SOUTH DAKOTA RETIREMENT SYSTEM

Actuarial Valuation

As of June 30, 2023

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October 25, 2023

Board of Trustees
South Dakota Retirement System
Post Office Box 1098
Pierre, SD 57501-1098

Dear Trustees:

I am pleased to submit the results of the annual Actuarial Valuation of the South Dakota Retirement System (SDRS), prepared as of June 30, 2023.

The purposes of this report are to:

- Determine if the funded status of SDRS is at least 100% assuming future COLAs are equal to the baseline COLA assumption of 2.25% and if not, to determine the restricted maximum COLA that results in a funded status of 100%
- Determine the 2023 SDRS COLA as defined in South Dakota Codified Law (SDCL)
- Determine the funded status of SDRS as of June 30, 2023
- Confirm that the fixed, statutory member and employer contributions are the Actuarially Determined Contributions (ADC)
- Determine if corrective action recommendations are required to be made to the Retirement Laws Committee in accordance with SDCL 3-12C-228
- Provide accounting information under Governmental Accounting Standards Board Statements No. 67 and 68 (GASB 67 and 68)
- Identify, assess, and disclose risks to future SDRS funding

This Actuarial Valuation is based on financial and member data provided by SDRS staff and summarized in this report. The actuary did not audit the data submitted but did perform tests for consistency and reasonableness.

All members of SDRS and all benefits in effect on June 30, 2023 have been considered in this Actuarial Valuation. SDRS benefit provisions, member data, and trust information are summarized in the sections that follow. No adjustments for events after the June 30, 2023 measurement date have been included.

The actuarial assumptions and methods used in this valuation meet the parameters set by the Actuarial Standards of Practice maintained by the Actuarial Standards Board for assessing the funded status of SDRS. The assumptions and methods used to determine the ADC as outlined in this report and all supporting schedules meet the parameters and requirements for disclosure of GASB 67. All SDRS benefits are included in the determination of the ADC that is developed using the Entry Age actuarial cost method. The Actuarial Value of Assets is equal to the Fair Value of Assets. The undersigned believes the assumptions are, individually and in the aggregate, reasonably related to experience and to expectations of future experience.

SDRS's Funding Policy establishes funding objectives necessary for the management of SDRS based on fixed, statutory member and employer contributions. The Funding Policy objectives include:

- Fair Value Funded Ratio (FVFR) of at least 100%
- A fully funded system based on the Fair Value of Assets and the Entry Age Normal Cost method
- Actuarially determined benefits that are supported by the fixed, statutory member and employer contributions

The results of this valuation indicate that as of June 30, 2023, SDRS continues to be a very well-funded system with a Fair Value Funded Ratio of 100.1%. The actuarially determined benefits are supported by the fixed, statutory member and employer contributions. All funding objectives are met as of June 30, 2023.

The SDRS Board of Trustees' Funding and System Management Policies are attached in Section 12.

A valuation model was used to develop the liabilities for this actuarial valuation. The model relies on ProVal actuarial valuation software, which was leased from Winklevoss Technologies, LLC, to calculate liabilities and projected benefits. The undersigned actuary coded and reviewed the software for the SDRS provisions, assumptions, methods, and data and has relied on the ProVal programming. In the professional judgement of this actuary, the ProVal programming has the capability to provide results that are consistent with the purposes of the actuarial valuation and has no material limitations or known weaknesses. Detailed sample life calculations are analyzed to ensure that the ProVal reasonably models the intended liability calculations.

In addition, the projections included in Section 5 of this report were developed using a spreadsheet-based projection model to determine the impact of a range of potential investment returns on SDRS funding and assessing progress towards SDRS' funding objectives. To determine the likelihoods of meeting specific funding thresholds reported in Section 5, the actuary has relied on estimated investment portfolio statistics determined by staff of the South Dakota Investment Council. The projection model excludes the effect of future demographic gains and losses.

Future actuarial results may differ significantly from current measurements presented in this report due to such factors as plan experience differing from that anticipated by the economic and demographic assumptions, changes in economic or demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. Due to the limited scope of this report, an analysis of the potential range of such future measurements has not been performed. Assessment of certain risks to future funding measurements is included in Section 5 of this report.

The results herein are appropriate for evaluating the ability of accumulated assets and future contributions to fund SDRS benefits but make no assessment regarding the funded status of the system if the system were to settle (i.e., purchase annuities) for a portion or all of its liabilities. In various places in this report, Funded Ratios and liabilities are shown based upon varying sets of assumptions as is required for certain disclosure information per accounting rules, Actuarial Standards of Practice, or South Dakota Law. Where this has been done it has been clearly indicated.

The undersigned is an Enrolled Actuary, an Associate of the Society of Actuaries, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. He is an employee of SDRS and is available to answer any questions on the material contained in the report or to provide explanations or further details as may be appropriate.

This report has been prepared in accordance with all applicable Actuarial Standards of Practice. The undersigned believes all actuarial assumptions and methods used to develop the following results were reasonable and appropriate.

Respectfully submitted,

Douglas J. Fiddler, ASA, EA, MAAA, FCA
Senior Actuary
South Dakota Retirement System

Note: Use of this report for any other purposes or by anyone other than the Board of Trustees and SDRS staff may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions or methods or the inapplicability of this report for other purposes. The attached pages should not be provided without a copy of this cover letter. Because of the risk of misinterpretation of actuarial results, you should ask the report's author to review any statement you wish to make on the results contained in this report.

Executive Summary

The South Dakota Retirement System (SDRS) provides retirement, survivor, disability, and termination benefits for eligible employees of the participating public employers of the State of South Dakota. The Board of Trustees, comprised of employer, member, and appointed representatives, is responsible for the management and administration of SDRS. The South Dakota Investment Council is responsible for the management and investment of SDRS assets. This report presents the results of the June 30, 2023 Actuarial Valuation of SDRS.

Summary of Principal Results

Membership Summary Valuation Date	June 30, 2023	June 30, 2022
Number of Active Members	42,504	41,878
Prior Year's Annual Member Compensation	$ 2,319,954,580	$ 2,137,706,450
Projected Covered Payroll[1]	$ 2,528,230,124	$ 2,322,092,862
Number of Benefit Recipients[2]	33,281	32,348
Annual Benefits	$ 721,854,550	$ 690,848,821
Number of Vested Terminated Members	12,598	11,990
Number of Non-Vested Terminated Members	12,445	11,614
Total System Members	100,828	97,830
Funded Status **Valuation Date**	**June 30, 2023**	**June 30, 2022**
Fair Value of Assets	$ 14,500,453,104	$ 14,126,069,868
Actuarial Value of Assets	$ 14,500,453,104	$ 14,126,069,868
Actuarial Accrued Liability	$ 14,490,723,479	$ 14,116,661,375
Unfunded Actuarial Accrued Liability	$ 0	$ 0
Assumed Future COLAs	1.91%	2.10%
Fair Value Funded Ratio/Actuarial Value Funded Ratio	100.1%	100.1%
Statutory and Actuarially Determined Contribution Rates **Valuation Date**	**June 30, 2023**	**June 30, 2022**
Fixed, Statutory Member and Employer Contribution Rate	12.416%	12.407%
Actuarially Determined Requirement, Minimum Statutory COLA	9.690%	9.736%
Actuarially Determined Requirement, Maximum Statutory COLA	14.316%	14.426%
Actuarially Determined Contribution Rate (Fixed, Statutory Member and Employer Contribution Rate, not less than Actuarially Determined Requirement, Minimum Statutory COLA and not greater than Actuarially Determined Requirement, Maximum Statutory COLA)	12.416%	12.407%

[1]Prior year compensation, annualized for new hires/rehires, projected with assumed salary increases. Excludes compensation for rehired retirees.
[2]Includes members whose benefits have been suspended but are entitled to future benefits, 90 as of June 30, 2023 and 95 as of June 30, 2022.

The June 30, 2023 Actuarial Valuation confirms:

- The maximum COLA for 2023 is 1.91%
- The SDRS Fair Value Funded Ratio is 100.1%
- The fixed, statutory contributions are the Actuarially Determined Contributions
- The requirements of SDCL 3-12C-228 are satisfied and no corrective action recommendations are required

Section 1 – The June 30, 2023 Actuarial Valuation

Purpose of the Actuarial Valuation

The Actuarial Valuation is a snapshot of the funded position of SDRS, performed each June 30 for the following purposes:

- To determine:
  - if the funded status is at least 100% assuming future COLAs are equal to the baseline COLA assumption of 2.25%, and
  - if it is less than 100%, the restricted maximum COLA that results in a funded status of 100% assuming future COLAs are equal to the restricted maximum;
- To set the COLA paid at the beginning of the following fiscal year based on the rate of inflation for the prior year and the funded status determinations;
- To review the current funded status of SDRS;
- To disclose the system assets and liability measures as of the valuation date;
- To confirm the fixed, statutory member and employer contributions are the Actuarially Determined Contributions
- To determine if a recommendation for corrective actions is required to be made to the Retirement Laws Committee, in accordance with statutory requirements;
- To compare actual and expected experience under SDRS during the most recent fiscal year;
- To disclose the accounting measures as required by GASB Statement Nos. 67 and 68 as of the end of the fiscal year;
- To report trends in contributions, assets, liabilities and funded status;
- To identify, assess, and disclose risks to future SDRS funding.

This June 30, 2023 Actuarial Valuation is the thirty-eighth Actuarial Valuation of SDRS since consolidation in 1974. It is based on the statutory plan provisions as amended through the 2023 Legislative Session and membership, assets, and actuarial assumptions as of the valuation date.

Changes from Prior Valuation

The June 30, 2023 Actuarial Valuation reflects no changes to the plan provisions or actuarial methods and one change to the actuarial assumptions from the June 30, 2022 Actuarial Valuation as follows:

SDRS Benefit Provision Changes

During the 2023 Legislative Session no significant SDRS benefit changes were made and emergency medical services personnel prospectively became Class B Public Safety members.

SDRS Actuarial Method Changes

No changes in actuarial methods were made since the prior valuation.

SDRS Actuarial Assumption Changes

The SDRS COLA equals the percentage increase in the most recent third calendar quarter CPI-W over the prior year, no less than 0% and no greater than 3.5%. However, if the FVFR assuming the long-term COLA is equal to the baseline COLA assumption (currently 2.25%) is less than 100%, the maximum COLA payable will be limited to the increase that if assumed on a long-term basis, results in a FVFR equal to or exceeding 100%.

As of June 30, 2022, the FVFR assuming the long-term COLA is equal to the baseline COLA assumption (2.25%) was less than 100% and the July 2023 SDRS COLA was limited to a restricted maximum of 2.10%. For the June 30, 2022 Actuarial Valuation, future COLAs were assumed to equal the restricted maximum COLA assumption of 2.10%.

As of June 30, 2023, the FVFR assuming future COLAs equal to the baseline COLA assumption of 2.25% is again less than 100% and the July 2024 SDRS COLA is limited to a restricted maximum of 1.91%. The July 2024 SDRS COLA will equal inflation, between 0% and 1.91%. For this June 30, 2023 Actuarial Valuation, future COLAs were assumed to equal the restricted maximum COLA of 1.91%.

The changes in the actuarial assumption for future COLAs decreased the Actuarial Accrued Liability by $277 million, or 1.9% of the Actuarial Accrued Liability based on the 2.10% prior COLA assumption.

Actuarial assumptions are reviewed for reasonability annually and reviewed in depth periodically, with the next experience analysis anticipated before the June 30, 2027 Actuarial Valuation and any recommended changes approved by the Board of Trustees are anticipated to be first implemented in the June 30, 2027 Actuarial Valuation.

Impact of Actuarial Assumption Changes

The impact of the actuarial assumption change on the Actuarial Accrued Liability is detailed in Table 1.1.

Table 1.1 – Actuarial Accrued Liability Change	June 30, 2023 Actuarial Accrued Liability	Actuarial Accrued Liability Change	Percentage Change
Prior Actuarial Assumptions (2.10% Future COLAs)	$ 14,767,798,114		
Revised Actuarial Assumptions (1.91% Future COLAs)	$ 14,490,723,479	$ (277,074,635)	(1.88%)

SDRS Actuarial Valuation Results and Implications of SDRS's Funding Policy

The Board of Trustees' Funding Policy objectives are designed to sustainably manage SDRS based on the fixed, statutory member and employer contributions. The objectives include a Fair Value Funded Ratio of at least 100%, a fully funded system, and actuarially determined benefits that are variable and are supported

by the fixed, statutory contributions. These objectives are currently met as no Unfunded Actuarial Accrued Liability currently exists and the Fair Value Funded Ratio is 100.1% as of June 30, 2023.

Based on the current Funded Ratios, the SDRS Funding Policy, fixed statutory contribution rates, and future experience matching the actuarial assumptions detailed in this report, the Fair Value Funded Ratio is expected to remain 100% or greater and the fixed, statutory contribution rates are expected to remain greater than the Normal Cost and amortization of any Unfunded Actuarial Accrued Liability, if one should arise.

The current restricted maximum COLA of 1.91% is expected to remain stable in the absence of unexpected future gains or losses.

Adherence to the SDRS Funding Policy has effectively funded SDRS benefits as is evidenced by the Fair Value Funded Ratio history shown in Table 3.2. The SDRS Funding Policy is consistent with SDRS accumulating adequate assets to make all promised benefit payments.

Section 2 – Statutory Determinations

Determination of SDRS COLA Payable Next July

Table 2.1 – Determination of SDRS COLA Payable Next July Valuation Date	June 30, 2023	June 30, 2022
Fair Value of Assets (Table 4.1)	$ 14,500,453,104	$ 14,126,069,868
Actuarial Accrued Liability – Baseline COLA Assumption (2.25%)	$ 14,992,798,043	$ 14,331,997,342
Preliminary Fair Value Funded Ratio – Baseline COLA Assumption	96.7%	98.6%
Actuarial Accrued Liability – Future COLAs assumed to be 1.91% in 2023/ 2.10% in 2022	$ 14,490,723,479	$ 14,116,661,375
Actuarial Accrued Liability – Future COLAs assumed to be 1.92% in 2023[1] / 2.11% in 2022	$ 14,505,090,629	$ 14,130,850,814
Restricted Maximum COLA (Largest COLA resulting in Actuarial Accrued Liability that is less than the Fair Value of Assets)[1]	1.91%	2.10%
Fair Value Funded Ratio (Assumed COLAs = 1.91% for 2023; 2.10% for 2022)	100.1%	100.1%
Increase in most recent Third Calendar Quarter Average CPI-W over prior period	3.20%	8.75%
Minimum SDRS COLA Maximum SDRS COLA	0.00% 1.91%	0.00% 2.10%
SDRS COLA Effective next July	1.91%	2.10%

[1] The June 30, 2023 Fair Value of Assets is greater than the Actuarial Accrued Liability assuming 1.91% future COLAs but less than the Actuarial Accrued Liability assuming 1.92% future COLAs. The June 30, 2022 Fair Value of Assets was greater than the Actuarial Accrued Liability assuming 2.10% future COLAs but less than the Actuarial Accrued Liability assuming 2.11% future COLAs.

The SDRS COLA equals the percentage increase in the third calendar quarter average CPI-W for the prior year, no less than 0% and no greater than 3.5%. However, if the Fair Value Funded Ratio, assuming the long-term COLA is equal to the baseline COLA assumption (currently 2.25%), is less than 100%, the maximum COLA payable will be limited to the increase that if assumed on a long-term basis, results in a FVFR equal to or exceeding 100%. The 2022 increase in the CPI-W of 8.75% was greater than the 2022 maximum COLA of 2.10%; therefore, monthly benefits were increased by 2.10% effective with the July 2023 payment. The 2023 increase in the CPI-W of 3.20% is greater than the 2023 maximum COLA of 1.91%; therefore, monthly benefits will be increased by the 1.91% effective with the July 2024 payment.

Satisfying Conditions of SDCL 3-12C-228

Table 2.2 – Satisfying Conditions of SDCL 3-12C-228 Valuation Date	June 30, 2023	June 30, 2022
Fair Value Funded Ratio (Table 3.1)	100.1%	100.1%
SDCL 3-12C-228 (1) Condition Satisfied? (at least 100%)	Yes	Yes
Projected Covered Payroll:		
Active Foundation Members	$ 1,588,984,080	$ 1,585,099,747
Active Generational Members	939,246,043	736,993,115
Total Active Members	$ 2,528,230,123	$ 2,322,092,862
Rehired Retired Members Subject to Employer Contributions	14,576,637	12,853,753
Total Projected Covered Payroll	$ 2,542,806,760	$ 2,334,946,615
Projected Statutory Member and Employer Contributions	$ 315,703,383	$ 289,701,442
Statutory Contribution Rate (Percentage of Total Projected Covered Payroll)	12.416%	12.407%
Present Value of Future Normal Costs (Restricted Maximum COLA of 1.91% for 2023 and 2.10% for 2022)	$ 2,510,460,877	$ 2,371,854,637
Present Value of Future Active Member Compensation	22,376,549,121	20,548,147,981
Normal Cost Contribution Rate, Beginning of Year	11.219%	11.543%
Normal Cost Contribution Rate, Adjusted for Mid-Year Payment	11.578%	11.912%
Mid-Year Normal Cost for Active Members	$ 292,718,484	$ 276,607,702
Projected Expenses (2% of Projected Statutory Contributions)	6,314,068	5,794,029
Projected Minimum SDCL 3-12C-228 (2) Contribution	$ 299,032,552	$ 282,401,731
Minimum SDCL 3-12C-228 (2) Contribution Rate (Percentage of Total Projected Covered Payroll)	11.760%	12.095%
Statutory Contribution Rate	12.416%	12.407%
SDCL 3-12C-228 (2) Condition Satisfied? (Statutory Rate at least equal to Minimum SDCL 3-12C-228 Rate)	Yes	Yes
Corrective Action Recommendation Required (Required if either condition not met)	No	No

SDCL 3-12C-228 requires that the SDRS Board of Trustees recommend corrective actions to the Retirement Laws Committee if either of two conditions is not satisfied. The two conditions are a Fair Value Funded Ratio of at least 100% and fixed, statutory contributions sufficient to fund the minimum SDCL 3-12C-228 requirements. Both conditions are satisfied as of June 30, 2022 and as of June 30, 2023 and no corrective action recommendation is required.

Section 3 – Actuarial Funding Results

Funded Ratios

Table 3.1 – Funded Ratios Valuation Date	June 30, 2023	June 30, 2022
Assumed Future COLAs	1.91%	2.10%
Present Value of All Benefits		
Active Members	$ 7,848,650,771	$ 7,489,474,313
Benefit Recipients	8,251,131,644	8,089,845,354
Terminated Members	901,401,941	909,196,345
Total	$ 17,001,184,356	$ 16,488,516,012
Present Value of Future Normal Costs	$ (2,510,460,877)	$ (2,371,854,637)
Actuarial Accrued Liability	$ 14,490,723,479	$ 14,116,661,375
Actuarial Value of Assets (Table 4.1)[(1)]	$ 14,500,453,104	$ 14,126,069,868
Actuarial Value Funded Ratio[(1)]	100.1%	100.1%
Unfunded Actuarial Accrued Liability (Table 3.5)	$ 0	$ 0
Fair Value of Assets (Table 4.1)	$ 14,500,453,104	$ 14,126,069,868
Fair Value Funded Ratio	100.1%	100.1%

[1] Actuarial Value of Assets is equal to Fair Value of Assets

The Funded Ratio is a comparison of system assets to the Actuarial Accrued Liability of the system and is an indication of the system's funding progress on a level cost basis. The Funded Ratios shown in this report along with the Actuarially Determined Contributions shown below in Table 3.3 are appropriate for assessing the need for, and magnitude of future benefit changes since contributions to SDRS are fixed in statute. The Funded Ratios are not appropriate for estimating the cost of settling the system's benefit obligations.

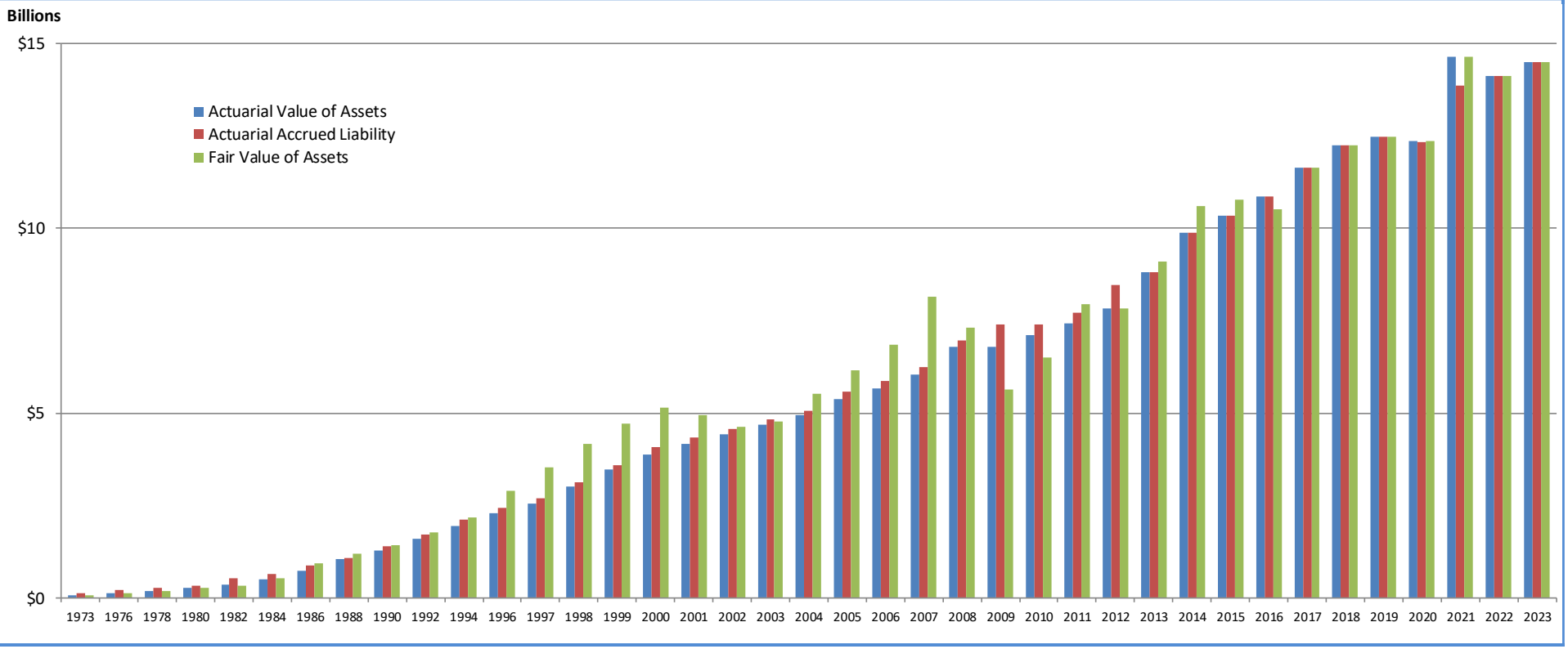
The Actuarial Accrued Liability is equal to the Present Value of All Benefits for SDRS members less the Present Value of Future Normal Costs for active members and is a measure of total system liabilities that will not be funded by future Normal Cost contributions. Alternatively, it is a measure of annual Normal Cost contributions accumulated to the valuation date.

A Funded Ratio of at least 100% indicates the accrued liabilities are fully funded. Comparing the SDRS Funded Ratios on a historical basis illustrates the funding progress of SDRS and the ability of the fixed, statutory member and employer contributions to fund the Normal Costs of the system and to amortize the Unfunded Actuarial Accrued Liability (when applicable) based on overall SDRS experience.

With the COLA changes enacted in 2017, SDRS is expected to remain fully funded in most future economic environments through COLA adjustments based on inflation and affordability. If a severe economic downturn such as happened in 2008-2009 occurs, future benefit reduction recommendations may be required in accordance with SDCL 3-12C-228.

Table 3.1 indicates that as of June 30, 2023, the SDRS Fair Value Funded Ratio and Actuarial Value Funded Ratios were both 100.1%. Table 3.2 illustrates the history of the Actuarial Value Funded Ratio and the Fair Value Funded Ratio from 1973 to the present date and shows the improvement from an initial Funded Ratio of 39.8% to the current 100.1%**.** Since 1986, SDRS has achieved a Fair Value Funded Ratio of 100% or more in 28 of the last 33 Actuarial Valuations**.**

Table 3.2 - History of Funded Ratios



	1973	1976	1978	1980	1982	1984	1986	1988	1990	1992	1994	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Fair Value Funded Ratio (%)	40%	57%	68%	76%	63%	81%	106%	111%	101%	104%	103%	120%	130%	133%	132%	126%	114%	101%	99%	109%	111%	117%	131%	105%	76%	88%	103%	93%	103%	107%	104%	97%	100%	100%	100%	100%	106%	100%	100%
Actuarial Value Funded Ratio (%)	40%	57%	68%	76%	67%	75%	85%	97%	91%	94%	92%	94%	95%	96%	97%	95%	96%	97%	97%	98%	97%	97%	97%	97%	92%	96%	96%	93%	100%	100%	100%	100%	100%	100%	100%	100%	106%	100%	100%
Funding Period (years)	41	19	19	9	28	18	37	6	46	16	38	30	23	22	21	20	20	20	20	20	20	20	20	20	N/A[1]	30	30	29	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A2	N/A[2]	N/A[2]	N/A[2]
% of Actuarially Required Contributions Made	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	91%[1]	100%	100%	100%	100%	101%	100%	100%	100%	100%	100%	100%	100%	100%	100%

[1] Fixed, statutory Member and Employer contributions were not sufficient to fund the Frozen Unfunded Actuarial Accrued Liability as of June 30, 2009.

[2] SDRS was fully funded with no Unfunded Actuarial Accrued Liability (based on the Actuarial Value of Assets) as of June 30, 2013 through June 30, 2023.

Actuarially Determined Contributions

Table 3.3 – Actuarially Determined Contribution Rate as a Percentage of Statutory Contribution Rate		
Valuation Date	**June 30, 2023**	**June 30, 2022**
Fiscal Year Ending	**June 30, 2024**	**June 30, 2023**
Projected Covered Payroll:		
Active Foundation Members	$ 1,588,984,080	$ 1,585,099,747
Active Generational Members	939,246,043	736,993,115
Active Former Department of Labor and Regulation Members	0	0
Total Active Members	$ 2,528,230,123	$ 2,322,092,862
Rehired Retired Members Subject to Employer Contributions	14,576,637	12,853,753
Total Projected Covered Payroll	$ 2,542,806,760	$ 2,334,946,615
Actuarially Determined Contribution when Minimum Statutory COLA Applies		
Minimum Statutory COLA	0.0%	0.0%
Present Value of Future Normal Costs	$ 2,058,979,619	$ 1,899,489,623
Present Value of Future Member Compensation	$ 22,376,549,121	$ 20,548,147,981
Normal Cost Contribution Rate, Beginning of Year	9.202%	9.244%
Normal Cost Contribution Rate, Adjusted for Mid-Year Payment	9.496%	9.540%
Mid-Year Normal Cost Rate times Active Member Projected Covered Payroll	$ 240,080,733	$ 221,527,659
Projected Expenses	6,314,068	5,794,029
Actuarially Determined Contribution, Minimum COLA	$ 246,394,801	$ 227,321,688
Actuarially Determined Contribution Rate, Minimum COLA (Percentage of Total Projected Covered Payroll)	9.690%	9.736%
Actuarially Determined Contribution when Maximum Statutory COLA Applies		
Maximum Statutory COLA	3.5%	3.5%
Present Value of Future Normal Costs	$ 3,067,831,586	$ 2,838,454,934
Present Value of Future Member Compensation	$ 22,376,549,121	$ 20,548,147,981
Normal Cost Contribution Rate, Beginning of Year	13.710%	13.814%
Normal Cost Contribution Rate, Adjusted for Mid-Year Payment	14.149%	14.256%
Mid-Year Normal Cost Rate times Active Member Projected Covered Payroll	$ 357,719,280	$ 331,037,558
Projected Expenses	6,314,068	5,794,029
Actuarially Determined Contribution, Maximum COLA	$ 364,033,348	$ 336,831,587
Actuarially Determined Contribution Rate, Maximum COLA (Percentage of Total Projected Covered Payroll)	14.316%	14.426%
Projected Fixed, Statutory Member and Employer Contributions[1]		
Projected Contributions	$ 315,703,383	$ 289,701,442
Percentage of Total Projected Covered Payroll	12.416%	12.407%
Projected Actuarially Determined Member and Employer Contribution Rate (Fixed, Statutory Member and Employer Contribution Rate, not less than Actuarially Determined Requirement with Minimum COLA and not greater than Actuarially Determined Requirement with Maximum COLA)	**12.416%**	**12.407%**
Actuarially Determined Member and Employer Contribution Rate as a Percentage of Fixed, Statutory Member and Employer Contribution Rate	**100.0%**	**100.0%**

[1]Members and employers each contribute 6% of compensation for Class A, 8% for Class B Public Safety and 9% for Class B Judicial members. In addition, Class A employers contribute 6.2% of Foundation member compensation in excess of the Social Security Taxable Wage Base for the Alternate Formula and electing members contribute 1.5% of compensation for the Optional Spouse Benefit.

SDRS member and employer contribution rates are fixed in statute and do not change based on experience. The SDRS COLA will vary between 0% and 3.5% based on inflation and the long-term affordability of the COLA, as indicated by a Fair Value Funded Ratio equal to or greater than 100%. From

2017 to 2020, the SDRS COLA range was 0.5% to 3.5%. From 2011 to 2016, the SDRS COLA varied from 2.1% to 3.1% based on funded status and inflation.

To test the adequacy of the fixed contribution rates, an actuarially determined requirement is calculated based on the minimum annual statutory COLA payable (0%) and the maximum annual statutory COLA payable (3.5%). If the SDRS fixed contributions are within that range of actuarially determined requirements, they will support the SDRS benefit structure and reflect the minimum and maximum long-term costs of the system.

Table 3.3 illustrates that the SDRS estimated fixed, statutory contributions rates currently meet the adequacy test and are the appropriate Actuarially Determined Contributions as of June 30, 2023 and as of June 30, 2022.

Table 3.4 adjusts the Estimated Actuarially Determined Contribution Rates calculated as of the valuation date at the beginning of the Fiscal Year to account for the actual contributions based on actual payroll during the Fiscal Year.

Table 3.4 – Adjustment of Actuarially Determined Employer Contributions for Actual Compensation

Fiscal Year Ending	June 30, 2023	June 30, 2022
Projected Fixed, Statutory Member and Employer Contribution Rate	12.407%	12.404%
Projected Actuarially Determined Member and Employer Contribution Rate	12.407%	12.404%
Actuarially Determined Member and Employer Contribution Rate as a Percentage of Fixed, Statutory Member and Employer Contribution Rate	100.0%	100.0%
Actual Member and Employer Contributions (Excluding Service Purchases)	$ 307,999,843	$ 285,410,157
Estimated Actual Covered Payroll	2,482,638,144	2,300,011,798
Actual Fixed, Statutory Member and Employer Contribution Rate	12.406%	12.409%
Actuarially Determined Member and Employer Contribution Rate as a Percentage of Fixed, Statutory Member and Employer Contribution Rate	100.0%	100.0%
Actuarially Determined Member and Employer Contribution Rate (Adjusted for actual contributions and payroll during year)	**12.406%**	**12.409%**
Actuarially Determined Member and Employer Contributions	**$ 307,999,843**	**$ 285,410,157**
Actual Member Contributions (Excluding Service Purchases)	$ 153,238,139	$ 142,139,331
Estimated Actual Covered Payroll	2,482,638,144	2,300,011,798
Actual Fixed, Statutory Member Contribution Rate	6.172%	6.180%
Actual Employer Contributions	$ 154,761,704	$ 143,270,826
Actuarially Determined Employer Contributions	**154,761,704**	**143,270,826**
Contribution Deficiency/(Excess)	$ 0	$ 0
Actual Employer Contributions	$ 154,761,704	$ 143,270,826
Estimated Actual Covered Payroll	2,482,638,144	2,300,011,798
Actual Fixed, Statutory Employer Contribution Rate	6.234%	6.229%

The Projected Actuarially Determined Contribution Rate in Table 3.4 and the adjusted Actuarially Determined Employer Contributions in Table 3.4 both meet the requirements for Reasonable Actuarially Determined Contributions in Actuarial Standards of Practice No. 4, Section 3.21.

The Reasonable Actuarially Determined Contribution corresponds to the Fair Value Funded Ratio (FVFR) of 100.1% detailed in Table 3.1. In addition to the actuarial methods and assumptions detailed in Sections 9 and 10 of this report, the SDRS fixed contributions are determined to be the Reasonable Actuarially

Determined Contribution if they are between the Actuarially Determined Contribution if the minimum SDRS COLA is payable and the Actuarially Determined Contribution if the maximum SDRS COLA is payable.

This procedure ensures SDRS benefits, including current and projected future SDRS COLAs, remain sustainably funded, limiting the COLAs to those that can be afforded for the lifetimes of all current SDRS members considering current assets and liabilities and the fixed, statutory member and employer contributions. The procedure maximizes the long-term benefits that can be sustainably funded with the fixed, statutory contributions, balancing benefit security and intergenerational equity with the statutory requirement of fixed contributions. The procedure will keep the FVFR at 100% or above, unless and until a severe or prolonged economic downturn causes a FVFR less than 100% with no affordable SDRS COLA. Such a condition would require the SDRS Board of Trustees to make a recommendation for a corrective action.

Funding Summary

This Actuarial Valuation confirms that a restricted maximum COLA is again applicable. The restricted maximum COLA payable in July 2023 was 2.10% and the 2022 Actuarial Valuation was based on an annual COLA assumption of 2.10%. The restricted maximum COLA payable in July 2024 will be 1.91% and the 2023 Actuarial Valuation is based on an annual COLA assumption of 1.91%.

The results of the 2023 Actuarial Valuation of SDRS indicate that based on the currently affordable COLA of 1.91%:

- The system expects to pay total future benefits to all current SDRS active, retired and terminated members, which have a present value of $17.001 billion (Table 3.1).

- The Actuarial Value of Assets and Fair Value of Assets both equal $14.500 billion (Table 4.1).

- Future member and employer contributions for current active members with a present value of $2.510 billion will be required to pay future Normal Costs (Table 3.1).

SDRS is funded by fixed, statutory member and employer contributions that total 12.416% of considered compensation. The 2023 Actuarial Valuation of SDRS confirms that the statutory rate of contributions is the Actuarially Determined Contribution rate.

Unfunded Actuarial Accrued Liability

Table 3.5 – Development of Unfunded Actuarial Accrued Liability Valuation Date	June 30, 2023	June 30, 2022
Assumed Future COLAs	1.91%	2.10%
Actuarial Accrued Liability	$ 14,490,723,479	$ 14,116,661,375
Actuarial Value/Fair Value of Assets (Table 4.1)	(14,500,453,104)	(14,126,069,868)
Unfunded Actuarial Accrued Liability (not less than $0)	$ 0	$ 0

Changes from Prior Year

Table 3.6 – Reconciliation of Key Measures	2022 Actuarial Valuation Results	System Investment and Liability Experience For Year[1]	Membership Changes and Maturity of System[2]	Changes in Benefit Provisions, Actuarial Methods or Actuarial Assumptions Effective July 1, 2023	2023 Actuarial Valuation Results
Normal Cost Rate with Expense Provision	12.095%	--	(0.078%)	(0.257%)[3]	11.760%
Funding Period	N/A	--	--	--	N/A
Unfunded Actuarial Accrued Liability	$0	$267M	--	($267M)	$0
Actuarial Value Funded Ratio	100.1%[3]	(1.9%)	--	1.9%[3]	100.1%[3]
Fair Value Funded Ratio	100.1%[3]	(1.9%)	--	1.9%[3]	100.1%[3]

[1] SDRS Actuarial Investment and Liability Gains and Losses impact the Actuarial and Fair Value Funded Ratios immediately.
[2] Changes to the membership from year to year will cause minor changes in the Normal Cost Rate.
[3] In years when a restricted maximum COLA applies or when a restricted maximum COLA no longer applies, changes to the assumed future SDRS COLA that correspond to actuarial investment and liability experience will drive changes in the Funded Ratios and the Normal Cost rate.

Liability Gains and Losses for the Fiscal Year Ended June 30, 2023

SDRS liabilities as of June 30, 2023 were $199 million greater than expected, or 1.37% of the Actuarial Accrued Liability. The sources of the $199 million total experience loss were as follows:

Table 3.7 – Liability Gains/(Losses)

Item	Amount of Liability Gain/(Loss)	Percent of Actuarial Accrued Liability
Gain/(Loss) due to Compensation Increases	$(187 million)[1]	(1.29%)
Gain/(Loss) due to Mortality	4 million	0.03%
Gain/(Loss) due to Retirements	5 million	0.04%
Gain/(Loss) due to Rehired and New Members	(36 million)[2]	(0.25%)
Gain/(Loss) due to Terminations	10 million	0.07%
Gain/(Loss) due to VRA investment return	0 million	0.00%
Miscellaneous Gain/(Loss)	5 million	0.03%
Total Experience Liability Gain/(Loss)	$(199 million)	(1.37%)

[1] Offset by approximately $11 million in contribution increases. Net impact to funded status is a loss of approximately $176 million.
[2] Offset by approximately $21 million in contribution increases. Net impact to funded status is a loss of approximately $15 million.

SDRS liability experience for the year ended June 30, 2023 included the following:

- The number of active members increased by 1.5%, prior year compensation for all members increased by 8.5% and average prior year compensation increased by 6.9%.

- The average age of active members remained at 44.3 years and the average Credited Service decreased by 1.0% to 10.4 years.

- The number of SDRS members and beneficiaries receiving benefits increased by 2.9% and the average benefit paid increased by 1.5%.

- Compensation for active members included in the prior Actuarial Valuation increased by 9.1% compared to an assumed increase of 4.6%.

- COLAs for benefit recipients were 2.10%, equal to the assumed COLA.

- Decremental experience was mixed. The experience included:
  - Gains from mortality experience – 28 more benefit recipients than expected died during the year (2.7% more deaths than expected). However, when weighted by benefit payments, recipient deaths were 4.5% lower than assumed. Improved tracking of spouses of current retirees contributed to the net mortality gain of $4.5 million.
  - Gains from retirements – 61 fewer members than expected retired during the year (4.3% fewer retirements than expected). When weighted by salaries, actual retirement rates were 7.3% lower than assumed.
  - Gains from terminations – 589 more members than expected terminated (prior to retirement eligibility) during the year (19.3% more). When weighted by salaries, actual retirement rates were 13.4% higher than assumed.
  - Losses due to the service credited to rehired members who have not previously withdrawn their contributions.
  - Losses due to newly hired members receiving full credit for quarters during which contributions were made for only a portion of the quarter.

Asset Gains and Losses for the Fiscal Year Ended June 30, 2023

For the year ended June 30, 2023, the actual investment return of SDRS was less than the expected 6.50% investment return on the Fair Value of Assets by $98 million as summarized below.

Table 3.8– Investment Gain/(Loss)	
Actual Investment Return for the Year Ended June 30, 2023 (Table 4.2)	$ 806,061,088
Expected Investment Return Based on Fair Value of Assets (Table 6.6)	904,385,870
Actuarial Investment Gain/(Loss) (Actual less Expected)	$ (98,324,782)

The money-weighted investment return based on the Fair Value of Assets of the system for the year ended June 30, 2023 was 5.80% after investment expenses (5.84% on a time-weighted basis).

Summary of June 30, 2023 Actuarial Valuation Results

The June 30, 2023 Actuarial Valuation of SDRS reports a Fair Value Funded Ratio of 100.1%.

The SDRS COLA considers both the rate of inflation and the long-term affordability of the COLA as determined by a Fair Value Funded Ratio of 100% or more. This June 30, 2023 Actuarial Valuation determines that the 2023 COLA will be restricted and subject to a maximum of 1.91%, which is less than the rate of inflation for the year of 3.20%.

This June 30, 2023 Actuarial Valuation also confirms that the actuarial conditions delineated in SDCL 3-12C-228 are met and no corrective action recommendations are required to be made to the Retirement Laws Committee.

The Fair Value Funded Ratio remained at 100.1% as of June 30, 2022 and as of June 30, 2023 due to the net impact of investment returns less than the assumed 6.50%, liability gains/losses, and actuarial assumption changes to reflect the application of the restricted maximum COLA.

The investment return based on the Fair Value of Assets was 5.80% for the year on a money-weighted basis net of investment expenses, less than the 6.50% assumed return. Actuarial Investment Losses for the year were $98 million.

Liability losses caused by experience during the year different than assumed were $199 million.

Member and employer contributions are fixed in statute and have never changed due to experience since consolidation in 1974.

SDRS Actuarial Valuation Results Compared to SDRS Funding Policy Objectives

The Board of Trustees' Funding Policy objectives reflect that SDRS is managed based on the resources provided by fixed, statutory member and employer contributions. The objectives include a Fair Value Funded Ratio of at least 100% with no Unfunded Actuarial Accrued Liabilities and actuarially determined benefits that are variable and are supported by the fixed, statutory contributions. These objectives are

currently met as no Unfunded Actuarial Accrued Liability currently exists and the Fair Value Funded Ratio is 100.1% as of June 30, 2023.

Based on the current FVFR, the SDRS Funding Policy, fixed statutory contribution rates, and future experience matching the actuarial assumptions detailed in this report, the Fair Value Funded Ratio is expected to remain 100% or greater.

The current restricted maximum COLA of 1.91% is expected to remain stable if system experience matches the assumptions.

SDRS has been, and continues to be, a well-funded system as is evidenced by the Fair Value Funded Ratio history shown in Table 3.2.

Actuarial Soundness

The determination of the affordable COLA, the funded status, and the adequacy of the statutory contributions to SDRS are the most important indicators of the long-term actuarial soundness of SDRS. The soundness is measured by:

- The maximum SDRS COLA payable the following July 1 and assumed for future years
- The Fair Value Funded Ratio
- The adequacy of the total fixed, statutory contributions available

As of the June 30, 2023 valuation date, the restricted maximum COLA is 1.91%, the Fair Value Funded Status is 100.1% and the Unfunded Actuarial Accrued Liability remains at $0.

If future experience meets expectations, the Fair Value Funded Ratio is expected to remain at or above 100% and the restricted COLA is expected to remain constant at the current 1.91%.

Future events such as adverse investment returns, increases in life expectancies greater than assumed, or other demographic losses may result in the restricted maximum COLA again applying and, if severe enough, may adversely impact the future funded status of SDRS and require corrective action recommendations.

Corrective action recommendations are required if the Fair Value Funded Ratio is less than 100%. That condition does not exist currently. If it exists in the future, SDRS is expected to have Unfunded Actuarial Accrued Liabilities unless future system experience is more favorable than assumed or until legislation is enacted to meet the requirements of SDCL 3-12C-228.

The combination of actuarial assumptions and methods used in the Actuarial Valuation, the actual experience of the system, and the actuarial measures determined in this report all indicate a continuing sound system.

SDRS is a consolidated, multiple-employer, cost-sharing retirement system that does not attempt to determine separate or unique funding requirements for entities or classes within SDRS. However, periodic studies are performed to analyze the balance of benefits and contributions provided to the two major

member groups within SDRS with different funding and benefit provisions (Class A and Class B). Prior studies had found that the two classes were generally self-supporting (i.e. – the fixed, statutory member and employer contributions were sufficient to fund the Normal Cost of the benefits provided under these classifications). An analysis during 2015, based on the actuarial assumptions and member demographics at that time, suggested that the current provisions provide proportionately higher benefits to Class B members considering the contributions applicable to each class. While the dollar impact of the imbalance is not significant to SDRS overall, the SDRS Board of Trustees enacted design changes for Generational members entering the system after June 30, 2017 to address this imbalance (as well as other subsidies) while also accomplishing other equitable benefit design objectives.

Section 4 – SDRS Plan Assets

SDRS Fair Value of Assets Available for Benefits

Table 4.1 – SDRS Fair Value of Assets Available for Benefits as of:	June 30, 2023	June 30, 2022
Assets		
Investments at current value	$ 14,453,695,128	$ 14,061,778,901
Cash and temporary investments	8,457,920	9,928,347
Contributions receivable	7,369,663	6,245,261
Benefits receivable	255,290	147,095
Accounts receivable (unsettled investment sales)	1,436,465	7,326,226
Investment income receivable	52,594,316	37,171,370
Properties	13,159	16,491
Due from Brokers	0	16,469,458
Other assets	445,059	701,374
Total Assets	$ 14,524,267,000	$ 14,139,784,523
Liabilities		
Accounts payable and accrued expenses	$ 2,444,505	$ 3,545,316
Accounts payable (unsettled investment purchases)	376,059	10,169,339
Securities sold, but not yet purchased	0	0
Due to Brokers	20,993,332	0
Total Liabilities	$ 23,813,896	$ 13,714,655
Fair Value of Assets Available for Benefits	**$ 14,500,453,104**	**$ 14,126,069,868**

Changes in SDRS Fair Value of Assets

Table 4.2 – Changes in SDRS Fair Value of Assets for Year Ended:	June 30, 2023	June 30, 2022
Fair Value of Assets at Beginning of Year	$ 14,126,069,868	$ 14,632,199,039
Additions		
Employer Contributions	$ 154,761,704	$ 143,270,826
Member Contributions	153,238,139	142,139,331
Service Purchase/Redeposits/SPB Purchases	560,756	902,214
Investment Return Net of Investment Expenses	806,061,088	(91,538,866)
Total Additions	**$ 1,114,621,687**	**$ 194,773,505**
Deductions		
Benefit Payments	$ (707,072,236)	$ (665,067,430)
Accumulated Contribution Refunds	(28,008,011)	(30,973,246)
Administrative Expenses	(5,158,204)	(4,862,000)
Total Deductions	**$ (740,238,451)**	**$ (700,902,676)**
Net Increase/(Decrease)	**$ 374,383,236**	**$ (506,129,171)**
Fair Value of Assets at End of Year	**$ 14,500,453,104**	**$ 14,126,069,868**

SDRS Actuarial Value of Assets

Effective with the June 30, 2017 Actuarial Valuation, the Actuarial Value of Assets is equal to the Fair Value of Assets.

Section 5 – Funding Risks

Background

Measuring liabilities for a retirement system requires assumptions regarding future economic and demographic experience. Future actuarial liabilities, funded ratios, and contribution requirements will vary from the current measurements and vary from the expectations for future measurements.

Actuarial Standard of Practice No. 51 defines risk as "the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience."

Risk Identification

Several categories of risk may reasonably be expected to cause future SDRS results to deviate from expected results, including:

- Investment risk – if future investment returns are greater or less than the assumed 6.5% annual net investment return;
- Longevity risk – if future life expectancies are different than assumed;
- Inflation risk – if future inflation is different than the 2.50% assumed average future inflation;
- Salary increase risk – if future salary increases depart from the assumed annual increases;
- Other demographic risk – if future retirements, terminations, disabilities, family composition, or other demographic experience is different than assumed;
- Covered payroll risk – if future covered payroll increases at a rate greater or less than the assumed 3.15% annual rate when and if an Unfunded Liability exists; and
- Contribution risk – if future member or employer contributions are different than current statutory requirements.

This is not a comprehensive list of all factors that may cause actual future measurements to deviate from expected measurements. Since contributions are fixed for SDRS, risk factors may result in changes to the SDRS variable COLA, or even corrective actions that result in additional benefit reductions.

Initial Risk Assessment

Investment Risk: The risk that future investment returns deviate from the assumed 6.5% net return is the most significant risk to future SDRS funding and benefit levels. Investment experience is the most likely to vary from the assumption and its variation is likely to be the largest of any assumption. The impact of investment risk is demonstrated in the scenario testing detailed later in this section.

The following additional risks are expected to have a much less significant risk than investment risk:

Longevity Risk: Longevity risk is the risk that future life expectancies differ from the life expectancies inherent in the mortality assumptions used in this valuation. While the assumptions used are thought to be a reasonable estimate of current mortality and future mortality improvements, if in the future members live longer than the assumptions project, future COLAs may be reduced. Likewise, if future mortality improvement is slower than assumed, future COLAs would be less likely to be reduced.

Inflation Risk: If future inflation is significantly different than the assumed annual 2.50% inflation, future SDRS COLAs, may be greater or less than assumed. If sustained inflation is above the assumed annual rate during periods when a restricted maximum COLA does not apply, experience losses would occur making subsequent COLA restrictions more likely. The opposite is also true – if sustained inflation is below the assumed annual rate, the future SDRS COLA restrictions would be less likely. Because of the statutory limits on SDRS COLAs, it is not expected that future inflation deviation will make required corrective actions or benefit improvements more likely.

Salary Increase Risk: If future salary increases are greater or less than assumed, variations in future SDRS COLA restrictions would be anticipated.

Other Demographic Risk: If other demographic experience departs from assumptions, variations in future SDRS COLA restrictions would be anticipated.

Covered Payroll Risk: For many retirement systems that amortize Unfunded Actuarial Accrued Liabilities using a level percent of payroll method, deviation in covered payroll from the assumed increases may impact the future amortization of Unfunded Liabilities. Because SDCL 3-12C-228 requires recommendations for corrective actions if the Fair Value Funded Ratio drops below 100%, SDRS is not expected to have any Unfunded Liabilities, except as a temporary condition until economic conditions improve or corrective active legislation is enacted. As a result, covered payroll risk is not expected to impact future SDRS funding measurements.

Investment Risk Scenario Testing

The SDRS funded status and ADC are based on numerous actuarial assumptions that have been selected based on the system's past experience and future expectations, including the expected annual investment return of 6.5%. The basis for the 6.5% investment return assumption has been detailed in Section 6 of this report.

Table 5.1 illustrates the projected FVFR and ADC over the next five years assuming alternative investment returns on the fair value of assets. The projections are based on actuarial assumptions (other than investment returns), methods and plan provisions used in this June 30, 2023 valuation, including plan provisions that vary automatically with the FVFR.

Three scenarios of projected results are shown assuming annual net investment returns equal to:

1. **3.82%** - The expected 25th percentile annual investment return over a 15-year period, based on the assumed investment return of 6.5% and an assumed standard deviation of 15.4%
2. **6.50%** - The annual investment return assumed in this June 30, 2023 valuation
3. **9.18%** - The expected 75th percentile annual investment return over a 15-year period, based on the assumed investment return of 6.5% and an assumed standard deviation of 15.4%

Table 5.1 – June 30, 2023 Projected Funding Results

	Projected Investment Return					
	3.82%		6.50%		9.18%	
June 30,	Fair Value Funded Ratio	Actuarially Determined Total Contribution	Fair Value Funded Ratio	Actuarially Determined Total Contribution	Fair Value Funded Ratio	Actuarially Determined Total Contribution
2023	100.1%	12.416%	100.1%	12.416%	100.1%	12.416%
2024	100.0%	12.416%	100.1%	12.416%	100.0%	12.416%
2025	100.1%	12.416%	100.0%	12.416%	101.9%	12.416%
2026	100.1%	12.416%	100.1%	12.416%	104.6%	12.416%
2027	100.0%	12.416%	100.0%	12.416%	107.5%	12.416%
2028	100.0%	12.416%	100.0%	12.416%	110.5%	12.416%

Table 5.1 results recognize the automatically adjusting features of SDRS. The COLA is the primary flexible SDRS benefit and variations in the restricted maximum COLA are key to understanding the projected future Funded Ratios. Table 5.2 projects future baseline FVFRs and restricted maximum COLAs based on the same scenarios presented in Table 5.1.

Table 5.2 – June 30, 2023 Projected Baseline Fair Value Funded Ratio and Restricted Maximum COLA

	Projected Investment Return					
	3.82%		6.50%		9.18%	
June 30,	Baseline Fair Value Funded Ratio	Restricted Maximum COLA	Baseline Fair Value Funded Ratio	Restricted Maximum COLA	Baseline Fair Value Funded Ratio	Restricted Maximum COLA
2023	96.7%	1.91%	96.7%	1.91%	96.7%	1.91%
2024	94.4%	1.66%	96.9%	1.92%	99.3%	2.18%
2025	92.2%	1.41%	97.0%	1.94%	101.9%	None[1]
2026	90.1%	1.17%	97.1%	1.95%	104.6%	None[1]
2027	88.1%	0.94%	97.3%	1.97%	107.5%	None[1]
2028	86.3%	0.71%	97.4%	1.98%	110.5%	None[1]

[1]When the SDRS FVFR is 100% or greater under the baseline COLA assumption of 2.25%, no restricted maximum COLA is applicable and the SDRS COLA is equal to the increase in the CPI-W with a minimum of 0% and a maximum of 3.5%.

SDRS' current FVFR as of June 30, 2023 is 100.1% based on the assumed investment return of 6.5% and assumed future COLAs of 1.91%. Tables 5.1 and 5.2 indicate the COLA variability will be sufficient for the system to remain fully funded over the next five years based on the 25th percentile annual investment return of 3.82%. Conversely, based on the 75th percentile investment return of 9.18% over the next five years, the full COLA range will be affordable each year beginning with the COLA effective in July 2026. In addition, five years of annualized net investment returns of approximately 2.5% or less will exhaust the variability built into the SDRS COLA and, by statute, require a recommendation to the South Dakota Legislature for corrective actions (benefit reductions). Likewise, five years of annualized net investment returns of approximately 10.9% or more will satisfy the Board of Trustees' policy for benefit improvements and permit consideration of a recommendation to the Legislature for a benefit increase subject to additional SDRS Board of Trustees' policy restrictions on the type and timing of any improvement.

SDRS benefits (primarily the COLA) will vary with system experience since both member and employer contributions are fixed. The risk of investment returns less than anticipated under SDRS is borne by members in the form of reduced benefits. That risk is best illustrated by considering the likelihood of various investment returns based on the benchmark asset allocation of the SDRS trust fund over shorter time periods because benefits vary automatically as required, and additional benefit reductions will be recommended as required by statute if the automatic adjustments in variable benefits are not adequate

to meet statutory requirements. The risk of benefit reductions is illustrated in the following subsection of this report. Conversely, better than expected investment results provide the opportunity for a recommendation to increase benefits under Board of Trustees' policies.

Historical annual money-weighted net investment returns and inflation are shown in Table 5.3:

Table 5.3 – Historical Money-Weighted Net Investment Returns and Inflation

Period Ending June 30, 2023	Annualized Net Investment Returns	Annualized Inflation[1]
1 Year	5.80%	2.34%
5 Years	6.43%	3.99%
10 Years	7.62%	2.67%
15 Years	7.45%	2.22%
20 Years	8.19%	2.59%

[1]Annualized increase in June CPI-W index.

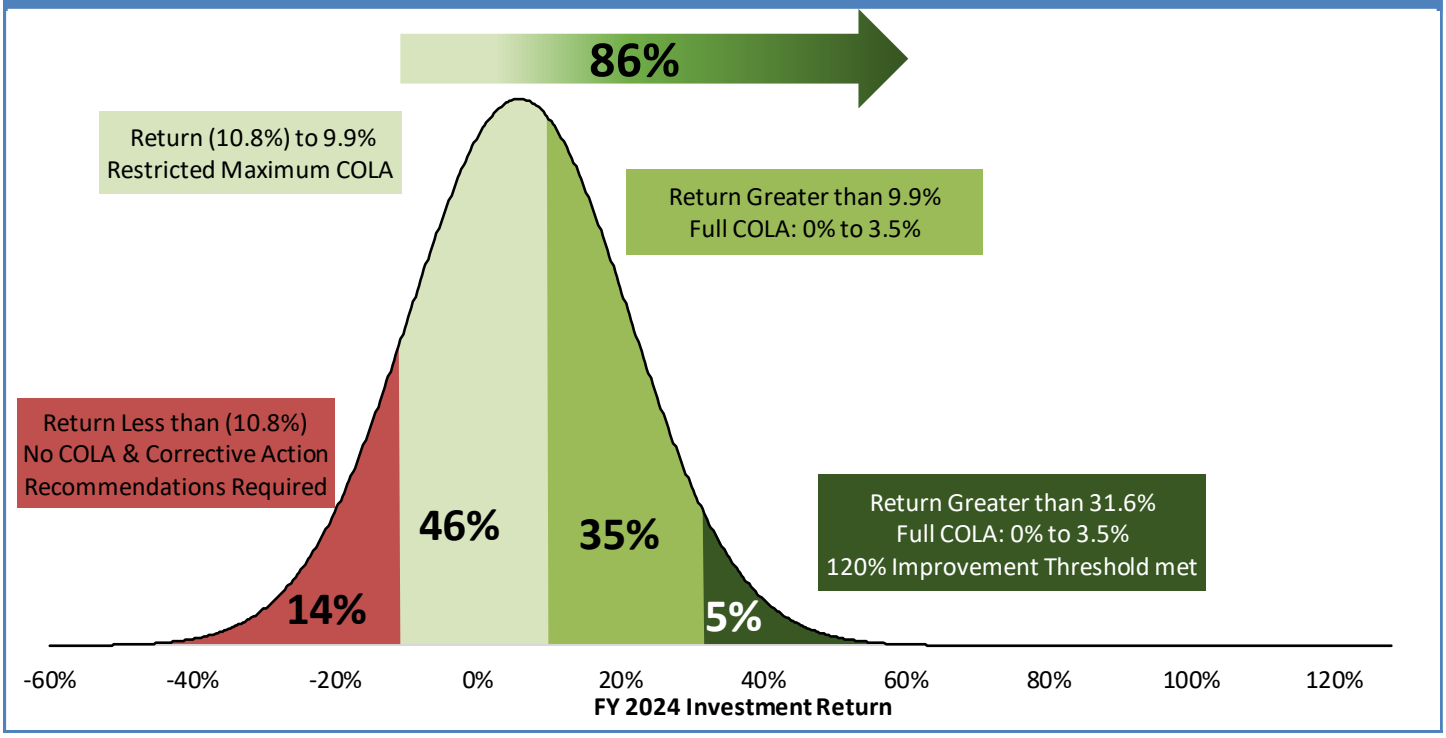
Projected Future COLAs and Corrective Action Recommendations

The SDRS COLA varies with both inflation and affordability. Based on the results of this Actuarial Valuation, the 2023 COLA will be equal to inflation, subject to a minimum of 0% and a maximum of 1.91%.

Future asset and liability experience will drive changes in the SDRS COLA and may also require recommendations for future corrective action legislation. Because of the maturity of SDRS, future investment return variability is likely to have the most significant impact on future COLA levels and corrective action requirements. The following charts project the approximate investment returns required for future COLA ranges and the likelihood of achieving those investment returns over the next three fiscal years. The likelihoods are based on the South Dakota Investment Council's investment portfolios statistics for the benchmark asset allocation as of June 2023. Demographic experience is assumed to follow the actuarial assumptions used in this Actuarial Valuation and annual inflation is assumed to be 2.50%. The COLA ranges are estimates and will be affected by liability gains or losses caused by departures from the actuarial assumptions.

One-Year Projection: Projected COLA ranges for the June 30, 2024 Actuarial Valuation, that determines the 2025 SDRS COLA, are shown in Table 5.4:

Table 5.4 - 1-Year Projection of COLA Ranges



If the fiscal year 2024 net investment return is less than negative 10.8%, no SDRS COLA would be paid in 2025 and the SDRS Board of Trustees would be required to recommend corrective action legislation. This would result in a Fair Value Funded Ratio less than 100% until economic conditions improve or corrective action legislation is enacted. Based on the investment portfolio statistics, the expected likelihood of net investment returns less than negative 10.8% is 14%.

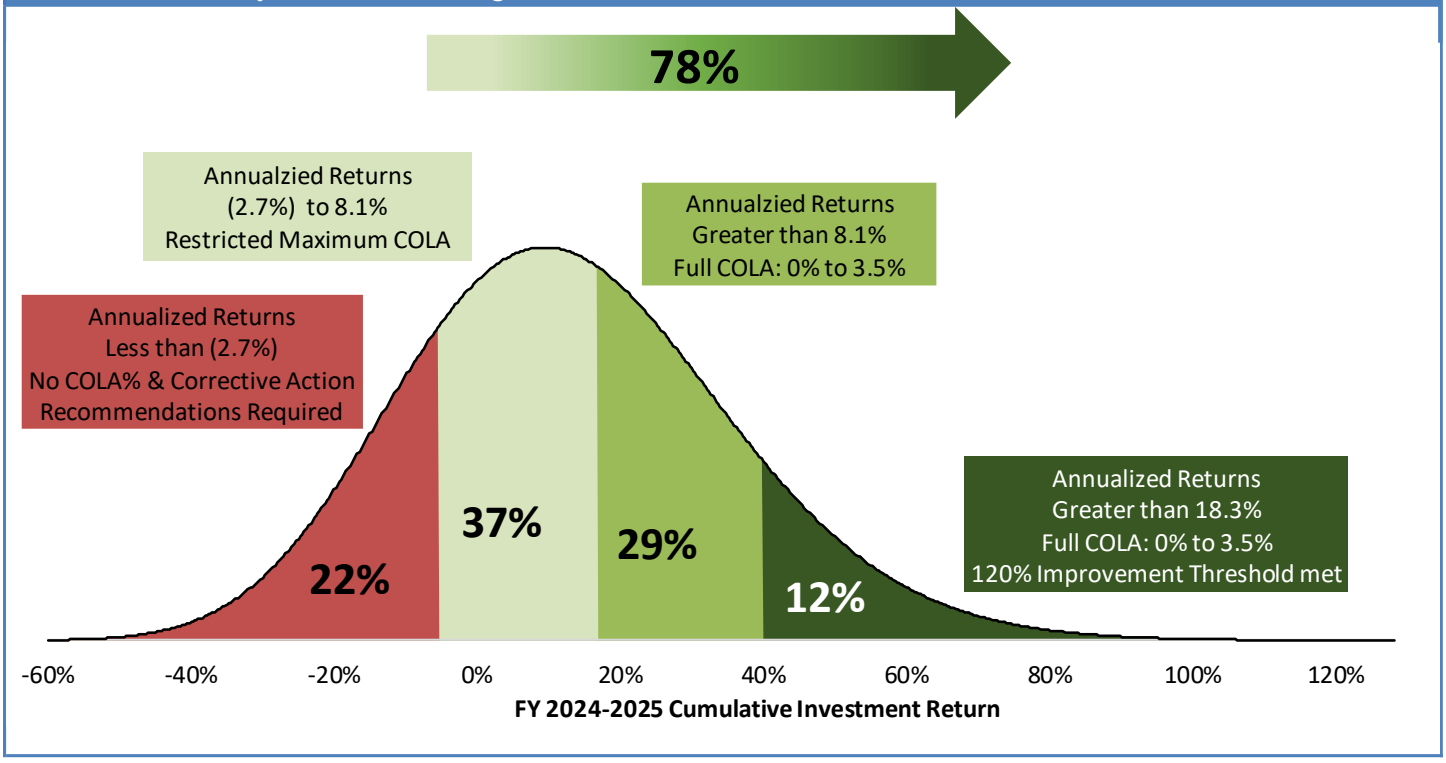
If the net investment return for fiscal year 2024 is between negative 10.8% and 9.9%, a restricted maximum COLA would apply for the 2025 SDRS COLA and the June 30, 2024 Fair Value Funded Ratio would be 100%. The expected likelihood of a restricted maximum COLA for 2025 is 46%.

If the net investment return for fiscal year 2024 is greater than 9.9%, the 2025 SDRS COLA would be equal to inflation, between 0% and 3.5% and the June 30, 2024 Fair Value Funded Ratio would be greater than 100%. The expected likelihood of the full COLA range for 2025 is 40% (35% plus 5%).

If the net investment return for fiscal year 2024 is greater than 31.6%, the 2025 SDRS COLA would be equal to inflation, between 0% and 3.5%, and the June 30, 2024 Fair Value Funded Ratio would be greater than 120%. This is the Board of Trustees first requirement for considering benefit improvements. This likelihood is 5%.

Two-Year Projection: Projected COLA ranges for the June 30, 2025 Actuarial Valuation, that determines the 2026 SDRS COLA, are shown in Table 5.5:

Table 5.5 - 2-Year Projection of COLA Ranges



If the annualized net investment return for fiscal years 2024 and 2025 is less than negative 2.7%, no SDRS COLA would be paid in 2026 and the SDRS Board of Trustees would be required to recommend corrective action legislation. This would result in a Fair Value Funded Ratio less than 100% until economic conditions improve or corrective action legislation is enacted to rectify the situation. Based on the investment portfolio statistics, the expected likelihood of annualized net investment returns less than negative 2.7% is 22%.

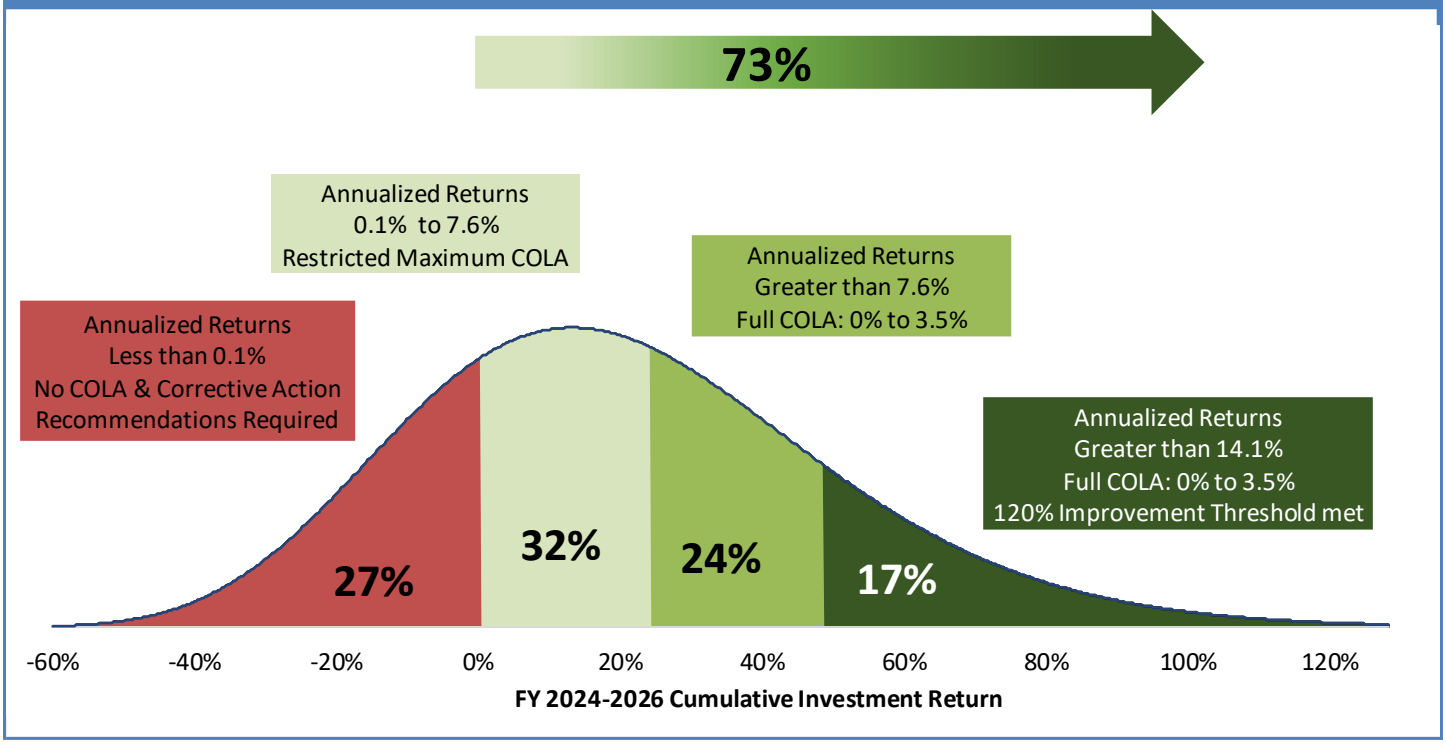
If the annualized net investment return for fiscal years 2024 and 2025 is between negative 2.7% and 8.1%, a restricted maximum COLA would apply for the 2026 SDRS COLA and the June 30, 2025 Fair Value Funded Ratio would be 100%. The expected likelihood of a restricted maximum COLA for 2026 is 37%.

If the annualized net investment return for fiscal years 2024 and 2025 is greater than 8.1%, the 2026 SDRS COLA would be equal to inflation, between 0% and 3.5% and the June 30, 2025 Fair Value Funded Ratio would be greater than 100%. The expected likelihood of the full COLA range for 2026 is 41% (29% plus 12%).

If the annualized net investment return for fiscal years 2024 and 2025 is greater than 18.3%, the 2026 SDRS COLA would be equal to inflation, between 0% and 3.5%, and the Fair Value Funded Ratio would be greater than 120%. This is the Board of Trustees first requirement for considering benefit improvements. This likelihood is 12%.

Three-Year Projection: Projected COLA ranges for the June 30, 2026 Actuarial Valuation, that determines the 2027 SDRS COLA, are shown in Table 5.6:

Table 5.6 - 3-Year Projection of COLA Ranges



If the annualized net investment return for fiscal years 2024 through 2026 is less than 0.1%, no SDRS COLA would be paid in 2027 and the SDRS Board of Trustees would be required to recommend corrective action legislation. This would result in a Fair Value Funded Ratio less than 100% until economic conditions improve or corrective action legislation is enacted to rectify the situation. Based on the investment portfolio statistics, the expected likelihood of annualized net investment returns less than 0.1% is 27%.

If the annualized net investment return for fiscal years 2024 through 2026 is between 0.1% and 7.6%, a restricted maximum COLA would apply for the 2027 SDRS COLA and the June 30, 2026 Fair Value Funded Ratio would be 100%. The expected likelihood of a restricted maximum COLA for 2027 is 32%.

If the annualized net investment return for fiscal years 2024 through 2026 is greater than 7.6%, the 2027 SDRS COLA would be equal to inflation, between 0% and 3.5% and the June 30, 2026 Fair Value Funded Ratio would be greater than 100%. The expected likelihood of the full COLA range for 2027 is 41% (24% plus 17%).

If the annualized net investment return for fiscal years 2024 through 2026 is greater than 14.1%, the 2027 SDRS COLA would be equal to inflation, between 0% and 3.5%, and the Fair Value Funded Ratio would be greater than 120%. This is the Board of Trustees first requirement for considering benefit improvements. This likelihood is 17%.

Plan Maturity Measurements

As a pension plan matures, plan measurements and relationships between those measurements change. The number of retired and terminated members grows compared to the number of active members. The portion of Actuarial Accrued Liability for benefits to retired and terminated members will likely grow at a faster rate than the portion for active members. As these trends progress, accumulated liabilities and assets will grow faster than the payroll of active members.

The result is a more mature system that is exposed to additional risks. For instance, if over a number of years, the ratio of assets to payroll increases from 4.5 to 6.5, a 10% asset loss that would have initially created a funding gap equal to 45% of covered payroll would now create a funding gap of 65% of covered payroll. These changes can make it more difficult to reach or maintain a desired funding level as a plan matures.

Tables 5.7 and 5.8 illustrate this effect for SDRS and show the Fair Value of Assets, Actuarial Accrued Liability, covered payroll and total contributions for SDRS from 2003 through 2023. Table 5.8 shows the ratios of assets and liabilities to covered payroll for the same period.

Table 5.7 - Historical Assets, Liabilities, Covered Payroll, and Contributions

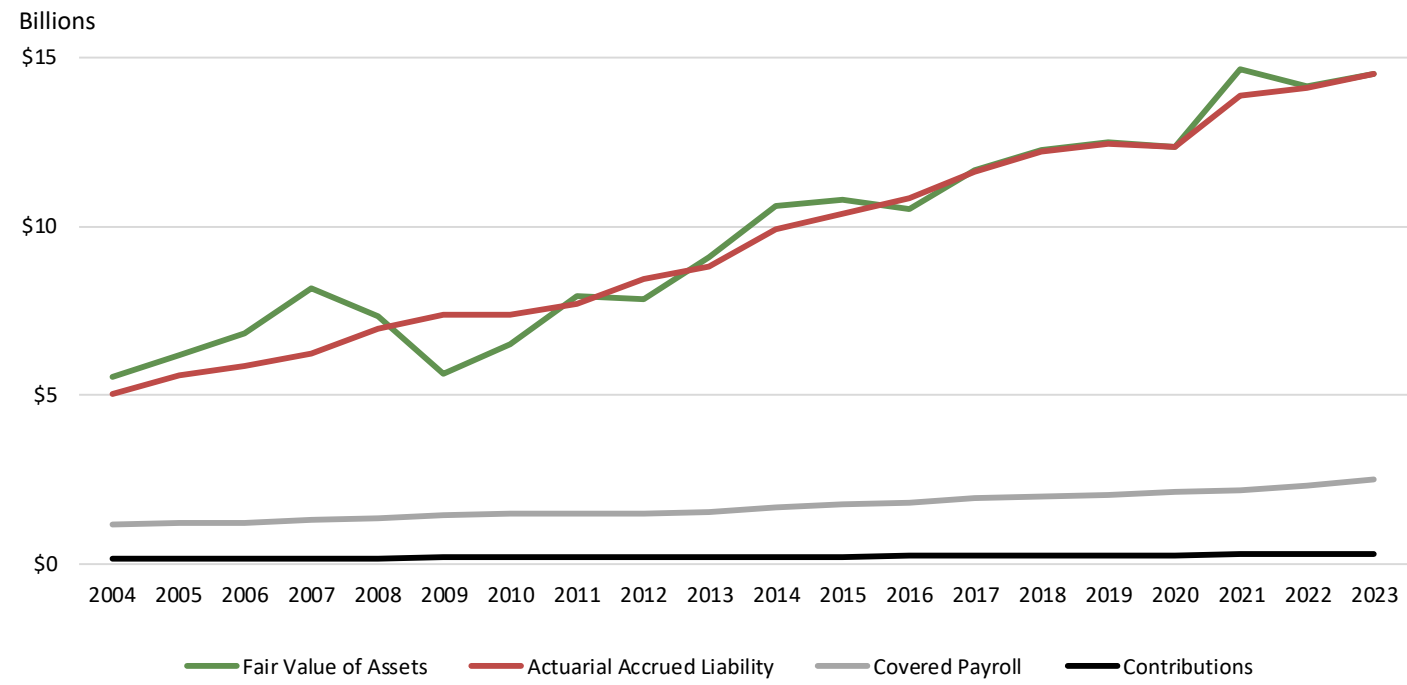
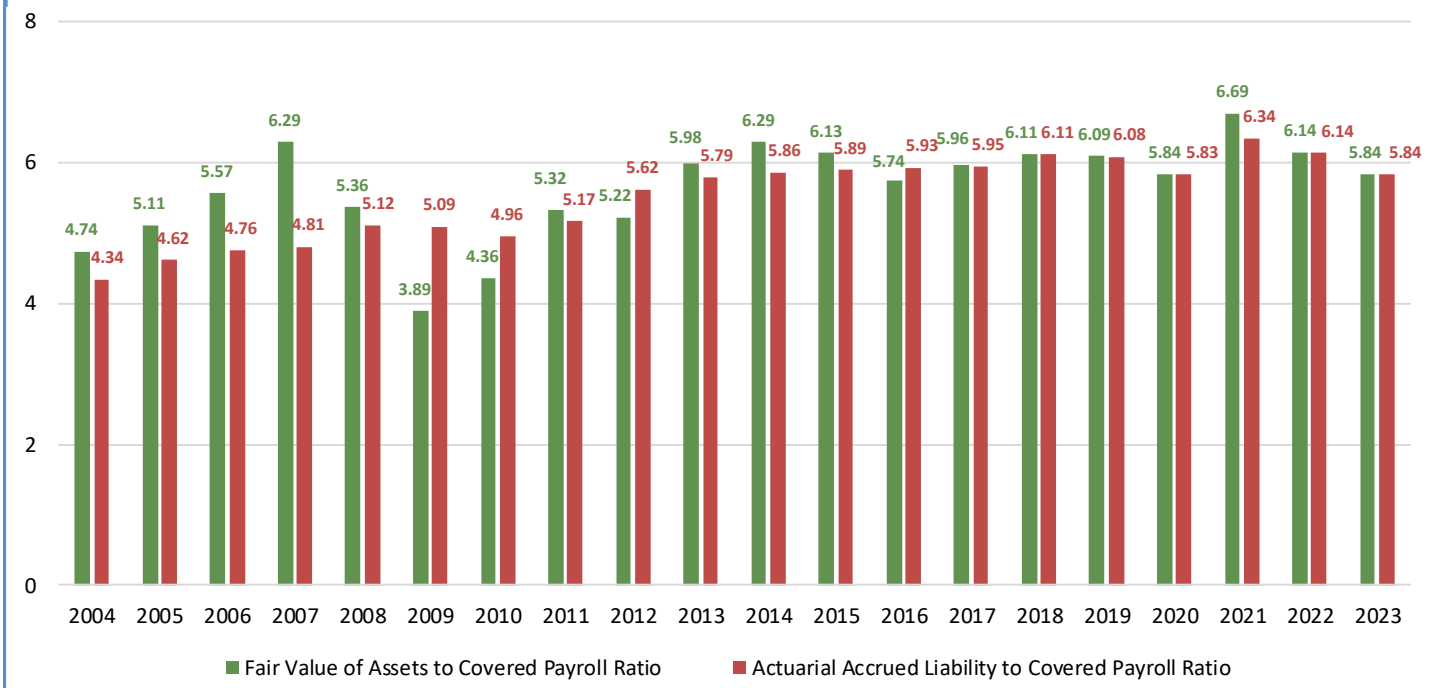


Table 5.8 - Historical Asset and Liability to Covered Payroll Ratios



A more basic maturity measurement is the portion of members who have retired and terminated and the portion of liabilities for those members. Tables 5.9 and 5.10 demonstrate that the percentage of members who are retired or terminated has increased since 2004 and the percentage of liabilities for retired or terminated members has increased even faster.

Table 5.9 - Percentage of Members Who Are Retired or Terminated

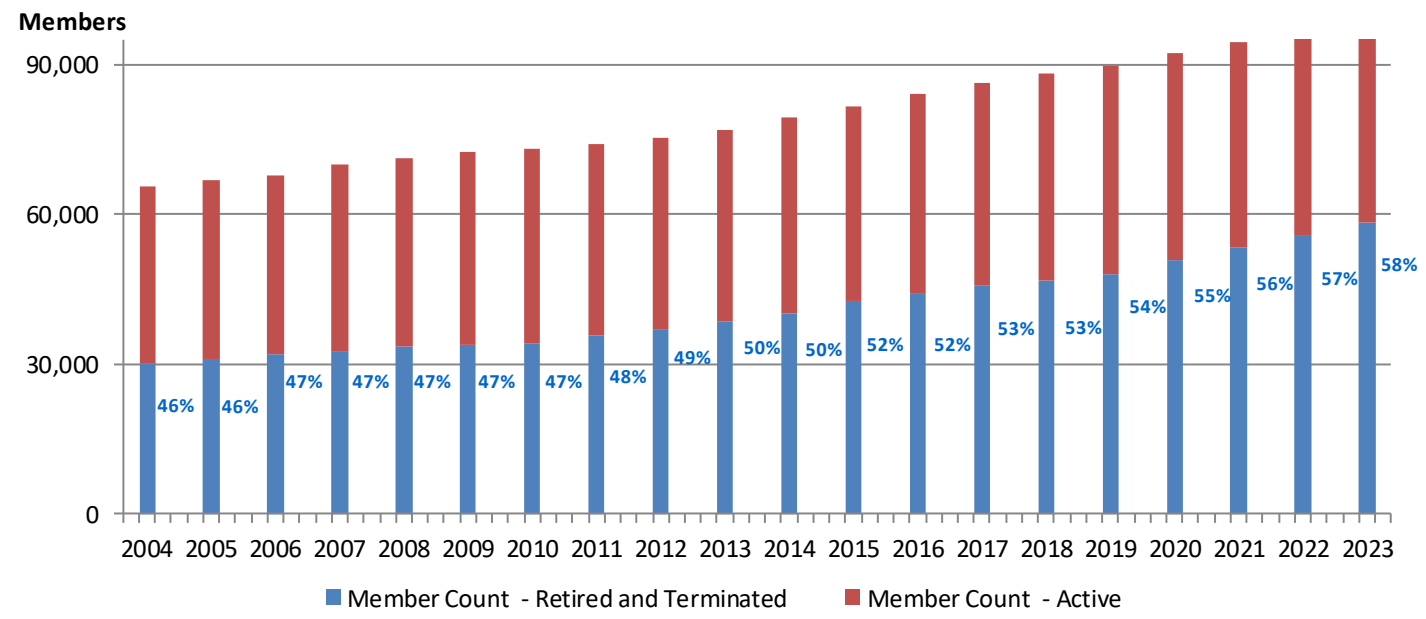
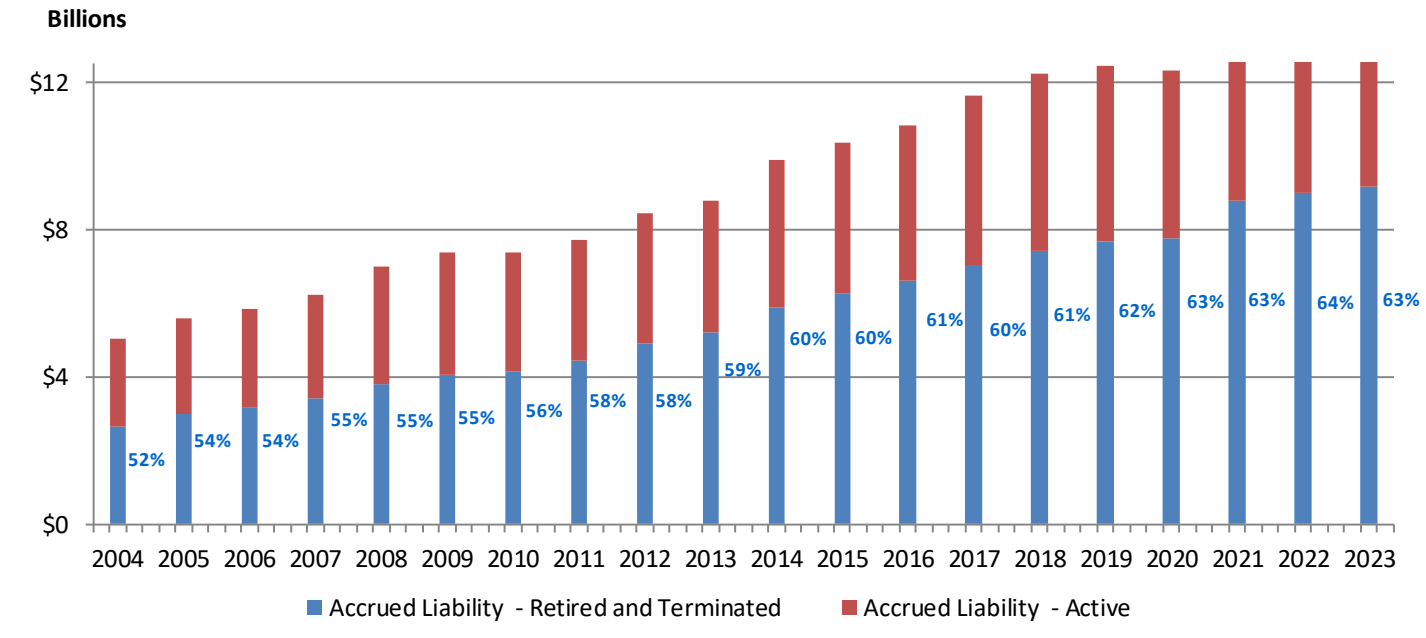
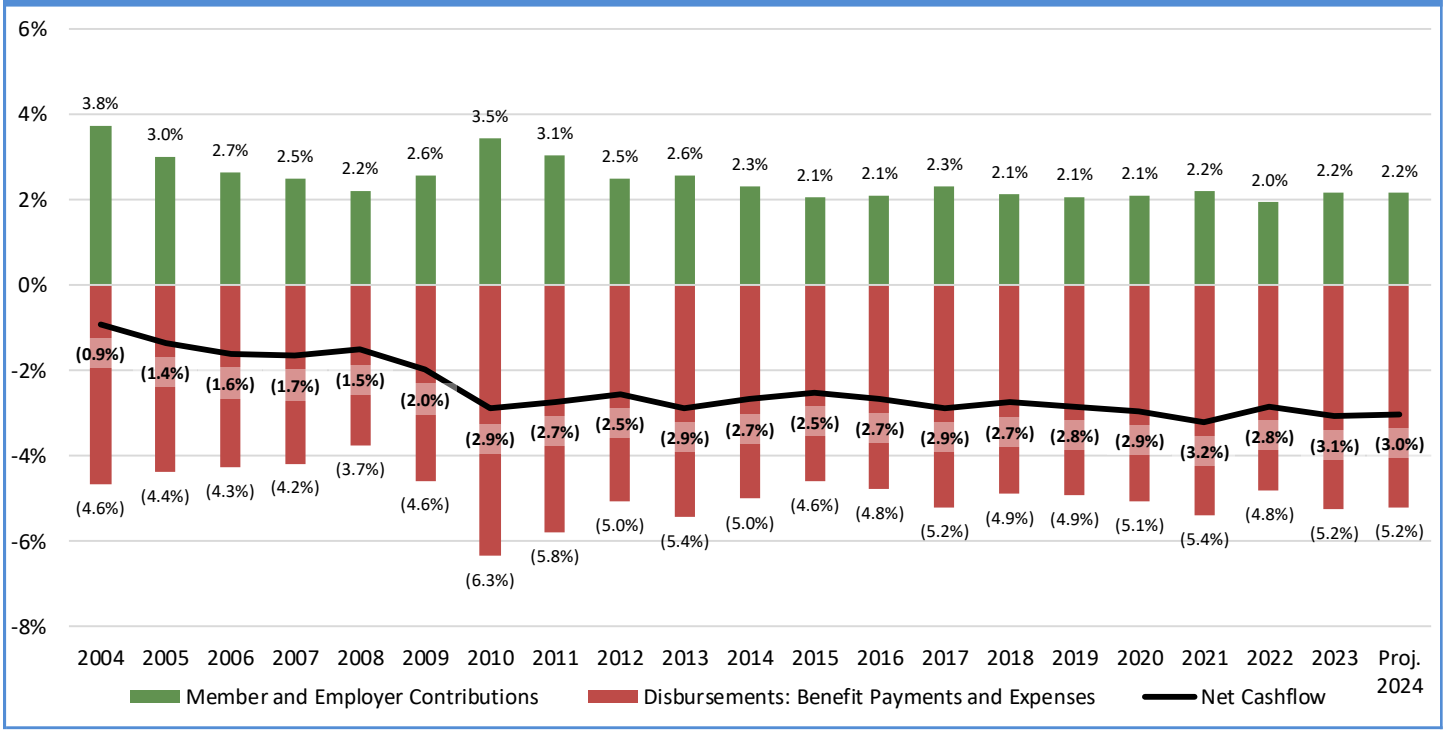


Table 5.10 - Percentage of Liability for Members Who Are Retired or Terminated



The magnitude of cash flows into and out of a retirement system can also indicate important plan maturity characteristics. As a plan matures, the net cash flow comprised of contributions into a plan and benefit payments and expenses out of a plan will likely become more negative. This is not necessarily a sign of a troubled plan, but a large negative cash flow can increase the risk that future actuarial measurements will be worse than anticipated due to the stress on investment returns from liquidity needs. Table 5.11 shows the historical contributions, disbursements, and net cash flow for SDRS with projected figures for fiscal year 2024. Since 2010, the net negative cash flow has been between 2.5% and 3.2% of the beginning assets. Contributions have decreased as a percentage of assets, reflecting the fixed, statutory member and employer contribution rates. Benefit payments and expenses were the largest percentage of assets immediately following the Great Recession in 2008-2009, reflecting the significant drop in asset value at the time.

Table 5.11 - Historical Contributions, Disbursements, and Net Cashflow as a Percentage of Beginning Assets



The preceding five exhibits demonstrate SDRS is a maturing retirement system, a system in operation for many years with an increasing ratio of retired and terminated members to active members. For plans with fixed benefits and Unfunded Actuarial Accrued Liabilities, growing plan maturity typically increases the risk that asset or liability losses cause large and sudden increases in required employer contributions.

However, due to the SDRS variable benefit structure, the liabilities for all SDRS members, including retired and terminated members, adjust in response to asset or liability gains or losses and will only increase required employer contributions in a severe or prolonged economic downturn. In such a situation, SDRS will fall short of the statutory funding thresholds in SDCL 3-12C-228 and the SDRS Board of Trustees will be required to make a recommendation for corrective actions.

Low-Default-Risk Obligation Measure

Effective February 15, 2023, Actuarial Standard of Practice No. 4 requires the disclosure of a Low-Default-Risk Obligation Measure (LDROM) in each funding valuation. The LDROM is calculated using "a discount rate derived from low-default-risk fixed income securities whose cash flows are reasonably consistent with the pattern of benefits expected to be paid in the future." In addition, "the actuary should consider reflecting the impact, if any, of investing plan assets in low-default-risk fixed income securities on the pattern of benefits expected to be paid in the future, such as in a variable annuity plan."

The discount rate used for the LDROM is a single equivalent interest rate that results in the same present value if projected benefits are discounted based on the spots rates in The Treasury High Quality Market Corporate Bond Yield Curve reported for June, 2023 at https://www.irs.gov/retirement-plans/monthly-yield-curve-tables. The single equivalent interest rate is 5.20%.

Future COLAs for the LDROM are assumed to be 0.26%, the affordable COLA if assets are invested entirely in a bond portfolio yielding 5.20% and the statutory COLA process is followed recognizing a 5.20% discount rate. All other actuarial assumptions are unchanged from those reported in Section 10 of this report. As of June 30, 2023, the LDROM is $14,499 million.

The maximum affordable SDRS COLA for 2024 is 1.91%, and the funding calculations reflect expected future COLAs of 1.91% for all future years. The funding calculations determine that 1.91% COLAs are expected to be sustainable based on the actuarial assumptions, including expected future investment return of 6.5% – an expectation, which includes significant risk that future investment returns will fall short of the assumed 6.5% and reduce future COLAs.

To illustrate the degree of uncertainty and risk in the expectation for future COLAs, if assets are invested in Low-Default-Risk Fixed Income Securities (LDRFIS) and the LDROM is used to determine the affordable COLA for the current year and the expectation for future COLAs, the affordable COLA would be 0.26%. The difference in the affordable COLA using funding calculations (1.91%) and LDROM calculations (0.26%) is a current market estimate of the future COLAs that are dependent on future investment returns above LDRFIS yields. This risk is primarily borne by SDRS members through the variable SDRS COLA. Alternatively, the difference in the affordable COLA using LDROM calculations and funding calculations is a current market estimate of the increase in future COLAs that is affordable because SDRS is invested in a prudently diversified portfolio rather than a portfolio solely consisting of LDRFIS.

Section 6 – Accounting Information

Background

GASB has issued Statement No. 67, "Financial Reporting for Pension Plans," effective for fiscal years beginning after June 15, 2013 and Statement No. 68, "Accounting and Financial Reporting for Pensions," effective for fiscal years beginning after June 15, 2014. These Statements are amendments to Statements Nos. 25 and 27. GASB Statement No. 82 amended the application of Statements Nos. 67 and 68.

Statements Nos. 67 and 68 use different terminology for items that are commonly used in the Actuarial Valuation. The GASB terminology is shown below followed by the more commonly used terminology:

- Service Cost = Normal Cost
- Total Pension Liability = Actuarial Accrued Liability
- Plan Fiduciary Net Position = Fair Value of Assets
- Net Pension Liability = Total Pension Liability less Plan Fiduciary Net Position = Unfunded Actuarial Accrued Liability

If the Plan Fiduciary Net Position is greater than the Total Pension Liability, the result is a Net Pension Asset. With the exception of June 30, 2016, the SDRS funded status has resulted in a Net Pension Asset at each fiscal year end between 2014 and 2023.

Statements Nos. 67 and 68 require that the Net Pension Liability/(Asset) be allocated to individual employers and included on their balance sheets. Furthermore, year-to-year changes in the Net Pension Liability/(Asset) will be included on the employer's income statements as Plan Pension Expense/(Revenue) and are expected to vary significantly from one year to the next.

Plan Description

Plan administration: The SDRS Board of Trustees administers the South Dakota Retirement System, a cost-sharing, multiple-employer defined benefit retirement plan with hybrid features that provides lifetime income for eligible employees of participating employers.

The South Dakota Investment Council is responsible for the investment of system assets.

Plan membership: At June 30, 2023, plan membership consisted of:

Table 6.1 – Plan Membership	
Inactive plan Members or Beneficiaries currently receiving benefits	33,281 [1]
Inactive plan Members entitled to but not receiving benefits	25,043
Active plan Members	42,504
Total plan Members	100,828

[1] Includes 90 members whose benefits have been suspended but are entitled to future benefits.

Benefits provided: See Section 8 of this report for a summary of SDRS benefit provisions as amended through the 2023 Legislative Session.

Net Pension Liability/(Asset) as of June 30, 2023

SDRS's fiduciary net position is 100.07% of the system's Total Pension Liability as of June 30, 2023. Therefore, the system has a Net Pension Asset. The components of the Net Pension Asset of SDRS as of June 30, 2023 are as follows:

Table 6.2 – Net Pension Liability/(Asset)

Total Pension Liability	$ 14,490,692,654
Plan Fiduciary Net Position	(14,500,453,104)
Net Pension Liability/(Asset)	$ (9,760,450)
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	100.07%
Estimated actual covered payroll during fiscal year 2023	$ 2,482,638,144
Net Pension Liability/(Asset) as a percentage of covered payroll	(0.39%)

Actuarial Cost Method

The Individual Entry Age Normal – Level Percentage of Pay cost method was used.

Actuarial Assumptions

The Total Pension Liability was determined by an Actuarial Valuation as of June 30, 2023 using the following actuarial assumptions applied to all periods included in the measurement:

Table 6.3 – Actuarial Assumptions

Measurement Date	June 30, 2023
Inflation	2.50%
Future COLAs	1.91%
Salary Increases	Graded by years of service, from 7.66% at entry to 3.15% after 25 years of service.
Discount Rate	6.50%, net of investment expenses. This is composed of an average inflation rate of 2.50% and real returns of 4.00%.
Mortality Rates	All mortality rates based on Pub-2010 amount-weighted mortality tables, projected generationally with improvement scale MP-2020 Active and Terminated Vested Members: Teachers, Certified Regents, and Judicial: PubT-2010 Other Class A Members: PubG-2010 Public Safety Members: PubS-2010 Retired Members: Teachers, Certified Regents, and Judicial Retirees: PubT-2010, 108% of rates above age 65 Other Class A Retirees: PubG-2010, 93% of rates through age 74, increasing by 2% per year until 111% of rates at age 83 and above Public Safety Retirees: PubS-2010, 102% of rates at all ages Beneficiaries: PubG-2010 contingent survivor mortality table Disabled Members: Public Safety: PubS-2010 disabled member mortality table Others: PubG-2010 disabled member mortality table

The actuarial assumptions used in the June 30, 2023 Actuarial Valuation were adopted by the SDRS Board of Trustees based on the results of an actuarial experience study for the period July 1, 2016 through June 30, 2021.

The long-term expected annual rate of return on plan investments of 6.5% was adopted by the Board and is considered for funding purposes. It was set based on the actuarial experience study considering information presented by the actuary and benchmark asset allocation investment portfolio statistics developed by the South Dakota Investment Council in 2022. The long-term expected rate of return includes an expectation that due to the dynamic asset allocation process employed by the South Dakota Investment Council, a portion of the consistent, historical outperformance relative to expectations will continue.

The actuarial assumptions, including the long-term expected rate of return, were recommended by the system's Senior Actuary, and adopted by the SDRS Board of Trustees in conformity with the Actuarial Standards of Practice issued by the Actuarial Standards Board. The assumptions represent the Board of Trustees' best estimate of anticipated experience.

The discount rate used to measure the Total Pension Liability is equal to the long-term expected rate of return. The projection of cash flows used to determine the discount rate assumed that the fixed, statutory contributions will continue to be made in accordance with South Dakota Codified Law. Based on these assumptions, the Fiduciary Net Position was projected to be available to make all projected future benefit payments of current system members. The assumed discount rate has been determined in accordance with the method prescribed by GASB Statement No. 67. We believe this assumption is reasonable for the purposes of the measurements required by GASB Statement No. 67.

Sensitivity of the Net Pension Liability/(Asset) to Changes in the Discount Rate

The following table presents the Net Pension Liability/(Asset) as of June 30, 2023, calculated using the discount rate of 6.50%, as well as the Net Pension Liability/(Asset) if it were calculated using a discount rate that is one percentage point lower (5.50%) and one percentage point higher (7.50%) than the current rate:

Table 6.4 – Sensitivity of the Net Pension Liability/(Asset) to Discount Rate Changes

	1% Decrease (5.50%)	Current Discount Rate (6.50%)	1% Increase (7.50%)
Total Pension Liability	$ 16,501,002,077	$ 14,490,692,654	$ 12,846,643,042
Plan Fiduciary Net Position	14,500,453,104	14,500,453,104	14,500,453,104
Net Pension Liability/(Asset)	$ 2,000,548,973	$ (9,760,450)	$ (1,653,810,062)

Changes in Net Pension Liability/(Asset)

The following table represents the changes in Total Pension Liability and Fiduciary Net Position for the years ended June 30, 2023 and June 30, 2022:

Table 6.5 – Changes in the Net Pension Liability/Asset for the Year Ended:	June 30, 2023	June 30, 2022
Total Pension Liability		
Service cost	$ 275,103,735	$ 260,129,052
Interest	911,947,973	895,957,242
Changes of benefit terms	0	0
Differences between expected and actual experience	199,176,582	209,192,709
Changes of assumptions	(277,074,634)	(418,989,267)
Benefit payments	(735,080,247)	(696,040,676)
Net change in Total Pension Liability	**$ 374,073,409**	**$ 250,249,060**
Total Pension Liability – beginning	**14,116,619,245**	**13,866,370,185**
Total Pension Liability – ending	**$ 14,490,692,654**	**$ 14,116,619,245**
Plan Fiduciary Net Position		
Contributions – employers	$ 154,761,704	$ 143,270,826
Contributions – members (including service purchases)	153,798,895	143,041,545
Net investment income	806,061,088	(91,538,866)
Benefit payments, including refunds of member contributions	(735,080,247)	(696,040,676)
Administrative expenses	(5,158,204)	(4,862,000)
Other	0	0
Net change in Plan Fiduciary Net Position	**$ 374,383,236**	**$ (506,129,171)**
Plan Fiduciary Net Position – beginning	**$ 14,126,069,868**	**$ 14,632,199,039**
Plan Fiduciary Net Position – ending	**$ 14,500,453,104**	**$ 14,126,069,868**
Plan Net Pension Liability/(Asset) – ending (Total Pension Liability less Plan Fiduciary Net Position)	**$ (9,760,450)**	**$ (9,450,623)**

Pension Plan Expense/(Revenue)

Plan Pension Expense/(Revenue) consists of system changes that are recognized immediately as well as amortizations relating to the difference between expected and actual experience, changes in actuarial assumptions and differences between projected and actual investment earnings on investments. The following table provides the detail of the Plan Pension Expense/(Revenue).

Table 6.6 – Plan Pension Expense/(Revenue) for the Year Ended:	June 30, 2023	June 30, 2022
Service Cost	$ 275,103,735	$ 260,129,052
Interest	911,947,973	895,957,242
Expected investment return	(904,385,870)	(937,830,869)
Changes of benefit terms recognized immediately	0	0
Contributions – members	(153,798,895)	(143,041,545)
Administrative expenses	5,158,204	4,862,000
Amortization of difference between expected and actual experience	101,798,303	55,393,758
Amortization of changes of assumptions	(48,720,367)	3,929,130
Amortization of difference between projected and actual investment return on plan investments	10,694,937	(41,983,963)
Plan Pension Expense/(Revenue)	**$ 197,798,020**	**$ 97,414,805**
Employer Contribution	**$ 154,761,704**	**$ 143,270,826**

Reconciliation of Net Balance Sheet Impact

Table 6.7 – Reconciliation of Net Balance Sheet Impact for the Year Ended:	June 30, 2023	June 30, 2022
Beginning of Year:		
Net Pension Liability/(Asset)	$ (9,450,623)	$ (765,828,854)
Deferred Outflows	(1,886,874,110)	1,352,495,322)
Deferred Inflows	1,655,974,927	1,923,830,391
Net Balance Sheet Impact	**$ (240,349,806)**	**$ (194,493,785)**
Plan Pension Expense/(Revenue)	197,798,020	97,414,805
Employer Contributions	(154,761,704)	(143,270,826)
Net Change in Balance Sheet Impact	**$ 43,036,316**	**$ (45,856,021)**
End of Year		
Net Pension Liability/(Asset)	$ (9,760,450)	$ (9,450,623)
Deferred Outflows	(1,427,988,718)	(1,886,874,110)
Deferred Inflows	1,240,435,678	1,655,974,927
Net Balance Sheet Impact	**$ (197,313,490)**	**$ (240,349,806)**

Collective Pension Amounts

Table 6.8 – Schedule of Collective Pension Amounts

		Deferred Outflows of Resources				Deferred Inflows of Resources					
Year Ended June 30	Net Pension Liability/(Asset) Beginning of Year	Difference Between Projected and Actual Investment Return	Differences Between Expected and Actual Experience	Changes of Assumptions	Total Deferred Outflows of Resources	Difference Between Projected and Actual Investment Return	Changes of Assumptions	Differences Between Expected and Actual Experience	Total Deferred Inflows of Resources	Plan Pension Expense/ (Revenue)	Net Pension Liability/(Asset) End of Year
2014	$ (281,945,382)	$ 0	$ 60,960,582	$ 470,294,225	$ 531,254,807	$ 834,413,100	0	0	$ 834,413,100	$ (30,431,924)	$ (720,459,104)
2015	$ (720,459,104)	$ 259,092,954	$ 86,842,254	$ 336,307,266	$ 682,242,474	$ 625,809,825	0	0	$ 625,809,825	$ 46,289,565	$ (424,128,574)
2016	$ (424,128,574)	$ 792,943,395	$ 117,592,248	$ 202,320,307	$ 1,112,855,950	$ 417,206,550	0	0	$ 417,206,550	$ 236,792,073	$ 337,790,175
2017	$ 337,790,175	$ 578,514,236	$ 145,408,106	$ 704,625,332	$ 1,428,547,674	$ 752,992,101	0	0	$ 752,992,101	$ (204,863,805)	$ (9,075,103)
2018	$ (9,075,103)	$ 364,085,077	$ 88,149,765	$ 592,112,712	$ 1,044,347,554	$ 540,347,394	0	0	$ 540,347,394	$ 303,032,555	$ (2,332,231)
2019	$ (2,332,231)	$ 310,187,341	$ 41,568,923	$ 366,001,771	$ 717,758,035	$ 371,236,243	$ 150,042,969	$ 4,796,511	$ 526,075,723	$ 431,625,166	$ (10,597,261)
2020	$ (10,597,261)	$ 605,783,861	$ 16,614,267	$ 139,890,830	$ 762,288,958	$ 202,125,092	$ 564,187,585	$ 3,402,176	$ 769,714,853	$ 337,044,437	$ (4,342,980)
2021	$ (4,342,980)	$ 444,304,682	$ 27,495,257	$ 880,695,383	$ 1,352,495,322	$ 1,538,306,526	$ 383,516,024	$ 2,007,841	$1,923,830,391	$ (61,417,268)	$ (765,828,854)
2022	$ (765,828,854)	$1,106,321,291	$ 179,899,873	$ 600,652,946	$ 1,886,874,110	$ 1,128,969,437	$ 526,391,984	$ 613,506	$1,655,974,927	$ 97,414,805	$ (9,450,623)
2023	$ (9,450,623)	$ 817,627,990	$ 276,664,646	$ 333,696,082	$ 1,427,988,718	$ 752,646,291	$ 487,789,387	$ 0	$1,240,435,678	$ 197,798,020	$ (9,760,450)

Table 6.9 – Increase/(Decrease) in Pension Expense:

Arising from the Recognition of the Effects of Differences between Expected and Actual Experience

Year Ended June 30	Differences Between Expected and Actual Experience	Recognition Period (Years)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
2014	$ 78,328,269	4.51	$17,367,687	$17,367,687	$17,367,687	$17,367,687	$8,857,521									
2015	55,821,847	4.44		12,572,488	12,572,488	12,572,488	12,572,488	$5,531,895								
2016	78,645,840	4.38			17,955,671	17,955,671	17,955,671	17,955,671	$6,823,156							
2017	97,593,700	4.46				21,881,996	21,881,996	21,881,996	21,881,996	$10,065,716						
2018	5,220,615	4.31					1,211,280	1,211,280	1,211,280	1,211,280	$375,495					
2019	(6,190,846)	4.44						(1,394,335)	(1,394,335)	(1,394,335)	(1,394,335)	$(613,506)				
2020	6,447,338	4.34							1,485,562	1,485,562	1,485,562	1,485,562	$505,090			
2021	30,918,486	4.25								7,274,938	7,274,938	7,274,938	7,274,938	$1,818,734		
2022	209,192,709	4.39									47,652,098	47,652,098	47,652,098	47,652,098	$18,584,317	
2023	199,176,582	4.33										45,999,211	45,999,211	45,999,211	45,999,211	$15,179,738
												$101,798,303				

Arising from the Recognition of the Effects of Changes of Assumptions

Year Ended June 30	Changes of Assumptions	Recognition Period (Years)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
2014	$ 604,281,184	4.51	$133,986,959	$133,986,959	$133,986,959	$133,986,959	$68,333,348									
2015	0															
2016	0															
2017	820,191,401	4.46				183,899,417	183,899,417	$183,899,417	$183,899,417	$84,593,733						
2018	181,931,669	4.31					42,211,524	42,211,524	42,211,524	42,211,524	$13,085,573					
2019	(193,660,111)	4.44						(43,617,142)	(43,617,142)	(43,617,142)	(43,617,142)	$(19,191,543)				
2020	(594,816,177)	4.34							(137,054,419)	(137,054,419)	(137,054,419)	(137,054,419)	$(46,598,501)			
2021	1,134,566,674	4.25								266,956,864	266,956,864	266,956,864	266,956,864	$66,739,218		
2022	(418,989,267)	4.39									(95,441,746)	(95,441,746)	(95,441,746)	(95,441,746)	$(37,222,283)	
2023	(277,074,634)	4.33										(63,989,523)	(63,989,523)	(63,989,523)	(63,989,523)	$(21,116,542)
												$(48,720,367)				

Arising from the Recognition of Differences Between Projected and Actual Earnings on Pension Plan Investments

Year Ended June 30	Differences Between Projected and Actual Investment Return	Recognition Period (Years)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
2014	$ (1,043,016,375)	5	$(208,603,275)	$(208,603,275)	$(208,603,275)	$(208,603,275)	$(208,603,275)									
2015	323,866,193	5		64,773,239	64,773,239	64,773,239	64,773,239	$64,773,237								
2016	748,279,600	5			149,655,920	149,655,920	149,655,920	149,655,920	$149,655,920							
2017	(680,486,033)	5				(136,097,207)	(136,097,207)	(136,097,207)	(136,097,207)	$(136,097,205)						
2018	(165,069,719)	5					(33,013,944)	(33,013,944)	(33,013,944)	(33,013,944)	$(33,013,943)					
2019	200,664,276	5						40,132,855	40,132,855	40,132,855	40,132,855	$40,132,856				
2020	606,731,619	5							121,346,324	121,346,324	121,346,324	121,346,324	$121,346,323			
2021	(1,881,615,729)	5								(376,323,146)	(376,323,146)	(376,323,146)	(376,323,146)	$(376,323,145)		
2022	1,029,369,735	5									205,873,947	205,873,947	205,873,947	205,873,947	$205,873,947	
2023	98,324,782	5										19,664,956	19,664,956	19,664,956	19,664,956	$19,664,958
												$10,694,937				

Table 6.10 – Deferred Outflows/(Inflows) of Resources

Arising from Differences between Expected and Actual Experience

Year Ended June 30	Experience Losses (a)	Experience Gains (b)	Amounts Recognized in Pension Expense through June 30,2023 (c)	Balances as of June 30, 2023 Deferred Outflows of Resources (a) – (c)	Balances as of June 30, 2023 Deferred Inflows of Resources (b) – (c)
2014	$ 78,328,269		$ 78,328,269	$ 0	
2015	55,821,847		55,821,847	0	
2016	78,645,840		78,645,840	0	
2017	97,593,700		97,593,700	0	
2018	5,220,615		5,220,615	0	
2019		$ (6,190,846)	(6,190,846)		$ 0
2020	6,447,338		5,942,248	505,090	
2021	30,918,486		21,824,814	9,093,672	
2022	209,192,709		95,304,196	113,888,513	
2023	199,176,582		45,999,211	153,177,371	
Sub-Total				**$ 276,664,646**	**$ 0**

Arising from Changes of Assumptions

Year Ended June 30	Increases in the Total Pension Liability (a)	Decreases in the Total Pension Liability (b)	Amounts Recognized in Pension Expense through June 30,2023 (c)	Balances as of June 30, 2023 Deferred Outflows of Resources (a) – (c)	Balances as of June 30, 2023 Deferred Inflows of Resources (b) – (c)
2014	$ 604,281,184		$ 604,281,184	$ 0	
2015	0				
2016	0				
2017	820,191,401		820,191,401	0	
2018	181,931,669		181,931,669	0	
2019		$ (193,660,111)	(193,660,111)		$ 0
2020		(594,816,177)	(548,217,676)		(46,598,501)
2021	1,134,566,674		800,870,592	333,696,082	
2022		(418,989,267)	(190,883,492)		(228,105,775)
2023		(277,074,634)	(63,989,523)		(213,085,111)
Sub-Total				**$ 333,696,082**	**$ (487,789,387)**

Arising from Differences between Projected and Actual Investment Return

Year Ended June 30	Investment Earnings Less Than Projected (a)	Investment Earnings Greater Than Projected (b)	Amounts Recognized in Pension Expense through June 30, 2023 (c)	Balances as of June 30, 2023 Deferred Outflows of Resources (a) – (c)	Balances as of June 30, 2023 Deferred Inflows of Resources (b) – (c)
2014		$(1,043,016,375)	$(1,043,016,375)		$ 0
2015	$ 323,866,193		323,866,193	$ 0	
2016	748,279,600		748,279,600	0	
2017		(680,486,033)	(680,486,033)		0
2018		(165,069,719)	(165,069,716)		0
2019	200,664,276		200,664,276	0	
2020	606,731,619		485,385,296	121,346,323	
2021		(1,881,615,729)	(1,128,969,438)		(752,646,291)
2022	1,029,369,735		411,747,894	617,621,841	
2023	98,324,782		19,664,956	78,659,826	
Sub-Total				**$ 817,627,990**	**$ (752,646,291)**
Grand Total				**$1,427,988,718**	**$(1,240,435,678)**

Schedule of Member and Employer Contributions

Table 6.11 – Schedule of Member and Employer Contributions

Year Ended June 30	Actuarially Determined Total Contribution (Table 3.4) (a)	Member Contributions Excluding Purchases (b)	Actuarially Determined Employer Contribution (ADC) (Table 3.4) (c) = (a) – (b)	Employer Contributions Related to the Actuarially Determined Employer Contribution (Table 3.4) (d)	Contribution Deficiency /(Excess) (e) = (c) + (d)	Estimated Covered Payroll During Year (f)	Employer Contributions Related to the ADC as a Percentage of Covered Payroll (g) = (d) / (f)
2014	$ 208,208,744	$ 104,725,097	$ 103,483,647	$ (104,952,985)	$ (1,469,338)	$1,685,627,785	6.226%
2015	218,795,180	109,245,203	109,549,977	(109,549,977)	0	1,758,315,755	6.230%
2016	227,754,935	113,664,860	114,090,075	(114,090,075)	0	1,829,641,099	6.236%
2017	243,062,280	121,154,634	121,907,646	(121,907,646)	0	1,954,735,217	6.237%
2018	248,525,271	123,791,001	124,734,270	(124,734,270)	0	2,001,885,527	6.231%
2019	254,382,987	126,810,639	127,572,348	(127,572,348)	0	2,048,204,895	6.228%
2020	262,564,834	130,882,885	131,681,949	(131,681,949)	0	2,115,630,733	6.224%
2021	271,426,325	135,266,893	136,159,432	(136,159,432)	0	2,186,209,401	6.228%
2022	285,410,157	142,139,331	143,270,826	(143,270,826)	0	2,300,011,798	6.229%
2023	307,999,843	153,238,139	154,761,704	(154,761,704)	0	2,482,638,144	6.234%

Schedule of Investment Returns

Table 6.12 – Schedule of Investment Returns (Net of Investment Expenses)

Year Ended	Money-Weighted	Time-Weighted
June 30, 2014	18.91%	18.90%
June 30, 2015	4.17%	4.18%
June 30, 2016	0.21%	0.30%
June 30, 2017	13.84%	13.81%
June 30, 2018	7.95%	7.94%
June 30, 2019	4.84%	4.88%
June 30, 2020	1.56%	1.59%
June 30, 2021	22.01%	22.03%
June 30, 2022	(0.64%)	(0.69%)
June 30, 2023	5.80%	5.84%
10-Year Annualized Return	7.62%	7.63%

Section 7– Member Data

Table 7.1 – Comparison of Member Data for the Years Ended:	June 30, 2023[1]	June 30, 2022[2]	Percentage Change
Active Members			
Number	42,504	41,878	1.5%
Average Age	44.3	44.3	0.0%
Average Credited Service	10.4	10.5	(1.0%)
Total Prior Year Compensation[3]	$ 2,319,954,580	$ 2,137,706,450	8.5%
Average Prior Year Compensation[3]	$ 54,595	$ 51,058	6.9%
Projected Current Year Compensation[4]	$ 2,528,230,124	$ 2,322,092,862	8.9%
Benefit Recipients			
Retired Members			
Number	28,934	28,085	3.0%
Average Age	72.7	72.7	0.0%
Total Annual Benefits[5]	$ 658,772,993	$ 630,994,799	4.4%
Average Annual Benefits	$ 22,768	$ 22,467	1.3%
Beneficiaries			
Number	4,008	3,906	2.6%
Total Annual Benefits	$ 59,537,708	$ 56,272,844	5.8%
Average Annual Benefits	$ 14,855	$ 14,407	3.1%
Disabled Members			
Number	249	262	(5.0%)
Total Annual Benefits	$ 3,543,849	$ 3,581,178	(1.0%)
Average Annual Benefits	$ 14,232	$ 13,669	4.1%
Total Benefit Recipients			
Number	33,191	32,253	2.9%
Total Annual Benefits	$ 721,854,550	$ 690,848,821	4.5%
Average Annual Benefits	$ 21,749	$ 21,420	1.5%
Suspended Benefit Recipients[6]			
Number of Suspended Retirees	13	17	(23.5%)
Number of Suspended Beneficiaries	77	78	(1.3%)
Total Suspended Benefit Recipients	90	95	(5.3%)
Terminated Members			
Number – Vested	12,598	11,990	5.1%
Number – Non-Vested	12,445	11,614	7.2%
Total Terminated Members	25,043	23,604	6.1%
Total System Members	**100,828**	**97,830**	**3.1%**

[1]Counts include former Cement Plant Retirement Plan members. As of June 30, 2023: 10 active members, 187 retired members, 36 beneficiaries, 2 disabled members and 25 terminated vested members. Counts also include former Department of Labor and Regulation Plan members. As of June 30, 2023: 125 retired members and 18 beneficiaries (excluding 16 retired members and 1 beneficiary who are included in the SDRS counts).
[2]Counts include former Cement Plant Retirement Plan members. As of June 30, 2022: 10 active members, 189 retired members, 35 beneficiaries, 3 disabled members and 28 terminated vested members. Counts also include former Department of Labor and Regulation Plan members. As of June 30, 2022: 132 retired members, 19 beneficiaries and 1 terminated vested member (excluding 15 retired members and 1 beneficiary who are included in the SDRS counts).
[3]Excludes active, former Cement Plant Retirement Plan members for whom no compensation is reported.
[4]Prior year compensation, annualized for new hires and rehires, and projected with assumed salary increases. Excludes compensation for rehired retirees not accruing SDRS benefits.
[5]The Total Annual Benefits for Retired Members includes $283,295 in annual benefits that are suspended at June 30, 2023 and $280,416 that were suspended at June 30, 2022.
[6]Suspended Benefit Recipients are excluded from other counts but included in the Total System Members.

Table 7.2 – Distribution of Number and Average Prior Year Compensation of Active Members as of June 30, 2023 [1]												
Age	Service	Less than 3	3-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 and Over	Total
Less than 25	Number	1,898	172	24								2,094
	Avg Compensation	$33,801	$47,389	$55,283								$35,163
25-29	Number	2,105	1,337	1,064	9							4,515
	Avg Compensation	$39,616	$50,486	$54,172	$53,394							$46,293
30-34	Number	1,399	730	2,211	671	4						5,015
	Avg Compensation	$40,463	$54,434	$56,406	$60,231	$70,286						$52,194
35-39	Number	1,348	601	1,492	1,626	501	6					5,574
	Avg Compensation	$37,935	$52,404	$58,971	$62,089	$65,811	$93,526					$54,737
40-44	Number	1,037	544	1,201	972	1,295	409	4				5,462
	Avg Compensation	$38,973	$48,909	$56,504	$64,314	$67,895	$69,899	$72,813				$57,525
45-49	Number	771	385	910	677	776	1,071	307	2	1		4,900
	Avg Compensation	$40,447	$51,566	$54,288	$62,699	$67,562	$69,658	$71,646	$49,313			$59,611
50-54	Number	728	370	809	655	631	655	831	323	4		5,006
	Avg Compensation	$40,988	$51,795	$53,656	$59,625	$64,295	$68,643	$73,971	$74,069	$71,284		$60,449
55-59	Number	637	360	657	497	603	525	481	562	202	4	4,528
	Avg Compensation	$39,408	$47,655	$51,206	$60,581	$60,783	$68,286	$71,661	$72,761	$71,082	$68,273	$59,290
60-64	Number	492	296	582	471	532	455	322	272	276	100	3,798
	Avg Compensation	$36,258	$43,975	$49,466	$58,354	$55,412	$58,028	$65,127	$65,290	$76,885	$69,599	$55,271
65-69	Number	155	117	216	151	150	124	90	64	55	57	1,179
	Avg Compensation	$32,412	$43,219	$47,858	$54,245	$60,771	$54,880	$67,868	$76,326	$89,692	$74,821	$54,894
70-74	Number	69	27	62	39	46	29	15	11	11	16	325
	Avg Compensation	$26,898	$33,551	$41,566	$55,215	$48,556	$64,225	$64,537	$62,792	$75,424	$70,249	$46,772
75 and Over	Number	25	10	15	9	18	13	4	4	7	3	108
	Avg Compensation	$25,081	$25,483	$26,658	$34,443	$40,697	$56,046	$41,453	$41,311	$43,202	$54,887	$35,657
Total	Number	10,664	4,949	9,243	5,777	4,556	3,287	2,054	1,238	556	180	42,504
	Avg Compensation	$38,182	$50,292	$54,969	$61,297	$64,176	$67,043	$71,291	$71,408	$75,578	$71,035	$54,595

[1] Average compensation amounts exclude former Cement Plant Retirement Plan members.

Table 7.3 - Distribution of Active Members by Age as of June 30, 2023

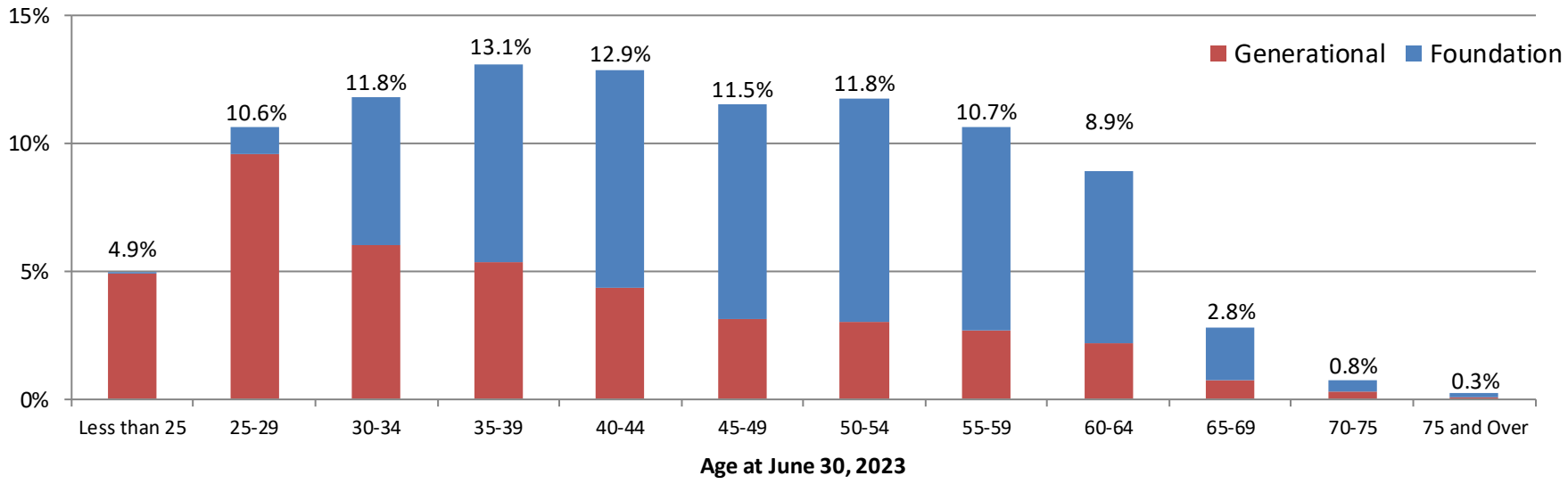
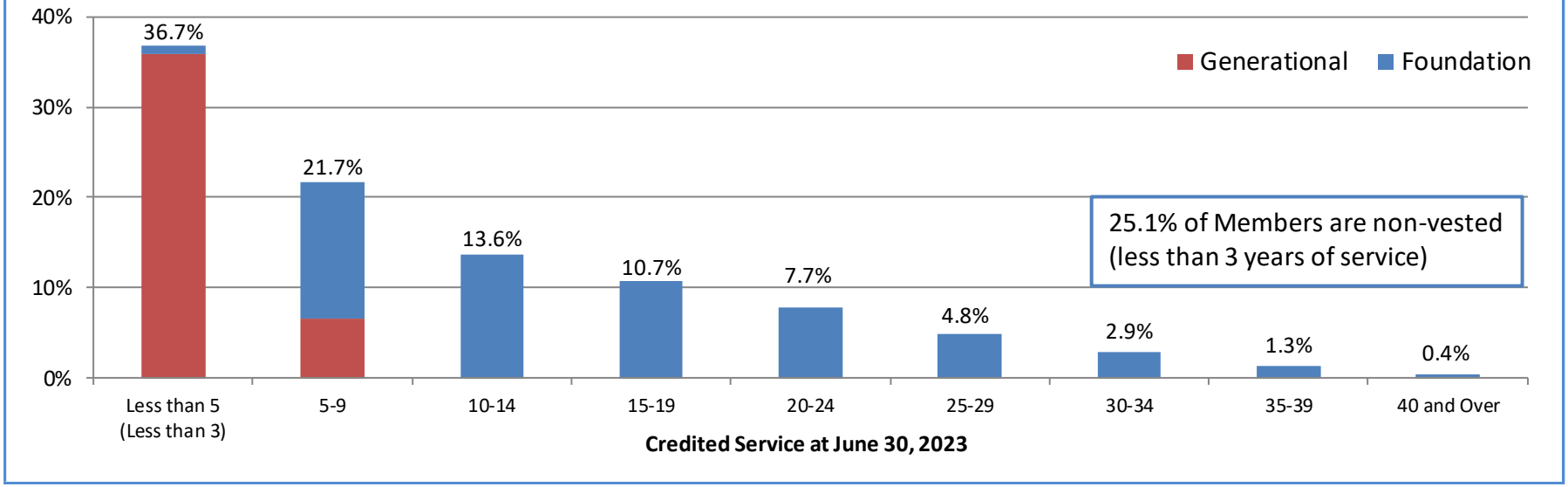
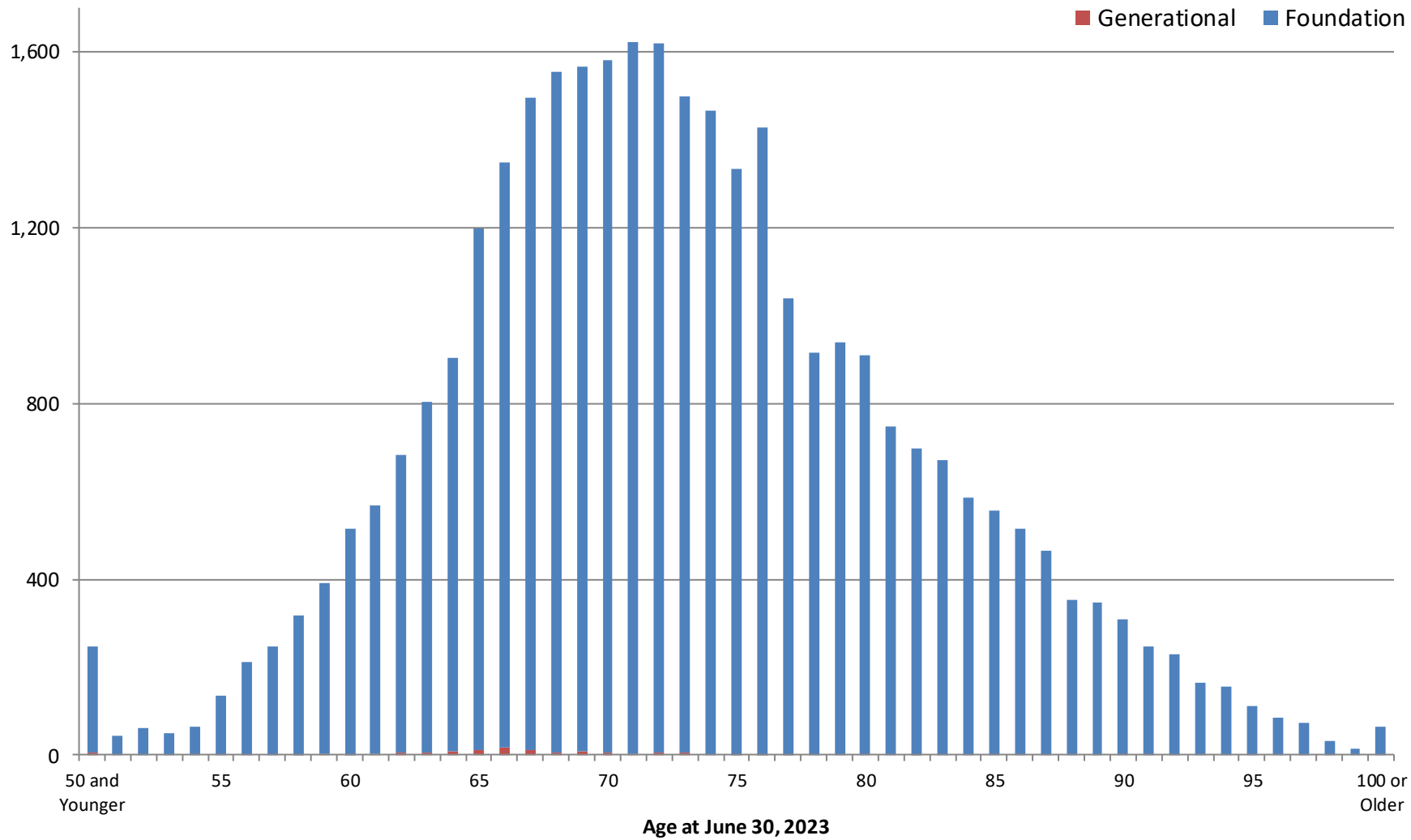


Table 7.4 - Distribution of Active Members by Credited Service as of June 30, 2023



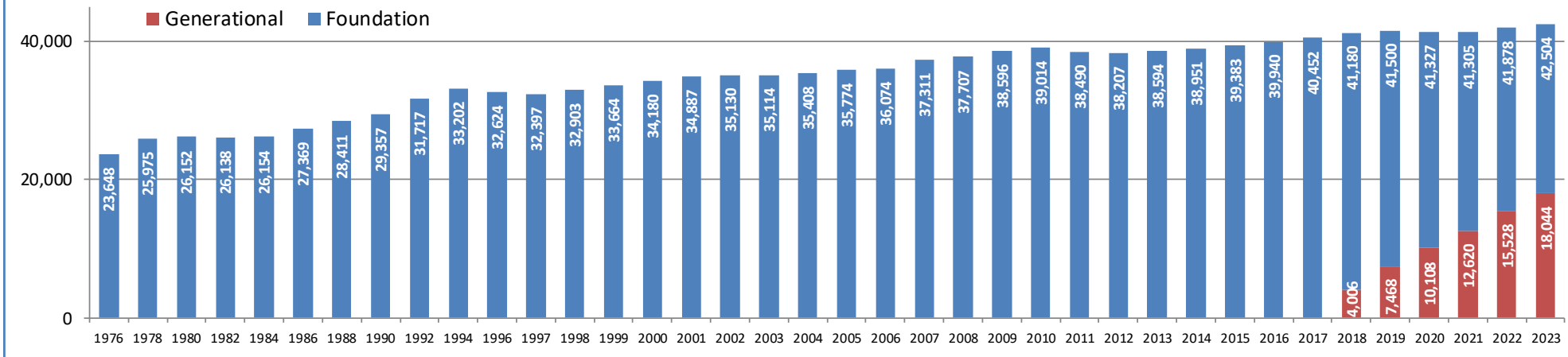
As of June 30, 2023, 42.5% of SDRS active members are Generational members and 57.5% are Foundation members.

Table 7.5 - Distribution of Retirees, Beneficiaries and Disabled Members by Age as of June 30, 2023



As of June 30, 2023, 0.4% of SDRS benefit recipients are Generational members and 99.6% are Foundation members.

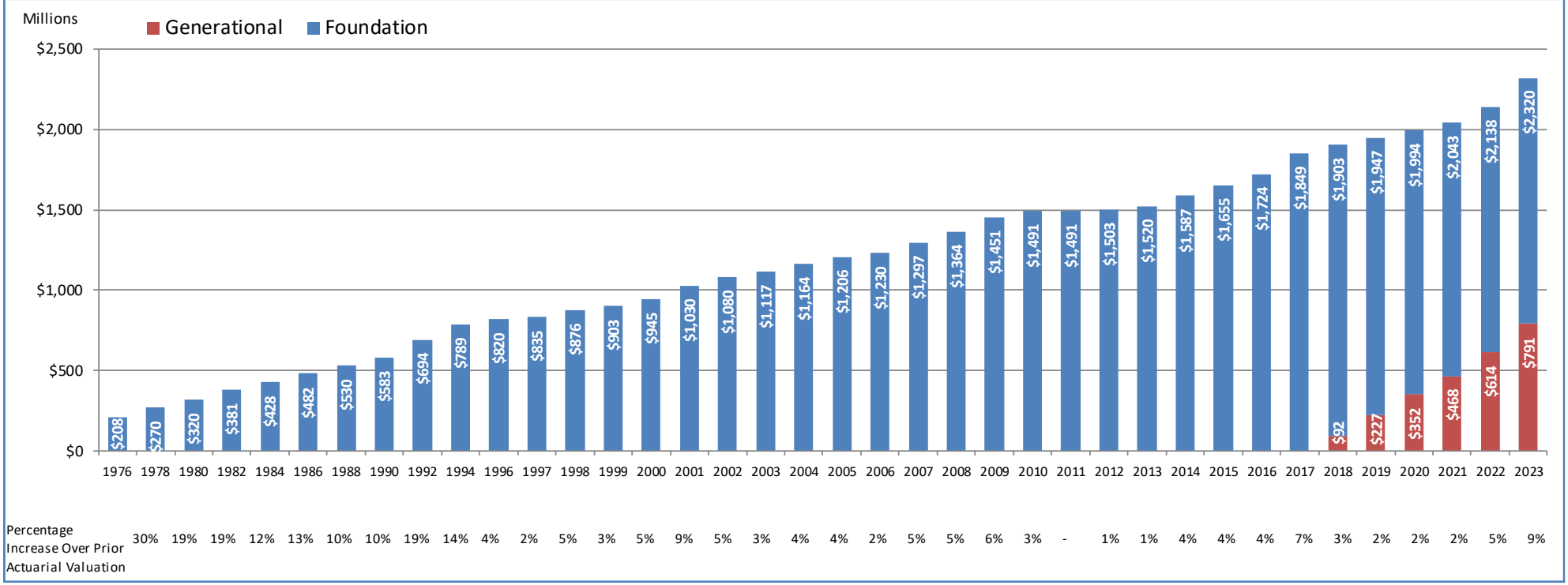
Table 7.6 - History of Active Membership



	1976	1978	1980	1982	1984	1986	1988	1990	1992	1994	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Foundation	23,648	25,975	26,152	26,138	26,154	27,369	28,411	29,357	31,717	33,202	32,624	32,397	32,903	33,664	34,180	34,887	35,130	35,114	35,408	35,774	36,074	37,311	37,707	38,596	39,014	38,490	38,207	38,594	38,951	39,383	39,940	40,452	41,180	41,500	41,327	41,305	41,878	42,504
Generational																																	4,006	7,468	10,108	12,620	15,528	18,044
Percentage Increase Over Prior Actuarial Valuation		10%	1%	-	-	5%	4%	3%	8%	5%	(2%)	(1%)	2%	2%	2%	2%	1%	-	1%	1%	1%	3%	1%	2%	1%	(1%)	(1%)	1%	1%	1%	1%	1%	2%	1%	(0%)	(0%)	1%	1%

As of June 30, 2023, 42.5% of SDRS active members are Generational members and 57.5% are Foundation members.

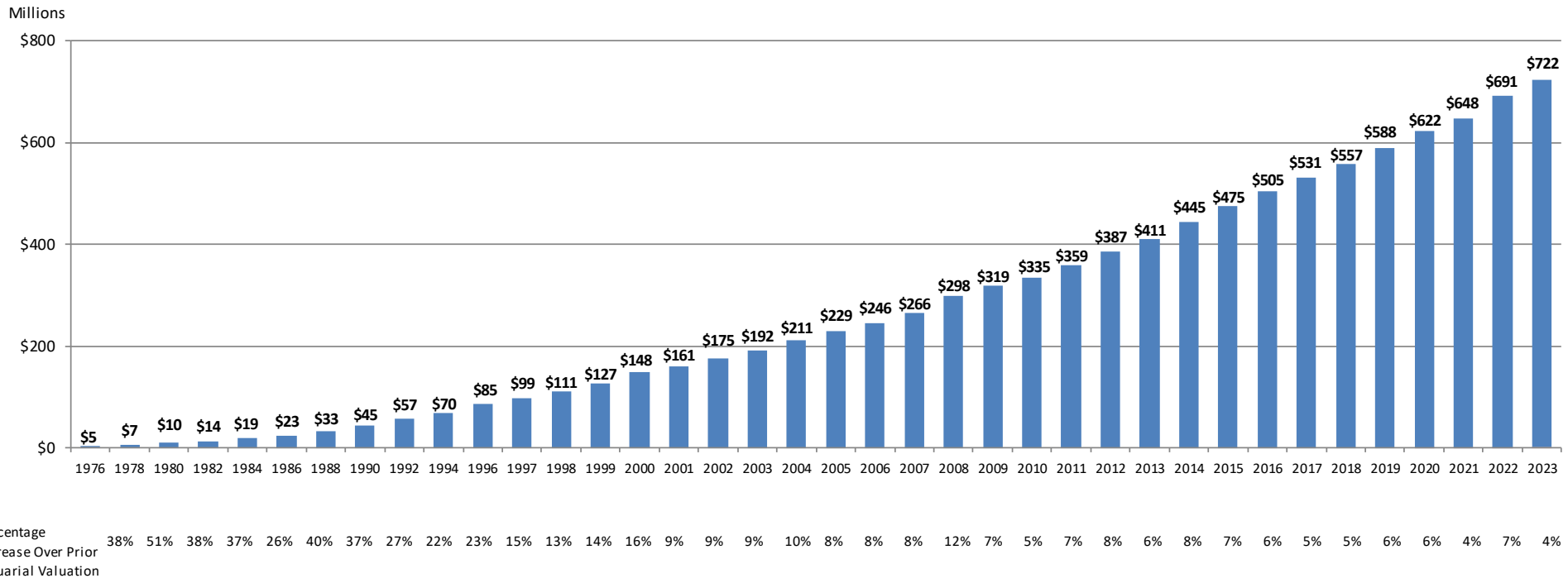
Table 7.7 - History of Member Compensation



Percentage Increase Over Prior Actuarial Valuation	30%	19%	19%	12%	13%	10%	10%	19%	14%	4%	2%	5%	3%	5%	9%	5%	3%	4%	4%	2%	5%	5%	6%	3%	-	1%	1%	4%	4%	4%	7%	3%	2%	2%	2%	5%	9%

As of June 30, 2023, 34.1% of SDRS active member compensation is to Generational members and 65.9% is to Foundation members.

Table 7.8 - History of Benefits to Retirees, Beneficiaries and Disabled Members



As of June 30, 2023, 0.3% of SDRS benefits are in pay to Generational members.

Section 8 – Basis of the Valuation

Summary of Principal Benefit Provisions of SDRS
As Amended Through the 2023 Legislative Session

The South Dakota Retirement System (SDRS) was established effective July 1, 1974. The Supreme and Circuit Court Judicial Retirement System, District County and Municipal Court Judges' Retirement Program, South Dakota Teachers' Retirement System, South Dakota Municipal Retirement System, South Dakota Law Enforcement Retirement System, South Dakota Public Employees' Retirement System and South Dakota Board of Regents Retirement System (effective July 1, 1975) were consolidated into SDRS. Effective July 1, 2014, the South Dakota Cement Plant Retirement Plan was merged into SDRS, and effective July 1, 2020 the Department of Labor and Regulation Plan was merged into SDRS.

SDRS is a governmental retirement system created by an Act of the State of South Dakota.

The retirement system is administered by the Board of Trustees consisting of two state government members; two teacher members; a participating municipality member; a participating county member; a currently contributing Class B member other than a justice, judge or magistrate judge; a justice, judge, or magistrate judge; a participating classified employee member; one head of a principal department or one head of a bureau under the office of executive management; and individual appointed by the Governor; a county commissioner of a participating county; a school district board member; an elected municipal official of a participating municipality; a faculty or administrative member employed by the Board of Regents; a retiree; and an Investment Council representative, ex-officio non-voting.

The Board of Trustees appoints the system's Executive Director as the chief executive officer.

Employers Included

Employers include the State of South Dakota and its departments, bureaus, boards, or commissions, and any of its governmental or political subdivisions or any public corporation of the State of South Dakota that elects to become a participating unit.

Membership

All of the following eligible employees are included as members of the system:

- State employees
- Teachers
- Justices, judges, and magistrate judges
- Law enforcement employees of counties and municipalities that are participating with their Class B employees
- General employees of counties and municipalities that are participating with their Class A employees
- Classified employees of school districts that are participating with their classified employees
- Employees of the Board of Regents
- State law enforcement officers

Employees of the Department of Labor hired before July 1, 1980 who elected to remain covered under a former retirement plan, and members of the governing body of any participating county, municipality, or other public subdivision were excluded from SDRS membership prior to July 1, 2020. Sioux Falls municipal employees hired prior to July 1, 2013 are also excluded from SDRS membership.

Membership is immediate upon hire and is subdivided into four classes as follows:

- Class A member: All members other than Class B, Class C, or Class D members
- Class B member: members who are justices, judges, and magistrate judges (Class B Judicial members) and state law enforcement officers, municipal police, municipal firefighters, penitentiary correctional staff, county sheriffs, deputy county sheriffs, conservation officers, parole agents, air rescue firefighters, campus security officers, court services officers, certain park rangers, certain jailers, gaming enforcement agents, and emergency medical services personnel (Class B Public Safety members).
- Class C member: Former members of the Cement Plant Retirement Plan
- Class D member: Former members of the Department of Labor and Regulation Plan

Class A members constitute 92% of SDRS active membership.

During the 2016 South Dakota Legislative Session, a new benefit structure was enacted for members joining SDRS after June 30, 2017. Members joining after that date are called Generational members and will have a different benefit structure than Foundation members - members who joined on or before June 30, 2017. As of June 30, 2023, Generational members constitute 42.5% of SDRS active membership.

Credited Service

Credited Service is the period of employment for an SDRS member that is considered in determining the amount of benefits. It includes the following:

- Years and fractional years for which member contributions were made (Contributory Service)

- The period of non-contributory service credited prior to July 1, 1974 under the prior retirement systems consolidated into SDRS

- For employees of the Board of Regents, the period of service between April 1, 1964 and June 30, 1975 for which purchase was made to Bankers Life and the period of service prior to April 1, 1964, up to a maximum of 20 years, for which purchase was made

- Periods of non-contributory service credited due to specific legislation since 1974

Three months of Credited Service is earned if any contributions are made in a calendar quarter.

Credited Service may be purchased for public employment for which members are not entitled to retirement benefits, at an actuarially determined cost based on age and subject to a minimum of 100% of combined member and employer contributions. Credited Service purchased after July 1, 2004 shall not be considered Contributory Service for vesting purposes. Credited Service is purchased with an after-tax payment or a trustee-to-trustee transfer.

Compensation

Compensation is gross wages paid to a member for Credited Service rendered during the period for which the payment was earned. It includes W-2 wages, plus any amount contributed to a member's individual retirement plan, plus a member's Contribution to SDRS made on a before-tax basis, plus any amount contributed by a member to a plan that meets the requirements of section 125, 401, 403, 408 or 457 of the Internal Revenue Code. Compensation does not include any allowance, payment or reimbursement for travel, meals, lodging, moving, uniforms or any other expense incidental to employment, any lump sum payment for sick or annual leave, any payments for or in lieu of insurance coverage, or any other benefit paid by an employer, any allowance or payment for housing or vehicles, any temporary payment not due to additional duties, any payment paid as a lump sum or over a period of time and based on or attributable to retirement or an agreement to retire in the future or results in an incentive to retire, any payment upon dismissal or severance, any worker's compensation payments and any payment contingent on a member terminating employment at a specified time in the future, even if included in W-2 wages.

Compensation for members hired after June 30, 1996 is limited as prescribed in Section 401(a)(17) of the Internal Revenue Code. For members hired before June 30, 1996, compensation is unlimited for Credited Service before January 1, 2018 and limited as prescribed in Section 401(a)(17) of the Internal Revenue Code for Credited Service after January 1, 2018.

Final Average Compensation

For Generational members and Foundation members whose Credited Service ends after June 30, 2022, Final Average Compensation is the highest average annual compensation earned by a member during 20 consecutive calendar quarters of the last 40 such quarters of Credited Service. The Final Average Compensation is limited by statutory provisions that prevent increases greater than 5% in compensation in the final quarter and in the year prior to termination.

The 5% limit on compensation increases will be applied to each of the four-consecutive-calendar-quarter periods considered in the calculation of Final Average Compensation. At the commencement of retirement, disability or death benefits, member and employer contributions on compensation excluded from the calculation of Final Average Compensation due to the application of the limits will be returned to the member with credited investment return based on the actual investment earnings of the SDRS trust fund (Contribution Credit).

Fixed Statutory Employer Contributions

Employer contributions equal those amounts contributed by members except for the Additional Contributions noted below.

Fixed Statutory Member Contributions

Member contributions are made on a pre-tax basis as permitted under Section 414(h) of the Internal Revenue Code in the following amounts:

- Class A members: 6% of compensation
- Class B Public Safety members: 8% of compensation
- Class B Judicial members: 9% of compensation

Accumulated Contributions

For members with less than three years of Contributory Service, Accumulated Contributions are equal to member contributions and 50% of employer contributions. For members with three or more years of Contributory Service, Accumulated Contributions are equal to member contributions and 85% of employer contributions. Accumulated Contributions includes interest, credited annually at a rate established by the Board of Trustees that is no greater than 90% of the average 91-day U.S. Treasury Bill rate for the immediately preceding calendar year. Such rate shall have no minimum limitation and shall not be greater than the assumed rate of investment return, which is currently 6.5%.

Accumulated Contributions for members who terminated prior to July 1, 2010 include 75% of employer contributions with less than three years of Contributory Service or 100% of employer contributions with three or more years of Contributory Service.

Additional Contributions

Effective July 1, 2002, employers contribute 6.2% of Class A Foundation members' calendar year compensation in excess of the maximum taxable amount for Social Security for the calendar year. These additional contributions are not included in Accumulated Contributions.

Cost-of-Living Adjustment (COLA)

All benefits except those depending on the member's Accumulated Contributions, Variable Retirement Account, or Contribution Credit are annually increased by the COLA.

Prior to the COLA payable July 1, 2018, the annual increase in the amount of the SDRS benefits payable on each July 1st considered both the percentage increase in the third calendar quarter Consumer Price Index (CPI-W) for the prior year and the SDRS Fair Value Funded Ratio (FVFR) as of the prior July 1. The amount of the COLA was:

- If the SDRS FVFR is 100% or more: 3.1%
- If the SDRS FVFR is at least 90%, but less than 100%: CPI-W increase with a 2.1% minimum and 2.8% maximum
- If the SDRS FVFR is at least 80%, but less than 90%: CPI-W increase with a 2.1% minimum and a 2.4% maximum
- If the SDRS FVFR is less than 80%: 2.1%

Effective with the COLA payable July 1, 2018, the annual increase in the amount of the SDRS benefits payable on each July 1st is the percentage increase in the third calendar quarter Consumer Price Index (CPI-W) for the prior year and further limited as follows:

- If the SDRS FVFR calculated assuming the COLA is equal to the baseline COLA assumption (2.25%) is at least 100%: CPI-W increase with a 0% minimum[1] and 3.5% maximum
- If the SDRS FVFR calculated assuming the COLA is equal to the baseline COLA assumption (2.25%) is less than 100%: CPI-W increase with a 0% minimum[1] and a restricted maximum such that, if the COLA is assumed to be equal to the restricted maximum, the SDRS FVFR is at least 100%

[1] COLA minimum was 0.5% from 2018 through 2021.

Table 8.1 – History of SDRS COLA				
Benefit Increase in July				SDRS COLA
1983 to 2009	COLA Fixed by Statute			3.10%
2010	COLA Fixed by Statute			2.10%
Benefit Increase in July	SDRS Minimum COLA[1]	SDRS Maximum COLA	Prior Year Inflation[2]	SDRS COLA
2011	2.10%	2.40%	1.49%	2.10%
2012	3.10%	3.10%	4.25%	3.10%
2013	2.10%	2.80%	1.66%	2.10%
2014	3.10%	3.10%	1.49%	3.10%
2015	3.10%	3.10%	1.70%	3.10%
2016	3.10%	3.10%	(0.41%)	3.10%
2017	2.10%	2.80%	0.76%	2.10%
2018	0.50%	1.89%	1.96%	1.89%
2019	0.50%	2.03%	2.79%	2.03%
2020	0.50%	1.88%	1.56%	1.56%
2021	0.50%	1.41%	1.28%	1.28%
2022	0.00%	3.50%	5.92%	3.50%
2023	0.00%	2.10%	8.75%	2.10%
2024	0.00%	1.91%	3.20%	1.91%

[1] COLA minimum was 0.5% from 2018 through 2021.

[2] Increase in the third calendar quarter average CPI-W over prior highest third calendar quarter average.

Normal Retirement Age

Foundation Members

The Normal Retirement Age is age 65 with three years of Contributory Service for Class A and Class B Judicial members and the Normal Retirement Age is age 55 with three years of Contributory Service for Class B Public Safety members.

Generational Members

The Normal Retirement Age is age 67 with three years of Contributory Service for Class A and Class B Judicial members and the Normal Retirement Age is age 57 with three years of Contributory Service for Class B Public Safety members.

Normal Retirement Benefit

Foundation Members

Members are entitled to retire with a benefit commencing in the month in which they reach Normal Retirement Age and payable for life, with a 60% surviving spouse benefit paid for the spouse's lifetime.

The Class A benefit is the larger of that provided by the following Standard Formula or Alternate Formula:

Standard Formula

Enhanced Benefit

1.7% times Final Average Compensation times Class A Credited Service prior to July 1, 2008

plus

Base Benefit

1.55% times Final Average Compensation times Class A Credited Service after June 30, 2008

OR

Alternate Formula

Enhanced Benefit
2.4% times Final Average Compensation times Class A Credited Service prior to July 1, 2008

plus

Base Benefit
2.25% times Final Average Compensation times Class A Credited Service after June 30, 2008

less

80% of Primary Social Security Benefit

The Class B Public Safety benefit is:

Enhanced Benefit
2.4% times Final Average Compensation times Class B Public Safety Credited Service prior to July 1, 2008

plus

Base Benefit
2.0% times Final Average Compensation times Class B Public Safety Credited Service after June 30, 2008

The Class B Judicial benefit is the sum of the following:

First 15 Years of Credited Service

Enhanced Benefit
3.733% times Final Average Compensation times Class B Judicial Credited Service prior to July 1, 2008 with a maximum of 15 years

plus

Base Benefit
3.333% times Final Average Compensation times Class B Judicial Credited Service after June 30, 2008 with a maximum of 15 years less Class B Judicial Service prior to July 1, 2008

PLUS

Years of Credited Service in Excess of 15

Enhanced Benefit
2.4% times Final Average Compensation times years of Class B Judicial Credited Service in excess of 15 years and prior to July 1, 2008

plus

Base Benefit
2.0% times Final Average Compensation times years of Class B Judicial Credited Service in excess of 15 years and after June 30, 2008

Generational Members

Members are entitled to retire with a benefit commencing in the month in which they reach Normal Retirement Age and payable for life. Optional reduced benefits are available, with a 60% or 100% surviving spouse benefit paid for the spouse's lifetime.

The Class A benefit is:

1.8% times Final Average Compensation times Class A Credited Service

The Class B Public Safety benefit is:

2.0% times Final Average Compensation times Class B Public Safety Credited Service

The Class B Judicial benefit is the sum of the following:

First 15 Years of Credited Service

3.333% times Final Average Compensation times Class B Judicial Credited Service with a maximum of 15 years

PLUS

Years of Credited Service in Excess of 15

2.0% times Final Average Compensation times years of Class B Judicial Credited Service in excess of 15 years

In addition to the formula benefits, a notional Variable Retirement Account will be funded with annual Variable Retirement Contributions and credited with the actual investment return of the SDRS trust fund. The Variable Retirement Contributions will be a portion of employer contributions, initially and currently set at 1.5% of compensation. At retirement, disability or death, Generational members will receive the contributions and credited investment return as a lump sum, rolled over to an eligible retirement account or the SDRS Supplemental Retirement Plan, or used to purchase a Supplemental Pension Benefit.

Delayed Retirement Benefit

The benefit payable upon retirement after Normal Retirement Age is based on Credited Service and Final Average Compensation to the member's actual retirement date.

Special Early Retirement Date (Rule of 85, Rule of 80 and Rule of 75)

Foundation Members

Members are entitled to retire at the member's Special Early Retirement Date with a benefit equal to the Normal Retirement Benefit based on Credited Service and Final Average Compensation to the date of retirement with no reduction for early payment.

The Special Early Retirement Date is the date at which age plus Credited Service equal:

- 85 for Class A members, but not prior to age 55
- 80 for Class B Judicial members, but not prior to age 55

- 75 for Class B Public Safety members, but not prior to age 45

Generational Members
No Special Early Retirement Benefits are available.

Early Retirement Benefit

Any member with at least three years of Contributory Service can retire in the ten years preceding Normal Retirement Age. The member will be entitled to receive the Normal Retirement Benefit, based on Credited Service and Final Average Compensation to date of retirement, with a reduction for early commencement. Benefits commence in the month following retirement (or the date chosen for payment to commence) and 30 days after the application for retirement benefits has been received by SDRS.

Foundation Members
Benefits will be reduced by ¼ of 1% for each full month by which the commencement of payments precedes the earlier of the Normal Retirement Age or the Special Early Retirement Date.

Generational Members
Benefits will be reduced by 5/12 of 1% for each full month by which the commencement of payments precedes the Normal Retirement Age.

Qualified Benefit Preservation Arrangement (QBPA)

SDRS benefits are restricted by IRC Section 415(b). The QBPA pays a portion of the SDRS benefits that are restricted. The total benefits paid from SDRS and the QBPA will be no greater than the applicable limit but unreduced for early commencement if the member retires before age 62 and actuarially increased for late retirement up to age 70 if the member retires after age 65. Benefits payable from both SDRS and the QBPA are considered in the Actuarial Valuation.

Vested Benefit and Portable Retirement Option

A terminated member with at least three years of Contributory Service will be entitled to receive the Normal or Early Retirement Benefit based on the member's Credited Service at the time of termination of employment and increased by the COLA from the date of termination to the date benefits commence.

In lieu of any lifetime retirement benefits under the system, a terminating member may receive a lump sum of the member's Accumulated Contributions under the Portable Retirement Option.

Disability Benefit

A contributing member, who becomes disabled with at least three years of Contributory Service or was disabled by accidental means while performing the usual duties of his job, is entitled to an immediate monthly Disability Benefit.

For disabilities on or before June 30, 2015, the Disability Benefit is equal to:

- For the first 36 months, 50% of the member's Final Average Compensation, increased by 10% for each eligible child to a maximum of four children. The maximum benefit payable is 90% of such compensation (increased by the Cost-of-Living Adjustment) reduced by earned income.
- Starting with the 37th month:
  - If the member is receiving disability benefits from Social Security, the greater of:
    - 50% of the member's Final Average Compensation plus 10% for each eligible child to a maximum of 90% less the amount of primary Social Security
    - 20% of the member's Final Average Compensation increased by the COLA
    - The member's unreduced accrued retirement benefit
  - If the member is not receiving disability benefits from Social Security, the greater of:
    - 20% of the member's Final Average Compensation increased by the COLA
    - The member's unreduced accrued retirement benefit

    The maximum benefit is 90% of Final Average Compensation increased by the COLA, reduced by earned income and primary Social Security.

At age 65 (or when there are no eligible children, if later) but not before five years of disability, the benefit payable is converted to the Normal Retirement Benefit based on compensation increased by the COLA for the period between the date of disability and Normal Retirement Age and Credited Service as if employment had continued uninterrupted to Normal Retirement Age.

For disabilities after June 30, 2015, the Disability Benefit is equal to the greater of:

- 25% of the member's Final Average Compensation at the date of disability
- The unreduced accrued retirement benefit at the date of disability

A surviving spouse of a disabled member who dies while receiving a benefit will receive 60 percent of the member's benefit for the spouse's lifetime, commencing at the spouse's age 65 (or age 67 for spouses of Generational members).

Survivor Benefits – Death While Actively Employed or Receiving Disability Benefits

For deaths on or before June 30, 2015:

If an active member with at least one year of Contributory Service, or a member receiving a Disability Benefit commencing after July 1, 1974 dies, the surviving spouse having the care of eligible dependent children will receive an immediate benefit equal to 40% of the member's Final Average Compensation, increased 10% for each child to a maximum of six children. If the surviving eligible dependent children are under the care of a guardian, the benefit payable will be 20% of the member's Final Average Compensation for each child (to a maximum of five children).

The above survivor benefits are all payable monthly and reduced by 75% of primary Social Security Benefit.

If no benefit is payable as defined above or payment has ceased and the member's Accumulated Contributions have not been withdrawn, the spouse is entitled to receive a benefit equal to 60% of the Normal Retirement Benefit that would have been payable to the deceased member at the member's

Normal Retirement Age based on Credited Service and compensation, both projected to the member's Normal Retirement Age, with the benefit further increased by the Cost-of-Living Adjustment for any time between Normal Retirement Age and payment commencement. The benefit is payable to the spouse when the spouse reaches age 65. Effective July 1, 2015, a member's spouse may elect to commence survivor benefits as early as age 55 and the spouse's benefit is reduced by 5% for each year commencement precedes the spouse's age 65.

For deaths after June 30, 2015:

If an active member with at least three years of Contributory Service, or a member receiving a Disability Benefit approved after June 30, 2015 dies, the eligible dependent children will receive an immediate benefit equal to the greater of:

- 25% of the member's Final Average Compensation at the date of death
- The member's unreduced accrued retirement benefit at the date of death

The benefit will be split equally among any eligible children of the member. The benefit ceases if there are no eligible children.

If no benefit is payable as defined above, the spouse is entitled to receive at the spouse's age 65 (age 67 for spouses of Generational members) a lifetime benefit equal to 60% of the benefit payable above, increased by the Cost-of-Living Adjustment for any time between the date of the member's death and payment commencement date. If the benefit ceases due to no eligible children, the benefit is increased by the Cost-of-Living Adjustment for any time between the date benefits ceased and the later payment commencement date. The spouse may elect to commence survivor benefits as early as age 55 (age 57 for spouses of Generational members) and the spouse's benefit is reduced by 5% for each year commencement precedes the spouse's age 65 (age 67 for spouses of Generational members).

Survivor Benefits – Deaths after Retirement or Normal Retirement Age

Foundation Members
Upon the death of a Foundation retiree or a member at or beyond Normal Retirement Age, the surviving spouse is entitled to receive a lifetime benefit equal to 60% of the monthly retirement benefit the member was receiving or was eligible to receive.

Generational Members
Upon the death of a Generational member at or beyond Normal Retirement Age but not yet receiving benefits, the surviving spouse is entitled to receive a lifetime benefit equal to 60% of the benefit the member would have received if the member retired on the date of death and elected the 60% joint and survivor benefit.

Upon the death of a Generational member receiving retirement benefits, the surviving spouse is entitled to receive a lifetime benefit equal to 60% or 100% of the monthly retirement benefit the member was receiving if the member had elected a joint and survivor benefit at retirement.

Survivor Benefits – Death of Terminated Member

If a terminated member dies prior to benefit commencement, the Accumulated Contributions are refunded to the designated beneficiary, children, or estate in a lump sum.

Optional Spouse Coverage

Prior to June 30, 2010, a member could have elected to provide an additional benefit payable to the surviving spouse within 365 days after becoming a member, within 90 days following attainment of age 35, or within 90 days after the first anniversary of marriage. This optional coverage may continue until the member's spouse attains age 65, the death or disability of the member, the death of the member's spouse, termination of the member's marriage or termination of the member's employment.

The additional monthly benefit is equal to 40% of the member's Final Average Compensation multiplied by the COLA for each full year between the date of death or disability of the member to payment commencement. Such benefit is paid upon the member's death from the time there is no eligible dependent children until the spouse dies or attains age 65.

The cost of this protection is paid by the member through an additional contribution of 1.5% of compensation, which will not be matched by the employer and is not refundable.

Accumulated Contributions as Minimum Benefits

If the aggregate benefit payments received by a member and the member's beneficiary (excluding benefits received under the Optional Spouse Coverage benefit provisions but including the receipt of any Variable Retirement Account) do not equal the sum of the Accumulated Contributions, then the difference will be paid to the member's designated beneficiary, children, or estate in a lump sum.

Optional Forms of Retirement Payments

The monthly retirement benefits may be modified to an optional form of payment that is the actuarial equivalent of the benefit due under the system.

Foundation Members
A Social Security level income payment options is available for members who retire before age 62.

Generational Members
A joint and survivor benefit with 60% or 100% of the member's benefit continuing to a surviving spouse is available with a reduced member's benefit.

Administrative Expenses

Administrative expenses are paid from the system's assets in an amount not to exceed 3% of the annual member and employer contributions received by the system.

Prior Benefit Formula Improvements for Foundation Members

Retired Foundation and terminated vested members' benefits have been increased to reflect the benefit formula currently in effect for active Foundation members.

Principal Benefit Provisions for Former Cement Plant Retirement Plan Members

Credited Service

Credited Service is the last period of continuous employment from employment date to retirement or termination date. Credited Service as of the plan freeze date, March 16, 2001, will be used to determine the frozen Normal Retirement Benefit as of that date.

Final Average Earnings

Final Average Earnings is the average of the highest 36 consecutive months of earnings (excluding overtime) during the last 72 months of employment. For hourly paid employees, monthly earnings are calculated by multiplying the hourly rate by 40 hours per week times 4-1/3 weeks per month. Final Average Earnings as of the plan freeze date, March 16, 2001, will be used to determine the frozen Normal Retirement Benefit as of that date.

Normal Retirement Benefit

A member is eligible for a Normal Retirement Benefit after attainment of age 65, with three years of Credited Service. The amount of the Normal Retirement Benefit is paid for life and is the greater of:

1.625% of Final Average Earnings times Credited Service

or

2.325% of Final Average Earnings times Credited Service less 80% of the primary Social Security Benefit.

Final Average Earnings, Credited Service and primary Social Security Benefits are determined as of the plan freeze date, March 16, 2001.

Special Early Retirement Benefit

A member who is at least age 55, and whose age and Credited Service sum to 85 or more, is eligible for a Special Early Retirement Benefit. The monthly benefit is computed as the Normal Retirement Benefit, considering compensation and Credited Service at the earlier of the plan freeze date, March 16, 2001, or the actual retirement date, payable immediately without reduction for early commencement. Members who terminated prior to July 1, 1999 are not eligible for a Special Early Retirement Benefit.

Early Retirement Benefit

A member who has attained the age of 55 and completed three years of Credited Service is eligible for an Early Retirement Benefit. The Early Retirement Benefit is the member's accrued Normal Retirement Benefit reduced by 3% per year that the employee is younger than the earlier of age 65 or 85 less the member's Credited Service. Members who terminated prior to July 1, 1999 are eligible for an Early Retirement Benefit after attaining age 62 and completing five years of Credited Service.

Vesting

Members who terminate after three years of Credited Service are vested. All active members as of March 16, 2001 were vested as of that date.

Family Death Benefit

If a vested active member, or a member receiving disability benefits, dies, the member's spouse, having the care of eligible children will receive a benefit equal to 40% plus 10% per eligible dependent child (with a maximum of five children) of the member's highest earnings in any of the three years preceding the plan freeze date, March 16, 2001. The benefit will be paid monthly.

If not eligible for the family benefit described above, the lifetime benefit paid to the spouse at the spouse's age 65 is equal to 60% of the benefit the member would have received at Normal Retirement.

Optional Spouse Coverage

If a member elected Optional Spouse Coverage prior to the plan freeze date, March 16, 2001, the spouse is eligible for a benefit upon the member's death if no benefits are payable under the Family Death Benefit. The benefit payable is 40% of the member's highest earnings in any of the three years preceding the plan freeze date, March 16, 2001, and is payable until the spouse attains age 65 or death, if earlier. No contributions for this coverage are made after March 16, 2001.

Cost-of-Living Adjustment

The Cost-of-Living Adjustment applied to benefits is based on the member's termination or retirement date as follows:

- Termination or retirement prior to October 1, 1978: Benefits to retirees and beneficiaries are increased by 2.00% of the initial benefit amount each year (simple increases).
- Termination or retirement after September 30, 1978 and before July 1, 1999: Benefits to retirees and beneficiaries are increased by ½ of the increase in the Consumer Price Index (CPI-W), not to exceed 1.43% each year (compound increases).
- Termination or retirement after June 30, 1999: Benefits to retirees and beneficiaries are increased by 3.10% each year (compound increases).

Principal Benefit Provisions for Former Department of Labor and Regulation Plan Members

Credited Service

Years and months of service with the Department of Labor and Regulations

Compensation

A member's fixed rate of pay from the employer

Average Compensation

The average of a member's monthly compensation for the five consecutive July 1 which produce the highest average.

Normal Retirement Benefit

A member is eligible for a Normal Retirement Benefit after attainment of the earliest of age 65, age 62 with 10 years of Credited Service, age 60 with 20 years of Credited Service, or age 55 with 30 years of Credited Service. The amount of the Normal Retirement Benefit is paid for 10 years and life thereafter and is equal to 2.0% of Average Compensation times Credited Service.

Optional forms of benefit may be elected.

Early Retirement Benefit

A member who is within 10 years of Normal Retirement eligibility is eligible for an Early Retirement Benefit. The Early Retirement Benefit is the member's accrued Normal Retirement Benefit reduced by 2% per year that the Early Retirement Date precedes the member's Normal Retirement Date.

Vesting

Members who terminate after five years of Credited Service are vested.

Termination Benefit

Return of member contributions with interest if not vested. Deferred benefit is equal to Normal Retirement Benefit at Normal Retirement Date if vested with a minimum of the retirement benefit that could be provided with the member's contributions with interest.

Disability Benefit

Equal to Normal Retirement Benefit calculated including Credited Service up to Normal Retirement Date payable at Normal Retirement Date

Spouse Death Benefit

If an active member dies and was married at least one year, a spouse benefit is payable until the spouse remarries or dies. If the member was hired before age 47, the benefit is 55% of the member's accrued

benefit, no less than 22% of the member's Average Compensation on the date of death. If the member was hired after age 47, the benefit is 55% of the benefit that would have been paid if the member survived and retired at age 60.

Dependent Child Death Benefit

If a member has at least one dependent child under age 19, a benefit will be paid until the youngest child turns 19 or turns 22 if the member did not have a spouse on the date of death. If the member had a spouse on the date of death, the benefit is the least of 60% of the member's Average Compensation, $75, or $225 divided by the number of children. If the member did not have a spouse on the date of death, the benefit is the least of 75% of the member's Average Compensation, $90, or $270 divided by the number of dependent children.

Additional Death Benefit

A single sum equal to the member's contributions with interest is paid to the member's beneficiary.

Cost-of-Living Adjustment

The Cost-of-Living Adjustment will be the same as the SDRS Cost-of-Living Adjustment.

Section 9-Description of Actuarial Methods and Valuation Procedures

Actuarial Cost Method

Liabilities and contributions shown in this report are computed using the **Entry Age Actuarial Cost Method**.

Sometimes called a "funding method," this is a particular technique used by actuaries for establishing the amount and incidence of the annual actuarial cost of pension plan benefits, or Normal Cost, and the related unfunded actuarial accrued liability. The annual contribution requirement to the plan is comprised of (1) the Normal Cost and (2) an amortization payment on the Unfunded Actuarial Accrued Liability (if one exists).

Under the **Entry Age Actuarial Cost Method**, the **Normal Cost** is computed as the percentage of pay which, if paid from the date of the member's entry into the system to each member's assumed retirement or termination, would accumulate with interest at the assumed rate of investment return to a fund sufficient to pay all benefits under the plan.

For inactive members, the **Actuarial Accrued Liability** is the Present Value of All Benefits. For active members, the Actuarial Accrued Liability is the Present Value of All Benefits less the **Present Value of Future Normal Costs**. Normal Cost and Present Value of Future Normal cost for active members is determined considering only the ongoing benefit formula, disregarding the historical benefit improvements for periods of past service which are thereby included in the Actuarial Accrued Liability.

The aggregate Normal Cost Rate for SDRS is determined by taking aggregate present value of future Normal Costs for the membership group and dividing this result by the aggregate Present Value of Total Projected Payroll of members before assumed retirement age. The Normal Cost Rate is then adjusted by a half-year's interest and multiplied by the total payroll for active members before assumed retirement to determine the Normal Cost. This procedure is performed for the group as a whole, not as the sum of individual Normal Cost calculations.

For the determination of the Actuarial Accrued Liability, Normal Cost, Actuarially Determined Contributions, and the statutory determination of the COLA and SDCL 3-12C-228 requirements, the liability for former Cement Plant Retirement Plan members is calculated as the Present Value of their frozen accrued benefits and Normal Cost is calculated for the remaining active members.

For purposes of GASB 67 and 68, the Normal Cost for SDRS is the sum of individual Normal Cost calculations and will therefore vary minimally from the Normal Cost calculated for other purposes. In addition, the Total Pension Liability and Service Cost for former Cement Plant Retirement Plan members is calculated using the Individual Entry Age Actuarial Cost Method.

The **Unfunded Actuarial Accrued Liability** is the excess, if any, of the Actuarial Accrued Liability over the Actuarial Value of Assets as of the valuation date.

Asset Valuation Method

The Actuarial Value of Assets is equal to the Fair Value of Assets.

Contribution Allocation Procedure

The Actuarially Determined Contribution is equal to the fixed, statutory contributions if the fixed, statutory contributions are greater than the Normal Cost, system administrative expenses and an amortization of the Unfunded Actuarial Accrued Liability (if any) over a period not to exceed 20 years assuming the minimum SDRS COLA and do not exceed the same measure assuming future COLAs are equal to the maximum SDRS COLA.

Valuation Procedures

No actuarial liability is included for non-vested members who terminated prior to the valuation date, except those due a refund of Accumulated Contributions.

The compensation amounts used in the projection of benefits and liabilities were annualized, prior-year compensation amounts projected with assumed salary increases to the valuation year.

In computing accrued retirement benefits, Final Average Compensation was determined using actual compensation histories supplied by SDRS staff.

For active and vested terminated members, the spouse age difference assumption was used to populate beneficiaries' dates of birth.

Termination and retirement benefits were limited to the dollar limitation required by the Internal Revenue Code Section 415 limits for governmental plans but unreduced for early commencement if members retire before age 62 and actuarially increased for late retirement up to age 70 if members retire after age 65.

Compensation was limited to the dollar amount defined under Internal Revenue Code Section 401(a)(17) for affected members.

Decrements are assumed to occur mid-year.

Section 10-Actuarial Assumptions Summary for the June 30, 2023 Actuarial Valuation

Investment Return/Discount Rate

6.50% per annum, compounded annually and net of investment expenses. This nominal rate includes price inflation of 2.50% per annum and a real rate of return of 4.00%.

Measurement Date

June 30, 2023

Retirement Age

Assumed retirement rates of eligible members are shown in the following tables:

Table 10.1a – Assumed Retirement Rates, Foundation Members

Annual Rate per 100 Members Eligible to Retire												
	Class A Teachers				Other Class A Members				Class B Judicial Members		Class B Public Safety Members	
	Reduced		Unreduced		Reduced		Unreduced		Reduced	Unreduced	Reduced	Unreduced
Age	Male	Female	Male	Female	Male	Female	Male	Female				
45											4.00	33.00
46											4.75	33.00
47											6.00	33.00
48											12.00	33.00
49											12.00	33.00
50											12.00	20.00
51											16.00	17.50
52											12.00	22.50
53											3.50	18.00
54											16.50	33.00
55	11.00	6.00	19.00	18.00	4.75	5.25	13.00	9.00	12.00	24.00		25.00
56	7.50	7.25	14.00	15.00	4.75	5.25	10.00	9.00	9.00	10.00		17.00
57	7.50	8.50	15.00	12.00	4.75	5.25	10.00	13.00	9.00	10.00		17.00
58	7.50	10.00	15.00	15.00	4.75	5.25	10.00	9.25	9.00	10.00		17.00
59	13.25	10.00	13.25	17.00	4.75	6.50	11.00	9.25	9.00	10.00		17.00
60	13.25	10.00	13.25	15.00	6.25	6.50	11.00	9.25	9.00	10.00		17.00
61	9.25	16.25	32.50	25.00	7.25	8.25	15.00	12.50	9.00	10.00		17.00
62	9.25	14.00	30.00	25.00	9.50	13.00	17.50	13.00	9.00	10.00		30.00
63	9.25	21.00	30.00	25.00	10.00	12.00	12.50	17.50	9.00	10.00		30.00
64	28.50	28.25	40.00	35.00	21.00	21.50	30.00	30.00	15.00	15.00		30.00
65			40.00	45.00			35.00	37.50		15.00		40.00
66			40.00	45.00			30.00	40.00		27.50		40.00
67			32.50	30.00			30.00	25.00		27.50		25.00
68			32.50	30.00			30.00	25.00		27.50		25.00
69			32.50	30.00			30.00	25.00		27.50		50.00
70			32.50	30.00			30.00	25.00		50.00		100.00
71			32.50	30.00			30.00	25.00		100.00		
72			32.50	30.00			30.00	25.00				
73			32.50	30.00			30.00	25.00				
74			32.50	30.00			30.00	25.00				
75			100.00	100.00			30.00	25.00				
76							30.00	25.00				
77-79							30.00	40.00				
80							100.00	100.00				

Table 10.1b – Assumed Retirement Rates, Generational Members

Annual Rate per 100 Members Eligible to Retire												
	Class A Teachers				Other Class A Members				Class B Judicial Members		Class B Public Safety Members	
	Reduced		Unreduced		Reduced		Unreduced		Reduced	Unreduced	Reduced	Unreduced
Age	Male	Female	Male	Female	Male	Female	Male	Female				
47											6.00	
48											12.00	
49											12.00	
50											12.00	
51											16.00	
52											12.00	
53											3.50	
54											16.50	
55											25.00	
56											25.00	
57	7.50	8.50			4.75	5.25			9.00			35.00
58	7.50	10.00			4.75	5.25			9.00			35.00
59	13.25	10.00			4.75	6.50			9.00			17.00
60	13.25	10.00			6.25	6.50			9.00			17.00
61	9.25	16.25			7.25	8.25			9.00			17.00
62	9.25	14.00			9.50	13.00			9.00			30.00
63	9.25	21.00			10.00	12.00			9.00			30.00
64	28.50	28.25			21.00	21.50			15.00			30.00
65	30.00	35.00			30.00	30.00			25.00			40.00
66	35.00	40.00			30.00	30.00			25.00			40.00
67			40.00	45.00			40.00	40.00		35.00		25.00
68			40.00	45.00			40.00	40.00		35.00		25.00
69			32.50	30.00			30.00	25.00		27.50		50.00
70			32.50	30.00			30.00	25.00		50.00		100.00
71			32.50	30.00			30.00	25.00		100.00		
72-74			32.50	30.00			30.00	25.00				
75			100.00	100.00			30.00	25.00				
77-79							30.00	40.00				
80							100.00	100.00				

Former members of the Cement Plant Retirement Plan are assumed to retire at their earliest eligible retirement age.

Salary Increases

Assumed annual salary increases for active members are based on Credited Service as shown below:

Table 10.2 – Assumed Rates of Salary Increases

Credited Service	Merit and Seniority	Wage Inflation	Total Increase		Credited Service	Merit and Seniority	Wage Inflation	Total Increase
0	4.3689%	3.15%	7.6565%		15	0.5340%	3.15%	3.7008%
1	3.1068%	3.15%	6.3547%		16	0.4369%	3.15%	3.6007%
2	2.4272%	3.15%	5.6537%		17	0.3883%	3.15%	3.5505%
3	2.0874%	3.15%	5.3032%		18	0.3398%	3.15%	3.5005%
4	1.8447%	3.15%	5.0528%		19	0.2913%	3.15%	3.4505%
5	1.6505%	3.15%	4.8525%		20	0.2427%	3.15%	3.4003%
6	1.5049%	3.15%	4.7023%		21	0.1942%	3.15%	3.3503%
7	1.3592%	3.15%	4.5520%		22	0.1456%	3.15%	3.3002%
8	1.2136%	3.15%	4.4018%		23	0.0971%	3.15%	3.2502%
9	1.1165%	3.15%	4.3017%		24	0.0485%	3.15%	3.2000%
10	0.9709%	3.15%	4.1515%		25	0.0000%	3.15%	3.1500%
11	0.8738%	3.15%	4.0513%		Over 25	0.0000%	3.15%	3.1500%
12	0.7767%	3.15%	3.9512%					
13	0.6796%	3.15%	3.8510%					
14	0.6311%	3.15%	3.8010%					

Disability

Sample rates are shown below:

Table 10.3– Sample Disability Rates[1]

	Annual Rate per 100 Members				
	Class A Low Incidence Groups[2]		Class A Higher Incidence Groups[3]		Class B Public Safety Members
Age	Male	Female	Male	Female	Male and Female
25	0.0043	0.0078	0.0135	0.0068	0.0123
30	0.0048	0.0096	0.0135	0.0076	0.0135
35	0.0055	0.0116	0.0300	0.0312	0.0717
40	0.0067	0.0140	0.0300	0.0520	0.1648
45	0.0110	0.0257	0.0460	0.0800	0.3248
50	0.0173	0.0473	0.0666	0.0912	0.3248
55	0.0354	0.0499	0.1400	0.1332	0.3248
60	0.0749	0.0697	0.2184	0.1788	0.5790
65	0.1234	0.0905	0.3024	0.2268	1.0065

[1]No disability is assumed for Class B Judicial members. Five percent of disabilities within the first three years of employment are assumed to be job-related disabilities.
[2]Includes teachers and certified regents
[3]Includes non-certified regents, state employees, city employees, non-certified school employees, and county employees.

Mortality

The mortality assumption is based on the Pub-2010 amount-weighted base mortality tables, projected generationally with MP-2020. Adjustments are made to the retired member base mortality tables based on credible experience.

- Active and Terminated Vested members:
  - Teachers, Certified Regents, and Judicial members: PubT-2010
  - Other Class A members, all Class C and D members: PubG-2010
  - Public Safety members: PubS-2010

- Retired members:
  - Teachers, Certified Regents, and Judicial retirees: PubT-2010, 108% of mortality rates at age 65 and older
  - Other Class A Retirees, all Class C and D retirees: PubG-2010, 93% of rates at ages less than 75, with the adjustment increased by 2% per year until reaching 111% of rates at age 83 and above
  - Public Safety retires: PubS-2010, 102% of rates at all ages

- Beneficiaries: PubG-2010 Contingent Survivor Table

- Disabled members:
  - Non-Public Safety: PubG-2010 disabled annuitant table
  - Public Safety: PubS-2010 disabled annuitant table

Sample rates are shown below:

Table 10.4 – Sample Mortality Rates[1]

Active and Terminated Vested Members - Annual Rate per 100 Members, Rates as of 2023

	Teachers, Certified Regents, and Judicial Members		Other Class A Members All Class C and D Members		Public Safety Members	
Age	Male	Female	Male	Female	Male	Female
25	0.0194	0.0113	0.0340	0.0113	0.0450	0.0252
30	0.0355	0.0199	0.0520	0.0213	0.0592	0.0384
35	0.0461	0.0285	0.0722	0.0328	0.0722	0.0514
40	0.0568	0.0374	0.0892	0.0435	0.0797	0.0592
45	0.0720	0.0474	0.1053	0.0553	0.0881	0.0662
50	0.1045	0.0680	0.1403	0.0773	0.1130	0.0847
55	0.1647	0.1081	0.2097	0.1243	0.1676	0.1243
60	0.2713	0.1687	0.3278	0.1949	0.2713	0.1760
65	0.4385	0.2585	0.4717	0.2834	0.4133	0.2183

Retired Members - Annual Rate per 100 Members, Rates as of 2023

	Teachers, Certified Regents, and Judicial Members		Other Class A Members All Class C and D Members		Public Safety Members	
Age	Male	Female	Male	Female	Male	Female
45	0.0720	0.0474	0.0979	0.0515	0.1337	0.0877
50	0.1045	0.0680	0.2610	0.1923	0.1844	0.1415
55	0.2135	0.1950	0.3838	0.2688	0.2989	0.2659
60	0.3669	0.3007	0.5878	0.3741	0.5325	0.4766
65	0.6445	0.4612	0.8559	0.5459	0.9058	0.7520
70	1.0740	0.7350	1.3190	0.8737	1.4864	1.1980
75	1.9598	1.3977	2.2672	1.5846	2.5754	2.0735
80	3.7326	2.7980	4.5049	3.2435	4.6744	3.7153
85	7.1852	5.5053	8.7676	6.5187	8.5669	6.6051
90	13.4224	10.4364	15.2642	12.2127	15.1623	11.5429
95	22.6263	18.6061	23.8530	19.9684	22.8383	18.4780

Beneficiaries and Disabled Members - Annual Rate per 100 Members, Rates as of 2023

	Beneficiaries		Disabled Public Safety Members		Other Disabled Members	
Age	Male	Female	Male	Female	Male	Female
45	0.5899	0.2588	0.2600	0.2203	1.0820	0.9730
50	0.6602	0.2980	0.3324	0.2831	1.5115	1.3811
55	0.7891	0.4507	0.4597	0.4658	2.0244	1.7603
60	1.0400	0.6517	0.7554	0.7324	2.5723	2.0494
65	1.3951	0.8608	1.1955	1.0159	3.0684	2.1601
70	1.9787	1.1958	1.7724	1.4229	3.6256	2.5294
75	3.0217	1.9053	2.8957	2.1640	4.6389	3.5458
80	4.8167	3.2848	5.0305	3.6424	6.6032	5.5225
85	8.0385	5.9777	8.4706	6.4756	9.9436	8.8313
90	13.5135	10.8511	14.8650	11.3165	15.2334	13.0885
95	21.4066	17.7650	22.3905	18.1157	22.1736	18.4415

[1] Five percent of deaths within the first three years of employment are assumed to be job-related.

Pre-Retirement Termination

Assumed termination rates are based on a select and ultimate table with rates based on Credited Service for the first five years of employment and rates based on age after five years of employment.

Sample rates are shown below:

Table 10.5a – Assumed Termination Rates – First 5 Years of Employment

Annual Rate per 100 Members									
Credited Service	Teachers		Regents, Non-Certified Schools		State Employees		City, County Employees		Class B Public Safety Members
	Male	Female	Male	Female	Male	Female	Male	Female	
0	20.00	19.25	23.00	24.00	17.25	24.00	17.00	20.00	22.00
1	14.50	13.25	18.00	19.50	16.00	18.00	14.50	17.25	14.75
2	13.25	12.00	16.00	17.50	13.25	15.75	11.75	13.25	12.75
3	11.25	10.50	14.25	14.75	12.25	13.00	11.50	11.00	10.75
4	09.75	8.50	13.75	12.50	11.25	11.00	9.50	11.00	9.75

Table 10.5b – Assumed Termination Rates – After 5 Years of Employment

Annual Rate per 100 Members										
Age	Teachers		Regents, Non-Certified Schools		State Employees		City, County Employees		Class B Public Safety Members	Former CPRP Members
	Male	Female	Male	Female	Male	Female	Male	Female		
25	7.00	6.50	10.00	10.00	8.50	10.00	7.75	16.50	8.25	5.27
30	6.25	5.60	8.95	8.80	7.45	8.50	7.15	11.70	6.90	4.83
35	4.55	4.10	7.50	6.95	5.85	6.45	5.55	6.85	4.80	4.47
40	3.45	3.05	6.40	6.10	4.50	4.85	4.45	5.30	4.00	3.84
45	3.10	2.75	5.70	5.40	3.40	3.80	3.95	5.00	4.00	3.21
50	3.00	2.75	4.60	5.00	3.00	3.50	3.75	4.40	4.00	1.52
55	3.00	2.75	4.00	5.00	3.00	3.50	3.75	4.00	4.00	0.33

No pre-retirement termination is assumed for Class B Judicial members.

Benefit Form Election Assumptions for Active and Terminated Vested Members

Married Foundation members are assumed to receive a 60% joint and survivor annuity. Single Foundation members and Generational members are assumed to receive a life annuity with a guaranteed return of accumulated contributions. Optional benefit forms available to Generational members are approximately actuarially equivalent to the life annuity amount.

Marital Status

80% of non-retired members are assumed to be married. Male members are assumed to be two years older than their spouses. Female members are assumed to be two years younger than their spouses.

Family Composition

Members are assumed to have two eligible dependent children while the member is between the ages of 29 and 48.

Future Social Security Increases

Future Social Security Cost-of-Living Adjustments are assumed to be 2.50% per annum. Future Social Security Taxable Wage Base increases are assumed to be 3.15% per annum.

Interest on Accumulated Contributions

Interest credited to the member's Accumulated Contributions is assumed to be 2.25% per annum.

Administrative Expenses

Annual administrative expenses are assumed to be 2.0% of member and employer contributions.

Election of Portable Retirement Option Benefits

At termination, the percentage of terminating members assumed to elect the Portable Retirement Option is as follows:

Table 10.6 – Percent of Terminated Members Assumed to Elect the Portable Retirement Option

Credited Service at Termination	Percent Electing Portable Retirement Option	Percent Electing Vested Benefit at Retirement	Credited Service at Termination	Percent Electing Portable Retirement Option	Percent Electing Vested Benefit at Retirement
0	100.0%	0.0%	15	22.5%	77.5%
1	100.0%	0.0%	16	22.5%	77.5%
2	100.0%	0.0%	17	22.5%	77.5%
3	47.5%	52.5%	18	22.5%	77.5%
4	47.5%	52.5%	19	22.5%	77.5%
5	47.5%	52.5%	20	12.5%	87.5%
6	40.0%	60.0%	21	12.5%	87.5%
7	40.0%	60.0%	22	12.5%	87.5%
8	40.0%	60.0%	23	12.5%	87.5%
9	32.5%	67.5%	24	12.5%	87.5%
10	32.5%	67.5%	25	7.5%	92.5%
11	32.5%	67.5%	26	7.5%	92.5%
12	32.5%	67.5%	27	7.5%	92.5%
13	22.5%	77.5%	28	7.5%	92.5%
14	22.5%	77.5%	29	7.5%	92.5%
			30 or More	0.0%	100.0%

Benefit Commencement for Terminated Vested Members

Class A Foundation members with 20 or more years of Credited Service at termination are assumed to elect benefit commencement at age 58. Class B Public Safety Foundation members with 15 or more years of Credited Service at termination are assumed to elect benefit commencement at age 48. All other terminated Vested members are assumed to elect benefit commencement three years prior to Normal Retirement Age.

Benefit Commencement for Deferred Beneficiaries

Deferred beneficiaries are assumed to begin surviving spouse benefits at age 65. Commencement is available as early as age 55 in some circumstances and the early commencement reduction is approximately actuarially equivalent to the age 65 benefit.

SDRS COLA

The SDRS COLA effective July 1, 2023 was 2.10%.

Effective with the July 2017 increase, the SDRS COLA is based on the percentage increase in the third calendar quarter CPI-W for the prior year, not less than 0.5% (0% minimum effective with the July 1, 2021 COLA) and not greater than 3.5%. In addition, the COLA will be limited to a restricted maximum COLA under certain circumstances. Effective with the 2021 increase, the minimum SDRS COLA is reduced to 0%.

The Baseline COLA Assumption is 2.25%. If the Fair Value Funded Ratio assuming future COLAs are equal to the Baseline COLA Assumption is less than 100%, a restricted maximum COLA is calculated so that the FVFR assuming future COLAs are equal to the restricted maximum COLA is 100%.

For each Actuarial Valuation, future COLAs are assumed to equal the Baseline COLA Assumption, if the FVFR assuming future COLAs are equal to the Baseline COLA assumption is at least 100%. Future COLAs are assumed to equal the restricted maximum COLA if the FVFR assuming future COLAs are equal to the baseline COLA assumption is less than 100%.

Based on the results of this June 30, 2023 Actuarial Valuation, the restricted maximum COLA is 1.91% for the 2024 COLA. Because the increase in the 2023 third calendar quarter CPI-W for the year of 3.20% is greater than the maximum SDRS COLA, the July 2024 COLA increase will be 1.91%. The Actuarial Accrued Liabilities and Normal Costs reported in this Actuarial Valuation are calculated assuming future COLAs are equal to the restricted maximum COLA Assumption of 1.91%.

The COLA payable to former Cement Plant Retirement Plan members is fixed in statute and dependent on the member's termination date.

Retiree Reemployment Period and Compensation

The benefits of SDRS retirees who are reemployed after April 1, 2010 and work at least 1,250 hours during a fiscal year are reduced by 15% and no SDRS COLA is applied to the benefits during the period of reemployment in a SDRS covered position. (These provisions do not apply to Class B Public Safety retirees rehired into a Class A position.) Member contributions are allocated to the member's Supplemental Retirement Plan account during the period of reemployment and Employer contributions continue into SDRS.

Retirees who are rehired with reduced benefits are assumed to remain reemployed for five years. For determining contribution rates and covered payroll, retirees who are reemployed at the valuation date are assumed to remain employed for the entire year and no additional retirees are assumed to be reemployed during the fiscal year.

Actuarial Assumption Rationale

The actuarial assumptions used in the June 30, 2023 Actuarial Valuation were recommended by the SDRS Senior Actuary and adopted by the SDRS Board of Trustees based on the results of an actuarial experience study for the period July 1, 2016 through June 30, 2021. The analysis was presented, and the assumptions adopted by the Board of Trustees in April and June, 2022. The assumptions are long-term in nature and are the Board of Trustees' best estimate of anticipated experience under SDRS's benefit provisions considering past experience and future expectations. The SDRS Senior Actuary believes the actuarial assumptions are individually and aggregately reasonable and meet the requirements of all applicable Actuarial Standards of Practice.

Rationale for significant economic actuarial assumption recommendations include:

- Investment return: An analysis of the expected mean return of 6.29% based on the South Dakota Investment Council's (SDIC) benchmark asset allocation was provided. A survey of publicly available capital market assumptions was used to verify the expected return was not an extreme outlier. Historical expectations using consistent methodology were compared to actual real and nominal returns, demonstrating consistent outperformance compared to expectations through 10-, 20-, and 30-year historical periods. The recommended and adopted long-term expected rate of return assumption of 6.50% includes the expected mean return developed by the SDIC plus an expectation that the dynamic asset allocation process employed by the SDIC will continue to contribute a portion of the consistent, historical outperformance relative to expectations.

- Price inflation: A survey of published opinions of professional inflation forecasters was prepared and compared to current market indicators of expected future inflation. In addition, efforts by the federal government to intervene and the temporary nature of additional geo-political and pandemic related factors, have led to expectations that the current high inflationary period will not be long-term in nature. An increase in price inflation from the prior 2.25% to the current 2.50% was recommended by the Senior Actuary and adopted by the Board of Trustees.

- Wage inflation: Historical increases in the SDRS average salary over short-, medium-, and long-term periods were compared to price inflation. Medium- and long-term real wage growth has been between 0.058% and 0.77%. As a result, a real wage growth assumption of 0.65% was recommended and adopted, resulting in a wage inflation assumption of 3.15%.

- Salary increase assumption was recommended and adopted that considered the wage inflation assumption and actual salary increases, by years of service, during the experience study period, for all active members. Specific consideration was given to the impact of the 2017 extraordinary teacher salary increases on the overall experience, generally expecting future experience to be at the midpoint of the historic increases and the historic increases excluding the extraordinary increases. The assumption was developed based on recent historic increases and then adjusted for expected higher future wage inflation.

- Baseline COLA assumption: A stochastic model was used to project geometric mean SDRS COLAs assuming future inflation had a mean of 2.5% and a standard deviation of 1.8% (based on the last 20 years of average third calendar quarter annual CPI-W increases) and recognizing the COLA range of 0% to 3.5%. The model resulted in a geometric mean expected COLA of 2.25% when inflation is 2.50% and the applicable range is applied.

- Effective rate of interest: Based on assumed inflation of 2.5% and a forecast of 3-month treasury yields, the recommended and adopted assumption for the effective rate of interest was 90% of 2.5%, or 2.25%.

In general, demographic assumptions were developed based on the experience analysis covering the period from July 1, 2016 to June 30, 2021. Experience was weighted by the accrued benefit at the beginning of each period. The evolving impact of the COVID-19 pandemic was considered as a reason future expectations may depart from recent experience during the most severe phases of the pandemic. Rationale for significant demographic assumptions include:

- Retirement rates: Recommended and adopted retirement rates generally reflect recent benefit-weighted experience with different rates for reduced and unreduced retirements, Foundation and Generational members (due to different retirement eligibility criteria), and employee classification. Separate rates were adopted for teachers, other Class A members, Public Safety members, and Judicial members. Generational retirement rates have no credible experience and were developed following Foundation experience, adjusted for different eligibility thresholds.

- Termination rates: Recommended and adopted retirement rates generally reflect recent benefit-weighted experience; however, rates were set slightly higher than experience because termination was suppressed during the pandemic and expected to increase in periods following the end of the experience study period. Select and ultimate rates were indicated, with a 5-year select period. Separate rates were adopted for teachers, all Board of Regents employees with classified school employees, state employees, city employee with county employees, and Public Safety members.

- Base mortality rates: The Pub-2010 amount-weighted tables were recommended and adopted. Separate tables were adopted for teachers, general employees, and safety employees, with adjustments for retired mortality rates by group when credible data suggested. The Pub-2010 amount-weighted general contingent survivor table was adopted for all beneficiaries. The Pub-2010 amount-weighted disabled tables were adopted for disabled members, using the distinct table for disabled safety employees.

- Mortality improvement scale: The MP-2020 mortality improvement scale was recommended and adopted to be used with the Pub-2010 in a fully generational assumption. The MP-2022 table was available, but because the MP-2022 table recognized an acceleration in improvement and was based on the last year of pre-pandemic data, with no data on post-pandemic mortality improvement included, the SDRS Senior Actuary recommended, and the Board of Trustees adopted, the MP-2020 improvement scale.

- Disability rates: Reductions in the prior assumed disability rates were recommended and adopted based on the benefit-weighted experience during the study period.

Section 11-Glossary of Actuarial Terms

Actuarial Accrued Liability

Equal to the Present Value of All Benefits less the Present Value of Future Normal Costs. It is the portion of the Present Value of All Benefits assigned to prior periods by the Entry Age Normal Cost Method.

Actuarial Balance

Fixed, statutory contributions equaling the Actuarially Determined Contribution

Actuarial Investment Gains/(Losses)

The amount the actual investment return on the Fair Value of Assets was greater than/(less than) the expected investment return (6.50% per annum)

Actuarial Valuation

A projection of the Present Value of All Benefits currently earned and expected to be earned in the future by current members of the system based on actuarial assumptions and actuarial methods as summarized in Sections 9 and 10. The results of the Actuarial Valuation provide information on the current and expected future financial soundness of the system.

Actuarial Value Funded Ratio

An actuarial measure of the funding progress and soundness of the system that is the Actuarial Value of Assets divided by the Actuarial Accrued Liability. A ratio in excess of 100% would indicate that the Actuarial Accrued Liability is fully funded. A ratio of less than 100% would indicate an Unfunded Liability exists.

Effective with the June 30, 2017 Actuarial Valuation and thereafter, the Actuarial Value of Assets is equal to the Fair Value of Assets and the Actuarial Value Funded Ratio is equal to the Fair Value Funded Ratio.

Actuarial Value of Assets

The value of assets considered in determining the Actuarial Value Funded Ratio, the Actuarially Determined Contribution, and the Funding Period (when applicable)

Effective with the June 30, 2017 Actuarial Valuation and thereafter, the Actuarial Value of Assets is equal to the Fair Value of Assets.

Actuarially Determined Contribution

A potential contribution to the plan determined by the actuary using a Contribution Allocation Procedure.

Contribution Allocation Procedure

The actuary's process to determine the Actuarially Determined Contribution (ADC). Specifically for SDRS, the ADC is equal to the fixed, statutory contributions if the fixed, statutory contributions are greater than the Normal Cost, system administrative expenses and an amortization of the Unfunded Actuarial Accrued Liability (if any) over a period not to exceed 20 years assuming the minimum SDRS COLA and do not exceed the same measure assuming future COLAs are equal to the maximum SDRS COLA.

Entry Age Actuarial Cost Method

SDRS's adopted funding method for determining Normal Cost, Actuarial Accrued Liability and Unfunded Actuarial Accrued Liability

Under the Entry Age Actuarial Cost Method, the Normal Cost is computed as the percentage of pay which, if paid from the date of the member's entry into the system to each member's assumed retirement or termination, would accumulate at the assumed rate of investment return to a fund sufficient to pay all benefits under the system.

Fair Value Funded Ratio

An actuarial measure of the funding progress and soundness of the system that is the Fair Value of Assets divided by the Actuarial Accrued Liability. A ratio at or in excess of 100% would indicate that the Actuarial Accrued Liability is fully funded. This measure is a factor in determining the annual COLA for SDRS members.

Fair Value of Assets

The fair value of investments in securities is determined based on last reported prices for those securities traded on national and international stock exchanges. Fixed income securities not traded on a national or international exchange are valued based on comparable securities of issuers with similar yield and risk. The value of foreign securities in foreign currency amounts is expressed in U.S. dollars at the closing daily rate of exchange. For alternative investments, the net asset value reported by the underlying fund is considered the fair value of the investment. The estimated fair value of these investments may differ significantly from values that would have been used had a ready market existed.

Only the Fair Value of Assets is considered in the June 30, 2017 Actuarial Valuation and thereafter and is equal to the Actuarial Value of Assets.

Funding Period

An actuarial measure of the soundness of the system which measures the length of time in which the member and employer contributions will amortize the Unfunded Actuarial Accrued Liability (if applicable) after paying the Normal Costs and system expenses. A shorter Funding Period is more favorable.

The SDRS Board of Trustees has adopted a Funding Policy with an objective of maintaining a fully funded system with no Unfunded Actuarial Accrued Liability. However, if unfavorable experience results in a future Unfunded Actuarial Accrued Liability, the Board's Funding Policy objective is a Funding Period not to exceed 20 years.

Low-Default-Risk Obligation Measure (LDROM)

A required disclosure item in each valuation beginning in 2023, a recalculation of the accrued costs of benefits as of the measurement date using a discount rate derived from low-default-risk fixed income securities with cash flows reasonable consistent with expected benefits. The LDROM should consider the impact investing in low-default-risk fixed income securities is expected to have on variable benefits (such as the SDRS COLA).

Normal Cost

The cost of benefits earned during the current fiscal year as determined by the funding method.

Normal Cost Contribution Rate

The level percentage of member compensation which, if paid from the date of the member's entry into the system to each member's assumed retirement or termination, would accumulate at the assumed rate of investment return to a fund sufficient to pay all benefits under the system.

Present Value of All Benefits

The single sum amount which, if accumulated in a fund in accordance with the actuarial assumptions, would be sufficient to pay all benefits expected to be paid to retired members, beneficiaries, terminated members and all benefits expected to be earned by current active members for past and future Credited Service as well as future compensation, as they fall due.

Present Value of Future Normal Cost

The Present Value of Future Normal Cost is the discounted value of future annual Normal Costs for the remaining future service years of all active members. It is equal to the excess of the Present Value of All Benefits over the Actuarial Accrued Liability.

Reasonable Actuarially Determined Contribution

An Actuarially Determined Contribution based on reasonable actuarial assumptions and methods meeting Actuarial Standards of Practice No. 4 requirements and consistent with the plan accumulating adequate assets to make benefit payments when due if all assumptions are realized and Actuarially Determined Contributions are made.

Unfunded Actuarial Accrued Liability

The amount by which the Actuarial Accrued Liability exceeds the Actuarial Value of Assets.

Section 12– SDRS Board of Trustees' Funding and System Management Policies

– Managing SDRS Based on Fixed, Statutory Contributions –

FUNDING OBJECTIVES	CONSIDERATION OF BENEFIT IMPROVEMENTS	REQUIRED CORRECTIVE ACTION RECOMMENDATIONS
• A Fair Value Funded Ratio (Fair Value of Assets ÷ Actuarial Accrued Liability*) of 100% or more • A fully funded system with no Unfunded Liabilities under the Entry Age Normal Cost method • Actuarially determined benefits that are variable and can be supported by fixed, statutory contributions that are equal to or greater than the actuarially determined contribution rate	• A Fair Value Funded Ratio of over 120% is required before considering benefit improvement recommendations • The cost to fully fund the recommended benefit improvement is also limited to the net accumulated actuarial investment gains and losses, with gains recognized over a five-year period and losses recognized immediately • After fully funding the cost of the benefit improvement, the Fair Value Funded Ratio must be at least 120% and all funding objectives must continue to be met • Proposed benefit improvement must be consistent with both the Board's long-term benefit goals and sound public policy with regard to retirement practices	• The annual report to Governor and Retirement Laws Committee (RLC) will include corrective action recommendations if SDRS does not meet both of the following conditions: ○ The fixed, statutory contribution rate is sufficient to meet the minimum actuarial requirement to support benefits ○ The Fair Value Funded Ratio is 100% or more • The report shall include recommendations for the circumstances and timing for any corrective action, including benefit changes, to improve the funding conditions

The Entry Age Normal cost method is used to calculate Normal Cost and Actuarial Liability

*The Actuarial Accrued Liability and Normal Cost at each July 1 will be based on the baseline COLA assumption or the restricted maximum COLA, as applicable under the SDRS variable COLA structure