January 18, 2017

Weymouth Retirement System
807 Broad Street
Weymouth, MA 02189

Dear Weymouth Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2016 actuarial valuation of the Weymouth Retirement System. This valuation and report was prepared using generally accepted actuarial principles and practices. To the best of our knowledge, this report is complete and accurate, and the assumptions used represent our best estimate of anticipated experience of the system except where noted in the text.

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

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

We anticipate over time the contribution level to slowly decrease as a percentage of payroll. The contribution rate is determined by adding the normal cost plus an amortization of the unfunded actuarial accrued liability. The normal cost is expected to remain at a level percentage of payroll. The length of the funding schedule contained in this actuarial valuation report is eighteen years (fully funded by 2035). The amortization of the unfunded liability is set to increase by 3.60% annually.

The contribution amount for Fiscal Year 2018 is $10,860,658 which is $355,979 greater than the anticipated contribution amount from the prior funding schedule. PERAC and GASB guidelines indicate that actuarial valuations should be conducted at least every other year. The Weymouth Retirement Board conducted their previous actuarial valuation effective January 1, 2014.

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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 natural operation of the methodology used for these measurements such as additional contribution requirements based on the plan's funded status, and changes in plan provisions or applicable law. As part of the valuation, we have not performed an analysis of the potential range of future measurements.

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

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

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

Lawrence B. Stone
Member, American Academy of Actuaries

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Introduction

This report presents the results of the actuarial valuation of the Weymouth Retirement System. The valuation was performed at the request of the Retirement Board as of January 1, 2016 for the purpose of determining the contribution requirements for Fiscal Year 2018 and beyond. The contribution requirements are based on:

- The financial condition of the system as of December 31, 2015
- The benefit provisions of M.G.L. Chapter 32 and related statutes;
- The demographics of members in the system (i.e., active and inactive participants, retirees and beneficiaries as of January 1, 2016);
- Economic assumptions regarding salary increases and investment earnings; and
- Other actuarial assumptions (e.g., withdrawals, retirement, death, etc.)

Valuation Summary

	January 1, 2016 Valuation	January 1, 2014 Valuation	Change
Contribution Fiscal 2018	$10,860,658	$10,504,679	$355,979 increase
Funding Schedule Length (as of Fiscal 2018)	18 years	15 years	3 year increase
Amortization Increase	3.60%	3.09995%	0.50005%
Funding Ratio	61%	65%	-4%
Interest Rate Assumption	7.75%	7.875%	-0.125%
Salary Increase Rate Assumption	Select and Ultimate 3.50% ultimate rate with the following steps: Police – 8.5% in year 1, 6.5% in years 2-3 Fire – 8.5% in years 1-6 Other – 5.8% in years 1-7	Same	Same

- The Fiscal Year 2018 contribution is $355,979 greater than the planned 2018 contribution.

- The System, over the two-year period from January 1, 2014 to December 31, 2015, experienced a 3.5% annual return on the market value of assets versus our assumption of 7.875%. There was a $14,839,390 net actuarial asset loss in calendar years 2014 and 2015. The System's asset portfolio, effective December 31, 2015 is approximately 73% equities and similar investments and 27% fixed income and short-term investments. The interest rate assumption was reduced to 7.75% to reflect anticipated future market performance. This change increased the actuarial accrued liability by $1.8 million.

- The investment return assumption is a long term assumption and is based on capital market expectations by asset class, historical returns, and professional judgement.

- The salary increase assumption is consistent with the prior valuation. It is based on a select and ultimate table, with a 3.50% ultimate rate. Employees in Police receive an 8.50% step increase in their first year of service, and 6.50% steps in the following two years. Fire employees receive 6 years of 8.5% step increases, and all other employees receive 5.8% steps in their first 7 years of service. Total compensation changed by 7.1% over the prior valuation; however average annual compensation (compensation divided by number of active members) only changed by 4.9%.

- The salary increase assumption reflects prior experience including PERAC's 2002 local experience study, current expectations, and professional judgement.

- The funding level of the Weymouth Retirement System is 61% compared to 65% for the January 1, 2014 actuarial valuation. The funding level is estimated to be near or above the median for Massachusetts' Contributory Retirement Systems.

The schedule length is eighteen (18) years, a three year increase over the 15 years remaining from the 17 year schedule from the January 1, 2014 valuation. The maximum period permitted under Section 22F of Chapter 32 of the Massachusetts General Laws is twenty-three years (Fiscal 2040). The amortization of the unfunded liability increases by 3.60% each year.

- The mortality assumption is based upon the RP-2000 table projected from the year 2000 with Generational Mortality, Scale BB. This assumption has been maintained from the prior valuation. It is based on professional judgement weighing the results of an unpublished study by PERAC, and the Society of Actuaries' latest published mortality tables and projection scales.

January 1, 2016 Actuarial Valuation Results

	January 1, 2016	January 1, 2014	Percentage Change
Funding			
Contribution for Fiscal 2018	$10,860,658		3.4%
Contribution for Fiscal 2018 based on current schedule		$10,504,679	
Members			
▪ Actives			
a. Number	840	823	2.1%
b. Annual Compensation	$38,312,300	$35,785,913	7.1%
c. Average Annual Compensation	$45,610	$43,482	4.9%
d. Average Attained Age	49.4	49.2	0.4%
e. Average Past Service	11.5	11.6	-0.7%
▪ Retired, Disabled and Beneficiaries			
a. Number	621	624	-0.5%
b. Total Benefits*	$17,063,190	$16,039,891	6.4%
c. Average Benefits*	$27,477	$25,705	6.9%
d. Average Age	73.5	73.3	0.2%
▪ Inactives			
a. Number	148	144	2.8%
Normal Cost			
a. Total Normal Cost as of January 1, 2016	$5,183,417	$4,735,778	9.5%
b. Less Expected Members' Contributions	3,522,153	3,246,303	8.5%
c. Normal Cost to be funded by the Municipality	$1,661,264	$1,489,475	11.5%
d. Adjustment to July 1, 2017	107,023	95,956	11.5%
e. Administrative Expense Assumption	451,499	403,000	12.0%
f. Normal Cost Adjusted to July 1, 2017	$2,219,786	$1,988,431	11.6%
Actuarial Accrued Liability as of January 1, 2016			
a. Active Members	$111,142,103	$101,438,571	9.6%
b. Inactive Members	1,200,656	1,293,927	-7.2%
c. Retired Members and Beneficiaries	163,753,607	153,040,771	7.0%
d. Total	$276,096,366	$255,773,269	7.9%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability as of January 1, 2016	$276,096,366	$255,773,269	7.9%
b. Less Actuarial Value of Assets as of January 1, 2016	168,035,098	165,228,288	1.7%
c. Unfunded Actuarial Accrued Liability as of January 1, 2016	$108,061,269	$90,544,981	19.3%
d. Adjustment to July 1, 2017	5,059,967	3,575,340	
e. Unfunded Actuarial Accrued Liability as of July 1, 2017	$113,121,236	$94,120,321	

*Excluding State reimbursed COLA

Data and History of Active Participants

- The data was supplied by the Weymouth Retirement Board. The data was checked under broad parameters for reasonableness. With the assistance of the staff of the Weymouth Retirement Board, we were able to develop a database sufficient for valuation purposes.

Valuation Year	Number	Average Age	Average Past Service	Average Ann'l Compensation
2016	840	49.4	11.5	$45,610
2014	823	49.2	11.6	$43,482
2012	810	48.6	11.5	$43,013
2010	804	48.8	11.3	$41,500
2007	856	47.3	10.5	$40,664
2005	827	46.8	9.9	$37,088
2004	823	46.0	9.2	$34,299

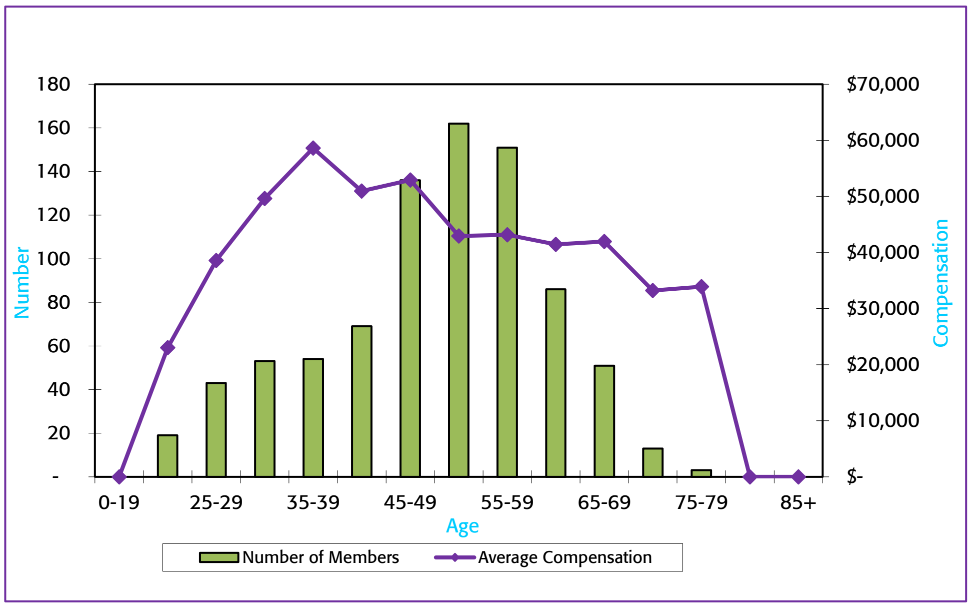
- Employee age has increased by 3.4 years and service has increased by 2.3 years over the course of the past twelve years. This is consistent with the trend in the Commonwealth towards an aging of the employee population. Average annual compensation has grown by 33.0% (2.4% annually) over the same time period.

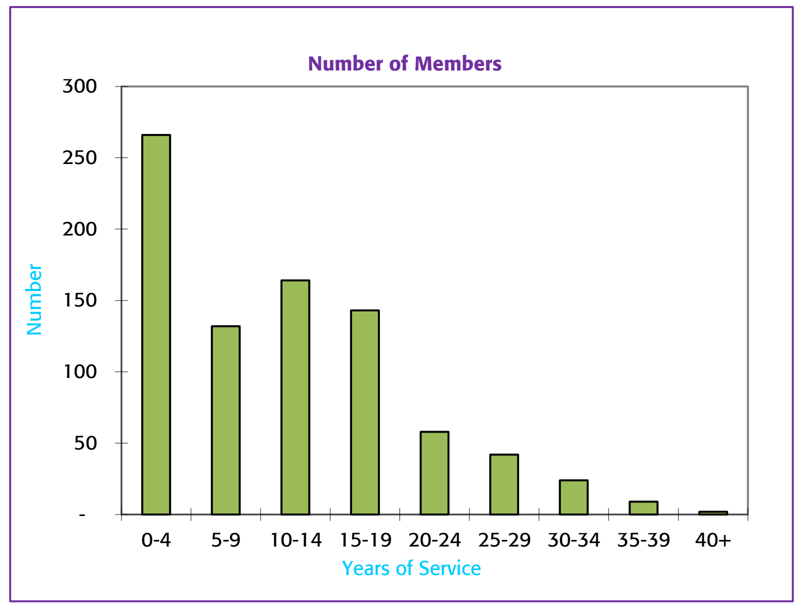
The charts on the following pages summarize demographic information regarding active and retiree members.

Distribution of Plan Members as of January 1, 2016

ACTIVE MEMBERS

AGE	0-4 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40 + Years	Total	Total Compensation	Average Compensation
0-19	-	-	-	-	-	-	-	-	-	-	$ -	$ -
20-24	19	-	-	-	-	-	-	-	-	19	$ 437,394	$ 23,021
25-29	41	2	-	-	-	-	-	-	-	43	$ 1,657,803	$ 38,554
30-34	34	9	10	-	-	-	-	-	-	53	$ 2,629,037	$ 49,604
35-39	17	9	21	7	-	-	-	-	-	54	$ 3,164,720	$ 58,606
40-44	26	7	11	23	2	-	-	-	-	69	$ 3,516,385	$ 50,962
45-49	43	24	17	28	19	5	-	-	-	136	$ 7,197,598	$ 52,924
50-54	42	33	39	23	9	13	3	-	-	162	$ 6,955,307	$ 42,934
55-59	22	26	37	27	14	11	12	2	-	151	$ 6,517,226	$ 43,160
60-64	15	12	16	21	6	7	8	1	-	86	$ 3,562,607	$ 41,426
65-69	7	8	10	10	4	4	1	5	2	51	$ 2,140,691	$ 41,974
70-74	-	2	2	4	4	1	-	-	-	13	$ 431,802	$ 33,216
75-79	-	-	1	-	-	1	-	1	-	3	$ 101,730	$ 33,910
80-84	-	-	-	-	-	-	-	-	-	-	$ -	$ -
85+	-	-	-	-	-	-	-	-	-	-	$ -	$ -
TOTAL	**266**	**132**	**164**	**143**	**58**	**42**	**24**	**9**	**2**	**840**	**$ 38,312,300**	**$ 45,610**





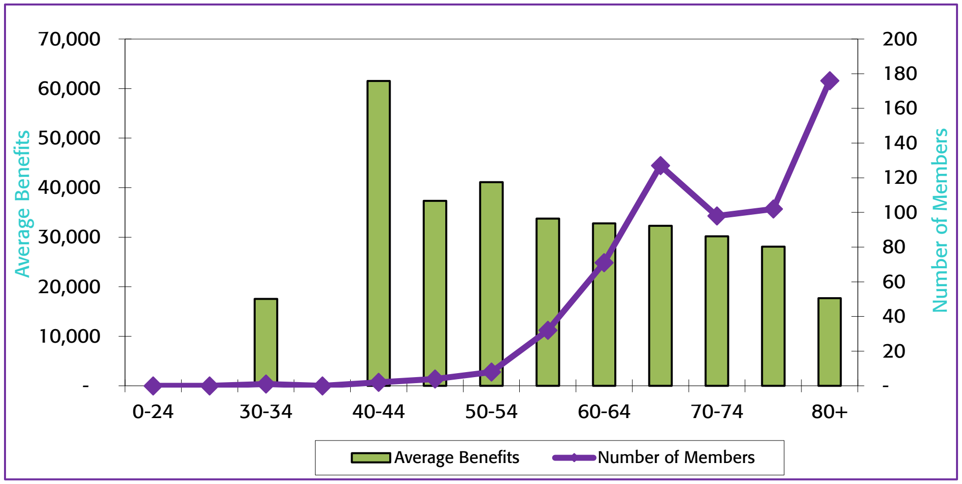
Distribution of Plan Members as of January 1, 2016

RETIRED MEMBERS

Retired Members and Beneficiaries			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	1	17,537	17,537
35-39	-	-	-
40-44	1	76,277	76,277
45-49	1	20,468	20,468
50-54	-	-	-
55-59	24	25,940	622,557
60-64	60	29,957	1,797,436
65-69	105	30,209	3,171,919
70-74	80	28,143	2,251,480
75-79	93	27,307	2,539,553
80+	162	17,174	2,782,177
TOTAL	**527**	**$ 25,198**	**$ 13,279,403**

Disabled Members			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	1	46,815	46,815
45-49	3	42,975	128,924
50-54	8	41,097	328,774
55-59	8	57,122	456,973
60-64	11	48,359	531,951
65-69	22	42,185	928,062
70-74	18	39,118	704,121
75-79	9	36,194	325,748
80+	14	23,744	332,419
TOTAL	**94**	**$ 40,253**	**$ 3,783,787**

Total			
Age	Number	Average Benefit	Total Benefit
0-24	-	-	-
25-29	-	-	-
30-34	1	17,537	17,537
35-39	-	-	-
40-44	2	61,546	123,092
45-49	4	37,348	149,392
50-54	8	41,097	328,774
55-59	32	33,735	1,079,530
60-64	71	32,808	2,329,387
65-69	127	32,283	4,099,981
70-74	98	30,159	2,955,600
75-79	102	28,091	2,865,301
80+	176	17,697	3,114,596
TOTAL	**621**	**$ 27,477**	**$ 17,063,190**



Benefits shown are net of State reimbursed COLA.

stoneconsulting,inc

Valuation Methodology

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

NORMAL COST

	January 1, 2016	% of Payroll*
Gross Normal Cost (GNC)	$5,183,417	13.5%
Employees Contribution	3,522,153	9.2%
Net Normal Cost (NNC)	$1,661,264	4.3%
Adjusted to Beginning of Fiscal Year 2018	107,023	
Administrative Expense	451,499	1.2%
Adjusted Net Normal Cost With Admin. Expense	$2,219,786	

*Payroll paid in 2015 for employees as of January 1, 2016 is $38,312,300. Payroll for new hires in 2015 was annualized.

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

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

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

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

Actuarial Accrued Liability and Funded Status

				January 1, 2016	Percentage Change
Active Actuarial Accrued Liability			$	111,142,103	9.6%
Superannuation	$	101,391,743			
Death	$	2,297,665			
Disability	$	6,699,108			
Withdrawal	$	753,587			
Retiree, Inactive, Survivor and Beneficiary Actuarial Accrued Liability			$	164,954,263	6.9%
Retirees and Beneficiaries	$	122,897,164			
Disabled	$	40,856,443			
Inactive	$	1,200,656			
Total Actuarial Accrued Liability (AAL)			$	276,096,366	7.9%
Actuarial Value of Assets (AVA)			$	168,035,098	1.7%
Unfunded Actuarial Accrued Liability			$	108,061,269	19.3%
Funded Ratio (AVA / AAL)					
2016 (7.75% interest rate):		61%			
2014 (7.875% interest rate):		65%			

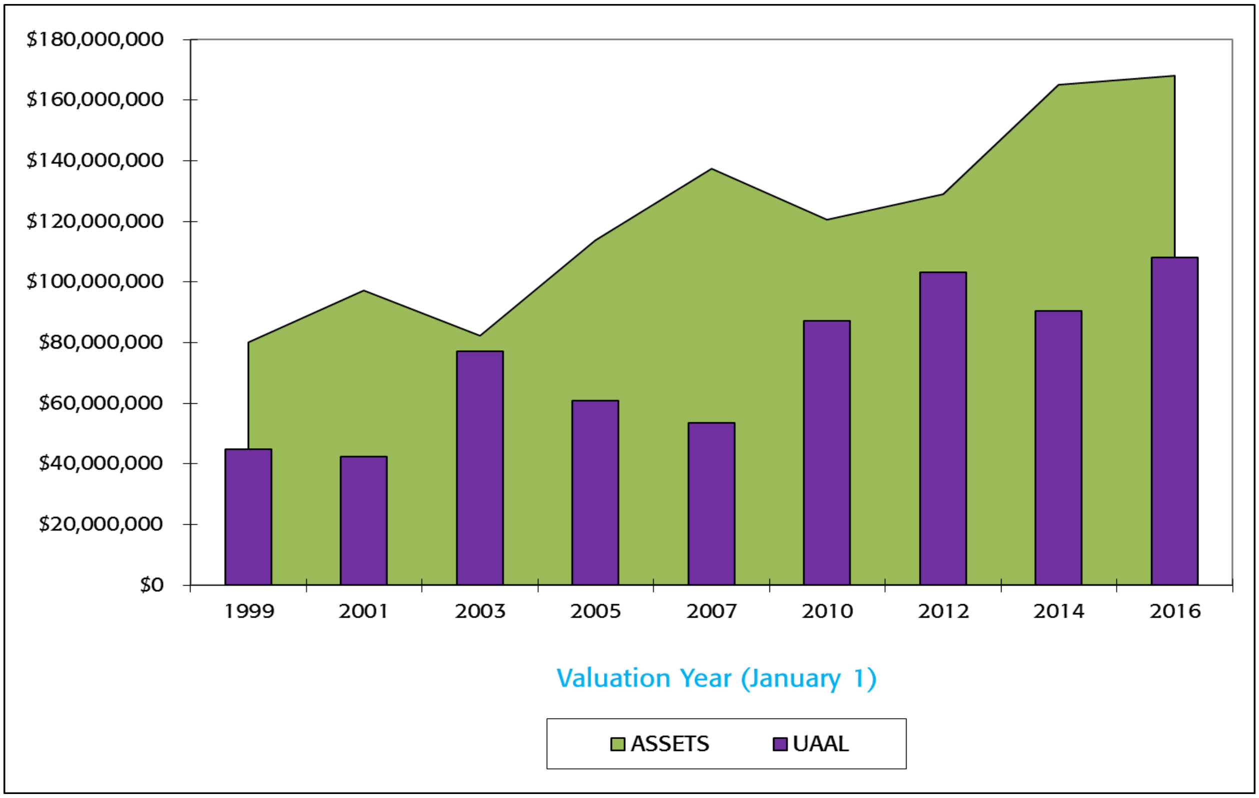
- Actuarial Accrued Liability (AAL) is the “price” of benefits attributable to benefits earned in past years, or in other words, represents today’s value of all benefits earned by active and inactive members.

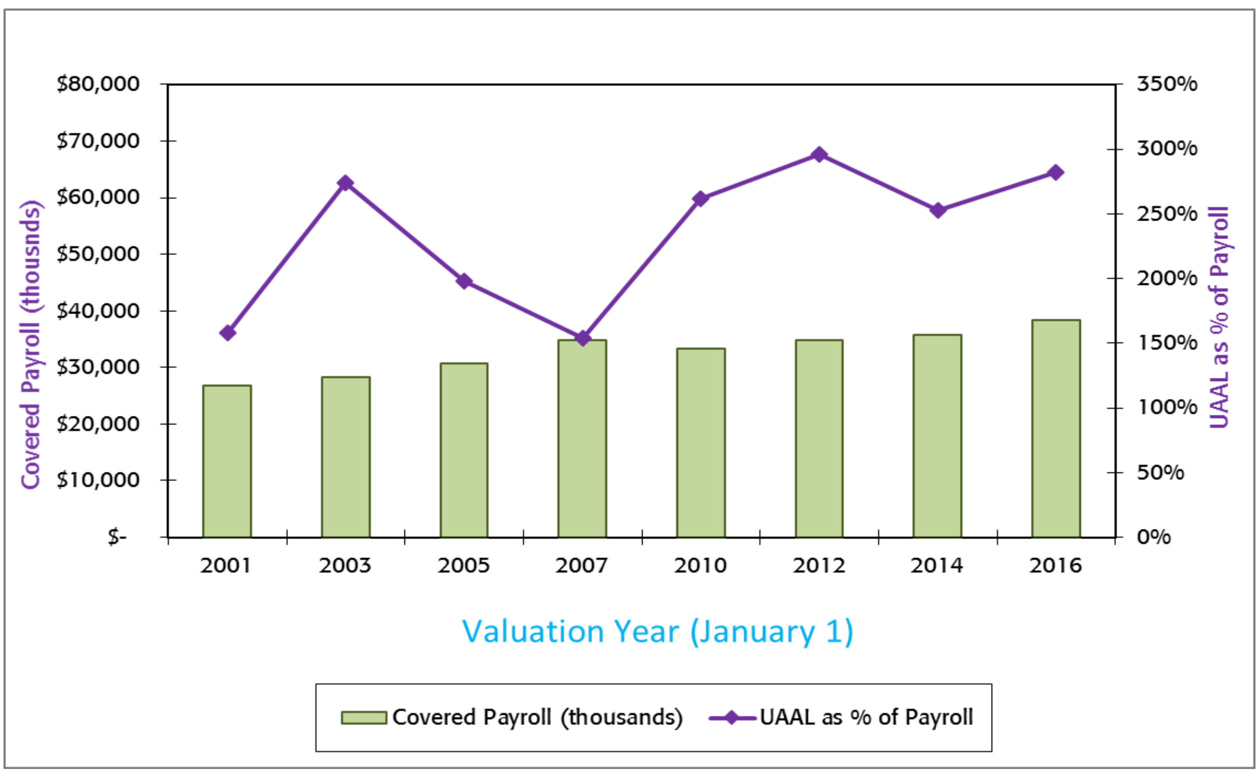
The total AAL is $276,096,366. This along with an actuarial value of assets of $168,035,098 produces a funded status of 61%. This compares to a funded status of 65% for the 2014 valuation.

The UAAL and funded ratio are measures of the plan’s funded status. These measure reflect the plan’s position as of January 1, 2016. We believe these measures, by themselves, are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan’s benefit obligations or assessing the need for or the amount of future contributions. However, we believe these measures, in conjunction with the plan’s funding schedule, are appropriate for assessing the amount of future contributions.

The chart on the following page contains a history of the unfunded actuarial accrued liability (UAAL), valuation assets (AVA), and covered payroll over the course of the past nine actuarial valuations.

Charts of Selected Actuarial and Demographic Statistics





Development of Funding Schedule

Net Employer Normal Cost for Fiscal 2018 (including admin. expenses)	$ 2,219,786
Net 3(8)(c) Payments	(33,395)
Amortization	8,674,267
Total Appropriation required for Fiscal 2018	$ 10,860,658

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

- The contribution amount for Fiscal 2018 is $10,860,658. The funding schedule is presented on page 11. The schedule's length is eighteen (18) years (for the fresh start base), a three year increase over the 15 year remainder of the 17 year schedule from the January 1, 2014 valuation. The maximum funding schedule length allowed by Section 22F of Chapter 32 of the Massachusetts General Laws is twenty-three years to Fiscal 2040.

- In developing the funding schedule, we used a fresh start approach in which the unfunded actuarial accrued liability (UAAL), other than the UAAL due to past early retirement incentives, is reamortized instead of maintaining the existing amortization amount and separately amortizing the actuarial gain or loss. The use of a fresh-start approach can result in a funding schedule in which the changes in contribution amounts from year to year are more consistent. The amortization increases each year at a rate of 3.60%.

FUNDING SCHEDULE

Fiscal Year	Net Normal Cost with Expenses	Unfunded Liability	Funding Amortization of UAAL	Net 3(8)(c) Payments	Schedule Contribution
2018	2,219,786	113,121,236	8,674,267	(33,395)	10,860,658
2019	2,314,127	112,541,609	8,988,658	(33,395)	11,269,390
2020	2,412,477	111,578,305	9,314,473	(33,395)	11,693,555
2021	2,515,008	110,189,279	9,645,396	(33,395)	12,127,009
2022	2,621,895	108,336,034	9,995,323	(33,395)	12,583,823
2023	2,733,326	105,962,116	10,357,968	(33,395)	13,057,899
2024	2,849,492	103,013,470	10,733,795	(33,395)	13,549,892
2025	2,970,596	99,431,350	11,123,284	(33,395)	14,060,485
2026	3,096,846	95,151,941	11,526,933	(33,395)	14,590,384
2027	3,228,462	90,105,946	11,945,258	(33,395)	15,140,325
2028	3,365,672	84,218,142	12,378,793	(33,395)	15,711,070
2029	3,508,713	77,406,899	12,402,669	(33,395)	15,877,986
2030	3,657,833	70,042,058	12,849,165	(33,395)	16,473,603
2031	3,813,291	61,625,342	13,311,735	(33,395)	17,091,631
2032	3,975,356	52,057,912	13,790,957	(33,395)	17,732,918
2033	4,144,308	41,232,644	14,287,432	(33,395)	18,398,345
2034	4,320,441	29,033,467	14,801,779	(33,395)	19,088,826
2035	4,504,060	15,334,643	15,334,643	(33,395)	19,805,308
2036	4,695,483	-	-	(33,395)	4,662,088

Amortization of Unfunded Liability as of July 1, 2017

Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2005	ERI-HA	4,966	4.50%	24	8,753	11
2005	ERI-Town	143,762	4.50%	24	253,393	11
2006	ERI-HA	6,739	0.00%	15	6,732	3
2018	Fresh Start	8,405,389	3.60%	18	8,405,389	18

Notes on Amortization of Unfunded Liability

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

Assumptions and Methodology Summary

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

Valuation Date	January 1, 2016 Valuation
Interest Rate	7.75% (7.875% in the prior valuation)
Salary Increase	3.50% ultimate rate, plus the following steps: Police – 8.5% in year 1, 6.5% in years 2-3 Fire – 8.5% in years 1-6 Other – 5.8% in years 1-7
COLA	3% of $12,000
COLA Frequency	Granted every year
Mortality	RP-2000 table projected from the year 2000 with Generational Mortality, Scale BB. For members retired under an Accidental Disability (job-related), 40% of deaths are assumed to be from the same cause as the disability. Disabled mortality RP-2000 table projected from the year 2000 with Generational Mortality, Scale BB, ages set forward 2 years. (Prior valuation used the same assumption)
Overall Disability	Groups 1 and 2 50% ordinary disability 50% accidental disability Group 4 10% ordinary disability 90% accidental disability
Retirement Rates	Groups 1 and 2 Ages 55 – 70 Group 4 Ages 50 – 65
Administrative Expense	$451,499 budget estimated for FY 2018 provided by Weymouth Retirement Board.

Assets and Discount Rate Assumption

	Cash	$	2,966,692.06
	Fixed Income Securities		24,688,714.12
	Equities		20,893,886.34
	Pooled Domestic Equity Funds		43,434,135.93
	Pooled International Equity Funds		29,887,921.55
	Pooled Global Equity Funds		4,871,680.59
	Pooled Global Fixed Income Funds		8,940,754.15
	Pooled Alternative Investments		5,752,755.59
	Pooled Real Estate Funds		17,978,101.50
	Hedge Funds		11,579,939.36
A	Sub-Total:	$	170,994,581.19
	Interest Due and Accrued		150,707.60
	Prepaid Expenses		3,100.00
	Accounts Receivable		3,955,248.51
	Accounts Payable		(7,068,539.72)
B	Sub-Total:	$	(2,959,483.61)
	Market Value of Assets [(A) + (B)]	$	168,035,097.58

- We were furnished with the System's annual report by the Board. The market value of assets as of December 31, 2015 (adjusted for payables and receivables) is $168,035,097.58.

- The asset allocation is approximately 27% fixed income, cash, receivables and payables and 73% equities, alternative investments, hedge funds and similar types of investments. Historically, 10 to 11% has been the expected long-term rate of return for equities, and 6% to 7% has been the expected long-term rate of return for fixed income securities. Many economists and investment professionals are projecting lower returns of 6.25% to 9.00% for equities and 3.65 to 6.00% for fixed income securities. In light of these projections, as well as historical investment returns, the 7.75% interest rate assumption is within the reasonable assumption range. We encourage close monitoring for changes in investment performance against expectations.

Disclosure Information

SCHEDULES OF FUNDING PROGRESS
(Dollars In Thousands)

Actuarial Valuation Date	Actuarial Value of Assets A	Actuarial Accrued Liability B	Unfunded AAL (UAAL) B-A	Funded Ratio A/B	Covered Payroll C	UAAL as a % of Covered Payroll (B-A)/C
1/1/2016	$168,035	$276,096	$108,061	61%	$38,312	282%
1/1/2014	$165,228	$255,773	$90,545	65%	$35,786	253%
1/1/2012	$128,910	$232,013	$103,103	56%	$34,841	296%
1/1/2010	$120,566	$207,894	$87,328	58%	$33,366	262%
1/1/2007	$137,333	$190,920	$53,587	72%	$34,808	154%

NOTES TO SCHEDULES

Additional information as of the latest actuarial valuation follows:

Valuation Date	1/1/2016
Actuarial cost method	Entry Age Normal
Amortization method	3.60% amortization increase
Remaining amortization period	18 years for the fresh start base
Asset valuation method	Market value adjusted by accounts payable and receivables
Actuarial assumptions:	
Investment Rate of Return	7.75% per year
Projected Salary Increases	3.50% ultimate rate, plus the following steps: Police – 8.5% in year 1, 6.5% in years 2-3 Fire – 8.5% in years 1-6 Other – 5.8% in years 1-7

PERAC Information Disclosure

The most recent actuarial valuation of the System was prepared by Stone Consulting, Inc. as of January 1, 2016

The normal cost for employees on that date was:	$3,522,153	9.2% of payroll
The normal cost for the employer was:	$1,661,264	4.3% of payroll

The actuarial liability for active members was:	$111,142,103
The actuarial liability for retired members was (includes inactives):	$164,954,263
Total actuarial accrued liability:	$276,096,366
System assets as of that date ($168,035,097.58 Market Value):	$168,035,098
Unfunded actuarial accrued liability:	$108,061,269

The ratio of system's assets to total actuarial liability was:	61%

As of that date the total covered employee payroll was:	$38,312,300

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

Investment Return:	7.75% per annum
Rate of Salary Increase:	Select and ultimate rate (3.50% ultimate rate)

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

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
1/1/2016	$168,035	$276,096	$108,061	61%	$38,312	282%
1/1/2014	$165,228	$255,773	$90,545	65%	$35,786	253%
1/1/2012	$128,910	$232,013	$103,103	56%	$34,841	296%
1/1/2010	$120,566	$207,894	$87,328	58%	$33,366	262%
1/1/2007	$137,333	$190,920	$53,587	72%	$34,808	154%

Actuarial Methods and Assumptions

ACTUARIAL METHODS

Actuarial Cost Method

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

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

Asset Valuation Method

Market value of assets (adjusted by payables and receivables)

Fiscal Year Adjustment

The actuarial results are adjusted by the valuation interest rate and salary scale to the beginning of Fiscal Year 2018. The unfunded actuarial accrued liability is rolled forward with normal cost and further adjusted by anticipated contributions and interest.

ACTUARIAL ASSUMPTIONS

Investment Return

7.75% per year net of investment expenses (7.875% in prior valuation).

Regular Interest Rate Credited to Annuity Savings Account

2% per year.

Salary Increases

3.50% ultimate rate plus the following step increases:
Police – 8.5% in year 1, 6.5% in years 2-3
Fire – 8.5% in years 1-6
Other – 5.8% in years 1-7

Actuarial Methods and Assumptions
(Continued)

Withdrawal Prior to Retirement

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

Rate of Withdrawal

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

Disability Prior to Retirement

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

Rate of Disability

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

Disability is assumed to be 50% ordinary and 50% accidental for Group 1 and 2 and 10% ordinary and 90% accidental for Group 4.

Actuarial Methods and Assumptions
(Continued)

Rates of Retirement

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

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

Mortality

RP-2000 table projected from the year 2000 with Generational Mortality, Scale BB (sex-distinct). Prior valuation used the same assumption. During employment the healthy employee mortality table is used. Post-employment the healthy annuitant table is used. In-service death is assumed to be 50% accidental for group 1 and 2 and 90% accidental for group 4.

Disabled Life Mortality

RP-2000 table projected from the year 2000 with Generational Mortality, Scale BB for healthy annuitants, set-forward by 2 years (sex-distinct). Death is assumed to be due to the same cause as the disability 40% of the time. Prior valuation used the same assumption.

Actuarial Methods and Assumptions
(Continued)

Family Composition

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

Cost-of-Living Increases

A 3% COLA on the first $12,000 of a member's retirement allowance is assumed to be granted every year.

Administrative Expenses

Estimated budgeted amount of $451,499 for the Fiscal Year 2018 excluding investment management fees and custodial fee is added to the Normal Cost.

Net 3(8)(c)

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

Step Increases

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

Credited Service

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

Contribution Timing

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

Total Payroll Increase

The total payroll is assumed to increase at 4.25% per year.

Valuation Date

January 1, 2016.

Summary of Principal Provisions

1. PARTICIPANT

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

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

2. MEMBER CONTRIBUTIONS

Member contributions vary depending upon date hired as follows:

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

Members hired after 1978 contribute an additional 2% of pay over $30,000 (annualized on a pay period basis).

3. PAY

a. Pay

Gross regular compensation excluding bonuses, overtime, severance pay, unused sick pay, and other similar compensation. For those hired after 12/31/2010, covered pay is limited to 64% of the IRS Code Section 401(a)(17) pay limit.

b. Average Pay

The average of pay during the three consecutive years that produce the highest average or, if greater, during the last three years (whether or not consecutive) preceding retirement. For members joining the MGL Chapter 32 Retirement System after April 1, 2012, five-year averages will be used.

4. CREDITED SERVICE

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

5. SERVICE RETIREMENT

a. Eligibility

1) Attainment of age 55 and completion of ten years of credited service or at any age with completion of 20 years of service. If hired prior to 1978 or a member of Group 4, the completion of ten years of service is not required.

2) System member after April 1, 2012 and Group 1 – Age 60 and Completion of 10 years of credited service. Group 2 – Age 55 and completion of 10 years of service. Group 4 – Age 55.

Summary of Principal Provisions (Continued)

b. Retirement Allowance

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

Benefit % X Average Pay X Years of Service = Benefit, limited at 80% of average pay

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

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

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

6. DEFERRED VESTED RETIREMENT

a. Eligibility

Completion of 10 years of credited service (for elected and appointed members, 6 years in the event of involuntary termination).

b. Retirement Allowance

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

Summary of Principal Provisions (Continued)

7. ORDINARY DISABILITY RETIREMENT

a. Eligibility

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

b. Retirement Allowance

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

8. ACCIDENTAL DISABILITY RETIREMENT

a. Eligibility

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

b. Retirement Allowance

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

9. NON-OCCUPATIONAL DEATH

a. Eligibility

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

b. Retirement Allowance

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

10. OCCUPATIONAL DEATH

a. Eligibility

Dies as a result of an occupational injury.

b. Benefit Amount

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

Summary of Principal Provisions
(Continued)

11. COST-OF-LIVING INCREASES

An increase of up to 3% applied to the first $12,000 of annual benefit. Funded by the Municipality from Fiscal Year 1999. Percentage increase is voted on each year by the Retirement Board. Cost-of-living increases granted during Fiscal Year 1982 through Fiscal 1998 are reimbursed by the Commonwealth.

12. OPTIONAL FORMS OF PAYMENT

- Option A

Allowance payable monthly for the life of the member.

- Option B

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

- Option C

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

Glossary of Terms

- Actuarial Accrued Liability

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

- Actuarial Assets

  Market value of assets (adjusted by payables and receivables)

- Actuarial Assumptions

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

- **Actuarial Cost Method**

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

- **GASB**

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

- **Normal Cost**

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

- **PERAC**

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

- **Present Value of Benefits**

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

- **PRIT**

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

- **Unfunded Actuarial Accrued Liability**

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