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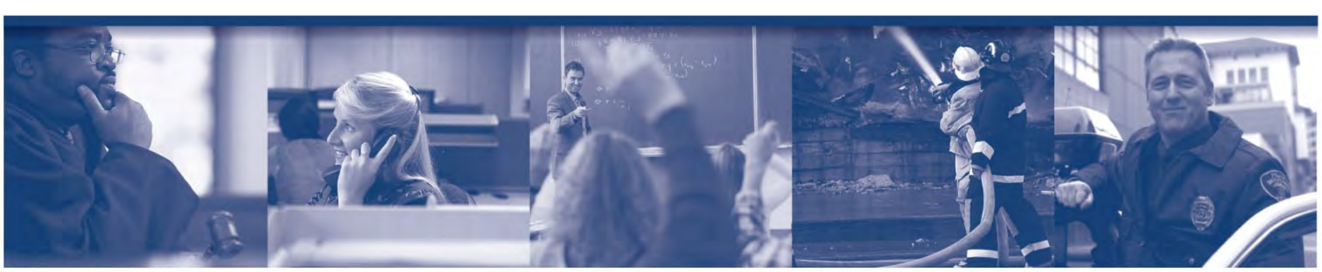
CONNECTICUT STATE EMPLOYEES RETIREMENT SYSTEM

REPORT OF THE ACTUARY ON THE VALUATION PREPARED AS OF JUNE 30, 2021



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January 5, 2022

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 State Employees Retirement System (SERS). 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, 2021.

The purpose of the report is to provide a summary of the funded status of SERS as of June 30, 2021 and to recommend an actuarially determined contribution rate for the fiscal year ending June 20, 2023. The report indicates that an annual actuarially determined employer contribution of approximately $2.143 billion (at the rate of 55.71% of compensation) for the fiscal year ending June 30, 2023 is sufficient to support the benefits of the System.

Since the previous valuation, the actuarial assumptions and methods have been changed to reflect the latest experience investigation for the five-year period ending June 30, 2020. A summary of these changes are provided on page 2 and full actuarial assumptions and methods are provided in Schedule D of this report.

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 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 System is that contribution amounts will be sufficient to fully fund the liabilities of System over a reasonable funding period. The funding method determines the unfunded actuarial accrued liability (UAAL) as the excess of actuarial accrued liability over the actuarial value of assets. The UAAL is allocated as follows:

Portion of UAAL	Year Established	Remaining Amortization Period
Statutory Base*	1984	25 years
Transitional Base	2016	25 years
2018 Base	2018	22 years
2019 Base	2019	23 years
2020 Base	2020	24 years
2021 Base	2021	25 years

*Legislation enacted changed the amortization period for the Statutory Base to the same as the Transitional Base effective 7/1/2018.

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com
Offices in Kennesaw, GA • Bellevue, NE

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.

In order to prepare the results in this report, we have utilized appropriate actuarial models that were developed for this purpose. These models use assumptions about future contingent events along with recognized actuarial approaches to develop the needed results.

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.

We note that as we are preparing this report, the world remains in the midst of a pandemic. We have considered available information, but do not believe that there is yet sufficient data to warrant additional modification of any of our assumptions.

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
Chief Executive Officer

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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, 2021	June 30, 2020
Number of active members	48,014	47,662
Annual compensation	$ 3,847,145,828	$ 3,672,442,740
Retired members and beneficiaries:		
Number	53,699	52,498
Annual allowances	$ 2,280,127,039	$ 2,158,277,040
Deferred Vested Members:		
Number	2,086	2,437
Annual allowances	$ 24,073,132	$ 29,028,666
Assets:		
Market Value*	$ 17,062,998,717	$ 13,311,109,931
Actuarial Value*	$ 15,946,862,583	$ 14,242,897,393
Unfunded actuarial accrued liability	$ 22,397,581,788	$ 22,728,238,640
Funded Ratio based on Actuarial Assets	41.6%	38.5%
Funded Ratio based on Market Assets	44.5%	36.0%
For Fiscal Year Ending	**June 30, 2023**	**June 30, 2022**
Actuarially Determined Employer Contribution (ADEC):		
Normal	$ 232,467,082	$ 212,497,009
Accrued liability	1,910,858,195	1,780,653,912
Total	$ 2,143,325,277	$ 1,993,150,921
Actuarially Determined Employer Contribution (ADEC) Rate:		
Normal	6.04%	5.79%
Accrued liability	49.67%	48.49%
Total	55.71%	54.28%

* The June 30, 2021 amounts include the transfer of $697,023,153 made subsequent to June 30, 2021.
The June 30, 2020 amounts include the transfer of $61,621,659 made subsequent to June 30, 2020.

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. We have included an adjustment to both the market and actuarial value of assets to reflect the General Fund surplus transfer of $697,023,153 completed subsequent to June 30, 2021.
5. Schedule D details the actuarial assumptions and methods employed. Since the previous valuation, various economic and demographic assumptions were revised to reflect the results of the latest Experience Investigation for the five-year period ending June 30, 2020. The valuation liabilities fully reflect the impact of all assumption changes. The assumption changes adopted by the Commission on September 16, 2021, are summarized below:
    - Wage Inflation assumed rated changed from 3.50% to 3.00%,
    - Assumed Salary Scale changed to reflect experience in above wage inflation rates of increase,
    - Assumed rates of mortality have been revised to the Pub-2010 Above Median Mortality Tables (Amount-weighted) projected generationally with the MP-2020 improvement scale, and
    - Assumed rates of withdrawal, disability, and retirement have been adjusted to reflect experience more closely.
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. GASB 67 replaced 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 of 41.6% 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 pertinent census and valuation result figures.

Comparative Schedule

Valuation Date June 30	Active Members				Retired Lives				Valuation Results ($ thousands)		
	Number	Payroll ($ 000)	Average Salary	% increase from previous valuation	Number	Active/ Retired Ratio	Annual Benefits ($ 000)	Benefits as % of Payroll	Accrued Liability	Valuation Assets	UAAL
2012	47,868	$3,354,682	$70,082	4.3%	43,887	1.09	$1,424,477	42.5%	$23,018,752	$9,744,986	$13,273,766
2014	49,976	3,487,577	69,785	(0.4)	45,803	1.09	1,576,606	45.2	25,505,610	10,584,795	14,920,815
2016	50,019	3,720,751	74,387	6.6	48,191	1.04	1,745,785	46.9	32,310,335	11,922,966	20,387,369
2018	49,153	3,428,068	69,743	(6.2)	50,441	0.97	1,931,098	56.3	34,214,163	12,990,400	21,223,763
2019	49,429	3,686,365	74,579	6.9	51,745	0.96	2,051,605	55.7	36,087,938	13,795,389	22,292,549
2020	47,662	3,672,443	77,052	3.3	52,498	0.91	2,158,277	58.8	36,971,136	14,242,897	22,728,239
2021	48,014	3,847,146	80,126	4.0	53,699	0.89	2,280,127	59.3	38,344,444	15,946,862	22,397,582

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, 2021 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***	**Service***
Tier I – Hazardous	0	$ 0	$ 0	0.0	0.0
Tier I – Plan B	258	28,583,202	110,788	65.6	38.7
Tier I – Plan C	9	963,523	107,058	66.7	38.2
Tier II – Hazardous	336	39,269,658	116,874	54.5	25.6
Tier II – Hybrid Plan	380	49,777,944	130,995	61.0	27.4
Tier II – Others	7,492	739,209,622	98,667	57.5	28.6
Tier IIA – Hazardous	4,222	418,831,278	99,202	47.0	16.2
Tier IIA – Hybrid Plan	871	97,584,887	112,038	54.9	17.1
Tier IIA – Others	13,531	1,142,283,162	84,420	51.4	16.5
Tier III – Hazardous	2,297	177,792,029	77,402	39.2	7.8
Tier III – Hybrid Plan	626	50,175,967	80,153	45.5	6.9
Tier III – Others	7,244	508,850,283	70,244	44.3	7.5
Tier IV – Hazardous	1,931	119,298,172	61,781	34.3	2.1
Tier IV – Hybrid Plan	1,007	54,178,272	53,802	40.4	1.8
Tier IV – Others	7,810	420,347,829	53,822	38.2	2.0
Total	48,014	$3,847,145,828	$ 80,126	47.4	13.5

*Years

Of the 48,014 active members, 27,875 are vested and 20,139 are non-vested.

Section II – Membership

Retired Lives

Type of Benefit Payment	No.	Annual Benefits	Group Averages Benefit	Age*
Retired – Pre 1980	412	$ 9,058,786	$ 21,987	91.7
Retired – 1980 - 1997	8,527	335,908,862	39,394	83.8
Retired – 1997 - 2011	24,221	1,105,535,056	45,644	72.3
Retired – 2011+	20,539	829,624,335	40,393	63.8
Total	53,699	$ 2,280,127,039	$ 42,461	71.0

*Years

Valuation also includes 2,086 deferred vested members with estimated annual benefits of $24,073,132.

Section III – Assets

1. As of June 30, 2021, the total market value of assets amounted to $17,062,998,717 as reported by the Comptroller's Office. The estimated investment return for the plan year since the last valuation was 24.39%. Subsequent to June 30, 2021, the State deposited two General fund surplus transfers totaling $714,633,947 and are treated as receivable amounts for the plan year ($238,799,812 on 9/27/2021 and $475,864,135 on 12/9/2021). For valuation purposes, we discounted these amounts using the 6.90% expected return on assets to the valuation date which results in an increase in the plan's assets of $697,023,153 as of June 30, 2021. The June 30, 2021 market value of assets is $17,062,998,717 including this transfer. Schedule C shows receipts and disbursements of the System for the year 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 using a smoothed method was $15,946,862,583 (as adjusted for the subsequent transfer). The estimated investment return for the plan year on an actuarial value of assets basis was 8.66%, which can be compared to the investment return assumed over the period of 6.90%. Schedule B shows the development of the actuarial value of assets as of June 30, 2021.

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, 2021. 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 $38,344,444,371, of which $28,421,074,848 is for the benefits payable on account of present retired members, beneficiaries of deceased members, and inactive members entitled to deferred vested benefits, and $9,923,369,523 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 $15,946,862,583 as of June 30, 2021. When this amount is deducted from the actuarial accrued liability of $38,344,444,371, there remains $22,397,581,788 as the unfunded actuarial accrued liability (UAAL).

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 cost contributions at the rate of 6.04% of active members' compensation are required to provide the currently accruing benefits of the System.

4. The following table provides the components of the total UAAL, and the derivation of the amortization amounts required in accordance with the Memorandum of Understanding (MOU) between the State and SEBAC effective December 8, 2016.

Total UAAL Amortization Schedule
($ thousands)

	Initial UAAL	Remaining UAAL	Remaining Amortization Period (years)	Amortization Payment*
Statutory Base (1984 UAAL)	$ 4,138,969	$ 3,927,655	25	$ 334,003
2016 Base	16,248,400	16,511,214	25	1,404,096
2018 Base	570,349	558,209	22	50,048
2019 Base	1,014,250	995,626	23	87,573
2020 Base	516,320	510,665	24	44,134
2021 Base	(105,787)	(105,787)	25	(8,996)
Total UAAL		$22,397,582		$ 1,910,858
Annual Valuation Payroll				$ 3,847,146
UAAL Amortization Rate				49.67%

* Amortization payment method has fully phased into level dollar amortization as of this valuation.

5. We have determined that a contribution of 49.67% of payroll is required to amortize the unfunded actuarial accrued liability of $22,397,581,788 over the scheduled amortization periods in accordance with the MOU.

6. Schedule J of this report shows the amortization schedule for the total UAAL.

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 2022/2023 fiscal year.

Contribution for	Contribution Amount	Contribution Rate
A. Normal Cost:		
Service retirement benefits	$ 387,898,624	10.08%
Disability benefits	15,450,665	0.40%
Survivor benefits	3,045,751	0.08%
Total Normal Cost	$ 406,395,040	10.56%
B. Less Member Contributions	(173,927,958)	(4.52)%
C. Employer Normal Cost	$ 232,467,082	6.04%
D. Unfunded Actuarial Accrued Liabilities (24.8 year weighted average amortization period)	$1,910,858,195	49.67%
E. Total (C. + D.)	$2,143,325,277	55.71%

Section V – Contributions Payable By Employer

The following table shows a breakdown by group of the normal cost amount and rate payable by the employer as determined from the present valuation for the 2022/2023 fiscal year.

Group	Employer Normal Cost	Employer Normal Cost Rate
Tier I – Hazardous	$ 0	0.00%
Tier I – Plan B	2,086,968	7.30
Tier I – Plan C	57,041	5.92
Tier II – Hazardous	6,932,375	17.65
Tier II – Hybrid Plan	2,615,852	5.26
Tier II – Others	42,439,119	5.74
Tier IIA – Hazardous	64,101,740	15.30
Tier IIA – Hybrid Plan	3,143,607	3.22
Tier IIA – Others	56,775,498	4.97
Tier III – Hazardous	19,951,545	11.22
Tier III – Hybrid Plan	465,546	0.93
Tier III – Others	16,957,840	3.33
Tier IV – Hazardous	8,484,927	7.11
Tier IV – Hybrid Plan	0	0.00
Tier IV – Others	8,455,024	2.01
Total	$ 232,467,082	6.04%

Section V – Contributions Payable By Employer

The official contribution requirement for the fiscal year ending June 30, 2024 will be determined in the June 30, 2022 valuation. However, we have estimated the contribution requirement for the fiscal year ending June 30, 2024 using standard roll forward techniques from this valuation. These results assume the market value of assets will earn 6.90% and the active member population will remain static.

Projected Contributions Required for Fiscal Year Ending June 30, 2024	Roll Forward of June 30, 2021 Valuation	
	As % of Pay	$
Employer Normal Cost	6.04%	$ 239,479,000
Unfunded Actuarial Accrued Liabilities	48.22%	1,910,858,000
Total	54.26%	$ 2,150,337,000

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, 2021

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	53,699
Terminated employees entitled to benefits but not yet receiving benefits	2,086
Active plan members	48,014
Total	103,799

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) EAN (b)	Unfunded AAL (UAAL) (b – a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b – a) / c)
6/30/2014	$10,584,795	$25,505,610	$14,920,815	41.5%	$3,487,577	427.8%
6/30/2016#	11,922,966	32,310,335	20,387,369	36.9	3,720,751	547.9
6/30/2018	12,990,400	34,214,163	21,223,763	38.0	3,428,068	619.1
6/30/2019	13,795,389	36,087,938	22,292,549	38.2	3,686,365	604.7
6/30/2020	14,242,897	36,971,136	22,728,239	38.5	3,672,443	618.9
6/30/2021	15,946,862	38,344,444	22,397,582	41.6	3,847,146	582.2

Reflects change in discount rate.

Section VI – Accounting Information

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	Actuarially Determined Contribution	Actual Contribution	Percentage Contributed
2015	2012	$ 1,379,189	$ 1,371,651	99.5%
2016	2014	1,514,467	1,501,805	99.2%
2017	2014	1,569,142	1,542,298	98.3%
2018	2016	1,443,110	1,444,053	100.1%
2019	2016	1,574,537	1,578,323	100.2%
2020	2018	1,616,312	1,616,312	100.0%
2021	2019	1,806,708	1,848,524	102.3%
2022	2020	1,993,151	N/A	N/A
2023	2021	2,143,325	N/A	N/A

4. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2021. Additional information as of the latest actuarial valuation follows.

Valuation date	6/30/2021
Actuarial cost method	Entry Age Normal
Amortization method	Level dollar, closed
Weighted amortization period	24.8 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*	3.00% - 11.50%
Cost-of-living adjustments	2.25% - 3.25%
Social Security Wage Base	3.50%
*Includes wage inflation at	3.00%

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 period ended June 30, 2021 is shown below. Schedule H provides detailed gain/(loss) by source.

		$ Millions
(1)	UAAL* as of June 30, 2020	$ 22,728.2
(2)	Total Normal cost for 2021 fiscal year	371.0
(3)	Actual Employer and Employee contributions	1,981.7
(4)	Interest accrual: [[(1) + (2)] x .069] - [(3) x .0345]	1,525.5
(5)	Expected UAAL as of June 30, 2021: (1) + (2) - (3) + (4)	$ 22,643.0
(6)	Assumption/Method Changes	(48.2)
(7)	Expected UAAL as of June 30, 2021: (5) + (6)	$ 22,594.8
(8)	Actual UAAL as of June 30, 2021	$ 22,397.6
(9)	Gain/(loss): (7) – (8) (See Schedule H)	$ 197.2
(10)	Gain/(loss) as percent of actuarial accrued liabilities at June 30, 2020 ($36,971.1)	0.5%

*Unfunded actuarial accrued liability.

Valuation Date June 30	Actuarial Gain/(Loss) as a % of Beginning Accrued Liabilities
2019	(3.9)%
2020	(1.1)%
2021	0.5%

Section VIII – Risk Assessment

Overview

Actuarial Standards of Practice (ASOP) No. 51, issued by the Actuarial Standards Board, provides guidance on assessing and disclosing risks related to pension plan funding. This guidance is binding on all credentialed actuaries practicing in the United States. This standard was issued as final in September 2017 with application to measurement dates on or after November 1, 2018.

The term “risk” frequently has a negative connotation, but from an actuarial perspective, it may be thought of as simply the fact that what actually happens in the real world will not always match what was expected, based on actuarial assumptions. Of course, when actual experience is better than expected, the favorable risk is easily absorbed. The risk of unfavorable experience will likely be unpleasant, and so there is an understandable focus on aspects of risk that are negative.

Risk usually can be reduced or eliminated at some cost. Consumers, for example, buy auto and home insurance to reduce the risk of accidents or catastrophes. Another way to express this concept, however, is that there is generally some reward for assuming risk. Thus, retirement plans invest not just in US Treasury bonds which have almost no risk, but also in equities which are considerably riskier – because they have an expected reward of a higher return that justifies the risk.

Under ASOP 51, the actuary is called on to identify the significant risks to the pension plan and provide information to help those sponsoring and administering the plan understand the implications of these risks. In this section, we identify some of the key risks for the System and provide information to help interested parties better understand these risks.

Section VIII – Risk Assessment

Investment Risk

The investment return on assets is the most obvious risk – and usually the largest risk – to funding a pension plan. To illustrate the magnitude of this risk, please review the following chart showing the Asset Volatility Ratio (AVR), defined as the market value of assets divided by covered payroll.

($ in thousands)

Valuation Date June 30	Market Value of Assets	Covered Payroll	Asset Volatility Ratio
2019	$13,275,693	$3,686,365	3.60
2020	13,249,488	3,672,443	3.61
2021	16,365,976	3,847,146	4.25

The asset volatility ratio is especially useful to compare across plans or through time. It is also frequently useful to consider how the AVR translates into changes in the Required Contribution Rate (actuarially determined employer contribution rate). For example, the following table demonstrates that with an AVR of 4.00, if the market value return is 10% below assumed, or -3.10% for the System, there will be an increase in the Required Contribution Rate of 0.66% payroll in the first year. Without asset smoothing or without returns above the expected return in the next four years, the impact on the Required Contribution Rate would be 3.29%. A higher AVR would produce more volatility in the Required Contribution Rate.

AVR	Unsmoothed Amortization Increase due to 10% Market Loss	Smoothed Amortization Increase
3.00	2.47%	0.49%
4.00	**3.29%**	**0.66%**
5.00	4.11%	0.82%

Section VIII – Risk Assessment

Sensitivity Measures

Valuations are generally performed with a single set of assumptions that reflects the best estimate of future conditions, in the opinion of the actuary and typically the governing board. Note that under actuarial standards of practice, the set of economic assumptions used for funding must be consistent. To enhance the understanding of the importance of an assumption, a sensitivity test can be performed where the valuation results are recalculated using a different assumption or set of assumptions.

The following tables contains the key measures for the System using the valuation assumption for investment return of 6.90%, along with the results if the assumption were 5.90% or 7.90%. In this analysis, only the investment return assumption is changed. Consequently, there may be inconsistencies between the investment return and other economic assumptions such as inflation or payroll increases. In addition, simply because the valuation results under alternative assumptions are shown here, it should not be implied that CMC believes that either assumption (5.90% or 7.90%) would comply with actuarial standards of practice.

($ in thousands)

As of June 30, 2021	-1% Discount Rate (5.90%)	Current Discount Rate (6.90%)	+1 Discount Rate (7.90%)
Accrued Liability	$42,923,242	$38,344,444	$34,526,633
Unfunded Liability	$26,976,380	$22,397,582	$18,579,771
Funded Ratio (AVA)	37.2%	41.6%	46.2%
ADEC Amount	$2,446,973	$2,143,325	$1,876,078

Section VIII – Risk Assessment

Mortality Risk

The mortality assumption is a significant assumption for valuation results, second only to the investment assumption in most situations. The System's mortality assumption utilizes a mortality table (with separate rates for males and females, as well as different rates by status) with static projection of future mortality improvement to establish a margin in actual vs. expected mortality experience to recognize improvement in mortality experience through the next experience study.

The valuation uses a generational improvement approach to anticipate future trends in mortality experience. Still, the future is unknown, and actual mortality improvements may occur at a faster rate than expected under a generational improvement approach. Periodic studies of the mortality experience will allow for adjustments to the mortality improvement scale to reflect emerging experience and reduce the plan's exposure to mortality risk.

Contribution Risk

The System is primarily funded by member and employer contributions to the trust fund, together with the earnings on those accumulated contributions. Each year in the valuation, the Actuarial Determined Employer Contribution is determined, based on the System's funding policy. This amount is the sum of the employer's share of the normal cost for the plan and the amortization of the UAAL. Since the System is obligated to make 100% of the ADEC by agreement, there is little contribution risk.

Schedule A – Results of Valuation

	JUNE 30, 2021	JUNE 30, 2020
1. ACTUARIAL ACCRUED LIABILITY		
Present value of prospective benefits payable in respect of:		
(a) Present active members		
- Tier I – Hazardous Duty	$ 0	$ 399,368
- Tier I – Plan B	247,011,355	291,392,712
- Tier I – Plan C	8,178,877	12,092,004
- Tier II – Hazardous Duty	319,088,270	375,792,951
- Tier II – Hybrid Plan	218,238,066	223,713,114
- Tier II – All Others	3,378,977,721	3,395,612,634
- Tier IIA – Hazardous Duty	2,057,965,365	1,858,600,843
- Tier IIA – Hybrid Plan	238,670,974	219,025,462
- Tier IIA – All Others	2,598,366,215	2,465,192,291
- Tier III – Hazardous Duty	291,387,983	200,482,860
- Tier III – Hybrid Plan	36,027,675	30,200,914
- Tier III – All Others	400,191,446	362,175,862
- Tier IV – Hazardous Duty	43,721,490	18,678,965
- Tier IV – Hybrid Plan	8,380,147	4,656,109
- Tier IV – All Others	77,163,939	44,298,203
- Total actives	$ 9,923,369,523	$ 9,502,314,292
(b) Present inactive members and members entitled to deferred vested benefits:	234,688,473	278,807,701
(c) Present annuitants and beneficiaries	28,186,386,375	27,190,014,040
(d) Total actuarial accrued liability [1(a) + 1(b) + 1(c)]	$ 38,344,444,371	$ 36,971,136,033
2. ACTUARIAL VALUE OF ASSETS	$ 15,946,862,583	$ 14,242,897,393
3. UNFUNDED ACTUARIAL ACCRUED LIABILITY [1(d) – 2]	$ 22,397,581,788	$ 22,728,238,640

Schedule B – Development of Actuarial Value of Assets

		June 30, 2021
(1)	Actuarial Value Beginning of Year*	$14,242,897,393
(2)	Market Value End of Year* (Before Adjustment)	16,365,975,564
(3)	Market Value Beginning of Year	13,311,109,931
(4)	Cash Flow	
	(a) Contributions**	$ 1,981,677,789
	(b) Disbursements	(2,228,030,535)
	(c) Net: (4)(a) + (4)(b)	$ (246,352,746)
(5)	Investment Income	
	(a) Market Total: (2) – (3) – (4)(c)	$ 3,301,218,379
	(b) Assumed Rate	6.90%
	(c) Amount for Immediate Recognition: [(1) x (5)(b)] + [(4)(c)] x (5)(b) x 0.5	974,260,750
(6)	Expected Actuarial Value End of Year (With Adjustment): (1) + (4)(c) + (5)(c) + Adjustment**	$15,667,828,550
(7)	Phased-In Recognition of Investment Income	
	(a) Difference between Adjusted Market & Expected Actuarial Value: (2) + $697,023,153 – (6)	1,395,170,167
	(b) 20% of Difference: 0.2 x (7)(a)	279,034,033
(8)	Preliminary Actuarial Value End of Year: (6) + (7)(b)	15,946,862,583
(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)	15,946,862,583
(10)	Difference Between Adjusted Market & Actuarial Values: (2) + Adjustment – (9)	$ 1,116,136,134

* Before corridor constraints, if applicable.

** Adjustment = $697,023,153 discounted value of subsequent transfer amounts

Schedule C – Summary of Receipts and Disbursements

MARKET VALUE OF ASSETS	Year Ending June 30, 2021
Receipts for the Year	
Contributions:	
Members	$ 194,774,964
State	1,466,395,646
Federal (Net of Transfers)	320,507,179
Subtotal	$ 1,981,677,789
Investment Earnings (net of expenses)	3,301,218,379
Other	0
TOTAL	$ 5,282,896,168
Disbursements for the Year	
Benefit Payments	$ 2,212,618,036
Refunds to Members	9,954,704
Interest Awarded	4,889,707
Administrative Expense	568,088
Other	0
Total	$ 2,228,030,535
Excess of Receipts over Disbursements	$ 3,054,865,633
Reconciliation of Asset Balances	
Asset Balance as of the Beginning of Year	$ 13,311,109,931
Excess of Receipts over Disbursements	3,054,865,633
Asset Balance as of the End of Year	$ 16,365,975,564
Rate of Return	24.39%
Adjusted Market Value of Assets *	$ 17,062,998,717

* Includes $697,023,153 discounted value of subsequent transfer amounts.

Schedule D – Outline of Actuarial Assumptions and Methods

Adopted or reaffirmed by the Commission on September 16, 2021 for the June 30, 2021 and later valuations based on the experience investigation report for the five-year period ending June 30, 2020 which can be found at on the Office of the State Comptroller - Retirement Services Division website.

VALUATION INTEREST RATE: 6.90% per annum, compounded annually, net of expenses, comprised of a 2.50% price inflation assumption and a 4.40% real return assumption.

SALARY INCREASES: The assumptions for salary increases are as follows:

Years of Service	Hazardous Rate*	Non-Hazardous Rate*
0	11.50%	10.50%
1	11.50%	10.50%
2	7.50%	7.50%
3	5.50%	5.50%
4	5.25%	5.25%
5	5.00%	5.00%
6	4.75%	4.75%
7	4.75%	4.75%
8	4.75%	4.75%
9	4.75%	4.75%
10	4.50%	4.50%
11	4.50%	4.25%
12	4.25%	4.25%
13	4.25%	4.25%
14	4.00%	4.00%
15	3.50%	3.50%
16	3.50%	3.25%
17	3.50%	3.25%
18	3.25%	3.25%
19	3.25%	3.25%
20+	3.00%	3.00%

*includes Wage Inflation of 3.00%

Schedule D – Outline of Actuarial Assumptions and Methods

COST OF LIVING ADJUSTMENTS (COLA):

Group	Rate
Pre July 1, 1980 Retirees	3.25%
July 1, 1980 – June 30, 1997 Retirees	3.00%
July 1, 1997 – October 1, 2011 Retirees	2.60%
Post October 1, 2011 Retirees	2.25%
Post July 1, 2022 Retirees	1.95%

We have also assumed a COLA moratorium for those retiring on or after July 1, 2022 for the first 30 months of retirement. We assume the first COLA received is increased by 0.15% to reflect the possible additional COLA in the event the annualized rate of increase in the CPI-W is greater than 5.5% during the first 18 months of retirement.

SOCIAL SECURITY WAGE BASE INCREASES: 3.50% per annum.

PAYROLL GROWTH ASSUMPTION: The phase-in to a level dollar amortization method has been completed and beginning with this valuation, a payroll growth assumption is no longer necessary. Based on the experience study, the expected rate of payroll growth would have been 3.0% annually.

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 with an average of two children who are on average age 12.

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

WITHDRAWAL

Annual Rates of Withdrawal								
	Years of Service							
Age	0	1	2	3	4	5	6-9	10+
Hazardous Males								
20	8.00%	4.25%	4.25%	4.00%	3.00%	2.50%	1.25%	1.00%
25	8.00	4.25	4.25	4.00	3.00	2.50	1.25	1.00
30	8.00	4.25	4.25	3.50	2.75	2.50	1.25	1.00
35	8.00	4.00	4.00	3.25	2.75	2.50	1.25	1.00
40	8.00	4.00	4.00	3.00	2.50	2.50	1.25	0.80
45	8.00	4.00	4.00	3.00	2.50	2.50	1.25	0.80
50	8.00	4.00	4.00	3.00	2.50	2.50	1.25	0.80
55+	8.00	4.00	4.00	3.00	2.50	2.50	1.25	0.80
Hazardous Females								
20	11.00%	7.00%	7.00%	7.00%	4.00%	3.30%	2.50%	1.75%
25	11.00	7.00	7.00	7.00	4.00	3.30	2.50	1.75
30	11.00	6.00	6.00	6.00	4.00	3.30	2.50	1.75
35	11.00	5.50	5.50	5.50	4.00	3.30	2.50	1.75
40	11.00	5.50	5.50	5.50	4.00	3.30	2.00	1.00
45	11.00	5.50	5.50	5.50	4.00	3.30	2.00	1.00
50	11.00	5.50	5.50	5.50	4.00	3.30	2.00	1.00
55+	11.00	5.50	5.50	5.50	4.00	3.30	2.00	1.00
Nonhazardous Males								
20	45.00%	35.00%	17.00%	13.00%	11.00%	11.00%	4.50%	4.50%
25	25.00	22.00	17.00	13.00	11.00	11.00	4.50	4.50
30	20.00	15.00	14.00	10.00	7.50	7.50	4.50	4.50
35	17.00	10.00	12.00	9.00	6.50	5.00	4.50	3.00
40	17.00	10.00	10.00	8.00	6.50	5.00	4.00	2.75
45	17.00	10.00	9.00	8.00	6.50	5.00	4.00	2.50
50	17.00	10.00	9.00	8.00	6.50	5.00	3.00	2.50
55+	17.00	10.00	9.00	8.00	6.50	5.00	3.00	2.00
Nonhazardous Females								
20	40.00%	40.00%	40.00%	35.00%	20.00%	20.00%	10.00%	5.00%
25	25.00	22.00	17.00	12.00	10.00	10.00	7.00	5.00
30	18.00	15.00	12.00	10.00	8.00	7.00	5.00	4.50
35	16.00	10.00	11.00	9.00	6.00	5.00	4.00	3.25
40	16.00	10.00	10.00	8.00	6.00	5.00	3.50	2.00
45	16.00	10.00	10.00	7.00	6.00	5.00	3.25	2.00
50	16.00	10.00	10.00	7.00	6.00	4.00	3.25	2.00
55+	16.00	10.00	10.00	7.00	6.00	4.00	3.25	2.00

DISABILITY

Annual Rates of Disability		
Age	**Hazardous**	**Non-Hazardous**
30	0.05%	0.04%
35	0.09	0.05
40	0.15	0.07
45	0.25	0.12
50	0.33	0.22
55	0.42	0.40
60	0.50	0.50
65	0.60	0.50
70	0.80	0.50
75	1.00	0.50

RETIREMENT: The assumed annual rates of retirement are shown below.

Annual Rates of Retirement						
Hazardous						
Age	Tier I, II & IIA		Tier III & IV			
			Years of Service			
	First Year Eligible	All Years After	20	21 - 24	25	26+
40 - 49	45%	25%			45%	25%
50	45	25	45%	45%	45	25
51 - 56	45	25	45	25	25	25
57	60	25	60	25	25	25
58 – 61	60	30	60	30	30	30
62	65	30	65	30	30	30
63	65	30	65	30	30	30
64	65	40	65	40	40	40
65 – 66	75	50	75	50	50	50
67	75	45	75	45	45	45
68	75	40	75	40	40	40
69	75	35	75	35	35	35
70 - 73	75	30	75	30	30	30
74 - 79	100	30	100	30	30	30
80	100	100	100	100	100	100

Annual Rates of Retirement						
Nonhazardous						
Age	Tier I		Tier II & IIA		Tier III & IV	
	Early	Other Years	Early	Other Years	Early	Other Years
55	12.0%	30.0%	4.0%			
56	12.0	30.0	4.0			
57	12.0	30.0	4.0			
58	12.0	30.0	4.0		4.0%	
59	12.0	30.0	4.0		4.0	
60		30.0	4.0	20.0%	4.0	
61		30.0	4.0	20.0	4.0	
62		30.0		20.0	4.0	
63		30.0		20.0	4.0	25.0%
64		30.0		20.0	4.0	25.0
65		30.0		20.0		25.0
66 - 70		30.0		25.0		25.0
71 - 79		30.0		22.5		25.0
80		100.0		100.0		100.0

We have assumed that the Tier 1 rates of retirement include an additional 25% to early retirement rates and 45% to normal retirement rates in the plan year before July 1, 2022 to reflect the potential behavior of eligible members in light of the July 1, 2022 COLA change. Similarly, we have assumed Tier II & IIA rates of retirement include an additional 25% to the rates shown above for the plan year before July 1, 2022. For all plan years after July 1, 2022, the above rates will be the assumed rates of retirement.

Schedule D – Outline of Actuarial Assumptions and Methods

MORTALITY: The Pub-2010 Mortality Tables projected generationally with scale MP-2020:

Non-Hazardous

- Service Retirees: General, Above-Median, Healthy Retiree Mortality Table.
- Disabled Retirees: General, Disabled Retiree Mortality Table.
- Beneficiaries: General, Above-Median Contingent Annuitant Mortality Table.
- Active Employees: General, Above-Median, Employee Mortality Table.

Hazardous

- Service Retirees: Public Safety, Above-Median, Healthy Retiree Mortality Table.
- Disabled Retirees: Public Safety, Disabled Retiree Mortality Table.
- Beneficiaries: Public Safety, Above-Median Contingent Annuitant Mortality Table.
- Active Employees: Public Safety, Above-Median, Employee Mortality Table.

In our opinion, the generational projection of the mortality rates with scale MP-2020 provide a sufficient margin in the assumed rates of mortality to allow for additional improvement in mortality experience.

ASSET METHOD: Actuarial Value, as developed in Schedule B. The actuarial value of assets recognizes 20% of the difference between actual market value and expected actuarial value as of the valuation date. 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.

IMPACT OF LONGLEY DECISION: Benefits for members retiring from service on or after the *Longley* decision date are assumed to increase by 0.084% as a result of the revised treatment of longevity pay. Retroactive application of *Longley* has been reflected in this valuation to the extent impacted retiree benefits have been recalculated.

OTHER ASSUMPTIONS:

- Pre-Retirement deaths and disabilities assumed to be service related:
    - 30% for non-hazardous duty members
    - 60% for hazardous duty members

- To take into account State Police Supplemental Benefits and the offset of Workers Compensation, Social Security, and Non-Rehabilitation Earnings, the following minimum and maximum benefits as a percent of salary are assumed for disability benefits:

	Minimum	Maximum
Tier I State Police	60%	80%
All Other Members	40%	60%

Schedule E – Actuarial Cost Method

The valuation is prepared on projected benefit basis, under which the present value of each member's expected benefits at retirement or death is determined, based on age, service and sex, and using the interest rate assumed to be earned in the future (6.90% per annum). 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, beneficiaries and members entitled to deferred vested benefits to obtain the present value of all expected benefits payable from the System on account of the present group of members and beneficiaries.

The employer contributions required to support the benefits of SERS are determined following a level funding approach and consist of a normal cost 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 actuarial value of assets from the actuarial accrued liability. The UAAL is amortized according to the MOU between the State and SEBAC which established separate UAAL bases. Each base is rolled forward to the beginning of the fiscal year for which the amortization payment is applicable. The amortization amounts are adjusted with interest to the middle of the applicable fiscal year. The employer required contribution amount is the sum of the normal cost contribution and the UAAL amortization payment.

Schedule F – Summary of Main System Provisions

AS INTERPRETED FOR VALUATION PURPOSES

The Connecticut State Employees Retirement System (CT SERS) is a defined benefit pension plan established by the Connecticut General Assembly for the purpose of providing retirement allowances and other benefits for State employees in Connecticut, and their survivors and other beneficiaries.

Eligibility Requirements

Tier I	All State Employees, Elected Officials and their Appointees hired prior to July 1, 1984. Those employees hired between July 1, 1982 and January 1, 1984 could elect to move to Tier II.
Tier II	All State Employees, Elected Officials and their Appointees hired on or after July 1, 1984.
Tier IIA	All State Employees, Elected Officials and their Appointees hired on or after July 1, 1997.
Tier III	All State Employees, Elected Officials and their Appointees hired on or after July 1, 2011.
Tier IV	All State Employees, Elected Officials and their Appointees hired on or after July 1, 2017.

Final Average Earnings (FAE)

Tier I, II, and IIA	Average Salary of the three highest paid years of service. Effective January 1, 1986, no one year's earnings can be greater than 130% of the average of the two preceding years in calculating the Final Average Earnings.
Tier III and IV	Average Salary of the five highest paid years of service. No one year's earnings can be greater than 130% of the average of the two preceding years in calculating the Final Average Earnings.

Normal Retirement Benefit

Eligibility

Tier I Hazardous – 20 years of credited service.

Tier I Plans B and C – Earliest of age 55 with 25 years of service, age 60 with 10 years of service, or age 70 with 5 years of service.

Tier II Hazardous – 20 years of credited service.

Tier II and IIA – For those who will be eligible for retirement on or before July 1, 2022, the earliest of age 62 with 10 years of vesting service (effective July 1, 1992), age 60 with 25 years of vesting service, age 70 with 5 years of vesting service, or age 62 with 5 years of actual state service for terminations on or after July 1, 1997.

For those who will not be eligible for retirement on or before July 1, 2022, the earliest of age 65 with 10 years of vesting service, age 63 with 25 years of vesting service, age 70 with 5 years of vesting service.

Tier III Hazardous – Earlier of Age 50 and 20 years of benefit service or 25 years of benefit service.

Tier III and IV – Age 63 and 25 years of benefit service or Age 65 and 10 years of benefit service.

Tier IV Hazardous – 25 years of benefit service.

Benefit

Tier I Hazardous – 50% of FAE plus 2% for each year of service in excess of 20.

Tier I Plan B – 2% of FAE times years of service up to age 65. Thereafter, 1% of FAE up to $4,800, plus 2% of FAE in excess of $4,800 times years of service. At age 70, greater of 1.25% of FAE up to $4,800 plus 2.5% of FAE in excess of $4,800 times years of service (maximum 20 years) or 1.0% of FAE up to $4,800 plus 2% of FAE in excess of $4,800 times year of service. Minimum benefit with 25 years is $833.34 per month.

Tier I Plan C – 2% of FAE times years of service. At age 70, greater of 2.5% of FAE times years of service (maximum 20 years) or 2.0% of FAE times years of service. Minimum benefit with 25 years is $833.34 per month.

Tier II, IIA, III and IV Hazardous – 2.5% of FAE times years of service up to 20 years plus 2.0% of FAE times years of service in excess of 20 years, if any. Minimum benefit with 25 years is $360 per month.

Tier II, IIA and III All Others – 1.40% of FAE plus 0.433% of FAE in excess of year's breakpoint*, times years of service from October 1, 1982 up to 35 years plus 1.625% of FAE times years of service in excess of 35 years, if any. Minimum benefit with 25 years if $360 per month.

* $10,700 increased by 6% each year after 1982, rounded to nearest $100 but not greater than Social Security Covered Compensation.

	Tier IV All Others – 1.30% of FAE times years of service. Minimum benefit with 25 years if $360 per month.
Early Retirement Benefit	
Eligibility	*Hazardous* – None.
	Tier I – Age 55 with 10 years of service.
	Tier II and IIA – Age 55 with 10 years of service.
	Tier III and IV – Age 58 with 10 years of service.
Benefit	*Tier I* – Benefit is Normal Retirement Benefit reduced for retirement prior to age 60 with less than 25 years of service.
	Tier II, IIA, III and IV – Benefit is Normal Retirement Benefit reduced 0.25% (effective July 1, 1991) for each month prior to age 60 if at least 25 years of service or age 62 if at least 10 but less than 25 years of service.
	For those who retire on or after October 2, 2011 but prior to meeting the age and service requirements for a normal retirement, will be subject to a benefit reduced by 0.50% for each month prior to Normal Retirement.
Disability Retirement Benefit	
Tier I	For non-service disabilities occurring prior to age 60 with at least 5 years of service, benefit is 3% of FAE times years of service; maximum benefit is 1.667% of FAE times year of service projected to age 65.
	For service disabilities occurring prior to age 60, benefit is 1.667% of Salary times years of service projected to age 65 (maximum 30 years).
	Exception: State Police benefit is equal to the normal retirement benefit if more than 20 years of service. State Police also receives an additional benefit of $360 per month plus $300 to spouse plus $300 to a surviving dependent child.
Tier II, IIA, III and IV	Prior to age 65 for service related disability or at any age with at least 10 years of service, benefit is 1.333% of FAE plus 0.50% of FAE in excess of the year's breakpoint, times service projected to age 65 (maximum 30 years).

Schedule F – Summary of Main System Provisions

Deferred Vested Retirement Benefit

Eligibility	*Tier I* - 10 years of service.
	Tier II and IIA – Effective July 1, 1997, 5 years of actual state service, 10 years of vesting service, or age 70 with 5 years of service.
	Tier III and IV – 10 years of benefit service.
Benefit	*Tier I* – Benefit is payable at Normal Retirement Age or an Early Retirement Benefit is payable at age 55.
	Tier II and IIA – Benefit is payable at Normal Retirement Age or an Early Retirement Benefit is payable at age 55.
	Tier III and IV – Benefit is payable at Normal Retirement Age or an Early Retirement Benefit is payable at age 58.

Pre-Retirement Spouse's Benefit

Tier I	State Police – Survivor benefits to spouse of $670 per month plus $300 to a surviving dependent child.
	If eligible for early or normal retirement, 50% of the average of the Life Benefit and the 50% Joint & Survivor Benefit the member would have received.
	If not eligible for retirement but with 25 years of service, the same benefit calculated as though age 55 using service and earnings at death.
	If not eligible for retirement, return of contributions (5% interest).
Tier II, IIA, III and IV	If eligible for early or normal retirement, 50% of the 50% Joint & Survivor Benefit the member would have received.
	If not eligible for retirement but with 25 years of service, the same benefit calculated as though age 55 using service and earnings at death.
	If not eligible for retirement, return of contributions (5% interest).
Tiers I, II, IIA, III and IV	If death is due to employment and there are dependent children under age 18, spouse will be paid $100,000 in 10 annual installments while living and not remarried. In addition, $50 per month will be paid to each child while under age 18.
	If death is due to employment and there are no dependent children under age 18, spouse will be paid $50,000 in not less than 10 annual installments.

Schedule F – Summary of Main System Provisions

Payment Options

50% or 100% Joint and Survivor (Normal Form if married).
Straight life annuity (Normal Form if not married).
10 or 20 year certain and life annuity.

Cost of Living Adjustments (COLA)

Annual adjustments each July 1 of up to 5% for retirements prior to July 1, 1980; 3% for retirements after July 1, 1980. For members (and beneficiaries) not covered by Social Security and age 62 and over, the maximum increase is 6%.

For employees retiring after June 30, 1999, the annual adjustment will be 60% of the increase in CPI up to 6% and 75% of the increase in the CPI over 6%. This adjustment will be no less than 2.5% and no greater than 6%.

Employees retiring between July 1, 1997 and June 30, 1999 made an irrevocable choice between the above formula and a fixed 3% annual adjustment.

An employee from Tier IIA must have at least 10 years of actual state service or directly make the transition into retirement in order to be eligible for annual adjustments.

For employees retiring on or after October 2, 2011, the minimum COLA shall be 2.0% and the maximum COLA shall be 7.5%.

For employees retiring on or after July 1, 2022, the annual rate of increase will be the CPI-W from 0.00% to 2.00%, plus 60% of the annual rate of increase in CPI-W from 3.33% to 6.00%, plus 75% of the annual rate of increase in CPI-W above 6.00%, with a cap on the COLA rate of 7.50%. In addition, a COLA moratorium for those retiring on or after July 1, 2022 will be on the first 30 months of retirement. If rate of increase in CPI-W exceeds an annualized rate of 5.5% during the initial 18 month period of receiving retirement benefits, the COLA provided beginning with the 31st monthly benefit includes an additional adjustment based on the annual COLA rate as determined above using the annualized rate over the 18 month period. The COLA rate applied would but reduced by 2.5% and then multiplied by 1.5 to reflect the 18 month period.

Schedule F – Summary of Main System Provisions

Member Contributions*

Tier I – Hazardous	6% of earnings up to Social Security Taxable Wage Base plus 7% of earnings above that level.
Tier I – Plan B	4% of earnings up to Social Security Taxable Wage Base plus 7% of earnings above that level.
Tier I – Plan C	7% of earnings.
Tier II – Hazardous	6% of earnings.
Tier II – All Others	2% of earnings.
Tier IIA & III – Hazardous	7% of earnings.
Tier IIA & III – All Others	4% of earnings.
Tier IV – Hazardous	8% of earnings.
Tier IV – All Others	5% of earnings.

* In years where asset losses require further increases in contributions, Tier IV employees' contributions may increase by half the necessary increase in rates (up to 2.0%). Finally, all Tier IV employees must contribute 1% to the Defined Contributions (DC) portion of the Hybrid Plan and may elect additional contribution of up to 3% of salary to the DC portion.

Hybrid Defined Benefit/Defined Contribution Plan for Employees of Higher Learning

Individuals hired on or after July 1, 2011 otherwise eligible for the Alternate Retirement Plan ("ARP") shall be eligible to be members of the new Hybrid Plan in addition to their existing choices. Individuals who are currently members of the ARP shall be eligible to join the Hybrid Plan on a one time option at the full actuarial cost. The Hybrid Plan shall have defined benefits identical to Tier II/IIA and Tier III for individuals hired on or after July 1, 2011 but shall require employee contributions 3% higher than the contribution required from the Applicable Tier II/IIA/III Plan. An employee shall have the option, upon leaving state service, of accepting the defined benefit amount, or electing to receive a return of his/her contributions to the Hybrid Plan, plus a 5% employer match, plus 4% interest ("cash out option"). In the event the employee elects the cash out option, he/she shall permanently waive any entitlement they may have to health insurance as a retired state employee unless they convert the cash out option to a periodic payment as would be required under the current ARP Plan.

Schedule G – Tables of Membership Data

STATUS RECONCILIATION OF ACTIVE MEMBERS

	Total
As of June 30, 2020	47,662
Retirements	(2,009)
Disability	(173)
Terminated	(1,662)
Deaths	(74)
Rehires	500
New Participants	4,660
Refunds	(890)
As of June 30, 2021	48,014

STATUS RECONCILIATION OF RETIRED MEMBERS

	Retirees	Disability	Survivor	Total
As of June 30, 2020	42,742	4,296	5,460	52,498
Retirements	7	(7)		0
Disability				0
Survivors	(300)	(39)	339	0
Deaths with no Survivors	(803)	(105)	(264)	(1,172)
Rehires	(3)			(3)
Refunds				0
Certain Period Ended			(9)	(9)
Data Corrections	353	(63)	(180)	110
From Term Deferred	61	12		73
From Active	2,009	173	20	2,202
As of June 30, 2021	44,066	4,267	5,366	53,699

Schedule G – Tables of Membership Data

TIER I – PLAN B

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

	Years of Service							Total	
Age	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									0
40 to 44									0
45 to 49									0
50 to 54					1			1	105,500
55 to 59	1	1	1	1	1	3	25	33	3,112,094
60 to 64		2	2	3	4	7	79	97	9,676,296
65 to 69				1	1	4	72	78	8,963,366
70 & Up				1		3	45	49	6,725,946
Total	1	3	3	6	7	17	221	258	$ 28,583,202

Average Age: 65.6
Average Service: 38.7

Average Salary: $110,788

Schedule G – Tables of Membership Data

TIER I – PLAN C

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

	Years of Service							Total	
Age	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									0
40 to 44									0
45 to 49									0
50 to 54									0
55 to 59							1	1	116,861
60 to 64						1	2	3	326,218
65 to 69						1		1	60,096
70 & Up							4	4	460,348
Total						2	7	9	$ 963,523

Average Age: 66.7
Average Service: 38.2

Average Salary: $107,058

TIER II – HAZARDOUS DUTY

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

	Years of Service							Total	
Age	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			1					1	73,768
35 to 39		1	2					3	255,226
40 to 44				2	2			4	520,293
45 to 49	2			3	29	11		45	5,526,636
50 to 54		3	3	4	25	80	12	127	15,074,445
55 to 59	1	1	3	7	20	49	21	102	11,796,192
60 to 64				3	10	10	12	35	3,792,874
65 to 69	1		1	1	3	5	3	14	1,733,175
70 & Up						4	1	5	497,049
Total	4	5	10	20	89	159	49	336	$ 39,269,658

Average Age: 54.5
Average Service: 25.6

Average Salary: $116,874

Schedule G – Tables of Membership Data

TIER II – HYBRID PLAN

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

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									0
40 to 44									0
45 to 49			1		2	2		5	660,524
50 to 54			4	3	11	27	9	54	5,877,302
55 to 59			4	4	33	33	31	105	12,121,424
60 to 64	3		4	3	13	46	35	104	14,873,907
65 to 69	1		7		16	23	30	77	11,258,509
70 & Up	1			1	2	9	22	35	4,986,278
Total	5		20	11	77	140	127	380	$ 49,777,944

Average Age: 61.0
Average Service: 27.4

Average Salary: $130,995

Schedule G – Tables of Membership Data

TIER II – ALL OTHERS

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

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				1				1	47,289
35 to 39	1	1	4	5	2			13	949,725
40 to 44	1	4	6	23	14	1		49	3,834,873
45 to 49	2	7	9	33	107	122	2	282	26,016,051
50 to 54	13	22	29	91	272	841	528	1,796	170,915,665
55 to 59	19	30	43	118	264	720	1,786	2,980	296,178,299
60 to 64	7	27	34	83	171	420	904	1,646	168,191,188
65 to 69	9	14	17	38	58	135	242	513	51,989,464
70 & Up	4	4	8	22	24	61	89	212	21,087,068
Total	56	109	150	414	912	2,300	3,551	7,492	$ 739,209,622

Average Age: 57.5
Average Service: 28.6

Average Salary: $98,667

Schedule G – Tables of Membership Data

TIER IIA – HAZARDOUS DUTY

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

	Years of Service							Total	
Age	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		2	61	3				66	5,457,829
35 to 39	7	4	538	180	4			733	69,741,924
40 to 44	13	4	442	501	91	1		1,052	102,819,565
45 to 49	8	4	285	379	201	13		890	92,449,590
50 to 54	8	5	214	296	177	12		712	72,382,960
55 to 59		2	125	199	94	9		429	42,736,039
60 to 64		1	74	118	41	3	1	238	23,443,090
65 to 69			20	36	16		1	73	6,933,980
70 & Up			2	16	10	1		29	2,866,301
Total	36	22	1,761	1,728	634	39	2	4,222	$ 418,831,278

Average Age: 47.0
Average Service: 16.2

Average Salary: $99,202

TIER IIA – HYBRID PLAN

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

	Years of Service							Total	
Age	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	1	1	1					3	231,258
35 to 39	1	5	12	3				21	1,779,297
40 to 44	2	3	22	22	6			55	5,090,628
45 to 49	2	5	56	46	36			145	15,800,731
50 to 54	4	9	39	84	63			199	23,405,157
55 to 59	6	8	34	63	72	2		185	20,735,733
60 to 64	4	5	33	66	61	3		172	19,702,107
65 to 69	1	6	12	21	29	1		70	8,078,784
70 & Up	1	2	5	7	6			21	2,761,192
Total	22	44	214	312	273	6		871	$ 97,584,887

Average Age: 54.9
Average Service: 17.1

Average Salary: $112,038

TIER IIA – ALL OTHERS

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

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	1		4					5	225,086
30 to 34	13	21	138	13				185	12,708,382
35 to 39	42	52	726	306	11			1,137	87,411,752
40 to 44	39	57	833	820	227	1		1,977	164,036,665
45 to 49	49	57	741	825	789	10		2,471	212,982,415
50 to 54	52	64	784	916	820	23	17	2,676	233,133,472
55 to 59	24	66	723	806	726	31	99	2,475	212,495,521
60 to 64	24	63	551	569	501	12	11	1,731	147,064,161
65 to 69	14	27	191	221	158	5	3	619	51,990,952
70 & Up	14	16	75	85	59	2	4	255	20,234,756
Total	272	423	4,766	4,561	3,291	84	134	13,531	$ 1,142,283,162

Average Age: 51.4
Average Service: 16.5

Average Salary: $84,420

Schedule G – Tables of Membership Data

TIER III – HAZARDOUS DUTY

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

	Years of Service							Total	
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 30	30 & Up	No.	Payroll
Under 25	2							2	$ 106,613
25 to 29	15	72	2					89	6,096,365
30 to 34	19	612	63	9				703	52,000,850
35 to 39	18	541	27	38		1		625	49,127,010
40 to 44	13	327	17	17	1			375	28,824,412
45 to 49	8	160	9	3				180	14,732,265
50 to 54	14	137	10	6	1			168	13,340,467
55 to 59	6	88	3	2				99	8,742,680
60 to 64	1	34	1					36	3,119,993
65 to 69	2	14	3					19	1,624,946
70 & Up		1						1	76,428
Total	98	1,986	135	75	2	1		2,297	$ 177,792,029

Average Age: 39.2
Average Service: 7.8

Average Salary: $77,402

Schedule G – Tables of Membership Data

TIER III – HYBRID PLAN

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

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	13	11						24	1,379,714
30 to 34	18	50	11					79	5,177,410
35 to 39	20	69	3	6				98	7,535,888
40 to 44	21	94	3	1				119	10,101,772
45 to 49	19	67	5	2				93	7,615,212
50 to 54	18	60	2	2				82	7,573,191
55 to 59	11	40	2	1				54	3,856,175
60 to 64	12	35			1			48	4,478,815
65 to 69	7	11						18	1,385,009
70 & Up	3	8						11	1,072,781
Total	142	445	26	12	1			626	$ 50,175,967

Average Age: 45.5
Average Service: 6.9

Average Salary: $80,153

Schedule G – Tables of Membership Data

TIER III – ALL OTHERS

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

	Years of Service							Total	
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 30	30 & Up	No.	Payroll
Under 25	41	10						51	$ 1,030,978
25 to 29	145	221	7					373	21,173,467
30 to 34	238	765	162	14				1,179	79,705,890
35 to 39	201	926	69	131	1			1,328	93,602,353
40 to 44	152	803	47	48	12			1,062	79,724,122
45 to 49	144	665	16	23	1			849	62,630,107
50 to 54	143	700	22	22	6			893	63,487,679
55 to 59	119	580	15	18	6	2	1	741	53,979,518
60 to 64	68	360	12	10	2	1	1	454	32,653,457
65 to 69	30	182	10	2	2	2		228	15,518,822
70 & Up	17	59	3	6	1			86	5,343,890
Total	1,298	5,271	363	274	31	5	2	7,244	$ 508,850,283

Average Age: 44.3
Average Service: 7.5

Average Salary: $70,244

Schedule G – Tables of Membership Data

TIER IV – HAZARDOUS DUTY

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

	Years of Service							Total	
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 30	30 & Up	No.	Payroll
Under 25	102							102	$ 4,757,760
25 to 29	557	6						563	33,087,413
30 to 34	534	4	4					542	33,787,332
35 to 39	289	5			1			295	18,582,779
40 to 44	157							157	9,982,922
45 to 49	118							118	8,129,673
50 to 54	90		1					91	6,259,541
55 to 59	40							40	2,936,568
60 to 64	18	1		1				20	1,544,173
65 to 69	3							3	173,990
70 & Up	1							1	56,021
Total	1,908	16	5	1	1			1,931	$ 119,298,172

Average Age: 34.3
Average Service: 2.1

Average Salary: $61,781

TIER IV – HYBRID PLAN

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

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	26							26	$ 853,570
25 to 29	170	2						172	7,742,722
30 to 34	183	1	1					185	9,914,456
35 to 39	154							154	9,390,124
40 to 44	141			1				142	7,527,945
45 to 49	102		1					103	6,353,062
50 to 54	73	1						74	4,362,152
55 to 59	73		1					74	4,475,755
60 to 64	51							51	2,725,200
65 to 69	16							16	610,851
70 & Up	9	1						10	222,435
Total	998	5	3	1				1,007	$ 54,178,272

Average Age: 40.4
Average Service: 1.8

Average Salary: $53,802

Schedule G – Tables of Membership Data

TIER IV – ALL OTHERS

The Number and Average Annual Compensation of Active Employees
By Age and Service as of June 30, 2021

	Years of Service							Total	
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 30	30 & Up	No.	Payroll
Under 25	740							740	$ 18,633,153
25 to 29	1,415	35	1					1,451	69,108,923
30 to 34	1,299	14	17					1,330	74,425,881
35 to 39	1,102	11	5	12				1,130	67,134,844
40 to 44	893	8	1	4	1			907	53,335,794
45 to 49	683	1	2	2	2			690	42,682,465
50 to 54	633	2	5			1		641	40,333,577
55 to 59	505	3	1	1		1		511	30,175,314
60 to 64	282		1	2			1	286	17,943,340
65 to 69	83	1						84	5,082,017
70 & Up	40							40	1,492,521
Total	7,675	75	33	21	3	2	1	7,810	$ 420,347,829

Average Age: 38.2
Average Service: 2.0

Average Salary: $53,822

Schedule G – Tables of Membership Data

NUMBER OF RETIRED MEMBERS AND THEIR BENEFITS BY AGE

Age	Number	Total Annual Benefits	Average Annual Benefits
Under 50	855	$ 44,263,258	$ 51,770
50 – 54	1,901	107,653,530	56,630
55 – 59	3,527	168,553,226	47,789
60 – 64	6,916	304,986,472	44,099
65 – 69	9,760	430,081,007	44,066
70 – 74	9,569	419,783,724	43,869
75 – 79	7,091	309,936,413	43,708
80 – 84	4,256	178,345,264	41,904
85 – 89	2,636	107,202,696	40,669
90 – 94	1,334	47,897,333	35,905
95 & Over	488	14,296,149	29,295
Total	48,333	$ 2,132,999,072	$ 44,131

NUMBER OF BENEFICIARIES AND THEIR BENEFITS BY AGE

Age	Number	Total Annual Benefits	Average Annual Benefits
Under 50	245	$ 5,983,211	$ 24,421
50 – 54	114	3,280,714	28,778
55 – 59	191	5,442,444	28,494
60 – 64	349	9,981,503	28,600
65 – 69	526	15,601,806	29,661
70 – 74	707	20,855,912	29,499
75 – 79	849	23,260,632	27,398
80 – 84	905	24,774,208	27,375
85 – 89	752	19,194,933	25,525
90 – 94	507	13,117,667	25,873
95 & Over	221	5,634,937	25,497
Total	5,366	$ 147,127,967	$ 27,419

Schedule G – Tables of Membership Data

**NUMBER OF DEFERRED VESTED MEMBERS
AND THEIR BENEFITS BY AGE**

Age	Number	Total Annual Benefits	Average Annual Benefits
Under 50	945	$ 9,765,846	$ 10,334
50 – 54	400	6,194,431	15,486
55 – 59	328	5,177,892	15,786
60 – 64	173	1,569,316	9,071
65 & Over	240	1,365,647	5,690
Total	2,086	$ 24,073,132	$ 11,540

Schedule H – Analysis of Financial Experience

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

Type of Activity	$ Gain (or Loss) For One-Year Period Ending 6/30/2021
Age & Service Retirements. If members retire at older ages, there is a gain. If younger ages, a loss.	$ (149.9)
Disability Retirements. If disability claims are less than assumed, there is a gain. If more claims, a loss.	(42.6)
Death-in Service Benefits. If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	(10.6)
Withdrawal From Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	(16.3)
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	(157.6)
New Members. Additional unfunded accrued liability will produce a loss.	(94.6)
Investment Income. If there is a greater investment income than assumed, there is a gain. If less income, a loss.	279.0
Death After Retirement. If retirants live longer than assumed, there is a loss. If not as long, a gain.	84.5
Cost of Living Adjustments: If COLA increase more than expected there is a loss.	(217.2)
Other. Miscellaneous gains and losses resulting from changes in valuation software, data or asset adjustments, timing of financial transactions, etc.	522.5
Gain (or Loss) During Year From Financial Experience	$ 197.2
Non-Recurring Items. Adjustments for plan amendments, assumption changes, or method changes.	48.2
Composite Gain (or Loss) During Year	$ 245.4

Schedule I – Actuarial Surplus Test

Section 5-162(h) of the General Statutes of Connecticut provides that the Retirement Commission may grant additional Cost-of-Living Adjustments (COLAs) for retired members if an actuarial surplus exists. An actuarial surplus is deemed to exist if three criteria are met.

I. ***Investment Income:*** The actual rate of return for the Fiscal Year ending on the valuation date must exceed the actuarial interest rate assumption.

Market Value of Assets on June 30, 2020: (A)	$13,311,109,931
Market Value of Assets on June 30, 2021: (B)	$17,062,998,717
Investment Income for FY 2020-2021: (I)	$3,301,218,379
Actual Rate of Return for FY 2020-2021: 2I / (A + B – I)	24.39%
Actuarial Interest Rate Assumption:	6.90%

Actual return of 24.39% is greater than the assumed 6.90%, so the first criterion is met.

II. ***Assets vs. Liabilities:*** Market value of assets must exceed 50% of specified liabilities.

Adjusted Market Value of Assets on June 30, 2021:	$17,062,998,717
Specified Liabilities on June 30, 2021:	
Liability for Retired Members	$28,186,386,375
Liability for Terminated Vested Members	$234,688,473
Liability for Member Contributions with Interest	$1,738,996,981
Total	$30,160,071,829
50% of Specified Liabilities	$15,080,035,914

Market Value exceeds 50% of specified liabilities so the second criterion is met.

III. ***Unfunded Liability***: Actual unfunded liability must be less than the projected unfunded liability five years from the determination date.

Actual Unfunded Liability on June 30, 2021:	$22,397,581,788
Projected Unfunded Liability on June 30, 2026 (see next page):	$ 5,555,326,000

Actual Unfunded Liability is not less than Projected Unfunded Liability, so the third criterion is not met and therefore, no actuarial surplus exists.

ACTUARIAL SURPLUS TEST
PROJECTION OF UNFUNDED LIABILITY

Section 5-162-h(b)(2) of the General Statutes of Connecticut specifies the means of calculating the Projected Unfunded Liability used in the third criterion of the Actuarial Surplus Test. The projection reflects the actual unfunded liability as of December 31, 1983 adjusted for changes in actuarial assumptions and cost methods through the determination date. No provision is made in the Statute for reflecting the impact of plan changes. The projection below reflects the following changes: data correction (June 30, 1987); change in actuarial assumptions (June 30, 1987); change in actuarial cost method (June 30, 1988); change in actuarial assumptions - interest rate only (June 30, 1989); change in actuarial cost method – amortization period only (June 30, 1992); change in actuarial assumptions (June 30, 1993); change in actuarial cost method – level percent amortization (June 30, 1997); change in actuarial methods and assumptions (June 30, 2000); change in actuarial assumptions (June 30, 2004); change in actuarial assumptions (June 30, 2008); change in actuarial assumptions (June 30, 2012); change in actuarial assumptions (June 30, 2016); change in actuarial assumptions (June 30, 2021).

Year	($000) June 30 Unfunded Liability	Year	($000) June 30 Unfunded Liability	Year	($000) June 30 Unfunded Liability
1987	$2,524,556	2002	$2,360,589	2017	$9,951,987
1988	1,954,257	2003	2,429,273	2018	9,659,917
1989	1,432,333	2004	2,502,591	2019	9,424,079
1990	1,939,758	2005	2,569,504	2020	9,140,386
1991	1,930,524	2006	2,634,814	2021	8,756,187
1992	1,920,505	2007	2,698,021	2022	8,198,476
1993	1,794,192	2008	2,823,251	2023	7,602,282
1994	1,787,586	2009	2,861,884	2024	6,964,951
1995	1,780,419	2010	2,895,933	2025	6,283,644
1996	1,772,643	2011	2,924,709	2026	5,555,326
1997	1,764,205	2012	4,160,465	2027	4,776,755
1998	1,835,087	2013	4,172,971	2028	3,944,463
1999	1,907,249	2014	4,174,465	2029	3,054,742
2000	2,222,296	2015	4,163,616	2030	2,103,631
2001	2,291,494	2016	10,057,733	2031	1,086,893
				2032	0

Schedule J – Projection of Unfunded Accrued Liability

An amortization payment schedule of the June 30, 2021 Unfunded Accrued Liability is provided in the table below. No future gains and losses are included in this table.

Valuation Year	Unfunded Accrued Liability ($ in thousands)	Amortization Payment ($ in thousands)
2021	22,397,582	1,910,858
2022	22,032,157	1,910,858
2023	21,641,517	1,910,858
2024	21,223,924	1,910,858
2025	20,777,516	1,910,858
2026	20,300,307	1,910,858
2027	19,790,170	1,910,858
2028	19,244,833	1,910,858
2029	18,661,869	1,910,858
2030	18,038,679	1,910,858
2031	17,372,490	1,910,858
2032	16,660,334	1,910,858
2033	15,899,039	1,910,858
2034	15,085,214	1,910,858
2035	14,215,236	1,910,858
2036	13,285,229	1,910,858
2037	12,291,051	1,910,858
2038	11,228,276	1,910,858
2039	10,092,168	1,910,858
2040	8,877,670	1,910,858
2041	7,579,371	1,910,858
2042	6,191,489	1,910,858
2043	4,707,844	1,860,811
2044	3,171,874	1,773,238
2045	1,617,496	1,729,103
2046	0	0