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December 14, 2018

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 Judges, Family Support Magistrates, and Compensation Commissioners Retirement System (JFSMCCRS). The actuary makes periodic valuations of the contingent assets and liabilities of the Retirement System at the direction of the Commission. We have submitted the report giving the results of the actuarial valuation of the Retirement System prepared as of June 30, 2018.

The purpose of the report is to provide a summary of the funded status of JFSMCCRS as of June 30, 2018 and to recommend rates of actuarially determined contributions rates for the fiscal year ending June 30, 2020. The report indicates that annual employer contributions at the rate of 77.24% or compensation, or $27,010,989, for the fiscal year ending June 30, 2020 is sufficient to support the benefits of the System.

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 information needed for this System under the new Governmental Accounting Standards Board Statement No. 67 will be provided in a separate report. However, for informational purposes only, we have also provided accounting information under GASB 25 and 27 in Section VI of the report.

The System is funded on an actuarial reserve basis. The actuarial assumptions recommended by the actuary and adopted by the Commission are in the aggregate 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. The valuation method used is the entry age normal method. Gains and losses are reflected in the unfunded accrued liability which is being amortized as a level percent of payroll within a 13-year period. This period is based on the funding policy of JFSMCCRS that amortizes the unfunded accrued liability over a declining period of years, starting with 40 years as of July 1, 1991.

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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; 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.

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,

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

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

JJG/EJK/LD

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CONNECTICUT JUDGES, FAMILY SUPPORT MAGISTRATES, AND COMPENSATION COMMISSIONERS RETIREMENT SYSTEM REPORT OF THE ACTUARY ON THE VALUATION PREPARED AS OF JUNE 30, 2018

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
Active members:		
Number	209	204
Annual compensation	$34,969,766	$34,897,094
Retired members and beneficiaries:		
Number	284	250
Annual allowances	$27,631,115	$23,173,136
Deferred Vested Members:		
Number	3	3
Annual allowances	$156,487	$156,487
Assets:		
Market Value	$222,808,000	$188,796,362
Actuarial Value	$231,880,521	$209,860,326
Unfunded actuarial accrued liability	$211,206,242	$223,742,554
Amortization period (years)	13	15
Funded Ratio based on Actuarial Assets	52.3%	48.4%
Funded Ratio based on Market Value of Assets	50.3%	43.5%
For Fiscal Year Ending	**June 30, 2020**	**June 30, 2018**
Actuarially Determined Employer Contribution (ADEC):		
Normal	$8,034,013	$7,656,240
Accrued liability	18,976,976	17,801,670
Total	$27,010,989	$25,457,910
Actuarially Determined Employer Contribution Rates (ADEC):		
Normal	22.97%	21.94%
Accrued liability	54.27%	51.01%
Total	77.24%	72.95%

2. The results of the valuation are given in Schedule A.

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 VII and the rates of contribution payable by employers are given in Section V.

4. Schedule B of this report presents the development of the actuarial value of assets.

5. Schedule D details the actuarial assumptions and methods employed. Since the last valuation, the asset method has been changed to the same method as the Connecticut Municipal Employees Retirement System (MERS) using a smoothed market value with 20% recognition of investment gains and losses.

6. Schedule F gives a summary of the benefit and contribution provisions of the plan. There were no changes to the plan provisions since the last valuation.

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, which is the year ending June 30, 2014 for the Retirement System. GASB 67 replaces GASB 25 for plans and a 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.

Connecticut Judges, Family Support Magistrates, and Compensation Commissioners Retirement System

Comparative Schedule*

	Active Members				Retired Lives				Valuation Results ($ thousands)		
Valuation Date June 30	Number	Payroll ($ thousands)	Average Salary ($ thousands)	% increase from previous year	Number	Active/ Retired Ratio	Annual Benefits ($ thousands)	Benefits as % of Payroll	Accrued Liability	Valuation Assets	UAAL
2008	220	$33,982	$154.5	(0.2)%	225	0.978	$17,790	52.4%	$267,016	$191,719	$ 75,297
2010	212	31,602	149.1	(3.5)	230	0.922	19,031	60.2	276,848	179,740	97,108
2012	204	30,308	148.6	(0.3)	239	0.854	20,519	67.7	319,520	174,672	144,848
2014	212	33,386	157.5	6.0	250	0.848	22,506	67.4	343,868	190,150	153,718
2016	204	34,897	171.1	8.6	250	0.816	23,173	66.4	433,603	209,860	223,743
2018	209	34,970	167.3	(2.2)	284	0.736	27,631	79.0	443,087	231,881	211,206

*All amounts prior to 2010 reported by prior actuarial firm.

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 Averages			
Group	Number	Payroll	Salary	Age*	Benefit Service*	Eligibility Service*
Judges	186	$31,344,307	$168,518	58.5	9.3	19.4
Compensation Commissioners	16	$2,637,676	$164,855	56.1	9.1	18.6
Family Support Magistrates	7	$987,783	$141,112	62.1	8.7	17.4
Total	209	$34,969,766	$167,319	58.4	9.3	19.3

*Years

Of the 209 active members, 148 are vested and 61 are non-vested.

Retired Lives

			Group Averages	
Type of Benefit Payment	No.	Annual Benefits	Benefit	Age*
Retirement	198	$22,721,190	$114,753	75.8
Survivor	86	$4,909,925	$57,092	82.4
Total	284	$27,631,115	$97,293	77.8

*Years

This valuation also includes 3 deferred vested members with estimated annual benefits of $156,487.

SECTION III - ASSETS

1. As of June 30, 2018, the total market value of assets amounted to $222,808,000 as reported by the Comptroller's Office. The estimated investment return for the two plan years since the last valuation were 13.61% and 6.28%, respectively. 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.
2. The actuarial value of assets used for the current valuation was $231,880,521. The estimated investment return for the two plan years on an actuarial value of assets basis was 6.61% and 5.87%, respectively, which can be compared to the investment return assumed for those two years of 6.90%. Schedule B shows the development of the actuarial value of assets as of June 30, 2018.

SECTION IV – COMMENTS ON VALUATION

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 shows that the System has a total actuarial accrued liability of $443,086,763, of which $281,256,981 is for the benefits payable on account of present retired members, beneficiaries of deceased members, and inactive members entitled to deferred vested benefits, and $161,829,782 is for the benefits expected to be payable on account of present active members, based on service to the valuation date. Against these liabilities, the System has total present assets for valuation purposes of $231,880,521 as of June 30, 2018. When this amount is deducted from the actuarial accrued liability of $443,086,763, there remains $211,206,242 as the unfunded actuarial accrued liability.

3. The employer's contributions to the System consist of normal cost contributions and accrued liability contributions. The normal cost represents the ultimate cost of the benefits and the accrued liability contribution is an addition (reduction in case of a surplus) due to the amortization of the unfunded accrued liability. The valuation indicates that annual employer normal contributions at the rate of 22.97% of active members' compensation are required to provide the currently accruing benefits of the System.

4. Accrued liability contributions of 54.27% of member's compensation are required to be made to amortize the unfunded accrued liability within 13 years from the valuation date as a level percentage of projected payroll. See Schedule I of this report for a projection of the Unfunded Accrued Liability.

5. Therefore, the total actuarially determined employer contribution rate is 77.24% of member's compensation for the fiscal year ending June 30, 2020.

SECTION V – CONTRIBUTIONS PAYABLE BY EMPLOYER

The following table shows the amount and rate of contribution payable by the employer as determined from the present valuation for the 2019/2020 fiscal year.

Contribution for	Contribution Amount	Contribution Rate
Normal Cost:		
Service retirement benefits	$8,686,035	24.83%
Disability benefits	1,059,511	3.03
Survivor benefits	141,865	0.41
Total	$9,887,411	28.27%
Less Member Contributions:	$1,853,398	5.30%
Employer Normal Cost	$8,034,013	22.97%
Unfunded Actuarial Accrued Liabilities (13 year level percent of payroll amortization)	$18,976,976	54.27%
Total	$27,010,989	77.24%

The official contribution requirement for the fiscal year ending June 30, 2021 will be determined in the June 30, 2019 valuation. However, we have estimated the contribution requirement for the fiscal year ending June 30, 2021 using standard roll forward techniques from this valuation. These results assume a 6.90% investment return on actuarial value of assets and a 4.50% annual growth in the compensation of active members.

Contribution for	2020/2021	
	As % of Pay	$
Employer Normal Cost	22.97%	$8,395,544
Unfunded Actuarial Accrued Liabilities	55.08%	$20,126,567
Total	78.05%	$28,522,111

SECTION VI – ACCOUNTING INFORMATION

1. The information required under Governmental Accounting Standards Board (GASB) will be issued in separate reports. 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	284
Terminated employees entitled to benefits but not yet receiving benefits	3
Active plan members	209
Total	496

2. Another such item is the schedule of funding progress as shown below.

SCHEDULE OF FUNDING PROGRESS
(Dollar amounts in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) - PUC (b)	Unfunded AAL (UAAL) (b – a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b – a) / c)
6/30/2008	$191,719	$267,016	$ 75,297	71.8%	$33,982	221.6%
6/30/2010	179,740	276,848	97,108	64.9	31,602	307.3
6/30/2012	174,672	319,520	144,848	54.7	30,308	477.9
6/30/2014	190,150	343,868	153,718	55.3	33,386	460.4
6/30/2016	209,860	433,603	223,743	48.4	34,897	641.2
6/30/2018	231,881	443,087	211,206	52.3	34,970	604.0

All figures prior to 6/30/2010 were reported by the prior actuarial firm.

3. The following shows the schedule of employer contributions (all dollar amounts are in thousands).

Fiscal Year Ending June 30	Valuation Date Ending June 30	Annual Required Contribution	Actual Contribution	Percentage Contributed
2014	2012	$16,298,488	$16,298,488	100%
2015	2012	17,731,131	17,731,131	100%
2016	2014	18,258,707	18,258,707	100%
2017	2014	19,163,487	19,163,487	100%
2018	2016	25,457,910	25,457,910	100%
2019	2016	27,427,480	N/A	N/A
2020	2018	27,010,989	N/A	N/A

4. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2018. Additional information as of the latest actuarial valuation follows.

Valuation date	06/30/2018
Actuarial cost method	Entry Age Normal
Amortization method	Level percent of payroll, closed
Remaining amortization period	13 years
Asset valuation method	Smoothed market with 20% recognition of investment gains and losses
Actuarial assumptions:	
Investment rate of return	6.90%
Projected salary increases	4.50%
Cost-of-living adjustments	2.30% - 4.75%

SECTION VII – EXPERIENCE

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 two year period ended June 30, 2018 is shown below.

		$ Thousands
(1)	UAAL* as of June 30, 2016	223,742.6
(2)	Normal cost from 2016 valuation	9,505.8
(3)	Actual contributions during 2017 fiscal year	20,853.0
(4)	Interest accrual: [(1)+(2)] x .069 - [(3) x .0339]	15,387.2
(5)	Expected UAAL as of June 30, 2017: (1) + (2) – (3) + (4)	227,782.5
(6)	Normal cost for 2017 fiscal year	9,933.5
(7)	Actual contributions during 2018 fiscal year	27,121.0
(8)	Interest accrual: [(5)+(6)] x .069 - [(7) x .0339]	15,483.0
(9)	Expected UAAL as of June 30, 2018: (5) + (6) - (7) + (8)	226,078.1
(10)	Assumption Changes	1,074.0
(11)	Plan Changes	0.0
(12)	Expected UAAL as of June 30, 2018: (9) + (10) + (11)	227,152.1
(13)	Actual UAAL as of June 30, 2018	211,206.2
(14)	Gain/(loss): (12) – (13) (See Schedule H)	15,945.9
(15)	Gain/(loss) as percent of actuarial accrued liabilities as of June 30, 2016 ($433,602.9)	3.7%

*Unfunded actuarial accrued liability.

Valuation Date June 30	Actuarial Gain/(Loss) as a % of Beginning Accrued Liabilities
2016	1.3%
2018	3.7%

SCHEDULE A

RESULTS OF VALUATION

PREPARED AS OF JUNE 30, 2018

	JUNE 30, 2018
1. ACTUARIAL ACCRUED LIABILITY	
Present value of prospective benefits payable in respect of:	
(a) Present active members	
- Service retirement benefits	$158,193,500
- Disability retirement benefits	2,751,778
- Death and survivor benefits	884,504
- Total	$161,829,782
(b) Present inactive members and members entitled to deferred vested benefits:	$1,971,381
(c) Present annuitants and beneficiaries	$279,285,600
(d) Total actuarial accrued liability [1(a) + 1(b) + 1(c)]	$443,086,763
2. ACTUARIAL VALUE OF ASSETS	$231,880,521
3. UNFUNDED ACTUARIAL ACCRUED LIABILITY [1(d) – 2]	$211,206,242

SCHEDULE B

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

			June 30, 2018
(1)	Actuarial Value Beginning of Year*		$219,513,979
(2)	Market Value End of Year		222,808,000
(3)	Market Value Beginning of Year		210,125,000
(4)	Cash Flow		
	(a)	Contributions	27,121,000
	(b)	Disbursements	(27,616,000)
	(c)	Net: (4)(a) + (4)(b)	(495,000)
(5)	Investment Income		
	(a)	Market Total: (2) – (3) – (4)(c)	13,178,000
	(b)	Assumed Rate	6.90%
	(c)	Amount for Immediate Recognition: [(1) x (5)(b)] + [(4)(c) x (5)(b) x 0.490092]	15,129,672
(6)	Expected Actuarial Value at End of Year: (1) + (4)(c) + (5)(c)		234,148,651
(7)	Phased-In Recognition of Investment Income		
	(a)	Difference between Market & Expected Actuarial Value: (2) – (6)	(11,340,651)
	(b)	20% of Difference: 0.2 x (7)(a)	(2,268,130)
(8)	Preliminary Actuarial Value End of Year: (6) + (7)(b)		231,880,521
(9)	Final Actuarial Value End of Year Using 20% Corridor: Greater of [(7) and .8 x (2)], but no more than 1.2 x (2)		231,880,521
(10)	Difference Between Market & Actuarial Values: (2) – (9)		(9,072,521)
(11)	Rate of Return on Actuarial Value		5.87%

* Before corridor constraints, if applicable.

SCHEDULE C

SUMMARY OF RECEIPTS AND DISBURSEMENTS
(Market Value)

	YEAR ENDING	
Receipts for the Year	June 30, 2018 ($1,000's)	June 30, 2017 ($1,000's)
Contributions:		
Members	$ 1,663	$ 1,689
Employer	25,458	19,164
Subtotal	$ 27,121	$ 20,853
Investment Earnings	13,178	25,414
TOTAL	$ 40,299	$ 46,267
Disbursements for the Year		
Benefit Payments	$ 27,580	$ 24,899
Refunds to Members	36	39
Administrative Expenses	0	0
TOTAL	$ 27,616	$ 24,938
Excess of Receipts over Disbursements	$ 12,683	$ 21,329
Reconciliation of Asset Balances		
Asset Balance as of the Beginning of Year	$ 210,125	$ 188,796
Excess of Receipts over Disbursements	12,683	21,329
Asset Balance as of the End of Year	$ 222,808	$ 210,125
Rate of Return	6.28%	13.61%

SCHEDULE D

OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS

Adopted or reaffirmed by the Commission for the June 30, 2016 and later valuations.

VALUATION INTEREST RATE: 6.90% per annum, compounded annually, net of expenses.

SALARY INCREASES: 4.50% at all ages.

COST OF LIVING ADJUSTMENTS:

Group	Rate
Hired prior to January 1, 1981 and retired prior to October 2, 2011	4.50%
Hired on or after January 1, 1981 and retired prior to October 2, 2011	2.60%
Retired on or after October 2, 2011	2.30%
All surviving spouses of active or retired members	2.30%

PAYROLL GROWTH ASSUMPTION: 4.50% per annum.

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

WITHDRAWAL: None.

DISABILITY: 30% of 1975 Social Security Table

RETIREMENT: 50% are assumed to retire at later of age 65 and 10 years of service. The remaining actives are assumed to retire at age 70.

DEATHS AFTER RETIREMENT: The RP-2014 White Collar Mortality Table projected with Scale BB to 2020 at 100% for males and 95% 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	.043%	.031%	65	0.705%	0.579%
45	.067	.052	70	1.133	0.933
50	.272	.194	75	1.943	1.553
55	.384	.250	80	3.407	2.688
60	.501	.348	85	6.247	4.826

In our opinion, the projection of the mortality rates with Scale BB continues to provide a sufficient margin in the assumed rates of mortality to allow for additional improvement in mortality experience.

The RP-2014 Disability Retiree Mortality Table at 65% (males) and 85% (female) is used for the period after disability.

ASSET METHOD: Actuarial Value, as developed in Schedule B. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected value of assets, based on the assumed valuation rate of return. The amount recognized each year is 1/5 of the difference between market value and expected actuarial value. 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.

SCHEDULE E

ACTUARIAL COST METHOD

1. The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future (currently 6.90%), of each active member's expected benefit at retirement or death is determined, based on his age, service, sex and compensation. The calculations take into account the probability of a member's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his terminating with a service, disability or survivor's benefit. Future salary increases are also anticipated. The present value of the expected benefits payable on account of the active members is added to the present value of the expected future payments to retired members and beneficiaries and inactive members to obtain the present value of all expected benefits payable from the System on account of the present group of members and beneficiaries.
2. The employer contributions required to support the benefits of the System are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.
3. The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made 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.
4. The unfunded accrued liability is determined by subtracting the present value of prospective employer normal contributions and member contributions, together with the current actuarial value of assets held, from the present value of expected benefits to be paid from the System.

SCHEDULE F

SUMMARY OF MAIN SYSTEM PROVISIONS AS INTERPRETED FOR VALUATION PURPOSES

The Connecticut Judges, Family Support Magistrates, and Compensation Commissioners Retirement System (CT JFSMCCRS) is a defined benefit pension plan established by the Connecticut General Assembly for the purpose of providing retirement allowances and other benefits for Judges, Family Support Magistrates, and Compensation Commissioners in Connecticut, and their survivors and other beneficiaries.

Eligibility Requirements

Any appointed Judge, Family Support Magistrate, or Compensation Commissioner of the State of Connecticut.

Final Average Compensation

For members hired prior to July 1, 2011, salary of office;
For members hired on or after July 1, 2011, Average annual salary for 5 years preceding retirement;

plus longevity payments based on service as follows:

Completed Years of Service	Annual Longevity as % of Compensation
0-9	0.0%
10-14	1.5%
15-19	3.0%
20-24	4.5%
25 or more	6.0%

Normal Retirement Benefit

Eligibility

For those who retire before July 1, 2022, the earliest of age 65 or 20 years of service or 30 years of total state service with at least 10 years as a Judge, Family Support Magistrate or Compensation Commissioner.

For those who retire on or after July 1, 2022, the earliest of age 65 with 10 years of vesting service, age 63 with 25 years of vesting service, or 30 years of vesting service.

Retirement is mandatory at age 70.

Benefit

66.67% of Final Average Compensation reduced for less than 10 years of service by a ratio of the number of years of completed service to the number of years of service which would have been completed at age 70, or 10 years, whichever is less.

Disability Retirement Benefit

Any member becoming permanently disabled is entitled to 66.67% of Final Average Compensation commencing upon determination of disability.

Death Benefit

The spouse of any member who was hired before January 1, 1981 and dies in active service or after retirement is entitled to 33.33% of the final compensation of the member at time of death commencing the first of the month after death.

The spouse of any member who was hired on or after January 1, 1981 and dies in active service is entitled to 33.33% of the final compensation of the member at time of death commencing the first of the month after death.

The spouse of any member who was hired on or after January 1, 1981 and who dies after retirement is entitled to 50% of the monthly benefit of the member at the time of death.

The spouse of any member who dies after leaving active service and before retirement is entitled to 50% of the benefit the member would have received upon retirement commencing when the member would have been eligible.

Deferred Vested Retirement Benefit

Eligibility

10 years of service.

Benefit

Members hired before 1981 who resign on or before October 1, 2011 – 50% of the retirement benefit at 10 years increasing to 100% after 15 years.

Members hired before 1981 who resign on or after October 2, 2011 – *100*% of the retirement benefit multiplied by the ratio of service at termination to projected service at the earliest retirement age (the earlier of age 65 or 20 years of service).

Members hired on or after January 1, 1981 – 100% of the retirement benefit multiplied by the ratio of service at termination to projected service at the earliest retirement age (the earlier of age 65 or 20 years of service).

Commencement

For members who resign on or before October 1, 2011 - Benefits shall commence upon the attainment of the earlier of age 65 or the attainment of 20 years of service (assuming the member had remained in service).

For members hired before 1981 who resign on or after October 2, 2011 – Benefits shall commence no earlier than at age 62.

For members hired on or after January 1, 1981 who resign on or after October 2, 2011 – Benefits shall commence no earlier than at age 65.

Cost of Living Adjustments

For members hired prior to 1981 and retire prior to October 2, 2011, benefits are increased in line with current compensation of an active member in the same position.

For members hired on or after January 1, 1981 and retire prior to October 2, 2011, benefits are increased in line with a cost of living index, not to exceed 3% per year.

For members retiring on or after October 2, 2011 and all surviving spouses, the annual adjustment will be 60% of the increase in CPI up to 6% and 75% of the increase in the CPI over 6%. The minimum COLA shall be 2.0% and the maximum COLA shall be 7.5%.

Member Contributions

Members contribute 5% of annual compensation. Upon withdrawal prior to benefit eligibility, contributions are refunded without interest.

SCHEDULE G

TABLES OF MEMBERSHIP DATA

STATUS RECONCILIATION OF ACTIVE AND INACTIVE MEMBERS

	Actives	Retirees	Disabled	Beneficiaries	Vested Terms	Total
1. Headcounts as of June 30, 2016	204	162	0	88	3	457
2. Change in status during two year period:						
a. Death		(9)		(8)		(17)
b. Disabled						
d. Retired	(45)	45				
e. Terminated Vested						
f. Terminated Not Vested						
g. Benefits Expired/Refund						
3. New member due to:						
a. New Hires	50					50
b. Rehires						
c. Death of Participant				6		6
d. Adjustments						
4. Headcounts as of June 30, 2018	209	198	0	86	3	496

<u>**SCHEDULE G**</u>
(Continued)

The Number and Average Annual Compensation of Active Employees
By Age and Benefit Service as of June 30, 2018

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									$ 0
25 to 29									0
30 to 34									0
35 to 39	6							6	956,156
40 to 44	2		1	1				4	645,900
45 to 49	10	7						17	2,816,774
50 to 54	13	7	5	1	2			28	4,636,741
55 to 59	15	14	9	7	1			46	7,787,161
60 to 64	16	8	15	13	2	1		55	9,155,413
65 to 69	6	13	4	6	10	9		48	8,152,454
70 & Up	1	2			2			5	819,167
Total	69	51	34	28	17	10	0	209	$ 34,968,766

Average Age: 58.4
Average Benefit Service: 9.3
Average Eligibility Service: 19.3

SCHEDULE G
(Continued)

NUMBER OF RETIRED MEMBERS AND THEIR BENEFITS BY AGE

Age	Number	Total Annual Benefits	Average Annual Benefits
Under 60	4	$ 455,472	$ 113,868
60 – 64	9	908,960	100,996
65 – 69	38	4,109,846	108,154
70 – 74	49	5,671,944	115,754
75 – 79	39	4,584,506	117,551
80 – 84	30	3,574,828	119,161
85 – 89	20	2,431,714	121,586
90 & Over	9	983,920	109,324
Total	198	$ 22,721,190	$ 114,753

NUMBER OF BENEFICIARIES AND THEIR BENEFITS BY AGE

Age	Number	Total Annual Benefits	Average Annual Benefits
Under 60	0	$ 0	$ 0
60 – 64	0	0	0
65 – 69	8	467,486	58,435
70 – 74	10	558,510	55,851
75 – 79	14	810,682	57,906
80 – 84	19	1,065,301	56,068
85 – 89	17	961,937	56,585
90 & Over	18	1,046,012	58,112
Total	86	$ 4,909,925	$ 57,092

In addition, there are 3 deferred vested employees entitled to deferred annual benefits totaling $156,487.

SCHEDULE H

ANALYSIS OF FINANCIAL EXPERIENCE

Gains & Losses in Accrued Liabilities
Resulting from Difference Between
Assumed Experience & Actual Experience
($ Thousands)

Type of Activity	$ Gain (or Loss) For Two Year Period Ending 6/30/2018
Age & Service Retirements. If members retire at older ages, there is a gain. If younger ages, a loss.	$ 5,441.5
Disability Retirements. If disability claims are less than assumed, there is a gain. If more claims, a loss.	1,174.5
Death-in Service Benefits. If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	(362.1)
Withdrawal From Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	3,337.8
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	14,986.9
New Members. Additional unfunded accrued liability will produce a loss.	(7,291.2)
Investment Income. If there is a greater investment income than assumed, there is a gain. If less income, a loss.	(2,871.3)
Death After Retirement. If retirants live longer than assumed, there is a loss. If not as long, a gain.	(1,693.0)
Other. Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc.	3,222.6
Gain (or Loss) During Year From Financial Experience	$ 15,945.9
Non-Recurring Items. Adjustments for plan amendments, assumption changes, or method changes.	(1,074.0)
Composite Gain (or Loss) During Year	$ 14,871.9

SCHEDULE I

PROJECTION OF UNFUNDED ACCRUED LIABILITY

Valuation Year	Unfunded Accrued Liability	Amortization Period	Amortization Payment
2018	211,206,242	13	18,976,976
2019	205,948,533	12	19,830,940
2020	199,435,649	11	20,723,332
2021	191,540,827	10	21,655,882
2022	182,126,747	9	22,630,397
2023	171,044,728	8	23,648,765
2024	158,133,855	7	24,712,959
2025	143,220,049	6	25,825,042
2026	126,115,063	5	26,987,169
2027	106,615,411	4	28,201,592
2028	84,501,211	3	29,470,664
2029	59,534,951	2	30,796,844
2030	31,460,161	1	32,182,702
2031	0		