Employee (Total General Employees dataset) Amount Weighted Female Tables, with an 88.6% adjustment, generationally projected with Buck Modified scale MP-2020.

Table 11
(Continued)

Description of Actuarial Assumptions and Methods

Death after Retirement:

Male annuitants: 50% PubT-2010 Retiree (Total Teacher dataset) and 50% PubG-2010 Retiree (Total General Employees dataset) Amount Weighted Male Tables, with a 99.7% adjustment, generationally projected with Buck Modified scale MP-2020.

Female annuitants: 50% PubT-2010 Retiree (Total Teacher dataset) and 50% PubG-2010 Retiree (Total General Employees dataset) Amount Weighted Female Tables, with a 95.4% adjustment, generationally projected with Buck Modified scale MP-2020.

Male disabled annuitants: Pub-2010 Disability Mortality Non-Safety Amount Weighted Male Table, with a 105.4% adjustment, generationally projected with Buck Modified scale MP-2020.

Female disabled annuitants: Pub-2010 Disability Mortality Non-Safety Amount Weighted Female Table, with a 95.0% adjustment, generationally projected with Buck Modified scale MP-2020.

Male contingent annuitants: Pub-2010 Contingent Survivor Amount Weighted Male Table, with a 106.0% adjustment, generationally projected with Buck Modified scale MP-2020.

Female contingent annuitants: Pub-2010 Contingent Annuitant Amount Weighted Female Table, with a 116.2% adjustment, generationally projected with Buck Modified scale MP-2020.

For determination of actuarial equivalence, a unisex table based on 25% males and 75% females blend of the Board approved base mortality tables to be used for actuarial valuations beginning June 30, 2021, generationally projected to 2025 with the Buck Modified MP-2020 improvement scale.

Salary Increase: Effective average of 4.50% per annum, compounded annually. The components are 2.50% for inflation, and 2.00% for real wage growth and merit or seniority increases. Representative values are as follows:

Age	Annual Rate of Salary Increase
20	9.65%
30	7.15
40	5.15
50	3.15
55	2.75
60	2.75
65	2.75
Over 65	2.75

Payroll Growth: A 3.25% per annum payroll growth assumption is used to liquidate the unfunded accrued liability based on level-percent-of-pay amortization schedules required by the Retirement Code as amended by Act 2010-120 and Act 2017-5, i.e., a schedule of 24 years for the unfunded accrued liability as of June 30, 2010, and each change in the unfunded accrued liability due to actuarial experience after the June 30, 2010 valuation. Any legislation after June 30, 2010 that increases the liability due to benefit enhancements will be funded over 10 years based on level-percent-of-pay amortization.

Table 11
(Continued)

Description of Actuarial Assumptions and Methods

MISCELLANEOUS:

Option 4 - Refund of Contributions Elections: 75% of Class T-C and Class T-D and 50% of Class T-E, Class T-F, Class T-G, and Class T-H members are assumed to elect a refund of contributions and a reduced annuity.

Withdrawal Annuity: 50% of members are assumed to commence payment immediately and 50% are assumed to defer payment to superannuation age.

Optional Forms of Annuity Payment at Retirement: Anticipated active member elections of optional forms of payment at retirement as follows:

- 45% will elect Maximum Straight Life Annuity (MSLA)
- 25% will elect OPTION 1 (Straight life annuity with guaranteed payments equal to present value of MSLA)
- 20% will elect OPTION 2 (100% Joint and Survivor with males 3 years older than females)
- 10% will elect OPTION 3 (50% Joint and Survivor with males 3 years older than females)
- 0% will elect OPTION 4 annuity

Optional Forms of Payment Factors: Actuarial equivalent benefits are determined based on a statutorily specified interest rate of 4.00% per year or 7.00% per annum, as applicable. The mortality basis is a blend of 25% males and 75% females blend of the Board approved base mortality tables to be used for actuarial valuations beginning June 30, 2021, generationally projected to 2025 with the Buck Modified MP-2020 improvement scale.

Health Insurance Premium Assistance:

Elections: 59% of eligible retirees are assumed to elect premium assistance.

Administrative Expenses: Assumed equal to \$1,285,000 for fiscal year 2024/2025, \$1,324,000 for fiscal year 2025/2026 and \$1,363,000 for fiscal year 2026/2027.

Summary of Changes since the June 30, 2023 Valuation:

Beginning in fiscal year 2025/2026, 59% of eligible retirees are assumed to elect premium assistance.

Assumed administrative expenses for the Health Insurance Premium Assistance Plan changed from \$1,307,000 to \$1,285,000 for fiscal year 2024/2025, from \$1,346,000 to \$1,324,000 for fiscal year 2025/2026, and the amount of \$1,363,000 was added for the fiscal year 2026/2027.

Methods

Calculations: The actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the Retirement System, and on actuarial assumptions that are internally consistent and reasonable based on the actual experience of the Retirement System.

Asset Valuation Method: A ten-year moving market average value of assets that recognizes the 7.00% (7.25% prior to June 30, 2021 and 7.50% prior to June 30, 2016) actuarial expected investment return immediately and spreads the difference between the actual return on the market value of assets and the expected return on the actuarial value of assets over a period of ten years. The actuarial value of assets can be no less than 70% and no more than 130% of the market value of assets.

Table 11
(Continued)

Description of Actuarial Assumptions and Methods

Actuarial Cost Method for Pension Funding: Entry Age Normal Cost Method (modified slightly as of June 30, 2005 to use a pay-weighted average normal contribution rate). The gross normal cost rate is determined as of the valuation date. It is the ratio of the gross normal cost amount to the anticipated total salary during the first year, which is adjusted to the beginning of the year by one-half of the effective average salary increase assumption of 4.50% per annum. This method produces a gross normal cost rate that is consistent with the Retirement System's past annual valuations.

The results of each June 30 valuation determine the employer contribution rate for the second succeeding fiscal year. Act 120 revised the funding method effective with the June 30, 2010 valuation. Act 120 mandated that the outstanding balance of the unfunded accrued liability as of June 30, 2010, including changes in the unfunded accrued liability due to the funding reforms of Act 120, be amortized over a 24-year period, as a level percent of pay, beginning July 1, 2011. Future valuation gains and losses, and changes in the unfunded accrued liability resulting from changes in actuarial assumptions and methods, are amortized over a 24-year period, as a level percent of pay. As provided by Act 5-2017, future increases in the unfunded accrued liability due to benefit enhancement legislation will be amortized over 10-year periods, as a level percent of pay. Act 120 also modified the employer pension contribution requirements by imposing collars on the rate for fiscal years ending June 30, 2012, June 30, 2013, and on or after June 30, 2014; the pension contribution rate was limited to 3.0%, 3.5% and 4.5%, respectively, of total compensation of all active members, greater than the prior year's final contribution rate. Beginning with the fiscal year ending June 30, 2017, the actuarially required contribution rate was less than the collared rate and the final contribution rate was the actuarially determined contribution rate. However, as provided by Act 120, the final contribution rate cannot be less than the employer normal contribution rate.

In accordance with Act 5-2017, member shared-risk contributions cannot be used to offset the employer normal contribution rate. Instead, any increase or decrease in the unfunded accrued liability due to member shared-risk contributions shall be recognized as part of the Retirement System's actuarial experience and amortized as a level percentage of compensation over a period of 24 years beginning with the July 1 second succeeding the actuarial valuation in which the shared-risk contribution was recognized.

In the actuary's professional judgment, the Retirement System's funding policy meets the Actuarial Standard of Practice No. 4 standards for a reasonable Actuarially Determined Contribution.

Actuarial Cost Method for Health Insurance Premium Assistance Funding: The actuarial liability equals the assets in the health insurance account, and the results of the June 30 valuation determine the contribution rate for the second succeeding fiscal year. The rate so determined is the rate necessary to establish reserves sufficient to cover administrative expenses and provide premium assistance payments for all participating eligible annuitants during the third fiscal year that follows the valuation date.

Employer DC contributions: An average DC contribution rate is determined based on the anticipated employer contributions for DC participants and Retirement System appropriation payroll for the second succeeding fiscal year after the June 30 valuation date. It is assumed that among new employees hired on or after July 1, 2024 that 98% will become Class T-G members, 1% will become Class T-H members and 1% will become Class DC participants. The actual rate will vary by employer based on their respective Class T-G, Class T-H, and Class DC membership/participation.

Data

Census and Assets: The pension valuation was based on members of the Retirement System as of June 30, 2024 and does not take into account future members. All census data was supplied by the Retirement System and was subject to reasonable consistency checks. The actuaries adjust the data to account for service and pay earned by members on or before the valuation that is not reported by the Retirement System until after the actuarial valuation is performed. Asset data was supplied by the Retirement System.

Table 11
(Continued)

Description of Actuarial Assumptions and Methods

30-Year Historical Interest Rate Assumption:

June 30 Valuation	Interest Rate	June 30 Valuation	Interest Rate	June 30 Valuation	Interest Rate
2023	7.00%	2013	7.50%	2003	8.50%
2022	7.00	2012	7.50	2002	8.50
2021	7.00	2011	7.50	2001	8.50
2020	7.25	2010	8.00	2000	8.50
2019	7.25	2009	8.00	1999	8.50
2018	7.25	2008	8.25	1998	8.50
2017	7.25	2007	8.50	1997	8.50
2016	7.25	2006	8.50	1996	8.50
2015	7.50	2005	8.50	1995	8.50
2014	7.50	2004	8.50	1994	8.50

Table 12**Summary of Benefit and Contribution Provisions****Membership**

For valuation purposes, all employees are considered to be full coverage members. All employees who become members on and after January 1, 1966 are members of the dual coverage group. Dual coverage members contribute to both PSERS and to Social Security.

Benefits**Superannuation Annuity****Eligibility**

Age 62, or age 60 with 30 years of service, or 35 years of service regardless of age. For Class T-E and Class T-F members, age 65 with a minimum of three years of service credit, or any combination of age and service that totals 92 with at least 35 years of credited service. For Class T-G members, age 67 with a minimum of three years of service, or any combination of age and service that totals 97 with at least 35 years of credited service. For Class T-H members, age 67 with a minimum of three years of service credit.

Amount

Class	Accrual	Final Average Salary
T-C	2.00%	For any 3 years of service
T-D	2.50%	For any 3 years of service
T-E	2.00%	For any 3 years of service
T-F	2.50%	For any 3 years of service
T-G	1.25%	For any 5 years of service
T-H	1.00%	For any 5 years of service

Based on the above table, Accrual Rate times the Final Average Salary times years of school service and intervening military service. Minimum of \$100 per year of service. The "final average salary" means the highest average annual salary.

Annual salary is subject to a limit of \$200,000, as adjusted under Section 401(a)(17) of the Internal

Table 12

(Continued)

Summary of Benefit and Contribution Provisions

Revenue Code. As of June 30, 2024, the adjusted limit is \$345,000.

For members who elect coverage under Class T-D, the maximum benefit is equal to the limit established by Section 415 of the Internal Revenue Code.

For Class T-E, Class T-F, Class T-G and Class T-H members, the maximum benefit is equal to the lesser of the limit established by Section 415 of the Internal Revenue Code or 100% of final average salary.

Early Retirement Annuity

Eligibility

Age 55 with 25 years of service. For Class T-G members, age 57 with 25 years of service.

Amount

Accrued benefit as of date of retirement, reduced 1/4% for each month by which commencement of payments precedes Superannuation Age.

For members who elect coverage under Class T-D, the maximum benefit is equal to the limit established by Section 415 of the Internal Revenue Code.

For Class T-E, Class T-F, Class T-G and Class T-H members, the maximum benefit is equal to the lesser of the limit established by Section 415 of the Internal Revenue Code or 100% of final average salary.

Withdrawal Annuity

Eligibility

Class T-C and Class T-D members: 5 years of service.

Class T-E, Class T-F, Class T-G and Class T-H members: 10 years of service.

Amount

Accrued benefit deferred to superannuation retirement age or an actuarially reduced benefit payable immediately. For Class T-C, Class T-D, Class T-E and Class T-F members, PSERS early retirement factors are based on the statutory interest rate of 4.00%. For Class T-G and T-H members with less than 25 years of service, PSERS early retirement factors from age 62 to superannuation are based on the statutory interest rate of 4.00%. From commencement age to age 62, PSERS early retirement factors are based on the assumed long-term return on plan assets as adopted by the Board.

Table 12
(Continued)

Summary of Benefit and Contribution Provisions

Disability Annuity

Eligibility	5 years of service.
Amount	The standard single life annuity if the total number of years of credited service is greater than 16.667, otherwise the standard single life annuity multiplied by the lesser of the following ratios: (Y^*/Y) or $(16.667/Y)$ where Y is the number of years of credited service and Y* is the total years of credited service if the member were to continue as a school employee until superannuation retirement age (or at current age, if later). For Class T-G and Class T-H members, the standard single life annuity for this provision is based on a 2.00% accrual rate. Minimum of \$100 per year of service.

Return of Contributions

Eligibility	Death or separation from service and member does not qualify for other benefits.
Amount	Refund of accumulated deductions includes interest (less annuity payments received prior to death in the case of a retired member).

Death Benefit

Eligibility	Death of an active member or vestee who was eligible to receive an annuity.
Amount	The present value of the annuity that would have been effective if the member retired on the day before death. Option 1 assumed payable if no other option elected.

Table 12
(Continued)

Summary of Benefit and Contribution Provisions

**Normal and Optional
Forms of Benefits**

Normal Form (Maximum):	Life annuity with a guaranteed payment equal to member contributions with interest.
Option 1:	Reduced benefit with refund of balance of present value of annuity at retirement over payments received. If balance is less than \$5,000, benefit is paid in lump sum; otherwise, beneficiary may elect annuity and/or lump sum.
Option 2:	Joint and 100% survivorship annuity.
Option 3:	Joint and 50% survivorship annuity.
Option 4:	Benefit of equivalent actuarial value, including lump sum payment of member contributions.

Contributions

By Members

Regular member contribution:

Class	Enrollment	Contribution Rate
Members who did not elect Class T-D	Prior to July 22, 1983	5.25%
Members who did not elect Class T-D	After to July 21, 1983 but prior to July 1, 2001	6.25%
T-D	Prior to July 22, 1983	6.50%
T-D	After to July 21, 1983	7.50%
T-E		7.50%
T-F		10.30%
T-G		5.50%
T-H		4.50%

Table 12

(Continued)

Summary of Benefit and Contribution Provisions

Shared-Risk contribution:

Class T-E, Class T-F, Class T-G and Class T-H members are subject to a shared-risk employee contribution rate. Members benefit when investments of the fund are doing well and share some of the risk when investments underperform. The member contribution rate will stay within the specified range allotted for Class T-E, Class T-F, Class T-G or Class T-H members but could increase or decrease every three years starting July 1, 2015, depending on investment performance.

1. If the investment rate of return (less investment fees) is equal to or exceeds the assumed rate of return by more than 1.00% based on the prior 10-year period:

Class	Decrease in Contribution Rate	Minimum Contribution Rate
T-E	0.50%	5.50%
T-F	0.50%	8.30%
T-G	0.75%	2.50%
T-H	0.75%	1.50%

Provided the total member contribution rate is less than the member's basic contribution rate, if the investment rate of return (less investment fees) is less than the assumed rate of return by less than 1.00% based on the prior 10-year period:

Class	Increase in Contribution Rate
T-E	0.50%
T-F	0.50%
T-G	0.75%
T-H	0.75%

Table 12

(Continued)

Summary of Benefit and Contribution Provisions

2. If the investment rate of return (less investment fees) is less than assumed rate of return by more than 1.00% based on the prior 10-year period:

Class	Increase in Contribution Rate	Maximum Contribution Rate
T-E	0.50%	9.50%
T-F	0.50%	12.30%
T-G	0.75%	8.50%
T-H	0.75%	7.50%

Provided the total member contribution rate is greater than the member's basic contribution rate, if the investment rate of return (less investment fees) is equal to or exceeds the assumed rate of return by less than 1.0% based on the prior 10-year period:

Class	Decrease in Contribution Rate
T-E	0.50%
T-F	0.50%
T-G	0.75%
T-H	0.75%

If the Retirement System is fully funded at the time of the comparison, the increase in member contribution rate shall not be greater than zero. There shall be no increase in the member contribution rate if there has not been an equivalent increase in the employer contribution rate over the previous three-year period. For any fiscal year in which the employer contribution rate is lower than the final contribution rate under section 8328(h), the total member contribution rate shall be prospectively reset to the basic contribution rate provided the total member contribution rate is at or above the basic contribution rate. Shared-risk member contributions shall not be made in any fiscal year in which the Commonwealth fails to make the

Table 12

(Continued)

Summary of Benefit and Contribution Provisions

annually required contribution to the Retirement System as provided under section 8328.

Until a full 10-year look back period is available, the investment return measurement period will begin on July 1, 2011.

By Commonwealth and Employers

Balance of required contribution determined as normal contribution, accrued liability contribution, supplemental annuity contribution, experience adjustment factor, premium assistance contribution, and the DC Plan contribution, is funded by the Commonwealth and the Employers.

Defined Contribution (DC) Plan

Eligibility

All employees who become members on or after July 1, 2019 also become participants of the DC Plan.

Eligibility Point

A participant earns one eligibility point for each fiscal year (12-month period beginning July 1) in which school service is rendered and the participant makes a DC participant contribution to the PSERS DC Plan.

Participant and Employer Contribution Rate:

Class	Participant	Employer
T-G	2.75%	2.25%
T-H	3.00%	2.00%
DC	7.50%	2.00%

Vesting

Participant contribution: 100% vested

Employer contribution: 100% vested after accumulating three eligibility points

Benefit

Based on the amount of contributions in the account and any investment performance less expenses.

Death Benefit

Beneficiary will be entitled to receive a distribution of the participant's vested balance in the DC Plan account.

Table 12

(Continued)

Summary of Benefit and Contribution Provisions

Health Insurance Premium Assistance

Eligibility	<p>Retired members who:</p> <ul style="list-style-type: none">(a) have 24½ or more years of service, or(b) are disability annuitants, or(c) have 15 or more years of service and who both terminated school service and retired after attaining superannuation age and(d) participate in the PSERS Health Options Program or in an employer-sponsored health insurance program. <p>Class DC participants who terminate employment, are eligible for Medicare, have received all or part of their individual investment account and who:</p> <ul style="list-style-type: none">(a) have 24½ or more eligibility points, or(b) have 15 or more eligibility points and who both terminated school service and retired after attaining age 67 and(c) participate in the PSERS Health Options Program or in an employer-sponsored health insurance program.
Amount	<p>Participating eligible annuitants receive health insurance premium assistance payments from the Health Insurance Account equal to the lesser of \$100 per month or the actual monthly premium. All administrative expenses necessary to operate the health insurance premium assistance program are to be funded by the Health Insurance Account. The Health Insurance Account is credited with contributions of the Commonwealth and the employers.</p>

Exhibit I

Member Reconciliation as of June 30, 2024

	Active Members and Class DC Participants	Annuityants, Beneficiaries, and Survivor Annuityants ¹	Vestee and Inactive Members	Total
Count as of June 30, 2023	251,732	249,724	183,412	684,868
Changes due to:				
Termination	(2,556)	-	2,556	-
Class DC	(337)	-	-	(337)
Inactive	(10,948)	-	10,948	-
Refund	(1,728)	-	(5,552)	(7,280)
Retirements	(7,506)	9,185	(1,679)	-
Disability	(141)	196	(55)	-
Deaths	(277)	(6,132)	(600)	(7,009)
Rehire	6,676	(208)	(6,468)	-
Benefits expired/waived	(4)	(20)	(4)	(28)
Transfer to SERS	-	(2)	(98)	(100)
New records	20,741	1,191	7,345	29,277
Data corrections	-	(38)	(109)	(147)
Total changes	3,920	4,172	6,284	14,376
Count as of June 30, 2024	255,652	253,896	189,696	699,244

¹Excludes 2,483 and 2,433 beneficiaries as of June 30, 2024 and June 30, 2023, respectively, who are only entitled to a pending lump sum distribution.

Exhibit II

History of Annuitants, Beneficiaries, Survivor Annuitants and Active Members¹

Valuation as of June 30	Annuitants	Beneficiaries and Survivor Annuitants	Total Annuitants, Beneficiaries and Survivor Annuitants	Active Members
2015	209,266	10,509	219,775	259,868
2016	214,019	10,809	224,828	257,080
2017	218,886	11,128	230,014	255,945
2018	221,879	11,409	233,288	256,362
2019	225,479	11,860	237,339	255,749
2020	227,542	12,072	239,614	256,246
2021	230,135	12,704	242,839	248,091
2022	233,801	13,100	246,901	247,873
2023	236,286	13,438	249,724	250,820
2024	239,943	13,953	253,896	254,818

¹Excludes inactive members, non-members, beneficiaries who are only entitled to a pending lump sum distribution, Class DC participants, and vestees.

Exhibit III

Summary of Membership Data as of June 30, 2024 (\$ Amounts in Thousands)

Total Active Members¹ and Class DC Participants

Item	Male	Female	Total
Number of Members/Participants	70,593	185,059	255,652
Total Annual Salaries ⁸	\$ 4,602,078	\$ 11,074,298	\$ 15,676,376
Average Age ⁹	45.5	45.2	45.3
Average Service ⁹	12.0	11.8	11.8

1. Excludes 189,696 inactive members, non-members and vestees.

Class T-C Members²

Item	Male	Female	Total
Number of Members	519	1,404	1,923
Total Annual Salaries ⁸	\$ 42,927	\$ 94,913	\$ 137,840
Average Age ⁹	54.4	56.0	55.6
Average Service ⁹	26.4	25.2	25.5

2. Excludes 26,164 inactive members, non-members and vestees.

Class T-D Members³

Item	Male	Female	Total
Number of Members	33,796	90,868	124,664
Total Annual Salaries ⁸	\$ 2,927,561	\$ 6,858,274	\$ 9,785,835
Average Age ⁹	50.0	50.4	50.3
Average Service ⁹	20.3	19.0	19.4

3. Excludes 74,873 inactive members, non-members and vestees.

Class T-E Members⁴

Item	Male	Female	Total
Number of Members	12,726	34,465	47,191
Total Annual Salaries ⁸	\$ 665,115	\$ 1,744,455	\$ 2,409,570
Average Age ⁹	44.1	43.0	43.3
Average Service ⁹	6.9	7.4	7.3

4. Excludes 46,053 inactive members and non-members.

Class T-F Members⁵

Item	Male	Female	Total
Number of Members	3,424	8,622	12,046
Total Annual Salaries ⁸	\$ 228,885	\$ 523,571	\$ 752,456
Average Age ⁹	43.2	41.7	42.1
Average Service ⁹	8.2	7.9	8.0

5. Excludes 3,855 inactive members and non-members.

Exhibit III

(Continued)

Summary of Membership Data as of June 30, 2024

(\$ Amounts in Thousands)

Class T-G Members⁶

Item	Male	Female	Total
Number of Members	19,829	48,799	68,628
Total Annual Salaries ⁸	\$ 724,070	\$ 1,817,311	\$ 2,541,381
Average Age ⁹	38.9	37.4	37.9
Average Service ⁹	1.6	1.8	1.8

6. Excludes 38,639 inactive members and non-members.

Class T-H Members⁷

Item	Male	Female	Total
Number of Members	65	301	366
Total Annual Salaries ⁸	\$ 3,110	\$ 12,867	\$ 15,977
Average Age ⁹	35.9	36.9	36.7
Average Service ⁹	3.4	3.3	3.3

7. Excludes 112 inactive members and non-members.

Class DC Participants

Item	Male	Female	Total
Number of Participants	234	600	834
Total Annual Salaries ⁸	\$ 10,410	\$ 22,907	\$ 33,317
Average Age ⁹	45.1	42.0	42.9
Average Service ⁹	2.5	2.5	2.5

8. Salaries represent an annual rate of pay for the year ended June 30, 2024 for members and Class DC participants who were in active service on June 30, 2024.

9. Average completed years of age and service.

Normal Cost Rate by Class

	Class	T-C	T-D	T-E	T-F	T-G	T-H	DC
1.	Total DB Normal Cost	11.93%	15.09%	10.00%	12.79%	6.27%	4.98%	n/a
2.	Member Normal Cost	6.24%	7.50%	7.50%	10.30%	5.50%	4.50%	n/a
3.	Employer DC Normal Cost	n/a	n/a	n/a	n/a	2.25%	2.00%	2.00%
4.	Total Employer Normal Cost [1. - 2. + 3.]	5.69%	7.59%	2.50%	2.49%	3.02%	2.48%	2.00%

Exhibit III
(Continued)

Summary of Membership Data as of June 30, 2024

Total Annuitants and Beneficiaries¹

Item	Number	Annual Annuities ² (Thousands)	Average Annuities	Average Age
Annuitants				
Normal	132,858	\$ 3,940,010	\$ 29,656	74.6
Early and Withdrawal	<u>98,562</u>	<u>2,337,059</u>	23,712	69.2
Total	231,420	\$ 6,277,069	27,124	72.3
Survivors and Beneficiaries	13,953	233,777	16,755	76.2
Disabled Annuitants	<u>8,523</u>	<u>189,858</u>	22,276	67.2
Total	253,896	\$ 6,700,704	26,392	72.3

New Annuitants and Beneficiaries

Who Retired Between July 1, 2023 and June 30, 2024

Item	Number ³	Annual Annuities ² (Thousands)	Average Annuities	Average Age
Annuitants (Normal, Early and Withdrawal)	9,227	\$ 266,301	\$ 28,861	61.8
Survivors and Beneficiaries	1,146	21,931	19,137	73.1
Disabled Annuitants	<u>199</u>	<u>6,218</u>	31,246	54.1
Total	10,572	\$ 294,450	27,852	62.9

1. The median annual benefit payable to all annuitants and beneficiaries is \$21,058.
2. The annuities shown in the tables above represent the annual amount payable as of July 1, 2024.
3. Excludes 27 members who retired after June 30, 2023 but died prior to June 30, 2024.

Exhibit III

(Continued)

**Distribution of Annuitants, Beneficiaries, and Survivors by Annual Pension Amount
As of June 30, 2024**

1. All annuitants, beneficiaries, and survivors

Annual Pension Amount	Number	Average Years of Service
Under \$10,000	85,782	12
\$10,000 - \$19,999	36,979	21
\$20,000 - \$29,999	27,732	26
\$30,000 - \$39,999	30,481	29
\$40,000 - \$49,999	31,054	31
\$50,000 - \$59,999	21,661	33
\$60,000 - \$69,999	11,129	34
\$70,000 - \$79,999	5,108	35
\$80,000 - \$89,999	1,935	36
\$90,000 - \$99,999	952	36
\$100,000 or more	1,083	37
Total	253,896	23

2. Excludes annuitants, beneficiaries, and survivors with no service on file

Annual Pension Amount	Number	Average Years of Service
Under \$10,000	85,638	12
\$10,000 - \$19,999	36,957	21
\$20,000 - \$29,999	27,729	26
\$30,000 - \$39,999	30,480	29
\$40,000 - \$49,999	31,054	31
\$50,000 - \$59,999	21,660	33
\$60,000 - \$69,999	11,128	34
\$70,000 - \$79,999	5,108	35
\$80,000 - \$89,999	1,935	36
\$90,000 - \$99,999	952	36
\$100,000 or more	1,083	37
Total	253,724	23

Exhibit III

(Continued)

**Distribution of Annuitants, Beneficiaries, and Survivors by Class Membership
As of June 30, 2024**

Status	Class Membership							Total
	TC	TD	TE	TF	TG	TH	Missing Class	
Annuitants (Normal, Early and Withdrawal)	40,904	187,400	2,557	495	64	0	0	231,420
Disabled Annuitants	2,028	6,354	106	35	0	0	0	8,523
Survivors and Beneficiaries*	N/A	N/A	N/A	N/A	N/A	N/A	13,953	13,953
Total	42,932	193,754	2,663	530	64	0	13,953	253,896

* Class membership for survivors and beneficiaries is not provided on the data used for the valuation.

Exhibit IV

Active Membership Data as of June 30, 2024 Number and Average Annual Salary*

Age	Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 25	9,380 \$33,315	76 \$42,085								9,456 \$33,386
25-29	14,949 \$43,653	3,770 \$59,463	28 \$45,505							18,747 \$46,835
30-34	10,013 \$39,972	10,116 \$64,036	3,074 \$70,721	35 \$53,932						23,238 \$54,536
35-39	9,011 \$36,444	6,531 \$61,652	10,101 \$75,520	4,977 \$83,200	18 \$70,854					30,638 \$62,316
40-44	9,001 \$32,974	5,318 \$55,547	5,002 \$73,645	14,255 \$88,119	4,667 \$95,106	22 \$77,316				38,265 \$69,575
45-49	7,446 \$31,193	4,841 \$48,828	3,488 \$65,361	6,106 \$84,874	11,789 \$95,578	3,150 \$99,086	12 \$72,702			36,832 \$72,074
50-54	6,308 \$31,058	4,628 \$44,807	3,733 \$55,912	4,768 \$72,772	6,345 \$89,721	9,858 \$98,583	2,157 \$99,808	27 \$80,666		37,824 \$71,847
55-59	4,773 \$30,076	3,767 \$41,966	3,423 \$48,693	4,718 \$60,581	4,467 \$73,942	4,049 \$90,073	3,775 \$97,373	467 \$87,143	16 \$66,169	29,455 \$63,095
60-64	3,438 \$26,649	2,722 \$38,227	2,485 \$44,168	3,473 \$52,355	3,620 \$59,593	2,145 \$68,291	931 \$79,250	562 \$89,155	123 \$69,284	19,499 \$50,355
Over 64	3,430 \$19,535	1,980 \$29,320	1,292 \$37,127	1,318 \$47,007	1,198 \$50,512	848 \$56,803	381 \$60,113	220 \$69,083	197 \$82,390	10,864 \$36,635
Total	77,749 \$34,995	43,749 \$53,422	32,626 \$64,702	39,650 \$77,350	32,104 \$85,588	20,072 \$91,920	7,256 \$93,774	1,276 \$84,778	336 \$76,820	254,818 \$61,389

* Does not include 834 Class DC participants.

Exhibit V

The Number and Average Annual Annuities of Annuitants on the Retired List as of June 30, 2024

Retired on Account of Superannuation, Early Retirement and Those in Receipt of Withdrawal Annuities

Age	Years of Service									Total
	0-4 ¹	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 50		3,555	1,302	470	167	12	1			5,507
		\$973	\$3,180	\$8,098	\$15,493	\$27,937	\$62,259			\$2,613
50-54		1,929	914	463	279	217	77	12		3,891
		\$1,141	\$3,320	\$8,393	\$17,406	\$33,865	\$53,686	\$54,389		\$6,711
55-59		2,010	1,384	878	687	1,439	2,539	690	4	9,631
		\$1,428	\$3,917	\$10,132	\$19,080	\$39,398	\$54,091	\$62,284	\$50,539	\$27,775
60-64	56	3,047	3,231	3,108	2,956	3,252	4,519	2,284	131	22,584
	\$6,786	\$2,488	\$6,307	\$14,525	\$23,931	\$37,702	\$51,123	\$60,272	\$53,778	\$28,452
65-69	490	4,765	5,677	6,148	6,391	6,024	7,199	4,013	608	41,315
	\$2,165	\$3,464	\$7,409	\$14,948	\$23,678	\$34,045	\$48,294	\$58,234	\$62,450	\$27,285
70-74	1,112	4,418	6,335	6,067	6,290	7,022	12,443	8,778	999	53,464
	\$1,531	\$3,838	\$6,850	\$14,467	\$23,353	\$33,821	\$47,111	\$59,347	\$67,588	\$31,963
75-79	1,541	3,086	5,354	4,492	4,373	5,341	12,645	8,487	1,050	46,369
	\$1,266	\$3,853	\$5,535	\$12,315	\$20,669	\$30,440	\$41,703	\$55,189	\$68,231	\$30,605
80-84	1,187	1,712	2,937	2,841	2,686	3,203	7,017	4,225	687	26,495
	\$1,079	\$3,161	\$4,949	\$10,000	\$16,764	\$25,422	\$35,180	\$46,471	\$61,352	\$24,965
85-89	589	795	1,685	1,501	1,804	1,946	2,493	2,317	525	13,655
	\$903	\$2,580	\$4,005	\$7,677	\$12,940	\$20,730	\$29,527	\$37,539	\$47,969	\$19,796
Over 89	340	435	1,116	1,142	1,323	1,380	1,361	854	558	8,509
	\$804	\$2,129	\$3,467	\$6,629	\$11,487	\$17,391	\$25,510	\$33,823	\$43,057	\$16,390
Total	5,315	25,752	29,935	27,110	26,956	29,836	50,294	31,660	4,562	231,420
	\$1,351	\$2,712	\$5,787	\$12,697	\$20,903	\$31,436	\$43,523	\$54,217	\$60,442	\$27,124

1. Includes 34 annuitant records with no service information provided.

Exhibit VI

The Number and Average Annual Annuities as of June 30, 2024

Beneficiaries and Survivor Annuitants

Age	Years of Service								Total
	0-9 ¹	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 50	52	76	60	52	47	58	39	4	388
	\$1,526	\$3,172	\$4,697	\$8,060	\$11,720	\$12,289	\$15,317	\$16,821	\$7,602
50-54	23	32	32	35	36	27	20	4	209
	\$1,679	\$4,465	\$8,148	\$8,807	\$10,356	\$15,444	\$19,247	\$19,646	\$9,588
55-59	36	53	61	62	75	89	51	15	442
	\$3,723	\$3,509	\$6,003	\$9,323	\$15,916	\$15,822	\$20,309	\$15,053	\$11,601
60-64	70	82	88	98	128	163	123	22	774
	\$2,880	\$4,933	\$8,298	\$11,546	\$16,140	\$18,820	\$22,557	\$21,475	\$14,016
65-69	108	174	189	167	173	293	256	55	1,415
	\$3,143	\$5,294	\$8,649	\$14,086	\$19,233	\$24,600	\$25,844	\$24,956	\$16,800
70-74	174	206	225	246	281	567	487	83	2,269
	\$3,254	\$5,520	\$10,323	\$15,056	\$19,802	\$28,052	\$32,463	\$31,391	\$20,985
75-79	215	280	227	281	285	711	634	115	2,748
	\$3,019	\$5,372	\$10,536	\$13,287	\$19,392	\$25,942	\$32,883	\$35,936	\$20,826
80-84	202	263	236	235	238	575	550	137	2,436
	\$3,011	\$4,949	\$8,467	\$13,305	\$17,254	\$20,984	\$26,687	\$30,527	\$17,269
85-89	135	226	178	168	193	359	401	153	1,813
	\$1,957	\$3,735	\$7,331	\$9,478	\$13,461	\$16,915	\$21,218	\$26,159	\$13,892
Over 89	130	161	137	179	171	255	278	148	1,459
	\$2,434	\$3,562	\$5,810	\$8,807	\$11,327	\$13,035	\$18,135	\$23,056	\$11,636
Total ²	1,145 \$2,792	1,553 \$4,672	1,433 \$8,435	1,523 \$12,162	1,627 \$16,744	3,097 \$22,159	2,839 \$26,874	736 \$27,923	13,953 \$16,755

1. Includes 51 beneficiary or survivor annuitant records with no service information provided.

2. In addition, there are 2,483 beneficiaries who are only entitled to a pending lump sum distribution.

Exhibit VII

The Number and Average Annual Annuities as of June 30, 2024

Retired on Account of Disability

Age									Total
	5-9 ¹	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 50	109 \$17,309	110 \$25,175	85 \$30,421	45 \$44,803	2 \$48,143				351 \$26,650
50-54	113 \$14,672	107 \$19,762	116 \$28,796	105 \$40,860	69 \$60,025	8 \$66,505			518 \$31,036
55-59	186 \$14,292	208 \$16,647	205 \$25,726	185 \$36,147	132 \$51,151	28 \$59,326			944 \$28,067
60-64	314 \$11,264	346 \$14,334	294 \$20,247	247 \$32,912	164 \$42,546	48 \$51,767	2 \$44,071		1,415 \$22,706
65-69	411 \$10,408	404 \$13,613	346 \$19,283	296 \$27,842	197 \$39,646	80 \$47,438	1 \$39,632		1,735 \$20,943
70-74	301 \$9,289	356 \$13,150	273 \$17,805	281 \$26,284	295 \$37,481	120 \$47,937	2 \$57,894	2 \$22,352	1,630 \$22,511
75-79	207 \$7,698	204 \$10,745	172 \$14,400	189 \$23,089	210 \$32,222	101 \$44,122	1 \$13,560	2 \$29,508	1,086 \$20,184
80-84	90 \$7,450	130 \$8,701	111 \$11,990	100 \$18,347	66 \$27,002	15 \$35,685		1 \$10,189	513 \$14,220
85-89	45 \$4,921	57 \$7,238	46 \$9,384	37 \$16,910	31 \$22,681	4 \$36,467			220 \$11,547
Over 89	22 \$3,402	34 \$6,850	28 \$8,367	18 \$14,968	6 \$21,962	3 \$24,752			111 \$9,167
Total	1,798 \$10,775	1,956 \$14,037	1,676 \$19,785	1,503 \$29,171	1,172 \$39,435	407 \$47,757	6 \$42,853	5 \$22,782	8,523 \$22,276

1. Includes 41 annuitant records with no service information provided.

Exhibit VIII

Annuitant and Beneficiary Membership Data as of June 30, 2024

**Number and Average Annual Benefit
Excludes Partial Lump Sum Payments**

Age Last Birthday	Number	Annual Benefit (Thousands)	Average Annual Benefit
Annuitants (Normal, Early and Withdrawal)			
Under 60	19,029	\$ 308,008	\$ 16,186
60 - 64	22,584	642,561	28,452
65 - 69	41,315	1,127,273	27,285
70 - 74	53,464	1,708,880	31,963
75 - 79	46,369	1,419,128	30,605
Over 79	48,659	1,071,219	22,015
Total	231,420	\$ 6,277,069	\$ 27,124
Survivors and Beneficiaries			
Under 60	1,039	\$ 10,081	\$ 9,703
60 - 64	774	10,848	14,016
65 - 69	1,415	23,771	16,800
70 - 74	2,269	47,615	20,985
75 - 79	2,748	57,231	20,826
Over 79	5,708	84,231	14,757
Total	13,953	\$ 233,777	\$ 16,755
Disabled Annuitants			
Under 60	1,813	\$ 51,926	\$ 28,641
60 - 64	1,415	32,129	22,706
65 - 69	1,735	36,337	20,943
70 - 74	1,630	36,693	22,511
75 - 79	1,086	21,921	20,185
Over 79	844	10,852	12,858
Total	8,523	\$ 189,858	\$ 22,276
Grand Total Average Annual Benefit	253,896	\$ 6,700,704	\$ 26,392

Exhibit IX

10-Year History of Membership Data

Active Members

Valuation as of June 30	Number of Active Members ¹	Percentage Change in Membership	Total Annualized Payroll (Thousands) ²	Percentage Change in Payroll
2024	255,652	1.56%	\$ 15,676,376	4.30%
2023	251,732	1.34	15,030,750	4.27
2022	248,393	(0.01)	14,415,795	2.54
2021	248,410	(3.08)	14,059,363	0.60
2020	256,306	0.22	13,975,907	2.22
2019	255,749	(0.24)	13,671,927	2.19
2018	256,362	0.16	13,379,041	2.65
2017	255,945	(0.44)	13,033,919	1.42
2016	257,080	(1.07)	12,851,289	1.37
2015	259,868	(1.31)	12,678,213	0.45

1. Includes Class DC participants beginning June 30, 2020. Based on discussions with PSERS staff, the 2021 count has been updated to 319 from 54.
2. The salaries shown represent an annual rate of pay for the year ending June 30th for members and Class DC participants who were in active service on June 30th. The June 30, 2021 salaries include annual rate of pay for the original 54 Class DC participants.

Exhibit IX
(Continued)

10-Year History of Membership Data

The Number and Annual Annuities of Annuitant and Survivor Annuitant Members

Year Ended June 30	Number	Annual Annuities ¹ (Millions)	Average Annual Annuities	Additions	Annual Annuities (Millions)	Deletions	Annual Annuities (Millions)	Percentage Change in Membership	Percentage Change in Annuities
2024	253,896	\$ 6,700.7	\$ 26,392	10,572	\$ 294.5	6,400	\$ 125.5	1.67%	2.43%
2023	249,724	6,542.0	26,197	10,606	278.0	7,783	147.2	1.14	1.61
2022	246,901	6,438.6	26,078	11,493	309.9	7,431	120.4	1.67	2.01
2021	242,839	6,311.8	25,992	11,682	320.2	8,457	135.9	1.35	2.28
2020	239,614	6,170.9	25,753	9,708	256.1	7,433	115.6	0.96	1.97
2019	237,339	6,051.6	25,498	10,553	246.6	6,502	107.0	1.74	2.11
2018	233,288	5,926.7	25,405	11,806	235.3	8,532	98.6	1.42	1.90
2017	230,014	5,816.4	25,287	12,876	274.2	7,690	102.1	2.31	2.65
2016	224,828	5,666.4	25,203	12,686	267.1	7,633	93.5	2.30	2.64
2015	219,775	5,520.6	25,119	15,017	297.3	9,142	91.7	2.75	3.39

1. The annual annuities added and deleted are for the annuitants and survivor annuitants who were added and deleted. Changes in annuities for continuing payees may also occur due to finalization of benefit calculations and due to the commencement of supplemental annuity payments.

The Number and Annual Annuities of Annuitant Members

Year Ended June 30	Number	Annual Annuities ² (Millions)	Average Annual Annuities	Additions	Annual Annuities (Millions)	Deletions	Annual Annuities (Millions)	Percentage Change in Membership	Percentage Change in Annuities
2024	239,943	\$ 6,466.9	\$ 26,952	9,453	\$ 272.5	5,796	\$ 116.5	1.55%	2.30%
2023	236,286	6,321.2	26,753	9,452	255.9	6,967	136.6	1.06	1.48
2022	233,801	6,229.2	26,643	10,442	288.9	6,776	134.6	1.59	1.88
2021	230,135	6,114.5	26,569	10,474	297.9	7,881	152.3	1.14	2.10
2020	227,542	5,988.6	26,319	8,841	239.6	6,778	123.5	0.91	1.92
2019	225,479	5,875.5	26,058	9,575	228.8	5,975	104.0	1.62	1.97
2018	221,879	5,762.3	25,970	10,911	220.2	7,918	93.0	1.37	1.80
2017	218,886	5,660.4	25,860	11,942	257.9	7,075	95.8	2.27	2.54
2016	214,019	5,520.0	25,792	11,807	249.8	7,054	88.1	2.27	2.54
2015	209,266	5,383.3	25,725	12,624	279.2	7,114	86.5	2.70	3.30

2. The annual annuities added and deleted are for the annuitants who were added and deleted. Changes in annuities for continuing payees may also occur due to finalization of benefit calculations and due to the commencement of supplemental annuity payments.

Exhibit X

Detailed Tabulations of the Data

Table 1

**The Number and Annual Salaries of Members in Active Service Distributed
by Age as of June 30, 2024***

Age	Male		Female		Total	
	Number	Salaries	Number	Salaries	Number	Salaries
17	18	\$ 187,831	14	\$ 138,889	32	\$ 326,720
18	47	660,725	65	879,493	112	1,540,218
19	145	2,734,926	227	3,765,035	372	6,499,961
20	260	5,316,929	356	5,989,890	616	11,306,819
21	354	7,677,296	463	8,773,485	817	16,450,781
22	469	12,016,670	857	23,793,066	1,326	35,809,736
23	732	24,262,375	1,994	76,940,548	2,726	101,202,923
24	1,000	36,362,594	2,455	106,194,436	3,455	142,557,030
25	1,029	38,992,382	2,566	114,474,606	3,595	153,466,988
26	1,024	41,107,262	2,675	125,651,660	3,699	166,758,922
27	1,012	41,749,384	2,717	131,685,859	3,729	173,435,243
28	1,028	44,302,463	2,689	137,769,788	3,717	182,072,251
29	1,086	51,097,972	2,921	151,188,040	4,007	202,286,012
30	1,086	53,751,902	3,005	158,332,391	4,091	212,084,293
31	1,217	61,313,811	3,110	165,960,058	4,327	227,273,869
32	1,194	63,964,790	3,356	185,060,617	4,550	249,025,407
33	1,336	73,261,154	3,640	202,623,758	4,976	275,884,912
34	1,416	81,991,387	3,878	221,056,971	5,294	303,048,358
35	1,418	82,827,571	3,971	230,634,155	5,389	313,461,726
36	1,466	90,495,615	4,116	241,707,739	5,582	332,203,354
37	1,625	104,271,838	4,550	281,337,623	6,175	385,609,461
38	1,709	116,024,680	4,876	302,318,201	6,585	418,342,881
39	1,830	128,870,391	5,077	330,750,119	6,907	459,620,510
40	1,834	131,107,193	5,283	348,538,265	7,117	479,645,458
41	1,829	133,616,140	5,548	371,224,719	7,377	504,840,859
42	2,106	157,123,484	5,774	393,900,326	7,880	551,023,810
43	2,139	161,651,050	5,842	402,236,695	7,981	563,887,745
44	2,108	162,202,518	5,802	400,671,510	7,910	562,874,028
45	2,112	163,438,947	5,617	390,417,511	7,729	553,856,458
46	2,018	160,338,586	5,377	372,790,531	7,395	533,129,117
47	2,110	167,132,503	5,332	370,864,243	7,442	537,996,746
48	2,071	164,530,080	5,064	351,897,099	7,135	516,427,179
49	1,990	157,511,371	5,141	355,702,669	7,131	513,214,040
50	2,005	161,070,099	5,034	346,647,278	7,039	507,717,377
51	2,067	164,362,675	5,126	350,451,883	7,193	514,814,558
52	2,169	175,652,877	5,462	374,534,215	7,631	550,187,092
53	2,369	188,128,528	5,885	406,443,096	8,254	594,571,624
54	2,025	162,445,974	5,682	387,815,567	7,707	550,261,541
55	1,888	145,787,605	4,950	322,194,464	6,838	467,982,069
56	1,706	129,154,023	4,591	284,330,087	6,297	413,484,110
57	1,548	110,769,158	4,258	256,232,439	5,806	367,001,597
58	1,479	100,970,449	3,855	217,656,077	5,334	318,626,526
59	1,309	87,831,882	3,871	203,543,898	5,180	291,375,780
60	1,265	79,935,942	3,622	183,962,217	4,887	263,898,159
61	1,124	68,392,770	3,370	167,033,502	4,494	235,426,272

Table 1
(Continued)

**The Number and Annual Salaries of Members in Active Service Distributed
by Age as of June 30, 2024***

Age	Male		Female		Total	
	Number	Salaries	Number	Salaries	Number	Salaries
62	953	\$ 53,892,005	2,774	\$ 130,977,543	3,727	\$ 184,869,548
63	916	48,537,759	2,562	115,952,871	3,478	164,490,630
64	818	41,596,773	2,094	91,523,404	2,912	133,120,177
65	639	30,855,269	1,477	63,870,108	2,116	94,725,377
66	558	25,231,882	1,182	46,237,045	1,740	71,468,927
67	436	18,131,441	870	31,684,642	1,306	49,816,083
68	374	14,478,477	666	23,230,996	1,040	37,709,473
69	358	13,017,997	557	18,702,556	915	31,720,553
70	290	9,955,231	476	14,635,806	766	24,591,037
71	221	7,749,130	366	11,261,661	587	19,010,791
72	223	7,163,374	300	9,467,806	523	16,631,180
73	151	5,222,513	224	5,785,093	375	11,007,606
74	127	4,163,107	203	6,341,118	330	10,504,225
75	115	3,251,095	173	4,293,804	288	7,544,899
76	101	3,076,639	123	3,283,346	224	6,359,985
77	88	2,735,795	99	2,193,536	187	4,929,331
78	41	1,126,748	66	1,696,015	107	2,822,763
79	53	1,623,407	50	1,384,346	103	3,007,753
80	33	947,612	32	807,477	65	1,755,089
81	29	774,259	30	590,437	59	1,364,696
82	22	780,930	27	494,367	49	1,275,297
83	11	233,778	16	254,830	27	488,608
84	8	216,657	13	268,958	21	485,615
85	13	324,813	8	197,425	21	522,238
86	6	144,999	4	82,310	10	227,309
87	3	40,646	3	59,141	6	99,787
Total	70,359	\$4,591,668,138	184,459	\$11,051,391,359	254,818	\$15,643,059,497

* Does not include 834 Class DC participants.

Table 2

**The Number and Annual Salaries of Members in Active Service Distributed by
Years of Credited Service as of June 30, 2024***

Service	Male		Female		Total	
	Number	Salaries	Number	Salaries	Number	Salaries
0	5,754	\$ 81,730,519	8,711	\$ 157,276,287	14,465	\$ 239,006,806
1	7,332	235,692,145	17,033	569,903,115	24,365	805,595,260
2	4,798	198,425,355	12,374	498,423,719	17,172	696,849,074
3	3,295	149,970,877	8,899	391,422,720	12,194	541,393,597
4	2,286	112,022,477	7,267	325,986,557	9,553	438,009,034
5	2,443	131,516,008	7,621	362,825,697	10,064	494,341,705
6	2,230	123,705,650	7,001	350,746,946	9,231	474,452,596
7	2,057	122,018,337	6,503	338,401,776	8,560	460,420,113
8	1,890	116,704,193	6,325	343,187,590	8,215	459,891,783
9	1,819	116,369,069	5,860	331,670,940	7,679	448,040,009
10	1,739	115,750,727	5,511	325,440,012	7,250	441,190,739
11	1,738	120,253,814	5,102	310,266,152	6,840	430,519,966
12	1,439	100,417,950	4,435	277,104,318	5,874	377,522,268
13	1,390	101,959,422	4,492	289,050,597	5,882	391,010,019
14	1,563	120,149,205	5,216	350,505,185	6,779	470,654,390
15	1,777	140,439,979	5,600	395,947,556	7,377	536,387,535
16	1,930	157,384,376	6,055	440,111,925	7,985	597,496,301
17	2,009	169,436,565	6,259	467,086,574	8,268	636,523,139
18	1,984	171,673,717	6,018	466,270,071	8,002	637,943,788
19	2,082	186,772,520	5,937	471,881,221	8,019	658,653,741
20	2,101	192,585,213	5,592	456,687,580	7,693	649,272,793
21	1,738	162,513,781	4,657	380,234,676	6,395	542,748,457
22	1,695	161,189,736	4,542	374,061,750	6,237	535,251,486
23	1,636	154,870,644	4,305	357,367,256	5,941	512,237,900
24	1,571	150,472,966	4,267	357,746,365	5,838	508,219,331
25	1,874	184,110,557	3,685	314,150,928	5,559	498,261,485
26	1,511	149,221,988	3,060	266,488,384	4,571	415,710,372
27	1,448	146,848,105	2,536	224,483,674	3,984	371,331,779
28	1,123	113,002,383	2,078	187,020,880	3,201	300,023,263
29	948	95,849,316	1,809	163,836,166	2,757	259,685,482
30	706	70,779,315	1,503	138,020,253	2,209	208,799,568
31	802	81,326,580	1,209	109,779,245	2,011	191,105,825
32	443	44,231,382	814	73,329,634	1,257	117,561,016
33	320	31,291,826	663	58,765,663	983	90,057,489
34	299	28,933,705	497	43,969,183	796	72,902,888
35	184	16,936,079	284	22,722,007	468	39,658,086
36	111	10,295,740	192	16,312,427	303	26,608,167
37	79	7,086,685	153	12,154,993	232	19,241,678
38	59	4,753,342	97	8,085,759	156	12,839,101
39	40	3,584,531	77	6,245,509	117	9,830,040
40	22	1,968,933	38	2,369,094	60	4,338,027
41	25	2,261,106	33	2,521,892	58	4,782,998
42	15	1,177,025	22	1,477,116	37	2,654,141
43	17	1,058,889	21	1,656,239	38	2,715,128

Table 2
(Continued)

**The Number and Annual Salaries of Members in Active Service Distributed by
Years of Credited Service as of June 30, 2024***

Service	Male		Female		Total	
	Number	Salaries	Number	Salaries	Number	Salaries
44	8	\$ 736,137	18	\$ 1,348,535	26	\$ 2,084,672
45	15	887,036	14	1,259,555	29	2,146,591
46	4	488,948	13	816,115	17	1,305,063
47	1	102,376	9	664,146	10	766,522
48	3	209,551	8	680,889	11	890,440
49	1	60,777	12	827,025	13	887,802
50	1	77,181	6	681,608	7	758,789
51	2	217,675	9	919,615	11	1,137,290
52			4	402,034	4	402,034
53			5	324,780	5	324,780
54			4	214,386	4	214,386
55			1	88,670	1	88,670
57	1	44,625	2	124,663	3	169,288
58	1	101,100	1	43,707	2	144,807
Total	70,359	\$4,591,668,138	184,459	\$11,051,391,359	254,818	\$15,643,059,497

* Does not include 834 Class DC participants.

Table 3

**The Number and Annual Annuities of Annuitants on the Retired List
as of June 30, 2024**

**Retired on Account of Superannuation, Early Retirement and
Those in Receipt of Withdrawal Annuities**

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
27	1	\$ 66			1	\$ 66
31	1	3,650			1	3,650
32	4	7,012	3	\$ 1,410	7	8,422
33	13	12,418	8	4,319	21	16,737
34	23	20,669	12	8,330	35	28,999
35	17	17,847	31	44,330	48	62,177
36	37	57,643	74	91,566	111	149,209
37	54	75,837	95	132,642	149	208,479
38	96	169,617	156	220,087	252	389,704
39	100	170,813	167	258,600	267	429,413
40	86	179,591	191	315,822	277	495,413
41	129	205,838	265	474,550	394	680,388
42	143	314,533	236	482,668	379	797,201
43	153	386,474	258	607,092	411	993,566
44	169	400,227	310	777,114	479	1,177,341
45	178	560,296	318	768,710	496	1,329,006
46	180	571,358	303	842,004	483	1,413,362
47	181	579,237	361	1,178,044	542	1,757,281
48	163	728,444	384	1,179,619	547	1,908,063
49	210	1,037,141	397	1,504,627	607	2,541,768
50	154	866,687	451	1,946,478	605	2,813,165
51	221	1,455,979	466	2,024,908	687	3,480,887
52	225	1,505,305	530	2,553,290	755	4,058,595
53	240	1,972,622	635	3,719,624	875	5,692,246
54	259	2,959,171	710	7,108,772	969	10,067,943
55	421	10,467,926	972	19,364,902	1,393	29,832,828
56	458	13,298,968	1,111	25,687,404	1,569	38,986,372
57	553	17,738,439	1,314	33,883,157	1,867	51,621,596
58	674	23,834,236	1,521	43,202,981	2,195	67,037,217
59	721	25,767,141	1,886	54,259,860	2,607	80,027,001
60	871	33,825,282	2,122	61,600,857	2,993	95,426,139
61	941	33,980,102	2,458	71,782,488	3,399	105,762,590
62	1,185	41,023,410	3,689	94,181,253	4,874	135,204,663
63	1,350	46,053,136	4,178	105,858,911	5,528	151,912,047
64	1,384	46,311,662	4,406	107,944,142	5,790	154,255,804
65	1,694	53,065,450	5,193	128,377,753	6,887	181,443,203

Table 3
(Continued)

**The Number and Annual Annuities of Annuitants on the Retired List
as of June 30, 2024**

**Retired on Account of Superannuation, Early Retirement and
Those in Receipt of Withdrawal Annuities**

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
66	1,864	\$ 59,507,603	5,989	\$ 151,726,518	7,853	\$ 211,234,121
67	2,043	66,530,848	6,524	165,719,583	8,567	232,250,431
68	2,096	66,056,102	6,602	173,575,869	8,698	239,631,971
69	2,321	73,293,971	6,989	189,418,739	9,310	262,712,710
70	2,362	76,710,274	7,391	214,953,518	9,753	291,663,792
71	2,725	94,874,155	7,810	238,681,344	10,535	333,555,499
72	2,935	105,062,830	8,289	259,004,827	11,224	364,067,657
73	3,064	113,130,035	8,105	255,693,549	11,169	368,823,584
74	3,130	115,896,461	7,653	234,873,143	10,783	350,769,604
75	3,270	121,728,015	7,311	223,171,987	10,581	344,900,002
76	3,546	126,240,829	7,037	205,195,303	10,583	331,436,132
77	3,950	135,845,258	7,394	208,130,396	11,344	343,975,654
78	2,607	87,932,372	4,494	121,905,670	7,101	209,838,042
79	2,380	75,186,132	4,380	113,792,248	6,760	188,978,380
80	2,293	70,748,727	4,055	97,854,779	6,348	168,603,506
81	2,444	75,891,898	4,177	97,217,218	6,621	173,109,116
82	1,851	54,981,693	3,339	73,737,543	5,190	128,719,236
83	1,514	43,653,152	2,947	60,997,894	4,461	104,651,046
84	1,271	34,283,512	2,604	52,073,579	3,875	86,357,091
85	1,083	29,466,444	2,344	43,236,461	3,427	72,702,905
86	942	23,436,392	2,123	38,196,503	3,065	61,632,895
87	823	21,865,962	1,856	32,073,651	2,679	53,939,613
88	742	18,117,787	1,684	26,224,401	2,426	44,342,188
89	637	15,744,108	1,421	21,951,543	2,058	37,695,651
90	502	11,813,525	1,194	17,844,262	1,696	29,657,787
91	394	10,180,306	1,013	14,803,948	1,407	24,984,254
92	338	8,425,810	978	14,868,922	1,316	23,294,732
93	265	6,493,477	825	12,042,610	1,090	18,536,087
94	186	4,222,309	613	8,206,753	799	12,429,062
95	111	2,485,589	512	7,047,118	623	9,532,707
96	98	2,143,493	421	5,306,425	519	7,449,918
97	63	1,349,771	288	3,565,560	351	4,915,331
98	43	821,820	191	2,452,366	234	3,274,186
99	24	377,321	139	1,573,147	163	1,950,468
100	20	368,893	94	1,030,213	114	1,399,106

Table 3
(Continued)

**The Number and Annual Annuities of Annuitants on the Retired List
as of June 30, 2024**

**Retired on Account of Superannuation, Early Retirement and
Those in Receipt of Withdrawal Annuities**

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
101	6	\$ 94,006	68	\$ 702,110	74	\$ 796,116
102	4	57,678	45	370,822	49	428,500
103	2	34,114	35	363,594	37	397,708
104	1	17,604	17	178,360	18	195,964
105	1	15,202	9	157,364	10	172,566
106			3	30,831	3	30,831
107	1	92		-	1	92
108			2	7,438	2	7,438
109			2	5,588	2	5,588
113			1	6,825	1	6,825
Total	67,241	\$ 2,114,709,797	164,179	\$ 4,162,358,836	231,420	\$ 6,277,068,633

Table 3
(Continued)

**The Number and Annual Annuities of Annuitants on the Retired List
as of June 30, 2024**

**Retired on Account of Superannuation, Early Retirement and
Those in Receipt of Withdrawal Annuities**

OPTION	MALE		FEMALE	
	<u>Count</u>	<u>Annual Annuity</u>	<u>Count</u>	<u>Annual Annuity</u>
Maximum	28,186	\$ 866,515,308	85,999	\$ 2,176,953,171
1	11,195	275,763,625	38,966	786,586,400
2	18,392	569,285,514	23,651	642,142,016
3	7,806	324,165,702	14,182	500,274,218
4	<u>1,662</u>	<u>78,979,648</u>	<u>1,381</u>	<u>56,403,031</u>
Total	67,241	\$ 2,114,709,797	164,179	\$ 4,162,358,836

DEFINITION OF OPTIONS

- Option 1 A life annuity to the member with a guaranteed payment to the beneficiary equal to the present value of the total maximum single life annuity less any amounts paid to the member prior to death.
- Option 2 A joint and one hundred percent (100%) survivor annuity payable during the lifetime of the member with the full amount of such annuity payable thereafter to the designated survivor annuitant, if living at the member's death.
- Option 3 A joint and fifty percent (50%) survivor annuity payable during the lifetime of the member with one-half of such annuity payable thereafter to the designated survivor annuitant, if living at the member's death.
- Option 4 A life annuity to the member with a special death benefit other than the normal option 1, 2, or 3 death benefit.

Note: The Option 4 totals above only reflect annuity elections that differ from the Maximum annuity or Options 1, 2 or 3. The Option 4 totals do not reflect Option 4 elections to withdraw accumulated deductions.

Table 4

**The Number and Annual Annuities of Beneficiaries and Survivor Annuitants
as of June 30, 2024**

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
7	1	\$ 6,432			1	\$ 6,432
11	1	571			1	571
12			1	\$ 702	1	702
14	1	1,534			1	1,534
17	1	3,741			1	3,741
18			1	1,534	1	1,534
19	1	3,730			1	3,730
20			1	21,875	1	21,875
22			1	11,840	1	11,840
23	4	22,836			4	22,836
24	2	3,939	7	65,888	9	69,827
25	3	9,461	5	43,260	8	52,721
26	2	12,542	2	13,822	4	26,364
27	3	5,145	1	11,629	4	16,774
28	1	9,869	6	26,995	7	36,864
29	2	3,832	3	13,061	5	16,893
30	4	25,135	2	14,045	6	39,180
31	3	7,226	3	17,646	6	24,872
32	3	18,924	5	33,501	8	52,425
33	3	14,123	7	47,026	10	61,149
34	6	42,596	5	17,180	11	59,776
35	5	19,205	6	22,709	11	41,914
36	7	55,649	8	73,179	15	128,828
37	9	74,032	4	15,358	13	89,390
38	5	25,704	6	10,399	11	36,103
39	8	37,739	12	119,099	20	156,838
40	8	45,386	11	133,165	19	178,551
41	8	55,332	5	28,749	13	84,081
42	6	65,593	6	38,209	12	103,802
43	12	97,907	7	33,999	19	131,906
44	7	29,548	6	43,880	13	73,428
45	16	81,292	20	127,607	36	208,899
46	17	162,285	14	136,158	31	298,443
47	7	29,182	18	137,665	25	166,847

Table 4
(Continued)

**The Number and Annual Annuities of Beneficiaries and Survivor Annuitants
as of June 30, 2024**

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
48	11	\$ 126,649	19	\$ 209,402	30	\$ 336,051
49	10	141,835	19	240,937	29	382,772
50	12	60,495	18	157,230	30	217,725
51	14	72,324	21	178,729	35	251,053
52	10	52,193	29	316,463	39	368,656
53	9	119,904	33	289,964	42	409,868
54	14	112,247	49	644,243	63	756,490
55	25	189,586	41	482,924	66	672,510
56	19	174,802	67	785,162	86	959,964
57	25	250,433	73	721,968	98	972,401
58	22	317,913	65	909,862	87	1,227,775
59	22	213,185	83	1,081,824	105	1,295,009
60	35	560,990	93	1,316,551	128	1,877,541
61	37	345,440	96	1,327,283	133	1,672,723
62	35	462,954	93	1,311,307	128	1,774,261
63	48	585,629	146	1,944,662	194	2,530,291
64	59	842,758	132	2,150,834	191	2,993,592
65	68	888,341	157	2,543,550	225	3,431,891
66	69	965,554	185	2,847,699	254	3,813,253
67	88	1,168,277	198	3,419,232	286	4,587,509
68	96	1,399,187	221	4,367,139	317	5,766,326
69	107	2,204,841	226	3,967,701	333	6,172,542
70	130	2,045,477	276	5,451,195	406	7,496,672
71	138	2,920,868	269	5,533,508	407	8,454,376
72	159	3,090,362	327	6,538,293	486	9,628,655
73	161	3,354,666	314	7,124,098	475	10,478,764
74	147	3,432,333	348	8,123,709	495	11,556,042
75	172	3,807,497	371	8,103,898	543	11,911,395
76	164	3,414,211	420	8,443,597	584	11,857,808
77	208	4,282,127	494	10,407,559	702	14,689,686
78	105	2,293,836	337	7,126,485	442	9,420,321
79	134	2,571,878	343	6,779,945	477	9,351,823
80	118	2,511,871	367	6,589,644	485	9,101,515
81	160	3,103,089	419	7,531,724	579	10,634,813
82	109	2,004,153	365	5,851,044	474	7,855,197
83	105	2,150,414	384	6,044,738	489	8,195,152
84	94	1,438,489	315	4,841,913	409	6,280,402
85	80	1,285,667	317	4,802,359	397	6,088,026
86	75	1,149,354	324	4,334,847	399	5,484,201
87	74	928,041	327	4,707,023	401	5,635,064

Table 4
(Continued)

**The Number and Annual Annuities of Beneficiaries and Survivor Annuitants
as of June 30, 2024**

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
88	71	\$ 844,495	262	\$ 3,328,925	333	\$ 4,173,420
89	38	493,576	245	3,312,574	283	3,806,150
90	41	408,348	208	2,668,789	249	3,077,137
91	25	322,251	197	2,444,160	222	2,766,411
92	42	428,952	169	2,203,019	211	2,631,971
93	32	315,770	157	1,849,809	189	2,165,579
94	24	278,157	142	1,725,124	166	2,003,281
95	15	196,086	109	1,192,119	124	1,388,205
96	15	172,710	77	722,125	92	894,835
97	17	154,687	61	658,574	78	813,261
98	7	71,377	36	417,210	43	488,587
99	3	29,964	25	271,499	28	301,463
100	6	48,671	16	99,000	22	147,671
101	5	34,289	15	158,730	20	193,019
102			9	61,782	9	61,782
103			3	25,108	3	25,108
104			1	3,047	1	3,047
105	1	14,961			1	14,961
106			1	672	1	672
Total	3,666	\$ 61,824,654	10,287	\$ 171,952,691	13,953	\$ 233,777,345

Table 5

**The Number and Annual Annuities of Annuitants on the Retired List
as of June 30, 2024**

Retired on Account of Disability

Age	Male		Female		Total	
	Number	Annuities	Number	Annuities	Number	Annuities
33			1	\$ 13,149	1	\$ 13,149
34	1	\$ 5,746	1	5,541	2	11,287
35			1	21,333	1	21,333
36			2	40,153	2	40,153
37			5	134,960	5	134,960
38	2	46,044	8	165,016	10	211,060
39	4	107,790	5	113,032	9	220,822
40	2	29,986	10	211,612	12	241,598
41	7	113,060	9	205,027	16	318,087
42	6	164,854	12	344,019	18	508,873
43	7	160,265	12	266,744	19	427,009
44	9	217,198	16	449,712	25	666,910
45	3	67,763	20	495,203	23	562,966
46	13	499,448	30	823,057	43	1,322,505
47	11	345,477	43	1,181,204	54	1,526,681
48	16	405,799	37	1,117,785	53	1,523,584
49	11	322,087	47	1,281,097	58	1,603,184
50	17	437,516	52	1,379,500	69	1,817,016
51	31	1,164,878	50	1,469,712	81	2,634,590
52	23	786,401	77	2,075,958	100	2,862,359
53	35	1,347,449	94	3,018,370	129	4,365,819
54	37	1,368,968	102	3,028,085	139	4,397,053
55	47	1,438,432	119	3,361,097	166	4,799,529
56	48	1,587,919	120	3,316,812	168	4,904,731
57	51	1,608,362	122	3,401,282	173	5,009,644
58	53	1,473,419	134	3,627,514	187	5,100,933
59	68	1,937,565	182	4,742,735	250	6,680,300
60	79	2,041,826	180	4,040,213	259	6,082,039
61	76	1,922,758	208	4,807,173	284	6,729,931
62	77	1,810,979	190	3,856,815	267	5,667,794
63	75	1,996,494	223	4,605,350	298	6,601,844
64	86	2,171,705	221	4,875,586	307	7,047,291
65	110	2,597,832	245	4,985,763	355	7,583,595
66	102	2,224,437	225	4,820,602	327	7,045,039
67	102	2,135,753	235	4,901,136	337	7,036,889
68	106	2,172,372	240	4,744,452	346	6,916,824
69	104	2,325,729	266	5,427,329	370	7,753,058

Table 5

(Continued)

**The Number and Annual Annuities of Annuitants on the Retired List
as of June 30, 2024**

Retired on Account of Disability

Age	Male			Female			Total	
	Number	Annuities	Number	Annuities	Number	Annuities		
70	99	\$ 2,170,965	266	\$ 5,735,705	365	\$ 7,906,670		
71	92	1,941,974	235	5,045,583	327	6,987,557		
72	97	2,419,477	239	5,602,758	336	8,022,235		
73	83	1,881,164	238	5,500,035	321	7,381,199		
74	86	2,037,419	195	4,358,317	281	6,395,736		
75	77	1,957,987	197	4,293,087	274	6,251,074		
76	71	1,888,640	198	3,986,424	269	5,875,064		
77	62	1,297,073	192	3,686,211	254	4,983,284		
78	35	598,617	120	1,978,909	155	2,577,526		
79	32	732,004	102	1,502,454	134	2,234,458		
80	37	718,808	102	1,516,033	139	2,234,841		
81	26	431,025	95	1,448,869	121	1,879,894		
82	18	278,521	85	1,048,847	103	1,327,368		
83	19	281,165	70	876,286	89	1,157,451		
84	11	139,302	50	555,840	61	695,142		
85	15	202,244	35	441,786	50	644,030		
86	11	142,734	53	498,252	64	640,986		
87	11	139,374	32	467,214	43	606,588		
88	9	111,978	25	247,607	34	359,585		
89	4	48,659	25	240,448	29	289,107		
90	9	119,007	22	176,376	31	295,383		
91	4	46,070	14	178,708	18	224,778		
92	1	9,416	12	107,170	13	116,586		
93	1	7,213	13	79,406	14	86,619		
94			10	83,940	10	83,940		
95	1	15,822	6	57,851	7	73,673		
96			7	46,975	7	46,975		
97	1	25,919	6	33,115	7	59,034		
98			1	5,107	1	5,107		
99			1	17,896	1	17,896		
102			1	1,776	1	1,776		
104			1	5,731	1	5,731		
Total	2,331	\$ 56,678,888	6,192	\$ 133,178,844	8,523	\$ 189,857,732		

Exhibit XI: Risk Information

Actuarial Standard of Practice No. 51 Disclosures

Funding future retirement benefits prior to when those benefits become due involves assumptions regarding future economic and demographic experience. These assumptions are applied to calculate actuarial liabilities, current contribution requirements, and the funded status of the plan. However, to the extent future experience deviates from the assumptions used, variations will occur in these calculated values. These variations create risk to the plan. Understanding the risks to the funding of the plan is important. Actuarial Standard of Practice No. 51 (ASOP 51) requires certain disclosures of potential risks to the plan and provides useful information for intended users of actuarial reports that determine plan contributions or evaluate the adequacy of specified contribution levels to support benefit provisions.

Under ASOP 51, risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.

It is important to note that not all risk is negative, but all risk should be understood and accepted based on knowledge, judgement, and educated decisions. Future measurements may deviate in ways that produce positive or negative financial impacts to the Retirement System.

In the actuary's professional judgment, the following risks may reasonably be anticipated to significantly affect the Retirement System's future financial condition:

- Investment risk – potential that the investment return will differ from the 7.00% expected in the actuarial valuation
- Salary increases – potential that salary increases will differ from those assumed in the actuarial valuation
- Longevity risk – potential that participants' lifespans will differ from those projected on the valuation mortality assumptions
- Declining workforce – potential that future employer contribution rates will differ from those expected
- Contribution risk – potential that contributions will differ from the recommended contributions in the actuarial valuation.

The following information is provided to comply with ASOP 51 and furnish beneficial information on potential risks to the plan. This list is not all-inclusive; it is an attempt to identify the most significant risks and how those risks might affect the results shown in this report.

Note that ASOP 51 does not require the actuary to evaluate the ability or willingness of the Retirement System employers to make contributions to the Retirement System when due, or to assess the likelihood or consequences of potential future changes in law. In addition, this valuation report is not intended to provide investment advice or to provide guidance on the management or reduction of risk. Gallagher welcomes the opportunity to assist in such matters as part of a separate project or projects utilizing the appropriate staff and resources for those objectives.

Exhibit XI: Risk Information (continued)

Assessment of Risks

Investment Risk

Retirement System costs are very sensitive to the market return. Any lower than assumed return on assets will increase costs.

- The lower return will cause the assets to be lower than expected. This decrease in assets will increase the Retirement System cost.
- The Retirement System uses an actuarial value of assets that smooths gains and losses on market returns over a 10-year period to help control some of the volatility in costs due to investment risk.
- Historical actual returns are shown on page 10. This historical experience illustrates how returns can vary over time.
- Act 2020-128 requires annual Retirement System stress testing through 20-year projections, sensitivity analysis and simulations. Gallagher has performed the stress test since 2022. Previously, the Retirement System's investment advisor performed the annual testing. For more information, please visit the Retirement System's website: <https://www.pa.gov/agencies/psers.html>.

The Retirement System invests in a diversified portfolio with the objective of maximizing investment returns at a reasonable level of risk. However, Actuarial Standard of Practice No. 4 ("ASOP 4") requires the actuary to disclose a Low-Default-Risk Obligation Measure ("LDROM") of System liabilities and provide commentary to help intended users of this report understand the significance of the measure with respect to funded status, contributions, and member benefit security.

The LDROM is to be based on "discount rates derived from low-default-risk fixed income securities whose cash flows are reasonably consistent with the pattern of benefits expected to be paid in the future." The LDROM shown here represents what the Retirement System's liability would be if it invested its assets solely in a portfolio of high-quality bonds whose cash flows approximately match future benefit payments. Consequently, the difference between the LDROM and the Actuarial Accrued Liability can be thought of as representing the expected taxpayer savings / (cost) from investing in the Retirement System's diversified portfolio compared to investing only in high-quality bonds. It may also be thought of as the cost of reducing investment risk.

As of June 30, 2024, the LDROM is \$139.7 billion (excluding Health Insurance Premium Assistance) and is based on a 5.53% interest rate. The interest rate used for the LDROM was determined by calculating a single equivalent discount rate using projected benefit payments and the Buck Standard Yield Curve as of June 30, 2024. Note the interest rate used for the LDROM is based on bond yields applicable at the time of the measurement and will therefore vary for different measurement dates. All other assumptions are the same as those used for funding as shown in this report.

Actuaries play a role in helping determine funding methods and policies that can achieve affordable and appropriate contributions and risk management. The funded status based on Actuarial Accrued Liability and the Actuarially Determined Contribution rates are determined using the expected return on assets, which reflects the actual investment portfolio. Since the assets are not invested in an all-bond portfolio, the LDROM does not indicate the Retirement System's funded status or progress, nor does it provide information on necessary Retirement System contributions.

With respect to security of member benefits, if the Retirement System was to be funded on an LDROM basis, member benefits accrued as of the measurement date may be considered more secure as investment risk might be significantly reduced. However, the fact that the System's assets are invested in a diversified portfolio does not mean members' benefits are not secure. Security of member benefits relies on a combination of the assets in the Retirement System, the investment returns generated on those assets, and the promise of future contributions from the participating employers. Reducing investment risk by investing solely in bonds may significantly increase Actuarially Determined Contributions and thereby increase contribution risk by decreasing the ability of employers to make necessary contributions to fund the benefits. Unnecessarily high contribution requirements in the near term may not be affordable and could imperil the Retirement System's sustainability and benefit security.

Exhibit XI: Risk Information (continued)

Member benefits will remain secure if reasonable and appropriate contributions with managed risk are calculated and paid.

Salary increases

Retirement System costs are sensitive to salary increases since benefits at retirement are pay related.

- Salaries greater than expected would lead to higher liabilities, larger unfunded liabilities and larger employer contributions.
- Salaries less than expected would lead to lower liabilities but may increase employer contribution rates due to lower employer payroll.

Longevity Risk

Retirement System costs will be increased as participants are expected to live longer. This is because:

- Benefits are paid over a longer lifetime when life expectancy is expected to increase. The longer duration of payments leads to higher liabilities.
- Health care has been improving, which increases the life expectancy of participants. As health care improves, Retirement System costs will increase.
- The mortality assumption for the Retirement System does assume future improvement in mortality. Any improvement in future mortality greater than that reflected in the current mortality assumption would lead to increased Retirement System costs.

Declining workforce

Employer contributions are based on a percentage of members' and DC plan participants' salaries. If the required dollar amount of contributions remains level or increases, a declining active workforce will result in higher contribution rates in order to meet required contribution levels.

Contribution Risk

The Retirement System contribution is a budgeted amount. There is a risk associated with the employer's contribution when the budgeted amount and recommended amount differ. This is because:

- When the budgeted contribution is lower than the recommended contribution, the Retirement System may not be sustainable in the long term.
- Any underpayment of the contribution will increase future contribution amounts to help pay off the additional Unfunded Actuarial Accrued Liability associated with any lower than recommended contribution amounts.
- Historical comparison of actuarially determined contributions to actual contributions are shown in Table 9. PSERS employers have taken action to mitigate this risk by contributing the actuarially determined contribution for pensions since the fiscal year ending June 30, 2017.

Act 120 mandated that the outstanding balance of the unfunded accrued liability as of June 30, 2010, including changes in the unfunded accrued liability due to the funding reforms of Act 120, be amortized over a 24-year period, as a level percent of pay, beginning July 1, 2011. Future valuation gains and losses, and changes in the unfunded accrued liability resulting from changes in actuarial assumptions and methods, are amortized over a 24-year period, as a level percent of pay. As provided by Act 5-2017, future increases in the unfunded accrued liability due to benefit enhancement legislation will be amortized over 10-year periods, as a level percent of pay.

Exhibit XI: Risk Information (continued)

The employer contribution rate developed in this report exceeds the normal cost, plus interest on the unfunded actuarial accrued liability. Assuming employer contributions meet or exceed the Actuarially Determined Contribution rate developed in this report, the current unfunded actuarial accrued liability is expected to be fully amortized by fiscal year ending June 30, 2049. Based on analysis prepared for the Governmental Accounting Standards Board Statement No. 67 Disclosures for Fiscal Year Ending June 30, 2024, we expect Retirement System assets and future funding policy contributions to sufficiently cover projected future benefit payments of current members for all future years.

Other Risk Considerations

Other possible risks (but this is not an exhaustive list) to be considered that may impact the Retirement System funding:

- The valuation assumes 75% of Class T-C and Class T-D and 50% of Class TE, Class T-F, Class T-G and Class T-H members are assumed to elect an Option 4 refund of member contributions and a reduced annuity at benefit commencement. Actual experience from this assumption could affect the liquidity of the Retirement System if more retirees elect a lump sum than are expected in the valuation.
- Investment risk is mitigated to some extent by the shared-risk provisions of the Retirement System and its potential impact on the member contribution rates for Class T-E, Class T-F, Class T-G and Class T-H members. Poor asset returns over a period of time could trigger increased member contributions for these classes of members. As of the June 30, 2023 valuation, the shared-risk provisions reverted member contributions back to the basic rates effective July 1, 2024 through June 30, 2027. The next Class T-E, Class T-F, Class T-G and Class T-H shared-risk valuation is to be performed for the 10-year period ending June 30, 2026.
- Members who retire after 25 years of service and are at least age 55 (age 57 for Class T-G members) may commence their benefits prior to their superannuation date with subsidized early retirement factors. If more retirees retire and commence their benefits under this early retirement provision than are assumed based on the assumptions outlined in Table 11, the Retirement System may pay out subsidized benefits for a longer period of time thus increasing liabilities and costs.

Plan Maturity Measures

There are certain measures that may aid in understanding the significant risks to the Retirement System.

Ratio of Retired Liability to Total Liability (Pension Only)	June 30, 2020 (\$000)	June 30, 2021 (\$000)	June 30, 2022 (\$000)	June 30, 2023 (\$000)	June 30, 2024 (\$000)
1. Retirees and Beneficiaries	\$ 58,415,383	\$ 61,168,172	\$ 61,869,159	\$ 62,344,050	\$ 63,319,486
2. Total Accrued Liability	\$ 107,833,399	\$ 112,650,825	\$ 114,476,801	\$ 116,243,212	\$ 119,163,518
3. Ratio [(1) / (2)]	54.2%	54.3%	54.0%	53.6%	53.1%

A high percentage of liability concentrated in retirees indicates a mature plan. An increasing percentage may indicate a need for less risky and / or more liquid asset allocation which may lead to increased investment risk, a need to lower the long-term return on asset assumption, and increased costs.

Exhibit XI: Risk Information (continued)

Ratio of Cash Flow to Assets (Pension Only)	June 30, 2020 (\$000)	June 30, 2021 (\$000)	June 30, 2022 (\$000)	June 30, 2023 (\$000)	June 30, 2024 (\$000)
1. Total Contributions	\$ 5,744,370	\$ 5,839,890	\$ 6,131,963	\$ 6,423,598	\$ 6,460,585
2. Benefit Payments	\$ 6,876,515	\$ 7,134,332	\$ 7,254,372	\$ 7,580,983	\$ 7,728,745
3. Cash Flow [(1) – (2)]	\$ (1,132,145)	\$ (1,294,442)	\$ (1,122,409)	\$ (1,157,385)	\$ (1,268,160)
4. Market Value of Assets	\$ 58,566,786	\$ 71,967,352	\$ 70,528,242	\$ 72,112,330	\$ 76,492,994
5. Ratio [(3) / (4)]	(1.9%)	(1.8%)	(1.6%)	(1.6%)	(1.7%)

When this cash flow ratio is negative more cash is being paid out than deposited in the Retirement System. Negative cash flow means the fund needs to rely on investment returns to cover benefit payments and at the same time may need to invest in more liquid assets to cover the benefit payments. More liquid assets may not garner the same returns as less liquid assets and therefore increase the investment risk. However, the low magnitude of the ratio implies there may already be enough liquid assets to cover the benefit payments, less investment return is needed to cover the shortfall, or only a small portion of assets will need to be converted to cash. Therefore, the investment risk is likely not amplified at this time. This maturity measure should be monitored for continual negative trend with greater magnitude.

Contribution Volatility (Pension Only)	June 30, 2020 (\$000)	June 30, 2021 (\$000)	June 30, 2022 (\$000)	June 30, 2023 (\$000)	June 30, 2024 (\$000)
1. Market Value of Assets	\$ 58,566,786	\$ 71,967,352	\$ 70,528,242	\$ 72,112,330	\$ 76,492,994
2. Payroll	\$ 13,974,295	\$ 14,057,526	\$ 14,397,002	\$ 14,995,870	\$ 15,643,059
3. Asset Volatility Ratio (AVR) [(1) / (2)]	4.2	5.1	4.9	4.8	4.9
4. Accrued Liability	\$ 107,833,399	\$ 112,650,825	\$ 114,476,801	\$ 116,243,212	\$ 119,163,518
5. Liability Volatility Ratio (LVR) [(4) / (2)]	7.7	8.0	8.0	7.8	7.6

Plans that have higher asset-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with an asset-to-payroll ratio of 10 may experience twice the contribution volatility due to investment return volatility than a plan with an asset-to-payroll ratio of 5. Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to changes in liability. For example, if an assumption change increases the liability of two plans by the same percent, the plan with a liability-to-payroll ratio of 10 may experience twice the contribution volatility than a plan with a liability-to-payroll ratio of 5.

Exhibit XII

Glossary

Accrued Liability	The difference between (a) the present value of future plan benefits, and (b) the present value of future normal cost. It is the portion of the present value of future plan benefits attributable to service accrued as of the valuation date. Sometimes referred to as "actuarial accrued liability."
Accrued Service	The service credited under the plan that was rendered before the date of the actuarial valuation.
Actuarial Assumptions	Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the "present value of future plan benefits" between the present value of future normal cost and the accrued liability. Sometimes referred to as the "actuarial funding method."
Actuarial Equivalent	A series of payments is called an actuarial equivalent of another series of payments if the two series have the same actuarial present value.
Actuarial Value of Assets	The value of current plan assets recognized for valuation purposes. Based on a smoothed market value that recognizes investment gains and losses over a period of ten years.
Amortization	Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.
Experience Gain (Loss)	A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.
Normal Cost	The annual cost assumed, under the actuarial funding method, for current and subsequent plan years. Sometimes referred to as "current service cost."
Present Value	The amount of funds presently required to provide a payment or series of payments in the future. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.
Unfunded Accrued Liability	The difference between the actuarial accrued liability and actuarial value of assets.