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PUBLIC SCHOOL RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS, MISSOURI

Actuarial Valuation Report

Plan Year *January 1, 2011 – December 31, 2011*

June, 2011

June 20, 2011

Mr. Andrew Clark
Executive Director
PSRS of the City of St. Louis
3641 Olive Street, Suite 300
St. Louis, MO 63108-3601

Dear Members of The Public School Retirement System of the City of St. Louis Board:

Actuarial Certification

The annual actuarial valuation required for the Public School Retirement System of the City of St. Louis has been prepared as of January 1, 2011 by Buck Consultants. The purposes of the report are to:

(1) determine the required annual contributions from the board of education, the retirement system, and the charter schools;

(2) present the valuation results of the System as of January 1, 2011;

(3) develop information used for reporting and disclosure information for financial statements, governmental agencies, and other interested parties.

This report is submitted in accordance with Section 169.450-16 Revised Statutes of Missouri (R.S. Mo.). The required contribution to the System from the board of education, the retirement system, and the charter schools is computed in accordance with Section 169.490 R.S. Mo. The amount of the required contribution is stated in Section 1.3 of this report.

In preparing this valuation, we have employed generally accepted actuarial methods and assumptions, in conjunction with employee data and financial information provided to us by the System, to determine a sound value for the System liability. The employee data has not been audited, but it has been reviewed and found to be consistent, both internally and with prior years' data.

This actuarial valuation is based on the same actuarial assumptions and methods as those used in the prior actuarial valuation. A summary of those assumptions and methods is presented in Section 4.7 of this report. All assumptions used in this valuation are as adopted by the Board. The assumptions, when applied in combination, fairly represent past and anticipated future experience of the System.

Future contribution requirements may differ from those determined in the valuation because of:

(1) differences between actual experience and anticipated experience based on the assumptions;

(2) changes in actuarial assumptions or methods;

(3) changes in statutory provisions;

(4) differences between actuarially required contributions and actual contributions.

The undersigned are members of the American Academy of Actuaries and the Society of Actuaries, are fully qualified to provide actuarial services to the System, and are available to answer questions regarding this report.

We believe that the assumptions and methods used for funding purposes and for the disclosures presented in this report satisfy the parameter requirements set forth in the Government Accounting Standards Board (GASB) Statement No. 25. We believe that this report conforms with the requirements of the Missouri statutes, and where applicable, other federal and accounting laws, regulations and rules, as well as generally accepted actuarial principles and practices.

Sincerely,

Stephen B Siepman

Michael D. Mills

Stephen B. Siepman, FSA, EA, MAAA
Principal, Consulting Actuary

Michael D. Mills, FSA, EA, MAAA
Director, Consulting Actuary

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Report Highlights

This report has been prepared by Buck Consultants to:

- Present the results of a valuation of the Public School Retirement System of the City of St. Louis as of January 1, 2011;
- Determine the required contribution rate for 2012;
- Provide reporting and disclosure information for financial statements, governmental agencies, and other interested parties.

This report is divided into four sections. Section 1 contains the results of the valuation. It includes the experience of the System during the 2010 plan year, the actuarially required costs, and funded levels.

Section 2 contains asset information. It includes market value of assets, the calculation of actuarial value of assets, the contingency reserve, and asset returns.

Section 3 provides reporting and disclosure information for financial statements, governmental agencies and other interested parties.

Section 4 describes the basis of the valuation. It summarizes the System provisions, provides information relating to the System members, and describes the funding methods and actuarial assumptions used in determining liabilities and costs. Also included is historical information about the Sytem.

Gains and losses

Under the actuarial funding method used to determine the contribution, actuarial gains (or losses) result in a decrease (or increase) in the normal cost rate. Actuarial gains (or losses) result from differences between the actual experience of the System and the expected experience based upon the actuarial assumptions. Annual gains (or losses) should be expected as or because short-term deviations from expected long-term average experience are common.

For 2011, actuarial losses were approximately \$11 million. \$9 million of the loss is attributable to the System's actuarial rate of return on assets which was 6.9%, 1.1% less than the assumed rate of return of 8.00%. By comparison, the rate of return on the market value of assets was 13.5%. The difference in these returns is because the actuarial value of assets has not yet fully recognized the asset losses that occurred during 2008. At January 1, 2011, the actuarial value of assets at \$944 million remains above market value of assets by approximately \$7 million. About \$2 million of the loss is attributable to demographic changes.

Normal cost rate

The normal cost is determined annually and equals the product of the normal cost rate times covered payroll. For 2011, the annual normal cost due December 31, 2011 is \$14,507,892, as compared to \$12,673,767 for 2010, primarily due to the aforementioned actuarial loss. The annual normal cost rate increased from 4.85% to 6.39% due to the above losses and the reduction in active payroll over which to amortize costs. Covered payroll decreased from \$242.0 million to \$218.3 million.

Accrued liability amortization

The actuarial accrued liability contribution is determined as the amount necessary to amortize the remaining Unfunded Frozen Actuarial Accrued Liability (UFAAL) over a period of 30 years from January 1, 2006, when the Board of Trustees acted to redetermine the UFAAL. This portion of the contribution only changes to reflect changes in benefits, changes in actuarial assumptions and methods, and variations in the remaining UFAAL due to deviations between actual and expected contributions. Employer contributions for 2010 were $6.7 million more than the annual required contribution, which reduced the UFAAL more than expected. As a result, the amortization payment is reduced from $11,590,415 to $11,420,766. However, it is being spread over a smaller payroll base, so the amortization payment component of the contribution rate increased from 4.8% to 5.3% of covered payroll.

Required contribution and timing

In 2001, the Board of Education agreed to institute a one-year lag for future years. Therefore, this actuarial valuation is used to determine the actual contribution rate for 2012. The dollar amount of the actual contribution increased to $25,928,658 for 2012 from $24,264,182 for 2011. As a percentage of covered compensation, the contribution rate for 2012 increased to 11.88% from 10.03% for 2010.

Summary and Comparison of Principal Valuation Results

Annual Required Contribution

	Board of Education	Retirement System	Charter Schools	Total
2011				
Normal cost contribution	$ 11,630,457	$ 41,350	$ 2,836,085	$ 14,507,892
Actuarial accrued liability contribution	9,155,618	32,552	2,232,596	$ 11,420,766
Annual required contribution	20,786,075	73,902	5,068,681	$ 25,928,658
Covered payroll	175,009,885	622,220	42,676,134	$ 218,308,239
ARC as % of covered payroll	11.88%	11.88%	11.88%	11.88%
2010				
Normal cost contribution	$ 10,411,884	$ 30,276	$ 2,231,607	$ 12,673,767
Actuarial accrued liability contribution	9,521,877	27,688	2,040,850	$ 11,590,415
Annual required contribution	19,933,761	57,964	4,272,457	$ 24,264,182
Covered payroll	198,775,945	578,006	42,604,182	$ 241,958,133
ARC as % of covered payroll	10.03%	10.03%	10.03%	10.03%

	January 1, 2011	January 1, 2010
System Assets		
Expense and contingency reserve	$ 29,480,465	$ 29,903,107
Market value, excluding expense & contingency reserve	908,113,738	861,659,811
Actuarial value	944,356,735	950,709,944
System liabilities		
Unfunded actuarial accrued liability	$ 121,914,117	$ 125,292,126
Actuarial present value of projected accrued benefits	$ 1,115,338,412	$1,111,070,953
Funding Ratio		
Actuarial value funding ratio	84.7%	85.6%
Market value funding ratio	81.4%	77.6%

Analysis of the Valuation

(1) Investment Experience

Our actuarial calculations were based upon the assumption that the System's assets earn 8.00%. The approximate market value rate of return during 2010 was 13.5%. The approximate actuarial value rate of return was 6.9%.

(2) Demographic Experience

The number of active members decreased from 4,825 to 4,336 for the period. The average age of active members decreased by 0.18 years, the average service decreased by 0.04 years, and the average annual salary increased $201. There were small changes in the inactive statistics as well. The membership statistics are found in Sections 4.3 through 4.6 of this report.

(3) Salary Increases

The average annual salary increased 0.4% between January 1, 2010 and January 1, 2011. Total annual covered compensation decreased 9.8% between January 1, 2010 and January 1, 2011, due to the decrease in active membership.

(4) Changes in Methods from the Prior Valuation

There have been no changes in methods since the prior valuation.

(5) Changes in Assumptions from the Prior Valuation

There have been no changes in assumptions since the prior valuation.

(6) Changes in Benefit Provisions from the Prior Valuation

There have been no changes in benefit provisions since the prior valuation.

(7) Other Changes

There have been no other changes since the prior valuation.

(8) Summary

The overall effect of experience during the period resulted in a decrease in the funding ratio from 85.6% to 84.7%. The total contribution rate increased from 10.03% to 11.88% of covered payroll.

Section 1
Valuation Results

This section sets forth the results of the actuarial valuation.

Section 1.1	Develops the actuarial accrued liability contribution
Section 1.2	Develops the normal cost contribution
Section 1.3	Develops the required annual contribution
Section 1.4	Actuarial balance sheet as of January 1, 2011
Section 1.5	Projected benefit obligation funding ratios
Section 1.6	Projected benefit obligation funded status
Section 1.7	Prioritized solvency test

Section 1 *(continued)*

1.1 Determination of the Unfunded Frozen Actuarial Accrued Liability

1.	Unfunded frozen actuarial accrued liability as of January 1, 2010	$125,292,126
2.	Normal cost due January 1, 2010	11,734,969
3.	Interest on (1) and (2) at 8.0% to December 31, 2010	10,962,168
4.	Employer contributions for 2010	26,075,146
5.	Interest on (4) at 8.0% to December 31, 2010	0
6.	Supplement for changes in actuarial assumptions or benefits	0
7.	Unfunded frozen actuarial accrued liability as of January 1, 2011, (1) + (2) + (3) – (4) – (5) + (6)	121,914,117
8.	Actuarial accrued liability contribution for 2011	11,420,766

Section 1 *(continued)*

1.2 Determination of Normal Cost Contribution

1.	Actuarial present value of future benefits				
	a.	Active participants			
		i.	Retirement benefits	$370,216,885	
		ii.	Vested withdrawal benefits	32,177,260	
		iii.	Refund of contributions	2,514,672	
		iv.	Survivor benefits	10,355,044	
		v.	Disability benefits	13,326,837	
			Total		$ 428,590,698
	b.	Retired participants and beneficiaries			811,745,629
	c.	Inactive participants			
		i.	Vested participants	26,463,750	
		ii.	Nonvested participants	4,433,972	
			Total		30,897,722
	d.	Total actuarial present value of future benefits			$1,271,234,049
2.	Unfunded frozen actuarial accrued liability as of January 1, 2011				121,914,117
3.	Actuarial value of assets as of December 31, 2010				944,356,735
4.	Actuarial present value of future participant contributions				89,935,880
5.	Actuarial present value of future employer normal costs, (1)(d) – (2) – (3) – (4), not less than $0				115,027,317
6.	Actuarial present value of future covered compensation of current participants				1,798,717,609
7.	Employer normal cost rate, (5) / (6)				6.39%
8.	Total covered compensation				218,308,239
9.	Normal cost for 2011, (7) x (8)				13,949,896
10.	Normal cost contribution due by December 31, 2011, (9) x [1 + (0.08 x 0.5)]				14,507,892

Section 1 *(continued)*
1.3 Required Annual Contribution

	Board of Education	Retirement System	Charter Schools	Total
Normal cost contribution	$ 11,630,457	$ 41,350	$ 2,836,085	$ 14,507,892
Actuarial accrued liability contribution	9,155,618	32,552	2,232,596	$ 11,420,766
Annual required contribution (ARC)	20,786,075	73,902	5,068,681	$ 25,928,658
Covered compensation	175,009,885	622,220	42,676,134	$ 218,308,239
ARC as % of covered compensation	11.88%	11.88%	11.88%	11.88%

Section 1 *(continued)*

1.4 Actuarial Balance Sheet as of January 1, 2011

Actuarial assets		
Actuarial value of present assets		$ 944,356,735
Actuarial present value of future participant contributions		89,935,880
Actuarial present value of future employer contributions for:		
Normal costs		115,027,317
Actuarial accrued liability		121,914,117
Total present and future assets		$1,271,234,049
Actuarial liabilities		
Actuarial present value of benefits now payable		$ 811,745,629
Actuarial present value of benefits payable in the future:		
Active participants	$ 428,590,698	
Terminated vested participants	26,463,750	
Terminated nonvested participants	4,433,972	
Total payable in the future		459,488,420
Total liabilities for benefits		$1,271,234,049
Surplus / (deficit)		0

Section 1 *(continued)*

1.5 Projected Benefit Obligation Funding Ratios

The funding objective of the System is to meet long-term benefit promises through contributions that remain approximately level from year to year as a percentage of covered compensation.

Funding ratios provide a measure of how much progress has been made towards achieving this objective. For this purpose, the System's liabilities are determined using the projected benefit obligation cost method. Under this method, liabilities are determined for each participant using only service already performed, but anticipating the impact of future salary growth on the benefits attributable to current active participants.

Section 1.6 provides a comparison of this liability measure to the value of assets to produce a snapshot measure of the System's funding ratio.

Another way to check the funding progress of the System is through a prioritized solvency test. Section 1.7 illustrates the history of the System's funding progress under this test.

In a prioritized solvency test, the plan's present assets (cash and investments) are sequentially allocated and compared three priorities of liabilities as follows:

- Liability 1: Active participant contributions, accumulated with interest;
- Liability 2: The liabilities for future benefits to current inactive participants and beneficiaries; and
- Liability 3: The liabilities for future benefits to current active participants for prior service.

Ideally, progress in funding of these liability groups will normally be exhibited with Liability 1 attaining 100% coverage first, then Liability 2, and finally Liability 3. Note that 100% funding of Liability 3 does not mean that the System has completed its funding of benefits since additional benefits typically are expected to be earned in the future.

Section 1 *(continued)*
1.6 Projected Benefit Obligation Funded Status

As of January 1, 2011 the projected benefit obligation was:

1.	Retired members and beneficiaries currently receiving benefits and terminated members not yet receiving benefits	$ 842,643,351
	a. Current active participants	
	i. Accumulated member contributions, including interest	103,178,297
	ii. Employer-financed benefits	1,012,154,115
	Total projected benefit obligation	$1,115,332,412

As of January 1, 2011 the projected benefit obligation was funded as follows:

2.	Net assets available for benefits at actuarial value	$ 944,356,735
3.	Unfunded projected benefit obligation	170,975,677
4.	Actuarial value funding ratio, (2) / (1)	84.7%
5.	Net assets available for benefits at market value	$ 908,113,738
6.	Unfunded projected benefit obligation	207,218,674
7.	Market value funding ratio, (5) / (1)	81.4%

Section 1 *(continued)*

1.7 Prioritized Solvency Test

Valuation date January 1	Active participants' accumulated contributions	Retirees, beneficiaries and inactive participants	Active participants (employer-financed)	Valuation assets	Percent covered by valuation assets		
	(1)	(2)	(3)		(1)	(2)	(3)
1997	118,041,749	272,393,748	251,827,653	598,638,356	100%	100%	83%
1998	122,227,173	296,455,647	252,445,749	644,429,672	100%	100%	89%
1999	130,705,014	276,290,128	303,953,494	694,250,672	100%	100%	95%
2000	129,398,364	353,852,977	288,213,016	770,090,498	100%	100%	100%
2001	127,086,325	414,052,293	269,590,438	828,097,298	100%	100%	100%
2002	116,506,785	476,104,516	372,221,726	861,128,076	100%	100%	72%
2003	115,570,837	492,633,382	361,818,972	873,260,102	100%	100%	73%
2004	106,021,476	528,287,121	364,459,284	901,996,455	100%	100%	73%
2005	89,710,662	518,880,414	368,306,240	935,328,638	100%	100%	89%
2006	90,001,111	661,353,685	319,920,373	983,828,243	100%	100%	73%
2007	96,223,413	712,467,372	305,409,824	1,003,428,983	100%	100%	64%
2008	98,112,123	781,006,957	249,244,208	1,014,923,381	100%	100%	54%
2009	104,576,264	801,995,237	187,035,147	963,851,408	100%	100%	31%
2010	110,054,510	805,831,292	195,185,151	950,709,944	100%	100%	18%
2011	103,178,297	842,643,351	169,510,764	944,356,735	100%	100%	0%

Section 2
Valuation of the System's Assets

This section of the report shows the development of the actuarial value of the assets of the System and provides information regarding the expense and contingency reserve, investment results and the various assets of the System.

The amount of assets used in the actuarial valuation is known as the "actuarial value of assets." The method is discussed in the summary of methods and assumptions, section 4.7. The development of the actuarial value of assets is shown in section 2.1. An important element in the development of the actuarial value of assets is the expense and contingency reserve. The amount of the reserve is determined pursuant to a policy adopted by the Board of Trustees. The history of the reserve is presented in section 2.2.

As shown in section 2.3, the fund had a rate of return of 6.90% on an actuarial value basis, which is 1.10% below the assumed rate of return of 8.00% for 2010. Normally, in accordance with Rule X, amounts would have been transferred from the investment contingency portion of the reserve, because the preliminary actuarial rate of return would have been less than the assumed rate of return by more than 1%. However, the contingency reserve was exhausted at January 1, 2009, so no additional amounts are available.

The rate of return on an actuarial value basis is intended to be a more stable rate of return and fluctuate less than rates of return on a market value basis. Thus, the rate of return on an actuarial basis is not always a fair measure of the annual investment performance of the fund. Another indicator of actual performance during the year is the rate of return on a market value basis of 13.49%, also presented in section 2.3.

Section 2 *(continued)*

2.1 Development of the Actuarial Value of Assets

1.	Actuarial value of assets as of January 1, 2010	$ 950,709,944
2.	Participant contributions	11,188,919
3.	Employer contributions	26,075,146
4.	Benefit payments and expenses	106,789,305
5.	Investment increment at 8.0%, 8% x {(1) + .5 x [(2) – (4)]}	72,232,780
6.	Expected actuarial value on January 1, 2011, (1) + (2) + (3) – (4) + (5)	953,417,484
7.	Market value of assets on January 1, 2011	937,594,203
8.	Expense and contingency reserve on January 1, 2011, prior to adjustment	29,480,465
9.	Adjustment to the investment contingency reserve	0
10.	Excess of market value over expected actuarial value, (7) – (6) – (8) – (9)	(45,303,746)
11.	Market value adjustment, 20% x (10)	(9,060,749)
12.	Actuarial value of assets as of January 1, 2011, (6) + (11)	944,356,735

Section 2 *(continued)*

2.2 The Expense and Contingency Reserve

Effective January 1, 1996, the Board of Trustees revised Rule X, which governs the determination of the amount of the expense and contingency reserve. The expense portion of the reserve is the sum of:

1. The estimated annual operating expenses for the ensuing year:
2. An amount equal to the liability for non-insurance supplements;
3. An amount equal to the liability for insurance supplements for those participants participating in the program on January 1; and
4. The estimated amount of insurance supplements to be paid for participants expected to retire and participate in the program during the ensuing year.

The investment contingency portion of the reserve is intended to help cover significant shortfalls in the actuarial rate of return. When a shortfall of more than 1% occurs, a portion of the reserve is released equal to one half of the amount of the shortfall up to 2% plus any remaining shortfall. When the rate of return exceeds the assumed rate of return by more than 1%, the reserve is increased subject to a maximum reserve of 5% of the market value of the Retirement Fund. The addition equals one half of the amount of the excess up to 2% plus any remaining excess.

Since the actuarial return on assets was less than 7% during 2010, a portion of the reserve would normally be released. However, since the entire contingency reserve was released in 2009, nothing further is available to be released.

Below is a history of the expense and contingency reserve:

January 1	Expense reserve	Investment contingency reserve	Total expense and contingency reserve
1996	$33,702,346	$ 0	$33,702,346
1997	25,403,190	5,220,821	30,624,011
1998	30,891,555	24,100,041	54,991,596
1999	22,142,759	45,972,067	68,114,826
2000	27,992,032	50,003,862	77,995,894
2001	29,837,776	50,003,743	79,841,519
2002	23,527,529	50,003,743	73,531,272
2003	24,952,255	37,759,976	62,712,231
2004	26,028,780	37,759,976	63,788,756
2005	27,170,188	45,115,876	72,286,064
2006	32,534,770	45,115,876	77,650,646
2007	29,864,946	50,732,410	80,597,356
2008	31,987,370	57,234,574	89,221,944
2009	30,555,388	0	30,555,388
2010	29,903,107	0	29,903,107
2011	29,480,465	0	29,480,465

Section 2 *(continued)*
2.3 Investment Performance

There are several different methods of approximating the rates of return on investments of the trust fund. Following is a brief comparison of the actuarial assumed rate of return as compared with rates of return on market and actuarial value bases:

a. Market Value Basis

The rate of return on a market value basis is the ratio of the appreciation (or depreciation) of assets less contributions plus disbursements to the market value at the beginning of the year plus the average of the receipts and disbursements made during the year. This may be approximated as follows:

i.	A = Market value of assets as of January 1, 2010	$891,562,918
ii.	B = Market value of assets as of January 1, 2011	937,594,203
iii.	C = Contributions during the period	37,264,065
iv.	D = Disbursements during the period	106,789,305
v.	Rate of return: $\frac{B - A + D - C}{A + ½ (C - D)}$	13.49%
vi.	Actuarial assumed rate of return for 2010	8.00%
vii.	Difference between actual and assumed rates of return, (v) – (vi)	5.49%

b. Actuarial Value Basis

The rate of return on an actuarial value basis is approximated using the same method:

i.	A = Actuarial value of assets as of January 1, 2010	$950,709,944
ii.	B = Actuarial value of assets as of January 1, 2011	944,356,735
iii.	C = Contributions during the period	37,264,065
iv.	D = Disbursements during the period	106,789,305
v.	Rate of return: $\frac{B - A + D - C}{A + ½ (C - D)}$	6.90%
vi.	Actuarial assumed rate of return for 2010	8.00%
vii.	Difference between actual and assumed rates of return, (v) – (vi)	-1.10%

Section 3
Information Required by GASB No. 25

This section contains supplementary information on retirement benefits that is required to be disclosed in financial statements to comply with Statements No. 25 of the Governmental Accounting Standards Board (GASB No. 25).

Section 3.1 Shows the schedule of employer contributions.

Section 3.2 Shows the schedule of funding progress.

Section 3.3 Shows the actuarial assumptions, methods and additional information.

Section 3 *(continued)*
3.1 Schedule of Employer Contributions

The following information is required to satisfy the reporting requirements of the Governmental Accounting Standards Board Statement No. 25 on Financial Reporting for Deferred Benefit Plans.

The following table develops the percentage of the employer's annual required contribution that was actually made.

Fiscal Year Ending December 31	Annual Required Contribution (ARC)	Actual Contribution	Percentage of ARC Contributed
1993	$ 14,098,562	$ N/A	98.4%
1994	$ 15,441,488	$ N/A	99.2%
1995	$ 15,087,519	$ N/A	99.6%
1996	$ 16,619,187	$ N/A	100.1%
1997	$ 16,876,759	$ N/A	100.2%
1998	$ 15,328,067	$ N/A	111.1%
1999	$ 13,906,270	$ N/A	124.5%
2000	$ 15,543,984	$ N/A	112.3%
2001	$ 18,168,580	$ N/A	100.2%
2002	$ 19,076,442	$ N/A	100.6%
2003	$ 19,517,288	$ N/A	101.2%
2004	$ 19,210,506	$ N/A	132.0%
2005	$ 19,364,705	$ N/A	121.4%
2006	$ 14,414,133	$ N/A	114.9%
2007	$ 17,311,658	$ 22,445,608	129.7%
2008	$ 21,021,316	$ 27,853,996	132.5%
2009	$ 21,406,949	$ 28,598,502	133.6%
2010	$ 19,407,722	$ 26,075,146	134.4%
2011	$ 24,264,182	$ *	*
2012	$ 25,928,658	$ *	*

*To be determined at the end of the year.

Section 3 *(continued)*

3.2 Schedule of Funding Progress

The following information is required to satisfy the reporting requirements of the Governmental Accounting Standards Board Statement No. 25 on Financial Reporting for Deferred Benefit Plans.

The exhibit below calculated the unfunded accrued liability as a percentage of payroll.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liabilities (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
1/1/1992	$ 427,706,455	$ $501,997,792	$ 74,291,337	85.2%	$ 194,190,353	38.3%
1/1/1993	$ 458,279,727	$ 530,766,832	$ 72,487,105	86.3%	$ 194,555,489	37.3%
1/1/1994	$ 487,385,302	$ 557,941,103	$ 70,555,801	87.4%	$ 202,384,485	34.9%
1/1/1995	$ 519,088,399	$ 588,157,615	$ 69,069,216	88.3%	$ 207,113,839	33.3%
1/1/1996	$ 562,177,274	$ 664,807,425	$ 102,630,151	84.6%	$ 206,935,682	49.6%
1/1/1997	$ 598,638,356	$ 716,727,527	$ 118,089,171	83.5%	$ 210,228,288	56.2%
1/1/1998	$ 644,429,672	$ 759,687,878	$ 115,258,206	84.8%	$ 210,843,186	54.7%
1/1/1999	$ 694,250,672	$ 846,891,006	$ 152,640,334	82.0%	$ 215,602,351	70.8%
1/1/2000	$ 770,090,498	$ 937,669,100	$ 167,578,602	82.1%	$ 216,699,483	77.3%
1/1/2001	$ 828,097,298	$ 1,022,042,819	$ 193,945,521	81.0%	$ 235,087,151	82.5%
1/1/2002	$ 861,128,076	$ 1,069,789,813	$ 208,661,737	80.5%	$ 243,880,038	85.6%
1/1/2003	$ 873,260,102	$ 1,063,209,205	$ 189,949,103	82.1%	$ 283,935,810	66.9%
1/1/2004	$ 901,996,455	$ 1,074,259,628	$ 172,263,173	84.0%	$ 255,317,974	67.5%
1/1/2005	$ 935,328,638	$ 1,084,409,302	$ 149,080,664	86.3%	$ 240,185,055	62.1%
1/1/2006	$ 983,828,243	$ 1,122,583,775	$ 138,755,532	87.6%	$ 227,035,801	61.1%
1/1/2007	$ 1,003,428,983	$ 1,150,263,339	$ 146,834,356	87.2%	$ 222,387,289	66.0%
1/1/2008	$ 1,014,923,381	$ 1,158,921,113	$ 143,997,732	87.6%	$ 225,190,968	63.9%
1/1/2009	$ 963,851,408	$ 1,099,891,716	$ 136,040,308	87.6%	$ 234,582,326	58.0%
1/1/2010	$ 950,709,944	$ 1,076,002,070	$ 125,292,126	88.4%	$ 241,958,133	51.8%
1/1/2011	$ 944,356,735	$ 1,066,270,852	$ 121,914,117	88.6%	$ 218,308,239	55.8%

Section 3 *(continued)*

3.3 Actuarial Assumptions, Methods and Additional Information

Valuation Date	January 1, 2011
Actuarial Cost Method	Frozen Entry Age
Amortization Method	Level Dollar, Closed Period
Equivalent Single Amortization Period	25 years
Asset Valuation Method	Assumed Yield Method
Actuarial Assumptions:	
Investment rate of return*	8.00%
Participant account crediting rate	5.00%
Projected salary increases	4.50%
*Includes inflation at	3.5%
Cost-of-living adjustment	0.00%

Section 4
Basis of the Valuation

In this section, the basis of the valuation is presented and described. This information – the provisions of the System and the census of members – is the foundation of the valuation, since these are the present facts upon which benefit payments will depend.

A summary of the System's provisions is provided in Section 4.1, the legislative history of the System is provided in Section 4.2, and member census information is shown in Section 4.3 to Section 4.6.

The valuation is based upon the premise that the System will continue in existence, so that future events must also be considered. These future events are assumed to occur in accordance with the actuarial assumptions and concern such events as the earnings of the fund; the number of members who will retire, die or terminate their services; their ages at such termination and their expected benefits.

The actuarial assumptions and the actuarial cost method, or funding method, which have been adopted to guide the sponsor in funding the System in a reasonable and acceptable manner, are described in Section 4.7.

A guide to actuarial terminology used in this report is included as Section 4.8.

Section 4 *(continued)*
4.1 Summary of Plan Provisions

Participants

All persons regularly employed by the board of education, charter schools, and employees of the board of trustees are in the System.

Retirement age

Normal
Age 65 or any age if age plus the years of credited service equals or exceeds 85 (Rule of 85)

Early
Age 60 with 5 years of service

Service retirement allowance

a. 2% (1-1/4% if terminated prior to July 1, 1999) times years of credited service, subject to a maximum of 60%
b. Times average final compensation (AFC)
c. Subject to a maximum of 60% of AFC.
    i. AFC is the highest average compensation for any three consecutive years of the last 10 years of service.
    ii. Compensation is the regular wages plus what your employer pays towards your health and welfare benefits.
    iii. Minimum monthly benefit is $10.00 for each year of credited service, up to 15 years, retirement age 65 and over.
    iv. Unused sick leave is added to a participant's credited service and age.

Early retirement benefit

Service retirement allowance reduced five-ninths of one percent for each month of commencement prior to age 65 or the age at which the Rule of 85 would have been satisfied had the employee continued working until that age, if earlier.

Disability benefit

Service retirement allowance using actual service, or 25% of AFC if larger, provided that in no case will the benefit exceed that payable if service had continued to age 65.

a. Disability must be incurred while an employee as determined by the medical board and approved by the board of trustees.
b. The participant must have a minimum of five years of credited service and not be eligible for normal retirement.

Continued disability is subject to routine verification.

Withdrawal benefit

Accumulated contributions of participant with interest credited to the participant's account.

Section 4 *(continued)*
4.1 Summary of Plan Provisions

Vested benefit

Full vesting on termination of employment after at least five years of service is provided if contributions are left with the System. The full accrued benefit is payable at age 65 or a reduced early retirement benefit prior to age 65.

Retirement options

In lieu of the benefit paid only over the lifetime of the participant, a reduced benefit payable for life of participant with:

Option 1	Same retirement allowance continued after death to the beneficiary.
Option 2	One-half of the retirement allowance continued after death to the beneficiary.
Option 3	Same retirement allowance continued after death to the beneficiary. If the beneficiary predeceases the participant, the retirement allowance is adjusted back to the unreduced allowance.
Option 4	One-half of retirement allowance continued after death to the beneficiary. If the beneficiary predeceases the participant, the retirement allowance is adjusted back to the unreduced allowance.
Option 5	Increased retirement allowance is provided up to age 62, such that benefit provided prior to age 62 is approximately equal to the sum of the reduced retirement allowance paid after age 62 and Social Security.
Option 6	Options 1 and 5 combined.
Option 7	Options 2 and 5 combined.

Survivor benefits

If an active participant dies after completing 18 months of service, leaving a surviving spouse or other dependent beneficiaries, survivor benefits are payable. The widow or dependent beneficiary may elect to receive either a refund of accumulated contributions, or:

a. A survivor who is the widow at least age 62 and married to a participant for at least one year receives $60 a month.
b. A widow with dependent, unmarried children under age 22 receives $60 a month plus $60 per dependent child, not to exceed $180 per month. The benefit ceases when youngest child is age 22 and resumes again under (a) at age 62.
c. If no benefits are payable under (a) or (b), minor children may receive a benefit of $60 per child or $180 divided among them if more than three children.
d. If no benefits are payable under (a), (b) or (c), a dependent parent or parents may receive or share $60 per month upon attaining age 62.

If an active participant dies after completing 5 years of service, the widow or dependent beneficiary may elect to receive either a refund of accumulated contributions or:

a. If the survivor is the widow, a survivor benefit calculated as if the participant had been age 60 at death and elected Option 1, plus $60 per dependent child not to exceed $180 per month.
b. If there is no widow, a survivor benefit calculated as if the participant had been age 60 at death and elected Option 1.

Section 4 *(continued)*

4.1 Summary of Plan Provisions

Return of contributions upon death

If after the death of a participant, no further monthly are payable to a beneficiary under an optional form of payment, or under the survivor benefit provisions, the participant's beneficiary shall be paid the excess, if any, of the participant's accumulated contributions over all payments made to or on behalf of the deceased participant.

DROP

Effective July 1, 2001, active participants may elect to enter the deferred retirement option plan (DROP) for up to four years. Upon entering the DROP, the participant's retirement benefit is frozen and credited to the participant's DROP account. At the end of the DROP, or upon earlier termination of employment, the DROP account is paid in a lump sum or installments, at the participant's option. During the DROP, the participant continues as an active participant, but does not pay contributions. To enter the DROP the participant must be age 65 or meet the Rule of 85. The DROP program is no longer available, ending June 30, 2008.

Contributions by participants

Participants contribute 5% of compensation. Accumulated contributions are credited at the rate of interest established by the board of trustees. The current crediting rate is 5%.

Contributions by employers

As needed to keep the System actuarially sound.

Expenses

Administrative expenses paid out of investment income.

Section 4 *(continued)*

4.2 Legislative History of the Retirement System

On and after January 1, 1944, all persons employed by the board of education on a full-time permanent basis are participants of the System as a condition of employment. In 1961, provisions regarding benefits and employee contribution levels were revised for all future employees of the board of education. Participants of the System at that time were granted the right to remain under the "old plan" and have their membership governed by the provisions of the law in effect prior to 1961. These old plan participants have both benefits and contributions based on a $3,000 maximum annual compensation. Old plan participants have been given the option to transfer into the revised plan at various times since 1961.

Effective October 13, 1969, legislation permitted the reinstatement of credited service lost during the years 1944 to 1947 inclusive when the married women teachers rule was in effect.

Effective August 31, 1972, legislation resulted in the following changes:

- Purchase of past service credit by paying contributions for service claimed plus interest.
- Service as extended substitute teacher.
- Service of re-employed participants lost on prior terminations.
- Service out-state Missouri and outside the state of Missouri.
- Service lost by those who elected to stay out of the retirement plan either temporarily or to date.
- Old plan participants who wished to become new plan participants could do so by paying the differential in participant contributions under the new and old plans, plus interest.
- Dependent beneficiary on death of participant before retirement but after age 60 or age 55 with 30 years service may receive option 1 benefit as if participant had retired under such option.
- A participant with five or more years of service and prior to age 65 may be retired with a disability benefit if the medical board certifies that such participant is mentally or physically totally incapacitated for further performance of duty.
- Minimum retirement benefit at age 65 or after 10 years service is $50.00 per month.

On February 10, 1975, the Missouri Supreme Court handed down a decision supporting HB 613 (Section 169.585 of state statutes), which granted increased benefits to retired teachers. The increases apply to those teachers who retired after June 30, 1957, and prior to January 1, 1971. Technically, those retirees are retained as "advisors and supervisor" and receive a "salary" of $5 per month for each year of service, with a maximum of $75. This salary plus the regular retirement benefit cannot exceed $150 per month. To the extent that assets are depleted because of this law, future district contributions will increase. Because these benefits are paid as "salaries," coming out of investment income along with other expenses of operation, there will be less money available for crediting of interest to the various funds at the end of the year.

Section 4 *(continued)*

4.2 Legislative History of the Retirement System

Effective August 13, 1978 legislation resulted in the following changes:

- The service retirement allowance and projected service retirement allowance was changed to 1-1/4% of average final compensation per year of credited service. The participant's allowance plus his Social Security primary insurance amount could not exceed 80% of his average final compensation. Participants born before 1917 receive the larger of the allowances calculated under the new formula and the formula in effect immediately before it.
- Credited service no longer limited to a maximum of 35 years.
- Two new joint and survivor optional forms of payment were added which provide for the participant's pension to be adjusted back to his unreduced pension in the event his spouse predeceases him.
- Contributions from participants shall be 3% of compensation.
- End of period for purchasing prior service or outside service extended from December 31, 1973 to December 31, 1980. Deleted requirement of electing to purchase out-state or outside the state of Missouri service within one year of completing five years of credited service.
- Gives board of trustees the power to establish regulations, methods and factors that may be needed to calculate primary Social Security benefits.
- Dependent beneficiary on death of participant before retirement with five or more years of credited service may receive option 1 benefit as if the participant had retired under that option as of the date of his death.
- Allow retired educational secretaries to serve as part-time or temporary substitute educational secretary up to a maximum of 360 hours per school year without a reduction in the retired employee's retirement allowance or requiring the retired employees to contribute to the retirement system.

Effective September 28, 1979*,* legislation resulted in the following changes:

- Accumulated and unused days of sick leave shall be included in computing a participant's age and credited service at retirement.
- Participants who have attained age 62 and who have 30 or more years of credited service may retire and receive a service retirement allowance without reduction for early retirement. The early retirement reduction for participants who retire with 30 or more years of credited service but who have not attained age 62 on their retirement date shall be determined on the basis of the number of months by which their age at retirement is less than age 62.
- Benefits to survivors of a participant who dies while an employee and after having at least 18 months of credited service are as follows:
  (a) Surviving spouse age 62 or over: $60 per month.
  (b) Surviving spouse with unmarried dependent children under age 22: $60 per month, plus $30 per month for each eligible child, with a maximum of $150 per month.
  (c) Unmarried dependent children under age 22: $60 per month for each eligible child, with a maximum of $120 per month. This benefit is payable if the benefit in (b) is not payable.
  (d) Dependent parent(s): $60 per month, provided no benefits are payable under (a), (b) or (c) above.

Section 4 *(continued)*

4.2 Legislative History of the Retirement System

Effective September 28, 1981, legislation resulted in the following changes:

- The provision limiting service retirement and projected service retirement allowances to 80% of average final compensation less Social Security was removed for future retirees.
- The minimum monthly benefit payable to participants retiring on or after age 65 with 10 or more years of service was increased to $75.
- Old plan participants were extended the option to transfer into the current System by paying the difference in participant contributions plus interest. Such election to be made on or before December 31, 1984. Retired participants who retired prior to January 1, 1955, may be consultants" at a "salary" equal to $4 for each year of retirement prior to January 1, 1982. Total "salaries" as a "school consultant" and "special school advisor and supervisor" are limited to $250 per month.
- The retirement system may contribute as part of its administrative expenses toward health, life and similar insurance for retirees.
- The actuarial cost method was changed from the "entry age cost method" to the "frozen entry age cost method." The period for amortizing "supplements" to the unfunded actuarial accrued liability was set at 50 years from the time the "supplement" is created.
- Several changes were made dealing with the administration and operation of the System.
- Investment powers were broadened.

Effective September 28, 1984, legislation resulted in the following changes:

- Dependent beneficiary on death of employed, active participant before retirement with five or more years of service may receive option 1 benefit as if the participant had attained age 55 (if less than 55 at his death) and had retired under option 1 as of the date of his death.
- In addition to the option 1 death benefit, a surviving spouse may receive $30 per month for each unmarried dependent child, provided that the total benefit does not exceed the greater of $150 or the option 1 benefit.
- Surviving spouse benefits do not cease on remarriage.
- Dependent children's benefits do not require that the child remain a full-time student.
- Participants retired on disability may elect to receive an actuarial equivalent benefit under options 1 through 4.
- Retired participants who retired on or after January 1, 1976, may be employed as school consultants and receive a salary and insurance benefits provided other retirants.

Section 4 *(continued)*

4.2 Legislative History of the Retirement System

Effective August 13, 1986, legislation resulted in the following changes:

- A participant with 30 years of credited service who is between the ages of 55 and 62, upon certification by the board of education, is eligible for a supplemental early retirement benefit payable to age 62. This provision remains in effect until December 31, 1991.
- Benefits to a surviving spouse for dependent children are increased from $30 to $60 per month, with a maximum of $240 per month, including the $60 for the surviving spouse.
- Supplemental pay to retired participants employed as "school consultants" is increased by $2 per month for each year between the participant's date of retirement and December 31, 1986

Effective June 19, 1987, legislation resulted in the following changes:

- Reinstated the option for "old plan" participants to elect "new plan" membership by paying the difference in contributions accumulated with interest.
- Increased the minimum benefit for participants retiring on or after age 65 to $10 per month for each year of credited service, up to a maximum of 15 years.
- Several changes were made dealing with the accounting, administration, and operation of the System.

Effective August 13, 1988, legislation resulted in the following changes:

- Made provisions for children's benefits uniform, providing $60 per month per child, up to a maximum of $180 per month, under both subsections 169.460(13) and (15) survivor benefits.
- Supplemental pay to retired participants of $2 per month for each year of retirement up to December 31, 1988.

Effective June 14, 1989, legislation resulted in the following changes:

- The maximum on compensation was removed.
- Average final compensation is based on the highest three consecutive years, rather than the highest five consecutive years.
- Participants may retire with unreduced benefits at any age, if their age plus credited service equals or exceeds 85 (the "Rule of 85").

Effective May 31, 1990, legislation resulted in the following change:

- Supplemental pay of $2 per month for each year of retirement up to December 31, 1990.

Effective August 28, 1993, legislation resulted in the following change:

- Supplemental pay of $3 per month for each year of retirement up to December 31, 1993.

Section 4 *(continued)*

4.2 Legislative History of the Retirement System

Effective August 28, 1996, legislation resulted in the following changes:

- Provision was added for the purchase of service for certain periods of layoff.
- The investment trustee position was eliminated and the position of school administrator trustee was added.
- Cost-of-living increases for participants who retired prior to August 28, 1996, with at least 15 years of credited service. The cost-of-living increases are up to 3% in one year, with a cumulative maximum of 10%.
- The board of education is authorized to increase retirement benefits and the participant contribution rate, subject to several conditions.

Effective August 28, 1997, legislation resulted in the following change:

- Cost-of-living increases extended to participants who retired prior to August 28, 1997, with at least 15 years of credited service. The cost-of-living increases are up to 3% in one year, with a cumulative maximum of 10%.

In accordance with the statutory authority granted the board of education in 1996, the board of education made the following changes:

- Participant contributions were increased to 4.5%, effective July 1, 1998; to 5.0%, effective July 1, 1999; and, if necessary to 5.5%, effective July 1, 2000.
- The service retirement allowance was changed to 2.00% of average final compensation per year of credited service, subject to a maximum of 60% of average final compensation, effective for participants who retired after June 29, 1999.
- A "catch-up" cost-of-living adjustment (COLA) is provided for participants who retired prior to June 30, 1999, and survivors of participants who retired or died prior to June 30, 1999. The amount of the "catch-up" COLA is equal to 65% of the amount by which the participant's original benefit would have increased due to increases in the CPI, in excess of any supplements or COLA increases being received by the participant. The "catch-up" COLA is effective July 1, 2000.
- The board of education agreed to contribute 8.03% of covered compensation for 1998, 1999, and 2000, in order to fund the benefit increase and the "catch-up" COLA.

In accordance with the statutory authority granted the board of education in 1996, the board of education made the following changes:

- Effective January 1, 2001, all participants who retired prior to January 1, 2000, received a 3% cost-of-living increase.
- Effective July 1, 2001, a DROP was made available until June 30, 2005, at which time the program will be evaluated to determine whether or not it should be extended. Eligible participants may elect to enter the DROP for up to four years.
- In conjunction with the DROP, employers will contribute at 8.00% of covered compensation for 2001. The contribution rate for subsequent years will be based on the rate determined by the actuarial valuation for the January 1 of the year preceding the year the contribution is due.

Section 4 *(continued)*

4.2 Legislative History of the Retirement System

Effective August 28, 2002, legislation resulted in the following changes:

- Purchase of service rules were updated.
- The System may accept qualified transfers of funds for the purchase of service.
- Clarified provisions relating to charter school participation in the System.
- Option 5, the level income option is added.
- Replaced the specific actuarial cost method in the statutes with a provision that the method adopted by the board of trustees may be any method in accordance with generally accepted actuarial standards. The amortization period for the UAAL may not exceed 30 years.

Section 4 *(continued)*
4.3 Changes in System Participation

	Active	Retirees	Beneficiaries	Disabled	**Total In Pay Status**	Deferred Vested	Nonvested w/ Balance	**Total Terminated Records**	Total
Total as of January 1, 2010	**4,825**	3,814	286	270	**4,370**	627	1,269	**1,896**	11,091
New Entrants	**545**		21	1	**22**		47	**47**	614
Rehires/Transfers	**109**				**0**	(44)	(65)	**(109)**	0
Retirements	**(269)**	305			**305**	(35)	(1)	**(36)**	0
Disablements	**(2)**			16	**16**	(14)		**(14)**	0
Beneficiaries					**0**			**0**	0
Deaths		(134)	(10)	(12)	**(156)**	(1)		**(1)**	(157)
Deferred Vested	**(124)**				**0**	124		**124**	0
Nonvested Terminations - Account Balance	**(298)**				**0**		298	**298**	0
Refunds Paid in 2010	**(450)**				**0**	(57)	(213)	**(270)**	(720)
Data Adjustments *		30			**30**	6	(6)	**0**	30
Total as of January 1, 2011	**4,336**	4,015	297	275	**4,587**	606	1,329	**1,935**	10,858

Note on Data Adjustments:

6 Nonvested Terminated record we found to be Vested Terminated this year or earned service during the year.
30 Retired records added to the data. These records have both a Retired and Beneficiary record.

Section 4 *(continued)*
4.4 Member Census Information

As of January 1	2010	2011
Active Members		
Number	4,825	4,336
Average Age	44.76	44.58
Average Service	9.08	9.04
Average Annual Base Pay	$ 50,147	$ 50,348
Vested Terminated Members		
Number	627	606
Average Account Balance	$ 29,987	$ 29,113
Non-vested Terminated Members		
Number	1,269	1,329
Average Account Balance	$ 3,188	$ 3,336
Benefit Recipients		
Number	4,370	4,587
Average Age	72.53	72.45
Average Monthly Benefit	$ 1,752	$ 1,797

Section 4 *(continued)*

4.5 Distributions of Active Members

Years of Service By Age
Charter Schools

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
Under 25	88	1	0	0	0	0	0	0	0	89
25-29	246	13	0	0	0	0	0	0	0	259
30-34	171	42	0	0	0	0	0	0	0	213
35-39	132	29	1	0	0	0	0	0	0	162
40-44	92	13	0	0	0	0	0	0	0	105
45-49	57	14	4	0	0	0	0	0	0	75
50-54	113	14	1	0	0	0	0	0	0	128
55-59	54	11	0	0	0	0	0	0	0	65
60-64	29	6	0	1	0	0	0	0	0	36
65-69	8	1	0	0	0	0	0	0	0	9
70 & Up	2	1	0	0	0	0	0	0	0	3
Total	992	145	6	1	0	0	0	0	0	1,144

Years of Service By Age
School District

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
Under 25	152	0	0	0	0	0	0	0	0	152
25-29	186	37	0	0	0	0	0	0	0	223
30-34	134	99	32	1	0	0	0	0	0	266
35-39	110	118	102	11	0	0	0	0	0	341
40-44	99	91	91	40	3	0	0	0	0	324
45-49	88	70	80	36	52	10	1	0	0	337
50-54	94	75	98	66	91	88	13	0	0	525
55-59	68	83	116	72	98	103	61	15	0	616
60-64	38	55	71	53	54	28	10	15	2	326
65-69	11	14	15	8	9	2	0	0	1	60
70 & Up	3	2	3	2	1	1	0	1	0	13
Total	983	644	608	289	308	232	85	31	3	3,183

Section 4 *(continued)*
4.5 Distributions of Active Members

Years of Service By Age
Total

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
Under 25	240	1	0	0	0	0	0	0	0	241
25-29	433	50	0	0	0	0	0	0	0	483
30-34	305	141	32	1	0	0	0	0	0	479
35-39	242	147	103	11	0	0	0	0	0	503
40-44	192	104	91	40	3	0	0	0	0	430
45-49	147	85	85	36	52	10	1	0	0	416
50-54	207	90	99	66	91	88	13	0	0	654
55-59	122	96	116	72	98	103	61	15	0	683
60-64	67	61	71	54	54	28	10	15	2	362
65-69	19	15	15	8	9	2	0	0	1	69
70& Up	5	3	3	2	1	1	0	1	0	16
Total	1,979	793	615	290	308	232	85	31	3	4,336

Section 4 *(continued)*
4.6 Distributions of Inactive Members

Deferred Vested and Nonvested

Account Balance	Vested	Nonvested	Total
0-1,000	8	447	455
1,000-5,000	4	605	609
5,000-10,000	41	205	246
10,000-25,000	270	63	333
25,000-50,000	194	9	203
50,000-75,000	69	0	69
75,000-100,000	18	0	18
100,000+	2	0	2
Total	606	1,329	1,935

Retirees, Beneficiaries and Disabled

Option	Service benefit	Disability benefit	Survivor benefit	All
0	3,388	228	297	3,913
1	153	15	0	168
2	93	5	0	98
3	176	12	0	188
4	180	7	0	187
5	14	4	0	18
6	10	4	0	14
7	1	0	0	1
Total	4,015	275	297	4,587

	Annual benefit			
Option	Service benefit	Disability benefit	Survivor benefit	All
0	$79,064,805	$2,716,264	$3,027,265	$84,808,334
1	2,777,884	204,944	0	2,982,828
2	2,086,818	95,477	0	2,182,295
3	3,506,985	130,098	0	3,367,083
4	4,557,720	131,635	0	4,689,355
5	327,208	42,869	0	370,077
6	210,093	16,587	0	226,680
7	30,849	0	0	30,849
Total	$92,562,362	$3,337,874	$3,027,265	$98,927,501

Section 4 *(continued)*

4.7 Summary of Methods and Assumptions

Interest

8.0% per annum.

Participant account interest crediting rate

5.0% per annum.

Expenses

The rate of interest assumed is net of expenses.

Mortality

The RP-2000 Combined Healthy Lives Mortality Table is used for active participants, retired participants and beneficiaries. Rates are shown in Table 1.

Disability Mortality

The RP-2000 Combined Healthy Lives Mortality Table set forward five years is used for disabled participants. Rates are shown in Table 5.

Withdrawal

Withdrawals are assumed to occur at rates based on actual experience of the retirement system. During the first three years of membership, withdrawals are assumed to occur at the following rates:

Year of Membership	Non-charter school employees Males	Non-charter school employees Females	Charter school employees Males	Charter school employees Females
1st	17.5%	15.0%	50.0%	50.0%
2nd	15.0%	12.5%	25.0%	25.0%
3rd	10.0%	10.0%	15.0%	15.0%

The rates used after the first three years of membership are shown in Table 2.

Section 4 *(continued)*
4.7 Summary of Methods and Assumptions

Salary scale

Salaries are assumed to increase at the rate of 4.5% per year.

Disability

Disabilities are assumed to occur at rates based on the actual experience of the retirement system. The rates used are shown in Table 4.

Retirement

Retirements occur at rates based on the actual experience of the retirement system. The age-related rates used are shown in Table 3. Unless the age-related rate is greater, for those eligible to retire under the Rule of 85, it is assumed that 25% will retire when first eligible for unreduced benefits with at least 30 years of credited service.

Family Structure

The probability of a participant being married and the probable number of children are based on a table constructed by the Social Security Administration, modified to reflect the experience of the retirement system. The rates used are shown in Table 6. For married participants, husbands are assumed to be 3 years older than their wives.

Usage of Cash-out Option

Participants terminating in vested status are given the option of taking a refund of their accumulated participant contributions instead of a deferred retirement benefit. Active members who terminate in the future with a vested benefit are assumed to take a deferred vested annuity, unless a refund of contributions and interest is greater than the actuarial present value of their vested deferred benefit.

Future Benefit Increases or Additional Benefits

When funding is adequate, the Board may authorize cost of living adjustments (COLAs), as noted in the summary of plan provisions. In the past, the Board has also sometimes granted an additional monthly payment to retirees (13^{th} check.) This valuation assumes that no future COLAs and no future 13^{th} checks will be awarded.

Section 4 *(continued)*
4.7 Summary of Methods and Assumptions

Actuarial Method – Frozen Entry Age

The actuarial cost method used by the System is the "frozen entry age actuarial cost method." Under this method, on the initial actuarial valuation date for which the cost method is used, the annual cost accruals (individual normal costs for each participant) are determined as a level percentage of pay for each year from entry age until retirement or termination. The UFAAL was originally determined as of January 1, 1981. Entry age is determined at the date each participant would have entered the System. The sum of these individual normal costs for all active participants whose attained ages are under the assumed retirement age is the normal cost for the initial plan year. The excess of all normal costs falling due prior to the initial actuarial valuation date, accumulated with interest, over the plan assets establishes the initial Unfunded Frozen Actuarial Accrued Liability (UFAAL).

The UFAAL is only frozen in that it is not adjusted due to experience gains and losses. Instead, gains and losses are reflected through changes in the normal cost accrual rate. The UFAAL does change, increasing due to interest and additional normal costs, and decreasing due to contributions. Any changes to plan provisions or actuarial assumptions results in a change to the UFAAL. The amount of the change is determined by computing the impact in the actuarial accrued liability as of the valuation date coincident with or next following the change.

Normal costs are calculated as the level percentage of pay required to fund the excess of the actuarial present value of future benefits over the sum of the actuarial value of current assets and the remaining UFAAL.

Effective January 1, 2006, UFAAL was reestablished to better reflect an appropriate relationship between the normal cost and the actuarial accrued liability.

The funding requirement for each plan year is the sum of the "normal cost contribution" (equal to the normal cost for that year), plus the "actuarial accrued liability contribution." The "actuarial accrued liability contribution" is the payment required to amortize the UFAAL over 30 years, from January 1, 2006, the date that it was reestablished.

Valuation of Assets

The actuarial value of assets is determined using the assumed yield method of valuing assets. Under the assumed yield asset valuation method, the prior year's actuarial value is increased at the assumed rate of return with appropriate adjustments for contributions and disbursements to produce an expected actuarial value of assets at the end of the year. The expected actuarial value is compared to the market value of assets less the expense and contingency reserve, and 20% of the difference is added to the expected actuarial value. The actuarial value of assets was "fresh-started" as of January 1, 2006 and set equal to the market value of assets as of that date.

Changes from the Prior Valuation

There have been no changes in assumptions or methods since the prior valuation.

Section 4 *(continued)*

4.7 Summary of Methods and Assumptions

Table 1
Mortality Rates
Annual Rates Per 1,000 Members

Age	Rate Male	Rate Female	Age	Rate Male	Rate Female
20	0.345	0.191	60	6.747	5.055
21	0.357	0.192	61	7.676	5.814
22	0.366	0.194	62	8.757	6.657
23	0.373	0.197	63	10.012	7.648
24	0.376	0.201	64	11.280	8.619
25	0.376	0.207	65	12.737	9.706
26	0.378	0.214	66	14.409	10.954
27	0.382	0.223	67	16.075	12.163
28	0.393	0.235	68	17.871	13.445
29	0.412	0.248	69	19.802	14.860
30	0.444	0.264	70	22.206	16.742
31	0.499	0.307	71	24.570	18.579
32	0.562	0.350	72	27.281	20.665
33	0.631	0.394	73	30.387	22.970
34	0.702	0.435	74	33.900	25.458
35	0.773	0.475	75	37.834	28.106
36	0.841	0.514	76	42.169	30.966
37	0.904	0.554	77	46.906	34.105
38	0.964	0.598	78	52.123	37.595
39	1.021	0.648	79	57.927	41.506
40	1.079	0.706	80	64.368	45.879
41	1.142	0.774	81	72.041	50.780
42	1.215	0.852	82	80.486	56.294
43	1.299	0.937	83	89.718	62.506
44	1.397	1.029	84	99.779	69.517
45	1.508	1.124	85	110.757	77.446
46	1.616	1.223	86	122.797	86.376
47	1.734	1.326	87	136.043	96.337
48	1.860	1.434	88	150.590	107.303
49	1.995	1.550	89	166.420	119.154
50	2.138	1.676	90	183.408	131.682
51	2.449	1.852	91	199.769	144.604
52	2.667	2.018	92	216.605	157.618
53	2.916	2.207	93	233.662	170.433
54	3.196	2.424	94	250.693	182.799
55	3.624	2.717	95	267.491	194.509
56	4.200	3.090	96	283.905	205.379
57	4.693	3.478	97	299.852	215.240
58	5.273	3.923	98	315.296	223.947
59	5.945	4.441	99	330.207	231.387

Section 4 *(continued)*

4.7 Summary of Methods and Assumptions

Table 2
Withdrawal Mortality Rates
Annual Rates Per 1,000 Members

Age	Rate	Age	Rate
20	150.0	45	30.0
21	145.0	46	28.0
22	140.0	47	26.0
23	135.0	48	24.0
24	130.0	49	22.0
25	125.0	50	20.0
26	120.0	51	19.0
27	115.0	52	18.0
28	110.0	53	17.0
29	95.0	54	16.0
30	90.0	55	15.0
31	88.0	56	14.0
32	84.0	57	13.0
33	79.0	58	12.0
34	75.0	59	11.0
35	70.0	60	10.0
36	68.0	61	0.0
37	66.0	62	0.0
38	64.0	63	0.0
39	62.0	64	0.0
40	60.0		
41	54.0		
42	48.0		
43	42.0		
44	36.0		

Section 4 *(continued)*

4.7 Summary of Methods and Assumptions

Table 3
Retirement Rates
Annual Rates Per 1,000 Members

Age	Rate
55	50.0
56	50.0
57	50.0
58	50.0
59	75.0
60	75.0
61	125.0
62	250.0
63	175.0
64	250.0
65	350.0
66	200.0
67	200.0
68	200.0
69	250.0
70	1000.0

Section 4 *(continued)*

4.7 Summary of Methods and Assumptions

Table 4
Disability Rates
Annual Rates Per 1,000 Members

	Rate			Rate	
Age	**Males**	**Females**	**Age**	**Males**	**Females**
20	0.00	0.00	45	1.50	1.00
21	0.00	0.00	46	1.60	1.10
22	0.00	0.00	47	1.70	1.20
23	0.00	0.00	48	1.80	1.30
24	0.00	0.00	49	1.90	1.40
25	0.00	0.00	50	2.00	1.50
26	0.00	0.00	51	2.50	1.70
27	0.00	0.00	52	3.00	1.90
28	0.00	0.00	53	3.50	2.10
29	0.00	0.00	54	4.00	2.30
30	0.40	0.40	55	4.50	2.50
31	0.40	0.40	56	4.70	2.60
32	0.40	0.40	57	4.90	2.75
33	0.40	0.40	58	5.10	2.85
34	0.40	0.40	59	5.30	3.00
35	0.40	0.40	60	5.50	3.25
36	0.45	0.45	61	6.00	3.50
37	0.50	0.50	62	6.50	3.50
38	0.60	0.60	63	7.00	3.50
39	0.70	0.70	64	7.50	3.50
40	0.80	0.75	65	0.0	0.0
41	0.95	0.80			
42	1.10	0.85			
43	1.25	0.90			
44	1.40	0.95			

Section 4 *(continued)*

4.7 Summary of Methods and Assumptions

Table 5
Post-Disability Mortality Rates
Annual Rates Per 1,000 Members

	Rate			Rate	
Age	Male	Female	Age	Male	Female
20	0.376	0.207	60	12.737	9.706
21	0.378	0.214	61	14.409	10.954
22	0.382	0.223	62	16.075	12.163
23	0.393	0.235	63	17.871	13.445
24	0.412	0.248	64	19.802	14.860
25	0.444	0.264	65	22.206	16.742
26	0.499	0.307	66	24.570	18.579
27	0.562	0.350	67	27.281	20.665
28	0.631	0.394	68	30.387	22.970
29	0.702	0.435	69	33.900	25.458
30	0.773	0.475	70	37.834	28.106
31	0.841	0.514	71	42.169	30.966
32	0.904	0.554	72	46.906	34.105
33	0.964	0.598	73	52.123	37.595
34	1.021	0.648	74	57.927	41.506
35	1.079	0.706	75	64.368	45.879
36	1.142	0.774	76	72.041	50.780
37	1.215	0.852	77	80.486	56.294
38	1.299	0.937	78	89.718	62.506
39	1.397	1.029	79	99.779	69.517
40	1.508	1.124	80	110.757	77.446
41	1.616	1.223	81	122.797	86.376
42	1.734	1.326	82	136.043	96.337
43	1.860	1.434	83	150.590	107.303
44	1.995	1.550	84	166.420	119.154
45	2.138	1.676	85	183.408	131.682
46	2.449	1.852	86	199.769	144.604
47	2.667	2.018	87	216.605	157.618
48	2.916	2.207	88	233.662	170.433
49	3.196	2.424	89	250.693	182.799
50	3.624	2.717	90	267.491	194.509
51	4.200	3.090	91	283.905	205.379
52	4.693	3.478	92	299.852	215.240
53	5.273	3.923	93	315.296	223.947
54	5.945	4.441	94	330.207	231.387
55	6.747	5.055	95	344.556	237.467
56	7.676	5.814	96	358.628	244.834
57	8.757	6.657	97	371.685	254.498
58	10.012	7.648	98	383.040	266.044
59	11.280	8.619	99	392.003	279.055

Section 4 *(continued)*

4.7 Summary of Methods and Assumptions

Table 6
Family Structure

Age Male	Age Female	Age of youngest child	Average number of children	Probability of being married	Probability of children if married
20	17	2	.90	.30	.50
21	18	2	.90	.35	.50
22	19	2	.98	.40	.50
23	20	2	.98	.46	.53
24	21	3	1.05	.53	.56
25	22	3	1.13	.60	.59
26	23	4	1.20	.67	.62
27	24	4	1.28	.74	.65
28	25	4	1.35	.76	.67
29	26	5	1.43	.78	.69
30	27	5	1.50	.80	.71
31	28	6	1.58	.82	.73
32	29	6	1.65	.84	.75
33	30	7	1.80	.85	.76
34	31	7	1.95	.86	.77
35	32	8	2.10	.87	.78
36	33	8	2.10	.87	.79
37	34	9	2.10	.87	.80
38	35	9	2.30	.87	.79
39	36	10	1.95	.87	.78
40	37	10	1.88	.87	.77
41	38	11	1.80	.87	.76
42	39	11	1.73	.87	.75
43	40	11	1.73	.87	.72
44	41	12	1.65	.87	.69
45	42	12	1.65	.86	.66
46	43	12	1.58	.86	.63
47	44	12	1.58	.86	.60
48	45	12	1.50	.85	.56
49	46	12	1.43	.85	.52
50	47	13	1.43	.85	.48
51	48	13	1.35	.85	.44
52	49	13	1.35	.85	.40
53	50	13	1.35	.85	.37
54	51	13	1.35	.84	.34

Section 4 *(continued)*

4.7 Summary of Methods and Assumptions

Table 6
Family Structure
(continued)

Age Male	Age Female	Age of youngest child	Average number of children	Probability of being married	Probability of children if married
55	52	13	1.28	.84	.31
56	53	13	1.28	.83	.28
57	54	13	1.28	.83	.25
58	55	13	1.28	.83	.23
59	56	13	1.20	.82	.21
60	57	13	1.20	.81	.19
61	58	13	1.20	.80	.17
62	59	13	1.20	.79	.15
63	60	13	1.20	.78	.13
64	61	13	1.20	.77	.11
65	62	13	1.13	.76	.09
66	63	13	1.13	.75	.07
67	64	13	1.13	.74	.05
68	65	13	1.13	.73	.04
69	66	13	1.05	.72	.03
70	67	13	1.05	.71	.02
71	68	13	1.05	.70	.01

Section 4 *(continued)*

4.8 Definition of Actuarial Terms

Accrued benefit

The benefit earned by a participant as of the date at which the determination is made payable in the form of an annual benefit commencing at normal retirement age. The accrued benefit is payable for the member's lifetime only, however if the total monthly payments at the member's death are less than contributions accumulated with interest, the remaining employee contribution balance will be paid to the member's beneficiary.

Accumulated plan benefits

The accrued benefits and any other benefits, whether vested or not, that have been earned by the participants covered by the plan as of the date at which the determination is made. These other benefits include any death, early retirement or disability benefits provided under the plan.

Actuarial accrued liability

Equal to the actuarial present value of future benefits less the present value of future annual normal costs

Actuarial cost method

The method for allocating the actuarial present value of a pension plan's benefits and expenses to various time periods. An actuarial cost method is also referred to as a funding method.

Actuarial gain/(loss)

The difference between the plan's actual experience and that expected based upon a set of actuarial assumptions. A gain occurs when the experience of the plan is more favorable (in terms of cost) than the assumptions projected; a loss occurs when experience is less favorable. May also be referred to as experience gains/(losses).

Actuarial present value

See present value.

Actuarial valuation

The determination, as of a valuation date, of the annual normal cost, actuarial accrued liability, actuarial value of assets and related actuarial present values for a pension plan.

Actuarial value of assets

The value of cash, investments and other property belonging to a pension plan determined by the actuary for the purpose of an actuarial valuation. Actuarial asset methods are generally designed

Amortization

The spreading of a present value or a cost over a period of years. A plan's unfunded actuarial accrued liability is amortized over a period of years.

Section 4 *(continued)*
4.8 Definition of Actuarial Terms

Fiscal year

The year on which the plan sponsor maintains its financial records.

Funded

Provided by plan assets. A liability is fully funded when assets exceed or equal the liability.

Normal cost

That portion of the actuarial present value of pension plan benefits and expenses which is allocated to a valuation year by the actuarial cost method.

Normal retirement age

An age defined in the plan for purposes of establishing when a terminated participant is entitled to an accrued benefit.

Normal retirement benefit

The benefit payable when it commences at the normal retirement age.

Participant

A person covered by a pension plan in accordance with its terms including active participants, retired participants and beneficiaries, vested terminations and vested transfers.

Plan year

The year on which the plan maintains its financial records.

Present value

The value of an amount or series of amounts payable at various times, determined as of a given date by the application based on a particular set of actuarial assumptions. It is a single sum which reflects the time value of money and the probabilities of payment.

Rate of return

The actual or expected investment income as a percentage of a plan's average assets.

System

Public School Retirement System of the City of St. Louis, Missouri.

Unfunded actuarial accrued liability

The excess of the actuarial accrued liability over the actuarial value of assets.

Vested benefit

A benefit that is not forfeited if the participant terminates employment.