



**Cavanaugh Macdonald**  
CONSULTING, LLC

*The experience and dedication you deserve*



**CONNECTICUT MUNICIPAL EMPLOYEES  
RETIREMENT SYSTEM**

**REPORT OF THE ACTUARY ON THE VALUATION  
PREPARED AS OF JUNE 30, 2018**

**REVISED JUNE 17, 2019**





# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

June 17, 2019

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

Members of the Commission:

Connecticut General Statutes Section 5-155a governs the operation of the Connecticut Municipal Employees Retirement System (MERS). The actuary makes periodic valuations of the contingent assets and liabilities of the Retirement System at the direction of the Commission. We are pleased to submit the report giving the results of the actuarial valuation of the Retirement System prepared as of June 30, 2018.

Since the previous valuation, various economic and demographic assumptions have been revised to reflect the results of the experience investigation for the five-year period ending June 30, 2017. The changes adopted by the Commission on November 15, 2018, include various demographic and economic assumptions summarized below:

- Investment return assumed rate changed from 8.00% to 7.00%,
- Wage Inflation assumed rate changed from 3.50% to 3.00%, and
- Assumed rates of Withdrawal, Disability, Retirement, and Mortality have been adjusted to more closely reflect experience.

In addition, the valuation results reflect the proposed legislation to increase the employee contribution rates by 0.50% of compensation each year for six years beginning July 1, 2019.

In preparing the valuation, the actuary relied on data provided by the Comptroller's Office. While not verifying data at the source, the actuary performed tests for consistency and reasonableness. The extent to which the data may contain inaccuracies, the future actuarial measures may vary.

The System is funded on an actuarial reserve basis. The actuarial assumptions recommended by the actuary and adopted by the Commission are reasonably related to the experience under the System and to reasonable expectations of anticipated experience under the System. The funding objective of the plan is that contribution rates over time will remain level as a percent of payroll and will be sufficient to fully fund the liabilities of the System over a reasonable funding period. The valuation method used is the entry age normal method. Gains and losses are reflected in the unfunded actuarial accrued liability which is being amortized as a level dollar within a 21-year period. This period is based on the funding policy of MERS that amortizes the unfunded actuarial accrued liability over a declining period of years, starting with 30 years as of July 1, 2009.



Members of the Commission  
June 17, 2019  
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This is to certify that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

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; data inaccuracies; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; 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.

The actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the System. Use of these computations for purposes other than meeting these requirements may not be appropriate.

The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely yours,

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

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

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

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



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## Section I – Summary of Principal Results

1. For convenience of reference, the principal results of the current and preceding valuations are summarized below:

Valuation Date	June 30, 2018	June 30, 2016
Number of active members	10,096	9,373
Annual compensation	\$ 627,953,464	\$ 566,237,211
Retired members and beneficiaries:		
Number	7,448	7,102
Annual allowances	\$ 170,289,150	\$ 145,649,886
Assets:		
Market Value	\$ 2,646,911,708	\$ 2,217,254,601
Actuarial Value	\$ 2,779,601,460	\$ 2,445,484,582
Unfunded actuarial accrued liability	\$ 843,099,289	\$ 394,840,827
Present Value of Remaining Prior Service Amortization Payments	\$ 11,306,512	\$ 100,944,360
Net unfunded actuarial accrued liability	\$ 831,792,777	\$ 293,896,467
Amortization Period in Years	21	23
Funded Ratio	76.7%	86.1%
<b>For Fiscal Years Ending</b>	<b>June 30, 2020*</b>	<b>June 30, 2018 and June 30, 2019</b>
Employer Contribution Rates		
General Employees		
With Social Security	13.73%	11.74%
Without Social Security	14.23%	12.15%
Police and Fire		
With Social Security	19.45%	17.13%
Without Social Security	20.24%	16.93%

\* Employer Contribution Rates for fiscal year ending June 30, 2020 shown above apply a 5-year contribution rate smoothing and are anticipated to increase by 1.5% to 2.0% of compensation per year until the full funding rates are achieved in not more than 5 years.

2. All amounts shown that are prior to June 30, 2013 were developed and/or reported by the prior actuarial firm. The results of the valuation are given in Schedule A.





## Section I – Summary of Principal Results

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3. Comments on the valuation results are given in Section IV, comments on the experience and actuarial gains and losses during the valuation year are given in Section IX and the rates of contribution payable by employers are given in Section VII.
4. Schedule D of the report presents the development of the actuarial assumptions and methods employed. Since the previous valuation, various economic and demographic assumptions have been revised to reflect the results of the experience investigation for the five-year period ending June 30, 2017. The changes adopted by the Commission on November 15, 2018, include various demographic and economic assumptions summarized below:
  - Investment return assumed rate changed from 8.00% to 7.00%,
  - Wage Inflation assumed rate changed from 3.50% to 3.00%, and
  - Assumed rates of Withdrawal, Disability, Retirement, and Mortality have been adjusted to more closely reflect experience.
5. Schedule F of this report presents the summary of main benefits and contribution provisions. Due to proposed legislation, the employee contribution rates are being increased by 0.50% of compensation each year for six years beginning July 1, 2019.
6. Administrative expenses continuing at \$130 for each active and retired member are required to be contributed for each fiscal year.
7. The Governmental Accounting Standards Board issued Statement No. 67 (GASB 67) in June 2012 and is effective for plan years beginning after June 15, 2013. GASB 67 replaced GASB 25 for plans and separate GASB 67 report will be prepared for the Commission. We have provided some supplemental disclosure information and tables in Section VI.
8. As shown in the Summary of Principal Results, the funded ratio is the ratio of the actuarial value of assets to the accrued liability. The funded ratio is an indication of progress in funding the promised benefits using a long-term, stable funding approach. Since the ratio is less than 100%, there is a need for contributions in addition to the plan's normal cost. The funded ratio based on the market value of assets is also provided for informational purposes.
9. The table on the following page provides a history of some pertinent figures.





## Section I – Summary of Principal Results

### Comparative Schedule\*

Valuation Date June 30	Active Members				Retired Lives				Valuation Results (\$ millions)		
	Number	Payroll (\$ millions)	Average Salary	% increase from previous year	Number	Active/ Retired Ratio	Annual Benefits (\$ millions)	Benefits as % of Payroll	Accrued Liability	Valuation Assets	UAAL
2008	8,805	\$411.9	\$46,784	4.9%	5,455	1.6	\$83.8	20.3%	\$1,721.8	\$1,779.1	\$(57.3)
2010	8,579	422.1	49,204	2.6	5,705	1.5	93.7	22.3	1,880.7	1,662.6	218.1
2012	8,711	458.7	52,653	3.4	6,095	1.4	106.5	23.2	2,150.8	1,828.8	322.0
2014	8,477	485.7	57,301	4.4	6,511	1.3	122.7	25.3	2,500.8	2,196.1	304.7
2016	9,373	566.2	60,412	2.7	7,102	1.3	145.6	25.7	2,840.3	2,445.4	394.8
2018	10,096	628.0	62,198	1.5	7,448	1.4	170.3	27.1	3,622.7	2,779.6	843.1

\*All amounts prior 2013 were reported by the prior actuarial firm.

\*Results for 2009, 2011, 2013, 2015 and 2017 were based on roll-forward methodology and not shown in the above table.

\*The percent increase represent the increases on an annualized basis over a two-year period.





## Section II – Membership

Data regarding the membership of the System for use as a basis for the valuation were furnished by the Comptroller's office. The following tables summarize the membership of the Retirement System as of June 30, 2018 upon which the valuation was based. Detailed tabulations of the data are given in Schedule G.

### Active Members

Group	Number of Employers	Number	Payroll	Group Averages		
				Salary	Age*	Service*
General Employees						
With Social Security						
Men		2,235	\$141,325,548	\$63,233	49.4	11.6
Women		<u>3,126</u>	<u>131,956,976</u>	42,213	50.7	10.1
Total	141	5,361	\$273,282,524	\$50,976	50.2	10.7
Without Social Security						
Men		1,079	\$69,559,321	\$64,466	48.7	11.9
Women		<u>1,488</u>	<u>67,250,671</u>	45,195	50.5	13.3
Total	9	2,567	\$136,809,992	\$53,296	49.8	12.7
Police and Fire						
With Social Security						
Men		464	\$50,204,695	\$108,200	42.1	11.2
Women		<u>49</u>	<u>4,789,550</u>	97,746	37.8	10.6
Total	23	513	\$54,994,245	\$107,201	41.7	11.1
Without Social Security						
Men		1,509	\$149,663,236	\$99,180	43.3	14.4
Women		<u>146</u>	<u>13,203,467</u>	90,435	41.0	11.5
Total	18	1,655	\$162,866,703	\$98,409	43.1	14.1
<b>Total</b>	<b>191</b>	<b>10,096</b>	<b>\$627,953,464</b>	<b>\$62,198</b>	<b>48.5</b>	<b>11.8</b>

\*Years

Of the 10,096 active members, 6,729 are vested and 3,367 are non-vested.

The valuation also includes 3,357 inactive non-vested members who are owed refunds of their accumulated contributions.







## Section II – Membership

### Retired Lives

Group	Number	Annual Benefits	Benefit	Group Averages	
				Age at Valuation Date*	Age at Retirement*
General Employees					
With Social Security					
Service	3,428	\$57,640,210	\$16,815	71.3	59.9
Disability	181	4,845,820	26,772	68.6	53.2
Beneficiary	<u>389</u>	<u>5,139,471</u>	13,212	72.6	55.6
Total	3,998	\$67,625,501	\$16,915	71.3	59.2
Without Social Security					
Service	2,140	\$49,669,370	\$23,210	72.1	58.8
Disability	100	2,825,715	28,257	68.4	52.5
Beneficiary	<u>298</u>	<u>4,706,334</u>	15,793	74.7	53.9
Total	2,538	\$57,201,419	\$22,538	72.2	58.0
Police and Fire					
With Social Security					
Service	234	\$10,510,362	\$44,916	65.6	53.9
Disability	53	2,519,238	47,533	63.4	44.6
Beneficiary	<u>29</u>	<u>748,978</u>	25,827	69.9	49.9
Total	316	\$13,778,578	\$43,603	65.6	52.0
Without Social Security					
Service	440	\$24,704,395	\$56,146	63.9	54.9
Disability	108	5,743,570	53,181	62.5	47.0
Beneficiary	<u>48</u>	<u>1,235,687</u>	25,743	67.6	46.4
Total	596	\$31,683,652	\$53,160	64.0	52.8
<b>Total</b>	<b>7,448</b>	<b>\$170,289,150</b>	<b>\$22,864</b>	<b>70.8</b>	<b>57.9</b>

\*Years

This valuation also includes 1,165 deferred vested members with estimated annual benefits of \$12,339,409.





## Section III – Assets

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1. As of June 30, 2018, the total market value of assets amounted to \$2,646,911,708 as reported by the Comptroller's Office. The actuarial value of assets used for the current valuation was \$2,779,601,460. Schedule B shows the development of the actuarial value of assets as of June 30, 2018.
2. In addition, the plan has future payments due from certain employers that established an initial liability upon entering MERS for prior earned service. This present value of the remaining prior service amortization payments is \$11,306,512 as of June 30, 2018.
3. Schedule C shows receipts and disbursements of the System for the two years preceding the valuation date and a reconciliation of the fund balances at market value.





## Section IV – Comments on Valuation

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1. Schedule A of this report outlines the results of the valuation of the Retirement System as of June 30, 2018. The valuation was prepared in accordance with the actuarial assumptions and methods set forth in Schedule D and the actuarial cost method which is described in Schedule E.
  
2. The valuation balance sheet shows that the System has total prospective liabilities of \$4,339,223,284, of which \$2,064,067,466 is for the benefits payable on account of present retired members, beneficiaries of deceased members, and inactive members entitled to deferred vested benefits, and \$2,275,155,818 is for the benefits expected to be payable on account of present active members. Against these liabilities, the System has total present assets for valuation purposes of \$2,779,601,460 as of June 30, 2018. When this amount is deducted from the total liabilities of \$4,339,223,284 there remains \$1,559,621,824 as the present value contributions to be made in the future.
  
3. Prospective normal employer and employee contributions have a present value of \$716,522,535. When this amount is subtracted from \$1,559,621,824, which is the present value of the total future contributions to be made by the employer, there remains \$843,099,289 as the amount of future unfunded actuarial accrued liability contributions. A breakdown of unfunded accrued liabilities by group is provided in Section V on the next page.
  
4. The change in the actuarial assumptions, primarily the lowering of the investment return assumption from 8.00% to 7.00%, has resulted in a significant increase in contribution requirements from the prior valuation. Employer contribution rates apply a 5-year contribution rate smoothing method and are anticipated to increase by 1.5% to 2.0% of compensation per year until the full funding rates are achieved within the next 5 years.





## Section V – Summary of Net Unfunded Actuarial Accrued Liability

The table below presents the unfunded actuarial accrued liability of the Retirement System as of July 1, 2018, along with comparative results from the previous year's measurement. The valuation results were based on the data and financial information provided by the Retirement System staff, and the actuarial assumptions and methods outlined in Schedule D.

	General Employees with Social Security		General Employees without Social Security		Police and Fire with Social Security		Police and Fire without Social Security		Total	
	July 1, 2018	July 1, 2016	July 1, 2018	July 1, 2016	July 1, 2018	July 1, 2016	July 1, 2018	July 1, 2016	July 1, 2018	July 1, 2016
Accrued Liabilities:										
Active Members	\$517,554,890	\$399,330,821	\$379,222,497	\$300,783,274	\$109,777,939	\$89,184,170	\$552,077,957	\$456,790,238	\$1,558,633,283	\$1,246,088,503
Non-Vested Inactive Members	916,303	276,657	1,721,014	267,327	104,255	31,798	280,778	82,364	3,022,350	658,146
Vested Inactive Members	68,731,677	48,333,540	48,868,899	25,830,661	4,363,771	3,460,211	6,781,783	4,079,283	128,746,130	81,703,695
Retired Members	754,340,520	576,800,409	594,163,802	501,409,111	162,756,964	134,118,159	421,037,700	299,547,386	1,932,298,986	1,511,875,065
Total Accrued Liability	\$1,341,543,390	\$1,024,741,427	\$1,023,976,212	\$828,290,373	\$277,002,929	\$226,794,338	\$980,178,218	\$760,499,271	\$3,622,700,749	\$2,840,325,409
Actuarial Value of Assets	\$999,852,125	\$917,818,178	\$828,892,270	\$772,207,292	\$217,222,657	\$195,519,414	\$733,634,409	\$559,939,698	\$2,779,601,460	\$2,445,484,582
Unfunded Actuarial Accrued Liability	\$341,691,265	\$106,923,249	\$195,083,942	\$56,083,081	\$59,780,272	\$31,274,924	\$246,543,809	\$200,559,573	\$843,099,289	\$394,840,827
Present Value of Remaining Prior Service Amortization Payments	\$4,664,572	\$6,273,647	\$586,977	\$591,382	\$1,743,146	\$2,396,167	\$4,311,817	\$91,683,164	\$11,306,512	\$100,944,360
Net Unfunded Actuarial Accrued Liability	\$337,026,693	\$100,649,602	\$194,496,965	\$55,491,699	\$58,037,126	\$28,878,757	\$242,231,992	\$108,876,409	\$831,792,777	\$293,896,467





## **Section VI – Prior Amortization Payments**

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The unfunded prior service liability for each participating municipality was re-established for the July 1, 1989 valuation so as to recognize actuarial gains and losses in the current service contribution rates instead of the future amortization payment for prior service. These amounts were then frozen and an amortization payment schedule was calculated for their funding.

In addition, the prior service liability was adjusted for each municipality as of July 1, 1991 to reflect the additional liability generated by the granting of a cost-of-living adjustment on that date. This adjustment had been made whenever a COLA was granted and the investment return on assets was not at least 9%. In that event, a 3% COLA was provided to eligible retirees, and the prior service liability of each municipality was increased to reflect the liability for that portion of the COLA that was not covered by investment returns above 6%. This adjustment has been eliminated under the revised funding method, for all COLA's effective July 1, 1992 and later.

For most municipalities, this re-established liability is to be amortized over 2-10 years from July 1, 2012. For recently enrolled municipalities, the period is that remaining of their original 30 year amortization period. The prior policy requirement that payments be adjusted to reflect any additional liability due to the purchase of military service under PA 83-16 was eliminated beginning with the July 1, 1992 valuation.

The present value of future prior service amortization payments as of July 1, 2018 is the present value of the payment schedule established on July 1, 1991 plus the amounts for municipalities enrolling after that date, as shown below. These amounts were frozen and their present value will be reflected in each succeeding valuation.





## Section VI – Prior Amortization Payments

The following table shows the present values of the remaining prior service amortization payments for each group in MERS:

Group	Present Value of Remaining Prior Service Amortization Payments
General Employees:	
With Social Security	\$ 4,664,572
Without Social Security	<u>586,977</u>
Subtotal	\$ 5,251,549
Police and Fire:	
With Social Security	\$ 1,743,146
Without Social Security	<u>4,311,817</u>
Subtotal	\$ 6,054,963
Total	\$ 11,306,512

There were no new entities joining MERS since the prior valuation/measurement date. Bridgeport Police and Fire settled the remaining present value of prior service in a one-time payment received on January 4, 2018.





## Section VII – Contributions Payable By Employer

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The actuarial funding method utilized beginning with the July 1, 1992 valuation is the Early Age Normal (EAN) method. Under EAN, a normal contribution rate is developed for each active member as a percent of payroll that would be sufficient, if paid from the age at which the member entered the System, to fully fund the member's benefits when due. The EAN normal contribution rate is calculated to remain level over the member's working lifetime and is the true future cost of the System. This normal rate is comprised of both employer and employee contributions. Pages 12 and 13 show the derivation of the required employer contribution rates for the General Employee and Police and Fire subgroups, respectively. In addition, the applicable rates for both employers and employees are shown. The contribution rates reflect the proposed legislation to increase the employee contribution rates by 0.50% of compensation each year for six years beginning July 1, 2019.

EAN requires separate treatment of actuarial gains and losses. These gains and losses are amortized over a closed 30-year period on a level dollar basis effective July 1, 2009. Changes in the unfunded actuarial accrued liability are highly dependent upon annually recognized investment gains and losses, which are smoothed into the Actuarial Value of Assets over a period of years. Using a smoothed asset value results in much more consistent contribution rates from year to year compared to the use of the System's market value of assets in determining required contributions.





## Section VII – Contributions Payable By Employer

The net unfunded actuarial accrued liability (UAAL) of the System is \$831.6 million as of June 30, 2018 and is to be amortized on a level dollar basis over 21 years.

The table below summarizes the 2019-2020 fiscal year required employer contribution rates.

Group	Employer Normal Cost Rate	Amortization of Unfunded Accrued Liability	Total Employer Contribution Rate*	Employer Contribution Rate for FYE 2020 Using Rate Smoothing*
General Employees:				
With Social Security	7.77%	11.95%	19.72%	13.73%
Without Social Security	7.70%	14.44%	22.14%	14.23%
Police and Fire:				
With Social Security	11.61%	12.00%	23.61%	19.45%
Without Social Security	11.47%	15.17%	26.64%	20.24%

\* Note that the Total Employer Contribution Rates shown in the table above do not include the annual prior service amortization payments required, if any.

Smoothing into the higher ultimate contribution requirements will result in additional future amortization costs. The forecast of future expected employer contributions rates are as follows:

	2018 Valuation Rates for FYE 2020	Expected Rates for FYE 2021	Expected Rates for FYE 2022	Expected Rates for FYE 2023	Expected Rates for FYE 2024	Expected Rates for FYE 2025
General Employees with Social Security	13.73%	15.24%	16.75%	18.26%	19.34%	18.85%
General Employees without Social Security	14.23%	16.25%	18.25%	20.26%	22.33%	21.84%
Police and Fire with Social Security	19.45%	20.95%	22.45%	22.90%	22.40%	21.90%
Police and Fire without Social Security	20.24%	21.84%	23.44%	25.04%	26.34%	25.84%







## Section VII – Contributions Payable By Employer

Development of Total Employer Contribution Rates

General Employees

Effective July 1, 2019

Contributions for	Contributions Expressed as a Percent of Payroll	
	Members with Social Security	Members without Social Security
Normal Cost:		
Service Retirement benefits	10.05%	12.34%
Disability benefits	0.02	0.01
Survivor benefits	<u>0.18</u>	<u>0.23</u>
Total	10.25%	12.58%
Member Contributions	2.75%	5.50%
Less future refunds	<u>(0.27)</u>	<u>(0.63)</u>
Available for benefits	2.48%	4.87%
Employer Normal Cost	7.77%	7.71%
21-Year Amortization of Unfunded Actuarial Accrued Liability (percentage of payroll under level dollar method)	11.95%	14.43%
Total Employer Contribution Rate*	19.72%	22.14%
Employer Contribution Rate for FYE 2020 Using Rate Smoothing*	13.73%	14.23%

\* Note that the Total Employer Contribution Rates shown in the table above do not include the annual prior service amortization payments required, if any.





## Section VII – Contributions Payable By Employer

Development of Total Employer Contribution Rates

Police and Fire

Effective July 1, 2019

Contributions for	Contributions Expressed as a Percent of Payroll	
	Members with Social Security	Members without Social Security
Normal Cost:		
Service Retirement benefits	12.40%	15.00%
Disability benefits	1.60	1.50
Survivor benefits	<u>0.28</u>	<u>0.35</u>
Total	14.28%	16.85%
Member Contributions	2.75%	5.50%
Less future refunds	<u>(0.08)</u>	<u>(0.12)</u>
Available for benefits	2.67%	5.38%
Employer Normal Cost	11.61%	11.47%
21-Year Amortization of Unfunded Actuarial Accrued Liability (percentage of payroll under level dollar method)	12.00%	15.17
Total Employer Contribution Rate*	23.61%	26.64%
Employer Contribution Rate for FYE 2020 Using Rate Smoothing*	19.45%	20.24%

\* Note that the Total Employer Contribution Rates shown in the table above do not include the annual prior service amortization payments required, if any.





## Section VIII – Accounting Information

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The information required under Government Accounting Standards Board (GASB) Statements No. 67 and 68 will be issued in a separate reports. The following information is provided for informational purposes only.

1. The following is a distribution of the number of employees by type of membership.

**NUMBER OF ACTIVE AND RETIRED MEMBERS  
AS OF JUNE 30, 2018**

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	7,448
Terminated employees entitled to benefits but not yet receiving benefits	
Vested	1,165
Non-vested	3,357
Active plan members	<u>10,096</u>
Total	22,066





## Section VIII – Accounting Information

2. Additional information as of July 1, 2018 follows.

### ASSUMPTIONS AND METHODS

Valuation date	7/1/2018
Actuarial cost method	Entry Age Normal
Amortization method	Level dollar, closed
Remaining amortization period	21 years
Asset valuation method	Smoothed market with 20% recognition of investment gains and losses
Actuarial assumptions:	
Investment rate return*	7.00%, net of investment related expenses
Projected salary increases*	3.50-10.00%
Cost-of-living adjustments	2.5% for those retiring on or after January 1, 2002; for retirements prior to January 1, 2002 2.5% up to age 65, 3.25% afterwards
Social Security Wage Base	3.00%
* Includes inflation at	2.50%

3. The actuarial accrued liability of the System as of July 1, 2018 is as follows:

### ACTUARIAL ACCRUED LIABILITY

Actuarial Accrued Liability:	
Actives	\$ 1,558,633,283
Retirees and beneficiaries currently receiving benefits	1,932,298,986
Terminated members not yet receiving benefits	
Vested	128,746,130
Non-vested	<u>3,022,350</u>
Total actuarial accrued liability	\$ 3,622,700,749
Actuarial Value of Assets	<u>2,779,601,460</u>
Unfunded Actuarial Accrued Liability	<u>\$ 843,099,289</u>





## Section IX – Experience

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Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is assumed that gains and losses will be in balance over a period of years, but sizable year to year fluctuations are common. Detail on the derivation of the experience gain (loss) for the year ended June 30, 2018 is shown below.

	<u>\$ millions</u>
(1) Unfunded actuarial accrued liability (UAAL) as of 6/30/2016	\$394.8
(2) Total Normal Cost for fiscal year 2016-2017	70.4
(3) Actual total contributions for fiscal year 2016-2017	99.1
(4) Interest accrual: $(1) \times .08 + [(2) - (3)] \times .0404$	<u>30.5</u>
(5) Expected UAAL as of 6/30/2017: $(1) + (2) - (3) + (4)$	\$396.6
(6) Total Normal Cost for fiscal year 2017-2018	82.3
(7) Actual total contributions for fiscal year 2017-2018	109.0
(8) Interest accrual: $(5) \times .08 + [(6) - (7)] \times .0404$	<u>30.6</u>
(9) Preliminary expected UAAL as of 6/30/2018: $(5) + (6) - (7) + (8)$	\$400.5
(10) UAAL of new entities as of 6/30/2018:	\$0.0
(11) Changes in assumptions	440.5
(12) Changes in plan provisions	<u>0.2</u>
(13) Expected UAAL as of 6/30/2018: $(9) + (10) + (11) + (12)$	\$841.2
(14) Actual UAAL as of 6/30/2018	\$843.1
(15) Gain/(loss) $(13) - (14)$	\$(1.9)
(16) Gain/(loss) as percent of actuarial accrued liabilities as of July 1, 2016 (\$2,840.3 million)	-0.1%





## Schedule A – Valuation Balance Sheet

The following valuation balance sheet shows the assets and liabilities of the retirement system as of the current valuation date of July 1, 2018 and, for comparison purposes, as of the immediately preceding valuation date of July 1, 2016. The items shown in the balance sheet are present values actuarially determined as of the relevant valuation date. The development of the actuarial value of assets is presented in Schedule B.

	June 30, 2018	June 30, 2016
<b>ASSETS</b>		
Current actuarial value of assets	\$ 2,779,601,460	\$ 2,445,484,582
Future member contributions	\$ 221,979,685	\$ 184,199,877
Prospective employer contributions:		
Normal contributions	\$ 494,542,850	\$ 448,553,847
Unfunded actuarial accrued liability contributions	<u>843,099,289</u>	<u>394,840,827</u>
Total prospective contributions	\$ 1,337,642,139	\$ 843,394,674
Total assets	\$ 4,339,223,284	\$ 3,473,079,133
<b>LIABILITIES</b>		
Present value of benefits payable on account of present retired members and beneficiaries	\$ 1,932,298,986	\$ 1,511,875,065
Present value of benefits payable on account of active members	\$ 2,275,155,818	\$ 1,878,842,227
Present value of benefits payable on account of inactive members for service rendered before the valuation date		
Vested	\$ 128,746,130	\$ 81,703,695
Non-vested	<u>3,022,350</u>	<u>658,146</u>
Total liabilities	\$ 4,339,223,284	\$ 3,473,079,133





## Schedule B – Development of Actuarial Value of Assets

	June 30, 2018	June 30, 2017	June 30, 2016
(1) Actuarial Value Beginning of Year*	\$2,568,537,836	\$2,445,484,582	\$2,330,421,317
(2) Market Value End of Year**	2,646,911,708	2,449,238,252	2,217,254,601
(3) Market Value Beginning of Year	2,449,238,252	2,162,082,507	2,208,131,038
(4) Cash Flow			
(a) Contributions**	204,415,980	114,899,294	130,960,111
(b) Disbursements	<u>(167,153,446)</u>	<u>(155,407,220)</u>	<u>(144,230,118)</u>
(c) Net: (4)(a) + (4)(b)	37,262,534	(40,507,926)	(13,270,007)
(5) Investment Income			
(a) Market Total: (2) – (3) – (4)(c)	160,410,922	327,663,671	22,393,570
(b) Assumed Rate	8.00%	8.00%	8.00%
(c) Amount for Immediate Recognition: [(1) x (5)(b)] + [(4)(c) less Receivable**] x (5)(b) x 0.5	206,973,528	193,386,076	185,390,767
(6) Expected Actuarial Value End of Year: (1) + (4)(c) less Receivable** + (5)(c)	\$2,812,773,898	\$2,598,362,732	\$2,502,542,077
(7) Phased-In Recognition of Investment Income			
(a) Difference between Market & Expected Actuarial Value: (2) – (6)	(165,862,190)	(149,124,480)	(285,287,476)
(b) 20% of Difference: 0.2 x (7)(a)	(33,172,438)	(29,824,896)	(57,057,495)
(8) Preliminary Actuarial Value End of Year: (6) + (7)(b)	2,779,601,460	2,568,537,836	2,445,484,582
(9) Final Actuarial Value End of Year Using 20% Corridor: Greater of [(8) and .8 x (2)], but no more than 1.2 x (2)	2,779,601,460	2,568,537,836	2,445,484,582
(10) Difference Between Market & Actuarial Value: (2) – (9)	\$(132,689,752)	\$(119,299,584)	\$(228,229,981)
(11) Rate of Return on Actuarial Value	6.72%	7.42%	6.09%

\* Before corridor constraints, if applicable.

\*\* Includes receivables of: \$15,809,350 at 6/30/2017.





## Schedule C – Summary of Receipts and Disbursements

(Market Value)

	YEAR ENDING		
	June 30, 2018	June 30, 2017	June 30, 2016
<u>Receipts for the Year</u>			
Contributions:			
Members	\$ 24,995,625	\$ 23,979,083	\$ 20,619,573
Municipal	<u>179,420,355</u>	<u>75,110,861</u>	<u>81,150,096</u>
Subtotal	\$ 204,415,980	\$ 99,089,944	\$ 118,156,647
Amount Receivable	0	15,809,350	12,803,464
Investment Earnings (net of expenses)	<u>149,739,952</u>	<u>272,491,577</u>	<u>22,393,570</u>
TOTAL	\$ 354,155,932	\$ 387,390,871	\$ 153,353,681
<u>Disbursements for the Year</u>			
Benefit Payments	\$ 165,548,132	\$ 154,179,090	\$ 142,839,735
Refunds to Members	<u>1,605,314</u>	<u>1,228,130</u>	<u>1,390,383</u>
TOTAL	\$ 167,153,446	\$ 155,407,220	\$ 144,230,118
<u>Excess of Receipts over Disbursements</u>	\$ 187,002,486	\$ 231,983,651	\$ 9,123,563
<u>Reconciliation of Asset Balances</u>			
Asset Balance as of the Beginning of Year	\$ 2,449,238,252	\$ 2,162,082,507	\$ 2,208,131,038
Excess of Receipts over Disbursements	<u>187,002,486</u>	<u>231,983,651</u>	<u>9,123,563</u>
Asset Balance as of the End of Year	\$ 2,646,911,708	\$ 2,449,238,252	\$ 2,217,254,601
Rate of Return	6.04%	12.40%	1.02%







## Schedule D – Outline of Actuarial Assumptions and Methods

Adopted or reaffirmed by the Commission for the June 30, 2018 and later valuations.

**VALUATION INTEREST RATE:** 7.00% per annum, compounded annually, net of expenses.

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

Service	Annual Rates of				
	Merit & Seniority			Increase Next Year	
	General Employees	Firemen & Policemen	Base (Economy)	General Employees	Firemen & Policemen
0	3.50%	7.00%	3.00%	6.50%	10.00%
5	2.40%	3.50%	3.00%	5.40%	6.50%
10	1.70%	1.90%	3.00%	4.70%	4.90%
15	1.35%	1.50%	3.00%	4.35%	4.50%
20	1.10%	1.38%	3.00%	4.10%	4.38%
25	0.85%	1.12%	3.00%	3.85%	4.12%
30	0.60%	0.70%	3.00%	3.60%	3.70%
35	0.50%	0.50%	3.00%	3.50%	3.50%
40	0.50%	0.50%	3.00%	3.50%	3.50%

**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.





## Schedule D – Outline of Actuarial Assumptions and Methods

**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				Non-Service Related Disability*	Death		Service Retirement
	Male		Female			Male	Female	
	0 – 4 years	5 – 24 years	0 – 4 years	5 – 24 years				
20	16.00%	12.00%	24.00%	18.00%	0.02%	0.05%	0.02%	
25	16.00	12.00	19.00	18.00	0.02	0.06	0.02	
30	12.50	10.00	16.00	12.00	0.02	0.06	0.03	
35	10.00	8.00	12.00	10.00	0.03	0.07	0.04	
40	9.50	5.75	10.00	8.00	0.04	0.09	0.05	
45	8.50	5.00	9.00	6.00	0.06	0.12	0.08	13.00%
50	8.50	4.50	9.00	4.50	0.09	0.21	0.14	13.00
55	6.50	0.00	8.00	0.00	0.40	0.35	0.21	7.50
60	6.50	0.00	8.00	0.00	1.00	0.56	0.31	9.50
65	6.00	0.00	8.00	0.00	1.60	0.95	0.44	18.00
70	6.00	0.00	8.00	0.00	2.50	1.50	0.71	18.00
75								100.00

### POLICEMEN AND FIREMEN

Age	Withdrawal and Vesting		Service Related Disability*	Death		Service Retirement
	0 – 4 years	5 – 24 years		Male	Female	
20	6.50%	5.00%	0.10%	0.06%	0.02%	
25	6.50	5.00	0.10	0.08	0.03	
30	5.75	4.00	0.10	0.08	0.03	
35	3.50	2.50	0.14	0.09	0.04	
40	3.50	2.00	0.22	0.10	0.06	
45	3.50	1.50	0.30	0.15	0.09	25.00%
50	3.50	0.00	0.64	0.25	0.14	15.00
55	3.50	0.00	2.40	0.41	0.24	13.00
60	3.50	0.00	4.80	0.67	0.34	15.00
65	0.00	0.00				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.





## Schedule D – Outline of Actuarial Assumptions and Methods

**DEATHS AFTER RETIREMENT:** The RP-2014 Combined Mortality Table adjusted to 2006 and projected to 2015 with Scale MP-2017 and projected to 2022 with Scale BB is used by General Employees for the period after retirement and for dependent beneficiaries. The RP-2014 Blue Collar Mortality Table adjusted to 2006 and projected to 2015 with Scale MP-2017 and projected to 2022 with Scale BB is used by Police and Fire for the period after retirement and for dependent beneficiaries. Representative values of the assumed annual rates of mortality are as follows:

Age	General Employees		Policemen and Firemen	
	Male	Female	Male	Female
40	0.085%	0.054%	0.101%	0.060%
45	0.124	0.083	0.148	0.092
50	0.541	0.398	0.568	0.406
55	0.710	0.472	0.745	0.505
60	0.922	0.604	0.987	0.657
65	1.238	0.835	1.370	0.908
70	1.789	1.302	1.996	1.405
75	2.841	2.155	3.149	2.316
80	4.720	3.623	5.174	3.862
85	8.058	6.323	8.632	6.650

For disabled retirees, the RP-2014 Disabled Retiree Mortality Table projected to 2020 by Scale BB is used.

**ASSET METHOD:** Actuarial Value, as developed in Schedule B. The actuarial value of assets recognizes 20% of any difference between actual and expected investment income (gain/loss) in the valuation year and 20% of any previous years' unrecognized investment gains/losses. In addition, the actuarial value of assets cannot be less than 80% or more than 120% of the market value of assets.

**VALUATION METHOD:** Entry Age Normal Cost method. See Schedule E for a brief description of this 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.





## Schedule E – Actuarial Cost Method

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The valuation is prepared on the projected benefit basis, which is used to determine the present value of each member's expected benefit payable at retirement, disability or death. The calculations are based on the member's age, years of service, sex, compensation, expected future salary increases, and an assumed future investment rate of return (currently 7.00%). The calculations consider the probability of a member's death or termination of employment prior to becoming eligible for a benefit and the probability of the member terminating with a service, disability, or survivor's benefit. The present value of the expected benefits payable to active members is added to the present value of the expected future payments to current benefit recipients to obtain the present value of all expected benefits payable to the present group of members and survivors.

The employer contributions required to support the benefits of MERS are determined following a level funding approach, and consist of a normal contribution and an unfunded actuarial accrued liability contribution.

The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made for pension benefits to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new member during the entire period of his anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his behalf.

The unfunded actuarial accrued liability is determined by subtracting the current assets and the present value of prospective employer normal contributions and member contributions from the present value of expected benefits to be paid from the MERS. The unfunded actuarial accrued liability contribution amortizes the balance of the unfunded actuarial accrued liability over a period of years from the valuation date.

Direct rate smoothing has been utilized to grade-in the impact of higher UAAL amortization rates attributable to the decrease in the assumed rate of investment return from 8.0% to 7.0%. Amortization rates are increased by at least 2% per year until the amortization rates required to fully amortize the UAAL within the remainder of the amortization period is achieved but not more than 5 years.





## Schedule F – Summary of Main Benefit and Contribution Provision

### 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. For 2018, the breakpoint is \$92,800.

### 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.  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.





## Schedule F – Summary of Main Benefit and Contribution Provision

### 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.

### 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.





## Schedule F – Summary of Main Benefit and Contribution Provision

### 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 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%.





## Schedule F – Summary of Main Benefit and Contribution Provision

### CONTRIBUTIONS

#### By Members

For members not covered by Social Security: 5.00% of compensation.

For members covered by the Social Security: 2.25% of compensation up to the Social Security taxable wage base plus 5.00% of compensation, if any, in excess of such base.

Beginning July 1, 2019, member contributions are increasing 0.50% of compensation each year for six years.

#### By Municipalities

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







## Schedule G – Detailed Tabulation of the Data

**Total Active Members as of June 30, 2018  
Tabulated by Attained Ages and Years of Service**

Age	Years of Service							Total	
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 30	30 & Up	No.	Payroll
Under 25	160	2	1					163	\$ 6,716,292
25 to 29	586	65	2					653	36,184,994
30 to 34	535	259	112					906	57,858,970
35 to 39	346	217	269	55	2			889	59,128,688
40 to 44	363	168	225	183	44			983	64,164,406
45 to 49	433	184	242	252	190	52	5	1,358	92,162,635
50 to 54	353	267	296	242	225	148	67	1,598	105,304,291
55 to 59	317	199	249	280	189	150	114	1,498	90,169,568
60 to 64	183	129	222	264	156	121	155	1,230	70,775,594
65 to 69	62	61	107	99	91	62	80	562	31,833,411
70 & Up	18	17	47	48	36	29	61	256	13,654,615
<b>Total</b>	<b>3,356</b>	<b>1,568</b>	<b>1,772</b>	<b>1,423</b>	<b>933</b>	<b>562</b>	<b>482</b>	<b>10,096</b>	<b>\$ 627,953,464</b>

Average Age: 48.5 years  
Average Service: 11.8 years

Average Pay: \$62,198





## Schedule G – Detailed Tabulation of the Data

**Active Members as of June 30, 2018  
General Employees with Social Security  
Tabulated by Attained Ages and Years of Service**

Age	Years of Service							Total	
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 30	30 & Up	No.	Payroll
Under 25	87	1						88	\$ 2,903,982
25 to 29	259	23	2					284	10,580,188
30 to 34	234	87	36					357	16,014,819
35 to 39	190	83	65	19	2			359	18,373,596
40 to 44	245	92	82	51	16			486	25,178,948
45 to 49	319	121	125	85	39	13		702	36,128,230
50 to 54	263	203	186	105	59	49	31	896	48,447,365
55 to 59	226	144	174	169	93	63	33	902	48,290,078
60 to 64	144	93	151	165	92	64	68	777	40,501,282
65 to 69	47	39	59	66	60	44	41	356	18,947,014
70 & Up	14	10	32	24	20	16	38	154	7,917,022
<b>Total</b>	<b>2,028</b>	<b>896</b>	<b>912</b>	<b>684</b>	<b>381</b>	<b>249</b>	<b>211</b>	<b>5,361</b>	<b>\$ 273,282,524</b>

Average Age: 50.2 years

Average Service: 10.7 years

Average Pay: \$50,976





## Schedule G – Detailed Tabulation of the Data

**Active Members as of June 30, 2018  
General Employees without Social Security  
Tabulated by Attained Ages and Years of Service**

Age	Years of Service							Total	
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 30	30 & Up	No.	Payroll
Under 25	36	1	1					38	\$ 1,244,155
25 to 29	119	9						128	5,333,110
30 to 34	133	51	23					207	9,387,748
35 to 39	94	65	72	20				251	12,843,238
40 to 44	83	43	55	48	11			240	12,287,038
45 to 49	84	47	54	58	43	9	4	299	16,651,670
50 to 54	62	46	73	79	67	25	13	365	21,277,326
55 to 59	78	48	62	91	65	34	29	407	22,630,706
60 to 64	38	34	62	91	52	33	44	354	19,774,147
65 to 69	14	22	48	33	27	14	23	181	10,172,576
70 & Up	3	7	15	24	16	12	20	97	5,208,278
<b>Total</b>	<b>744</b>	<b>373</b>	<b>465</b>	<b>444</b>	<b>281</b>	<b>127</b>	<b>133</b>	<b>2,567</b>	<b>\$ 136,809,992</b>

:  
Average Age: 49.8 years  
Average Service: 12.7 years  
Average Pay: \$53,296





## Schedule G – Detailed Tabulation of the Data

**Active Members as of June 30, 2018  
Police and Firemen with Social Security  
Tabulated by Attained Ages and Years of Service**

Age	Years of Service							Total	
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 30	30 & Up	No.	Payroll
Under 25	12							12	\$ 821,491
25 to 29	53	8						61	5,612,105
30 to 34	35	43	13					91	9,732,127
35 to 39	17	17	29	5				68	7,748,418
40 to 44	4	10	20	20	2			56	6,199,118
45 to 49	20	3	15	26	18	4		86	9,750,516
50 to 54	19	7	11	16	11	14	5	83	9,149,644
55 to 59	5	6	5	4	6	3	6	35	3,671,103
60 to 64	1	1	4	3	2		5	16	1,741,577
65 to 69						2	2	4	444,387
70 & Up	1							1	123,759
<b>Total</b>	<b>167</b>	<b>95</b>	<b>97</b>	<b>74</b>	<b>39</b>	<b>23</b>	<b>18</b>	<b>513</b>	<b>\$ 54,994,245</b>

Average Age: 41.7 years

Average Service: 11.1 years

Average Pay: \$107,201





## Schedule G – Detailed Tabulation of the Data

**Active Members as of June 30, 2018  
Police and Firemen without Social Security  
Tabulated by Attained Ages and Years of Service**

Age	Years of Service							Total	
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 30	30 & Up	No.	Payroll
Under 25	25							25	\$ 1,746,664
25 to 29	155	25						180	14,659,591
30 to 34	133	78	40					251	22,724,276
35 to 39	45	52	103	11				211	20,163,436
40 to 44	31	23	68	64	15			201	20,499,302
45 to 49	10	13	48	83	90	26	1	271	29,632,219
50 to 54	9	11	26	42	88	60	18	254	26,429,956
55 to 59	8	1	8	16	25	50	46	154	15,577,681
60 to 64		1	5	5	10	24	38	83	8,758,588
65 to 69	1				4	2	14	21	2,269,434
70 & Up						1	3	4	405,556
<b>Total</b>	<b>417</b>	<b>204</b>	<b>298</b>	<b>221</b>	<b>232</b>	<b>163</b>	<b>120</b>	<b>1,655</b>	<b>\$ 162,866,703</b>

Average Age: 43.1 years

Average Service: 14.1 years

Average Pay: \$98,409





## Schedule G – Detailed Tabulation of the Data

Retirants & Beneficiaries as of June 30, 2018

Tabulated by Year of Retirement

Year of Retirement	No.	Total Annual Benefits	Average Monthly Benefit
2018	7	\$ 310,742	\$ 3,699
2017	386	10,263,110	2,216
2016	502	12,373,662	2,054
2015	451	11,936,767	2,206
2014	390	10,970,829	2,344
2013	362	9,292,469	2,139
2012	431	9,649,088	1,866
2011	364	8,204,733	1,878
2010	250	5,449,533	1,817
2009	271	6,363,099	1,957
2008	241	5,631,480	1,947
2007	246	5,641,866	1,911
2006	286	6,694,729	1,951
2005	244	5,615,347	1,918
2004	217	4,875,347	1,872
2003	236	5,161,963	1,823
2002	250	5,550,483	1,850
2001	177	4,245,025	1,999
2000	194	4,564,745	1,961
1999	177	3,813,066	1,795
1998	157	3,345,284	1,776
1997	186	4,190,176	1,877
1996	147	3,303,530	1,873
1995	111	2,583,381	1,939
1994	112	2,261,244	1,682
1993	111	2,353,996	1,767
1992	112	2,346,814	1,746
1991	120	2,619,141	1,819
1990	162	3,076,519	1,583
1989	91	1,737,632	1,591
1988	78	1,464,621	1,565
1987	60	953,434	1,324
1986	50	690,714	1,151
1985	39	505,379	1,080
1984	32	455,504	1,186
1983	24	270,779	940
1982	32	269,335	701
1981 & Prior	142	1,253,584	736
<b>Total</b>	<b>7,448</b>	<b>\$ 170,289,150</b>	<b>\$ 1,905</b>





## Schedule G – Detailed Tabulation of the Data

### Schedule of Retired Members by Type of Benefit

Benefits Payable June 30, 2018

Amount of Monthly Benefits	Number of Rets.	Ret. Type 1*	Ret. Type 2*	Ret Type 3*	Life	Option 1**	Option 2**	Option 3**
\$1 – \$300	498	427	0	71	380	35	68	15
301 – 600	1,017	865	5	147	767	107	114	29
601 – 900	949	781	30	138	691	98	124	36
901 – 1,200	825	703	20	102	546	97	147	35
1,201 – 1,500	707	597	21	89	481	98	109	19
1,501 – 1,800	520	434	30	56	322	62	113	23
1,801 – 2,100	517	437	37	43	326	60	119	12
2,101 – 2,400	420	356	34	30	240	67	96	17
2,401 – 2,700	329	263	51	15	198	44	77	10
2,701 – 3,000	260	215	28	17	141	36	75	8
Over \$3,000	1,406	1,164	186	56	656	301	408	41
Totals	7,448	6,242	442	764	4,748	1,005	1,450	245

\* Type of Retirement

- 1 – Retirement for Age & Service
- 2 – Disability Retirement
- 3 – Survivor Payment

\*\*Option Selected

- Life – with return of contributions
- Opt. 1 – 100% Survivorship
- Opt. 2 – 50% Survivorship
- Opt. 3 – Years Certain & Life





## Schedule G – Detailed Tabulation of the Data

Total Retirants and Beneficiary Information June 30, 2018

Tabulated by Attained Age

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20					4	\$ 75,022	4	\$ 75,022
20-24					8	141,235	8	141,235
25-29					1	7,169	1	7,169
30-34			2	\$ 103,223	5	52,305	7	155,528
35-39			2	103,220	6	75,548	8	178,768
40-44	48	\$ 254,441	7	229,707	7	89,722	62	573,870
45-49	58	1,216,534	15	695,276	6	55,637	79	1,967,447
50-54	205	6,311,162	36	1,576,747	25	362,409	266	8,250,318
55-59	530	15,734,894	62	2,412,289	47	793,105	639	18,940,288
60-64	905	24,028,285	69	2,542,544	70	1,138,693	1,044	27,709,522
65-69	1,168	27,276,245	67	2,515,615	92	1,627,651	1,327	31,419,511
70-74	1,154	25,884,435	79	2,767,199	121	1,874,169	1,354	30,525,803
75-79	891	17,646,194	47	1,438,965	103	1,692,280	1,041	20,777,439
80-84	586	10,377,324	33	956,679	99	1,559,340	718	12,893,343
85-89	391	7,748,000	14	360,913	86	1,159,040	491	9,267,953
90-94	236	4,788,507	7	164,801	70	970,711	313	5,924,019
95-99	63	1,164,801	2	67,165	12	143,663	77	1,375,629
100 & Over	7	93,515			2	12,771	9	106,286
Totals	6,242	\$142,524,337	442	\$15,934,343	764	\$11,830,470	7,448	\$170,289,150

Average Age: 70.8 years







## Schedule G – Detailed Tabulation of the Data

Retirants and Beneficiary Information June 30, 2018

General Employees with Social Security

Tabulated by Attained Ages

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20								
20-24					2	\$ 31,223	2	\$ 31,223
25-29								
30-34					3	32,451	3	32,451
35-39					5	68,379	5	68,379
40-44	21	\$ 116,229	1	\$ 30,629	3	29,685	25	176,543
45-49	23	357,830	4	125,816	1	9,213	28	492,859
50-54	81	1,730,401	7	269,587	14	152,910	102	2,152,898
55-59	258	5,439,460	23	769,924	26	338,989	307	6,548,373
60-64	474	8,701,593	31	836,149	36	383,556	541	9,921,298
65-69	676	11,974,542	29	783,021	52	783,104	757	13,540,667
70-74	682	11,278,894	34	870,995	68	885,845	784	13,035,734
75-79	503	7,599,151	29	691,670	54	783,638	586	9,074,459
80-84	334	4,573,729	12	230,187	53	721,062	399	5,524,978
85-89	220	3,530,414	7	129,463	43	523,983	270	4,183,860
90-94	128	1,939,086	3	62,662	25	360,146	156	2,361,894
95-99	26	370,230	1	45,717	4	35,287	31	451,234
100 & Over	2	28,651					2	28,651
Totals	3,428	\$57,640,210	181	\$4,845,820	389	\$5,139,471	3,998	\$67,625,501

Average Age: 71.3 years





## Schedule G – Detailed Tabulation of the Data

Retirants and Beneficiary Information June 30, 2018

General Employees without Social Security

Tabulated by Attained Ages

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20								
20-24					3	\$ 37,881	3	\$ 37,881
25-29					1	7,169	1	7,169
30-34					2	19,854	2	19,854
35-39					1	7,169	1	7,169
40-44	17	\$ 58,730	2	\$ 57,390	3	52,374	22	168,494
45-49	13	89,311	2	44,426	4	41,126	19	174,863
50-54	56	1,013,889	7	124,601	8	142,209	71	1,280,699
55-59	153	3,595,665	18	503,658	16	176,859	187	4,276,182
60-64	292	7,275,726	13	365,468	24	410,289	329	8,051,483
65-69	390	9,677,011	7	225,824	33	634,785	430	10,537,620
70-74	368	8,910,926	19	547,600	42	680,389	429	10,138,915
75-79	329	7,434,586	11	354,729	39	692,999	379	8,482,314
80-84	220	4,408,191	13	381,876	40	737,385	273	5,527,452
85-89	160	3,797,926	4	118,004	37	541,917	201	4,457,847
90-94	100	2,547,974	4	102,139	37	416,518	141	3,066,631
95-99	37	794,571			7	102,888	44	897,459
100 & Over	5	64,864			1	4,523	6	69,387
Totals	2,140	\$49,669,370	100	\$2,825,715	298	\$4,706,334	2,538	\$57,201,419

Average Age: 72.2 years





## Schedule G – Detailed Tabulation of the Data

Retirants and Beneficiary Information June 30, 2018

Policeman and Firemen with Social Security

Tabulated by Attained Ages

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20								
20-24					1	\$ 7,605	1	\$ 7,605
25-29								
30-34			1	\$ 60,322			1	60,322
35-39								
40-44	1	\$ 5,093	2	68,249			3	73,342
45-49	6	213,330	4	258,402	1	5,298	11	477,030
50-54	19	795,452	6	382,979	1	18,594	26	1,197,025
55-59	36	1,961,724	5	288,092	2	127,496	43	2,377,312
60-64	52	2,469,312	8	361,223	3	122,386	63	2,952,921
65-69	36	1,585,277	11	475,028	5	131,719	52	2,192,024
70-74	36	1,838,145	10	446,720	7	172,656	53	2,457,521
75-79	29	1,129,044	2	61,298	3	69,974	34	1,260,316
80-84	12	342,558	1	38,033	1	6,610	14	387,201
85-89	5	101,509	2	57,444	3	52,556	10	211,509
90-94	2	68,918			2	34,084	4	103,002
95-99			1	21,448			1	21,448
100 & Over								
Totals	234	\$10,510,362	53	\$2,519,238	29	\$748,978	316	\$13,778,578

Average Age: 65.6 years





## Schedule G – Detailed Tabulation of the Data

Retirants and Beneficiary Information June 30, 2018

Policemen and Firemen without Social Security

Tabulated by Attained Ages

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20					4	\$ 75,022	4	\$ 75,022
20-24					2	64,526	2	64,526
25-29								
30-34			1	\$ 42,901			1	42,901
35-39			2	103,220			2	103,220
40-44	9	\$ 74,389	2	73,439	1	7,663	12	155,491
45-49	16	556,063	5	266,632			21	822,695
50-54	49	2,771,420	16	799,580	2	48,696	67	3,619,696
55-59	83	4,738,045	16	850,615	3	149,761	102	5,738,421
60-64	87	5,581,654	17	979,704	7	222,462	111	6,783,820
65-69	66	4,039,415	20	1,031,742	2	78,043	88	5,149,200
70-74	68	3,856,470	16	901,884	4	135,279	88	4,893,633
75-79	30	1,483,413	5	331,268	7	145,669	42	1,960,350
80-84	20	1,052,846	7	306,583	5	94,283	32	1,453,712
85-89	6	318,151	1	56,002	3	40,584	10	414,737
90-94	6	232,529			6	159,963	12	392,492
95-99					1	5,488	1	5,488
100 & Over					1	8,248	1	8,248
Totals	440	\$24,704,395	108	\$5,743,570	48	\$1,235,687	596	\$31,683,652

Average Age: 64.0 years

