

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

Actuarial Valuation as of June 30, 2014

Prepared September 2014

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Contents

	<u>Page</u>
Introduction and Purpose	1
Actuarial Certification	2
Discussion of Valuation Results	4
Summary of Valuation Results	8
Statement of Assets as of June 30, 2014	9
Statement of Income and Disbursements	10
Development of Actuarial Value of Assets	11
Market Values of assets for 0.3% Multiplier	12
Actuarial Value of assets and UAL for 0.3% Multiplier	13
Actuarial Balance Sheet	14
Development of Recommended Contribution	15
Actuarial Methods	16
Actuarial Assumptions	17
Summary of Plan Provisions	20
Summary of Participant Data	23

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Introduction and Purpose

In this report, we present the results of the June 30, 2014 actuarial valuation for the City of Springfield Police Officers and Fire Fighters' Retirement Fund. The report has been prepared at the request of the Fund's Board for the sole use of the Board and the City of Springfield as the contributing plan sponsor.

PURPOSES OF THE VALUATION

The actuarial valuation of the Plan is intended to accomplish several purposes:

- Determine the recommended level of employer contributions for the City's July 1, 2015 – June 30, 2016 fiscal year;
- Prepare information required under applicable governmental accounting standards (results are provided in a separate report);
- Assess the relative funded position of the plan on an ongoing basis, i.e., through a comparison of plan assets and projected plan liabilities.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Actuarial Certification

As requested, we performed an actuarial valuation of the City of Springfield Police Officers and Fire Fighters' Retirement Fund as of June 30, 2014 for the fiscal year ending June 30, 2016. Our findings are set forth in this actuary's report. This report reflects the benefit provisions and contribution rates in effect as of June 30, 2014.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the City. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the Fund have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the Fund and reasonable expectations); and which, in combination, offer our best estimate of anticipated experience affecting the Fund.

This valuation report is only an estimate of the Fund's financial condition as of a single date. It can neither predict the Fund's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of Fund benefits, only the timing of Fund contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or 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 our assignment, we did not perform an analysis of the potential range of future measurements. The City has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in this report.

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the Fund. The calculations in the enclosed report have been made on a basis consistent with our understanding of the Fund's funding requirements and goals. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the internal business use of the City of Springfield. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s):

- (a) The City may provide a copy of Milliman's work, in its entirety, to the Fund's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the Fund.
- (b) The City may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,



Michael J. Zwiener, FSA
Consulting Actuary



Michael A. Sudduth, FSA
Consulting Actuary

MJZ/WDW/mjk

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund
June 30, 2014 Actuarial Valuation**

Discussion of Valuation Results

1. Contribution Recommendation and Plan Experience

The results of this valuation are used to determine recommended contribution rates to the Fund for the July 1, 2015-June 30, 2016 fiscal year. A comparison of recommended contribution rates (presented as a percentage of pay) for the current and immediately preceding valuations is shown below:

	Actuarial Valuation as of	
	June 30, 2013	June 30, 2014
Applies to Fiscal Year	07/01/14-06/30/15	07/01/15-06/30/16
Member Contribution Rate	14.63%	14.63%
City Contribution Rate	79.84%	91.20%
Total	94.47%	105.83%

The Plan experienced an actuarial gain for the year ending June 30, 2014. A detailed reconciliation of the gain is shown below.

Unfunded Accrued Liability as of June 30, 2013	\$124,532,151
Normal Cost as of June 30, 2013	5,986,473
Employer and Employee Contributions	(10,859,485)
Interest	9,393,833
Assumption Changes	<u>38,019,918</u>
Expected Unfunded Accrued Liability as of June 30, 2014	\$167,072,890
 (Gain) Loss due to:	
Investments	(\$8,130,043)
Other Contributions	(30,387,937)
Salary Scale/Active Data	737,038
Average Salary at Retirement	1,537,491
Retirement	(2,101,073)
Withdrawal	1,059,770
Disability	(57,637)
Death	(67,199)
Inactive Mortality	3,877,771
Other	<u>(208,769)</u>
Total	(\$33,740,588)
Unfunded Accrued Liability as of June 30, 2014	\$133,332,302

2. Plan Assets

The market value of plan assets increased from \$254,357,749 at June 30, 2013 to \$309,653,460 at June 30, 2014. A balance sheet and statement of income and

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

disbursements are presented on pages 9 and 10, respectively. The net market rate of return was 14.2% for the period.

City contributions to the Fund for the year were \$7,658,315, employee contributions totaled \$3,201,170 and the sales tax revenue (including receivables) was \$29,315,082. Benefit Payments total \$19,227,871 plus \$2,959,629 in refunded employee contributions.

The actuarial value of assets increased from \$251,103,602 at June 30, 2013 to \$296,704,412 at June 30, 2014. The net actuarial rate of return for the period was 10.6% vs. the assumed rate of 7.5%.

3. Actuarial Assumptions, Methods and Plan Provisions

Several assumptions changes were adopted as recommended in our July 2014 experience study covering experience during the period July 1, 2009 through June 30, 2013:

- The discount rate was changed from 7.50% to 7.00%
- The mortality assumption now includes a generational projection for all healthy participants (both pre- and post-retirement)
- Annual pay increases were decreased by 50 basis points at each year of service
- For police participants age 40 and over, the final average salary adjustment was modified to more closely match experience.
- The retirement rates for ages 45 to 46 increased from 20% to 25%, ages 47 to 49 remained at 25%, age 50 decreased from 30% to 25%, ages 51 to 52 decreased from 25% to 20%, age 54 decreased from 35% to 25%, ages 55 to 59 decreased from 60% to 50%, and age 60 remained at 100%.

Each of these changes is effective July 1, 2014. The net effect of the changes was to increase the Plan's unfunded accrued liability by \$38,019,918 thereby reducing the reported funded ratio by 6.7 percentage points (see table in item 7). All other actuarial assumptions, methods and plan provisions remained the same as the prior year. Descriptions of these can be found on pages 16-22.

4. Plan Population

The number of active participants decreased from 354 in the previous valuation to 320 in the current valuation. The number of retirees and beneficiaries increased from 497 to 519. The number of deferred vested participants increased from 14 to 18.

5. GASB 67/68

Results under GASB 67 and 68 will be presented in a separate report.

6. Missouri Pension Reform Legislation

In 2007, and later modified in 2013, the Missouri legislature passed legislation aimed at the state's public sector pension plans. The legislation was based on private pension reform instituted at the federal level. Many of the provisions are applicable to the Springfield Police Officers and Fire Fighters' Retirement Fund, including:

- Plans less than 60% funded are required to have an accelerated contribution schedule prepared by their actuary. Because the Fund's ratio is now over 60%, we have not prepared the schedule this year.
- Plans less than 60% funded that have contributed less than 100% of the required contribution for 5 consecutive years and have a declining funded ratio shall have state funds withheld.
- Plans less than 80% funded are prohibited from providing benefit enhancements, and plans over 80% funded may only provide benefit increases that allow the funded ratio to remain over 75%.
- Benefit increases must be amortized over 20 years.
- Increased fiduciary responsibility and education requirements.

7. Additional Comments

Retirement plans use several mechanisms to attempt to provide more stability in contribution levels, one of which is an asset smoothing method. This Fund utilizes a method that compares the expected return on assets with the return actually experienced. One quarter of the difference between expected and actual return (positive or negative) is recognized in the current year and each of the next three years. Due to the smoothing method, the rate of return on the actuarial value of assets for the year ending June 30, 2014 was 10.6% as compared to 14.2% on a pure market value basis.

Use of an asset smoothing method is a common practice for public sector retirement plans. However, it is important to identify the potential impact of the deferred investment experience. Key June 30, 2014 actuarial valuation results are shown below using both the actuarial value of assets and pure market value:

	June 30, 2014 Results –current assumptions	
	Using Actuarial Value of Assets	Using Market Value of Assets
Actuarial Liability	\$430,036,714	\$430,036,714
Asset Value	296,704,412	309,653,400
Unfunded Actuarial Liability	\$133,332,202	\$120,383,314
Funded Ratio	69.0%	72.0%
Total Contribution Rate	105.83%	98.76%
Member Contribution Rate	14.63%	14.63%
City Contribution Rate	91.20%	84.13%

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

For sake of comparison, if the assumption changes detailed in item 3 above had not been made, the June 30, 2014 funded ratios are presented below:

	<u>June 30, 2014 Results –previous assumptions</u>	
	<u>Using Actuarial Value of Assets</u>	<u>Using Market Value of Assets</u>
Actuarial Liability	\$392,016,796	\$392,016,796
Asset Value	296,704,412	309,653,400
Unfunded Actuarial Liability	\$95,312,384	\$82,363,396
Funded Ratio	75.7%	79.0%

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Summary of Valuation Results

	Valuation Date <u>June 30, 2011</u>	Valuation Date <u>June 30, 2012</u>	Valuation Date <u>June 30, 2013</u>	Valuation Date <u>June 30, 2014</u>
Participant Counts				
Police				
Actives	230	215	203	180
Receiving Payments	224	229	232	248
Terminated Vesteds	<u>10</u>	<u>11</u>	<u>13</u>	<u>16</u>
Total	464	455	448	444
Fire				
Actives	164	158	151	140
Receiving Payments	262	265	265	271
Terminated Vesteds	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>
Total	427	424	417	413
Market Value of Assets	191,167,559	211,909,842	254,357,749	309,653,460
Actuarial Value of Assets	183,459,812	211,406,045	251,103,602	296,704,412
Present Value of Future Benefits	385,933,933	399,141,327	416,459,433	471,222,063
Entry Age Normal Accrued Liability	340,162,627	356,339,821	375,635,753	430,036,714
Unfunded Entry Age Normal Accrued Liability	156,702,815	144,933,776	124,532,151	133,332,302
Recommended Contribution (Employer and Employee)	21,493,393	20,566,658	18,950,898	19,863,847
Covered Payroll	20,498,113	19,976,162	20,060,038	18,770,274
Funded Ratio	53.9%	59.3%	66.8%	69.0%
Recommended Contribution as a Percentage of Covered Payroll				
Member Portion	13.35%	13.35%	14.63%	14.63%
City Portion	<u>91.51%</u>	<u>89.61%</u>	<u>79.84%</u>	<u>91.20%</u>
Total	104.86%	102.96%	94.47%	105.83%
Present Value of Accrued Benefits	321,903,931	336,480,788	352,996,851	407,320,340

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Statement of Assets as of June 30, 2014

<u>Assets</u>	<u>Market Value</u>
1. Cash and Short Term Investments	\$4,352,450
2. Investments at Fair Market Value	300,111,437
3. Accrued Interest Receivable	286,709
4. Due from Other Funds	5,021,411
Total Assets	309,772,007
 <u>Liabilities</u>	
1. Accounts Payable	118,547
Total Liabilities	118,547
 Net Assets	 <u>309,653,460</u>

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

City of Springfield
Police Officers and Fire Fighters' Retirement Fund

June 30, 2014 Actuarial Valuation

Statement of Income and Disbursements

1. Market Value of Assets as of July 1, 2013	\$254,357,749
2. Income:	
a. Employer Contributions	7,658,315
b. Employee Contributions	3,201,170
c. Public Safety Sales Tax	29,315,082
d. Sale of Land	11,394
e. Donations	25
f. Other Revenue	14,507
g. Interest and Dividends	23,915
h. Net Appreciation/(Depreciation) in Fair Value	<u>38,837,177</u>
i. Total Income	79,061,585
3. Expenses:	
a. Employee Benefit Distributions	19,227,871
b. Refund of Employee Contributions	2,959,629
c. Administrative Expenses	354,745
d. Investment Expenses	<u>1,223,629</u>
e. Total Expenses	23,765,874
4. Net Increase (Decrease) = (2i) - (3e)	55,295,711
5. Market Value of Assets as of June 30, 2014 = (1) + (4)	\$309,653,460
6. Net Rate of Return	14.2%

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Development of Actuarial Value of Assets

	Valuation Date <u>June 30, 2014</u>
1. Actuarial Value Beginning of Year	\$251,103,602
2. Market Value End of Year	309,653,460
3. Market Value Beginning of Year	254,357,749
4. Non-Investment Cash Flows ⁽¹⁾	18,012,993
5. Investment Income	
a. Market Total: (2) - (3) - (4)	37,282,718
b. Assumed Rate of Return	7.50%
c. Amount for Immediate Recognition ⁽²⁾	19,752,318
d. Amount for Phased-In Recognition: (5a) - (5c)	17,530,400
6. Phased-In Recognition of Investment Income	
a. Current Year: .25 x (5d)	4,382,600
b. First Prior Year	1,635,871
c. Second Prior Year	(3,470,490)
d. Third Prior Year	<u>5,287,518</u>
e. Phased-In Investment Gain Recognized	7,835,499
7. Actuarial Value End of Year: (1) + (4) + (5c) + (6e)	296,704,412
8. Excess of Market Value over Actuarial Value: (2) - (7)	12,949,048
9. Approximate Rate of Return on Actuarial Value	10.6%

⁽¹⁾ Contributions minus benefit payments

⁽²⁾ Assumed Rate times (3) + Assumed Rate/2 times (4)

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund
June 30, 2014 Actuarial Valuation**

Development of Market Value of Assets for 0.3% Multiplier

1. Market Value of Assets as of July 1, 2013	\$12,676,127
2. a. Employer Contributions	0
b. Employee Contributions	1,341,297
c. Net Investment Income	<u>1,881,035</u>
d. Total Income	3,222,332
3. a. Benefit Distributions and Refunds of Employee Contributions	<u>1,274,164</u>
b. Total Expenses	1,274,164
4. Net Increase (Decrease): (2d) - (3b)	1,948,168
5. Market Value of Assets as of June 30, 2014: (1) + (4)	\$14,624,295

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

City of Springfield
Police Officers and Fire Fighters' Retirement Fund
June 30, 2014 Actuarial Valuation

Development of Actuarial Assets and Unfunded Accrued Liability for 0.3% Multiplier

1. Actuarial Value Beginning of Year	\$12,420,348
2. Market Value End of Year	14,624,295
3. Market Value Beginning of Year	12,676,127
4. Non-Investment Cash Flows (Contributions minus Benefit Payments)	67,133
5. Investment Income	
a. Market Total: (2) - (3) - (4)	1,881,035
b. Assumed Rate of Return	7.50%
c. Amount for Immediate Recognition: (3) x (5b) + (4) x (5b) / 2	953,227
d. Amount for Phased-In Recognition: (5a) - (5c)	927,808
6. Phased-In Recognition of Investment Income	
a. Current Year: .25 x (5d)	231,952
b. First Prior Year	97,261
c. Second Prior Year	(175,277)
d. Third Prior Year	<u>314,550</u>
e. Phased-In Investment Gain Recognized	468,486
7. Actuarial Value End of Year: (1) + (4) + (5c) + (6e)	13,909,194
8. Excess of Market Value over Actuarial Value:	715,101
9. Entry Age Normal Accrued Liability for .3% Multiplier	21,081,865
10. Unfunded Entry Age Normal Accrued Liability for .3% Multiplier: (9) - (7)	7,172,671

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Actuarial Balance Sheet

The key elements of the actuarial funding process are illustrated in the Actuarial Balance Sheet. The format of the balance sheet captures the essential purpose of an actuarial cost method - the determination of assets sufficient to provide for pension benefits.

The Actuarial Present Value of Current and Prospective Plan Benefits is the liability that must be balanced by Current and Prospective assets. The Present Value of Future Normal Cost Contributions represents the prospective assets from contributions that will be made for costs allocated to the future.

June 30, 2014

Liabilities

1. Actuarial Present Value of Future Benefits	
a. Active Participants	\$180,706,280
b. Terminated Vested Participants	2,261,430
c. Retired Participants	<u>288,254,353</u>
d. Total	471,222,063

Assets

1. Current Valuation Assets	
a. Actuarial Value of Assets	296,704,412
2. Prospective Valuation Assets	
a. Unfunded Actuarial Liability	133,332,302
b. Present Value of Future Normal Cost Contributions	<u>41,185,349</u>
3. Total	471,222,063

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Development of Recommended Contribution

1. Present Value of Future Benefits	
a. Active Participants	\$180,706,280
b. Terminated Vested Participants	2,261,430
c. Retired Participants	<u>288,254,353</u>
d. Total	471,222,063
2. Present Value of Future Normal Costs	41,185,349
3. Actuarial Value of Assets	296,704,412
4. Entry Age Unfunded Accrued Liability: (1d) - (2) - (3)	133,332,302
5. Entry Age Normal Cost	6,211,284
6. Present Value of Future Earnings	130,670,843
7. Payroll	18,770,274
8. Amortization Payment (Level Dollar 20 Year Closed Period from July 1, 2010) 16 years as of July 1, 2014	13,652,563
9. Recommended Contribution: (5) + (8)	19,863,847
10. Recommended Contribution as a Percentage of Payroll	
Normal Cost	33.09%
Amortization Payment	<u>72.74%</u>
Total	105.83%
11. Member Portion	14.63%
12. City Portion	91.20%

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Actuarial Methods

Following are brief descriptions of the actuarial cost and asset valuation methods used in the valuation.

Actuarial Cost Method

The Entry Age Normal Cost Method on an individual basis is used. Normal costs are computed as a level percentage of pay.

The Unfunded Entry Age Accrued Liability is amortized as a level dollar amount over a 20 year closed period measured from June 30, 2010. Each year, the amortization period will decrease by 1 until it reaches 0 years as of June 30, 2030.

Asset Valuation Method

An asset valuation method is used to help smooth short term fluctuations in market value.

The actuarial value of assets is equal to the prior years actuarial value of assets adjusted as follows:

1. increased with actual contributions for the year;
2. reduced by actual benefit payments and expenses for the year;
3. increased by investment income equal to the assumed rate of return multiplied by the beginning market value;
4. increased by phased in investment gains /(losses)

Each year, the amount of investment income to be phased in is equal to the excess of the plan's actual investment performance in excess of the amount credited under item 3) above. 25% of this amount plus 25% of the similar amounts calculated in each of the three preceding years are summed and recognized as the amount of phased-in gains recognized in the current year. There is no specific corridor around market value in which the resulting value must fall.

The actuarial value of assets was reset to the market value of assets for the June 30, 2007 valuation.

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Actuarial Assumptions

Following are the primary actuarial assumptions used in performing the valuation.

Interest Rate 7.00% per annum, net of investment expenses.
(effective July 1, 2014)

Annual Pay Increases (effective July 1, 2014)

<u>Years of Service</u>	<u>Fire</u>	<u>Police</u>
1	7.0%	7.0%
2	7.0%	7.0%
3	7.0%	7.0%
4	7.0%	7.0%
5	7.0%	7.0%
6	7.0%	7.0%
7	4.0%	7.0%
8	4.0%	7.0%
9	4.0%	4.0%
10	4.0%	4.0%
11	2.5%	4.0%
12	2.5%	4.0%
13 and later	2.5%	2.5%

Final Average Salary Adjustment (effective July 1, 2014) For Fire Members, the Average Salary at retirement is increased by a factor of 1.09 for Members 40 and older and a factor of 1.03 for Members younger than 40.

For Police Members, the Average Salary at retirement is increased to reflect the assumption that each participant will have the maximum accrual paid out from their continuous operating holiday balance.

Mortality (effective July 1, 2014) RP-2000 Employees, Healthy Annuitant with generational projection and Disabled Mortality Tables with no generational projection, male and female rates.

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Turnover

Separation from service for reasons other than disability, death, or age/service retirement. Rates at selected ages:

<u>Age</u>	<u>Percentage Terminating in the next Year</u>	
	<u>Police</u>	<u>Fire</u>
25	5.27%	1.75%
30	4.83%	1.61%
35	4.47%	1.49%
40	3.84%	1.28%
45	3.21%	1.07%
50	1.52%	0.51%
55	0.33%	0.11%

Forfeiture of City Provided Benefit

A vested member who terminates employment may elect to receive a return of his/her own contributions and forfeit any City-provided benefit. The portion of members making such election at selected ages:

<u>Age</u>	<u>Percentage Electing ROC</u>
35 and under	100%
36 - 54	grading from 95% to 5%
55 and over	0%

Rate of Disability

Probability of becoming disabled during the next year. Rates at selected ages:

<u>Age</u>	<u>Percentage Becoming Disabled in the Next Year</u>
20	0.25%
25	0.29%
30	0.34%
35	0.43%
40	0.58%
45	0.89%
50	1.86%
55	3.80%

100% of all disabilities are assumed to be duty related.

Workers Compensation offset to the plan disability benefit is assumed to be zero.

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Rates of Retirement
(effective July 1, 2014)

Probability of an eligible member retiring under the age/service provisions during the next year. Rates are as follows:

<u>Age</u>	<u>Percentage Retiring In the Next Year</u>
45	25%
46	25%
47	25%
48	25%
49	25%
50	25%
51	20%
52	20%
53	20%
54	25%
55	50%
56	50%
57	50%
58	50%
59	50%
60	100%

Dependent Information

For retired members, actual marital status and spouse birth date are used. For active members, 90% are assumed to be married, with males assumed three years older than their spouses. Members are assumed to have no dependent children.

Cost-of-Living
Adjustment (COLA)

Automatic 3% COLA reflected

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Summary of Plan Provisions

A summary of the current primary provisions of the Fund are described below. A complete description of the provisions can be found in Sections 2-441 through 2-482 of the Springfield City Code as amended through General Ordinance 5863 adopted March 8, 2010.

Average Salary

Average of the highest three years salary within the last 10 Years of Service. Salary for this calculation is equal to actual salary before deductions, plus payments for unused floating holidays, unused compensatory time, scheduled holidays, Kelly days, pin days and accrued vacation time.

Normal Retirement Age

Eligibility for unreduced benefits upon meeting any of the following:

- Age 50 and 20 Years of Service,
- 25 Years of Service, or
- Age 60.

Age/Service Benefit

A monthly benefit equal to 1/12 of Average Salary times 2.8% times Years of Service. The maximum benefit is 70% of Average Salary.

Normal Form of Payment

The benefit is payable for the member's lifetime. If the member should predecease his/her spouse, the spouse is entitled to a lifetime survivors benefit. The amount of the benefit is a percentage of the Average Salary. The percentage is equal to 25% plus 1-1/8% for each Year of Service over five years, not to exceed 50% in total. There are no optional forms of payment.

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Cost of Living Adjustment (COLA)

Every July 1st, the monthly pension is increased by 3% for the following groups of retirees provided pension payment has been paid at least 12 months prior to July 1:

- Age/service retirees age 56 or greater
- Disability retirees of any age

Early Retirement Age

Eligibility for early retirement is satisfied upon attainment of age 55 and completion of five Years of Service.

Early Retirement Benefit

Determined using regular formula and reducing the result 1/200 for each month by which the benefit start date precedes age 60.

Member Contributions

14.63% of pay

Duty Disability

All members are eligible. The monthly benefit is equal to 2/3 of the salary in effect at the time of retirement.

Non-Duty Disability

Employees hired on or before January 1, 2005: A monthly benefit equal to 2.45% of Average Salary times Years of Service. A member must have three Years of Service to be eligible.

Employees hired after January 1, 2005 and before June 1, 2006: A monthly benefit equal to 2.45% of Average Salary times Years of Service. A member must have five Years of Service to be eligible.

In all cases, the minimum/maximum benefits are 25%/50% of Average Salary.

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Duty Death in Service

All members are eligible. A monthly benefit to the spouse equal to 50% of salary in effect at time of death. Additional benefits to unmarried children under age 18, but total cannot exceed 75% of pre-death salary.

Non-Duty Death in Service

A member is eligible after completing five Years of Service. The benefit is 25% of Average Salary plus 1 1/8% of Average Salary for each Year of Service in excess of five, not to exceed 50%. Additional benefits to unmarried children under 18 but total benefit cannot exceed 60% of Average Salary.

Return of Contributions

Member contributions are returned to age/service retirees and disability retirees upon commencement of monthly benefits, without interest.

Vested members who terminate before eligible for retirement may elect to receive a return of their own contributions without interest. Election of this benefit results in a forfeiture of any City provided benefit.

Eligibility

The Plan is now closed to new employees. Members hired on or after June 1, 2006 have been removed from the Plan and are currently participants in the LAGERS Pension System. Their contributions in this Plan have been refunded, and they are no longer due any benefits.

Members hired before June 1, 2006 will continue to earn benefits under the Plan as described above.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Summary of Participant Data

	<u>Police</u> <u>June 30, 2014</u>	<u>Fire</u> <u>June 30, 2014</u>
1. Active Participants		
a. Count	180	140
b. Plan Compensation	10,707,262	8,119,202
c. Average Compensation	59,485	57,994
d. Average Age	42.2	44.1
e. Average Service	15.7	16.2
2. Retired Participants (including Beneficiaries)		
a. Count	248	271
b. Total Monthly Benefits	\$834,439	\$868,555
c. Average Monthly Benefits	\$3,365	\$3,205
d. Average Age at Onset of Disability Retirements	40.2	45.0
3. Terminated Vested Participants		
a. Count	16	2
b. Total Monthly Benefits	\$22,360	\$3,609
c. Average Monthly Benefits	\$1,398	\$1,805

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Retiree and Beneficiary Distributions

**Fire
Distribution of Age and Service Retirees**

<u>Age</u>	<u>Number</u>	<u>Total Monthly Pension</u>	<u>Average Monthly Pension</u>
Under 45	0	\$0	\$0
45 – 49	1	4,351	4,351
50 – 54	12	47,255	3,938
55 – 59	21	73,253	3,488
60 – 64	29	120,035	4,139
65 – 69	26	101,548	3,906
70 – 74	33	109,658	3,323
75 – 79	14	48,998	3,500
80 +	<u>15</u>	<u>46,716</u>	<u>3,114</u>
Totals	151	\$551,814	\$3,654

**Police
Distribution of Age and Service Retirees**

<u>Age</u>	<u>Number</u>	<u>Total Monthly Pension</u>	<u>Average Monthly Pension</u>
Under 45	0	\$0	\$0
45 – 49	4	18,919	4,730
50 – 54	33	140,489	4,257
55 – 59	25	100,156	4,006
60 – 64	29	111,858	3,857
65 – 69	30	114,232	3,808
70 – 74	15	48,789	3,253
75 – 79	14	42,549	3,039
80 +	<u>3</u>	<u>7,874</u>	<u>2,625</u>
Totals	153	\$584,866	\$3,823

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Retiree and Beneficiary Distributions

**Fire
Distribution of Disability Retirees**

<u>Age</u>	<u>Number</u>	<u>Total Monthly Pension</u>	<u>Average Monthly Pension</u>
Under 45	6	\$14,127	\$2,355
45 – 49	2	4,600	2,300
50 – 54	9	29,745	3,305
55 – 59	7	23,338	3,334
60 – 64	10	33,815	3,382
65 – 69	16	52,895	3,306
70 – 74	10	30,732	3,073
75 – 79	3	8,600	2,867
80 +	<u>2</u>	<u>3,779</u>	<u>1,890</u>
Totals	65	\$201,631	\$3,102

**Police
Distribution of Disability Retirees**

<u>Age</u>	<u>Number</u>	<u>Total Monthly Pension</u>	<u>Average Monthly Pension</u>
Under 45	9	\$22,262	\$2,474
45 – 49	3	5,680	1,893
50 – 54	13	36,034	2,772
55 – 59	12	40,625	3,385
60 – 64	7	22,322	3,189
65 – 69	8	22,926	2,866
70 – 74	3	9,821	3,274
75 – 79	2	5,127	2,564
80 +	<u>2</u>	<u>6,116</u>	<u>3,058</u>
Totals	59	\$170,913	\$2,897

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Retiree and Beneficiary Distributions

**Fire
Distribution of Beneficiaries**

<u>Age</u>	<u>Number</u>	<u>Total Monthly Pension</u>	<u>Average Monthly Pension</u>
Under 45	1	\$2,474	\$2,474
45 – 49	0	0	0
50 – 54	0	0	0
55 – 59	3	6,341	2,114
60 – 64	5	13,476	2,695
65 – 69	6	13,209	2,202
70 – 74	8	19,221	2,403
75 – 79	11	21,983	1,998
80 +	<u>21</u>	<u>38,406</u>	<u>1,829</u>
Totals	55	\$115,110	\$2,093

**Police
Distribution of Beneficiaries**

<u>Age</u>	<u>Number</u>	<u>Total Monthly Pension</u>	<u>Average Monthly Pension</u>
Under 45	1	\$2,375	\$2,375
45 – 49	1	1,865	1,865
50 – 54	2	4,245	2,123
55 – 59	2	6,320	3,160
60 – 64	5	10,829	2,166
65 – 69	5	10,040	2,008
70 – 74	9	19,654	2,184
75 – 79	8	16,142	2,018
80 +	<u>3</u>	<u>7,190</u>	<u>2,397</u>
Totals	36	\$78,660	\$2,185

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Distribution of Active Police Participants by Age and by Years of Service
(as of June 30, 2014)

Attained Age	YEARS OF CREDITED SERVICE										Total	
	Under 1 No.	1 to 4 No.	5 to 9 No.	10 to 14 No.	15 to 19 No.	20 to 24 No.	25 to 29 No.	30 to 34 No.	35 to 39 No.	40 and up No.		
Under 25	0	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	5	13	0	0	0	0	0	0	0	18
35 to 39	0	0	0	32	13	0	0	0	0	0	0	45
40 to 44	0	0	0	26	41	3	0	0	0	0	0	70
45 to 49	0	0	0	5	15	13	0	0	0	0	0	33
50 to 54	0	0	0	2	4	5	1	0	0	0	0	12
55 to 59	0	0	0	0	1	1	0	0	0	0	0	2
60 to 64	0	0	0	0	0	0	0	0	0	0	0	0
65 to 69	0	0	0	0	0	0	0	0	0	0	0	0
70 and up	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	5	78	74	22	1	0	0	0	0	180

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Distribution of Active Fire Participants by Age and by Years of Service
(as of June 30, 2014)

Attained Age	YEARS OF CREDITED SERVICE										Total	
	Under 1 No.	1 to 4 No.	5 to 9 No.	10 to 14 No.	15 to 19 No.	20 to 24 No.	25 to 29 No.	30 to 34 No.	35 to 39 No.	40 and up No.		
Under 25	0	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	9	4	0	0	0	0	0	0	0	13
35 to 39	0	0	3	7	7	0	0	0	0	0	0	17
40 to 44	0	0	4	19	20	4	0	0	0	0	0	47
45 to 49	0	0	2	7	16	11	1	0	0	0	0	37
50 to 54	0	0	0	1	5	16	1	0	0	0	0	23
55 to 59	0	0	0	0	1	2	0	0	0	0	0	3
60 to 64	0	0	0	0	0	0	0	0	0	0	0	0
65 to 69	0	0	0	0	0	0	0	0	0	0	0	0
70 and up	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	18	38	49	33	2	0	0	0	0	140

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.

**City of Springfield
Police Officers and Fire Fighters' Retirement Fund**

June 30, 2014 Actuarial Valuation

Summary of Changes in Participant Data

	<u>Active Participants</u>	<u>Retired Participants</u>	<u>Terminated Vested Participants</u>	<u>Total</u>
Count as of July 1, 2013	354	497	14	865
New Entrants	0	0	0	0
Rehires	0	0	0	0
Age and Service Retirements	(25)	24	0	(1)
Duty Disability Retirements	(2)	2	0	0
Non-Duty Disability Retirements	(1)	2	0	1
Duty Related Deaths	0	0	0	0
Non-Duty Related Deaths	0	(2)	0	(2)
Vested Terminations - Received Refund	(1)	0	0	(1)
Vested Terminations - No Refund	(5)	0	5	0
Nonvested Terminations - Received Refund	0	0	0	0
Nonvested Terminations - No Refund	0	0	0	0
Deceased with Beneficiary	0	(8)	0	(8)
New Beneficiaries	0	10	0	10
Deceased without Beneficiary	0	(6)	0	(6)
Received Refund	0	0	(1)	(1)
Alternate Payee No Longer Due a Benefit	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Changes	<u>(34)</u>	<u>22</u>	<u>4</u>	<u>(8)</u>
Count as of June 30, 2014	<u>320</u>	<u>519</u>	<u>18</u>	<u>857</u>

This work product was prepared solely for the City of Springfield for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work products.