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NEBRASKA PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE EQUAL RETIREMENT BENEFIT FUND

Actuarial Valuation Results as of January 1, 2023

for State Fiscal Year Ending June 30, 2024

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May 2, 2023

Public Employees Retirement Board
Nebraska Public Employees Retirement Systems
1526 "K" Street
Suite 400
Lincoln, NE 68509-4816

RE: Certification of Actuarial Valuation
State Equal Retirement Benefit Fund

Members of the Board:

At your request, we have prepared an actuarial valuation of the State Equal Retirement Benefit Fund as of January 1, 2023 for the purpose of determining the funded status of the Plan and any required contribution for the plan year. Funding required from each participating State agency for current plan members, as approved by the Retirement Board, is equal to an amount necessary to fully fund the benefit obligation, or alternatively, an annual payment which would amortize the unfunded liability over a period of twenty years commencing January 1, 1999. The initial twenty-year amortization period has elapsed, so the current valuation reflects a one-year amortization period.

There were no changes to the plan provisions or actuarial methods from the prior valuation. The annuity conversion interest rate for members retiring from the Defined Contribution Plan is updated annually as required in statute. At their December 21, 2020 meeting, the Public Employees Retirement Board adopted a plan to phase-in changes to the set of economic assumptions over a four-year period, beginning with the January 1, 2021 valuation. The scheduled economic assumption changes include reductions in price inflation, investment return assumption and interest earned on accumulated contribution balances. Further details are included in the Executive Summary of this report. The net impact of the assumption changes was a small increase in the Projected Benefit Cost.

The actuarial valuation is based on unaudited financial data provided by the System and member data provided by Ameritas, the record keeper for the Plan. We found this information to be reasonably consistent and comparable with the information used in the prior report. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised. The benefits considered are those delineated in the Nebraska State Statutes as of January 1, 2023.

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We further certify that all costs, liabilities, rates of interest and other factors for the State Equal Retirement Benefit Fund have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer the best estimate of anticipated experience affecting the System. Nevertheless, the emerging costs will vary from those presented in this report to the extent actual experience differs from that projected by the actuarial assumptions. The Public Employees Retirement Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix B.

In order to prepare the results in this report, we have utilized actuarial models that were developed to measure liabilities and determine actuarial costs. These models include tools that we have produced and tested, along with commercially available valuation software that we have reviewed to confirm the appropriateness and accuracy of the output. In utilizing these models, we develop and use input parameters and assumptions about future contingent events along with recognized actuarial approaches to develop the needed results. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

The consultants who worked on this assignment are pension actuaries. CMC's advice is not intended to be a substitute for qualified legal or accounting counsel.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein. We are available to answer any questions on the material contained in the report or to provide explanations or further details as may be appropriate.

We respectfully submit the following report and look forward to discussing it with you.

Respectfully submitted,

Patrice Beckham

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Principal and Consulting Actuary

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Chief Actuary

EXECUTIVE SUMMARY

The State Equal Retirement Benefit Fund provides a benefit for members who had account balances on January 1, 1984 and elect to convert those balances to monthly income (annuity) at retirement. The Fund was established to protect members who might be negatively affected by the legal requirement to change from sex-distinct annuity factors to unisex annuity factors. As such, the characteristics of the liability of the Fund and the funding requirements are different from the other traditional defined benefit plans managed by the Nebraska Public Employees Retirement System (NPERS). This report determines the contribution requirements for the State as well as providing statistical information that may provide insight into the Fund's longer term financial health. The initial amortization period, which was set at 20 years on January 1, 1999, has elapsed so a one-year period was used in this valuation.

There were no changes to the benefit provisions or actuarial methods since last year's report. However, at their December 21, 2020 meeting, the Public Employees Retirement Board adopted a plan to phase-in the change in the set of economic assumptions over a four-year period, beginning with the January 1, 2021 valuation. Changes to the assumptions in this valuation include:

- Price inflation decreased from 2.55% to 2.45%.
- Investment return assumption decreased from 7.20% to 7.10%.
- Interest on accumulated contribution balances for the Defined Contribution Plan decreased from 7.20% to 7.10%.
- Interest on accumulated contribution balances for the Cash Balance Plan decreased from 6.10% to 6.05%.

The scheduled step down in the set of economic assumptions increased the projected benefit cost (Plan liability) as of January 1, 2023 by $147, but ultimately had no impact on the contribution amount. The remaining year of the phase-in of assumption changes is expected to have a similar, minor impact on the liabilities and the contribution requirement.

There was an actuarial loss of $112,000 on Plan assets due to the actual return of -17.2%, compared to the expected return of 7.20% for the 2022 plan year. There was an actuarial gain on liabilities of $142,000. While there is insufficient data to quantify the sources of liability experience, the higher interest rate to annuitize account balances for members of the Defined Contribution Plan (5.61% vs 3.12%) and lower than expected account balances due to the negative investment return in 2022 both created an actuarial gain. Another possible source of gain arises when the annuities elected from these funds are less than expected as a result of fewer retirements, more lump sum elections, or both. Note that if a member elects a full lump sum distribution or installment payments of their account balance, it eliminates any liability under this Plan and a liability gain occurs. As noted above, there were several changes to the set of economic assumptions that resulted in a small increase in liabilities. As a result, the unfunded liability of $1,401 as of January 1, 2022 is now a surplus of $28,398 at January 1, 2023. The assets now exceed the liabilities of the Fund, so the minimum required contribution amount for 2023 is $0.

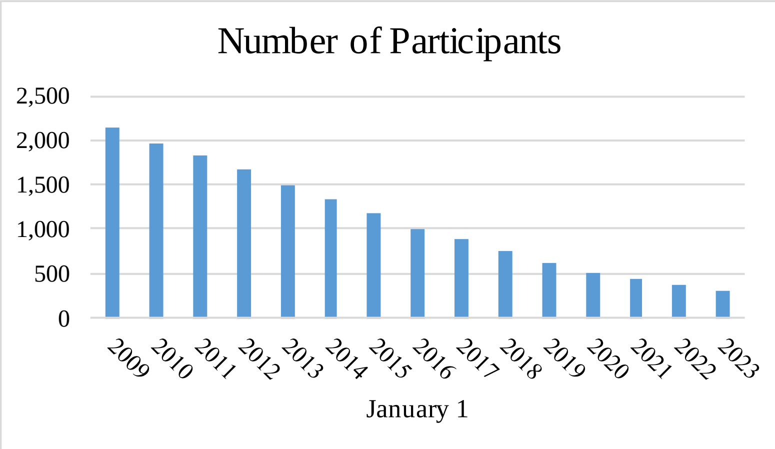
There are several risk factors that are key to the Fund's financial status over time. One of the most significant of these factors is the proportion of retirees that elect to take an annuity rather than a lump sum. An individual member's choice is based on their own personal situation and may consider different factors compared to other individuals who are also making this choice. The funding assumption is that 40% of the account balances of retiring members, in aggregate, will be converted to monthly income (an annuity). While we believe this assumption is reasonable, there are other assumptions that could also be considered reasonable that would result in a different funded status and contribution amount. In particular, if a greater portion of account balances are assumed to be annuitized at retirement, the liability of the Fund would be higher than estimated in this report. The potential volatility in the liability should be considered and evaluated. To assist with this analysis, we have included an exhibit in the report that shows the impact of a higher annuity election by retiring members (Exhibit 2). Liability results are shown assuming 60% or 80% of the aggregate account balances are annuitized rather than the 40% assumed in the basic valuation calculations. Although these alternatives assumptions may or may not be reasonable in the aggregate, the alternative results provide some measure of the possible downside risk to the Plan's funding.

Other factors and assumptions affecting the results include the following:

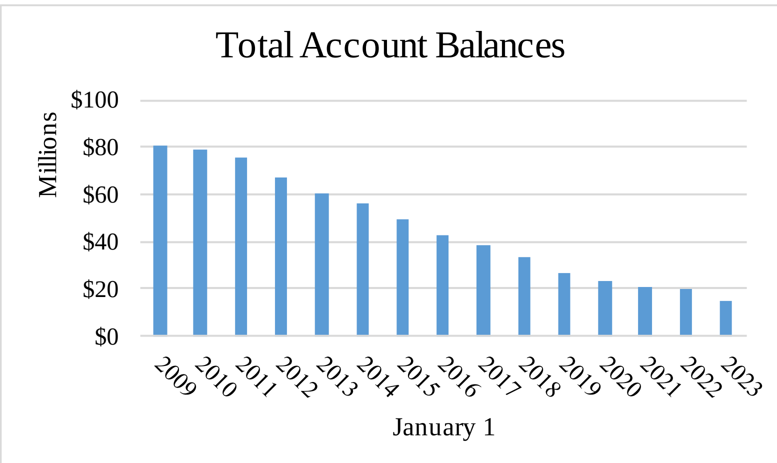
- Account growth – the account balances for both the cash balance and defined contribution members are assumed to increase annually at 6.05% and 7.10% respectively. To the extent actual investment returns (or interest credits and dividends in the cash balance accounts) are lower, the benefits assumed to be paid from the Fund are lower and, therefore, the liabilities are lower.
- Annuity factor interest rate – the defined contribution plan balances are assumed to be annuitized at the current applicable interest rate (5.61% as of January 1, 2023 compared to 3.12% in the 2022 valuation). If interest rates decrease in the future, the difference in the liability of a benefit determined using a unisex annuity factor and the benefit determined using a male annuity factor increases, so the liabilities of the Fund would also increase. Conversely, an increase in interest rates would lead to a decrease in liabilities.
- Funding policy – the current amortization period of one-year results in any net unfavorable experience being immediately funded in the following year. With significant numbers of retirements expected in the next few years, there could be more volatility in the actual versus expected experience, leading to more volatility in the contribution amount. However, given the small size of the current membership these amounts are likely to be small in comparison to the state's budget.
- General economic conditions – there are connections between the growth in the members' account balances, the interest rate environment (affecting the annuity factor interest rate), the investment return on the assets of the Fund, and the way in which potential retirees view the financial ramifications of retiring and electing an annuity. The exact interplay of these variables is extremely complex, but the fact that there is a connection means that the possible variability of the Fund's financial situation is potentially greater than it might otherwise appear. **Consequently, we urge caution in concluding that the current strong financial health of the Fund will continue indefinitely.**

It is important to note that an unfunded liability is not, by itself, an indication of whether or not the Fund has sufficient assets to meet future liabilities. Further, the presence of an unfunded liability is not an indication of what future contributions may be required to fund the benefits.

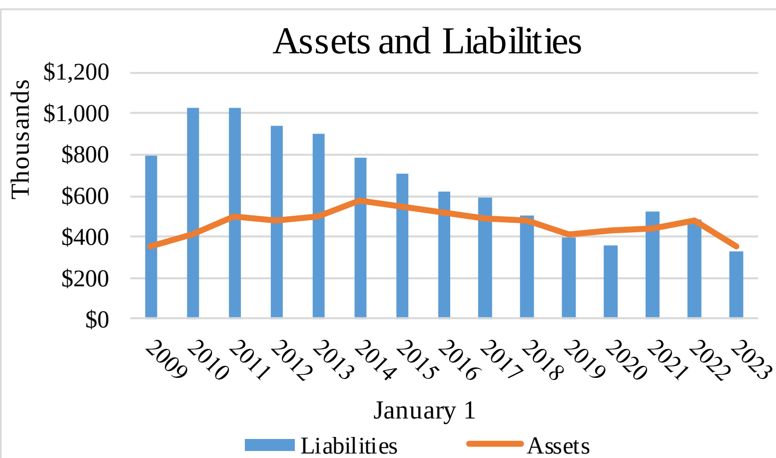
The following graphs show trends in the Fund over recent years:



Because there are no new members in the Fund, the number of participants has declined in past years and is expected to continue to decline in future years. Eventually, there will be no participants remaining.



When comparing the total account balances in the current and past years, the growth in account balances due to investment earnings partially offsets the impact of a declining membership.



The Fund's liabilities are now close to the assets. This graph shows that in recent years, the assets have at times been both greater and lower than the liabilities.

EXHIBIT 1 – SUMMARY OF ACTUARIAL RESULTS

Below is a comparison of results of the current and prior year's actuarial valuations.

Results	Actuarial Valuation as of January 1 2023	2022
Number of Members		
Cash Balance	134	185
Defined Contribution	163	184
Total	297	369
Pre-1984 Account Balance Beginning of Year		
Cash Balance	$6,453,803	$8,401,894
Defined Contribution	8,310,169	11,085,117
Total	$14,763,972	$19,487,011
Projected Benefit Cost*		
a. Amount	$329,414	$480,636
b. As a percent of the account balance	2.231%	2.466%
c. Annuity Factor Interest Rate – Cash Balance	7.75%	7.75%
d. Annuity Factor Interest Rate – Defined Contribution	5.61%	3.12%
Market Value of Assets		
a. Asset Value as of prior year's valuation	$479,235	$438,272
b. Deposits during the year	0	0
c. Withdrawals during the year	42,539	15,365
d. Investment Return or (Loss)	(78,884)	56,328
e. Market Value of Assets as of Valuation Date [a.+ b.- c.+ d.]	$357,812	$479,235
Unfunded Liability/(Surplus)	($28,398)	$1,401
Contribution as of July 1,	$0	$1,451

*Cost is based on the assumption that 60% of members will elect a lump sum or installment payments instead of an annuity. To the extent that actual experience in the future deviates from this assumption, the costs in future years could vary as well, at times significantly.

EXHIBIT 2 – RISK MEASURES

This exhibit compares the Projected Benefit Cost (liability) assuming 40% of the account balances of retiring members are converted to an annuity (the funding assumption) with alternative assumptions of 60% and 80%. As the table below indicates, greater utilization of the annuity option by members could significantly increase the liability of the plan and, therefore, the unfunded liability and contribution amount. With a one-year amortization period, the entire unfunded liability is the required contribution amount. We will continue to monitor the percentage of account balances that are annuitized in future years and make adjustments to this assumption as necessary in the quadrennial experience study.

	Percentage of Members Taking an Annuity		
	40% Annuitize	60% Annuitize	80% Annuitize
Projected Benefit Cost	$329,414	$494,121	$658,828
Actuarial Value of Assets	357,812	357,812	357,812
Unfunded Liability	($28,398)	$136,309	$301,016
Contribution as of July 1, 2023	$0	$141,065	$311,519

EXHIBIT 3 – SUMMARY OF MEMBER DATA

Age Range	Data	Gender Male		Female		Total	
Less Than 50	Count of Members		1		3		4
	Average of Total Balance	$	105	$	7,650	$	5,764
	Sum of Total Balance	$	105	$	22,950	$	23,055
50-54	Count of Members		0		0		0
	Average of Total Balance	$	0	$	0	$	0
	Sum of Total Balance	$	0	$	0	$	0
55-59	Count of Members		1		1		2
	Average of Total Balance	$	95,863	$	9,424	$	52,644
	Sum of Total Balance	$	95,863	$	9,424	$	105,287
60-64	Count of Members		2		3		5
	Average of Total Balance	$	3,745	$	9,489	$	7,191
	Sum of Total Balance	$	7,490	$	28,466	$	35,956
65-69	Count of Members		34		34		68
	Average of Total Balance	$	4,687	$	4,780	$	4,734
	Sum of Total Balance	$	159,372	$	162,508	$	321,880
70-74	Count of Members		82		55		137
	Average of Total Balance	$	49,765	$	32,367	$	42,780
	Sum of Total Balance	$	4,080,742	$	1,780,183	$	5,860,925
75 and Above	Count of Members		44		37		81
	Average of Total Balance	$	150,794	$	48,160	$	103,912
	Sum of Total Balance	$	6,634,932	$	1,781,937	$	8,416,869
Total Members			164		133		297
Average of Total Balance		$	66,942	$	28,462	$	49,710
Grand Total Balance		$	10,978,504	$	3,785,468	$	14,763,972

Member	Any person employed by a State agency participating in either the Defined Contribution or Cash Balance Benefit under the State Employees Retirement System who has an accumulated account balance based on contributions which were made prior to January 1, 1984.
Contributions	Each participating State agency shall make contributions to the Fund on an actuarial basis as approved by the Retirement Board.
Eligibility for Benefits	Any member who retires or terminates service and elects to convert to an annuity using their accumulated account balance, with interest, commencing on or after age 55, is eligible to receive a benefit from the Fund.
Benefit Amount	The Fund shall provide the actuarially equivalent amount required to purchase the additional monthly annuity, if any, which is equal to: a. the income provided by the Member's accumulated contributions made prior to January 1, 1984 with interest, based on male annuity conversion factors in effect on the annuity starting date, Less b. the income provided by the Member's accumulated contributions made prior to January 1, 1984 with interest, which are based on 50% male / 50% female annuity conversion factors in effect on the annuity starting date.
Cash Balance Conversion	Any member who elected to transfer his or her account balance to the Nebraska State Cash Balance Plan as of January 1, 2003 or as of January 2, 2013 will have his or her Benefit Amount determined using the annuity conversion interest rate applicable to the State Employees Retirement System (Cash Balance Benefit), which is 7.75%. Any other member will have his or her Benefit Amount determined using the annuity conversion interest rate applicable to the State Employees Retirement System (Defined Contribution Benefit), which for 2023 is 5.61%.
Cost of Living Adjustment (COLA)	Any member who elects an annuity has the option of purchasing a 2.50% COLA, compounded annually.

<u>Changes in Benefit Provisions Since the Prior Year</u>

There were no changes in the benefit provisions since the last valuation.

Appendix B – Summary of Actuarial Methods and Assumptions

Economic Assumptions

1. Investment Return	7.10% per annum, compounded annually, net of expenses. The assumption will decrease by 0.10% per year until reaching the ultimate rate of 7.00% in the 2024 valuation.
2. Price Inflation	2.45% per annum, compounded annually. The assumption will decrease by 0.10% per year until reaching the ultimate rate of 2.35% in the 2024 valuation.
3. Interest on accumulated contribution balances for the Defined Contribution Plan (contributions made before January 1, 1984)	7.10% per annum, compounded annually. The assumption will decrease by 0.10% per year until reaching the ultimate rate of 7.00% in the 2024 valuation.
4. Interest on accumulated contribution balances for the Cash Balance Plan (contributions made before January 1, 1984)	6.05% per annum, compounded annually. The assumption will decrease by 0.05% per year until reaching the ultimate rate of 6.00% in the 2024 valuation.
5. Annuity Conversion Interest Rates	7.75% for annuities from the Cash Balance Plan. 5.61% for annuities from the Defined Contribution Plan.

Demographic Assumptions

1. Mortality	
a. Pre-retirement	None.
b. Post-retirement	1994 Group Annuity Mortality (based on Actuarial Equivalence definition in Statute).
2. Withdrawal	None.
3. Disability	None.

4. Retirement

Rates vary by age as follows:

Age	State Annual Rates
55-58	5%
59-61	6
62	10
63-64	12
65-79	28
80	100

Other Assumptions

1. Payment election

60% of the account balances of retiring members are assumed to be paid as a lump sum distribution or installment payment, and 40% of the account balances of retiring members are assumed to be paid as an annuity form of distribution.

2. Form of Annuity Payment

Of members electing an annuity, 80% of those members were assumed to elect a 5-year certain and life annuity without COLA, and 20% of those members were assumed to elect a 5-year certain and life annuity with a 2.5% annual COLA.

Actuarial Methods

1. Funding Method

The present value of future benefits or Projected Benefit Cost, less the Market Value of Assets, equals the Unfunded Liability or Surplus. The minimum recommended contribution is equal to an annual amount necessary to amortize the Unfunded Liability over a closed twenty-year period commencing January 1, 1999, but not less than one year.

2. Asset Valuation Method

Fair market value of assets.

Changes in Assumptions Since the Prior Valuation

The assumed interest rate used for Defined Contribution annuity calculations is equal to the lesser of (i) the Pension Benefit Guaranty Corporation initial interest rate for valuing annuities for terminating plans as of the beginning of the year during which payment begins plus 0.75% or (ii) the interest rate used in the actuarial valuation as recommended by the actuary and approved by the Board. The rate changed from 3.12% in the prior valuation to 5.61% in the current valuation.

At their meeting on December 21, 2020, the Public Employees Retirement Board adopted a new set of actuarial assumptions, based on the recommendations in the 2020 experience study. Changes to the set of economic assumptions are phased in over four years, beginning with the January 1, 2021 valuation. Below is a summary of the key assumption changes in this valuation for the State Equal Retirement Benefit Fund:

- Price inflation assumption was lowered from 2.55% to 2.45%.
- Investment return assumption was lowered from 7.20% to 7.10%.
- Interest on accumulated contribution balances for the Defined Contribution Plan decreased from 7.20% to 7.10%.
- Interest on accumulated contribution balances for the Cash Balance Plan decreased from 6.10% to 6.05%.