# PUBLIC SCHOOL RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS <br> MINUTES OF THE BOARD OF TRUSTEES REGULAR MEETING 

June 25, 2012

## I. ROLL CALL AND ANNOUNCEMENT OF A QUORUM

The June meeting of the Board of Trustees of the Public School Retirement System of the City of St. Louis (PSRSSTL) was called to order at 5:10 p.m., Monday, June 25, 2012. The meeting was conducted in the $2^{\text {nd }}$ floor boardroom of the PSRSSTL office building located at 3641 Olive Street, St. Louis, Missouri. Joseph Clark, Chairman of the Board of Trustees, was the presiding officer.

Roll Call was taken and Trustees Christina Bennett, Joseph Clark, Thaha Menkara, Charles Shelton, Rick Sullivan and Eural Thomas were present. The Board of Trustees had a quorum at the meeting. Trustees Sheila Goodwin, Mona Lawton, Yvette Levy and Sarah Sise were absent.

Executive Director, Andrew Clark, Accounting Specialist, Terry Mayes, Insurance Benefits Specialist, John Henderson, PSRSSTL Attorney Representative, Jay Kimmey, PSRSSTL Actuary, Steve Siepman, Buck Consultants Representative, Mike Mills, PSRSSTL Health Insurance Consultant, Patrick Haraden, and several interested parties were also in attendance.

## II. APPROVAL OF MINUTES FROM LAST MEETING

Rick Sullivan made a motion, seconded by Charles Shelton, to approve the minutes of the Board of Trustees Regular Meeting of April 16, 2012.

By voice vote, motion carried.

## III. SEATING OF NEW MEMBERS

The Chairperson welcomed Eural Thomas to the Board of Trustees. Mr. Thomas was elected as an Active Non-Teacher Trustee.

The Chairperson acknowledged Sheila Goodwin as an elected Active Teacher Trustee.

## IV. READING OF COMMUNICATIONS TO THE BOARD OF TRUSTEES

None

## V. PRESENTATIONS BY INTERESTED PARTIES

None

## VI. CONSENT AGENDA

Christina Bennett made a motion, seconded by Thaha Menkara, to approve the Retirements and Benefits of April and May 2012.

By voice vote, motion carried.

Christina Bennett made a motion, seconded by Charles Shelton, to approve the Refunds and Bills of April and May 2012.

By voice vote, motion carried.

## VII. UNFINISHED BUSINESS

None

## VIII. REPORT OF THE CHAIRPERSON

None

## IX. REPORT OF THE EXECUTIVE DIRECTOR

The Executive Director reported that Trustees Joe Clark and Charles Shelton attended the NEPC Client Conference in May; that Trustees Christina Bennett, Joe Clark, Thaha Menkara and Eural Thomas attended the recent annual NASP convention; and that he attended the annual System Director's Meeting sponsored by NCTR during the week of June 10, 2012.

The Executive Director introduced the Health Insurance Consultant, Patrick Haraden, whom made a presentation on the retirement system's current health insurance plans, the annual renewal and planning process, the outlook for the health insurance industry in approaching years, and the timeline for the retirement system's 2013 insurance plan renewals. There was discussion amongst the Trustees regarding the effects of an increase in the health insurance subsidy on PSRSSTL and the school district. All questions were answered to the satisfaction of the Board of Trustees.

## X. REPORT OF THE INVESTMENT CONSULTANT

None

## XI. REPORT OF THE ACTUARY

The Actuary and the Buck Consultants Representative presented the annual Actuarial Valuation Report as of January 1, 2012, by reviewing a discussion document projected onto a screen for the audience. The Actuary explained the two main purposes of the report as the disclosure of the actuarial condition of the Fund and the determination of the required annual employer contributions from the Board of Education, the Retirement System, and the Charter Schools. Other topics included fund reporting impacts as a result of the soon to be adopted new GASB rules and the Actuary's expectation for continued increases in contribution levels.

There was discussion regarding the conditions leading to the larger than usual increase in employer contributions that included fund investment performance and the changes in actuarial assumptions adopted by the Trustees in late 2011. The discussion continued with respect to the various funding ratios and the expectation that the retirement system's actuarial funding ratio will continue to decrease to more closely match the market value funding ratio. The Actuary answered all questions to the satisfaction of the Trustees.

Christina Bennett made a motion, seconded by Charles Shelton, to approve the January 1, 2012 Actuarial Valuation Report as presented by the Actuary.

By voice vote, motion carried.
The Actuary presented a Report on COLA Costs for a $2 \%, 2.5 \%$ or $3 \%$ COLA for retirees based on the Actuarial Valuation Report as of January 1, 2012. There was extensive discussion on various issues with regard to COLAs amongst the Trustees.

Christina Bennett announced that she needed to leave the meeting and made a motion to adjourn; the motion was seconded by Rick Sullivan.

By voice vote, motion carried, and the meeting adjourned at 6:30 p.m.
Attachments:
Retirements, Refunds \& Bills Paid April and May 2012
Actuarial Valuation Report for January 1, 2012 \& Presentation Document

## APPLICATIONS FOR RETIREMENT

NAME \}
POSITION
Charles Boehme
Teacher

Torris Caston
Teacher

Jonathon Jones
Custodian

Darlene McGhee
Administrative Assistant

Joseph Moore, Jr.
Teacher

Margaret Robinson
Teacher

| RETIREMENT |  | CREDITED | FINAL AVG | MONTHLY |
| :---: | :---: | :---: | :---: | :---: |
| DATE | TYPE | SERVICE | SALARY | BENEFIT |
| Mar 1,2012 | Normal | 24.4334 | $\$ 62,420.52$ | $\$ 1,992.86$ |

$\begin{array}{lllll}\text { Mar 1, } 2012 & \text { Normal } 24.3889 & \$ 67,713.60 & \$ 1,585.40\end{array}$

Mar 1, 2012 Early
$20.5281 \quad \$ 44,346.73$
\$1,407.67

Mar 1, 2012 Normal
$28.4789 \quad \$ 34,871.03$
\$1,655.15

Mar 1, 2012 Normal
7.0944
\$53,774.21
$\$ 635.83$

To be Authorized and Approved by the Board of Trustees

## APPLICATIONS FOR RETIREMENT

NAME $\backslash$ POSITION

Gail Ahrens Nutritionist

Marie Ashley
Office Manager

Karen Darris
Teacher

Marvin Douglas
Teacher

Cheryl Mikolaszuk
Teacher

Norman Titus
Teacher

Joy Whitaker-Williams Teacher

| RETIREMENT |  |
| :---: | :---: |
| DATE | TYPE |
| Apr 1, 2012 | Normal |


| CREDITED <br> SERVICE | FINAL AVG <br> SALARY | MONTHLY <br> BENEFIT |
| :---: | :---: | :---: |
| 21.2556 | $\$ 45,622.41$ | $\$ 1,616.22$ |

Apr 1, $2012 \quad$ Early
5.1826
\$32,261.65
$\$ 243.06$

Apr 1, 2012
Early
17.8611
\$69,392.47
\$1,572.20

Apr 1, 2012 Early
18.5555
\$67,081.17
\$1,480.72

Apr 1, 2012 Normal
9.7666
\$49,916.15
\$812.52
Apr 1, 2012
Disability
30.0000
\$63,116.83
\$3,155.84
Distributions - April 2012

| CHECK <br> NUMBER | CHECK DATE | LAST NAME | FIRST NAME/MI | $\begin{gathered} \text { GROSS } \\ (\mathrm{B}+\mathrm{C}) \\ \hline \end{gathered}$ | $\begin{gathered} \text { FEDERAL } \\ \text { TAXES } \\ \text { W/H } \\ \hline \end{gathered}$ | $\begin{aligned} & \text { NET } \\ & \text { PAY } \end{aligned}$ | STATUS A(ctive) R(etired) | REASON D(eath) S(eparation) | NOTES |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 063622 | 09/01/09 | ANSTAETT | KATHRYN | $(3,578.10)$ |  | (3,578.10) | A | S | VOID AND REISUSE |
| 066806 | 04/13/12 | BURRELL | DIONNE P | 3,411.12 | 682.22 | 2,728.90 | A | S | CA |
| 066807 | 04/13/12 | GARDNER | DECLAN | 4,715.91 | 943.18 | 3,772.73 | A | S | IAAS |
| 066808 | 04/13/12 | HALLER JR | DALE W | 649.51 | 129.90 | 519.61 | A | S | IACM |
| 066809 | 04/13/12 | JONES | DELEANDREA | 2,989.17 | 597.83 | 2,391.34 | A | S | IAAS |
| 066810 | 04/13/12 | SEALS | KACY | 46,253.86 | 9,250.77 | 37,003.09 | A | S | SLPS-42217.18/CA 4036.68 |
| 066811 | 04/13/12 | VALLEROY | MISTI | 6,310.16 |  | 6,310.16 | A | S | CA |
| 066812 | 04/13/12 | VANCE | CHRISTOPHER | 13,782.52 | 2,756.50 | 11,026.02 | A | S | LFL-12608.69/ IESM-1173.83 |
| 066813 | 04/13/12 | WILKERSON | CARISSA | 1,958.64 | 391.73 | 1,566.91 | A | S | IACE |
| 066814 | 04/13/12 | BOEKENKROEGER | DARLENE G | 18,132.15 | 3,626.43 | 14,505.72 | A | S |  |
| 066815 | 04/13/12 | REID | ANDREA T | 32,270.76 | 6,454.15 | 25,816.61 | A | S |  |
| 066816 | 04/13/12 | SCHMIDT | DEANNA | 16,193.16 |  | 16,193.16 | A | S |  |
| 066817 | 04/13/12 | SMITH | TAMMY | 7,273.44 | 1,454.69 | 5,818.75 | A | S |  |
| 066818 | 04/13/12 | WESTBROOK | LATASHA | 400.87 | 40.09 | 360.78 | A | D | DEC: THOMAS FOSTER |
| 066819 | 04/13/12 | GREZINGER | KELLIE | 23,439.74 | 2,343.97 | 21,095.77 | A | D | DEC: ED GREZINGER |
| 066820 | 04/20/12 | CARTER | BARBARA A | 611.31 | 122.26 | 489.05 | A | S |  |
| 066821 | 04/20/12 | DEE | DARRELL | 39,340.99 | 7,624.30 | 31,716.69 | A | S |  |
| 066822 | 04/20/12 | HESTER | ANGELA | 15,800.20 | 3,160.04 | 12,640.16 | A | S |  |
| 066823 | 04/20/12 | JONES | CHRISTOPHER | 1,673.05 | 334.61 | 1,338.44 | A | S |  |
| 066824 | 04/20/12 | MARKWAY | STEPHEN | 12,165.55 |  | 12,165.55 | A | S |  |
| 066825 | 04/20/12 | ROBERTS | PEGGY | 6,708.57 | 1,341.71 | 5,366.86 | A | S |  |
| 066826 | 04/20/12 | ARNOLD | DAVID | 3,545.68 | 709.14 | 2,836.54 | A | S | IAAS |
| 066827 | 04/20/12 | EDISON | LISA | 632.81 | 126.56 | 506.25 | A | S | IAAS |
| 066828 | 04/20/12 | MACK | JAY | 192.32 |  | 192.32 | A | S | IAAS |
| 066849 | 04/26/12 | HARBISON | JYLL | 753.46 | 150.69 | 602.77 | A | S | IACA |
| 066850 | 04/26/12 | STILES | LADORIS | 7,026.10 | 1,405.22 | 5,620.88 | A | S | IESM |
| 066851 | 04/26/12 | TATUM | PAMELA | 14,752.88 | 2,950.58 | 11,802.30 | A | S | CA |
| 066852 | 04/26/12 | WATSON | RHONDA | 13,794.88 | 2,758.98 | 11,035.90 | A | S |  |
| 066853 | 04/26/12 | WIGEN-TOCCALINO | RACHEL | 4,634.85 | 926.97 | 3,707.88 | A | S |  |
| 066854 | 04/26/12 | VEAL | ESPERANSA G | 15,000.00 |  | 15,000.00 | A | S |  |
| 066855 | 04/26/12 | VEAL | ESPERANSA G | 29,824.36 | 5,964.87 | 23,859.49 | A | S |  |
| 066856 | 04/26/12 | REESE | KIMBERLY | 5,944.18 | 594.42 | 5,349.76 | A | D | DEC: LEVELDA REESE |
| 066858 | 04/26/12 | ANSTAETT | KATHRYN | 3,578.10 |  | 3,578.10 | A | S | VOID AND REISUSE |
| 066859 | 04/26/12 | BROWN | PATRICIA | 5,950.28 | 1,190.06 | 4,760.22 | A | S | IESM |
|  |  |  | TOTAL | \$356,132.48 | \$58,031.87 | \$ 298,100.61 |  |  |  |

Distributions - May 2012

| CHECK <br> NUMBER | CHECK <br> DATE | LAST NAME | FIRST NAME/MI | $\begin{gathered} \text { GROSS } \\ (\mathrm{B}+\mathrm{C}) \\ \hline \end{gathered}$ | FEDERAL <br> TAXES W/H | $\begin{aligned} & \text { NET } \\ & \text { PAY } \end{aligned}$ | STATUS <br> A(ctive) <br> R(etired) | REASON D(eath) S(eparation) | NOTES |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 066824 | 04/20/12 | MARKWAY | STEPHEN | $(12,165.55)$ |  | (12,165.55) | A | S | VOID AND REISSUE |
| 066854 | 04/26/12 | VEAL | ESPERANSA G | $(15,000.00)$ |  | (15,000.00) | A | S | VOID AND REISSUE |
| 066865 | 05/04/12 | VEAL | ESPERANSA G | 15,000.00 | 3,000.00 | 12,000.00 | A | S | VOID AND REISSUE |
| 066866 | 05/04/12 | COVINGTON | JERI L | 147.28 |  | 147.28 | A | S | ICP |
| 066867 | 05/04/12 | CROCCO | KRISTEN M | 16,379.65 |  | 16,379.65 | A | S | SLPS/CA |
| 066868 | 05/04/12 | GLENN JR. | JOHN E | 30,992.94 | 6,198.59 | 24,794.35 | A | S |  |
| 066869 | 05/04/12 | MAY | FRANK A | 3,500.00 |  | 3,500.00 | A | S |  |
| 066870 | 05/04/12 | MAY | FRANK A | 1,455.38 | 291.08 | 1,164.30 | A | S |  |
| 066871 | 05/04/12 | REYNOLDS | RICHARD | 597.62 | 119.52 | 478.10 | A | S |  |
| 066872 | 05/04/12 | SCHUITEMA | RYAN W | 7,151.59 | 1,430.32 | 5,721.27 | A | S | IESM |
| 066873 | 05/04/12 | BAKER | TANYA L | 1,780.22 | 356.04 | 1,424.18 | A | S | PA |
| 066912 | 05/11/12 | HOWARD | RUBY G | 10,500.00 |  | 10,500.00 | A | S |  |
| 066913 | 05/11/12 | HOWARD | RUBY G | 14,019.58 | 2,803.92 | 11,215.66 | A | S |  |
| 066914 | 05/11/12 | JACKSON JR | MELVIN | 13,871.99 | 2,774.40 | 11,097.59 | A | S |  |
| 066915 | 05/11/12 | RUSSO | RICHARD A | 2,426.47 |  | 2,426.47 | A | S |  |
| 066916 | 05/11/12 | HESTER | LINDA M | 16,327.07 | 3,265.41 | 13,061.66 | A | S | SLP 5476.54, CA 10850.53 |
| 066917 | 05/11/12 | JOHNSON | ANN | 8,507.97 | 1,701.59 | 6,806.38 | A | S | PA |
| 066918 | 05/11/12 | LOVE | VALERIE C | 782.56 | 156.51 | 626.05 | A | S | CA |
| 066919 | 05/11/12 | PURDY | ROBERT | 128.61 |  | 128.61 | A | S | IAAS |
| 066920 | 05/11/12 | SCHULER | SHANTE L | 2,851.77 | 570.35 | 2,281.42 | A | S | CA |
| 066921 | 05/11/12 | TANIGUCHI | KEVIN | 2,070.85 |  | 2,070.85 | A | S | AQS-GC |
| 066922 | 05/18/12 | DAVIS | ROXANE | 28,897.01 | 5,779.40 | 23,117.61 | A | S |  |
| 066923 | 05/18/12 | WRIGHT | PAMELA | 2,083.41 | 416.68 | 1,666.73 | A | S | IACE |
| 066924 | 05/18/12 | MARKWAY | STEPHEN | 9,002.93 |  | 9,002.93 | A | S | VOID AND REISSUE |
| 066925 | 05/18/12 | MARKWAY | STEPHEN C | 3,162.62 |  | 3,162.62 | A | S | VOID AND REISSUE |
| 066943 | 05/25/12 | BUDDE | HANNAH E. | 4,914.25 |  | 4,914.25 | A | S |  |
| 066944 | 05/25/12 | PRITCHARD | DANA | 7,177.43 |  | 7,177.43 | A | S | CA |
| 066945 | 05/25/12 | PRITCHARD | DANA | 5,000.00 | 1,000.00 | 4,000.00 | A | S | CA |
| 066946 | 05/25/12 | STARNES | ANNA | 619.65 | 123.93 | 495.72 | A | S |  |
| TOTAL |  |  |  | \$ 182,183.30 | \$29,987.74 | \$ 152,195.56 |  |  |  |


| Payee |
| :--- |
| Date Paid April 5, 2012 |


| Ameren UE | 66789 |
| :--- | :--- |
| Longfellow Benefits | 66790 |
| BuildingStars STL Operations, Inc. | 66791 |
| Eazy Business Mailers, Inc. | 66792 |
| Void Check | 66793 |
| Minuteman Press | 66794 |
| Sungard Availability Services, LP | 66795 |
| Bartley Goffstein, L.L.C. | 66796 |
| Cintas Corporation | 66797 |
| PMI Computer Supplies | 66798 |
| Gregory F.X. Daly, Collector of Revenue | 66799 |
| Mitel Technology | 66800 |
| Delta Pest Stl. Inc. | 66801 |
| Allied Waste Services \#346 | 66802 |
| Board of Education St. Louis Benefits Trust | 66803 |
| Board of Education St. Louis Benefits Trust | 66804 |
| Board of Education St. Louis Benefits Trust | 66805 |


| Electric Service | $1,415.06$ |
| :--- | ---: |
| Group Insurance Consulting Services | $3,320.25$ |
| Janitorial Services and Supplies | $1,656.03$ |
| Postage | 220.00 |
|  | 0.00 |
| Window Envelopes | 615.14 |
| Hosting Services Bundle 04/01/12-04/21/12 | 697.00 |
| Legal Fees | $4,109.75$ |
| Infoport | 406.10 |
| Office Supplies | 347.10 |
| City Earnings Tax - First Quarter 2012 | 910.05 |
| Time Change - Daylight Savings Time | 132.50 |
| Pest Control | 50.00 |
| Traqsh Pick Up | 319.05 |
| Office Employees Insurance - Dental | 210.92 |
| Office Employees Insurance - Vision | 15.37 |
| Office Employees Insurance - Life | 110.95 |

Date Paid April 6, 2012

## Office Payroll <br> AXA Equitable

Date Paid April 20, 2012

Office Payroll
457 Contributions
ACH

66829
66830
66831
66832
66833
66834
66835
66836
66837
66838
66839
66840
66841
66842
66843
66844
66845
66846
66847
ACH
ACH
April Storage
88.91
63.85

6,966.00
219.84
63.78
952.33

20,000.00
7,549.90
277.11

3,807.00
132.50
200.00

6,245.00
27.02
204.02
40.00

68,458.67
27,618.19
59,601.80
10,289.34
2,350.00

TOTAL

Public School Retirement System of the City of St. Louis
Checks Written During the Month of May, 2012
Payee
Date Paid May 4, 2012

| Office Payroll | ACH |
| :--- | ---: |
| AXA Equitable | ACH |
| St. Louis Parking Company | 66860 |
| Joseph W. B. Clark, Jr. | 66861 |
| Joseph W. B. Clark, Jr. | 66862 |
| Charles L. Shelton, Jr. | 66863 |
| Grever |  |

Date Paid May 7, 2012

| Ameren UE | 66874 |
| :--- | :--- |
| Longfellow Benefits | 66875 |
| BuildingStars STL Operations, Inc. | 66876 |
| Eazy Business Mailers, Inc. | 66877 |
| Blade Technologies, Inc. | 66878 |
| Bartley Goffstein, L.L.C. | 66879 |
| Huber, Ring, Helm \& Co., P.C. | 66880 |
| Cintas Corporation | 66881 |
| PMI Computer Supplies | 66882 |
| St. Louis Record Center | 66883 |
| Evault Inc. | 66884 |
| Purchase Power | 66885 |
| GCI Security, Inc. | 66886 |
| Softchoice Corporation | 66887 |
| BarnesCare | 66888 |
| Arthur J. Gallagher Risk Management Services | 66889 |
| Department of Labor and Industrial Relations | 66890 |
| CBRE | 66891 |
| CBRE Technical Services | 66892 |
| Delta Pest Stl. Inc. | 66893 |
| SiteStuff, Inc. | 66894 |
| Tech Electronics, Inc. | 66895 |
| Tech Electronics, Inc. | 66896 |
| St. Louis Mat \& Linen Company | 66897 |
| Manulife Asset Management U.S. LLC | 66898 |
| New Amsterdam Partners, LLC | 66899 |
| The Edgar Lomax Company | 66900 |
| INTECH Investment Management LLC | 66901 |
| Westfield Capital Management Company, LP | 66902 |
| Causeway Capital Management LLC | 66903 |
| Mondrian Investment Partners Limited | 66904 |
| Batterymarch Financial Management, Inc. | 66905 |
| Chicago Equity Partners, LLC | 66906 |
| Mellon Capital Management Corporation | 66907 |
| Mellon Capital Management Corporation | 66908 |
| Board of Education St. Louis Benefits Trust | 66909 |
| Board of Education St. Louis Benefits Trust | 66910 |
| Board of Education St. Louis Benefits Trust | 66911 |
|  |  |


| Electric Service | $1,384.68$ |
| :--- | ---: |
| Group Insurance Consulting Services | $3,320.25$ |
| Janitorial Services and Supplies | $1,239.77$ |
| Postage | 210.00 |
| Service Agreement - May | $1,570.00$ |
| Legal Fees | $3,548.10$ |
| Audit of Financial Stmts, CAFR, Elections | $9,960.00$ |
| Infoport | 406.10 |
| Office Supplies | 599.11 |
| May Storage | 88.91 |
| Disaster Recovery Site | $1,006.64$ |
| Postage | $1,000.00$ |
| Security Guards, 04/06/2012 | 288.00 |
| Software | 388.18 |
| Patricia Maclin, Minnie Lowe | 200.00 |
| Fiduciary Liability \& Crime Insurance Premiums | $65,967.00$ |
| Employer Account Number 304810-0-510-6371 | $2,235.87$ |
| Management Fee - April | $1,027.72$ |
| Engineer Services | 762.25 |
| Pest Control | 50.00 |
| Supplies | 30.28 |
| Central Monitoring of Fire Alarm System | 87.00 |
| City Alarm Permit Fee | 55.00 |
| Floor Mats | 32.00 |
| 1st Quarter 2012 Management Fee | $39,560.62$ |
| 1st Quarter 2012 Management Fee | $24,922.95$ |
| 1st Quarter 2012 Management Fee | $42,105.74$ |
| 1st Quarter 2012 Management Fee | $36,598.99$ |
| 1st Quarter 2012 Management Fee | $53,206.54$ |
| 1st Quarter 2012 Management Fee | $65,099.01$ |
| 1st Quarter 2012 Management Fee | $51,628.14$ |
| 1st Quarter 2012 Management Fee | $28,606.21$ |
| 1st Quarter 2012 Management Fee | $44,837.82$ |
| 1st Quarter 2012 Management Fee | $1,319.65$ |
| 1st Quarter 2012 Management Fee | $74,266.76$ |
| Office Employees Insurance - Dental | 210.92 |
| Office Employees Insurance - Vision | 15.37 |
| Office Employees Insurance - Life | 110.95 |
|  |  |

## Date Paid May 18, 2012

| Office Payroll | ACH |
| :--- | :--- |
| AXA Equitable | ACH |

[^0]| Public School Retirement System of the City of St. Louis Checks Written During the Month of May, 2012 |  |  |  |
| :---: | :---: | :---: | :---: |
| Payee | Ck. Number | Description | Amount |
| Date Paid May 21, 2012 |  |  |  |
| Absopure Water Company | 66926 | Water Cooler Service | 88.75 |
| Buck Consultants, LLC | 66927 | Actuarial Consulting Services - April \& May | 6,066.00 |
| AT\&T | 66930 | Monthly Service Charge 314-652-1704 0334 | 219.84 |
| Eazy Business Mailers, Inc. | 66929 | Service \& Postage-Election Notice, Newsletter | 8,165.46 |
| Access Courier, Inc. | 66930 | Courier Service | 36.44 |
| MSD | 66931 | Sewer Service | 103.46 |
| Minuteman Press | 66932 | Newsletters and Envelopes | 1,378.88 |
| Pitney Bowes, Inc. | 66933 | Supplies | 175.08 |
| Konika Minolta Business Solutions USA Inc. | 66934 | Monthly Service | 1,027.58 |
| St. Louis Parking Company | 66935 | June Parking - 4 Employees | 240.00 |
| Andrew Clark | 66936 | Advance - NCTR Director's Meeting | 258.60 |
| NCTR | 66937 | Registration - System Director's Meeting | 900.00 |
| Allied Waste Service \#346 | 66938 | Trash Pick-Up | 316.67 |
| SiteStuff, Inc. | 66939 | Supplies | 66.58 |
| St. Louis Mat \& Linen Company | 66940 | Floor Mats | 32.00 |
| EARNEST Partners, LLC | 66941 | 1st Quarter 2012 Management Fee | 13,808.00 |
| US Bank | 66942 | 1st Quarter 2012 Custodial Fees | 38,846.81 |
|  |  | TOTAL | \$660,685.57 |

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

Actuarial Valuation Report

Plan Year January 1, 2012 - December 31, 2012
June, 2012

June 25, 2012
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, 2012 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, 2012;
(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, except for those noted in Section 4.7 under Changes from the Prior Valuation. All assumption changes that were recommended from the 2011 Experience Study were adopted for this valuation. A summary of all 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 fairly represent past and anticipated future experience of the System.

Mr. Andrew Clark
PSRS of the City of St. Louis
June 25, 2012
Page 2

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.


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, 2012;
- Determine the required contribution rate for 2013;
- 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 2011 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.

## Experience 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 because short-term deviations from expected long-term average experience are common.

For 2012, actuarial losses due to plan experience were $\$ 29.8$ million. $\$ 24.4$ million of the loss is attributable to the System's actuarial rate of return on assets which was $5.5 \%, 2.5 \%$ less than the assumed rate of return of $8.00 \%$. By comparison, the rate of return on the market value of assets was $-0.1 \%$. The difference in these returns is because the actuarial value of assets has not yet fully recognized the asset losses that occurred during recent years. At January 1, 2012, the actuarial value of assets at $\$ 925$ million remains above market value of assets (excluding the expense and contingency reserve) by approximately $\$ 87$ million. About $\$ 5.4$ million of the loss is attributable to demographic changes.

## Assumption Changes

For the 2012 valuation, several assumption changes were adopted by the Board based on the experience study conducted in late 2011. A detailed description of the changes appears in section 4.7. In total, the assumption changes increased actuarial liability by almost $\$ 47$ million. The majority of this increase is due to longer expected future lifetimes, resulting from anticipating future mortality improvements.

## Normal cost rate

The normal cost is determined annually and equals the product of the normal cost rate times covered payroll. For 2012, the annual normal cost due December 31, 2012 is $\$ 19,702,945$, as compared to $\$ 14,507,892$ for 2011, primarily due to the aforementioned actuarial loss and change of assumptions. The annual normal cost rate increased from $6.39 \%$ to $8.07 \%$ due to the experience losses and the changes in the actuarial assumptions. Covered payroll increased from $\$ 218.3$ million to $\$ 234.8$ 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 2011 were $\$ 4.5$ million more than the annual required contribution, which reduced the UFAAL more than expected. However, the changes in actuarial assumptions from the previous valuation increased the UFAAL by $\$ 47$ million. As a result, the amortization payment is increased from $\$ 11,420,766$ to $\$ 15,664,653$. The amortization payment component of the contribution rate increased from $5.3 \%$ to $6.7 \%$ 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 2013. The dollar amount of the actual contribution increased to $\$ 35,367,598$ for 2013 from $\$ 25,928,658$ for 2012. As a percentage of covered compensation, the contribution rate for 2013 increased to $15.07 \%$ from 11.88\% for 2012.

## Summary and Comparison of Principal Valuation Results

Annual Required Contribution

|  | Board of <br> Education | Retirement <br> System | Charter <br> Schools | Total |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| $\mathbf{2 0 1 2}$ |  |  |  |  |  |  |
| Normal cost contribution | $\$ 15,577,622$ | $\$ 50,896$ | $\$ 4,074,427$ | $\$$ | $19,702,945$ |  |
| Actuarial accrued liability contribution | $\underline{12,384,850}$ | $\underline{40,465}$ | $\underline{3,239,338}$ | $\$$ | $15,664,653$ |  |
| Annual required contribution | $27,962,472$ | 91,361 | $7,313,765$ | $\$$ | $35,367,598$ |  |
| Covered payroll | $185,606,968$ | 606,427 | $48,546,696$ | $\$ 234,760,091$ |  |  |
| ARC as \% of covered payroll | $15.07 \%$ | $15.07 \%$ | $15.07 \%$ |  | $15.07 \%$ |  |
| 2011 |  |  |  |  |  |  |
| Normal cost contribution |  |  |  |  |  |  |
| Actuarial accrued liability contribution | $\underline{9,155,618}$ | $\underline{32,552}$ | $\underline{2,232,596}$ | $\$$ | $11,420,766$ |  |
| Annual required contribution | $20,786,075$ | 73,902 | $5,068,681$ | $\$$ | $25,928,658$ |  |
| Covered payroll | $175,009,885$ | 622,220 | $42,676,134$ | $\$$ | $218,308,239$ |  |


|  | January 1, 2012 |  | January 1, 2011 |  |
| :---: | :---: | :---: | :---: | :---: |
| System Assets |  |  |  |  |
| Expense and contingency reserve | \$ | 29,564,563 | \$ | 29,480,465 |
| Market value, excluding expense \& contingency reserve |  | 838,521,455 |  | 908,113,738 |
| Actuarial value |  | 925,389,359 |  | 944,356,735 |
| System liabilities |  |  |  |  |
| Unfunded actuarial accrued liability | \$ | 164,929,347 | \$ | 121,914,117 |
| Projected benefit obligation | \$ | 1,155,851,532 | \$ | 1,115,338,412 |
| PBO Funding Ratio |  |  |  |  |
| Actuarial value funding ratio |  | 80.1\% |  | 84.7\% |
| Market value funding ratio |  | 72.5\% |  | 81.4\% |

## 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 2011 was $-0.1 \%$. The approximate actuarial value rate of return was $5.5 \%$.

## (2) Demographic Experience

The number of active members increased from 4,336 to 4,784 for the period. The average age of active members increased by .03 years, the average service decreased by 0.14 years, and the average annual salary decreased $\$ 1,288$. 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 decreased 2.6\% between January 1, 2011 and January 1, 2012. Total annual covered compensation increased 7.5\% between January 1, 2011 and January 1, 2012, due to the increase 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 adopted. Assumptions that were changed were the mortality tables, retirement rates, and termination rates. Details of these assumption changes can be found in Section 4.7. The net effect of changes was to increase the actuarially required employer contribution by $2.36 \%$ 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 experience during the period, along with the changes in assumptions, resulted in a decrease in the funding ratio from $84.7 \%$ to $80.1 \%$. The total contribution rate increased from $11.88 \%$ to $15.07 \%$ of covered payroll.

## Section 1 <br> 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, 2012
Section 1.5 Projected benefit obligation funding ratios
Section 1.6 Projected benefit obligation funded status
Section $1.7 \quad$ 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, 2011
2. Normal cost due January 1, 2011
3. Interest on (1) and (2) at $8.0 \%$ to December 31, 2011
4. Employer contributions for 2011
5. Interest on (4) at $8.0 \%$ to December 31, 2011
6. Supplement for changes in actuarial assumptions or benefits
7. Unfunded frozen actuarial accrued liability as of January 1, 2012, $(1)+(2)+(3)-(4)-(5)+(6)$

164,929,347
8. Actuarial accrued liability contribution for 2012

15,664,653

## Section 1 (continued)

### 1.2 Determination of Normal Cost Contribution

1. Actuarial present value of future benefits
a. Active participants
i. Retirement benefits
\$401,077,068
ii. Vested withdrawal benefits

40,245,353
iii. Refund of contributions 4,195,638
iv. Survivor benefits 5,606,590
v. Disability benefits

10,519,447
\$ 461,644,096
827,678,101
b. Retired participants and beneficiaries
c. Inactive participants
i. Vested participants 17,855,259
ii. Nonvested participants $\quad \underline{4,965,167}$

Total
22,820,426
d. Total actuarial present value of future benefits
\$1,312,142,623
2. Unfunded frozen actuarial accrued liability as of January 1, 2012

164,929,347
3. Actuarial value of assets as of December 31, 2011

925,389,359
4. Actuarial present value of future participant contributions
5. Actuarial present value of future employer normal costs,
(1)(d) - (2) - (3) - (4), not less than \$0

136,993,673
6. Actuarial present value of future covered compensation of current participants

1,696,604,883
7. Employer normal cost rate, (5) / (6)
8. Total covered compensation

234,760,091
9. Normal cost for 2012, (7) x (8)
10. Normal cost contribution due by December 31, 2012, (9) $\times[1+(0.08 \times 0.5)]$

19,702,945

## Valuation Results

## Section 1 (continued)

### 1.3 Required Annual Contribution

|  | Board of <br> Education | Retirement <br> System | Charter <br> Schools | Total |  |
| :--- | ---: | :---: | :---: | :---: | :---: |
| Normal cost contribution | $\$ 15,577,622$ | $\$ 50,896$ | $\$ 4,074,427$ | $\$$ | $19,702,945$ |
| Actuarial accrued liability <br> contribution | $\underline{12,384,850}$ | $\underline{40,465}$ | $\underline{3,239,338}$ | $\$$ | $\underline{15,664,653}$ |
| Annual required <br> contribution (ARC) | $27,962,472$ | 91,361 | $7,313,765$ | $\$$ | $35,367,598$ |
| Covered compensation | $185,606,968$ | 606,427 | $48,546,696$ | $\$ 234,760,091$ |  |
| ARC as \% of covered <br> compensation | $15.07 \%$ | $15.07 \%$ | $15.07 \%$ |  | $15.07 \%$ |

## Section 1 (continued)

### 1.4 Actuarial Balance Sheet as of January 1, 2012

## Actuarial assets

| Actuarial value of present assets | $\$ 925,389,359$ |
| :--- | ---: |
| Actuarial present value of future participant contributions | $84,830,244$ |
| Actuarial present value of future employer contributions for: |  |
| $\quad$ Normal costs | $136,993,673$ |
| $\quad$ Actuarial accrued liability | $\mathbf{1 6 4 , 9 2 9 , 3 4 7}$ |
| Total present and future assets | $\$ 1,312,142,623$ |

Actuarial present value of benefits now payable ..... \$ 827,678,101

Actuarial present value of benefits payable in the future:

| Active participants | $\$ 461,644,096$ |
| :--- | ---: |
| Terminated vested participants | $17,855,259$ |
| Terminated nonvested participants | $4,965,167$ |

Total payable in the future
484,464,522
Total liabilities for benefits \$1,312,142,623
Surplus / (deficit)

## 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, 2012 the projected benefit obligation was:

1. Retired members and beneficiaries currently receiving benefits and terminated members not yet receiving benefits
\$ 850,498,527
a. Current active participants
i. Accumulated member contributions, including interest

116,268,566
ii. Employer-financed benefits

189,084,439
Total projected benefit obligation
\$1,155,851,532
As of January 1, 2012 the projected benefit obligation was funded as follows:
2. Net assets available for benefits at actuarial value
\$ 925,389,359
3. Unfunded projected benefit obligation 230,462,173
4. Actuarial value funding ratio, (2) / (1) 80.1\%
5. Net assets available for benefits at market value
\$ 838,521,455
6. Unfunded projected benefit obligation

317,330,077
7. Market value funding ratio, (5) / (1)

## Valuation Results

## Section 1 (continued)

### 1.7 Prioritized Solvency Test

| Caluation <br> date <br> January 1 | Active <br> participants' <br> accumulated <br> contributions | Retirees, <br> beneficiaries <br> and inactive <br> participants | Active <br> participants <br> (employer- <br> financed) | Valuation <br> assets | Percent covered by <br> valuation assets |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $(1)$ | $(2)$ | $(3)$ |  | $(1)$ | $(2)$ |

## 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 $5.49 \%$ on an actuarial value basis, which is $2.51 \%$ below the assumed rate of return of $8.00 \%$. 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 $-0.07 \%$, also presented in section 2.3.

## Valuation Results

## Section 2 (continued)

### 2.1 Development of the Actuarial Value of Assets

1. Actuarial value of assets as of January 1, 2011 \$ 944,356,735
2. Participant contributions 11,879,052
3. Employer contributions 28,720,193
4. Benefit payments and expenses 109,493,602
5. Investment increment at $8.0 \%, 8 \% \times\{(1)+.5 \times[(2)-(4)]\}$ 71,643,957
6. Expected actuarial value on January 1,2012 , $(1)+(2)+(3)-(4)+(5)$

947,106,335
7. Market value of assets on January 1, 2012 868,086,018
8. Expense and contingency reserve on January 1, 2012, prior to adjustment

$$
29,564,563
$$

9. Adjustment to the investment contingency reserve
10. Excess of market value over expected actuarial value,

$$
(7)-(6)-(8)-(9)
$$

11. Market value adjustment, $20 \% \times(10)$
12. Actuarial value of assets as of January 1, 2012, (6) $+(11)$

## 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 2011, 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:

|  | Expense | Investment <br> contingency <br> reserve | Total expense <br> and <br> contingency <br> reserve |
| :---: | :---: | ---: | :---: |
| 1996 | $\$ 33,702,346$ | $\$$ | 0 |
| 1997 | $25,403,190$ | $5,220,821$ | $\$ 33,702,346$ |
| 1998 | $30,891,555$ | $24,100,041$ | $30,624,011$ |
| 1999 | $22,142,759$ | $45,972,067$ | $54,991,596$ |
| 2000 | $27,992,032$ | $50,003,862$ | $68,114,826$ |
| 2001 | $29,837,776$ | $50,003,743$ | $77,995,894$ |
| 2002 | $23,527,529$ | $50,003,743$ | $79,841,519$ |
| 2003 | $24,952,255$ | $37,759,976$ | $62,531,272$ |
| 2004 | $26,028,780$ | $37,759,976$ | $63,712,231$ |
| 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 | $29,480,465$ |
| 2012 | $29,564,563$ |  | 0 |

## 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. $\quad A=$ Market value of assets as of January 1, 2011
\$937,594,203
ii. $\quad B=$ Market value of assets as of January 1, 2012

868,086,018
iii. $\quad \mathrm{C}=$ Contributions during the period

40,599,245
iv. $\quad \mathrm{D}=$ Disbursements during the period

109,493,602
v. Rate of return: $\frac{B-A+D-C}{A+1 / 2(C-D)}$
-0.07\%
vi. Actuarial assumed rate of return for $2011 \quad 8.00 \%$
vii. Difference between actual and assumed rates of return, $(\mathrm{v})-(\mathrm{vi}) \quad-8.07 \%$

## b. Actuarial Value Basis

The rate of return on an actuarial value basis is approximated using the same method:
i. $\quad A=$ Actuarial value of assets as of January 1, 2011
\$944,356,735
ii. $\quad B=$ Actuarial value of assets as of January 1, 2012 925,389,359
iii. $\mathrm{C}=$ Contributions during the period

40,599,245
iv. $\mathrm{D}=$ Disbursements during the period

109,493,602
v. Rate of return: $\frac{B-A+D-C}{A+1 / 2(C-D)}$
5.49\%
vi. Actuarial assumed rate of return for 2011
8.00\%
vii. Difference between actual and assumed rates of return, (v) - (vi) -2.51\%

## Section 3 <br> 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 | \$ | 28,720,193 | 118.4\% |
| 2012 | \$ | 25,928,658 | \$ | * | * |
| 2013 | \$ | 35,367,598 | \$ | * | * |

*To be determined at the end of the year.

## Section 3 (continued)

### 3.3 Actuarial Assumptions, Methods and Additional Information

| Valuation Date | January 1, 2012 |
| :--- | :--- |
| Actuarial Cost Method | Frozen Entry Age |
| Amortization Method | Level Dollar, Closed Period |
| Equivalent Single Amortization Period | 24 years |
| Asset Valuation Method | Assumed Yield Method |
| Actuarial Assumptions: |  |
| $\quad$ Investment rate of return* | $8.00 \%$ |
| Participant account crediting rate | $5.00 \%$ |
| $\quad$ Projected salary increases | $4.50 \%$ |
| ${ }^{\text {*Includes inflation at }}$ | $3.50 \%$ |
| 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.

Note: There have been no changes to the System's plan provisions since 2002.

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\begin{aligned}
& \text { Section } 4 \text { (continued) } \\
& \text { 4.3 Changes in System Participation }
\end{aligned}
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Basis of the Valuation

## Section 4 (continued)

### 4.4 Member Census Information

| As of January 1 | 2011 |  | 2012 |  |
| :---: | :---: | :---: | :---: | :---: |
| Active Members |  |  |  |  |
| Number |  | 4,336 |  | 4,784 |
| Average Age |  | 44.58 |  | 44.61 |
| Average Service |  | 9.04 |  | 8.90 |
| Average Annual Base Pay | \$ | 50,348 | \$ | 49,060 |
| Vested Terminated Members |  |  |  |  |
| Number |  | 606 |  | 438 |
| Average Account Balance | \$ | 29,113 | \$ | 27,287 |
| Non-vested Terminated Members |  |  |  |  |
| Number |  | 1,329 |  | 1,520 |
| Average Account Balance | \$ | 3,336 | \$ | 3,267 |
| Benefit Recipients |  |  |  |  |
| Number |  | 4,587 |  | 4,540 |
| Average Age |  | 72.45 |  | 72.82 |
| Average Monthly Benefit | \$ | 1,797 | \$ | 1,813 |

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 | 119 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 119 |
| $25-29$ | 281 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 294 |
| $30-34$ | 170 | 34 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 210 |
| $35-39$ | 114 | 29 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 150 |
| $40-44$ | 108 | 16 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 128 |
| $45-49$ | 48 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 62 |
| $50-54$ | 85 | 16 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 102 |
| $55-59$ | 38 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 |
| $60-64$ | 26 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| $65-69$ | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| $70 \&$ Up | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Total | 992 | 142 | 21 | 1 | 0 | 0 | 0 | 0 | 0 | 1,156 |

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 | 155 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 155 |
| $25-29$ | 212 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 242 |
| $30-34$ | 163 | 121 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 311 |
| $35-39$ | 139 | 120 | 113 | 14 | 0 | 0 | 0 | 0 | 0 | 386 |
| $40-44$ | 130 | 84 | 112 | 45 | 2 | 0 | 0 | 0 | 0 | 373 |
| $45-49$ | 119 | 80 | 92 | 43 | 39 | 5 | 1 | 0 | 0 | 379 |
| $50-54$ | 136 | 74 | 111 | 71 | 92 | 87 | 14 | 0 | 0 | 585 |
| $55-59$ | 113 | 83 | 131 | 79 | 83 | 112 | 57 | 20 | 0 | 678 |
| $60-64$ | 54 | 54 | 83 | 69 | 69 | 51 | 15 | 17 | 3 | 415 |
| $65-69$ | 14 | 16 | 22 | 10 | 8 | 7 | 1 | 1 | 2 | 81 |
| 70 \& Up | 4 | 4 | 2 | 2 | 0 | 2 | 0 | 1 | 0 | 15 |
| Total | 1,239 | 666 | 693 | 333 | 293 | 264 | 88 | 39 | 5 | 3,620 |

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 | 274 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 274 |
| $25-29$ | 494 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 537 |
| $30-34$ | 333 | 155 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 521 |
| $35-39$ | 253 | 149 | 120 | 14 | 0 | 0 | 0 | 0 | 0 | 536 |
| $40-44$ | 239 | 100 | 115 | 46 | 2 | 0 | 0 | 0 | 0 | 502 |
| $45-49$ | 168 | 92 | 95 | 43 | 39 | 5 | 1 | 0 | 0 | 443 |
| $50-54$ | 222 | 91 | 112 | 71 | 92 | 87 | 14 | 0 | 0 | 689 |
| $55-59$ | 151 | 100 | 131 | 79 | 83 | 112 | 57 | 20 | 0 | 733 |
| $60-64$ | 80 | 61 | 83 | 69 | 69 | 51 | 15 | 17 | 3 | 448 |
| $65-69$ | 15 | 16 | 23 | 10 | 8 | 7 | 1 | 1 | 2 | 83 |
| 70\& Up | 6 | 5 | 2 | 2 | 0 | 2 | 0 | 1 | 0 | 18 |
| Total | 2,235 | 812 | 715 | 334 | 293 | 264 | 88 | 39 | 5 | 4,784 |

## Basis of the Valuation

## Section 4 (continued)

### 4.6 Distributions of Inactive Members

## Deferred Vested and Nonvested

| Account Balance | Vested | Nonvested | Total |
| :---: | :---: | :---: | :---: |
| $0-1,000$ | 10 | 543 | 553 |
| $1,000-5,000$ | 10 | 666 | 676 |
| $5,000-10,000$ | 34 | 218 | 252 |
| $10,000-25,000$ | 195 | 83 | 278 |
| $25,000-50,000$ | 138 | 8 | 146 |
| $50,000-75,000$ | 38 | 2 | 40 |
| $75,000-100,000$ | 11 | 0 | 11 |
| $100,000+$ | 2 | 0 | 2 |
| Total | 438 | 1,520 | 1,958 |

Retirees, Beneficiaries and Disabled

| Option | Service <br> benefit | Disability <br> benefit | Survivor <br> benefit | All |
| :---: | ---: | :---: | :---: | ---: |
| 0 | 3,352 | 226 | 299 | 3,877 |
| 1 | 153 | 15 | 0 | 168 |
| 2 | 85 | 5 | 0 | 90 |
| 3 | 178 | 13 | 0 | 191 |
| 4 | 172 | 8 | 0 | 180 |
| 5 | 15 | 4 | 0 | 19 |
| 6 | 10 | 4 | 0 | 14 |
| 7 | 1 | 0 | 0 | 1 |
| Total | 3,966 | 275 | 299 | 4,540 |


|  | Annual benefit |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Option | Service benefit | Disability benefit | Survivor benefit | All |
| 0 | \$78,906,301 | \$2,772,236 | \$3,122,057 | \$84,800,594 |
| 1 | 2,733,784 | 204,944 | 0 | 2,938,728 |
| 2 | 1,958,959 | 124,270 | 0 | 2,083,229 |
| 3 | 3,609,499 | 142,305 | 0 | 3,751,804 |
| 4 | 4,394,413 | 155,353 | 0 | 4,549,766 |
| 5 | 344,414 | 42,869 | 0 | 387,283 |
| 6 | 210,093 | 16,587 | 0 | 226,680 |
| 7 | 30,849 | 0 | 0 | 30,849 |
| Total | \$92,188,312 | \$3,458,564 | \$3,122,057 | \$98,768,933 |

## 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

Mortality tables mandated by the Pension Protection Act as specified in IRS Regulation $1.430(\mathrm{~h})(3)-1$, 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 three years of membership, withdrawals are assumed to occur at the following rates:

| Year of <br> Membership | Non-charter <br> school employees | Charter school <br> employees |
| :---: | :---: | :---: |
| $1^{\text {st }}$ | $25.0 \%$ | $30.0 \%$ |
| $2^{\text {nd }}$ | $20.0 \%$ | $25.0 \%$ |
| $3^{\text {rd }}$ | $15.0 \%$ | $20.0 \%$ |
| $4^{\text {th }}$ | $12.5 \%$ | $15.0 \%$ |
| $5^{\text {th }}$ | $10.0 \%$ | $10.0 \%$ |

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

## 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 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. 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 ( $13^{\text {th }}$ check.) This valuation assumes that no future COLAs and no future $13^{\text {th }}$ 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.

## Section 4 (continued)

### 4.7 Summary of Methods and Assumptions

## 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 postcommencement.

The mortality table for disabled members was changed form 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.

Section 4 (continued)

### 4.7 Summary of Methods and Assumptions

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

| Age | Rate |  |  | Rate |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 4 (continued)

### 4.7 Summary of Methods and Assumptions

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 | 0.469 | 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 4 (continued)

### 4.7 Summary of Methods and Assumptions

Table 3
Withdrawal Mortality Rates Annual Rates Per 1,000 Members

| Age | Rate | Age | Rate |
| :---: | :---: | :---: | :---: |
| 20 | 185.0 | 45 | 40.0 |
| 21 | 179.0 | 46 | 37.0 |
| 22 | 173.0 | 47 | 34.0 |
| 23 | 167.0 | 48 | 31.0 |
| 24 | 161.0 | 49 | 28.0 |
|  |  |  |  |
| 25 | 155.0 | 50 | 25.0 |
| 26 | 146.0 | 51 | 24.0 |
| 27 | 137.0 | 52 | 23.0 |
| 28 | 128.0 | 53 | 22.0 |
| 29 | 119.0 | 54 | 21.0 |
|  |  |  |  |
| 30 | 110.0 | 55 | 20.0 |
| 31 | 106.0 | 56 | 19.0 |
| 32 | 102.0 | 57 | 18.0 |
| 33 | 98.0 | 58 | 17.0 |
| 34 | 94.0 | 59 | 16.0 |
| 35 | 90.0 | 60 |  |
| 36 | 87.0 | 61 | 15.0 |
| 37 | 84.0 | 62 | 0.0 |
| 38 | 81.0 | 63 | 0.0 |
| 39 | 78.0 | 64 | 0.0 |
|  |  |  | 0.0 |
| 40 | 75.0 |  |  |
| 41 | 68.0 |  |  |
| 42 | 61.0 |  |  |
| 43 | 54.0 |  |  |
| 44 | 47.0 |  |  |

Section 4 (continued)

### 4.7 Summary of Methods and Assumptions

## Table 4 <br> Retirement Rates <br> Annual Rates Per 1,000 Members

| Age | Rule of 85 <br> Rate | Not Rule of $\mathbf{8 5}$ <br> Rate |
| :---: | :---: | :---: |
| $>60$ | 200.0 | N/A |
| 60 | 200.0 | 100.0 |
| 61 | 200.0 | 150.0 |
| 62 | 250.0 | 200.0 |
| 63 | 250.0 | 175.0 |
| 64 | 250.0 | 200.0 |
| 65 | 350.0 | 350.0 |
| 66 | 200.0 | 200.0 |
| 67 | 200.0 | 200.0 |
| 68 | 200.0 | 200.0 |
| 69 | 200.0 | 200.0 |
| $70-71$ | 300.0 | 300.0 |
| 72 | $1,000.0$ | 1000.0 |

## Section 4 (continued)

### 4.7 Summary of Methods and Assumptions

Table 5<br>Disability Rates<br>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 6
Post-Disability Mortality Rates
Annual Rates Per 1,000 Members

| Age | Rate |  |  | Rate |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Male | Female | Age | Male | 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 |

## Section 4 (continued)

### 4.7 Summary of Methods and Assumptions

Table 7
Family Structure

| 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 7
Family Structure (continued)

|  | Age |  |  |  |  |  | Age of <br> youngest <br> child | Average number <br> of children | Probability of <br> being married | Probability <br> of children <br> 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 | .74 | .07 |  |  |  |  |  |
| 67 | 64 | 13 | 1.13 | .73 | .05 |  |  |  |  |  |
| 68 | 65 | 13 | 1.13 | .72 | .04 |  |  |  |  |  |
| 69 | 66 | 13 | 1.05 | .03 |  |  |  |  |  |  |
| 70 | 67 | 13 | 1.05 | .70 | .02 |  |  |  |  |  |
| 71 | 68 | 13 | 1.05 | .01 |  |  |  |  |  |  |

## Section 4 (continued) <br> 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) <br> 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.
Data - Population as of 1/1/2012
2012

Retirees and Beneficiaries
Inactives
Actives
School District
Charter Schools
Retirement System
Total Actives
Total


|  | anuary 1， 2012 | January 1， 2011 |  |
| :---: | :---: | :---: | :---: |
| \＄ | 29，564，563 | \＄ | 29，480，465 |
|  | 838，521，455 |  | 908，113，738 |
|  | 925，389，359 |  | 944，356，735 |
| \＄ | 164，929，347 | \＄ | 121，914，117 |
|  | ，155，851，532 | \＄ | ，115，338，412 |

$$
\begin{aligned}
& \text { \%88'レレ } \\
& \text { \%ガเ8 } \\
& \text { \%L'ヤ8 }
\end{aligned}
$$

15.07\%
Valuation Results - Required Annual Contribution

|  | 2012 <br> Valuation | 2011 <br> Valuation | Increase / <br> (Decrease) |
| :--- | ---: | ---: | ---: | ---: |
| Normal cost contribution | $19,702,945$ | $14,507,892$ | $5,195,053$ |
| Actuarial accrued liability contribution | $15,664,653$ | $11,420,766$ | $4,243,887$ |
| Annual required contribution (ARC) | $35,367,598$ | $25,928,658$ | $9,438,940$ |
| Covered compensation | $234,760,091$ | $218,308,239$ | $16,451,852$ |
| ARC as \% of covered compensation | $15.07 \%$ | $11.88 \%$ | $3.19 \%$ |

## 

 $\begin{array}{r}\hline \begin{array}{c}\text { ARC as a \% } \\ \text { of payroll }\end{array} \\ \hline 11.88 \% \\ (0.42 \%) \\ 1.25 \% \\ 2.36 \% \\ \hline 15.07 \%\end{array}$[^1]
B. Expected 2012 Assets
A. 2011 Assets
B. Expected 20
C. Actual 2012 Assets
D. Gain/(Loss): C - B
E. Expected Return
F. Actual Return
G. Gain/(Loss): F - E
Actual return calculation assumes mid-year cash flows
Other Discussion Topics

- GASB final rules expected this summer
- Contribution policies in light of new GASB rules
- Impact of continued increased contribution levels
- Any final questions on valuation?
- Request Board approval of results report
- Cost of ad-hoc COLA


[^0]:    Office Payrol
    10,289.34
    2,350.00

[^1]:    Increases positive
    (Decreases negative)

