LOWELL CONTRIBUTORY RETIREMENT SYSTEM

ACTUARIAL VALUATION
as of

January 1, 2015

Prepared by:

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KMS ACTUARIES LLC

February 22, 2016

Lowell Contributory Retirement Board
City Hall, Room 3
375 Merrimack Street
Lowell, MA 01852

Dear Board Members:

We are pleased to present the enclosed report summarizing the results of our actuarial valuation of the Lowell Contributory Retirement System as of January 1, 2015.

Our valuation was performed in accordance with the provisions contained in Chapter 32 of the Massachusetts General Laws, "M.G.L.", as of January 1, 2015. Disclosures under GASB Statement No. 67, Financial Reporting for Pension Plans (GASB 67) and GASB Statement No. 68, Accounting and Financial Reporting for Pensions (GASB 68) are provided in a separate report.

The principal results of our valuation are summarized in Section 2. The summary of Plan provisions and actuarial methods and assumptions are shown in Sections 5 and 6, respectively. Section 7 summarizes the demographic profile of active members, retired plan members and beneficiaries and disabled plan members. Asset information and actuarial liabilities are presented in Section 2. The development of the required appropriations pursuant to Chapter 32 of the M.G.L. is shown in Section 3. The summary of information for PERAC is presented in Section 4.

We also provide a 30-year forecast of the required appropriations and cash flows in Section 3.

Our actuarial valuation is based on an investment return rate of 8%, compounded annually. Our calculations were based on participant census and asset data and other information provided by the Lowell Contributory Retirement System and the benefit provisions of Chapter 32 of the M.G.L. as of January 1, 2015.

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Our valuation follows generally accepted actuarial methods and we perform such tests as we consider necessary to assure the accuracy of the results. The amounts presented in this report have been appropriately determined according to the actuarial assumptions and methods stated herein.

We appreciate this opportunity to be of service to the Lowell Contributory Retirement Board. We are available to answer any questions with respect to our valuation.

Respectfully submitted,

Linda Bournival

Linda L. Bournival, FSA
Member, American Academy of Actuaries

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ACTUARIAL CERTIFICATION

This report presents the results of the Actuarial Valuation for the Lowell Contributory Retirement System as of January 1, 2015. The report presents the funding schedule contribution amounts for the fiscal years beginning 2017.

This valuation is based upon member data provided by the Retirement Board and asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Lowell Contributory Retirement System. Although we did not audit the data used in the valuation, we believe that the information is complete and reliable.

This report was completed in accordance with generally accepted actuarial standards and procedures, and conforms to the Code of Professional Conduct of the American Academy of Actuaries. The actuarial assumptions used in the determination of costs are reasonably related to the experience of the System and to reasonable expectations, and represent our best estimate of anticipated long-term experience under the System.

Future actuarial valuation results may differ significantly from the current results presented in this report. Examples of potential sources of volatility include plan experience differing from that anticipated by the economic or demographic assumptions, the effect of new entrants, changes in economic or demographic assumptions, the effect of law changes and the delayed effect of smoothing techniques.

This report is intended for the sole use of the Lowell Contributory Retirement System and is intended to provide information to comply with the stated purpose of the report. It may not be appropriate for other purposes.

The undersigned credentialed actuaries are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinion contained herein. They are available to answer any questions with regard to this report.

Respectfully submitted,

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SECTION 1 - SUMMARY

Background

We have completed the Actuarial Valuation of the Lowell Contributory Retirement System as of January 1, 2015. This valuation is based upon census data provided by the Retirement Board and asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Lowell Contributory Retirement Board. Information for the prior valuation completed as of January 1, 2013 was obtained from the valuation report prepared by KMS Actuaries.

Massachusetts General Laws

The valuation was prepared in accordance with Chapter 32 of the Massachusetts General Laws ("M.G.L.").

The valuation does not take into consideration:

- Changes in the law after the valuation date,
- Transfers between retirement systems pursuant to Section 3(8)(c) of Chapter 32,
- State-mandated benefits and
- Cost-of-living increases granted to members in pay status between 1982 and 1997.

GASB Statement Numbers 67 and 68

In June 2012, the GASB approved two related Statements that significantly change the way pension plans and governments will account and report pension liabilities. Effective for plans with fiscal years beginning after June 15, 2013, GASB Statement No. 67, Financial Reporting for Pension Plans, replaces the requirements of Statement No. 25 and effective for employers with fiscal years beginning after June 15, 2014, GASB Statement No. 68, Accounting and Financial Reporting for Pensions, replaces the requirements of Statement No. 27.

The new pension standards reflect changes from those currently in place regarding how governments calculate total pension liability and pension expense. Further, the new standards contain requirements for disclosing information in the notes to financial statements and presenting required supplementary information following the notes.

The required disclosures and notes under the new GASB Statements for the fiscal year ending December 31, 2014 are provided in a separate report.

SECTION 1 - SUMMARY

Actuarial Valuation

During the two years since the last valuation, the total unfunded actuarial accrued liability of the System was expected to decrease from $232,964,456 as of January 1, 2013 to $232,348,168 as of January 1, 2015, for a total decrease of $616,288. The actual unfunded actuarial accrued liability, before any assumption or plan changes, was $231,610,624, resulting in an actuarial gain of $737,544. The actuarial gain was primarily due to an asset gain of $9,506,372 and a demographic experience loss of $8,768,828. The details of the gain and loss analysis are provided in Exhibit 2.6.

Appropriations

The funding appropriation for each year is computed as the sum of the normal cost and an amortization payment to pay off the Unfunded Actuarial Liability, adjusted for annual payments of the appropriation made at the beginning of each fiscal year. The appropriation calculated as of the January 1, 2015 valuation is $23,413,819, and is made up of a normal cost payment of $5,970,591 and an amortization payment of $17,443,228. The amortization method is an increasing amortization of the unfunded actuarial accrued liability at 4% over 21 years and is expected to fully pay the unfunded actuarial accrued liability by the year 2036. The development of the appropriation as of January 1, 2015 is presented in Exhibit 3.1.

For fiscal year 2016, we show the actual appropriation developed under the previous funding schedule and reported on the PERAC "Required Fiscal Year 2016 Appropriation" letter dated October 24, 2014 of $22,638,222. For fiscal year 2017, we developed an annual appropriation of $24,701,289, which is made up of a normal cost of $6,362,897 and payment toward the unfunded actuarial accrued liability of $18,338,392. The unfunded actuarial accrued liability is expected to be fully paid by 2036. The current funding schedule is shown in Exhibit 3.2.

At the September 18, 2015 meeting of the Lowell Retirement Board, the Board voted to increase the Cost of Living Adjustment (COLA) base from $15,000 to $16,000 effective July 1, 2016 and to increase the COLA base to $17,000 effective July 1, 2017. At its October 6, 2015 meeting, the City Council approved the COLA base increases. The funding schedule shown in Exhibit 3.2 is based on the funding schedule that would have been developed under the $15,000 COLA base with appropriation increases from year to year limited to 8% PLUS the additional appropriations required as a result of increasing the COLA base. Further details on the funding schedule are presented in Section 3.

SECTION 1 - SUMMARY

A summary of principal valuation results from the current valuation and the prior valuation follows. Changes in actuarial assumptions and methods and Plan provisions are discussed below, as well as changes in census data and asset information.

Valuation Date	1/1/2015	1/1/2013	Increase/ (Decrease)
Summary of Member Data			
Active Members	1,702	1,621	5.0%
Average Age	47.0	47.3	(0.6%)
Average Service	13.0	13.5	(3.8%)
Salary	$89,520,851	$75,067,229	19.3%
Average Salary	$52,597	$46,309	13.6%
Valuation Salary	$89,520,851	$80,555,739	11.1%
Retired Members and Beneficiaries	996	969	2.8%
Average Age	73.1	74.2	(1.5%)
Total Annual Pension	$25,388,138	$22,922,888	10.8%
Average Annual Pension	$25,490	$23,656	7.8%
Disabled Members	197	190	3.7%
Average Age	66.6	65.7	1.4%
Total Annual Pension	$7,468,677	$7,024,915	6.3%
Average Annual Pension	$37,912	$36,973	2.5%
Inactive Members	268	278	(3.6%)
Annuity Savings Fund	$6,027,683	$6,560,627	(8.1%)
Actuarial Accrued Liability (AAL)	$558,002,459	$495,728,901	12.6%
Assets			
Market Value of Assets (MVA)	$314,467,705	$264,929,846	18.7%
Actuarial Value of Assets (AVA)	306,750,870	262,764,445	16.7%
Unfunded Accrued Liability	$251,251,589	$232,964,456	7.8%
Funded Status on AVA	55.0%	53.0%	3.8%
Funded Status on MVA	56.4%	53.4%	5.6%
Normal Cost			
Employer	$5,620,591	$4,011,990	40.1%
Employee	8,081,160	6,941,741	16.4%
Administrative Expenses	350,000	350,000	0.0%
Total Normal Cost	$14,051,751	$11,303,731	24.3%

SECTION 1 - SUMMARY

Valuation Date	1/1/2015	1/1/2013	Increase/ (Decrease)
Appropriations			
Fiscal Year 2016	$22,638,222	$22,638,222	0.0%
Fiscal Year 2017	$24,701,289	$23,423,735	5.5%
Fiscal Year 2018	$26,141,731	$24,173,120	8.1%

Actuarial Assumptions and Methods

Many Actuarial Assumptions and Methods used in this valuation have been changed since the last valuation, including the mortality tables and mortality improvement scales and the salary scale for both Group 1 and Group 4 employees. Changing these assumptions resulted in a net increase in the unfunded actuarial accrued liability of $14,861,500 and an increase in the employer normal cost of $316,137. The Actuarial Assumptions and Methods used in this valuation are detailed in Section 6, Actuarial Assumptions and Methods.

Plan Provisions

For this valuation, the COLA base was increased from $15,000 to $16,000 effective July 1, 2016 and $17,000 effective July 1, 2017. The unfunded actuarial accrued liability and the employer normal cost increased by $4,779,465 and $106,399, respectively, as a result of these changes. The Plan provisions used in this valuation are detailed in Section 5, Summary of Plan Provisions.

Census Data

As of January 1, 2015, there are 1,702 active members who may be eligible for benefits in the future, 996 retirees and beneficiaries, 268 inactives and 197 disabled retirees. Summaries of the active, retired and disabled employees are included in Section 7, Demographic Information.

Assets

This valuation is based upon asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Lowell Contributory Retirement Board. The market value of assets increased from $264,929,846 as of January 1, 2013 to $314,467,705 as of January 1, 2015. During the plan years ended 2013 and 2014, the rates of return on the market value of assets were 13.86% and 7.36%, respectively.

The actuarial value of assets increased from $262,764,445 as of January 1, 2013 to $306,750,870 as of January 1, 2015. During the plan years ended 2013 and 2014, the rates of return on the actuarial value of assets were 10.19% and 9.19%, respectively.

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.1 - Plan Assets

Asset information is reported annually to the Public Employee Retirement Administration Commission by the Lowell Contributory Retirement System. The Market Value of Assets for the two most recent calendar years are as follows:

Calendar Year	2014	2013
Trust Fund Composition at Year-End		
Cash	$8,389,830	$5,846,322
Short-Term Investments	0	0
Fixed Income Securities	0	0
Equities	962,155	940,890
Pooled Short Term Funds	0	0
Pooled Domestic Equity Funds	0	0
Pooled International Equity Funds	0	0
Pooled Global Equity Funds	0	0
Pooled Domestic Fixed Income Funds	0	0
Pooled International Fixed Income Funds	0	0
Pooled Global Fixed Income Funds	0	0
Pooled Alternative Investments	1,515,395	1,695,357
Pooled Real Estate Funds	1,523,704	1,570,283
Pooled Domestic Balanced Funds	0	0
Pooled International Balanced Funds	0	0
PRIT Absolute	0	0
PRIT Cash	2,000,226	2,000,174
PRIT Fund	289,136,309	274,714,573
Interest Due & Accrued	0	0
Prepaid Expenses	0	0
Accounts Receivable	10,940,085	9,155,684
Land	0	0
Buildings	0	0
Accumulated Depreciation - Buildings	0	0
Accounts Payable	0	0
Total Market Value of Assets	$314,467,705	$295,923,283

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.1 - Plan Assets

Calendar Year	2014	2013
Funds		
Annuity Savings Fund	$91,693,245	$89,510,457
Annuity Reserve Fund	29,201,639	27,490,397
Special Military Service Cr Fund	16,797	16,780
Pension Fund	0	0
Expense Fund	0	0
Pension Reserve Fund	193,556,024	178,905,649
Total Market Value of Assets	$314,467,705	$295,923,283
Asset Activity		
Market value as of Beginning of Year	$295,923,283	$264,929,846
Contributions and Receipts	32,182,771	28,065,494
Benefit Payments and Expenses	(35,289,597)	(33,392,522)
Investment Return	21,651,248	36,320,465
Market Value as of End of Year	$314,467,705	$295,923,283
Computed Rate of Return	7.36%	13.86%

Returns and annualized past returns developed by PERAC are shown below. Information is obtained from the Annual Investment Reports published by PERAC for the years shown.

Year	1-Year Return	5-Year Return	Return (Since 1985)
2014	8.17%	9.90%	9.32%
2013	14.97%	11.57%	9.36%
2012	13.52%	1.24%	9.16%
2011	0.28%	0.93%	9.00%
2010	13.25%	4.07%	9.35%
2009	16.62%	3.84%	9.20%
2008	-29.27%	3.14%	8.90%
2007	11.79%	14.56%	10.97%
2006	16.91%	9.26%	10.93%
2005	12.02%	3.75%	10.65%

Exhibit 2.1 - Plan Assets

Valuation Date		1/1/2015	1/1/2014
1. Market Value of Assets as of prior January 1		$295,923,283	$264,929,846
a. Prior Year Contributions and Receipts		32,182,771	28,065,494
b. Prior Year Benefit Payments and Expenses		(35,289,597)	(33,392,522)
c. Expected Investment Return Rate		8.00%	8.00%
d. Expected Investment Return		23,539,234	20,963,550
e. Expected Market Value of Assets as of Valuation Date		$316,355,691	$280,566,368
2. Prior Year Gain / (Loss)			
a. Market Value of Assets as of January 1		$314,467,705	$295,923,283
b. Expected Market Value of Assets		316,355,691	280,566,368
c. Prior Year Gain / (Loss)		(1,887,986)	15,356,915
3. Phase-In of Asset Gains and Losses			
Plan Year	Gain / (Loss)	Unrecognized Gain / (Loss)	Unrecognized Gain / (Loss)
a. 2014	($1,887,986)	($1,510,389)	-
b. 2013	15,356,915	9,214,149	12,285,532
c. 2012	10,292,458	4,116,983	6,175,475
d. 2011	(20,519,541)	(4,103,908)	(8,207,816)
e. 2010	8,811,866	-	1,762,373
f. Total deferred gains/(losses)		7,716,835	12,015,564
4. Actuarial Value of Assets			
a. Market Value of Assets Less Unrecognized Gain / (Loss)		$306,750,870	$283,907,719
b. 90% of Market Value of Assets		283,020,935	266,330,955
c. 110% of Market Value of Assets		345,914,476	325,515,611
d. Actuarial Value of Assets, a., but not less than b. and not greater than c.		$306,750,870	$283,907,719
e. Ratio of Actuarial Value of Assets to Market Value of Assets		97.55%	95.94%
5. Rate of Return on Actuarial Value of Assets for Prior Calendar Year		9.19%	10.19%

SECTION 2 - PRINCIPAL VALUATION RESULTS

The **Actuarial Present Value of Future Benefits** is the present value of the cost to finance all benefits payable in the future, discounted to reflect the probability of payment and the time value of money. Below is the Actuarial Present Value of Future Benefits from the current valuation and the prior valuation:

Exhibit 2.2 - Actuarial Present Value of Future Benefits

Valuation Date	1/1/2015	1/1/2013
Actives		
Superannuation	$301,499,033	$275,900,246
Termination	7,848,938	6,533,564
Death	13,422,843	9,112,552
Disability	36,195,729	30,106,847
Total Actives	$358,966,543	$321,653,209
Retired Members and Inactives		
Retired Members and Beneficiaries	$234,795,699	$198,051,048
Disabled Members	79,222,112	64,970,657
Inactive Members	6,027,683	6,560,627
Total Retired Members and Inactives	$320,045,494	$269,582,332
Total Present Value of Future Benefits	$679,012,037	$591,235,541

The **Actuarial Accrued Liability** is the portion of the Actuarial Present Value of Future Benefits which is allocated to all periods prior to a valuation year and therefore is not provided for by future Normal Costs. Below is the Actuarial Accrued Liability from the current valuation and the prior valuation:

Exhibit 2.3 - Actuarial Accrued Liability

Valuation Date	1/1/2015	1/1/2013
Actives		
Superannuation	$217,355,657	$204,688,853
Termination	2,445,269	3,169,302
Death	5,796,654	5,124,496
Disability	12,359,385	13,163,918
Total Actives	$237,956,965	$226,146,569
Retired Members and Inactives		
Retired Members and Beneficiaries	$234,795,699	$198,051,048
Disabled Members	79,222,112	64,970,657
Inactive Members	6,027,683	6,560,627
Total Retired Members and Inactives	$320,045,494	$269,582,332
Total Actuarial Accrued Liability	$558,002,459	$495,728,901

SECTION 2 - PRINCIPAL VALUATION RESULTS

The **Normal Cost** is the portion of the Actuarial Present Value of Future Benefits which is allocated to a valuation year. Only active employees who have not reached Normal Retirement Age incur a Normal Cost. Below is the Normal Cost from the current valuation and the prior valuation:

Exhibit 2.4 - Normal Cost

Valuation Date	1/1/2015	1/1/2013
Actives		
Superannuation	$9,161,546	$7,997,769
Termination	1,275,816	775,915
Death	874,444	464,768
Disability	2,389,945	1,715,279
Total Actives	$13,701,751	$10,953,731
Administrative Expenses	$350,000	$350,000
Total Normal Cost		
Normal Cost	$14,051,751	$11,303,731
As a Percentage of Salary	15.7%	14.0%
Employee Normal Cost		
Employee Contributions	$8,081,160	$6,941,741
As a Percentage of Salary	9.0%	8.6%
Employer Normal Cost		
Employer Normal Cost	$5,970,591	$4,361,990
As a Percentage of Salary	6.7%	5.4%

Exhibit 2.5 - Unfunded Actuarial Accrued Liability

Valuation Date	1/1/2015	1/1/2013
Unfunded Actuarial Accrued Liability		
a. Actuarial Accrued Liability	$558,002,459	$495,728,901
b. Actuarial Value of Assets	306,750,870	262,764,445
c. Unfunded Actuarial Accrued Liability (a. - b.)	$251,251,589	$232,964,456
d. Funded Ratio (b. divided by a.)	55.0%	53.0%

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.6 - Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding mortality, retirement, disability and withdrawal rates as well as salary increases and investment returns. A comparison of the results of the current valuation and the prior valuation is made to determine how closely actual experience relates to expected. During the two years since the last valuation, the total unfunded actuarial accrued liability of the System was expected to decrease by $616,288. Below is the development of the Actuarial Gain or Loss for the current 2-year period:

Calendar Year Ending		12/31/2014	12/31/2013
Expected Unfunded Actuarial Accrued Liability			
a.	Unfunded Actuarial Accrued Liability, beginning of year	$234,527,977	$232,964,456
b.	Normal cost, beginning of year	11,699,362	11,303,731
c.	Total contributions	32,182,771	28,065,494
d.	Interest (full year on a. and b., monthly on c.)	18,303,600	18,325,284
e.	Expected Unfunded Actuarial Accrued Liability	$232,348,168	$234,527,977
f.	Unfunded Actuarial Accrued Liability (before changes)	$231,610,624	
g.	(Gain)/Loss	($737,544)	
Asset (gain)/loss			
a.	Actuarial value of assets, beginning of year	$283,907,719	$262,764,445
b.	Contributions and Receipts	32,182,771	28,065,494
c.	Benefit Payments and Expenses	(35,289,597)	(33,392,522)
d.	Assumed rate of return	8.00%	8.00%
e.	Expected return	22,577,988	20,790,318
f.	Actuarial value of assets, end of year	306,750,870	283,907,719
g.	Actual return	25,949,977	26,470,302
h.	Actual rate of return	9.19%	10.19%
i.	Asset (gain)/loss	($3,371,989)	($5,679,984)
j.	Total asset (gain)/loss, 2-year period	($9,506,372)	
Actual Unfunded Actuarial Accrued Liability			
a.	Changes due to:		
	i) Asset (gain)/loss	($9,506,372)	
	ii) (Gain)/loss from demographic experience	8,768,828	
	iii) Total (Gain)/loss prior to changes	(737,544)	
	iv) Unfunded Actuarial Accrued Liability (before changes)	231,610,624	
	v) Assumption changes	14,861,500	
	vi) Plan changes	4,779,465	
b.	Unfunded Actuarial Accrued Liability, end of year	251,251,589	

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibit 3.1 - Annual Appropriations

The **Annual Appropriation** is determined in accordance with the requirements set forth in Sections 22D and 22F of Chapter 32 of the Massachusetts General Laws ("M.G.L."). The appropriation is comprised of the annual employer normal cost and amortization payments to pay the unfunded actuarial accrued liability. Below are the details of the annual appropriation for the current valuation.

Amortization Payment	Outstanding Balance at 1/1/2015	Period (in years)	Payment Increase Rate	Total Appropriation at 1/1/2015
a. Early Retirement Incentive (2002)	$186,373	2	0.00%	$96,771
b. Early Retirement Incentive (2003)	$2,171,313	5	0.00%	$503,536
c. Assumption Change	$14,861,500	21	4.00%	$1,005,694
d. Plan Change	$4,779,465	21	4.00%	$323,432
e. Unfunded Actuarial Accrued Liability	$229,252,938	21	4.00%	$15,513,795
f. Total	$251,251,589			$17,443,228
Normal Cost				$5,970,591
Total Appropriation at Valuation Date				$23,413,819

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibits 3.2 and 3.3, are based on the assumptions below:

- Payroll and Total Normal Cost are both expected to increase 3.50% per year.
- The Employee Contribution rate will increase linearly from the 2015 percentage to 10.50% by 2039 as members contributing at the lower rates are replaced by new members contributing over 9%.
- Employer Normal Cost is the difference between Total Normal Cost and Employee Contributions.
- The Unfunded Actuarial Accrued Liability ("UAL") is computed as of January 1 of each year assuming no future gains or losses.
- The Amortization Payment of UAL is to be paid over 21 years through 2036.
- The Amortization Payment of ERI is a level amortization of the UAL attributable to the ERI programs for 2002 and 2003 over 2 years and 5 years, respectively.
- Total Employer Cost is the sum of the Employer Normal Cost and the Amortization of the UAL, both computed as of January 1 of each year and adjusted for annual payments made on July 1. The funding schedule shown in Exhibit 3.2 is based on the funding schedule that would have been developed under the $15,000 COLA base with appropriation increases from year to year limited to 8% PLUS the additional appropriations required as a result of increasing the COLA base as described in the Summary of Plan Provisions.
- The impact in the appropriations for fiscal years 2017 and 2018 is an increase of $252,008 and 517,062, respectively, and will increase annually by approximately 3.5% through fiscal year 2036.
- For fiscal year 2016, we show the actual appropriation developed under the previous funding schedule of $22,638,222.
- Expected benefit payments include payments expected to be made to retired members, beneficiaries, disabled members and active members expected to retire. In addition, expected benefit payments include distribution of the annuity savings fund attributed to inactive members.
- Benefit payments exclude cost-of-living increases granted to members in pay status between 1982 and 1997. In addition, benefit payments are as expected for the first ten years of the forecast, then increase by the greater of 4.50% per year thereafter or the expected future payments for the current population projected by our computer model.

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibit 3.2 - 30-Year Forecast of Annual Appropriations

Fiscal Year Ending	Total Normal Cost	Employee Contributions	Employer Normal Cost	Amortization Payment of UAL	Amortization Payment of ERI 2002	Amortization Payment of ERI 2003	Total Employer Cost	Unfunded Actuarial Accrued Liability
2016	$14,603,009	$8,398,188	$6,204,821	$15,809,544	$100,567	$523,290	$22,638,222	$251,251,589
2017	15,114,113	8,751,216	6,362,897	17,714,535	100,566	523,291	24,701,289	254,273,624
2018	15,643,107	9,118,670	6,524,437	19,094,004	-	523,290	26,141,731	255,557,698
2019	16,190,617	9,501,124	6,689,493	19,855,771	-	523,291	27,068,555	255,615,424
2020	16,757,288	9,899,181	6,858,107	20,647,937	-	523,290	28,029,334	254,886,116
2021	17,343,793	10,313,462	7,030,331	22,072,025	-	-	29,102,356	253,275,221
2022	17,950,827	10,744,615	7,206,212	22,873,137	-	-	30,079,349	250,599,317
2023	18,579,106	11,193,317	7,385,789	23,703,257	-	-	31,089,046	246,876,801
2024	19,229,374	11,660,265	7,569,109	24,563,082	-	-	32,132,191	241,993,798
2025	19,902,403	12,146,187	7,756,216	25,453,212	-	-	33,209,428	235,826,598
2026	20,598,986	12,651,840	7,947,146	26,374,118	-	-	34,321,264	228,240,972
2027	21,319,951	13,178,010	8,141,941	27,326,061	-	-	35,468,002	219,091,463
2028	22,066,149	13,725,514	8,340,635	28,308,997	-	-	36,649,632	208,220,704
2029	22,838,465	14,295,199	8,543,266	29,322,392	-	-	37,865,658	195,458,788
2030	23,637,811	14,887,949	8,749,862	30,364,939	-	-	39,114,801	180,622,767
2031	24,465,134	15,504,680	8,960,454	31,434,013	-	-	40,394,467	163,516,418
2032	25,321,414	16,146,343	9,175,071	32,524,610	-	-	41,699,681	143,930,547
2033	26,207,664	16,813,930	9,393,734	33,626,987	-	-	43,020,721	121,644,424
2034	27,124,932	17,508,470	9,616,462	34,720,399	-	-	44,336,861	96,429,788
2035	28,074,304	18,231,029	9,843,275	36,961,124	-	-	46,804,399	68,061,674
2036	29,056,905	18,982,720	10,074,185	36,472,294	-	-	46,546,479	35,095,481
2037	30,073,897	19,764,696	10,309,201	-	-	-	10,309,201	-
2038	31,126,484	20,578,158	10,548,326	-	-	-	10,548,326	-
2039	32,215,911	21,424,350	10,791,561	-	-	-	10,791,561	-
2040	33,343,468	22,304,566	11,038,902	-	-	-	11,038,902	-
2041	34,510,489	23,085,226	11,425,263	-	-	-	11,425,263	-
2042	35,718,357	23,893,209	11,825,148	-	-	-	11,825,148	-
2043	36,968,499	24,729,471	12,239,028	-	-	-	12,239,028	-
2044	38,262,396	25,595,003	12,667,393	-	-	-	12,667,393	-
2045	39,601,580	26,490,828	13,110,752	-	-	-	13,110,752	-

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibit 3.3 - 30-Year Forecast of Cash Flow

Calendar Year	Assets, BOY	Benefit Payments	Employee Contributions	Employer Contributions	Investment Return	Assets, EOY
2015	$314,467,705	$40,455,765	$8,081,160	$21,783,639	$24,698,475	$328,575,214
2016	328,575,214	35,972,540	8,420,862	23,768,826	26,122,094	350,914,456
2017	350,914,456	37,608,666	8,774,444	25,154,893	27,913,719	375,148,846
2018	375,148,846	39,426,972	9,142,461	26,046,728	29,828,270	400,739,333
2019	400,739,333	41,282,169	9,525,491	26,971,240	31,851,778	427,805,673
2020	427,805,673	43,132,119	9,924,133	28,003,756	33,998,937	456,600,380
2021	456,600,380	44,974,060	10,339,011	28,943,866	36,281,412	487,190,609
2022	487,190,609	46,896,906	10,770,774	29,915,448	38,706,119	519,686,044
2023	519,686,044	48,821,584	11,220,095	30,919,216	41,285,318	554,289,089
2024	554,289,089	50,791,920	11,687,674	31,955,787	44,033,361	591,173,991
2025	591,173,991	52,793,219	12,174,239	33,025,652	46,964,875	630,545,538
2026	630,545,538	54,899,556	12,680,546	34,129,101	50,093,080	672,548,708
2027	672,548,708	57,013,691	13,207,382	35,266,125	53,433,822	717,442,346
2028	717,442,346	59,140,134	13,755,562	36,436,246	57,007,627	765,501,648
2029	765,501,648	61,183,792	14,325,936	37,638,234	60,840,615	817,122,641
2030	817,122,641	63,288,748	14,919,385	38,869,594	64,958,155	872,581,027
2031	872,581,027	65,154,625	15,536,826	40,125,537	69,395,151	932,483,916
2032	932,483,916	66,952,615	16,179,212	41,396,707	74,192,390	997,299,610
2033	997,299,610	68,664,285	16,847,533	42,663,165	79,387,313	1,067,533,336
2034	1,067,533,336	70,335,655	17,542,816	45,037,554	85,066,605	1,144,844,656
2035	1,144,844,656	71,890,423	18,266,131	44,789,370	91,204,726	1,227,214,460
2036	1,227,214,460	73,270,358	19,018,588	9,920,033	96,256,115	1,279,138,838
2037	1,279,138,838	74,374,867	19,801,342	10,150,131	100,406,093	1,335,121,537
2038	1,335,121,537	75,455,068	20,615,590	10,384,185	104,883,327	1,395,549,571
2039	1,395,549,571	76,338,692	21,462,579	10,622,188	109,726,296	1,461,021,942
2040	1,461,021,942	77,146,053	22,213,769	10,993,965	114,977,762	1,532,061,385
2041	1,532,061,385	77,670,668	22,991,251	11,378,754	120,688,549	1,609,449,271
2042	1,609,449,271	77,825,545	23,795,945	11,777,010	126,924,996	1,694,121,677
2043	1,694,121,677	78,053,478	24,628,803	12,189,205	133,742,864	1,786,629,071
2044	1,786,629,071	78,106,366	25,490,811	12,615,827	141,197,004	1,887,826,347

SECTION 4 - REQUIRED DISCLOSURES

Exhibit 4.1 - GASB 67 and GASB 68 Disclosures

In June 2012, the GASB approved two related Statements that significantly change the way pension plans and governments will account and report pension liabilities. Effective for plans with fiscal years beginning after June 15, 2013, GASB Statement No. 67, *Financial Reporting for Pension Plans*, replaces the requirements of Statement No. 25 and effective for employers with fiscal years beginning after June 15, 2014, GASB Statement No. 68, *Accounting and Financial Reporting for Pensions*, replaces the requirements of Statement No. 27.

The new pension standards reflect changes from those currently in place regarding how governments calculate total pension liability and pension expense. Further, the new standards contain requirements for disclosing information in the notes to financial statements and presenting required supplementary information following the notes.

GASB 67 requires defined benefit pension plans, such as the Lowell Contributory Retirement System, to present a statement of fiduciary net position (pension plan assets) and a statement of changes in fiduciary net position. Further, the statement requires that notes to financial statements include descriptive information such as the types of benefits provided, the classes of plan members covered and the composition of the pension plan's retirement board. Finally, GASB 67 requires pension plans to present in required supplementary information the sources of the changes in the net pension liability and information about the actuarially determined contributions compared with the actual contributions made to the plan and related ratios.

GASB 67 and GASB 68 require projected benefit payments be discounted to their actuarial present value using the single rate that reflects:

(1) a long-term expected rate of return on pension plan investments *to the extent that the pension plan's assets are sufficient to pay benefits and pension plan assets are expected to be invested using a strategy to achieve that return and*

(2) a tax-exempt, high-quality municipal bond rate *to the extent that the conditions for use of the long-term expected rate of return are not met.*

GASB 68 establishes standards for measuring and recognizing liabilities, deferred outflows of resources, deferred inflows of resources and pension expense by state and local governments.

The effective date for GASB 67 is for plan years beginning after June 15, 2013, which is fiscal year ending December 31, 2014 for the Lowell Contributory Retirement System. The effective date for GASB 68 is for employers' fiscal years beginning after June 15, 2014. The GASB report, submitted under separate cover and prepared as of December 31, 2014 (the measurement date), presents information to assist the Lowell Contributory Retirement System in providing the required information under GASB 68 to participating employers.

SECTION 4 - REQUIRED DISCLOSURES

Exhibit 4.2 - PERAC DISCLOSURE INFORMATION

The most recent actuarial valuation of the System was prepared by KMS Actuaries, LLC as of January 1, 2015.

The normal cost for employees on that date was:	$8,081,160	9.0% of payroll
The normal cost for the employer was:	$5,970,591	6.7% of payroll

The actuarial liability for active members was:	$237,956,965
The actuarial liability for retired and inactive members was:	320,045,494
Total actuarial liability:	$558,002,459
System assets as of that date:	$306,750,870
Unfunded actuarial accrued liability:	$251,251,589

The ratio of System assets to total actuarial accrued liability was:	55.0%

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

Investment Return:	8.00%
Rate of Salary Increase:	Based on salary: 6%-4.25% for Group 1, 7%-4.75% for Group 4

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Administration

There are 105 contributory retirement systems for public employees in Massachusetts. Each system is governed by a retirement board and all boards, although operating independently, are governed by Chapter 32 of the Massachusetts General Laws and other applicable statutes. This law in general provides uniform benefits, uniform contribution requirements and a uniform accounting and funds structure for all systems.

Participation

Participation is mandatory for all full-time employees. Eligibility with respect to part-time, provisional, temporary, seasonal or intermittent employment is governed by regulations promulgated by the local retirement board, and approved by PERAC. Membership is optional for certain elected officials.

There are four classes of membership in the Retirement System:

Group 1:	General employees, including clerical, administrative, technical and all other employees not otherwise classified.
Group 2:	Certain specified hazardous duty positions.
Group 3:	State police officers and inspectors.
Group 4:	Local police officers, firefighters and other specified hazardous positions.

For members in more than one group, participation will be proportional.

Member Contributions

Member contributions vary depending on the most recent date of membership:

Prior to 1975:	5% of Salary
1975 – 1983:	7% of Salary
1984 – June 30, 1996:	8% of Salary
July 1, 1996 – present:	9% of Salary
1979 – present:	An additional 2% of Salary in excess of $30,000.
Group 1 members hired on or after April 2, 2012:	6% of Salary with 30 or more years of creditable service.

Rate of Interest

Interest on regular deductions made after January 1, 1984 is a rate established by PERAC in consultation with the Commissioner of Banks. The rate is obtained from the average rates paid on individual savings accounts by a representative sample of at least ten financial institutions.

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Retirement Age

The mandatory retirement age for some Group 2 and Group 4 members is age 65. Most Group 2 and Group 4 members may remain in service after reaching age 65. Group 4 members who are employed in certain public safety positions are required to retire at age 65. There is no mandatory retirement age for members in Group 1.

Salary

Gross regular compensation. This does not include bonuses, overtime, severance pay, unused sick leave credit or other similar compensation.

Average Salary

Membership before April 2, 2012: Average annual rate of regular compensation received during the three consecutive years that produce the highest average, or, if greater, during the last three years (whether or not consecutive) preceding retirement.

Membership on or after April 2, 2012: Average annual rate of regular compensation received during the five consecutive years that produce the highest average, or, if greater, during the last five years (whether or not consecutive) preceding retirement.

Creditable Service

The period during which a member contributes to the retirement system plus certain periods of military service and "purchased" service.

Benefit Rate

The benefit rate varies with the member's retirement age, Group, membership date and years of creditable service at retirement. Each year a member retires prior to the age at which the 2.5% maximum benefit rate applies, a reduction is applied to each year of age under the maximum age. The maximum age and reduction for each Group and membership date is as follows:

	Group 1	Group 2	Group 4
2.5% for Membership before April 2, 2012:			
Maximum age:	65	60	55
Reduction:	0.1%	0.1%	0.1%
2.5% for Membership on or after April 2, 2012 (less than 30 years of service):			
Maximum age:	67	62	57
Reduction:	0.15%	0.15%	0.15%
2.5% for Membership on or after April 2, 2012 (30+ years of service):			
Maximum age:	67	62	57
Reduction:	0.125%	0.125%	0.125%

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Superannuation Retirement	Eligibility if membership before April 2, 2012:	• completion of 20 years of Creditable Service, or • attainment of age 55 if hired prior to 1978, or • attainment of age 55 with 10 years of Creditable Service, if hired after 1978.
	Eligibility if membership on or after April 2, 2012:	• attainment of age 60 with 10 years of Creditable Service if classified in Group 1 • attainment of age 55 with 10 years of Creditable Service if classified in Group 2 • attainment of age 55 if hired prior to 1978 or if classified in Group 4
	Benefit Amount	Product of the member's Benefit Rate, Average Salary and Creditable Service.
	Maximum Benefit	80% of the member's Average Salary.
	Veteran's Benefit	Additional benefit of $15 per year of Creditable Service, up to a maximum of $300.
Deferred Vested	Eligibility	• completion of ten or more years of Creditable Service. • elected officials hired prior to 1978, completion of six years of Creditable Service.
	Benefit Amount	Accrued benefit payable commencing at age 55, or the completion of 20 years of Creditable Service, or may be deferred until later at the participant's option.
Withdrawal of Contributions		Contributions may be withdrawn upon termination of employment. • Members hired prior to 1984 receive contributions plus 100% of interest credited. • Members hired after 1983 with less than five years of Creditable Service receive contributions only. • Members hired after 1983 with more than five years of Creditable Service but less than ten years receive contributions plus 50% of interest credited. • Members hired after 1983 with more than ten years of Creditable Service receive contributions plus 100% of interest credited.

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Ordinary Disability Retirement	Eligibility	Non-job related disability after completion of ten years of Creditable Service.
	Benefit Amount for Group 1 membership before April 2, 2012 or Group 2 or Group 4	Superannuation benefit determined if the member is age 55, up to a maximum of 80% of Average Salary over three years. If the member is a veteran, 50% of final rate of salary (final year) plus an annuity based on the accumulated member contributions plus credited interest, up to a maximum of 80% of Average Salary over five years.
	Benefit Amount for Group 1 membership on or after April 2, 2012	Superannuation benefit determined if the member is age 60, up to a maximum of 80% of Average Salary over three years. If the member is a veteran, 50% of final rate of salary (final year) plus an annuity based on the accumulated member contributions plus credited interest, up to a maximum of 80% of Average Salary over five years.
Accidental Disability Retirement	Eligibility	Disabled as a result of an accident in the performance of duties. There is no minimum age or service requirement.
	Benefit Amount	72% of Salary plus an annuity based on accumulated member contributions plus credited interest.
	Maximum Benefit	100% of Salary if hired before January 1, 1988, otherwise 75% of Salary.
	Veteran's Benefit	Additional allowance of $15 per year of Creditable Service, up to a maximum of $300.
	Supplemental Dependent	Additional allowance of $415 per year for each child.
Non-Occupational Death	Eligibility	For members with at least two years of creditable service who die while in active service, but not due to occupational injury.
	Benefit Amount	Benefit as if Option C had been elected. Minimum benefit of $250 per month for surviving spouse, $120 per month for first child and $90 per month for each additional child.

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Accidental Death	Eligibility	For members who die as a result of an occupational injury.
	Benefit Amount	72% of Salary plus an annuity based on accumulated member contributions plus credited interest.
	Maximum Benefit	100% of Salary if hired before January 1, 1988, otherwise 75% of Salary.
	Veteran's Benefit	Additional allowance of $15 per year of creditable service, up to a maximum of $300.
	Supplemental Dependent Allowance	Additional allowance of $708.60 per year for each child until age 18 (or age 22 if a full-time student).

Cost-of-Living Adjustment (COLA)

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a Cost-of-Living Adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees and beneficiaries who have been receiving benefit payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is $16,000, effective July 1, 2016, and $17,000, effective July 1, 2017. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the Commonwealth of Massachusetts and are not the liability of the Retirement System.

Optional Forms of Payment

A member may elect to receive his or her retirement allowance in one of three forms of payment:

- Option A – Total annual allowance commencing at retirement and terminating at member's death.

- Option B – A reduced annual allowance commencing at retirement with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member.

- Option C – A reduced annual allowance commencing at retirement with 66⅔% of benefit continued to designated beneficiary upon death of member. For members who retired on or after January 12, 1988, if the beneficiary pre-deceases the retiree, the benefit payable increases based on the factor used to determine the Option C benefit at retirement. For members who retired prior to January 12, 1988, if the System has accepted Section 288 of Chapter 194 of the Acts of 1998 and the beneficiary pre-deceases the retiree, the benefit payable increases based on the factor used to determine the Option C benefit at retirement.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date:	January 1, 2015
Investment Return:	8.00% per year. The investment return assumption is a long-term assumption based on capital market expectations by asset class, historical returns and professional judgment. We considered analysis prepared by PRIM's investment advisor using a building block approach and using the target asset allocation, expected returns by asset class and risk analysis to determine a long-term expected average annual rate of return.
Annuity Savings Fund Interest Rate:	3.00% per year
Amortization Method:	*Unfunded Actuarial Accrued Liability (UAL):* Increasing dollar amount at 4.00% to reduce the Unfunded Actuarial Accrued Liability to zero on or before June 30, 2036. No change from prior valuation. *Early Retirement Incentive Programs (ERI):* Level dollar amount over two years (2002 ERI) and five years (2003 ERI).
Salary Scale:	The assumed annual rates for salary increases including longevity are illustrated by the following rates:

Service	General Employees	Police and Fire
0	6.00%	7.00%
1	5.50%	6.50%
2	5.50%	6.00%
3	5.25%	5.75%
4	5.25%	5.25%
5	4.75%	5.25%
6	4.75%	4.75%
7	4.50%	4.75%
8	4.50%	4.75%
9	4.25%	4.75%
Previous valuation	4.50%	5.00%

The salary scale assumption is a long-term estimate derived from historical data, current and recent market expectations and professional judgment.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Cost-of-Living Allowance: Cost-of-Living Allowances (COLA) are assumed to be 3% of the pension amount, capped at $510 per year. Previously, 3% of the pension amount, capped at $450 per year.

Mortality Table: RP-2000 Mortality Table (base year 2009) with full generational mortality improvement using Scale BB. For disabled members, RP-2000 Mortality Table (base year 2015) with full generational mortality improvement using Scale BB. Previously, RP-2000 Mortality Table projected to 2012 with Scale AA.

General Employees: 55% of deaths are job-related.
Police and Fire : 90% of deaths are job-related.

The underlying tables with generational mortality improvement reasonably reflect the mortality experience of the System as of the valuation date based on historical and current demographic data. Further, PERAC reviewed a sampling of a few larger local retirement systems and compared the results with the results found in performing the analsyis of the State Retirement System for years 2012 - 2014. For the State Retirement System analysis, the mortality assumptions reflect the recent experience study published in 2014.

Turnover Rates: Illustrative turnover rates are shown below:

Creditable Service	General Employees	Police and Fire
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

Disability Rates: Illustrative disability rates are shown below:

Attained Age	General Employees	Police and Fire
20	0.0001	0.0010
30	0.0003	0.0030
40	0.0010	0.0030
50	0.0019	0.0125

General Employees: 55% of disabilities are accidental and 45% are ordinary.
Police and Fire : 90% of disabilities are accidental and 10% are ordinary.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Retirement Rates: Illustrative retirement rates are shown below:

	General Employees		Police and Fire
Age	Male	Female	Male & Female
50	0.0100	0.0150	0.0200
51	0.0100	0.0150	0.0200
52	0.0100	0.0200	0.0200
53	0.0100	0.0250	0.0500
54	0.0200	0.0250	0.0750
55	0.0200	0.0550	0.1500
56	0.0250	0.0650	0.1000
57	0.0250	0.0650	0.1000
58	0.0500	0.0650	0.1000
59	0.0650	0.0650	0.1500
60	0.1200	0.0500	0.2000
61	0.2000	0.1300	0.2000
62	0.3000	0.1500	0.2500
63	0.2500	0.1250	0.2500
64	0.2200	0.1800	0.3000
65	0.4000	0.1500	1.0000
66	0.2500	0.2000	1.0000
67	0.2500	0.2000	1.0000
68	0.3000	0.2500	1.0000
69	0.3000	0.2000	1.0000
70	1.0000	1.0000	1.0000

The turnover, disability and retirement rates are based on PERAC's most recent experience analysis of local retirement systems which reviewed age, gender and job group. The assumptions reflect this analysis as well as professional judgment.

Actuarial Cost Method: Individual Entry Age Normal.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Asset Method: The Actuarial Value of Assets is the market value of assets as of the valuation date reduced by the sum of:

a) 80% of gains and losses of the prior year,
b) 60% of gains and losses of the second prior year,
c) 40% of gains and losses of the third prior year and
d) 20% of gains and losses of the fourth prior year.

Investment gains and losses are determined by the excess or deficiency of the expected return over the actual return on the market value. The actuarial valuation of assets is further constrained to be not less than 90% or more than 110% of market value.

Census Data: Census data as of the valuation date were submitted by the Retirement Board.

Asset Data: Asset information is reported annually to the Public Employee Retirement Administration Commission by the Lowell Contributory Retirement System.

Dependents: 80% of all members will be survived by a spouse. Age assumption for spouses is that males are assumed to be three years older than females.

Administrative Expenses: The anticipated administrative expenses for the fiscal year. For Fiscal Year 2016, the administrative expenses were assumed to be $350,000 and is anticipated to increase at 3.5% per year.

The administrative expense assumption is based on information relating to the System's administrative expenses provided by the Retirement System.

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.1 - Active Members by Age and Years of Service as of January 1, 2015

	Years of Service									
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 20	1	-	-	-	-	-	-	-	-	1
	18,941	-	-	-	-	-	-	-	-	18,941
20-24	48	-	-	-	-	-	-	-	-	48
	32,078	-	-	-	-	-	-	-	-	32,078
25 to 29	123	8	1	-	-	-	-	-	-	132
	39,894	45,466	40,394	-	-	-	-	-	-	40,236
30 to 34	81	57	14	1	-	-	-	-	-	153
	43,278	58,417	57,937	65,787	-	-	-	-	-	50,407
35 to 39	59	43	50	13	-	-	-	-	-	165
	43,316	59,317	68,552	63,636	-	-	-	-	-	56,734
40 to 44	37	30	49	61	15	3	-	-	-	195
	34,297	58,859	65,068	66,933	68,165	73,460	-	-	-	59,225
45 to 49	51	45	32	52	41	30	-	-	-	251
	39,680	43,860	53,089	57,794	77,908	75,290	-	-	-	56,392
50 to 54	29	43	43	47	40	42	15	-	-	259
	42,253	44,241	45,230	44,288	73,109	79,679	74,105	-	-	56,126
55 to 59	25	25	45	53	28	36	32	10	2	256
	42,647	41,126	42,578	41,429	53,004	70,671	86,971	91,582	66,937	54,949
60 to 64	13	22	24	40	21	21	14	9	2	166
	44,165	38,862	41,328	41,102	39,926	51,008	69,963	93,683	97,410	48,145
65 to 69	2	9	9	13	5	12	1	2	-	53
	36,648	34,033	42,970	40,761	39,781	46,595	47,189	52,367	-	41,626
70 & up	1	1	2	5	5	6	1	1	1	23
	20,467	28,833	51,753	45,361	58,392	41,328	35,534	58,543	58,769	46,626
Total	470	283	269	285	155	150	63	22	5	1,702
Average Salary	39,955	49,838	53,938	51,436	64,222	68,320	78,680	87,375	77,493	52,597

Average Age: 47.0 Average Service: 13.0

Exhibit 7.2 - Retired Plan Members and Beneficiaries Annual Pensions as of January 1, 2015

	Male		Female		Total	
Attained Age	Count	Total Payments	Count	Total Payments	Count	Total Payments
<20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	1	14,557	0	0	1	14,557
30-34	0	0	1	14,089	1	14,089
35-39	0	0	0	0	0	0
40-44	0	0	1	12,051	1	12,051
45-49	2	53,969	8	249,132	10	303,101
50-54	3	73,559	7	152,492	10	226,051
55-59	41	1,917,399	28	420,469	69	2,337,868
60-64	71	3,144,529	61	1,067,339	132	4,211,868
65-69	103	3,759,920	89	1,485,319	192	5,245,239
70-74	82	2,748,904	91	1,597,793	173	4,346,697
75-79	64	2,151,398	79	1,182,979	143	3,334,377
80-84	48	1,528,041	64	930,224	112	2,458,265
85-89	25	861,795	64	886,114	89	1,747,910
90-94	19	467,992	30	451,483	49	919,475
95+	1	27,417	13	189,173	14	216,590
Total	460	16,749,481	536	8,638,657	996	25,388,138
Average Age	71.6		74.4		73.1	
Average Payment		36,412		16,117		25,490
	46.2%	66.0%	53.8%	34.0%	100.0%	100.0%

Included in above totals is $252,214 in State reimbursed COLAs.

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.3 - Disabled Plan Members Annual Pensions as of January 1, 2015

	Male		Female		Total	
Attained Age	Count	Total Payments	Count	Total Payments	Count	Total Payments
<20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	2	71,395	0	0	2	71,395
35-39	1	12,084	0	0	1	12,084
40-44	9	389,220	2	44,824	11	434,044
45-49	12	489,632	2	110,653	14	600,285
50-54	7	296,929	4	110,078	11	407,007
55-59	15	693,294	4	118,066	19	811,360
60-64	26	1,260,128	8	176,803	34	1,436,931
65-69	39	1,567,305	1	51,572	40	1,618,877
70-74	17	656,541	2	22,987	19	679,528
75-79	17	612,425	1	10,695	18	623,120
80-84	17	457,503	1	5,177	18	462,680
85-89	4	139,638	2	30,716	6	170,354
90-94	4	141,012	0	0	4	141,012
95+	0	0	0	0	0	0
Total	170	6,787,106	27	681,571	197	7,468,677
Average Age	66.4		67.9		66.6	
Average Payment		39,924		25,243		37,912
	86.3%	90.9%	13.7%	9.1%	100.0%	100.0%

Included in above totals is $124,840 in State reimbursed COLAs.

SECTION 8 - GLOSSARY OF TERMS

Actuarial Accrued Liability – That portion of the Actuarial Present Value of pension plan benefits which is not provided by future Normal Costs or employee contributions. It is the portion of the Actuarial Present Value attributable to service rendered as of the Valuation Date.

Actuarial Assumptions – Assumptions, based upon past experience or standard tables, used to predict the occurrence of future events affecting the commencement, amount and duration of pension benefits, such as: changes in compensation, mortality, withdrawal, disablement and retirement; rates of investment earnings and asset appreciation or depreciation; and any other relevant items.

Actuarial Cost Method (or Funding Method) – A procedure for allocating the Actuarial Present Value of all past and future pension plan benefits to the current year (Normal Cost) and the past (Actuarial Accrued Liability).

Actuarial Gain or Loss (or Experience Gain or Loss) – A measure of the difference between actual experience and that expected based upon the set of Actuarial Assumptions, during the period between the valuation date and the most recent immediately preceding valuation date.

Actuarial Present Value – The dollar value on the valuation date of all benefits expected to be paid to current members based upon the Actuarial Assumptions and the terms of the Plan.

Amortization Payment – That portion of the pension plan appropriation which represents payments made to pay interest on and the reduction of the Unfunded Accrued Liability.

Annual Statement – The statement submitted by the local retirement board to PERAC each year that describes the asset holdings and Fund balances as of December 31 and the transactions during the calendar year that affected the financial condition of the retirement system.

Annuity Reserve Fund – The fund into which total accumulated Member Contributions, including interest, is transferred at the time a member retires, and from which annuity payments are made.

Annuity Savings Fund – The fund in which Member Contributions plus interest credited are held for active members and for former members who have not withdrawn their contributions and are not yet receiving a benefit (inactive members).

Assets – The total value of the investments held by the Plan trust that are for the payment of promised benefits.

Cost of Benefits – The estimated payment from the pension system for benefits for the fiscal year.

Expense Fund – The fund into which the appropriation for administrative expenses is paid and from which all such expenses are paid.

Funded Ratio – The Actuarial Value of Assets expressed as a percentage of the Actuarial Accrued Liability.

SECTION 8 - GLOSSARY OF TERMS

Funding Schedule – The schedule based upon the most recently approved actuarial valuation which sets forth the amount which would be appropriated to the pension system in accordance with Section 22D of M.G.L. Chapter 32.

GASB – Governmental Accounting Standards Board.

Normal Cost – Total Normal Cost is that portion of the Actuarial Present Value of pension plan benefits which is expected to accrue in the current fiscal year. The Employee Normal Cost is the amount of the expected Member Contributions for the current fiscal year. The Employer Normal Cost is the difference between the Total Normal Cost and the Employee Normal Cost.

Pension Fund – The fund into which appropriation amounts as determined by PERAC are paid and from which pension benefits are paid.

Pension Reserve Fund – The fund which shall be credited with all amounts set aside by a system for the purpose of establishing a reserve to meet future pension liabilities. These amounts would include excess interest earnings.

Present Value of Future Benefits – The actuarial present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value of money and the probabilities of payment.

Special Fund for Military Service Credit – The fund which is credited with amounts paid by the retirement board equal to the amount which would have been contributed by a member during a military leave of absence as if the member had remained in active service of the retirement board. In the event of retirement or a non-job related death, such amount is transferred to the Annuity Reserve Fund. In the event of termination prior to retirement or death, such amount shall be transferred to the Pension Fund.

Unfunded Actuarial Accrued Liability – The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.