SOUTH DAKOTA RETIREMENT SYSTEM

Actuarial Valuation

As of June 30, 2017

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October 13, 2017

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, 2017.

The purposes of this report are to:

- Determine the 2018 SDRS COLA as defined in South Dakota Codified Law (SDCL)
- Determine the funded status of SDRS as of June 30, 2017
- 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 3-12-122
- Provide accounting information under Governmental Accounting Standards Board Statements No. 67 and 68 (GASB 67 and 68).

This Actuarial Valuation is based on financial and Member data provided by SDRS staff and summarized in this report. I did not verify the data submitted, but did perform tests for consistency and reasonableness.

All Members of participating employer units of SDRS and all benefits in effect on June 30, 2017 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, 2017 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 as of June 30, 2017 and thereafter. 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, 2017, 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.

The SDRS Board of Trustees' Funding and System Management Policies are attached in Section 11.

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.

Where presented, "Actuarial Value Funded Ratio" and "Unfunded Actuarial Accrued Liability" are measured on an Actuarial Value of Assets basis, while "Fair Value Funded Ratio" is measured on a Fair Value of Assets basis. Effective with this June 30, 2017 Actuarial Valuation and thereafter, the Actuarial Value of Assets is equal to the Fair Value of Assets.

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 well as Fair Value of Assets as is required for certain disclosure information per accounting rules 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 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.

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 pension, survivor, disability and termination benefits for 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 administering SDRS. The South Dakota Investment Council is responsible for making investment decisions regarding SDRS assets.

This report presents the results of the Actuarial Valuation of SDRS as of June 30, 2017.

Summary of Principal Results

Membership Summary Valuation Date	June 30, 2017	June 30, 2016
Number of Active Members	40,452	39,940
Prior Year's Annual Member Compensation	$ 1,849,378,672	$ 1,724,418,364
Projected Covered Payroll[1]	$ 1,975,999,475	$ 1,858,343,856
Number of Benefit Recipients[2]	27,341	26,554
Annual Benefits	$ 530,508,306	$ 505,019,297
Number of Vested Terminated Members	9,621	9,382
Number of Non-Vested Terminated Members	8,837	8,172
Total System Members	86,251	84,048

[1]Prior year compensation, annualized for new hires and rehires, and projected with assumed salary increases.
[2]Includes members whose benefits have been suspended but are entitled to future benefits, 123 as of June 30, 2017 and 134 as of June 30, 2016.

Funded Status Valuation Date	June 30, 2017	June 30, 2016
Fair Value of Assets	$ 11,644,038,604	$ 10,513,462,127
Actuarial Value of Assets	$ 11,644,038,604	$ 10,851,252,302
Actuarial Accrued Liability	$ 11,634,963,501	$ 10,851,252,302
Unfunded Actuarial Accrued Liability	$ 0	$ 0
Assumed Future COLAs	1.89%	2.70%
Actuarial Value Funded Ratio	100.1%	100.0%
Fair Value Funded Ratio	100.1%	96.9%

Statutory and Actuarially Determined Contribution Rates Valuation Date	June 30, 2017	June 30, 2016
Fixed, Statutory Member and Employer Contribution Rate	12.472%	12.489%
Actuarially Determined Requirement, Minimum Statutory COLA	9.885%	9.868%
Actuarially Determined Requirement, Maximum Statutory COLA	14.571%	13.111%
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)	12.472%	12.489%

The June 30, 2017 Actuarial Valuation confirms:

- The maximum COLA for 2018 is 1.89%
- The SDRS FVFR is 100.1%
- The fixed, statutory contributions are the Actuarially Required Contributions
- The requirements of Section 3-12-122 are met and no Corrective Actions are required

Section I-The June 30, 2017 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 the COLA paid at the beginning of the following fiscal year, in accordance with statute;
- 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 statute;
- 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.

This June 30, 2017 Actuarial Valuation is the thirty-second Actuarial Valuation of SDRS since consolidation in 1974. It is based on the statutory plan provisions, membership, assets and actuarial assumptions as of the valuation date.

Changes from Prior Valuation

The June 30, 2017 Actuarial Valuation reflects changes in actuarial assumptions, actuarial methods and plan provisions from the June 30, 2016 Actuarial Valuation. The details of the changes are outlined below. The net impact of the changes was an increase of $253 million in the Actuarial Accrued Liability as follows:

Table 1.1 – Actuarial Accrued Liability	June 30, 2017	Percent Change
Prior Plan Provisions, Prior Actuarial Assumptions	$ 11,381,852,080	
Prior Plan Provisions, Revised Actuarial Assumptions	12,646,998,477	
Initial Increase due to Actuarial Assumption Change	$ 1,265,146,397	11.1%
Revised Plan Provisions, Revised Actuarial Assumptions, Baseline COLA	12,079,918,497	
Decrease due to Plan Provision Changes	$ (567,079,980)	(5.0%)
Revised Plan Provisions, Revised Actuarial Assumptions, 1.89% COLA Assumption	11,634,963,501	
Decrease due to 2017 COLA Assumption Change	$ (444,954,996)	(3.9%)
Net Increase Due to Actuarial Assumption Changes	$ 820,191,401	7.2%
Decrease Due to Plan Provision Changes	(567,079,980)	(5.0%)
Total Net Increase	$ 253,111,421	2.2%

The details of the changes since the last valuation are as follows:

SDRS Benefit Provision Changes

Legislation enacted in 2017 modified the SDRS COLA. For COLAs first applicable in 2018, the SDRS COLA will equal the percentage increase in the most recent third calendar quarter CPI-W over the prior year, no less than 0.5% 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%. That condition exists this year and limits the maximum COLA payable in 2018 to 1.89%.

Legislation was also enacted in 2017 to:

- Modify the definition of Compensation to clarify included and excluded items,
- Expand the caps on increases in Compensation considered in Final Average Compensation,
- Extend the Final Average Compensation period from the current three years to five years for Foundation Members after a phase-in period, and
- Limit Compensation to the Internal Revenue Code Section 401(a)(17) limits for all Members, regardless of date of entry into SDRS.

The changes in benefit provisions reduced the Actuarial Accrued Liability by $567 million, or 5.0% of the initial Actuarial Accrued Liability, before considering the reduction in maximum COLA payable in 2018 and assumed to be payable for future years. Based on the Fair Value of Assets at June 30, 2017, the maximum 2018 SDRS COLA will be limited to 1.89%. Future years' COLAs are assumed to equal the current maximum limitation. The change in Actuarial Accrued Liability caused by assuming the current restricted maximum COLA remains in effect is reflected in the impact of the actuarial assumption changes.

SDRS Actuarial Assumption Changes

As a result of an experience analysis covering the period from July 1, 2011 to June 30, 2016, significant changes to the actuarial assumptions were recommended by the SDRS Senior Actuary and adopted by the Board of Trustees first effective for this June 30, 2017 Actuarial Valuation. The changes to economic assumptions were very significant, and included reducing the inflation assumption to 2.25%, reducing the investment return assumption to 6.5% and reducing the payroll growth assumption to 3.00%. The demographic assumption changes were less impactful. Among those changes were new mortality assumptions, updated retirement, termination and disability rates and updated salary increase assumptions.

The changes in actuarial assumptions increased the Actuarial Accrued Liability by $1,265 million, or 11.1% of the initial Actuarial Accrued Liability, before reflecting the current and assumed future restricted maximum COLA. Assuming future COLAs restrictions remain at the current 1.89% reduced the Actuarial Accrued Liability by $445 million, or 3.9% of the initial Actuarial Accrued Liability. The net impact of all the assumption changes reflected in the June 30, 2017 Actuarial Valuation is an increase of $820 million in the Actuarial Accrued Liability which is a net increase of 7.2% of the initial Actuarial Accrued Liability.

Actuarial assumptions are reviewed in depth periodically, with the next experience analysis anticipated before the June 30, 2022 Actuarial Valuation and any recommended changes anticipated to be first implemented in the June 30, 2022 Actuarial Valuation.

SDRS Actuarial Method Changes

The Actuarial Asset Valuation Method was changed to the Fair Value of Assets. In addition, the Funding Method was changed from the Frozen Entry Age Actuarial Cost Method to the Entry Age Actuarial Cost Method, which was in use for GASB Statement Nos. 67 and 68 purposes.

As a result of the change in Asset Method, the Cushion and Reserve for Funding of Long-Term Benefit Goals will no longer be calculated.

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

The Board of Trustees' Funding Policy objectives are designed to continue to 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 can be 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, 2017.

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.

The current restricted maximum COLA of 1.89% 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.

Section 2 – Statutory Determinations

Table 2.1 – Determination of SDRS COLA Payable Next July Valuation Date	June 30, 2017	June 30, 2016[1]
Fair Value of Assets (Table 4.1)	$ 11,644,038,604	$ 10,513,462,127
Actuarial Accrued Liability – Baseline COLA Assumption (2017: 2.25%; 2016:2.7%)	$ 12,079,918,497	$ 10,851,252,302
Preliminary Fair Value Funded Ratio – Baseline COLA Assumption	96.4%	96.9%
Actuarial Accrued Liability – Future COLAs assumed to be 1.89%	$ 11,634,963,501	Not Applicable
Actuarial Accrued Liability – Future COLAs assumed to be 1.90%	$ 11,649,977,405	Not Applicable
Restricted Maximum COLA (Largest COLA resulting in AAL<FVA)	1.89%	2.80%
Fair Value Funded Ratio (Restricted Maximum COLA = 1.89% for 2017)	100.1%	96.9%
Increase in most recent Third Calendar Quarter Average CPI-W over prior period	1.96%	0.35%
Minimum SDRS COLA	0.50%	2.10%
Maximum SDRS COLA	1.89%	2.80%
SDRS COLA Effective next July	1.89%	2.10%

[1] July, 1 2017 COLA was determined under prior law. SDRS Fair Value Funded Ratio at June 30, 2016 was 96.9%. Under prior law, the COLA is the percentage increase in the third calendar quarter average CPI-W for the prior year, but not less than 2.10% and not more than 2.80%. The CPI-W increase was 0.35% making the July, 2017 COLA the minimum 2.10%.

Legislation enacted in 2017 modified the SDRS COLA. For COLAs first applicable in 2018, the SDRS COLA will equal the percentage increase in the third calendar quarter average CPI-W for the prior year, no less than 0.5% and no greater than 3.5%. However, if the Fair Value Funded Ratio (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%. The maximum COLA of 1.89% is less than the increase in the CPI-W as shown above and therefore applies in 2018.

Table 2.2 – Satisfying Conditions of SDCL 3-12-122		
Valuation Date	**June 30, 2017**	**June 30, 2016**
Fair Value Funded Ratio (Table 3.1)	100.1%	96.9%
SDCL 3-12-122 (1) Condition Satisfied? (at least 100% in 2017; 80% in 2016)	Yes	Yes
Present Value of Future Normal Costs		
(Restricted Maximum COLA = 1.89% for 2017)	$ 1,820,798,404	$ 1,502,749,725
Present Value of Future Member Compensation	16,496,563,675	14,830,040,834
Normal Cost Contribution Rate, Beginning of Year	11.037%	10.133%
Normal Cost Contribution Rate, Adjusted for Mid-Year Payment	11.391%	10.494%
Expense Allowance	0.250%	0.250%
Minimum SDCL 3-12-122 (2) Contribution Rate	11.641%	10.744%
Statutory Contribution Rate	12.472%	12.489%
SDCL 3-12-122 (2) Condition Satisfied?	Yes	Yes
(Statutory Rate at least equal to Minimum SDCL 3-12-122 Rate)		
Fair Value of Assets / Actuarial Value of Assets Ratio	Not Applicable	96.9%
Condition Satisfied? (Not Applicable in 2017; at least 90% in 2016)	Not Applicable	Yes
Corrective Action Recommendation Required	No	No
(Required if any condition not met)		

SDCL 3-12-122, as amended by 2017 legislation, requires the SDRS Board of Trustees to 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 at least 100% and fixed, statutory contributions sufficient to fund the minimum SDCL 3-12-122 requirements. Both of these conditions are satisfied as of June 30, 2017 and no Corrective Action recommendation is required.

Section 3 – Actuarial Funding Results

Funded Ratios

Table 3.1 - Funded Ratios

Valuation Date	June 30, 2017	June 30, 2016
Assumed Future COLAs	1.89%	2.70%
Present Value of All Benefits		
Active Members	$ 6,439,599,632	$ 5,726,298,681
Benefit Recipients	6,338,122,977	5,999,816,650
Terminated Members	678,039,296	627,886,696
Total	$ 13,455,761,905	$ 12,354,002,027
Present Value of Future Normal Costs	$ (1,820,798,404)	$ (1,502,749,725)
Actuarial Accrued Liability	$ 11,634,963,501	$ 10,851,252,302
Actuarial Value of Assets (Table 4.1)[2]	$ 11,644,038,604	$ 10,851,252,302
Actuarial Value Funded Ratio[2]	100.1%	100.0%
Unfunded Actuarial Accrued Liability (Table 3.5)	$ 0	$ 0
Fair Value of Assets (Table 4.1)	$ 11,644,038,604	$ 10,513,462,127
Fair Value Funded Ratio	100.1%	96.9%

[2] Actuarial Value of Assets is equal to Fair Value of Assets for 2017

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 are appropriate for assessing the need for, and magnitude of, future contribution or benefit changes. They 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.

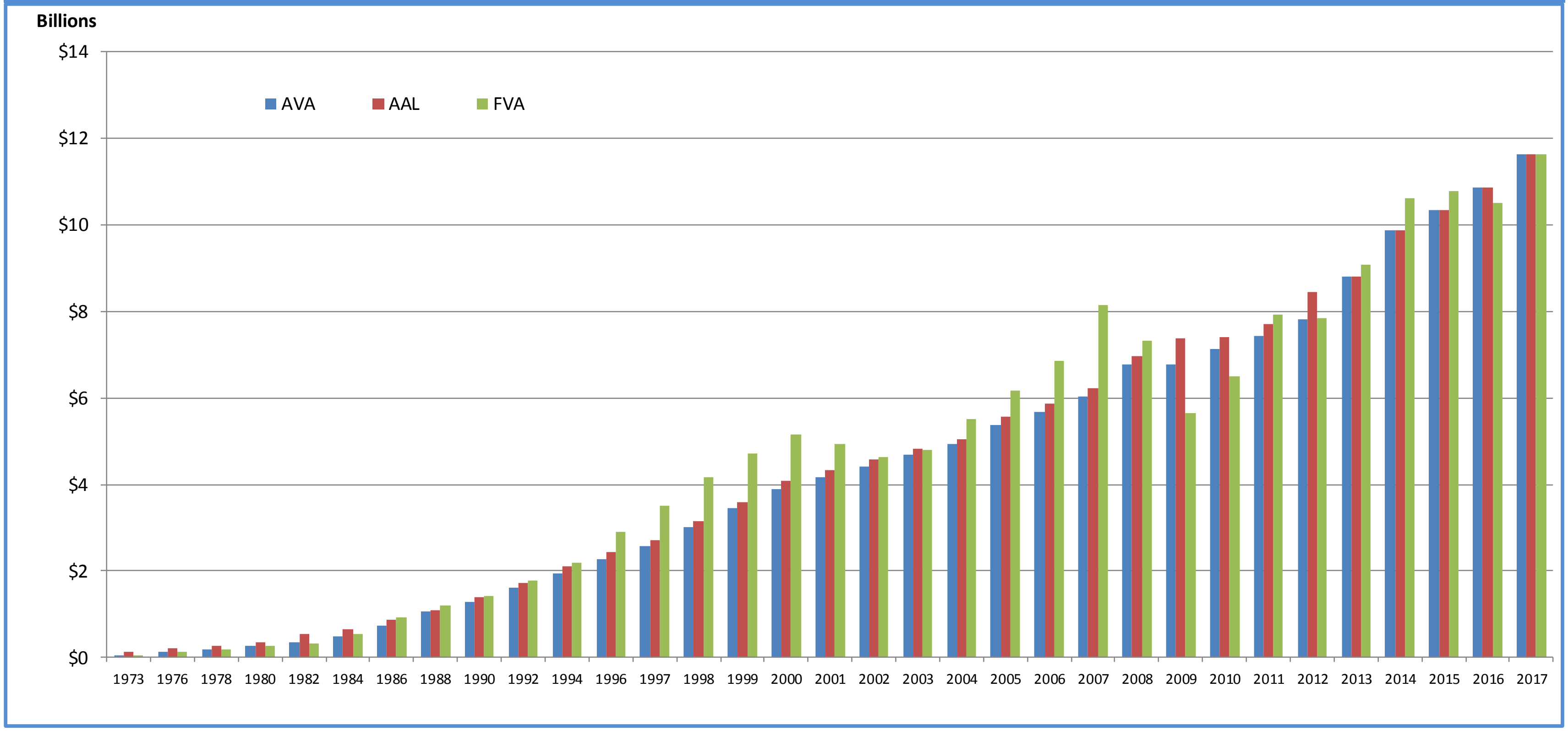
A Funded Ratio of 100% indicates the accrued liabilities are fully funded. Comparing the SDRS Funded Ratios on a historical basis illustrates the funding progress of SDRS and the ability of the fixed, statutory Member and Employer Contributions to fund the Normal Costs of the System and to amortize the Unfunded Actuarial Accrued Liability (when applicable) based on the 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 3-12-122.

Table 3.1 indicates that as of June 30, 2016, the SDRS Actuarial Value Funded Ratio equaled 100% and the Fair Value Funded Ratio equaled 96.9%. Effective June 30, 2017, the asset valuation method is changed to the Fair Value of Assets. The SDRS Fair Value Funded Ratio and Actuarial Value Funded Ratios were 100.1% as of June 30, 2017.

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 22 of the last 27 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
Fair Value Funded Ratio (%)	40%	57%	68%	76%	63%	81%	106%	111%	101%	104%	103%	120%	130%	133%	132%	126%	114%
Actuarial Value Funded Ratio (%)	40%	57%	68%	76%	67%	75%	85%	97%	91%	94%	92%	94%	95%	96%	97%	95%	96%
Funding Period (years)	41	19	19	9	28	18	37	6	46	16	38	30	23	22	21	20	20
% of Actuarially Required Contributions Made	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Fair Value Funded Ratio (%)	101%	99%	109%	111%	117%	131%	105%	76%	88%	103%	93%	103%	107%	104%	97%	100%
Actuarial Value Funded Ratio (%)	97%	97%	98%	97%	97%	97%	97%	92%	96%	96%	93%	100%	100%	100%	100%	100%
Funding Period (years)	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]
% of Actuarially Required Contributions Made	100%	100%	100%	100%	100%	100%	100%	91%[1]	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, 2017.

Actuarially Determined Contributions

Table 3.3 – Estimated Actuarially Determined Contribution Rate Valuation Date	June 30, 2017	June 30, 2016	June 30, 2015	June 30, 2014	June 30, 2013
When Minimum Statutory COLA Applies					
Minimum Statutory COLA	0.5%	2.1%	2.1%	2.1%	2.1%
Present Value of Future Normal Costs	$ 1,540,230,543	$ 1,377,308,875	$ 1,319,321,567	$ 1,272,020,840	$ 1,148,055,893
Present Value of Future Member Compensation	$ 16,496,563,675	$ 14,830,040,834	$ 14,236,833,343	$ 13,626,294,400	$ 12,967,401,300
Normal Cost Contrib. Rate, Beginning of Year	9.337%	9.287%	9.267%	9.335%	8.853%
Normal Cost Contrib. Rate, Adj. for Mid-Year Pmt.	9.635%	9.618%	9.597%	9.668%	9.169%
Expense Allowance	0.250%	0.250%	0.250%	0.250%	0.250%
Normal Cost and Expenses, Min. COLA	9.885%	9.868%	9.847%	9.918%	9.419%
Unfunded Actuarial Accrued Liability, Min. COLA	N/A	$ 0	$ 0	$ 0	$ 0
20-Year Amortization Payment (Level Percent) as a Percent of Payroll	N/A	0.000%	0.000%	0.000%	0.000%
Actuarially Determined Requirement, Min. COLA	9.885%	9.868%	9.847%	9.918%	9.419%
When Maximum Statutory COLA Applies					
Maximum Statutory COLA	3.5%	3.1%	3.1%	3.1%	3.1%
Present Value of Future Normal Costs	$ 2,289,286,166	$ 1,601,524,984	$ 1,533,874,901	$ 1,478,774,963	$ 1,320,461,604
Present Value of Future Member Compensation	$ 16,496,563,675	$ 14,830,040,834	$ 14,236,833,343	$ 13,626,294,400	$ 12,967,401,300
Normal Cost Contrib. Rate, Beginning of Year	13.877%	10.799%	10.774%	10.852%	10.183%
Normal Cost Contrib. Rate, Adj. for Mid-Year Pmt.	14.321%	11.184%	11.158%	11.239%	10.546%
Expense Allowance	0.250%	0.250%	0.250%	0.250%	0.250%
Normal Cost and Expenses, Max. COLA	14.571%	11.434%	11.408%	11.489%	10.796%
Unfunded Actuarial Accrued Liability, Max. COLA	N/A	$ 442,920,775	$ 423,483,114	$ 405,196,581	$ 368,896,422
20-Year Amortization Payment (Level Percent) as a Percent of Payroll	N/A	1.677%	1.673%	1.671%	1.590%
Actuarially Determined Requirement, Max. COLA	14.571%	13.111%	13.081%	13.160%	12.386%
Estimated Fixed, Statutory Member and Employer Contribution Rate (Member and Employer each contribute 6% of Compensation for Class A, 8% for Public Safety and 9% for Judicial. In addition, Class A employers contribute 6.2% of 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)	12.472%	12.489%	12.482%	12.482%	12.478%
Estimated Actuarially Determined Member and Employer Contribution Rate (Fixed, Statutory Member and Employer Contribution Rate, not less than Actuarially Determined Requirement with Min. COLA and not greater than Actuarially Determined Requirement with Max. COLA)	**12.472%**	**12.489%**	**12.482%**	**12.482%**	**12.386%**
Actuarially Determined Member and Employer Contribution Rate as a Percentage of Fixed, Statutory Member and Employer Contribution Rate	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**99.3%**

SDRS Member and Employer contribution rates are fixed in statute and do not change based on experience. Effective June 30, 2017, the SDRS COLA will vary between 0.5% 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%. Prior to 2017, 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 (.5%) and the maximum annual statutory COLA payable (3.5%) as of June 30, 2017. For prior years, the COLA range was 2.1% to 3.1%. 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, 2017.

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 payroll during the Fiscal Year.

Table 3.4 – Development of Actuarially Determined Employer Contributions

Fiscal Year Ending	June 30, 2017	June 30, 2016	June 30, 2015	June 30, 2014
Estimated Fixed, Statutory Member and Employer Contribution Rate	12.489%	12.482%	12.482%	12.478%
Estimated Actuarially Determined Member and Employer Contribution Rate	12.489%	12.482%	12.482%	12.386%
Actuarially Determined Member and Employer Contribution Rate as a Percentage of Fixed, Statutory Member and Employer Contribution Rate	100.0%	100.0%	100.0%	99.3%
Actual Member and Employer Contributions (Excluding Purchases)	$ 243,062,280	$ 227,754,935	$ 218,795,180	$ 209,678,082
Estimated Covered Payroll	1,954,735,217	1,829,641,099	1,758,315,755	1,685,627,785
Actual Fixed, Statutory Member and Employer Contribution Rate	12.435%	12.448%	12.443%	12.439%
Actuarially Determined Member and Employer Contribution Rate as a Percentage of Fixed, Statutory Member and Employer Contribution Rate	100.0%	100.0%	100.0%	99.3%
Actuarially Determined Member and Employer Contribution Rate (Adjusted for actual contributions and payroll during year)	**12.435%**	**12.448%**	**12.443%**	**12.352%**
Actuarially Determined Member and Employer Contributions	**$ 243,062,280**	**$ 227,754,935**	**$ 218,795,180**	**$ 208,208,744**
Actual Member Contributions (Excluding Purchases)	$ 121,154,634	$ 113,664,860	$ 109,245,203	$ 104,725,097
Estimated Covered Payroll	1,954,735,217	1,829,641,099	1,758,315,755	1,685,627,785
Actual Fixed, Statutory Member Contribution Rate	6.198%	6.212%	6.213%	6.212%
Actual Employer Contributions	$ 121,907,646	$ 114,090,075	$ 109,549,977	$ 104,952,985
Actuarially Determined Employer Contributions	**121,907,646**	**114,090,075**	**109,549,977**	**103,483,647**
Contribution Deficiency/(Excess)	$ 0	$ 0	$ 0	$ (1,469,338)
Actual Employer Contributions	$ 121,907,646	$ 114,090,075	$ 109,549,977	$ 104,952,985
Estimated Covered Payroll	1,954,735,217	1,829,641,099	1,758,315,755	1,685,627,785
Actual Fixed, Statutory Employer Contribution Rate	6.237%	6.236%	6.230%	6.226%

Funding Summary

Effective with the 2018 SDRS COLA, the COLA will vary each year between 0.5% 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%. The Actuarial Valuation results will be based on an assumed COLA equal to the assumed long-term rate of inflation (currently 2.25%) if the maximum COLA is not restricted for that year. If the maximum COLA is restricted for a particular year, the Actuarial Valuation results will be based on the maximum COLA currently payable. The maximum COLA payable in 2018 will be 1.89% and the 2017 Actuarial Valuation is based on an annual COLA assumption of 1.89%.

The results of the 2017 Actuarial Valuation of SDRS indicate that:

- The System expects to pay total future benefits to all current SDRS active, retired and terminated Members, which have a present value of $13.456 billion (Table 3.1).

- The Actuarial Value of Assets and Fair Value of Assets both equal $11.644 billion (Table 4.3).

- Future Member and Employer Contributions for current active Members with a present value of $1.821 billion will be required to pay future Normal Costs (Table 3.1) based on the currently affordable COLA of 1.89%.

SDRS is funded by fixed, statutory Member and Employer Contributions that total 12.472% of considered compensation. The 2017 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, 2017	June 30, 2016
Assumed Future COLAs	1.89%	2.70%
Actuarial Accrued Liability	$ 11,634,633,501	$ 10,851,252,302
Actuarial Value of Assets (Table 4.3)	(11,644,038,604)	(10,851,252,302)
Unfunded Actuarial Accrued Liability (not less than $0)	$ 0	$ 0

Changes from Prior Year

Table 3.6 – Reconciliation of Key Measures

	2016 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, 2017	2017 Actuarial Valuation Results
Normal Cost Rate with Expense Provision	10.744%	--	0.012%	0.885%	11.641%
Funding Period	N/A	--	--	--	N/A
Unfunded Actuarial Accrued Liability	$0	--	--	--	$0
Actuarial Value Funded Ratio	100.0%	--	--	0.1%[3]	100.1%[3]
Fair Value Funded Ratio	96.9%	5.4%	--	(2.2%)	100.1%

[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] The Actuarial Value of Assets is equal to the Fair Value of Assets effective June 30, 2017.

Liability Gains and Losses for the Fiscal Year Ended June 30, 2017

SDRS liabilities as of June 30, 2017 were $98 million higher than expected, or 0.72% of the Present Value of All Benefits. The sources of the $98 million total experience liability loss were as follows:

Table 3.7 – Liability Gains/(Losses)

Item	Amount of Liability Gain/(Loss)	Percent of Present Value of All Benefits
Gain/(Loss) due to Compensation Increases	$ (96 million)[1]	(0.71%)
Gain/(Loss) due to Mortality	5 million	0.04%
Gain/(Loss) due to Other Decrements	(23 million)	(0.17%)
Gain/(Loss) due to Rehired and New Members	(26 million)[2]	(0.19%)
Gain/(Loss) due to COLA for Continuing Inactive Members	38 million	0.28%
Miscellaneous Gain/(Loss)	4 million	0.03%
Total Experience Liability Gain/(Loss)	$ (98 million)	(0.72%)

[1] Offset by approximately $5 million in contribution increases. Net impact to funded status is a loss of approximately $91 million.
[2] Offset by approximately $15 million in contribution increases. Net impact to funded status is a loss of approximately $11 million.

SDRS liability experience for the year ended June 30, 2017 included the following:

- The number of active Members increased by 1.3%, prior year compensation for all Members increased by 7.2% and average prior year compensation increased by 5.9%.
- The average age of active Members decreased from 45.0 to 44.9 years and the average Credited Service remained constant at 11.0 years.
- The number of SDRS Members and Beneficiaries receiving benefits increased by 3.0% and the average benefit paid increased by 2.0%.
- Average compensation for active Members included in the prior Actuarial Valuation increased by 7.7% compared to an assumed increase of 4.9%.
- Decremental experience was mixed. The experience included:
  - Gains from the July 1, 2017 Cost-of-Living Adjustment (COLA) of 2.1% that was lower than the assumed 2.7%
  - Gains from mortality experience
  - Losses from terminations even though the number of terminations was greater than expected
  - Losses from retirements even though the number of retirements was less than expected
  - Neutral disability experience
  - Losses due to the service credited to rehired Members who have not previously withdrawn their contributions

Asset Gains and Losses for the Fiscal Year Ended June 30, 2017

For the year ended June 30, 2017, the actual investment return of SDRS was greater than the expected 7.25% investment return on the Fair Value of Assets by $680 million as summarized below.

Table 3.8– Investment Gain/(Loss)	
Actual Investment Return for the Year Ended June 30, 2017 (Table 4.2)	$ 1,431,977,414
Expected Investment Return Based on Fair Value of Assets (Table 5.6)	751,491,381
Actuarial Investment Gain/(Loss) (Actual less Expected)	$ 680,486,033

The money-weighted investment return based on the Fair Value of Assets of the System for the year ended June 30, 2017 was 13.84% after investment expenses (13.81% on a time-weighted basis). Effective with this June 30, 2017 Actuarial Valuation, the Actuarial Value of Assets is equal to the Fair Value of Assets.

Summary of June 30, 2017 Actuarial Valuation Results

The June 30, 2017 Actuarial Valuation of SDRS reports a Fair Value Funded Ratio of 100.1%.

Legislation enacted in 2017 determines the SDRS COLA beginning in 2018 considering 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, 2017 Actuarial Valuation determines that the 2018 COLA will be restricted to a maximum of 1.89%, which is slightly less than the rate of inflation for the year of 1.96%.

This June 30, 2017 Actuarial Valuation also confirms that the actuarial conditions delineated in SDCL 3-12-122 are met and no Corrective Action recommendations are required to be made to the Retirement Laws Committee.

The Fair Value Funded Ratio increased from 96.9% as of June 30, 2016 to 100.1% as of June 30, 2017 due to investment returns greater than the assumed 7.25%, liability gains/losses, actuarial assumption and method changes, and legislative benefit changes as outlined in Section 1.

The investment return based on the Fair Value of Assets was 13.84% for the year on a money-weighted basis net of investment expenses, above the 7.25% assumed return. Actuarial Investment Gains for the year were $680 million.

Liability losses caused by experience during the year different than assumed were $98 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 Objectives in SDRS's Funding Policy

The Board of Trustees' Funding Policy objectives reflect the necessity to manage SDRS based on 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 can be 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, 2017.

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 1.89% is expected to remain stable if the 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, 2017 valuation date, the restricted maximum COLA is 1.89%, the Fair Value Funded Status is 100% and the Unfunded Actuarial Accrued Liability remains at $0.

If future experience meets expectations, the Fair Value Funded Ratio is expected to remain at 100% and the restricted maximum COLA is expected to remain constant at the current 1.89%.

Future events such as adverse investment returns, increases in life expectancies greater than assumed, or other demographic losses may result in reductions in the restricted maximum COLA 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 only as a temporary condition until legislation can be enacted in the following Legislative Session to meet the requirements of SDCL 3-12-122.

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). 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. 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

Table 4.1 – SDRS Fair Value of Assets Available for Benefits as of:	June 30, 2017	June 30, 2016
Assets		
Investments at current value	$ 11,605,867,169	$ 10,494,761,258
Cash and temporary investments	6,956,758	6,915,822
Contributions receivable	5,878,835	5,127,954
Benefits receivable	154,003	35,208
Accounts receivable (unsettled investment sales)	2,574,124	19,611,040
Investment income receivable	27,823,489	31,516,906
Properties	5,228	8,202
Due from Brokers	0	0
Other assets	1,972,818	1,793,701
Total Assets	$ 11,651,232,424	$ 10,559,770,091
Liabilities		
Accounts payable and accrued expenses	$ 2,786,168	$ 2,123,716
Accounts payable (unsettled investment purchases)	2,906,396	26,685,838
Securities sold, but not yet purchased	0	0
Due to Brokers	1,501,256	17,498,410
Total Liabilities	$ 7,193,820	$ 46,307,964
Fair Value of Assets Available for Benefits	**$ 11,644,038,604**	**$ 10,513,462,127**

Table 4.2 – Changes in SDRS Fair Value of Assets for Year Ended:	June 30, 2017	June 30, 2016
Fair Value of Assets at Beginning of Year	$10,513,462,127	$10,776,533,615
Additions		
Employer Contributions	$ 121,907,646	$ 114,090,075
Member Contributions	121,154,634	113,664,860
Service Purchase/Redeposits/SPB Purchases	990,327	778,435
Investment Return Net of Investment Expenses	1,431,977,414	22,836,265
Total Additions	**$ 1,676,030,021**	**$ 251,369,635**
Deductions		
Benefit Payments	$ (517,012,353)	$ (487,053,001)
Accumulated Contribution Refunds	(24,077,679)	(23,443,481)
Administrative Expenses	(4,363,512)	(3,944,641)
Total Deductions	**$ (545,453,544)**	**$ (514,441,123)**
Net Increase/(Decrease)	**$ 1,130,576,477**	**$ (263,071,488)**
Fair Value of Assets at End of Year	**$11,644,038,604**	**$10,513,462,127**

SDRS Actuarial Value of Assets

Table 4.3 – Development of the SDRS Actuarial Value of Assets as of:	June 30, 2017	June 30, 2016
1. Actuarial Value of Assets, Beginning of Year	$ 10,851,252,302	$ 10,352,405,041
2. Contributions and Disbursements:		
Actuarially Determined Contribution		$ 196,411,972
Purchase of Service Contributions		778,435
Benefit Payments and Refunds		(510,496,482)
Administrative Expenses		(3,944,641)
Total Contributions and Disbursements		$ (317,250,716)
3. Expected Investment Return		739,250,240
4. SDRS Liability Gain/(Loss) (Table 1.6)		(76,847,737)
5. Preliminary Actuarial Value of Assets (1 + 2 + 3 – 4)		$ 10,851,252,302
6. Fair Value of Assets (Table 4.1)	$ 11,644,038,604	$ 10,513,462,127
7. Constraining Values:		
a. 80% of Fair Value of Assets		$ 8,410,769,702
b. 120% of Fair Value of Assets		$ 12,616,154,552
8. Actuarial Value of Assets, End of Year (2016: Item 5, not less than 7a nor more than 7b; 2017: Equal to 6. Fair Value of Assets)	$ 11,644,038,604	$ 10,851,252,302

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

Section 5 – Accounting Information

Background

GASB has issued Statement No. 67, "Financial Reporting for Pension Plans" that is effective for fiscal years beginning after June 15, 2013 and Statement No. 68, "Accounting and Financial Reporting for Pensions," that is 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 process. 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. SDRS was in that position as of June 30, 2014, June 30, 2015 and June 30, 2017.

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 all full-time eligible employees of participating employers.

The South Dakota Investment Council manages System assets.

Plan membership: At June 30, 2017, plan membership consisted of:

Table 5.1 – Plan Membership

Inactive plan Members or Beneficiaries currently receiving benefits	27,341 [1]
Inactive plan Members entitled to but not receiving benefits	18,458
Active plan Members	40,452
Total plan Members	86,251

[1] Includes 123 Members whose benefits have been suspended but are entitled to future benefits.

Benefits provided: See Section 7 of this report for a summary of SDRS benefit provisions.

Net Pension Liability/(Asset)

SDRS's fiduciary net position is 100.1% of the System's Total Pension Liability as of June 30, 2017. Therefore, the System has a Net Pension Asset. The components of the Net Pension Asset of SDRS as of June 30, 2017 are as follows:

Table 5.2 – Net Pension Liability/(Asset)	
Total Pension Liability	$ 11,634,963,501
Plan Fiduciary Net Position	(11,644,038,604)
Net Pension Liability/(Asset)	$ (9,075,103)
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	100.08%
Estimated covered payroll during fiscal year 2017	$ 1,954,735,217
Net Pension Liability/(Asset) as a percentage of covered payroll	(0.46%)

Actuarial Cost Method

The 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, 2017 using the following actuarial assumptions applied to all periods included in the measurement:

Table 5.3 – Actuarial Assumptions	
Measurement Date	June 30, 2017
Inflation	2.25%
Future COLAs	1.89%
Salary Increases	Graded by years of service, from 6.50% at entry to 3.00% after 25 years of service.
Discount Rate	6.50%, net of investment expenses. This is composed of an average inflation rate of 2.25% and real returns of 4.25%.
Mortality Rates	Active and Non-Disabled Inactive or Retired Members and Beneficiaries: 97% of RP-2014, projected generationally with Scale MP-2016, white collar rates for females and total dataset rates for males. Disabled Members: RP-2014 Disabled Retiree Mortality Table, projected generationally with Scale MP-2016

The actuarial assumptions used in the June 30, 2017 Actuarial Valuation were adopted by the SDRS Board of Trustees based on the results of an actuarial experience study for the period from July 1, 2011 through June 30, 2016.

The long-term expected rate of return on plan investments was determined during the actuarial experience study using benchmark asset allocation investment portfolio statistics developed by the South Dakota Investment Council in 2016, and includes an expectation that the dynamic asset allocation and contributions in excess of Normal Cost, which increase when the maximum COLA is restricted, will contribute an average of 40 basis points to the net average annual return.

The actuarial assumptions 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 was set based on information presented to the SDRS Board of Trustees by the South Dakota Investment Office and the System's Senior Actuary during the actuarial experience study. The SDRS Board adopted a discount rate of 6.5%. 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 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), 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 5.4 – Sensitivity of the Net Pension Liability/(Asset) to Discount Rate Changes

	1% Decrease (5.50%)	Current Discount Rate (6.50%)	1% Increase (7.50%)
Net Pension Liability/(Asset)	$ 1,662,103,550	$ (9,075,103)	$ (1,369,957,994)

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, 2017 and June 30, 2016:

Table 5.5 – Changes in the Net Pension Liability/Asset for the Year Ended:	June 30, 2017	June 30, 2016
Total Pension Liability		
Service cost	$ 192,682,191	$ 184,923,317
Interest	781,413,919	745,774,586
Changes of benefit terms	(567,079,980)	N/A
Differences between expected and actual experience	97,593,700	78,645,840
Changes of assumptions	820,191,401	N/A
Benefit payments	(541,090,032)	(510,496,482)
Net change in Total Pension Liability	**$ 783,711,199**	**$ 498,847,261**
Total Pension Liability – beginning	**10,851,252,302**	**10,352,405,041**
Total Pension Liability – ending	**$ 11,634,963,501**	**$ 10,851,252,302**
Plan Fiduciary Net Position		
Contributions – employers	$ 121,907,646	$ 114,090,075
Contributions – members	122,144,961	114,443,295
Net investment income	1,431,977,414	22,836,265
Benefit payments, including refunds of member contributions	(541,090,032)	(510,496,482)
Administrative expenses	(4,363,512)	(3,944,641)
Other	0	0
Net change in Plan Fiduciary Net Position	**$ 1,130,576,477**	**$ (263,071,488)**
Plan Fiduciary Net Position – beginning	**$ 10,513,462,127**	**$ 10,776,533,615**
Plan Fiduciary Net Position – ending	**$ 11,644,038,604**	**$ 10,513,462,127**
Plan Net Pension Liability/(Asset) – ending (Total Pension Liability less Plan Fiduciary Net Position)	**$ (9,075,103)**	**$ 337,790,175**

Pension Plan Expense/(Revenue)

Plan Pension Expense/(Revenue) consists of System changes that are expensed 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). The SDRS funded position resulted in Plan Pension Revenue for the years ended June 30, 2014 June 30, 2015 and June 30, 2017, and Pension Plan Expense for the year ended June 30, 2016.

Table 5.6 – Plan Pension Expense/(Revenue) for the Year Ended:

	June 30, 2017	June 30, 2016
Service Cost	$ 192,682,191	$ 184,923,317
Interest	781,413,919	745,774,586
Expected investment return	(751,491,381)	(771,115,865)
Changes of benefit terms recognized immediately	(567,079,980)	N/A
Contributions – employers	(121,907,646)	(114,090,075)
Contributions – members	(122,144,961)	(114,443,295)
Administrative expenses	4,363,512	3,944,641
Amortization of difference between expected and actual experience	69,777,842	47,895,846
Amortization of changes of assumptions	317,886,376	133,986,959
Amortization of difference between projected and actual investment return on plan investments	(130,271,323)	5,825,884
Plan Pension Expense/(Revenue)	**$ (326,771,451)**	**$ 122,701,998**

Collective Pension Amounts

Table 5.7 – 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	$ (135,335,429)	$ (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	$ (63,260,412)	$ (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	$ 122,701,998	$ 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	$ (326,771,451)	$ (9,075,103)

Table 5.8 – Increase/(Decrease) in Pension Expense

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
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

Changes of Assumptions

Year Ended June 30	Changes of Assumptions	Recognition Period (Years)	2014	2015	2016	2017	2018	2019	2020	2021
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

Differences Between Projected and Actual Investment Return

Year Ended June 30	Difference Between Projected and Actual Investment Return	Recognition Period (Years)	2014	2015	2016	2017	2018	2019	2020	2021
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)

Table 5.9 – Deferred Outflows/(Inflows) of Resources

Arising from Differences between Expected and Actual Experience					
				Balances as of June 30, 2017	
Year Ended June 30	Experience Losses (a)	Experience Gains (b)	Amounts Recognized in Pension Expense through June 30,2017 (c)	Deferred Outflows of Resources (a) – (c)	Deferred Inflows of Resources (b) – (c)
2014	$ 78,328,269		$ 69,470,748	$ 8,857,521	
2015	55,821,847		37,717,464	18,104,383	
2016	78,645,840		35,911,342	42,734,498	
2017	97,593,700		21,881,996	75,711,704	

Arising from Changes of Assumptions					
				Balances as of June 30, 2017	
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 30,2017 (c)	Deferred Outflows of Resources (a) – (c)	Deferred Inflows of Resources (b) – (c)
2014	$ 604,281,184		$ 535,947,836	$ 68,333,348	
2015	0				
2016	0				
2017	820,191,401		183,899,417	636,291,984	

Arising from Differences between Projected and Actual Investment Return					
				Balances as of June 30, 2017	
Year Ended June 30	Investment Earnings Less Than Projected (a)	Investment Earnings Greater Than Projected (b)	Amounts Recognized in Pension Expense through June 30,2017 (c)	Deferred Outflows of Resources (a) – (c)	Deferred Inflows of Resources (b) – (c)
2014		$(1,043,016,375)	$ (834,413,100)		$ (208,603,275)
2015	$ 323,866,193		194,319,717	$ 129,546,476	
2016	748,279,600		299,311,840	448,967,760	
2017		(680,486,033)	(136,097,207)		(544,388,826)
Grand Total				**$1,428,547,674**	**$ (752,992,101)**

Table 5.10 – 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[1]	$ 208,208,744	$ 104,725,097	$ 103,483,647	$ (104,952,985)	$ (1,469,338)	$1,685,627,785	6.226%
2015[1]	218,795,180	109,245,203	109,549,977	(109,549,977)	0	1,758,315,755	6.230%
2016[1]	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%

[1] 2014, 2015 and 2016 figures are restated to more clearly and accurately reflect the fixed, statutory member and employer contributions to SDRS that support flexible benefits. As such, the Actuarially Determined Contributions are equal to the fixed, statutory member and employer contributions as long as they support the benefits within the minimum and maximum payable COLAs. See Tables 3.3 and 3.4 for details.

Table 5.11– Schedule of Investment Returns (Net of Investment Expenses)

Year Ended	Money-Weighted	Time-Weighted
June 30, 2008	(8.93%)	(9.00%)
June 30, 2009	(21.05%)	(20.89%)
June 30, 2010	18.20%	17.99%
June 30, 2011	25.27%	25.18%
June 30, 2012	1.37%	1.45%
June 30, 2013	19.01%	19.02%
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%
10-Year Annualized Return	6.14%	6.14%

Section 6– Member Data

Table 6.1 – Comparison of Member Data for the Years Ended:	June 30, 2017[1]	June 30, 2016[1]	Percent Change
Active Members			
Number	~~40,452~~	~~39,940~~	1.3%
Average Age	~~44.9~~	~~45.0~~	(0.2%)
Average Credited Service	~~11.0~~	~~11.0~~	0.0%
Total Prior Year Compensation	$ ~~1,849,378,672~~	$ ~~1,724,418,364~~	7.2%
Average Prior Year Compensation[3]	$ ~~45,734~~	$ ~~43,194~~	5.9%
Projected Current Year Compensation[4]	$ 1,975,999,475	$ 1,858,343,856	6.3%
Benefit Recipients			
Retired Members			
Number	~~23,560~~	~~22,850~~	3.1%
Average Age	~~71.9~~	~~71.8~~	0.1%
Total Annual Benefits[5]	$ ~~484,535,673~~	$ ~~461,542,681~~	5.0%
Average Annual Benefits	$ ~~20,566~~	$ ~~20,199~~	1.8%
Beneficiaries			
Number	3,375	3,278	3.0%
Total Annual Benefits	$ 42,476,498	$ 39,556,086	7.4%
Average Annual Benefits	$ 12,586	$ 12,067	4.3%
Disabled Members			
Number	283	292	(3.1%)
Total Annual Benefits	$ 3,496,135	$ 3,920,530	(10.8%)
Average Annual Benefits	$ 12,354	$ 13,426	(8.0%)
Total Benefit Recipients			
Number	27,218	26,420	3.0%
Total Annual Benefits	$ ~~530,508,306~~	$ ~~505,019,297~~	5.0%
Average Annual Benefits	$ ~~19,491~~	$ ~~19,115~~	2.0%
Suspended Benefit Recipients[6]			
Number of Suspended Retirees	50	45	11.1%
Number of Suspended Beneficiaries	73	89	(18.0%)
Total Suspended Benefit Recipients	~~123~~	~~134~~	(8.2%)
Terminated Members			
Number – Vested	~~9,621~~	~~9,382~~	2.5%
Number – Non-Vested	~~8,837~~	~~8,172~~	8.1%
Total Terminated Members	18,458	17,554	5.1%
Total System Members	**86,251**	**84,048**	**2.6%**

[1]Counts include former Cement Plant Retirement Plan Members. As of June 30, 2017: 14 Active Members, 207 Retired Members, 30 Beneficiaries, 6 Disabled Members and 41 Terminated Vested Members.

[21]Counts include former Cement Plant Retirement Plan Members. As of June 30, 2016: 17 Active Members, 205 Retired Members, 31 Beneficiaries, 6 Disabled Members and 44 Terminated Vested Members.

[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.

[5]The Total Annual Benefits for Retired Members includes $241,872 in annual benefits that are suspended at June 30, 2017 and $180,962 that were suspended at June 30, 2016.

[6]Suspended Benefit Recipients are excluded from other counts, but included in the Total System Members.

Table 6.2 – Distribution of Number and Average Prior Year Compensation of Active Members as of June 30, 2017[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	1,429	117	4								1,550
	Avg Compensation	$27,012	$37,491	$38,717								$27,833
25-29	Number	2,055	1,413	815	2							4,285
	Avg Compensation	$32,789	$41,581	$44,956	$35,468							$38,004
30-34	Number	1,379	955	1,912	538	2						4,786
	Avg Compensation	$34,659	$43,960	$46,773	$50,459	$40,760						$43,133
35-39	Number	1,120	658	1,226	1,444	447	5					4,900
	Avg Compensation	$33,565	$44,104	$48,815	$52,651	$53,608	$51,556					$46,267
40-44	Number	859	506	866	850	1,212	297	3				4,593
	Avg Compensation	$32,530	$42,144	$47,570	$53,654	$55,406	$59,778	$49,105				$48,142
45-49	Number	645	451	823	737	816	953	382	6			4,813
	Avg Compensation	$32,789	$41,855	$45,869	$50,869	$55,705	$60,517	$60,391	$60,458			$50,234
50-54	Number	671	368	715	777	721	614	920	351	9		5,146
	Avg Compensation	$31,284	$43,009	$44,196	$46,923	$52,758	$58,255	$60,271	$63,638	$49,805		$49,914
55-59	Number	616	362	688	755	730	621	636	648	237	10	5,303
	Avg Compensation	$32,387	$39,208	$43,293	$43,828	$46,397	$53,676	$58,887	$63,428	$61,782	$56,150	$48,648
60-64	Number	345	225	524	577	587	434	414	278	257	93	3,734
	Avg Compensation	$29,476	$39,194	$42,222	$43,535	$44,818	$50,975	$54,761	$60,174	$63,852	$54,317	$47,007
65-69	Number	106	71	183	214	124	94	85	62	50	44	1,033
	Avg Compensation	$27,442	$36,934	$44,329	$41,364	$45,045	$46,810	$53,982	$59,948	$67,688	$73,055	$45,871
70-74	Number	32	23	42	50	46	9	11	8	6	8	235
	Avg Compensation	$19,591	$24,906	$29,945	$32,260	$37,320	$37,578	$39,548	$74,866	$40,551	$64,671	$33,702
75 and Over	Number	10	2	18	26	9	2	2	1	2	2	74
	Avg Compensation	$28,469	$18,494	$22,931	$30,063	$43,620	$41,720	$41,243		$43,232	$97,999	$32,282
Total	Number	9,267	5,151	7,816	5,970	4,694	3,029	2,453	1,354	561	157	40,452
	Avg Compensation	$31,876	$42,014	$45,843	$48,954	$51,675	$56,691	$58,658	$62,685	$62,771	$60,769	$45,734

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

Table 6.3 - Distribution of Active Members by Age as of June 30, 2017

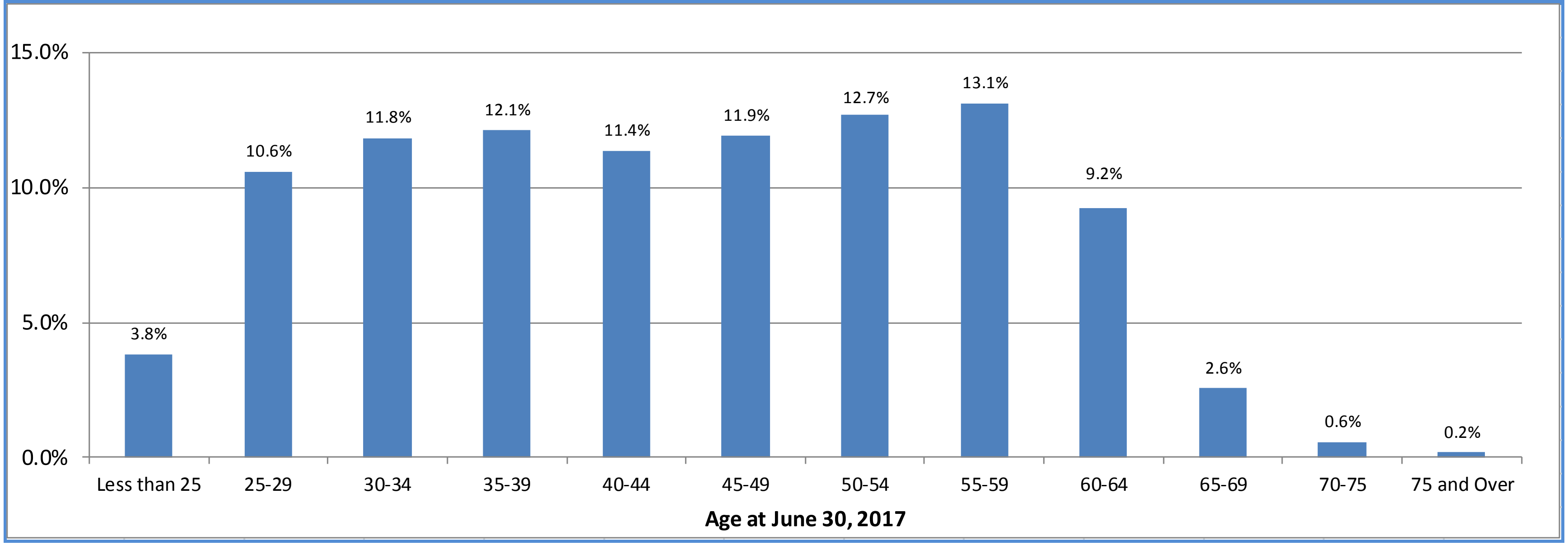


Table 6.4 - Distribution of Active Members by Credited Service as of June 30, 2017

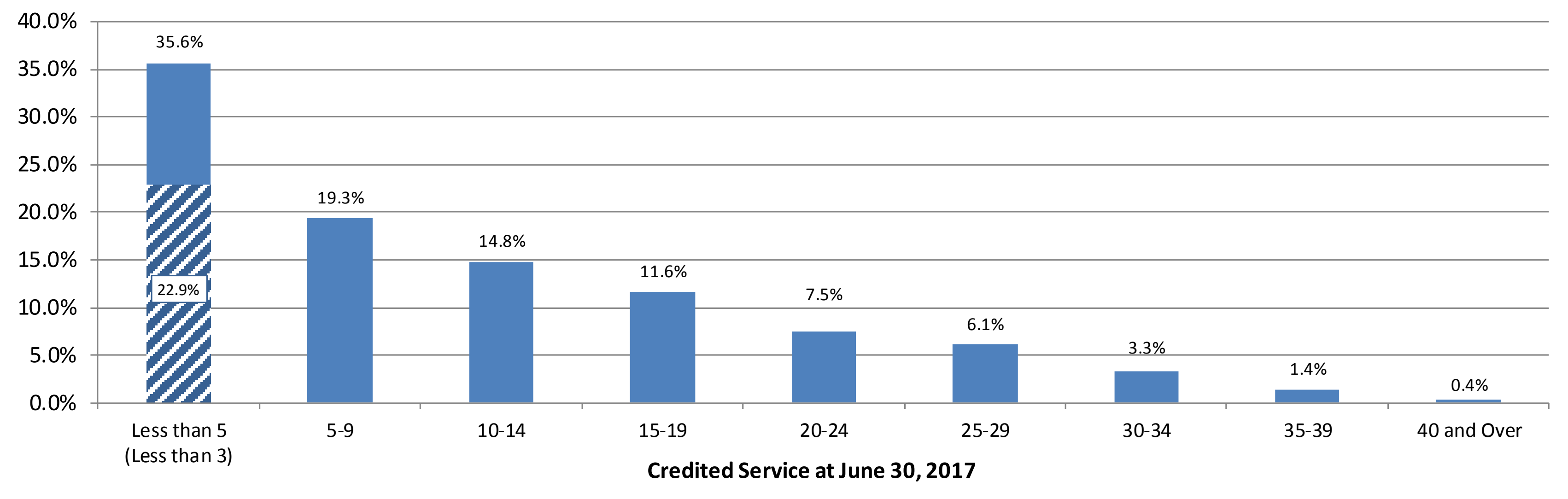


Table 6.5 - Distribution of Retirees, Beneficiaries and Disabled Members by Age as of June 30, 2017

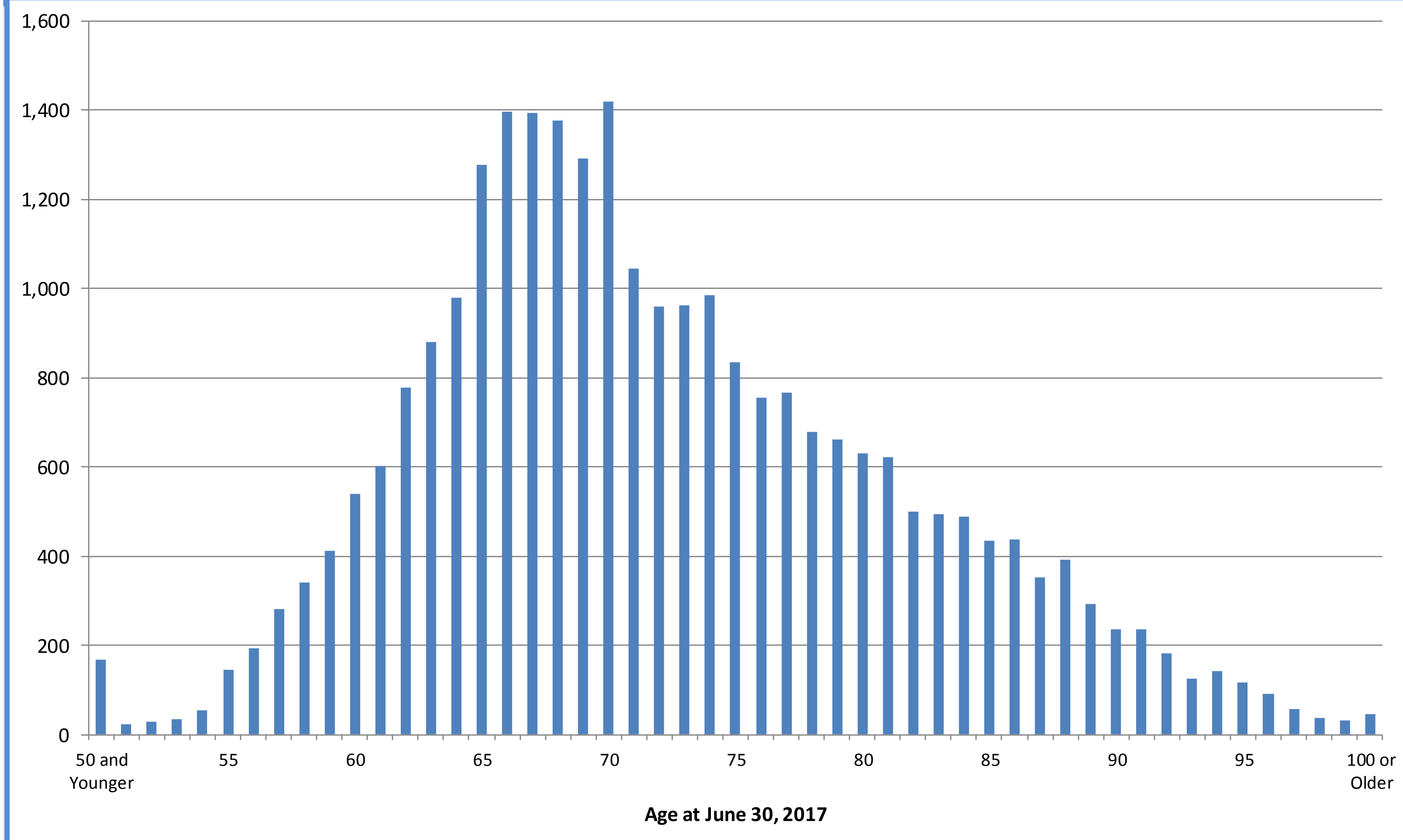
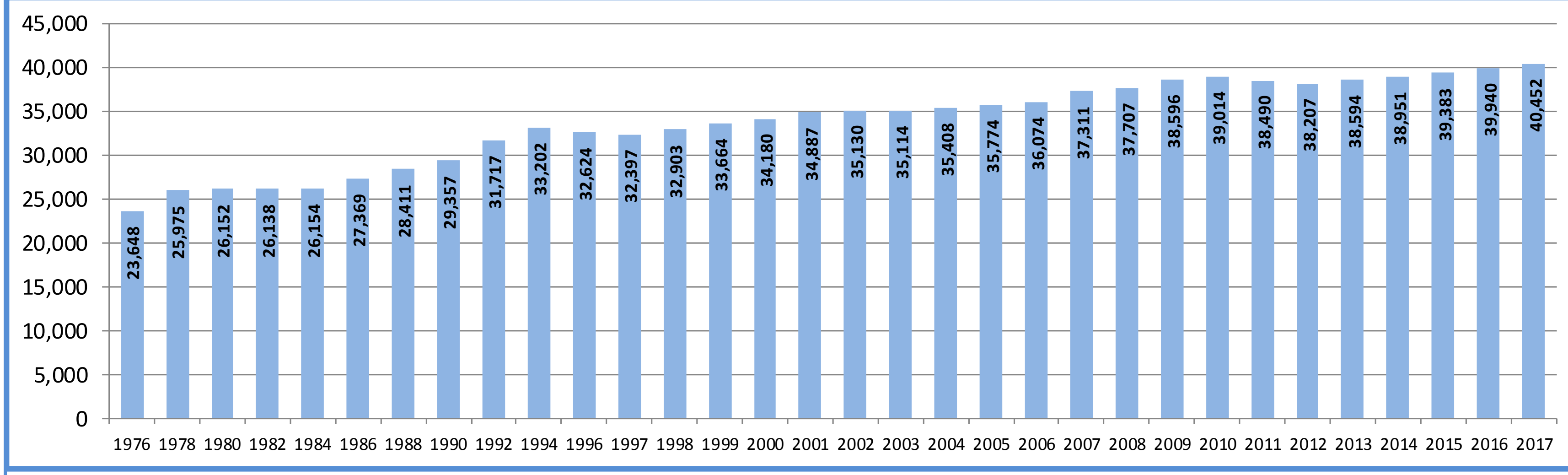
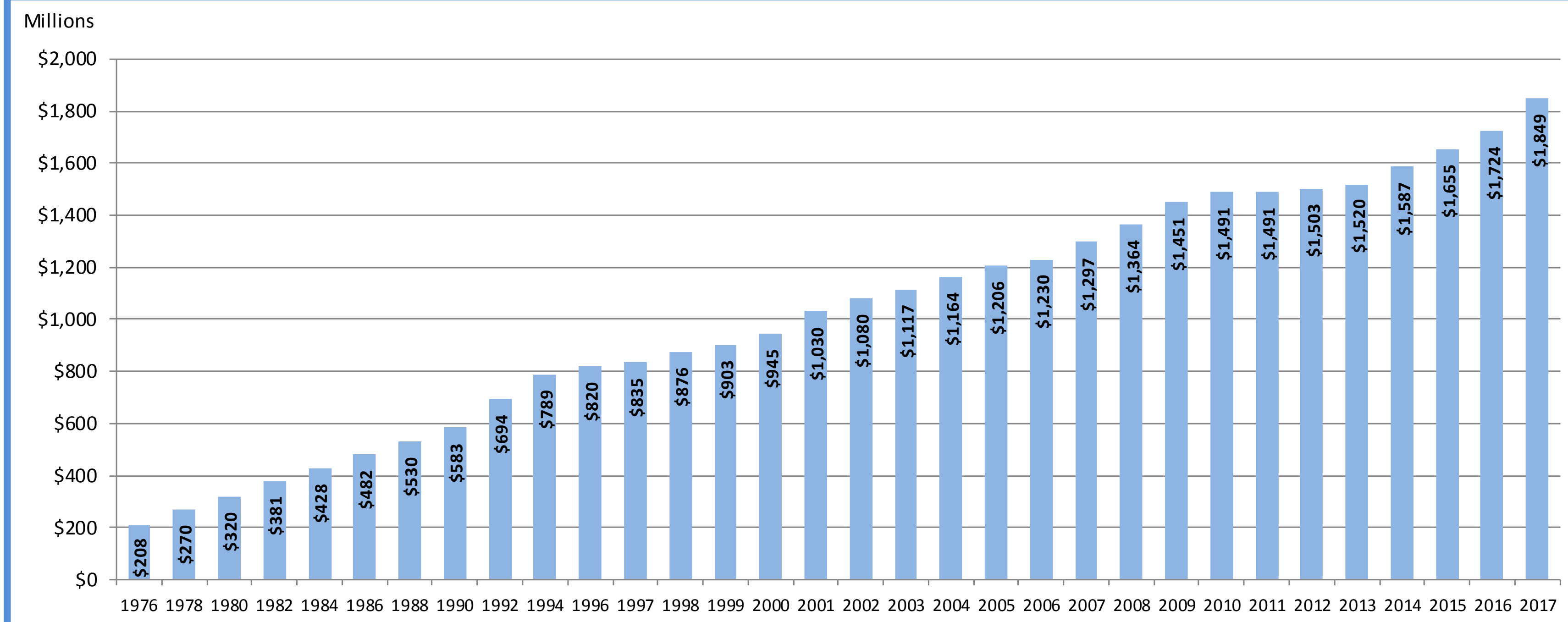


Table 6.6 - History of Active Membership



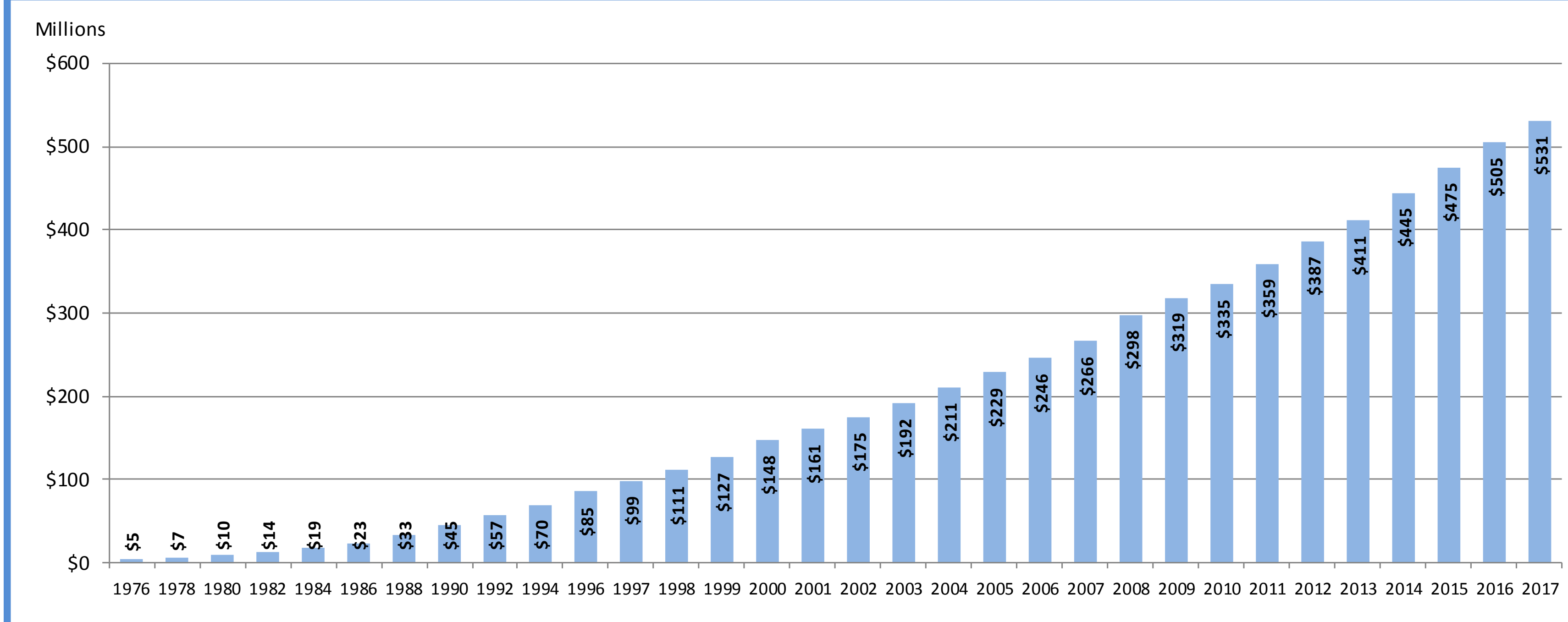
Percentage Increase Over Prior Actuarial Valuation	10%	1%	-	-	5%	4%	3%	8%	5%	(2%)	(1%)	2%	2%	2%	2%	1%	-	1%	1%	1%	3%	1%	2%	1%	(1%)	(1%)	1%	1%	1%	1%	1%

Table 6.7 - 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%

Table 6.8 - History of Benefits to Retirees, Beneficiaries and Disabled Members



Percentage Increase Over Prior Actuarial Valuation	38%	51%	38%	37%	26%	40%	37%	27%	22%	23%	15%	13%	14%	16%	9%	9%	9%	10%	8%	8%	8%	12%	7%	5%	7%	8%	6%	8%	7%	6%	5%

Section 7 – Basis of the Valuation

Summary of Principal Benefit Provisions of SDRS As Amended Through the 2017 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.

SDRS is a governmental retirement system created by 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 permanent full-time employees are included as Members of the System:

- All state employees
- All teachers
- All justices, judges, and magistrate judges
- All law enforcement employees of counties and municipalities that are participating with their Class B employees
- All general employees of counties and municipalities that are participating with their Class A employees
- All classified employees of school districts that are participating with their classified employees
- All employees of the Board of Regents
- All 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 are excluded from SDRS membership. 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 three classes as follows:

- Class A Member: All Members other than Class B or Class C 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 and certain jailers (Class B Public Safety Members).
- Class C Member: Former Members of the Cement Plant Retirement Plan

Class A Members constitute 93% 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 will be called Generational Members and will have a different benefit structure than Foundation Members - Members who joined on or before June 30, 2017.

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

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 eligibility purposes. Credited Service is purchased with an after-tax payment unless the Member's Employer elects to permit purchase on a pre-tax basis under Section 404(h) of the Internal Revenue Code.

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

Foundation Members

Final Average Compensation is the highest average annual Compensation earned by a Member during 12 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 year prior to termination.

For Members whose Credited Service ends after June 30, 2020, 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.

For Foundation Members whose Credited Service ends after June 30, 2021 but before July 1, 2022, Final Average Compensation is the highest average annual Compensation earned by a member during 16 consecutive calendar quarters of the last 40 such quarters of Credited Service.

For 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.

Generational Members

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.

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.

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. Interest is 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

Other Public Benefit

Eighty percent of the benefits provided as "primary insurance amount or primary Social Security" under the Federal Social Security Act.

Cost-of-Living Adjustment (COLA)

All benefits except those depending on the Member's Accumulated Contributions 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 considers 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 is:

- 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 0.5% minimum 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 0.5% minimum 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%

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 on the first of 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

All SDRS benefits are paid monthly and are limited to the maximum benefit under Section 415 of the Internal Revenue Code.

Generational Members
Members are entitled to retire with a benefit commencing on the first of 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 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 on the first of 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 earlier of the Normal Retirement Age or the Special Early Retirement Date.

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. Members who are rehired may redeposit their Accumulated Contributions plus interest within two years of reemployment to reinstate their Credited Service.

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 100% 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 100% 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 retirement benefit after age 65 will receive 60% of the Member's benefit for the spouse's lifetime.

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, 2016, 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 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 and the spouse's benefit is reduced by 5% for each year commencement precedes the spouse's age 65.

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).

<u>Section 8-Description of Actuarial Methods and Valuation Procedures</u>

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. Ordinarily, the annual contribution to the plan is comprised of (1) the Normal Cost and (2) an amortization payment on the 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 with interest at the assumed rate of investment return to a fund sufficient to pay all benefits under the plan.

The **Actuarial Accrued Liability** is the accumulated Normal Costs to the valuation date for active Members and the Present Value of All Benefits for inactive Members.

The Normal Cost Rate for SDRS is determined by taking the excess of the aggregate Present Value of All Benefits for the membership group over the Actuarial Accrued Liability, 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 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.

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

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

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.

Annual increases in Compensation were limited to the dollar amount defined under Internal Revenue Code Section 401(a)(17) for affected Members.

Section 9-Summary of Actuarial Assumptions for the June 30, 2017 Actuarial Valuation

Investment Return/Discount Rate

6.50% per annum, compounded annually and net of investment expenses. This nominal rate includes price inflation of 2.25% per annum and a real rate of return of 4.25%.

Measurement Date

June 30, 2017

Retirement Age

Assumed retirement rates of eligible Members are shown in the following table:

Table 9.1 – Assumed Retirement Rates

	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											5.0	5.0
46											6.5	5.0
47											6.5	5.0
48											6.5	10.0
49											6.5	10.0
50											6.5	10.0
51											6.5	10.0
52											6.5	18.0
53											6.5	18.0
54											12.0	18.0
55	10.0	8.0	15.0	18.0	6.0	7.0	15.0	15.0	5.0	15.0		13.0
56	10.0	8.0	15.0	15.0	6.0	7.0	10.0	9.0	5.0	15.0		13.0
57	11.0	10.0	15.0	12.5	6.0	7.0	10.0	9.0	5.0	15.0		13.0
58	13.5	9.0	15.0	16.0	6.0	7.0	10.0	9.0	5.0	10.0		13.0
59	17.0	10.0	15.0	15.0	6.0	7.0	10.0	9.0	5.0	10.0		13.0
60	20.0	10.5	20.0	27.5	6.0	7.0	10.0	9.0	5.0	10.0		13.0
61	25.0	17.5	30.0	27.5	9.0	11.5	20.0	17.5	5.0	10.0		22.5
62	25.0	19.0	35.0	27.5	12.5	12.5	20.0	17.5	5.0	10.0		22.5
63	25.0	17.5	35.0	22.5	13.0	12.5	20.0	17.5	5.0	10.0		22.5
64	25.0	22.5	35.0	35.0	18.0	20.0	30.0	30.0	5.0	10.0		32.5
65			35.0	50.0			30.0	30.0		20.0		40.0
66			35.0	35.0			30.0	30.0		20.0		32.5
67			30.0	35.0			25.0	25.0		12.0		100.0
68			25.0	35.0			25.0	25.0		12.0		
69			25.0	35.0			25.0	25.0		12.0		
70			100.0	100.0			25.0	25.0		100.0		
71-76							25.0	25.0				
77-79							35.0	25.0				
80							100.0	100.0				

Salary Increases

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

Table 9.2 – Assumed Rates of Salary Increases

Credited Service	Merit and Seniority	Wage Inflation	Total Increase		Credited Service	Merit and Seniority	Wage Inflation	Total Increase
0	3.3981%	3.00%	6.5000%		15	0.7379%	3.00%	3.7600%
1	2.9126%	3.00%	6.0000%		16	0.6505%	3.00%	3.6700%
2	2.4757%	3.00%	5.5500%		17	0.5728%	3.00%	3.5900%
3	2.2330%	3.00%	5.3000%		18	0.4951%	3.00%	3.5100%
4	2.0874%	3.00%	5.1500%		19	0.4175%	3.00%	3.4300%
5	1.9709%	3.00%	5.0300%		20	0.3495%	3.00%	3.3600%
6	1.8544%	3.00%	4.9100%		21	0.2816%	3.00%	3.2900%
7	1.6505%	3.00%	4.7000%		22	0.2136%	3.00%	3.2200%
8	1.4757%	3.00%	4.5200%		23	0.1553%	3.00%	3.1600%
9	1.3301%	3.00%	4.3700%		24	0.0971%	3.00%	3.1000%
10	1.2136%	3.00%	4.2500%		25	0.0485%	3.00%	3.0500%
11	1.1068%	3.00%	4.1400%		Over 25	0.0000%	3.00%	3.0000%
12	1.0097%	3.00%	4.0400%					
13	0.9126%	3.00%	3.9400%					
14	0.8252%	3.00%	3.8500%					

Disability

Sample rates are shown below:

Table 9.3– 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	0.010	0.010	0.015	0.015	0.041
30	0.011	0.013	0.015	0.017	0.045
35	0.012	0.015	0.015	0.031	0.051
40	0.015	0.018	0.015	0.052	0.118
45	0.025	0.034	0.027	0.090	0.232
50	0.038	0.062	0.119	0.152	0.322
55	0.079	0.096	0.250	0.222	0.398
60	0.167	0.134	0.390	0.298	0.772
65	0.274	0.174	0.540	0.378	1.342

(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, certified regents, female non-certified school employees, and female county employees.

(3) Includes non-certified regents, state employees, city employees, male non-certified school employees, and male county employees.

Mortality

The mortality assumption is as follows:

- Non-Disabled Members: 97% of RP-2014 Mortality Table, white collar table for females, total dataset table for males, adjusted to 2006 and projected generationally with MP-2016

- Disabled Members: RP-2014 Disabled Mortality Table, adjusted to 2006 and projected generationally with Scale MP-2016

Sample rates are shown below:

Table 9.4 – Sample Mortality Rates

	Annual Rate per 100 Members, Rates as of 2017					
	Active and Inactive Members		Benefit Recipients		Disabled Members	
Age	Male	Female	Male	Female	Male	Female
25	0.045	0.015	0.045	0.015	0.756	0.244
30	0.045	0.018	0.045	0.018	0.834	0.304
35	0.054	0.025	0.054	0.025	1.012	0.424
40	0.063	0.035	0.063	0.035	1.235	0.595
45	0.094	0.054	0.094	0.054	1.752	0.909
50	0.162	0.088	0.391	0.197	2.049	1.166
55	0.272	0.143	0.560	0.275	2.377	1.509
60	0.470	0.216	0.778	0.408	2.870	1.836
65	0.839	0.316	1.116	0.663	3.505	2.177

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 9.5a – Assumed Termination Rates – First 5 Years of Employment

	Annual Rate per 100 Members						
Credited	Teachers		Regents, Non-Certified Schools		State, City, County		Class B Public
Service	Male	Female	Male	Female	Male	Female	Safety Members
0	20.00	20.00	25.00	27.50	17.25	23.00	22.75
1	16.50	15.50	21.00	22.00	15.00	18.75	15.25
2	14.00	13.00	18.00	18.50	13.00	15.75	12.75
3	12.00	11.00	15.00	15.25	12.00	13.00	12.00
4	10.00	9.00	13.00	13.00	10.50	11.50	10.75

Table 9.5b – Assumed Termination Rates – After 5 Years of Employment							
Annual Rate per 100 Members							
	Teachers		Regents, Non-Certified Schools		State, City, County		Class B Public Safety Members
Age	Male	Female	Male	Female	Male	Female	
25	8.50	7.25	10.75	11.50	9.00	9.75	7.75
30	7.60	6.35	10.00	10.60	7.95	8.55	6.85
35	5.80	4.55	8.90	9.10	6.05	6.70	5.35
40	4.40	3.60	7.60	7.60	4.65	5.25	4.60
45	3.70	3.50	6.40	6.70	3.95	4.30	4.50
50	3.50	3.50	5.40	6.20	3.60	4.00	4.50
55	3.50	3.50	5.00	6.00	3.50	4.00	4.50

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

Marital Status

80% of non-retired Members are assumed to be married. Male Members are assumed to be three 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 2.25% per annum. Future Social Security Taxable Wage Base increases are assumed to be 3.00% per annum.

Interest on Accumulated Contributions

Interest credited to the Member's Accumulated Contributions is assumed to be 2.5% 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 9.6 – 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%	15	20%	80%
1	100%	0%	16	20%	80%
2	100%	0%	17	20%	80%
3	40%	60%	18	20%	80%
4	40%	60%	19	20%	80%
5	40%	60%	20	10%	90%
6	33%	67%	21	10%	90%
7	33%	67%	22	10%	90%
8	33%	67%	23	10%	90%
9	30%	70%	24	10%	90%
10	30%	70%	25	5%	95%
11	30%	70%	26	5%	95%
12	30%	70%	27	5%	95%
13	20%	80%	28	5%	95%
14	20%	80%	29	5%	95%
			30 or More	0%	100%

Benefit Commencement for Terminated Vested Members

Terminated Vested Members are assumed to elect benefit commencement three years prior to Normal Retirement Age. Class A Members with 20 or more years of Credited Service at termination are assumed to elect benefit commencement at age 58.

SDRS COLA

The SDRS COLA effective July 1, 2017 was 2.1%.

Effective with the July, 2018 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% and not greater than 3.5%. In addition, the COLA will be limited to a Restricted Maximum COLA under certain circumstances.

The Baseline COLA Assumption is 2.25%. If the Fair Value Funded Ratio (FVFR) 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% and future COLAs are assumed to equal the Restricted Maximum COLA otherwise.

Based on the results of this June 30, 2017 Actuarial Valuation, the 2018 COLA will be the Restricted COLA maximum of 1.89% since that is less than the increase in the 2017 third calendar quarter CPI-W for the year of 1.96%. The Actuarial Accrued Liabilities and Normal Costs reported in this Actuarial Valuation are calculated assuming future COLAs are equal to 1.89%.

The actuarial assumptions used in the June 30, 2017 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 from July 1, 2011 through June 30, 2016. 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.

Section 10-Glossary of Actuarial Terms

Actuarial Accrued Liability

Equal to the Present Value of All Benefits less the Present Value of Future Normal Cost Contributions required for future benefits for SDRS Members and paid from future Member and Employer Contributions. 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 8 and 9. 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

The Actuarially Determined Contribution is equal to the fixed, statutory contribution if the fixed, statutory contributions are sufficient to fund the Normal Cost, System administrative expenses and amortize the Unfunded Actuarial Accrued Liability 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.

Unfunded Actuarial Accrued Liability

The amount by which the Actuarial Accrued Liability exceeds 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 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.

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 Contributions

The Present Value of Future Normal Cost Contributions is the present value of future Normal Costs to be paid by Member and Employer Contributions and is also equal to the excess of the Present Value of All Benefits over the Actuarial Accrued Liability.

Section 11– 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 actuarial requirement of: o Normal Cost* plus expenses when System is fully funded o Normal Cost* plus expenses, and payment of Unfunded Liabilities over a period not to exceed 20 years if System is not fully funded	• 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: o Fixed, statutory contributions sufficient to meet the actuarial requirement o Fair Value Funded Ratio of 100% or more • The report shall include recommendations for the circumstances and timing for any benefit changes, contribution changes or any other corrective action, or any combinations of actions 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