November 24, 2015

Chicopee Contributory Retirement Board
City Hall
Market Square
Chicopee, MA 01013

Dear Chicopee Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2015 actuarial valuation of the Chicopee Retirement System. This valuation and report was prepared using generally accepted actuarial principles and practices. To the best of our knowledge, this report is complete and accurate, and the assumptions used represent our best estimate of anticipated experience of the system.

As part of performing the valuation, Stone Consulting, Inc. was furnished member data by the Chicopee Retirement System's administrative staff. Although examined for general reasonableness, the data was not audited by the actuary. In addition, the administrative staff furnished financial statements that were not audited by the actuary or by the plan's auditors.

The funding objective of the plan is to fully fund the system while attempting to maintain a stable contribution amount for the upcoming fiscal year that is consistent with prior funding schedules or if employer finances allow it, to increase the contribution amount. This funding objective is being met.

We anticipate over time the contribution level to decrease as a percentage of payroll. The contribution rate is determined by adding the normal cost plus an amortization of the unfunded actuarial accrued liability. The normal cost is expected to remain at a level percentage of payroll. The length of the funding schedule contained in this actuarial valuation report is seven years (fully funded by 2023). The contribution is set to increase by 2.50% each year. The contribution in Fiscal 2023 decreases by 9.94%.

The amortization payments are the amount left over after subtracting the normal cost and the 3(8)(c) payments from the contribution amount.

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The contribution amount for Fiscal Year 2017 is $17,523,451 which is equal to the anticipated contribution amount from the prior funding schedule. PERAC and GASB guidelines indicate that actuarial valuations should be conducted biennially. GASB Statements No. 67 and 68 require annual updates for asset experience and cost allocation. The Chicopee Retirement Board conducted their previous actuarial valuation effective January 1, 2014.

We are pleased to present the results of this valuation. If the Retirement Board has any questions on the content of this report, we would be glad to respond. Please note that this report is meant to be used in its entirety. Use of excerpts of this report may result in inaccurate or misleading understanding of the results.

I, Lawrence Stone, am a consultant for Stone Consulting, Inc. I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,
STONE CONSULTING, INC.
Actuaries for the Plan

Lawrence B. Stone
Member, American Academy of Actuaries

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Introduction

This report presents the results of the actuarial valuation of the Chicopee Retirement System. The valuation was performed at the request of the Retirement Board as of January 1, 2015 for the purpose of determining the contribution requirements for Fiscal Year 2017 and beyond. The contribution requirements are based on:

- The financial condition of the system as of December 31, 2014
- The benefit provisions of M.G.L. Chapter 32 and related statutes;
- The demographics of members in the system (i.e., active and inactive participants, retirees and beneficiaries as of January 1, 2015);
- Economic assumptions regarding salary increases and investment earnings; and
- Other actuarial assumptions (e.g., withdrawals, retirement, death, etc.)

January 1, 2015 Valuation Summary

	January 1, 2015	January 1, 2014	Change
Contribution Fiscal 2017	$17,523,451	$17,523,451	$0
Funding Schedule Length (as of Fiscal 2017)	7 years	7 years	0 years
Annual Increase in Contribution	2.50%	2.50%	0.00%
Funding Ratio	73%	67%	5%
Interest Rate Assumption	8.00%	8.00%	0.00%
Salary Increase Rate Assumption	Groups 1 & 2: 4.00% ultimate rate, plus 4.00% step yrs. 1-3 Group 4: 4.50% ultimate rate plus the following steps: Police: 13.66% yr. 1 & 2, 2.99% yr. 5, 4.11% yr. 25 Fire: 4.74% yr. 1, 3.02% yr. 8	Same	0.00%

- The Fiscal Year 2017 contribution is equal to the planned 2017 contribution. Stone Consulting, with agreement from the Retirement Board, values assets using a five-year asset smoothing method. In this approach, asset gains and losses are recognized over a five-year period. The purpose of this approach is to avoid wide swings in asset value from one year to the next.

- The System, over the one-year period from January 1 to December 31, 2014, experienced a 6.5% annual return on the market value of assets versus our assumption of 8.00%. There was a $3,478,635 net actuarial gain in calendar year 2014. The System's asset portfolio, effective December 31, 2014 is approximately 78% equities and 22% fixed income and short-term investments. The interest rate assumption was maintained 8.00% to reflect anticipated future market performance.

- The salary increase assumption was changed from the prior valuation. We used a select and ultimate table which is described on the previous page, and which is consistent with the salary assumption from the prior valuation. This assumption is based on expected future experience. Total compensation changed by -0.2% over the prior valuation; however average annual compensation (compensation divided by number of active members) increased by 0.3%.

- The funding level of the Chicopee Retirement System is 73% compared to 67% for the January 1, 2014 actuarial valuation. Using Market Value of Assets produces a funding ratio of 76%. The funding level is estimated to be above the median for Massachusetts' Contributory Retirement Systems.

The schedule length is seven (7) years, a length consistent with the 7 years remaining from the 8 year schedule from the prior valuation. The maximum period permitted under Section 22D of Chapter 32 of the Massachusetts General Laws is fourteen years (Fiscal 2040). The payments are set so that the total contribution amount will increase by 2.50% each year, except for a 9.94% decrease in FY 2023. The 2.50% increase amount is consistent with the schedule from the prior valuation.

- The mortality assumption for the prior valuation was the RP-2000 table projected using Generational Mortality and Scale BB. This assumption has been maintained in the current valuation.

- Assumptions have been set by the Chicopee Retirement Board based in part on recommendations by Stone Consulting, Inc. Experience different from the actuarial assumptions can result in contributions and funding levels different than shown in this report.

January 1, 2015 Actuarial Valuation Results

	January 1, 2015	January 1, 2014	Percentage Change
Funding			
Contribution for Fiscal 2017	$17,523,451		0.0%
Contribution for Fiscal 2017 based on current schedule		$17,523,451	
Members *			
Actives			
a. Number	1,210	1,217	-0.6%
b. Annual Compensation	$51,034,350	$51,158,661	-0.2%
c. Average Annual Compensation	$42,177	$42,037	0.3%
d. Average Attained Age	47.6	47.4	0.4%
e. Average Past Service	13.8	13.7	0.7%
Retired, Disabled and Beneficiaries			
a. Number	791	775	2.1%
b. Total Benefits*	$17,425,537	$16,450,598	5.9%
c. Average Benefits*	$22,030	$21,227	3.8%
d. Average Age	73.1	73.3	-0.3%
Inactives			
a. Number	130	118	10.2%
Normal Cost			
a. Total Normal Cost as of January 1, 2015	$6,834,068	$6,896,225	-0.9%
b. Less Expected Members' Contributions	4,613,118	4,605,974	0.2%
c. Normal Cost to be funded by the Municipality	$2,220,950	$2,290,251	-3.0%
d. Adjustment to July 1, 2016	151,588	156,318	-3.0%
e. Administrative Expense Assumption	372,821	359,542	3.7%
f. Normal Cost Adjusted to July 1, 2016	$2,745,359	$2,806,111	-2.2%
Actuarial Accrued Liability as of January 1, 2015			
a. Active Members	$161,060,486	$160,628,072	0.3%
b. Inactive Members	1,536,365	1,122,333	36.9%
c. Retired Members and Beneficiaries	169,592,166	157,880,931	7.4%
d. Total	$332,189,017	$319,631,336	3.9%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability as of January 1, 2015	$332,189,017	$319,631,336	3.9%
b. Less Actuarial Value of Assets as of January 1, 2015	241,977,272	215,331,385	12.4%
c. Unfunded Actuarial Accrued Liability as of January 1, 2015	$90,211,746	$104,299,951	-13.5%
d. Adjustment to July 1, 2016	$(2,996,781)	$(718,356)	
e. Unfunded Actuarial Accrued Liability as of July 1, 2016	$87,214,965	$103,581,595	

*Excluding State reimbursed COLA

- The data was supplied by the Chicopee Retirement Board. The data was checked under broad parameters for reasonableness. With the assistance of the staff of the Chicopee Retirement Board, we were able to develop a database sufficient for valuation purposes. If there was a missing spouse gender or date of birth, the spouse was assumed to be of opposite gender from the retiree, and was assumed to have a three year difference in age. Males were assumed to be older.

History of Active Participants

Valuation Year	Number	Average Age	Average Past Service	Average Ann'l Compensation
2015	1,210	47.6	13.8	$42,177
2014	1,217	47.4	13.7	$42,037
2013	1,219	46.7	13.1	$40,895
2012	1,200	46.9	13.2	$40,540
2011	1,193	N/A	N/A	$39,988
2010	1,214	N/A	N/A	N/A

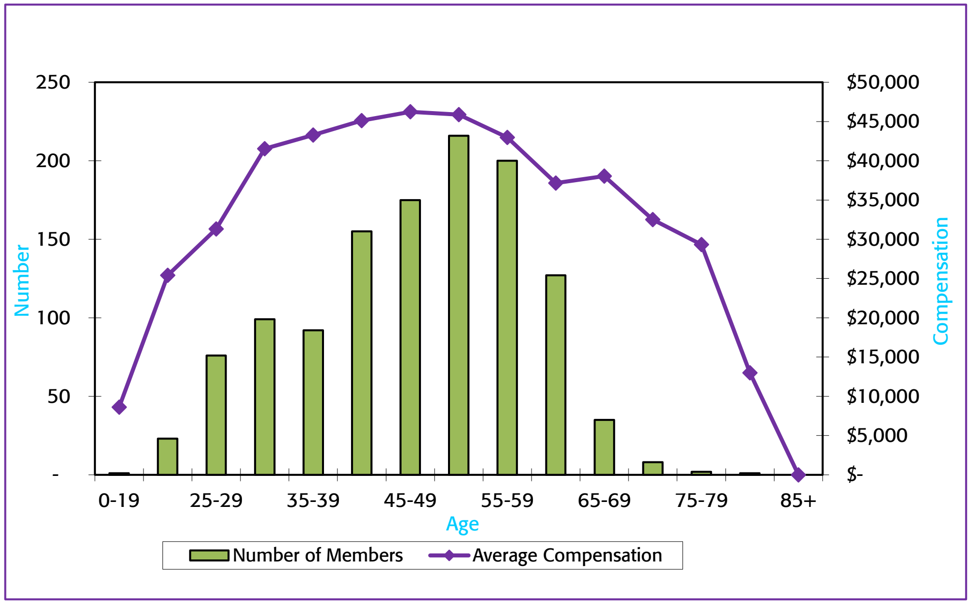
- Employee age has increased by 0.7 years and service has increased by .6 years over the course of the past three years. This is consistent with the trend in the Commonwealth towards an aging of the employee population. Average annual compensation has grown by 5.5% (1.3% annually) over the past four years.

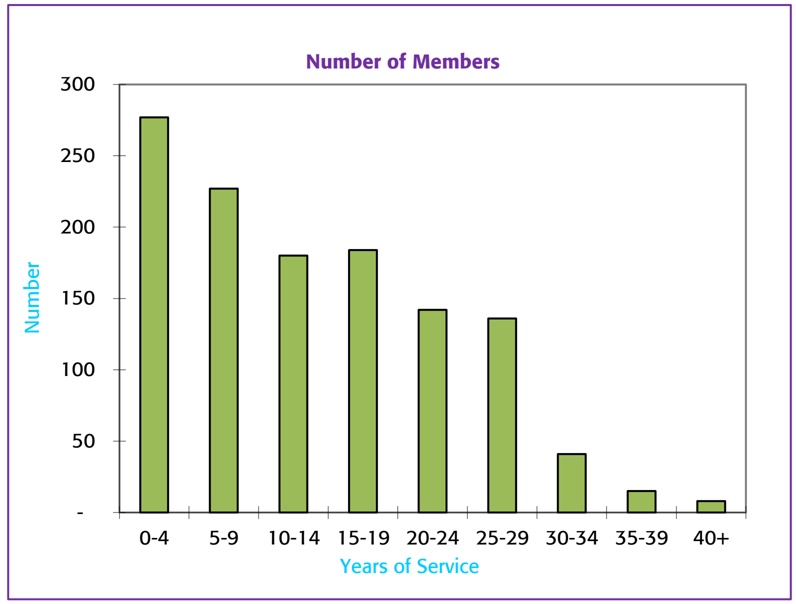
The charts on the following pages summarize demographic information regarding active and retiree members.

Distribution of Plan Members as of January 1, 2015

ACTIVE MEMBERS

AGE	0-4 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40 + Years	Total	Total Compensation	Average Compensation
0-19	1	-	-	-	-	-	-	-	-	1	$ 8,624	$ 8,624
20-24	22	1	-	-	-	-	-	-	-	23	$ 584,500	$ 25,413
25-29	65	11	-	-	-	-	-	-	-	76	$ 2,380,642	$ 31,324
30-34	38	52	9	-	-	-	-	-	-	99	$ 4,112,282	$ 41,538
35-39	30	29	25	8	-	-	-	-	-	92	$ 3,980,066	$ 43,262
40-44	32	36	34	36	17	-	-	-	-	155	$ 6,990,727	$ 45,101
45-49	29	29	33	38	26	20	-	-	-	175	$ 8,090,117	$ 46,229
50-54	30	33	30	32	33	44	14	-	-	216	$ 9,910,398	$ 45,881
55-59	9	22	28	43	32	39	18	6	3	200	$ 8,592,383	$ 42,962
60-64	14	10	15	19	26	24	9	6	4	127	$ 4,720,990	$ 37,173
65-69	7	3	6	4	5	7	-	2	1	35	$ 1,331,893	$ 38,054
70-74	-	1	-	2	2	2	-	1	-	8	$ 260,082	$ 32,510
75-79	-	-	-	1	1	-	-	-	-	2	$ 58,647	$ 29,324
80-84	-	-	-	1	-	-	-	-	-	1	$ 13,001	$ 13,001
85+	-	-	-	-	-	-	-	-	-	-	$ -	$ -
TOTAL	**277**	**227**	**180**	**184**	**142**	**136**	**41**	**15**	**8**	**1,210**	**$ 51,034,350**	**$ 42,177**





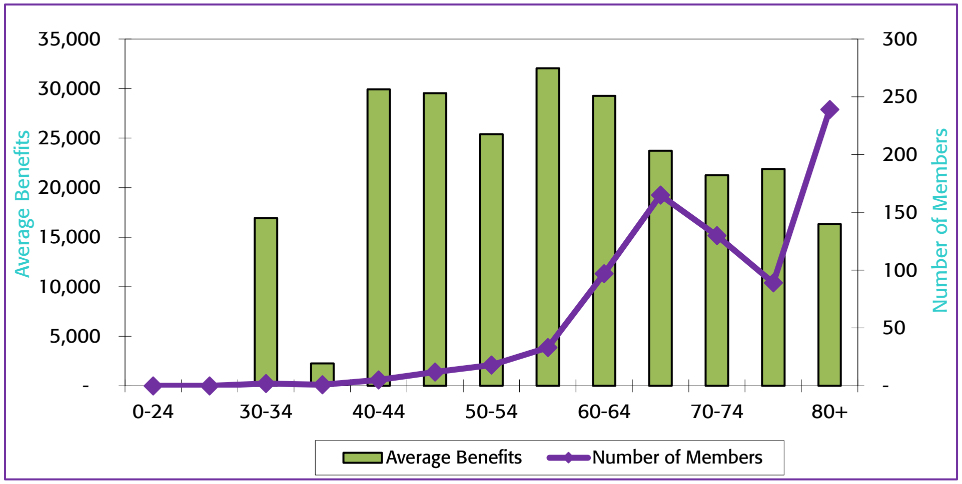
Distribution of Plan Members as of January 1, 2015

RETIRED MEMBERS

Retired Members and Beneficiaries			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	1	18,405	18,405
35-39	1	2,264	2,264
40-44	1	15,129	15,129
45-49	4	8,924	35,696
50-54	8	19,886	159,091
55-59	21	31,631	664,258
60-64	84	28,539	2,397,311
65-69	139	23,252	3,231,961
70-74	121	20,396	2,467,920
75-79	77	20,652	1,590,190
80+	232	16,069	3,727,899
TOTAL	**689**	**$ 20,769**	**$ 14,310,123**

Disabled Members			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	1	15,447	15,447
35-39	-	-	-
40-44	4	33,621	134,482
45-49	8	39,852	318,819
50-54	10	29,809	298,094
55-59	12	32,784	393,411
60-64	13	34,027	442,348
65-69	26	26,292	683,603
70-74	9	32,850	295,651
75-79	12	29,888	358,656
80+	7	24,986	174,902
TOTAL	**102**	**$ 30,543**	**$ 3,115,414**

Total			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	2	16,926	33,851
35-39	1	2,264	2,264
40-44	5	29,922	149,611
45-49	12	29,543	354,515
50-54	18	25,399	457,185
55-59	33	32,051	1,057,669
60-64	97	29,275	2,839,659
65-69	165	23,731	3,915,564
70-74	130	21,258	2,763,571
75-79	89	21,897	1,948,846
80+	239	16,330	3,902,801
TOTAL	**791**	**$ 22,030**	**$ 17,425,537**



Benefits shown are net of State reimbursed COLA.

Valuation Methodology

Stone Consulting, Inc. used the Entry Age Normal actuarial funding method in this actuarial valuation. The use of the Entry Age Normal actuarial funding method is consistent with the requirements of Chapter 32 of the Massachusetts General Laws.

NORMAL COST

	January 1, 2015	% of Payroll*
Gross Normal Cost (GNC)	$6,834,068	13.4%
Employees Contribution	$4,613,118	9.0%
Net Normal Cost (NNC)	$2,220,950	4.4%
Adjusted to Beginning of Fiscal Year 2017	$151,588	
Administrative Expense	$372,821	0.7%
Adjusted Net Normal Cost With Admin. Expense	$2,745,359	

*Payroll paid in 2014 for employees as of January 1, 2015 is $51,034,350. Payroll for new hires in 2014 was annualized.

- The gross normal cost (GNC) is the "price" of benefits accruing in the current year if the assumptions underlying the normal cost were realized.

- An individual normal cost represents that part of the cost of a member's future benefits that are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and withdrawals) are included in this calculation.

- Anticipated employee contributions to be made during the year are subtracted from the GNC to determine employer normal cost, or net normal cost (NNC).

- Administrative expenses added to the NNC. The administrative expense does not include investment manager and custodial fees. These fees are considered part of the interest rate assumption that is net of fees.

Actuarial Accrued Liability and Funded Status

			January 1, 2015	Percentage Change
Active Actuarial Accrued Liability			$ 161,060,486	0.3%
Superannuation	$	147,864,297		
Death	$	3,400,738		
Disability	$	8,755,094		
Withdrawal	$	1,040,357		
Retiree, Inactive, Survivor and Beneficiary Actuarial Accrued Liability			$ 171,128,531	7.6%
Retirees and Beneficiaries	$	133,700,742		
Disabled	$	35,891,424		
Inactive	$	1,536,365		
Total Actuarial Accrued Liability (AAL)			$ 332,189,017	3.9%
Actuarial Value of Assets (AVA)			$ 241,977,272	12.4%
Unfunded Actuarial Accrued Liability			$ 90,211,746	-13.5%
Funded Ratio (AVA / AAL)				
2015 (8.00% interest rate):		73%		
2014 (8.00% interest rate):		67%		

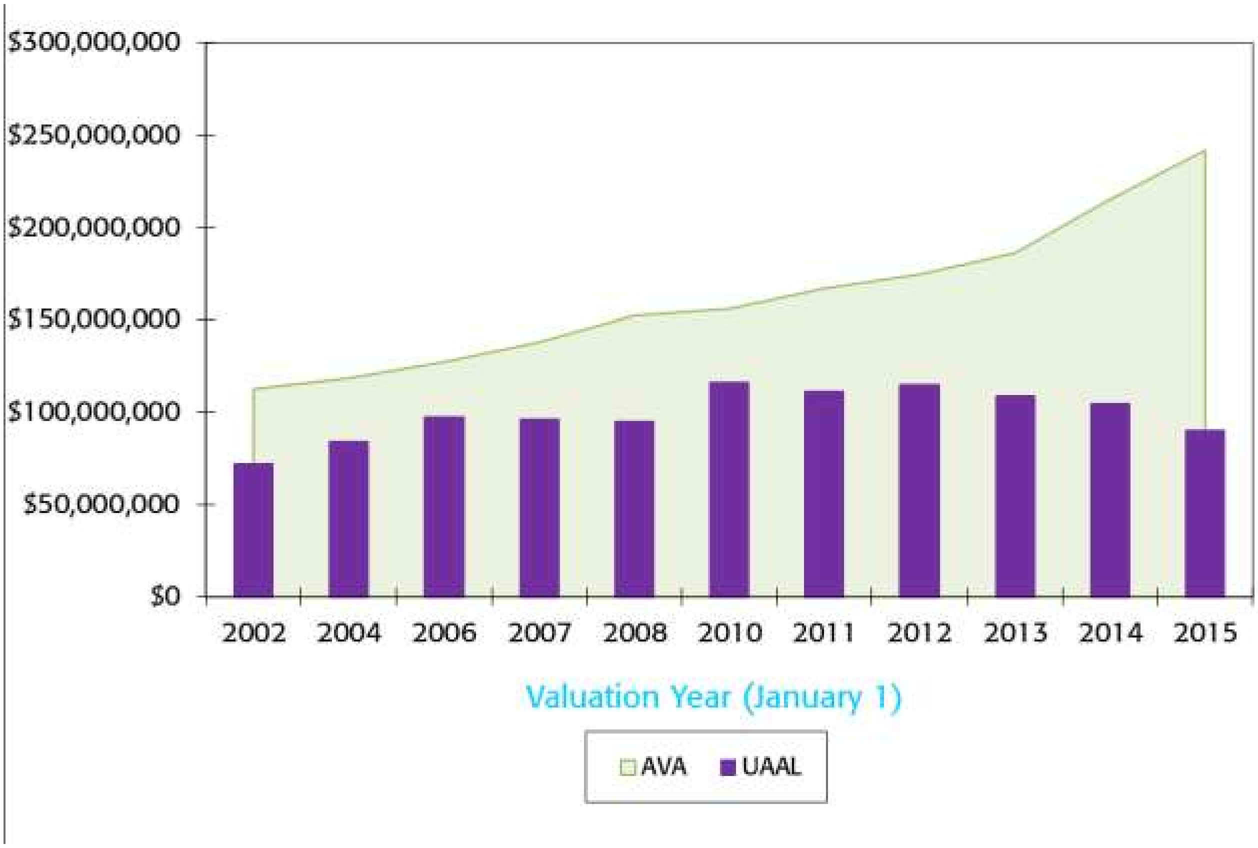
- Actuarial Accrued Liability (AAL) is the “price” of benefits attributable to benefits earned in past years, or in other words, represents today’s value of all benefits earned by active and inactive members.

The total AAL is $332,189,017. This along with an actuarial value of assets of $241,977,272 produces a funded status of 73%. This compares to a funded status of 67% for the 2014 valuation. Using Market Value of Assets produces an Unfunded Actuarial Accrued Liability of $81,086,907.

The charts on the following page are:

- History of the unfunded actuarial accrued liability (UAAL) and the valuation assets (AVA) over the course of the past eleven actuarial valuations
- History of the UAAL as a percentage of covered payroll and covered payroll amount over the same period

Charts of Selected Actuarial and Demographic Statistics



Development of Funding Schedule

Net Employer Normal Cost for Fiscal 2017 (including admin. expenses)	$ 2,745,359
Net 3(8)(c) Payments	291,491
Amortization	14,155,849
Total Appropriation required for Fiscal 2017	$ 17,523,451

- The funding schedule is composed of the normal cost, the net 3(8)(c) payments and the amortization of the actuarial accrued unfunded liability and is adjusted by the administrative expense assumption. The contribution is assumed to be made at the beginning of the fiscal year. The 3(8)(c) payments are the amount that the Chicopee Retirement System pays to or receives from other retirement boards for service that a retiree had with a different retirement system. The net 3(8)(c) payments is the difference between what the Chicopee Retirement System paid out minus what was received by the System.

- The contribution amount for Fiscal 2017 is $17,523,451. The funding schedule is presented on page 11. The schedule's length is seven (7) years (for the fresh start base) which is the remainder of the 8 year schedule from the January 1, 2014 valuation. The maximum funding schedule length allowed by Section 22D of Chapter 32 of the Massachusetts General Laws is fourteen years to Fiscal 2040.

- In developing the funding schedule, we used a fresh start approach in which the unfunded actuarial accrued liability (UAAL), other than the UAAL due to past early retirement incentives, is reamortized instead of maintaining the existing amortization amount and separately amortizing the actuarial gain or loss. The use of a fresh-start approach can result in a funding schedule in which the changes in contribution amounts from year to year are more consistent. The amortization is adjusted each year to maintain a constant increase in the total contribution. In this funding schedule, the contribution increases 2.50% a year.

- We expect that if the actuarial assumptions are realized, the system should become fully funded and future contributions should be reasonably related to the contributions shown in the funding schedule. The funding schedule assumes a static population where the future population has the same demographic makeup as the existing population. Shifts in employee population and in the level of employee contribution percentages as well as the effect of pension reform have not been reflected. We expect these to result in lower contributions than shown in the funding schedule.

FUNDING SCHEDULE

Fiscal Year	Normal Cost	Unfunded Liability*	Funding Amortization of UAAL	Net 3(8)(c) Payments	Schedule Contribution**	Adjusted Payments	% Change
2017	2,745,359	87,214,965	14,155,849	291,491	17,192,699	17,523,451	2.50%
2018	2,868,900	77,078,877	14,462,127	291,491	17,622,518	17,961,538	2.50%
2019	2,998,001	65,297,062	14,773,589	291,491	18,063,081	18,410,576	2.50%
2020	3,132,911	53,176,990	15,090,256	291,491	18,514,658	18,870,841	2.50%
2021	3,273,892	41,690,254	15,412,142	291,491	18,977,524	19,342,612	2.50%
2022	3,421,217	28,380,361	15,739,255	291,491	19,451,962	19,826,177	2.50%
2023	3,575,172	13,652,395	13,652,395	291,491	17,519,058	17,856,087	-9.94%
2024	3,736,054	-	-	291,491	4,027,545	4,105,027	-77.01%

Amortization of Unfunded Liability as of July 1, 2017

Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2005	2002 ERI	52,888	0.00%	15	52,888	3
2006	2003 ERI	185,556	0.00%	15	185,556	4
2012	2010 ERI	140,466	0.00%	10	140,466	5
2017	Fresh Start	N/A	N/A	7	N/A	7

Notes on Amortization of Unfunded Liability

Year is the year the amortization base was established. **Type** is the reason for the creation of the base. **Original Amortization Amount** is the annual amortization amount when the base was established. **Percentage Increasing** is the percentage that the Original Amortization Amount increases per year. **Original # of Years** is the number of years over which the base is being amortized. **Current Amortization Amount** is the amortization payment amount for this year. **Years Remaining** is the number of years left to amortize the base.

* Includes recognition of the following asset gains/(losses) in Fiscal 2018 through 2021:

2018	$ 1,824,968
2019	$ 2,329,027
2020	$ 1,388,361
2021	$ (556,582)

** Contributions are set to be the amount resulting from a 2.5% increase on the prior year's contribution.
The contribution in FY2023 decreases by -9.94%.

Assumptions and Methodology Summary

The principal actuarial assumptions used in this valuation are the same as the assumptions used in the previous valuation, except where noted, and are summarized in the following table:

Valuation Date	January 1, 2015 Valuation
Interest Rate	8.00% (same as prior valuation).
Salary Increase	Groups 1 & 2: 4.00% ultimate rate, plus 4.00% step yrs. 1-3 Group 4: 4.50% ultimate rate plus the following steps: Police: 13.66% yr. 1 & 2, 2.99% yr. 5, 4.11% yr. 25 Fire: 4.74% yr. 1, 3.02% yr. 8
COLA	3% of $15,000
COLA Frequency	Granted every year
Mortality	RP-2000 table with generational projection and scale BB. For members retired under an Accidental Disability (job-related), 40% of deaths are assumed to be from the same cause as the disability. Disabled mortality RP-2000 table with generational projection and scale BB, ages set forward 2 years. (Prior valuation used RP-2000 table with generational projection and scale BB.)
Overall Disability	Groups 1 and 2 45% ordinary disability 55% accidental disability Group 4 10% ordinary disability 90% accidental disability
Retirement Rates	Groups 1 and 2 Ages 55 – 70 Group 4 Ages 50 – 65
Administrative Expense	$372,821 budget estimated for FY 2017 provided by Chicopee Retirement Board.

Assets

a.	Cash	$	287,565.83
b.	Pooled Domestic Equity Funds		92,400,398.64
c.	Pooled International Equity Funds		43,700,006.77
d.	Pooled Domestic Fixed Income Funds		39,287,418.04
e.	Pooled International Fixed Income Funds		14,819,113.72
f.	Pooled Alternative Investments		15,564,224.71
g.	Pooled Real Estate Funds		27,449,286.43
h.	Hedge Funds		17,489,739.64
i.	Subtotal	$	250,997,753.78
j.	Accounts Receivable		150,261.19
k.	Accounts Payable		(45,904.40)
l.	Subtotal	$	104,356.79
	Market Value of Assets [(i) + (l)]	$	251,102,110.57

- We were furnished with the System's annual report by the Board. The market value of assets as of December 31, 2014 (adjusted for payables and receivables) is $251,102,110.57.

- The asset allocation is approximately 22% fixed income, cash, receivables and payables and 78% equities, alternative investments, hedge funds and similar types of investments. Historically, 10 to 11% has been the expected long-term rate of return for equities, and 6% to 7% has been the expected long-term rate of return for fixed income securities. Many economists and investment professionals are projecting lower returns of 6.25% to 9.00% for equities and 3.65 to 6.00% for fixed income securities. In light of these projections, as well as historical investment returns, the 8.00% interest rate assumption is within the reasonable assumption range. We have used a building block method to develop the interest rate assumption (which is the same as the assumed rate of investment return). We encourage close monitoring for changes in investment performance against expectations.

- Actuarial value of assets (AVA) of $241,977,272 is based on a five-year smoothing method. Investment gains or losses above or below the expected rate of investment return are recognized over 5 years, 20% per year. The AVA must be no more than 110% of the market value of assets and no less than 90% of the market value of assets.

Calculation of Valuation Assets as of January 1, 2015

FIVE-YEAR ASSET SMOOTHING

1. Market value of assets including receivable/payable as of 01/01/2015 — $251,102,111

2. Phase-in of asset gains and losses

	Plan Year (1)	Original Amount (2)	Percent Unrecognized (3)	Amount Unrecognized (2) x (3)
a.	2014	($3,478,635)	80%	($2,782,908)
b.	2013	$16,207,857	60%	$9,724,714
c.	2012	$11,758,326	40%	$4,703,331
d.	2011	($12,601,488)	20%	($2,520,298)
e.	2010	$11,262,319	0%	$0
f.	Total			$9,124,839

3. Valuation assets without corridor as of 01/01/2015 (1. - 2.f.) — $241,977,272

4. Corridor Check
   a. 90% of Market Value — $225,991,900
   b. 110% of Market Value — $276,212,322

5. Valuation assets with corridor as of 01/01/2015 (3. within Corridor) — $241,977,272

6. Calculation of return on valuation assets

   a. Valuation assets as of 01/01/2014 — $215,331,385

   b. ER contribs + EE contribs - Ben Pymts - Expenses — $3,602,212

   c. Actual return on valuation assets 5. - (6.a. + 6.b.) — $23,043,674

   d. Weighted value of valuation assets — $212,941,834

   e. Return on valuation assets (6.c. / 6.d.) — 10.8%

   f. Annualized return on assets — 10.8%

Schedule of Funding Progress and Notes

SCHEDULE OF FUNDING PROGRESS
(Dollars In Thousands)

Actuarial Valuation Date	Actuarial Value of Assets A	Actuarial Accrued Liability B	Unfunded AAL (UAAL) B-A	Funded Ratio A/B	Covered Payroll C	UAAL as a % of Covered Payroll (B-A)/C
1/1/2015	$241,977	$332,189	$90,212	73%	$51,034	177%
1/1/2014	$215,331	$319,631	$104,300	67%	$51,159	204%
1/1/2013	$186,290	$295,349	$109,059	63%	$49,850	219%
1/1/2012	$174,648	$289,436	$114,788	60%	$48,648	236%
1/1/2011	$167,050	$278,174	$111,124	60%	$50,243	221%

NOTES TO SCHEDULES

Additional information as of the latest actuarial valuation follows:

Valuation Date	1/1/2015
Actuarial cost method	Entry Age Normal
Amortization method	Level 2.50% increase of contribution amount
Remaining amortization period	7 years for the fresh start base
Asset valuation method	Market value adjusted by accounts payable and receivables adjusted to phase in over 5 years investment gains or losses above or below the expected rate of investment return. The actuarial value of assets must be no less than 90% of the adjusted market value nor more than 110% of the adjusted market value. Market value of assets is $251,102,110.57
<u>Actuarial assumptions:</u>	
Investment Rate of Return	8.00% per year
Projected Salary Increases	Groups 1 & 2: 4.00% ultimate rate, plus 4.00% step yrs. 1-3 Group 4: 4.50% ultimate rate plus the following steps: Police: 13.66% yr. 1 & 2, 2.99% yr. 5, 4.11% yr. 25 Fire: 4.74% yr. 1, 3.02% yr. 8

PERAC Information Disclosure

The most recent actuarial valuation of the System was prepared by Stone Consulting, Inc. as of January 1, 2015

The normal cost for employees on that date was:	$4,613,118	9.0% of payroll
The normal cost for the employer was:	$2,220,950	4.4% of payroll

The actuarial liability for active members was:	$161,060,486
The actuarial liability for retired members was (includes inactives):	$171,128,531
Total actuarial accrued liability:	$332,189,017
System assets as of that date ($251,102,110.57 Market Value):	$241,977,272
Unfunded actuarial accrued liability:	$90,211,746

The ratio of system's assets to total actuarial liability was:	73%

As of that date the total covered employee payroll was:	$51,034,350

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	8.00% per annum
Rate of Salary Increase:	Select and ultimate rate

SCHEDULE OF FUNDING PROGRESS (Dollars in $000's)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
1/1/2015	$241,977	$332,189	$90,212	73%	$51,034	177%
1/1/2014	$215,331	$319,631	$104,300	67%	$51,159	204%
1/1/2013	$186,290	$295,349	$109,059	63%	$49,850	219%
1/1/2012	$174,648	$289,436	$114,788	60%	$48,648	236%
1/1/2011	$167,050	$278,174	$111,124	60%	$50,243	221%

Actuarial Methods and Assumptions

ACTUARIAL METHODS

Actuarial Cost Method

The Entry Age Normal Actuarial Cost Method has been used in this valuation. Under this method, the normal cost is the amount calculated as the level percentage of compensation necessary to fully fund the prospective benefits from each member's entry age to retirement age.

The actuarial accrued liability represents the theoretical accumulation of all prior years' normal costs for the plan members as if the program had always been in effect. The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over plan assets.

Asset Valuation Method

Market value of assets (adjusted by payables and receivables) adjusted to phase in investment gains or losses above or below the expected rate of investment return over a five-year rolling period. The phase-in is 20% for year one, 40% for year two, 60% for year three, 80% for year four and finally 100% for year five. The actuarial value of assets may be no less than 90%, or more than 110% of the market value of assets plus payables and receivables.

Fiscal Year Adjustment

The actuarial results are adjusted by the valuation interest rate and salary scale to the beginning of Fiscal Year 2017. The unfunded actuarial accrued liability is rolled forward with normal cost and further adjusted by anticipated contributions and interest.

ACTUARIAL ASSUMPTIONS

Investment Return

8.00% per year net of investment expenses.

Regular Interest Rate Credited to Annuity Savings Account

2% per year.

Salary Increases

Groups 1 & 2: 4.00% ultimate rate, plus 4.00% step yrs. 1-3

Group 4: 4.50% ultimate rate plus the following steps:

Police: 13.66% yr. 1 & 2, 2.99% yr. 5, 4.11% yr. 25
Fire: 4.74% yr. 1, 3.02% yr. 8

Actuarial Methods and Assumptions
(Continued)

Withdrawal Prior to Retirement

The rates shown at the following sample ages illustrate the withdrawal assumption. Withdrawal rates are set to zero if the retirement rate at that age is nonzero.

Rate of Withdrawal

Service	Group 1 and 2	Group 4
0	15%	1.5%
1	12%	1.5%
2	10%	1.5%
3	9%	1.5%
4	8%	1.5%
5	7.6%	1.5%
10	5.4%	1.5%
15	3.3%	0.0%
20	2.0%	0.0%
25	1.0%	0.0%
30+	0.0%	0.0%

Disability Prior to Retirement

The rates shown at the following sample ages illustrate the assumption regarding the incidence of disability:

Rate of Disability

Age	Group 1 and 2	Group 4
20	0.01%	0.10%
25	0.02%	0.20%
30	0.03%	0.30%
35	0.06%	0.30%
40	0.10%	0.30%
45	0.15%	1.00%
50	0.19%	1.25%
55	0.24%	1.20%
60	0.28%	0.85%

Disability is assumed to be 45% ordinary and 55% accidental for Group 1 and 2 and 10% ordinary and 90% accidental for Group 4.

Actuarial Methods and Assumptions
(Continued)

Rates of Retirement

The rates shown at the following ages illustrate the assumption regarding the incidence of retirement, once the member has achieved 10 years of service:

				Hired after 4/1/2012		
Age	Group 1& 2 Male	Group 1 & 2 Female	Group 4	Group 1& 2 Male	Group 1 & 2 Female	Group 4
50	1%	1.5%	2%	0%	0%	1.5%
51	1%	1.5%	2%	0%	0%	1.5%
52	1%	2.0%	2%	0%	0%	1.5%
53	1%	2.5%	2%	0%	0%	1.5%
54	2%	2.5%	7.5%	0%	0%	5%
55	2%	5.5%	15%	0%	0%	10%
56	2.5%	6.5%	10%	0%	0%	7%
57	2.5%	6.5%	10%	0%	0%	20%
58	5%	6.5%	10%	0%	0%	10%
59	6.5%	6.5%	15%	0%	0%	15%
60	12%	5%	20%	25%	30%	20%
61	20%	13%	20%	20%	13%	20%
62	30%	15%	25%	30%	15%	25%
63	25%	12.5%	25%	25%	12.5%	25%
64	22%	18%	30%	22%	18%	30%
65	40%	15%	100%	40%	15%	100%
66	25%	20%	N/A	25%	20%	N/A
67	25%	20%	N/A	25%	20%	N/A
68	30%	25%	N/A	30%	25%	N/A
69	30%	20%	N/A	30%	20%	N/A
70	100%	100%	N/A	100%	100%	N/A

Mortality

RP-2000 table with generational projection and scale BB (sex-distinct). (Prior valuation used RP-2000 table with generational projection and scale BB). During employment the healthy employee mortality table is used. Post-employment the healthy annuitant table is used. In-service death is assumed to be 55% accidental for group 1 and 2 and 90% accidental for group 4.

Disabled Life Mortality

RP-2000 table with generational projection and scale BB for healthy annuitants, set-forward by 2 years (sex-distinct). Death is assumed to be due to the same cause as the disability 40% of the time. (Prior valuation used RP-2000 table with generational projection and scale BB).

Actuarial Methods and Assumptions
(Continued)

Family Composition

Members assumed married with 2 dependent children – one male and one female both age 15; age difference between member and spouse assumed to be 3 years (the male being the older).

Cost-of-Living Increases

A 3% COLA on the first $15,000 of a member's retirement allowance is assumed to be granted every year.

Administrative Expenses

Estimated budgeted amount of $372,821 for the Fiscal Year 2017 excluding investment management fees and custodial fee is added to the Normal Cost.

Net 3(8)(c)

Net 3(8)(c) payments are assumed to be the same level as the past calendar year for all future years.

Step Increases

Step increases are assumed to be part of the salary increase assumption.

Credited Service

All service is assumed to be due to employment with the municipality.

Contribution Timing

Contributions are assumed to be made at the beginning of the fiscal year.

Total Payroll Increase

The total payroll is assumed to increase at 4.50% per year.

Valuation Date

January 1, 2015.

Summary of Principal Provisions

1. PARTICIPANT

Participation is mandatory for all full-time employees whose employment commences before age 65. There are three classes of members in the retirement system:

- Group 1: general employees
- Group 2: employees in specified hazardous occupations (e.g., electricians)
- Group 4: police and firefighters

2. MEMBER CONTRIBUTIONS

Member contributions vary depending upon date hired as follows:

Date of Hire	Member Contribution Rate
Prior to 1975	5% of Pay
1975 – 1983	7% of Pay
1984 – June 30, 1996	8% of Pay
After June 30, 1996	9% of Pay

Members hired after 1978 contribute an additional 2% of pay over $30,000.

3. PAY

a. Pay

Gross regular compensation excluding bonuses, overtime, severance pay, unused sick pay, and other similar compensation.

b. Average Pay

The average of pay during the three consecutive years that produce the highest average or, if greater, during the last three years (whether or not consecutive) preceding retirement. For members hired after April 1, 2012, five-year averages will be used.

4. CREDITED SERVICE

Period during which an employee contributes to the retirement system plus certain periods of military service and "purchased" service.

5. SERVICE RETIREMENT

a. Eligibility

Completion of 20 years of credited service or attainment of age 55 and completion of 10 years of credited service. If hired prior to 1978 or a member of group 4, attainment of age 55.

Summary of Principal Provisions (Continued)

b. Retirement Allowance

Determined as the product of the member's benefit percentage, average pay and credited service, where the benefit percentage is shown below (maximum allowance of 80% of average pay):

Benefit Percentage	Group 1	Group 2	Group 4
2.5%	65+	60+	55+
2.4	64	59	54
2.3	63	58	53
2.2	62	57	52
2.1	61	56	51
2.0	60	55	50
1.9	59	N/A	49
1.8	58	N/A	48
1.7	57	N/A	47
1.6	56	N/A	46
1.5	55	N/A	45
	Hired after April 1, 2012*		
2.5%	67+	62+	57+
2.35	66	61	56
2.20	65	60	55
2.05	64	59	54
1.90	63	58	53
1.75	62	57	52
1.60	61	56	51
1.45	60	55	50

*Reduction is .125% for each year early instead of .15% per year for employees with over 30 years of service.

In addition, veterans receive an additional $15 per year for each year of credited service up to 20 years

6. DEFERRED VESTED RETIREMENT

a. Eligibility

Completion of 10 years of credited service.

b. Retirement Allowance

Determined in the same manner as "Service Retirement" section above with the member eligible to start collecting a benefit at age 55, (or age 57 for post-April 1, 2012 hires) or defer until later at his or her discretion. If a member chooses, his or her contributions with interest may be withdrawn. The amount of interest he or she will receive depends on length of service and whether or not the termination of employment was voluntary.

Summary of Principal Provisions (Continued)

7. ORDINARY DISABILITY RETIREMENT

a. Eligibility

Non-job related disability after completion of 10 years of credited service.

b. Retirement Allowance

Determined in the same manner as “Service Retirement” section and calculated as if the member had attained age 55 (or age 57 for those hired after April 1, 2012), if younger. Veterans receive 50% of pay (during final year) plus an annuity based on accumulated member contributions with interest.

8. ACCIDENTAL DISABILITY RETIREMENT

a. Eligibility

Disabled as a result of an accident in the performance of duties. No age or service requirement.

b. Retirement Allowance

72% of pay plus an annuity based on accumulated member contributions with interest. Also, a dependent’s allowance per year for each child. Total allowance not to exceed 100% of pay (75% for members hired after 1987).

9. NON-OCCUPATIONAL DEATH

a. Eligibility

Dies while in active service, but not due to occupational injury. 2 years of service.

b. Retirement Allowance

Benefit as if Option C had been elected (see below) and member had attained age 55 (or age 57 for those hired after April 1, 2012) if younger. Minimum monthly benefits provided as follows: spouse - $500, first child - $120, each additional child - $90

10. OCCUPATIONAL DEATH

a. Eligibility

Dies as a result of an occupational injury.

b. Benefit Amount

72% of pay plus refund of annuity savings fund balance. In the case of an accidental disability retiree who dies of the same cause, the beneficiary receives 72% of the last 12 months salary or the current pension amount, whichever is greater.

Summary of Principal Provisions
(Continued)

11. COST-OF-LIVING INCREASES

An increase of up to 3% applied to the first $15,000 of annual benefit. Funded by the Municipality from Fiscal Year 1999. Percentage increase is voted on each year by the Retirement Board. Cost-of-living increases granted during Fiscal Year 1982 through Fiscal 1998 are reimbursed by the Commonwealth.

12. OPTIONAL FORMS OF PAYMENT

- Option A

Allowance payable monthly for the life of the member.

- Option B

Allowance payable monthly for the life of the member with a guarantee of remaining member contributions with interest.

- Option C

Allowance payable monthly for the life of the member with 66-2/3% continuing to the member's beneficiary upon the member's death. If the beneficiary predeceases the member, the allowance amount "pops up" to the non-reduced amount.

Glossary of Terms

- Actuarial Accrued Liability

  The portion of the Present Value of Benefits that is attributable to past service.

- Actuarial Assets

  Market value of assets (adjusted by payables and receivables) adjusted to phase in investment gains or losses above or below the expected rate of investment return over a five-year rolling period. The phase-in is 20% for year one, 40% for year two, 60% for year three, 80% for year four and finally 100% for year five. The actuarial value of assets may be no less than 90%, or more than 110% of the market value of assets plus payables and receivables.

- Actuarial Assumptions

  Estimates are made as to the occurrence of certain events that determine the level of benefits to be paid and how long they will be provided. The more important actuarial assumptions include the investment return on assets, salary increases and the rates of turnover, disability, retirement and mortality.

- Actuarial Cost Method

  The procedure that is used to allocate the present value of benefits between the liability that is attributable to past service (Actuarial Accrued Liability) and that attributable to future service.

- GASB

  Government Accounting Standards Board (issues guidance for disclosure of retirement system liabilities).

- Normal Cost

  The portion of the Present Value of Benefits that is attributable to benefits to be earned in the coming year.

- PERAC

  Public Employee Retirement Administration Commission, a division of the State government which has regulatory authority over the administration of the retirement system.

- Present Value of Benefits

  Represents the dollar value today of all benefits expected to be earned by current members if all actuarial assumptions are exactly realized.

- PRIT

  Pension Reserves Investment Trust Fund is the state controlled and administered fund for the investment of assets for members of the retirement system.

- Unfunded Actuarial Accrued Liability

  That portion of the Actuarial Accrued Liability not covered by System Assets.