The Public School Retirement System
of
The School District of Kansas City, Missouri

Actuarial Valuation Report
As of January 1, 2012

Submitted By:
Buck Consultants
120 South Sixth Street, Suite 2260
Minneapolis, MN 55402

June 15, 2012

Mr. Tom Mann
Executive Director
Kansas City Public School Retirement System
4600 The Paseo
Kansas City, MO 64110

Dear Members of The Kansas City Public School Retirement System Board:

Actuarial Certification

The annual actuarial valuation required for the Kansas City Public School Retirement System has been prepared as of January 1, 2012 by Buck Consultants. The purposes of the report include:

(1) a presentation of the valuation results of the System as of January 1, 2012;

(2) a review of experience under the System for the year ended January 1, 2012;

(3) the provision of reporting and disclosure information for financial statements, governmental agencies, and other interested parties.

The following schedules that we have prepared are included in this report:

(1) Summary of actuarial assumptions and methods (Section 3.6)

(2) Schedule of member valuation data (Sections 3.2, 3.3, 3.4 and 3.5)

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.

The contribution requirements are determined as a percentage of payroll, and reflect the cost of benefits accruing in 2012 and a fixed 30-year amortization of unfunded liabilities. The amortization period is set by the Board. Contribution levels are set by statute. The ratio of valuation assets to liabilities decreased from 93.1% to 84.9% during the year. This report provides an analysis of the factors that led to the decrease.

A summary of the actuarial assumptions and methods is presented in Section 3.6 of this report. All assumptions used in this valuation are as adopted by the Board. The assumptions used are individually reasonable and reasonable in the aggregate.

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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; or

(4) differences between the contribution rates determined by the valuation and those adopted by the Board.

The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein, 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 to 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,

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

Larry Langer, ASA, EA, MAAA
Principal, Consulting Actuary

Contents

Report Highlights

This report has been prepared by Buck Consultants to:

- Present the results of a valuation of the Kansas City Public School Retirement System as of January 1, 2012;
- Determine the employer's annual required contribution for purposes of GASB Statement Number 25;
- Review experience under the System for the period January 1, 2011 to January 1, 2012;
- Provide reporting and disclosure information for financial statements, governmental agencies, and other interested parties.

This report is divided into three sections. Section 1 contains the results of the valuation. It includes the experience of the System during the 2011 plan year, the current annual costs, and reporting and disclosure information.

Section 2 provides reporting and disclosure information for financial statements, governmental agencies and other interested parties.

Section 3 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.

Key events since the prior valuation
Since the 2011 valuation report, the plan's active membership decreased slightly, with a net decrease of approximately 200 active members. This increased the cost as a percentage of active payroll since the unfunded liability is spread over lower payroll. Greater than expected retirement among members eligible to retire increased the System's accrued liability. Finally, the board adopted assumption changes to better reflect anticipated future Plan experience. The assumption changes were the largest contributor to the increased actuarial cost.

Summary of results
The principal results are as follows:

Funding Status as of January 1		2011	2012
a.	Valuation assets (AVA)	$ 786,297,998	$ 742,279,611
b.	Market value of assets (MVA)	$ 730,278,733	$ 681,930,607
c.	Accrued liability	$ 844,232,490	$ 874,286,498
d.	Unfunded/(surplus) accrued liability on AVA	$ 57,934,492	$ 132,006,887
e.	AVA Funding Ratio, (a) / (c)	93.1%	84.9%
f.	MVA Funding Ratio, (b) / (c)	86.5%	78.0%

Actuarially Required Contribution:		2011	2012
a.	Annual required contribution	$ 11,590,759	$ 16,836,200
b.	Contribution as a percentage of payroll	7.14%	10.80%

As of January 1, 2012, the actuarially required contribution exceeds the statutory employer contribution (7.50% of payroll) by 3.30% of payroll. Furthermore, the actuarial value of assets still exceeds the market value. Net asset losses are being smoothed into the actuarial asset value. For 2012, the actuarially required contributions exceed the statutory amount of 7.50%. Actuarially required contributions are likely to increase sharply for the 2013 valuation, as more deferred asset losses are recognized in the actuarial value of assets.

Summary and Comparison of Principal Valuation Results

		Actuarial valuation as of January 1, 2011		Actuarial valuation as of January 1, 2012
1. Plan participants				
a. Active participants		3,490		3,284
b. Retired participants and beneficiaries		3,670		3,829
c. Inactive participants*		2,554		2,569
Total participants in valuation		9,714		9,682
2. Annual covered compensation	$	162,417,257	$	155,893,016
3. Actuarial present value of future benefits		946,735,874		968,796,616
4. Actuarial accrued liability		844,232,490		874,286,498
5. Assets				
a. Actuarial value		786,297,998		742,279,611
b. Market value		730,278,733		681,930,607
6. Unfunded actuarial accrued liability (4 - 5a)		57,934,492		132,006,887
a. 30-year amortization (end of year)		5,146,172		11,725,833
7. Employer normal cost – due December 31		6,444,587		5,110,367
As a % of covered compensation		3.97%		3.28%
8. Annual required employer contribution				
a. Due December 31 (6a + 7)	$	11,590,759	$	16,836,200
b. As a % of covered compensation		7.14%		10.80%
9. Ratio of assets to actuarial accrued liability				
a. At actuarial value		93%		85%
b. At market value		87%		78%
10. Projected Benefit Obligation	$	840,764,802	$	866,323,833

*Includes former participants entitled to a refund of contributions or a deferred annuity.

Analysis of the Valuation

(1) Investment Experience

Our actuarial calculations were based upon the assumption that the System's assets earn 8.00%, net of expenses. The approximate market value rate of return during 2011 was 0.5%. The approximate actuarial value rate of return was 1.1%. The investment experience resulted in an actuarial loss to the System of $52.6 million on a market value basis and a loss of $52.8 million on an actuarial value basis.

(2) Demographic Experience

The number of active members decreased from 3,490 to 3,284 for the period. The average age of active members decreased by 1.07 years, the average service decreased by 0.52 years, and the average annual salary increased $932. There were small changes in the inactive statistics as well. The membership statistics are found in Sections 3.2 through 3.5 of this report. The changes in member data produced an actuarial loss of $1.2 million.

(3) Salary Increases

The average annual salary increased 2.0% between January 1, 2011 and January 1, 2012. Total annual covered compensation decreased 4.0% between January 1, 2011 and January 1, 2012, 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

All of the assumption changes that were recommended from the 2011 Experience Study were made. Assumptions that were changed were the mortality tables, retirement rates, termination rates, and spousal age difference. Details of these assumption changes can be found in Section 3.6. The new assumptions caused the actuarially required contribution to increase by 0.55% of covered payroll.

(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 system experience and assumption changes during the period resulted in a decrease in the funding ratio from 93.1% to 84.9%. The actuarially required contribution rate increased from 7.14% to 10.80%.

Section 1
Valuation Results

This section sets forth the results of the actuarial valuation.

Section 1.1	Shows the asset information as of January 1, 2012.
Section 1.2	Shows the actuarial present values as of January 1, 2011 and 2012.
Section 1.3	Calculates the actuarial gain or loss during 2011.
Section 1.4	Develops the total contribution rate.
Section 1.5	Shows the liability on a projected benefit obligation (PBO) basis.

Section 1 *(continued)*

1.1(a) Statement of Changes in Net Assets as of January 1, 2012

ADDITIONS TO NET ASSETS	
Investment Income	
Net (depreciation) appreciation in fair value of investments	$ (5,519,960)
Interest	13,023,955
Dividends	0
Other income	64,220
Investment income before expenses	7,568,215
Less: investment expenses	2,065,512
Total investment income	5,502,704
Contributions	
Employers	11,972,752
Employees	12,082,175
Total Contributions	24,054,927
TOTAL ADDITIONS TO NET ASSETS	29,557,631
DEDUCTIONS FROM NET ASSETS	
Benefits paid directly to participants	70,411,892
Refunds of contributions	5,721,334
Depreciation expense	443,060
Administrative expenses	1,283,444
TOTAL DEDUCTION FROM ASSETS	77,859,730
NET (DECREASE) INCREASE	(48,302,100)
NET ASSETS AVAILABLE FOR BENEFITS	
Beginning of year	730,232,706
End of year	$ 681,930,607

Based on unaudited assets. Some numbers do not add to totals due to rounding.

Section 1 *(continued)*
1.1(b) Statement of Net Assets as of January 1, 2012

As of January 1, 2012		
ASSETS		
INVESTMENTS, AT MARKET VALUE		
Cash and short term investments	$	16,557,791
US treasury securities		0
Corporate fixed income		22,029,643
Government bonds & gov't mortgage-backed securities		24,055,963
Commingled domestic fixed income		70,382,178
High yield fixed income		18,156,297
Global fixed income		40,094,413
Fixed alternative		16,000,000
Domestic equity		279,909,321
International equity		89,667,761
Pooled real estate funds		29,448,223
Alternative investments		33,738,464
Private equity		27,725,831
Total Investments, at market value	$	667,765,885
RECEIVABLES		
Plan members contributions	$	343,725
Employers contributions		8,725,075
Securities sold		2,357,295
Accrued interest and dividends		1,156,073
Total Receivables	$	12,582,169
OTHER ASSETS		
Cash		1,040,381
Fixed assets		3,501,471
Other assets		48,303
Total Other assets	$	4,590,156
TOTAL ASSETS	$	684,938,209
LIABILITIES		
Due to broker for securities purchased	$	2,325,162
Accounts payable		576,465
Accrued payroll expenses		105,975
Total Liabilities		3,007,602
NET ASSETS AVAILABLE FOR BENEFITS		681,930,607

Based on unaudited assets. Some numbers do not add to totals due to rounding.

Section 1 *(continued)*
1.1(c) Actuarial Value of Assets

The actuarial value of assets method was changed effective January 1, 2009 to recognize future investment gains and losses at 20% per year over 5 years. Assets are initialized as of January 1, 2008 and will be phased-in over the next five years.

	2012
(1) Deferral of Investment Return for 2011	
(a) Market Value, January 1, 2011	$730,278,733
(b) Contributions for 2011	24,054,927
(c) Benefit Payments for 2011	76,133,226
(d) Actual Investment Return	3,730,173
(e) Expected Return Rate	8.00%
(f) Expected Return - Weighted for Timing*	
(a. x e.) + [(b. - c.) x (((1 + e.)^0.5) - 1)]	56,379,242
(g) Investment Gain/(Loss) for the Year *(d. - f.)*	(52,649,069)
(h) Deferred Investment Return *(g. x 80%)*	(42,119,255)
(2) Actuarial Value, January 1, 2012	
(a) Market Value, January 1, 2012	$681,930,607
(b) Total Deferred Investment Return/(Loss)	(60,349,004)
(c) Actuarial Value, January 1, 2012 (*a. - b.)*	742,279,611
(d) Ratio of Actuarial Value of Assets to Market Value of Assets	108.8%
(e) Approximate Actuarial Value Investment Return Rate During 2011 Net of All Expenses	1.1%

* Contributions and benefit payments are assumed to be paid mid-year.

The tables below show the development of gain/(loss) to be recognized in the current year.

Plan Year Ended	**Asset Gain/(Loss)**	**Gain/(Loss) Recognized in Prior Years**	**Gain/(Loss) Recognized This Year**	**Gain/(Loss) Deferred to Future Years**
12/31/2008	$(259,953,518)	$(155,972,112)	$ (51,990,704)	$ (51,990,702)
12/31/2009	$ 44,213,039	$ 17,685,216	$ 8,842,608	$ 17,685,215
12/31/2010	$ 26,792,898	$ 5,358,580	$ 5,358,580	$ 16,075,738
12/31/2011	$ (52,649,069)	$ 0	$ (10,529,814)	$ (42,119,255)
Total	**$(241,596,650)**	**$(132,928,316)**	**$ (48,319,330)**	**$ (60,349,004)**

Section 1 *(continued)*

1.2 Breakdown of Accrued Liability and Normal Cost

	January 1, 2011	January 1, 2012
Normal Cost		
Retirement Benefits	$ 9,942,308	$ 8,920,130
Disability Benefits	560,946	470,881
Death Benefits	745,718	430,503
Withdrawal Benefits	6,899,532	6,602,283
Total Normal Cost	**$ 18,148,504**	**$ 16,423,797**
Accrued Liability		
Active Members		
Retirement Benefits	$ 287,573,977	$ 270,173,760
Disability Benefits	9,889,671	8,456,499
Death Benefits	11,550,970	6,452,078
Withdrawal Benefits	25,914,259	28,885,527
Present Value of Future Normal Costs	(102,503,384)	(94,510,119)
Subtotal	$ 232,425,493	$ 219,457,745
Benefit Recipients		
Retiree Benefits	$ 554,962,921	$ 596,644,849
Survivor Benefits	15,474,845	16,318,250
Disability Benefits	9,886,874	9,172,868
Subtotal	$ 580,324,640	$ 622,135,967
Inactive Members		
Deferred Vested Retirement Benefits	$ 24,461,765	$ 25,416,694
Nonvested Account Balance	7,020,592	7,276,092
Subtotal	$ 31,482,357	$ 32,692,786
Total Accrued Liability	**$ 844,232,490**	**$ 874,286,498**

Section 1 *(continued)*
1.3 Development of Actuarial Gain/(Loss) for 2011

(1)	Accrued Liability, January 1, 2011	$ 844,232,490
(2)	Normal Cost for 2011	18,148,504
(3)	Interest on (1) and (2) at 8.00%	68,990,480
(4)	Benefit Payments for 2011	76,133,226
(5)	Interest on (4) at 8.00% for one-half year	2,986,743
(6)	Change in Assumptions and Methods	20,872,580
(7)	Expected Accrued Liability, January 1, 2012 (1) + (2) + (3) - (4) - (5) + (6)	873,124,085
(8)	Accrued Liability, January 1, 2012	874,286,498
(9)	**Liability Gain/(Loss) (7) - (8)**	(1,162,413)

		MVA	AVA
(10)	Valuation Assets, January 1, 2011	730,278,733	786,297,998
(11)	Interest on (10) at 8.00%	58,422,299	62,903,840
(12)	Employer Contributions for 2011	11,972,752	11,972,752
(13)	Employee Contributions for 2011	12,082,175	12,082,175
(14)	Interest on (12) and (13) at 8.00% for one-half year	943,686	943,686
(15)	Benefit Payments for 2011	76,133,226	76,133,226
(16)	Interest on (15) at 8.00% for one-half year	2,986,743	2,986,743
(17)	Change in Assumptions and Methods	0	0
(18)	Expected Valuation Assets, January 1, 2012 (10) + (11) + (12) + (13) + (14) - (15) - (16) + (17)	734,579,676	795,080,482
(19)	Valuation Assets, January 1, 2012	681,930,607	742,279,611
(20)	**Asset Gain/(Loss) (19) - (18)**	(52,649,069)	(52,800,871)
(21)	**Actuarial Gain/(Loss) (9) + (20)**	(53,811,482)	(53,963,284)

Section 1 *(continued)*

1.4 Calculation of Annual Contribution Rate

			January 1, 2011	January 1, 2012
1.		Actuarial present value (APV) of all future benefits		
	a.	Active participants	$ 334,928,877	$ 313,967,864
	b.	Retired participants and beneficiaries	580,324,640	622,135,966
	c.	Inactive participants	31,482,357	32,692,786
	d.	Total APV of future benefits (a. + b. + c.)	$ 946,735,874	$ 968,796,616
2.	a.	Total normal cost	$ 18,148,504	$ 16,423,797
	b.	Employee portion of normal cost	12,181,294	11,691,976
	c.	Employer normal cost (a. - b.)	$ 5,967,210	$ 4,731,821
3.		Total covered compensation	$ 162,417,257	$ 155,893,016
4.	a.	Employer normal cost rate (2c) / (3)	3.6740%	3.0353%
	b.	Total normal cost rate (2a) / (3)	11.1740%	10.5353%
5.		Actuarial accrued liability (AAL)	$ 844,232,490	$ 874,286,498
6.		Actuarial value of assets (AVA)	$ 786,297,998	$ 742,279,611
7.		Unfunded actuarial accrued liability, (5) - (6)	57,934,492	132,006,887
8.		Payment to amortize unfunded over 30 years, as of end of year	5,146,172	11,725,833
9.		Employer normal cost contribution due by end of year, (2c) adjusted for interest at 8%	$ 6,444,587	$ 5,110,367
10.		Annual required normal cost contribution due end of year as a % of covered compensation (9) / (3)	3.97%	3.28%
11.		Annual required contribution due end of year	$ 11,590,759	$ 16,836,200
12.		Contribution rate (11) / (3)	7.14%	10.80%

Section 1 *(continued)*

1.5 Projected Benefit Obligation Funded Status

Projected benefit obligation by participant status		January 1, 2011		January 1, 2012
1. Retired participants and beneficiaries currently receiving benefits and terminated participants not yet receiving benefits	$	611,806,997	$	654,828,753
2. Current active participants				
a. Accumulated member contributions, including interest		110,538,745		99,513,420
b. Employer-financed vested benefits		118,419,060		111,981,660
Total projected benefit obligation	$	840,764,802	$	866,323,833

Projected benefit obligation funded status				
1. Net assets available for benefits at actuarial value	$	786,297,998	$	742,279,611
2. Unfunded projected benefit obligation at actuarial value		54,466,804		124,044,222
3. Actuarial value funding ratio		94%		86%
4. Net assets available for benefits at market value	$	730,278,733	$	681,930,607
5. Unfunded projected benefit obligation at market value		110,486,069		184,393,226
6. Market value funding ratio		87%		79%

Section 2
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 2.1 Shows the Schedule of Employer Contributions.

Section 2.2 Shows the Schedule of Funding Progress.

Section 2.3 Shows the percent funded by type of liability, known as the Prioritized Solvency Test.

Section 2.4 Shows the Actuarial Assumptions, Methods and Additional Information.

Section 2 *(continued)*

2.1 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
1995	$ 11,011,221	$ 3,489,812	31.69%
1996	$ 9,443,721	$ 5,365,843	56.82%
1997	$ 7,055,431	$ 8,538,810	121.02%
1998	$ 5,999,525	$ 9,997,549	166.64%
1999	$ 5,249,589	$ 9,951,876	189.57%
2000	$ 9,309,354	$ 14,368,922	154.35%
2001	$ 10,996,382	$ 12,176,329	110.73%
2002	$ 12,133,966	$ 13,514,997	111.38%
2003	$ 10,984,595	$ 13,429,802	122.26%
2004	$ 12,338,049	$ 14,002,317	113.49%
2005	$ 12,769,634	$ 14,691,137	115.05%
2006	$ 11,774,051	$ 14,431,062	122.57%
2007	$ 11,523,380	$ 15,365,235	133.34%
2008	$ 3,832,178	$ 15,888,234	414.60%
2009	$ 3,797,954	$ 27,656,639*	728.20%*
2010	$ 7,779,060	$ 13,281,191	170.73%
2011	$ 11,590,759	$ 11,972,752	103.30%
2012	$ 16,836,200	**	**

*Includes accrued employer contributions, which were previously not included.
**To be determined at the end of the year.

Section 2 *(continued)*
2.2 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)
1/1/1995	$ 353,329,957	$ 368,874,780	$ 33,544,823	91.3%	$ 185,374,096	18.1%
1/1/1996	$ 389,103,803	$ 409,428,594	$ 20,324,791	95.0%	$ 171,262,008	11.9%
1/1/1997	$ 428,419,710	$ 429,517,108	$ 1,097,398	99.7%	$ 161,802,480	0.7%
1/1/1998	$ 482,599,919	$ 442,614,693	$ (39,985,225)	102.3%	$ 168,328,728	-23.8%
1/1/1999	$ 624,225,667	$ 564,056,509	$ (60,169,158)	110.7%	$ 153,733,920	-39.1%
1/1/2000	$ 660,830,255	$ 640,614,688	$ (20,215,567)	103.2%	$ 151,091,616	-13.4%
1/1/2001	$ 696,071,310	$ 682,531,577	$ (13,539,734)	102.0%	$ 165,795,367	-8.2%
1/1/2002	$ 718,703,692	$ 701,725,938	$ (16,977,755)	102.4%	$ 171,523,233	-9.9%
1/1/2003	$ 717,681,067	$ 701,114,370	$ (16,566,697)	102.4%	$ 168,391,474	-9.8%
1/1/2004	$ 738,612,110	$ 716,126,707	$ (22,485,404)	103.1%	$ 186,528,530	-12.1%
1/1/2005	$ 763,684,602	$ 747,711,194	$ (15,973,408)	102.1%	$ 195,866,663	-8.2%
1/1/2006	$ 788,788,666	$ 780,663,389	$ (8,125,277)	101.0%	$ 187,445,140	-4.3%
1/1/2007	$ 824,302,795	$ 818,027,315	$ (6,275,480)	100.8%	$ 199,221,110	-3.2%
1/1/2008	$ 854,123,580	$ 781,284,025	$ (72,839,554)	109.3%	$ 202,311,837	-36.0%
1/1/2009	$ 832,609,879	$ 804,623,080	$ (27,986,799)	103.5%	$ 205,326,108	-13.6%
1/1/2010	$ 814,536,473	$ 819,534,391	$ 4,997,918	99.4%	$ 194,474,437	2.6%
1/1/2011	$ 786,297,998	$ 844,232,490	$ 57,934,492	93.1%	$ 162,417,257	35.7%
1/1/2012	$ 742,279,611	$ 874,286,498	$ 132,006,887	84.9%	$ 155,893,016	84.7%

Section 2 *(continued)*

2.3 Prioritized Solvency Test

A prioritized solvency test is an additional means of checking a system's progress under its funding program. In a prioritized solvency test, the plan's present assets (cash and investments) are compared with:

- Active participant contributions, accumulated with interest;
- The liabilities for future benefits to present inactive participants and beneficiaries; and
- The liabilities for service already rendered by active members.

In a system that has been following the discipline of level percent of payroll financing, the liabilities for active participant accumulated contributions (liability 1) and the liabilities for future benefits to inactive participants and beneficiaries (liability 2) will be fully covered by assets if all assumptions are met. In addition, the liabilities for service already rendered by active participants (liability 3) are normally partially covered by the remainder of the present assets. Generally, if the system has been using level cost financing, the funded portion of liability 3 will increase over time. Liability 3 being fully funded does not necessarily result from level percent of payroll funding methods. The schedule on the following page illustrates the history of the liabilities of the system and is indicative of the system following the discipline of level percent of compensation funding.

Section 2 *(continued)*
2.3 Prioritized Solvency Test

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)
1987	$ 54,703,473	$ 60,096,766	$ 45,027,324	$ 157,538,001	100%	100%	95%
1988	$ 60,631,019	$ 68,133,929	$ 45,164,333	$ 172,932,203	100%	100%	98%
1989	$ 68,032,000	$ 72,476,675	$ 50,436,314	$ 192,074,767	100%	100%	102%
1990	$ 77,843,936	$ 79,855,895	$ 52,384,902	$ 220,844,765	100%	100%	121%
1991	$ 86,392,672	$ 77,212,948	$ 62,859,420	$ 241,369,537	100%	100%	124%
1992	$ 91,688,784	$ 101,408,720	$ 69,055,820	$ 278,065,508	100%	100%	123%
1993	$ 98,482,791	$ 102,336,338	$ 61,479,865	$ 307,050,085	100%	100%	173%
1994	$ 99,547,061	$ 123,475,760	$ 121,674,513	$ 336,466,320	100%	100%	93%
1995	$ 110,658,079	$ 144,027,489	$ 124,562,502	$ 353,451,344	100%	100%	79%
1996	$ 108,123,636	$ 177,617,507	$ 117,169,151	$ 389,103,803	100%	100%	88%
1997	$ 104,554,877	$ 231,762,583	$ 91,329,968	$ 428,419,710	100%	100%	101%
1998	$ 115,847,655	$ 228,328,855	$ 108,592,620	$ 482,599,919	100%	100%	127%
1999	$ 117,478,379	$ 274,442,924	$ 172,607,724	$ 624,225,667	100%	100%	135%
2000	$ 113,334,820	$ 343,382,932	$ 184,049,309	$ 660,830,255	100%	100%	111%
2001	$ 115,781,706	$ 389,055,603	$ 184,779,937	$ 696,071,310	100%	100%	103%
2002	$ 119,968,776	$ 406,094,033	$ 187,309,245	$ 718,703,692	100%	100%	103%
2003	$ 112,468,027	$ 435,548,298	$ 165,766,206	$ 717,681,067	100%	100%	102%
2004	$ 125,754,562	$ 430,145,689	$ 179,264,397	$ 738,612,110	100%	100%	102%
2005	$ 127,221,118	$ 431,366,177	$ 201,836,083	$ 763,684,602	100%	100%	102%
2006	$ 133,811,729	$ 477,844,206	$ 177,531,611	$ 788,788,666	100%	100%	100%
2007	$ 136,978,872	$ 498,841,373	$ 187,966,845	$ 824,302,795	100%	100%	100%
2008	$ 140,844,707	$ 492,273,102	$ 156,840,245	$ 854,123,580	100%	100%	141%
2009	$ 140,096,771	$ 503,450,518	$ 161,075,791	$ 832,609,879	100%	100%	117%
2010	$ 139,860,248	$ 524,692,426	$ 154,981,717	$ 814,536,473	100%	100%	97%
2011	$ 110,538,745	$ 611,806,997	$ 121,886,748	$ 786,297,998	100%	100%	52%
2012	$ 99,513,420	$ 654,828,752	$ 119,944,326	$ 742,279,611	100%	98%	0%

Section 2 *(continued)*

2.4 Actuarial Assumptions, Methods and Additional Information

Valuation Date	January 1, 2012
Actuarial Cost Method	Entry Age Normal Level Percentage of Pay
Amortization Method	Level Dollar, Open Period
Equivalent Single Amortization Period	30 years
Asset Valuation Method	5-year smoothed market
Actuarial Assumptions:	
Investment rate of return*	8.00%
Participant account crediting rate	5.00%
Projected salary increases	5.00%
*Includes inflation at	3.50%
Cost-of-living adjustment	0.00%

Section 3
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, as described starting in Section 169.270 in the Revised Statutes of Missouri, is provided in Section 3.1 and member census information is shown in Section 3.2 to Section 3.5.

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 3.6.

Section 3 *(continued)*
3.1 Summary of Plan Provisions

Effective date

January 1, 1944, most recently amended in 2004.

Plan A versus Plan B

All provisions cited below reflect Plan B benefit levels, which apply to all current active members. Some inactive members and retirees participated in Plan A, which provided different benefit levels. All members with Plan A benefits have terminated or retired.

Eligibility for coverage

All regular employees of the School District of Kansas City, Missouri, the library district or the retirement system and certain employees of charter schools become participants as a condition of employment. Regular employment means working at least five hours per day, five days per week, nine months per year. Temporary and part-time employees are excluded.

Service

Creditable service is participant service, which is service for which required contributions have been made. There is no cap on creditable service. Prior to 1990, creditable service could not exceed 35 years. The maximum retirement benefit is 60% of Average Final Compensation, which will be reached upon attainment of 30 years of service.

Annual compensation

A participant's annual compensation level will be the regular compensation shown on the salary and wage schedules, excluding extra pay, overtime pay, or any pay not on the schedule. Annual compensation will be limited to the scheduled level for a principal with a master's degree for all years prior to 1989. For years after 1988, there is no limitation on annual compensation.

Average final compensation

The average final compensation is the highest average annual compensation paid during any four consecutive years of service.

Normal retirement

Eligibility

Participants may retire after (a) the completion of five years of creditable service and the attainment of age 60, or (b) having a total of at least 75 credits, with each year of creditable service and year of age, both prorated for fractional years, equal to one credit.

Benefit

The normal retirement benefit payable monthly equals one twelfth of 2.00% (1.75% for participants who retired prior to June 30, 1999) of the participant's average final compensation multiplied by years of creditable service, subject to a maximum of 60% of average final compensation. Any participant whose years of creditable service exceed 34.25 years on August 28, 1993 shall have a maximum greater than 60%, which shall be equal to 1.75% times the participant's years of creditable service on August 28, 1993.

Section 3 *(continued)*
3.1 Summary of Plan Provisions

Minimum benefit

Effective January 1, 1996, any participant with at least 20 years of creditable service at retirement is entitled to a minimum benefit of $300 per month, or the actuarial equivalent of $300 if an option was elected. Any participant with at least ten years of creditable service, but less than 20 years, is entitled to a minimum benefit of $150 per month, plus $15 for each full year of creditable service in excess of ten years, or its actuarial equivalent if an option was elected. Beneficiaries of deceased participants who elected an option and who retired with at least ten years of creditable service receive the actuarial equivalent of the minimum benefit. If a participant's accumulated contributions provides more than the participant's retirement benefit (under the actuarial assumptions adopted by the Board of Trustees), the participant's benefit will be increased by this excess.

Early retirement

Eligibility

Participants may retire at any time after the completion of five years of creditable service and the attainment of age 55.

Benefit

A participant eligible for early retirement will receive a reduced benefit, with the reduction based on the number of months preceding eligibility for a normal retirement benefit. The reduction factors are as follows:

Age	Reduction Factor
59	0.91662
58	0.84138
57	0.77334
56	0.71168
55	0.65572

Disability retirement

Eligibility

A participant with at least five years of creditable service who is certified to be totally incapacitated for performance of duty by the Medical Board is eligible for a disability retirement.

Benefit

A disabled participant will receive an unreduced benefit, calculated as for normal retirement, based on service and average final compensation at actual retirement date. The minimum disability retirement benefit will be the lesser of (a) 25% of the participant's average final compensation, or (b) the participant's service retirement allowance calculated on the participant's average final compensation and the maximum number of years of creditable service the participant would have earned had the participant remained an employee until age 60. Disability benefits are payable immediately.

Section 3 *(continued)*

3.1 Summary of Plan Provisions

Vested termination benefits

Eligibility

A participant who has at least five years of creditable service earns a vested interest in his or her accrued benefit, provided the participant leaves his or her contributions in the System.

Benefit

The vested benefit is calculated as a normal retirement benefit based on service and average final compensation at date of termination and is payable at minimum normal retirement date.

Non-vested benefits

Benefit

If the participant's termination is for reasons other than death or retirement and if the participant has not met the vesting or retirement requirements, the participant's contributions with interest will be refunded.

Death benefit

Prior to retirement

For a participant who dies before retirement, the participant's designated beneficiary is entitled to receive a monthly retirement benefit if (a) the participant was an active employee, or (b) the participant was an inactive vested member who met the age requirements for either normal or early retirement. The participant's designated beneficiary has the option of selecting a monthly benefit under Option 1 with immediate commencement, or receiving a refund of contributions accumulated with interest.

For an inactive vested participant who dies before retirement and has not met the age requirements for retirement, the participant's accumulated contributions with interest will be paid to the participant's designated beneficiary.

The designated beneficiary is either the participant's spouse or person determined by the Board of Trustees to have been dependent upon the deceased participant. If the beneficiary elects Option 1, such benefit shall be calculated as if the deceased participant had at least ten years of creditable service at the time of death. If the beneficiary is a child, the benefit is only payable until age nineteen.

Postretirement

The optional form of benefit payment selected will determine what, if any, benefits are payable upon death after retirement. Participants are guaranteed to receive at least their accumulated contributions at retirement, if they die before electing an option.

Section 3 *(continued)*
3.1 Summary of Plan Provisions

Normal form of benefit payments

The normal form of benefit payment is the normal retirement benefit amount paid monthly for the life of the participant. If the participant should die before receiving payments totaling the amount of their contributions to the plan, the designated beneficiary shall receive a lump sum payment of the remaining amount.

Optional forms of benefit payments

Participants may elect from the following optional forms of benefit payment:

Option 1

Option 1 provides a reduced retirement benefit that will continue on to a designated beneficiary Upon a retiree's death, the retiree's designated beneficiary will receive for life, the same level of monthly retirement benefit. In the event the retiree's designated beneficiary predeceases the retiree, the retiree's monthly retirement benefit will be adjusted to the amount that would have been paid in the normal form of payment.

Option 2

Option 2 provides a reduced retirement benefit that will continue on to a designated beneficiary. Upon a retiree's death, the retiree's designated beneficiary will receive for life, a monthly benefit equal to one-half of the retiree's monthly retirement benefit. In the event the retiree’s designated beneficiary predeceases the retiree, the retiree’s monthly retirement benefit will be adjusted to the amount that would have been paid in the normal form of payment.

Option 3

Option 3 provides that upon a retiree’s death, no benefits are payable to the retiree’s estate or any beneficiary. Retirement benefits payable under this option will be actuarially increased from the normal form.

Each of the above options produces benefits which are actuarially equivalent to the normal form of benefit which is a monthly annuity payable for the lifetime of the retiree. These options are not available under disability retirement, only service retirement.

Cost-of-living allowances

The Board of Trustees shall determine annually whether or not the system can provide an increase in benefits for those retirees who, as of the January 1 preceding the date of such increase, have been retired at least one year. Any such increase also applies to optional retirement allowances paid to a retiree’s beneficiary. The Board makes its determination as follows:

1. The actuary recommends to the Board what portion of the investment return is available for increases and the amount available to be paid on the first day of the 14th month following the end of the valuation year. The actuary's recommendation is subject to the following safeguards:

    a. The System's funded ratio as of the January 1st of the preceding year of the proposed increase must be at least 100% after adjusting for the effect of proposed increase. The funded ratio is the ratio of assets to the pension benefit obligation.

Section 3 *(continued)*
3.1 Summary of Plan Provisions

Cost-of-living allowances *(continued)*

b. The actuarially required contribution rate, after adjusting for the effect of the proposed increase, may not exceed the statutory contribution rate.

c. The actuary must certify that the proposed increase will not impair the actuarial soundness of the System.

2. The Board reviews the actuary's recommendation and shall, in their discretion, determine if an increase may be granted. In accordance with Board policy, if an increase is permissible, the amount of the increase will be equal to the lesser of 3% or the percentage increase in the CPI for the preceding year, subject to a cumulative increase of 100% subsequent to December 31, 2000.

3. This provision does not guarantee an annual increase to any retired participant.

Administration of the retirement system

The Board of Trustees is responsible for the general administration and proper operation of the retirement system. The Board consists of 12 members - four members appointed by the Board of Education, one member appointed by the Board of Trustees of the library district, four members elected by and from the participants of the retirement system, two members elected by and from the retirees of the retirement system, and the Superintendent of Schools of the School District of Kansas City, Missouri. Administrative expenses are paid out of the general reserve fund.

Employee contributions

Participants contribute 7.5% of earnable annual compensation. Prior to January 1, 1999, participants contributed 5.9%. Prior to 1990, participants contributed 5.0% of earnable annual compensation plus 2.0% of earnable annual compensation in excess of $6,500, the contribution earnings base.

Employer contributions

The employers of participants contribute at the fixed rate of 1.99% of covered compensation effective July 1, 1993; 3.99% effective July 1, 1995; 5.99% effective July 1, 1996; and 7.50% effective January 1, 1999. Prior to July 1, 1993, employer contributions were actuarially determined.

Changes from the Prior Valuation

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

Section 3 *(continued)*
3.2 Changes in System Participation

	Active Members	Retirees	Beneficiaries	Disabled	Deferred Vested	Nonvested with Balance	Total
Total at January 1, 2011	3,490	3,383	188	99	536	2,018	9,714
New Entrants	569	5	14			42	630
Rehires/Transfers	59	(1)			(17)	(41)	0
Retirements	(217)	260			(43)		0
Disablements	(2)			3	(1)		0
Deaths	(5)	(111)	(7)	(4)	(1)		(128)
Vested Terminations	(98)				98		0
Nonvested Terminations	(177)					177	0
Refunds Paid	(335)				(43)	(156)	(534)
Data Adjustments*							0
Total as of January 1, 2012	3,284	3,536	195	98	529	2,040	9,682

<u>Note on New Entrants:</u>

42 new Inactives with an account balance that were not on the data last year – 36 of which hired and termed during the year.

Section 3 *(continued)*
3.3 Member Census Information

As of January 1	2011	2012
Active Members		
Number	3,490	3,284
Average Age	46.21	45.14
Average Service	9.69	9.17
Average Annual Base Pay	$ 46,538	$ 47,470
Vested Terminated Members		
Number	536	529
Average Account Balance	$ 30,425	$ 32,031
Non-vested Terminated Members		
Number	2,018	2,040
Average Account Balance	$ 3,479	$ 3,567
Benefit Recipients		
Number	3,670	3,829
Average Age	71.29	71.20
Average Monthly Benefit	$ 1,555	$ 1,564

Section 3 *(continued)*
3.4 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	98	0	0	0	0	0	0	0	0	98
25-29	210	12	1	0	0	0	0	0	0	223
30-34	144	37	2	0	0	0	0	0	0	183
35-39	98	34	16	0	0	0	0	0	0	148
40-44	86	23	12	3	0	0	0	0	0	124
45-49	66	26	10	2	4	0	0	0	0	108
50-54	63	21	4	4	0	1	0	0	0	93
55-59	54	24	10	4	3	3	0	0	0	98
60-64	21	13	10	2	1	1	0	1	0	49
65-69	6	2	0	0	0	0	0	0	0	8
70 & Up	1	0	0	0	0	0	0	0	0	1
Total	847	192	65	15	8	5	0	1	0	1,133

Years of Service By Age
School District & Retirement System

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
Under 25	150	0	0	0	0	0	0	0	0	150
25-29	62	11	1	0	0	0	0	0	0	74
30-34	57	66	20	0	0	0	0	0	0	143
35-39	46	30	41	11	0	0	0	0	0	128
40-44	42	41	33	39	11	1	0	0	0	167
45-49	56	45	69	54	68	14	1	0	0	307
50-54	55	63	54	68	78	45	6	2	0	371
55-59	42	80	65	47	79	38	13	3	0	367
60-64	29	49	54	35	46	18	4	13	0	248
65-69	4	14	10	8	6	5	1	3	0	51
70 & Up	1	6	2	3	3	0	0	1	0	16
Total	544	405	349	265	291	121	25	22	0	2,022

Section 3 *(continued)*
3.4 Distributions of Active Members

Years of Service By Age
Library

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
Under 25	1	0	0	0	0	0	0	0	0	1
25-29	3	0	0	0	0	0	0	0	0	3
30-34	8	4	2	0	0	0	0	0	0	14
35-39	5	2	2	0	0	0	0	0	0	9
40-44	2	3	2	1	0	0	0	0	0	8
45-49	4	9	2	3	1	1	1	0	0	21
50-54	2	8	3	7	2	2	2	0	0	26
55-59	2	10	6	3	3	0	0	1	0	25
60-64	0	3	4	2	0	0	2	3	1	15
65-69	0	1	1	1	0	0	1	0	3	7
70& Up	0	0	0	0	0	0	0	0	0	0
Total	27	40	22	17	6	3	6	4	4	129

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	249	0	0	0	0	0	0	0	0	249
25-29	275	23	2	0	0	0	0	0	0	300
30-34	209	107	24	0	0	0	0	0	0	340
35-39	149	66	59	11	0	0	0	0	0	285
40-44	130	67	47	43	11	1	0	0	0	299
45-49	126	80	81	59	73	15	2	0	0	436
50-54	120	92	61	79	80	48	8	2	0	490
55-59	98	114	81	54	85	41	13	4	0	490
60-64	50	65	68	39	47	19	6	17	1	312
65-69	10	17	11	9	6	5	2	3	3	66
70& Up	2	6	2	3	3	0	0	1	0	17
Total	1,418	637	436	297	305	129	31	27	4	3,284

Section 3 *(continued)*
3.5 Distributions of Inactive Members

Deferred Vested and Nonvested

	Years Since Term								
Account Balance	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21+	Total
0-1,000	111	119	141	248	129	51	0	0	799
1,000-5,000	188	148	110	133	123	21	0	0	723
5,000-10,000	179	73	39	28	48	9	1	1	378
10,000-25,000	157	70	37	32	55	18	2	7	378
25,000-50,000	92	46	6	18	33	7	2	0	204
50,000-75,000	19	14	5	9	7	3	2	0	59
75,000-100,000	11	2	1	1	1	2	0	0	18
100,000+	7	0	1	0	1	1	0	0	10
Total	764	472	340	469	397	112	7	8	2,569

Retirees, Beneficiaries and Disabled

	Years Receiving Benefit								
Age	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35+	Total
Under 55	64	16	7	4	0	0	0	0	91
55-60	255	56	12	4	0	1	0	0	328
60-65	457	181	94	10	1	0	0	0	743
65-70	332	267	192	56	0	2	0	0	849
70-75	101	178	200	92	0	0	0	0	571
75-80	33	42	122	227	23	2	1	1	451
80-85	10	11	26	174	100	21	5	0	347
85-90	1	2	5	44	101	92	2	1	248
90+	1	1	1	6	11	84	80	17	201
Total	1,254	754	659	617	236	202	88	19	3,829

Section 3 *(continued)*
3.6 Actuarial Basis

Summary of Actuarial Assumptions and Methods

Interest

8% per annum.

Participant account interest crediting rate

5% per annum.

Expenses

The rate of interest assumed is net of total expenses.

Mortality

Mortality tables mandated by the Pension Protection Act as specified in IRS Regulation 1.430(h)(3)-1, applied on a static basis, projected 7 years from the valuation date for annuitants and 15 years for non-annuitants. Rates are shown for pre-commencement in Table 1 and post-commencement in Table 2.

Disability Mortality

The RP-2000 Disability Mortality Table is used for disabled participants. Rates are shown in Table 6.

Withdrawal

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

Year of Membership	Withdrawal Rate
1st	27.0
2nd	24.0
3rd	21.0
4th	18.0
5th	15.0
6th	13.0
7th	11.0
8th	9.0

The rates used after the first eight years of membership are shown in Table 3.

Section 3 *(continued)*
3.6 Actuarial Basis

Salary scale

Salaries are assumed to increase at the rate of 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 5.

Retirement

Retirements occur at rates based on the actual experience of the retirement system. The age-related rates used are shown in Table 4. However, 20% of participants are assumed to retire in their first year of eligibility for normal retirement, which is the earlier of age 60 and 5 years of creditable service or 75 credits.

Family Structure

All participants are assumed to be married and female spouses are assumed to be four years younger.

Usage of Cash-out Option

Participants terminating in vested status are given the option of taking a refund of their accumulated participant contributions (and thereby forfeiting the employer-provided benefit) or deferring their vested 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.

Deferred Vested Liability

The value of deferred vested liabilities is 150% of the total value of individual participant account balances to reflect the fact that some members will take a deferred annuity.

Amortization Basis

In determining the annual required contribution, the funding shortfall or surplus is amortized over a 30-year open period, based on a level dollar payment.

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 3 *(continued)*

3.6 Actuarial Basis

Actuarial Method – Entry Age Actuarial Cost

Liabilities and contributions shown in the report are computed using the Entry Age Actuarial Cost method of funding. Any funding surpluses or unfunded accrued liability is amortized over 30 years as a level dollar amount. However, in keeping with GASB requirements, the net amortization period will not exceed 30 years.

Projected pension and preretirement spouse's death benefits were determined for all active members. Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year for pension benefits from the assumed entry age to the assumed retirement age were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members and determining an average normal cost rate which is then related to the total payroll of active members. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for retired members and their beneficiaries currently receiving benefits, terminated vested members and disabled members not yet receiving benefits was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date.

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

Valuation of Assets

Effective January 1, 2009, the asset valuation method recognizes 20% of the investment gain or loss in the market value of assets in each of the current and preceding four years. This method will be phased in over five years. Assets are initialized at market value as of January 1, 2008. All assets are valued at market value. Assets are accounted for on an accrued basis and are taken directly from financial statements provided. There is no minimum or maximum corridor applied.

Section 3 *(continued)*
3.6 Actuarial Basis

Changes from the Prior Valuation

The mortality table for non-disabled members was changed from the RP-2000 Combined Healthy Lives Mortality Table to the IRS Static Mortality Table mandated for use by private pension plans. This uses a separate table for pre-commencement and post-commencement.

The mortality table for disabled members was changed from the RP-2000 Combined Healthy Lives Mortality Table set forward five years to the RP-2000 Disability Mortality Table.

The withdrawal rates were changed to better reflect Plan experience

The retirement rates were changed to better reflect Plan experience

The age difference for female spouses was changed from five years younger to four years younger.

3.6 Actuarial Basis

Table 1
Mortality Rates for Pre-Commencement
Annual Rates Per 1,000 Members

	Rate			Rate	
Age	**Male**	**Female**	**Age**	**Male**	**Female**
20	0.206	0.124	60	3.156	3.433
21	0.219	0.121	61	3.579	3.743
22	0.230	0.122	62	3.935	4.007
23	0.248	0.127	63	4.423	4.401
24	0.264	0.134	64	4.803	4.742
25	0.287	0.141	65	5.175	5.084
26	0.321	0.154	66	5.688	5.421
27	0.334	0.161	67	6.039	5.750
28	0.343	0.170	68	6.198	6.066
29	0.360	0.179	69	6.499	6.366
30	0.388	0.201	70	6.597	6.649
31	0.436	0.247	71	7.444	7.258
32	0.491	0.282	72	9.138	8.476
33	0.551	0.309	73	11.679	10.303
34	0.613	0.332	74	15.067	12.739
35	0.675	0.352	75	19.302	15.784
36	0.735	0.371	76	24.384	19.438
37	0.790	0.389	77	30.313	23.701
38	0.819	0.409	78	37.089	28.573
39	0.845	0.431	79	44.712	34.054
40	0.869	0.469	80	53.179	40.147
41	0.895	0.515	81	60.671	44.435
42	0.926	0.567	82	69.094	49.260
43	0.964	0.623	83	77.020	54.696
44	1.008	0.684	84	87.312	60.831
45	1.059	0.727	85	96.919	69.078
46	1.104	0.770	86	107.454	78.529
47	1.153	0.812	87	121.344	89.273
48	1.203	0.878	88	136.910	99.435
49	1.256	0.949	89	151.302	112.543
50	1.309	1.055	90	169.960	124.375
51	1.363	1.174	91	185.121	136.580
52	1.419	1.344	92	204.586	148.872
53	1.519	1.541	93	220.697	164.072
54	1.630	1.769	94	236.783	175.976
55	1.805	2.034	95	257.507	187.249
56	2.024	2.343	96	273.309	197.713
57	2.284	2.629	97	288.660	211.187
58	2.586	2.874	98	309.359	219.730
59	2.856	3.143	99	323.989	227.030

Section 3 *(continued)*

3.6 Actuarial Basis

Table 2
Mortality Rates for Post-Commencement
Annual Rates Per 1,000 Members

	Rate			Rate	
Age	**Male**	**Female**	**Age**	**Male**	**Female**
20	0.206	0.124	60	6.033	5.637
21	0.219	0.121	61	6.754	6.290
22	0.230	0.122	62	7.440	6.991
23	0.248	0.127	63	8.378	7.736
24	0.264	0.134	64	9.270	8.542
25	0.287	0.141	65	10.266	9.422
26	0.321	0.154	66	11.595	10.376
27	0.334	0.161	67	12.837	11.401
28	0.343	0.170	68	13.923	12.520
29	0.360	0.179	69	15.380	13.776
30	0.388	0.201	70	16.663	15.221
31	0.436	0.247	71	18.437	16.572
32	0.491	0.282	72	20.417	18.432
33	0.551	0.309	73	22.802	20.100
34	0.613	0.332	74	25.438	22.277
35	0.675	0.352	75	28.943	24.128
36	0.735	0.371	76	32.259	26.583
37	0.790	0.389	77	36.581	29.844
38	0.819	0.409	78	41.439	32.898
39	0.845	0.431	79	46.947	36.320
40	0.869	0.409	80	53.179	40.147
41	0.922	0.515	81	60.671	44.435
42	1.028	0.567	82	69.094	49.260
43	1.187	0.623	83	77.020	54.696
44	1.399	0.684	84	87.312	60.831
45	1.664	0.732	85	96.919	69.078
46	1.928	0.828	86	107.454	78.529
47	2.353	0.972	87	121.344	89.273
48	2.777	1.164	88	136.910	99.435
49	3.254	1.404	89	151.302	112.543
50	3.786	1.692	90	169.960	124.375
51	3.840	1.810	91	185.121	136.580
52	3.845	2.025	92	204.586	148.872
53	3.898	2.302	93	220.697	164.072
54	3.949	2.635	94	236.783	175.976
55	4.101	3.031	95	257.507	187.249
56	4.337	3.501	96	273.309	197.713
57	4.652	3.987	97	288.660	211.187
58	5.075	4.474	98	309.359	219.730
59	5.509	5.029	99	323.989	227.030

Section 3 *(continued)*
3.6 Actuarial Basis

Table 3
Withdrawal Rates
Annual Rates Per 1,000 Members

Age	Rate	Age	Rate
20	122.0	45	47.0
21	122.0	46	46.0
22	122.0	47	45.0
23	122.0	48	44.0
24	122.0	49	43.0
25	122.0	50	42.0
26	116.0	51	41.0
27	110.0	52	40.0
28	104.0	53	39.0
29	98.0	54	38.0
30	92.0	55	38.0
31	86.0	56	38.0
32	80.0	57	38.0
33	77.0	58	38.0
34	74.0	59	38.0
35	71.0	60	38.0
36	68.0	61	0.0
37	65.0	62	0.0
38	62.0	63	0.0
39	59.0	64	0.0
40	56.0		
41	53.0		
42	50.0		
43	49.0		
44	48.0		

Section 3 *(continued)*

3.6 Actuarial Basis

Table 4
Retirement Rates
Annual Rates Per 1,000 Members

Age	Rate
45	50.0
46	50.0
47	50.0
48	50.0
49	50.0
50	50.0
51	50.0
52	50.0
53	50.0
54	50.0
55	50.0
56	50.0
57	50.0
58	50.0
59	50.0
60	120.0
61	120.0
62	250.0
63	150.0
64	200.0
65	350.0
66	250.0
67	250.0
68	250.0
69	250.0
70	1000.0

Section 3 *(continued)*

3.6 Actuarial Basis

Table 5
Disability Rates
Annual Rates Per 1,000 Members

Age	Rate	Age	Rate
20	0.0	45	1.5
21	0.1	46	1.7
22	0.2	47	1.9
23	0.3	48	2.1
24	0.4	49	2.3
25	0.5	50	2.5
26	0.6	51	2.8
27	0.7	52	3.1
28	0.8	53	3.4
29	0.9	54	3.7
30	1.0	55	4.0
31	1.0	56	4.2
32	1.0	57	4.4
33	1.0	58	4.6
34	1.0	59	4.8
35	1.0	60	5.0
36	1.0	61	5.0
37	1.0	62	5.0
38	1.0	63	5.0
39	1.0	64	5.0
40	1.0	65	0.0
41	1.1		
42	1.2		
43	1.3		
44	1.4		

Section 3 *(continued)*

3.6 Actuarial Basis

Table 6
Post-Disability Mortality Rates
Annual Rates Per 1,000 Members

Age	Rate Male	Rate Female	Age	Rate Male	Rate Female
20	0.000	0.000	60	42.042	21.839
21	22.571	7.450	61	43.474	22.936
22	22.571	7.450	62	44.981	24.080
23	22.571	7.450	63	46.584	25.293
24	22.571	7.450	64	48.307	26.600
25	22.571	7.450	65	50.174	28.026
26	22.571	7.450	66	52.213	29.594
27	22.571	7.450	67	54.450	31.325
28	22.571	7.450	68	56.909	33.234
29	22.571	7.450	69	59.613	35.335
30	22.571	7.450	70	62.583	37.635
31	22.571	7.450	71	65.841	40.140
32	22.571	7.450	72	69.405	42.851
33	22.571	7.450	73	73.292	45.769
34	22.571	7.450	74	77.512	48.895
35	22.571	7.450	75	82.067	52.230
36	22.571	7.450	76	86.951	55.777
37	22.571	7.450	77	92.149	59.545
38	22.571	7.450	78	97.640	63.545
39	22.571	7.450	79	103.392	67.793
40	22.571	7.450	80	109.372	72.312
41	22.571	7.450	81	115.544	77.135
42	22.571	7.450	82	121.877	82.298
43	22.571	7.450	83	128.343	87.838
44	22.571	7.450	84	134.923	93.794
45	22.571	7.450	85	141.603	100.203
46	23.847	8.184	86	148.374	107.099
47	25.124	8.959	87	155.235	114.512
48	26.404	9.775	88	162.186	122.464
49	27.687	10.634	89	169.233	130.972
50	28.975	11.535	90	183.408	140.049
51	30.268	12.477	91	199.769	149.698
52	31.563	13.456	92	216.605	159.924
53	32.859	14.465	93	233.662	170.433
54	34.152	15.497	94	250.693	182.799
55	35.442	16.544	95	267.491	194.509
56	36.732	17.598	96	283.905	205.379
57	38.026	18.654	97	299.852	215.240
58	39.334	19.710	98	315.296	223.941
59	40.668	20.768	99	330.207	231.387