



**MISSOURI LOCAL GOVERNMENT EMPLOYEES
RETIREMENT SYSTEM**

**Compiled 48th Annual Actuarial Valuations
As of February 29, 2016**

OUTLINE OF CONTENTS

Report of Compiled Actuarial Valuations of LAGERS

<u>Pages</u>	<u>Items</u>
1	Cover Letter
2-4	Comments
5	Summary of Risk Measures
6	Other Observations
	 <i>Financial Principles</i>
A-1	Verbal Summary
A-3	Financing Diagram
A-4	Actuarial Valuation Process
	 <i>Valuation Results</i>
B-1	Computed Employer Contributions: Summary of Amounts of Change
B-3	Schedule of Funding Progress
B-6	Short Condition Test
B-7	Employers Accumulation Fund
B-10	Members Deposit Fund
B-11	Benefit Reserve Fund
B-12	Casualty Reserve Fund
	 <i>Asset Data Used in the Valuations</i>
C-1	Reported Assets
C-2	Investment Activities
C-3	Development of Funding Value of Retirement System Assets
C-5	Summary of Current Asset Information Reported for Valuation
	 <i>Gain/Loss Analysis</i>
D-1	Gain/Loss Analysis
D-2	Development of Total Gain/(Loss)
D-3	Analysis of Financial Experience
D-4	Investment Gain (Loss)
D-5	Active Member Population Reconciliation
	 <i>Benefit Provisions Considered in the Valuation</i>
E-1	Summary of LAGERS Provisions
E-4	Benefit Programs in Effect
	 <i>Participant Data</i>
F-1	Active and Inactive Members
F-9	Active Members Comparative Schedules
F-12	Retired Members and Beneficiaries
G-1	<i>Computed Employer Contributions: Summary of Computed Individual Rates</i>

OUTLINE OF CONTENTS - CONTINUED

Report of Compiled Actuarial Valuations of LAGERS

<u>Pages</u>	<u>Items</u>
	<i>Appendix</i>
H-1	Summary of Assumptions Used in Actuarial Valuations
H-7	Relationship of Economic Assumptions in Computing Contributions to a Retirement System
H-8	Investment Return and Inflation: Past and Future
H-10	Retainer Actuarial Fees

September 6, 2016

The Board of Trustees
Missouri Local Government Employees Retirement System
Jefferson City, Missouri

Submitted in this report are the compiled results of the **48th annual actuarial valuations** for the Missouri Local Government Employees Retirement System, as amended through February 29, 2016. **The date of the valuations** was February 29, 2016.

Actuarial valuations of individual participating employers are made for the purposes of (i) revising employer contribution rates and (ii) examining the reserve strength of each separately experience-rated group. These individual valuations are made annually for each employer who was participating as of the valuation date. Such valuations were made for **1,067 groups (667 employers)**. Actuarial valuations are also made of retired life benefits being paid from the Benefit Reserve Fund to determine the financial condition of this pooled Fund.

This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The signing actuaries are independent of the plan sponsor.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as: plan experience differing from that anticipated by the economic and demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

The valuations were based upon data furnished by LAGERS staff concerning members, retirees and beneficiaries.

The financial assumptions used in making the valuations are shown in the Appendix of this report. Assumptions concerning future experience are needed for computing employer contribution rates. As time passes and actual experience develops, assumed and actual experiences are compared. From time to time one or more of the assumptions about the future are changed by the Board after consulting with the actuary. The assumptions used in performing the 2016 valuations were adopted by the Board in conjunction with a five-year experience investigation for the period ending February 28, 2015.

Your attention is directed particularly to the Comments on pages 2 through 4, and to the Short Condition Test on page B-6. Based upon the 2016 valuations, it is our opinion that **LAGERS continues to satisfy the actuarial principles of level cost financing**.

Mita D. Drazilov and Judith A. Kermans are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



Mita D. Drazilov, ASA, FCA, MAAA



Judith A. Kermans, EA, FCA, MAAA

MDD/JAK:rmg:sc

C0573

-1-

COMMENTS ON VALUATION RESULTS

Individual Valuations of Participating Employers. There were 1,067 new employer contribution rates computed as of February 29, 2016. (Fifty-four groups had no active employees and a dollar contribution was calculated for them. These fifty-four groups are excluded from the totals on this page.) Of the 1,067 new rates, 255 were decreases from the previous rates, 759 were increases from the previous rates and 53 were unchanged. Further detail is shown in Section G. A ten-year comparative schedule follows:

Valuation Date	Decreases	Unchanged	Increases	Total
2-28-2007	536	118	239	893
2-29-2008	577	110	233	920
2-28-2009	71	54	820	945
2-28-2010	201	63	707	971
2-28-2011*	230	41	724	995
2-29-2012	507	61	439	1,007
2-28-2013	595	77	359	1,031
2-28-2014	772	52	231	1,055
2-28-2015	738	80	244	1,062
2-29-2016*	255	53	759	1,067

* Revised financial assumptions and/or funding method.

Decreases in employer contribution rates are seldom a problem. Increases can be a problem. Increases in computed employer contribution rates exceeded decreases due primarily to the adoption of the new actuarial assumptions resulting from the 5-year Experience Study covering the period March 1, 2010 through February 28, 2015.

Experience During Valuation Year. Investment return was below the assumed rate of return on a funding value of assets basis as of February 29, 2016. The actuarial value of assets exceeds the market value of assets by roughly 7% which puts some upward pressure on future contribution rates. (Beginning in 2003, the actuarial value of assets is not allowed to deviate from the market value of assets by more than 20%.) In addition, there is still upward pressure on capped employer contribution rates (approximately 334 valuation groups).

COMMENTS ON VALUATION RESULTS - CONTINUED

Section D of this report presents a summary of the analysis of the economic and non-economic risk areas. For the year ended February 29, 2016, the System experienced an actuarial gain of approximately \$201 million. This primarily consisted of a reduction in the Reserve for Future Experience in the Benefit Reserve Fund.

Retired Life Experience. The Benefit Reserve Fund (BRF) funded ratio decreased from 110.9% to 104.7% as of February 29, 2016, due to a recognized loss on assumed investment return and interest credits, offset somewhat by lower than expected cost-of-living increases. Please refer to page B-11 for detail.

Casualty Reserve Fund. It is our understanding that a \$10 million transfer was made from the Income-Expense Fund (I-EF) to the Casualty Reserve Fund in March 2016. Since the transfer was made subsequent to the valuation date, the results shown on page B-12 do not reflect this transfer.

Funded Ratio. The funded ratio for the System as of the valuation date is 94.7% based on the actuarial value of assets. If the market value of assets were used and the reserve for future experience in the BRF shown on page B-11 were unchanged, the funded ratio would be approximately 88.8%.

**COMMENTS ON
RESERVE STRENGTH OF EACH GROUP BEING SEPARATELY EXPERIENCE-RATED**

"Reserve strength" means the portion of accrued liabilities which are covered by accrued assets. The larger the portion covered, the greater the reserve strength.

At the time a local government joins LAGERS the reserve strength of that new employer is zero because there are no assets, while liabilities (for past service) have been generated.

Contributions to LAGERS are patterned so that reserve strength increases year by year.

However, this underlying pattern is being modified each year as actual financial experiences occur. Experiences more favorable than assumed cause reserve strength to increase more than planned, while less favorable experiences reduce reserve strength. Like snowflakes, no two groups have identical experiences.

In addition, reserve strength is lowered when a local government adopts a higher benefit formula (larger liabilities for past service are generated).

The hundreds of separately experience-rated groups within LAGERS have considerable differences in reserve strength. These differences are summarized on page B-8.

Financially, LAGERS consists of a large number of diverse groups, not a large number of clones of a single LAGERS average.

SUMMARY OF RISK MEASURES

Valuation Date	Funded Ratio	UAAL Amortization Period #	Dollar Standard Deviation of Investment Return / Total Payroll *	UAAL / Total Payroll	Actuarial Value of Assets / Total Payroll	Total AAL / Total Payroll
2-28-2007	96.1%	44	33.6%	12.5%	310.4%	322.9%
2-29-2008	97.5	NA	32.6	8.3	323.6	331.9
2-28-2009	80.0	NA	21.6	64.6	259.0	323.6
2-28-2010	81.0	97	27.8	63.1	269.8	333.0
2-28-2011	81.6	43	32.7	66.1	292.1	358.2
2-29-2012	83.5	34	34.4	62.2	314.4	376.6
2-28-2013	86.5	26	37.0	52.4	336.3	388.7
2-28-2014	91.7	21	41.1	33.4	370.1	403.4
2-28-2015	94.4	21	43.6	24.0	408.5	432.5
2-29-2016	94.7	24	39.3	23.3	419.2	442.5

Aggregate amortization period for all employers combined.

* Assumes System goal of a 10% standard deviation.

Funded ratio: The funded ratio is expected to trend toward 100% based on the current funding policy.

UAAL Amortization Period: The aggregate amortization period is for all employers combined. Each employer has specific amortization periods for their respective amortization bases.

Standard Deviation of Investment Return / Total Payroll: This measure illustrates the impact of a one standard deviation change in investment return as a percent of payroll. Investment return experience other than expected ultimately affects the employer contribution rates. The higher the ratio of this risk metric, the greater the expected volatility in employer contribution rates. Absent changes in investment policy, this metric is expected to increase as the assets grow to 100% of the AAL.

UAAL / Total Payroll: The ratio of the unfunded actuarial accrued liability to payroll is expected to trend toward to 0%.

Funding Value of Assets / Total Payroll: As the funded ratio increases, this ratio is expected to converge to the ratio of Total AAL / Payroll.

Total AAL / Total Payroll: Total AAL / Total Payroll is expected to grow as the system matures and in general remain constant thereafter.

OTHER OBSERVATIONS

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 7.25% on the actuarial value of assets), it is expected that:

- (1) Each employer's normal cost as a percentage of pay is expected to remain level in the absence of significant changes due to hiring patterns of each employer. However, given the small number of active members in many of the participating valuation groups, the employer normal cost may change significantly from one valuation to the next.
- (2) The unfunded actuarial accrued liabilities for each employer is expected to be fully amortized after completion of their respective amortization periods.
- (3) In general, the funded status for each employer is expected to trend gradually towards a 100% funded ratio.

When selecting a contribution allocation procedure, the following three items should be considered, including the balance amongst the three items:

- (1) Benefit security,
- (2) Intergenerational equity, and
- (3) Contribution stability and predictability.

Generally, given the nature of public employee retirement systems (e.g., level contribution financing objective and perceived ongoing nature of the plan or plan sponsor), intergenerational equity and contribution stability and predictability have received more consideration than benefit security when contribution allocation procedures are selected. However, given the importance of benefit security to any retirement system, we suggest that contributions to the System in excess of those presented in the annual valuation reports be considered.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

- (1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.
- (2) The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
- (3) The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets, unless the market value of assets is used in the measurement.

SECTION A
FINANCIAL PRINCIPLES

FINANCIAL PRINCIPLES AND OPERATIONAL TECHNIQUES OF LAGERS

Promises Made, and To Be Paid For. As each year is completed, the System in effect hands an "IOU" to each member then acquiring a year of service credit -- the "IOU" says: "The Missouri Local Government Employees Retirement System owes you one year's worth of retirement benefits, payments in cash commencing when you qualify for retirement."

The related *key financial questions* are:

Which generation of taxpayers contributes the money to cover the IOU?

The present taxpayers, who receive the benefit of the member's present year of service?

Or the future taxpayers, who happen to be in Missouri at the time the IOU becomes a cash demand?

LAGERS intends that this year's taxpayers contribute the money to cover the IOUs being handed out this year. By following this principle, ***the employer contribution rate will remain approximately level from generation to generation*** -- our children and our grandchildren will contribute the same percents of pay we contribute now.

(There are Systems which have a design for deferring contributions to future taxpayers lured by a lower contribution rate now and putting aside the fact that the contribution rate must relentlessly grow much greater over decades of time -- consume now, and let your children face your ***financial pollution*** after you have retired.)

An inevitable by-product of the level-cost design is the accumulation of reserve assets, for decades, and the income produced when the assets are invested. ***Invested assets are a by-product and not the objective.*** ***Investment income*** becomes in effect ***the third contributor*** for benefits to employees and is interlocked with the contribution amounts required from employees and employers.

Translated to actuarial terminology, this level-cost objective means that the contribution rates must total at least the following:

Normal Cost (the cost of members' service being rendered this year)

... plus ...

Interest on Unfunded Actuarial Accrued Liabilities (unfunded actuarial accrued liabilities are the difference between: liabilities for members' service already rendered and the accrued assets of the governmental unit in the plan).

Computing Contributions to Support System Benefits. From a given schedule of benefits and from the employee data and asset data furnished, the actuary determines the contribution rates to support the benefits by means of *an actuarial valuation and a funding method.*

An actuarial valuation has a number of ingredients such as: the rate of investment return which plan assets will earn; the rates of withdrawal of active members who leave covered employment before qualifying for any monthly benefit; the rates of mortality; the rates of disability; the rates of pay increases; and the assumed age or ages at actual retirement.

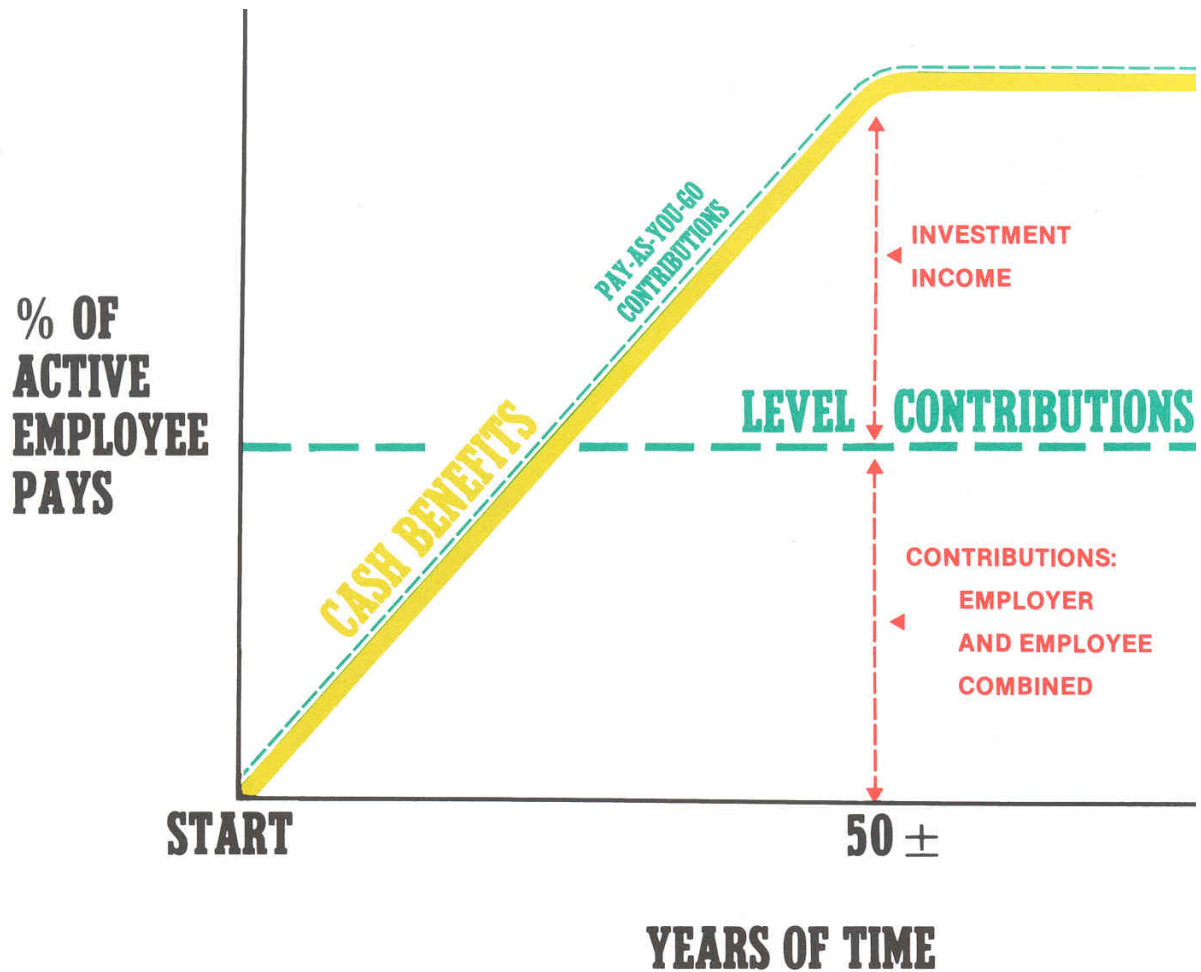
In making an actuarial valuation, the System must assume what the above experience will be for the next year and for decades in the future. Only the subsequent actual experience of the System can indicate the degree of accuracy of the assumptions.

Reconciling Differences Between Assumed Experience and Actual Experience. Once actual experience has occurred and been observed, it will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions and regardless of the skill of the actuary and the calculations made. The future can be predicted with considerable but not complete precision, except that inflation seems to defy reliable prediction.

LAGERS copes with these continually changing differences by having *annual actuarial valuations*, separately for each participating employer group. Each annual actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is continually changing employer contribution rates.

Generally, the size of an annual change in an employer rate is less than one percent of payroll (up or down), particularly for the larger groups, where activities of one or two employees have little effect on the group's status. In periods of volatile investment markets, groups with large Employer Accumulation Fund (EAF) balances may experience larger changes in computed rates.

To avoid causing employer budget problems, LAGERS provides a maximum annual increase of one percent of payroll for any one participating employer. Beginning with the February 28, 1999 valuations, the maximum allowed annual decrease in an employer contribution rate is also one percent of payroll, unless it is clear that a larger decrease will likely be long term in nature. (For example, if a change in active group size appears to not be temporary.)



CASH BENEFITS LINE. This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

LEVEL CONTRIBUTION LINE. Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:

Economic Risk Areas

- Rates of investment return
- Rates of pay increase
- Changes in active member group size

Non-Economic Risk Areas

- Ages at actual retirement
- Rates of mortality
- Rates of withdrawal of active members (turnover)
- Rates of disability

THE ACTUARIAL VALUATION PROCESS

The *actuarial valuation* is the mathematical process by which the contribution rate is determined, and the flow of activity constituting the valuation may be summarized as follows:

- A. ***Covered people data***, furnished by plan administrator, including:
 - Retired lives now receiving benefits
 - Former employees with vested benefits not yet payable
 - Active employees

- B. + ***Asset data*** (cash & investments), furnished by plan administrator

- C. + ***Assumptions concerning future financial experiences in various risk areas***, which assumptions are established by the Board of Trustees after consulting with the actuary

- D. + ***The funding method*** for determining employer contributions (the long-term, planned pattern for employer contributions)

- E. + ***Mathematically combining the assumptions, the funding method, and the data***

- F. = Determination of:
 - Plan financial position***
 - and/or ***New Employer Contribution Rate***.

SECTION B
VALUATION RESULTS

CHANGE IN EMPLOYER CONTRIBUTIONS*
BY VALUATION GROUPS FEBRUARY 29, 2016

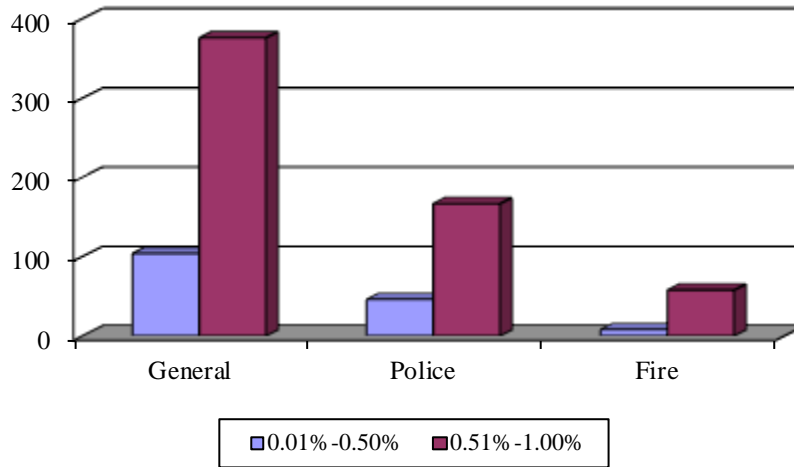
Group	Number of Active Members	Number of Valuation Groups with Indicated Change in Employer Contribution Rate						Totals
		Decreases			Unchanged 0.00%	Increases		
		Over 1.00%	0.51% to 1.00%	0.01% to 0.50%		0.01% to 0.50%	0.51% to 1.00%	
General:	1 - 9	17	26	8	23	44	171	289
	10 - 49	16	18	27	14	38	138	251
	50 & up	<u>6</u>	<u>6</u>	<u>16</u>	<u>2</u>	<u>22</u>	<u>67</u>	<u>119</u>
	Totals	39	50	51	39	104	376	659
Police:	1 - 9	14	13	8	5	26	76	142
	10 - 49	16	7	18	4	13	78	136
	50 & up	<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>7</u>	<u>13</u>	<u>25</u>
	Totals	31	21	28	10	46	167	303
Fire:	1 - 9	6	5	5	3	3	18	40
	10 - 49	10	5	3		5	34	57
	50 & up	—	<u>1</u>	—	<u>1</u>	—	<u>6</u>	<u>8</u>
	Totals	16	11	8	4	8	58	105
Totals		86	82	87	53	158	601	1,067

* Includes changes in employer contribution rates due to actual experience, changes in actuarial assumptions and changes in actuarial methods. It does not include changes in employer contribution rates due to benefit program changes.

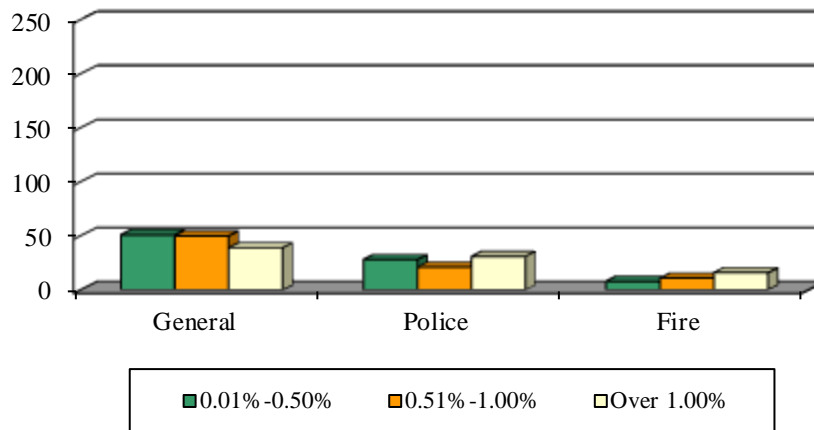
In broad terms, the smaller the group, the greater the chance of a relatively large change in employer rate from one year to the next.

CHANGE IN EMPLOYER CONTRIBUTION RATE* BY VALUATION GROUP

Increases



Decreases



* Includes changes in employer contribution rates due to actual experience, changes in actuarial assumptions and changes in actuarial methods. It does not include changes in employer contribution rates due to benefit program changes. (LAGERS provides a maximum annual increase of one percent of payroll in the absence of benefit changes for any one participating employer.)

SCHEDULE OF FUNDING PROGRESS

Each time a new employer joins the System, or an employer adopts a higher level of benefits, unfunded actuarial accrued liabilities are created. The law governing the System requires that these additional obligations be financed systematically over a period of future years.

In an inflationary economy the value of dollars is decreasing. This environment results in employee pays increasing in dollar amounts, retirement benefits increasing in dollar amounts, and then, unfunded actuarial accrued liabilities, all at a time when the actual substance of these items may be decreasing. Looking at just the dollar amounts of unfunded actuarial accrued liabilities can be misleading. Unfunded actuarial accrued liability dollars divided by active employee payroll provides an index which helps understanding. The smaller the ratio of unfunded liabilities to active member payroll, the stronger the System.

Valuation Date	(a) Actuarial Value of Assets	(b) Entry Age Actuarial Accrued Liability	(b-a) Unfunded Accrued Liability (UAL)	(a/b) Funded Ratio	(c) Annual Covered Payroll	[(b-a)/c] UAL as a % of Covered Payroll
2-28-2007	\$ 3,557,389,198	\$ 3,700,813,660	\$ 143,424,462	96.1%	\$ 1,146,094,426	12.5%
2-29-2008	3,957,068,611	4,058,828,886	101,760,275	97.5	1,222,745,363	8.3
2-28-2009	3,330,662,923	4,161,775,258	831,112,335	80.0	1,285,952,041	64.6
2-28-2010	3,592,225,739	4,432,331,886	840,106,147	81.0	1,331,226,335	63.1
2-28-2011 #	3,945,085,880	4,837,423,311	892,337,431	81.6	1,350,646,560	66.1
2-29-2012	4,274,440,345	5,120,274,198	845,833,853	83.5	1,359,655,784	62.2
2-28-2013	4,692,218,862	5,423,684,243	731,465,381	86.5	1,395,261,077	52.4
2-28-2014	5,388,198,677	5,873,910,959	485,712,282	91.7	1,456,008,487	33.4
2-28-2015	5,972,471,342	6,324,109,191	351,637,849	94.4	1,462,218,216	24.0
2-29-2016 #	6,320,171,438	6,671,352,337	351,180,899	94.7	1,507,588,470	23.3

Revised actuarial assumptions.

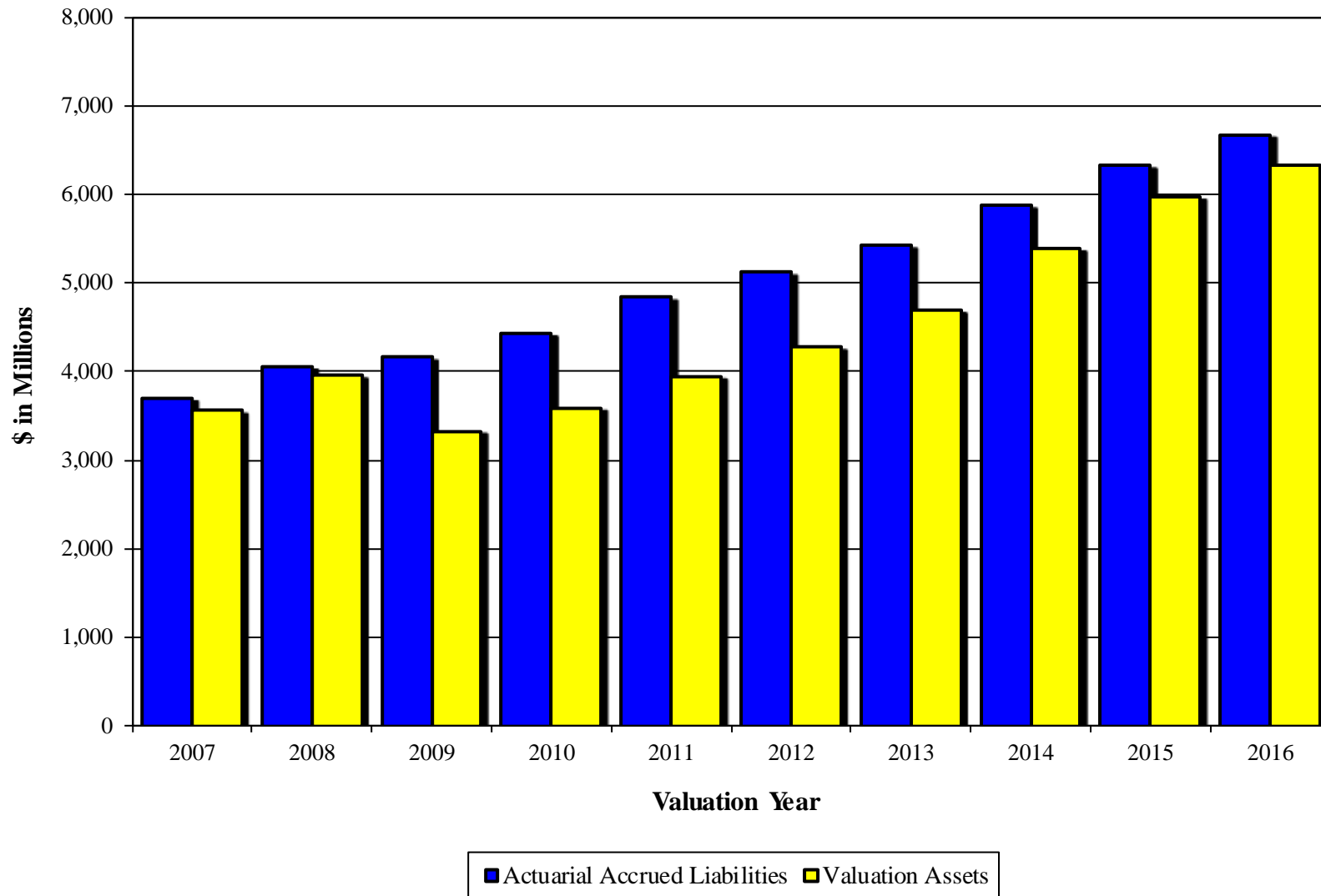
Each employer participating in the System is financially responsible for its own obligation. Accordingly, the aggregate numbers presented on this and the following pages are indicative only of the overall condition of the System and are not indicative of any one employer.

Factors that generally have a downward effect on the funded ratio include:

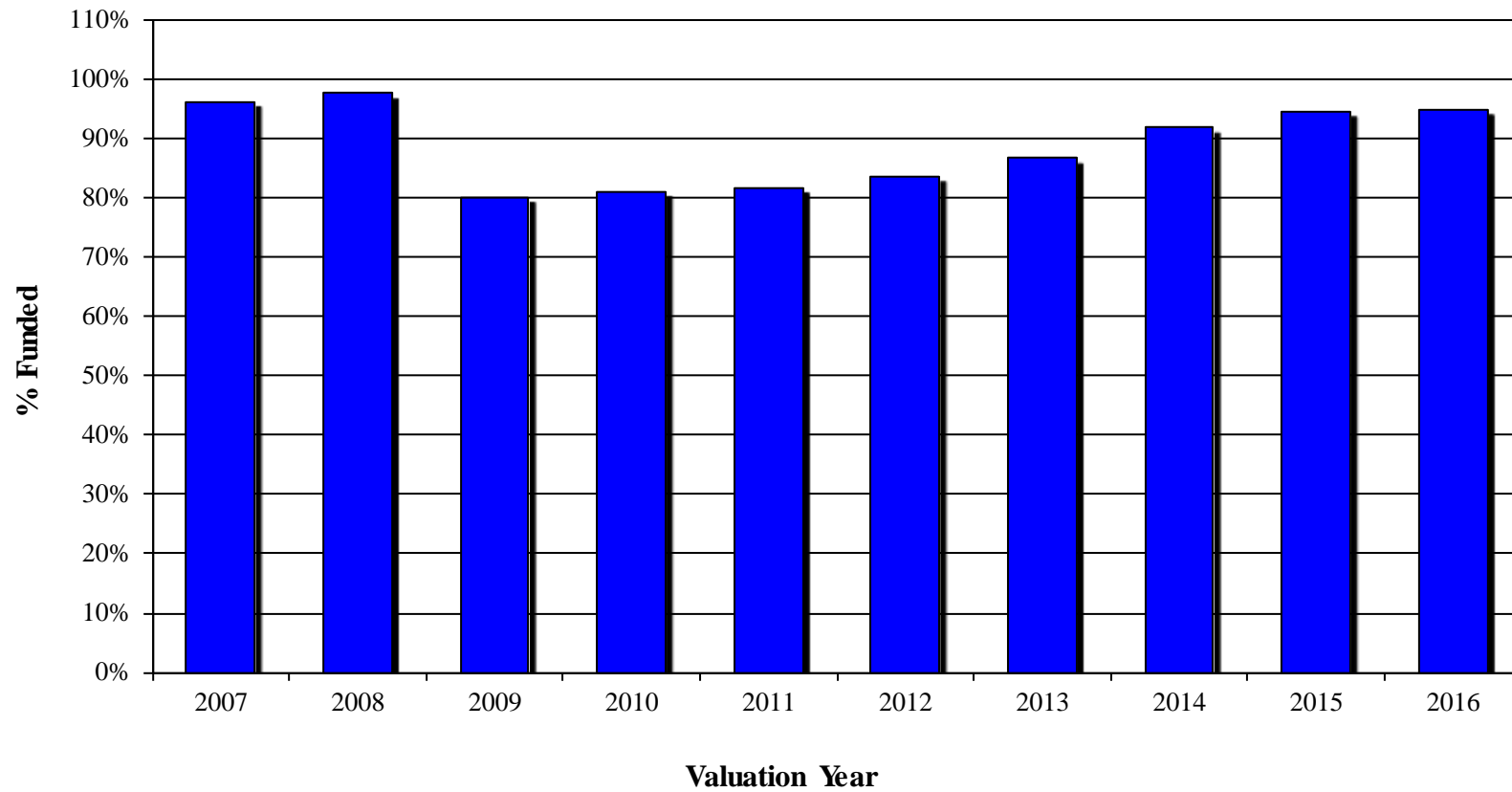
- Employers adopting new benefit programs. For example, before reflecting the benefit changes adopted by political subdivisions during the year, the 2-28-2015 and 2-29-2016 Funded Ratios would have been 94.6% (instead of 94.4%) and 95.0% (instead of 94.7%), respectively.
- New employers joining LAGERS (who at time of joining do not have assets on hand to cover actuarial accrued liabilities associated with past service). For example, before including new political subdivisions joining LAGERS during the year, the 2-29-2016 Funded Ratio would have been 94.8% (instead of 94.7%).
- The planned reduction in funding levels (through reduced employer contributions) for employers that are over 100% funded.

Factors that generally have an upward effect on the funded ratio include scheduled employer contributions and favorable investment experience.

PORTION OF ACTUARIAL ACCRUED LIABILITIES COVERED BY VALUATION ASSETS



VALUATION ASSETS AS A PERCENT OF ACTUARIAL ACCRUED LIABILITIES



SHORT CONDITION TEST

The LAGERS funding objective is to meet long-term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System will *pay all promised benefits when due -- the ultimate test of financial soundness*. Testing for level contribution rates is the long-term test.

A short condition test is one means of checking a System's progress under its funding program. In a short condition test, the plan's present assets (cash and investments) are compared with the actuarial accrued liabilities for: (1) active member contributions on deposit; (2) future benefits to present retired lives; and (3) service already rendered by active members. In a System that has been following the discipline of level percent of payroll financing, the liabilities for active member contributions on deposit and for future benefits to present retired lives will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members will be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the System.

The schedule below illustrates the most recent 10-year history of the System's actuarial accrued liabilities and is indicative of the LAGERS policy of following the discipline of level percent-of-payroll financing.

Comparative Schedule

Valuation Date	Entry Age Accrued Liability For			Actuarial Value of Assets	Portion of Accrued Liability Covered by Assets		
	(1) Active Member Contributions	(2) Retirants and Beneficiaries*	(3) Active Members (Employer Financed Portion)		(1)	(2)	(3)
	2-28-2007	\$ 80,282,208	\$ 1,327,231,970		\$ 2,293,299,482	\$ 3,557,389,198	100%
2-29-2008	83,469,819	1,508,613,771	2,466,745,296	3,957,068,611	100	100	96
2-28-2009	86,881,969	1,473,463,652	2,601,429,637	3,330,662,923	100	100	68
2-28-2010	92,054,693	1,562,886,567	2,777,390,626	3,592,225,739	100	100	70
2-28-2011 #	98,127,911	1,737,107,211	3,002,188,189	3,945,085,880	100	100	70
2-29-2012	102,637,353	1,954,579,782	3,063,057,063	4,274,440,345	100	100	72
2-28-2013	107,120,593	2,132,575,405	3,183,988,245	4,692,218,862	100	100	77
2-28-2014	129,399,490	2,401,194,322	3,343,317,147	5,388,198,677	100	100	85
2-28-2015	133,985,740	2,797,401,342	3,392,722,109	5,972,471,342	100	100	90
2-29-2016 #	137,652,896	2,896,669,106	3,637,030,335	6,320,171,438	100	100	90

Revised actuarial assumptions.

* Includes reserve for future experience.

EMPLOYERS ACCUMULATION FUND

The Employers Accumulation Fund assets totaled \$3,278,700,980 as of February 29, 2016 based on the actuarial value of assets. The individual participating Employers Accumulation Fund accrued liabilities (entry age normal cost method) were computed to be \$3,629,881,879 as of that date.

Each time a new employer joins the System, or an employer adopts a higher level of benefit, unfunded accrued liabilities are created. The law governing the System requires that these additional EAF liabilities be financed systematically over a period of future years.

Each employer is financially responsible for its own EAF liabilities. Accordingly, the aggregate numbers presented for the Employers Accumulation Fund are indicative only of overall condition and not indicative of the status of any individual employer.

Aggregate Accrued Liabilities and Actuarial Value of Assets Comparative Statement

Valuation Date	Actuarial Value of Assets	Aggregate Accrued Liabilities	Ratio of Assets to Liabilities*
2-28-2007	\$2,134,329,993	\$2,277,754,455	93.7%
2-29-2008	2,347,624,427	2,449,384,702	95.8
2-28-2009	1,941,813,012	2,583,636,842	75.2
2-28-2010	2,082,626,984	2,751,711,380	75.7
2-28-2011#	2,225,518,352	2,970,498,686	74.9
2-29-2012	2,373,234,521	3,040,800,711	78.0
2-28-2013	2,539,356,780	3,163,926,221	80.3
2-28-2014	2,841,763,098	3,327,475,380	85.4
2-28-2015	3,027,965,806	3,379,603,655	89.6
2-29-2016#	3,278,700,980	3,629,881,879	90.3

Revised actuarial assumptions.

* The larger the ratio of assets to liabilities, the greater the reserve strength of the Employers Accumulation Fund.

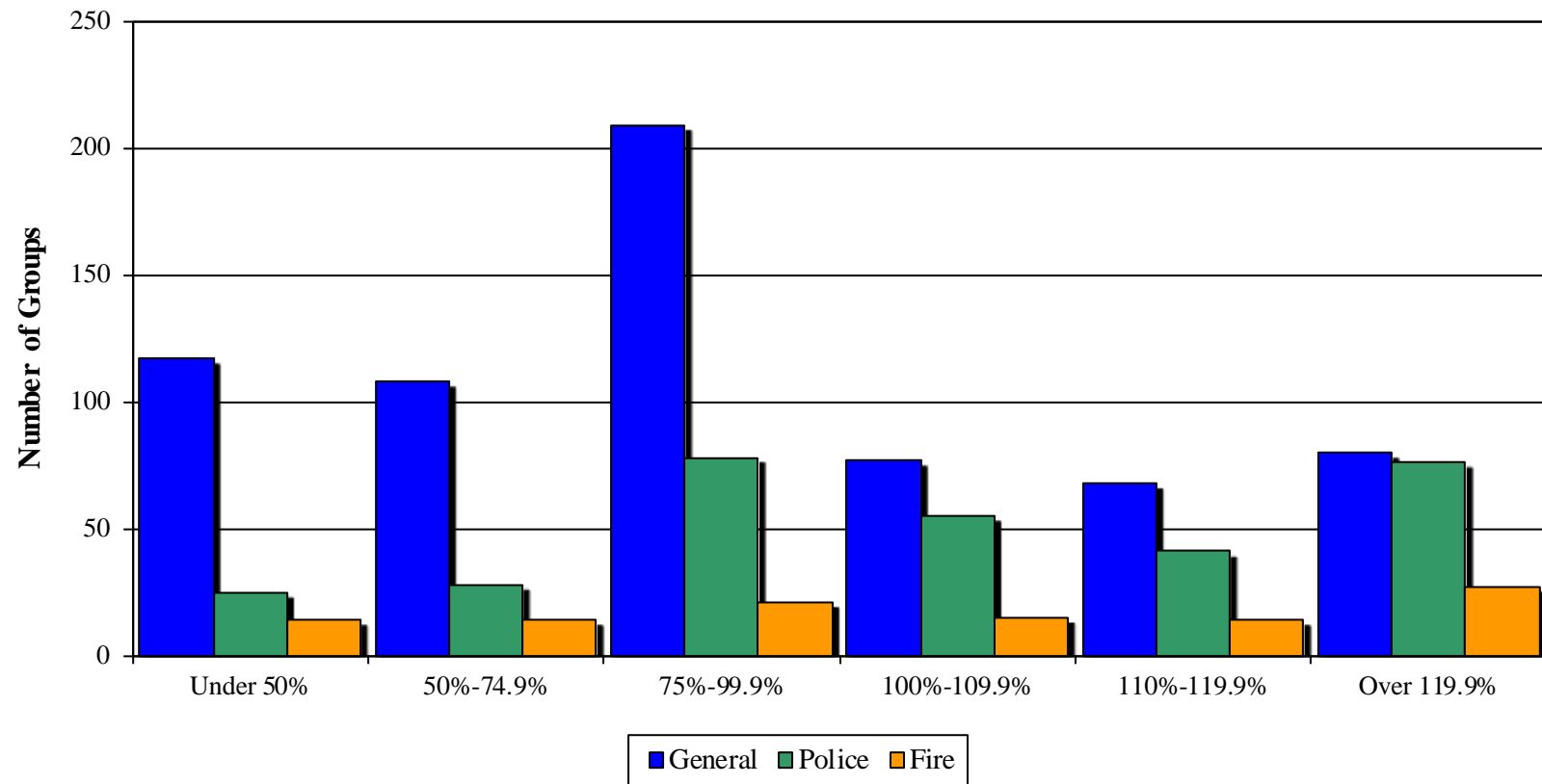
**EMPLOYERS ACCUMULATION FUND
PORTION OF LIABILITIES COVERED BY ASSETS
BY VALUATION GROUPS FEBRUARY 29, 2016**

Group	Number of Active Members	Number of Valuation Groups with Assets as a Percent of Actuarial Accrued Liabilities						
		Under 50.0% #	50.0% - 74.9%	75.0% - 99.9%	100.0% - 109.9%	110.0% - 119.9%	Over 119.9%	Totals*
General:	1 - 9	82	69	55	19	21	43	289
	10 - 49	33	30	102	33	28	25	251
	50 & up	<u>2</u>	<u>9</u>	<u>52</u>	<u>25</u>	<u>19</u>	<u>12</u>	<u>119</u>
	Totals	117	108	209	77	68	80	659
Police:	1 - 9	11	13	36	19	12	51	142
	10 - 49	13	14	29	30	26	24	136
	50 & up	<u>1</u>	<u>1</u>	<u>13</u>	<u>6</u>	<u>3</u>	<u>1</u>	<u>25</u>
	Totals	25	28	78	55	41	76	303
Fire:	1 - 9	7	5	7	5	4	12	40
	10 - 49	6	7	12	8	9	15	57
	50 & up	<u>1</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>1</u>	—	<u>8</u>
	Totals	14	14	21	15	14	27	105
Totals*		156	150	308	147	123	183	1,067

* Not included in this tabulation are 54 groups which presently have no active members.

Valuation groups included in these totals are generally from employers recently joining the System.

EMPLOYERS ACCUMULATION FUND PORTION OF LIABILITIES COVERED BY ASSETS



MEMBERS DEPOSIT FUND

The Members Deposit Fund assets for active members totaled \$137,652,896 as of February 29, 2016. The Members Deposit Fund actuarial accrued liabilities are set equal to assets.

Aggregate Actuarial Accrued Liabilities and Actuarial Value of Assets Comparative Statement

Valuation Date	Actuarial Value of Assets	Aggregate Accrued Liabilities	Ratio of Assets to Liabilities
2-28-2007	\$ 80,282,208	\$ 80,282,208	100.0%
2-29-2008	83,469,819	83,469,819	100.0
2-28-2009	86,881,969	86,881,969	100.0
2-28-2010	92,054,693	92,054,693	100.0
2-28-2011	98,127,911	98,127,911	100.0
2-29-2012	102,637,353	102,637,353	100.0
2-28-2013	107,120,593	107,120,593	100.0
2-28-2014	129,399,490	129,399,490	100.0
2-28-2015	133,985,740	133,985,740	100.0
2-29-2016	137,652,896	137,652,896	100.0

BENEFIT RESERVE FUND

The Benefit Reserve Fund assets as of February 29, 2016 totaled \$2,896,669,106 based on the actuarial value of assets. The present value of future benefits was computed to be \$2,767,773,907 as of that date.

When a member retires, there is transferred to the Benefit Reserve Fund a single sum reserve which is expected to cover all future pension benefits; this reserve is calculated based on assumptions about mortality and assumed annual investment return.

Beginning in 1986, each year LAGERS actual investment return rate is credited to the Benefit Reserve Fund. Investment return over the assumed rate provides the money from which the Board can grant benefit increases after retirement. Beginning in 1999, the investment return credit is limited if the funded ratio exceeds 140%. Beginning in 2002, the threshold was changed to 125%. Beginning in 2014, the investment return credit to the Employers Accumulation Fund is limited if the funded ratio of the benefit reserve fund is below 75%.

The most recent such benefit increase occurred October 1, 2015 and consisted of an overall increase of 4% or less.

Actuarial Accrued Liabilities and Accrued Assets Comparative Statement

Annual Valuation Date	Pensions Being Paid	Benefit Increase % Last Oct. 1	Investment Return % Last June 30	Present Value of Future Benefits	Reserve for Future Experience	Accrued Liabilities	Actuarial Value of Assets	Ratio of Actuarial Value of Assets to PVFB
2-28-2007	\$107,261,960	7.0%	15.3%	\$1,203,934,295	\$123,297,675	\$1,327,231,970	\$1,327,231,970	110.2%
2-29-2008	118,839,948	4.0	9.4	1,335,544,346	173,069,425	1,508,613,771	1,508,613,771	113.0
2-28-2009	131,340,234	4.0	7.5	1,473,463,652	0	1,473,463,652	1,284,175,147	87.2
2-28-2010	139,391,994	4.0	(9.1)	1,562,886,567	0	1,562,886,567	1,391,864,816	89.1
2-28-2011 #	150,824,098	4.0	5.4	1,737,107,211	0	1,737,107,211	1,589,750,114	91.5
2-29-2012	169,170,529	4.0	9.8	1,954,579,782	0	1,954,579,782	1,776,312,119	90.9
2-28-2013	184,411,123	4.0	8.7	2,132,575,405	0	2,132,575,405	2,025,679,465	95.0
2-28-2014	199,601,520	4.0	10.1	2,304,570,607	96,623,715	2,401,194,322	2,401,194,322	104.2
2-28-2015	218,892,566	4.0	14.1	2,523,309,015	274,092,327	2,797,401,342	2,797,401,342	110.9
2-29-2016 #	233,448,283	4.0	21.4	2,767,773,907	128,895,199	2,896,669,106	2,896,669,106	104.7

Revised actuarial assumptions.

CASUALTY RESERVE FUND

Beginning with the 1989 valuation, at the time a disability benefit becomes payable there is transferred from the Casualty Reserve Fund to the Benefit Reserve Fund the difference between (i) the full employer reserve covering the disability benefit and (ii) the accrued service liability of the Employer Accumulation Fund for the member who became disabled. Beginning September 2011, this procedure also occurs for duty related death-in-service cases.

Employer contributions to cover the transfers described above are determined on a pooled-group basis (not separately for each financing group). The contribution rates, varying by size of benefit formula, were last changed in 2016.

Benefit Formula	Employer Contribution Rate to the CRF		
	General	Police	Fire
L-1, LT-4	0.2%	0.4%	0.6%
L-3, LT-5	0.3%	0.5%	0.7%
L-7, LT-8	0.3%	0.6%	0.8%
L-9, LT-10, L-12, LT-14	0.4%	0.7%	0.9%
L-6	0.5%	0.8%	1.0%
L-11	0.6%	1.0%	1.2%

If there is a positive balance in the Casualty Reserve Fund at any time, it indicates that cumulative past contributions have fully funded the cumulative past obligations --- similarly, a negative balance would indicate that cumulative past contributions have fallen short of the target. For actuarial valuation purposes, actuarial accrued liabilities equal the actuarial value of assets.

Actuarial Value of Assets at Valuation Dates Comparative Statement

Valuation Date	Employer L-1 Contributions*: Year Ended	Actuarial Value of Assets	Accrued Liabilities	Assets Expressed as Percents of Member Payroll	
				Total	Change
2-28-2007 #	0.3%	\$ 15,545,027	\$ 15,545,027	1.4%	-0.7%
2-29-2008	0.3	17,360,594	17,360,594	1.4	0.0
2-28-2009	0.3	17,792,795	17,792,795	1.4	0.0
2-28-2010	0.3	25,679,246	25,679,246	1.9	0.5
2-28-2011	0.2	31,689,503	31,689,503	2.3	0.4
2-29-2012 @	0.2	22,256,352	22,256,352	1.6	-0.7
2-28-2013	0.2	20,062,024	20,062,024	1.4	-0.2
2-28-2014	0.2	15,841,767	15,841,767	1.1	-0.3
2-28-2015	0.2	13,118,454	13,118,454	0.9	-0.2
2-29-2016	0.2	7,148,456	7,148,456	0.5	-0.4

Reflects a special \$10 million transfer from the Casualty Reserve Fund to the Income-Expense Fund.

@ Reflects a special \$12 million transfer from the Casualty Reserve Fund to the Income-Expense Fund.

* General group.

SECTION C

ASSET DATA USED IN THE VALUATIONS

**REPORTED ACCRUED ASSETS AVAILABLE FOR BENEFITS
FEBRUARY 29, 2016**

Statutory Funds	Reported Assets	Actuarial Value of Assets
Employers Accumulation Fund	\$3,290,012,290	\$3,278,700,980
Members Deposit Fund	137,652,896	137,652,896
Benefit Reserve Fund	2,906,259,763	2,896,669,106
Casualty Reserve Fund	7,172,124	7,148,456
Total	\$6,341,097,073	\$6,320,171,438

The Actuarial Value of Assets is based on market value, but with a 5-year smoothing of the difference between projected investment return, based on the actuarial assumption, and actual market to market returns. The actuarial value of assets is not permitted to deviate from market value by more than 20%. The derivation of the actuarial value of assets (also called the funding value of assets) is shown on pages C-3 and C-4. The funding value adjustment factor is applied to the reported value of assets of each employer (cost value for valuation years 2015 and prior; market value thereafter). The funding value adjustment factor serves two purposes:

- it incorporates the balance in the Income-Expense Fund for actuarial valuation purposes, since it is not allocated until June 30, and
- it converts the reported value of assets to the actuarial value of assets.

The Employers Accumulation Fund represents employer contributions accumulated for benefits to or on behalf of present active and deferred members.

The Members Deposit Fund represents employee contributions accumulated for (1) monthly benefits upon future retirements and (2) refunds upon termination if monthly benefits are not payable.

The Benefit Reserve Fund represents employer and employee reserves held for the monthly benefits being paid to present retired lives.

The Casualty Reserve Fund represents employer contributions accumulated for the added liability incurred when a member becomes a disability retirement.

The Income-Expense Fund represents investment income received less administrative expenses paid. At the end of the System's fiscal year, interest is paid to the other four Funds from this Fund. The February 29, 2016 balance in the Income-Expense Fund was used for valuation purposes.

INVESTMENT ACTIVITIES

A retirement system acquires and invests assets as the result of following the financial objective of level contribution rates. The Board of Trustees of LAGERS has the responsibility for seeing that the assets are invested effectively and within the limits imposed by law. The Board retains professional money managers to assist in the investment process, and reviews their activities throughout each year.

Presented below is a table showing investment credits to the various Funds of the System for the last 5 years.

Rates of Investment Return Allocated to LAGERS Fund Accounts

Year Ended June 30	Investment Credits as % of Fund Balance				Inflation Loss % (CPI)
	Casualty Reserve Fund A	Members Deposit Fund B	Benefit Reserve Fund C	Employer Accumulation Fund D	
	2012	7.25%	0.5%	8.7%	
2013	7.25	0.5	10.1	10.5	1.8
2014	7.25	0.5	14.1	14.8	2.1
2015	7.25	0.5	21.4	35.0	0.1
2016	7.25	0.5	(0.4)	(0.4)	1.0
5-Year Compound Average			10.5%	13.2%	1.3%

- A. Casualty Reserve assets are for the non-accrued service portion of disability benefits to future disabled lives. The investment percent is the rate set for actuarial purposes.
- B. Member Deposit assets are the contributions of present members. The investment percent, set by the Board, affects amounts payable to members who request a refund. The percent does not affect the monthly benefit of a retiring member.
- C. Benefit Reserve assets are for benefits to present retired lives. The investment credit comes from the remainder of net investment return after crediting the Casualty Reserve assets. This revised allocation of investment credits is intended to provide the resources for additional benefit increases after retirement, and is based upon a 1986 change in the LAGERS law. Beginning in 1999, the investment credit to the Benefit Reserve Fund (BRF) is limited, if the funded ratio of the BRF exceeds 140%. Beginning in 2002, the threshold was changed to 125%. In addition, for the 2002 interest credits the BRF interest credit was further reduced to permit a 0.0% interest credit to the EAF. Beginning in 2014, the investment credit to the Employer Accumulation Fund is limited if the funded ratio of the BRF is below 75%.
- D. Employer Accumulation assets are for benefits to future retired lives including the accrued service portion of disability benefits. The investment credit is derived from the remainder of net investment return after crediting the Casualty Reserve assets, followed by a further adjustment for the investment credit to the Member Deposit assets (and beginning in 1999 for any reallocation of investment credits from the Benefit Reserve Fund). The Employer Accumulation Fund is responsible for covering liability increases resulting from inflation losses. For years 2014 and before, the percentages shown include net realized capital gains on sale of investments (cost value). For 2015, the percentages include a recognition of converting fund balance accounting from cost value to market value.

DEVELOPMENT OF FUNDING VALUE OF RETIREMENT SYSTEM ASSETS

Year Ending February 28:	2012	2013	2014	2015
A. Actuarial Value Beginning of Year	\$3,944,916,214	\$4,274,323,523	\$4,692,364,566	\$5,387,990,131
B. Market Value End of Year	4,671,976,739	5,156,055,295	5,984,665,251	6,373,132,885
C. Market Value Beginning of Year	4,422,956,438	4,671,976,739	5,156,055,295	5,984,665,251
D. Non-Investment/Administrative Net Cash Flow	(16,171,398)	(17,911,887)	(8,065,305)	(37,941,951)
E. Investment Income				
E1. Market Total: B-C-D	265,191,699	501,990,443	836,675,261	426,409,585
E2. Assumed Rate of Return	7.25%	7.25%	7.25%	7.25%
E3. Amount for Immediate Recognition	285,420,212	309,239,150	339,904,064	389,253,889
E4. Amount for Phased-In Recognition: E1-E3	(20,228,513)	192,751,293	496,771,197	37,155,696
F. Phased-In Recognition of Investment Income				
F1. Current Year: 0.20 x E4	(4,045,703)	38,550,259	99,354,239	7,431,139
F2. First Prior Year	91,698,790	(4,045,703)	38,550,259	99,354,239
F3. Second Prior Year	138,229,222	91,698,790	(4,045,703)	38,550,259
F4. Third Prior Year	(137,718,790)	138,229,222	91,698,790	(4,045,703)
F5. Fourth Prior Year	(28,005,024)	(137,718,788)	138,229,221	91,698,791
F6. Total Recognized Phase-Ins	60,158,495	126,713,780	363,786,806	232,988,725
G. Actuarial Value End of Year				
G1. Preliminary Actuarial Value End of Year: A+D+E3+F6	\$4,274,323,523	\$4,692,364,566	\$5,387,990,131	\$5,972,290,794
G2. Upper Corridor Limit: 120% x B	5,606,372,087	6,187,266,354	7,181,598,301	7,647,759,462
G3. Lower Corridor Limit: 80% x B	3,737,581,391	4,124,844,236	4,787,732,201	5,098,506,308
G4. Actuarial Value End of Year	\$4,274,323,523	\$4,692,364,566	\$5,387,990,131	\$5,972,290,794
H. Difference Between Market & Actuarial Value	397,653,216	463,690,729	596,675,120	400,842,091
I. Ratio of Actuarial Value to Market Value	91.5%	91.0%	90.0%	93.7%
J. Actuarial Value Adjustment Factor (ratio of actuarial value to EAF+MDF+CRF+BRF cost value)	1.1487	1.1656	1.2169	1.1914
K. Recognized Rate of Return	8.78%	10.22%	15.01%	11.59%
L. Market Rate of Return	6.01%	10.77%	16.24%	7.15%

The asset valuation method recognizes assumed investment income (line E3) fully each year. Differences between actual and expected investment income (line E4) are phased-in over a closed 5-year period. If in the future, total investment income (line E1) were always equal to assumed investment income (line E3), Funding Value and Market Value would be identical 4 years after the valuation date (line H).

Note: Asset values on this page differ slightly from asset values reported elsewhere in this report, due to a number of miscellaneous closing entries that are not included in the above amounts and rounding.

DEVELOPMENT OF FUNDING VALUE OF RETIREMENT SYSTEM ASSETS

Year Ending February 28:	2016	2017	2018	2019	2020
A. Actuarial Value Beginning of Year	\$5,972,290,794				
B. Market Value End of Year	5,927,009,651				
C. Market Value Beginning of Year	6,373,132,885				
D. Non-Investment/Administrative Net Cash Flow	(60,777,985)				
E. Investment Income					
E1. Market Total: B-C-D	(385,345,249)				
E2. Assumed Rate of Return	7.25%				
E3. Amount for Immediate Recognition	430,787,881				
E4. Amount for Phased-In Recognition: E1-E3	(816,133,130)				
F. Phased-In Recognition of Investment Income					
F1. Current Year: 0.20 x E4	(163,226,626)				
F2. First Prior Year	7,431,139	\$ (163,226,626)			
F3. Second Prior Year	99,354,239	7,431,139	\$ (163,226,626)		
F4. Third Prior Year	38,550,259	99,354,239	7,431,139	\$ (163,226,626)	
F5. Fourth Prior Year	(4,045,701)	38,550,257	99,354,241	7,431,140	\$ (163,226,626)
F6. Total Recognized Phase-Ins	(21,936,690)	(17,890,991)	(56,441,246)	(155,795,486)	(163,226,626)
G. Actuarial Value End of Year					
G1. Preliminary Actuarial Value End of Year: A+D+E3+F6	\$6,320,364,000				
G2. Upper Corridor Limit: 120% x B	7,112,411,581				
G3. Lower Corridor Limit: 80% x B	4,741,607,721				
G4. Actuarial Value End of Year	\$6,320,364,000				
H. Difference Between Market & Actuarial Value	(393,354,349)	(375,463,358)	(319,022,112)	(163,226,626)	
I. Ratio of Actuarial Value to Market Value	106.6%				
J. Actuarial Value Adjustment Factor (ratio of actuarial value to EAF+MDF+CRF+BRF cost value)	0.9967				
K. Recognized Rate of Return	6.88%				
L. Market Rate of Return	(6.08)%				

The asset valuation method recognizes assumed investment income (line E3) fully each year. Differences between actual and expected investment income (line E4) are phased-in over a closed 5-year period. If in the future, total investment income (line E1) were always equal to assumed investment income (line E3), Funding Value and Market Value would be identical 4 years after the valuation date (line H).

Note: Asset values on this page differ slightly from asset values reported elsewhere in this report, due to a number of miscellaneous closing entries that are not included in the above amounts and rounding.

**SUMMARY OF CURRENT ASSET INFORMATION
REPORTED FOR VALUATION**

Reported Assets (Including Income/Expense Fund)

Market Value - February 29, 2016	
Cash & equivalents	\$ 13,797,027
Receivables & accruals	(760,711)
Stocks	2,742,999,086
Bonds & government securities	1,626,404,119
Real assets/alpha	1,086,426,668
Strategic assets	458,143,462
Total Current Assets	\$ 5,927,009,651

Revenues and Expenses

Market Value	Year Ended February 28, 2015	Year Ended February 29, 2016
Balance - Beginning of year	\$ 5,984,665,251	\$ 6,373,132,885
Revenues:		
Employees' contributions	15,423,156	15,855,748
Employer contributions	190,399,953	187,279,073
Investment income	528,192,353	(310,607,783)
Total	734,015,462	(107,472,962)
Expenditures:		
Benefit payments	241,750,458	261,989,530
Refund of member contributions	2,014,602	1,923,276
Administrative and investment expenses	101,782,768	74,737,466
Total	345,547,828	338,650,272
Balance - End of Year	<u>\$ 6,373,132,885</u>	<u>\$ 5,927,009,651</u>

SECTION D
GAIN/LOSS ANALYSIS

GAIN/(LOSS) ANALYSIS

Purpose of Gain/Loss Analysis. Regular actuarial valuations provide information about the composite change in unfunded actuarial accrued liabilities -- whether or not the liabilities are increasing or decreasing, and by how much.

However, valuations do not show the portion of the change attributable to each risk area within the Retirement System: the rate of investment income on plan assets; the rates of withdrawal of active members who leave covered employment; the rates of mortality; the rates of disability; the rates of salary increases; the assumed ages at actual retirement. In an actuarial valuation, assumptions are made as to what these rates will be for the next year and for decades in the future.

The objective of a gain and loss analysis is to determine the portion of the change in unfunded actuarial accrued liabilities attributable to each risk area.

The fact that actual experience differs from assumed experience is to be expected. The future cannot be predicted with precision. Changes in the valuation assumption for a risk area should be made when the differences between assumed and actual experience have been observed to be sizable and persistent. One year's gain and loss analysis may or may not be indicative of *long-term trends, which are the basis of financial assumptions.*

**DEVELOPMENT OF TOTAL GAIN/(LOSS)
MARCH 1, 2015 TO FEBRUARY 29, 2016**

Unfunded Accrued Liabilities (UAL), March 1	\$ 351,637,849
Employer Normal Cost	138,943,597
Employer Contributions	187,279,073
Interest	23,741,583
Expected UAL Before Any Changes	327,043,956
Change from Benefit Changes Plus New Employers	25,822,975
Change from Revised Actuarial Assumptions	199,305,988
Expected UAL After All Changes	552,172,919
Actual UAL, February 29	351,180,899
Gain/(Loss) for Year from Experience	\$ 200,992,020

This page measures the actual gain or loss for the year after adjusting for the effect of benefit and assumption changes plus any new employers joining LAGERS during the year.

**ANALYSIS OF FINANCIAL EXPERIENCE
FOR THE YEAR ENDED FEBRUARY 29, 2016**

*Gains and Losses in Pension Accrued Liabilities Resulting from
Differences Between Assumed Experience and Actual Experience*

Type of Activity	Gain or (Loss) For Year Ended 2/29/2016
Age & Service Retirements. If members retire at older ages or with lower final average pay than assumed, there is a gain. If younger ages or higher average pays, a loss.	\$ (2,048,843)
Death-in-Service Benefits. If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	(662,097)
Withdrawal From Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	15,635,652
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	12,755,684
Investment Income. If there is greater investment return on assets than assumed, there is a gain. If less return, a loss.	(21,936,690)
Retiree, Beneficiary and Deferred Activity. Includes members living longer than expected, COLA increases different than expected, etc.	54,216,229
Benefit Reserve Fund. Change in reserve for future experience.	145,197,128
Other. Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, valuation methods, etc.	(2,165,043)
Gain (or Loss) During Year From Experience	\$ 200,992,020

**INVESTMENT GAIN (LOSS)
FOR THE YEAR ENDED FEBRUARY 29, 2016**

Assets, Beginning of Year	\$5,972,290,794
Net Cash Flow	(60,777,985)
Assumed Investment Return	430,787,881
Expected Assets End of Year	6,342,300,690
Actual Assets End of Year	6,320,364,000
Gain/(Loss) for Year	\$ (21,936,690)

ACTIVE MEMBER POPULATION RECONCILIATION
MARCH 1, 2015 TO FEBRUARY 29, 2016

	Actual	Expected
Active Members Beginning of Year	33,104	
Plus New Hires	4,271	
Minus Retirements*	937	1,260.5
Minus Deaths	22	44.0
Minus Disabilities	54	#
Minus Other Terminations	3,027	1,976.5
Active Members End of Year	33,335	

* Actual retirements include 89 retirees at or above the age where retirements are assumed to occur 100% of the time. Expected retirements include 413 retirees at or above the age where retirements are assumed to occur 100% of the time.

Disability retirements are funded by assets in the pooled Casualty Reserve Fund and by past normal cost contributions for the disabled member.

SECTION E

BENEFIT PROVISIONS CONSIDERED IN THE VALUATION

MISSOURI LOCAL GOVERNMENT EMPLOYEES RETIREMENT SYSTEM
BRIEF SUMMARY OF LAGERS
BENEFITS AND CONDITIONS EVALUATED AND/OR CONSIDERED
THROUGH FEBRUARY 29, 2016
(SECTION REFERENCES ARE TO RSMO)

Voluntary Retirement. Sections 70.645 & 70.600. A member may retire with an age & service allowance after both (i) completing 5 years of credited service, and (ii) attaining the minimum service retirement age.

The minimum service retirement age is age 60 for a general employee and age 55 for a police or fire employee. Optionally, employers may also elect to provide for unreduced benefits for employees whose combination of years of age and years of service equals 80 or more.

Final Average Salary. Section 70.600. The average of a member's monthly compensation during the period of 60 consecutive months (or optionally, 36 consecutive months) of credited service producing the highest monthly average, which period is contained within the 120 consecutive months of credited service immediately preceding retirement.

Age & Service Allowance. Section 70.655. The allowance, payable monthly for life, equals a specified percent of a member's final average salary multiplied by the number of years of credited service. Each employer elects the percent applicable to its members, from the following programs:

L-1 Benefit Program:	1.00% for life
L-3 Benefit Program:	1.25% for life
L-7 Benefit Program:	1.50% for life
LT-4 Benefit Program:	1.00% for life, plus 1.00% to age 62
LT-5 Benefit Program:	1.25% for life, plus 0.75% to age 62
LT-8 Benefit Program:	1.50% for life, plus 0.50% to age 62
LT-4(65) Benefit Program:	1.00% for life, plus 1.00% to age 65
LT-5(65) Benefit Program:	1.25% for life, plus 0.75% to age 65
LT-8(65) Benefit Program:	1.50% for life, plus 0.50% to age 65
L-9 Benefit Program:	1.60% for life
LT-10(65) Benefit Program:	1.60% for life, 0.40% to age 65
L-12 Benefit Program:	1.75% for life
LT-14(65) Benefit Program:	1.75% for life, 0.25% to age 65
L-6 Benefit Program:	2.00% for life
L-11 Benefit Program:	2.50% for life

The only LT benefit programs available for adoption after August 1, 1994 are the LT(65) programs.

Benefit programs L-9 and LT-10(65) are unavailable for adoption after August 1, 2005.

Benefit program L-11 is only available to groups not covered by Social Security.

Subsequent to joining the System the governing body can elect to change benefit programs for the employees, but not more often than once every 2 years.

MISSOURI LOCAL GOVERNMENT EMPLOYEES RETIREMENT SYSTEM
BRIEF SUMMARY OF LAGERS
BENEFITS AND CONDITIONS EVALUATED AND/OR CONSIDERED
THROUGH FEBRUARY 29, 2016
(SECTION REFERENCES ARE TO RSMO)
(CONTINUED)

Early Allowance. Section 70.670. A member may retire with an early allowance after both (i) completing 5 years of credited service, and (ii) attaining age 55 if a general employee or age 50 if a police or fire employee.

The early allowance amount, payable monthly for life, is computed in the same manner as an age & service allowance, based upon the service and earnings record to time of early retirement, but reduced to reflect the fact that the age when payments begin is younger than the minimum service retirement age. The amount of the reduction is 1/2% of 1% (.005) for each month the age at retirement is younger than the minimum service retirement age.

Deferred Allowance. Section 70.675. If a member leaves LAGERS-covered employment (i) before attaining the early retirement age, and (ii) after completing 5 years of credited service, the member becomes eligible for a deferred allowance; provided the former member lives to the minimum service retirement age and does not withdraw the accumulated contributions.

The deferred allowance amount, payable monthly for life from the minimum service retirement age, is computed in the same manner as an age & service allowance, based upon the service and earnings record to time of leaving LAGERS coverage.

Deferred allowances are also payable any time after reaching the early retirement age, with the reduction for early retirement noted above.

Non-Duty Disability Allowance. Section 70.680. A member with 5 or more years of credited service who becomes totally and permanently disabled from other than duty-connected causes becomes eligible to receive a non-duty disability allowance computed in the same manner as an age & service allowance, based upon the service & earnings record to time of disability.

Duty Disability Allowance. Section 70.680. A member regardless of credited service who becomes totally and permanently disabled from duty-connected causes becomes eligible to receive a duty disability allowance computed in the same manner as an age & service allowance, based upon the earnings record to time of disability but based upon the years of credited service the member would have completed had the member continued in LAGERS-covered employment to age 60.

Death-in-Service. Section 70.661. Upon the death of a member who had completed 5 years of credited service, the eligible surviving dependents receive the following benefits:

- (a) The surviving spouse receives an allowance equal to the Option A allowance (joint and 75% survivor benefit) computed based upon the deceased members' service & earnings record to time of death.
- (b) When no spouse benefit is payable, the dependent children under age 18 (age 23 if they are full-time students) each receive an equal share of 60% of an age & service allowance computed based upon the deceased member's service & earnings record to time of death.

**MISSOURI LOCAL GOVERNMENT EMPLOEES RETIREMENT SYSTEM
BRIEF SUMMARY OF LAGERS
BENEFITS AND CONDITIONS EVALUATED AND/OR CONSIDERED
THROUGH FEBRUARY 29, 2016
(SECTION REFERENCES ARE TO RSMO)
(CONCLUDED)**

(c) If the death is determined to be duty related, the 5-year service requirement is waived and the benefit is based on years of credited service the member would have completed had the member continued in LAGERS-covered employment to age 60.

Benefit Changes After Retirement. Section 70.655. For retirements effective after September 28, 1975, there is an annual redetermination of monthly benefit amount, beginning the October first following 12 months of retirement. As of each October first, the amount of each eligible benefit is redetermined as follows:

- (a) Subject to the maximum in (b), the redetermined amount is the amount otherwise payable multiplied by: 100% plus up to 4%, as determined by the LAGERS Board of Trustees, for each full year of retirement.
- (b) The redetermined amount may not exceed the amount otherwise payable multiplied by the ratio of the Consumer Price Index for the immediately preceding month of June to the Consumer Price Index for the month of June immediately preceding retirement.

Member Contributions. Sections 70.690 & 70.700. Each member contributes 4% of compensation beginning after completion of sufficient employment of 6 months of credited service.

If a member leaves LAGERS-covered employment before an allowance is payable, the accumulated contributions are refunded to the member. If the member dies, his accumulated contributions are refunded to a designated beneficiary.

The law governing LAGERS also has a provision for the adoption of a non-contributory plan in which the full cost of LAGERS participation is paid by the employer. Adoption of the non-contributory provisions may be done at the time of membership or a later date; however, a change from contributory to non-contributory or vice-versa may not be made more frequently than every 2 years. Under the non-contributory provisions there is no individual account maintained for each employee and no refund of contributions if an employee terminates before being eligible for a benefit.

Employer Contributions. Section 70.730. Each employer contributes the remainder amounts necessary to finance the employees' participation in LAGERS. Contributions to LAGERS are determined based upon level percent-of-payroll principles, so that contribution rates do not have to increase over decades of time.

BENEFIT PROGRAMS IN EFFECT AS OF FEBRUARY 29, 2016

Benefit programs now available to each employer are:

L-1, since 1967	LT-8(65), since 1994
L-3, since 1975	L-9, since 1995
LT-4, since 1977	LT-10(65) since 1995
LT-4(65), since 1994	L-11, since 2000
LT-5, since 1977	L-12, since 2005
LT-5(65), since 1994	LT-14(65), since 2005
L-6, since 1987	Non-Contributory, since 1983
L-7, since 1988	3-Year Final Average Salary (FAS), since 1984
LT-8, since 1988	Rule of 80, since 1988

The only LT benefit programs that can be adopted after August 1, 1994 are the LT(65) programs. Benefit programs L-9 and LT-10(65) are unavailable for adoption after August 1, 2005. Please see pages E-1 through E-3 for a summary of LAGERS provisions.

When the 2016 actuarial valuations were made, the Benefit Programs evaluated were as follows:

FAS	Groups	Benefit Programs																								Totals
		Non-Contributory												Contributory												
		L-1	L-3	LT-4	LT-5	L-6	L-7	LT-8	L-9	LT-10	L-11	L-12	LT-14	L-1	L-3	LT-4	LT-5	L-6	L-7	LT-8	L-9	LT-10	L-11	L-12	LT-14	
5 yr.	General	40	33	2	4	28	51	10	3	2		4	3	63	30	2		18	32	4	2			2	1	334
	Police	18	14	1	2	15	34	4	2			3		26	14			13	15	1						162
	Fire	<u>2</u>	<u>4</u>	<u>1</u>	–	<u>8</u>	<u>9</u>	<u>3</u>	–	–		<u>2</u>	<u>1</u>	<u>6</u>	<u>5</u>	–		<u>8</u>	<u>6</u>	–	–			<u>1</u>	–	<u>56</u>
	Totals	60	51	4	6	51	94	17	5	2		9	4	95	49	2		39	53	5	2			3	1	552
3 yr.	General	13	23		4	58	56	18	9	7	2	28	6	23	22	1		30	31	2	4	2		4	1	344
	Police	4	12		4	27	23	13	7	3	1	16	4	8	5	1		16	14	2	2		1	1	1	165
	Fire	<u>3</u>	<u>4</u>		<u>3</u>	<u>10</u>	<u>5</u>	<u>9</u>	<u>1</u>	<u>1</u>	<u>4</u>	<u>7</u>	<u>2</u>	–	<u>1</u>	–	<u>1</u>	<u>4</u>	<u>3</u>	–	–	–	<u>1</u>	<u>1</u>	–	<u>60</u>
	Totals	20	39		11	95	84	40	17	11	7	51	12	31	28	2	1	50	48	4	6	2	2	6	2	569

The above LT columns include both the LT(62) and LT(65) benefit programs. The table includes 54 groups with no active members.

SECTION F
PARTICIPANT DATA

PARTICIPATING EMPLOYERS EVALUATED FEBRUARY 29, 2016

Type of Group	Number of Participating Employers
General Only	324
Police Only	0
Fire Only	15
General and Police	238
General and Fire	25
General and Police and Fire	65
Total	667

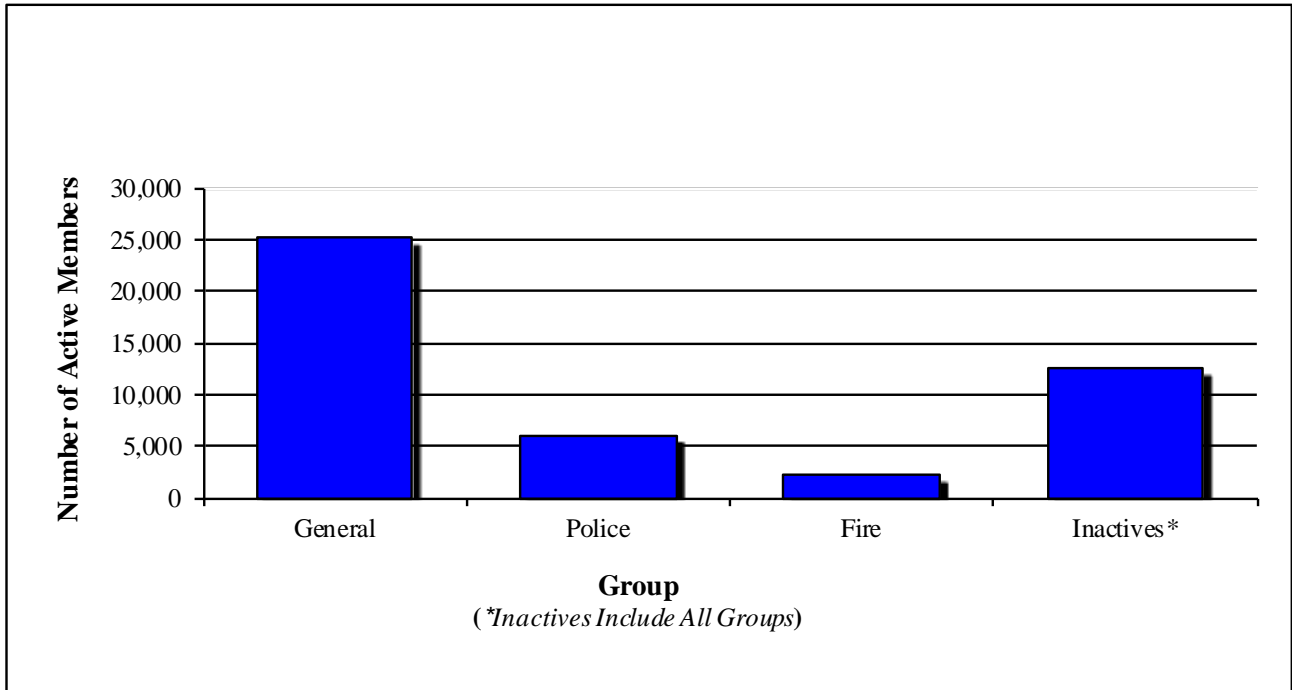
ACTIVE AND INACTIVE MEMBERS IN VALUATIONS FEBRUARY 29, 2016

Classification	Number of		Annual Payroll
	Members	Valuation Groups*	
Active Members			
General	25,116	659	\$1,093,323,293
Police	6,057	303	294,369,372
Fire	<u>2,162</u>	<u>105</u>	<u>119,895,805</u>
Total Actives	33,335	1,067	\$1,507,588,470
Inactive Members #	<u>12,515</u>		
Total Members	45,850		

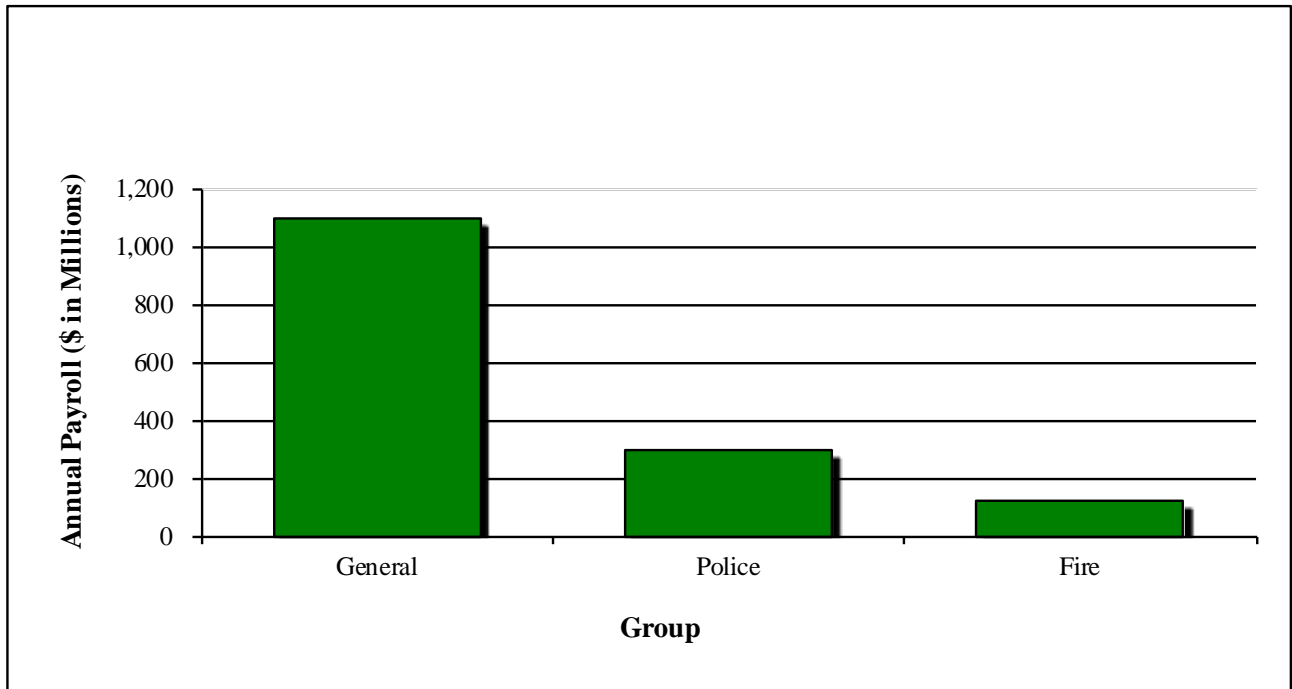
* Each Police group and each Fire group is evaluated separately. Each General group is evaluated separately, but also may be broken into sub-groups for separate financial experience if the employer desires separate employer rates for internal accounting purposes.

Inactive members are individuals who terminated employment after 5 or more years of LAGERS service, with rights to a deferred benefit commencing at age 60 (age 55 for police and fire members). In addition, members who terminated with one employer and have worked or are now working for another LAGERS-covered employer are included in this number count ("linked members"). There are 8,501 linked records included in the above total.

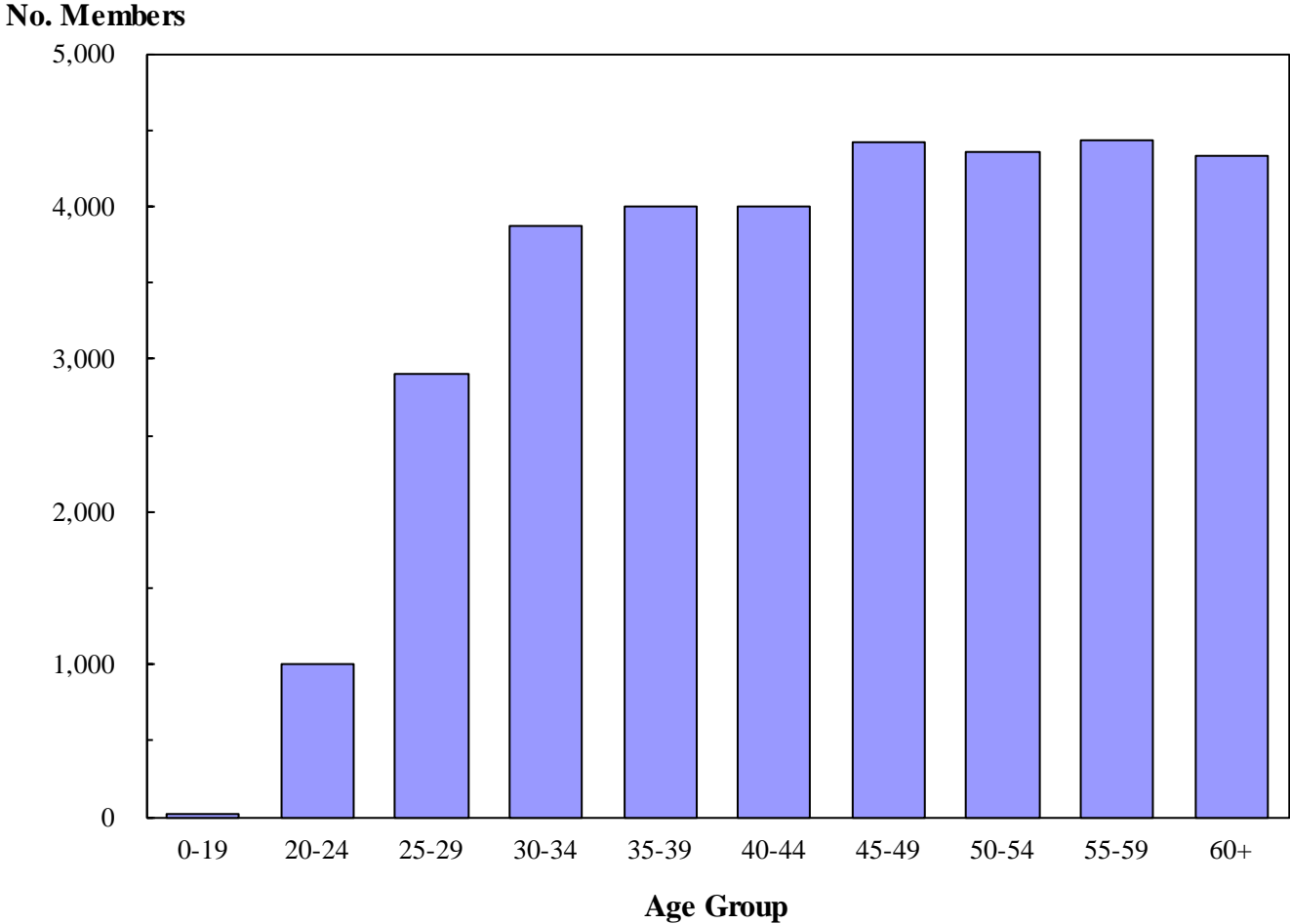
ACTIVE MEMBERS BY GROUP



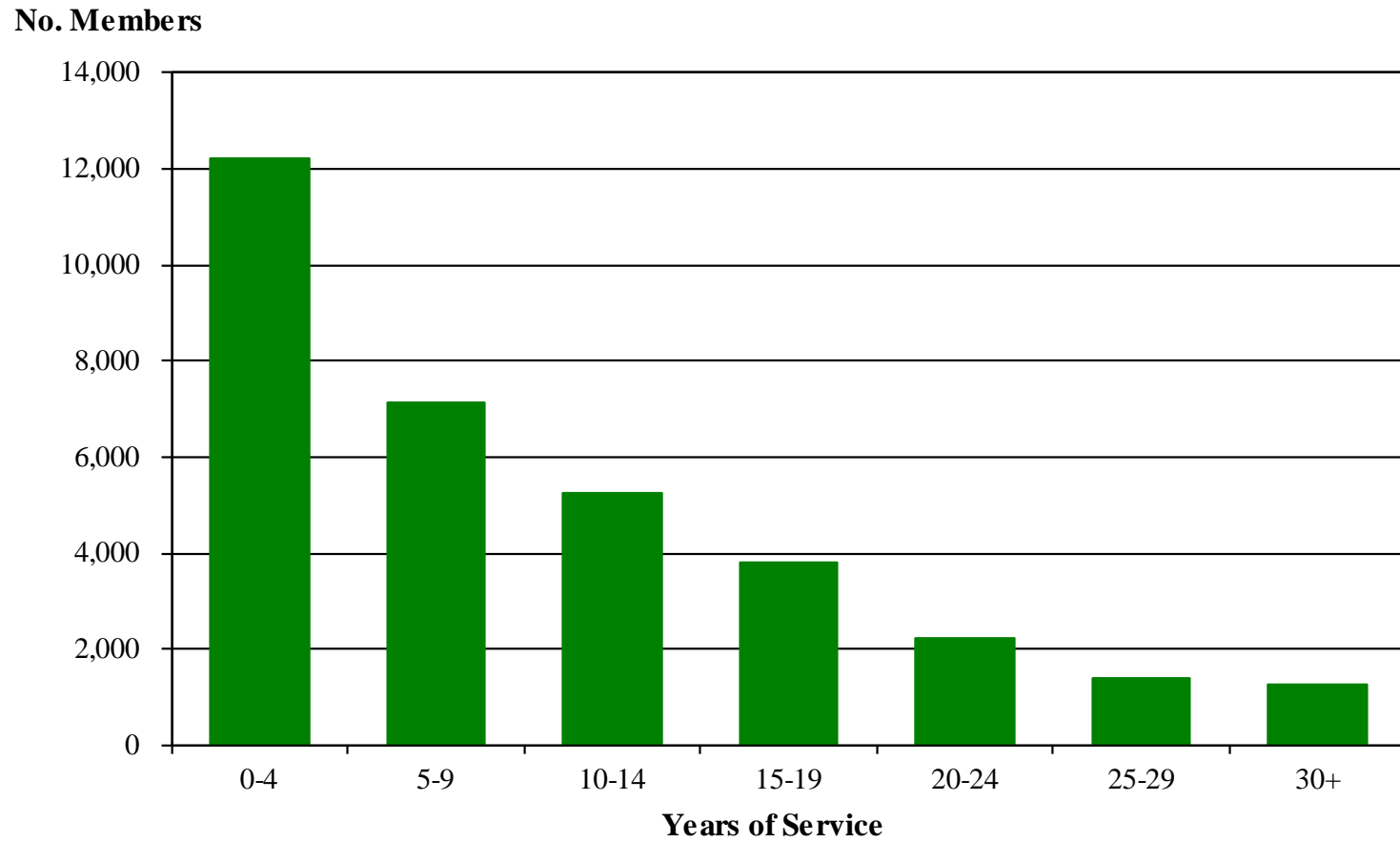
ANNUAL PAYROLL BY GROUP



**DISTRIBUTION OF ACTIVE MEMBERS
BY AGE
FEBRUARY 29, 2016**



**DISTRIBUTION OF ACTIVE MEMBERS
BY SERVICE
FEBRUARY 29, 2016**



GENERAL MEMBERS - MEN
ACTIVE AS OF FEBRUARY 29, 2016
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	12							12	\$ 292,715
20-24	424	5						429	12,535,592
25-29	804	169	6					979	34,540,792
30-34	741	448	187	9				1,385	57,547,996
35-39	597	409	359	153	4			1,522	69,631,185
40-44	501	340	325	263	102	1		1,532	75,788,408
45-49	443	375	327	288	220	87	3	1,743	89,312,357
50-54	433	373	355	288	232	220	98	1,999	104,451,688
55-59	401	359	338	310	213	193	296	2,110	106,203,238
60	66	48	53	58	42	32	55	354	17,651,392
61	65	63	62	41	28	20	60	339	17,305,796
62	56	55	58	41	30	32	58	330	16,476,126
63	50	37	42	32	24	8	32	225	11,607,946
64	44	38	30	29	22	16	33	212	10,386,961
65	26	42	21	19	10	10	18	146	7,167,570
66	15	23	22	13	9	9	22	113	6,514,459
67	18	25	15	8	10	3	10	89	4,567,749
68	10	21	13	11	3	3	7	68	3,738,517
69	9	15	11	4	2	1	1	43	2,272,492
70 & Over	38	34	38	28	12	5	15	170	6,057,341
Totals	4,753	2,879	2,262	1,595	963	640	708	13,800	\$654,050,320

While not used in the financial computations, the following *group averages* are computed and shown because of their general interest.

Age: 46.5 years
Service: 11.0 years
Annual Pay: \$47,395

GENERAL MEMBERS - WOMEN
ACTIVE AS OF FEBRUARY 29, 2016
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	1							1	\$ 26,569
20-24	282	0						282	7,523,137
25-29	733	94	0					827	26,120,925
30-34	624	348	98	3				1,073	38,979,101
35-39	553	354	218	68	1			1,194	46,405,762
40-44	454	319	191	168	54	4		1,190	47,523,292
45-49	497	324	283	221	126	49	1	1,501	61,651,377
50-54	444	323	284	253	145	118	40	1,607	65,150,440
55-59	416	358	309	303	196	112	127	1,821	74,445,407
60	61	64	69	83	45	23	32	377	15,889,718
61	57	53	45	29	30	20	28	262	10,813,161
62	47	40	48	32	40	23	19	249	9,774,047
63	25	46	48	37	28	14	18	216	8,556,839
64	26	25	40	25	21	6	9	152	5,760,470
65	31	38	32	23	20	5	10	159	6,371,557
66	13	23	23	16	5	6	11	97	3,636,641
67	12	19	10	17	9	5	3	75	2,662,965
68	5	14	11	6	4	3	4	47	1,668,948
69	9	12	6	9	6	5	9	56	1,973,730
70 & Over	21	19	29	28	14	9	10	130	4,338,887
Totals	4,311	2,473	1,744	1,321	744	402	321	11,316	\$439,272,973

While not used in the financial computations, the following *group averages* are computed and shown because of their general interest.

Age: 46.9 years
Service: 9.9 years
Annual Pay: \$38,819

**POLICE MEMBERS
ACTIVE AS OF FEBRUARY 29, 2016
BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	0							0	\$ -
20-24	221	0						221	7,693,686
25-29	770	92	0					862	33,454,527
30-34	582	390	66	0				1,038	45,322,698
35-39	333	304	266	51	0			954	44,626,405
40-44	217	178	230	251	41	0		917	47,096,304
45-49	170	135	153	179	162	36	0	835	45,745,879
50-54	77	74	87	70	91	103	23	525	30,164,893
55-59	72	42	57	36	38	61	65	371	21,416,358
60	10	11	9	7	15	10	13	75	4,402,619
61	6	12	13	4	3	8	14	60	3,144,690
62	5	6	4	6	5	4	12	42	2,311,179
63	7	9	5	2	6	6	5	40	2,360,656
64	3	5	6	7	0	1	5	27	1,765,968
65	1	6	2	1	3	2	7	22	1,135,215
66	0	3	2	1	3	0	2	11	633,090
67	1	2	2	1	1	1	5	13	840,304
68	2	2	1	1	0	0	2	8	433,888
69	2	0	3	3	2	1	0	11	639,071
70 & Over	4	7	1	5	1	5	2	25	1,181,942
Totals	2,483	1,278	907	625	371	238	155	6,057	\$294,369,372

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 40.3 years
Service: 9.4 years
Annual Pay: \$48,600

FIRE MEMBERS
ACTIVE AS OF FEBRUARY 29, 2016
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	73	0						73	\$ 2,785,519
25-29	201	35	0					236	9,910,914
30-34	158	182	38	0				378	18,369,024
35-39	90	135	85	23	0			333	17,422,765
40-44	55	94	99	91	22	1		362	20,919,424
45-49	38	44	85	97	53	22	0	339	20,851,659
50-54	18	17	29	34	50	64	14	226	15,062,152
55-59	13	14	10	12	14	25	45	133	8,846,550
60	2	1	1	3	2	3	9	21	1,459,377
61	1	0	0	2	3	3	7	16	1,127,996
62	1	1	0	0	1	1	7	11	890,410
63	2	1	1	1	0	0	8	13	956,318
64	0	1	2	2	1	1	0	7	307,139
65	1	0	0	0	0	0	2	3	184,543
66	0	1	0	0	0	1	2	4	293,337
67	0	0	0	0	1	0	1	2	136,946
68	0	0	0	0	2	0	0	2	180,539
69	0	0	0	0	0	0	1	1	75,177
70 & Over	0	0	0	0	0	0	2	2	116,016
Totals	653	526	350	265	149	121	98	2,162	\$119,895,805

While not used in the financial computations, the following *group averages* are computed and shown because of their general interest.

Age: 40.8 years
Service: 11.2 years
Annual Pay: \$55,456

PARTICIPATING EMPLOYERS AND MEMBERS IN VALUATIONS
10-YEAR COMPARATIVE STATEMENT

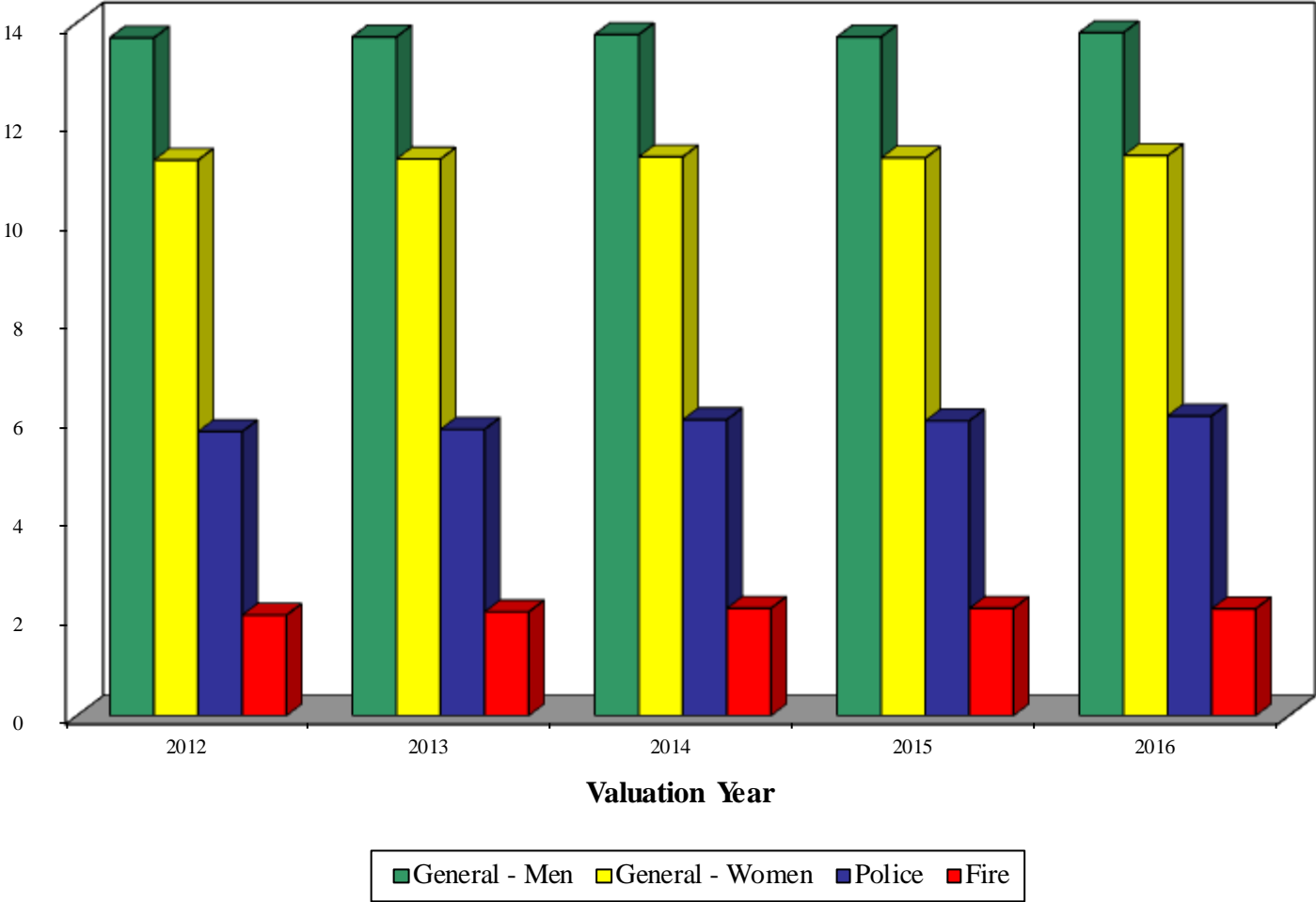
Valuation Date	Number of		Active Members				Inflation Increase % (C.P.I.)
	Participating Employers	Valuation Groups	Number	Annual Payroll	Average Pay	% Increase	
2-28-2007	546	893	30,521	\$1,146,094,426	\$37,551	3.9%	2.4%
2-29-2008	563	920	31,187	1,222,745,363	39,207	4.4	4.0
2-28-2009	578	945	32,291	1,285,952,041	39,824	1.6	0.2
2-28-2010	597	971	32,975	1,331,226,335	40,371	1.4	2.1
2-28-2011	608	995	32,851	1,350,646,560	41,114	1.8	2.1
2-29-2012	618	1,007	32,690	1,359,655,784	41,592	1.2	2.9
2-28-2013	640	1,031	32,840	1,395,261,077	42,487	2.2	2.0
2-28-2014	654	1,055	33,205	1,456,008,487	43,849	3.2	1.1
2-28-2015	663	1,062	33,104	1,462,218,216	44,170	0.7	0.0
2-29-2016	667	1,067	33,335	1,507,588,470	45,225	2.4	1.0
10-Year Compound Average						1.9%	1.5%

ACTIVE MEMBERS IN VALUATIONS - GROUP AVERAGES
(AVERAGES NOT USED IN VALUATIONS; COMPUTED AND SHOWN BECAUSE OF
GENERAL INFORMATION VALUE)

Group	Valuation at 2-28	No. of Members	----- Group Averages -----		Annual Payroll		Inflation Increase % (C.P.I)
			(In Years) Age	Service	Average	Change	
General - Men	2007	13,082	45.4	10.4	\$ 39,742	+4.3	+2.4
	2008	13,360	45.5	10.4	41,277	+3.9	+4.0
	2009	13,665	45.6	10.4	42,076	+1.9	+0.2
	2010	13,989	45.8	10.5	42,393	+0.8	+2.1
	2011	13,798	46.1	10.9	43,271	+2.1	+2.1
	2012	13,695	46.2	11.0	43,553	+0.7	+2.9
	2013	13,714	46.4	11.0	44,541	+2.3	+2.0
	2014	13,761	46.5	11.0	46,048	+3.4	+1.1
	2015	13,712	46.4	11.0	46,269	+0.5	+0.0
	2016	13,800	46.5	11.0	47,395	+2.4	+1.0
General - Women	2007	10,657	45.7	8.9	31,788	+3.4	+2.4
	2008	10,952	45.8	9.0	33,254	+4.6	+4.0
	2009	11,435	45.9	9.0	33,871	+1.9	+0.2
	2010	11,574	46.2	9.3	34,536	+2.0	+2.1
	2011	11,296	46.6	9.6	35,041	+1.5	+2.1
	2012	11,224	46.8	9.8	35,603	+1.6	+2.9
	2013	11,245	47.0	9.9	36,411	+2.3	+2.0
	2014	11,291	47.1	9.9	37,442	+2.8	+1.1
	2015	11,268	47.0	9.9	37,821	+1.0	+0.0
	2016	11,316	46.9	9.9	38,819	+2.6	+1.0
Police	2007	5,217	39.7	9.0	40,789	+4.2	+2.4
	2008	5,243	39.7	9.0	42,973	+5.4	+4.0
	2009	5,427	39.8	9.0	43,584	+1.4	+0.2
	2010	5,566	40.0	9.2	44,256	+1.5	+2.1
	2011	5,753	40.2	9.3	44,448	+0.4	+2.1
	2012	5,740	40.4	9.5	45,043	+1.3	+2.9
	2013	5,784	40.4	9.5	45,885	+1.9	+2.0
	2014	5,982	40.4	9.3	47,279	+3.0	+1.1
	2015	5,956	40.4	9.4	47,742	+1.0	+0.0
	2016	6,057	40.3	9.4	48,600	+1.8	+1.0
Fire	2007	1,565	40.8	12.0	47,687	+1.8	+2.4
	2008	1,632	40.7	11.8	50,106	+5.1	+4.0
	2009	1,764	40.2	11.2	49,397	-1.4	+0.2
	2010	1,846	40.3	11.1	49,914	+1.0	+2.1
	2011	2,004	40.3	11.1	50,932	+2.0	+2.1
	2012	2,031	40.4	11.1	51,721	+1.5	+2.9
	2013	2,097	40.5	11.2	52,259	+1.0	+2.0
	2014	2,171	40.8	11.2	53,782	+2.9	+1.1
	2015	2,168	40.7	11.2	54,088	+0.6	+0.0
	2016	2,162	40.8	11.2	55,456	+2.5	+1.0

**ACTIVE MEMBERS BY GROUP
2012-2016**

Members (Thousands)



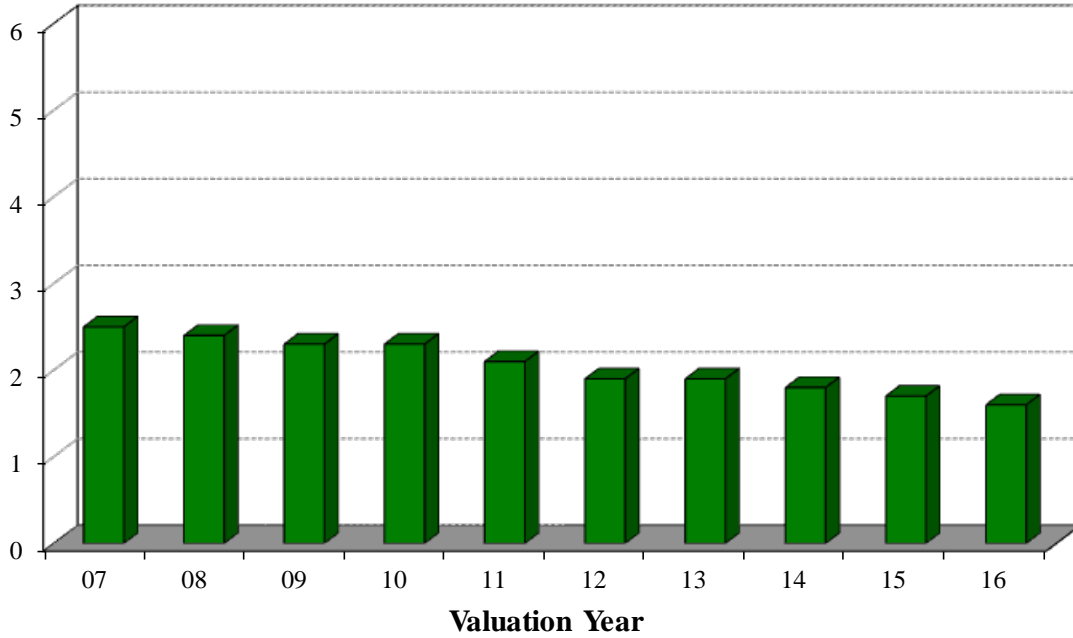
**RETIRANTS AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS
10-YEAR COMPARATIVE STATEMENT**

Year Ended	Added to Rolls		Removed from Rolls		Rolls End of Year		% Incr. in Annual Allowances	Average Annual Allowances	Retired Lives in Relation to Active Members	
	No.	Annual Allowances*	No.	Annual Allowances	No.	Annual Allowances			Active Members Per Benefit Recipient	Allowances as Percents of Active Payroll
2-28-2007	1,060	\$13,753,477	441	\$ 3,750,959	12,406	\$107,261,960	10.3%	\$ 8,646	2.5	9.4%
2-29-2008	1,259	15,530,468	496	3,952,480	13,169	118,839,948	10.8	9,024	2.4	9.7
2-28-2009	1,227	16,525,323	490	4,025,037	13,906	131,340,234	10.5	9,445	2.3	10.2
2-28-2010	1,197	12,647,092	481	4,595,332	14,622	139,391,994	6.1	9,533	2.3	10.5
2-28-2011	1,399	16,372,009	529	4,939,905	15,492	150,824,098	8.2	9,736	2.1	11.2
2-29-2012	1,519	22,768,228	528	4,421,797	16,483	169,170,529	12.2	10,263	2.0	12.4
2-28-2013	1,524	20,204,275	504	4,963,681	17,503	184,411,123	9.0	10,536	1.9	13.2
2-28-2014	1,586	20,455,414	587	5,265,017	18,502	199,601,520	8.2	10,788	1.8	13.7
2-28-2015	1,698	25,056,006	632	5,764,961	19,568	218,892,566	9.7	11,186	1.7	15.0
2-29-2016	1,715	21,160,239	634	6,604,522	20,649	233,448,283	6.6	11,306	1.6	15.5

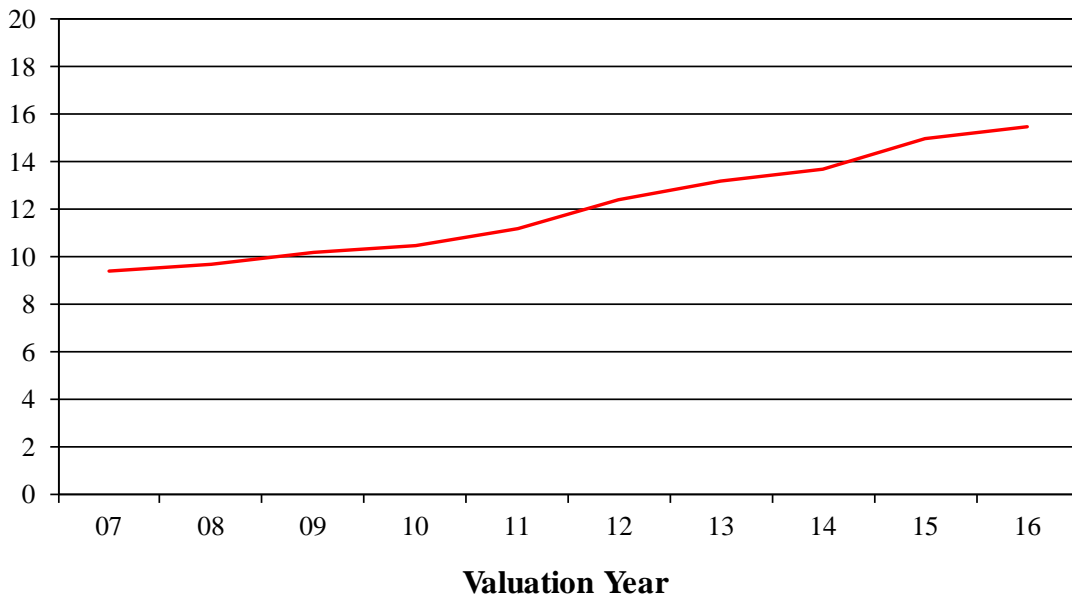
* Includes post-retirement adjustments.

RETIRANTS AND BENEFICIARIES COMPARATIVE DATA

Active Members Per Benefit Recipient



Allowances as % of Active Pay



**RETIRANTS AND BENEFICIARIES ON ROLLS FEBRUARY 29, 2016
BY DISBURSING FUND AND TYPE OF BENEFIT BEING PAID**

Type of Benefit	Number	Annual Allowances
Service Early & Deferred		
Life Option	9,101	\$ 101,187,874
Option A	3,448	43,103,011
Option B	2,346	38,568,436
Option C	2,088	18,159,200
Beneficiary Receiving	<u>1,365</u>	<u>9,324,150</u>
Totals	18,348	210,342,671
Duty Disability		
Life Option	366	6,454,332
Option A	128	1,859,270
Option B	74	1,281,085
Option C	<u>52</u>	<u>734,791</u>
Totals	620	10,329,478
Non-Duty Disability		
Life Option	361	3,190,448
Option A	161	1,529,158
Option B	83	1,019,870
Option C	<u>93</u>	<u>743,117</u>
Totals	698	6,482,593
Beneficiary Receiving	<u>231</u>	<u>1,544,420</u>
Total Disability	1,549	18,356,491
Death-In-Service		
Spouse Receiving	700	4,589,007
Children Receiving	<u>52</u>	<u>160,114</u>
Totals	752	4,749,121
Totals	20,649	\$233,448,283

SECTION G

COMPUTED EMPLOYER CONTRIBUTIONS: SUMMARY OF COMPUTED INDIVIDUAL RATES

**COMPUTED EMPLOYER CONTRIBUTIONS: NON-CONTRIBUTORY PLANS
BY VALUATION GROUPS AS OF FEBRUARY 29, 2016**

Group	Number of Valuation Groups				Totals
	Under 2.00%	2.00- 4.99%	5.00- 7.99%	Over 8.00%	
Benefit Program L-1					
General	13	7	15	14	49
Police	6	7	5	1	19
Fire	<u>1</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>4</u>
Total	20	14	21	17	72
Benefit Program L-3					
General	10	8	18	19	55
Police	4	5	8	7	24
Fire	<u>0</u>	<u>1</u>	<u>1</u>	<u>5</u>	<u>7</u>
Total	14	14	27	31	86
Benefit Program LT-4(62)					
General	0	0	0	0	0
Police	0	0	0	0	0
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	0	0	0	0	0
Benefit Program LT-4(65)					
General	0	0	1	1	2
Police	0	0	1	0	1
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>
Total	0	0	2	2	4
Benefit Program LT-5(62)					
General	1	2	0	0	3
Police	1	0	1	0	2
Fire	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
Total	3	2	1	0	6
Benefit Program LT-5(65)					
General	0	1	1	3	5
Police	0	0	2	2	4
Fire	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>2</u>
Total	1	2	3	5	11
Benefit Program L-6					
General	1	2	2	81	86
Police	2	1	7	32	42
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>15</u>	<u>15</u>
Total	3	3	9	128	143
Benefit Program L-7					
General	6	23	24	50	103
Police	7	12	21	14	54
Fire	<u>1</u>	<u>4</u>	<u>2</u>	<u>7</u>	<u>14</u>
Total	14	39	47	71	171

**COMPUTED EMPLOYER CONTRIBUTIONS: NON-CONTRIBUTORY PLANS
BY VALUATION GROUPS AS OF FEBRUARY 29, 2016
(CONTINUED)**

Group	Number of Valuation Groups				Totals
	Under 2.00%	2.00- 4.99%	5.00- 7.99%	Over 8.00%	
Benefit Program LT-8(62)					
General	0	2	1	0	3
Police	0	0	1	0	1
Fire	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>2</u>
Total	0	3	2	1	6
Benefit Program LT-8(65)					
General	1	4	12	7	24
Police	1	2	3	9	15
Fire	<u>1</u>	<u>2</u>	<u>0</u>	<u>7</u>	<u>10</u>
Total	3	8	15	23	49
Benefit Program L-9					
General	1	3	4	4	12
Police	1	2	3	3	9
Fire	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
Total	3	5	7	7	22
Benefit Program LT-10(65)					
General	1	0	1	7	9
Police	0	0	2	1	3
Fire	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
Total	2	0	3	8	13
Benefit Program L-11					
General	0	0	0	1	1
Police	0	0	0	1	1
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>4</u>
Total	0	0	0	6	6
Benefit Program L-12					
General	1	1	10	20	32
Police	3	2	4	8	17
Fire	<u>3</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>8</u>
Total	7	4	15	31	57
Benefit Program LT-14(65)					
General	0	1	2	6	9
Police	1	0	1	2	4
Fire	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>
Total	1	1	4	10	16
Totals*	71	95	156	340	662

* There are twenty-eight Non-Contributory groups presently without active members. They are not included in the totals.

**COMPUTED EMPLOYER CONTRIBUTIONS: CONTRIBUTORY PLANS
BY VALUATION GROUPS AS OF FEBRUARY 29, 2016**

Group	Number of Valuation Groups				
	Under 2.00%	2.00- 4.99%	5.00- 7.99%	Over 8.00%	Totals
Benefit Program L-1					
General	12	20	29	22	83
Police	5	15	8	2	30
Fire	<u>0</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>6</u>
Total	17	38	38	26	119
Benefit Program L-3					
General	11	6	17	17	51
Police	5	6	1	3	15
Fire	<u>1</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>6</u>
Total	17	13	19	23	72
Benefit Program LT-4(62)					
General	0	0	0	0	0
Police	0	0	0	0	0
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	0	0	0	0	0
Benefit Program LT-4(65)					
General	0	0	2	1	3
Police	0	0	0	0	0
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	0	0	2	1	3
Benefit Program LT-5(62)					
General	0	0	0	0	0
Police	0	0	0	0	0
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	0	0	0	0	0
Benefit Program LT-5(65)					
General	0	0	0	0	0
Police	0	0	0	0	0
Fire	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
Total	0	0	1	0	1
Benefit Program L-6					
General	0	1	6	38	45
Police	5	2	3	18	28
Fire	<u>1</u>	<u>0</u>	<u>1</u>	<u>8</u>	<u>10</u>
Total	6	3	10	64	83
Benefit Program L-7					
General	5	11	20	26	62
Police	5	10	5	8	28
Fire	<u>0</u>	<u>1</u>	<u>0</u>	<u>5</u>	<u>6</u>
Total	10	22	25	39	96

**COMPUTED EMPLOYER CONTRIBUTIONS: CONTRIBUTORY PLANS
BY VALUATION GROUPS AS OF FEBRUARY 29, 2016
(CONCLUDED)**

Group	Number of Valuation Groups				Totals
	Under 2.00%	2.00- 4.99%	5.00- 7.99%	Over 8.00%	
Benefit Program LT-8(62)					
General	0	0	1	0	1
Police	0	0	0	0	0
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	0	0	1	0	1
Benefit Program LT-8(65)					
General	1	0	1	3	5
Police	0	2	0	0	2
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	1	2	1	3	7
Benefit Program L-9					
General	1	2	0	3	6
Police	1	0	0	0	1
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	2	2	0	3	7
Benefit Program LT-10(65)					
General	0	0	0	2	2
Police	0	0	0	0	0
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	0	0	0	2	2
Benefit Program L-11					
General	0	0	0	0	0
Police	0	0	0	1	1
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>
Total	0	0	0	2	2
Benefit Program L-12					
General	1	1	2	2	6
Police	0	1	0	0	1
Fire	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>2</u>
Total	1	2	3	3	9
Benefit Program LT-14(65)					
General	0	0	0	2	2
Police	0	0	0	1	1
Fire	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	0	0	0	3	3
Totals*	54	82	100	169	405

* There are twenty-six contributory groups presently without active members. They are not included in the totals.

SECTION H
APPENDIX

**SUMMARY OF ASSUMPTIONS
USED FOR LAGERS ACTUARIAL VALUATIONS
ASSUMPTIONS ADOPTED BY LAGERS BOARD
AFTER CONSULTING WITH ACTUARY**

The actuarial assumptions used in making the valuations are shown in this Appendix of the report. In accordance with Section 70.605, subsection 14 of the Revised Statutes of Missouri, the Board adopts the actuarial assumptions after receiving the advice of its actuary. The assumptions used in performing the valuations were adopted by the Board in conjunction with a five year investigation for the period ending February 28, 2015. A report of this investigation was issued March 18, 2016. The actuarial assumptions represent estimates of future experience.

ECONOMIC ASSUMPTIONS -----

The investment return rate used in making the valuations was 7.25% per year, compounded annually (net after administrative expenses). The real rate of return is the portion of total investment return which is more than the wage inflation rate. Considering wage inflation recognition of 3.25%, the 7.25% investment return rate translates to an assumed real rate of return of 4.00%. No specific price inflation assumption is required to perform the valuations. However, a price inflation assumption of 2.50% would be consistent with the other economic assumptions. Adopted 2016.

Pay increase assumptions for individual active members are shown for sample ages on pages H-4 and H-5. Part of the assumption for each age is for merit and/or seniority increase, and the other 3.25% recognizes wage inflation. Adopted 2016.

The active member payroll is assumed to increase 3.25% annually, which is the portion of the individual pay increase assumptions attributable to wage inflation. Adopted 2016.

Post-retirement increases are assumed to be 2.50%, compounded annually.

The number of active members per employer is assumed to continue at the present number. Adopted 1967.

NON-ECONOMIC ASSUMPTIONS -----

The *healthy retiree mortality tables*, for post-retirement mortality, used in evaluating allowances to be paid were the RP-2014 Healthy Annuitant mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. The *disabled retiree mortality tables*, for post-retirement mortality, used in evaluating allowances to be paid were the RP-2014 disabled mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. The *pre-retirement mortality tables* used were the RP-2014 employees mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. It was assumed that 50% of pre-retirement deaths would be duty related. For both the post-retirement and pre-retirement tables, the base year for males was then established to be 2017. Mortality rates for a particular calendar year are determined by applying the MP-2015 mortality improvement scale to the above described tables. Related values are shown on page H-3. Adopted 2016.

The probabilities of age and service retirement are shown on page H-3. Adopted 2016.

The probabilities of withdrawal from service and death-in-service are shown for sample ages on pages H-4 and H-5. It is assumed that all contributory members terminating before age 40 or with less than 10 years of service, and a percentage (General: 30%, Police-Fire: 20%) of contributory members terminating after age 40 with 10 or more years of service, withdraw their contributions and forfeit any vested employer-financed benefit. Adopted 2016.

An individual entry age normal cost method of valuation was used in determining age & service allowance normal costs and the allocation of actuarial present values between service rendered before and after the valuation date. The entry age normal cost method has the following characteristics:

- (i) the annual normal costs for each individual active member, payable from the member's actual date of employment to the member's projected date of retirement are sufficient to accumulate the actuarial present value of the member's benefit at the time of retirement; and
- (ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Unfunded accrued liabilities are amortized by level (principal & interest) percent-of-payroll contributions. Actuarial gains or losses for each employer resulting from experience prior to February 28, 2014 are amortized over various closed periods ranging from 15 to 30 years. Actuarial gains or losses for each employer resulting from experience on or after February 28, 2014 are amortized over closed 15-year periods. Benefit changes adopted by employers are amortized over a closed 20-year period. Adoption of the Non-Contributory Refund provision is amortized over a closed 15-year period. Initial unfunded accrued liabilities for new employers joining LAGERS are amortized over closed 30-year periods. Adopted 2014.

Contribution rates for disability retirement are determined using a modified terminal funding method. Contribution rates are periodically adjusted based on the trend of the balance of the Casualty Reserve Fund (CRF). The funding objective is to have assets in the CRF sufficient to cover the portion of the present value of future benefits for future disability retired lives not covered by past normal cost contributions for the disabled member. Adopted 1967.

Future service credit is always assumed to accrue at the rate of 1 year of credit every 12 calendar months. Lower service accrual rates (service breaks or less-than-full-time employment) or higher service accrual rates (addition of military credit or reinstatement of prior service) are reflected as they are reported. Any lower or higher accrual rates may result in small financial gains or losses when reported. Adopted 1967.

The form of benefit payment assumed in the valuation is the Life Option. However, for members with accumulated member contributions, the residual refund available upon an early death after retirement is approximated by assuming pension payments are made for at least 3 years. Adopted 1967.

Employer contribution dollars were assumed to be *paid in equal installments* throughout the employer fiscal year. Adopted 1967.

The Funding Value of Assets recognizes assumed investment return fully each year. Differences between actual and assumed investment return are phased-in over a closed 5-year period. The funding value of assets is not permitted to deviate from the market value of assets by more than 20%. Adopted 1995 and 2003, respectively.

The data about persons now covered and about present assets were furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (MAAA).

**FUTURE LIFE EXPECTANCY
(RP-2014 HEALTHY ANNUITANT MORTALITY TABLE WITH BASE YEAR
OF 2017 FOR MALES AND 2006 FOR FEMALES)**

Sample Ages	Future Life Expectancy (Years)*	
	Men	Women
50	33.24	37.62
55	28.56	32.69
60	24.01	27.89
65	19.66	23.27
70	15.63	18.86
75	11.99	14.79
80	8.84	11.16

* Applicable to calendar year 2016. Values for future years are determined by the above rates and the MP-2015 scale.

**PERCENT OF ELIGIBLE ACTIVE MEMBERS RETIRING
WITHIN THE NEXT YEAR**

Ages	Without Rule of 80 Eligibility				With Rule of 80 Eligibility			
	General*		Police*	Fire*	General		Police	Fire
	Men	Women			Men	Women		
50			2.5%	2.5%	15.0%	15.0%	25.0%	25.0%
51			2.5	2.5	15.0	15.0	25.0	20.0
52			2.5	2.5	15.0	15.0	15.0	20.0
53			2.5	2.5	15.0	15.0	15.0	20.0
54			2.5	2.5	15.0	15.0	15.0	20.0
55	3.0%	3.0%	10.0	13.0	15.0	15.0	15.0	20.0
56	3.0	3.0	10.0	13.0	15.0	15.0	15.0	20.0
57	3.0	3.0	10.0	13.0	15.0	15.0	15.0	25.0
58	3.0	3.0	10.0	13.0	15.0	15.0	15.0	25.0
59	3.0	3.0	10.0	13.0	15.0	15.0	15.0	25.0
60	10.0	10.0	10.0	15.0	15.0	15.0	15.0	35.0
61	10.0	10.0	10.0	15.0	15.0	15.0	25.0	35.0
62	25.0	15.0	25.0	20.0	30.0	15.0	30.0	45.0
63	20.0	15.0	20.0	20.0	30.0	15.0	30.0	45.0
64	20.0	15.0	20.0	20.0	30.0	20.0	30.0	45.0
65	25.0	25.0	100.0	100.0	30.0	25.0	100.0	100.0
66	25.0	25.0			30.0	25.0		
67	20.0	25.0			30.0	25.0		
68	20.0	25.0			30.0	25.0		
69	20.0	20.0			30.0	25.0		
70	100.0	100.0			100.0	100.0		

* First 5 years of retirement pattern only apply to early retirement. Early retirement rates are also applicable if Rule of 80 is adopted.

GENERAL - MEN
SEPARATIONS FROM ACTIVE EMPLOYMENT
BEFORE AGE & SERVICE RETIREMENT
& INDIVIDUAL PAY INCREASE ASSUMPTIONS

Sample Ages	Years of Service	Percent of Active Members Separating within the Next Year			Pay Increase Assumptions for an Individual Employee		
		Death*	Disability	Other	Merit & Seniority	Base (Economy)	Increase Next Year
ALL	0			19.00%			
	1			17.00			
	2			15.00			
	3			13.00			
	4			11.00			
25	5 & Over	0.06%	0.09%	7.30	3.30%	3.25%	6.55%
30		0.05	0.12	6.50	2.50	3.25	5.75
35		0.06	0.15	5.00	2.00	3.25	5.25
40		0.08	0.21	3.70	1.50	3.25	4.75
45		0.13	0.30	3.00	1.00	3.25	4.25
50		0.21	0.44	2.40	0.60	3.25	3.85
55		0.31	0.68	1.80	0.40	3.25	3.65
60		0.50	1.02	1.00	0.30	3.25	3.55
65		0.97		0.00	0.00	3.25	3.25

* Applicable to calendar year 2016. Rates in future years are determined by the above rates and the MP-2015 scale.

GENERAL - WOMEN
SEPARATIONS FROM ACTIVE EMPLOYMENT
BEFORE AGE & SERVICE RETIREMENT
& INDIVIDUAL PAY INCREASE ASSUMPTIONS

Sample Ages	Years of Service	Percent of Active Members Separating within the Next Year			Pay Increase Assumptions for an Individual Employee		
		Death*	Disability	Other	Merit & Seniority	Base (Economy)	Increase Next Year
ALL	0			22.00%			
	1			20.00			
	2			17.00			
	3			14.00			
	4			13.00			
25	5 & Over	0.01%	0.02%	10.80	3.30%	3.25%	6.55%
30		0.02	0.03	8.90	2.50	3.25	5.75
35		0.03	0.06	7.40	2.00	3.25	5.25
40		0.04	0.10	5.70	1.50	3.25	4.75
45		0.06	0.16	4.20	1.00	3.25	4.25
50		0.11	0.24	3.30	0.60	3.25	3.85
55		0.17	0.34	2.50	0.40	3.25	3.65
60		0.25	0.48	1.20	0.30	3.25	3.55
65		0.37		0.00	0.00	3.25	3.25

* Applicable to calendar year 2016. Rates in future years are determined by the above rates and the MP-2015 scale.

The pay increase assumptions are age based only, and not service based.

POLICE
SEPARATIONS FROM ACTIVE EMPLOYMENT
BEFORE AGE & SERVICE RETIREMENT
& INDIVIDUAL PAY INCREASE ASSUMPTIONS

Sample Ages	Years of Service	Percent of Active Members Separating within the Next Year			Pay Increase Assumptions for an Individual Employee		
		Death*	Disability	Other	Merit & Seniority	Base (Economy)	Increase Next Year
ALL	0			18.00%			
	1			17.00			
	2			16.00			
	3			13.00			
	4			12.00			
25	5 & Over	0.06%	0.10%	9.80	3.30%	3.25%	6.55%
30		0.05	0.11	7.80	2.50	3.25	5.75
35		0.06	0.16	6.10	2.00	3.25	5.25
40		0.08	0.22	4.40	1.50	3.25	4.75
45		0.13	0.34	3.20	1.00	3.25	4.25
50		0.21	0.53	1.80	0.60	3.25	3.85
55		0.31	0.88	1.00	0.40	3.25	3.65

* Applicable to calendar year 2016. Rates in future years are determined by the above rates and the MP-2015 scale.

FIRE
SEPARATIONS FROM ACTIVE EMPLOYMENT
BEFORE AGE & SERVICE RETIREMENT
& INDIVIDUAL PAY INCREASE ASSUMPTIONS

Sample Ages	Years of Service	Percent of Active Members Separating within the Next Year			Pay Increase Assumptions for an Individual Employee		
		Death*	Disability	Other	Merit & Seniority	Base (Economy)	Increase Next Year
ALL	0			10.00%			
	1			8.00			
	2			7.00			
	3			6.00			
	4			6.00			
25	5 & Over	0.06%	0.06%	5.00	3.90%	3.25%	7.15%
30		0.05	0.10	4.00	2.80	3.25	6.05
35		0.06	0.23	2.80	1.90	3.25	5.15
40		0.08	0.35	2.20	1.20	3.25	4.45
45		0.13	0.56	1.80	0.90	3.25	4.15
50		0.21	0.85	1.00	0.60	3.25	3.85
55		0.31	1.31	0.50	0.40	3.25	3.65

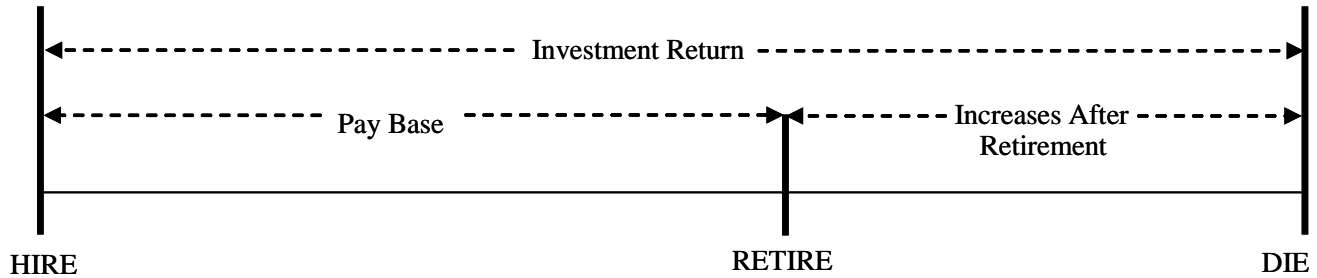
* Applicable to calendar year 2016. Rates in future years are determined by the above rates and the MP-2015 scale.

The pay increase assumptions are age based only, and not service based.

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Expenses	Assumed investment return is net of investment expenses. Assumed administrative expenses are added to the Normal Cost and were 0.4% of payroll in the February 29, 2016 valuation.
Marriage Assumption	90% of male and 90% of female participants are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Pay Increase Timing	Beginning of year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Decrement Timing	Decrements of all types are assumed to occur mid-year.
Eligibility Testing	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Benefit Service	Exact fractional service on the decrement date is used to determine the amount of benefit payable.
Decrement Relativity	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Incidence of Contributions	Contributions are assumed to be received continuously throughout the employer's applicable fiscal year based upon the computed percent of payroll shown in each employer's individual report, and the actual payroll payable at the time contributions are made.
Decrement Operation	The mortality and disability decrements do not operate during the first 5 years of service. The withdrawal decrement does not operate during retirement eligibility. The disability decrement does not operate during normal retirement eligibility.
Deferred Members' Retirement Age	It was assumed that deferred members would retire at the later of age 60 (55 for police or fire) or their attained age.
Post-Retirement Increases	Assumed to be 2.50%, compounded annually.

RELATIONSHIP OF ECONOMIC ASSUMPTIONS IN COMPUTING CONTRIBUTIONS TO A RETIREMENT SYSTEM



Investment Return

An increase in this assumption reduces computed contributions. The assumption operates over all parts of an employee's lifetime.

Pay Base

An increase in this assumption increases computed contributions. However, a 1% increase in this assumption, coupled with a 1% increase in Investment Return reduces computed contributions. This is because the Pay Base assumption operates only over an employee's working lifetime, while the Investment Return assumption operates over the employee's entire lifetime.

Increases After Retirement

An increase in this element increases computed contributions.

If Investment Return, Pay Base, and Increases After Retirement are each increased by equal amounts, computed contributions remain the same (except in plans using Final Average Pay as a factor in computing benefits; the multi-year average used for Final Average Pay causes computed contributions to decrease slightly).

If Investment Return and Pay Base are increased by equal amounts, with no change in Increases After Retirement, computed contributions decrease – sometimes significantly. The decreases represent the projected devaluation of an employee's benefits following retirement.

INVESTMENT RETURN AND INFLATION: PAST AND FUTURE

Inflation Distortions

Inflation's impact on investment return is not uniform from year to year. A common expectation for real investment return (which is the portion of total return remaining after price inflation) is in the area of 3% to 5% annually.

Historical Economic Data

Over the last 30 years, real return on average has exceeded the 3% to 5% range. However, for parts of this period, real return was actually negative. It is difficult to maintain a long-term portfolio allocation during periods of negative real return.

Annual Investment Return % (including Income) expressed as Real Return (Remainder after Price Inflation)

No. Years Ended December	Inflation (CPI)	Cash Equiv. (T-Bills)	Bonds (Long Term)		Stocks (S & P 500)	Real Return for Sample Fund		
			US Treasury	Corporate (Sol. Bro.)		A	B	C
1/2011	3.0	(2.9)	24.5	14.6	(0.9)	11.2	7.1	3.8
1/2012	1.7	(1.6)	1.6	8.8	14.1	7.2	8.9	10.4
1/2013	1.5	(1.5)	(12.7)	(8.5)	30.4	2.7	10.8	17.1
1/2014	0.8	(0.8)	22.9	16.4	12.8	15.6	14.2	13.0
1/2015	0.7	(0.2)	(2.0)	(5.5)	0.7	(2.0)	(1.2)	(0.6)
5/1980	9.2	(1.3)	(6.9)	(6.2)	4.3	(2.6)	(0.4)	1.3
5/1985	4.8	5.2	11.5	12.3	9.4	10.7	10.2	9.8
5/1990	4.1	2.6	6.4	6.1	8.6	6.7	7.2	7.6
5/1995	2.8	1.5	10.0	9.1	13.4	10.0	10.8	11.3
5/2000	2.5	2.6	4.9	3.2	15.4	7.7	10.0	11.7
5/2005	2.5	(0.4)	5.1	6.6	(2.0)	3.4	2.0	0.7
5/2010	2.2	0.0	3.3	3.6	0.1	3.1	2.6	2.0
5/2015	1.5	(1.4)	5.9	4.7	10.9	6.8	7.9	8.6
30/2015	2.6	0.8	5.9	5.6	7.6	6.2	6.7	6.9

Sample Funds (only three of many reasonable samples)

	A	B	C
Cash Equiv.: T-Bills	10 %	10 %	10 %
Bonds: US Treasury	30	20	10
Bonds: Corporate	30	20	15
Stock	30	50	65

For many pension plans, benefit increases after retirement have fallen short of keeping up with inflation. The retired life group has been affected more than the active life group. The investment return that would be necessary for the indexing of benefits with inflation after retirement probably cannot be realized during periods of high inflation.

Forward-Looking Economic Data

The assumed rate of price inflation should not give undue weight to recent experience. Some historical economic data may not be appropriate for use in developing assumptions for future periods due to changes in the underlying economic environment. Professional forecasters, economists, and investors are reliable sources to guide in the selection and evaluation of expected future price inflation rates.

INVESTMENT RETURN AND INFLATION: PAST AND FUTURE - CONTINUED

The Survey of Professional Forecasters, maintained by the Federal Reserve Bank of Philadelphia, is the longest running quarterly survey of macroeconomic forecasts in the U.S. Over 50 forecasters from industry, government, banking, and academics are included in this Survey. With respect to price inflation, their median projections are published quarterly for the annual-average Headline CPI over the next 10 years. Headline CPI is the total CPI, as opposed to Core CPI, which excludes food and energy prices. The following table presents the Survey's quarterly projections through the first quarter of 2016.

Quarterly Median Projections of the 10-Year Annual-Average Headline CPI-U Inflation (Philadelphia Federal Reserve)

2013-2	2013-3	2013-4	2014-1	2014-2	2014-3	2014-4	2015-1	2015-2	2015-3	2015-4	2016-1
2.30%	2.21%	2.30%	2.30%	2.25%	2.20%	2.20%	2.10%	2.14%	2.15%	2.15%	2.12%

Source: Federal Reserve Bank of Philadelphia – Survey of Professional Forecasters Quarterly (Inflation.xls)

The Congressional Budget Office (CBO) regularly publishes its Budget and Economic Outlook. This report includes a forecast of annual CPI-U (All Urban Consumers). The following table presents the CBO's forecast for calendar years 2016 – 2026, as published in its report dated January, 2016.

Consumer Price Index Forecast (CBO)

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Compound Average
1.70%	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	2.40%	2.34%

Source: Congressional Budget Office – The Budget and Economic Outlook: 2016 – 2026, Table 2-1 (p. 157)

The Trustees of the Social Security system prepare and publish an annual report. Social Security's economists develop a forecast of future CPI-W (for Urban Wage Earners and Clerical Workers). The following table presents their forecasts in the 2015 annual report.

Social Security Trustees' Ultimate CPI-W Assumption for 2018 and later

Low-cost	3.40%
Intermediate	2.70%
High-cost	2.00%

Source: 2015 Social Security Trustees' Report (p. 9)

Another source of information about future price inflation is the market for U.S. Treasury bonds. Comparing spreads between nominal and inflation-indexed treasury securities (TIPS) provides an estimate of the bond market's expectation of inflation over the next decade or more. However, this analysis ignores the inflation risk premium that buyers of U.S. Treasury bonds often demand, and it ignores the differences in liquidity between U.S. Treasury bonds and TIPS.

Treasury Constant Maturities (2015 Annual Yields)

Term	Nominal	Inflation-Indexed	Implied Inflation
10-year	2.14%	0.45%	1.69%
20-year	2.55%	0.78%	1.77%
30-year	2.84%	1.00%	1.84%

Source: Board of Governors of the Federal Reserve System, Selected Interest Rates (Daily) – H. 15

LAGERS RETAINER ACTUARIAL FEES 10-YEAR COMPARATIVE STATEMENT

Valuation Date As of	Number of Valuation Groups	Annual Actuarial Fees (nearest \$1)	Consumer Price Index (1967 is 100)	Average Fee per Group	
				Unadjusted Dollars	1967* Dollars
2-28-2007	893	\$205,631	609.594	\$230	\$38
2-29-2008	920	210,579	634.139	229	36
2-28-2009	945	219,088	635.637	232	36
2-28-2010	971	248,740	649.259	256	39
2-28-2011	995	262,962	662.943	264	40
2-29-2012	1,007	274,957	681.977	273	40
2-28-2013	1,031	289,900	695.467	281	40
2-28-2014	1,055	297,900	703.300	282	40
2-28-2015	1,062	296,000	703.122	279	40
2-29-2016	1,067	305,000	710.278	286	40

* A goal for LAGERS during the initial design activity in 1966 and 1967 was that the actuarial retainer fee be approximately \$100 annually per valuation group - - - an amount substantially less than the amount the municipality would pay if it arranged independently for an actuarial valuation of comparable quality.