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GASB STATEMENT NO. 67 REPORT
FOR THE
CONNECTICUT MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM
PREPARED AS OF JUNE 30, 2017





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

March 9, 2018

State of Connecticut
State Employees' Retirement Commission
55 Elm Street
Hartford, CT 06106

Members of the Commission:

Presented in this report is information to assist the Connecticut Municipal Employees' Retirement System in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 67. The information is presented for the period ending June 30, 2017 (the Measurement Date).

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of June 30, 2016. The valuation was based on data, provided by the Retirement System staff for active, inactive and retired members along with pertinent financial information.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the System, and on actuarial assumptions that are, individually and in the aggregate, internally consistent and reasonably based on the actual experience of the System. In addition, the calculations were completed in compliance with the laws governing the System and, in our opinion, meet the requirements of GASB 67. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.



Members of the Commission

March 9, 2018

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Future actuarial results may differ significantly from the current results 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. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

Sincerely yours,

A handwritten signature in blue ink that reads 'John J. Garrett'.

John J. Garrett, ASA, MAAA, FCA
Principal and Consulting Actuary

A handwritten signature in blue ink that reads 'Edward J. Koebel'.

Edward J. Koebel, FCA, EA, MAAA
Principal and Consulting Actuary



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Section I - Introduction

The Governmental Accounting Standards Board issued Statement No. 67 (GASB 67), “*Financial Reporting For Pension Plans*”, in June 2012. This report, prepared as of June 30, 2017 (the Measurement Date), presents information to assist the Connecticut Municipal Employees Retirement System (System) in meeting the requirements of GASB 67. Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of the System as of June 30, 2016. The results of that valuation were detailed in a report dated January 19, 2017.

GASB 67 requires a measurement of the Total Pension Liability (TPL) utilizing the Entry Age Normal actuarial funding method. The Net Pension Liability (NPL) is set equal to TPL minus the System’s Fiduciary Net Position (FNP) (basically the market values of assets) as of the measurement date. The benefit provisions recognized in the calculation of the TPL are summarized in Schedule B.

Among the assumptions needed for the liability calculation is a Single Equivalent Interest Rate (SEIR). To determine the SEIR, the FNP must be projected into the future for as long as there are anticipated benefits payable under the plan’s provision applicable to the membership and beneficiaries of the System on the Measurement Date. Future contributions were projected to be made in accordance with the laws governing the Retirement System. If the FNP is not projected to be depleted at any point in the future, as the results currently indicate, the long term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR.

If however, at a future measurement date the FNP is projected to be depleted, the SEIR is determined as the single rate that will generate a present value of benefit payments equal to the sum of the present value determined by discounting all projected benefit payments through the date of depletion by the long term expected rate of return, and the present value determined by discounting those benefits after the date of depletion by a 20-year tax-exempt municipal bond (rating AA/Aa or higher) rate. The rate used, if necessary, for this purpose is the monthly average of the Bond Buyers General Obligation 20-year Municipal Bond Index (formerly published monthly by the Board of Governors of the Federal Reserve System). We have determined as of the Measurement Date that use of an 8.00 percent discount rate meets the requirements of GASB 67.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 67 for note disclosure and Required Supplementary Information (RSI).



Section II – Financial Statement Notes

The actuarial related information presented herein will follow the order presented in GASB 67. There are other non-actuarial items required which are not included in this report. Paragraph numbers are provided for ease of reference.

Paragraph 30(a) (4): The data required regarding the membership of the System were furnished by the Retirement System. The following table summarizes the membership of the System as of June 30, 2016, the Valuation Date.

Membership

	Number
Retired Members or Their Beneficiaries Currently Receiving Benefits	7,102
Inactive Members Entitled to But Not Yet Receiving Benefits	1,335
Active Members	9,373
Total	17,810

Paragraphs 31(a) (1)-(4): As stated earlier, the NPL is equal to the TPL minus the FNP. That result as of June 30, 2017 for MERS in total is presented in the table below (\$ thousands).

	Fiscal Year Ending June 30, 2017
Total Pension Liability (TPL)	\$2,981,984
Plan's Fiduciary Net Position (FNP)	<u>\$2,733,784</u>
Net Pension Liability (NPL)	\$284,200
Ratio of Fiduciary Net Position to Total Pension Liability	91.68%



Section II – Financial Statement Notes

Paragraph 31(b): This paragraph requires information regarding the actuarial assumptions used to measure the TPL. The actuarial assumptions utilized in developing the TPL are those contained in Appendix A of this report. The total pension liability was determined by an actuarial valuation as of June 30, 2016, using the following actuarial assumption, applied to all periods included in the measurement.

Inflation	3.25 percent
Salary increases	4.25 - 11.00 percent, including inflation
Investment rate of return	8.00 percent, net of pension plan investment expense, including inflation

Mortality rates were based on the RP-2000 Mortality Table for Annuitants and Non-Annuitants (set forward one year for males and set back one year for females) for the period after service retirement and for dependent beneficiaries. The same table is used for disabled retirements but it is adjusted with a set forward of five years for males and set forward one year for females.

The actuarial assumptions used in the June 30, 2016 valuation were based on the results of an actuarial experience study for the period July 1, 2007 – June 30, 2012.

The long-term expected rate of return on pension plan investments is determined using statistical analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target asset allocation and most recent best estimates of arithmetic real rates of return for each major asset class are to be provided by the Fiduciary of the Plan.

Discount rate. The discount rate used to measure the total pension liability was 8.00 percent. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rates and that employer contributions will be made at the actuarially determined rates in future years. On this basis, the pension plan's fiduciary net position together with the expected future contributions are sufficient to provide all projected future benefit payments of current plan members as determined in accordance with GASB Statement No. 67. Therefore, the 8.00% assumed long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.



Section II – Financial Statement Notes

Paragraph 31(b)(1)(g): This paragraph requires disclosure of the sensitivity of the NPL to changes in the discount rate. The following presents the NPL of MERS, calculated using the discount rate of 8.00 percent, as well as what MERS’s NPL would be if it were calculated using a discount rate that is 1-percentage-point lower (7.00 percent) or 1-percentage-point higher (9.00 percent) than the current rate:

Sensitivity of Net Pension Liability to Changes in the Discount Rate (\$ in thousands)

	1% Decrease (7.00%)	Current Discount Rate (8.00%)	1% Increase (9.00%)
Net Pension Liability	\$611,721	\$248,200	(\$57,803)



Section II – Financial Statement Notes

Paragraph 31(c): June 30, 2016 is the actuarial valuation date upon which the TPL is based. An expected TPL is determined as of June 30, 2017 using standard roll forward techniques. The roll forward calculation adds the annual normal cost (also called the service cost), subtracts the actual benefit payments and refunds for the plan year, then applies the expected investment rate of return for the year and finally adds new plan liabilities, if any. The procedure used to determine the TPL as of June 30, 2017 is shown in the following table:

Change in TPL Due to Experience (\$ in thousands)	
(a) TPL as of June 30, 2016	\$2,840,325
(b) Entry Age Normal Cost for the Year July 1, 2016 – June 30, 2017 with interest to June 30, 2017	76,056
(c) Actual Benefit Payments for the Year July 1, 2016 – June 30, 2017	155,407
(d) Expected TPL as of June 30, 2017 = [(a) x 1.08] + (b) – [(c) x 1.04]	2,981,984
(e) Actual Adjustment for new plan liabilities	\$0
(f) Final Expected TPL as of June 30, 2017 = [(d) + (e)]	\$2,981,984



Section III – Required Supplementary Information

There are several tables of Required Supplementary Information (RSI) that are required under GASB No. 67. The tables for paragraphs 32(a)-(c) are provided on the following pages.

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY GASB 67 Paragraph 32(a) (\$ in thousands)

	2014	2015	2016	2017	2018
Total pension liability					
Service Cost	\$ 59,764	\$ 64,545	\$67,126	\$76,056	
Interest	185,379	194,760	206,064	221,010	
Benefit changes	0	0	0	0	
Difference between expected and actuary experience	0	0	50,327	0	
Changes of assumptions	0	0	0	0	
Adjustment for new plans	0	20,441	13,122	0	
Benefit payments	(121,721)	(131,505)	(142,840)	(154,179)	
Refunds of contributions	(1,352)	(1,165)	(1,390)	(1,228)	
Net change in total pension	\$ 122,070	\$ 147,076	\$192,409	\$141,659	
Total pension liability – beginning	\$2,378,770	\$2,500,840	\$2,647,916	\$2,840,325	
Total pension liability – ending (a)	\$2,500,840	\$2,647,916	\$2,840,325	\$2,981,984	
Plan net position					
Contributions – employer	68,943	81,161	108,609 ²	67,494	
Initial Liability Payments and Transfers	80,843	18,199	27,145 ¹	2,313	
Contributions – member	18,998	16,726	24,019	27,377	
Net investment income	257,808	55,367	17,750	283,827	
Benefit payments	(121,721)	(131,505)	(142,840)	(154,179)	
Administrative expense	0	0	0	0	
Refunds of contributions	(1,352)	(1,165)	(1,390)	(1,228)	
Other ²	(73,482)	14,106	19,185	524	
Net change in plan net position	\$ 230,037	\$ 52,889	\$ 52,478	\$ 226,128	
Plan net position – beginning	\$2,032,687	\$2,402,289	\$2,455,178	\$2,507,656	
Plan net position – ending (b)	\$2,262,724	\$2,455,178	\$2,507,656	\$2,733,784	
Net pension liability – ending (a) – (b)	\$ 238,116	\$ 192,738	\$332,669	\$248,200	

¹ Includes the transfers of \$16,387,000 in 2016.

² Adjusted to include changes to receivable Initial Liability Payments.



Section III – Required Supplementary Information

SCHEDULE OF THE NET PENSION LIABILITY GASB 67 Paragraph 32(b) (\$ in thousands)

	2014	2015	2016	2017	2018
Total pension liability	\$2,500,840	\$2,647,916	\$2,840,325	\$2,981,984	
Plan net position	<u>2,262,724</u>	<u>2,455,178</u>	<u>2,507,656</u>	<u>2,733,784</u>	
Net pension liability	<u>\$ 238,116</u>	<u>\$ 192,738</u>	<u>\$ 332,669</u>	<u>\$ 248,200</u>	
Ratio of plan net position to total pension liability	<u>90.48%</u>	<u>92.72%</u>	<u>88.29%</u>	<u>91.68%</u>	
Covered-employee payroll	\$ 485,745	\$ 503,960	\$ 566,237	\$ 587,471	
Net pension liability as a percentage of covered-employee payroll	49.02%	38.24%	58.75%	42.25%	

SCHEDULE OF EMPLOYER CONTRIBUTIONS GASB 67 Paragraph 32(c) (\$ in thousands)

Fiscal Year Ending June 30	2014	2015	2016	2017
Actuarially Determined Contributions	\$68,943	\$81,338	\$81,150	\$75,111
Actual employer contributions	<u>68,943</u>	<u>81,338</u>	<u>81,150</u>	<u>75,111</u>
Annual contribution deficiency (excess)	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Covered-employee payroll	\$485,745	\$503,960	\$566,237	\$587,471
Actual contributions as a percentage of covered-employee payroll	14.19%	16.14%	14.33%	12.78%



Section IV: Notes to Required Schedules

Summary of Actuarial Methods and Assumptions Used in GASB Information

Actuarial valuation date	June 30, 2016
Actuarial cost method	Entry Age Normal
Amortization method	Level Dollar, Closed
Amortization period	24 years remaining (Contributions for Fiscal Year End 2017 based on 2014 Valuation)
Asset valuation method	Market Value on the measurement date. Plan's fiduciary net position also includes the present value of receivable initial liability payments established by participating employers upon entry into MERS. An 8.0% discount rate is used in the present value calculation which is shown in the table below.

Actuarial Assumptions:

Investment rate of return	8.00% annual rate net of investment expenses.
Projected salary increases	4.25% to 11.00% annual rate
Includes inflation at	3.25% annual rate

Reconciliation of Receivable Initial Liability Payments (\$ in thousands)	
(a) Beginning of Year Receivable Initial Liability Amortization Payments	\$279,178
(b) Payments Applied at Beginning of Year	(2,313)
(c) Adjustment in Amortization Payments	<u>(2,990)</u>
(d) End of Year Receivable Initial Liability Amortization Payments (a) + (b) + (c)	<u>\$273,875</u>

In addition, under paragraph 34, the following should be noted regarding the RSI:

There were no changes to the actuarial assumptions, methods or the benefit terms of MERS which impact the measurements provided in this supplemental report.



Appendix A: Actuarial Assumptions

Adopted or reaffirmed by the Commission for the June 30, 2012 and later valuations.

VALUATION INTEREST RATE: 8.00% per annum, compounded annually, net of investment expenses.

SALARY INCREASES: Representative values of assumed annual rates of salary increase are as follows:

Age	Annual Rates of				
	Merit & Seniority		Base (Economy)	Increase Next Year	
	General Employees	Firemen & Policemen		General Employees	Firemen & Policemen
20	7.50%	7.50%	3.50%	11.00%	11.00%
25	5.50%	7.50%	3.50%	9.00%	11.00%
30	4.50%	3.50%	3.50%	8.00%	7.00%
35	3.50%	2.50%	3.50%	7.00%	6.00%
40	2.50%	1.50%	3.50%	6.00%	5.00%
45	2.50%	1.00%	3.50%	6.00%	4.50%
50	2.00%	0.75%	3.50%	5.50%	4.25%
55	1.00%	0.75%	3.50%	4.50%	4.25%
60	0.75%	0.75%	3.50%	4.25%	4.25%
65	0.75%		3.50%	4.25%	
70	0.75%		3.50%	4.25%	

COST OF LIVING ADJUSTMENTS: Annually compounded increases are applied to disabled and non-disabled retirement benefits and vary based upon member age and date of retirement. For members that retired prior to January 1, 2002, increases of 3.25% are assumed for those who have reached age 65 and (effective January 1, 2002) increases of 2.50% are assumed for those who have not yet reached age 65. For members that retire after December 31, 2001, increases of 2.50% are assumed, regardless of age.

SOCIAL SECURITY WAGE BASE INCREASES: 3.50% per annum.



Appendix A: Actuarial Assumptions

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed annual rates of separation before service retirement are as follows:

GENERAL EMPLOYEES

Age	Withdrawal and Vesting - Male	Withdrawal and Vesting - Female	Non-Service Related Disability*	Death	Service Retirement
20	18.00%	20.00%	0.02%	0.01%	
25	18.00	20.00	0.02	0.01	
30	12.00	15.00	0.03	0.01	
35	10.00	12.00	0.04	0.02	
40	7.50	10.00	0.05	0.02	
45	5.00	7.50	0.07	0.03	15.00%
50	5.00	5.00	0.12	0.05	15.00
55	5.00	5.00	0.44	0.08	7.00
60	5.00	5.00	0.86	0.12	10.00
65	5.00	5.00	1.84	0.20	20.00
70	5.00	5.00	2.99	0.31	15.00
75					100.00

POLICEMEN AND FIREMEN

Age	Withdrawal and Vesting	Service Related Disability*	Death	Service Retirement
20	7.00%	0.11%	0.01%	
25	7.00	0.14	0.01	
30	5.00	0.15	0.01	
35	4.00	0.22	0.02	
40	2.00	0.32	0.02	
45	1.00	0.49	0.03	25.00%
50	0.00	1.11	0.05	20.00
55	0.00	3.03	0.08	12.00
60	0.00	6.88	0.12	20.00
65				100.00

*Service related disability rates for General Employees and Non-Service related disability rates for Policemen and Firemen are assumed to be zero at all ages.



Appendix A: Actuarial Assumptions

DEATHS AFTER RETIREMENT: The RP2000 Mortality Table for Annuitants and Non-Annuitants (set forward one year for males and set back one year for females) is used for the period after retirement and for dependent beneficiaries. Representative values of the assumed annual rates of mortality are as follows:

Age	Men	Women	Age	Men	Women
40	0.114%	0.065%	65	1.441%	0.862%
45	0.162	0.103	70	2.457	1.486
50	0.245	0.155	75	4.217	2.546
55	0.420	0.242	80	7.204	4.151
60	0.768	0.444	85	12.280	6.952

For disabled retirees, the same table is used, adjusted with the male table set forward five years and the female table set forward one year.

VALUATION ASSET METHOD: Market Value.

VALUATION METHOD: Entry Age Normal Cost method.

SPOUSES: For members who have elected spouse coverage, husbands are assumed to be three years older than their wives.

PERCENT MARRIED: 80% of active members are assumed to be married.

LOAD: For those members who retired under and joint & survivor option and have no reported information for a prospective beneficiary, a probabilistic factor was applied to the reversionary portion of the liability. The factor measures the survivorship of the assumed spouse (with men three years older than women) from the date of retirement to the valuation date, based on the assumptions for death after retirement.



Appendix B: Main Benefit and Contribution Provisions

MEMBERSHIP

Municipalities may designate which departments (including elective officers if so specified) are to be covered under the Municipal Employees Retirement System. This designation may be the result of collective bargaining. Only employees covered under the State Teachers Retirement System may not be included. There are no minimum age or service requirements. Membership is mandatory for all regular full time employees of participating departments except Police and Fire hired after age 60.

DEFINITIONS

Average Final Compensation	Average of the three highest paid years of service.
Normal Form of Benefit	Life annuity.
Year's Breakpoint	With respect to the calendar year in which a member terminates service, \$10,700 increased by 6.0% each year after 1982, rounded to the nearest multiple of \$100.

BENEFITS

Service Retirement Allowance

Condition for Allowance	Age 55 and 5 years of continuous service, or 15 years of active aggregate service, or 25 years of aggregate service. Compulsory retirement at age 65 for police and fire members.
Amount of Allowance	For members not covered by Social Security: 2% of average final compensation times years of service. For members covered by Social Security: 1-1/2% of the average final compensation not in excess of the year's breakpoint plus 2% of average final compensation in excess of the year's breakpoint, times years of service. The maximum benefit is 100% of average final compensation and the minimum benefit is \$1,000 annually. Both the minimum and the maximum include Workers Compensation and Social Security benefits.



Appendix B: Main Benefit and Contribution Provisions

If any member covered by Social Security retires before age 62, his/her benefit until he/she reaches age 62 or receives a Social Security disability award is computed as if he/she were not under Social Security.

Non-Service Connected Disability Retirement Allowance

Condition for Allowance 10 years of service and permanently and totally disabled from engaging in any gainful employment in the service of the Municipality.

Amount of Allowance Calculated as a service retirement allowance based on compensation and service to the date of the disability.

Service Connected Disability

Condition for Allowance Totally and permanently disabled from engaging in any gainful employment in the service of the Municipality provided such disability has arisen out of and in the course of his/her employment with the Municipality. Disability due to hypertension or heart disease, in the case of firemen and policemen, is presumed to have been suffered in the line of duty.

Amount of Allowance Calculated as a service retirement allowance based on compensation and service to the date of the disability with a minimum benefit (including Worker's Compensation benefits) of 50% of compensation at the time of the disability.

Vesting Retirement Allowance

Condition for Allowance 5 years of continuous or 15 years of active aggregate service.

Amount of Allowance Calculated as a service retirement allowance on the basis of average final compensation and service to the date of termination. Deferred to normal retirement age, or an actuarially reduced allowance may begin at the time of separation.



Appendix B: Main Benefit and Contribution Provisions

Death Benefit

Condition for Benefit Eligible for service, disability retirement, or vested allowance, and married for at least 12 months preceding death.

Amount of Benefit Computed on the basis of the member's average final compensation and creditable service at date of death, payable to the spouse. Benefit is equal to 50% of the average of the life annuity allowance and the reduced 50% joint and survivor allowance.

Return of Deductions

Upon the withdrawal of a member the amount of his accumulated deductions is payable to him/her on demand, with 5% interest from July 1, 1983.

Optional Benefits

Prior to the retirement, a member may elect to convert his retirement allowance into a benefit of equivalent actuarial value in accordance with one of the optional forms described below:

1. A reduced retirement allowance payable during his life with the provision that after his death the beneficiary designated by him at the time of his retirement; or
2. A reduced retirement allowance payable during his life with the provision that after his death an allowance of one half of his reduced allowance will be continued for life to the beneficiary designated by him at the time of his retirement;
3. A reduced retirement allowance payable during his life with a guarantee of 120 or 240 monthly payments to the member or his designated beneficiary.

Cost-of-Living Adjustment

For those retired prior to January 1, 2002:

- (i) The benefits of disabled retirees, service retirees who have reached age 65, and beneficiaries of deceased retirees who would have reached age 65 are adjusted each July 1. The difference between the actual annual yield of the actuarial value of



Appendix B: Main Benefit and Contribution Provisions

assets on a calendar year basis to a 6% yield is calculated. This difference is the adjustment applied the following July 1. The minimum adjustment is 3% and the maximum is 5%.

- (ii) The benefits for all others on the roll are adjusted on January 1, 2002 and on each subsequent July 1. The amount of each adjustment is 2.5%.

For those retiring in or after January 1, 2002, benefits are adjusted each July 1. The adjustment is 60% of the annual increase in the CPI up to 6%. The minimum annual COLA is 2.5%; the maximum is 6%.

CONTRIBUTIONS

By Members

For members not covered by Social Security: 5% of compensation.

For members covered by the Social Security: 2-1/4% of compensation up to the Social Security taxable wage base plus 5% of compensation, if any, in excess of such base.

By Municipalities

Participating Municipalities make annual contributions consisting of a normal cost contribution, a contribution for the amortization of the net unfunded accrued liability and a prior service amortization payment which covers the liabilities of the System not met by member contributions.