

***SOUTH DAKOTA RETIREMENT SYSTEM***

***ACTUARIAL VALUATION  
AS OF JUNE 30, 2012***

Submitted By:  
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1200 Seventeenth Street, Suite 1200  
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# ***SOUTH DAKOTA RETIREMENT SYSTEM***

## ***2012 ACTUARIAL VALUATION***

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November 20, 2012

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

This report summarizes the results of Buck Consultants, LLC's annual Actuarial Valuation of the South Dakota Retirement System (SDRS) as of June 30, 2012. Actuarial valuations of SDRS are performed annually.

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

All Members of Participating Units of SDRS and all benefits in effect on July 1, 2012 have been considered in this Actuarial Valuation. SDRS benefit provisions considered, Member data, and Trust Fund information are summarized in the Appendices in this report.

The assumptions and methods used to determine the Annual Required Contributions of the Employers to SDRS as outlined in this report and all supporting schedules meet the parameters and requirements for disclosure of Governmental Accounting Standards Board (GASB) Statement No. 25, Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans. Buck Consultants, LLC is solely responsible for the actuarial data presented in this report. As a result of an experience analysis, actuarial assumptions have been significantly revised as of June 30, 2012.

SDRS is funded by Employer and Member Contribution Rates as established by South Dakota law. The funding objective for SDRS is to contribute an amount that remains level as a percent of Member Compensation at the statutory rates. The SDRS Board of Trustees has also established a funding policy objective that the statutorily required contributions be sufficient to pay the Normal Costs of SDRS, System Expenses, and amortize the Unfunded Actuarial Accrued Liability as a level percent of Member Compensation over a period of 29 years effective June 30, 2012, declining by one year until a 20-year funding period is achieved.

As noted below, this objective is currently being met and is projected to continue to be met.

Our calculations and analysis indicate that the System is meeting its funding objectives and is in actuarial balance. The combined statutory Employer/Member Contributions are sufficient to pay the current Normal Costs and Expenses of the System and amortize the Unfunded Actuarial Accrued Liability over 29 years from July 1, 2012. The contractual Employer Contribution Rates to SDRS meet the requirements of the Annual Required Contributions of the Employers of GASB Statement No. 25.

The SDRS Board of Trustees measures and compares the funding progress of SDRS on several bases. After significant actuarial assumption changes, the Actuarial Accrued Liability Funded Ratio of SDRS as of June 30, 2012 is 92.6% on an Actuarial Value basis and 92.8% on a Market Value basis.

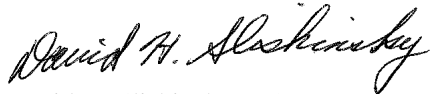
Based on Member data and asset information provided by SDRS, we have prepared the Schedule of Funding Progress and Schedule of Employer Contributions in accordance with GASB No. 25 parameters that are included in the Financial section of the CAFR.

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The undersigned are Enrolled Actuaries, Associates of the Society of Actuaries and Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all Applicable Standards of Practice. We are available to answer any questions on the material contained in the report, or to provide explanations or further details as may be appropriate.

SDRS is meeting its actuarial funding policy.

Respectfully submitted,



David H. Sliskinsky, ASA, EA, MAAA, FCA  
Principal and Consulting Actuary



Douglas J. Fiddler, ASA, EA, MAAA  
Director, Retirement Actuary

# ***SOUTH DAKOTA RETIREMENT SYSTEM***

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### **EXECUTIVE SUMMARY**

#### **Overview**

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. A Retirement Board 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 benefits as of the valuation date of June 30, 2012.

#### **Purpose**

An actuarial valuation is performed on SDRS annually as of the end of the system's fiscal year. The main purposes of the actuarial valuation detailed in this report are:

1. To determine if the Board's funding policy for SDRS is being met considering current assets and the current statutory employer and member contribution rates;
2. To disclose the funding assets and liability measures as of the valuation date;
3. To disclose the accounting measures for SDRS required by GASB No. 25 as of the end of the fiscal year;
4. To review the current funded status of SDRS;
5. To compare actual and expected experience under SDRS during the last fiscal year;
6. And to report trends in contributions, assets, liabilities, and funded status over the last several years.

The actuarial valuation provides a "snapshot" of the funded position of SDRS based on the statutory plan provisions, membership, assets, and actuarial assumptions as of the valuation date.

This Actuarial Valuation is the twenty-seventh Actuarial Valuation of SDRS since consolidation in 1974. Effective with the Actuarial Valuation as of June 30, 1997, annual, rather than biennial, Actuarial Valuations of SDRS are completed.

#### **SDRS Benefit Changes**

There were no benefit improvements or substantive changes made during the 2012 South Dakota Legislative session. As a result, the SDRS benefit provisions remain unchanged from the 2011 Actuarial Valuation.

#### **SDRS Actuarial Assumptions**

Effective for the June 30, 2012 valuation, the Retirement Board adopted the changes to the demographic and economic assumptions recommended by the actuary based on the results of an experience analysis performed on the population experience from July 1, 2005 through June 30, 2011. The changes in actuarial assumptions are detailed on page 3. In total, the changes in actuarial assumptions increased the Present Value of All Benefits by \$365 million (3.9%) and the Actuarial Accrued Liability by \$266 million (3.3%).

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### **SDRS Actuarial Methods and Funding Objectives**

There were two changes in actuarial methods since the 2011 Actuarial Valuation. First, the Unfunded Actuarial Accrued Liability was reinitialized based on the Actuarial Accrued Liability under the Entry Age Funding Method. Second, the Actuarial Value of Assets was increased, and the Cushion and Reserve were decreased, by \$77.4 million in order to reach a 29-year funding period as of June 30, 2012. The SDRS Board of Trustees also revised its funding policy objective. The revised objective necessitates the statutorily required contributions be sufficient to pay the Normal Costs of SDRS, System Expenses and amortize the Unfunded Actuarial Accrued Liability as a level percent of Member Compensation over a period of 29 years effective June 30, 2012, declining by one each year until a 20-year funding period is achieved.

### **Key SDRS Actuarial Measures**

The key actuarial measures determined by the current and prior Actuarial Valuations are as follows:

	<b>June 30, 2011 Actuarial Valuation</b>	<b>June 30, 2012 Actuarial Valuation</b>
Funding Period	30 years	29 years
Frozen Unfunded Actuarial Accrued Liability	\$ 278,780,161	\$ 625,238,504
Market Value of Assets	\$ 7,936,269,496	\$ 7,842,524,241
Actuarial Value of Assets	\$ 7,433,776,511	\$ 7,827,601,564
Actuarial Accrued Liability	\$ 7,712,556,672	\$ 8,452,840,068
Actuarial Accrued Liability Funded Ratio	96.4%	92.6%
Market Value Funded Ratio	102.9%	92.8%
Reserve for Funding of Long-Term Benefit Goals	\$ (764,203,949)	\$ (981,549,491)
Cumulative Gains to be Allocated to the Reserve in Future Years	\$ 1,181,803,343	\$ 911,578,577

### **Analysis of Experience for Year Ended June 30, 2012**

SDRS asset and liability gains and losses are generally allocated to the Reserve for Funding of Long-Term Benefit Goals. As a result, the key actuarial measures (with the exception of the Market Value of Assets and the Reserve for Funding of Long-Term Benefit Goals) reflect the expected experience and remain stable from year to year in the absence of extraordinary losses such as those experienced in 2009. Experience variations are reflected in the Reserve for Funding of Long-Term Benefit Goals.

For the year ended June 30, 2012, Actuarial Investment losses of \$(461) million, Net Liability gains of \$51 million due to System liability experience of which \$10 million is recognized this year, and



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recognition of \$311 million of prior gains combined to decrease the Reserve for Funding of Long-Term Benefit Goals by \$140 million. An adjustment to the Cushion and Actuarial Value of Assets of \$77 million further reduced the Reserve, resulting in a balance of negative \$982 million in the Reserve for Funding of Long-Term Benefit Goals. As of June 30, 2012, SDRS has accumulated net gains of \$912 million that will be allocated to the Reserve over the next four years.

As a result, the SDRS Funding Period is at 29 years, in accordance with the Board of Trustees Funding Policy, and the SDRS Funded Ratio decreased from 96.4% to 92.6% over the last fiscal year.

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**SUMMARY OF ACTUARIAL ASSUMPTION CHANGES EFFECTIVE JUNE 30, 2012**

**Investment Return**

Prior Assumption:

7.75% per annum, compounded annually, plus pre-funding of Cost-of-Living Adjustment of 2.80% per year, compounded annually.

New Assumption:

7.25% per annum for 5 years beginning July 1, 2012, increasing to 7.50% after 5 years, compounded annually, plus pre-funding of Cost-of-Living Adjustment of 2.70% per year, compounded annually.

**Retirement Age**

Prior Assumption: Unisex rates. Separate rates for Class A/Class B Judicial and Class B Public Safety.

New Assumption: Separate rates for reduced and unreduced retirements. Separate rates by class (Teacher/Non-Teacher) and gender.

**Compensation Progression**

Prior Assumption: Rates based on age ranging from 8.13% at age 25 to 4.15% at age 65.

New Assumption: Reduced total salary increase assumption including reduction in wage inflation (linked to economic assumptions) and changed to service based rates. Rates range from 5.83% at 0 years of service to 3.75% at 31 years of service.

**Healthy Mortality**

Prior Assumption: 1995 Mortality Table.

New Assumption: 1995 Mortality Table, male rates set-back 1 year.

**Termination**

Prior Assumption: Rates based on age and separate between Class A school members, all other Class A members/Class B Judicial members and Class B Public Safety members.

New Assumption: Changed to Select and Ultimate rates reflecting increased termination in first years of employment and eliminated termination rates for Judicial members.

**Disability**

Prior Assumption: One set of gender specific rates for all SDRS members.

New Assumption: Reduced rates for Class A (Teacher/Non-Teacher separately) and eliminated disability rates for Judicial members.

**Future Social Security Increases**

Prior Assumption: 4.0% annual Cost-of-Living Increases and 5.5% Wage Base Increases.

New Assumption: 3.25% annual Cost-of-Living Increases and 3.75% Wage Base Increases.

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**Section 1**

**Actuarial Funding Results**

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**2012 Actuarial Funding Results**

**Summary of Key Actuarial Measures**

	<b>2011 Actuarial Valuation Results</b>	<b>System Investment and Liability Experience for Year<sup>1</sup></b>	<b>Membership Changes and Maturity of System<sup>2</sup></b>	<b>Actuarial Assumption and Method Changes Effective July 1, 2012</b>	<b>2012 Actuarial Valuation Results</b>
Normal Cost Rate with Expense Provision	11.499%	--	(0.017)%	(1.203)%	10.279%
Funding Period	30 Years	--	--	(1) Year	29 Years
Frozen Unfunded Actuarial Accrued Liability	\$279 million	--	\$5 million	\$341 million	\$625 million
Actuarial Accrued Liability Funded Ratio	96.4%	0.1%	--	(3.9)%	92.6%

<sup>1</sup> SDRS Actuarial Investment Gains and liability gains and losses are smoothed and allocated directly to the Reserve for Funding of Long-Term Benefit Goals over five years. All SDRS Actuarial Investment Losses are allocated immediately to the Reserve.

<sup>2</sup> Future SDRS membership changes will cause minor changes in the Normal Cost Rate even with smoothing of asset and liability gains and losses. The Actuarial Accrued Liability Funded Ratio will gradually increase as the Frozen Unfunded Actuarial Accrued Liability becomes a smaller percentage of the total SDRS liabilities.

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**Comparison of Results of Actuarial Valuations for 2011 and 2012**

Results of Actuarial Valuation	2011 Actuarial Valuation	2012 Actuarial Valuation	% Change
Normal Cost Rate at Mid-Period:			
Without Expense Provision	11.249%	10.029%	(10.8)
With Expense Provision	11.499%	10.279%	(10.6)
Frozen Unfunded Actuarial Accrued Liability	\$ 278,780,161	\$ 625,238,504	124.3
Market Value of Assets	\$ 7,936,269,496	\$ 7,842,524,241	(1.2)
Actuarial Value of Assets	\$ 7,433,776,511	\$ 7,827,601,564	5.3
Actuarial Accrued Liability	\$ 7,712,556,672	\$ 8,452,840,068	9.6
Actuarial Accrued Liability Funded Ratio:			
Based on Actuarial Value of Assets	96.4%	92.6%	(3.9)
Based on Market Value of Assets	102.9%	92.8%	(9.8)
Projected Years to Fund Frozen Unfunded Actuarial Accrued Liability	30	29	(3.3)

## ***SOUTH DAKOTA RETIREMENT SYSTEM 2012 ACTUARIAL VALUATION***

### **SDRS Actuarial Funding Requirements and Funded Status**

#### ***Funding Period***

Exhibits 1-4 illustrate the funding requirements of SDRS as of June 30, 2012 and the adequacy of the statutorily required combined Employer and Member Contribution Rate to SDRS to fund the past and future obligations of the System. The summary of SDRS Market Value of Assets, the Development of the Reserve for Funding of Long-Term Benefit Goals, and the Development of the SDRS Actuarial Value of Assets as of June 30, 2012, are illustrated in Section 2 of this report.

The results of the 2012 Actuarial Valuation of SDRS indicate that:

- The System expects to pay future total benefits to all current SDRS active and retired Members with a present value of \$9.674 billion (Section 1.4).
- The Frozen Unfunded Actuarial Accrued Liability equals \$625 million (Section 1.5).
- SDRS has accumulated assets to date on an Actuarial Value basis of \$7.828 billion (Section 2.3).
- A portion of future Employer and Member Contributions for current active Members will be required to pay future Normal Costs with a present value of \$1,221 million (Section 1.6). The balance of future Employer and Member Contributions is available to pay System expenses and fund the Frozen Unfunded Actuarial Accrued Liability.

As summarized in Exhibit 4, SDRS is funded by statutorily required Employer and Member Contributions that total 12.482% of considered compensation. After paying the Normal Costs and Expenses of the System of 10.279% of considered compensation, a contribution of 2.203% of considered compensation is available to fund the Frozen Unfunded Actuarial Accrued Liability. The 2012 Actuarial Valuation of SDRS confirms that this rate of contribution will fund the Frozen Unfunded Actuarial Accrued Liability over 29 years from 2012.

SDRS is a well-funded retirement system. The volatility in Funding Period resulting from asset and liability gains and losses has been minimized by the methods adopted for development of the Actuarial Value of Assets.

#### ***Funded Ratio***

The SDRS Funded Ratio is determined in accordance with the requirements of the Governmental Accounting Standards Board Statement No. 25 as described in Section 3.1.

The SDRS Funded Ratio as of June 30, 2012 is equal to 92.6% as determined below.

Actuarial Value of Assets (Section 2.3)	\$7,827,601,564
Actuarial Accrued Liability (Actuarial Value of Assets Plus Frozen Unfunded Actuarial Accrued Liability (Section 1.5))	\$8,452,840,068
Funded Ratio ( $\$7,827,601,564 \div \$8,452,840,068$ )	92.6%

The Funded Ratio decreased from 96.4% as of the 2011 Actuarial Valuation to 92.6% for the current year. A history of the SDRS Funded Ratios is shown in Section 1.11.

## ***SOUTH DAKOTA RETIREMENT SYSTEM 2012 ACTUARIAL VALUATION***

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### **Actuarial Soundness**

The conclusions reached in the determination of the 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 relationship of the Normal Cost to the total contributions available, the length of the Funding Period (a shorter period being more favorable), the excess of the Market Value of Assets over the Actuarial Value of Assets (the Cushion), the current balance in the Reserve for Funding of Long-Term Benefit Goals, and the net amounts remaining to be allocated in the future. SDRS is actuarially sound when the Funding Policy adopted by the SDRS Board is designed to meet all future benefit obligations and the current and future contributions are made in accordance with the adopted Funding Policy.

The current SDRS benefits combined with the present financing and the relatively small amount of Frozen Unfunded Actuarial Accrued Liability result in a well funded System that is providing benefits essentially equal to the resources available.

Investment performance for the year ended June 30, 2012 created a loss, which together with the actuarial assumption and method changes, results in a Cushion of positive \$15 million, and a balance of negative \$982 million in the Reserve for Funding of Long-Term Benefit Goals as of June 30, 2012. As of June 30, 2012, SDRS has accumulated net gains of \$912 million that will be allocated to the Reserve over the next four years.

Since 1995, the SDRS cumulative experience has resulted in:

- Actuarial Investment Gains/(Losses) of \$782 million of which \$(57) million have been allocated to the Reserve and \$840 million will be allocated over the next four years.
- Liability Gains/(Losses), changes in actuarial assumptions, and changes in System provisions that affect anticipated costs of \$(36) million of which \$(108) million have been allocated to the Reserve and \$72 million will be allocated over the next four years.
- A total allocation to the Reserve to date of \$(165) million due to gains and losses.
- \$1,155 million of benefit improvements funded from the Reserve in prior years.
- Corrective Actions of \$416 million credited to the Reserve.
- An adjustment to the Cushion and Actuarial Value of Assets of \$77 million to reach 29-year funding as of June 30, 2012.
- A balance in the Reserve as of June 30, 2012 of negative \$982 million.
- \$912 million remaining to be allocated to the Reserve in the next four years.

Note that future events such as adverse investment returns, continuing increase in life expectancies or other demographic losses may adversely impact the funded status of SDRS.

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**Actuarial Soundness**

SDRS is a consolidated, multiple employer, cost-sharing retirement system that does not attempt to determine separate or unique funding requirements for entities within SDRS. However, the 2012 Actuarial Valuation confirms that the two major Member groups within SDRS with different funding and benefit provisions (Class A and Class B) are generally self-supporting (i.e. – the Employer and Member Contributions are funding the Normal Cost of the benefits provided under these classifications).

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.



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**SECTION 1.4 (CONT.)**

**Actuarial Soundness**

**Allocations to Reserve for Funding of Long-Term Benefit Goals (\$ in millions)**

Year Ended June 30 of:	Actuarial Investment Gain/(Loss)					Recognized as of June 30, 2011	Recognized for FYE 2012	Recognized in Future Years				
		2008	2009	2010	2011				2013	2014	2015	2016
1995 - 2007	2,906					2,906						
2008	(1,187)	(1,187)	0	0	0	(1,187)	0					
2009	(2,039)		(2,039)	0	0	(2,039)	0	0				
2010	492			98	98	196	99	197				
2011	1,071				215	215	214	642				
2012	(461)					--	(461)	0				
<b>Subtotals</b>						<b>91</b>	<b>(148)</b>	<b>840<sup>(1)</sup></b>				

Year Ended June 30 of:	Liability Gain/(Loss)					Recognized as of June 30, 2011	Recognized for FYE 2012	Recognized in Future Years				
		2008	2009	2010	2011				2013	2014	2015	2016
1995 - 2007	(77)					(77)						
2008	(44)	(8)	(9)	(9)	(9)	(35)	(9)					
2009	(35)		(7)	(7)	(7)	(21)	(7)	(7)				
2010	14			3	3	6	3	5				
2011	55				11	11	11	33				
2012	51					--	10	41				
<b>Subtotals</b>						<b>(116)</b>	<b>8</b>	<b>72</b>				

<b>Grand Total</b>						<b>(25)</b>	<b>(140)</b>	<b>912</b>				
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Total Allocations to Reserve (1995 - 2012)	\$	(165)
Less Benefit Improvements Funded by the Reserve		1,155
Plus Adjustment for Corrective Action		416
Less Adjustment to Cushion/AVA		77
Reserve Balance	\$	(982) <sup>(1)</sup>
Net Gains to be Allocated to Reserve in Future Years	\$	912

<sup>(1)</sup> Sum adjusted by \$1 million due to rounding

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**Development of SDRS Present Value of All Benefits as of  
June 30, 2012**

Present Value of All Benefits	
Active Members	\$ 4,764,298,422
Retirees, Beneficiaries and Terminated Members	<u>4,909,919,285</u>
Total	\$ 9,674,217,707

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**Development of Frozen Unfunded Actuarial Accrued Liability  
as of June 30, 2012**

Frozen Unfunded Actuarial Accrued Liability as of June 30, 2011	\$	278,780,161
Normal Cost for the year ending June 30, 2012		182,323,660
Expected Contributions for year ending June 30, 2012		(197,825,151)
Interest to June 30, 2012		<u>21,015,987</u>
Initial Frozen Unfunded Actuarial Accrued Liability as of June 30, 2012	\$	284,294,657
Increase due to actuarial assumption changes		265,961,127
Increase due to re-initialization of Actuarial Accrued Liability as of June 30, 2012		152,402,720
Decrease due to adjustment to Cushion and Actuarial Value of Assets		<u>(77,420,000)</u>
Frozen Unfunded Actuarial Accrued Liability as of June 30, 2012	\$	625,238,504

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**Development of Normal Cost Contribution Rate as of  
June 30, 2012**

Present Value of All Benefits	\$ 9,674,217,707
Present Value of Future Normal Cost Contributions	<u>\$ (1,221,377,639)</u>
Actuarial Accrued Liability	\$ 8,452,840,068
Actuarial Value of Assets (Section 2.3)	<u>(7,827,601,564)</u>
Frozen Unfunded Actuarial Accrued Liability	\$ 625,238,504
Present Value of 1% of Future Member Compensation	\$ 126,195,918
Normal Cost Contribution Rate at Start of Period (\$1,221,377,639 ÷ \$126,195,918)	9.678%
Normal Cost Contribution Rate Adjusted for Mid-Period Payment	10.029%

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**Development of Actuarial Funding Requirements  
as a Percentage of Member Compensation and Funding Period as of  
June 30, 2012**

Matching Statutorily Required Employer/Member Contribution Rate	12.482% <sup>1</sup>
Normal Contribution Rate at Mid-Period	10.029%
Expense Allowance	<u>0.250%</u>
Total Funding Requirement Before Amortization of Frozen Unfunded Actuarial Accrued Liability	<u>10.279%</u>
Contribution Rate Available to Amortize Frozen Unfunded Actuarial Accrued Liability as a Level Percent of Member Compensation (12.482% - 10.279%)	2.203% <sup>2</sup>

<sup>1</sup> Class A Employers and Members each statutorily contribute 6% of Compensation. Class B Employers and Members each statutorily contribute 8% or 9% of Compensation. Participating Members also contribute for the Optional Spouse Coverage and Class A Employers contribute 6.2% of Members' Compensation in excess of the Social Security maximum taxable Compensation. The total statutory contributions to SDRS as of July 1, 2012 are 12.482% of considered compensation.

<sup>2</sup> Will amortize Frozen Unfunded Actuarial Accrued Liability over 29 years from 2012.

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**Gains and Losses for Year Ended June 30, 2012**

***Liability Experience for Year***

The SDRS liabilities as of June 30, 2012 were \$51 million lower than expected, or 0.52% of the Present Value of All Benefits. The sources of the \$51 million total experience liability gain were as follows:

<u>Item</u>	<u>Amount of Liability Gain/(Loss)</u>	<u>% of Present Value of All Benefits</u>
Gain/(Loss) due to Compensation Increases	\$ 102 million	1.03%
Gain/(Loss) due to Decrements	(27) million	(0.27)%
Gain/(Loss) due to Rehired and New Members	(5) million	(0.05)%
Gain/(Loss) due to COLA for Continuing Inactives	(13) million	(0.13)%
Miscellaneous Gain/(Loss)	(6) million	(0.06)%
Total Experience Gain/(Loss)	\$ 51 million	0.52%

The remaining SDRS liability experience for the year ended June 30, 2012 included the following:

- The number of active Members decreased by (0.7)%, Compensation for all Members increased by 0.8%, and average Compensation increased by 1.6%.
- The average age of the active Members decreased from 45.9 to 45.8 years and the average Credited Service increased from 11.4 to 11.5 years.
- The number of SDRS Members and Beneficiaries receiving benefits increased by 4.4% and the average benefit paid increased by 3.0%.
- Average Compensation for active Members included in the prior Actuarial Valuation increased by 4.0% compared to an assumed increase of 5.3%.
- Decremental experience was mixed. The experience included:
  - Losses due to fewer vested members terminating than expected
  - Losses from the COLA being more than the assumed 2.8%
  - Losses from more young new retirees than anticipated
  - Unfavorable mortality for retirees
  - Favorable disability experience
  - Losses due to new members
  - Losses due to the service credited to rehired Members who have not previously withdrawn their contributions or who redeposit their contributions or who purchase service.

The net liability gain for the year ended June 30, 2012 of \$51 million is allocated equally to the Reserve for Funding of Long-Term Benefit Goals for the year ended June 30, 2012 and the next four years.

***SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION***

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**Development of Actuarial Accrued Liability Funded Ratio  
as of June 30, 2012**

The Actuarial Accrued Liability Funded Ratio is a comparison of the Actuarial Value of Assets to the Actuarial Accrued Liability of the System and is a required disclosure under Governmental Accounting Standards Board Statement No. 25.

The Actuarial Accrued Liability is equal to the Present Value of All Benefits for SDRS active and retired Members less the Present Value of Future Normal Cost Contributions required for future benefits for SDRS Members and paid from future Employer and Member Contributions. The Actuarial Accrued Liability is a measure of accrued System liabilities based on the total past and future benefits expected to be paid to all Members that will not be funded by future Normal Cost contributions. Since future Normal Cost 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 system.

Comparing the SDRS Actuarial Accrued Liability Funded Ratio on a historical basis illustrates the funding progress of SDRS and the past ability of the fixed, statutorily required Employer and Member Contributions and overall SDRS experience to fund the Normal Costs of the System and to amortize the Frozen Unfunded Actuarial Accrued Liability. Ideally, the Actuarial Accrued Liability Funded Ratio will increase over time as the Frozen Unfunded Actuarial Accrued Liability decreases or becomes a smaller percentage of the Actuarial Accrued Liability due to growth in the Actuarial Value of Assets and funding of the Actuarial Accrued Liability.

A ratio of less than 100% indicates that the SDRS has not yet accumulated sufficient assets to fully fund the Actuarial Accrued Liability.

This exhibit illustrates that the Actuarial Accrued Liability Funded Ratio as of June 30, 2012 equaled 92.6%.

The following exhibit illustrates the history of the Actuarial Accrued Liability Funded Ratio from 1973 to the present date and shows the improvement from an initial Funded Ratio of 39.8% to the current 92.6%.

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

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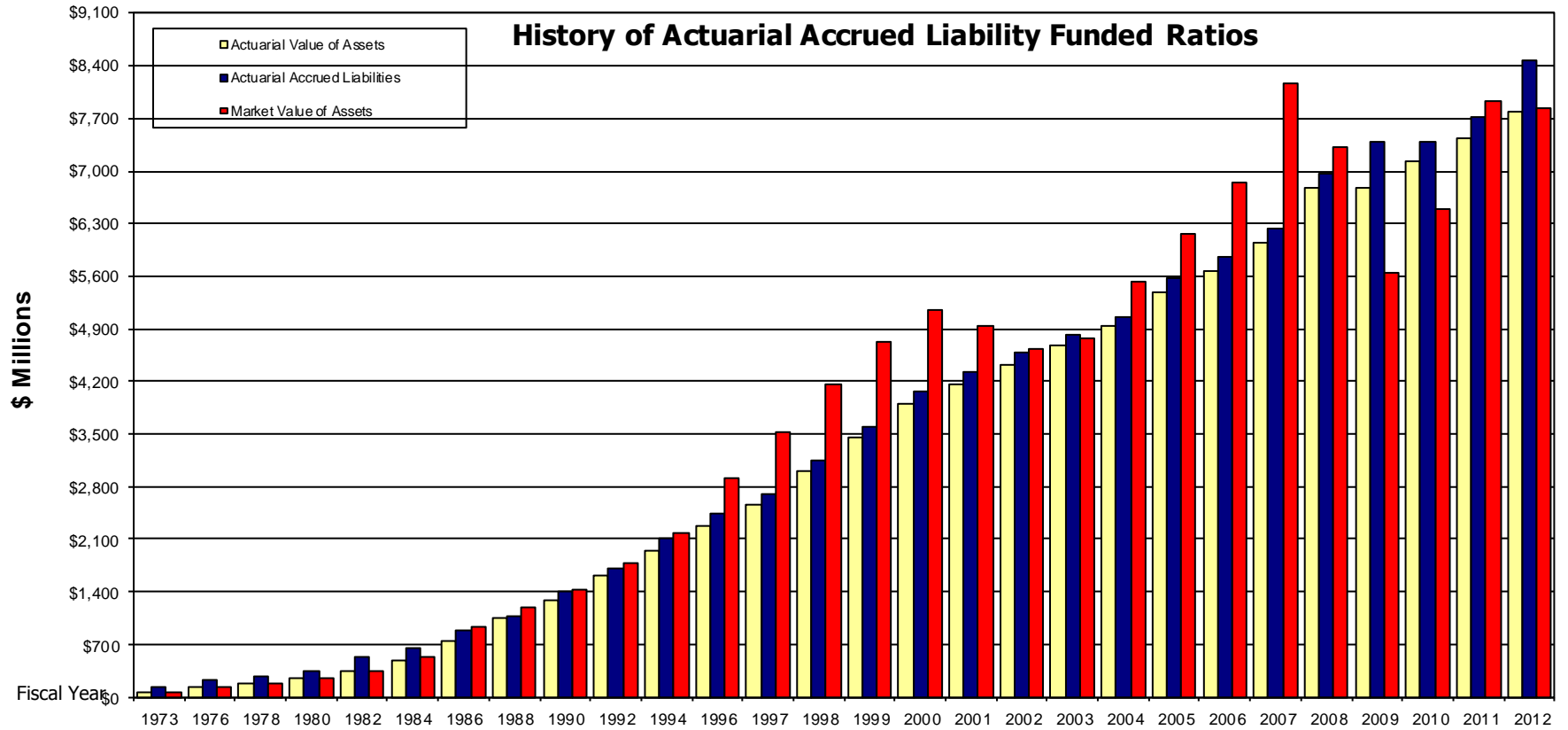
**Development of Actuarial Accrued Liability Funded Ratio  
as of June 30, 2012**

<b>Present Value of All Benefits</b>	
Present Value of All Benefits for Active Members	\$ 4,764,298,422
Present Value of Benefits for Retirees, Beneficiaries and Terminated Members	<u>4,909,919,285</u>
Total Present Value of All Benefits	\$ 9,674,217,707
<b>Present Value of Future Normal Cost Contributions</b>	<u>(1,221,377,639)</u>
<b>Actuarial Accrued Liability</b>	\$ 8,452,840,068
<b>Actuarial Value of Assets</b>	\$ 7,827,601,564
<b>Actuarial Accrued Liability Funded Ratio</b> (\$7,827,601,564 ÷ \$8,452,840,068)	92.6%



**SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION**

**SECTION 1.11**



Market Value Funded Ratio (%)	40	57	68	76	63	81	106	111	101	104	103	120	130	133	132	126	114	101	99	109	111	117	131	105	76	88	103	93	
Actuarial Value Funded Ratio(%)	40	57	68	76	67	75	85	97	91	94	92	94	95	96	97	95	96	97	97	98	97	97	97	97	97	92	96	96	93
Funding Period (years)	41	19	19	9	28	18	37	6	46	16	38	30	23	22	21	20	20	20	20	20	20	20	20	20	20	N/A	30	30	29
% Actuarially Required Contribution Made	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	91	100	100	100

***SOUTH DAKOTA RETIREMENT SYSTEM***  
***2012 ACTUARIAL VALUATION***

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**SECTION 2**  
**PLAN ASSETS**

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

**SDRS Market Value of Assets Available for Benefits**  
**as of June 30, 2012**

<b>Assets</b>		
Investments at current value	\$ 7,868,732,360	
Cash and temporary investments	4,334,563	
Contributions receivable	4,917,963	
Benefits receivable	196,430	
Accounts receivable (unsettled investment sales)	2,159,387	
Investment income receivable	17,534,579	
Properties	6,601	
Other assets	<u>16,119</u>	
Total Assets		\$ 7,897,898,002
<b>Liabilities</b>		
Accounts payable and accrued expenses	\$ 2,087,340	
Accounts payable (unsettled investment purchases)	6,711,319	
Securities sold, but not yet purchased	46,263,220	
Due to Brokers	<u>311,882</u>	
Total Liabilities		<u>55,373,761</u>
<b>Market Value of Assets Available for Benefits</b>		<b>\$ 7,842,524,241</b>

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

**Changes in SDRS Market Value of Assets**  
**for Year Ended June 30, 2012**

Market Value of Assets Available for Benefits as of June 30, 2011		\$ 7,936,269,496
<u>Additions</u>		
Contributions	\$ 199,350,762	
Total Investment Gain Net of Investment Expenses	<u>107,541,250</u>	
Total Additions	\$ 306,892,012	
<u>Deductions</u>		
Benefit Payments	\$ (371,417,148)	
Accumulated Contribution Refunds	(25,942,146)	
Administrative Expenses	<u>(3,277,973)</u>	
Total Deductions	\$ (400,637,267)	
Net Increase		<u>(93,745,255)</u>
Market Value of Assets Available for Benefits as of June 30, 2012		\$ 7,842,524,241

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

**Development of the SDRS Actuarial Value of Assets  
as of June 30, 2012**

1. Actuarial Value of Assets as of June 30, 2011	\$ 7,433,776,511
2. Contributions and Disbursements:	
Contributions	\$ 199,350,762
Benefit Payments and Refunds	(397,359,294)
Administrative Expenses	<u>(3,277,973)</u>
Total	\$ (201,286,505)
3. Expected Investment Return	\$ 568,317,828
4. SDRS Liability Gain/(Loss)	\$ 50,626,270
5. Preliminary Actuarial Value of Assets as of June 30, 2012 (1 + 2 + 3 - 4)	\$ 7,750,181,564
6. Adjustment to Actuarial Value of Assets from Cushion to reach 29-year funding	<u>77,420,000</u>
7. Preliminary Actuarial Value of Assets as of June 30, 2012 with adjustment from Cushion (5 + 6)	\$ 7,827,601,564
8. Market Value of Assets as of June 30, 2012	\$ 7,842,524,241
9. Constraining values	
a. 80% of Market Value of Assets	\$ 6,274,019,393
b. 120% of Market Value of Assets	\$ 9,411,029,090
10. Actuarial Value of Assets as of June 30, 2012 Item 7, but not less than (9a) nor more than (9b)	\$ 7,827,601,564

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

**Development of Reserve for Funding of Long-Term Benefit Goals  
as of June 30, 2012**

	<b>For Year Ending June 30, 2012</b>
1. Market Value of Assets at Beginning of Year	\$ 7,936,269,496
2. Actuarial Value of Assets at Beginning of Year	7,433,776,511
3. Non-Investment Cash Flow	(201,286,505) <sup>1</sup>
4. Actual Investment Return Based on Market Value of Assets	\$ 107,541,250
5. Expected Investment Return based on Net Actuarial Value of Assets	<u>568,317,828</u>
6. Actuarial Investment Gain (4 - 5)	\$ (460,776,578)
7. Allocation of Actuarial Investment Gains Over Five Years and 100% of Actuarial Investment (Losses):	
0% of \$(1,186,720,924) for year ended June 30, 2008	0
0% of \$(2,038,794,287) for year ended June 30, 2009	0
20% of \$492,098,094 for year ended June 30, 2010	98,419,619
20% of \$1,071,223,986 for year ended June 30, 2011	214,244,797
\$(460,776,578) for year ended June 30, 2012	<u>(460,776,578)</u>
Total Allocated for the Current Year	\$ (148,112,162)
8. Cumulative Amount of Actuarial Investment Gains Remaining to be Allocated in Future Years	\$ 839,573,629
9. Allocation of SDRS Liability Gain or (Loss) Over Five Years:	
20% of \$(43,779,896) for year ended June 30, 2008	\$ (8,755,980)
20% of \$(34,837,606) for year ended June 30, 2009	(6,967,521)
20% of \$14,415,731 for year ended June 30, 2010	2,883,146
20% of \$54,508,603 for year ended June 30, 2011	10,901,721
20% of \$50,626,270 for year ended June 30, 2012	<u>10,125,254</u>
Total Allocated for the Current Year	\$ 8,186,620
10. Cumulative Amount of SDRS Liability Gain or (Loss) to be Allocated in Future Years	\$ 72,004,948
11. Reserve for Funding of Long-Term Benefit Goals	
a) Balance at end of Prior Year	\$ (764,203,949)
b) Total Allocated for the Current Year (7 + 9)	(139,925,542)
c) Adjustment to Cushion and Actuarial Value of Assets to Reach 29-Year Funding at June 30, 2012	<u>(77,420,000)</u>
d) Balance at end of Current Year	\$ (981,549,491)
e) Net Gains to be Allocated in Future Years	\$ 911,578,577

<sup>1</sup> Contributions of \$199,350,762 less benefit payments, refunds, and administrative expenses of \$(400,637,267).

***SOUTH DAKOTA RETIREMENT SYSTEM***  
***2012 ACTUARIAL VALUATION***

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**Gains and Losses for Year Ended June 30, 2012**

**Reserve for Funding of Long-Term Benefit Goals**

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 recent cumulative experience. When available, the Reserve for Funding of Long-Term Benefit Goals is a source of funds to provide future benefit improvements or to protect the System against future unfavorable experience. The current negative balance in the Reserve will require continuing favorable experience to eliminate the negative balance prior to providing funds for future benefit improvements or protection against unfavorable experience.

The Reserve for Funding of Long-Term Benefit Goals as of June 30, 2012 changed as follows:

Balance as of June 30, 2011	\$	(764,203,949)
Fiscal Year 2012 Experience		(450,651,324)
Amortization of Prior Gains and Losses		310,725,782
Less Adjustment to Cushion and Actuarial Value of Assets to Reach 29-Year Funding at June 30, 2012		<u>(77,420,000)</u>
Balance as of June 30, 2012	\$	(981,549,491)
Net Gains to be Allocated in Future Years	\$	911,578,577

**Investment Results for Year**

For the year ended June 30, 2012, the actual investment performance of SDRS was less than the expected 7.75% investment return on the Actuarial Value of Assets by \$(461) million as summarized below.

Actual Investment Return for Year Ended June 30, 2012 (Section 2.2)	\$108 million
Expected Investment Return Based on Actuarial Value of Assets (Section 2.3)	<u>- 568 million</u>
Actuarial Investment Gain (Actual less Expected)	\$(461) million

The dollar-weighted total investment return based on the Market Value of Assets of the System for the year ended June 30, 2012 was 1.37% after investment expenses (1.91% on a time-weighted basis before investment expenses). The Actuarial Value of Assets was credited with the assumed investment return of 7.75% after investment expenses (or \$568 million) for the year and decreased by the net liability gain of \$51 million for the year.

***SOUTH DAKOTA RETIREMENT SYSTEM***  
***2012 ACTUARIAL VALUATION***

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**SECTION 3**

**ACCOUNTING INFORMATION**



***SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION***

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**Governmental Accounting Standards Board Statement No. 25**

The Governmental Accounting Standards Board (GASB) has issued Statement No. 25, "Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans." This Statement supersedes GASB Statement No. 5 and has been implemented by SDRS effective with the fiscal year ended June 30, 1997.

This Statement requires the measurement and disclosure of the Annual Required Contributions of the Employers (ARC) for SDRS and the determination of the Funded Ratio of SDRS considering the Actuarial Value of Assets and the Actuarial Accrued Liability, both in accordance with the parameters of Statement No. 25.

The South Dakota Retirement System is a cost sharing multiple-employer defined benefit retirement plan as defined in the GASB statement. As such, the GASB Statement requires that the ARC be computed for the Plan, not individually for each Employer, since the costs and risks of SDRS are shared by all participating Employers and are not attributed individually to the Employers. In addition, SDRS is funded by statutorily required fixed Employer and Member Contributions. The Actuarial Valuation of SDRS includes all Members and considers the contractually required contributions of each Employer based on its employees and the mix of employees participating in Class A or Class B benefits.

The actuarial assumptions and methods for the GASB Statement No. 25 calculations are the same as those used for the Actuarial Valuation of SDRS that confirm the funding requirement of the System, and they fully meet the parameters of GASB Statement No. 25. They are summarized in Exhibit 5.

The actuarially determined information required in accordance with the GASB statements was determined by the Actuarial Valuation of SDRS as of June 30, 2012 as shown on the following page.

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

Statements Nos. 67 and 68 will require that the Net Pension Liability, similar to an unfunded Actuarial Accrued Liability, be allocated to individual employers and included on their balance sheets. Furthermore, year to year changes in the Net Pension Liability will be included on the employer's income statements and are expected to vary significantly from one year to the next.

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

**Governmental Accounting Standards Board Statement No. 25**

**A. COMPARISON OF CONTRACTUAL EMPLOYER CONTRIBUTION RATE TO ANNUAL REQUIRED CONTRIBUTIONS OF THE EMPLOYERS AS OF JULY 1, 2012**

	<u>% of Pay</u>
1. Total Contractual Member and Employer Contribution Rates	12.482% <sup>1</sup>
2. Less Contractual Member Contribution Rate	<u>(6.253%)</u>
3. Total Contractual Employer Contribution Rate [(1) - (2)]	6.229%
4. Less Employer Normal Cost Rate (Total Normal Cost Rate of 10.029% less Contractual Member Contribution Rate of 6.253%)	(3.776%)
5. Less Provision for Expenses	<u>(0.250%)</u>
6. Total Contractual Employer Contribution Rate Available to Amortize Frozen Unfunded Actuarial Accrued Liability [(3) + (4) + (5)]	2.203% <sup>2</sup>

The contractually required Employer contributions to SDRS equal the requirements for the Annual Required Contributions of the Employers since they are sufficient to pay the Employer Normal Cost, System Expenses, and amortize the Frozen Unfunded Actuarial Accrued Liability over a period of 30 years or less. The ARC for each SDRS participating Employer is equal to the contractually required Employer contributions to SDRS.

<sup>1</sup> Class A Employers and Members each contractually contribute 6% of pay. Class B Employers and Members each contractually contribute 8% or 9% of pay. Participating Members also contribute for Optional Spouse Coverage and Class A Employers contribute 6.2% of Members' pay in excess of the Social Security maximum taxable pay. The total contractual contributions to SDRS as of July 1, 2012 are 12.482% of considered compensation.

<sup>2</sup> A contribution of 2.203% of considered compensation is sufficient to amortize the Frozen Unfunded Actuarial Accrued Liability over 29 years from July 1, 2012.

**B. ACTUARIAL ACCRUED LIABILITY FUNDED RATIO AS OF JUNE 30, 2012**

1. Total Actuarial Accrued Liability	\$ 8,452,840,068
2. Actuarial Value of Assets	<u>7,827,601,564</u>
3. Unfunded Actuarial Accrued Liability [(1) - (2)]	\$ 625,238,504
4. Funded Ratio [(2) / (1)]	92.6%
5. Member Compensation (Prior Year)	\$ 1,502,652,938
6. Unfunded Actuarial Accrued Liability as a Percentage of Member Prior Year Compensation [(3) / (5)]	41.6%

***SOUTH DAKOTA RETIREMENT SYSTEM***  
***2012 ACTUARIAL VALUATION***

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**SECTION 4**  
**MEMBER DATA**

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

**Comparison of Results of Actuarial Valuations for 2011 and 2012**

Member Data	2011 Actuarial Valuation	2012 Actuarial Valuation	% Change
<b>Active Members</b>			
Number	38,490	38,207	(0.7)
Average Age	45.9	45.8	(0.2)
Average Credited Service	11.4	11.5	0.9
Annual Prior Year's Compensation of Members	\$ 1,490,510,553	\$ 1,502,652,938	0.8
Average Annual Compensation	\$ 38,725	\$ 39,329	1.6
<b>Benefit Recipients</b>			
<b>Retired Members</b>			
Number*	18,219	19,133	5.0
Average Age	71.7	71.6	(0.1)
Total Annual Benefits	\$ 326,961,468	\$ 352,284,553	7.7
Average Annual Benefits	\$ 17,946	\$ 18,412	2.6
<b>Beneficiaries</b>			
Number*	2,915	2,975	2.1
Total Annual Benefits	\$ 28,372,647	\$ 30,281,007	6.7
Average Annual Benefits	\$ 9,733	\$ 10,178	4.6
<b>Disabled Members</b>			
Number	323	300	(7.1)
Total Annual Benefits	\$ 4,051,410	\$ 3,912,759	(3.4)
Average Annual Benefits	\$ 12,543	\$ 13,043	4.0
<b>Total Benefit Recipients</b>			
Number	21,457	22,408	4.4
Total Annual Benefits	\$ 359,385,525	\$ 386,478,319	7.5
Average Annual Benefits	\$ 16,749	\$ 17,247	3.0
<b>Terminated Members</b>			
Number – Vested	7,789	8,135	4.4
Number – Non-Vested (Entitled to Accumulated Contributions only)	<u>6,412</u>	<u>6,618</u>	3.2
<b>Total Terminated Members</b>	14,201	14,753	3.9
<b>Total System Members</b>			
	74,148	75,368	1.6

\* In addition, there are 45 and 43 Members or Beneficiaries, as of June 30, 2011 and June 30, 2012, respectively, whose benefits are currently suspended, but are entitled to future benefits.

***SOUTH DAKOTA RETIREMENT SYSTEM***  
***2012 ACTUARIAL VALUATION***

**Distribution of Number and Average Compensation of Active Members as of June 30, 2012<sup>(1)</sup>**

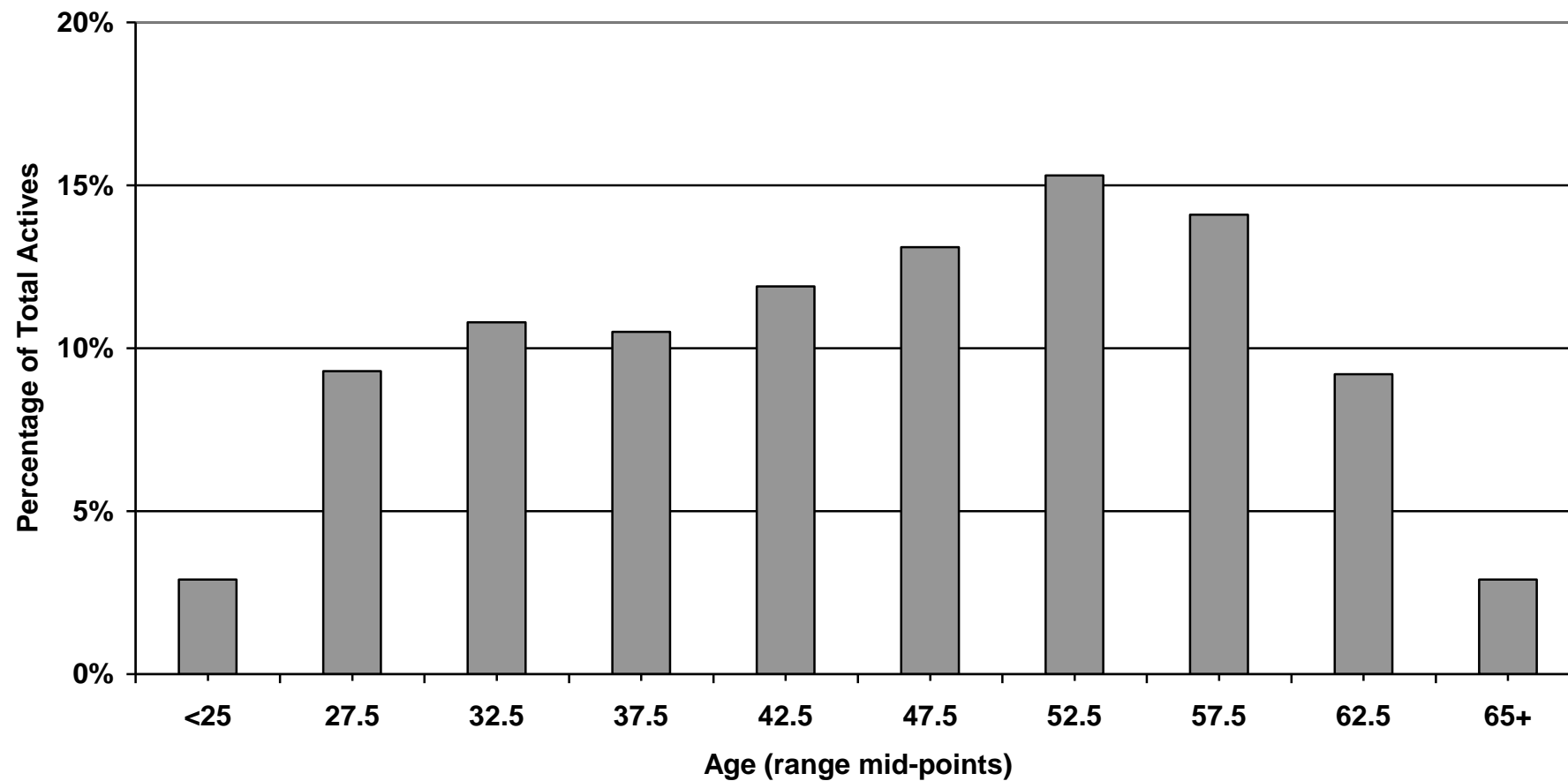
Age	Service	4 and under	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 and over	Total
<b>24 and under</b>	Number	1,121	3								1,124
	Avg Compensation	\$ 28,402	\$ 26,391								\$ 28,397
<b>25-29</b>	Number	2,835	713	3							3,551
	Avg Compensation	\$ 32,769	\$ 36,595	\$ 32,432							\$ 33,537
<b>30-34</b>	Number	1,746	1,852	530							4,132
	Avg Compensation	\$ 34,726	\$ 39,426	\$ 41,535							\$ 37,710
<b>35-39</b>	Number	1,228	1,086	1,366	339	2					4,021
	Avg Compensation	\$ 34,688	\$ 41,702	\$ 43,519	\$ 47,336	\$ 40,527					\$ 40,652
<b>40-44</b>	Number	1,141	989	947	1,033	421	7				4,538
	Avg Compensation	\$ 33,108	\$ 39,388	\$ 44,391	\$ 48,873	\$ 49,450	\$ 49,381				\$ 41,961
<b>45-49</b>	Number	1,041	998	866	690	1,019	378	11			5,003
	Avg Compensation	\$ 33,036	\$ 37,468	\$ 42,612	\$ 47,536	\$ 49,738	\$ 51,521	\$ 46,539			\$ 42,406
<b>50-54</b>	Number	959	992	931	741	818	965	422	19		5,847
	Avg Compensation	\$ 33,733	\$ 35,762	\$ 38,479	\$ 44,355	\$ 48,969	\$ 52,657	\$ 50,210	\$ 46,066		\$ 42,663
<b>55-59</b>	Number	865	815	857	658	769	589	613	225	6	5,397
	Avg Compensation	\$ 34,762	\$ 35,768	\$ 37,122	\$ 41,712	\$ 45,898	\$ 51,569	\$ 52,913	\$ 49,354	\$ 40,976	\$ 42,234
<b>60-64</b>	Number	469	728	485	430	500	380	233	200	74	3,499
	Avg Compensation	\$ 35,974	\$ 36,137	\$ 37,650	\$ 41,086	\$ 44,219	\$ 50,182	\$ 52,260	\$ 56,108	\$ 52,220	\$ 42,169
<b>65 and over</b>	Number	185	315	214	94	116	69	45	27	30	1,095
	Avg Compensation	\$ 32,373	\$ 30,139	\$ 35,718	\$ 44,292	\$ 39,505	\$ 48,331	\$ 43,220	\$ 62,908	\$ 53,885	\$ 36,956
<b>Total</b>	Number	11,590	8,491	6,199	3,989	3,645	2,388	1,324	471	110	38,207
	Avg Compensation	\$ 33,254	\$ 37,835	\$ 40,981	\$ 45,534	\$ 47,634	\$ 51,680	\$ 51,554	\$ 52,866	\$ 52,061	\$ 40,261

<sup>(1)</sup> Compensation is annualized for members with less than four consecutive quarters of compensation.

***SOUTH DAKOTA RETIREMENT SYSTEM***  
***2012 ACTUARIAL VALUATION***

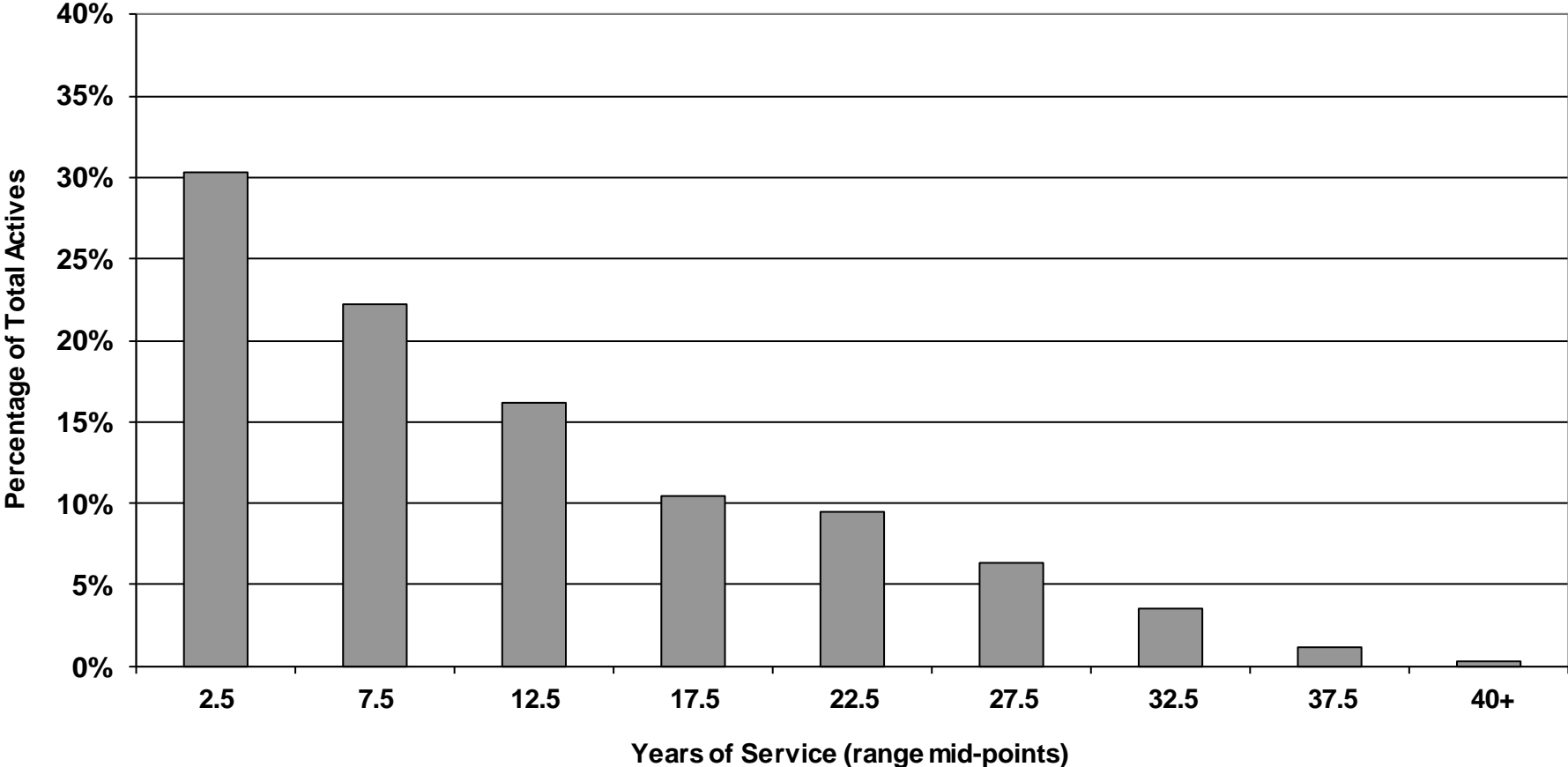
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**Distribution of Active Members by Age**  
**As of June 30, 2012**



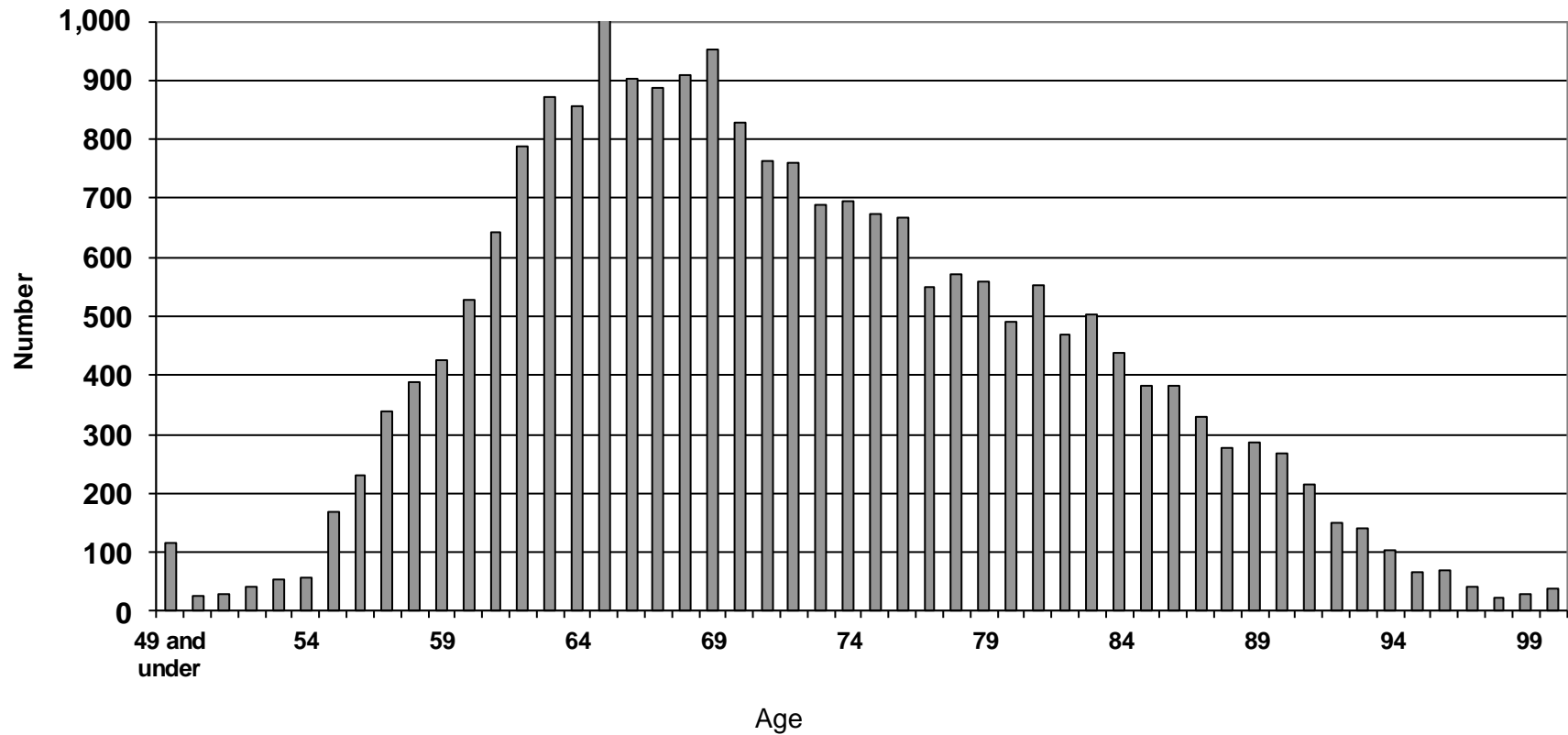
***SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION***

**Distribution of Active Members by Credited Service  
As of June 30, 2012**



***SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION***

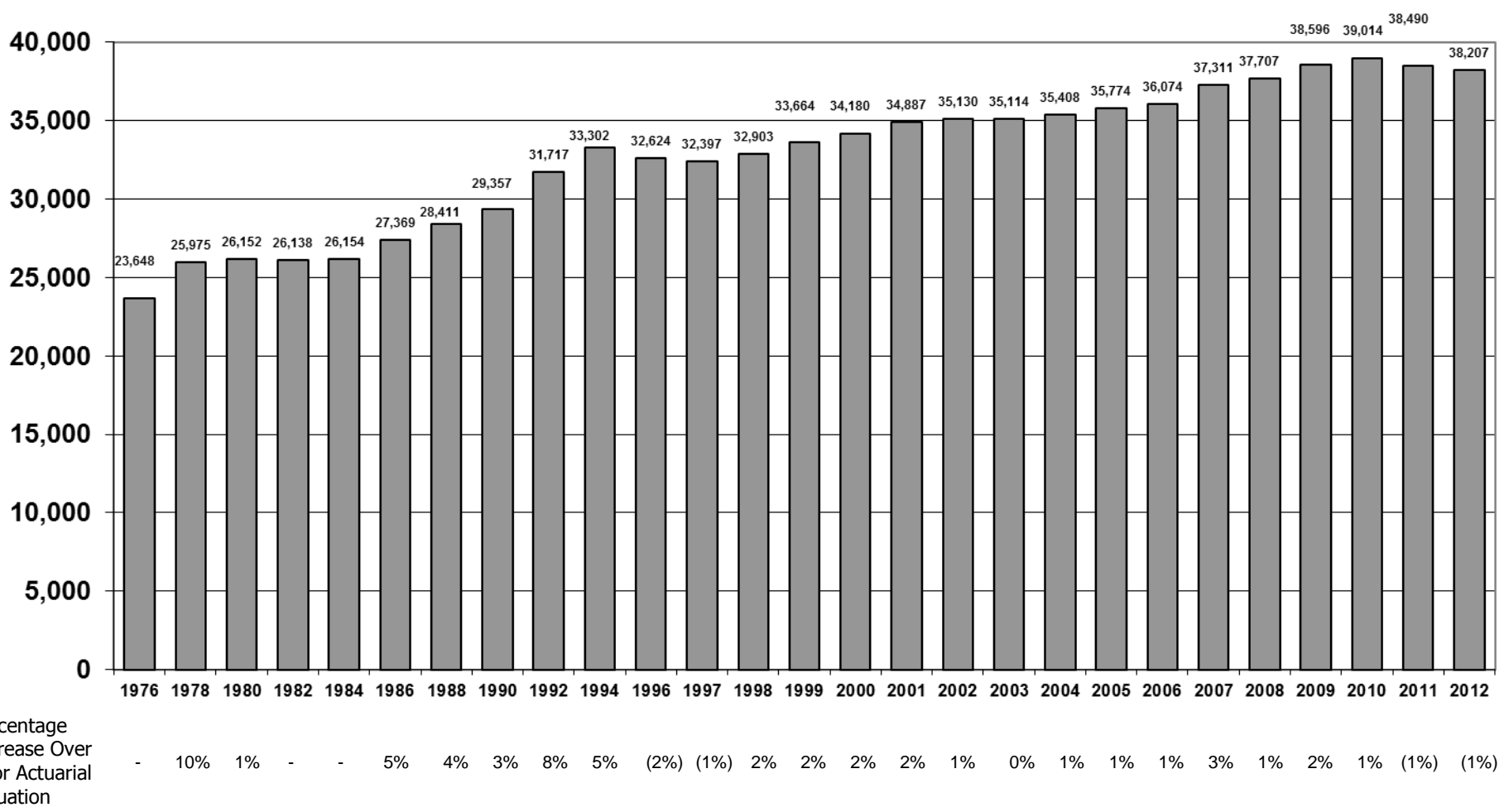
**Distribution of Retirees, Beneficiaries and Disabled Members  
by Age as of June 30, 2012**





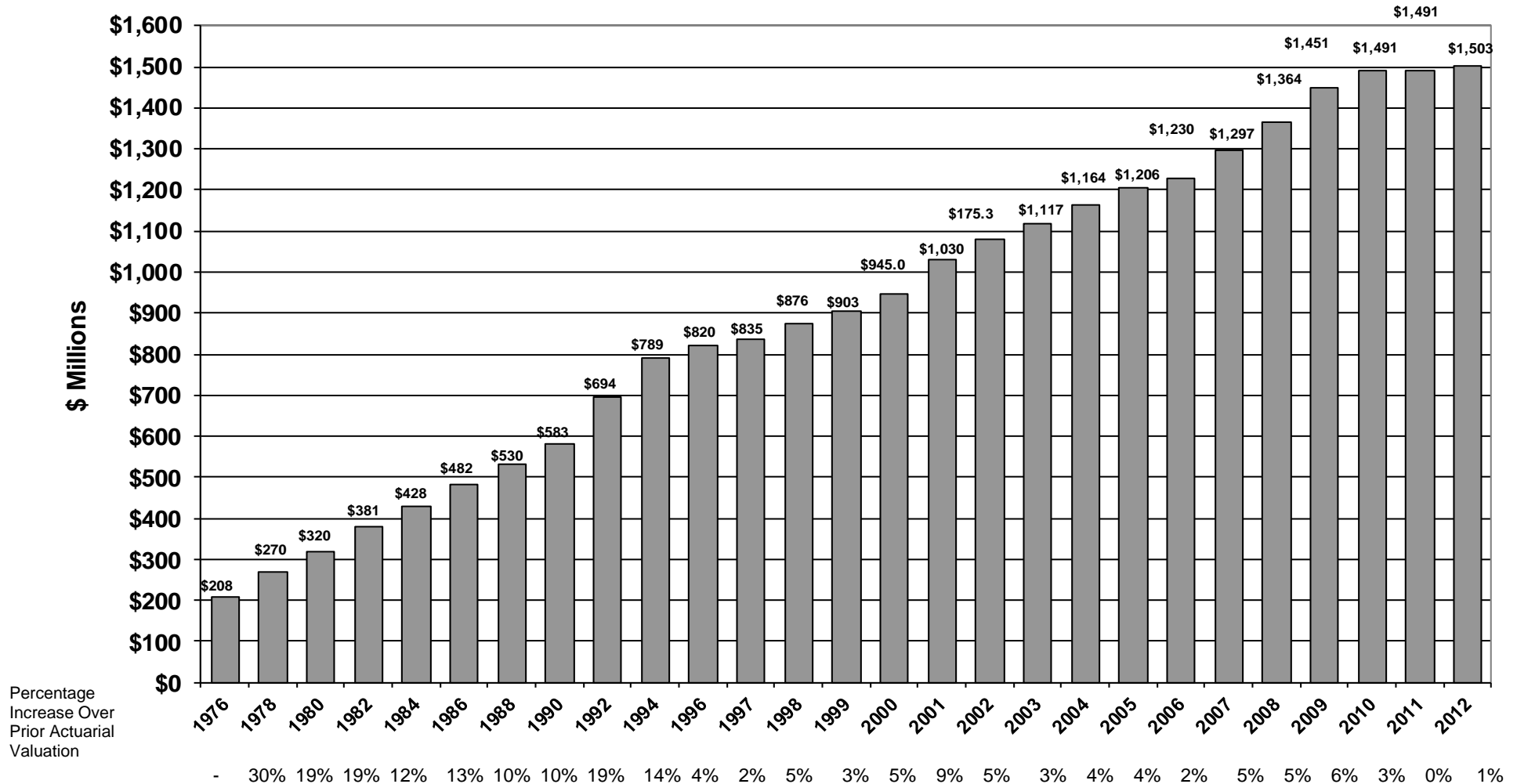
**SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION**

**History of Active Membership**



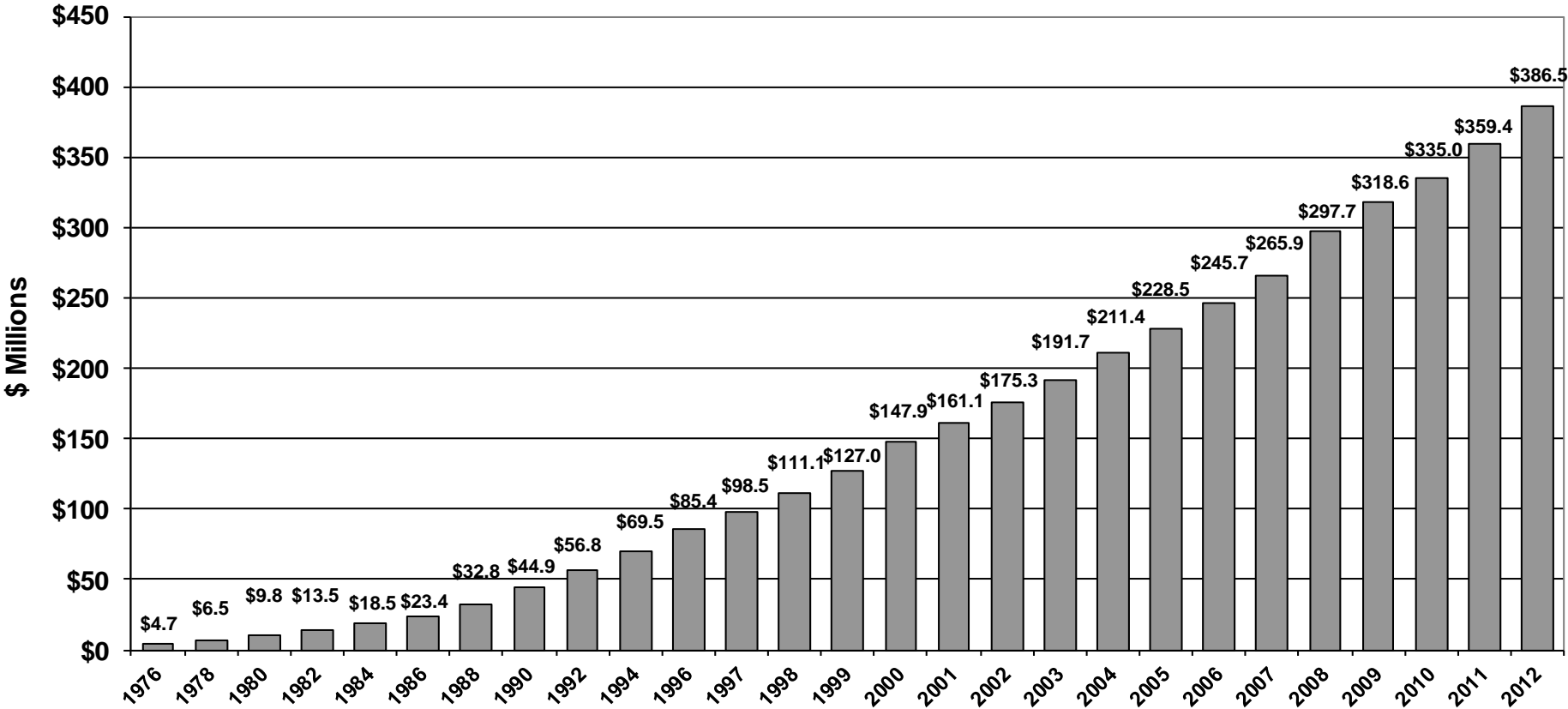
## SOUTH DAKOTA RETIREMENT SYSTEM 2012 ACTUARIAL VALUATION

### History of Member Compensation



**SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION**

**History of Benefits to Retirees, Beneficiaries, and Disabled Members**



Year	Percentage Increase Over Prior Actuarial Valuation
1976	-
1978	38%
1980	51%
1982	38%
1984	37%
1986	26%
1988	40%
1990	37%
1992	26%
1994	22%
1996	23%
1997	15%
1998	13%
1999	14%
2000	16%
2001	9%
2002	9%
2003	9%
2004	10%
2005	8%
2006	8%
2007	8%
2008	12%
2009	7%
2010	5%
2011	7%
2012	8%

***SOUTH DAKOTA RETIREMENT SYSTEM***  
***2012 ACTUARIAL VALUATION***

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**SECTION 5**

**BASIS OF THE VALUATION**

## ***SOUTH DAKOTA RETIREMENT SYSTEM 2012 ACTUARIAL VALUATION***

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### **Summary of Principal Benefit Provisions as Amended Through the 2012 Legislative Session**

#### **Name of the System**

South Dakota Retirement System (SDRS).

#### **Effective Date**

SDRS was established effective July 1, 1974. The Supreme and Circuit Court Judicial Retirement System, District County Court 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.

#### **Type of System**

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; an 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 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.

#### **Members**

All of the following permanent full-time employees are included as Members in 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.

**SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION**

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**Summary of Principal Benefit Provisions  
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**Members (continued)**

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 two classes as follow:

- 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 A Members constitute 93% of SDRS active membership.

**Service Considered**

Credited Service is the period of employment for an SDRS Member which 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 under this System.
- 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 a cost reflecting an actuarially determined sliding scale based on age, 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 414(h) of the Internal Revenue Code.

**Compensation**

Compensation is W-2 wages, plus any amount used to purchase 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 lump sum termination pay. Compensation for Members hired after June 30, 1996 is limited as prescribed in Section 401(a)(17) of the Internal Revenue Code.

**SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION**

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**Summary of Principal Benefit Provisions  
as Amended Through the 2012 Legislative Session**

**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 during periods of Credited Service. The Final Average Compensation is limited by statutory provisions that prevent extraordinary increases in Compensation immediately before retirement.

**Employer Contributions**

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

**Member Contributions**

Class A Members: 6% of Compensation  
Class B Public Safety Members: 8% of Compensation  
Class B Judicial Members: 9% of Compensation

Member Contributions are made on a pre-tax basis as permitted under Section 414(h) of the Internal Revenue Code.

**Accumulated Contributions**

Accumulated Contributions are equal to Member Contributions and 85% of Employer Contributions for Members with three or more years of Contributory Service or 50% of Employer Contributions for Members with less than three years of Contributory Service credited with interest on a monthly basis at a rate annually 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%.

For Members who terminated prior to July 1, 2010 the percentage of Employer Contributions is 100% with three or more years of Contribution Service or 75% with less than three 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 Benefits**

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

**SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION**

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**Summary of Principal Benefit Provisions  
as Amended Through the 2012 Legislative Session**

**Cost-of-Living Adjustment (COLA)**

The annual increase in the amount of the SDRS benefits payable on each July 1st is indexed to CPI and based on SDRS funded status:

- If the SDRS market value funded ratio is 100% or more – 3.1% COLA
- If the SDRS market value funded ratio is 80% to 99.9%, index with the CPI
  - 90% to 99.9% funded – 2.1% minimum and 2.8% maximum COLA
  - 80% to 90% funded – 2.1% minimum and 2.4% maximum COLA
- If the SDRS market value funded ratio is less than 80% - 2.1% COLA

All benefits except those depending on the Member's Accumulated Contributions are annually increased by the Cost-of-Living Adjustment.

**Normal Retirement Date**

The Normal Retirement Date is age 65 with three years of Contributory Service for Class A and Class B Judicial Members of the System. Normal Retirement Date 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 the first of the month in which they reach Normal Retirement Date and payable for life, with an automatic 60% surviving spouse's 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 years of Credited Service as a Class A Member before July 1, 2008, **plus**

**Base Benefit**

1.55% times Final Average Compensation times years of Credited Service as a Class A Member after July 1, 2008.

**OR**

***Alternate Formula***

**Enhanced Benefit**

2.4% times Final Average Compensation times years of Credited Service as a Class A Member before July 1, 2008, **plus**

**Base Benefit**

2.25% times Final Average Compensation times years of Credited Service as a Class A Member after July 1, 2008 **less**  
80% of Primary Social Security benefit.



**SOUTH DAKOTA RETIREMENT SYSTEM  
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**Summary of Principal Benefit Provisions  
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**The Class B benefit for Class B Public Safety Members is:**

**Enhanced Benefit**

2.4% times Final Average Compensation times years of Credited Service as a Class B Public Safety Member before July 1, 2008, **plus**

**Base Benefit**

2.0% times Final Average Compensation times years of Credited Service as a Class B Public Safety Member after July 1, 2008.

***Normal Retirement Benefit (continued)***

**The Class B benefit for Class B Judicial Members is determined by adding the Enhanced and Base Benefit for both the first 15 years of Credited Service and years of Credited Service in excess of 15, as follows:**

***First 15 years of Credited Service***

**Enhanced Benefit**

3.733% times Final Average Compensation times the first 15 years of Credited Service as a Class B Judicial Member before July 1, 2008, **plus**

**Base Benefit**

3.333% times Final Average Compensation times all other such years of Credited Service as a Class B Judicial Member after July 1, 2008.

**PLUS**

***Years of Credited Service in Excess of 15***

**Enhanced Benefit**

2.4% times Final Average Compensation times years of Credited Service as a Class B Judicial Member before July 1, 2008, in excess of 15 years, **plus**

**Base Benefit**

2.0% times Final Average Compensation times all other such years of Credited Service as a Class B Judicial Member after July 1, 2008.

All of the above benefits are paid monthly.

SDRS benefits are limited to the maximum benefit under Section 415 of the Internal Revenue Code, except for the portion of benefits attributable to any after-tax contributions made prior to July 1, 1984.

**SOUTH DAKOTA RETIREMENT SYSTEM  
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**Summary of Principal Benefit Provisions  
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**Delayed Retirement Benefit**

The monthly benefit payable upon retirement after Normal Retirement Date is based on Credited Service and Final Average Compensation to date of actual retirement.

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

The Special Early Retirement Date for Class A Members is the date at which a Member's age plus Credited Service total 85, but not less than age 55. The Special Early Retirement Date for Class B Judicial Members is the date at which age plus Credited Service total 80, but not less than age 55. The Special Early Retirement Date for Class B Public Safety Members is the date at which age plus Credited Service total 75, but not less than age 45.

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

**Early Retirement Benefit**

Any Member with at least three years of Contributory Service can retire in the ten years preceding Normal Retirement Date. 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 1/4 of 1% for each full month by which commencement of payments precedes the earlier of the Normal Retirement Date 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 payable at either Normal or Early Retirement based on the Member's Credited Service at the time of termination of employment and increased by the Cost-of-Living Adjustment from the date of termination to the date benefits commence.

In lieu of any monthly lifetime retirement benefits under the System, a terminating Member may receive a lump sum of his Accumulated Contributions under the Portable Retirement Option. Members who are rehired may redeposit their Accumulated Contributions plus interest within two years of rehire to reinstate their Credited Service.

**SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION**

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**Summary of Principal Benefit Provisions  
as Amended Through the 2012 Legislative Session**

**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.

The Disability Benefit is equal to:

- For the first 36 months, 50% of the Member's Final Average Compensation, increased 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 Final Average Compensation plus 10% for each eligible child to a maximum of 90% less the amount of primary Social Security.
    - 20% of Final Average Compensation increased by the COLA
    - The unreduced accrued retirement benefit
  - ◇ if the Member is not receiving disability benefits from Social Security, the greater of:
    - 20% of Final Average Compensation increased by the COLA
    - The unreduced accrued retirement benefit

The maximum benefit is 100% of Final Average Compensation (increased by the Cost-of-Living Adjustment) reduced by earned income and primary Social Security.

The above benefits are payable monthly.

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 Cost-of-Living Adjustment for the period between the date of disability and Normal Retirement Date (Projected Compensation), and Credited Service as if employment had continued uninterrupted to Normal Retirement Date (Projected Credited Service).

**SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION**

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**Summary of Principal Benefit Provisions  
as Amended Through the 2012 Legislative Session**

**Survivor Benefits**

**Pre-Normal Retirement Age and Post-Disability Deaths**

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 at the spouse's age 65 a benefit equal to 60% of the Normal Retirement Benefit that would have been payable to the deceased Member at Normal Retirement Date based on Projected Credited Service and Projected Compensation, and further increased by the Cost-of-Living Adjustment for any time between Normal Retirement Date and payment commencement date.

**Post-Normal Retirement Age and Post-Retirement Deaths**

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

**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.

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

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**Summary of Principal Benefit Provisions  
as Amended Through the 2012 Legislative Session**

**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 to his spouse, or the Member's termination of employment.

The elected additional monthly benefit is equal to 40% of the Member's Final Average Compensation multiplied by the Cost-of-Living Adjustment 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 are 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 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 which is the actuarial equivalent of the benefit due under the System. A Social Security level income payment option 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.

**Retired Members**

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

## ***SOUTH DAKOTA RETIREMENT SYSTEM*** ***2012 ACTUARIAL VALUATION***

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### **Description of Actuarial Methods and Valuation Procedures**

#### **A. Actuarial Cost Method**

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

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, that along with the current assets and amortization payments would accumulate with interest at the rate assumed in the valuation to a fund sufficient to pay all benefits under the Plan.

The Normal Cost Rate for the Plan 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, 2012 valuation, the Frozen Unfunded Actuarial Accrual was reinitialized using the Entry Age Actuarial Cost Method. Future years will progress under the Frozen Entry Age Actuarial Cost Method. The Frozen Unfunded Actuarial Accrued Liability is amortized as a level percent of payroll over a period of 29 years as June 30, 2012 declining by one year each year until a 20-year funding period is achieved. Payroll is assumed to increase 3.75% per year for this purpose.

Under this method experience gains or losses, i.e., decreases or increases in liabilities attributable to deviations in experience from the actuarial assumptions, adjust the Normal Cost.

#### **B. 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 Market Value of Assets, and if this corridor applies, it will also result in an adjustment to the Reserve for Funding of Long-Term Benefit Goals. Effective June 30, 2007, this adjustment was encumbered and also adjusted the Present Value of Benefits. Effective June 30, 2012, the Actuarial Value of Assets was increased and the Cushion and Reserve were decreased by \$77.4 million in order to reach a 29-year funding period as of June 30, 2012.

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 for Funding of Long-Term Benefit Goals was no longer included in the Actuarial Value of Assets.

***SOUTH DAKOTA RETIREMENT SYSTEM  
2011 ACTUARIAL VALUATION***

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**Description of Actuarial Methods  
and Valuation Procedures**

**C. Valuation Procedures**

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

The compensation amounts used in the projection of benefits and liabilities were June 30, 2012, rates of pay.

In computing accrued benefits, average earnings were determined using actual earnings histories supplied by SDRS staff.

No termination or retirement benefits were projected to be greater than the dollar limitation required by the Internal Revenue Code Section 415 for governmental plans.

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

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

**Summary of Actuarial Assumptions for Actuarial Valuation  
as of June 30, 2012**

**1. Investment Return/  
Discount Rate**

7.25% per annum for 5 years beginning July 1, 2012, increasing to 7.50% after 5 years, compounded annually, net of investment expenses. This nominal rate includes price inflation of 3.25% per annum and a real rate of return of 4.00% annually per annum during the 5 year period beginning July 1, 2012, and 4.25% per annum thereafter.

**2. Retirement Age**

Class A School Members:

Age	Annual Rate Per 100 Members Eligible to Retire			
	Reduced		Unreduced	
	Male	Female	Male	Female
55	7.0	6.5	17.5	13.5
56	7.0	6.5	12.5	12.5
57	7.0	6.5	12.5	12.5
58	7.0	6.5	12.5	12.5
59	7.0	7.5	12.5	17.5
60	9.0	8.5	12.5	17.5
61	12.5	12.0	25.0	22.5
62	12.5	12.5	25.0	25.0
63	12.5	12.5	17.5	22.5
64	17.5	20.0	20.0	22.5
65			30.0	35.0
66			25.0	25.0
67			25.0	25.0
68			25.0	25.0
69			25.0	25.0
70			30.0	30.0
71			30.0	30.0
72			30.0	30.0
73			30.0	30.0
74			30.0	30.0
75			30.0	30.0
76			30.0	30.0
77			30.0	30.0
78			30.0	30.0
79			30.0	30.0
80			100	100



**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

**Summary of Actuarial Assumptions for Actuarial Valuation  
as of June 30, 2012**

All Other Class A Members:

Age	Annual Rate Per 100 Members Eligible to Retire			
	Reduced		Unreduced	
	Male	Female	Male	Female
55	5.0	4.0	17.5	12.5
56	5.0	4.0	8.0	8.0
57	5.0	4.0	8.0	8.0
58	5.0	4.0	8.0	8.0
59	5.0	6.0	12.0	11.0
60	6.0	8.0	12.0	11.0
61	10.0	9.5	17.5	11.0
62	13.5	12.0	30.0	22.5
63	13.5	12.0	25.0	17.5
64	17.5	20.0	25.0	17.5
65			40.0	32.5
66			25.0	20.0
67			25.0	20.0
68			25.0	20.0
69			25.0	20.0
70			30.0	30.0
71			30.0	30.0
72			30.0	30.0
73			30.0	30.0
74			30.0	30.0
75			30.0	30.0
76			30.0	30.0
77			30.0	30.0
78			30.0	30.0
79			30.0	30.0
80			100	100

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

**Summary of Actuarial Assumptions for Actuarial Valuation  
as of June 30, 2012**

Class B Judicial Members:

Age	Annual Rate Per 100 Members Eligible to Retire	
	Reduced	Unreduced
55	8.0	15.0
56	8.0	5.0
57	2.0	5.0
58	2.0	5.0
59	2.0	5.0
60	2.0	10.0
61	2.0	10.0
62	2.0	15.0
63	2.0	12.67
64	2.0	20.0
65		20.0
66		15.0
67		15.0
68		25.0
69		30.0
70		100

Class B Public Safety Members:

Age	Annual Rate Per 100 Members Eligible to Retire	
	Reduced	Unreduced
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		15.0
56		7.5
57		7.5
58		11.0
59		12.5
60		12.5
61		25.0
62		25.0
63		25.0
64		25.0
65		100

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

**Summary of Actuarial Assumptions for Actuarial Valuation  
as of June 30, 2012**

**3. Compensation Progression  
Sample Rates**

Service	Percentage Increase in Year Following Indicated Year of Service
0	5.83%
5	5.32
10	4.89
15	4.50
20	4.19
25	4.03
30	3.87
31+	3.75

**4. Mortality**

Mortality improvement is anticipated to continue beyond the valuation date, but improvements are expected to be at a slower rate than in prior periods based on SDRS's most recent mortality experience. There is a small margin in the mortality assumption above recent SDRS mortality experience to account for future mortality improvements. The use of the current mortality assumption results in a liability greater than the RP-2000 combined table, projected with Scale AA to 7 years beyond the valuation date for annuitants and 15 years beyond the valuation date for non-annuitants.

**Active Members and  
Non-Disabled Retirees**

1995 Buck Mortality Table, male rates set-back 1 year. See table below for sample values.

**Disabled Retirees**

1983 Railroad Retirement Board Disabled Annuitants Mortality Table. See table below for sample values.

<b>Annual Rate Per 100 Members</b>			
Age	Mortality		Disabled Mortality
	Male	Female	
25	.07	.02	.68
30	.06	.02	1.06
35	.07	.04	1.14
40	.09	.06	1.35
45	.13	.09	2.00
50	.20	.14	3.16
55	.31	.21	3.78
60	.56	.32	4.25
65	1.09	.66	5.12

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

**Summary of Actuarial Assumptions for Actuarial Valuation  
as of June 30, 2012**

**5. Disability**

Graduated rates. See table below for sample values

<b>Annual Rate Per 100 Members</b>						
Age	Class A School Members		All other Class A Members		Class B Public Safety Members	
	Male	Female	Male	Female	Male	Female
25	.02	.02	.04	.04	.08	.10
30	.02	.02	.05	.04	.08	.11
35	.02	.02	.05	.04	.10	.12
40	.03	.03	.06	.05	.12	.15
45	.04	.04	.09	.08	.16	.22
50	.06	.05	.13	.08	.24	.23
55	.10	.08	.22	.13	.40	.38
60	.21	.16	.46	.28	.84	.80
65	.43	.31	.94	.54	1.71	1.55

No disability is assumed for Judicial members

**6. Termination**

<b>Annual Rate Per 100 Members</b>					
Select Rates of Termination During First 5 Years of Employment					
Service	Class A School Members		All other Class A Members		Class B Public Safety Members
	Male	Female	Male	Female	
1	22.50	25.00	17.50	21.00	18.00
2	17.50	17.50	14.00	18.00	12.50
3	15.00	15.00	11.00	15.00	11.00
4	12.50	12.50	9.00	12.50	10.00
5	10.00	10.00	7.00	9.50	10.00

<b>Annual Rate Per 100 Members</b>					
After First 5 years of Employment					
Age	Class A School Members		All other Class A Members		Class B Public Safety Members
	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 termination is assumed for Judicial members

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

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**Summary of Actuarial Assumptions for Actuarial Valuation  
as of June 30, 2012**

- |   |  |
|---|--|
| <b>7. Marital Status</b>                                      |  |
| <b>a. Percentage Married</b>                                  | Active Members: 80%<br>Retired and Terminated Members: 75%   |
| <b>b. Age Difference</b>                                      | Males are assumed to be three years older than females.  |
| <b>8. Future Social Security Increases</b>                    |  |
| <b>a. Cost-of-Living Increases</b>                            | 3.25% per annum.   |
| <b>b. Wage Base Increases</b>                                 | 3.75% per annum.   |
| <b>9. Interest on Accumulated Contributions</b>               | 3.5% per annum.  |
| <b>10. Provision for Administrative Expenses</b>              | A separate expense factor equal to 2.0% of Member and Employer Contributions is included.  |
| <b>11. Election of Portable Retirement Option Benefits</b>    | Members are assumed to elect to receive the most valuable of the Portable Retirement Option or the Vested Benefit payable at retirement, at termination of employment. |
| <b>12. Benefit Commencement for Terminated Vested Members</b> | Terminated Vested Members are assumed to elect benefit commencement three years prior to Normal Retirement Date.   |
| <b>13. Disabled Members</b>                                   | 70% of those receiving Disability Benefits are also receiving Social Security disability awards.   |
| <b>14. Children Death and Disability Benefit</b>              | Members are assumed to have 2 children between the members' ages of 29 and 48.   |
| <b>15. Assumed Cost-of-Living Adjustment (COLA)</b>           | Monthly benefit payments are assumed to increase annually at the rate of 2.70% per year.   |

## ***SOUTH DAKOTA RETIREMENT SYSTEM 2012 ACTUARIAL VALUATION***

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### **Glossary of Actuarial Terms**

#### **Actuarial Accrued Liability (AAL)**

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 Employer and Member 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 Accrued Liability Funded Ratio**

An actuarial measure of the funding progress and soundness of the System based on the Actuarial Accrued Liability measurement of liabilities. The ratio is required disclosure under Governmental Accounting Standards Board Statement No. 25 and is equal to 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 Balance**

Statutory contributions meeting or exceeding the Actuarial Funding Requirements.

#### **Actuarial Funding Requirements**

Under current Board policy and GASB Statement No. 25, the contribution required to fund the Normal Cost and amortize the Unfunded Actuarial Accrued Liability over 29 years as of June 30, 2012, declining by one year each year until a 20-year funding period is achieved.

#### **Actuarial Investment Gain(s)**

The amount the actual investment return on the Market Value of Assets was greater than the expected investment return (7.25% per annum) on the Actuarial Value of Assets.

#### **Actuarial Investment Loss(es)**

The amount the actual investment return on the Market Value of Assets was 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 Exhibit 5. The results of the Actuarial Valuation provide information on the current and future financial soundness of the System.

#### **Actuarial Value of Assets (AVA)**

The value of assets considered in the Actuarial Valuation of the System and in determining the Funding Period.

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 Market Value of Assets. If the Actuarial Value of Assets is constrained by the 80%/120% corridor, the Reserve for Funding Long-Term Benefit Goals will also be appropriately adjusted.

The revised method of determining the Actuarial Value of Assets was first effective for the year ended June 30, 1995, further revised effective for the year ended June 30, 1998, and most recently revised for the year ended June 30, 2004. As of June 30, 2004, the Reserve for Funding of Long-Term Benefit Goals is no longer included in the Actuarial Value of Assets. Effective June 30, 2012, the Actuarial Value of Assets was increased, and the Cushion and Reserve were decreased by \$77.4 million in order to reach a 29-year funding period as of June 30, 2012.

**SOUTH DAKOTA RETIREMENT SYSTEM  
2012 ACTUARIAL VALUATION**

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## Glossary of Actuarial Terms

### **Annual Required Contributions of the Employers (ARC)**

A calculation of the actuarially determined required annual Employer Contributions to SDRS determined in accordance with the parameters of Governmental Accounting Standards Board Statement No. 25. The statement requires that the Employer Contribution be determined in accordance with certain parameters as outlined in the statement and be sufficient to pay the Employer Normal Costs of the System plus amortize the Frozen Unfunded Actuarial Accrued Liability over a period of 29 years as of June 30, 2012, declining by one year each year until a 20-year funding period is achieved.

### **Cushion**

The excess of Market Value of Assets (MVA) over AVA; if AVA exceeds MVA, 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.

### **Frozen Entry Age Actuarial Cost Method**

SDRS's adopted funding method for determining NC and AAL; the NC and UAAL are initially determined using the Entry Age Actuarial Cost Method. In subsequent years, the UAAL is "frozen" (not adjusted by gains and losses) but only by NC, contributions and interest.

### **Frozen Unfunded Actuarial Accrued Liability (UAAL)**

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 is reduced by the excess of Employer and Member Contributions over the Interest Charge on the Frozen Unfunded Actuarial Accrued Liability plus the Normal Cost and Expenses of the System. 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. This Frozen Unfunded Actuarial Accrued Liability is also referred to as the Unfunded Actuarial Accrued Liability.

### **Funded Ratio**

The ratio of assets to AAL – two measures are used: AVA Funded Ratio = AVA/AAL; MVA Funded Ratio = MVA/AAL.

### **Funding Period**

An actuarial measure of the soundness of the System which measures the length of time in which the Employer and Member Contributions will amortize the Frozen Unfunded Actuarial Accrued Liability as well as pay the Normal Costs, Interest Charge on the Frozen Unfunded Actuarial Accrued Liability, and expenses of the System. The shorter the Funding Period, the more favorable the actuarial balance of the System.

The SDRS Board of Trustees has adopted a funding period policy objective of a period of 29 years as of June 30, 2012, declining by one year each year until a 20-year funding period is achieved.

**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

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## Glossary of Actuarial Terms

**Interest Charge on the Frozen Unfunded Actuarial Accrued Liability**

The amount of interest that is accrued each year on the Frozen Unfunded Actuarial Accrued Liability.

**Market Value of Assets (MVA)**

The value of assets as of the date of the Actuarial Valuation at fair market value.

**Normal Cost (NC)**

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

**Present Value of All Benefits (PVB)**

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 and 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 (PVFNC)**

The Present Value of Future Normal Cost Contributions is the Present Value of Future Normal Costs to be paid by Employer and Member 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 NC and UAAL can be reset without regard to past experience and the AVA can be reset to the MVA eliminating the current Cushion or Deficit. After re-initialization, the Actuarial Funding Method functions as it did before re-initialization.



**SOUTH DAKOTA RETIREMENT SYSTEM**  
**2012 ACTUARIAL VALUATION**

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**Glossary of Actuarial Terms**

**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 for Funding of Long-Term Benefit Goals 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 for Funding of Long-Term Benefit Goals, the Reserve for Funding of Long-Term Benefit Goals is reduced by the Present Value of All Benefits for those improvements. Similarly, benefit reductions will increase the Reserve. The Reserve for Funding of Long-Term Benefit Goals 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 for Funding of Long-Term Benefit Goals indicates that cumulative gains and the net costs of benefit provision changes are greater than cumulative losses to the System. A negative balance in the Reserve for Funding of Long-Term Benefit Goals indicates that cumulative losses are greater than cumulative gains to the System and the net costs of benefit provision changes.

The Reserve for Funding of Long-Term Benefit Goals 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 this Reserve is no longer included in the Present Value of All Benefits, the Actuarial Accrued Liability, or the Actuarial Value of Assets.

Benefit definitions are summarized in Section 5.1, Summary of Principal Benefit Provisions.