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GASB STATEMENT NO. 68 REPORT

FOR THE

CONNECTICUT STATE TEACHERS' RETIREMENT SYSTEM

PREPARED AS OF JUNE 30, 2021

FOR FINANCIAL REPORTING AS OF JUNE 30, 2022

REVISED AS OF MAY 17, 2022





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

May 17, 2022

Board of Directors
Connecticut State Teachers' Retirement System
165 Capitol Ave
Hartford, CT 06106-1673

Members of the Board:

Presented in this report is information to assist the Connecticut State Teachers' Retirement System in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 68 and to identify the information to be provided by the actuary, Cavanaugh Macdonald Consulting (CMC). The information is presented for the period ending June 30, 2021 (the Measurement Date). This report revises the amount reported as employer contributions for the fiscal year ending June 30, 2021 to remove the receivable amount transferred from the Budget Reserve Fund (BRF) and report that amount as an other addition to assets. In conjunction with this change we redetermined the investment gain for the measurement period.

GASB Statement Number 68 establishes accounting and financial reporting requirements for governmental employers that provide pension benefits to their employees through a trust.

The annual actuarial valuation used as a basis for much of the information presented in this report, including the Net Pension Liability, was performed as of June 30, 2020. The valuation was based upon data, furnished by the Retirement System staff, for active, inactive and retired members along with pertinent financial information. The liabilities of the June 30, 2020 actuarial valuation were rolled forward to the measurement date of June 30, 2021. The schedules contained within this report for participating employers are based on the expected contribution effort as measured June 30, 2020, the date of the latest biennial valuation.

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.

Please note that we are preparing this report during a pandemic. We have considered available information, but do not believe that there is yet sufficient data to warrant the modification of any of our assumptions. We will continue to monitor the situation and advise the Board in the future of any adjustments that we believe would be appropriate.



Board of Directors
May 17, 2022
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The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the System, and on actuarial assumptions that are internally consistent and individually reasonable based on the actual experience of the System. In addition, the calculations were completed in compliance with the laws governing the System and, in our opinion, meet the requirements of GASB 68. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

These results are only for financial reporting and may not be appropriate for funding purposes or other types of analysis. Calculations for purposes other than satisfying the requirements of GASB 67 and GASB 68 may produce significantly different results. Future actuarial results may differ significantly from the current results presented in this report due to such factors as changes in plan experience or changes in economic or demographic assumptions.

Sincerely yours,

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

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

A handwritten signature in blue ink that reads 'Ben Mobley'.

Ben Mobley ASA, FCA, MAAA
Consulting Actuary



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**REPORT OF THE ANNUAL GASB STATEMENT NO. 68
REQUIRED INFORMATION FOR THE
EMPLOYERS PARTICIPATING IN THE
CONNECTICUT STATE TEACHERS' RETIREMENT SYSTEM**

PREPARED AS OF JUNE 30, 2021

SECTION I – INTRODUCTION

The Governmental Accounting Standards Board issued Statement No. 68 (GASB 68), “*Accounting and Financial Reporting For Pensions*” in June 2012. GASB 68’s effective date is for an employer’s fiscal year beginning after June 15, 2014. The Connecticut State Teachers’ Retirement System (System) is a cost-sharing multiple employer defined benefit pension plan with a special funding situation.

This report, prepared as of June 30, 2021 (the Measurement Date), presents information to assist the employers participating in System in meeting the requirements of GASB 68 for the fiscal year ending June 30, 2022 (Reporting Date). Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of the System as of June 30, 2021. The results of that valuation were detailed in a report dated November 5, 2020.

The Net Pension Liability (NPL) shown in the GASB Statement No. 67 Report for the Connecticut State Teachers’ Retirement System prepared as of June 30, 2021 and submitted May 17, 2022 is the collective NPL used for purposes of GASB 68. Please refer to that report for the derivation of the collective NPL.

Pension Expense (PE) includes amounts for service cost (the normal cost under the Entry Age Normal actuarial cost method for the year), interest on the Total Pension Liability (TPL), changes in benefit structure, amortization of increases/decreases in liability due to actuarial experience and actuarial assumption changes, and amortization of investment gains/losses. The actuarial experience and assumption change impacts are amortized over the average expected remaining service life of the Plan membership as of the Measurement Date, and investment gains/losses are amortized over five years. The development of the collective PE is shown in Section IV.

The unamortized portions of each year’s experience, assumption changes and investment gains/losses are used to develop deferred inflows and outflows, which also must be included in the employer’s and non-employer contributing entities’ financial statements. The development of the collective deferred inflows and outflows is shown in Section III.



The State makes all contributions to the System on behalf of employees of the participating districts. Therefore, participating employers are considered to be in a special funding situation as defined by GASB 68 and the State is treated as a non-employer contributing entity in the System. Since the districts do not contribute directly to the System, there is no NPL or deferred inflows or outflows to report in the financial statements of the districts. However, the notes to the financial statements must disclose the portion of the non-employer contributing entities' total proportionate share of the collective NPL that is associated with the employer. In addition, each district must recognize the total PE associated with the district as well as revenue in an amount equal to the non-employer contributing entities' total proportionate share of the collective PE associated with the district. The State, as a non-employer contributing entity, would report the entire collective amounts of the NPL, Deferred Inflows and Outflows and PE.

Schedule A of this report shows the total amount of employer contributions from the State as support provided to the districts for the year ending June 30, 2021. Schedule A also shows the proportionate share percentages that have been determined based on these contributions.

Based on these percentages we have determined the proportionate share amounts of the NPL associated with each participating employer and the employer PE and revenue for State support for each participating employer. These amounts are shown in Schedule B.

Section II of this report is a summary of the principal results of the collective amounts under GASB 68. Section III provides the results of all the necessary calculations, presented in the order laid out in GASB 68 for note disclosure and Section V shows the Required Supplementary Information (RSI).



SECTION II - SUMMARY OF COLLECTIVE AMOUNTS
(\$ IN THOUSANDS)

Valuation Date (VD):	June 30, 2020
Measurement Date (MD):	June 30, 2021
Reporting Date (RD):	June 30, 2022
Single Equivalent Interest Rate (SEIR):	
Long-Term Expected Rate of Return	6.90%
Municipal Bond Index Rate at Measurement Date	2.16%
Fiscal Year in which Plan's Fiduciary Net Position is projected to be depleted from future benefit payments for current members	N/A
Single Equivalent Interest Rate	6.90%
Collective Net Pension Liability:	
Total Pension Liability (TPL)	\$ 38,043,351
Fiduciary Net Position (FNP)	<u>23,117,088</u>
Net Pension Liability (NPL = TPL – FNP)	\$ 14,926,263
FNP as a percentage of TPL	60.77%
Collective Pension Expense (PE):	\$963,525
Collective Deferred Outflows of Resources:	\$3,028,417
Collective Deferred Inflows of Resources:	\$2,335,902



SECTION III –NOTES TO FINANCIAL STATEMENTS

The material presented herein will follow the order presented in GASB 68. Paragraph numbers are provided for ease of reference. Amounts are shown in aggregate. Please refer to Schedule B of this report for the proportionate share of certain pension amounts as required by GASB 68.

Paragraphs 77 and 78(a)-(f): These paragraphs require information to be disclosed regarding the actuarial assumptions used to measure the TPL. The actuarial assumptions used in the June 30, 2020 valuation were based on the results of an actuarial experience study for the period July 1, 2014 – June 30, 2019. The complete set of actuarial assumptions utilized in developing the TPL are outlined in Schedule D. The TPL was determined by an actuarial valuation as of June 30, 2020, using the following key actuarial assumptions:

Inflation	2.50 percent
Salary increases	3.00 – 6.50 percent, including inflation
Investment rate of return	6.90 percent, net of pension plan investment expense, including inflation

Mortality rates were based on the PubT-2010 Healthy Retiree Table (adjusted 105% for males and 103% for females as ages 82 and above), projected generationally with MP-2019 for the period after service retirement. The PubT-2010 Disabled Retiree Table projected generationally with MP-2019 was used for the period after disability retirement. The PubT-2010 Contingent Survivor Table projected generationally with MP-2019 and set forward 1 year for both males and females was used for survivors and beneficiaries. The PubT-2010 Employee Table projected generationally with MP-2019 was used for active members.

The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The current capital market assumptions and the target asset allocation as provided by the Treasurer’s Office are shown in the following table:



Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic Equity Fund	20.0%	5.6%
Developed Market Intl. Stock Fund	11.0	6.0
Emerging Market Intl. Stock Fund	9.0	7.9
Core Fixed Income Fund	16.0	2.1
Inflation Linked Bond Fund	5.0	1.1
Emerging Market Debt Fund	5.0	2.7
High Yield Bond Fund	6.0	4.0
Real Estate Fund	10.0	4.5
Private Equity	10.0	7.3
Alternative Investments	7.0	2.9
Liquidity Fund	1.0	0.4

Discount rate. The discount rate used to measure the total pension liability was 6.90 percent. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that State contributions will be made at the actuarially determined rates in future years. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.



Paragraph 78 (g): This paragraph requires disclosure of the sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability of the System, calculated using the discount rate of 6.90 percent, as well as what the System’s net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (5.90 percent) or 1-percentage-point higher (7.90 percent) than the current rate (\$ thousands):

	1% Decrease (5.90%)	Current Discount Rate (6.90%)	1% Increase (7.90%)
Collective net pension liability	\$19,751,183	\$14,926,263	\$10,920,127

Paragraph 80(a): This paragraph requires disclosure of the employer’s proportionate share of the collective NPL and if an employer has a special funding situation the portion of the non-employer contributing entities’ proportional share of the collective NPL that is associated with the employer. These amounts are shown in Schedule B.

Paragraph 80(b): This paragraph requires disclosure of the employer’s proportion (percentage) of the collective NPL and the changes in proportion since the prior measurement date. 100% of the collective NPL is allocated to the State.

Paragraph 80(c): June 30, 2020 is the actuarial valuation date upon which the TPL is based.

Paragraph 80(d): There were no changes in assumptions that affected the measurement of the TPL since the prior measurement date.

Paragraph 80(e): There were no changes in benefit provisions that affected the measurement of the TPL since the prior measurement date.

Paragraph 80(f): Not applicable.

Paragraph 80(g): Please see Section IV of this report for the development of the collective pension expense. The PE for each employer is shown in Schedule B.



Paragraph 80(h): Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce collective pension expense they are labeled deferred inflows. If they will increase collective pension expense they are labeled deferred outflows. The amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average expected remaining service life of the active and inactive Plan members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five year period.

The table below provides a summary in the difference between projected and actual earnings on plan investments.

Investment Earnings (Gain)/Loss as of June 30, 2021	
(\$ thousands)	
a	Expected asset return rate 6.90%
b	Beginning of year market value assets (BOY) \$18,281,910
c	End of year market value assets (EOY) 23,117,088
d	Expected return on BOY for plan year (a x b) 1,261,452
	External Cash Flow
	Contributions - employer 1,249,835
	Contributions - member 323,306
	Refunds of contributions 0
	Benefits paid (2,171,063)
	Admin expenses 0
	Other changes (net of receivable)* <u>791</u>
e	Net cash flow (597,131)
f	Expected return on net cash flow (a x 0.5 x e) (20,601)
g	Projected earnings for plan year (d + f) 1,240,851
h	Net investment income (c - b - e) 4,528,666
	Investment earnings (gain)/loss (g -h) (3,287,815)

*Other changes are comprised of participating employer contributions for Early Retirement Incentive Plans, service purchases, etc.



The table below provides a summary of the determination of the average expected remaining service life for the entire Plan membership determined at the beginning of the year.

Category	Number (1)	Average Years of Working Lifetime (2)
a. Active Members	50,951	12.43
b. Inactive Members	48,906	0.00
c. Total	99,857	
Weighted Average Years of Working Lifetime [(a1 * a2) + (b1 * b2)]/c1		6.34

The table below provides a summary of the collective deferred inflows and outflows as of the Measurement Date. 100% of these amounts are allocated to the State.

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$0	\$400,096
Changes of assumptions	3,028,417	0
Net difference between projected and actual earnings on plan investments	0	1,935,806
Employer contributions subsequent to the Measurement Date	<u>0</u>	<u>0</u>
Total	<u>\$3,028,417</u>	<u>\$2,335,902</u>



Paragraph 80(i): Collective amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in the collective pension expense as follows. 100% of these amounts are allocated to the State.

Deferred Amounts to be Recognized in Fiscal Years Following the Reporting Date:	
Year 1	\$490,179
Year 2	245,773
Year 3	208,773
Year 4	(297,987)
Year 5	45,777
Year 6	0
Thereafter	0

Paragraph 80(j): The amount of revenue recognized for the support provided by non-employer contributing entities for the participating employers is provided in Schedule B.



SECTION IV – COLLECTIVE PENSION EXPENSE

As noted earlier, the collective Pension Expense (PE) consists of a number of different items. GASB 68 refers to the first as Service Cost which is the Normal Cost using the Entry Age Normal actuarial funding method. The second item is interest on the beginning Total Pension Liability (TPL) and the cash flow during the year at the 6.90% rate of return in effect as of the previous measurement date. The next three items refer to any changes that occurred in the TPL due to:

- benefit changes, or
- actual versus expected experience, or
- changes in actuarial assumptions.

Benefit changes, which are reflected immediately in PE, can be positive, if there is a benefit improvement for existing Plan members, or negative if there is a benefit reduction. For the year ended June 30, 2021, there were no changes.

The next item to be recognized is the portion of current year changes in TPL due to actual versus expected Plan experience for the year. The portion to recognize in the current year is determined by spreading the total change over the average expected remaining service life of the entire Plan membership determined at the beginning of the year. The average expected remaining service life of active members is the average number of years the active members are expected to remain active. For the year ended June 30, 2021 this number of years for the active members is 12.43. The average expected remaining service life of the inactive members is, of course, zero. Therefore, the number of years to use for the amortization is the weighted average for all active and inactive members, or 6.34 years.

The last item under changes in TPL are changes in actuarial assumptions. There were no changes in assumptions since the last measurement date. If there was a change in TPL due to changes in actuarial assumptions, recognition of the change would also be spread over the average expected remaining service life of the plan membership.

Member contributions for the year and projected earnings on the Fiduciary Net Position (FNP), again at the discount rate used to calculate the liabilities, are subtracted from the amount determined thus far. One-fifth of current period differences between projected and actual investment earnings on the FNP are recognized in the pension expense.



The current year portions of previously determined experience, assumption and earnings amounts, recognized as deferred outflows and inflows (see Section III) are included also. Deferred outflows are added to the PE while deferred inflows are subtracted from the PE. Finally, administrative expenses and other miscellaneous items are included.

The calculation of the Collective Pension Expense determined as of the measurement date is shown in the following table:

Collective Pension Expense Determined as of the Measurement Date (\$ thousands)	
Service Cost at end of year	\$599,484
Interest on the TPL and net cash flow	2,486,930
Current-period benefit changes	0
Expensed portion of current-period difference between expected and actual experience in the total pension liability	0
Expensed portion of current-period changes of assumptions	0
Member contributions	(323,306)
Projected earnings on plan investments	(1,240,851)
Expensed portion of current-period differences between projected and actual earnings on plan investments	(657,563)
Administrative expense	0
Other	(904,434)
Recognition of beginning deferred outflows of resources as pension expense	1,169,117
Recognition of beginning deferred inflows of resources as pension expense	<u>(165,852)</u>
Collective Pension Expense	<u>\$963,525</u>



SECTION V – REQUIRED SUPPLEMENTARY INFORMATION

Paragraphs 81(a)-(b): CMC was not required to supply this information.

Paragraph 82:

Changes of benefit terms:

- 2019
 - HB 7424 made the following provision changes:
 - Beginning July 1, 2019, annual interest credited on mandatory contributions set at 4.0%.
 - For members retiring on or after July 1, 2019 with a partial refund option election (Plan N), if 50% of the benefits paid prior to death do not exceed the Member's mandatory contributions plus interest frozen at the date of the benefit commencement, the difference is paid to the Member's beneficiary.
- 2018
 - Beginning January 1, 2018, member contributions increased from 6% to 7% of salary.

Changes of assumptions:

- 2020
 - The Board adopted new assumptions as the result of an experience study for the five-year period ending June 30, 2019. The changes in assumptions are summarized below:
 - Decrease the annual rate of real wage increase assumption from 0.75% to 0.50%.
 - Decrease payroll growth assumption from 3.25% to 3.00%.
 - Rates of withdrawal, disability, retirement, mortality, and assumed rates of salary increase were adjusted to more closely reflect actual and anticipated experience.
- 2019
 - The Board adopted new assumptions in conjunction with HB 7424. The changes in assumptions are summarized below:
 - Reduce the inflation assumption from 2.75% to 2.50%.



- Reduce the real rate of return assumption from 5.25% to 4.40% which, when combined with the inflation assumption change results in a decrease in the investment rate of return assumption from 8.00% to 6.90%.
- Increase the annual rate of wage increase assumption from 0.50% to 0.75%.
- Phase in to a level dollar amortization method for the June 30, 2024 valuation.
- 2016
 - Rates of withdrawal, disability, retirement, mortality, and assumed rates of salary increase were adjusted to more closely reflect actual and anticipated experience. These assumptions were recommended as part of the Experience Study for the System for the five year period ended June 30, 2015.

Method and assumptions used in calculations of actuarially determined contributions. The actuarially determined contributions in the schedule of employer contributions are calculated as of June 30 each biennium for the fiscal years ending two and three years after the valuation date. The following actuarial methods and assumptions were used to determine the most recent contributions reported in that schedule:

Actuarial cost method	Entry age
Amortization method	Level percent of pay closed, grading to a level dollar amortization method for the June 30, 2024 valuation.
Single equivalent amortization period	30 years
Asset valuation method	4-year smoothed market
Inflation	2.50 percent
Salary increase	3.25-6.50 percent, including inflation
Investment rate of return	6.90 percent, net of investment related expense



SCHEDULE A

**CONNECTICUT STATE TEACHERS' RETIREMENT SYSTEM
Schedule of Employer Allocations as of June 30, 2021**

Employers	2021 Expected Employer Contribution Effort for Allocation Purposes	Employer Allocation Percentage
Andover	\$ 527,023	0.042167%
Ansonia	4,121,442	0.329759%
Ashford	911,007	0.072890%
Avon	8,623,854	0.689999%
Barkhamsted	472,634	0.037816%
Berlin	6,757,934	0.540706%
Bethany	915,489	0.073249%
Bethel	7,058,079	0.564721%
Highville Chtr	510,914	0.040878%
Bloomfield	5,210,584	0.416902%
Bolton	2,109,453	0.168779%
Bozrah	521,316	0.041711%
Branford	7,901,273	0.632185%
Bridgeport	36,013,722	2.881478%
Bristol	16,964,600	1.357347%
Brookfield	6,169,003	0.493585%
Brooklyn	1,824,228	0.145957%
Cldrn Ctr Com Prog	103,445	0.008277%
Canaan	256,935	0.020558%
Canterbury	1,008,192	0.080666%
Canton	3,546,989	0.283797%
Chaplin	468,844	0.037512%
Cheshire	10,570,455	0.845748%
Chester	396,031	0.031687%
Clinton	4,565,209	0.365265%
Colchester	5,694,337	0.455607%
Amistad Acd	1,293,190	0.103469%
Colebrook	250,301	0.020027%
Columbia	1,259,072	0.100739%
Cornwall	265,390	0.021234%
Coventry	3,865,862	0.309310%
Cromwell	4,195,848	0.335712%
Danbury	23,636,331	1.891156%
Darien	13,961,737	1.117086%
Deep River	396,425	0.031718%
Derby	2,990,195	0.239247%
Eastford	363,149	0.029056%
East Granby	2,408,142	0.192677%



Employers	2021 Expected Employer Contribution Effort for Allocation Purposes	Employer Allocation Percentage
East Haddam	\$ 2,882,483	0.230629%
East Hampton	4,540,809	0.363313%
East Hartford	16,015,434	1.281404%
East Haven	6,030,932	0.482538%
East Lyme	6,567,463	0.525466%
Easton	2,330,313	0.186450%
East Windsor	3,186,221	0.254931%
Ellington	5,910,445	0.472898%
Enfield	11,719,100	0.937652%
Essex	599,031	0.047929%
Fairfield	26,809,845	2.145071%
Farmington	10,212,146	0.817080%
Franklin	394,943	0.031600%
Glastonbury	14,818,131	1.185607%
Granby	4,221,164	0.337738%
Greenwich	30,188,953	2.415435%
Griswold	3,690,477	0.295277%
Groton	11,171,284	0.893821%
Guilford	8,162,367	0.653076%
Hamden	13,667,869	1.093574%
Hampton	274,559	0.021968%
Hartford	39,520,957	3.162094%
Hartland	400,926	0.032078%
Hebron	1,663,137	0.133069%
Kent	554,850	0.044394%
Killingly	4,992,510	0.399454%
Lebanon	2,423,868	0.193935%
Ledyard	5,330,196	0.426472%
Lisbon	949,541	0.075973%
Litchfield	2,547,947	0.203863%
Madison	7,144,290	0.571619%
Manchester	16,334,821	1.306958%
Mansfield	3,284,937	0.262830%
Marlborough	1,183,694	0.094708%
Meriden	16,437,518	1.315175%
Middletown	11,557,815	0.924747%
Milford	15,530,933	1.242639%
Monroe	8,566,594	0.685418%
Montville	5,376,993	0.430216%
Naugatuck	8,931,190	0.714590%
New Britain	21,486,818	1.719172%
New Canaan	12,710,728	1.016992%
New Fairfield	6,146,011	0.491746%



Employers	2021 Expected Employer Contribution Effort for Allocation Purposes	Employer Allocation Percentage
New Hartford	\$ 1,010,281	0.080833%
New Haven	43,054,509	3.444813%
Newington	9,834,831	0.786890%
New London	6,989,293	0.559217%
New Milford	8,488,610	0.679178%
Newtown	10,713,544	0.857197%
Norfolk	210,525	0.016844%
North Branford	3,996,048	0.319726%
North Canaan	588,421	0.047080%
North Haven	7,747,077	0.619848%
No.Stonington	1,943,075	0.155467%
Norwalk	30,114,827	2.409504%
Norwich	7,126,615	0.570204%
NFA	5,046,719	0.403791%
Old Saybrook	3,683,432	0.294713%
Orange	3,033,780	0.242734%
Oxford	3,971,048	0.317726%
Plainfield	4,185,391	0.334875%
Plainville	5,512,547	0.441062%
Plymouth	3,187,906	0.255066%
Pomfret	854,284	0.068352%
Portland	2,884,097	0.230758%
Preston	1,067,987	0.085450%
Putnam	2,592,715	0.207445%
Redding	2,900,752	0.232091%
RSD 1	1,994,992	0.159620%
RSD 4	2,100,542	0.168066%
RSD 5	5,928,657	0.474355%
RSD 6	2,466,734	0.197365%
RSD 7	2,512,088	0.200994%
RSD 8	3,290,374	0.263265%
Ridgefield	13,191,596	1.055467%
Rocky Hill	6,832,860	0.546701%
Salem	945,779	0.075672%
Salisbury	720,824	0.057674%
Scotland	327,267	0.026185%
Seymour	4,792,567	0.383456%
Sharon	484,239	0.038744%
Shelton	11,031,024	0.882598%
Sherman	1,081,345	0.086519%
Simsbury	10,460,556	0.836955%
Somers	3,418,098	0.273484%
Southington	13,502,507	1.080343%



Employers	2021 Expected Employer Contribution Effort for Allocation Purposes	Employer Allocation Percentage
S. Windsor	\$ 10,878,420	0.870388%
Sprague	511,418	0.040919%
Stafford	3,635,678	0.290893%
Stamford	42,702,976	3.416689%
SDE	11,899,879	0.952116%
DCF Recq Home	478,328	0.038271%
Sterling	702,544	0.056211%
Stonington	4,919,899	0.393644%
Stratford	16,460,101	1.316982%
Suffield	5,445,442	0.435693%
Thomaston	1,955,762	0.156482%
Thompson	2,273,102	0.181872%
Tolland	5,177,640	0.414266%
Torrington	8,706,824	0.696638%
Trumbull	16,817,483	1.345576%
Union	186,709	0.014939%
Vernon	7,705,793	0.616545%
Voluntown	641,375	0.051317%
Wallingford	15,782,212	1.262744%
Waterbury	34,145,031	2.731963%
Waterford	6,997,165	0.559847%
Watertown	5,715,931	0.457335%
Westbrook	2,438,342	0.195093%
W.Hartford	23,777,913	1.902484%
West Haven	12,805,370	1.024565%
Weston	7,011,747	0.561014%
Westport	16,817,400	1.345570%
Wethersfield	8,371,603	0.669817%
Willington	1,131,335	0.090519%
Wilton	11,903,515	0.952407%
Winchester	1,472,207	0.117792%
Windham	7,082,988	0.566714%
Windsor	9,559,838	0.764888%
Windsor Locks	4,818,695	0.385546%
Winsted/Gilbert	1,075,130	0.086022%
Wolcott	5,012,119	0.401022%
Woodbridge	2,062,344	0.165009%
Woodstock	1,575,954	0.126093%
Woodstock Ad	2,227,154	0.178196%
UCONN	516,854	0.041354%
RSD 9	2,788,454	0.223106%
CCI Somers	63,705	0.005097%
RSD 10	5,302,404	0.424248%



Employers	2021 Expected Employer Contribution Effort for Allocation Purposes	Employer Allocation Percentage
Supervision District	\$ 1,111,700	0.088948%
NWCTC	100,691	0.008056%
MCTC	90,461	0.007238%
Norwalk CTC	121,663	0.009734%
WCSU	135,290	0.010825%
CCSU	471,096	0.037693%
ESCU	242,059	0.019367%
SCSU	584,822	0.046792%
RSD 11	655,931	0.052481%
CCTC	42,698	0.003416%
Hou CTC	182,803	0.014626%
Naug CTC	176,411	0.014115%
MCTC	145,945	0.011677%
Ed Connection	1,166,654	0.093345%
RSD 12	2,597,837	0.207854%
Gateway CTC	284,245	0.022743%
RSD 13	4,747,236	0.379829%
RSD 14	4,302,061	0.344210%
CCI Cheshire	63,496	0.005080%
Shared Svcs	485,780	0.038868%
CREC	24,508,948	1.960975%
RSD 15	8,993,466	0.719572%
RSD 16	4,825,282	0.386074%
TRCC (Mohegan)	98,632	0.007892%
Tunxis CTC	149,627	0.011972%
QVCC	22,802	0.001824%
Odyssey	612,837	0.049033%
CES	3,804,552	0.304404%
ACES	7,089,424	0.567229%
Project Learn	5,381,020	0.430538%
RSD 17	4,709,385	0.376801%
Asnun CTC	-	0.000000%
RSD 18	3,707,611	0.296648%
EASTCONN	2,395,014	0.191626%
BSBE	258,937	0.020718%
RSD 19	2,999,299	0.239976%
UCONN Health	389,963	0.031201%
CCI Niantic	38,602	0.003089%
Children's CTR	402,957	0.032241%
Bridges Academy	497,176	0.039779%
Common Ground	478,565	0.038290%
Explorations	270,206	0.021619%
Integrated Day	551,596	0.044134%



Employers	2021 Expected Employer Contribution Effort for Allocation Purposes	Employer Allocation Percentage
Isaac	\$ 505,312	0.040430%
Jumoke Academy	897,321	0.071795%
Side by Side	429,980	0.034403%
Trailblazers Academy	9,823	0.000786%
New Beginnings	698,235	0.055866%
Elm City CP	701,281	0.056110%
Stamford Academy	254,468	0.020360%
Park City	469,916	0.037598%
AF Bridgeport Academy	776,150	0.062100%
SERC	73,149	0.005853%
AF Hartford Acad	1,057,835	0.084638%
Brass City	426,187	0.034099%
Path Academy	-	0.000000%
Great Oaks Charter	216,612	0.017331%
Booker T. Washington (BTW)	495,624	0.039655%
Capitol Prep Harbor	735,190	0.058823%
Stamford Charter Excellence	239,114	0.019132%
Total	\$ 1,249,835,000	100.000000%



SCHEDULE B

CONNECTICUT STATE TEACHERS' RETIREMENT SYSTEM
Schedule of Pension Amounts by Employer as of June 30, 2021

Employers	State's Proportionate Share Of the Net Pension Liability Associated with the District	Pension Expense and Revenue For State Support
Andover	\$ 6,293,957	\$ 406,290
Ansonia	49,220,696	3,177,310
Ashford	10,879,753	702,313
Avon	102,991,065	6,648,313
Barkhamsted	5,644,516	364,367
Berlin	80,707,200	5,209,837
Bethany	10,933,338	705,772
Bethel	84,291,742	5,441,228
Highville Chtr	6,101,558	393,870
Bloomfield	62,227,889	4,016,955
Bolton	25,192,397	1,626,228
Bozrah	6,225,894	401,896
Branford	94,361,596	6,091,261
Bridgeport	430,096,985	27,763,761
Bristol	202,601,183	13,078,378
Brookfield	73,673,795	4,755,815
Brooklyn	21,785,926	1,406,332
Cldrn Ctr Com Prog	1,235,447	79,751
Canaan	3,068,541	198,081
Canterbury	12,040,419	777,237
Canton	42,360,287	2,734,455
Chaplin	5,599,140	361,437
Cheshire	126,238,571	8,148,993
Chester	4,729,685	305,312
Clinton	54,520,415	3,519,420
Colchester	68,005,099	4,389,887
Amistad Acd	15,444,055	996,950
Colebrook	2,989,283	192,965
Columbia	15,036,568	970,645
Cornwall	3,169,443	204,595
Coventry	46,168,424	2,980,279
Cromwell	50,109,256	3,234,669
Danbury	282,278,918	18,221,761
Darien	166,739,194	10,763,403
Deep River	4,734,312	305,611
Derby	35,710,636	2,305,205
Eastford	4,336,975	279,962
East Granby	28,759,476	1,856,491



Employers	State's Proportionate Share Of the Net Pension Liability Associated with the District	Pension Expense and Revenue For State Support
East Haddam	\$ 34,424,291	\$ 2,222,168
East Hampton	54,229,054	3,500,612
East Hartford	191,265,731	12,346,648
East Haven	72,024,891	4,649,374
East Lyme	78,432,437	5,062,996
Easton	27,830,017	1,796,492
East Windsor	38,051,672	2,456,324
Ellington	70,585,999	4,556,490
Enfield	139,956,404	9,034,511
Essex	7,154,009	461,808
Fairfield	320,178,939	20,668,295
Farmington	121,959,510	7,872,770
Franklin	4,716,699	304,474
Glastonbury	176,966,819	11,423,620
Granby	50,411,662	3,254,190
Greenwich	360,534,181	23,273,320
Griswold	44,073,822	2,845,068
Groton	133,414,073	8,612,189
Guilford	97,479,841	6,292,551
Hamden	163,229,731	10,536,859
Hampton	3,279,001	211,667
Hartford	471,982,467	30,467,566
Hartland	4,788,047	309,080
Hebron	19,862,229	1,282,153
Kent	6,626,365	427,747
Killingly	59,623,555	3,848,839
Lebanon	28,947,248	1,868,612
Ledyard	63,656,332	4,109,164
Lisbon	11,339,930	732,019
Litchfield	30,429,128	1,964,271
Madison	85,321,355	5,507,692
Manchester	195,079,988	12,592,867
Mansfield	39,230,697	2,532,433
Marlborough	14,136,365	912,535
Meriden	196,306,479	12,672,040
Middletown	138,030,169	8,910,169
Milford	185,479,565	11,973,137
Monroe	102,307,293	6,604,174
Montville	64,215,172	4,145,239
Naugatuck	106,661,583	6,885,253
New Britain	256,608,134	16,564,652
New Canaan	151,798,901	9,798,972
New Fairfield	73,399,301	4,738,096



Employers	State's Proportionate Share Of the Net Pension Liability Associated with the District	Pension Expense and Revenue For State Support
New Hartford	\$ 12,065,346	\$ 778,846
New Haven	514,181,851	33,191,640
Newington	117,453,271	7,581,882
New London	83,470,200	5,388,196
New Milford	101,375,895	6,544,050
Newtown	127,947,479	8,259,307
Norfolk	2,514,180	162,296
North Branford	47,723,144	3,080,640
North Canaan	7,027,285	453,628
North Haven	92,520,143	5,972,390
No.Stonington	23,205,413	1,497,963
Norwalk	359,648,904	23,216,173
Norwich	85,110,149	5,494,058
NFA	60,270,907	3,890,627
Old Saybrook	43,989,637	2,839,633
Orange	36,231,115	2,338,803
Oxford	47,424,618	3,061,369
Plainfield	49,984,323	3,226,604
Plainville	65,834,074	4,249,743
Plymouth	38,071,822	2,457,625
Pomfret	10,202,399	658,589
Portland	34,443,546	2,223,411
Preston	12,754,492	823,332
Putnam	30,963,786	1,998,784
Redding	34,642,513	2,236,255
RSD 1	23,825,301	1,537,979
RSD 4	25,085,973	1,619,358
RSD 5	70,803,475	4,570,529
RSD 6	29,459,219	1,901,661
RSD 7	30,000,893	1,936,627
RSD 8	39,295,626	2,536,624
Ridgefield	157,541,780	10,169,688
Rocky Hill	81,602,029	5,267,601
Salem	11,295,002	729,119
Salisbury	8,608,573	555,703
Scotland	3,908,442	252,299
Seymour	57,235,651	3,694,694
Sharon	5,783,031	373,308
Shelton	131,738,899	8,504,052
Sherman	12,914,053	833,632
Simsbury	124,926,104	8,064,271
Somers	40,820,941	2,635,087
Southington	161,254,837	10,409,375



Employers	State's Proportionate Share Of the Net Pension Liability Associated with the District	Pension Expense and Revenue For State Support
S. Windsor	\$ 129,916,402	\$ 8,386,406
Sprague	6,107,678	394,265
Stafford	43,419,454	2,802,827
Stamford	509,983,986	32,920,653
SDE	142,115,338	9,173,876
DCF Recq Home	5,712,430	368,751
Sterling	8,390,202	541,607
Stonington	58,756,339	3,792,858
Stratford	196,576,197	12,689,451
Suffield	65,032,683	4,198,011
Thomaston	23,356,915	1,507,743
Thompson	27,146,693	1,752,382
Tolland	61,834,433	3,991,556
Torrington	103,982,020	6,712,281
Trumbull	200,844,213	12,964,961
Union	2,229,834	143,941
Vernon	92,027,128	5,940,565
Voluntown	7,659,710	494,452
Wallingford	188,480,490	12,166,854
Waterbury	407,779,982	26,323,146
Waterford	83,564,236	5,394,266
Watertown	68,263,025	4,406,537
Westbrook	29,120,094	1,879,770
W.Hartford	283,969,765	18,330,909
West Haven	152,929,267	9,871,940
Weston	83,738,425	5,405,510
Westport	200,843,317	12,964,903
Wethersfield	99,978,647	6,453,854
Willington	13,511,104	872,173
Wilton	142,158,774	9,176,680
Winchester	17,581,944	1,134,955
Windham	84,589,222	5,460,431
Windsor	114,169,195	7,369,887
Windsor Locks	57,547,610	3,714,832
Winsted/Gilbert	12,839,870	828,843
Wolcott	59,857,598	3,863,947
Woodbridge	24,629,677	1,589,903
Woodstock	18,820,973	1,214,938
Woodstock Ad	26,598,004	1,716,963
UCONN	6,172,607	398,456
RSD 9	33,301,388	2,149,682
CCI Somers	760,792	49,111
RSD 10	63,324,372	4,087,736



Employers	State's Proportionate Share Of the Net Pension Liability Associated with the District		Pension Expense and Revenue For State Support	
Supervision District	\$	13,276,612	\$	857,036
NWCTC		1,202,460		77,622
MCTC		1,080,363		69,740
Norwalk CTC		1,452,922		93,790
WCSU		1,615,768		104,302
CCSU		5,626,156		363,181
ESCU		2,890,769		186,606
SCSU		6,984,297		450,853
RSD 11		7,833,452		505,668
CCTC		509,881		32,914
Hou CTC		2,183,115		140,925
Naug CTC		2,106,842		136,002
MCTC		1,742,940		112,511
Ed Connection		13,932,920		899,402
RSD 12		31,024,835		2,002,725
Gateway CTC		3,394,680		219,134
RSD 13		56,694,275		3,659,747
RSD 14		51,377,690		3,316,549
CCI Cheshire		758,254		48,947
Shared Svcs		5,801,540		374,503
CREC		292,700,286		18,894,484
RSD 15		107,405,209		6,933,256
RSD 16		57,626,421		3,719,920
TRCC (Mohegan)		1,177,981		76,041
Tunxis CTC		1,786,972		115,353
QVCC		272,255		17,575
Odyssey		7,318,795		472,445
CES		45,436,142		2,933,009
ACES		84,666,092		5,465,393
Project Learn		64,263,234		4,148,341
RSD 17		56,242,308		3,630,572
Asnun CTC		-		-
RSD 18		44,278,461		2,858,278
EASTCONN		28,602,601		1,846,364
BSBE		3,092,423		199,623
RSD 19		35,819,449		2,312,229
UCONN Health		4,657,143		300,629
CCI Niantic		461,072		29,763
Children's CTR		4,812,376		310,650
Bridges Academy		5,937,518		383,281
Common Ground		5,715,266		368,934
Explorations		3,226,909		208,304
Integrated Day		6,587,557		425,242



Employers	State's Proportionate Share Of the Net Pension Liability Associated with the District	Pension Expense and Revenue For State Support
Isaac	\$ 6,034,688	\$ 389,553
Jumoke Academy	10,716,311	691,763
Side by Side	5,135,082	331,482
Trailblazers Academy	117,320	7,573
New Beginnings	8,338,706	538,283
Elm City CP	8,375,126	540,634
Stamford Academy	3,038,987	196,174
Park City	5,611,976	362,266
AF Bridgeport Academy	9,269,209	598,349
SERC	873,634	56,395
AF Hartford Acad	12,633,290	815,508
Brass City	5,089,706	328,552
Path Academy	-	-
Great Oaks Charter	2,586,871	166,989
Booker T. Washington (BTW)	5,919,010	382,086
Capitol Prep Harbor	8,780,076	566,774
Stamford Charter Excellence	2,855,693	184,342
Total	\$ <u>14,926,263,000</u>	\$ <u>963,525,000</u>



SCHEDULE C

SUMMARY OF BENEFIT PROVISIONS EVALUATED

Covered Employees

Any teacher, principal, superintendent or supervisor engaged in service of public schools, plus professional employees at State schools of higher education if they choose to be covered.

Annual Salary

Annual Salary rate for service as a Connecticut teacher during a school year excluding amounts paid for extra duty assignments, coaching, unused sick time, unused vacation or terminal pay.

Average Annual Salary

Average of Annual Salary received during three years of highest salary.

Credited Service

One month for each month of service as a teacher in Connecticut public schools, maximum 10 months for each school year. Ten months of credited service constitutes one year of Credited Service. Certain other types of teaching service, State employment, or war-time military service may be purchased prior to retirement, if the Member pays one-half the cost.

Normal Retirement

Eligibility - Age 60 with 20 years of Credited Service in Connecticut, or 35 years of Credited Service including at least 25 years of service in Connecticut.

Benefit - 2% of Average Annual Salary times years of Credited Service (maximum benefit is 75% of Average Annual Salary)

In addition, amounts derived from the accumulation of mandatory contributions made prior to July 1, 1989 and voluntary contributions by the teacher are payable.

Minimum Benefit: Effective January 1, 1999, Public Act 98-251 provides a minimum monthly retirement benefit of \$1,200 to teachers who retire under the Normal Retirement provisions and who have completed at least 25 years of full time Connecticut service at retirement.

Early Retirement

Eligibility - 25 years of Credited Service including 20 years of Connecticut service, or age 55 with 20 years of Credited Service including 15 years of Connecticut service.

Benefit - Reduced normal retirement benefit. The early retirement factors currently in effect are 6% per year for the first five years by which early retirement precedes the minimum normal retirement age and 4% per year for the next five years by which early retirement precedes the minimum normal retirement age. Effective July 1, 1999, the reduction for individuals with 30 or more years of service is 3% for each year by which early retirement precedes the minimum retirement age.



Proratable Retirement

Eligibility - Age 60 with 10 years of Credited Service.

Benefit - 2% less 0.1% for each year less than 20 years of Average Annual Salary times years of Credited Service in Connecticut, plus 1% of Average Annual Salary times years of additional Credited Service time.

Disability Retirement

Eligibility - 5 years of Credited Service in Connecticut if not incurred in the performance of duty and no service requirement if incurred in the performance of duty.

Benefit - 2% of Average Annual Salary times Credited Service to date of disability, but not less than 15% of Average Annual Salary, nor more than 50% of Average Annual Salary. In addition, disability benefit under this plan (without regard to any cost-of-living adjustments) plus any initial award of Social Security benefits and workers' compensation cannot exceed Average Annual Salary.

Termination of Employment

Less than 5 years of Credited Service - Return mandatory contributions with interest.

5 or more years of Credited Service - Return employee mandatory contributions with interest and 1% contributions made prior to July 1, 1989 without interest.

10 or more years of Credited Service - Member is 100% vested in the accrued benefit based on Credited Service and Average Annual Salary as of the date of termination of covered employment. Benefits are payable at age 60 and early retirement reductions are based on the number of years of service the member would have had if they had continued to work until age 60.

Member may elect return of all contributions plus interest on employee mandatory contributions in lieu of vested benefit.

Pre-Retirement Death Benefits

A lump sum plus one of the following: survivor's benefit, return of all contributions with interest, or surviving spouse's benefit.

- Lump Sum: \$1,000 for the first 5 years of Connecticut service plus \$200 per year thereafter. Maximum benefit: \$2,000.
- Survivor's Benefit: For active teachers who die while in service, the family maximum benefit payable to survivors is \$1,500 per month. Each minor child is entitled to \$300 per month. The surviving spouse's benefit is \$300 per month if the member has 12 or less years of service. For each additional year of service, the surviving spouse's monthly benefit is increased \$25, up to a maximum of \$600.
- Accumulated contributions with interest plus dependent children's benefits as described in the "Survivor's Benefit" paragraph.
- Surviving Spouse's Benefit: An active member who is eligible for immediate retirement and who has named his or her spouse as primary beneficiary will be covered by a 100% Plan D co-participant option in the event of his or her death prior to retirement.



Benefit Options

Normal form: Partial Refund Option – For any member who retires prior to July 1, 2019, 75% of total benefit is paid as a life annuity. If 25% of the benefits paid prior to death do not exceed the Member's mandatory contributions plus interest frozen at the date of the benefit commencement, the difference is paid to the Member's beneficiary. For members retiring on or after July 1, 2019, 50% of total benefit is paid as a life annuity. If 50% of the benefits paid prior to death do not exceed the Member's mandatory contributions plus interest frozen at the date of the benefit commencement, the difference is paid to the Member's beneficiary.

Optional Forms: 5-, 10-, 20-, or 25-year certain and life and 33-1/3%, 50%, 66-2/3%, 75%, or 100% co-participant annuity (if co-participant dies first, benefit reverts to unreduced amount). Amounts payable under the optional forms are determined on an actuarially equivalent basis as set by the board.

Cost-of-Living Allowance

For teachers who retired prior to September 1, 1992, pension benefit adjustments are made in accordance with increases in the Consumer Price Index, with a minimum of 3% and a maximum of 5% per annum.

For teachers who were members of the Teachers' Retirement System before July 1, 2007, and retire on or after September 1, 1992, pension benefit adjustments are made that are consistent with those provided for Social Security benefits on January 1 of the year granted, with a maximum of 6% per annum. If the return on assets in the previous year was less than 8.5%, the maximum increase is 1.5%.

For teachers who were members of the Teachers' Retirement System after July 1, 2007, pension benefit adjustments are made that are consistent with those provided for Social Security benefits on January 1 of the year granted, with a maximum of 5% per annum. If the return on assets in the previous year was less than 11.5%, the maximum increase is 3%, and if the return on the assets in the previous year was less than 8.5%, the maximum increase is 1.0%.

Teachers' Mandatory Contribution

Effective July 1, 1992, each teacher is required to contribute 6% of annual salary for the pension benefit. Beginning January 1, 2018, each teacher is required to contribute 7% of annual salary. Beginning July 1, 2019, annual interest credited on mandatory contributions set at 4.0%.

State Contribution

The State's contribution requirement is determined in accordance with Section 10-183z (as amended by Section 88 of Public Act 19-117).

Early Retirement Incentive

A local or regional board of education may establish a retirement incentive plan. The plan shall provide for purchase of additional credited service by a board of education and a member of the system who chooses to participate in the plan, of additional credited service for such member and for payment by the board of education of not less than fifty per cent of the entire cost of such total cost. Any such plan shall specify a maximum number of years to be purchased, not to exceed five. Members must have attained age 50 and be eligible for retirement with the additional purchased service. The amount of service purchased cannot exceed the lesser of five years and one-fifth of the member's credited service.



SCHEDULE D

STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

Investment Rate of Return

Assumed annual rate of 6.90% net of investment expenses.

Rates of Annual Salary Increase

Rates of Annual Salary Increase Assumption	
Years of Service	
0	6.50%
1	6.25
2	6.00
3	6.00
4	6.00
5	6.00
6	6.00
7	6.00
8	6.00
9	6.00
10	5.50
11	5.50
12	5.25
13	5.00
14	4.75
15	4.50
16	4.00
17	3.75
18	3.50
19	3.25
20	3.00
21+	3.00



Active Member Decrement Rates

a. Table below provides a summary of the assumed rates of service retirement.

Annual Rates of Retirement				
Unreduced				
Age	Less than 35 years of Service		35 or more years of Service	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
50			35.0%	30.0%
55			35.0%	30.0%
60	20.0%	20.0%	30.0%	30.0%
65	27.5%	32.5%	35.0%	37.5%
70	27.5%	30.0%	30.0%	32.5%
75	100.0%	100.0%	100.0%	100.0%

Annual Rates of Retirement				
Age	Proratable		Reduced	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
50			1.50%	1.25%
52			1.50%	1.25%
54			2.00%	2.25%
56			4.00%	3.75%
58			6.50%	5.50%
60	6.0%	5.0%		
65	15.0%	12.0%		
70	28.5%	15.0%		
75	28.5%	15.0%		
80	100.0%	100.0%		

b. Table below provides a summary of the assumed rates of mortality while actively employed and disability.

Annual Rates of Disability		
Age	<u>Male</u>	<u>Female</u>
20	0.020%	0.020%
25	0.020%	0.020%
30	0.020%	0.020%
35	0.020%	0.030%
40	0.030%	0.060%
45	0.080%	0.090%
50	0.150%	0.150%
55	0.150%	0.170%
60	0.150%	0.150%



- c. Table below provides a summary of the assumed rates of withdrawal for active members prior to eligibility for retirement.

Annual Rates of Withdrawal					
10 or more years of service					
Years of Service	Male	Female	Age	Male	Female
0	15.00%	12.00%	25	1.80%	6.00%
1	11.00	11.00	30	1.80	6.00
2	8.50	9.50	35	1.80	4.25
3	7.00	8.00	40	1.80	2.50
4	5.50	7.50	45	1.80	2.00
5	4.50	7.00	50	2.25	2.40
6	4.00	6.50	55	4.00	3.90
7	3.50	6.00	59	5.50	4.00
8	3.50	5.50			
9	3.50	5.00			

Pre-Retirement Mortality

The PubT-2010 Employee Table projected generationally with MP-2019 is used for both males and females while in active service. Representative values of the assumed annual rates of mortality while in active service are as follows:

Annual Rates of Death*		
Age	Male	Female
30	0.022%	0.014%
35	0.030%	0.020%
40	0.042%	0.031%
45	0.067%	0.048%
50	0.111%	0.073%
55	0.172%	0.107%
60	0.264%	0.161%
65	0.435%	0.270%

* Rates shown are for 2010, the base year of the table.



Post-Retirement Mortality

The PubT-2010 Healthy Retiree Table (adjusted 105% for males and 103% for females at ages 82 and above) projected generationally with MP-2019 is used for the period after service retirement. The PubT-2010 Disabled Retiree Table projected generationally with MP-2019 is used for the period after disability retirement. The PubT-2010 Contingent Survivor Table projected generationally with MP-2019 and set forward 1 year for both males and females is used for survivors and beneficiaries. Representative values of the assumed annual rates of mortality are as follows:

Age	Annual Rates of Death*					
	Healthy		Disabled		Survivor	
	Male	Female	Male	Female	Male	Female
50	0.111%	0.073%	1.605%	1.483%	0.724%	0.342%
55	0.223%	0.193%	2.114%	1.742%	0.854%	0.476%
60	0.357%	0.287%	2.503%	1.956%	1.067%	0.667%
65	0.592%	0.446%	3.044%	2.256%	1.497%	0.973%
70	1.070%	0.770%	3.901%	2.862%	2.335%	1.478%
75	2.031%	1.461%	5.192%	4.003%	3.706%	2.371%
80	3.960%	2.868%	7.348%	6.007%	5.897%	3.985%
85	7.598%	5.548%	10.815%	9.331%	9.658%	7.122%
90	13.923%	10.392%	16.253%	13.665%	15.947%	12.596%

* Rates shown are for 2010, the base year of the tables

Asset Valuation Method

Market value of assets is used for GASB 68 disclosure purposes.

Actuarial Cost Method

The Entry Age Normal actuarial cost method allocates the plan's actuarial present value of future benefits to various periods based upon service. The portion of the present value of future benefits allocated to years of service prior to the valuation date is the actuarial accrued liability, and the portion allocated to years following the valuation date is the present value of future normal costs. The normal cost is determined for each active member as the level percent of payroll necessary to fully fund the expected benefits to be earned over the career of each individual active member. The normal cost is partially funded with active member contributions with the remainder funded by employer contributions.

The unfunded accrued liability is determined by subtracting the actuarial value of assets from the actuarial accrued liability. The UAAL as of June 30, 2018 is amortized as a level percent of pay and will grade to a level dollar method beginning with the June 30, 2024 valuation. Future changes to the UAAL will be amortized utilizing layered 25-year closed amortization bases established at the end of each plan year.

Payroll Growth Rate

This assumption only applies to the level percent of pay amortization method. The total annual payroll of active members is assumed to increase at an annual rate of 3.00%. This rate does not anticipate increases in the number of members. This rate will grade to 0% in the following steps: 2.40% for the FY 2022 payment, 1.80% for the FY 2023 payment, 1.20% for the FY 2024 payments, 0.60% for the FY 2025 payment and 0% for fiscal years thereafter.



Future Cost-of-living Increases

Members who retired prior to September 1, 1992 are assumed to receive an annual Cost-of-Living Adjustment (COLA) of 3.0%. Members who retired on or after September 1, 1992 and were hired prior to July 1, 2007 are assumed to receive an annual Cost-of-Living Adjustment (COLA) of 2.0%. Members who retired on or after September 1, 1992 and were hired on or after July 1, 2007 are assumed to receive an annual Cost-of-Living Adjustment (COLA) of 1.75%.

Administrative Expenses

Administrative expenses paid from System assets are assumed to be \$0 since expenses are paid directly from state appropriations.

Marriage Assumption

85% of males and 75% of females assumed to be married, with female spouses 3 years younger than males.

Plan N Partial Refund Option (Normal Form of Payment):

For any member who retires prior to July 1, 2019, upon death, the member's beneficiary will receive a lump sum payment of the member's contributions with interest to the member's date of retirement less 25% of the total payments received to the member's date of death. A 12-year Certain and Life payment form be used to approximate the Plan N option where available data does not allow liabilities to be calculated directly.

For any member who retires on or after July 1, 2019, upon death, the member's beneficiary will receive a lump sum payment of the member's contributions with interest to the member's date of retirement less 50% of the total payments received to the member's date of death. A 9-year Certain and Life payment form be used to approximate the Plan N option where available data does not allow liabilities to be calculated directly.

Changes from Prior Valuation

Since the prior valuation, the Board adopted new assumptions in conjunction with the Experience Investigation for the Five-Year Period Ending June 30, 2019. The changes in assumptions are summarized below:

Economic Assumptions

1. Decrease the annual rate of wage increase assumption from 0.75% to 0.50%.
2. Minor changes to the merit portion of the salary scale.
3. Reduce the payroll growth assumption from 3.25% to 3.00%.

Demographic Assumptions

1. Update mortality tables to the PubT-2010 mortality tables with generational mortality using MP-2019.
2. Modest adjustments to unreduced and prorable retirement rates. Decrease early retirement rates.
3. Increase in rates of withdrawal.
4. Decrease in rates of disability.