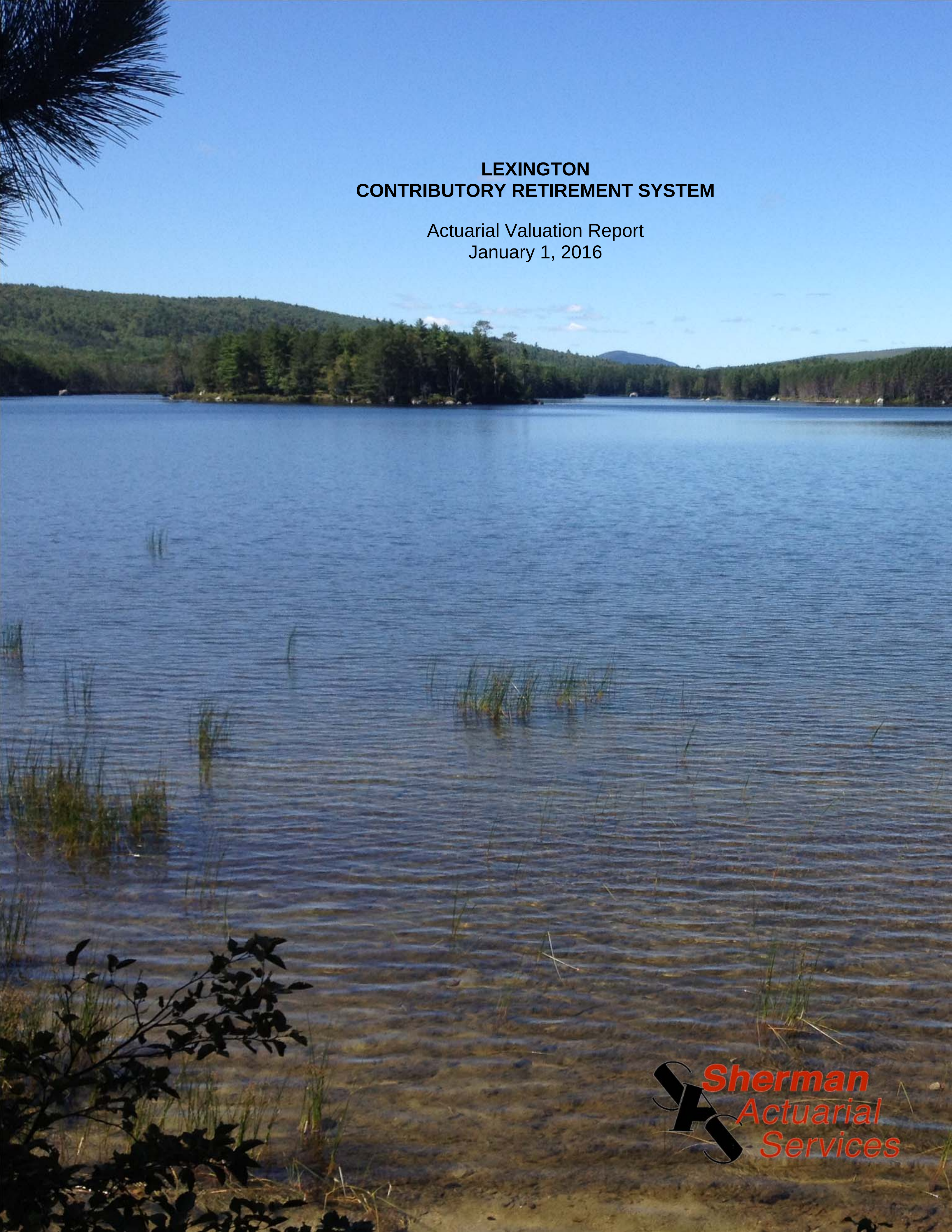
LEXINGTON
CONTRIBUTORY RETIREMENT SYSTEM

Actuarial Valuation Report
January 1, 2016



Sherman Actuarial Services

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Report Summary:

Highlights	**January 1, 2014**	**January 1, 2016**
Contributions		
Funding Schedule FY 2017	$5,505,537	$5,505,537
Funding Schedule FY 2018	5,755,537	5,755,537
Funded Ratios		
GAS No. 25	82.3%	85.3%
Participants		
Actives	646	678
Retirees and Beneficiaries	361	380
Inactives	260	253
Disabled	31	31
Total	1,298	1,342
Payroll		
Payroll of Active Members	$32,850,691	$36,130,638
Average Payroll	50,852	53,290
Normal Cost		
Employer	$1,413,856	$1,123,628
Employee	2,860,304	3,168,221
Administrative Expenses	200,000	200,000
Total	$4,474,160	$4,491,849
Actuarial Accrued Liabilities		
Actives	$75,054,833	$76,421,683
Retirees, Beneficiaries, Disabilities and Inactives	83,079,764	93,142,683
Total	$158,134,597	$169,564,366
Actuarial Value of Assets	130,168,913	144,699,520
Unfunded Actuarial Accrued Liabilities	$27,965,684	$24,864,846

Introduction

This report presents the findings of an actuarial valuation as of January 1, 2016, of Lexington Contributory Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L", as of January 1, 2016.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the Lexington Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2016.

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.

Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

During the last two years, based on the 2014 actuarial assumptions and plan provisions, the total unfunded actuarial accrued liability increased by 2.8% to $28,733,610. The increase is the result of net unfavorable actuarial experience during the preceding years. The sources of actuarial (gains) and losses are as follows:

Assets	(2,407,326)
Retirements	(117,565)
Terminations	613,800
Death while active	(168,896)
Disabled while active	(436,194)
Salary	70,010
New Participants	2,215,235
Inactive Mortality and data	3,627,430
Other	(50,485)
Total (Gain) / Loss	3,346,009

The Town increased the COLA base to $13,000. This added $757,749 to the unfunded liability, and $91,568 to the Normal Cost.

The 2015 Experience Study of several Massachusetts Public Sector plans required changes in the actuarial assumptions. In addition, the Board reduced the assumed investment return from 7.75% to 7.5%. These changes reduced the unfunded actuarial accrued liability by $4,626,513, and the employer Normal Cost by $356,509.

Actuarial Costs and Liabilities:

Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which 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 terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

Table I

	January 1, 2014	January 1, 2016
Superannuation	$2,800,259	$2,658,083
Termination	586,192	886,593
Death	223,778	292,972
Disability	663,931	454,201
Administrative Expenses	$200,000	$200,000
Total Normal Cost	$4,474,160	$4,491,849
% of Pay	13.6%	12.4%
Employee Contributions	$2,860,304	$3,168,221
% of Pay	8.7%	8.8%
Employer Normal Cost	$1,613,856	$1,323,628
% of Pay	4.9%	3.7%

Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents today's value of all benefits based on the past service of the actives and inactives. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

Table II

	January 1, 2014	January 1, 2016
Actives		
Superannuations	$70,621,833	$73,648,327
Termination	(1,037,342)	(1,712,391)
Death	1,948,427	1,973,371
Disability	3,521,915	2,512,376
Retirees and Inactives		
Retirees and Beneficiaries	$72,904,270	$82,193,554
Terminated (Refund)	1,816,698	2,051,460
Disabled	8,358,796	8,897,669
Total	$158,134,597	$169,564,366

Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactive participants as well as all benefits earned and expected to be earned in the coming years by the active participants. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

Table III

	January 1, 2014	January 1, 2016
Actives		
Superannuation	$92,136,959	$94,592,276
Termination	$3,800,329	5,292,214
Death	$3,631,356	4,116,178
Disability	$9,358,012	6,529,604
Retirees and Inactives		
Retirees and Beneficiaries	$72,904,270	$82,193,554
Terminated (Refund)	$1,816,698	2,051,460
Disabled	$8,358,796	8,897,669
Total	$192,006,420	$203,672,955

Funded Status and Appropriations:

Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

Table IV

	January 1, 2014	January 1, 2016
Cash equivalents	$6,554,423	$3
Fixed income securities	13,431,604	14,400,806
Equities	80,863,397	68,651,514
International	12,446,561	17,851,630
Real Estate	1,974,953	1,323,836
Other	13,013,636	28,153,535
PRIT Fund	0	0
Accounts receivable	2,526,142	2,766,318
Accounts payable	(59,224)	(83,101)
Accrued income	0	0
Total Market Value	$133,227,835	$139,411,603
Total Actuarial Value	$130,168,913	$144,699,520

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Actuarial Value of Assets

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (7.75%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a four year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 20%. The calculation of the actuarial value of assets as of January 1, 2016 is presented in Table V.

Table V

		January 1, 2016
(1)	Market value at January 1, 2015	$140,731,614
(2)	2015 Contributions	$9,659,403
(3)	2015 Payments	($11,461,990)
(4)	Net interest adjustment at 7.75% on (1), (2), and (3) to December 31, 2015	$10,836,850
(5)	Expected market value on January 1, 2016 (1) + (2) + (3) + (4)	$149,765,877
(6)	Actual market value on January 1, 2016	$139,411,603
(7)	2015 (Gain) / Loss	$10,354,274
(8)	80% of 2015 (Gain) / Loss	$8,283,419
(9)	2014 (Gain) / Loss	$1,615,799
(10)	60% of 2014 (Gain) / Loss	$969,479
(11)	2013 (Gain) / Loss	($6,619,086)
(12)	40% of 2013 (Gain) / Loss	($2,647,634)
(13)	2012 (Gain) / Loss	($6,586,737)
(14)	20% of 2012 (Gain) / Loss	($1,317,347)
(15)	Actuarial value on January 1, 2016, (6) + (8) + (10) + (12) + (14) but not less than 80% nor greater than 120% of (6)	$144,699,520
(16)	Ratio of actuarial value to market value	103.79%
(17)	Actuarial Value Return for 2014	7.62%
(18)	Actuarial Value Return for 2015	5.53%
(19)	Market Value Return for 2014	6.53%
(20)	Market Value Return for 2015	0.35%

Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

Table VI

	January 1, 2014	January 1, 2016
Actuarial Accrued Liability	$158,134,597	$169,564,366
Actuarial Assets	130,168,913	144,699,520
Unfunded Actuarial Accrued Liability	$27,965,684	$24,864,846
Funded Status	82.3%	85.3%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Sections 22D and 22F of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2040, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the unfunded actuarial accrued liability by June 30, 2024
  $ 24,864,846 over 8 years with 4.5% increasing payments
- Interest adjustment for payments contributed quarterly over fiscal year.

The Board has elected to adopted a Funding Schedule that increase $250,000 per year, then reverts back to the normal year-to-year increases in payments. In addition, the Board decided to adopt a funding schedule that included the anticipated increase in the COLA base to $13,000. The pension appropriation is shown in Table VII

Table VII

	January 1, 2014	January 1, 2016
Normal cost	$1,613,856	$1,323,628
Amortization payment of the accrued liability	1,401,632	3,424,566
Amortization payment of ERI liability	220,438	0
Amortization payment of Holiday liability	218,081	0
Total cost	$3,454,007	$4,748,194
% of Pay	10.5%	13.1%
Fiscal 2017 cost	$5,505,537	$5,505,537
Fiscal 2018 cost	$5,755,537	$5,755,537

Appropriation Forecast

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2036 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to increase during the next 7 years until the unfunded liabilities are substantially paid off, at which time only the normal cost will remain. The total cost represents about 15% of payroll, decreasing to 7.3% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of about 3% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

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Appropriation Forecast

Fiscal Year Ending	Payroll*	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %**
2017	$36,130,638	$3,168,221	$1,507,337	$3,998,200	$5,505,537	15.2	85.1
2018	37,756,517	3,345,193	1,538,525	4,217,012	5,755,537	15.2	86.7
2019	39,455,560	3,531,677	1,569,467	4,436,070	6,005,537	15.2	88.5
2020	41,231,060	3,728,171	1,600,079	4,655,458	6,255,537	15.2	90.4
2021	43,086,458	3,935,197	1,630,268	4,875,269	6,505,537	15.1	92.5
2022	45,025,348	4,153,307	1,659,934	5,095,603	6,755,537	15.0	94.6
2023	47,051,489	4,383,077	1,688,968	5,316,569	7,005,537	14.9	96.9
2024	49,168,806	4,625,116	1,717,254	1,889,280	3,606,534	7.3	99.3
2025	51,381,402	4,880,063	1,744,665	0	1,744,665	3.4	100.0
2026	53,693,566	5,148,589	1,771,066	0	1,771,066	3.3	100.0
2027	56,109,776	5,431,401	1,796,311	0	1,796,311	3.2	100.0
2028	58,634,716	5,729,240	1,820,240	0	1,820,240	3.1	100.0
2029	61,273,278	6,042,885	1,842,687	0	1,842,687	3.0	100.0
2030	64,030,576	6,373,157	1,863,467	0	1,863,467	2.9	100.0
2031	66,911,952	6,720,917	1,882,386	0	1,882,386	2.8	100.0
2032	69,922,989	7,087,069	1,899,234	0	1,899,234	2.7	100.0
2033	73,069,524	7,472,566	1,913,786	0	1,913,786	2.6	100.0
2034	76,357,652	7,878,405	1,925,803	0	1,925,803	2.5	100.0
2035	79,793,747	8,305,638	1,935,025	0	1,935,025	2.4	100.0
2036	83,384,465	8,755,369	1,941,178	0	1,941,178	2.3	100.0
2037	87,136,766	9,149,360	2,028,531	0	2,028,531	2.3	100.0
2038	91,057,921	9,561,082	2,119,815	0	2,119,815	2.3	100.0
2039	95,155,527	9,991,330	2,215,206	0	2,215,206	2.3	100.0
2040	99,437,526	10,440,940	2,314,891	0	2,314,891	2.3	100.0
2041	103,912,215	10,910,783	2,419,061	0	2,419,061	2.3	100.0
2042	108,588,264	11,401,768	2,527,919	0	2,527,919	2.3	100.0
2043	113,474,736	11,914,847	2,641,675	0	2,641,675	2.3	100.0
2044	118,581,099	12,451,015	2,760,550	0	2,760,550	2.3	100.0
2045	123,917,249	13,011,311	2,884,775	0	2,884,775	2.3	100.0
2046	129,493,525	13,596,820	3,014,590	0	3,014,590	2.3	100.0
2047	135,320,734	14,208,677	3,150,246	0	3,150,246	2.3	100.0
2048	141,410,167	14,848,068	3,292,008	0	3,292,008	2.3	100.0

* Calendar year

** As of 1/1 prior to beginning of fiscal year

GASB Statements No. 25 and No. 27

Effective for periods beginning after June 15, 1997, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which replace GASB Statement No. 5, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

Footnote disclosures required by GASB Statement No. 25 and 27 include a description of the plan, a summary of significant accounting policies, and information about contributions, legally required reserves, and investment concentrations. As a result of the oversight of the Public Employees Retirement Administration Commission (PERAC) and the conversion of unpaid contributions to pension related debt, the Net Pension Obligation (NPO) as required by Statement No. 27 will effectively always be equal to $0. The required disclosure information is shown in Table VIII.

Table VIII

		January 1, 2014	January 1, 2016
(1)	Actuarial Accrued Liability	$158,134,597	$169,564,366
(2)	Actuarial Value of Assets	130,168,913	144,699,520
(3)	Unfunded Actuarial Accrued Liability	$27,965,684	$24,864,846
(4)	Funded Ratio (2)/(1)	82.3%	85.3%
(5)	Covered Payroll	$32,850,691	$36,130,638
(6)	UAAL as a percentage of payroll: (3)/(5)	85.1%	68.8%
(7)	Annual Required Contribution (ARC)	$5,005,536	$5,255,537
(8)	Net Pension Obligation	$0	$0

EXHIBITS

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Exhibit 1 - Age/Service Distribution with Salary as of January 1, 2016

Attained Age	Average Salary <5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
20-24	31	0	0	0	0	0	0	0	0	31
	33,406	0	0	0	0	0	0	0	0	33,406
25-29	83	12	1	0	0	0	0	0	0	96
	37,640	53,888	53,934	0	0	0	0	0	0	39,841
30-34	36	20	5	0	0	0	0	0	0	61
	48,142	53,553	67,773	0	0	0	0	0	0	51,525
35-39	22	10	14	1	0	0	0	0	0	47
	49,436	59,332	75,358	78,043	0	0	0	0	0	59,872
40-44	23	8	9	6	2	0	0	0	0	48
	46,890	63,598	76,567	87,550	95,312	0	0	0	0	62,339
45-49	29	23	17	12	7	5	1	0	0	94
	37,913	49,330	70,971	65,416	90,281	71,310	0	0	0	56,033
50-54	20	20	16	12	9	12	10	1	0	100
	41,882	48,548	54,150	62,774	68,353	66,803	84,952	76,026	0	57,707
55-59	16	32	15	13	7	12	11	6	0	112
	43,508	50,668	47,790	56,466	67,360	72,990	85,417	53,270	0	56,920
60-64	6	10	9	10	10	0	5	5	2	57
	38,170	38,200	51,383	46,710	50,480	0	107,941	92,606	109,481	57,317
65-69	1	5	5	6	5	3	3	0	0	28
	2,285	28,451	71,655	42,996	57,987	83,551	63,030	0	0	53,231
70+	1	0	1	1	1	0	0	0	0	4
	38,895	0	58,290	34,889	18,622	0	0	0	0	37,674
Total Employees	268	140	92	61	41	32	30	12	2	678
Average Salary	40,904	50,507	63,105	59,601	66,406	71,398	83,930	71,556	109,481	53,290

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Exhibit 2 - Retiree Distribution as of January 1, 2016

	Number of Employees			Total Payments		
Attained Age	Female	Male	Total	Female	Male	Total
< 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	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	0	0	0	0	0	0
45-49	1	2	3	17,409	21,854	39,263
50-54	3	4	7	34,433	108,082	142,515
55-59	4	10	14	28,334	406,160	434,494
60-64	22	24	46	397,034	1,095,810	1,492,844
65-69	42	33	75	872,442	1,240,270	2,112,713
70-74	49	29	78	735,388	1,131,044	1,866,432
75-79	34	22	56	630,108	622,324	1,252,432
80-84	21	16	37	280,880	492,681	773,562
85-89	26	10	36	346,527	298,743	645,269
90-94	18	5	23	130,970	108,137	239,107
95+	3	2	5	19,644	35,880	55,524
Total	223	157	380	3,493,170	5,560,984	9,054,154
Average (Age/Payment)	75.28	71.72	73.81	15,664	35,420	23,827
Frequency Percent	58.7	41.3	100.0	38.6	61.4	100.0

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Exhibit 3 - Disabled Retiree Distribution as of January 1, 2016

	Number of Employees			Total Payments		
Attained Age	Female	Male	Total	Female	Male	Total
< 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	0	1	1	0	50,116	50,116
35-39	1	0	1	46,262	0	46,262
40-44	0	0	0	0	0	0
45-49	0	1	1	0	3,477	3,477
50-54	0	2	2	0	47,821	47,821
55-59	0	4	4	0	181,032	181,032
60-64	0	3	3	0	100,658	100,658
65-69	0	3	3	0	94,485	94,485
70-74	1	5	6	27,448	89,045	116,492
75-79	0	4	4	0	122,645	122,645
80-84	1	2	3	16,216	51,774	67,989
85-89	1	1	2	16,014	23,230	39,244
90-94	1	0	1	10,485	0	10,485
95-99	0	0	0	0	0	0
Total	5	26	31	116,425	764,281	880,706
Average (Age/Payment)	73.8	67.0	68.1	23,285	29,395	28,410
Frequency Percent	16.1	83.9	100.0	13.2	86.8	100.0

EXHIBIT 4 - CASH FLOW FORECAST:

The following is a 30 year forecast of benefit payments net of state reimbursable COLA payments, Contribution Income and Investment Returns.

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2016	$11,228,801	$3,168,221	$5,505,537	$10,093,999	$7,538,956
2017	11,697,482	3,345,193	5,755,537	11,133,776	8,537,024
2018	12,115,949	3,531,677	6,005,537	11,768,267	9,189,532
2019	12,603,683	3,728,171	6,255,537	12,448,969	9,828,994
2020	13,093,769	3,935,197	6,505,537	13,177,370	10,524,335
2021	13,584,056	4,153,307	6,755,537	13,957,744	11,282,532
2022	14,081,606	4,383,077	6,545,536	14,760,049	11,607,056
2023	14,599,011	4,625,116	1,587,205	15,229,676	6,842,986
2024	15,088,843	4,880,063	1,605,968	16,057,001	7,454,189
2025	15,565,453	5,148,589	1,626,128	16,605,083	7,814,347
2026	16,001,709	5,431,401	1,644,850	17,182,102	8,256,643
2027	16,450,193	5,729,240	1,661,964	17,792,308	8,733,319
2028	16,911,246	6,042,885	1,677,287	18,438,295	9,247,221
2029	17,385,221	6,373,157	1,690,625	19,122,870	9,801,430
2030	17,872,481	6,720,917	1,701,766	19,849,075	10,399,277
2031	18,373,397	7,087,069	1,710,486	20,620,201	11,044,359
2032	18,888,352	7,472,566	1,716,545	21,439,810	11,740,569
2033	19,417,740	7,878,405	1,719,685	22,311,761	12,492,111
2034	19,961,966	8,305,638	1,719,633	23,240,224	13,303,530
2035	20,521,444	8,755,369	1,716,093	24,229,718	14,179,736
2036	21,096,603	9,149,360	1,793,317	25,279,958	15,126,031
2037	21,687,882	9,561,082	1,874,016	26,400,933	16,148,149
2038	22,295,734	9,991,330	1,958,347	27,598,330	17,252,274
2039	22,920,621	10,440,940	2,046,472	28,878,301	18,445,091
2040	23,563,022	10,910,783	2,138,564	30,247,493	19,733,818
2041	24,223,429	11,401,768	2,234,799	31,713,105	21,126,243
2042	24,902,344	11,914,847	2,335,365	33,282,911	22,630,779
2043	25,600,288	12,451,015	2,440,457	34,965,322	24,256,506
2044	26,317,793	13,011,311	2,550,277	36,769,429	26,013,225
2045	27,201,113	13,596,820	2,665,040	38,699,691	27,760,438

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2016, and does not take into account any subsequent changes.

1. Administration

Each of the 104 contributory retirement systems for public employees of the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

(i) Group 1: Most general employees in State and local government

(ii) Group 2: Certain specified hazardous duty positions

(iii) Group 3: State police officers and inspectors

(iv) Group 4: Local police officers, firefighters, and designated employees of the municipal light department.

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

Chapter 176 of the Acts of 2011 created different plan provisions within these groups for those hired on or after April 2, 2012.

3. Salary

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

4. Member Contributions

Member contributions vary depending upon date hired as follows:

Date of Hire	**Member Contribution Rate**
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
1979 and Later	2.0% of Salary in excess of $30,000

For Group 1 employees who become members on or after April 2, 2012, the Contribution Rate shall be 6% after the completion of 30 years of service.

5. Average Salary

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.). For employees who become members on or after April 2, 2012, the averaging period shall be five years.

6. Creditable Service

In general, creditable service is awarded during the period in which a member contributes to the retirement system.

7. <u>Service Retirement</u>

a. Eligibility:

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions must be met:

(i) completion of 20 years of service, if hired before April 2, 2012

(ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member

(iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service

(iv) for a Group 1 employee hired on or after April 2, 2012, attainment of age 60 and completion of ten years of service

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table for those hired prior to April 2, 2012:

Age at Retirement	Percentage of Average Salary Group 1	Group 2	Group 4
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001

For those hired after April 1, 2012 who retire with less than 30 years of service, the following rates are applied:

Age at Retirement	Percentage of Average Salary Group 1	Group 2	Group 4
67 or Over	.0250	.0250	.0250
66	.0235	.0250	.0250
65	.0220	.0250	.0250
64	.0205	.0250	.0250
63	.0190	.0250	.0250
62	.0175	.0250	.0250
61	.0160	.0235	.0250
60	.0145	.0220	.0250
59		.0205	.0250
58		.0190	.0250
57		.0175	.0250
56		.0160	.0235
55		.0145	.0220
54			.0205
53			.0190
52			.0175
51			.0160
50			.0145

For those hired after April 1, 2012 who retire with at least 30 years of service, the following rates are applied:

Age at Retirement	Percentage of Average Salary Group 1	Group 2	Group 4
67 or Over	.02500	.02500	.02500
66	.02375	.02500	.02500
65	.02250	.02500	.02500
64	.02125	.02500	.02500
63	.02000	.02500	.02500
62	.01875	.02500	.02500
61	.01750	.02375	.02500
60	.01625	.02250	.02500
59		.02125	.02500
58		.02000	.02500
57		.01875	.02500
56		.01750	.02375
55		.01625	.02250
54			.02125
53			.02000
52			.01875
51			.01750
50			.01625

8. Deferred Vested Retirement

a. Eligibility:

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions with interest.

9. Accidental Disability

a. Eligibility:

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

b. Benefit Amount:

The accidental disability amount is 72% of annual salary plus $450 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

10. Ordinary Disability

a. Eligibility:

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55 or age 60 if hired on or after April 2, 2012).

b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55 (age 60 if hired on or after April 2, 2012). If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55 (age 60 if hired on or after April 2, 2012), he will receive not less than the superannuation allowance to which he is entitled.

11. Survivor Benefits

a. Occupational Death:

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

b. Non-Occupational Death:

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of $500 per month to the surviving spouse, plus $120 for the first child, plus $90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of $500 per month plus $120 for the first child and $90 for each additional child.

c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

12. Cost-of-Living Increases

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 benefits 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 $13,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

13. Postretirement Death Benefits

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

(i) Option A – Life annuity

(ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member

(iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

EXHIBIT 6 – ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below. They are based on the 2015 Experience Study performed by Sherman Actuarial Services, LLC.

1. Member Data

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

2. Valuation Date

January 1, 2016.

3. Actuarial Cost Method

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

4. Rate of Investment Return

It is assumed that the assets of the fund will accumulate at a compound annual rate of 7.5% per annum. The previous valuation used 7.75%. This includes a 3% inflation assumption.

5. Salary Scale

It is assumed that salaries including longevity will increase as follows per year:

Service	Group 1	Group 4
0	0.0575	0.0625
1	0.0525	0.0575
2	0.0525	0.0525
3	0.0475	0.0475
4	0.0475	0.0425
5	0.0425	0.0425
6	0.0425	0.0375
7	0.0375	0.0375
8	0.0375	0.0350
9+	0.0350	0.0350

6. Cost-of-Living Increases

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and $13,000 per year.

7. Value of Investments

Assets held by the fund are valued at market value as reported by the Public Employees' Retirement Administration Commission (PERAC). The actuarial value of assets is determined using a five-year smoothing of asset returns greater than or less than the assumed rate of return.

8. Annual Rate of Withdrawal Prior to Retirement

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

Service	General Employees	Police and Fire Employees
0	0.2080	0.1500
5	0.1020	0.1000
10	0.0650	0.0600
15	0.0417	0.0600
20	0.0400	0.0000
30	0.0000	0.0000

9. Annual Rate of Mortality

It is assumed that both pre-retirement mortality and beneficiary mortality is represented by the RP-2014 Blue Collar Mortality with Scale MP-2014, fully generational. Mortality for retired members for Group 1 and 2 is represented by the RP-2014 Blue Collar Mortality Table set forward five years for males and 3 years for females, fully generational. Mortality for retired members for Group 4 is represented by the RP-2014 Blue Collar Mortality Table set forward three years for males, and six years for females, fully generational. Mortality for disabled members for Group 1 and 2 is represented by the RP-2000 Mortality Table set forward six years. Mortality for disabled members for Group 4 is represented by the RP-2000 Mortality Table set forward two years. Generational adjusting is based on Scale MP-2014.

10. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages for those hired prior to April 2, 2012:

Age	Male General Employees	Female General Employees	Male and Female Police and Fire Employees
50	0.0360	0.1019	0.0382
51	0.0405	0.0714	0.0351
52	0.0437	0.0562	0.0436
53	0.0366	0.0448	0.0527
54	0.0451	0.0488	0.0999
55	0.0477	0.0469	0.1110
56	0.0574	0.0518	0.1413
57	0.0632	0.0509	0.1292
58	0.0765	0.0552	0.1499
59	0.0917	0.0645	0.1679
60	0.1057	0.0774	0.1871
61	0.1224	0.1038	0.2073
62	0.1473	0.1168	0.2176
63	0.1777	0.1440	0.3338
64	0.2136	0.1708	0.5664
65	0.2615	0.1939	1.00000
66	0.2682	0.1959	1.00000
67	0.2500	0.2000	1.00000
68	0.2500	0.2000	1.00000
69	0.2500	0.2000	1.00000
70 to 76	0.2500	0.2500	1.00000
77 to 79	0.3500	0.2500	1.00000
80	1.0000	1.0000	1.00000

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages for those hired on or after April 2, 2012:

Age	Male General Employees	Female General Employees	Male and Female Police and Fire Employees
50	0.0000	0.0000	0.0191
51	0.0000	0.0000	0.0176
52	0.0000	0.0000	0.0436
53	0.0000	0.0000	0.0211
54	0.0000	0.0000	0.0266
55	0.0000	0.0000	0.0370
56	0.0000	0.0000	0.1060
57	0.0000	0.0000	0.1938
58	0.0000	0.0000	0.1499
59	0.0000	0.0000	0.1119
60	0.0477	0.0469	0.0936
61	0.0574	0.0518	0.1555
62	0.0632	0.0509	0.1741
63	0.0765	0.0552	0.2670
64	0.0917	0.0645	0.4720
65	0.1057	0.0774	0.2500
66	0.1224	0.1038	0.3000
67	0.1473	0.1168	1.0000
68	0.1777	0.1440	1.0000
69	0.2136	0.1708	1.0000
70	0.2615	0.1939	1.0000
70 to 76	0.2682	0.1959	1.0000
77 to 79	0.2500	0.2000	1.0000
80	0.2500	0.2000	1.0000

12. Annual Rate of Disability Prior to Retirement

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

Attained Age	General Employees	Police and Fire Employees
20	0.000100	0.000500
30	0.000152	0.000967
40	0.000663	0.002500
50	0.001271	0.007634

In addition, it is assumed for the general employees that 20% of all disabilities are ordinary (80% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

13. Family Composition

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

14. Administrative Expenses

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2016 is $200,000 and is anticipated to increase at 4.5% per year.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. Actuarial Accrued Liability

That portion of the Actuarial Present Value of plan benefits that is not provided for by future employer Normal Costs or employee contributions.

2. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

3. Actuarial Cost Method

A procedure for allocating the Actuarial Present Value of pension plan benefits between Normal Cost and Actuarial Accrued Liability.

4. Actuarial Present Value

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

5. Forecast

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

6. **Normal Cost**

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

7. **Unfunded Actuarial Accrued Liability**

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

8. **Valuation Method**

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

9. **Vested Liability**

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.

CERTIFICATION:

This report fairly represents the actuarial position of the Lexington Retirement System contributing as of January 1, 2016, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost are reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

The funded status measure is appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations. The funded status measure is appropriate for assessing the need for or the amount of future contributions. The funded status measure would be different if the measure reflected the market value of assets rather than the actuarial value of assets.

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

The report was prepared under the supervision of Daniel Sherman, an Associate of the Society of Actuaries and a Member of the American Academy of Actuaries, who takes responsibility for the overall appropriateness of the analysis, assumptions and results. Daniel Sherman is deemed to meet the General Qualification Standard and the basic education and experience requirement in the pension area. Based on over thirty years of performing valuations of similar complexity, Mr. Sherman is qualified by experience. Daniel Sherman has met the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sherman Actuarial Services, LLC

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Daniel W. Sherman, ASA, MAAA

August, 2016

BREAKOUTS

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Breakouts

		Total	School Administration	General	Fire and Police	Housing Authority	Sewer and Water
(1)	Payroll of Active Participants	$36,130,638	$10,944,321	$15,431,802	$8,660,150	$403,519	$690,846
	Pecentage of Total Payroll	100.00%	30.29%	42.71%	23.97%	1.12%	1.91%
(2)	Actuarial Accrued Liability	$169,564,366	$26,818,961	$72,850,670	$65,298,135	$878,107	$3,718,493
(3)	Assets	$144,699,520	$22,886,240	$62,167,879	$55,722,844	$749,342	$3,173,215
(4)	Unfunded Actuarial Accrued Liability	$24,864,846	$3,932,721	$10,682,791	$9,575,291	$128,765	$545,278
(5)	Total Employer Contributions						
	(a) Amortizations	4,548,194	719,360	1,954,061	1,751,480	23,553	99,740
	(b) Employer Normal Cost	1,123,628	320,367	320,746	447,726	13,860	20,929
	(c) Administrative Expenses	200,000	60,582	85,422	47,938	2,234	3,824
	(d) Total Appropriation	5,871,822	1,100,309	2,360,229	2,247,144	39,647	124,493
	Percent of Total Appropriation	100.00%	18.74%	40.20%	38.27%	0.68%	2.12%
(6)	Fiscal 2017 Appropriation	$5,505,537	$1,651,826	$2,280,724	$1,406,610	$72,948	$93,429
	Percent of Total Appropriation	100.00%	30.00%	41.43%	25.55%	1.33%	1.70%
(7)	Fiscal 2018 Appropriation	$5,755,537	$1,743,410	$2,458,247	$1,379,545	$64,289	$110,046
	Percent of Total Appropriation	100.00%	30.29%	42.71%	23.97%	1.12%	1.91%
(8)	Fiscal 2019 Appropriation	$6,005,537	$1,819,137	$2,565,025	$1,439,467	$67,082	$114,826
	Percent of Total Appropriation	100.00%	30.29%	42.71%	23.97%	1.12%	1.91%

Fiscal 2017 - 2019 Appropriations based on covered payroll.