Employees Retirement System
of the
City of St. Louis

Actuarial Valuation
as of
October 1, 2012

Produced by Cheiron

January 2013

CHEIRON Classic Values, Innovative Advice

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APPENDICES

LETTER OF TRANSMITTAL

January 21, 2013

Board of Pension Trustees
Employees Retirement System of the City of St. Louis
1114 Market Street, Suite 900
St. Louis, Missouri 63101

Dear Members of the Board:

At your request, we have conducted an actuarial valuation of the Employees Retirement System of the City of St. Louis as of October 1, 2012. The valuation is organized as follows:

- In Section I **Board Summary,** we describe the purpose of an actuarial valuation and summarize the key results found in this valuation.

- The **Main Body** of the report presents details on the System's:

  - Section II - Assets
  - Section III - Liabilities
  - Section IV - Contributions
  - Section V - Accounting Statement Information (GASB)

- In the **Appendices,** we conclude our report with detailed information describing the System's membership (Appendix A), actuarial assumptions and methods employed (Appendix B), and a summary of pertinent plan provisions (Appendix C).

The results of this report rely on future System experience conforming to the underlying assumptions. To the extent that actual System experience deviates from the underlying assumptions, the results will vary accordingly.

In preparing our report, we relied without audit, on information supplied by the Employees Retirement System of the City of St. Louis staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice #23.

In addition, we certify that, to the best of our knowledge, this report has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice as set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

200 West Monroe Street, Suite 1800, Chicago, IL 60606 Tel: 312.629.8401 Fax: 312.629.0798 www.cheiron.us

This report was prepared solely for the Employees Retirement System of the City of St. Louis for the purposes described herein, except that the plan auditor may rely on this report solely for the purpose of completing an audit related to the matters herein. This valuation report is not intended to benefit third party, and Cheiron assumes no duty or liability to any such party.

Sincerely,
Cheiron

Stephen McElhaney, FCA, FSA, MAAA
Principal Consulting Actuary

Mike Noble, FCA, FSA, MAAA
Consulting Actuary

SECTION I
BOARD SUMMARY

The primary purpose of the actuarial valuation and this report is to measure, describe and identify as of the valuation date:

- The financial condition of the System,
- Past and expected trends in the financial progress of the System,
- The employers' contributions for Fiscal Year ending 2013, and
- Information required by the Governmental Accounting Standards Board (GASB).

In the balance of this Board Summary we present (A) the basis upon which this year's valuation was completed, (B) the key findings of this valuation including a summary of all key financial results, (C) an examination of the historical trends, and (D) the projected financial outlook for the System.

A. Valuation Basis

This October 1, 2012 valuation represents Cheiron's third valuation performed for the Employees Retirement System of the City of St. Louis. This valuation reflects the settlement between the Library, the Board of Trustees and the City of St. Louis dated September 7, 2012 (the "Library Settlement"). The Library, Zoo, Art Museum, Tower Grove Park, Taxicab Commission and Mental Health Board hereinafter the "Lawsuit Beneficiary Employers" have a reduced Unfunded Accrued Liability (UAL) Amortization rate to reflect the payments received due to the settlement as of the valuation date. There were no other changes since the October 1, 2011 valuation in the actuarial assumptions or methods used.

B. Key Findings of this Valuation

The key results of the October 1, 2012 actuarial valuation are as follows:

- The actuarially determined employer contribution rate as a percent of total compensation increased from 14.27% as of October 1, 2011 to 15.56% as of October 1, 2012.
- The unfunded actuarial liability for the Employees Retirement System (ERS) increased from $180 million on October 1, 2011 to $214 million on October 1, 2012.
- The System's funding ratio, the ratio of actuarial asset value over liabilities decreased from 78.6% as of October 1, 2011 to 75.3% as of October 1, 2012.
- The primary factor in the decline of the System's funded status was an overall experience loss of $34.3 million.

  - During the year ended September 30, 2012, the System's assets earned 16.95% on a market value basis, but due to smoothing of prior investment losses, the return on the actuarial asset value was 1.56% (as compared to 8.00% assumed). This resulted in an actuarial loss on investments of $42.1 million.

- On the liability side, the System experienced a total gain of $7.8 million. The largest individual component of this gain is from a $7.5 million gain due to salary increases being less than expected for continuing active participants. There is an additional net gain of $0.8 million from participants not receiving the expected COLA offset partially by inactive mortality being lower than expected and a $0.5 million gain from other sources.

C. GASB Statement Numbers 67 and 68

This actuarial valuation report does not reflect the provisions of GASB Statement No. 67 and Statement No. 68 which were approved by GASB in June 2012. Statement No. 67 will be effective for the System for its fiscal year ending September 30, 2014. Statement No. 68 will be effective for the City of St. Louis for its fiscal year ending June 30, 2015. For other employers, the effective date depends upon the particular fiscal year. All references and calculations with respect to GASB in this reflect current Statements No. 25 and 27.

GASB Statements No. 67 and No. 68 will change materially the information shown in financial reports for the System and Employers, The following are some of the more significant changes.

- The System will need to use the Entry Age Normal (EAN) Funding Method for financial statement disclosures rather than the Projected Unit Credit (PUC) Method as is used under current standards. The System will not necessarily need to adopt EAN for employer contribution determination.
- A lower discount rate may apply for purposes of the financial statement disclosures.
- The GASB Annual Required Contribution (ARC) will no longer be a part of the accounting standards. To the extent that current funding policy was based upon the ARC, the System may want to reassess funding policy.
- The System's unfunded actuarial liability will be allocated to all employers for purposes of financial disclosures.

SECTION I
BOARD SUMMARY

Following is Table I-1 which summarizes all the key results of the valuation with respect to the System's membership, assets and liabilities, and contributions. The results are presented and compared for both the current and prior plan year.

TABLE I-1
Employees Retirement System of the City of St. Louis
Summary of Principal Results

Valuation as of:	October 1, 2011	October 1, 2012	% Change
Participant Counts			
Active Participants*	5,293	5,341	0.91%
Disabled Participants	193	189	(2.07%)
Retirees and Beneficiaries	3,903	3,963	1.54%
Terminated Vested Participants	2,408	2,420	0.50%
Total	**11,797**	**11,913**	**0.98%**
Annual Salaries of Active Members	$ 223,060,719	$ 224,822,252	0.79%
Annual Retirement Allowances for Retired Members and Beneficiaries	$ 41,840,104	$ 44,029,080	5.23%
Assets and Liabilities			
Actuarial Liability (AL)	$ 841,763,321	$ 866,890,445	2.99%
Actuarial Value of Assets (AVA)	661,932,240	653,001,852	(1.35%)
Unfunded Actuarial Liability (UAL)	$ 179,831,081	$ 213,888,593	18.94%
Funded Ratio	78.6%	75.3%	
Contributions as a Percentage of Payroll	**Fiscal Year 2012**	**Fiscal Year 2013**	
Normal Cost Rate	7.36%	7.40%	
City UAL Rate	6.91%	8.16%	
Total City Contribution Rate	14.27%	15.56%	
Reduction in UAL Rate for Lawsuit Beneficiary Employers	N/A	0.02%	
Total Contribution Rate for Lawsuit Beneficiary Employers	14.27%	15.54%	
Annual Required Contribution (GASB)	$ 31,839,522	$ 34,977,476	

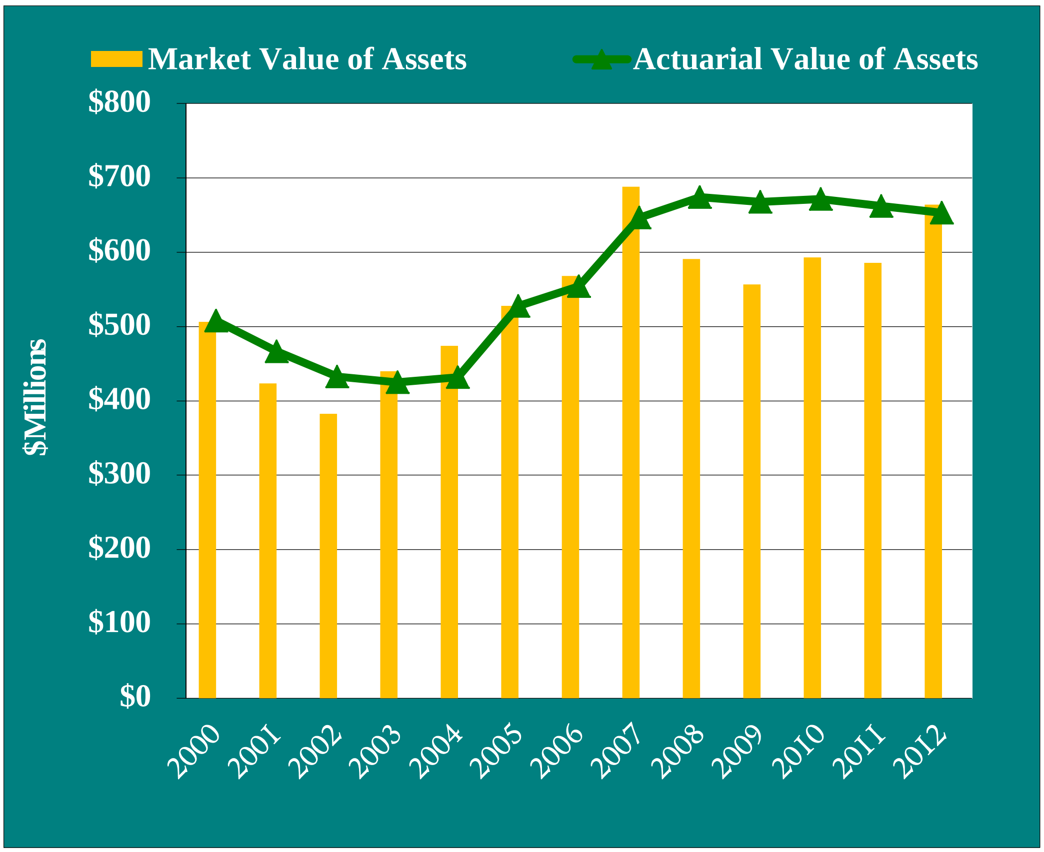
* Includes 442 DROP participants as of October 1, 2011 and 435 DROP participants as of October 1, 2012

SECTION I
BOARD SUMMARY

C. Historical Trends

Despite the fact that for most retirement systems the greatest attention is given to the current valuation results and in particular the size of the current unfunded actuarial liability and the employer's contribution, it is important to remember that each valuation is merely a snapshot in the long-term progress of a pension fund. It is more important to judge a current year's valuation result relative to historical trends, as well as trends expected into the future.

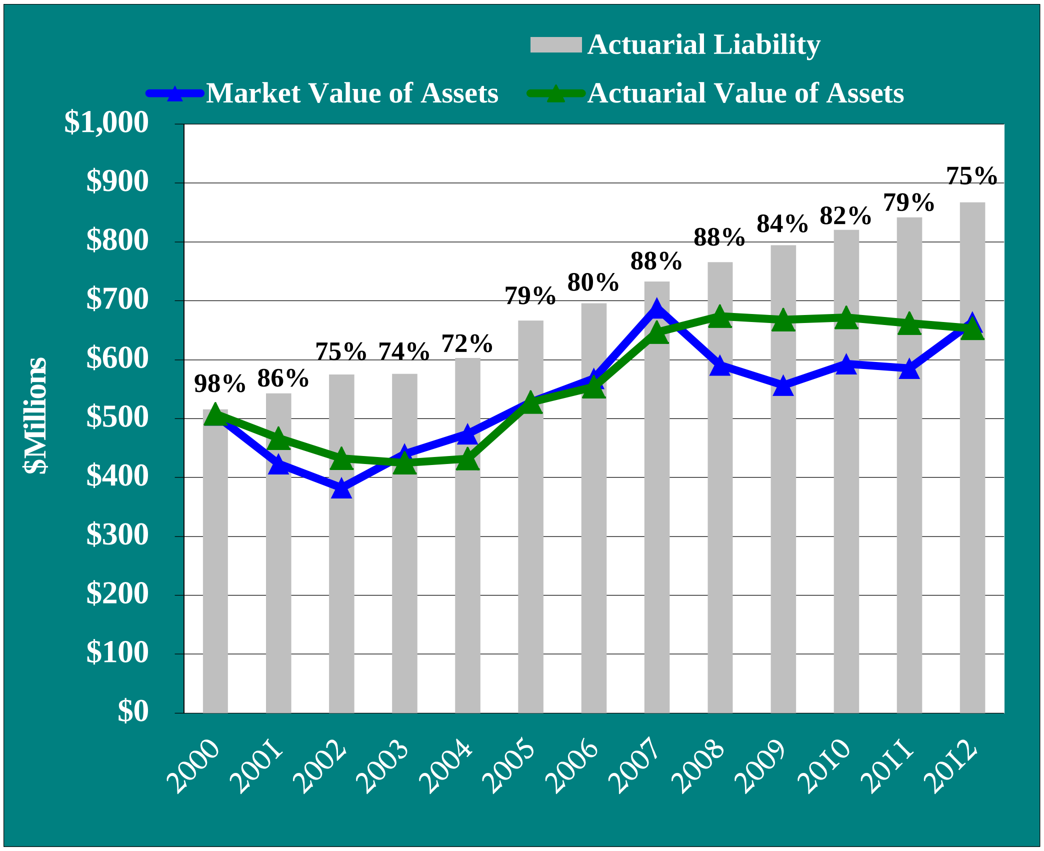
System Assets



There was a significant increase in the market value of assets (MVA) from $586 million to $664 million, returning 16.95%. With the asset smoothing method in place, the actuarial value of assets has tracked a slightly smoother path through the volatility of the market value of assets. As can be seen in the graph, the actuarial value of assets (AVA) decreased slightly from 2011 to 2012 returning 1.56% due to recognizing the last 20% of the 2008 loss.

SECTION I
BOARD SUMMARY

<u>Assets and Liabilities</u>

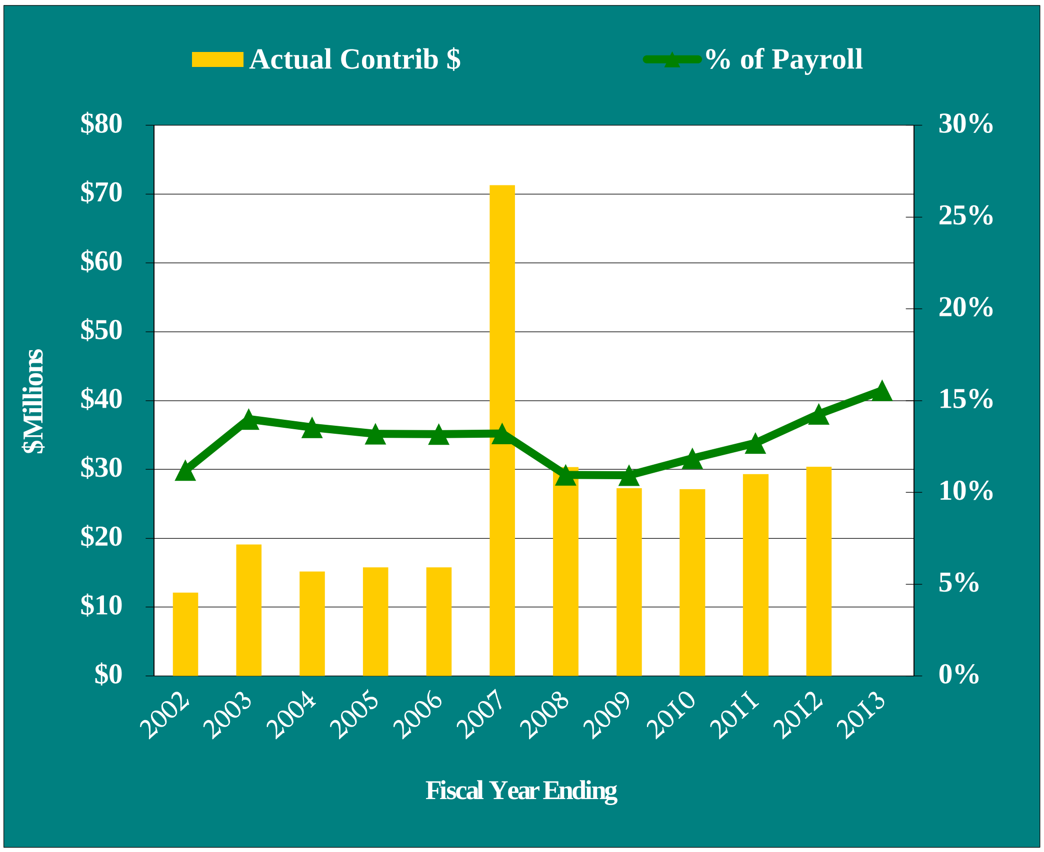


The above chart compares the actuarial value of assets to the actuarial liabilities and shows the funded ratio, which is a comparison of the Actuarial Value of Assets and Actuarial Liability. This chart shows that the funded ratio has decreased for the last four valuations primarily due to continued recognition of the 2008, 2009 and 2011 market losses. The funded ratio had increased each year during the period from 2004 to 2007.

SECTION I
BOARD SUMMARY

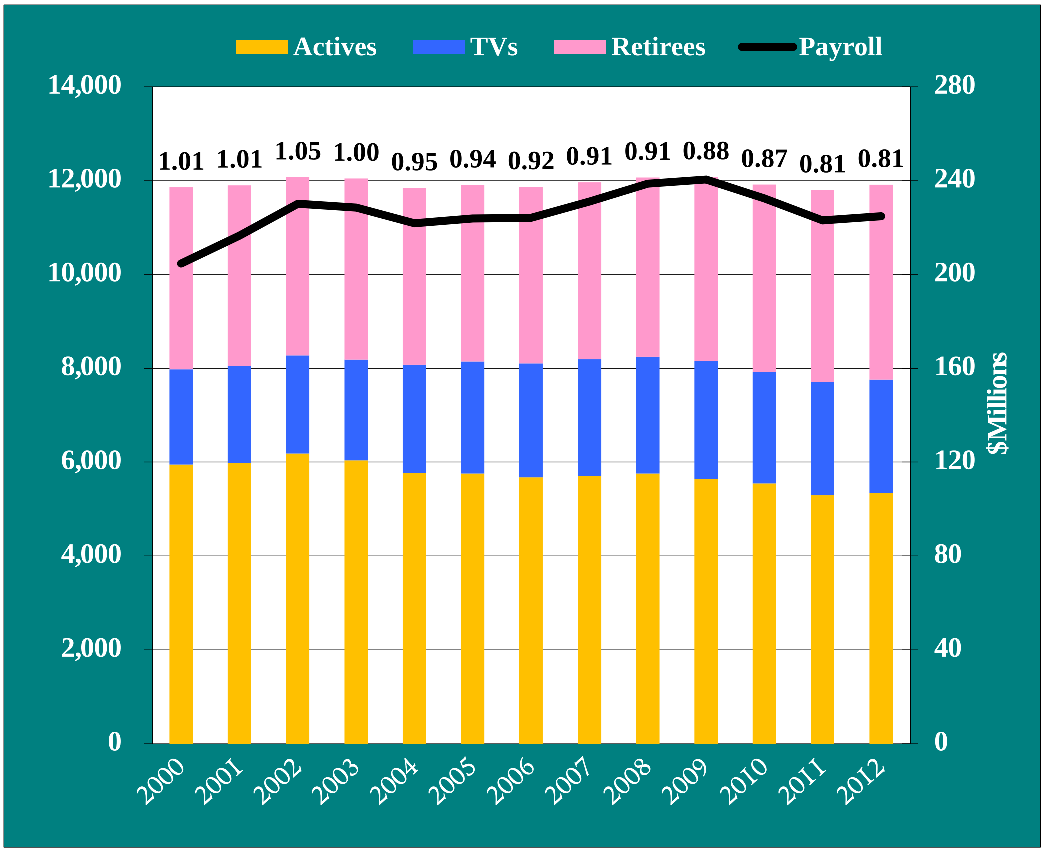
Contribution Rates

The yellow bars in this graph show the dollar amount of contributions made to the System (depicted on the left hand scale) since Fiscal Year Ending 2002. The green line shows the actuarial contribution rate (combined for all employers) as a percent of payroll (depicted on the right hand scale). Members do not make contributions to the System. The actuarial contribution rate increased from 14.27% of payroll in 2011 to 15.56% of payroll in 2012 due to the actuarial loss on plan assets.



SECTION I
BOARD SUMMARY

Participant Trends



The above chart provides a measure for the maturity in the System, by comparing the ratio of active members to inactive members (retirees and terminated-vesteds). The active-to-inactive ratio has declined since 2000 from 1.01 active supporting each inactive member to 0.81actives supporting each inactive member today.

SECTION I
BOARD SUMMARY

D. Future Expected Financial Trends

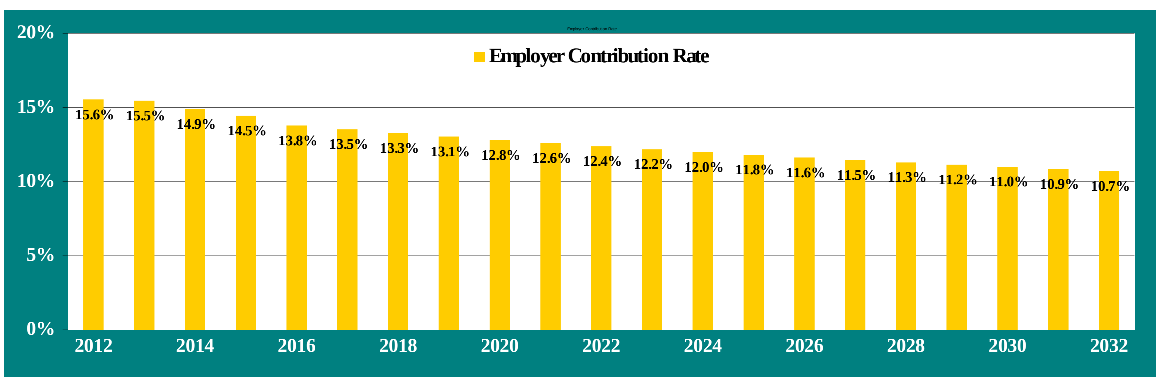
The analysis of projected financial trends is perhaps the most important component of this valuation. In this Section, we present the implications of the October 1, 2012 valuation results in terms of (1) the projected employer contributions, and (2) projected System's funded status (ratio of assets over liabilities). For each projection, set we assume three different future investment return scenarios: baseline returns of 8.00%, optimistic returns of 9.50%, and pessimistic returns of 6.50%. The projections assume there will be no future gains or losses on the liability.

1. Contribution Rate Projections

The first set of charts show the employer's projected actuarially determined combined contribution rates (gold bars). The years shown in the charts are plan years beginning October 1st.

Baseline returns of 8.00%

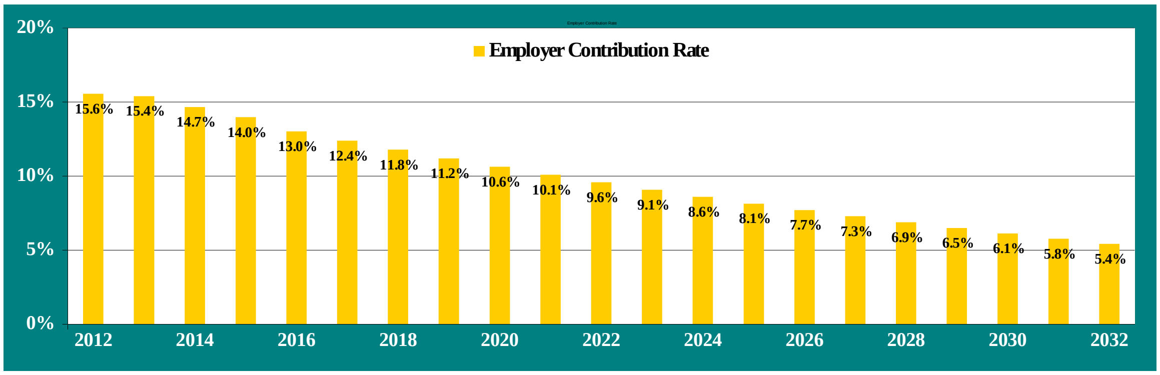
The chart below shows that the actuarially determined contribution rate will slowly decline from 15.6% to a level of 10.7% of pay by 2032. These projections assume that the System earns the assumed investment rate of 8.00% on market value. The expected decrease in contribution is due to the level dollar amortization of the unfunded actuarial liability, which would be expressed as a percentage of an increasing plan payroll.



SECTION I
BOARD SUMMARY

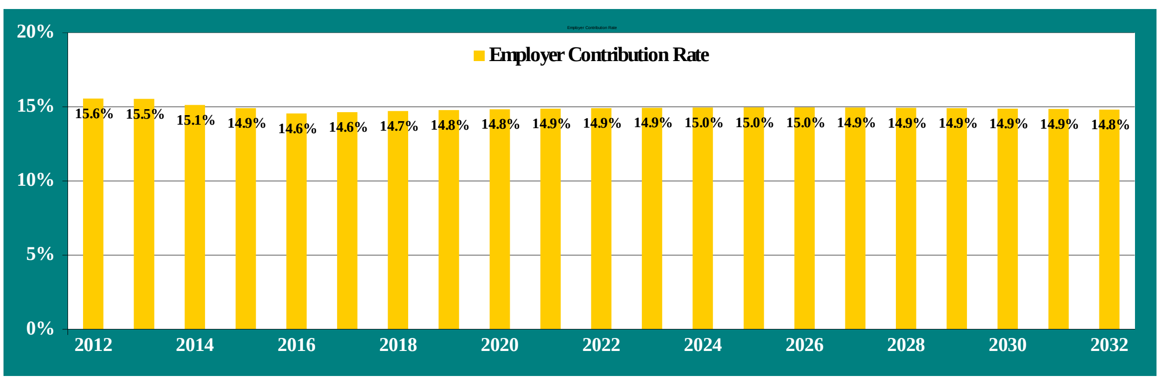
Optimistic returns of 9.50%

If the System earns 1.50% greater than the assumed rate in each year of the projection, the actuarially determined contribution rate will steadily decrease to about 5.4% in 20 years.



Pessimistic returns 6.50%

If the System earns 1.50% less than the assumed rate in each year of the projection, the actuarially determined contribution rate decreases slightly by 2014 and then remains steady between 14.5% and 15.0% for the next 20 years.



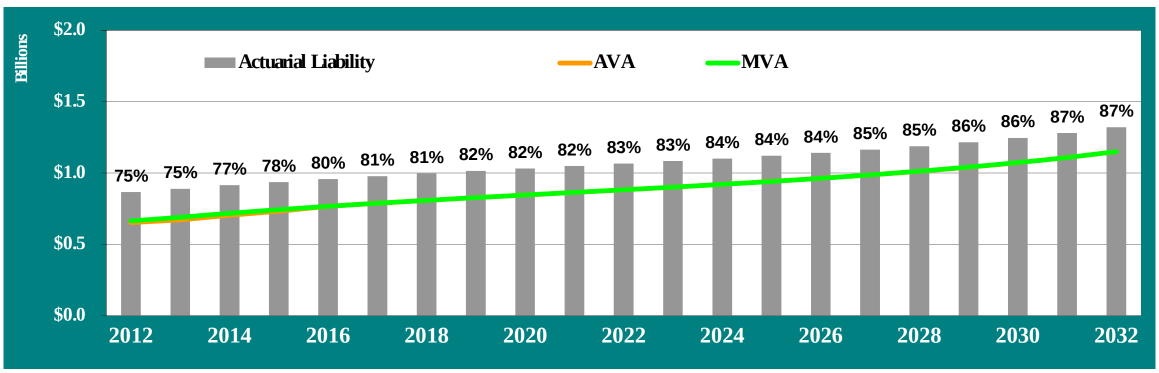
SECTION I
BOARD SUMMARY

2. Asset and Liability Projections

This next set of projection charts compare the market value of assets (green line) and the actuarial or smoothed value of assets (gold line) to the System's actuarial liabilities (gray bars). In addition at the top of each chart, we show the System's funded ratio (ratio of actuarial value of assets to actuarial liabilities). The projections assume that the actuarially determined contributions, as shown in the previous charts, are made each year. The years shown in the chart signify the valuation date as of October 1st.

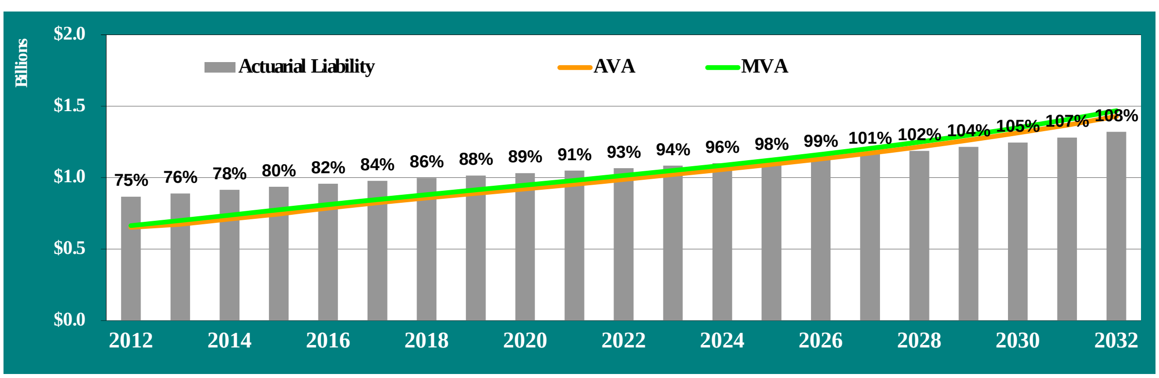
Baseline 8.00% return

Assuming that the System earns the assumed investment rate of 8.00%, the funded ratio will steadily increase from 75% to 87% during the 20 year period.



Optimistic Returns of 9.50%

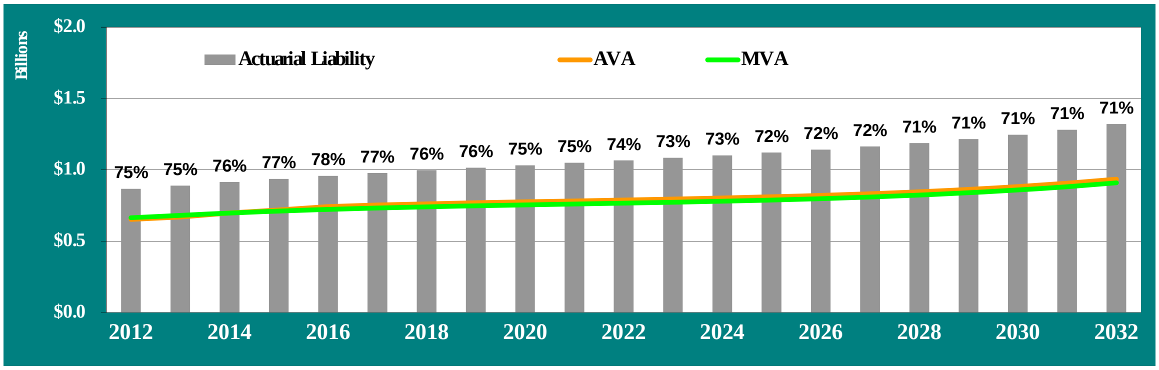
If the System earns 1.50% greater than the assumed rate of return in each year of the projection, the funded ratio will increase to 108% by 2032.



SECTION I
BOARD SUMMARY

Pessimistic Returns of 6.50%

If the System earns 1.50% less than the assumed rate of return in each year of the projection, the funded ratio will decrease to 71% by the end of the 20 year period.



SECTION II
ASSETS

Pension Plan assets play a key role in the financial operation of the System and in the decisions the Trustees may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, employer contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on the System assets including:

- **Disclosure** of the System assets as of October 1, 2011 and October 1, 2012;
- Statement of the **changes** in market values during the year;
- Development of the **Actuarial Value of Assets**;
- An assessment of **investment performance**; and
- A projection of the System's expected **cash flows** for the next ten years.

Disclosure

There are two types of asset values disclosed in this valuation, the market value of assets and the actuarial value of assets. The market value represents a "snap-shot" or "cash-out" value which provides the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace. As a result, market values are usually not as suitable for long-range planning as are the actuarial value of assets which reflect smoothing of annual investment returns.

Table II-1 below discloses and compares each asset value as of September 30, 2011 and 2012.

TABLE II-1
Statement of Assets at Market Value as of September 30,

Assets	**2011**	**2012**	**% Change**
Cash	$ 167,436	$ 166,098	(0.80%)
Receivables	2,281,580	2,097,426	(8.07%)
Temporary cash investments	8,857,470	8,282,479	(6.49%)
Bonds	91,810,265	83,336,324	(9.23%)
Common stock	178,213,858	218,060,479	22.36%
Managed international equity funds	165,281,685	187,343,162	13.35%
Real estate funds	59,981,104	65,497,924	9.20%
Domestic bond funds	57,716,899	77,776,883	34.76%
Managed hedge fund of funds	21,804,429	22,112,065	1.41%
Accounts Payable	(527,998)	(536,042)	1.52%
Market Value of Assets	**$ 585,586,728**	**$ 664,136,798**	13.41%

SECTION II
ASSETS

Changes in Market Value

Table II-2 below shows the components of change between the market value of assets as of September 30, 2011 and September 30, 2012.

TABLE II-2
Changes in Market Values

Value of Assets – September 30, 2011			**$**	**585,586,728**
Additions				
Payments from Members	$	18,700		
Employer Contributions		30,396,034		
Interest and Dividends		7,883,942		
Investment Return		93,228,042		
Total Additions	**$**	**131,526,718**		
Deductions				
Investment Expenses	$	2,853,294		
Benefit Payments		49,508,837		
Administrative Expenses		614,517		
Total Deductions	**$**	**52,976,648**		
Value of Assets – September 30, 2012			**$**	**664,136,798**

SECTION II
ASSETS

Actuarial Value of Assets

The next table, Table II-3 shows how the actuarial value of assets is developed. The actuarial value of assets method was initialized at market value as of October 1, 2005.

The actuarial value of assets represents a "smoothed" value developed by the actuary to reduce, or eliminate, erratic results which could develop from short-term fluctuations in the market value of assets. For this System, the actuarial value has been calculated by taking the market value of assets less 80% of the investment gain (loss) during the preceding year, less 60% of the investment gain (loss) during the second preceding year, less 40% of the investment gain (loss) during the third preceding year, and less 20% of the investment gain (loss) in the fourth preceding year. If the actuarial value of assets is less than 80% or more than 120% of the market value, an adjustment is made to the actuarial value to bring the value within this corridor. The tables below illustrate the calculation of actuarial value of assets for the October 1, 2012 valuation.

Table II-3
Development of Actuarial Value of Assets

Market value of assets at September 30, 2011		$ 585,586,728
Employer Contributions		30,396,034
Payments from Members		18,700
Benefit payments		(49,508,837)
Expected return at 8.00%		46,097,868
Expected Value at September 30, 2012		$ 612,590,493
Actual Value at September 30, 2012		664,136,798
Investment (gain)/ loss		$ (51,546,305)
	Total Gain/(Loss)	**Excluded Portion**
Exclude 0% of 2008 gain/(loss)	$ (141,799,294)	$ 0
Exclude 20% of 2009 gain/(loss)	(64,625,469)	(12,925,094)
Exclude 40% of 2010 gain/(loss)	11,508,109	4,603,244
Exclude 60% of 2011 gain/(loss)	(36,300,413)	(21,780,248)
Exclude 80% of 2012 gain/(loss)	51,546,305	41,237,044
Total excluded gain/(loss) for AVA calculation		$ 11,134,946
Market value of assets at September 30, 2012		$ 664,136,798
Total gain/(loss) excluded		11,134,946
Actuarial value of assets at September 30, 2012		$ 653,001,852

SECTION II
ASSETS

Investment Performance

The market value of assets (MVA) returned 16.95%% during plan year ending September 30, 2012, which is greater than the assumed 8.00% return. A return of 1.56% was experienced on the actuarial value of assets (AVA), resulting in an actuarial loss for the year. Below we show additional historical returns.

TABLE II-4
Historical Returns

	MVA	AVA
2007	14.65%	10.17%
2008	-12.76%	5.85%
2009	-3.09%	1.52%
2010	10.11%	3.42%
2011	1.79%	1.25%
2012	16.95%	1.56%

Projection of System's Future Cash Flows

TABLE II-5
Projection of System's Expected Cash Flows

Year Beginning October 1,	Benefit Payments	Contributions	Net Cash Flow
2012	61,130,636	34,977,476	(26,153,160)
2013	62,884,316	35,993,925	(26,890,390)
2014	66,962,474	35,878,947	(31,083,526)
2015	70,314,179	36,023,380	(34,290,799)
2016	73,974,162	35,598,551	(38,375,611)
2017	77,329,358	36,151,156	(41,178,202)
2018	80,148,295	36,728,812	(43,419,483)
2019	83,220,742	37,332,349	(45,888,393)
2020	85,482,624	37,962,627	(47,519,997)
2021	87,520,838	38,620,535	(48,900,304)

Expected contributions assume contribution rates as shown in the top graph on page 8 and that payroll will increase at the actuarially assumed rate of 3.5% per year. Expected benefit payments are projected for the closed group valued at October 1, 2012. Projecting any farther than ten years using a closed-group would not yield reliable predictions due to the omission of new hires.

SECTION III
LIABILITIES

In this section, we present detailed information on the System liabilities including:

- **Disclosure** of the System liabilities as of October 1, 2011 and October 1, 2012, and
- Statement of **changes** in these liabilities during the year.

Disclosure

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them.

- **Present Value of All Future Benefits:** Used for measuring all future System obligations, represents the amount of money needed today to fully pay off all benefits of the System both earned as of the valuation date and those to be earned in the future by current plan participants, under the current plan provisions.

- **Actuarial Liability:** Calculated as of valuation date as the present value of benefits allocated to service prior to that date.

Table III-1, which follows, discloses each of these liabilities for the current and prior valuations. With respect to each disclosure, a subtraction of the appropriate value of plan assets yields, for each respective type, a **net surplus** or an **unfunded liability**.

TABLE III-1
Liabilities/Net (Surplus)/Unfunded

	October 1, 2011	October 1, 2012
Present Value of Future Benefits		
Active Participant Benefits	$ 508,929,965	$ 513,625,206
Participants currently receiving payments	389,611,964	407,704,598
Participants with a deferred vested benefit	51,908,591	52,876,479
Present Value of Future Benefits (PVB)	**$ 950,450,520**	**$ 974,206,283**
Actuarial Liability		
Active Participant Benefits	$ 400,242,766	$ 406,309,368
Participants currently receiving payments	389,611,964	407,704,598
Participants with a deferred vested benefit	51,908,591	52,876,479
Actuarial Liability (AL)	**$ 841,763,321**	**$ 866,890,445**
Actuarial Value of Assets (AVA)	$ 661,932,240	$ 653,001,852
Net (Surplus)/Unfunded (AL – AVA)	**$ 179,831,081**	**$ 213,888,593**

SECTION III
LIABILITIES

Changes in Liabilities

Each of the Liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation
- Benefits accrued since the last valuation
- System amendments increasing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above, and also due to changes in plan assets resulting from:

- Employer contributions different than expected
- Investment earnings different than expected
- A change in the method used to measure plan assets

In each valuation, we report on those elements of change which are of particular significance, potentially affecting the long-term financial outlook of the System. Below, we present key changes in liabilities since the last valuation.

In the table that follows, we show the components of change in the actuarial liability between October 1, 2011 and October 1, 2012.

TABLE III-2

	Actuarial Liability
Liabilities October 1, 2011	$ 841,763,321
Liabilities October 1, 2012	866,890,445
Liability Increase (Decrease)	25,127,124
Change Due to:	
Plan Amendments	0
Assumption Changes	0
Experience (Gain)/Loss	(7,779,666)
Benefits Accumulated and Other Sources	32,906,790

SECTION III
LIABILITIES

In addition, we breakdown the change in actuarial liability further by showing the total actuarial (gain)/loss by source, as shown in Table III-3 below.

TABLE III-3
(Gain)/Loss by Source as of October 1, 2012

Inactive participant mortality and COLA	$	(780,549)
Salary increase less than expected for continuing actives		(7,470,737)
Other sources		471,620
Experience (Gain)/Loss	**$**	**(7,779,666)**

SECTION IV
CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the System. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

For this System, the funding method employed is the **Projected Unit Credit Actuarial Cost Method**. The objective under this method is to allocate the total pension benefit to which each participant is expected to become entitled at retirement to the participant's past and future service. This allocation is accomplished by applying the plan's accrual formula to projected final salary at retirement. The difference between the Projected Unit Credit actuarial liability and the actuarial value of assets is the unfunded actuarial liability.

The unfunded actuarial liability is amortized under over a 30-year period as a level dollar amount for all years. The amortization payment is recalculated each year to reflect the entire unfunded actuarial liability as of the valuation date.

Table IV-1 below presents and compares the employer contribution rates for the System for this valuation and the prior one.

TABLE IV-1
Employer Contribution Rate

	Fiscal Year Ending 2012	Fiscal Year Ending 2013
Projected Unit Credit Normal Cost Rate	7.36%	7.40%
UAL Amortization Payment for City	6.91%	8.16%
Actuarially Determined Contribution Rate for City	14.27%	15.56%
Reduction in UAL Amortization Payment for Lawsuit Beneficiary Employers	N/A	0.02%
Actuarially Determined Contribution Rate for Lawsuit Beneficiary Employers	14.27%	15.54%

The Unfunded Actuarial Liability (UAL) is reamortized each year over a 30 year period. As of October 1, 2012, the Unfunded Actuarial Liability is $213,888,593. This results in a total amortization payment of $18,336,189. The amortization payment as a percent of payroll is different for City Employers and for Lawsuit Beneficiary Employers. This difference is attributable to the settlement between the Library, the Board of Trustees and the City of St. Louis dated September 7, 2012. The Unfunded Actuarial liability as of October 1, 2011 was $179,831,081 with a total amortization payment of $15,416,515 for all employers combined. On the following page, Table IV-2 shows the detailed calculation of the current year UAL amortization rates for the City and Lawsuit Beneficiary Employers.

SECTION IV
CONTRIBUTIONS

TABLE IV-2
Amortization Schedule

	UAL Amount	Amortization Period	Amortization Amount	Applicable Payroll	UAL Rate
UAL without regard to Library Settlement	$ 213,984,959	30	$ 18,344,450	$ 224,822,252 [1]	8.16%
Unamortized Amounts from Library Settlement	(96,366)	30	(8,261)	34,025,080 [2]	-0.02%
Total	**$ 213,888,593**		**$ 18,336,189**		

[1] Total payroll for all participating employers.
[2] Payroll for Lawsuit Beneficiary Employers

SECTION V
ACCOUNTING STATEMENT INFORMATION

Statement No. 25 of the Governmental Accounting Standards Board (GASB) establishes standards for disclosure of pension information by public employee retirement systems (PERS) and governmental employers in notes to financial statements and supplementary information.

The GASB-25 actuarial liability is the same as the actuarial liability amount calculated for funding purposes.

The actuarial liability (GASB-25) is determined assuming that the System is on-going and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions. Liabilities are discounted at the assumed valuation interest rate of 8.00% per annum.

GASB Statement No. 25 requires the actuarial liability be compared with the actuarial value of assets for funding purposes. The relevant amounts as of October 1, 2012 are exhibited in Table V-1.

Tables V-2 through V-4 are exhibits to be used with the CAFR report. Table V-2 is the Note to Required Supplementary Information, Table V-3 is a history of gains and losses in actuarial liability, and Table V-4 is the Solvency Test which shows the portion of actuarial liability covered by assets.

Finally, Tables V-5 and V-6 are additional GASB supplemental exhibits. Table V-5 shows historical GASB Annual Required Contribution information, compared to what the City actually contributed. Table V-6 shows historical unfunded actuarial liability (UAL) information, funding ratios, and the UAL as a percent of payroll.

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-1
Accounting Statement Information

GASB No. 25 Basis	October 1, 2011	October 1, 2012
1. Actuarial Liabilities for retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	$ 441,520,555	$ 460,581,077
2. Actuarial Liabilities for current employees	400,242,766	406,309,368
3. Total Actuarial Liability (1 + 2)	$ 841,763,321	$ 866,890,445
4. Net Actuarial Assets available for benefits	661,932,240	653,001,852
5. Unfunded Actuarial Liability (3 – 4)	$ 179,831,081	$ 213,888,593

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-2
NOTE TO REQUIRED SUPPLEMENTARY INFORMATION

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the date indicated. Additional information as of the latest actuarial valuation follows.

Valuation date	October 1, 2012
Actuarial cost method	Projected Unit Credit
Amortization method	Level dollar open amortization period
Remaining amortization period for the UAL	30 years
Asset valuation method	5-year smoothed market
Actuarial assumptions:	
Investment rate of return	8.00%
Projected salary increases	Varies by age from 3.50% to 7.017%
Cost-of-living adjustments	3.125% simple with a 25% lifetime cap
Inflation	3.125%

The actuarial assumptions used have been based upon recommendations by the actuary and adopted by the System's Board of Trustees.

The rate of employer contributions to the System is composed of the normal cost and an amortization of the unfunded actuarial liability. The normal cost is the portion of each participant's projected benefit liability attributable to service to be earned during the current plan year. The actuarial liability is that portion of the present value of projected benefits that will not be paid by future employer normal costs. The difference between this liability and the actuarial value of assets as of the same date is the unfunded actuarial liability.

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-3
ANALYSIS OF FINANCIAL EXPERIENCE
Gain and Loss in Unfunded Actuarial Liability During Years Ended September 30
Resulting from Differences Between Assumed Experience and Actual Experience

Type of Activity	*Gain (or Loss) for Year ending September 30,* 2010	2011	2012
Investment Income	$ (30,170,089)	$ (44,736,952)	$ (42,041,794)
Combined Liability Experience	12,023,759	12,671,467	7,779,666
Gain (or Loss) During Year from Financial Experience	$ (18,146,330)	$ (32,065,485)	$ (34,262,128)
Non-Recurring Gain (or Loss) Items	(3,960,992)	0	0
Composite Gain (or Loss) During Year	$ (22,107,322)	$ (32,065,485)	$ (34,262,128)

Table V-4
SOLVENCY TEST[1]
Aggregate Actuarial Liabilities for

Valuation Date October 1	Active Member Contributions (1)	Retirees & Beneficiaries (2)	Active Member Employer Financed Contributions (3)	Actuarial Value of Reported Assets	Portion of Actuarial Liabilities Covered by Reported Assets (1)	(2)	(3)
2012	0	$ 460,581,077	$ 406,310,985	$ 653,001,852	100%	100%	47%
2011	0	441,520,555	400,242,766	661,932,240	100%	100%	63%
2010	0	419,717,802	400,951,838	671,608,995	100%	100%	55%

[1] We will build to the required 10 years of disclosure information.

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-5
Supplementary Information Required by GASB – Schedule of Employer Contributions

Plan Year Ended September 30	Annual Required Contributions	Actual Contributions	Percentage Contributed
2003	$32,186,050	$19,115,679	59.4%
2004	$30,926,604	$15,158,997	49.0%
2005	$29,243,453	$15,752,497	53.9%
2006	$29,478,032	$15,756,456	53.5%
2007	$29,599,091	$71,301,428	240.9%
2008	$25,287,801	$30,350,011	120.0%
2009	$26,072,575	$27,252,035	104.5%
2010	$28,498,534	$27,116,763	95.2%
2011	$29,498,116	$29,293,854	99.3%
2012	$31,839,522	$30,396,034	95.5%
2013	$34,977,476	--	--

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-6
Supplementary Information Required by GASB – Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Liability (b)	Unfunded Actuarial Liability (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	Percentage of Covered Payroll* [(b) - (a)] / (c)
10/1/2002	$432,590,313	$574,817,702	$142,227,389	75.26%	$230,184,836	61.79%
10/1/2003	$424,917,296	$576,127,904	$151,210,608	73.75%	$228,550,406	66.16%
10/1/2004	$431,853,406	$602,795,470	$170,942,064	71.64%	$221,768,791	77.08%
10/1/2005	$527,733,171	$666,182,075	$138,448,904	79.22%	$223,837,003	61.85%
10/1/2006	$554,065,539	$695,889,716	$141,824,177	79.62%	$224,120,314	63.28%
10/1/2007	$646,569,478	$732,576,024	$86,006,546	88.26%	$231,029,237	37.23%
10/1/2008	$674,016,719	$765,842,026	$91,825,307	88.01%	$238,701,628	38.47%
10/1/2009	$667,667,205	$794,686,379	$127,019,174	84.02%	$240,409,390	52.83%
10/1/2010	$671,608,995	$820,669,641	$149,060,646	81.84%	$232,451,661	64.13%
10/1/2011	$661,932,240	$841,763,321	$179,831,081	78.64%	$223,060,719	80.62%
10/1/2012	$653,001,852	$866,890,445	$213,888,593	75.33%	$224,822,252	95.14%

*Not less than zero

APPENDIX A
MEMBERSHIP INFORMATION

Employees Retirement System of the City of St. Louis
Table of Plan Coverage

	October 1, 2011	October 1, 2012	% change
Active Members in Valuation			
Count	5,293	5,341	0.9%
Average Age	47.9	48.0	0.2%
Average Service	12.9	12.7	-1.1%
Total Payroll	$ 223,060,719	$ 224,822,252	0.8%
Average Anticipated Payroll	$ 42,143	$ 42,094	-0.1%
Total Active Vested Members	3,800	3,832	0.8%
DROP Members in Valuation (included in Active Members)			
Count	442	435	-1.6%
Average Age	59.7	60.0	0.5%
Average Service	26.8	26.6	-1.0%
Total DROP Account Balances	$ 18,659,401	$ 20,472,809	9.7%
Average DROP Account Balances	$ 42,216	$ 47,064	11.5%
Vested Terminated Members	2,408	2,420	0.5%
Pensioners			
Number in Pay Status			
Retirees	3,470	3,532	1.8%
Disabled Retirees	193	189	-2.1%
Total	3,663	3,721	1.6%
Average Age	72.64	72.62	0.0%
Average Monthly Benefit	$ 863	$ 897	3.9%
Beneficiaries in Pay Status	433	431	-0.5%

APPENDIX A
MEMBERSHIP INFORMATION

Employees Retirement System of the City of St. Louis
Inactive Participants by Type and Monthly Benefit Amount

Monthly Amount	Total	Retirees	Terminated Vested	Disability	Beneficiaries
Total	6,579	3,532	2,420	189	438
Under $500	3,875	1,608	1,995	64	208
$500-1,000	1,299	757	344	86	112
$1,000-1,500	689	533	63	32	61
$1,500-2,000	356	302	16	6	32
$2,000-2,500	135	123	1	0	11
$2,500-3,000	81	73	1	1	6
$3,000-3,500	48	45	0	0	3
$3,500-4,000	37	35	0	0	2
$4,000-4,500	29	27	0	0	2
$4,500-5,000	9	8	0	0	1
$5,000 & over	21	21	0	0	0

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions and Actuarial Cost Method

1. Mortality Rates:

Healthy: 1994 Group Annuity Mortality Table
Disabled: 1983 Railroad Retirement Board Disabled Life Mortality Table

Mortality improvement: During the period of the last experience study (2005-2009), which was performed by the prior actuary, it was noted that actual rates of mortality were significantly higher than the rates within these tables, and that the mortality rates effectively captured future mortality improvements. We have not independently reviewed this data but this conclusion by the prior actuary appears to be reasonable. This assumption will be reviewed during the next experience study which is currently scheduled for the period 2009-2014.

2. Mortality and Disability Rates before Retirement:

	Mortality (%)		Disability (%)	
Age	Male	Female	Male	Female
20	0.05	0.03	0.00	0.00
25	0.07	0.03	0.00	0.00
30	0.08	0.04	0.00	0.00
35	0.09	0.05	0.00	0.00
40	0.11	0.07	0.11	0.05
45	0.16	0.10	0.17	0.10
50	0.26	0.14	0.50	0.24
55	0.44	0.23	0.62	0.34
60	0.80	0.44	0.39	0.24

3. Withdrawal Rates before Retirement:

With Less Than Four Years of Creditable Service			With Four or More Years of Creditable Service		
Creditable Service	Male	Female	Age	Male	Female
0	22.0	16.0	20	25.00	13.90
1	16.0	14.0	25	17.20	10.96
2	12.0	10.0	30	10.80	8.40
3	10.0	8.0	35	8.44	7.10
			40	5.90	5.60
			45	4.30	4.40
			50	3.60	3.52
			55	3.10	2.60

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

4. Retirement Rates:

Age	Retirement Rate (%)	Age	Retirement Rate (%)
55	5.0	63	20.0
56	5.0	64	20.0
57 – 58	8.0	65	25.0
59	10.0	66	25.0
60	10.0	67-69	25.0
61	10.0	70	100.0
62	20.0		

In addition, in the first year that a participant satisfies the requirements under the "Rule of 85," the retirement rate is assumed to be 75% if the age in the first year of eligibility is 55 or less and 60% if the age in the first year of eligibility is older than 55 (100% at age 70).

5. Retirement Age for Inactive Vested Participants

For members who terminate employment with 30 or more years of creditable service or are eligible for a Rule of 85 pension, immediate commencement of benefits is assumed. All others are assumed to retire at age 61.

6. DROP Participants

Participants in the DROP are assumed to remain in the DROP for 5 years. The standard retirement rates are assumed. Interest to the DROP account is assumed to be creditable at 6% for those participants who enter the DROP after January 21, 2003. The liability and normal cost associated with the retirement decrement has been increased by 3% to account for the additional cost associated with the resumption of active participants.

7. Unknown Data for Participants

Same as those exhibited by participants with similar known characteristics. For inactive vested participants with unknown benefit amounts, $250 per month is assumed.

8. Rehires

A 0.4% load on active accrued liability and normal cost has been added to reflect the cost of rehires.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

9. Sick Leave

Sick leave may be used to increase either Final Average Compensation, Creditable Service, or both. Starting with the October 1, 2010 valuation, the actual unused credited sick leave hours on file were used in the valuation. Effective in July 2010, the accumulation of unused sick leave hours, that can be used for benefit purposes, was frozen.

10. Percent Married

1960 US census varies by sex and age.

Age	Married (%) Male	Female
20-24	56.7	77.3
25-29	77.2	86.2
30-34	85.6	88.7
35-39	88.3	88.2
40-44	89.2	85.9
45-49	88.4	82.5
50-54	86.9	77.1
55-59	84.8	70.0
60-64	82.8	61.4
65-69	79.4	51.3
70+	72.8	39.0

11. Age of Spouse

Females (or males) are three years younger (or older) than their spouses.

12. Net Investment Return

8.00% per year, net of expenses.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

13. Salary Increases

Varies by age, ranging from 3.500% to 7.017%.

Age	Salary Increase (%)
20	7.0174
25	6.2040
30	5.1790
35	4.4515
40	3.6589
45	3.5000
50	3.5000
55	3.5000
60	3.5000
65	3.5000
70+	0.0000

14. Increases in Social Security Table Wage Base

3.5% per year.

15. Cost-of-Living Adjustment

3.125% per year for 8 years and 0% thereafter.

16. Increase in Section 415 and Section 401(a)(17) limits

4.5% per year.

17. Changes in actuarial assumptions since last valuation

None.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

1. Actuarial Value of Assets

The market value of assets less unrecognized returns in each of the last five years, but no earlier than October 1, 2005. Initial unrecognized return is equal to the difference between the actual market return and expected market return, and is recognized over a five-year period. The actuarial value is further adjusted, if necessary, to be within 20% of the market value. The actuarial asset value was initialized at the market value as of October 1, 2005.

2. Actuarial Cost Method

The cost method for valuation of liabilities used for this valuation is the Projected Unit Credit method. This is one of a family of valuation methods known as accrued benefit methods. The chief characteristic of accrued benefit methods is that the funding pattern follows the pattern of benefit accrual. Under the Projected Unit Credit Actuarial Cost method, the normal cost is determined as that portion of each participant’s projected benefit attributable to service expected to be earned in the upcoming plan year. The actuarial liability, which is determined for each participant as of each valuation date, represents the actuarial present value of the portion of each participant’s projected benefit attributable to service earned prior to the valuation date.

One of the significant effects of this funding method is that, depending on the demographics of the population, the Projected Unit Credit method tends to produce lower costs in the early years. There is a possibility that as the population ages the annual cost could increase over time. Given a stable population, however, this method can produce a steady contribution as a percentage of payroll.

3. Amortization Method

The basic amortization method is to divide the total UAL of the System by a level dollar 30-year amortization factor. The amortization method is an open method in that the UAL is reamortized at each succeeding year over a new 30-year period.

To reflect the settlement between the Library, the Board of Trustees and the City of St. Louis two Unfunded Accrued Liability Amortization rates are calculated. The Library, Zoo, Art Museum, Tower Grove Park, Taxicab Commission and Mental Health Board collectively called the "Lawsuit Beneficiary Employers" have a reduced UAL Amortization rate to reflect the payments received due to the settlement as of the valuation date. First, the UAL amortization payment is determined for the combined plan (base payment). Second, the value of settlement payments made by the City are set up as gain bases and the Lawsuit Beneficiary Employers have a reduction in the contribution rate determined from the payment on these gain bases and their projected payroll. The

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

City's UAL amortization payment is determined only on the base payment. The Lawsuit Beneficiary Employers' UAL amortization payment is the base payment minus the amortization of the gain bases that result from settlement payments.

4. Changes in Actuarial Methods since last valuation

The amortization method has been changed to comply with the terms of the Library Settlement.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

1. Plan Year

October 1 through September 30.

2. Final Average Compensation

One-half the sum of:
(a) The total compensation earned during the last two highest consecutive years of Creditable Service prior to termination (subject to the Section 401(a)(17) limit); and
(b) The balance of sick leave pay as of the date of retirement less sick leave hours paid upon termination and less sick leave hours considered as Creditable Service. Said balance cannot exceed 25% of a member's total sick leave pay as of the date of retirement.

3. Benefit Compensation Base

Amount of annual compensation with respect to which old age and survivor's insurance benefits would be provided to the member under the Social Security Act in effect on the date the Benefit Compensation Base is determined calculated when the member terminates employment.

4. Normal Retirement

Age Requirement:	65.
Service Requirement:	Five years of Creditable Service.
Amount:	The product of: (a) 1.30% of Final Average Compensation up to the Benefit Compensation Base, plus 2.05% of Final Average Compensation in excess of the Benefit Compensation Base, and (b) Creditable Service. Minimum $200 per month for retirees with 12 or more years of creditable service.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

5. Rule of 85 Retirement

Age/Service Requirement:	Sum of Age and Creditable Service at date of termination equals or exceeds 85.
Amount:	The product of: (a) 1.30% of Final Average Compensation up to the Benefit Compensation Base, plus 2.05% of Final Average Compensation in excess of the Benefit Compensation Base, and (b) Creditable Service.

6. Early Retirement

Age/Service Requirement:	Age 60 with five years of Creditable Service; or age 55 with 20 years of Creditable Service; or any age with 30 years of Creditable Service.
Amount:	Normal retirement amount reduced by 1/3% for each month benefit begins before age 65.

7. Disability

Age Requirement	None.
Service Requirement	Five years of Creditable Service and an active employee at disablement.
Amount	Normal retirement amount based on Creditable Service and Final Average Compensation at disability, payable immediately

8. DROP (Deferred Retirement Option Plan)

Members who have achieved eligibility for retirement can continue active employment and defer receipt of their retirement allowance for a period not to exceed five years. During the DROP period, the member’s retirement allowance will be paid directly into a separate account.

Service during the DROP period shall not be counted as Creditable Service, nor shall it count toward determination of retirement allowance. A member’s DROP account shall not be adjusted for any cost-of-living increases during participation in the DROP. No member returning to non-DROP status shall make any withdrawal from his/her DROP account until after termination of employment.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

The account balance is credited with interest annually. In no event does the total account balance exceed the accumulated value of five-years-payments with interest.

The annuity awarded upon full termination and subsequent benefit receipt reflects the unused sick-leave conversion to Creditable Service and/or Final Average compensation. During participation in the DROP, the annual deposit to the account does NOT reflect any conversion of unused sick leave as each participant continues to accrue sick leave hours. The unused credited sick leave hours was frozen as of July 17, 2010.

9. Vesting

Age Requirement:	None.
Service Requirement:	Five years of Creditable Service.
Amount:	Normal or early service retirement amount.

10. Spouse Pre-Retirement Death Benefit

Service less than five years

Age Requirement:	None.
Service Requirement:	Five years of Creditable and an active employee.
Amount:	If married, 100% of the benefit the employee would have received had he or she retired the day before he or she died and elected the joint and 100% survivor option. If the employee died prior to eligibility for early service retirement, the spouse's benefit is deferred to the employee's earliest retirement date. Death benefits may also be payable to members who have terminated employment. The costs of those benefits are paid for by the reduction of the accrued benefit payable to the inactive vested participant.

11. Post-Retirement Death Benefit

If married, the employee and spouse may elect to have pension benefits paid in the form of a 100% joint and survivor annuity. A member may also elect a ten year certain and life equivalent form of benefit. If any one of these options is elected, the benefit amount otherwise payable is reduced to reflect the coverage. If not elected, benefits are payable for the life of the employee without reduction.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

12. Cost-of-Living Adjustment (COLA)

Based on the change in the Consumer Price Index (CPI) for the fiscal year, subject to a maximum increase of 3.125% per year (3.0% for retirements between March 21, 1972 and March 26, 1974; none for retirements prior to March 21, 1972), with a cumulative percentage increase (equal to the sum of the annual percentage increases) limited to 25%. If the increase in CPI is less than 1.0%, no adjustment is made. If the change is a decrease, the cost-of-living adjustment shall be zero unless the decrease is 3.125% or more. Adjustments begin on the second January 1 after payments begin.

13. Creditable Service

Number of years and completed months of service during which the member receives compensation after April 1, 1960. Creditable Service for employment prior to April 1, 1960 is granted only if the member was an employee of an employer of the System on April 1, 1960. Unused credited sick leave shall be considered as Creditable Service provided the member does not receive payment for the sick leave. The amount of credited sick leave was frozen on July 17, 2010.

14. Membership

Immediate upon employment.

15. Section 415 limit

$205,000, effective January 1, 2013.

16. Section 401(a)(17) limit

$255,000, effective January 1, 2013.

17. Changes Since Last Valuation

None.