SOUTH DAKOTA RETIREMENT SYSTEM

Actuarial Valuation

As of June 30, 2016

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October 12, 2016

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, 2016.

The purposes of this report are to provide a summary of the funded status of SDRS as of June 30, 2016, to compare the fixed, statutory member and employer contributions to the Actuarially Determined Contribution (ADC) under the SDRS Funding Policy and to 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 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, 2016 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, 2016 measurement date have been included.

The actuarial assumptions and methods used in this valuation for funding purposes meet the parameters set by the Actuarial Standards of Practice maintained by the Actuarial Standards Board. 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 Frozen Entry Age actuarial cost method. The Actuarial Value of Assets is based on expected investment returns, limited to a 20% corridor around Fair Value of Assets and adjusted for liability gains or losses during the year. The undersigned believes the assumptions are, individually and in the aggregate, reasonably related to experience and to expectations of future experience.

SDRS's funding objectives under its Funding Policy include:

- Actuarial Value Funded Ratio of 100%
- Fair (Market) Value Funded Ratio of at least 100%
- Fair (Market) Value of Assets that exceeds the Actuarial Value of Assets, resulting in a Cushion
- A fully funded System based on the Actuarial Value of Assets and the Entry Age Normal Cost method
- Fixed, statutory member and employer contribution rates sufficient to pay the Normal Cost and expenses and amortize the Unfunded Actuarial Accrued Liability over a period of 20 years or less when the System is not fully funded (ADC)

The results of this valuation indicate that as of June 30, 2016, SDRS continues to be a very well-funded system with a Fair Value Funded Ratio of 96.9%. The fixed, statutory member and employer contributions are sufficient to meet the ADC. However, SDRS is not currently meeting all of the funding objectives of the

Board of Trustees' Funding Policy. Specifically, the Fair Value Funded Ratio is less than 100% and the Fair Value of Assets is less than the Actuarial Value of Assets, resulting in a Deficit, rather than a Cushion as of June 30, 2016.

The SDRS Board of Trustees' Funding Policy is attached in Section 6.

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 "Frozen 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. Determining the unfunded liability using the Fair Value of Assets would lead to a different result. Moreover, 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 place in this report, funded ratios and unfunded 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 statutes. 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 Actuaries 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

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 and ancillary benefit payments to the terminated and retired employees of the participating public employers of the State of South Dakota. The Board of Trustees, comprised of employer, employee 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, 2016.

Summary of Principal Results

Membership Summary Valuation Date	June 30, 2016	June 30, 2015
Number of Active Members	39,940	39,383
Prior Year's Annual Member Compensation	$ 1,724,418,364	$ 1,654,782,806
Projected Covered Payroll[1]	$ 1,858,343,856	$ 1,782,390,196
Number of Benefit Recipients[2]	26,554	25,656
Annual Benefits	$ 505,019,297	$ 474,690,226
Number of Vested Terminated Members	9,382	8,993
Number of Non-Vested Terminated Members	8,172	7,601
Total System Members	84,048	81,633

[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, 134 as of June 30, 2016 and 167 as of June 30, 2015.

Funded Status Valuation Date	June 30, 2016	June 30, 2015
Fair Value of Assets	$ 10,513,462,127	$ 10,776,533,615
Actuarial Value of Assets	$ 10,851,252,302	$ 10,352,405,041
Actuarial Accrued Liability	$ 10,851,252,302	$ 10,352,405,041
Frozen Unfunded Actuarial Accrued Liability	$ 0	$ 0
Actuarial Value Funded Ratio	100.0%	100.0%
Fair Value Funded Ratio	96.9%	104.1%
Cushion/(Deficit)	$ (337,790,175)	$ 424,128,574
Reserve for Funding of Long-Term Benefit Goals	$ (908,851,561)	$ (587,944,576)
Cumulative Gains to be Allocated to the Reserve in Future Years	$ 486,167,795	$ 927,179,559

Statutory and Actuarially Determined Contribution Rates Valuation Date	June 30, 2016	June 30, 2015
Fixed, Statutory Member and Employer Contribution Rate	12.489%	12.482%
Normal Cost Rate at Mid-Year	10.494%	10.485%
Amortization Rate	0.000%	0.000%
Expense Allowance	0.250%	0.250%
Actuarially Determined Contribution Rate	10.744%	10.735%
Risk Management Contribution Rate	1.745%	1.747%

Purpose

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

1. To review the current funded status of SDRS and assess the adequacy of the fixed, statutory contributions to meet the Actuarially Determined Contributions as established in the Board of Trustees' Funding Policy;

2. To disclose the System assets and liability measures as of the valuation date;

3. To compare actual and expected experience under SDRS during the most recent fiscal year;

4. To disclose the accounting measures as required by GASB Statement Nos. 67 and 68 as of the end of the fiscal year;

5. To report trends in contributions, assets, liabilities and funded status over the last several years.

This June 30, 2016 Actuarial Valuation is the thirty-first 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.

Discussion of June 30, 2016 Actuarial Valuation Results

The June 30, 2016 Actuarial Valuation of SDRS reports an Actuarial Value Funded Ratio of 100% and a Fair (Market) Value Funded Ratio of 96.9%.

The Actuarial Value Funded Ratio was 100% as of June 30, 2016 and is expected to remain at 100% under normal operation of the plan absent dramatic gains or losses in investment returns, changes in actuarial assumptions or methods, or other unforeseen events.

The Fair Value Funded Ratio decreased from 104.1% as of June 30, 2015 to 96.9% primarily due to investment returns less than the assumed 7.25%, but also in part due to liability losses offset by the Risk Management Contribution.

Returns on the Fair Value of Assets were 0.21% for the year on a money-weighted basis net of investment expenses, below the 7.25% assumed return. Actuarial Investment Losses for the year were $716 million. Liability losses caused by experience during the year different than assumed were $77 million.

Fixed statutory member and employer contributions are in excess of Normal Cost and expenses, which results in a Risk Management Contribution that is a hedge against future unfavorable experience. The Risk Management Contribution was $31 million for the year ending June 30, 2016.

When it exists, the Cushion is the excess of the Fair Value of Assets over the Actuarial Value of Assets and provides a hedge against future unfavorable experience. Conversely, the Deficit is the amount by which the Fair Value of Assets is less than the Actuarial Value of Assets and indicates that future experience must exceed expectations to return the System to a Fair Value Funded Ratio of 100%. If addition to future experience, the Risk Management Contribution will increase the Cushion or reduce the Deficit. Actuarial

Investment and Liability Losses, offset by the Risk Management Contribution, resulted in the June 30, 2015 Cushion of $424 million reducing to a Deficit of $338 million at June 30, 2016.

SDRS Benefit Provision Changes

No benefit provisions were changed from those valued in the June 30, 2015 Actuarial Valuation. New benefit provisions for Generational Members, Members entering SDRS on or after July 1, 2017, were enacted during the 2016 South Dakota Legislative Session.

SDRS Actuarial Assumption Changes

No actuarial assumptions were changed from those used in the June 30, 2015 Actuarial Valuation. Actuarial assumptions are reviewed periodically, with the next review anticipated before the June 30, 2017 Actuarial Valuation with changes anticipated to be first implemented in the June 30, 2017 Actuarial Valuation.

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

The Board of Trustees' Funding Policy objectives include an Actuarial Value Funded Ratio of 100% and a Fair (Market) Value Funded Ratio of at least 100%. The first of these objectives is currently met and no Unfunded Actuarial Accrued Liability currently exists. As of June 30, 2016, the Fair Value Funded Ratio is 96.9%.

Member and employer contribution rates are fixed in statute and currently also meet the Board of Trustees' Funding Policy objective to meet or exceed the Normal Cost and expenses of the System.

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 Actuarial Value Funded Ratio will remain at 100% and the fixed, statutory contributions will exceed the Normal Cost and expenses of the System.

The Risk Management Contribution (fixed, statutory Member and Employer Contributions in excess of the Actuarially Determined Contribution) will contribute to the Fair Value of Assets in the future, increasing the Fair Value Funded Ratio, and reducing the Deficit in future years.

SDRS's Funding Policy effectively funds SDRS benefits as is evidenced by the Fair Value Funded Ratio and Risk Management Contribution.

Section I – Actuarial Funding Results

Funded Ratios

Table 1.1 - Funded Ratios Valuation Date	June 30, 2016	June 30, 2015
Present Value of All Benefits		
Active Members	$ 5,726,298,681	$ 5,542,858,184
Benefit Recipients	5,999,816,650	5,669,088,389
Terminated Members	627,886,696	581,793,550
Total	$ 12,354,002,027	$ 11,793,740,123
Present Value of Future Normal Costs	$ (1,502,749,725)	$ (1,441,335,082)
Actuarial Accrued Liability	$ 10,851,252,302	$ 10,352,405,041
Actuarial Value of Assets (Table 2.3)	$ 10,851,252,302	$ 10,352,405,041
Actuarial Value Funded Ratio	100.0%	100.0%
Frozen Unfunded Actuarial Accrued Liability (Table 1.4)	$ 0	$ 0
Fair Value of Assets (Tables 2.1 and 2.2)	$ 10,513,462,127	$ 10,776,533,615
Fair Value Funded Ratio	96.9%	104.1%

The Actuarial Value Funded Ratio is a comparison of the Actuarial Value of Assets to the Actuarial Accrued Liability of the System and is an indication of how well the System is funded on the valuation date.

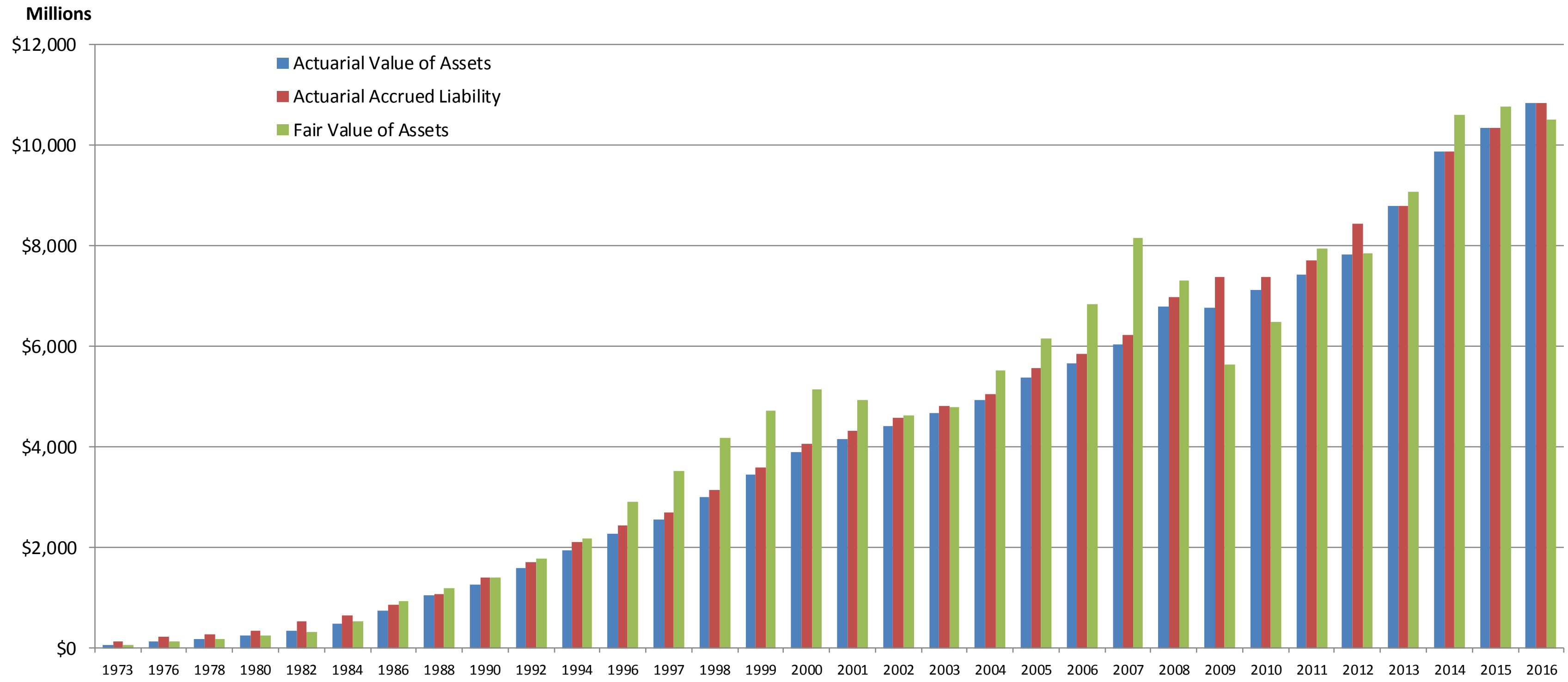
The Actuarial Accrued Liability is equal to the Present Value of All Benefits for SDRS Members less the Present Value of Future Normal Costs for active Members and is a measure of total System liabilities that will not be funded by future Normal Cost contributions. Since future Normal Costs contributions are a function of the actuarial cost method used in determining a system's funding requirements, the Actuarial Accrued Liability is a unique calculation for each retirement system.

An Actuarial Value Funded Ratio of 100% indicates all accrued liabilities of a retirement system are fully funded. Comparing the SDRS Actuarial Value Funded Ratio on a historical basis illustrates the funding progress of SDRS and the past ability of the fixed, statutory Member and Employer Contributions to fund the Normal Costs of the System and to amortize the Frozen Unfunded Actuarial Accrued Liability (when applicable) based on the overall SDRS experience. Ideally, the Actuarial Value Funded Ratio will increase to 100% over time as the Frozen Unfunded Actuarial Accrued Liability decreases due to growth in the Actuarial Value of Assets and funding of the Actuarial Accrued Liability.

Table 1.1 indicates that the SDRS Actuarial Value Funded Ratio as of June 30, 2016 and June 30, 2015 equaled 100.0%. The Fair Value Funded Ratio is calculated similarly, but is expected to display more volatility from year to year because it is based on the Fair Value of Assets rather than the more stable Actuarial Value of Assets. Table 1.1 indicates that the SDRS Fair Value Funded Ratio as of June 30, 2016 was 96.9% and as of June 30, 2015 was 104.1%.

Table 1.2 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 Actuarial Value Funded Ratio of 100.0% and the current Fair Value Funded Ratio of 96.9%**.** Since 1986, SDRS has achieved a Fair Value Funded Ratio of 100% or more at 21 of 26 Actuarial Valuations**.**

Table 1.2 - History of Funded Ratios



	1973	1976	1978	1980	1982	1984	1986	1988
Fair Value Funded Ratio (%)	40%	57%	68%	76%	63%	81%	106%	111%
Actuarial Value Funded Ratio (%)	40%	57%	68%	76%	67%	75%	85%	97%
Funding Period (years)	41	19	19	9	28	18	37	6
% of Actuarially Required Contributions Made	100%	100%	100%	100%	100%	100%	100%	100%

	1990	1992	1994	1996	1997	1998	1999	2000
Fair Value Funded Ratio (%)	101%	104%	103%	120%	130%	133%	132%	126%
Actuarial Value Funded Ratio (%)	91%	94%	92%	94%	95%	96%	97%	95%
Funding Period (years)	46	16	38	30	23	22	21	20
% of Actuarially Required Contributions Made	100%	100%	100%	100%	100%	100%	100%	100%

	2001	2002	2003	2004	2005	2006	2007	2008
Fair Value Funded Ratio (%)	114%	101%	99%	109%	111%	117%	131%	105%
Actuarial Value Funded Ratio (%)	96%	97%	97%	98%	97%	97%	97%	97%
Funding Period (years)	20	20	20	20	20	20	20	20
% of Actuarially Required Contributions Made	100%	100%	100%	100%	100%	100%	100%	100%

	2009	2010	2011	2012	2013	2014	2015	2016
Fair Value Funded Ratio (%)	76%	88%	103%	93%	103%	107%	104%	97%
Actuarial Value Funded Ratio (%)	92%	96%	96%	93%	100%	100%	100%	100%
Funding Period (years)	N/A[1]	30	30	29	N/A[2]	N/A[2]	N/A[2]	N/A[2]
% of Actuarially Required Contributions Made	91%[1]	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 Frozen Unfunded Actuarial Accrued Liability (based on the Actuarial Value of Assets) as of June 30, 2013 through June 30, 2016.

Funding Requirements

Table 1.3 - Actuarially Determined Contribution Rate and Risk Management Contribution Rate		
Valuation Date	June 30, 2016	June 30, 2015
Present Value of Future Normal Costs	$ 1,502,749,725	$ 1,441,335,082
Present Value of Future Member Compensation	$ 14,830,040,834	$ 14,236,833,343
Normal Cost Contribution Rate, Beginning of Year	10.133%	10.124%
Normal Cost Contribution Rate, Adjusted for Mid-Year Payment	10.494%	10.485%
Expense Allowance	0.250%	0.250%
Amortization of Frozen Unfunded Actuarial Accrued Liability	0.000%	0.000%
Actuarially Determined Contribution Rate	10.744%	10.735%
Fixed, Statutory Member and Employer Contribution Rate	12.489%	12.482%
Actuarially Determined Contribution Rate	(10.744%)	(10.735%)
Risk Management Contribution Rate	1.745%	1.747%

Table 1.3 illustrates the funding requirements of SDRS as of June 30, 2016 and the adequacy of the fixed, statutory Member and Employer Contributions to fund the past and future obligations of the System. The results of the 2016 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 $12.354 billion (Table 1.1).

- The Frozen Unfunded Actuarial Liability equals $0 (Table 1.1).

- The Actuarial value of Assets is $10.851 billion (Table 1.1).

- A portion of future Member and Employer Contributions for current active Members will be required to pay future Normal Costs with a present value of $1.503 billion (Table 1.3). The balance of future Member and Employer Contributions, less System expenses (also known as the Risk Management Contribution), increases the Cushion and Reserve and can be used to amortize the Frozen Unfunded Actuarial Accrued Liability if one exists in future years.

SDRS is funded by fixed, statutory Member and Employer Contributions that total 12.489% of considered compensation. After paying the Normal Costs and Expenses of the System of 10.744% of considered compensation, a contribution of 1.745% of considered compensation is available to fund the Frozen Unfunded Actuarial Accrued Liability, or, when the Frozen Unfunded Actuarial Accrued Liability is $0, to increase the Cushion and Reserve. The 2016 Actuarial Valuation of SDRS confirms that the statutory rate of contributions will pay the Normal Costs and Expenses of the System and provide 1.745% of considered Compensation (also known as the Risk Management Contribution) to increase the Cushion and Reserve.

SDRS is a well-funded retirement system with no Unfunded Actuarial Accrued Liabilities currently. The volatility resulting from asset and liability gains and losses has been minimized by the methods adopted for development of the Actuarial Value of Assets.

Frozen Unfunded Actuarial Accrued Liability

Table 1.4 – Development and Reconciliation of Frozen Unfunded Actuarial Accrued Liability Valuation Date	June 30, 2016	June 30, 2015
Actuarial Accrued Liability	$ 10,851,252,302	$ 10,352,405,041
Actuarial Value of Assets (Table 2.3)	(10,851,252,302)	(10,352,405,041)
Frozen Unfunded Actuarial Accrued Liability	$ 0	$ 0
Frozen Unfunded Actuarial Accrued Liability, Beginning of Year	$ 0	$ 0
Actuarially Determined Contribution	196,411,972	190,091,516
Actual Contributions (excluding Risk Management Contribution)	(196,411,972)	(190,091,516)
Interest to end of Year	0	0
Initial Frozen Unfunded Actuarial Accrued Liability, End of Year	$ 0	$ 0
Net increase or decrease	$ 0	$ 0
Frozen Unfunded Actuarial Accrued Liability, End of Year	$ 0	$ 0

Changes from Prior Year

Table 1.5 – Reconciliation of Key Measures

	2015 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, 2016	2016 Actuarial Valuation Results
Normal Cost Rate with Expense Provision	10.735%	--	0.009%	--	10.744%
Funding Period	N/A	--	--	--	N/A
Frozen Unfunded Actuarial Accrued Liability	$0	--	--	--	$0
Actuarial Value Funded Ratio	100.0%	--	--	--	100.0%
Fair Value Funded Ratio	104.1%	(7.2%)	--	--	96.9%

[1] SDRS Actuarial Investment and Liability Gains and Losses impact the Fair Value Funded Ratio immediately. The Actuarial Value of Assets is increased by the SDRS Liability Loss or decreased by the SDRS Liability Gain each year.

[2] Changes to the membership from year to year will cause minor changes in the Normal Cost Rate.

Liability Gains and Losses for the Fiscal Year Ended June 30, 2016

SDRS liabilities as of June 30, 2016 were $77 million higher than expected, or 0.62% of the Present Value of All Benefits. The sources of the $77 million total experience liability loss were as follows:

Table 1.6 – Liability Gains/(Losses)

Item	Amount of Liability Gain/(Loss)	Percent of Present Value of All Benefits
Gain/(Loss) due to Compensation Increases	$ (11 million)	(0.09%)
Gain/(Loss) due to Decrements	(11 million)	(0.09%)
Gain/(Loss) due to July 1, 2015 Retirements[1]	(18 million)	(0.14%)
Gain/(Loss) due to Rehired and New Members	(7 million)	(0.06%)
Gain/(Loss) due to COLA for Continuing Inactive Members	(24 million)	(0.19%)
Miscellaneous Gain/(Loss)	(6 million)	(0.05%)
Total Experience Liability Gain/(Loss)	$ (77 million)	(0.62%)

[1] Prior Actuarial Valuations treated some active members who were retiring at the July 1 immediately following the valuation date as terminated vested members. The subsequent Actuarial Valuation then recognized a loss due to the immediate benefit commencement. Beginning with this 2016 Actuarial Valuation, active members who are retiring at the July 1 immediately following the valuation date are counted as deferred vested members, but valued recognizing their immediate benefit commencement.

SDRS liability experience for the year ended June 30, 2016 included the following:

- The number of active Members increased by 1.4%, prior year compensation for all Members increased by 4.2% and average prior year compensation increased by 2.8%.

- The average age of active Members decreased from 45.1 to 45.0 years and the average Credited Service decreased from 11.1 to 11.0 years.

- The number of SDRS Members and Beneficiaries receiving benefits increased by 3.7% and the average benefit paid increased by 2.6%.

- Average compensation for active Members included in the prior Actuarial Valuation increased by 5.2% compared to an assumed increase of 4.9%.

- Decremental experience was mixed. The experience included:

    - Losses due to fewer vested members terminating than expected
    - Losses from the July 1, 2016 Cost-of-Living Adjustment (COLA) of 3.1% that was higher than the assumed 2.7%
    - Losses from more retirements than anticipated, particularly at younger ages
    - Losses from mortality even though the number of deaths was greater than expected
    - Neutral disability experience
    - Losses due to the service credited to rehired Members who have not previously withdrawn their contributions

The net liability loss for the year ended June 30, 2016 of $77 million is allocated equally to the Reserve for Funding of Long-Term Benefit Goals for the year ended June 30, 2016 and the next four years.

Asset Gains and Losses for the Fiscal Year Ended June 30, 2016

For the year ended June 30, 2016, the actual investment return of SDRS was less than the expected 7.25% investment return on the Actuarial Value of Assets by $716 million as summarized below.

Table 1.7 – Actuarial Investment Gain/(Loss)	
Actual Investment Return for the Year Ended June 30, 2016 (Table 2.2)	$ 22,836,265
Expected Investment Return Based on Actuarial Value of Assets (Table 2.3)	739,250,240
Actuarial Investment (Loss) (Actual less Expected)	$ (716,413,975)

The money-weighted investment return based on the Fair Value of Assets of the System for the year ended June 30, 2016 was 0.21% after investment expenses (0.30% on a time-weighted basis). The Actuarial Value of Assets was credited with the assumed investment return of 7.25% (or $739 million) for the year and increased by the net liability loss of $77 million for the year.

Reserve for Funding of Long-Term Benefit Goals

The Reserve for Funding of Long-Term Benefit Goals (Reserve) indicates the portion of the Cushion that is available to fund recommended benefit improvements if otherwise permitted under the Board of Trustees' Policy for Benefit Improvements. SDRS gains and losses are allocated to the Reserve for Funding of Long-Term Benefit Goals. The amounts currently in the Reserve and remaining to be allocated in the next four years are an important indicator of the System's net cumulative experience. The Reserve currently has a negative balance of $909 million. Over the next four years, net asset and liability gains of $486 million will be allocated to the Reserve. Additional Actuarial Asset and Liability Gains will be required to return the Reserve to a positive balance. If future System experience meets the assumptions, the Risk Management Contribution will slowly eliminate the current negative balance in the Reserve. However, deviations from expected future results will likely be greater than the Risk Management Contribution with future unfavorable experience reducing the Cushion and the Reserve or future favorable experience increasing the Cushion and the Reserve. A positive Reserve and Cushion provides a source of funds for future benefit improvements or protection against unfavorable experience.

For the fiscal year ended June 30, 2016, SDRS experienced Actuarial Investment Losses of $716 million and Net Liability Losses of $77 million. All of the 2016 Actuarial Investment Losses and $15 million of the 2016 Net Liability Losses reduced the Reserve this year. This was offset by $379 million of prior net investment and liability gains and $31 million due to the Risk Management Contribution. As a result, the Reserve decreased by $321 million during the year.

As of June 30, 2016 the Reserve has a negative balance of $909 million and accumulated net gains of $486 million that will be allocated to the Reserve over the next four years

Since 1995, the SDRS cumulative favorable experience has resulted in significant allocations to the Reserve that have been used to fund benefit improvements and actuarial assumption changes:

- Net Actuarial Investment Gains/(Losses) of $1.770 billion, of which $1.161 billion have been allocated to the Reserve and $0.609 billion will be allocated over the next four years.
- Net Liability Gains/(Losses) of $(241 million), of which $(119 million) have been allocated to the Reserve and $(122 million) will be allocated over the next four years.
- A total allocation to the Reserve to date of $1.042 billion due to gains and losses.
- A reduction of $1.155 billion due to benefit improvements funded from the Reserve in prior years.
- Corrective Actions of $416 million credited to the Reserve.
- A reduction to the Cushion and Actuarial Value of Assets of $77 to reach 29-year funding as of June 30, 2012.
- A reduction to the Cushion and Actuarial Value of Assets of $634 million to eliminate the Unfunded Actuarial Accrued Liability as of June 30, 2013.
- A reduction to the Cushion and Actuarial Value of Assets of $599 million to fund the mortality assumption and benefit changes as of June 30, 2015.
- Risk Management Contributions of $98 million credited to the Reserve and Cushion.

This has resulted in a negative balance in the Reserve as of June 30, 2016 of $909 million, with $486 million remaining to be allocated in the next four years to the Reserve.

Table 1.8 – Development of Reserve for Funding of Long-Term Benefit Goals as of June 30, 2016	
1. Fair Value of Assets at Beginning of Year	$ 10,776,533,615
2. Actuarial Value of Assets at Beginning of Year	10,352,405,041
3. Non-Investment Cash Flow (excluding Risk Management Contribution)[1]	(317,250,716)
4. Actual Investment Return Based on Fair Value of Assets	$ 22,836,265
5. Expected Investment Return Based on Actuarial Value of Assets	739,250,240
6. Actuarial Investment Gain or (Loss) for the Year Ended June 30, 2016	$ (716,413,975)
7. Allocation of Actuarial Investment Gains Over Five Years and Actuarial Investment Losses Over One Year:	
0% of $(460,776,578) for year ended June 30, 2012	$ 0
20% of $907,985,113 for year ended June 30, 2013	181,597,023
20% of $1,067,275,284 for year ended June 30, 2014	213,455,057
0% of $(270,610,605) for year ended June 30, 2015	0
100% of $(716,413,975) for year ended June 30, 2016	(716,413,975)
Total Allocated for the Current Year	$ (321,361,895)
8. Cumulative Amount of Actuarial Investment Gains Remaining to be Allocated in Future Years	$ 608,507,135
9. SDRS Liability Gain or (Loss) for the Year Ended June 30, 2016	$ (76,847,737)
10. Allocation of SDRS Liability Gain or (Loss) Over Five Years:	
20% of $50,626,270 for year ended June 30, 2012	$ 10,125,254
20% of $(6,555,438) for year ended June 30, 2013	(1,311,088)
20% of $(67,239,772) for year ended June 30, 2014	(13,447,954)
20% of $(54,423,589) for year ended June 30, 2015	(10,884,718)
20% of $(76,847,737) for year ended June 30, 2016	(15,369,547)
Total Allocated for Current Year	$ (30,888,053)
11. Cumulative Amount of SDRS Liability Gain or (Loss) to be Allocated in Future Years	$ (122,339,340)
12. Reserve for Funding of Long-Term Benefit Goals	
a. Balance at End of Prior Year	$ (587,944,576)
b. Total Allocated for Current Year (7 + 10)	(352,249,948)
c. Risk Management Contribution	31,342,963
d. Balance at End of current Year	$ (908,851,561)
e. Net Gains to be Allocated in Future Years	$ 486,167,795

[1] Actuarially determined contributions of $196,411,972 plus purchase of service contributions of $778,435 less benefit payments, refunds and administrative expenses of $514,441,123

Changes in the Reserve for Funding of Long-Term Benefit Goals from June 30, 2015 to June 30, 2016 were:

Table 1.9 – Development of Reserve for Funding of Long-Term Benefit Goals as of June 30, 2016	
Balance as of June 30, 2015	$ (587,944,576)
Plus Fiscal Year 2016 Experience	(731,783,522)
Plus Recognition of Prior Gains and Losses	379,533,574
Plus Risk Management Contribution	31,342,963
Balance as of June 30, 2016	$ (908,851,561)
Net Gain to be Allocated in Future Years	$ 486,167,795

Table 1.10 – Allocations of Gains and (Losses) to the Reserve for Funding of Long-Term Benefit Goals
(Dollars in Millions)

Actuarial Investment Gains/(Losses)												
Year Ended June 30	Actuarial Investment Gain/(Loss)	2012	2013	2014	2015	Recognized As of June 30, 2015	Recognized in FYE 2016	To Be Recognized in Future Years	2017	2018	2019	2020
1995-2011	$ 1,243					$ 1,243						
2012	(461)	$(461)	$ 0	$ 0	$ 0	(461)	$ 0					
2013	908		181	181	182	544	182	$ 182	$ 182			
2014	1,067			213	214	427	213	427	213	$ 214		
2015	(271)				(271)	(271)	0	0	0	0	$ 0	
2016	(716)					0	(716)	0	0	0	0	$ 0
Subtotals						**$ 1,482**	**$ (321)**	**$ 609**				
Liability Gains/(Losses)												
Year Ended June 30	Liability Gain/(Loss)	2012	2013	2014	2015	Recognized As of June 30, 2015	Recognized in FYE 2016	To Be Recognized in Future Years	2017	2018	2019	2020
1995-2011	$ (87)					$ (87)						
2012	51	$ 10	$ 10	$ 10	$ 10	40	$ 11					
2013	(7)		(1)	(1)	(2)	(4)	(2)	$ (1)	$ (1)			
2014	(67)			(13)	(13)	(26)	(14)	(27)	(14)	$ (13)		
2015	(54)				(11)	(11)	(11)	(32)	(11)	(11)	$ (10)	
2016	(77)					0	(15)	(62)	(15)	(15)	(16)	$ (16)
Subtotals						**$ (88)**	**$ (31)**	**$ (122)**				
Grand Total						**$ 1,394**	**$ (352)**	**$ 486**[1]				

[1]Sum off by one due to rounding.

Total Allocations to Reserve (1995-2016)	$ 1,042
Less Benefit Improvements Funded by the Reserve	(1,155)
Plus Adjustment for Corrective Action	416
Less Adjustment to Cushion/AVA to Reach 29-Year Funding – 2012	(77)
Less Adjustment to Cushion/AVA to Eliminate Unfunded Liability – 2013	(634)
Less Adjustment to Cushion/AVA to Fund Mortality Assumption/Benefit Change - 2015	(599)
Plus Risk Management Contribution – 2015 through 2016	98
Reserve Balance at June 30, 2016	$ (909)
Net Gains to be Allocated to Reserve in Future Years as of June 30, 2016	$ 486

Actuarial Soundness

The determination of the funded status and funding requirements of SDRS based on the Actuarial Valuation of the System are the most important indicators of the long-term actuarial soundness of SDRS. The soundness is measured by:

- The Actuarial Value Funded Ratio,
- The Fair Value Funded Ratio,
- The relationship of the Normal Cost to the total fixed, statutory contributions available,
- The length of the Funding Period if an Unfunded Liability exists (a shorter period being more favorable),
- The excess of the Fair Value of Assets over the Actuarial Value of Assets (the Cushion), or alternatively
- The amount by which the Fair Value of Assets is less than the Actuarial Value of Assets (the Deficit)

The Actuarial Value of Assets is increased each year with expected investment returns and is limited by a 20% corridor around the Fair Value of Assets. Should a Deficit exist for five consecutive years, the Actuarial Value of Assets will be re-initialized to the Fair Value of Assets at that time. Using the Actuarial Value of Assets to determine the Actuarial Value Funded Ratio and the Unfunded Actuarial Accrued Liability insulates those measures from short-term market fluctuation while still reflecting the long-term expected value of the Fair Value of Assets.

Based on the Actuarial Value of Assets, the Actuarial Value Funded Status remains at 100% and the Unfunded Frozen Actuarial Accrued Liability remains at $0 at June 30, 2016.

Investment performance was unfavorable for the year ended June 30, 2016 and created a loss, eliminating the $424 million Cushion that existed at June 30, 2015 and creating a Deficit of $338 million.

If future investment returns are exactly as assumed, the Risk Management Contribution, the excess of the fixed, statutory member and employer contributions over the Normal Cost and expenses, will over a number of years eliminate the existing Deficit and build a Cushion.

Future events such as adverse investment returns, continuing increases in life expectancies greater than assumed, or other demographic losses may adversely impact the future funded status of SDRS.

The combination of actuarial assumptions and methods used in the Actuarial Valuation, the actual experience of the System, and the actuarial measures utilized 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). Further analysis during 2015 based on the current actuarial assumptions and current Member demographics 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 2 – Plan Assets, Risk Management Contribution, and Cushion

SDRS Fair Value of Assets

Table 2.1 – SDRS Fair Value of Assets Available for Benefits as of:	June 30, 2016	June 30, 2015
Assets		
Investments at current value	$ 10,494,761,258	$ 10,757,834,674
Cash and temporary investments	6,915,822	6,807,072
Contributions receivable	5,127,954	4,985,312
Benefits receivable	35,208	36,882
Accounts receivable (unsettled investment sales)	19,611,040	1,607,147
Investment income receivable	31,516,906	21,692,992
Properties	8,202	11,287
Due from Brokers	0	0
Other assets	1,793,701	1,053,666
Total Assets	$ 10,559,770,091	$ 10,794,029,032
Liabilities		
Accounts payable and accrued expenses	$ 2,123,716	$ 2,730,400
Accounts payable (unsettled investment purchases)	26,685,838	11,263,148
Securities sold, but not yet purchased	0	0
Due to Brokers	17,498,410	3,501,869
Total Liabilities	$ 46,307,964	$ 17,495,417
Fair Value of Assets Available for Benefits	**$ 10,513,462,127**	**$ 10,776,533,615**

Table 2.2 – Changes in SDRS Fair Value of Assets for Year Ended:	June 30, 2016	June 30, 2015
Fair Value of Assets at Beginning of Year	$10,776,533,615	$10,607,554,492
Additions		
Member and Employer Contributions	$ 227,754,935	$ 218,795,180
Service Purchase/Redeposits/SPB Purchases	778,435	907,377
Investment Return Net of Investment Expenses	22,836,265	435,682,659
Total Additions	**$ 251,369,635**	**$ 655,385,216**
Deductions		
Benefit Payments	$ (487,053,001)	$ (456,297,424)
Accumulated Contribution Refunds	(23,443,481)	(26,197,447)
Administrative Expenses	(3,944,641)	(3,911,222)
Total Deductions	**$ (514,441,123)**	**$ (486,406,093)**
Net Increase/(Decrease)	**$ (263,071,488)**	**$ 168,979,123**
Fair Value of Assets at End of Year	**$10,513,462,127**	**$10,776,533,615**

SDRS Actuarial Value of Assets

Table 2.3 – Development of the SDRS Actuarial Value of Assets as of:	June 30, 2016	June 30, 2015
1. Actuarial Value of Assets, Beginning of Year	$ 10,352,405,041	$ 9,887,095,388
2. Contributions and Disbursements:		
Actuarially Determined Contribution (Table 2.4)	$ 196,411,972	$ 190,091,516
Purchase of Service Contributions (Table 2.2)	778,435	907,377
Benefit Payments and Refunds (Table 2.2)	(510,496,482)	(482,494,871)
Administrative Expenses (Table 2.2)	(3,944,641)	(3,911,222)
Total Contributions and Disbursements	$ (317,250,716)	$ (295,407,200)
3. Expected Investment Return	739,250,240	706,293,264
4. SDRS Liability Gain/(Loss) (Table 1.6)	(76,847,737)	(54,423,589)
5. Preliminary Actuarial Value of Assets (1 + 2 + 3 – 4)	$ 10,851,252,302	$ 10,352,405,041
6. Fair Value of Assets (Table 2.1)	$ 10,513,462,127	$ 10,776,533,615
7. Constraining Values:		
a. 80% of Fair Value of Assets	$ 8,410,769,702	$ 8,621,226,892
b. 120% of Fair Value of Assets	$ 12,616,154,552	$ 12,931,840,338
8. Actuarial Value of Assets, End of Year (Item 5, not less than 7a nor more than 7b)	$ 10,851,252,302	$ 10,352,405,041

SDRS Risk Management Contribution

Table 2.4 – Development of the Risk Management Contribution for the Year Ended:	June 30, 2016	June 30, 2015
1. Actual Contributions		
a. Member and Employer Contributions	$ 227,754,935	$ 218,795,180
b. Service Purchase/Redeposits/SPB Purchases	778,435	907,377
Total Contributions	$ 228,533,370	$ 219,702,557
2. Estimated Covered Payroll	$1,829,641,099	$ 1,758,315,755
3. Required Contribution Rate (Normal Cost plus Expenses)	10.735%	10.811%
4. Actuarially Determined Contribution (2 x 3)	$ 196,411,972	$ 190,091,516
5. Risk Management Contribution (1a – 4)	$ 31,342,963	$ 28,703,664

Changes in the Cushion

Table 2.5 – Changes in the Cushion for the Year Ended:	June 30, 2016	June 30, 2015
Cushion at Beginning of Year	**$ 424,128,574**	**$ 720,459,104**
Liability Gain/(Loss)	(76,847,737)	(54,423,589)
Actuarial Investment Gain/(Loss)	(716,413,975)	(270,610,605)
Risk Management Contribution	31,342,963	28,703,664
Net Changes to the Cushion	**$ (761,918,749)**	**$ (296,330,530)**
Cushion at End of Year	**$ (337,790,175)**	**$ 424,128,574**

Section 3 – Accounting Information

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, 2015. 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 and June 30, 2015.

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, 2016, plan membership consisted of:

Table 3.1 – Plan Membership

Inactive plan Members or Beneficiaries currently receiving benefits	26,554 [1]
Inactive plan Members entitled to but not receiving benefits	17,554
Active plan Members	39,940
Total plan Members	84,048

[1] Includes 134 Members whose benefits have been suspended but are entitled to future benefits.

Benefits provided: See Section 5 of this report for a summary of SDRS benefit provisions.

Net Pension Liability/(Asset)

SDRS's fiduciary net position is 96.9% of the System's Total Pension Liability as of June 30, 2016. Therefore, the System has a Net Pension Liability. The components of the Net Pension Liability of SDRS as of June 30, 2016 are as follows:

Table 3.2 – Net Pension Liability/(Asset)

Total Pension Liability	$ 10,851,252,302
Plan Fiduciary Net Position	(10,513,462,127)
Net Pension Liability/(Asset)	$ 337,790,175
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	96.89%
Estimated covered payroll during fiscal year 2016	$ 1,829,641,099
Net Pension Liability/(Asset) as a percentage of covered payroll	18.46%

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, 2016 using the following actuarial assumptions applied to all periods included in the measurement:

Table 3.3 – Actuarial Assumptions

Measurement Date	June 30, 2016
Inflation	3.25%
Salary Increases	Graded by years of service, from 5.83% at entry to 3.75% after 30 years of service
Discount Rate	7.25% through June 30, 2017 and 7.50% thereafter, net of investment expenses. This is composed of an average inflation rate of 3.25% and real returns of 4.00% through June 30, 2017 and 4.25% thereafter.
Mortality Rates	Active: RP-2000 Employee Mortality Table, projected generationally with Scale BB, with male rates multiplied by 85% and female rates multiplied by 48%. Inactive Members, retired Members and Beneficiaries (non-disabled): RP-2000 Combined Healthy Mortality Table, projected generationally with Scale BB, with male rates multiplied by 91% and female rates multiplied by 90%. Disabled Members: RP-2000 Disabled Retiree Mortality Table, projected generationally with Scale BB

The actuarial assumptions used in the June 30, 2016 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, 2005 through June 30, 2011 and additional study of mortality experience through June 30, 2013.

The long-term expected rate of return on plan investments was determined during the actuarial experience study using the General Economy and Market Simulator, an econometric model which forecasts the economic environments of global economy and stochastically generates expected rates of return of investments held in domestic and foreign markets under expected changes in economic conditions.

The actuarial assumptions were recommended by the System's 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 consulting actuary during the actuarial experience study. The SDRS Board adopted a discount rate of 7.25% through June 30, 2017 and 7.50% thereafter. The difference between the expected long-term rate of investment return and the discount rate represents a margin for adverse deviation as allowed under Actuarial Standards of Practice No. 27. 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 7.25% through June 30, 2017 and 7.50% thereafter, as well as the Net Pension Liability/(Asset) if it were calculated using a discount rate that is one percentage point lower (6.25%/6.50%) and one percentage point higher (8.25%/8.50%) than the current rate:

Table 3.4 – Sensitivity of the Net Pension Liability/(Asset) to Discount Rate Changes

	1% Decrease (6.25%/6.50%)	Current Discount Rate (7.25%/7.50%)	1% Increase (8.25%/8.50%)
Net Pension Liability/(Asset)	$ 1,890,269,326	$ 337,790,175	$ (928,423,300)

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, 2016 and June 30, 2015:

Table 3.5 – Changes in the Net Pension Liability/Asset for the Year Ended:	June 30, 2016	June 30, 2015
Total Pension Liability		
Service cost	$ 184,923,317	$ 179,349,820
Interest	745,774,586	712,632,857
Changes of benefit terms	N/A	N/A
Differences between expected and actual experience	78,645,840	55,821,847
Changes of assumptions	N/A	N/A
Benefit payments	(510,496,482)	(482,494,871)
Net change in Total Pension Liability	**$ 498,847,261**	**$ 465,309,653**
Total Pension Liability – beginning	**10,352,405,041**	**9,887,095,388**
Total Pension Liability – ending	**$ 10,851,252,302**	**$ 10,352,405,041**
Plan Fiduciary Net Position		
Contributions – employers	$ 114,090,075	$ 109,549,977
Contributions – members	114,443,295	110,152,580
Net investment income	22,836,265	435,682,659
Benefit payments, including refunds of member contributions	(510,496,482)	(482,494,871)
Administrative expenses	(3,944,641)	(3,911,222)
Other	0	0
Net change in Plan Fiduciary Net Position	**$ (263,071,488)**	**$ 168,979,123**
Plan Fiduciary Net Position – beginning	**$ 10,776,533,615**	**$ 10,607,554,492**
Plan Fiduciary Net Position – ending	**$ 10,513,462,127**	**$ 10,776,533,615**
Plan Net Pension Liability/(Asset) – ending (Total Pension Liability less Plan Fiduciary Net Position)	**$ 337,790,175**	**$ (424,128,574)**

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 and 2015, and Pension Plan Expense for the year ended June 30, 2016.

Table 3.6 – Plan Pension Expense/(Revenue) for the Year Ended:

	June 30, 2016	June 30, 2015
Service Cost	$ 184,923,317	$ 179,349,820
Interest	745,774,586	712,632,857
Expected investment return	(771,115,865)	(759,548,852)
Changes of benefit terms recognized immediately	N/A	N/A
Contributions – employers	(114,090,075)	(109,549,977)
Contributions – members	(114,443,295)	(110,152,580)
Administrative expenses	3,944,641	3,911,222
Amortization of difference between expected and actual experience	47,895,846	29,940,175
Amortization of changes of assumptions	133,986,959	133,986,959
Amortization of difference between projected and actual investment return on plan investments	5,825,884	(143,830,036)
Plan Pension Expense/(Revenue)	**$ 122,701,998**	**$ (63,260,412)**

Collective Pension Amounts

Table 3.7 – 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

Table 3.8 – 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
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

Changes of Assumptions

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

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
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

Table 3.9 – Deferred Outflows/(Inflows) of Resources

Arising from Differences between Expected and Actual Experience

Year Ended June 30	Experience Losses (a)	Experience Gains (b)	Amounts Recognized in Pension Expense through June 30,2016 (c)	Balances as of June 30, 2016: Deferred Outflows of Resources (a) – (c)	Balances as of June 30, 2016: Deferred Inflows of Resources (b) – (c)
2014	$ 78,328,269		$ 52,103,061	$ 26,225,208	
2015	55,821,847		25,144,976	30,676,871	
2016	78,645,840		17,955,671	60,690,169	

Arising from Changes of Assumptions

Year Ended June 30	Increases in the Total Pension Liability (a)	Decreases in the Total Pension Liability (b)	Amounts Recognized in Pension Expense through June 30,2016 (c)	Balances as of June 30, 2016: Deferred Outflows of Resources (a) – (c)	Balances as of June 30, 2016: Deferred Inflows of Resources (b) – (c)
2014	$ 604,281,184		$ 401,960,877	$ 202,320,307	
2015	0				
2016	0				

Arising from Differences between Projected and Actual Investment Return

Year Ended June 30	Investment Earnings Less Than Projected (a)	Investment Earnings Greater Than Projected (b)	Amounts Recognized in Pension Expense through June 30,2016 (c)	Balances as of June 30, 2016: Deferred Outflows of Resources (a) – (c)	Balances as of June 30, 2016: Deferred Inflows of Resources (b) – (c)
2014		$(1,043,016,375)	$ (625,809,825)		$ (417,206,550)
2015	$ 323,866,193		129,546,478	$ 194,319,715	
2016	748,279,600		149,655,920	598,623,680	
Grand Total				**$1,112,855,950**	**$ (417,206,550)**

Table 3.10 – Schedule of Member and Employer Contributions

Year Ended June 30	Actuarially Determined Total Contribution (Table 2.4) (a)	Member Contributions Excluding Purchases (b)	Actuarially Determined Employer Contribution (ADC) (Table 2.4) (c) = (a) – (b)	Employer Contributions Related to the Actuarially Determined Employer Contribution (Table 2.4) (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	$ 172,001,459	$ 104,725,097	$ 67,276,362	$ (104,952,985)	$ (37,676,623)	$1,685,627,785	6.226%
2015	190,091,516	109,245,203	80,846,313	(109,549,977)	(28,703,664)	1,758,315,755	6.230%
2016	196,411,972	113,664,860	82,747,112	(114,090,075)	(31,342,963)	1,829,641,099	6.236%

Table 3.11– Schedule of Investment Returns (Net of Investment Expenses)		
Year Ended	Money-Weighted	Time-Weighted
June 30, 2007	21.07%	21.06%
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%
10-Year Annualized Return	6.80%	6.80%

Section 4 – Member Data

Table 4.1 – Comparison of Member Data for the Years Ended:	June 30, 2016[1]	June 30, 2015[2]	Percent Change
Active Members			
Number	39,940	39,383	1.4%
Average Age	45.0	45.1	(0.2%)
Average Credited Service	11.0	11.1	(0.9%)
Total Prior Year Compensation	$ 1,724,418,364	$ 1,654,782,806	4.2%
Average Prior Year Compensation[3]	$ 43,194	$ 42,037	2.8%
Projected Current Year Compensation[4]	$ 1,858,343,856	$ 1,782,390,196	4.3%
Benefit Recipients			
Retired Members			
Number	22,850	22,016	3.8%
Average Age	71.8	71.7	0.1%
Total Annual Benefits[5]	$ 461,542,681	$ 433,469,574	6.5%
Average Annual Benefits	$ 20,199	$ 19,689	2.6%
Beneficiaries			
Number	3,278	3,180	3.1%
Total Annual Benefits	$ 39,556,086	$ 37,118,649	6.6%
Average Annual Benefits	$ 12,067	$ 11,673	3.4%
Disabled Members			
Number	292	293	(0.3%)
Total Annual Benefits	$ 3,920,530	$ 4,102,003	(4.4%)
Average Annual Benefits	$ 13,426	$ 14,000	(4.1%)
Total Benefit Recipients			
Number	26,420	25,489	3.7%
Total Annual Benefits	$ 505,019,297	$ 474,690,226	6.4%
Average Annual Benefits	$ 19,115	$ 18,623	2.6%
Suspended Benefit Recipients[6]			
Number of Suspended Retirees	45	42	7.1%
Number of Suspended Beneficiaries	89	125	(28.8%)
Total Suspended Benefit Recipients	134	167	(19.8%)
Terminated Members			
Number – Vested	9,382	8,993	4.3%
Number – Non-Vested	8,172	7,601	7.5%
Total Terminated Members	17,554	16,594	5.8%
Total System Members	**84,048**	**81,633**	**3.0%**

[1]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.
[2]Counts include former Cement Plant Retirement Plan Members. As of June 30, 2015: 18 Active Members, 208 Retired Members, 30 Beneficiaries, 7 Disabled Members and 48 Terminated Vested Members.
[3]Excludes active, former Cement Plant Retirement Plan Members for whom no compensation is reported. 2015 average revised for exclusion.
[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 $180,962 in annual benefits that are suspended at June 30, 2016 and $184,778 that were suspended at June 30, 2015.
[6]Suspended Benefit Recipients are excluded from other counts, but included in the Total System Members.

Table 4.2 – Distribution of Number and Average Prior Year Compensation of Active Members as of June 30, 2016[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	1,449	96	9								1,554
	Avg Compensation	$24,376	$33,434	$36,474								$25,006
25-29	Number	2,128	1,360	699	6							4,193
	Avg Compensation	$30,491	$39,448	$41,403	$40,218							$35,229
30-34	Number	1,401	927	1,811	544	7						4,690
	Avg Compensation	$32,130	$41,596	$43,779	$47,166	$43,484						$40,260
35-39	Number	1,098	590	1,135	1,345	467	2					4,637
	Avg Compensation	$30,512	$41,529	$45,841	$49,297	$50,351	$62,834					$43,126
40-44	Number	770	507	878	873	1,168	333	7				4,536
	Avg Compensation	$31,492	$40,522	$44,372	$50,500	$52,648	$58,161	$53,554				$46,088
45-49	Number	701	410	794	758	814	924	401	4			4,806
	Avg Compensation	$31,235	$41,197	$42,661	$47,941	$52,570	$56,554	$56,378	$45,183			$47,189
50-54	Number	665	374	814	781	757	617	943	382	18		5,351
	Avg Compensation	$29,756	$39,167	$42,263	$45,744	$49,359	$54,517	$57,113	$61,208	$62,090		$47,439
55-59	Number	590	305	706	739	745	666	603	581	261	7	5,203
	Avg Compensation	$30,783	$41,969	$39,429	$42,521	$44,431	$51,061	$57,194	$60,606	$55,375	$56,422	$46,489
60-64	Number	329	224	575	575	540	437	393	270	254	90	3,687
	Avg Compensation	$28,398	$36,643	$41,087	$41,138	$43,267	$48,081	$51,997	$57,228	$59,001	$51,113	$44,665
65-69	Number	109	65	184	210	132	79	81	61	42	37	1,000
	Avg Compensation	$28,685	$31,405	$43,801	$38,544	$47,502	$43,259	$55,502	$56,274	$71,992	$71,538	$44,608
70-74	Number	26	15	45	53	35	8	8	8	5	8	211
	Avg Compensation	$21,581	$24,397	$28,618	$33,705	$36,318	$31,675	$33,346	$44,245	$40,332	$64,933	$32,548
75 and Over	Number	8	1	23	17	11	5	2		2	3	72
	Avg Compensation	$17,368	$18,285	$23,593	$20,423	$39,729	$50,408	$34,141		$41,597	$79,048	$29,510
Total	Number	9,274	4,874	7,673	5,901	4,676	3,071	2,438	1,306	582	145	39,940
	Avg Compensation	$29,759	$40,098	$42,899	$46,375	$49,168	$53,503	$56,026	$59,732	$58,188	$57,922	$43,194

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

Table 4.3 - Distribution of Active Members by Age as of June 30, 2016

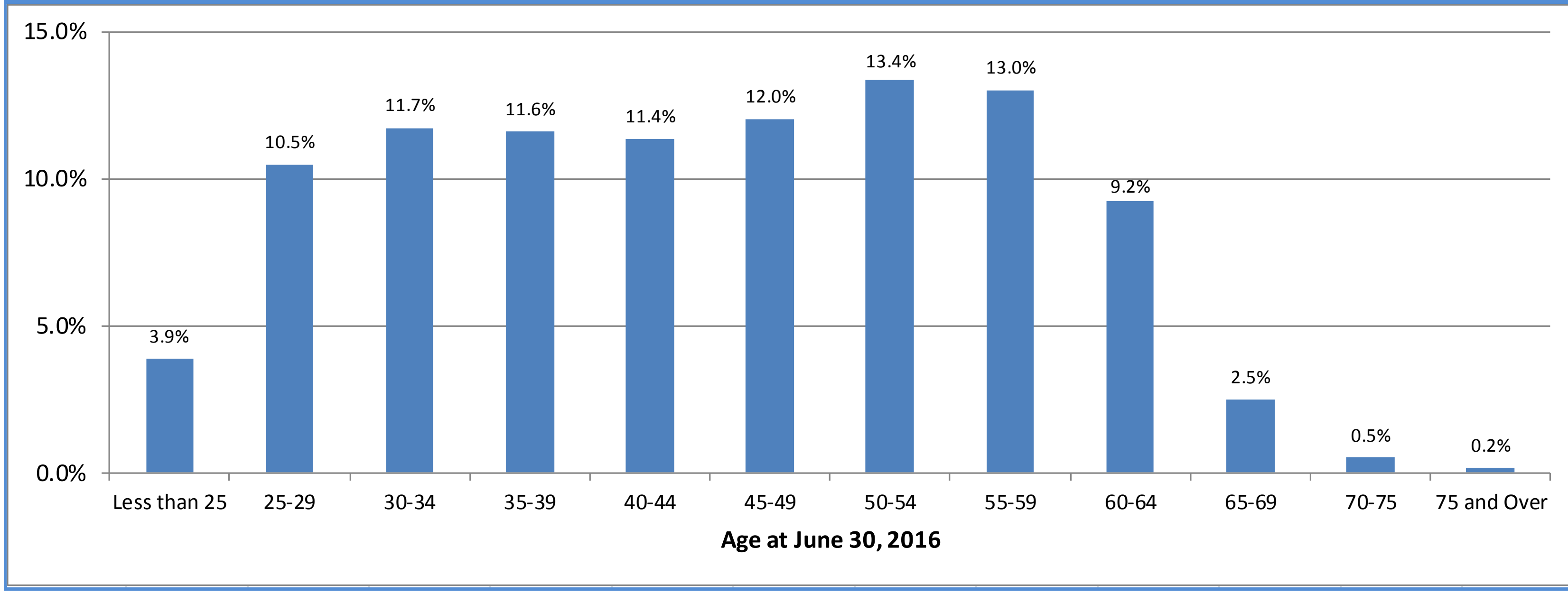


Table 4.4 - Distribution of Active Members by Credited Service as of June 30, 2016

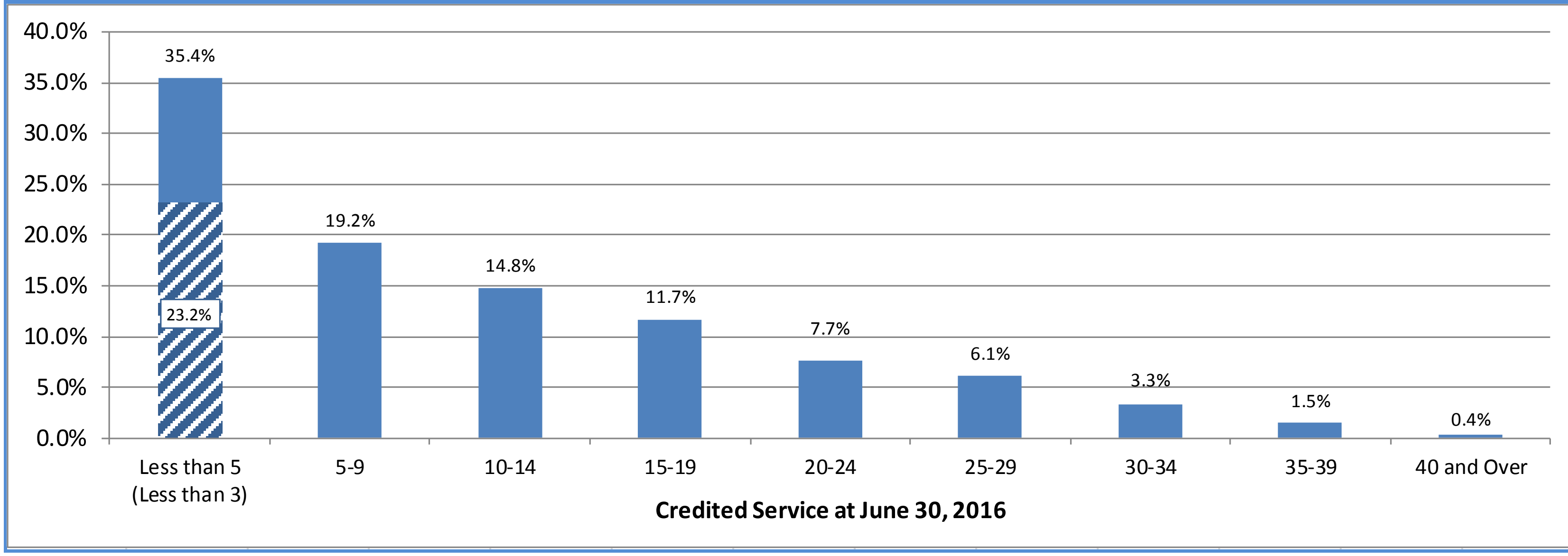


Table 4.5 - Distribution of Retirees, Beneficiaries and Disabled Members by Age as of June 30, 2016

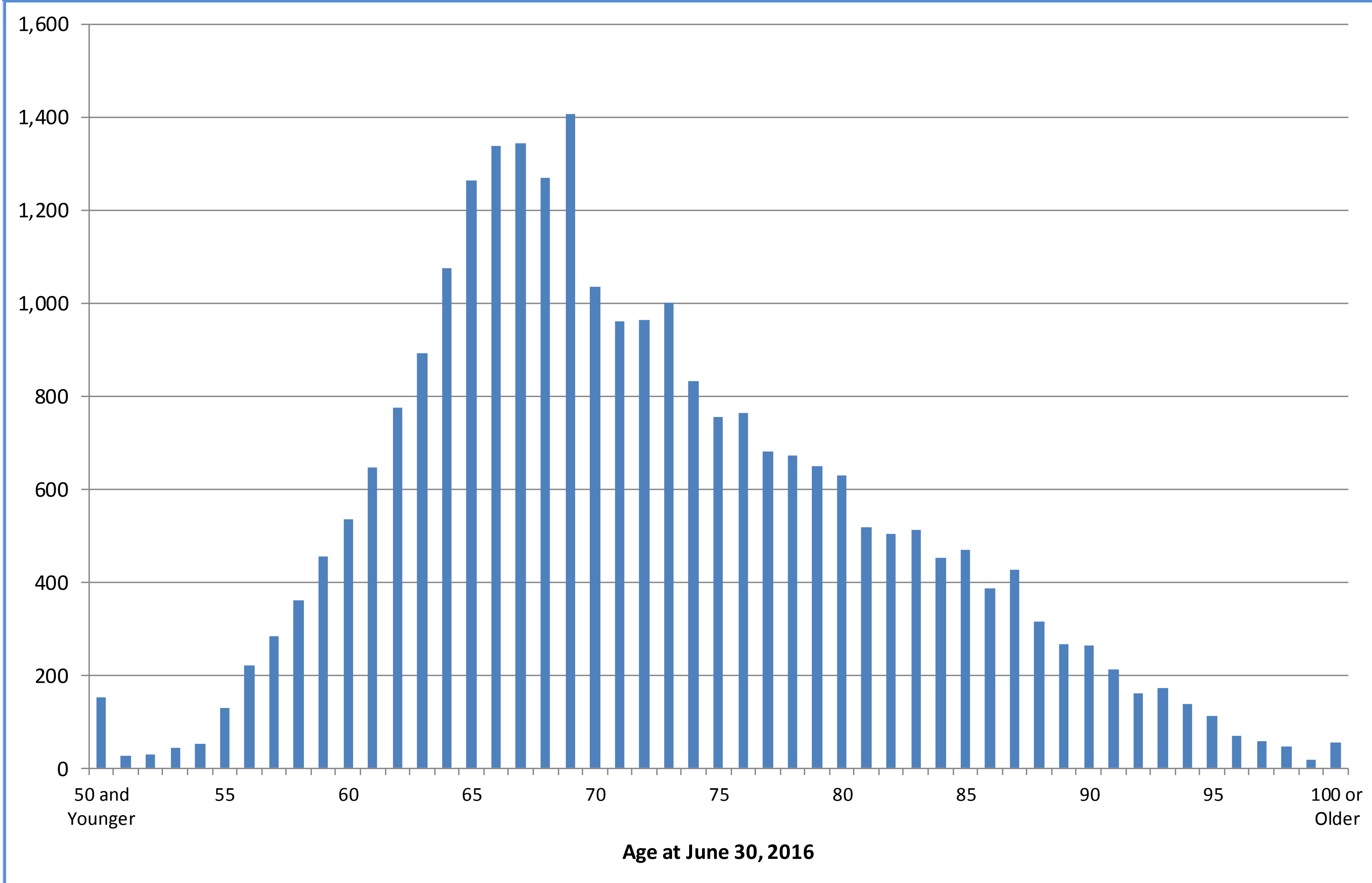
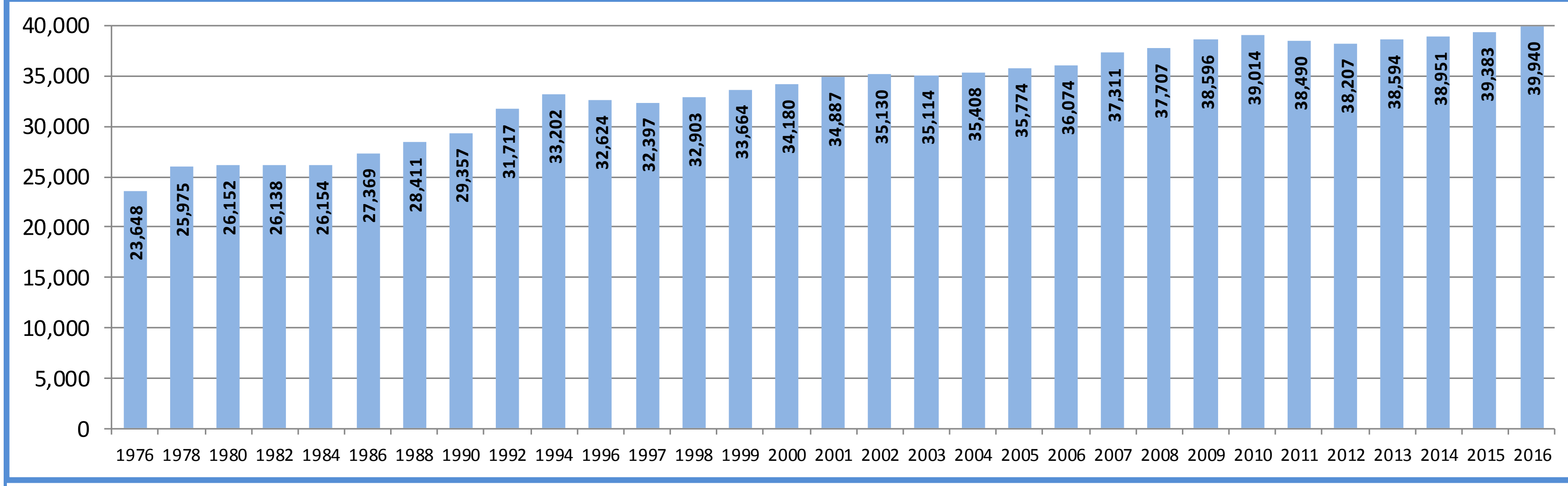
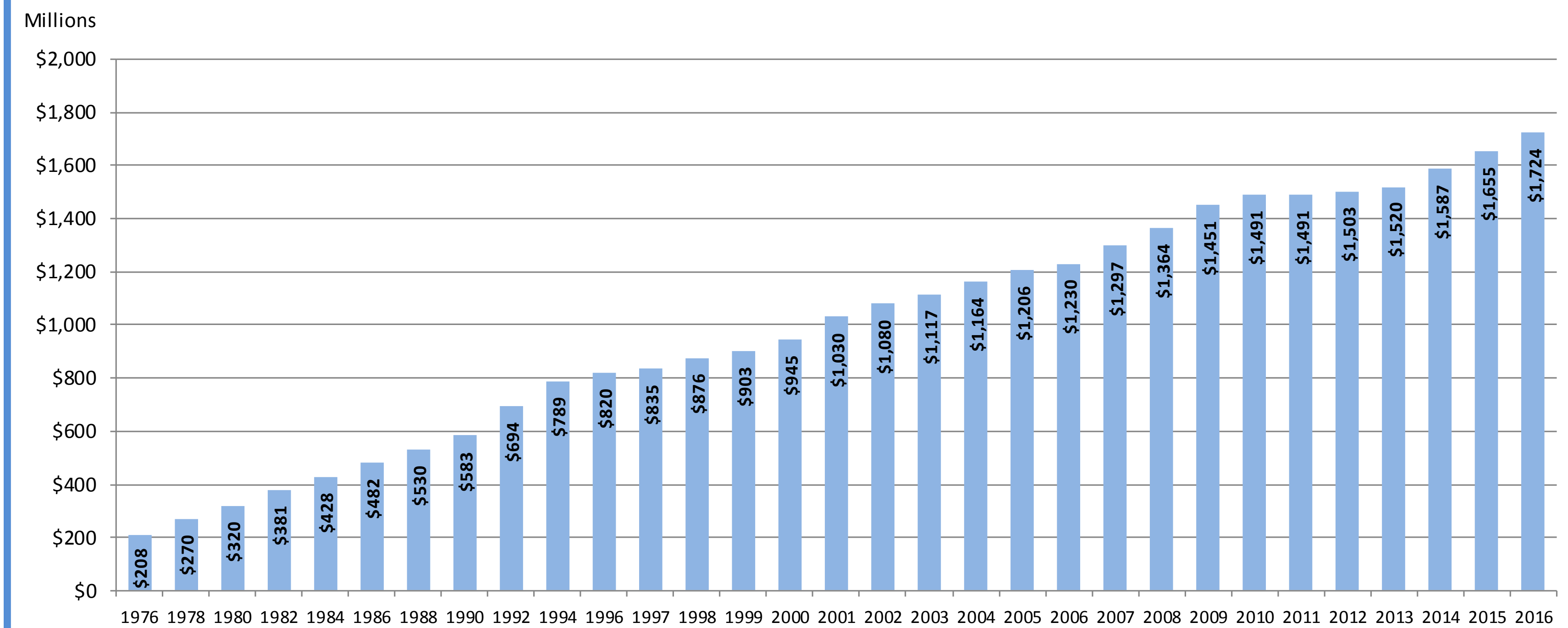


Table 4.6 - History of Active Membership



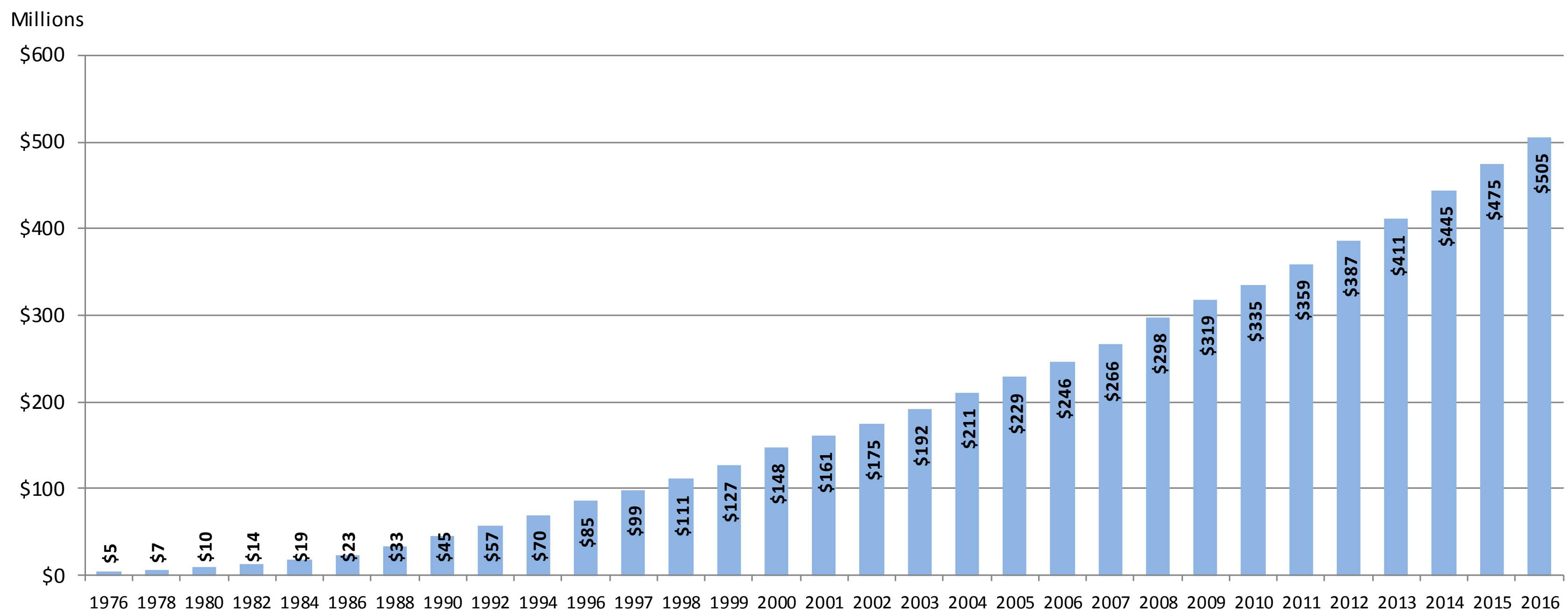
	1976	1978	1980	1982	1984	1986	1988	1990	1992	1994	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Percentage Increase Over Prior Actuarial Valuation		10%	1%	-	-	5%	4%	3%	8%	5%	(2%)	(1%)	2%	2%	2%	2%	1%	-	1%	1%	1%	3%	1%	2%	1%	(1%)	(1%)	1%	1%	1%	1%

Table 4.7 - 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%

Table 4.8 - 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%

Section 5 – Basis of the Valuation

Summary of Principal Benefit Provisions of SDRS As Amended Through the 2016 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, 2015, 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 an Administrator as the System's Executive Director and 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.

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

- Class A Member: All Members other than Class B 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. Details of the Generational benefit structure are omitted from this report because no current Members will receive benefits under the new structure.

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 personal services rendered during the period of credited service. 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 to a Section 125 cafeteria plan, paid during the period of Credited Service. Compensation does not include reimbursed business expenses, termination pay, payments for insurance coverage, or any other benefit, by an employer, payments attributable to retirement or an agreement to retire in the future, or worker's compensation payments 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.

Final Average Compensation

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 extraordinary increases in Compensation immediately before retirement.

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 7.25%.

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 Member's 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)

The annual increase in the amount of the SDRS benefits payable on each July 1st is indexed to the Consumer Price Index (CPI) and based on the SDRS Fair Value Funded Ratio (FVFR) as of the prior July 1. The amount of the increase is:

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

All benefits except those depending on the Member's Accumulated Contributions are annually increased by the COLA.

Normal Retirement Age

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

Normal Retirement Benefit

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.

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)

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

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, 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. 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.

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, 2016, 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, 2016, 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, 2016:

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, 2016:

If an active Member with at least three years of Contributory Service, or a member receiving a Disability Benefit approved after June 30, 2016 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

Upon the death of a retiree or any 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.

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

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

Retired Members' and terminated vested Members' benefits have been increased to reflect the benefit formula currently in effect for active 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 (COLA) 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, 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).

Description of Actuarial Methods and Valuation Procedures

Actuarial Cost Method

Liabilities and contributions shown in this report are computed using the **Frozen 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 **Frozen Entry Age Actuarial Cost Method**, the **Normal Cost** is computed as the percentage of pay which, if paid from the valuation date to each Member's assumed retirement or termination, together with the current assets and amortization payments would accumulate with interest at the assumed rate of investment return to a fund sufficient to pay all benefits under the plan.

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 sum of the Actuarial Value of Assets and the Unfunded Frozen 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 **Frozen Unfunded Actuarial Accrued Liability** is initially determined using the Entry Age Actuarial Cost Method, and is adjusted annually with interest at a rate assumed in the valuation and amortization payments made during the year. Effective for the June 30, 2013 valuation, the Frozen Unfunded Actuarial Accrued Liability was eliminated by an adjustment to the Actuarial Value of Assets, Cushion and Reserve for Funding of Long-Term Benefit Goals. The Entry Age Actuarial Cost Method will be used in future years to determine the Normal Cost. The Actuarial Accrued Liability will equal the Actuarial Accrued Liability calculated using the Entry Age Actuarial Cost Method and the Frozen Unfunded Actuarial Accrued Liability will remain at $0 unless and until it is increased to recognize a change in plan provisions or actuarial assumptions or to recognize a decrease in Actuarial Value of Assets required to remain in the 20% corridor around Fair Value of Assets.

Under this method, experience gains or losses, i.e., decreases or increases in liabilities attributable to deviations in experience from the actuarial assumptions, related to past service adjust the Actuarial Value of Assets and gains and losses related to future service adjust the Normal Cost.

Asset Valuation Method

The prior year's Actuarial Value of Assets is credited each year with the assumed rate of investment return plus non-investment cash flow and SDRS liability gains or losses for the year.

The resulting Actuarial Value of Assets is constrained to a range of 80% to 120% of the Fair Value of Assets. If an adjustment to the Actuarial Value of Assets is required to remain in this corridor, an adjustment will also be made to the Reserve for Funding of Long-Term Benefit Goals. Effective June 30, 2015, the Actuarial Value of Assets was increased and the Cushion and Reserve were decreased by $599 million in order to fund the mortality assumption and benefit changes as of June 30, 2015.

The Reserve for Funding of Long-Term Benefit Goals was included in the Actuarial Value of Assets for the years ended June 30, 1995 through June 30, 2003. As of June 30, 2004, the Reserve is no longer included in the Actuarial 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.

Summary of Actuarial Assumptions for the Actuarial Valuation as of June 30, 2016

The actuarial assumptions were recommended by the System's 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.

Investment Return/Discount Rate

7.25% per annum through June 30, 2017, 7.50% thereafter, compounded annually and net of investment expenses. This nominal rate includes price inflation of 3.25% per annum and a real rate of return of 4.00% through June 30, 2017 and 4.25% thereafter.

Measurement Date

June 30, 2016

Retirement Age

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

Table 5.1 – Assumed Retirement Rates

	Annual Rate per 100 Members Eligible to Retire											
	Class A School Members				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											6.0	5.0
46											6.0	5.0
47											6.0	5.0
48											6.0	10.0
49											6.0	10.0
50											9.0	10.0
51											9.0	10.0
52											9.0	10.0
53											9.0	10.0
54											11.0	15.0
55	7.0	6.5	17.5	13.5	5.0	4.0	17.5	12.5	8.0	15.0		15.0
56	7.0	6.5	12.5	12.5	5.0	4.0	8.0	8.0	8.0	5.0		7.5
57	7.0	6.5	12.5	12.5	5.0	4.0	8.0	8.0	2.0	5.0		7.5
58	7.0	6.5	12.5	12.5	5.0	4.0	8.0	8.0	2.0	5.0		11.0
59	7.0	7.5	12.5	17.5	5.0	6.0	12.0	11.0	2.0	5.0		12.5
60	9.0	8.5	12.5	17.5	6.0	8.0	12.0	11.0	2.0	10.0		12.5
61	12.5	12.0	25.0	22.5	10.0	9.5	17.5	11.0	2.0	10.0		25.0
62	12.5	12.5	25.0	25.0	13.5	12.0	30.0	22.5	2.0	15.0		25.0
63	12.5	12.5	17.5	22.5	13.5	12.0	25.0	17.5	2.0	12.7		25.0
64	17.5	20.0	20.0	22.5	17.5	20.0	25.0	17.5	2.0	20.0		25.0
65			30.0	35.0			40.0	32.5		20.0		100.0
66			25.0	25.0			25.0	20.0		15.0		
67			25.0	25.0			25.0	20.0		15.0		
68			25.0	25.0			25.0	20.0		25.0		
69			25.0	25.0			25.0	20.0		30.0		
70			30.0	30.0			30.0	30.0		100.0		
71-77			30.0	30.0			30.0	30.0				
78-79			50.0	50.0			30.0	30.0				
80			100.0	100.0			100.0	100.0				

Salary Increases

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

Table 5.2 – Assumed Rates of Salary Increases

Service	Merit and Seniority	Wage Inflation	Total Increase		Service	Merit and Seniority	Wage Inflation	Total Increase
0	2.0000%	3.75%	5.8250%		16	0.6544%	3.75%	4.4289%
1	1.9804%	3.75%	5.8047%		17	0.5894%	3.75%	4.3615%
2	1.8194%	3.75%	5.6376%		18	0.5242%	3.75%	4.2939%
3	1.6964%	3.75%	5.5100%		19	0.4688%	3.75%	4.2364%
4	1.6276%	3.75%	5.4386%		20	0.4236%	3.75%	4.1895%
5	1.5122%	3.75%	5.3189%		21	0.3839%	3.75%	4.1483%
6	1.4001%	3.75%	5.2026%		22	0.3524%	3.75%	4.1156%
7	1.2878%	3.75%	5.0861%		23	0.3214%	3.75%	4.0835%
8	1.2131%	3.75%	5.0086%		24	0.2918%	3.75%	4.0527%
9	1.1647%	3.75%	4.9584%		25	0.2702%	3.75%	4.0303%
10	1.0979%	3.75%	4.8891%		26	0.2507%	3.75%	4.0101%
11	1.0227%	3.75%	4.8111%		27	0.2299%	3.75%	3.9885%
12	0.9548%	3.75%	4.7406%		28	0.2127%	3.75%	3.9707%
13	0.8872%	3.75%	4.6705%		29	0.1957%	3.75%	3.9530%
14	0.8148%	3.75%	4.5954%		30	0.1159%	3.75%	3.8702%
15	0.7252%	3.75%	4.5024%		Over 30	0.0000%	3.75%	3.7500%

Disability

Sample rates are shown below:

Table 5.3– Sample Disability Rates

	Annual Rate per 100 Members					
	Class A School Members		Other Class A Members		Class B Public Safety Members	
Age	Male	Female	Male	Female	Male	Female
25	0.02	0.02	0.04	0.04	0.08	0.10
30	0.02	0.02	0.05	0.04	0.08	0.11
35	0.02	0.02	0.05	0.04	0.10	0.12
40	0.03	0.03	0.06	0.05	0.12	0.15
45	0.04	0.04	0.09	0.08	0.16	0.22
50	0.06	0.05	0.13	0.08	0.24	0.23
55	0.10	0.08	0.22	0.13	0.40	0.38
60	0.21	0.16	0.46	0.28	0.84	0.80
65	0.43	0.31	0.94	0.54	1.71	1.55

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.

Mortality

Effective with the June 30, 2015 Actuarial Valuation, the mortality assumption was updated to more accurately reflect anticipated future mortality improvement. The mortality assumption is as follows:

- Active Members: RP-2000 Employee Mortality Table, projected generationally with Scale BB, with male rates multiplied by 85% and female rates multiplied by 48%

- Retirees, Beneficiaries and Terminated Vested Members: RP-2000 Combined Healthy Mortality Table, projected generationally with Scale BB, with male rates multiplied by 91% and female rates multiplied by 90%

- Disabled Members: RP-2000 Disabled Mortality Table, projected generationally with Scale BB

Sample rates are shown below:

Table 5.4 – Sample Mortality Rates

	Annual Rate per 100 Members, Rates as of 2016					
	Active Members		Inactive Members		Disabled Members	
Age	Male	Female	Male	Female	Male	Female
25	0.03	0.01	0.03	0.02	2.15	0.71
30	0.04	0.01	0.04	0.02	2.15	0.71
35	0.06	0.02	0.07	0.04	2.15	0.71
40	0.09	0.03	0.09	0.06	2.15	0.71
45	0.12	0.05	0.13	0.10	2.15	0.71
50	0.17	0.08	0.19	0.14	2.76	1.10
55	0.25	0.11	0.31	0.23	3.38	1.53
60	0.37	0.16	0.55	0.39	3.76	1.86
65	0.53	0.23	0.96	0.72	4.14	2.31

Pre-Retirement Termination

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

Sample rates are shown below:

Table 5.5a – Assumed Termination Rates – First 5 Years of Employment

	Annual Rate per 100 Members				
	Class A School Members		Other Class A Members		Class B Public Safety Members
Service	Male	Female	Male	Female	
0	22.50	25.00	17.50	21.00	18.00
1	17.50	17.50	14.00	18.00	12.50
2	15.00	15.00	11.00	15.00	11.00
3	12.50	12.50	9.00	12.50	10.00
4	10.00	10.00	7.00	9.50	10.00

Table 5.5b – Sample Termination Rates – After 5 Years of Employment

	Annual Rate per 100 Members				
	Class A School Members		Other Class A Members		Class B Public Safety Members
Age	Male	Female	Male	Female	
25	16.80	15.80	9.90	10.80	11.00
30	11.20	11.20	8.20	9.10	9.50
35	8.50	8.50	7.10	7.60	7.30
40	6.47	6.60	5.90	6.70	5.30
45	4.75	4.55	5.20	5.90	4.50
50	4.25	4.25	4.70	5.20	4.50
55	4.25	4.25	4.50	5.00	4.50

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

Marital Status

80% of active Members and 75% of retired or terminated Members are assumed to be married. Males are assumed to be three years older than females.

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 3.25% per annum. Future Social Security Taxable Wage Base increases are assumed to be 3.75% per annum.

Interest on Accumulated Contributions

Interest credited to the Member's Accumulated Contributions is assumed to be 3.5% 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, Members are assumed to elect to receive the most valuable of the Portable Retirement Option or the Vested Benefit payable at retirement.

Benefit Commencement for Terminated Vested Members

Terminated Vested Members are assumed to elect benefit commencement three years prior to Normal Retirement Age.

SDRS COLA

Monthly SDRS benefit payments are assumed to increase annually at a rate of 2.70% per year. The 2.70% assumption is based on an expected value of future COLAs assuming the CPI will have a mean of 3.25% with a standard deviation of 1.43% and assuming the Fair Value Funded Ratio (FVFR) will have the following distribution:

FVFR less than 80%	5% of future June 30 measurement dates
FVFR between 80% and 90%	15% of future June 30 measurement dates
FVFR between 90% and 100%	50% of future June 30 measurement dates
FVFR greater than 100%	30% of future June 30 measurement dates

The actuarial assumptions used in the June 30, 2016 actuarial valuation were proposed by the actuary and adopted by the SDRS Board of Trustees based on the results of an actuarial experience study for the period from July 1, 2005 through June 30, 2011, including a stochastic projection of investment returns based on an econometric model, and additional study of mortality experience through June 30, 2013. 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.

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 with Frozen Unfunded Actuarial Accrued Liability. It represents the highest measure of the accrued liabilities of the System.

Actuarial Balance

Fixed, statutory contributions meeting or exceeding 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 (7.25% per annum) on the Actuarial Value of Assets.

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 Section 5. 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.

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).

The Actuarial Value of Assets is credited each year with the assumed rate of investment return, debited or credited with the SDRS liability gain or loss for the year, and constrained to a range of 80% to 120% of the Fair Value of Assets. Per the Funding Policy of the SDRS Board of Trustees, if the Actuarial Value of Assets is greater than the Fair Value of Assets for five consecutive years, the Actuarial Value of Assets will be re-initialized to the Fair Value of Assets. If the Actuarial Value of Assets is constrained by the 80%-120% corridor or re-initialized to the Fair Value of Assets, the Reserve for Funding of Long-Term Benefit

Goals will be adjusted correspondingly. The Actuarial Value of Assets may be increased from time to time, and the Cushion and Reserve decreased, to fund changes in actuarial assumptions, benefit provisions or other changes as approved by the Board of Trustees.

Actuarially Determined Contribution

Under current Board Funding Policy and GASB Statement No. 67, the contribution required to fund the Normal Cost and System administrative expense if the System is fully funded in accordance with the Board's funding objectives, and the contribution required to fund the Normal Cost, System administrative expenses, and amortize the Frozen Unfunded Actuarial Accrued Liability over a period not to exceed 20 years if the System is not fully funded.

Cushion

The excess of Fair Value of Assets over the Actuarial Value of Assets; if the Actuarial Value of Assets exceeds the Fair Value of Assets, the difference is referred to as a Deficit. Since the Cushion or the Deficit are not taken into account in determining the Actuarial Funding Requirements, a Cushion is available to offset future unfavorable experience and a Deficit will require future favorable experience or ultimately higher Actuarial Funding Requirements.

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 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 retired 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.

Frozen Entry Age Actuarial Cost Method

SDRS's adopted funding method for determining Normal Cost, Actuarial Accrued Liability and Unfunded Actuarial Accrued Liability; the Normal Cost and Unfunded Actuarial Accrued Liability are initially determined using the Entry Age Actuarial Cost Method. In subsequent years, the Unfunded Actuarial Accrued Liability is "frozen" (not adjusted by gains and losses).

Frozen Unfunded Actuarial Accrued Liability

In the initial year of the application of the Entry Age Normal Actuarial Cost Method with Frozen Unfunded Actuarial Accrued Liability, the amount in excess of the current Actuarial Value of Assets that would have been accumulated on the valuation date if the Entry Age Normal level funding method had always been used and the Entry Age Normal Cost Contribution Rate for past years had been made. In subsequent years, the Frozen Unfunded Actuarial Accrued Liability is frozen with respect to experience gains and losses. It will remain at $0 if the fixed, statutory contributions equal or exceed the Actuarially Required Contribution. If an Unfunded Actuarial Accrued Liability exists at the beginning of a year, it is reduced by the excess of Member and Employer Contributions over Normal Cost, expenses of the System, and interest on the Frozen Unfunded Actuarial Accrued Liability. It is increased or decreased by the change in Actuarial Accrued Liability for benefit changes enacted into Law (unless funded from the Reserve for Funding of Long-Term Benefit Goals) and changes in actuarial assumptions. It would also be increased to recognize a decrease in the Actuarial Value of Assets required to remain in the 20% corridor around the Fair Value of Assets or to re-initialize the Actuarial Value of Assets to the Fair Value of Assets. This Frozen Unfunded Actuarial Accrued Liability is also referred to as the Unfunded Actuarial Accrued Liability.

Funded Ratio

The ratio of System assets to the Actuarial Accrued Liability – two measures are considered and disclosed:

- Actuarial Value Funded Ratio: Actuarial Value of Assets divided by Actuarial Accrued Liability
- Fair Value Funded Ratio: Fair Value of Assets divided by Actuarial Accrued Liability

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 Frozen 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 in to the System during the future period of time a Member is accruing Credited Service, which when combined with the Actuarial Value of Assets and the Frozen Unfunded Actuarial Accrued Liability, will accumulate with interest at the rate assumed in the Actuarial Valuation to an amount sufficient to pay all System benefits. This Normal Cost Contribution Rate is also referred to as the Normal Cost.

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 sum of the Actuarial Value of Assets and the Frozen Unfunded Actuarial Accrued Liability.

Re-Initialization

Resetting actuarial measurements based on current conditions only. For example, the Normal Cost and Unfunded Actuarial Accrued Liability can be reset without regard to past experience or the Actuarial Value of Assets can be reset to the Fair Value of Assets, eliminating the current Cushion or Deficit. After re-initialization, the Actuarial Funding Method functions as it did before re-initialization.

Reserve for Funding of Long-Term Benefit Goals

SDRS investment and liability gains and losses are allocated to the Reserve for Funding of Long-Term Benefit Goals (the Reserve). The Reserve is a portion of the Cushion that is available to fund recommended benefit improvements if otherwise permitted under the Board of Trustees' Policy for Benefit Improvements. The Reserve is equal to the cumulative amounts credited or debited annually based on the immediate recognition of Actuarial Investment Losses, the five-year recognition of Actuarial Investment Gains and the five-year recognition of SDRS liability gains or losses, less reductions described below. If benefit improvements are enacted into Law and funded from the Reserve, the Reserve is reduced by the increase in the Present Value of All Benefits related to those improvements. Similarly, benefit reductions will increase the Reserve. The Reserve may also be reduced to offset unfavorable experience, if required, to meet the funding objectives of SDRS as established by the Board of Trustees.

A positive balance in the Reserve indicates that cumulative recognized gains are greater than cumulative recognized losses to the System and the net costs of benefit provision changes. A negative balance in the Reserve, referred to as a Deficit, indicates that cumulative recognized losses, together with the net costs of benefit provision changes, are greater than cumulative recognized gains.

Because of the immediate recognition of Actuarial Investment Losses and the five-year recognition of Actuarial Investment Gains, the Reserve may have a significant negative balance (a Deficit) until all deferred gains are recognized even when the overall experience has been positive.

The Reserve was initialized for the year ended June 30, 1995 and the methodology was revised for the years ended June 30, 1998 and June 30, 2001. Effective June 30, 2004, the positive balance of the Reserve is no longer included in the Present Value of All Benefits, the Actuarial Accrued Liability or the Actuarial Value of Assets.

Section 6 – SDRS Board of Trustees’ Funding Policy

Elements			
Funding Objectives (Discussed at the Quadrennial Funding Study presentations in 1999 and 2002, and formally adopted April 2006 and revised September 2013)	**Establishment of Cushion and Reserve** (The Reserve for Funding of Long-Term Benefit Goals, adopted in 1995 and later revised in 1998, 2001 and 2013)	**Policy Regarding Consideration of Benefit Improvements** (Adopted in 2004 and revised in 2013)	**Statutory Conditions That Would Require Corrective Action** (SDCL 3-12-122, refined during 2004 and 2013 Legislative Sessions)
• Funded Ratios (Assets ÷ Actuarial Accrued Liabilities) ○ Based on Fair (Market) Value of Assets – 100% or greater ○ Based on Actuarial Value of Assets – 100% • Ratio of Fair Value of Assets to Actuarial Value of Assets ○ Exceeds 100%, which results in a Cushion • Maintain a fully funded system ○ No Unfunded Liabilities under Entry Age Normal Cost method ○ If future Unfunded Liabilities created because of unfavorable experience, fully fund over a period not to exceed 20 years (amortization over a shorter period at Board discretion) • Statutory fixed contributions meet or exceed the actuarially required contribution each year ○ Normal Cost plus expenses when System is fully funded ○ Includes payment of Unfunded Liabilities over a period not to exceed 20 years if System not fully funded (amortization over a shorter period at Board discretion)	• Cushion ○ Excess of Fair Value of Assets over Actuarial Value ○ Captures all net favorable experience • Actuarial Value of Assets ○ Asset value if all assumptions met ○ Minimizes volatility in actuarial measures ○ Limited to 80-120% of Fair Value of Assets ○ Set to Fair Value if no Cushion for five consecutive years • Reserve ○ Delays recognition of asset gains (and liability experience gains/losses) over five years, but recognizes asset losses immediately • Both Cushion and Reserve provide resources to: ○ Protect SDRS during times of unfavorable experience, and ○ Pre-fund benefit improvements	• After consideration of the expense of the benefit improvement the Fair Value Funded Ratio must be at least 120% • In addition, the following guidelines must be satisfied: ○ Reserve is sufficient to fully fund the present value of the benefit improvement ○ After consideration of the recommended benefit improvement all funding objectives must still be met • Proposed benefit improvement must be consistent with both the Board’s long-term benefit goals and public policy with regard to retirement practices	• Funded status report to Governor and Retirement Laws Committee (RLC) if any of the following exists: ○ Contributions not sufficient to fund current benefit structure ○ Funded Ratio (based on Fair or Actuarial Value) less than 80% ○ Fair Value of Assets less than 90% of the Actuarial Value of Assets The report shall include an analysis of the conditions and recommendations for the circumstances and timing for any future benefit changes, contribution changes or any other corrective action, or any combinations of actions • If any of the above conditions exist for three consecutive actuarial valuations, the Board shall recommend such changes to the Governor and RLC, effective as soon as possible to improve the statutory conditions