

# New Hampshire Retirement System

Actuarial Valuation Report  
as of June 30, 2021





April 29, 2022

Board of Trustees  
New Hampshire Retirement System  
54 Regional Drive  
Concord, New Hampshire 03301-8507

**Re: New Hampshire Retirement System Actuarial Valuation as of June 30, 2021**

Dear Board Members:

The results of the June 30, 2021 Annual Actuarial Valuation of the New Hampshire Retirement System (NHRS) are presented in this report. The purposes of the valuation were:

- to measure the System's funding progress; and
- to calculate employer contribution rates for Fiscal Years 2024 and 2025.

This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report. This report should not be relied on for any purpose other than the purposes described above.

Calculations required for compliance with the Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68, as well as No. 74 and No. 75, have been issued in separate reports.

The contribution rates in this report are determined according to Statute RSA 100-A:16, 53, 53-b, 53-c, and 53-d using the actuarial assumptions and methods disclosed in Section E of this report. This report includes risk measures on pages 30 through 36, but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We recommend that the Board consider performing an analysis to assess risk related to investment and payroll.

The valuation was based upon information, furnished by NHRS staff, concerning Retirement System benefits, financial transactions, and active members, terminated members, retirees and beneficiaries as of June 30, 2021. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the data provided by NHRS. Detailed demographic information can be found in the "ACFR Schedules and GASB Statement Nos. 67 and 74 Plan Reporting and Accounting Schedules" report dated October 29, 2021.

The valuation results summarized in this report involve actuarial calculations that require assumptions about future events. The actuarial assumptions are established by the Board after consulting with the actuary under New Hampshire Statute RSA 100-A:14 IX. Actuarial methods and assumptions were adopted by the Board pursuant to the 4-year actuarial experience study covering the period from July 1, 2015 to June 30, 2019. We believe that the assumptions and methods used in this report are reasonable and appropriate for the purposes for which they have been used. However, other assumptions and methods could also be reasonable and could result in materially different results. In addition, because it is not possible or practical to consider every possible contingency, we may use summary information, estimates or simplifications of calculations to facilitate the modeling of future events. We may also exclude factors or data that are deemed to be immaterial. The actuarial funding method is the Individual Entry Age Actuarial Cost Method, in compliance with NHRS State Statutes. Each actuarial valuation takes into account all prior differences between actual and assumed experience in each risk area and adjusts the contribution rates as needed.

This report was prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

We certify that the information contained in this report is accurate and fairly presents the actuarial position of the New Hampshire Retirement System as of June 30, 2021. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable Statutes RSA 100-A:16, 100-A:53, 100-A:53-b, 100-A:53-c, and 100-A:53-d.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as: plan experience differing from that anticipated by the economic and 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. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

If there is other information that you need in order to make an informed decision regarding the matters discussed in this report, please contact us.



David T. Kausch, Heidi G. Barry and Casey T. Ahlbrandt-Rains are independent of the plan sponsors, are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,  
Gabriel, Roeder, Smith & Company



David T. Kausch, FSA, EA, FCA, MAAA, PhD



Heidi G. Barry, ASA, FCA, MAAA



Casey T. Ahlbrandt-Rains, ASA, MAAA

DTK/HGB/CAR:dj



# Table of Contents

	<u>Page</u>
<b>Section A</b>	<b>Introduction</b>
	Highlights of Actuarial Valuation ..... 1
	Executive Summary..... 3
	Comments ..... 19
<b>Section B</b>	<b>Funding Results</b>
	Development of Employer Contribution Rates..... 23
	Development of Pension Actuarial Liabilities ..... 25
	Pension Unfunded Actuarial Accrued Liability Payoff Projections ..... 26
	Actuarial Balance Sheet ..... 28
	Experience Gain/(Loss) ..... 29
	Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution ..... 30
	Plan Maturity Measures..... 31
	Summary of Risk Measures..... 33
	Pension Solvency Test..... 34
	Impact of Payroll Growth Experience on Contribution Rates..... 36
	Schedule of Pension Funding Progress ..... 37
	Development of Pension Actuarial Liabilities, Amortization of UAAL, and Projection of UAAL Payoff by Division..... 38
	Development of Medical Subsidy Actuarial Liabilities..... 61
	Determination of Medical Subsidy Contribution Rates ..... 62
	Medical Subsidy Cash Flow Projections by Division ..... 63
<b>Section C</b>	<b>Fund Assets</b>
	Comparative Balance Sheet ..... 67
	Reconciliation of System Assets..... 68
	Development of Actuarial Value of Assets ..... 69
	Allocation of Assets..... 70
<b>Section D</b>	<b>Participant Data</b>
	Active Members by Valuation Division ..... 71
	Summary of Membership Data by Category ..... 72
<b>Section E</b>	<b>Methods and Assumptions</b> ..... 73
<b>Section F</b>	<b>Glossary</b> ..... 100
<b>Section G</b>	<b>Summary of Plan Provisions</b> ..... 103
<b>Section G</b>	<b>Funding Policy</b> ..... 118
<b>Appendix</b>	<b>Supplemental Data Schedules</b> ..... 126



# SECTION A

---

## INTRODUCTION

# Highlights of June 30, 2021 Actuarial Valuation

## Employer Contribution Rates for the 2024/2025 Biennium

Computed Employer Contribution Rates as a Percent of Payroll*				
State Members				
	Employees	Teachers	Police	Fire
Pension	13.27%	N/A	28.68%	27.75%
Medical Subsidy	0.58%	N/A	2.60%	2.60%
Total	13.85%	N/A	31.28%	30.35%

Computed Employer Contribution Rates as a Percent of Payroll*				
Political Subdivision Members				
	Employees	Teachers	Police	Fire
Pension	13.27%	18.51%	28.68%	27.75%
Medical Subsidy	0.26%	1.13%	2.60%	2.60%
Total	13.53%	19.64%	31.28%	30.35%

\* The grand total contribution rates for NHRS (State and Political Subdivisions combined) are 17.79% of payroll for pension and 1.05% for the medical subsidy for a grand total of 18.84% of payroll.

The Pension Funded Ratio (Actuarial Value of Assets divided by the Actuarial Accrued Liability) for NHRS in total is 64.2%.

## Changes to the System Included in the June 30, 2021 Actuarial Valuation

- 1) There have been no changes in the actuarial assumptions, methods and benefit provisions for the June 30, 2021 actuarial valuation.

## Other Highlights

- 1) In total, plan experience between June 30, 2020 and June 30, 2021 was favorable for both pension and the medical subsidy. The dollar weighted rate of return for the year ending June 30, 2021 was 29.1% on the market value of assets (Note: This dollar weighted measure may differ from investment manager calculations and should not be used as a measure of investment performance.) On the basis of statutory funding, the rate of return for 2021 was 10.8% on the actuarial value of assets, resulting in a recognized asset gain of \$382 million (pension and medical subsidy combined). The return on the actuarial value of assets is less than the return on the market value of assets because some of this year's market gain is deferred and losses from prior years are recognized this year. Investment experience over the two-year valuation cycle was favorable, as the recognized asset loss in 2020 of \$(109) was offset by recognized asset gains from 2021 of \$382 million. Plan experience as a whole was favorable for both pension and the medical subsidy over the two-year period from July 1, 2019 through June 30, 2021. Please see page 29 for additional details.



- 2) Total covered payroll increased by 2.70% versus the assumed increase of 2.75% (2.25% for Teachers). Payroll growth was more than expected for the Teachers and Fire member classifications. A portion of the increase in Fire payroll may be attributed to overtime as a result of the pandemic. We do not have sufficient information to make any adjustment to the data or liability and therefore used the data as reported.

<b>Group</b>	<b>2021 Total Annual Payroll Growth</b>	
	<b>Expected</b>	<b>Actual</b>
Employees	2.75%	2.07%
Teachers	2.25%	3.22%
Police	2.75%	1.35%
Fire	2.75%	7.51%

The payroll increases resulted in pension liability losses which increased the total employer contribution rate by 0.02% of pay. Please see page 36 for additional details.

- 3) Between the 2020 and 2021 valuation, the pension funded ratio increased by 3.2 percentage points (61.0% to 64.2%). Approximately one percentage point of the increase in the funded ratio is due to scheduled contributions, while the remaining increase is the result of actuarial gains for the System. See page 18 for more detail on changes in the funded ratio.
- 4) The medical subsidy benefits are effectively pay-as-you-go with total assets in the four subaccounts equal to a year's total benefit payments. The market value of assets available to fund medical subsidy benefits increased from \$36.7 million as of June 30, 2020 to \$49.8 million as of June 30, 2021. See page 12 and Comment 5 on page 22.
- 5) In early 2020, the world was faced with the global COVID-19 pandemic which continues to affect lives and the economy. This valuation reflects the actual experience of the system through June 30, 2021 including the impact of COVID-19 through that date. The census data we received does not contain specific information about COVID-19, but we observed general patterns of slightly higher mortality rates and lower retirement rates than expected this year, as we did in 2020. The demographic and economic impacts of COVID-19 may persist for a period of time. Given the uncertain nature of the future impact of COVID-19, at this time we recommend reflecting actual experience as it emerges through the regular annual valuation process.



# Executive Summary

## Pension

(\$ Amounts in Millions)

Valuation as of:	June 30, 2021	June 30, 2020
<b>Membership</b>		
Number of		
- Active members	48,582	48,479
- Retirees and Beneficiaries	40,974	39,612
- Inactive, vested	2,730	2,661
- Inactive, nonvested	14,946	13,760
Total	107,232	104,512
<b>Assets</b>		
Market value	\$ 11,523.9	\$ 9,097.4
Actuarial value	\$ 10,268.3	\$ 9,447.8
Return on market value	29.1%	1.1%
Return on actuarial value	10.8%	5.5%
Employer contributions	\$ 459.3	\$ 445.0
External cash flow %	-2.1%	-1.9%
Ratio of actuarial to market value	89.1%	103.9%
<b>Actuarial Information</b>		
Actuarial accrued liability (AAL)	\$ 15,991.2	\$ 15,488.0
Unfunded actuarial accrued liability (UAAL)	\$ 5,722.9	\$ 6,040.2
Funded Ratio	64.2%	61.0%
Gains/(losses) resulting from		
- Asset experience	\$ 381.1	\$ (108.7)
- Liability experience	(35.0)	(7.4)
- Benefit changes	-	-
- Assumption/method changes	-	-
	\$ 346.1	\$ (116.1)
<b>GASB Information</b>		
Total pension liability (TPL)	\$ 15,955.8	\$ 15,493.5
Net pension liability (NPL)	\$ 4,431.9	\$ 6,396.1
Plan fiduciary net position (PFNP) as a percentage of TPL	72.2%	58.7%

# Executive Summary

## Pension

Covered Group	Employees	Teachers	Police	Fire	Total
<b>I. Number of Participants as of June 30, 2021</b>					
a. Actives	24,558	18,131	4,184	1,709	48,582
b. Retirees, Disabilities, and Beneficiaries	20,046	14,685	4,427	1,816	40,974
c. Vested Terminations	1,415	1,145	143	27	2,730
d. Non-Vested Inactive Terminations	10,216	3,812	847	71	14,946
e. Total	56,235	37,773	9,601	3,623	107,232
f. Total Covered Annual Payroll	\$ 1,300,926,360	\$ 1,198,235,530	\$ 327,342,483	\$ 146,464,131	\$ 2,972,968,504
g. Ratio of Actives to Benefit Recipients	1.23	1.23	0.95	0.94	1.19
<b>II. Statutory Funding Information</b>					
a. Actuarial Present Value of Projected Benefits	\$ 6,164,195,425	\$ 7,193,054,134	\$ 3,557,292,801	\$ 1,679,418,417	\$ 18,593,960,777
b. Actuarial Present Value of Future Normal Costs	837,523,275	1,010,134,362	503,875,050	251,213,274	2,602,745,961
c. Actuarial Accrued Liability (AAL): a. – b.	5,326,672,150	6,182,919,772	3,053,417,751	1,428,205,143	15,991,214,816
d. Actuarial Value of Assets	3,449,618,875	3,752,082,670	2,062,169,797	1,004,441,315	10,268,312,657
e. Unfunded Actuarial Accrued Liability (UAAL): c. – d.	1,877,053,275	2,430,837,102	991,247,954	423,763,828	5,722,902,159
f. Funded Status: d. / c.	64.8%	60.7%	67.5%	70.3%	64.2%
<b>III. Additional Information on Payroll</b>					
State	\$ 584,721,355	\$ -	\$ 91,759,702	\$ 4,096,525	\$ 680,577,582
Political Subdivisions	716,205,005	1,198,235,530	235,582,781	142,367,606	2,292,390,922
Total	\$ 1,300,926,360	\$ 1,198,235,530	\$ 327,342,483	\$ 146,464,131	\$ 2,972,968,504
<b>IV. Contribution Rates for Fiscal Year 2024/2025 (% of Payroll)</b>					
Member	7.00%	7.00%	11.55%	11.80%	
Employer* (Including Health Subsidy)	13.67%	19.64%	31.28%	30.35%	

\* Employees employer contribution rate is weighted average of 13.85% and 13.53% for State and Political Subdivision Employees, respectively.



# Executive Summary

## Medical Subsidy

### (\$ Amounts in Millions)

Valuation as of:	June 30, 2021	June 30, 2020
<b>Membership</b>		
Number of		
- Active members	1,767	2,031
- Retirees and Beneficiaries	9,375	9,509
Total	11,142	11,540
<b>Assets</b>		
Market value	\$ 49.8	\$ 36.7
Actuarial value	\$ 44.4	\$ 38.1
Return on market value	29.1%	1.1%
Return on actuarial value	10.8%	5.5%
Employer contributions	\$ 48.1	\$ 46.5
External cash flow %	-2.1%	-1.9%
Ratio of actuarial to market value	89.1%	103.8%
<b>Actuarial Information</b>		
Actuarial accrued liability (AAL)	\$ 614.2	\$ 656.6
Unfunded actuarial accrued liability (UAAL)	\$ 569.8	\$ 618.5
Funded Ratio	7.2%	5.8%
Gains/(losses) resulting from		
- Asset experience	\$ 1.0	\$ (0.6)
- Liability experience	17.8	13.9
- Benefit changes	-	-
- Assumption/method changes	-	-
	\$ 18.8	\$ 13.3
<b>GASB Information</b>		
Total OPEB liability (TOL)	\$ 450.3	\$ 474.4
Net OPEB liability (NOL)	\$ 400.5	\$ 437.7
Plan fiduciary net position (PFNP) as a percentage of TOL	11.1%	7.7%

## Executive Summary Medical Subsidy

Covered Group	State Employees	Political Subdivision Employees	Teachers	Police and Fire	Grand Total
<b>I. Number of Participants Covered by Post Retirement Medical Subsidy as of June 30, 2021</b>					
a. Actives	-	-	-	1,767	1,767
b. Retirees, Disabilities, and Beneficiaries	1,397	1,046	3,972	2,960	9,375
c. Vested Terminations	-	-	-	-	-
d. Total	1,397	1,046	3,972	4,727	11,142
e. Total NHRS Covered Annual Payroll	\$ 584,721,355	\$ 716,205,005	\$ 1,198,235,530	\$ 473,806,614	\$ 2,972,968,504
<b>II. Statutory Funding Information</b>					
a. Actuarial Present Value of Projected Benefits	\$ 50,734,993	\$ 46,792,687	\$ 213,795,876	\$ 310,023,867	\$ 621,347,423
b. Actuarial Present Value of Future Normal Costs	-	-	-	7,153,636	7,153,636
c. Actuarial Accrued Liability (AAL): a. – b.	50,734,993	46,792,687	213,795,876	302,870,231	614,193,787
d. Valuation Assets	2,952,762	11,256,692	10,012,137	20,148,031	44,369,622
e. Unfunded Actuarial Accrued Liability (UAAL): c. – d.	47,782,231	35,535,995	203,783,739	282,722,200	569,824,165
f. Funded Status: d. / c.	5.8%	24.1%	4.7%	6.7%	7.2%

# Executive Summary

## Contribution Rates

### State Members

Covered Group	Employees	Teachers	Police	Fire	Total
Total Normal Cost (% of Payroll)	9.48%		17.65%	18.08%	10.64%
UAAL Contribution (% of Payroll)	10.79%		22.58%	21.47%	12.44%
Total Pension Contribution (% of Payroll)	20.27%		40.23%	39.55%	23.08%
<b>Fiscal Year 2024</b>					
Member Contributions (% of Payroll)	7.00%		11.55%	11.80%	7.64%
Employer Pension Contribution (% of Payroll)	13.27%		28.68%	27.75%	15.44%
Employer Medical Subsidy Contribution (% of Payroll)	0.58%		2.60%	2.60%	0.86%
<b>Total Employer Contributions for Fiscal Year 2024</b>					
1. Percent of Payroll	13.85%	N/A	31.28%	30.35%	16.30%
2. Projected Payroll for Fiscal Year	\$ 634,299,614		\$ 99,539,966	\$ 4,443,867	\$ 738,283,447
3. Projected Dollar Amount	\$ 87,850,497	N/A	\$ 31,136,101	\$ 1,348,714	\$ 120,335,312
<b>Fiscal Year 2025</b>					
Member Contributions (% of Payroll)	7.00%		11.55%	11.80%	7.64%
Employer Pension Contribution (% of Payroll)	13.27%		28.68%	27.75%	15.44%
Employer Medical Subsidy Contribution (% of Payroll)	0.58%		2.60%	2.60%	0.86%
<b>Total Employer Contributions for Fiscal Year 2025</b>					
1. Percent of Payroll	13.85%	N/A	31.28%	30.35%	16.30%
2. Projected Payroll for Fiscal Year	\$ 651,742,853		\$ 102,277,315	\$ 4,566,073	\$ 758,586,241
3. Projected Dollar Amount	\$ 90,266,385	N/A	\$ 31,992,344	\$ 1,385,803	\$ 123,644,532



# Executive Summary

## Contribution Rates (Concluded)

### Political Subdivision Members

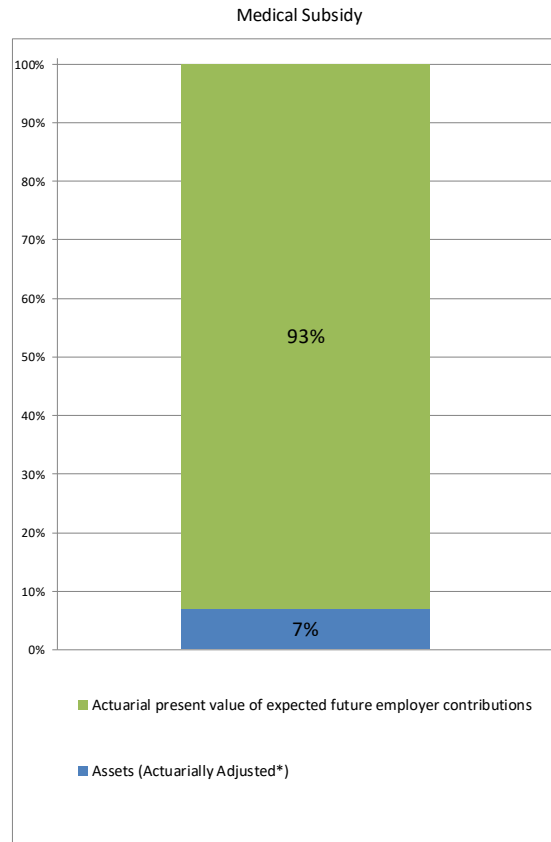
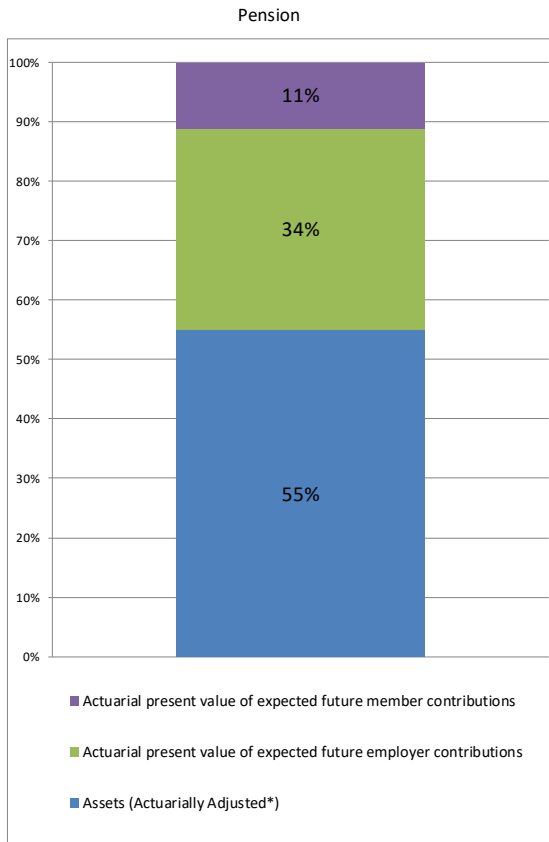
Covered Group	Employees		Teachers		Police		Fire		Total
Total Normal Cost (% of Payroll)	9.48%		9.71%		17.65%		18.08%		10.96%
UAAL Contribution (% of Payroll)	10.79%		15.80%		22.58%		21.47%		15.28%
Total Pension Contribution (% of Payroll)	20.27%		25.51%		40.23%		39.55%		26.24%
Fiscal Year 2024									
Member Contributions (% of Payroll)	7.00%		7.00%		11.55%		11.80%		7.77%
Employer Pension Contribution (% of Payroll)	13.27%		18.51%		28.68%		27.75%		18.47%
Employer Medical Subsidy Contribution (% of Payroll)	0.26%		1.13%		2.60%		2.60%		1.10%
Total Employer Contributions for Fiscal Year 2024									
1. Percent of Payroll	13.53%		19.64%		31.28%		30.35%		19.57%
2. Projected Payroll for Fiscal Year	\$	776,931,703	\$	1,280,949,897	\$	255,557,738	\$	154,438,891	\$ 2,467,878,229
3. Projected Dollar Amount	\$	105,118,859	\$	251,578,560	\$	79,938,460	\$	46,872,203	\$ 483,508,082
Fiscal Year 2025									
Member Contributions (% of Payroll)	7.00%		7.00%		11.55%		11.80%		7.77%
Employer Pension Contribution (% of Payroll)	13.27%		18.51%		28.68%		27.75%		18.47%
Employer Medical Subsidy Contribution (% of Payroll)	0.26%		1.13%		2.60%		2.60%		1.10%
Total Employer Contributions for Fiscal Year 2025									
1. Percent of Payroll	13.53%		19.64%		31.28%		30.35%		19.57%
2. Projected Payroll for Fiscal Year	\$	798,297,325	\$	1,309,771,270	\$	262,585,576	\$	158,685,961	\$ 2,529,340,132
3. Projected Dollar Amount	\$	108,009,628	\$	257,239,077	\$	82,136,768	\$	48,161,189	\$ 495,546,662

### Total NHRS Members

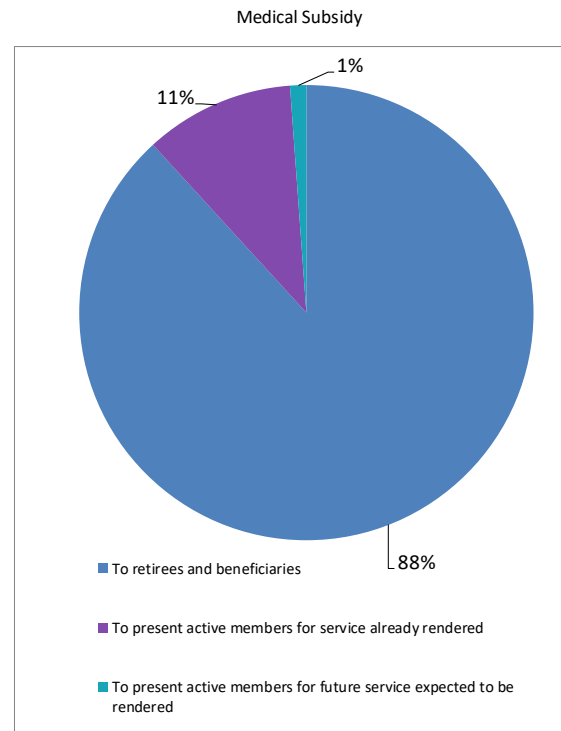
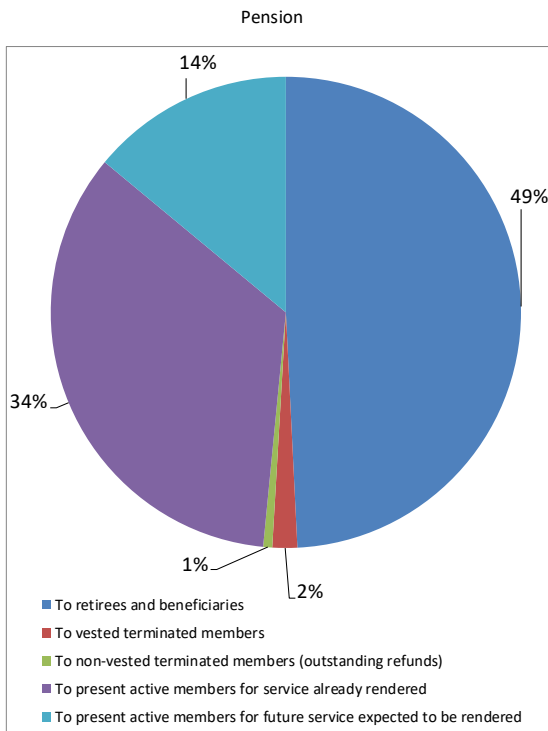
Covered Group	Employees	Teachers	Police	Fire	Total
Fiscal Year 2024					
1. Projected Payroll for Fiscal Year	\$ 1,411,231,317	\$ 1,280,949,897	\$ 355,097,704	\$ 158,882,758	\$ 3,206,161,676
2. Projected Employer Dollar Amount	\$ 192,969,356	\$ 251,578,560	\$ 111,074,561	\$ 48,220,917	\$ 603,843,394
Fiscal Year 2025					
1. Projected Payroll for Fiscal Year	\$ 1,450,040,178	\$ 1,309,771,270	\$ 364,862,891	\$ 163,252,034	\$ 3,287,926,373
2. Projected Employer Dollar Amount	\$ 198,276,013	\$ 257,239,077	\$ 114,129,112	\$ 49,546,992	\$ 619,191,194



## Sources of Funds

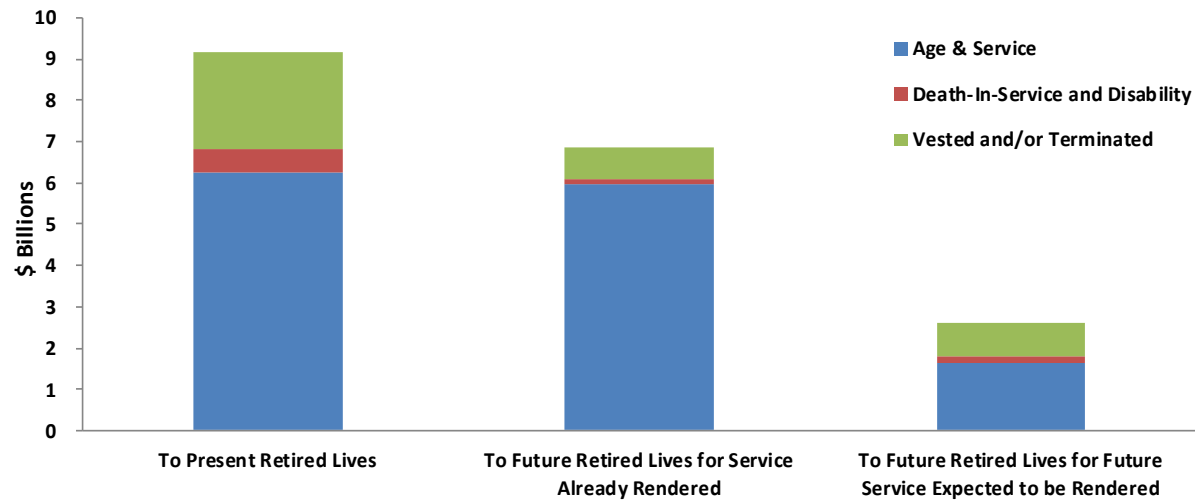


## Uses of Funds

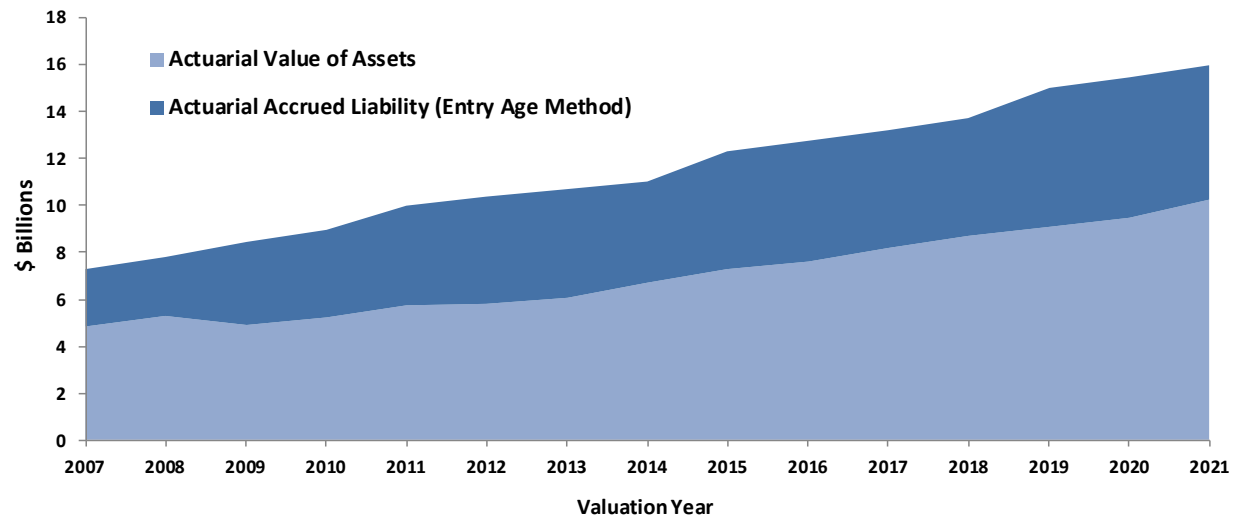


\* Actuarial adjustment of market value of assets is based on the actuarial asset smoothing method.  
 This adjustment will be negative when the market value of assets exceeds the actuarial value of assets.  
 See page 69 for further details on asset smoothing.

## Comparison of Pension Liabilities by Type



## Historical Pension Funding Status





# Results of the Valuation

## Actuarial Valuation

This is the actuarial valuation of the New Hampshire Retirement System, prepared as of June 30, 2021.

The primary purposes of this valuation report are to measure the plan's liabilities, to analyze changes in NHRS' actuarial position and to determine employer contribution rates.

Valuations for certifying contribution rates are prepared biennially, as of June 30 on the odd numbered years (2021, 2023, etc.). The June 30, 2021 actuarial valuation will establish the Fiscal Year 2024 and Fiscal Year 2025 employer contribution rates.

In addition, this report provides summaries of the member data, financial data, and actuarial assumptions and methods. Detailed information regarding member data and plan provisions can be found in the "ACFR Schedules and GASB Statement Nos. 67 and 74 Plan Reporting and Accounting Schedules" report dated October 29, 2021. Calculations required for compliance with the Governmental Accounting Standards Board (GASB) Statement Nos. 68 and 75 have been issued in a separate report dated January 7, 2022.

## Financing Objectives

NHRS is supported by member contributions, employer contributions, and net earnings on the investments of the fund. The member contribution rate is set by statute at 7.00% of member compensation for Group I Members (Employees and Teachers), 11.55% of member compensation for Police Members and 11.80% of member compensation for Fire Members. The employer contributions are determined in accordance with statute by an actuarial valuation. Legislation was enacted in 2007 which requires the use of the entry-age actuarial cost method and a closed 30-year amortization of unfunded actuarial accrued liability in the determination of the employer contributions. The legislature subsequently adopted the use of a layered amortization approach. The outstanding UAAL balance as of June 30, 2017 is referred to hereafter as the "Initial UAAL". The first layer will be the amortization of the Initial UAAL scheduled to be paid by 2039. New layers will be established as they occur in future biennial valuations and will be amortized over separate 20-year periods.

The Initial UAAL was projected forward and amortized over a closed period of 18 years beginning June 30, 2021, consistent with the 30-year amortization ending June 30, 2039 as established in the June 30, 2007 valuation. New layers for changes in liability as of June 30, 2019 and June 30, 2021 were projected forward and amortized over a closed period of 20 years beginning June 30, 2021 and 20 years beginning June 30, 2023, respectively. This method of layered amortization resulted in a lower calculated contribution for FY 2024 and 2025.

The closed amortization period means that the unfunded actuarial accrued liability is expected to be fully paid off by June 30, 2043 if all assumptions are met. The contribution rates set by this valuation are scheduled to come into effect beginning July 1, 2023. The total UAAL is expected to decrease each year beginning July 1, 2021, if all actuarial assumptions are met (see page 26).

Detailed amortization schedules for each member classification can be found on pages 38 through 60.



## Employer Contribution Rates for the 2024/2025 Biennium

There are four pension member classifications: Employees, Teachers, Police and Fire. There are four separate 401(h) member classifications: State Employees, Political Subdivision Employees, Teachers and Police/Fire. The table below shows the pension and medical subsidy employer contribution rates for the FY 2024/2025 Biennium for each member classification.

Computed Employer Contribution Rates as a Percent of Payroll*				
State Members				
	Employees	Teachers	Police	Fire
Pension	13.27%	N/A	28.68%	27.75%
Medical Subsidy	0.58%	N/A	2.60%	2.60%
Total	13.85%	N/A	31.28%	30.35%

Computed Employer Contribution Rates as a Percent of Payroll*				
Political Subdivision Members				
	Employees	Teachers	Police	Fire
Pension	13.27%	18.51%	28.68%	27.75%
Medical Subsidy	0.26%	1.13%	2.60%	2.60%
Total	13.53%	19.64%	31.28%	30.35%

\* The grand total contribution rates for NHRS (State and Political Subdivisions combined) are 17.79% of payroll for pension and 1.05% for the medical subsidy for a grand total of 18.84% of payroll.

## Medical Subsidy

The accounts for Teachers and State Employees have reached pay-as-you-go status.

The Political Subdivision Employees' account is projected to reach pay-as-you-go status in the fiscal year ending June 30, 2033. This is two years later than the projection in the prior rate-setting valuation.

The Police/Fire account is projected to reach pay-as-you-go status in the fiscal year ending June 30, 2032. This is three years later than the projection in the prior rate-setting valuation.

The medical subsidy contribution rates for State Employees and Teachers shown above are the computed amounts needed for pay-as-you-go financing of the retiree medical subsidy with a 20% margin (50% for Teachers) for adverse experience by June 30, 2025 and to maintain that margin thereafter. It is imperative that NHRS monitor collections closely to ensure the necessary funds are collected to provide the benefit.

## History of Certified Contribution Rates

### Pension

Fiscal Year Ending	Employer Contribution Rates				
	Employees	Teachers	Police	Fire	Total
2010	9.09%	9.38%	17.34%	22.52%	10.70%
2011	9.09%	9.38%	17.34%	22.52%	10.70%
July 1, 2011 -July 30, 2011	10.71%	11.51%	22.92%	28.25%	13.11%
Aug 1, 2011 - June 30, 2012	8.48%	8.99%	15.98%	18.92%	9.97%
2013	8.48%	8.99%	15.98%	18.92%	9.97%
2014-2015#	10.44%	11.96%	21.35%	23.79%	12.79%
2016-2017	10.86%	12.72%	22.54%	25.32%	13.55%
2018-2019	11.08%	15.70%	25.33%	27.79%	15.27%
2020-2021	10.88%	15.99%	24.77%	26.43%	15.17%
2022-2023	13.75%	19.48%	30.67%	29.78%	18.67%
2024-2025	13.27%	18.51%	28.68%	27.75%	17.79%

Fiscal Year Ending	Employer Dollars (\$ Millions)*				
	Employees	Teachers	Police	Fire	Total
2010	\$101.2	\$ 97.1	\$ 46.4	\$25.0	\$269.7
2011	\$103.5	\$ 98.0	\$ 46.9	\$26.2	\$274.6
2012	\$ 94.4	\$ 93.5	\$ 44.5	\$22.2	\$254.6
2013	\$ 91.7	\$ 92.9	\$ 43.2	\$22.0	\$249.8
2014	\$115.5	\$126.1	\$ 58.9	\$27.9	\$328.4
2015	\$118.3	\$124.2	\$ 61.1	\$28.7	\$332.3
2016	\$124.6	\$136.4	\$ 65.6	\$30.9	\$357.5
2017	\$129.1	\$138.6	\$ 66.9	\$32.0	\$366.6
2018	\$134.7	\$174.6	\$ 77.6	\$35.8	\$422.7
2019	\$138.5	\$178.3	\$ 80.6	\$37.0	\$434.4
2020	\$139.8	\$187.6	\$ 81.0	\$36.6	\$445.0
2021	\$143.0	\$192.5	\$ 83.9	\$39.8	\$459.2
2022	\$183.8	\$238.7	\$103.2	\$44.8	\$570.5
2023	\$188.9	\$244.0	\$106.0	\$46.0	\$584.9
2024	\$187.3	\$237.1	\$101.8	\$44.1	\$570.3
2025	\$192.4	\$242.4	\$104.6	\$45.3	\$584.7

\* Dollar amounts for 2022 and beyond are estimated. The total rate as a percent of payroll will vary over the projection period as different payroll growth assumptions apply.

# Rates shown are for Political Subdivision. Rates for State are 10.51%, 21.45% and 23.90% for Employees, Police and Fire, respectively.



## History of Certified Contribution Rates (Continued)

### Medical Subsidy

Fiscal Year Ending	Employer Contribution Rates				
	State	Employees			Total
	Employees	Political Sub	Teachers	Police & Fire	
2010	3.03%	0.00%	1.32%	2.17%	1.47%
2011	3.03%	0.00%	1.32%	2.17%	1.47%
July 1, 2011 - July 30, 2011	1.60%	0.38%	2.44%	2.65%	1.82%
Aug 1, 2011 - June 30, 2012	1.60%	0.32%	2.31%	3.97%	1.95%
2013	1.60%	0.32%	2.31%	3.97%	1.95%
2014-15	1.62%	0.33%	2.20%	3.95%	1.90%
2016-17	1.64%	0.31%	2.95%	3.84%	2.21%
2018-19	1.07%	0.30%	1.66%	4.10%	1.60%
2020-21	1.05%	0.29%	1.81%	3.66%	1.58%
2022-23	0.78%	0.31%	1.54%	3.21%	1.36%
2024-25	0.58%	0.26%	1.13%	2.60%	1.05%

Fiscal Year Ending	Employer Dollars (\$ Millions)*				
	State	Employees			Total
	Employees	Political Sub	Teachers	Police & Fire	
2010	\$10.4	\$0.4	\$13.6	\$8.1	\$32.6
2011	\$10.3	\$0.4	\$13.8	\$8.4	\$32.9
2012	\$8.3	\$1.9	\$24.0	\$14.7	\$48.9
2013	\$8.8	\$1.9	\$23.8	\$15.3	\$49.8
2014	\$8.2	\$2.0	\$23.3	\$15.4	\$48.9
2015	\$8.6	\$1.8	\$22.6	\$16.0	\$49.0
2016	\$8.6	\$1.9	\$31.8	\$15.9	\$58.2
2017	\$8.9	\$2.0	\$32.0	\$16.2	\$59.1
2018	\$6.0	\$2.0	\$18.4	\$17.8	\$44.2
2019	\$6.2	\$2.0	\$18.8	\$18.5	\$45.5
2020	\$6.2	\$2.0	\$21.2	\$17.0	\$46.4
2021	\$6.3	\$2.1	\$21.8	\$17.9	\$48.1
2022	\$4.7	\$2.3	\$18.9	\$15.6	\$41.5
2023	\$4.8	\$2.3	\$19.3	\$16.1	\$42.5
2024	\$3.7	\$2.0	\$14.5	\$13.4	\$33.6
2025	\$3.8	\$2.1	\$14.8	\$13.7	\$34.4

\* Dollar amounts for 2022 and beyond are estimated. The total rate as a percent of payroll will vary over the projection period as different payroll growth assumptions apply.

## History of Certified Contribution Rates (Concluded)

### Member Contributions

Fiscal Year Ending	Member Contribution Rates				
	Employees	Teachers	Police	Fire	Total
2010	5.00%	5.00%	9.30%	9.30%	5.64%
2011	5.00%	5.00%	9.30%	9.30%	5.64%
2012	7.00%	7.00%	11.55%	11.80%	7.69%
2013	7.00%	7.00%	11.55%	11.80%	7.69%
2014-15	7.00%	7.00%	11.55%	11.80%	7.69%
2016-17	7.00%	7.00%	11.55%	11.80%	7.71%
2018-19	7.00%	7.00%	11.55%	11.80%	7.71%
2020-21	7.00%	7.00%	11.55%	11.80%	7.72%
2022-23	7.00%	7.00%	11.55%	11.80%	7.73%
2024-25	7.00%	7.00%	11.55%	11.80%	7.74%

Fiscal Year Ending	Member Dollars (\$ Millions)*				
	Employees	Teachers	Police	Fire	Total
2010	\$59.6	\$54.2	\$25.4	\$10.2	\$149.5
2011	\$59.3	\$56.2	\$26.2	\$10.7	\$152.4
2012	\$80.5	\$75.0	\$30.7	\$13.4	\$199.6
2013	\$77.8	\$74.1	\$31.0	\$13.7	\$196.5
2014	\$78.9	\$74.7	\$31.8	\$13.7	\$199.0
2015	\$81.7	\$74.8	\$33.4	\$14.2	\$204.1
2016	\$82.7	\$76.7	\$34.0	\$14.6	\$208.0
2017	\$85.4	\$78.0	\$34.7	\$15.0	\$213.1
2018	\$87.1	\$79.3	\$35.9	\$15.2	\$217.5
2019	\$89.8	\$81.1	\$37.2	\$15.9	\$224.0
2020	\$91.2	\$83.3	\$38.6	\$16.5	\$229.7
2021	\$93.5	\$85.3	\$40.0	\$18.1	\$236.9
2022	\$93.6	\$85.8	\$38.8	\$17.8	\$236.0
2023	\$96.1	\$87.7	\$39.9	\$18.2	\$241.9
2024	\$98.8	\$89.7	\$41.0	\$18.7	\$248.2
2025	\$101.5	\$91.7	\$42.1	\$19.3	\$254.6

\* Dollar amounts for 2022 and beyond are estimated. The total rate as a percent of payroll will vary over the projection period as different payroll growth assumptions apply.

## Funded Status

As of the valuation date, the Unfunded Actuarial Accrued Liability (UAAL) is \$5,722.9 million (pension only), and the funded ratio (the ratio of the Actuarial Value of Assets to the Actuarial Accrued Liability) is 64.2% (pension only). This valuation was prepared using the Entry-Age Actuarial Cost Method. For comparison, the funded ratio as of June 30, 2020 was 61.0% (pension only).

The funded status measure is not appropriate for assessing the sufficiency of assets to cover the estimated cost of settling the Plan's benefit obligation. The funded status is appropriate for assessing the need for additional UAAL contributions. The funded status on the basis of the market value of assets would be 72.1%.

## Variability of Future Contribution Rates

The Actuarial Cost Method used to determine the contribution rate is intended to produce contribution rates which are generally level as a percent of payroll. Even so, when experience differs from the assumptions, as it often does, the employer's contribution rate can vary from year-to-year.

The level percent of payroll amortization of the UAAL assumes that the plan will remain open to new hires, that the size of the covered active population will remain constant, and that the covered payroll will grow at 2.75% per year (2.25% for Teachers). To the extent that this does not occur, there may be variability in future contribution rates.

Headcount growth for Teachers was analyzed as part of the review process in the experience study. The continued assumption of (0.50)% per year was recommended. The headcount over a 10-year period **decreased** at an average annual rate of 0.18%. Observing the most recent 3-year period shows an average annual **increase** of 0.71%. This assumption will continue to be monitored in future valuations and changes, if necessary, will be recommended as part of the next experience study.

## Actuarial Value of Assets

The Market Value of Assets of the System totaling approximately \$11.574 billion is greater than the Actuarial Value of Assets of \$10.313 billion by about \$1.3 billion as of the valuation date (see page 69). This difference will be gradually recognized over the next four years.

The dollar-weighted rate of return for the year ending June 30, 2021 was 29.1% on the market value of assets. (Note: This dollar-weighted measure may differ from investment manager calculations and should not be used as a measure of investment performance.) The recognized dollar-weighted rate of return on the actuarial value of assets was 10.8% for the year ending June 30, 2021.

Please see Section C for additional asset information.



## Actuarial Assumptions

Normal cost rates from the first year of the rate setting biennium are projected forward to better reflect the impact of the changing benefit tiers and generational mortality. This method for determining the normal cost was first used for the June 30, 2015 valuation.

Interest rate and wage inflation assumptions are 6.75% and 2.75%, respectively.

A complete description of the assumptions used in the valuation is in Section E.

We believe that the actuarial assumptions contained in this report are reasonable under the Actuarial Standards of Practice and in compliance with the NHRS Statutes.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can, and almost certainly will, differ as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates, and amortization periods.

## Actuarial Funding Methods

The method for determining the UAAL contribution was updated to include layers of increases or decreases in liability to be amortized over a closed period of no more than 20 years. The Initial UAAL was projected forward and amortized over a closed period of 18 years beginning June 30, 2021 while new layers for changes in liability as of June 30, 2019 and June 30, 2021 were projected forward and amortized over a closed period of 20 years beginning June 30, 2021 and 20 years beginning June 30, 2023, respectively. This method of layered amortization resulted in a lower calculated contribution for FY 2024 and 2025.

Solvency rates for medical subsidy benefits are set such that a specified margin is established by the end of the biennium and for all future years thereafter. The margin is intended to mitigate the risk of insolvency due to adverse experience. No change to the margin requirement of 20% (50% for Teachers) was made in this valuation.

## Benefit Changes

There were no benefit provision changes reflected in this valuation.

## COVID-19

In early 2020, the world was faced with the global COVID-19 pandemic which continues to affect lives and the economy. This valuation reflects the actual experience of the system through June 30, 2021 including the impact of COVID-19 through that date. The census data we received does not contain specific information about COVID-19, but we observed general patterns of slightly higher mortality rates and lower retirement rates than expected this year, as we did in 2020. The demographic and economic impacts of COVID-19 may persist for a period of time. Given the uncertain nature of the future impact of COVID-19, at this time we recommend reflecting actual experience as it emerges through the regular annual valuation process.



# Summary of Changes from June 30, 2020 to June 30, 2021

## (\$ in Millions)

	Pension				
	Employees	Teachers	Police	Fire	Total
<b>Reconciliation of UAAL</b>					
Expected	\$2,009.7	\$2,560.7	\$1,069.9	\$428.7	\$6,069.0
Impact of (Gain)Loss	(132.6)	(129.9)	(78.7)	(4.9)	(346.1)
Impact of Plan Change	0.0	0.0	0.0	0.0	0.0
Impact of Method Change	0.0	0.0	0.0	0.0	0.0
Impact of Assumption Change	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
Total	\$1,877.1	\$2,430.8	\$991.2	\$423.8	\$5,722.9
<b>Funded %</b>					
Prior Valuation	61.5 %	57.5 %	64.1 %	68.1 %	61.0 %
Expected Change	0.8 %	1.0 %	0.9 %	1.2 %	1.0 %
Impact of Gain(Loss)	2.5 %	2.2 %	2.5 %	1.0 %	2.2 %
Impact of Plan Change	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Impact of Method Change	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
Impact of Assumption Change	<u>0.0 %</u>	<u>0.0 %</u>	<u>0.0 %</u>	<u>0.0 %</u>	<u>0.0 %</u>
Total	64.8 %	60.7 %	67.5 %	70.3 %	64.2 %
<b>Reconciliation of Employer Contribution Rate *</b>					
<b>State Employees</b>					
Prior Rate-Setting Valuation	13.75 %		30.67 %	29.78 %	16.05 %
Impact of (Gain)Loss	(0.48)%		(1.99)%	(2.03)%	(0.61)%
Impact of Plan Change	0.00 %		0.00 %	0.00 %	0.00 %
Impact of Method Change	0.00 %		0.00 %	0.00 %	0.00 %
Impact of Assumption Change	<u>0.00 %</u>		<u>0.00 %</u>	<u>0.00 %</u>	<u>0.00 %</u>
Total	13.27 %		28.68 %	27.75 %	15.44 %
<b>Political Subdivision Employees</b>					
Prior Rate Setting Valuation	13.75 %	19.48 %	30.67 %	29.78 %	19.48 %
Impact of (Gain)Loss	(0.48)%	(0.97)%	(1.99)%	(2.03)%	(1.01)%
Impact of Plan Change	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %
Impact of Method Change	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %
Impact of Assumption Change	<u>0.00 %</u>	<u>0.00 %</u>	<u>0.00 %</u>	<u>0.00 %</u>	<u>0.00 %</u>
Total	13.27 %	18.51 %	28.68 %	27.75 %	18.47 %
	Medical Subsidy				Total
	State Employees	Political Subdivision Employees	Teachers	Police & Fire	
<b>Reconciliation of UAAL</b>					
Expected	\$51.4	\$37.2	\$205.1	\$294.9	\$588.6
Impact of (Gain)Loss	(3.6)	(1.7)	(1.3)	(12.2)	(18.8)
Impact of Plan Change	0.0	0.0	0.0	0.0	0.0
Impact of Method Change	0.0	0.0	0.0	0.0	0.0
Impact of Assumption Change	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
Total	\$47.8	\$35.5	\$203.8	\$282.7	\$569.8
<b>Reconciliation of Employer Contribution Rate *</b>					
Prior Rate Setting Valuation	0.78 %	0.31 %	1.54 %	3.21 %	1.36 %
Impact of (Gain)Loss	(0.20)%	(0.05)%	(0.41)%	(0.61)%	(0.31)%
Impact of Method Change	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %
Impact of Assumption Change	<u>0.00 %</u>	<u>0.00 %</u>	<u>0.00 %</u>	<u>0.00 %</u>	<u>0.00 %</u>
Total	0.58 %	0.26 %	1.13 %	2.60 %	1.05 %

\* Reconciliation of employer rates is from the prior rate-setting actuarial valuation as of June 30, 2019.

The pension funded percent of 64.2% is the ratio of the actuarial value of assets to the actuarial accrued liability for NHRS in total. That ratio is 72.1% based on market value of assets.

The funded percent is appropriate for assessing the need for future contributions, but does not give an indication for the amount of such contributions. The funded percent is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the Plan's benefit obligations.



# Comments

## Comment 1

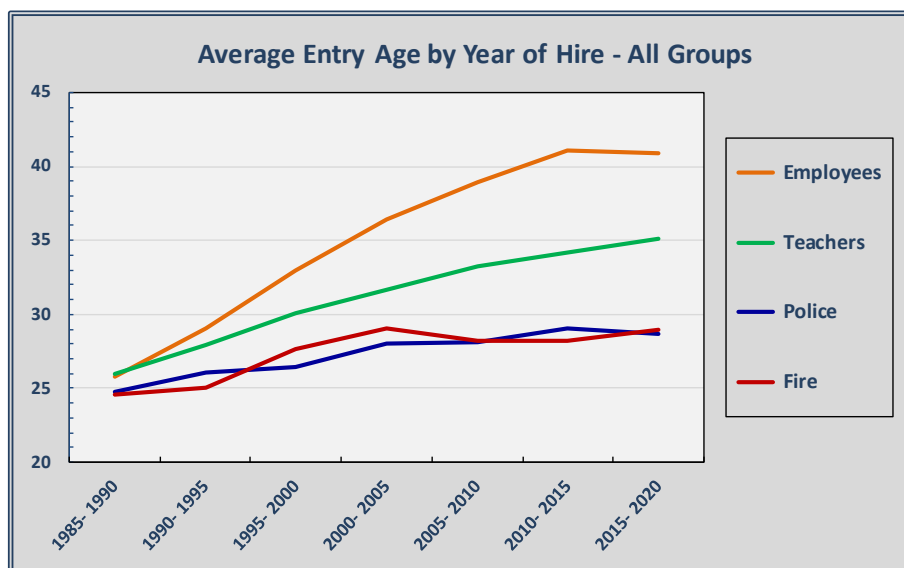
In total, plan experience between June 30, 2020 and June 30, 2021 was favorable for both pension and the medical subsidy on the basis of statutory funding. The dollar-weighted rate of return for the year ending June 30, 2021 was 29.1% on the market value of assets. (Note: This dollar weighted measure may differ from investment manager calculations and should not be used as a measure of investment performance.) On the basis of statutory funding, the rate of return was 10.8% on the actuarial value of assets, resulting in a recognized asset gain of \$382 million (pension and medical subsidy combined). The return on the actuarial value of assets is less than the return on the market value of assets because some of this year's market gain is deferred and losses from prior years are recognized this year.

Overall, the System had a gain of \$365 million comprised of an asset gain of \$382 million and a liability loss of \$17 million. Additional information on gains and losses is on pages 18 and 29.

Between the 2020 and 2021 valuations, the pension funded ratio increased by 3.2 percentage points (61.0% to 64.2%). Note that the funded ratio is expected to increase each year with the receipt of contributions to fund the UAAL. Approximately one percentage point of the increase in the funded ratio is due to scheduled contributions, while the remaining increase is the result of actuarial gains for the System.

The contribution for the unfunded actuarial accrued liability is designed to be a level percent of payroll with closed layered amortization periods ranging from 20-16 years in the 2024 Fiscal Year. Medical Subsidy contribution rates are expected to decline as the covered population diminishes. There are currently unrecognized asset gains which will put additional downward pressure on the rates to the extent that future market experience meets expectations.

The general expectation, if all assumptions are met, is that future pension contribution rates will decline as new hires with lower normal cost replace those hired before July 1, 2011 with higher normal cost. An exception to this expectation can be seen in the Employee group, where the post-2011 hires' average entry age is higher than pre-2011 hires, resulting in a slightly higher normal cost, given current demographics. Historically observed average entry ages for each valuation group are shown in the chart below.



Rates of employer normal cost by tier for each valuation group are discussed on the following page.

## Comment 2

Members hired before or after July 1, 2011 will have varying rates of normal cost depending on applicable benefit provisions and varying demographics among the groups.

The average normal cost rates as of June 30, 2021 for members in various tiers are shown below:

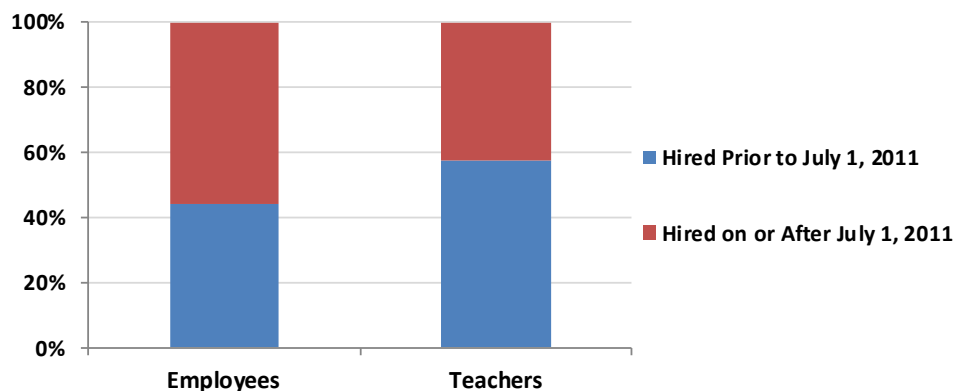
Employer Normal Cost by Tier					
Group I			Group II		
Tier	Employees	Teachers	Tier	Police	Fire
Vested	2.16%	2.89%	Vested at 1/1/12	12.25%	12.18%
Non-Vested Pre-2011	2.51%	2.88%	Pre-2011 <10 years 1/1/12	8.37%	7.93%
Post-2011	2.57%	2.54%	Pre-2011 <8 years 1/1/12	7.57%	6.97%
<b>Total</b>	<b>2.48%</b>	<b>2.71%</b>	Pre-2011 <6 years 1/1/12	6.50%	5.97%
			Pre-2011 <4 years 1/1/12	5.77%	5.22%
			Post-2011	4.61%	3.96%
			<b>Total</b>	<b>6.10%</b>	<b>6.28%</b>

The total normal cost for the active populations of the four member classifications is expected to trend each year towards the rates for new hires. Normal cost is expected to increase each year with generational mortality. Note that the group of those hired on and after July 1, 2011 is 50% of the total active population. There may be fluctuations in the normal cost rate for these members over the next few years which should level out over time as the group grows.

The tables and charts below show the proportion of the active member population by benefit structure for each of the four member classifications.

### Proportion of Active Population by Benefit Structure as of June 30, 2021 – Group I

	Employees	Teachers
Hired Prior to July 1, 2011	10,885	10,392
Hired on or After July 1, 2011	13,673	7,739
<b>Total</b>	<b>24,558</b>	<b>18,131</b>



## Proportion of Active Population by Benefit Structure as of June 30, 2021 – Group II

	Police	Fire
Hired Prior to July 1, 2011 and Vested	706	409
Hired Prior to July 1, 2011 With Creditable Service on 1/1/12 Between 8 and 10 Years	214	152
Hired Prior to July 1, 2011 With Creditable Service on 1/1/12 Between 6 and 8 Years	279	107
Hired Prior to July 1, 2011 With Creditable Service on 1/1/12 Between 4 and 6 Years	309	135
Hired Prior to July 1, 2011 With Creditable Service on 1/1/12 Less Than 4 Years	445	183
Hired on or After July 1, 2011	2,231	723
Total	4,184	1,709



### Comment 3

Prior to June 30, 2007, the statutory funding method did not report a funded status nor did it report that assets were below the retiree liability. As of June 30, 2021, there were 78% of assets needed to cover retiree pension liabilities, as shown in the table on page 34. The assets in the plan are not sufficient to cover current retiree liabilities and the ratio of retiree benefit payroll to the market value of assets is 13.26; this means that approximately 13 years of current retiree benefit payments can be paid from current assets if all assumptions are met and ignoring future contributions. The ability to make such payments beyond that period is heavily dependent upon future contributions and future investment return.

### Comment 4

#### Recognition of Experience Gains and Losses in Layered Amortization of UAAL

Initial UAAL projected to June 30, 2021 was determined in the June 30, 2017 actuarial funding valuation. This projected amount is used to calculate the change in UAAL resulting from System experience for the purposes of determining layered UAAL contributions (pages 38, 41, 46, 51 and 56), and deviates slightly from year-to-year calculations of expected UAAL used to measure gains and losses. Gains and losses established for the basis of this calculation will, in total, differ from the sum of the 2020 and 2021 aggregate gains and losses shown on page 29.

## Comment 5

### June 30, 2021 Medical Subsidy Contribution Rates

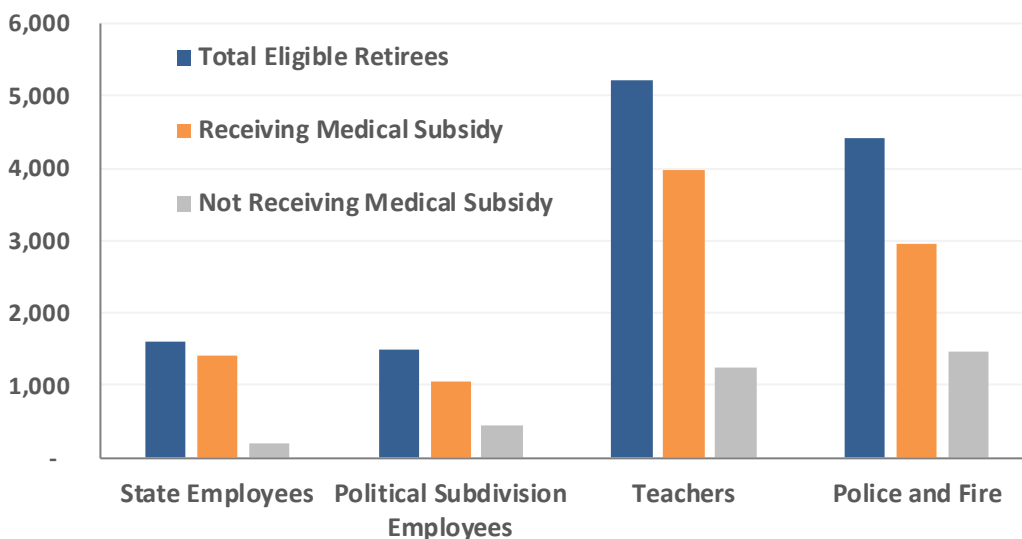
Medical Subsidy benefits continue to warrant close monitoring. As required by the statutes, the objective is to contribute the minimum amount necessary to maintain assets sufficient to pay medical subsidy benefits in each of the four subaccounts. Given the absence of assets from prior pre-funding (as exists for pension benefits), medical subsidy benefits payable in the future will be largely funded by future employer contributions. However, employer contributions toward medical subsidy benefits are subject to certain limitations as defined in IRC Section 401(h), which are administered by the system.

In addition, year-to-year deviations between actual contributions and benefits and projected contributions and benefits are more problematic with regard to medical subsidy funding than pension funding due to the lack of significant assets for medical subsidy benefits and the lag between the setting of the rates and the collection of contributions.

Contributions are determined assuming that each subaccount maintains at least a 20% margin (50% for Teachers) for every future year, starting at the end of the 2024-2025 biennium

For purposes of determining the contribution rates for the 2024-2025 biennium as shown on page 1, we have assumed that benefits for all members receiving a benefit on the valuation date and those Group I eligible members not yet age 60 get paid. In addition, there is a significant number of eligible members who are not receiving benefits, particularly for Group I. 25% of those who opted-out of receiving benefits are assumed to opt-back in on the valuation date. The utilization of medical subsidy benefits among current eligible retirees is shown in the graph below.

### Counts of Current Retirees Eligible for Medical Subsidy



## SECTION B

---

### FUNDING RESULTS

## Development of Employer Contribution Rates State Employees

Division:	Employees	Teachers	Police	Fire	Total
<b>Normal Cost</b>					
Age and Service Retirement	5.23%		11.21%	14.27%	6.09%
Termination	3.32%		4.13%	1.82%	3.42%
Death-in-Service	0.16%		0.27%	0.31%	0.18%
Disability	0.42%		1.69%	1.33%	0.60%
Expenses	<u>0.35%</u>		<u>0.35%</u>	<u>0.35%</u>	<u>0.35%</u>
Total	9.48%		17.65%	18.08%	10.64%
UAAL Payment*	<u>10.79%</u>		<u>22.58%</u>	<u>21.47%</u>	<u>12.44%</u>
Total Pension Contribution	20.27%		40.23%	39.55%	23.08%
<b>Fiscal Year 2024</b>					
Member Contributions	7.00%		11.55%	11.80%	7.64%
Employer Pension Contribution	13.27%		28.68%	27.75%	15.44%
Employer Medical Subsidy Contribution	<u>0.58%</u>		<u>2.60%</u>	<u>2.60%</u>	<u>0.86%</u>
<b>Total Employer Contribution</b>	<b>13.85%</b>	N/A	<b>31.28%</b>	<b>30.35%</b>	<b>16.30%</b>
Projected Payroll for Fiscal Year	\$ 634,299,614		\$ 99,539,966	\$ 4,443,867	\$ 738,283,447
Estimated Employer Dollar Contribution	\$ 87,850,497	N/A	\$ 31,136,101	\$ 1,348,714	\$ 120,335,312
<b>Fiscal Year 2025</b>					
Member Contributions	7.00%		11.55%	11.80%	7.64%
Employer Pension Contribution	13.27%		28.68%	27.75%	15.44%
Employer Medical Subsidy Contribution	<u>0.58%</u>		<u>2.60%</u>	<u>2.60%</u>	<u>0.86%</u>
<b>Total Employer Contribution</b>	<b>13.85%</b>	N/A	<b>31.28%</b>	<b>30.35%</b>	<b>16.30%</b>
Projected Payroll for Fiscal Year	\$ 651,742,853		\$ 102,277,315	\$ 4,566,073	\$ 758,586,241
Estimated Employer Dollar Contribution	\$ 90,266,385	N/A	\$ 31,992,344	\$ 1,385,803	\$ 123,644,532
<b>Contribution Rates from Prior Valuation</b>					
<b>FY 2022#</b>	<b>14.53%</b>		<b>33.88%</b>	<b>32.99%</b>	<b>17.16%</b>
<b>FY 2023#</b>	<b>14.53%</b>		<b>33.88%</b>	<b>32.99%</b>	<b>17.16%</b>

\* Unfunded Actuarial Accrued Liability - Please refer to pages 38-60 for more detail regarding the development of UAAL amortization payments, and page 17 for description of the UAAL amortization policy.

# Computed in June 30, 2019 Actuarial Valuation.



## Development of Employer Contribution Rates Political Subdivision Members

Division:	Employees	Teachers	Police	Fire	Total
<b>Normal Cost</b>					
Age and Service Retirement	5.23%	6.20%	11.21%	14.27%	6.91%
Termination	3.32%	2.96%	4.13%	1.82%	3.12%
Death-in-Service	0.16%	0.09%	0.27%	0.31%	0.14%
Disability	0.42%	0.11%	1.69%	1.33%	0.44%
Expenses	<u>0.35%</u>	<u>0.35%</u>	<u>0.35%</u>	<u>0.35%</u>	<u>0.35%</u>
Total	9.48%	9.71%	17.65%	18.08%	10.96%
UAAL Payment*	<u>10.79%</u>	<u>15.80%</u>	<u>22.58%</u>	<u>21.47%</u>	<u>15.28%</u>
Total Pension Contribution	20.27%	25.51%	40.23%	39.55%	26.24%
<b>Fiscal Year 2024</b>					
Member Contributions	7.00%	7.00%	11.55%	11.80%	7.77%
Employer Pension Contribution	13.27%	18.51%	28.68%	27.75%	18.47%
Employer Medical Subsidy Contribution	<u>0.26%</u>	<u>1.13%</u>	<u>2.60%</u>	<u>2.60%</u>	<u>1.10%</u>
<b>Total Employer Contribution</b>	<b>13.53%</b>	<b>19.64%</b>	<b>31.28%</b>	<b>30.35%</b>	<b>19.57%</b>
Projected Payroll for Fiscal Year	\$ 776,931,703	\$ 1,280,949,897	\$ 255,557,738	\$ 154,438,891	\$ 2,467,878,229
Estimated Employer Dollar Contribution	\$ 105,118,859	\$ 251,578,560	\$ 79,938,460	\$ 46,872,203	\$ 483,508,082
<b>Fiscal Year 2025</b>					
Member Contributions	7.00%	7.00%	11.55%	11.80%	7.77%
Employer Pension Contribution	13.27%	18.51%	28.68%	27.75%	18.47%
Employer Medical Subsidy Contribution	<u>0.26%</u>	<u>1.13%</u>	<u>2.60%</u>	<u>2.60%</u>	<u>1.10%</u>
<b>Total Employer Contribution</b>	<b>13.53%</b>	<b>19.64%</b>	<b>31.28%</b>	<b>30.35%</b>	<b>19.57%</b>
Projected Payroll for Fiscal Year	\$ 798,297,325	\$ 1,309,771,270	\$ 262,585,576	\$ 158,685,961	\$ 2,529,340,132
Estimated Employer Dollar Contribution	\$ 108,009,628	\$ 257,239,077	\$ 82,136,768	\$ 48,161,189	\$ 495,546,662
<b>Employer Contribution Rates from Prior Valuation</b>					
<b>FY 2022#</b>	<b>14.06%</b>	<b>21.02%</b>	<b>33.88%</b>	<b>32.99%</b>	<b>20.91%</b>
<b>FY 2023#</b>	<b>14.06%</b>	<b>21.02%</b>	<b>33.88%</b>	<b>32.99%</b>	<b>20.91%</b>

\* *Unfunded Actuarial Accrued Liability - Please refer to pages 38-59 for more detail regarding the development of UAAL amortization payments, and page 17 for description of the UAAL amortization policy.*

# *Computed in June 30, 2019 Actuarial Valuation.*



## Development of Pension Actuarial Liabilities

### June 30, 2021

Actuarial Present Value of	Total Present Value (1)	Portion Covered by Future Normal Cost Contributions (2)	Actuarial Accrued Liabilities (1) - (2)
Age and service allowances based on total service likely to be rendered by present active members	\$ 7,620,946,456	\$ 1,637,288,707	\$ 5,983,657,749
Disability benefits likely to be paid to present active members	167,842,099	114,439,512	53,402,587
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	68,937,054	35,412,441	33,524,613
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	1,151,962,423	815,605,301	336,357,122
Benefits likely to be paid to current inactive and vested deferred members	432,454,158	-	432,454,158
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	9,151,818,587	-	9,151,818,587
Total	\$ 18,593,960,777	\$ 2,602,745,961	\$ 15,991,214,816
Actuarial Value of Assets	\$ 10,268,312,657	\$ -	\$ 10,268,312,657
Liabilities to be Covered by Future Contributions	\$ 8,325,648,120	\$ 2,602,745,961	\$ 5,722,902,159
Funded Ratio			64.2%





# NHRS Total Pension Unfunded Actuarial Accrued Liability Payoff Projection (\$ in Millions)

## Level Percent Amortization

Year	Fiscal Year	Employer	UAAL				End of
	Ending June 30,	Contribution Rates UAAL Payment*	Projected Payroll	Beginning of Year	UAAL Payment	UAAL End of Year	Year Funded Ratio
	2022	15.51%	\$ 3,049	\$ 5,723	\$ 474	\$ 5,620	65.7%
	2023	15.51%	3,127	5,620	487	5,496	67.5%
1	2024	N/A	3,206	5,496	469	5,383	69.1%
2	2025	N/A	3,288	5,383	480	5,250	70.7%
3	2026	N/A	3,372	5,250	493	5,096	72.3%
4	2027	N/A	3,457	5,096	505	4,918	74.0%
5	2028	N/A	3,546	4,918	518	4,716	75.7%
6	2029	N/A	3,635	4,716	531	4,486	77.5%
7	2030	N/A	3,727	4,486	544	4,227	79.4%
8	2031	N/A	3,822	4,227	558	3,937	81.3%
9	2032	N/A	3,919	3,937	572	3,612	83.3%
10	2033	N/A	4,020	3,612	587	3,249	85.4%
11	2034	N/A	4,121	3,249	602	2,847	87.6%
12	2035	N/A	4,227	2,847	617	2,402	89.8%
13	2036	N/A	4,335	2,402	632	1,911	92.1%
14	2037	N/A	4,445	1,911	649	1,370	94.5%
15	2038	N/A	4,559	1,370	665	776	97.0%
16	2039	N/A	4,675	776	682	125	99.5%
17	2040	N/A	4,795	125	82	49	99.8%
18	2041	N/A	4,918	49	84	(35)	100.1%
19	2042	N/A	5,043	(35)	-	(38)	100.1%
20	2043	N/A	5,172	(38)	-	(42)	100.0%

\* The payroll projections for Teachers is assumed to be at a different rate than the other member classifications.  
Therefore, each member classification has a level percentage of payroll, but the aggregate rate will vary.

The funded ratio is projected in this amortization schedule assuming all actuarial assumptions are exactly met. Projections are not predictions of specific future events and do not provide numeric precision in absolute terms. It is important to understand that actual experience will differ from the projections shown on this page. When experience differs from the assumptions, as it often does, the employer's contribution rate can vary from year-to-year.



# NHRS Total Pension Unfunded Actuarial Accrued Liability Payoff Projection (\$ in Millions)

## Level Dollar Amortization (Not the Statutory Method – Hypothetical Illustration)

	Fiscal Year	UAAL			End of
	Ending	Beginning	UAAL	UAAL End	Funded
Year	June 30,	of Year	Payment	of Year	Ratio
	2022	\$ 5,723	\$ 474	\$ 5,618	65.7%
	2023	5,618	487	5,796	66.3%
1	2024	5,496	551	5,298	69.5%
2	2025	5,298	551	5,086	71.5%
3	2026	5,086	551	4,860	73.5%
4	2027	4,860	551	4,619	75.5%
5	2028	4,619	551	4,361	77.5%
6	2029	4,361	551	4,086	79.5%
7	2030	4,086	551	3,793	81.5%
8	2031	3,793	551	3,479	83.5%
9	2032	3,479	551	3,145	85.6%
10	2033	3,145	551	2,788	87.6%
11	2034	2,788	551	2,406	89.6%
12	2035	2,406	551	2,000	91.7%
13	2036	2,000	551	1,565	93.7%
14	2037	1,565	551	1,101	95.7%
15	2038	1,101	551	606	97.7%
16	2039	606	551	78	99.7%
17	2040	78	65	16	99.9%
18	2041	16	65	(50)	100.2%
19	2042	(50)	-	(54)	100.2%
20	2043	(54)	-	(57)	100.2%

The funded ratio is projected in this amortization schedule assuming all actuarial assumptions are exactly met. Projections are not predictions of specific future events and do not provide numeric precision in absolute terms. It is important to understand that actual experience will differ from the projections shown on this page. When experience differs from the assumptions, as it often does, the employer's contribution rate can vary from year to year.

# Actuarial Balance Sheet as of June 30, 2021

## Assets and Present Value of Expected Future Contributions

	Pension	Medical Subsidy
A. Present valuation assets		
1. Net assets from system financial statements	\$ 11,523,879,340	\$ 49,794,955
2. Actuarial value adjustment	(1,255,566,683)	(5,425,333)
3. Actuarial valuation assets	10,268,312,657	44,369,622
B. Actuarial present value of expected future employer contributions		
1. For normal costs	649,790,454	7,153,636
2. For unfunded actuarial accrued liability	5,722,902,159	569,824,165
3. Total	6,372,692,613	576,977,801
C. Actuarial present value of expected future member contributions	1,952,955,507	-
D. Total Present and Expected Future Resources	\$ 18,593,960,777	\$ 621,347,423

## Present Value of Expected Future Benefit Payments

A. To retirees and beneficiaries	\$ 9,151,818,587	\$ 548,025,441
B. To vested terminated members	317,032,206	-
C. To non-vested terminated members (outstanding refunds)	115,421,952	-
D. To present active members		
1. Allocated to service rendered prior to valuation date - actuarial accrued liability	6,406,942,071	66,168,346
2. Allocated to service likely to be rendered after valuation date	2,602,745,961	7,153,636
3. Total	9,009,688,032	73,321,982
E. Total Actuarial Present Value of Expected Future Benefit Payments	\$ 18,593,960,777	\$ 621,347,423



## Experience Gain/(Loss) – June 30, 2020 and June 30, 2021

	Pension	Medical Subsidy
(1) Actual UAAL* as of June 30, 2019	\$ 5,892,232,478	\$ 658,777,859
(2) Normal cost from 2019 valuation	320,817,838	2,009,445
(3) Actual contributions (employer and employee)	674,751,135	46,459,763
(4) Interest accrual: $[(1)+1/2 [(2)-(3)]] \times \{.0675 \text{ for pension; } .0275 \text{ for medical subsidy}\}$	385,780,443	17,505,199
(5) Expected UAAL end of year: (1)+(2)-(3)+(4)	5,924,079,624	631,832,740
(6) Change from legislation	-	-
(7) Change from revised actuarial assumptions	-	-
(8) Expected UAAL after changes: (5)+(6)+(7)	5,924,079,624	631,832,740
(9) Actual UAAL* as of June 30, 2020	<b>6,040,176,962</b>	<b>618,522,256</b>
(10) Gain/(loss) for year: (8)-(9)	<b>(116,097,338)</b>	<b>13,310,484</b>
(11) Gain/(loss) as percent of actuarial accrued liabilities at start of year	(0.8)%	1.9 %

	Pension	Medical Subsidy
(1) Actual UAAL* as of June 30, 2020	\$ 6,040,176,962	\$ 618,522,256
(2) Normal cost from 2020 valuation	329,685,723	1,745,870
(3) Actual contributions (employer and employee)	696,156,378	48,054,804
(4) Interest accrual: $[(1)+1/2 [(2)-(3)]] \times \{.0675 \text{ for pension; } .0275 \text{ for medical subsidy}\}$	395,343,560	16,372,614
(5) Expected UAAL end of year: (1)+(2)-(3)+(4)	6,069,049,867	588,585,936
(6) Change from legislation	-	-
(7) Change from revised actuarial assumptions	-	-
(8) Expected UAAL after changes: (5)+(6)+(7)	6,069,049,867	588,585,936
(9) Actual UAAL* as of June 30, 2021	<b>5,722,902,159</b>	<b>569,824,165</b>
(10) Gain/(loss) for year: (8)-(9)	<b>346,147,708</b>	<b>18,761,771</b>
(11) Gain/(loss) as percent of actuarial accrued liabilities at start of year	2.2 %	2.9 %

\* Unfunded Actuarial Accrued Liabilities.



# Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements 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 due to changing conditions; 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. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.



## Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures are discussed in the following pages. A historical summary of these plan maturity measures can be found on page 33.

### Funded Ratio

The ratio of actuarial value of assets to actuarial accrued liabilities is expected to trend toward 100% by June 30, 2043. Each subsequent change in liability as calculated in odd-numbered years shall be separately amortized over a fixed period of no longer than 20 years.

### Ratio of Actual Total Payroll to Expected Total Payroll

This ratio is expected to remain near 100% each year.

### Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

### Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of actives to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

### Ratio of Unfunded Actuarial Accrued Liability to Payroll

The ratio of the unfunded actuarial accrued liability to payroll is expected to trend toward 0% by June 30, 2043.

### Ratio of Actuarial Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the actuarial value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

# Plan Maturity Measures (Concluded)

## Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time. Total AAL / Total Payroll is expected to grow as the System matures. The rate of growth may slow down as members hired on or after July 1, 2011 replace current members.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

## Standard Deviation of Investment Return to Payroll

This measure illustrates the impact of a one standard deviation change in investment return as a percent of payroll. Investment return experience other than expected ultimately affects the employer contribution rates. The higher the ratio of this risk metric, the greater the expected volatility in employer contribution rates. Absent changes in investment policy, this metric is expected to increase as the assets grow to 100% of the AAL.

## Standard Deviation of Contribution Rate

This measure illustrates the impact of a one standard deviation change in investment return on the annual contribution rate. Absent a change in amortization policy, this rate is expected to increase substantially as the amortization period decreases.

## Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

## Summary of Risk Measures Pension

Valuation Year	Funded Ratio				Actual Total Payroll / Expected Total Payroll Net Cash Flow as a Percent of MVA Ratio of Actives to Retirees <sup>1</sup> UAAL Amortization Period				Ratio to Payroll				
	Percentage of AAL Covered by Net Actuarial Value of Assets Available								Standard Deviation of Investment Return			Standard Deviation of Contribution Rate	
	NHRS in Total	Aggregate Member Contributions	Current Retirees & Beneficiaries	Active & Inactive Members									
					UAAL	AVA	AAL	Return	Rate				
June 30, 2008	67.8%	100%	83%	0%	101%	(1.2)%	2.2	30	109%	230%	339%	***	***
June 30, 2009*	58.3	100	63	0	103	(2.3)	2.1	30	145	202	346	23%	0.3%
June 30, 2010	58.5	100	61	0	98	(2.8)	2.0	30	150	211	361	23	0.3%
June 30, 2011#*	57.4	100	63	0	98	(3.1)	1.8	29	169	228	397	26	0.3%
June 30, 2012	56.1	100	58	0	96	(2.3)	1.7	28	183	234	417	28	0.3%
June 30, 2013	56.7	100	59	0	97	(2.9)	1.6	27	185	243	428	29	0.3%
June 30, 2014	60.7	100	67	0	97	(1.7)	1.6	26	173	267	440	32	0.4%
June 30, 2015#^	59.2	100	66	0	99	(1.8)	1.5	25	195	283	478	33	0.4%
June 30, 2016	60.0	100	67	0	98	(1.7)	1.5	24	196	294	489	34	0.4%
June 30, 2017#	61.8	100	72	0	99	(2.0)	1.3	23	189	306	495	36	0.5%
June 30, 2018	63.6	100	75	0	100	(1.7)	1.3	22	181	317	498	37	0.5%
June 30, 2019#*@^	60.8	100	73	0	100	(1.8)	1.3	21	209	323	531	40	0.6%
June 30, 2020	61.0	100	72	0	100	(1.9)	1.3	20	209	326	535	40	0.6%
June 30, 2021	64.2	100	78	0	100	(2.1)	1.3	19	193	345	538	42	0.6%

# After reflection of changes in assumptions.

\* After reflection of changes in legislation.

@ After reflection of changes in methodology.

\*\*\* Unavailable.

^ The standard deviation of investment return was updated in these years as the result of an experience study.

1 Beginning with the valuation year ended June 30, 2019, the ratio of actives to retirees excludes additional data records which have resulted from additional annuities, survivor benefits, or members having benefits in more than one valuation group. There were 3,543 such records in 2021.

These risk measures are provided in accordance with the System's Actuarial Funding Policy. Short-term fluctuations will occur due to experience, plan changes, and assumption and method changes. Long-term expectations are described on the prior pages.

**UAAL Amortization Period:** The initial unfunded liability as of June 30, 2017 shall be amortized through 2039 (an 18-year period beginning on July 1, 2021). Each subsequent change in liability as calculated in odd-numbered years shall be separately amortized over a fixed period of no longer than 20 years.





## Pension Solvency Test

The New Hampshire Retirement System funding objective is to meet long-term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System will pay all promised benefits when due -- the ultimate test of financial soundness.

**A solvency test** is one means of checking a system's progress under its funding program. In a solvency test, the plan's present assets (cash and investments) are compared with:

- 1) Active member contributions on deposit;
- 2) The liabilities for future benefits to present retired lives; and
- 3) The liabilities for service already rendered by active and inactive members.

In a system that has been following the discipline of level percent-of-payroll financing, with assumptions and benefits unchanged and all assumptions met, the liabilities for active member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (liability 3) will be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the System.

As of June 30, 2021, there were 78% of assets needed to cover retiree liabilities, as shown in the table below.

Prior to June 30, 2007, the statutory funding method did not report a funded status nor did it report that assets were below the retiree liability. The assets in the plan are not sufficient to cover current retiree liabilities and the ratio of retiree benefit payroll to the market value of assets is 13.26. Approximately 13 years of current retiree benefit payments can be paid from current assets if all assumptions are met and ignoring future contributions. The ability to make such payments beyond that period is heavily dependent upon future contributions and future investment return.

Total of all Groups (\$ in Thousands)								
Fiscal Year		Projected Pension Liabilities for			Net Assets Available for Benefits	Percentage of Accrued Liabilities Covered by Net Assets Available		
		(1)	(2)	(3)		(1)	(2)	(3)
		Aggregate Member Contributions	Current Retirees & Beneficiaries	Active & Inactive Members (Employer Financed Portion)				
2010		\$2,553,612	\$4,378,205	\$2,022,115	\$5,233,838	100%	61%	0%
2011	#*	2,631,430	4,959,865	2,406,956	5,740,516	100%	63%	0%
2012		2,773,081	5,246,672	2,341,847	5,817,882	100%	58%	0%
2013		2,808,526	5,519,814	2,380,428	6,070,681	100%	59%	0%
2014		2,842,340	5,789,052	2,413,782	6,700,553	100%	67%	0%
2015	#	2,949,169	6,565,522	2,788,945	7,280,761	100%	66%	0%
2016		2,978,817	6,964,227	2,789,822	7,636,066	100%	67%	0%
2017	#	2,915,811	7,315,440	2,977,198	8,165,684	100%	72%	0%
2018		2,927,793	7,667,448	3,107,908	8,710,939	100%	75%	0%
2019	#*@	3,019,358	8,392,790	3,602,017	9,121,933	100%	73%	0%
2020		3,119,450	8,739,587	3,628,978	9,447,838	100%	72%	0%
2021		3,087,943	9,151,819	3,751,453	10,268,313	100%	78%	0%

# After reflection of changes in assumptions.

\* After reflection of changes in legislation.

@ After reflection of changes in methodology.



# Pension Solvency Test -- Comparative Statement

## (\$ in Thousands)

Group	Fiscal Year	Projected Pension Liabilities for			Net Assets Available for Benefits	Percentage of Accrued Liabilities Covered by Net Assets Available		
		(1)	(2)	(3)		(1)	(2)	(3)
		Aggregate Member Contributions	Current Retirees & Beneficiaries	Active & Inactive Members (Employer Financed Portion)				
Employees	2012	\$ 1,052,106	\$ 1,641,026	\$ 756,255	\$ 1,877,395	100%	50%	0%
Teachers	2012	1,101,262	1,999,152	949,670	2,173,315	100%	54%	0%
Police	2012	411,672	1,092,005	432,116	1,189,308	100%	71%	0%
Fire	2012	208,041	514,489	203,805	577,864	100%	72%	0%
Employees	2013	1,069,628	1,729,855	755,482	1,977,479	100%	52%	0%
Teachers	2013	1,107,192	2,087,926	977,937	2,255,011	100%	55%	0%
Police	2013	417,630	1,160,173	438,580	1,236,579	100%	71%	0%
Fire	2013	214,076	541,860	208,430	601,612	100%	72%	0%
Employees	2014	1,083,878	1,823,517	784,437	2,195,284	100%	61%	0%
Teachers	2014	1,113,650	2,198,892	966,511	2,482,496	100%	62%	0%
Police	2014	422,972	1,209,741	454,133	1,361,280	100%	78%	0%
Fire	2014	221,840	556,902	208,701	661,493	100%	79%	0%
Employees	2015 #	1,137,601	2,007,299	863,247	2,403,294	100%	63%	0%
Teachers	2015 #	1,155,922	2,555,611	1,141,245	2,682,083	100%	60%	0%
Police	2015 #	433,215	1,364,908	543,229	1,477,517	100%	77%	0%
Fire	2015 #	222,431	637,704	241,223	717,867	100%	78%	0%
Employees	2016	1,152,928	2,139,549	857,347	2,538,563	100%	65%	0%
Teachers	2016	1,171,831	2,692,037	1,156,821	2,799,863	100%	60%	0%
Police	2016	430,490	1,460,840	535,225	1,546,665	100%	76%	0%
Fire	2016	223,568	671,801	240,428	750,975	100%	79%	0%
Employees	2017	1,133,071	2,272,436	934,564	2,734,558	100%	70%	0%
Teachers	2017 #	1,132,876	2,819,228	1,211,560	2,979,005	100%	65%	0%
Police	2017	426,606	1,526,761	570,755	1,650,908	100%	80%	0%
Fire	2017	223,258	697,015	260,320	801,214	100%	83%	0%
Employees	2018	1,128,180	2,391,404	974,131	2,922,358	100%	75%	0%
Teachers	2018	1,142,455	2,956,675	1,268,903	3,176,932	100%	69%	0%
Police	2018	428,859	1,596,512	591,281	1,758,301	100%	83%	0%
Fire	2018	228,299	722,857	273,593	853,348	100%	86%	0%
Employees	2019 #*@	1,160,917	2,646,257	1,181,832	3,063,967	100%	72%	0%
Teachers	2019 #*@	1,181,186	3,195,041	1,461,286	3,326,088	100%	67%	0%
Police	2019 #*@	441,940	1,768,684	666,606	1,838,868	100%	79%	0%
Fire	2019 #*@	235,315	782,808	292,293	893,010	100%	84%	0%
Employees	2020	1,194,410	2,766,799	1,202,228	3,173,612	100%	72%	0%
Teachers	2020	1,225,030	3,310,020	1,470,570	3,450,798	100%	67%	0%
Police	2020	458,081	1,847,135	658,558	1,900,199	100%	78%	0%
Fire	2020	241,928	815,632	297,625	923,229	100%	84%	0%
Employees	2021	1,187,629	2,892,159	1,246,883	3,449,619	100%	78%	0%
Teachers	2021	1,220,158	3,429,767	1,532,995	3,752,083	100%	74%	0%
Police	2021	445,546	1,958,854	649,018	2,062,170	100%	83%	0%
Fire	2021	234,610	871,038	322,557	1,004,441	100%	88%	0%

# After reflection of changes in assumptions.

\* After reflection of changes in legislation.

@ After reflection of changes in methodology.



# Impact of Payroll Growth Experience on Contribution Rates

Year ending:

June 30, 2021

Member Classification	Employees	Teachers	Police	Fire	Total
2020 Valuation Payroll	\$ 1,274,597	\$ 1,160,884	\$ 322,994	\$ 136,234	\$ 2,894,708
Payroll Increase Assumption	2.75%	2.25%	2.75%	2.75%	
2021 Expected Valuation Payroll	\$ 1,309,648	\$ 1,187,004	\$ 331,876	\$ 139,980	\$ 2,968,508
2021 Actual Valuation Payroll	\$ 1,300,926	\$ 1,198,236	\$ 327,342	\$ 146,464	\$ 2,972,969
<i>All dollar amounts in thousands</i>					
Actual/Expected Payroll	99.3%	100.9%	98.6%	104.6%	100.2%
Active Actuarial Accrued Liability	\$ 2,231,809	\$ 2,570,460	\$ 1,054,267	\$ 550,406	\$ 6,406,942
Estimated pay gain/(loss) on liability	\$ 14,962	\$ (24,095)	\$ 14,602	\$ (24,366)	\$ (18,896)
Total Contribution Rate in Effect	17.88%	22.99%	36.32%	38.23%	
Estimated excess/(shortfall) contributions (w/interest)	\$ (1,615)	\$ 2,675	\$ (1,706)	\$ 2,568	\$ 1,921
Estimated Increase/(Decrease) on UAL as of June, 30, 2021	\$ (13,347)	\$ 21,420	\$ (12,897)	\$ 21,798	\$ 16,975
Total UAL as of June, 30, 2021	\$ 1,877,053	\$ 2,430,837	\$ 991,248	\$ 423,764	\$ 5,722,902
UAL contribution rate for FY 2024	10.79%	15.80%	22.58%	21.47%	14.63%
Estimated UAL contribution rate on expected payroll	10.79%	15.81%	22.56%	21.31%	14.61%
Estimated Impact of change in payroll on contribution rate	0.00%	-0.01%	0.02%	0.16%	0.02%



## Schedule of Pension Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b)-(a)	Funded Ratio (a)/(b)	Covered Payroll (c)	UAAL as a Percent of Covered Payroll [(b)-(a)]/(c)
June 30, 2008	\$ 5,302,034,006	\$ 7,821,316,352	\$ 2,519,282,346	67.8%	\$ 2,308,320,669	109.1 %
June 30, 2009*	4,937,319,506	8,475,051,817	3,537,732,311	58.3%	2,448,287,042	144.5 %
June 30, 2010	5,233,838,359	8,953,932,346	3,720,093,987	58.5%	2,481,383,620	149.9 %
June 30, 2011#	5,740,516,293	9,998,251,218	4,257,734,925	57.4%	2,517,779,470	169.1 %
June 30, 2012	5,817,881,588	10,361,600,451	4,543,718,863	56.1%	2,487,757,437	182.6 %
June 30, 2013	6,070,681,258	10,708,768,437	4,638,087,179	56.7%	2,501,741,708	185.4 %
June 30, 2014	6,700,553,435	11,045,173,866	4,344,620,431	60.7%	2,507,898,809	173.2 %
June 30, 2015#	7,280,760,612	12,303,635,908	5,022,875,296	59.2%	2,575,031,210	195.1 %
June 30, 2016	7,636,066,231	12,732,865,722	5,096,799,491	60.0%	2,601,403,606	195.9 %
June 30, 2017#	8,165,684,152	13,208,449,374	5,042,765,222	61.8%	2,667,611,532	189.0 %
June 30, 2018	8,710,939,332	13,703,148,691	4,992,209,359	63.6%	2,752,235,069	181.4 %
June 30, 2019#*	9,121,932,914	15,014,165,392	5,892,232,478	60.8%	2,825,006,022	208.6 %
June 30, 2020	9,447,838,321	15,488,015,283	6,040,176,962	61.0%	2,894,708,279	208.7 %
<b>June 30, 2021</b>	<b>10,268,312,657</b>	<b>15,991,214,816</b>	<b>5,722,902,159</b>	<b>64.2%</b>	<b>2,972,968,504</b>	<b>192.5 %</b>

# After reflection of changes in assumptions.

\* After reflection of changes in legislation.

@ After reflection of changes in methodology.

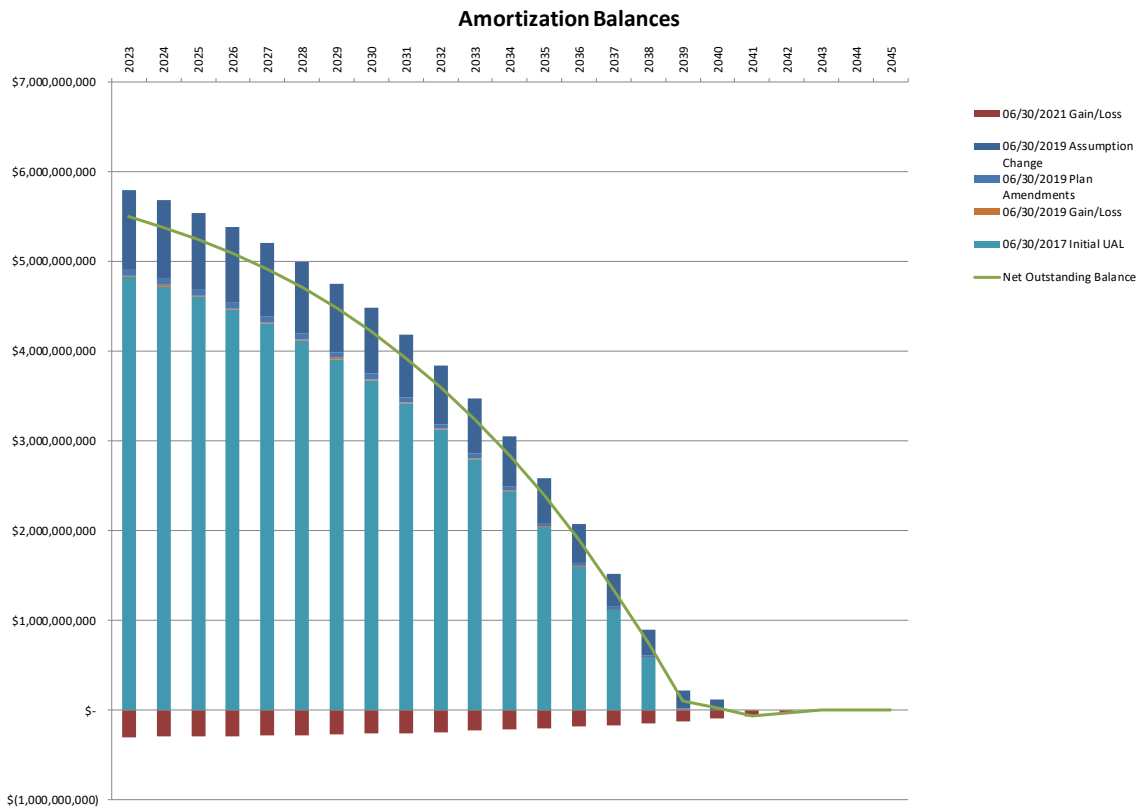
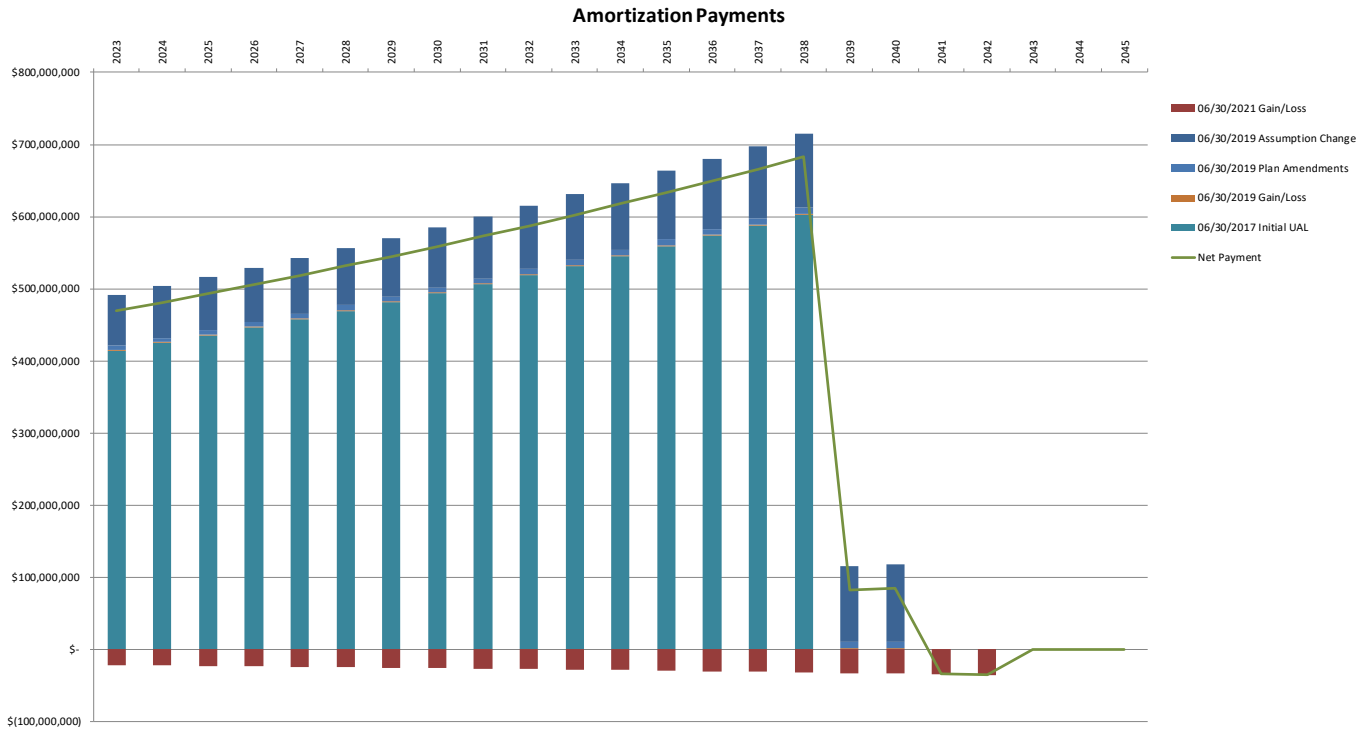
## Development of Employer Contribution Rates

### Total System Amortization of Unfunded Actuarial Accrued Liability Schedule

Source of UAAL For Year Ending	Projected 6/30/2023 UAAL Amount	Remaining Financing Period 6/30/2023	FY 2024 Contribution*		
			Dollar	% of Payroll	
Initial Unfunded Actuarial Accrued Liability					
6/30/2017	\$ 4,823,052,342	16 yrs.	\$ 414,102,334	12.92%	
(Gain) Loss From Experience					
6/30/2019	13,569,113	18 yrs.	1,134,226	0.04%	
6/30/2021	(299,627,596)	20 yrs.	(22,072,435)	(0.69%)	
Changes From Updated Actuarial Assumptions and Methods					
6/30/2019	887,153,849	18 yrs.	69,979,134	2.18%	
Changes From Updated Benefits					
6/30/2019	72,231,764	18 yrs.	5,710,077	0.18%	
Totals	\$ 5,496,379,472		\$ 468,853,336	14.63%	

\* Total dollars shown are the sum of all four-member classifications. Percentages of payroll shown are the weighted average over all of NHRS.

# Total System Remaining Amortization Payments and Balances



# Employees Pension

## Development of Pension Actuarial Liabilities

### June 30, 2021

Actuarial Present Value of	Total Present Value (1)	Portion Covered by Future Normal Cost Contributions (2)	Actuarial Accrued Liabilities (1) - (2)
Age and service allowances based on total service likely to be rendered by present active members	\$ 2,509,095,623	\$ 456,410,281	\$ 2,052,685,342
Disability benefits likely to be paid to present active members	59,321,625	35,890,715	23,430,910
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	27,488,902	13,359,254	14,129,648
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	473,425,665	331,863,025	141,562,640
Benefits likely to be paid to current inactive and vested deferred members	202,704,994	-	202,704,994
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	2,892,158,616	-	2,892,158,616
Total	\$ 6,164,195,425	\$ 837,523,275	\$ 5,326,672,150
Actuarial Value of Assets	\$ 3,449,618,875	\$ -	\$ 3,449,618,875
Liabilities to be Covered by Future Contributions	\$ 2,714,576,550	\$ 837,523,275	\$ 1,877,053,275
Funded Ratio			64.8%



## Development of Employer Contribution Rates

### Employees Amortization of Unfunded Actuarial Accrued Liability Schedule

Source of UAAL For Year Ending	Projected 6/30/2023 UAAL Amount	Remaining Financing Period 6/30/2023	Amort. Factor	FY 2024 Contribution	
				Dollar	% of Payroll
Initial Unfunded Actuarial Accrued Liability 6/30/2017	\$ 1,544,709,269	16 yrs.	11.812102	\$ 130,773,444	9.27%
(Gain) Loss From Experience					
6/30/2019	1,966,509	18 yrs.	12.843277	153,116	0.01%
6/30/2021	(98,392,990)	20 yrs.	13.798623	(7,130,638)	(0.51%)
Changes From Updated Actuarial Assumptions and Methods					
6/30/2019	343,608,705	18 yrs.	12.843277	26,753,973	1.90%
Changes From Updated Benefits					
6/30/2019	21,034,595	18 yrs.	12.843277	1,637,790	0.12%
Totals	\$ 1,812,926,088			\$ 152,187,685	<b>10.79%</b>



# Employees Pension

## Unfunded Actuarial Accrued Liability Payoff Projection

(\$ in Millions)

Year	Fiscal Year Ending June 30,	Employer Contribution Rates	Projected Payroll	UAAL Beginning of Year	UAAL Payment	UAAL End of Year	End of Year Funded Ratio
		UAAL Payment*					
	2022	11.27%	\$ 1,337	\$ 1,877	\$ 151	\$ 1,848	66.1%
	2023	11.27%	1,373	1,848	155	1,813	67.8%
1	2024	10.79%	1,411	1,813	152	1,778	69.4%
2	2025	10.79%	1,450	1,778	156	1,737	71.0%
3	2026	10.79%	1,490	1,737	161	1,688	72.6%
4	2027	10.79%	1,531	1,688	165	1,632	74.3%
5	2028	10.79%	1,573	1,632	170	1,567	76.0%
6	2029	10.79%	1,616	1,567	174	1,493	77.8%
7	2030	10.79%	1,660	1,493	179	1,409	79.6%
8	2031	10.79%	1,706	1,409	184	1,314	81.5%
9	2032	10.79%	1,753	1,314	189	1,207	83.5%
10	2033	10.79%	1,801	1,207	194	1,088	85.6%
11	2034	10.79%	1,850	1,088	200	956	87.7%
12	2035	10.79%	1,901	956	205	809	89.9%
13	2036	10.79%	1,953	809	211	646	92.2%
14	2037	10.79%	2,007	646	217	466	94.5%
15	2038	10.79%	2,062	466	222	268	97.0%
16	2039	10.79%	2,119	268	229	50	99.5%
17	2040	1.52%	2,177	50	33	19	99.8%
18	2041	1.52%	2,237	19	34	(15)	100.1%
19	2042	-0.51%	2,298	(15)	-	(16)	100.1%
20	2043	-0.51%	2,362	(16)	-	(17)	100.0%

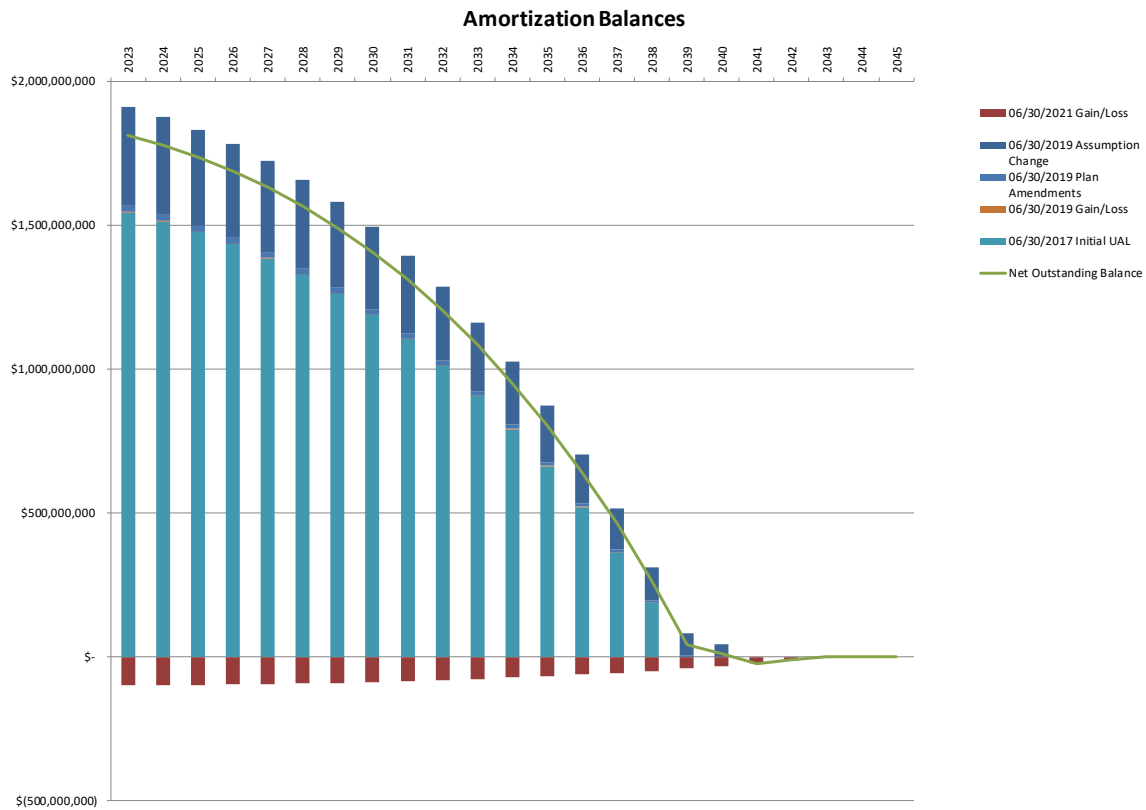
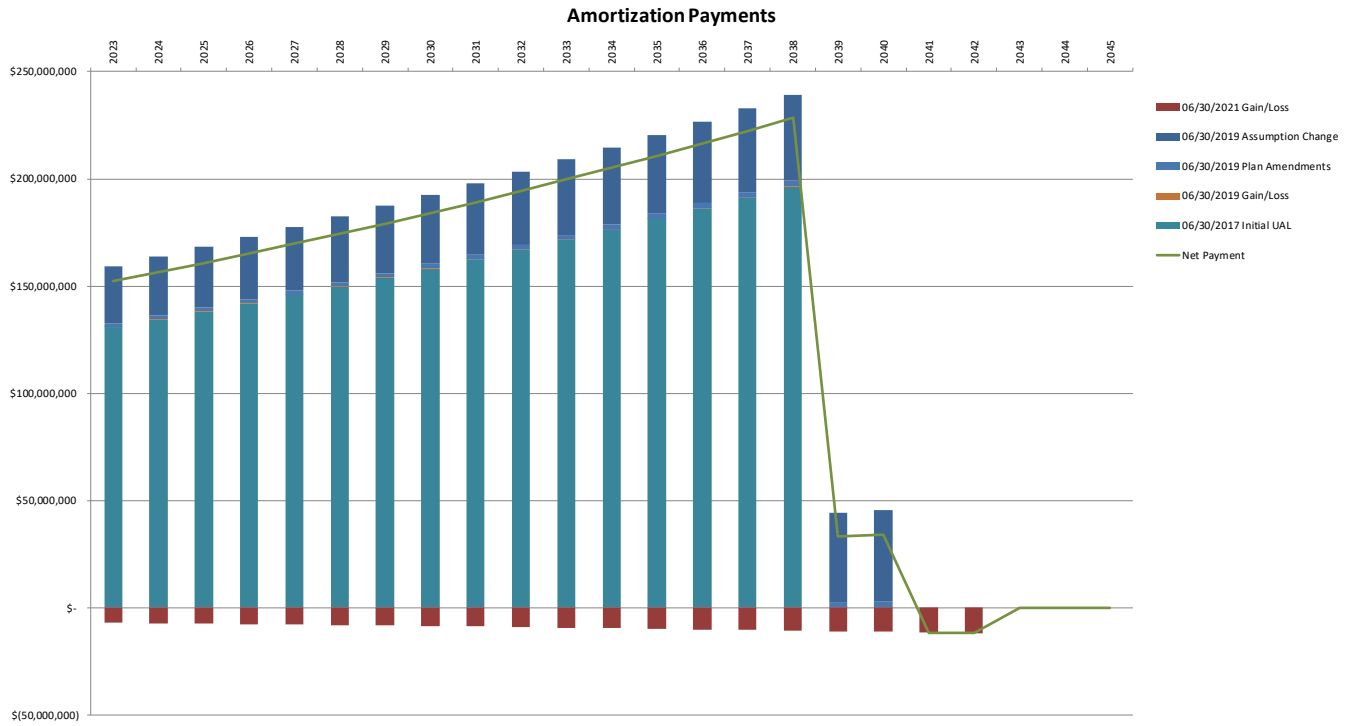
\* UAAL rates for the first biennium are based on the adopted rates from the previous rate setting valuation less the employer normal cost from this valuation.

The funded ratio is projected in this amortization schedule assuming all actuarial assumptions are exactly met. Projections are not predictions of specific future events and do not provide numeric precision in absolute terms. It is important to understand that actual experience will differ from the projections shown on this page. When experience differs from the assumptions, as it often does, the employer's contribution rate can vary from year to year.



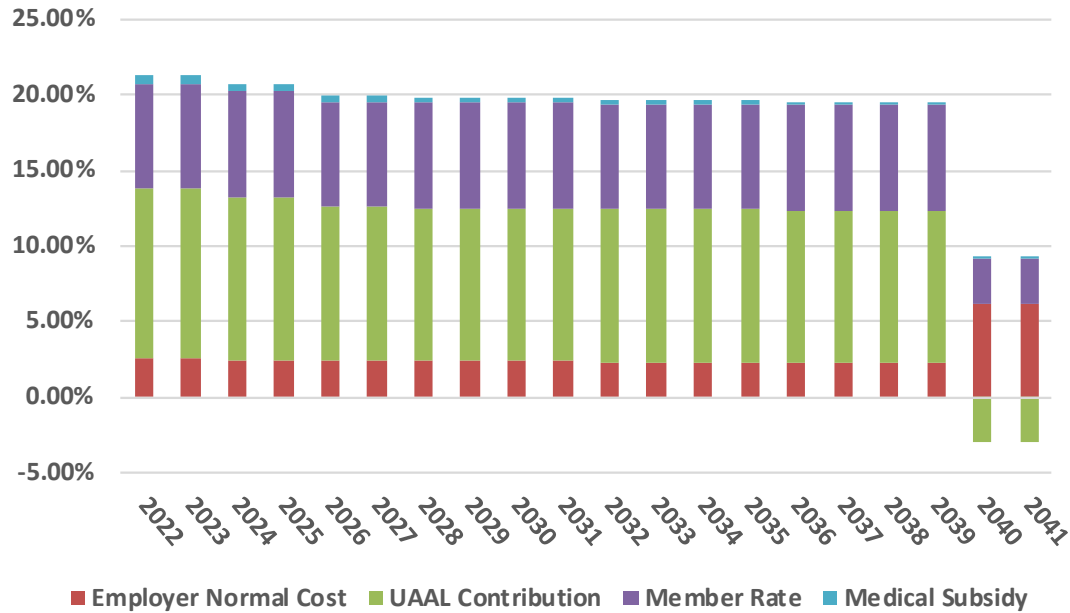
# Employees Pension

## Remaining Amortization Payments and Balances

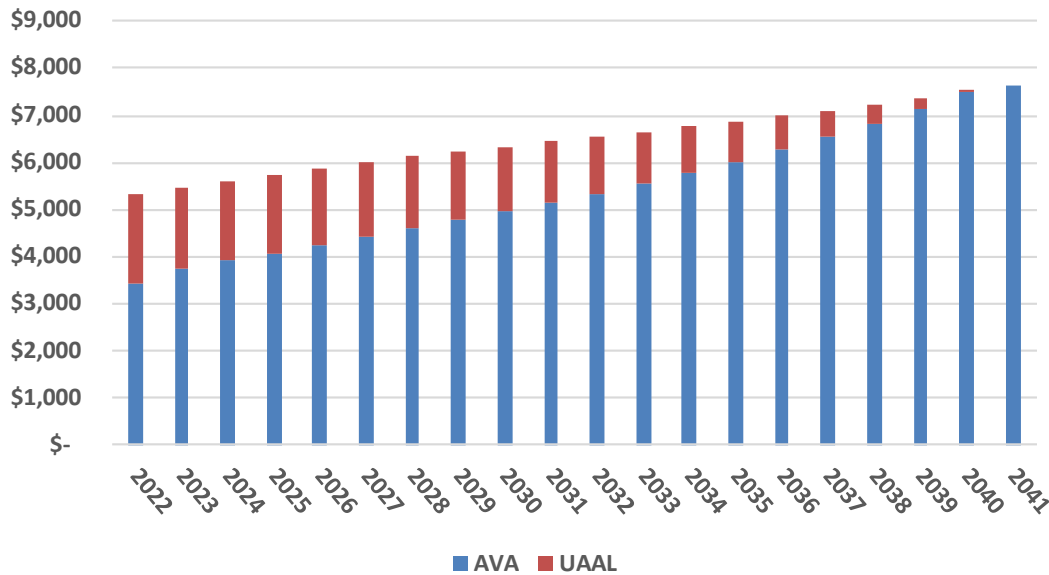


# Contribution Projections – Employees

Projection of Contribution Rates (% of Payroll)



Projection of UAAL  
(\$Millions)



# Teachers Pension

## Development of Pension Actuarial Liabilities

### June 30, 2021

Actuarial Present Value of	Total Present Value (1)	Portion Covered by Future Normal Cost Contributions (2)	Actuarial Accrued Liabilities (1) - (2)
Age and service allowances based on total service likely to be rendered by present active members	\$ 3,033,791,326	\$ 654,352,075	\$ 2,379,439,251
Disability benefits likely to be paid to present active members	23,607,925	11,323,625	12,284,300
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	21,158,978	9,701,940	11,457,038
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	502,036,439	334,756,722	167,279,717
Benefits likely to be paid to current inactive and vested deferred members	182,692,042	-	182,692,042
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	3,429,767,424	-	3,429,767,424
Total	\$ 7,193,054,134	\$ 1,010,134,362	\$ 6,182,919,772
Actuarial Value of Assets	\$ 3,752,082,670	-	\$ 3,752,082,670
Liabilities to be Covered by Future Contributions	\$ 3,440,971,464	\$ 1,010,134,362	\$ 2,430,837,102
Funded Ratio			60.7%



## Development of Employer Contribution Rates

### Teachers Amortization of Unfunded Actuarial Accrued Liability Schedule

Source of UAAL For Year Ending	Projected 6/30/2023 UAAL Amount	Remaining Financing Period 6/30/2023	Amort. Factor	FY 2024 Contribution		
				Dollar	% of Payroll	
Initial Unfunded Actuarial Accrued Liability						
6/30/2017	\$ 2,075,863,792	16 yrs.	11.435485	\$ 181,528,273	14.17%	
(Gain) Loss From Experience						
6/30/2019	27,093,102	18 yrs.	12.386962	2,187,227	0.17%	
6/30/2021	(121,633,722)	20 yrs.	13.259913	(9,173,041)	(0.72%)	
Changes From Updated Actuarial Assumptions and Methods						
6/30/2019	315,095,408	18 yrs.	12.386962	25,437,666	1.99%	
Changes From Updated Benefits						
6/30/2019	29,978,106	18 yrs.	12.386962	2,420,134	0.19%	
Totals	\$ 2,326,396,686			\$ 202,400,259	15.80%	

# Teachers Pension

## Unfunded Actuarial Accrued Liability Payoff Projection

(\$ in Millions)

Year	Fiscal Year Ending June 30,	Employer	Projected Payroll	UAAL Beginning of Year	UAAL Payment	UAAL End of Year	End of Year Funded Ratio
		Contribution Rates UAAL Payment*					
	2022	16.77%	\$ 1,225	\$ 2,431	\$ 205	\$ 2,383	62.3%
	2023	16.77%	1,253	2,383	210	2,326	64.3%
1	2024	15.80%	1,281	2,326	202	2,274	66.0%
2	2025	15.80%	1,310	2,274	207	2,214	67.8%
3	2026	15.80%	1,339	2,214	212	2,145	69.6%
4	2027	15.80%	1,369	2,145	216	2,067	71.5%
5	2028	15.80%	1,400	2,067	221	1,978	73.5%
6	2029	15.80%	1,431	1,978	226	1,878	75.5%
7	2030	15.80%	1,463	1,878	231	1,766	77.5%
8	2031	15.80%	1,496	1,766	236	1,642	79.7%
9	2032	15.80%	1,530	1,642	242	1,503	81.9%
10	2033	15.80%	1,564	1,503	247	1,349	84.2%
11	2034	15.80%	1,599	1,349	253	1,179	86.5%
12	2035	15.80%	1,635	1,179	258	992	89.0%
13	2036	15.80%	1,672	992	264	787	91.5%
14	2037	15.80%	1,709	787	270	561	94.1%
15	2038	15.80%	1,748	561	276	314	96.8%
16	2039	15.80%	1,787	314	282	44	99.6%
17	2040	1.63%	1,827	44	30	16	99.8%
18	2041	1.63%	1,868	16	31	(14)	100.1%
19	2042	-0.72%	1,910	(14)	-	(15)	100.1%
20	2043	-0.72%	1,953	(15)	-	(16)	100.0%

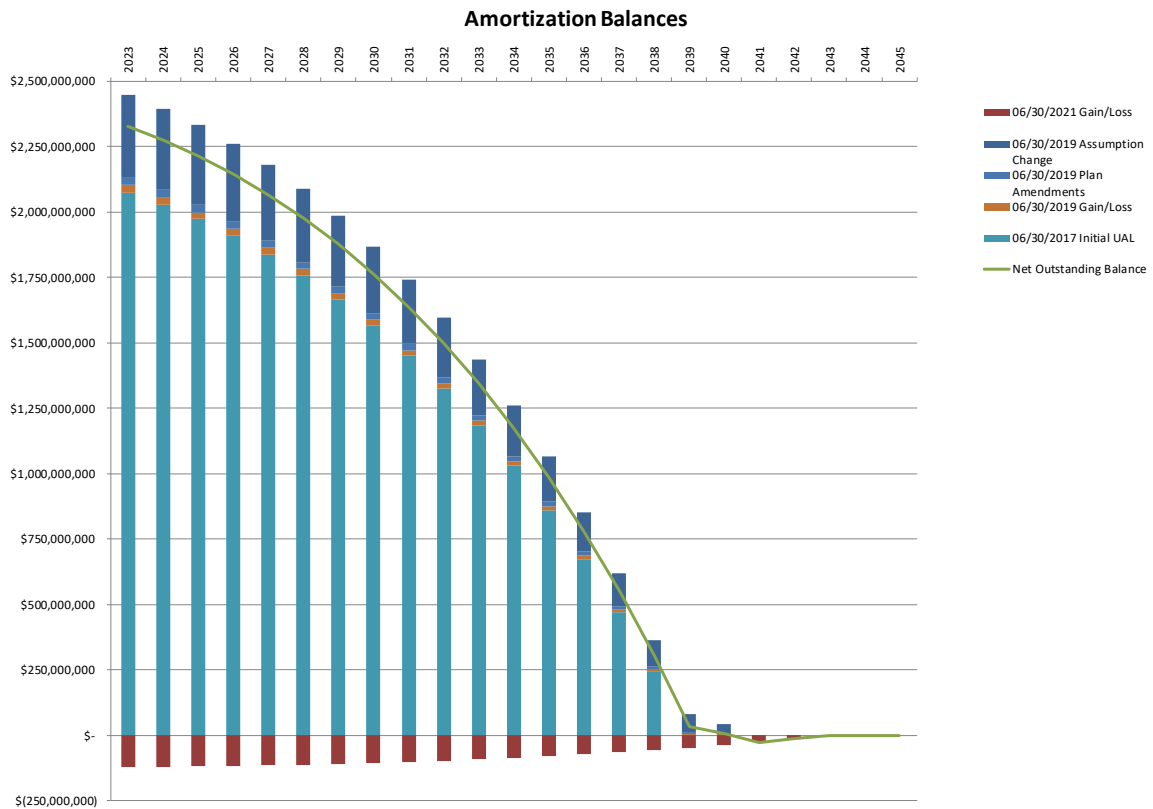
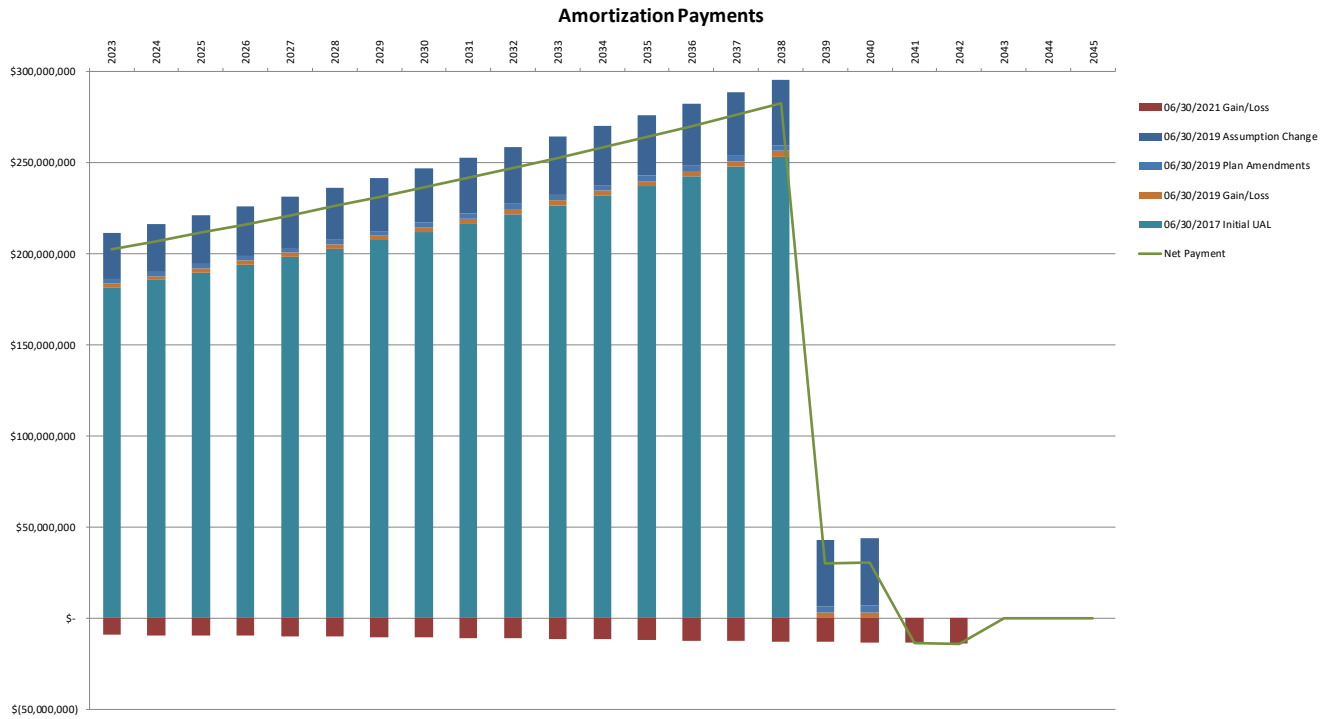
\* UAAL rates for the first biennium are based on the adopted rates from the previous rate setting valuation less the employer normal cost from this valuation.

The funded ratio is projected in this amortization schedule assuming all actuarial assumptions are exactly met. Projections are not predictions of specific future events and do not provide numeric precision in absolute terms. It is important to understand that actual experience will differ from the projections shown on this page. When experience differs from the assumptions, as it often does, the employer's contribution rate can vary from year-to-year.



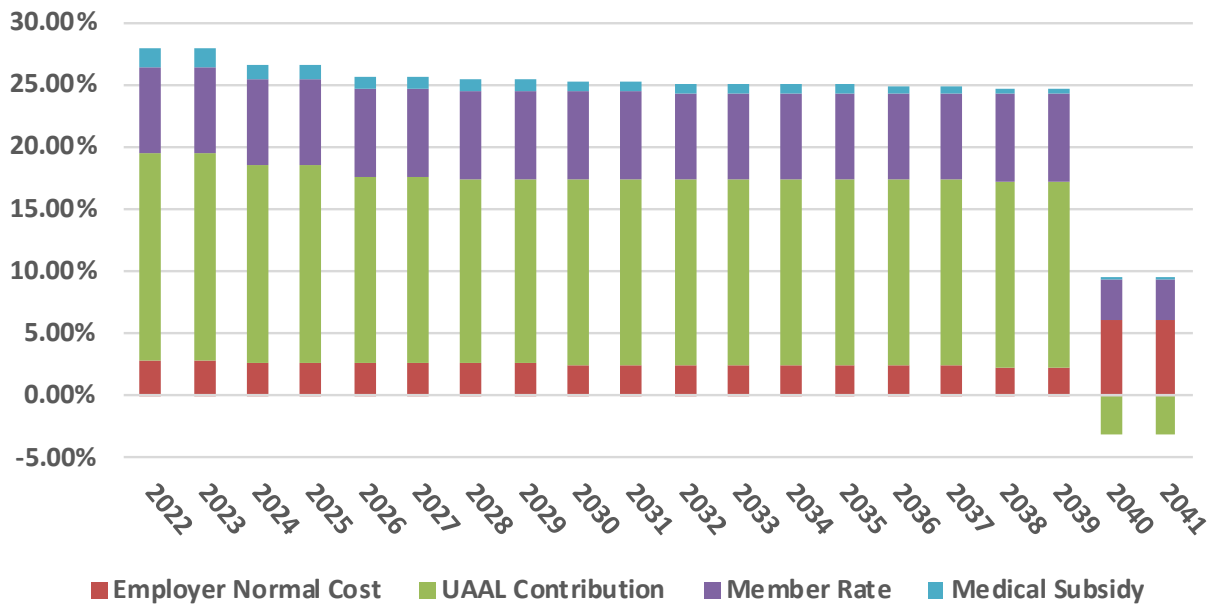
# Teachers Pension

## Remaining Amortization Payments and Balances

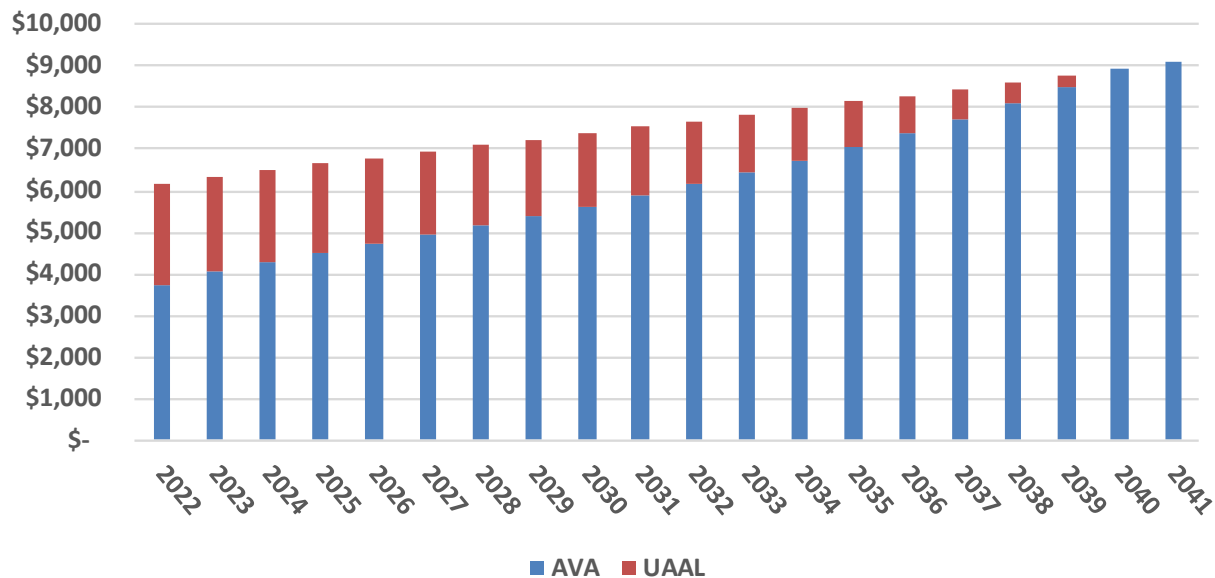


## Contribution Projections – Teachers

Projection of Contribution Rates (% of Payroll)



Projection of UAAL  
(\$Millions)





# Police Pension

## Development of Pension Actuarial Liabilities

### June 30, 2021

Actuarial Present Value of	Total Present Value (1)	Portion Covered by Future Normal Cost Contributions (2)	Actuarial Accrued Liabilities (1) - (2)
Age and service allowances based on total service likely to be rendered by present active members	\$ 1,335,970,955	\$ 325,277,654	\$ 1,010,693,301
Disability benefits likely to be paid to present active members	64,158,797	48,184,875	15,973,922
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	12,863,258	7,914,006	4,949,252
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	145,149,505	122,498,515	22,650,990
Benefits likely to be paid to current inactive and vested deferred members	40,296,026	-	40,296,026
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	1,958,854,260	-	1,958,854,260
Total	\$ 3,557,292,801	\$ 503,875,050	\$ 3,053,417,751
Actuarial Value of Assets	\$ 2,062,169,797	-	\$ 2,062,169,797
Liabilities to be Covered by Future Contributions	\$ 1,495,123,004	\$ 503,875,050	\$ 991,247,954
Funded Ratio			67.5%

## Development of Employer Contribution Rates

### Police Amortization of Unfunded Actuarial Accrued Liability Schedule

Source of UAAL For Year Ending	Projected 6/30/2023 UAAL Amount	Remaining Financing Period 6/30/2023	Amort. Factor	FY 2024 Contribution		
				Dollar	% of Payroll	
Initial Unfunded Actuarial Accrued Liability						
6/30/2017	\$ 839,589,347	16 yrs.	11.812102	\$ 71,078,741	20.02%	
(Gain) Loss From Experience						
6/30/2019	1,305,027	18 yrs.	12.843277	101,612	0.03%	
6/30/2021	(78,511,152)	20 yrs.	13.798623	(5,689,782)	(1.60%)	
Changes From Updated Actuarial Assumptions and Methods						
6/30/2019	173,696,240	18 yrs.	12.843277	13,524,292	3.81%	
Changes From Updated Benefits						
6/30/2019	14,625,177	18 yrs.	12.843277	1,138,742	0.32%	
Totals	\$ 950,704,639			\$ 80,153,605	22.58%	

# Police Pension

## Unfunded Actuarial Accrued Liability Payoff Projection

(\$ in Millions)

Year	Fiscal Year Ending June 30,	Employer Contribution Rates	Projected Payroll	UAAL Beginning of Year	UAAL Payment	UAAL End of Year	End of Year Funded Ratio
		UAAL Payment*					
	2022	24.57%	336	991	83	973	69.1%
	2023	24.57%	346	973	85	951	70.7%
1	2024	22.58%	355	951	80	932	72.0%
2	2025	22.58%	365	932	82	910	73.4%
3	2026	22.58%	375	910	85	884	74.9%
4	2027	22.58%	385	884	87	854	76.4%
5	2028	22.58%	396	854	89	820	77.9%
6	2029	22.58%	406	820	92	781	79.5%
7	2030	22.58%	417	781	94	737	81.2%
8	2031	22.58%	428	737	97	687	82.9%
9	2032	22.58%	440	687	99	631	84.7%
10	2033	22.58%	452	631	102	568	86.6%
11	2034	22.58%	464	568	105	498	88.6%
12	2035	22.58%	477	498	108	421	90.6%
13	2036	22.58%	490	421	111	335	92.7%
14	2037	22.58%	503	335	114	240	95.0%
15	2038	22.58%	517	240	117	136	97.2%
16	2039	22.58%	531	136	120	21	99.6%
17	2040	2.56%	546	21	14	8	99.8%
18	2041	2.56%	561	8	14	(6)	100.1%
19	2042	-1.60%	576	(6)	-	(6)	100.1%
20	2043	-1.60%	592	(6)	-	(7)	100.0%

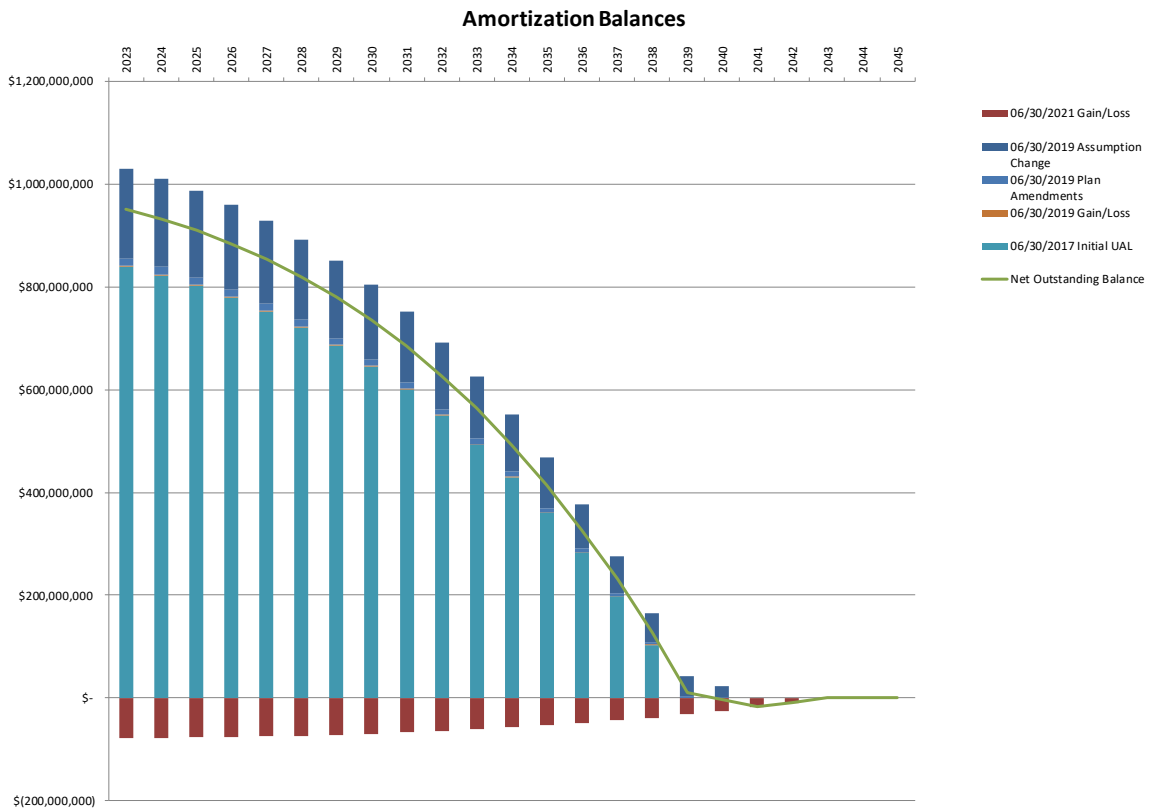
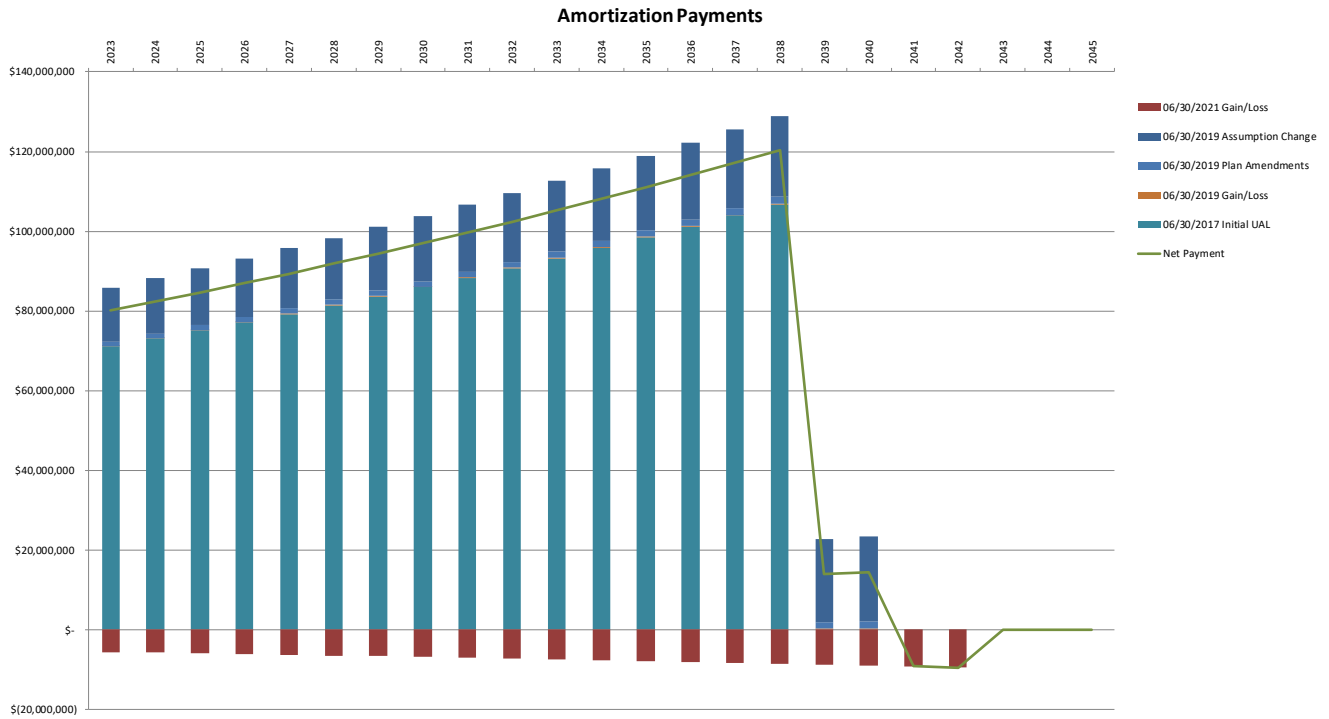
\* UAAL rates for the first biennium are based on the adopted rates from the previous rate setting valuation less the employer normal cost from this valuation.

The funded ratio is projected in this amortization schedule assuming all actuarial assumptions are exactly met. Projections are not predictions of specific future events and do not provide numeric precision in absolute terms. It is important to understand that actual experience will differ from the projections shown on this page. When experience differs from the assumptions, as it often does, the employer's contribution rate can vary from year-to-year.



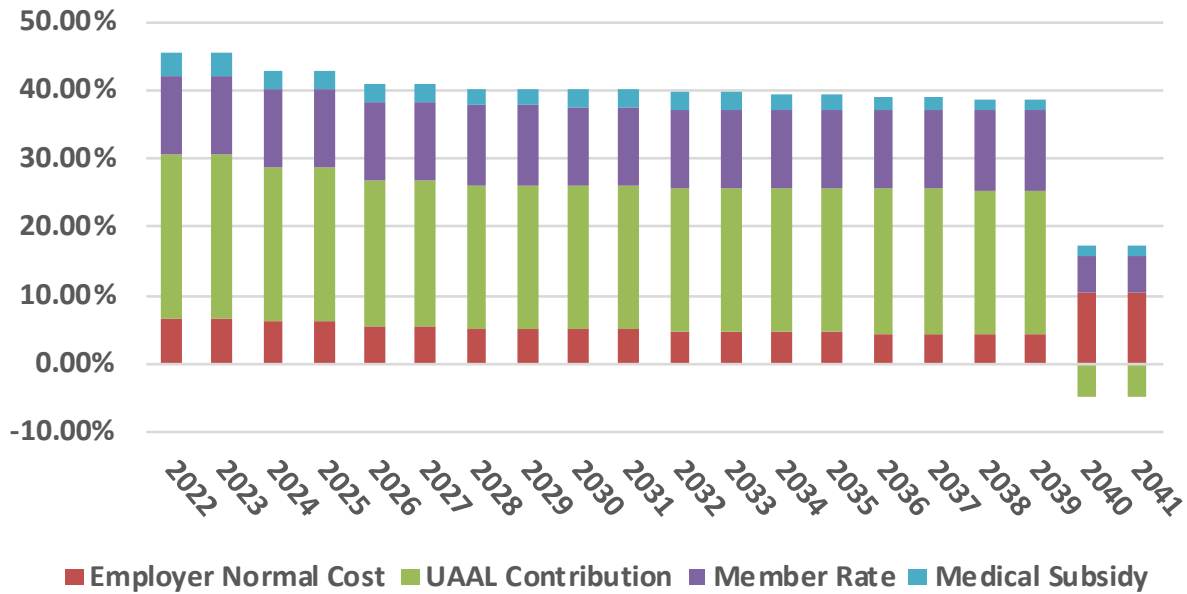
# Police Pension

## Remaining Amortization Payments and Balances

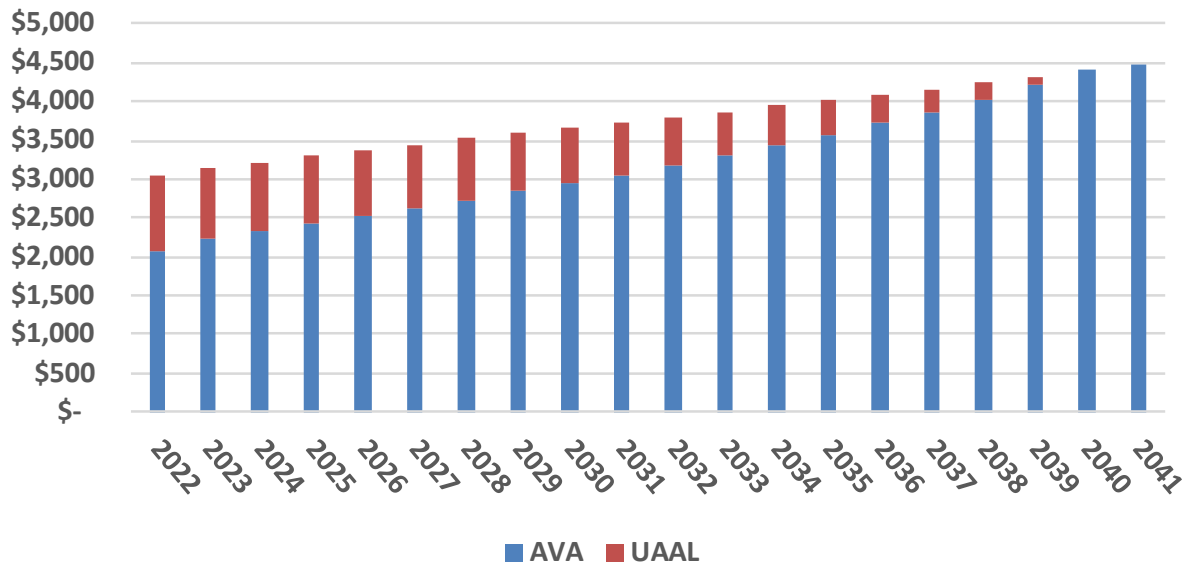


## Contribution Projections – Police

Projection of Contribution Rates (% of Payroll)



Projection of UAAL  
(\$Millions)



# Fire Pension

## Development of Pension Actuarial Liabilities

### June 30, 2021

Actuarial Present Value of	Total Present Value (1)	Portion Covered by Future Normal Cost Contributions (2)	Actuarial Accrued Liabilities (1) - (2)
Age and service allowances based on total service likely to be rendered by present active members	\$ 742,088,552	\$ 201,248,697	\$ 540,839,855
Disability benefits likely to be paid to present active members	20,753,752	19,040,297	1,713,455
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	7,425,916	4,437,241	2,988,675
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	31,350,814	26,487,039	4,863,775
Benefits likely to be paid to current inactive and vested deferred members	6,761,096	-	6,761,096
Benefits to be paid to current retirees, beneficiaries, and future beneficiaries of current retirees	871,038,287	-	871,038,287
Total	\$ 1,679,418,417	\$ 251,213,274	\$ 1,428,205,143
Actuarial Value of Assets	\$ 1,004,441,315	\$ -	\$ 1,004,441,315
Liabilities to be Covered by Future Contributions	\$ 674,977,102	\$ 251,213,274	\$ 423,763,828
Funded Ratio			70.3%



## Development of Employer Contribution Rates

### Fire Amortization of Unfunded Actuarial Accrued Liability Schedule

Source of UAAL For Year Ending	Projected 6/30/2023 UAAL Amount	Remaining Financing Period 6/30/2023	Amort. Factor	FY 2024 Contribution		
				Dollar	% of Payroll	
Initial Unfunded Actuarial Accrued Liability						
6/30/2017	\$ 362,889,934	16 yrs.	11.812102	\$ 30,721,876	19.34%	
(Gain) Loss From Experience						
6/30/2019	(16,795,525)	18 yrs.	12.843277	(1,307,729)	(0.82%)	
6/30/2021	(1,089,732)	20 yrs.	13.798623	(78,974)	(0.05%)	
Changes From Updated Actuarial Assumptions and Methods						
6/30/2019	54,753,496	18 yrs.	12.843277	4,263,203	2.68%	
Changes From Updated Benefits						
6/30/2019	6,593,886	18 yrs.	12.843277	513,411	0.32%	
Totals	\$ 406,352,059			\$ 34,111,787	21.47%	

# Fire Pension

## Unfunded Actuarial Accrued Liability Payoff Projection

(\$ in Millions)

Year	Fiscal Year Ending June 30,	Employer Contribution Rates	Projected Payroll	UAAL Beginning of Year	UAAL Payment	UAAL End of Year	End of Year Funded Ratio
		UAAL Payment*					
	2022	23.50%	\$ 150	\$ 424	\$ 35	\$ 416	71.8%
	2023	23.50%	155	416	36	406	73.3%
1	2024	21.47%	159	406	34	399	74.6%
2	2025	21.47%	163	399	35	389	75.9%
3	2026	21.47%	168	389	36	378	77.2%
4	2027	21.47%	172	378	37	365	78.6%
5	2028	21.47%	177	365	38	350	80.0%
6	2029	21.47%	182	350	39	334	81.4%
7	2030	21.47%	187	334	40	315	82.9%
8	2031	21.47%	192	315	41	294	84.5%
9	2032	21.47%	197	294	42	270	86.1%
10	2033	21.47%	203	270	44	243	87.8%
11	2034	21.47%	208	243	45	213	89.6%
12	2035	21.47%	214	213	46	180	91.5%
13	2036	21.47%	220	180	47	143	93.4%
14	2037	21.47%	226	143	49	102	95.4%
15	2038	21.47%	232	102	50	58	97.5%
16	2039	21.47%	239	58	51	9	99.6%
17	2040	2.13%	245	9	5	5	99.8%
18	2041	2.13%	252	5	5	(0)	100.0%
19	2042	-0.05%	259	(0)	1	(1)	100.0%
20	2043	-0.05%	266	(1)	1	(2)	100.0%

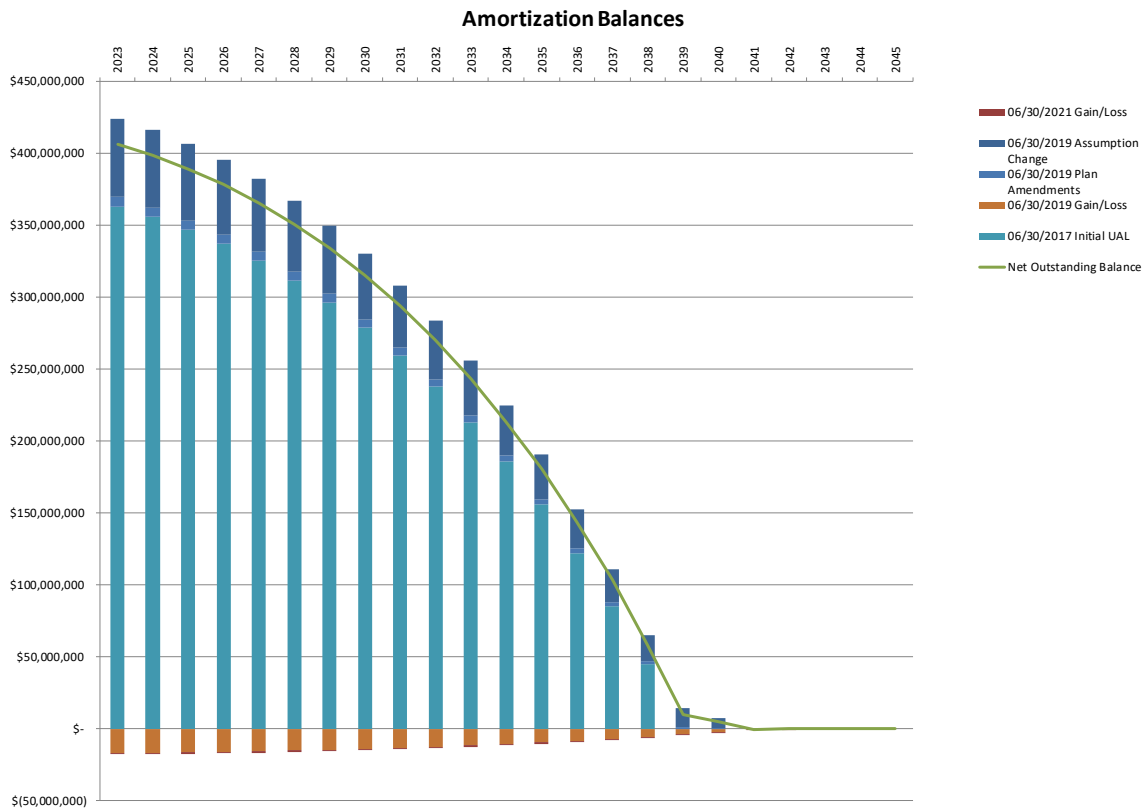
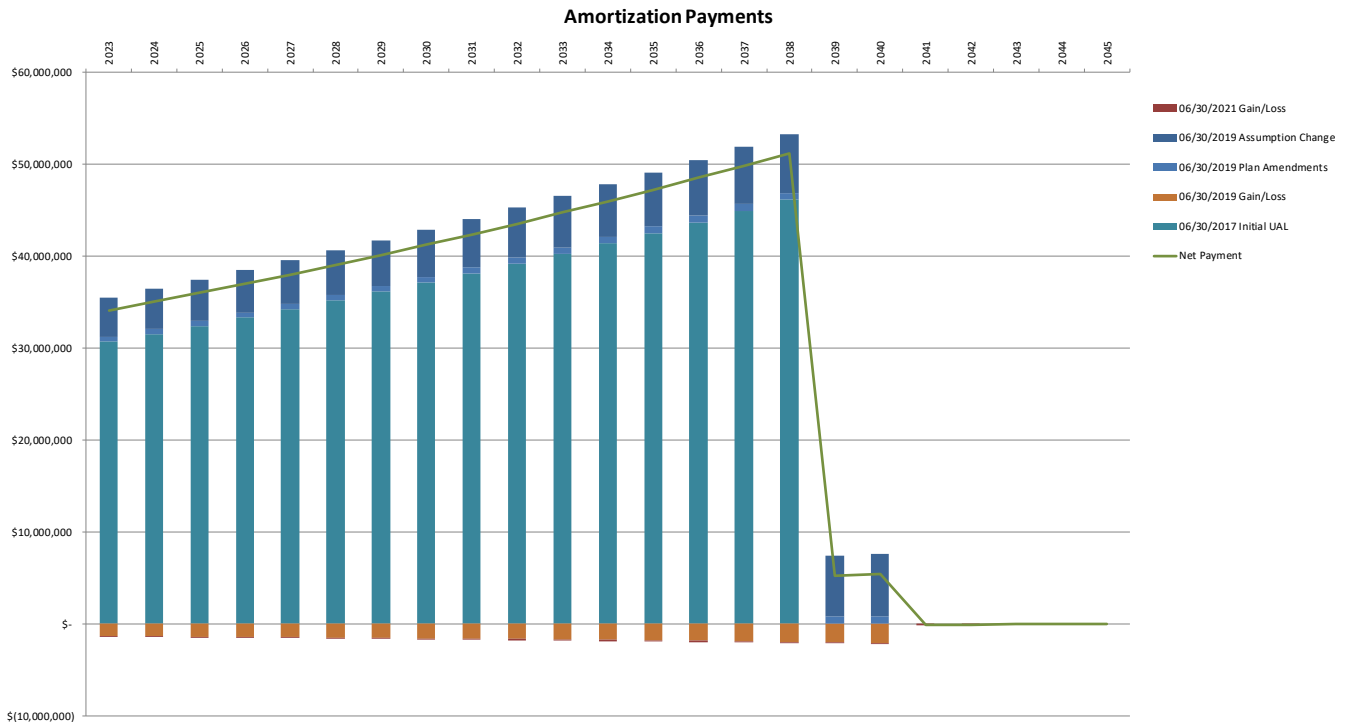
\* UAAL rates for the first biennium are based on the adopted rates from the previous rate setting valuation less the employer normal cost from this valuation.

The funded ratio is projected in this amortization schedule assuming all actuarial assumptions are exactly met. Projections are not predictions of specific future events and do not provide numeric precision in absolute terms. It is important to understand that actual experience will differ from the projections shown on this page. When experience differs from the assumptions, as it often does, the employer's contribution rate can vary from year-to-year.



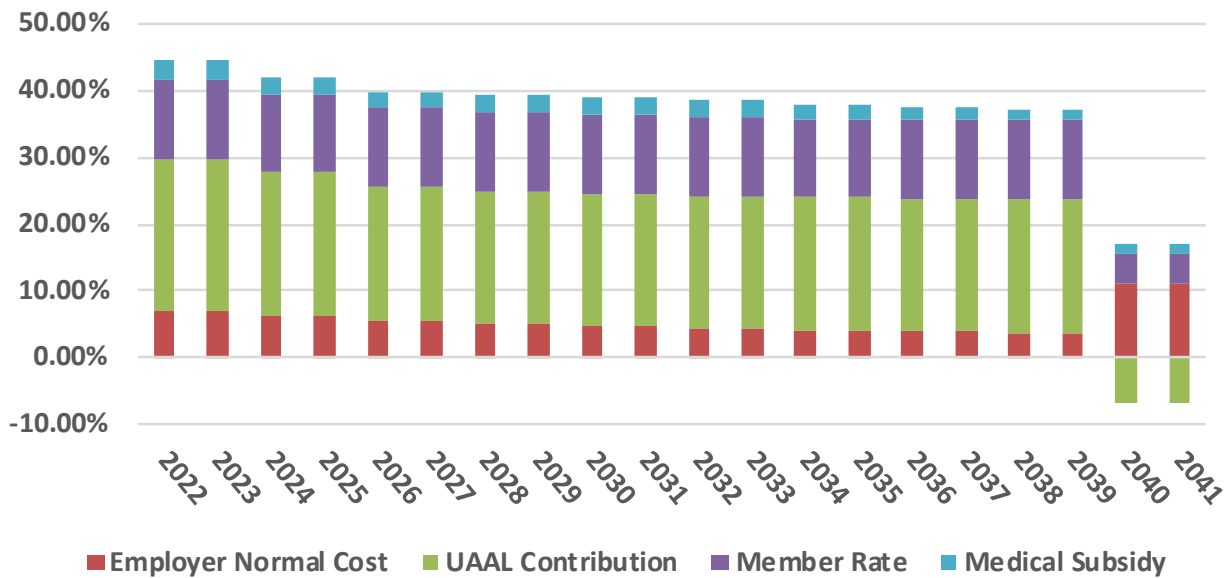
# Fire Pension

## Remaining Amortization Payments and Balances

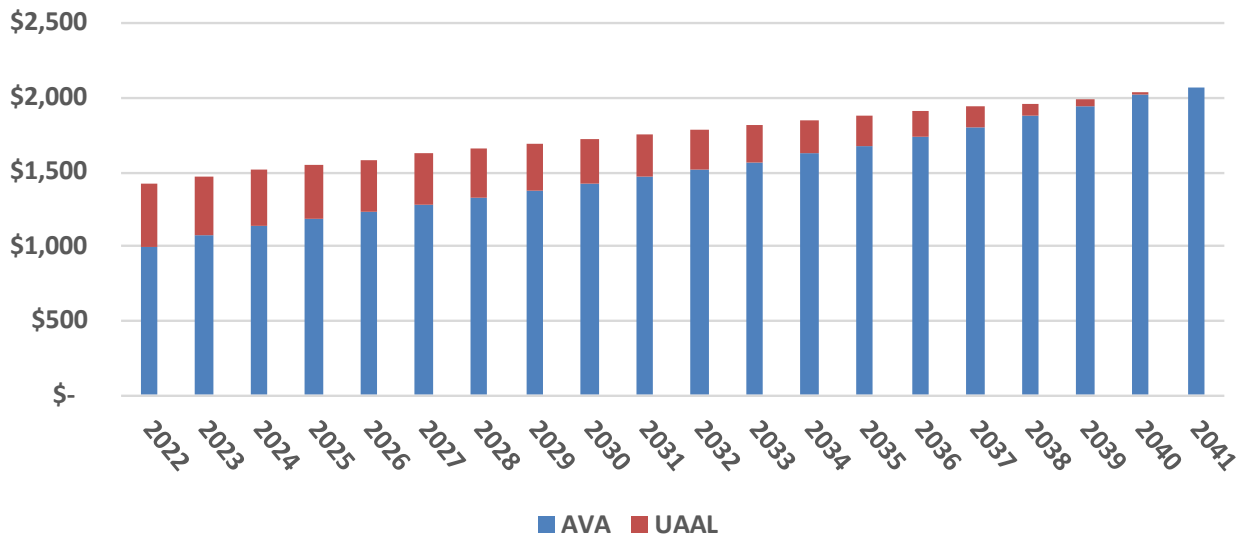


## Contribution Projections – Fire

Projection of Contribution Rates (% of Payroll)



Projection of UAAL  
(\$Millions)



## Contribution Projections – Discussion

Projection results are useful in demonstrating changing relationships among key elements affecting system financial activity. For example, it demonstrates how benefits and system assets will grow in future decades. Projections are not predictions of specific future events and do not provide numeric precision in absolute terms. For instance, cash flows projected to occur 10 years in the future will not be exact (except by coincidence), but understanding the changing relationships between future benefit payouts and future investment return can be very useful. It is important to understand that actual experience will differ from the projections.

The actuarial projections of retirement and medical subsidy benefits are based on the regular valuation assumptions of NHRS including an open active group with constant population (Teachers' active population is assumed to decline 0.50% per year). The projections lead to some general observations:

1. Employer contribution rates are projected to be stable and gradually decline throughout the projection period. The expected gradual decline is due to the lower normal cost for post-July 1, 2011 hires, declining medical subsidy contributions as a percent of payroll, and decreases from the asset smoothing method caused by past gains being phased into the actuarial value of assets. Normal cost is expected to increase each year with generational mortality. Note that for the current valuation, the determination of the UAAL amortization assumes no future asset gains or losses.
2. The funded ratio is projected to increase steadily to 100% by the end of the projection period. The statutory amortization period is projected to fully fund the initial UAAL by June 30, 2039, in the absence of future gains and losses. The June 30, 2019 gains and losses, assumptions and method changes are projected to be fully amortized by June 30, 2041. The June 30, 2021 gains and losses are projected to be fully amortized over 20 years from July 1, 2023 to June 30, 2043.
3. The projections of the unfunded actuarial accrued liability payoff do not reflect certain factors that are reflected in the contribution projections. For example, the contribution projections reflect the phase-in of unrecognized investment gains and losses as of June 30, 2021.
4. The projection is highly sensitive to the actual and expected profile of new hires. This is the tenth valuation with members hired on and after July 1, 2011. As the group of those hired on or after July 1, 2011 grows, the projection results may fluctuate from one year to the next until the population stabilizes.

# Medical Subsidy

## Determination of Unfunded Actuarial Accrued Liability as of June 30, 2021

	State Employees	Political Subdivision Employees	Teachers	Police & Fire	Total
A. Present Value of Future Medical Benefits					
1. Retirees and Beneficiaries	\$ 50,734,993	\$ 46,792,687	\$ 213,795,876	\$ 236,701,885	\$ 548,025,441
2. Vested Terminated Members	-	-	-	-	-
3. Active Members	-	-	-	73,321,982	73,321,982
Total Present Value of Future Medical Benefits	50,734,993	46,792,687	213,795,876	310,023,867	621,347,423
B. Present Value of Future Employer Normal Costs	-	-	-	7,153,636	7,153,636
C. Present Value of Future Contributions from Current Active Members	-	-	-	-	-
D. Actuarial Medical Accrued Liability (A.-B.-C.)	50,734,993	46,792,687	213,795,876	302,870,231	614,193,787
E. 401(h) Subtrust Actuarial Value of Assets	2,952,762	11,256,692	10,012,137	20,148,031	44,369,622
F. Unfunded Actuarial Accrued Liability (D.-E.)	\$ 47,782,231	\$ 35,535,995	\$ 203,783,739	\$ 282,722,200	\$ 569,824,165

The Unfunded Actuarial Accrued Liability (UAAL) shown here is for funding purposes using a discount rate of 2.75% per year. This differs from the Net OPEB Liability reported under GASB Statement No. 74 for accounting and reporting purposes.

## Determination of Medical Subsidy Contribution Rates

There are four separate 401(h) member classifications: State Employees, Political Subdivision Employees, Teachers and Police/Fire.

Under New Hampshire Statute, contribution rates to the 401(h) sub-trust are determined as the lesser of 25% of the employers' total contributions or the actuarial required contribution rate that keeps the medical subsidy sub-trust solvent (the "solvency rate"). Under IRS Regulations, 401(h) sub-trust contributions are limited by 25% of the total contributions to the plan (other than contributions to fund past service credits). NHRS maintains the historical information for determining compliance with IRC Section 401(h). A test for compliance with IRC Section 401(h) was outside the scope of this valuation.

The 401(h) cash flow projections on the following pages are used to develop the employer contribution rates for the medical subsidy. The medical subsidy contribution rates are the computed amounts needed for pay-as-you-go financing of the retiree medical subsidy with a 20% margin for adverse experience (50% for Teachers) by June 30, 2025 and to maintain that margin thereafter.

For purposes of determining the contribution rates for the 2024-2025 biennium, we have assumed that benefits for all members receiving a benefit on the valuation date and those Group I eligible members not yet age 60 get paid. In addition, there are a significant number of eligible members who are not receiving benefits, particularly for Group I. 25% of those who opted-out of receiving benefits are assumed to opt-back in on the valuation date.

It is imperative that NHRS monitor collections closely to ensure the necessary funds are collected to provide the benefit.

# NHRS – 401(h) Cash Flow Projections

## June 30, 2021

### State Employees

Year Ending	Valuation Pay	Employer Contributions			Benefits and Expenses Paid	Solvency Assets	Projected Margin
		Rate -- Total	Rate -- Health	Dollars -- Health			
6/30/2021	\$ 584,721,355					\$ 3,313,814	
6/30/2022	600,801,192	14.53%	0.78%	\$ 4,686,249	\$ 5,348,163	2,853,243	54%
6/30/2023	617,323,225	14.53%	0.78%	4,815,121	5,067,620	2,784,816	55%
<b>6/30/2024</b>	634,299,614	13.85%	<b>0.58%</b>	3,678,938	4,788,067	1,826,229	38%
<b>6/30/2025</b>	651,742,853	13.85%	<b>0.58%</b>	3,780,109	4,506,572	1,198,519	27%
6/30/2026	669,665,781	13.85%	0.58%	3,884,062	4,220,503		
6/30/2027	688,081,590	13.84%	0.57%	3,937,666	3,937,666		
6/30/2028	707,003,834	13.79%	0.52%	3,664,366	3,664,366		
6/30/2029	726,446,439	13.74%	0.47%	3,402,955	3,402,955		
6/30/2030	746,423,716	13.69%	0.42%	3,142,667	3,142,667		
6/30/2031	766,950,368	13.65%	0.38%	2,887,186	2,887,186		
6/30/2032	788,041,503	13.61%	0.34%	2,641,307	2,641,307		
6/30/2033	809,712,644	13.57%	0.30%	2,403,755	2,403,755		
6/30/2034	831,979,742	13.53%	0.26%	2,181,412	2,181,412		
6/30/2035	854,859,185	13.50%	0.23%	1,968,220	1,968,220		
6/30/2036	878,367,813	13.47%	0.20%	1,770,039	1,770,039		
6/30/2037	902,522,928	13.45%	0.18%	1,581,697	1,581,697		
6/30/2038	927,342,309	13.42%	0.15%	1,408,194	1,408,194		
6/30/2039	952,844,222	13.40%	0.13%	1,246,870	1,246,870		
6/30/2040	979,047,438	13.38%	0.11%	1,097,926	1,097,926		
6/30/2041	1,005,971,243	13.37%	0.10%	961,384	961,384		
6/30/2042	1,033,635,452	13.35%	0.08%	838,650	838,650		
6/30/2043	1,062,060,427	13.34%	0.07%	727,693	727,693		



# NHRS – 401(h) Cash Flow Projections

## June 30, 2021

### Political Subdivision Employees

Year Ending	Valuation Pay	Employer Contribution			Benefits and Expenses Paid	Solvency Assets	Projected Margin
		Rate -- Total	Rate -- Health	Dollars -- Health			
6/30/2021	\$ 716,205,005					\$ 12,633,113	
6/30/2022	735,900,643	14.06%	0.31%	\$ 2,281,292	\$4,651,979	11,035,150	240%
6/30/2023	756,137,911	14.06%	0.31%	2,344,028	4,461,884	9,590,689	217%
<b>6/30/2024</b>	776,931,704	13.53%	<b>0.26%</b>	2,020,022	4,266,077	7,916,202	187%
<b>6/30/2025</b>	798,297,326	13.53%	<b>0.26%</b>	2,075,573	4,064,282	6,394,718	159%
6/30/2026	820,250,502	13.53%	0.26%	2,132,651	3,862,593		
6/30/2027	842,807,391	13.53%	0.26%	2,191,299	3,660,495		
6/30/2028	865,984,594	13.53%	0.26%	2,251,560	3,446,700		
6/30/2029	889,799,170	13.53%	0.26%	2,313,478	3,231,418		
6/30/2030	914,268,647	13.53%	0.26%	2,377,098	3,016,009		
6/30/2031	939,411,035	13.53%	0.26%	2,442,469	2,799,216		
6/30/2032	965,244,838	13.53%	0.26%	2,509,637	2,582,500		
6/30/2033	991,789,071	13.51%	0.24%	2,370,586	2,370,586		
6/30/2034	1,019,063,270	13.48%	0.21%	2,165,929	2,165,929		
6/30/2035	1,047,087,510	13.46%	0.19%	1,966,753	1,966,753		
6/30/2036	1,075,882,417	13.43%	0.16%	1,770,208	1,770,208		
6/30/2037	1,105,469,183	13.41%	0.14%	1,581,873	1,581,873		
6/30/2038	1,135,869,586	13.39%	0.12%	1,402,814	1,402,814		
6/30/2039	1,167,106,000	13.38%	0.11%	1,233,111	1,233,111		
6/30/2040	1,199,201,415	13.36%	0.09%	1,074,859	1,074,859		
6/30/2041	1,232,179,454	13.35%	0.08%	930,309	930,309		
6/30/2042	1,266,064,389	13.33%	0.06%	798,433	798,433		
6/30/2043	1,300,881,160	13.32%	0.05%	679,425	679,425		



# NHRS – 401(h) Cash Flow Projections

## June 30, 2021

### Teachers

Year Ending	Valuation	Employer Contributions			Benefits and Expenses	Solvency	Projected
	Pay	Rate -- Total	Rate -- Health	Dollars -- Health	Paid	Assets	Margin
6/30/2021	\$ 1,198,235,530					\$ 11,236,380	
6/30/2022	1,225,195,829	21.02%	1.54%	\$ 18,868,016	\$18,932,409	11,928,270	63%
6/30/2023	1,252,762,735	21.02%	1.54%	19,292,546	18,379,882	13,676,895	75%
<b>6/30/2024</b>	1,280,949,897	19.64%	<b>1.13%</b>	14,474,734	17,802,844	11,159,652	63%
<b>6/30/2025</b>	1,309,771,270	19.64%	<b>1.13%</b>	14,800,415	17,192,520	9,440,089	55%
6/30/2026	1,339,241,124	19.64%	1.13%	15,133,425	16,552,704		
6/30/2027	1,369,374,049	19.64%	1.13%	15,473,927	15,884,002		
6/30/2028	1,400,184,965	19.59%	1.08%	15,188,549	15,188,549		
6/30/2029	1,431,689,127	19.52%	1.01%	14,466,942	14,466,942		
6/30/2030	1,463,902,132	19.45%	0.94%	13,722,419	13,722,419		
6/30/2031	1,496,839,930	19.38%	0.87%	12,958,411	12,958,411		
6/30/2032	1,530,518,828	19.31%	0.80%	12,176,886	12,176,886		
6/30/2033	1,564,955,502	19.24%	0.73%	11,381,687	11,381,687		
6/30/2034	1,600,167,001	19.17%	0.66%	10,577,243	10,577,243		
6/30/2035	1,636,170,759	19.11%	0.60%	9,768,559	9,768,559		
6/30/2036	1,672,984,601	19.05%	0.54%	8,961,188	8,961,188		
6/30/2037	1,710,626,755	18.99%	0.48%	8,161,142	8,161,142		
6/30/2038	1,749,115,857	18.93%	0.42%	7,378,997	7,378,997		
6/30/2039	1,788,470,964	18.88%	0.37%	6,612,988	6,612,988		
6/30/2040	1,828,711,561	18.83%	0.32%	5,873,562	5,873,562		
6/30/2041	1,869,857,571	18.79%	0.28%	5,167,345	5,167,345		
6/30/2042	1,911,929,366	18.75%	0.24%	4,500,396	4,500,396		
6/30/2043	1,954,947,777	18.71%	0.20%	3,876,513	3,876,513		





# NHRS – 401(h) Cash Flow Projections

## June 30, 2021

### Police and Fire

Year Ending	Valuation	Employer Contributions			Benefits	Solvency	Projected
	Pay	Rate -- Total	Rate -- Health	Dollars -- Health	and Expenses Paid	Assets	Margin
6/30/2021	\$ 473,806,614					\$ 22,611,648	
6/30/2022	486,836,296	N/A	3.21%	\$ 15,627,445	\$17,534,666	22,166,345	127%
6/30/2023	500,224,294	N/A	3.21%	16,057,200	17,907,408	21,749,921	122%
<b>6/30/2024</b>	513,980,462	N/A	<b>2.60%</b>	13,363,492	18,113,295	18,307,932	101%
<b>6/30/2025</b>	528,114,925	N/A	<b>2.60%</b>	13,730,988	18,180,557	14,943,975	82%
6/30/2026	542,638,085	N/A	2.60%	14,108,590	18,110,121		
6/30/2027	557,560,632	N/A	2.60%	14,496,576	17,979,726		
6/30/2028	572,893,549	N/A	2.60%	14,895,232	17,748,160		
6/30/2029	588,648,122	N/A	2.60%	15,304,851	17,451,664		
6/30/2030	604,835,945	N/A	2.60%	15,725,735	17,068,850		
6/30/2031	621,468,933	N/A	2.60%	16,158,192	16,647,968		
6/30/2032	638,559,329	N/A	2.53%	16,164,287	16,164,287		
6/30/2033	656,119,711	N/A	2.38%	15,640,361	15,640,361		
6/30/2034	674,163,003	N/A	2.24%	15,110,661	15,110,661		
6/30/2035	692,702,486	N/A	2.10%	14,562,039	14,562,039		
6/30/2036	711,751,804	N/A	1.97%	13,986,269	13,986,269		
6/30/2037	731,324,979	N/A	1.83%	13,376,311	13,376,311		
6/30/2038	751,436,416	N/A	1.70%	12,787,517	12,787,517		
6/30/2039	772,100,917	N/A	1.58%	12,171,561	12,171,561		
6/30/2040	793,333,692	N/A	1.46%	11,573,813	11,573,813		
6/30/2041	815,150,369	N/A	1.35%	11,008,807	11,008,807		
6/30/2042	837,567,004	N/A	1.25%	10,451,672	10,451,672		
6/30/2043	860,600,097	N/A	1.15%	9,922,597	9,922,597		



**SECTION C**

---

**FUND ASSETS**

## Comparative Balance Sheet at Market Value

	<u>June 30, 2021</u>	<u>June 30, 2020</u>
ASSETS		
Cash & Cash Equivalents	\$ 297,129,758	\$ 231,683,041
RECEIVABLES		
Due from Employers	\$ 50,532,545	\$ 49,093,773
Due from Plan Members	22,261,442	21,690,393
Due from Brokers for Securities Sold	10,743,966	10,950,024
Interest & Dividends	11,626,640	12,976,880
Other	7,233,265	4,514,017
Total Receivables	<u>\$ 102,397,858</u>	<u>\$ 99,225,087</u>
INVESTMENTS		
Equity Investments		
Domestic	\$ 3,954,959,275	\$ 2,780,008,276
International	1,710,687,244	1,287,403,276
Fixed Income Investments		
Domestic	2,096,025,539	1,968,029,870
International	98,762,597	98,811,958
Real Estate	1,130,157,943	967,354,495
Alternative Investments	2,215,988,073	1,724,604,089
Total Investments	<u>\$ 11,206,580,671</u>	<u>\$ 8,826,211,964</u>
Other Assets	4,527,577	2,750,395
TOTAL ASSETS	<u><u>\$ 11,610,635,864</u></u>	<u><u>\$ 9,159,870,487</u></u>
LIABILITIES		
Management Fees & Other Payables	\$ 11,364,875	\$ 8,863,882
Due to Brokers for Securities Purchased	25,596,694	16,931,072
TOTAL LIABILITIES	<u>\$ 36,961,569</u>	<u>\$ 25,794,954</u>
NET ASSETS HELD IN TRUST FOR BENEFITS	<u><u>\$ 11,573,674,295</u></u>	<u><u>\$ 9,134,075,533</u></u>

*Totals may not add due to rounding*



## Reconciliation of System Assets

June 30, 2021

Item	Employees	Teachers	Police#	Fire#	Total
A. Market Value of Assets at Beginning of Year	\$ 3,069,953,834	\$ 3,329,034,691	\$ 1,843,919,975	\$ 891,167,034	\$ 9,134,075,534
B. Revenues and Expenditures					
1. Contributions					
a. Employee Contributions	\$ 93,491,826	\$ 85,293,646	\$ 40,005,507	\$ 18,087,952	\$ 236,878,931
b. Employer Contributions	151,368,278	214,312,197	96,332,892	45,318,884	507,332,251
c. Total	\$ 244,860,104	\$ 299,605,843	\$ 136,338,399	\$ 63,406,836	\$ 744,211,182
2. Investment Return					
a. Interest, Dividends, and Other Income	\$ 59,488,825	\$ 64,101,203	\$ 35,744,596	\$ 17,277,174	\$ 176,611,798
b. Net Realized and Unrealized Gains/(Losses)	840,341,544	906,865,176	504,878,154	244,081,853	2,496,166,727
c. Investment Expenses	(14,749,934)	(15,949,591)	(8,860,361)	(4,285,228)	(43,845,114)
d. Net Investment Income	\$ 885,080,435	\$ 955,016,788	\$ 531,762,389	\$ 257,073,799	\$ 2,628,933,411
3. Benefits and Refunds					
a. Refunds	\$ (11,364,778)	\$ (4,359,455)	\$ (3,373,756)	\$ (785,803)	\$ (19,883,792)
b. Regular Monthly Benefits	(285,756,059)	(334,311,905)	(160,992,238)	(74,106,259)	(855,166,461)
c. Partial Lump-Sum Benefits Paid	(1,821,527)	(618,352)	(323,000)	(281,122)	(3,044,001)
d. Medical Premium Subsidy Payments	(10,189,419)	(18,645,200)	(10,813,154)	(5,851,593)	(45,499,366)
e. Total	\$ (309,131,783)	\$ (357,934,912)	\$ (175,502,148)	\$ (81,024,777)	\$ (923,593,620)
4. Administrative Expenses*	\$ (2,932,643)	\$ (3,119,156)	\$ (1,728,135)	\$ (808,990)	\$ (8,588,924)
5. Miscellaneous Expenses	\$ (459,056)	\$ (495,096)	\$ (275,818)	\$ (133,318)	\$ (1,363,288)
6. Interest Expense on OPEB Deficit	\$ -	\$ -	\$ -	\$ -	\$ -
7. Interest Income on OPEB Deficit	\$ -	\$ -	\$ -	\$ -	\$ -
8. Transfers	\$ -	\$ -	\$ -	\$ -	\$ -
C. Market Value of Assets at End of Year	\$ 3,887,370,891	\$ 4,222,108,158	\$ 2,334,514,662	\$ 1,129,680,584	\$ 11,573,674,295

# 401(h) subsidy income and expense reported by NHRS in total for Police and Fire was allocated by staff to be approximately 88% to Police and 12% to Fire for purposes of this schedule.

\* Information regarding net cash flows for funding purposes is provided separately from the GASB Statement Nos. 67 and 74 information and may differ.

Totals may not add due to rounding



## Development of Actuarial Value of Assets

Year Ended June 30:	2018	2019	2020	2021	2022	2023	2024	2025
A. Actuarial Value Beginning of Year	\$ 8,204,537,196	\$ 8,747,715,939	\$ 9,158,579,327	\$ 9,485,963,700				
B. Market Value End of Year	8,874,175,235	9,207,615,151	9,134,075,534	11,573,674,295				
C. Market Value Beginning of Year	8,293,261,180	8,874,175,235	9,207,615,151	9,134,075,534				
D. Non-Investment Net Cash Flow*	(139,877,807)	(157,374,111)	(175,559,940)	(189,334,651)				
E. Investment Income								
E1. Market Total: B - C - D	720,791,862	490,814,027	102,020,323	2,628,933,412				
E2. Assumed Rate	7.25%	7.25%	6.75%	6.75%				
E3. Amount for Immediate Recognition	589,758,376	628,504,594	612,278,957	633,912,505				
E4. Amount for Phased-In Recognition: E1-E3	131,033,486	(137,690,567)	(510,258,634)	1,995,020,907				
F. Phased-In Recognition of Investment Income								
F1. Current Year: 0.20 x E4	26,206,697	(27,538,113)	(102,051,727)	399,004,181				
F2. First Prior Year	86,519,686	26,206,697	(27,538,113)	(102,051,727)	\$ 399,004,181			
F3. Second Prior Year	(92,471,186)	86,519,686	26,206,697	(27,538,113)	(102,051,727)	\$ 399,004,181		
F4. Third Prior Year	(52,984,178)	(92,471,186)	86,519,686	26,206,697	(27,538,113)	(102,051,727)	\$ 399,004,181	
F5. Fourth Prior Year	126,027,155	(52,984,179)	(92,471,187)	86,519,687	26,206,698	(27,538,115)	(102,051,726)	\$ 399,004,183
F6. Total Recognized Investment Gain	93,298,174	(60,267,095)	(109,334,644)	382,140,725	295,621,039	269,414,339	296,952,455	399,004,183
G. Preliminary Actuarial Value End of Year: A + D + E3 + F6	\$ 8,747,715,939	\$ 9,158,579,327	\$ 9,485,963,700	\$10,312,682,279				
H. Additional Recognized G/L due to Corridor	-	-	-	-				
I. Final Actuarial Value after 20% Corridor	\$ 8,747,715,939	\$ 9,158,579,327	\$ 9,485,963,700	\$10,312,682,279				
J. Difference between Market & Actuarial Value: B-I	\$ 126,459,296	\$ 49,035,824	\$ (351,888,166)	\$ 1,260,992,016				
K. Recognized Rate of Return	8.40%	6.55%	5.54%	10.82%				
L. Market Rate of Return	8.77%	5.58%	1.12%	29.08%				
M. Ratio of Actuarial Value to Market Value	98.57%	99.47%	103.85%	89.10%				

\* Information regarding net cash flows for funding purposes is provided separately from the GASB Statement Nos. 67 and 74 information and may differ.  
Total non-investment net cash flow includes \$569,387 in expenses that were unallocated in the GASB accounting statements.

The Actuarial Value of Assets recognizes assumed investment income (line E3) fully each year. Differences between actual and assumed investment income (line E4) are phased-in over a closed five-year period. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than market value. The Actuarial Value of Assets is unbiased with respect to Market Value. At any time, it may be either greater or less than Market Value. If assumed rates are exactly realized for four consecutive years, it will become equal to Market Value. Final Actuarial Value of Assets may not be less than 80% nor more than 120% of Market Value of Assets.



## Allocation of Assets June 30, 2021

	<b>Employees</b>	<b>Teachers</b>	<b>Police</b>	<b>Fire</b>	<b>Total</b>
Allocated Fund Assets (Actuarial Value)	\$ 3,463,828,329	\$ 3,762,094,807	\$ 2,080,161,181	\$ 1,006,597,962	\$ 10,312,682,279
Less Reserve for TSAs	0	0	0	0	0
Less 401(h) Account	14,209,454	10,012,137	17,991,384	2,156,647	44,369,622
Net Pension Valuation Assets	\$ 3,449,618,875	\$ 3,752,082,670	\$ 2,062,169,797	\$ 1,004,441,315	\$ 10,268,312,657

The Actuarial Value of Assets was allocated to the pension and medical subsidy plans based on the Market Value of those plans. The Actuarial Value of Assets was then further allocated to each fund (either pension or medical subsidy) based on the Market Value of those funds. The 401(h) account for Police and Fire is combined. The allocation between Police and Fire is based on the percentage of the medical subsidy market value of assets, as reported by the System.

**SECTION D**

---

**PARTICIPANT DATA**

## Active Members by Valuation Division

Valuation Group	Active Members	Valuation Payroll	Average		
			Age	Service*	Pay
Employees:					
Male	9,654	\$ 564,962,311	48.3	10.9	\$58,521
Female	14,904	735,964,049	49.3	10.6	49,380
Total	24,558	1,300,926,360	48.9	10.7	52,974
Teachers:					
Male	3,746	263,333,764	45.9	14.3	70,297
Female	14,385	934,901,766	45.5	12.9	64,991
Total	18,131	1,198,235,530	45.6	13.2	66,088
Police:					
Male	3,582	286,063,788	38.8	11.0	79,861
Female	602	41,278,695	38.4	8.5	68,569
Total	4,184	327,342,483	38.8	10.6	78,237
Fire:					
Male	1,657	142,817,591	41.2	13.0	86,190
Female	52	3,646,540	36.0	7.8	70,126
Total	1,709	146,464,131	41.1	12.8	85,702
Total:					
Male	18,639	1,257,177,454	45.4	11.8	67,449
Female	29,943	1,715,791,050	47.3	11.7	57,302
Grand Total	48,582	\$2,972,968,504	46.5	11.7	\$61,195

\* One month of service was added to the reported service for all active participants in consideration of potential subsidized service purchases in the future.

Valuation Group	Active Members	Valuation Payroll
Employees:		
State	9,699	\$ 584,721,355
Political Subdivisions	14,859	716,205,005
Subtotal	24,558	1,300,926,360
Teachers:	18,131	1,198,235,530
Police:		
State	1,078	91,759,702
Political Subdivisions	3,106	235,582,781
Subtotal	4,184	327,342,483
Fire:		
State	58	4,096,525
Political Subdivisions	1,651	142,367,606
Subtotal	1,709	146,464,131
Total	48,582	\$ 2,972,968,504



## Summary of Membership Data by Category

	June 30									
	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
<b>Active Members</b>										
Number	48,582	48,479	48,288	48,121	47,886	48,069	47,812	48,307	48,688	48,625
Average age (years)	46.5	46.7	46.7	46.8	46.9	46.9	47.0	47.1	47.0	46.9
Average service* (years)	11.7	11.8	11.9	12.0	12.1	12.1	12.2	12.1	12.0	11.8
Average salary	\$ 61,195	\$ 59,711	\$ 58,503	\$ 57,194	\$ 55,708	\$ 54,118	\$ 53,857	\$ 51,916	\$ 51,383	\$ 51,162
Total payroll supplied, annualized	\$ 2,972,968,504	\$ 2,894,708,279	\$ 2,825,006,022	\$ 2,752,235,069	\$ 2,667,611,532	\$ 2,601,403,606	\$ 2,575,031,210	\$ 2,507,898,809	\$ 2,501,741,708	\$ 2,487,757,437
<b>Vested Inactive Members</b>										
Number	2,730	2,661	2,552	2,420	2,281	1,785	1,999	1,297	1,261	1,372
Average age (years)	52.3	52.2	52.1	52.2	51.8	52.1	51.7	52.3	52.3	51.5
<b>Non-Vested Inactive Members</b>										
Number	14,946	13,760	12,530	11,454	10,477	9,528	8,690	8,102	7,273	7,041
<b>Service Retirees</b>										
Number	35,896	34,683	33,573	32,385	31,186	28,403	27,114	26,958	25,785	24,622
Average age (years)	71.4	71.1	70.8	70.0	70.0	70.0	69.0	69.0	69.2	69.0
Total annual benefits	\$ 785,424,661	\$ 742,125,367	\$ 708,597,132	\$ 673,359,556	\$ 639,679,378	\$ 608,332,888	\$ 570,043,185	\$ 537,980,513	\$ 511,111,807	\$ 484,434,150
Average annual benefit	\$ 21,881	\$ 21,397	\$ 21,106	\$ 20,792	\$ 20,512	\$ 21,418	\$ 21,024	\$ 19,956	\$ 19,822	\$ 19,675
<b>Disability Retirees</b>										
Number	1,641	1,637	1,627	1,616	1,600	1,600	1,586	1,561	1,558	1,542
Average age (years)	65.2	65.0	64.5	64.2	64.0	63.7	63.4	62.0	62.0	62.0
Total annual benefits	\$ 34,495,906	\$ 33,711,570	\$ 33,041,012	\$ 32,273,693	\$ 31,739,977	\$ 31,124,304	\$ 30,483,173	\$ 30,088,288	\$ 29,774,641	\$ 29,220,458
Average annual benefit	\$ 21,021	\$ 20,594	\$ 20,308	\$ 19,971	\$ 19,837	\$ 19,453	\$ 19,220	\$ 19,275	\$ 19,111	\$ 18,950
<b>Beneficiaries</b>										
Number	3,437	3,292	3,152	3,011	2,908	2,773	2,650	2,535	2,386	2,290
Average age (years)	75.1	74.9	74.5	74.2	73.9	73.9	73.6	73.4	73.4	73.0
Total annual benefits	\$ 53,064,561	\$ 49,706,039	\$ 46,998,152	\$ 43,797,864	\$ 41,692,950	\$ 38,818,283	\$ 36,495,210	\$ 34,600,022	\$ 32,258,707	\$ 30,363,269
Average annual benefit	\$ 15,439	\$ 15,099	\$ 14,911	\$ 14,546	\$ 14,337	\$ 13,999	\$ 13,772	\$ 13,649	\$ 13,520	\$ 13,259
Total Covered Lives	107,232	104,512	101,722	99,007	96,338	92,158	89,851	88,760	86,951	85,492

\* Beginning in 2017, one month of service was added to the reported service for all active participants in consideration of potential subsidized service purchases in the future.



## SECTION E

---

### METHODS AND ASSUMPTIONS

# Valuation Methods

## Pension

**Actuarial Cost Method** - Normal cost and the allocation of benefit values between service rendered before and after the valuation date were determined using an **Individual Entry-Age Actuarial Cost Method** having the following characteristics:

- (i) the annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement; and
- (ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Actuarial gain/(losses), as they occur, reduce (increase) the Unfunded Actuarial Accrued Liability.

**Financing of Unfunded Actuarial Accrued Liabilities** - Unfunded Actuarial Accrued Liabilities are amortized by level (principal & interest combined) percent-of-payroll contributions from the contribution effective date. The unfunded liability as of June 30, 2017 shall be amortized through 2039. Each subsequent change in liability as calculated in odd-numbered years shall be separately amortized over a fixed period of no longer than 20 years.

The rate-setting valuations project the unfunded actuarial accrued liability to the beginning of the applicable biennium to determine the unfunded amortization rate. We projected the normal cost rates from the first year of the rate setting biennium to better reflect the impact of the changing benefit tiers and generational mortality. We developed projected normal cost rates based on a new entrant profile determined by the current active population with 3-8 years of service.

## Medical Subsidy

Liabilities are determined under the entry-age actuarial cost method.

Under New Hampshire Statute, contribution rates to the 401(h) sub-trust are determined as the lesser of 25% of the employers' total contributions or the actuarial required contribution rate that keeps the medical subsidy sub-trust solvent (the "solvency rate"). Under IRS Regulations, 401(h) sub-trust contributions are limited by 25% of the total contributions to the plan (other than contributions to fund past service credits). NHRS maintains the historical information for determining compliance with IRC Section 401(h). A test for compliance with IRC Section 401(h) was outside the scope of this valuation.

Solvency rates for medical subsidy benefits are set such that a specified margin is established by the end of the biennium and for all future years thereafter. The margin is intended to mitigate the risk of insolvency due to adverse experience.

At the November 12, 2013 Board meeting, the Board elected to incorporate a 20% margin requirement for all four-member classifications.

At the June 9, 2020 Board meeting, the Board elected to increase the margin for the Teachers group from 20% to 50%. No change to the margin requirement of 20% was made for the other groups.



## Valuation Methods

**Actuarial Value of Assets** - The Actuarial Value of Assets recognizes assumed investment return fully each year. Differences between actual return on the Market Value of assets and assumed return on the Actuarial Value of Assets are phased-in over a closed five-year period. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than Market Value. The Actuarial Value of Assets is unbiased with respect to Market Value. At any time, it may be either greater or less than Market Value. If assumed rates are exactly realized for four consecutive years, it will become equal to Market Value. Actuarial Value is limited to a 20% corridor around the Market Value.

The Actuarial Value of Assets was allocated to the pension and medical subsidy plans based on the Market Value of those plans. The Actuarial Value of Assets was then further allocated to each fund (either pension or medical subsidy) based on the Market Value of those funds.

For purposes of determining the medical subsidy solvency rates, the Market Value of Assets was used for all group funds due to the short time horizon before these closed group funds are expected to become pay-as-you-go.

## Development of Amortization Payment

The employer contribution rates determined by the 2021 valuation are for the 2024-2025 biennium. The Unfunded Actuarial Accrued Liability (UAAL) was determined using the Actuarial Value of assets and actuarial accrued liability calculated as of the valuation date. The UAAL amortization payment (one component of the contribution requirement), is the level percent of pay required to fully amortize the UAAL over multiple periods beginning on July 1, 2021. This UAAL payment reflects any payments expected to be made and interest to be accrued between the valuation date and the date contributions determined by this report are scheduled to begin. It was assumed that the entire pension contribution as determined by the June 30, 2019 valuation effective from July 1, 2021 to June 30, 2023 would be contributed to the net pension assets. The unfunded liability as of June 30, 2017 shall be amortized through 2039. Each subsequent change in liability as calculated in odd-numbered years shall be separately amortized over a fixed period of no longer than 20 years.

## Valuation Assumptions

**The actuarial assumptions used** in the valuation are shown in this section. All actuarial assumptions and the rationale for the assumptions are based on the July 1, 2015 to June 30, 2019 experience study.

All actuarial assumptions are expectations of future experience, not market measures. Under RSA 100-A:14 IX, the Board of Trustees sets the actuarial assumptions after consulting with the actuary.

## Economic Assumptions

**The investment return rate** assumed in the valuations is 6.75% per year, compounded annually (net after investment expenses). **The investment return rate** assumed in the medical subsidy valuations is 2.75% per year, compounded annually (net after investment expenses) for purposes of computing accrued liabilities. However, for determining the solvency contribution rate for the medical subsidy account and GASB 74, the investment return rate assumption was 6.75% on the market value of assets.

The **Wage Inflation Rate** assumed in this valuation was 2.75% per year. The wage inflation rate is defined to be the portion of total pay increases for an individual that are due to macroeconomic forces including productivity, price inflation, and labor market conditions. The wage inflation rate does not include pay changes related to individual merit and seniority effects.

The **Price Inflation** assumption is 2.0% per year.

The assumed **Real Rate of Return** over wage inflation is defined to be the portion of total investment return that is more than the assumed total wage growth rate. Considering other economic assumptions, the 6.75% investment return rate translates to an assumed real rate of return over wage inflation of 4.00%. The assumed real rate of return over price inflation would be higher – at 4.75%, with a 2.0% price inflation assumption.

The active member population for Employees, Police and Fire is assumed to remain constant. For purposes of financing the unfunded liabilities, total payroll is assumed to grow at the wage inflation rate – 2.75% per year. For Teachers, the active member population is assumed to decline by 0.50% per year. For purposes of financing the unfunded liabilities, total payroll for Teachers is assumed to grow at the wage inflation rate minus 0.50% which is 2.25% per year.

**Pay increase assumptions** for individual active members are shown for sample ages on the following pages. Part of the assumption for each age is for merit and/or seniority increase, and the other 2.75% recognizes wage inflation, including price inflation, productivity increases, and other macroeconomic forces.

# Valuation Assumptions

## Employees

**The rates of salary increase** used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefits will be based.

Salary Increase Assumptions for an Individual Member			
Service Index	Merit & Seniority	Base (Economy)	Increase Next Year
1	12.00%	2.75%	14.75%
2	6.00%	2.75%	8.75%
3	3.00%	2.75%	5.75%
4	2.75%	2.75%	5.50%
5	2.50%	2.75%	5.25%
6	2.25%	2.75%	5.00%
7	2.00%	2.75%	4.75%
8	1.75%	2.75%	4.50%
9	1.50%	2.75%	4.25%
10	1.25%	2.75%	4.00%
11	1.00%	2.75%	3.75%
12	0.75%	2.75%	3.50%
13	0.50%	2.75%	3.25%
14	0.50%	2.75%	3.25%
15	0.50%	2.75%	3.25%
16	0.50%	2.75%	3.25%
17	0.50%	2.75%	3.25%
18	0.50%	2.75%	3.25%
19	0.50%	2.75%	3.25%
20	0.50%	2.75%	3.25%
21	0.50%	2.75%	3.25%
22	0.50%	2.75%	3.25%
23	0.50%	2.75%	3.25%
24	0.50%	2.75%	3.25%
25	0.50%	2.75%	3.25%
Ref:	853 - -2.75%		

# Valuation Assumptions

## Employees (Continued)

**The rates of retirement** used to measure the probability of eligible members retiring during the next year were as follows:

### For Members Hired Prior to July 1, 2011

Retirement Ages	% of Active Members Retiring within Next Year					
	Male			Female		
	Normal	Early	Early Rule of 70	Normal	Early	Early Rule of 70
45			0.60%			0.60%
46			0.60%			0.60%
47			0.70%			0.70%
48			0.90%			0.90%
49			1.10%			1.10%
50		0.50%	1.80%		0.50%	1.80%
51		0.50%	2.10%		0.50%	2.10%
52		0.60%	2.40%		0.60%	2.40%
53		0.70%	3.50%		0.70%	3.50%
54		0.90%	3.90%		0.90%	3.90%
55		1.50%	6.30%		1.50%	6.30%
56		2.10%	6.90%		2.10%	6.90%
57		2.10%	9.80%		2.10%	9.80%
58		2.90%	11.10%		2.90%	11.10%
59		3.90%	13.70%		3.90%	13.70%
60	10.80%			10.80%		
61	10.10%			10.50%		
62	15.50%			13.90%		
63	16.10%			13.60%		
64	13.50%			14.30%		
65	17.10%			19.20%		
66	24.80%			24.00%		
67	23.10%			23.70%		
68	19.80%			20.20%		
69	18.80%			20.10%		
70	100.00%			100.00%		
Ref.	3082	3084	3085	3083	3084	3085



# Valuation Assumptions

## Employees (Continued)

**The rates of retirement** used to measure the probability of eligible members retiring during the next year were as follows:

### For Members Hired on or After July 1, 2011

Retirement Ages	% of Active Members Retiring within Next Year			
	Male		Female	
	Normal	Early	Normal	Early
60		10.8%		10.8%
61		10.1%		10.5%
62		15.5%		13.9%
63		16.1%		13.6%
64		13.5%		14.3%
65	45.0%		44.0%	
66	45.0%		44.0%	
67	23.0%		22.0%	
68	21.0%		18.0%	
69	20.0%		19.0%	
70	100.0%		100.0%	
Ref.	999	3082	999	3083
	65	60	65	60

## Valuation Assumptions

### Employees (Concluded)

**Rates of separation from active membership** were as shown below (rates do not apply to members eligible for normal retirement and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Male	Female
	0	27.00%	27.00%
	1	21.00%	21.00%
	2	15.00%	15.00%
	3	12.00%	12.00%
	4	10.00%	10.00%
25	5+	8.26%	8.26%
30		6.84%	6.84%
35		5.74%	5.74%
40		4.97%	4.97%
45		4.39%	4.39%
50		3.81%	3.81%
55		3.48%	3.48%
60		3.23%	3.23%
Ref.		37	37
		1.29	1.29
		1269	1269

**Rates of disability** among active members. 60% are assumed to be ordinary disability and 40% are assumed to be accidental disability.

Sample Ages	% of Active Members Becoming Disabled within Next Year	
	Male	Female
20	0.000%	0.000%
25	0.011%	0.011%
30	0.014%	0.014%
35	0.018%	0.018%
40	0.038%	0.038%
45	0.072%	0.072%
50	0.150%	0.150%
55	0.281%	0.281%
Ref	19	19
	0.60	0.60

# Valuation Assumptions

## Teachers

**The rates of salary increase** used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefits will be based.

Salary Increase Assumptions for an Individual Member			
Service Index	Merit & Seniority	Base (Economy)	Increase Next Year
1	8.00%	2.75%	10.75%
2	8.00%	2.75%	10.75%
3	4.00%	2.75%	6.75%
4	3.50%	2.75%	6.25%
5	3.25%	2.75%	6.00%
6	3.00%	2.75%	5.75%
7	2.75%	2.75%	5.50%
8	2.50%	2.75%	5.25%
9	2.25%	2.75%	5.00%
10	2.00%	2.75%	4.75%
11	1.75%	2.75%	4.50%
12	1.50%	2.75%	4.25%
13	1.25%	2.75%	4.00%
14	1.00%	2.75%	3.75%
15	1.00%	2.75%	3.75%
16	1.00%	2.75%	3.75%
17	1.00%	2.75%	3.75%
18	1.00%	2.75%	3.75%
19	1.00%	2.75%	3.75%
20	1.00%	2.75%	3.75%
21	1.00%	2.75%	3.75%
22	1.00%	2.75%	3.75%
23	1.00%	2.75%	3.75%
24	1.00%	2.75%	3.75%
25	1.00%	2.75%	3.75%
Ref:	854 - 2.75%		

The Teachers' active head count is assumed to decline 0.50% per year. The open group payroll growth assumption is consequently 2.25% per year (2.75% - 0.50%).

# Valuation Assumptions

## Teachers (Continued)

**The rates of retirement** used to measure the probability of eligible members retiring during the next year were as follows:

### For Members Hired Prior to July 1, 2011

Retirement Ages	% of Active Members Retiring within Next Year					
	Male			Female		
	Normal	Early	Early Rule of 70	Normal	Early	Early Rule of 70
45			0.60%			0.60%
46			0.60%			0.60%
47			0.60%			0.60%
48			0.60%			0.60%
49			0.60%			0.60%
50		0.40%	0.80%		0.40%	0.80%
51		0.50%	1.00%		0.50%	1.00%
52		0.60%	1.20%		0.60%	1.20%
53		0.70%	0.90%		0.70%	0.90%
54		1.00%	1.90%		1.00%	1.90%
55		1.50%	4.80%		1.50%	4.80%
56		2.00%	6.60%		2.00%	6.60%
57		2.90%	9.00%		2.90%	9.00%
58		4.30%	12.00%		4.30%	12.00%
59		6.80%	15.90%		6.80%	15.90%
60	16.00%			13.00%		
61	16.00%			14.00%		
62	20.00%			18.00%		
63	16.00%			19.00%		
64	20.00%			19.00%		
65	24.50%			28.00%		
66	32.00%			35.00%		
67	28.00%			32.00%		
68	28.00%			28.00%		
69	28.00%			30.00%		
70	100.00%			100.00%		
Ref.	3086	3088	3089	3087	3088	3089

# Valuation Assumptions

## Teachers (Continued)

**The rates of retirement** used to measure the probability of eligible members retiring during the next year were as follows:

### For Members Hired on or After July 1, 2011

Retirement Ages	% of Active Members Retiring within Next Year			
	Male		Female	
	Normal	Early	Normal	Early
60		16%		13%
61		16%		14%
62		20%		18%
63		16%		19%
64		20%		19%
65	58%		56%	
66	58%		56%	
67	25%		27%	
68	25%		27%	
69	25%		27%	
70	100%		100%	
Ref.	999	3086	999	3087
	65	60	65	60

## Valuation Assumptions

### Teachers (Concluded)

**Rates of separation from active membership** were as shown below (rates do not apply to members eligible for normal retirement and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Male	Female
	0	25.0%	25.0%
	1	15.0%	15.0%
	2	12.0%	12.0%
	3	10.0%	10.0%
	4	8.0%	8.0%
25	5+	7.7%	7.7%
30		6.0%	6.0%
35		4.6%	4.6%
40		3.7%	3.7%
45		2.8%	2.8%
50		2.4%	2.4%
55		2.3%	2.3%
60		2.3%	2.3%
Ref.		870	870
		1.10	1.10
		81	81

**Rates of disability** among active members. 80% percent are assumed to be ordinary disability and 20% percent are assumed to be accidental disability.

Sample Ages	% of Active Members Becoming Disabled within Next Year	
	Male	Female
20	0.000%	0.000%
25	0.004%	0.004%
30	0.005%	0.005%
35	0.006%	0.006%
40	0.013%	0.013%
45	0.024%	0.024%
50	0.050%	0.050%
55	0.094%	0.094%
Ref	19	19
	0.20	0.20

# Valuation Assumptions

## Police

*The rates of salary increase* used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefits will be based.

Service Index	Salary Increase Assumptions for an Individual Member		
	Merit & Seniority	Base (Economy)	Increase Next Year
1	25.00%	2.75%	27.75%
2	19.00%	2.75%	21.75%
3	6.00%	2.75%	8.75%
4	4.50%	2.75%	7.25%
5	3.50%	2.75%	6.25%
6	2.75%	2.75%	5.50%
7	2.25%	2.75%	5.00%
8	1.80%	2.75%	4.55%
9	1.50%	2.75%	4.25%
10	1.50%	2.75%	4.25%
11	1.50%	2.75%	4.25%
12	1.50%	2.75%	4.25%
13	1.50%	2.75%	4.25%
14	1.50%	2.75%	4.25%
15	1.50%	2.75%	4.25%
16	1.50%	2.75%	4.25%
17	1.50%	2.75%	4.25%
18	1.50%	2.75%	4.25%
19	1.50%	2.75%	4.25%
20	1.50%	2.75%	4.25%
21	1.50%	2.75%	4.25%
22	1.50%	2.75%	4.25%
23	1.50%	2.75%	4.25%
24	1.50%	2.75%	4.25%
25	1.50%	2.75%	4.25%
Ref:	855 - -2.75%		

# Valuation Assumptions

## Police (Continued)

**The rates of retirement** used to measure the probability of eligible members retiring during the next year were as follows:

(Applying to Eligible Members)

For Members Hired Prior to July 1, 2011 Who Have Vested Status as of January 1, 2012		For Members Hired on or After July 1, 2011 and for Members Hired Prior to July 1, 2011 Who Have Non-Vested Status as of January 1, 2012				
Retirement Ages	% of Active Members Retiring within Next Year	Age 46 with 21 Years	Age 47 with 22 Years	Age 48 with 23 Years	Age 49 with 24 Years	Age 50 with 25 Years
45	21%					
46	21%	27%				
47	21%	27%	31%			
48	21%	25%	31%	34%		
49	21%	25%	31%	34%	38%	
50	21%	25%	27%	34%	38%	40%
51	21%	21%	27%	31%	38%	40%
52	21%	21%	21%	31%	33%	40%
53	21%	21%	21%	21%	33%	38%
54	21%	21%	21%	21%	21%	38%
55	21%	21%	21%	21%	21%	21%
56	21%	21%	21%	21%	21%	21%
57	21%	21%	21%	21%	21%	21%
58	21%	21%	21%	21%	21%	21%
59	21%	21%	21%	21%	21%	21%
60	21%	21%	21%	21%	21%	21%
61	21%	21%	21%	21%	21%	21%
62	21%	21%	21%	21%	21%	21%
63	21%	21%	21%	21%	21%	21%
64	21%	21%	21%	21%	21%	21%
65	21%	21%	21%	21%	21%	21%
66	21%	21%	21%	21%	21%	21%
67	21%	21%	21%	21%	21%	21%
68	21%	21%	21%	21%	21%	21%
69	21%	21%	21%	21%	21%	21%
70	100%	100%	100%	100%	100%	100%
Ref.	3090 45					



## Valuation Assumptions

### Police (Concluded)

**Rates of separation from active membership** were as shown below (rates do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Male	Female
	0	25.00%	25.00%
	1	16.00%	16.00%
	2	10.50%	10.50%
	3	7.00%	7.00%
	4	5.50%	5.50%
25	5+	6.58%	6.58%
30		4.97%	4.97%
35		3.84%	3.84%
40		2.99%	2.99%
45		2.39%	2.39%
50		2.03%	2.03%
55		1.88%	1.88%
60		1.88%	1.88%
Ref.		80	80
		0.47	0.47
		1270	1270

**Rates of disability** among active members. 25% percent are assumed to be ordinary disability and 75% percent are assumed to be accidental disability.

Sample Ages	% of Active Members Becoming Disabled within Next Year	
	Ordinary	Accidental
20	0.013%	0.039%
25	0.013%	0.039%
30	0.013%	0.039%
35	0.029%	0.088%
40	0.064%	0.191%
45	0.114%	0.343%
50	0.183%	0.549%
55	0.272%	0.818%
Ref	35	35
	0.16	0.49

# Valuation Assumptions

## Fire

**The rates of salary increase** used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefits will be based.

Salary Increase Assumptions for an Individual Member			
Service Index	Merit & Seniority	Base (Economy)	Increase Next Year
1	25.00%	2.75%	27.75%
2	15.00%	2.75%	17.75%
3	7.00%	2.75%	9.75%
4	5.00%	2.75%	7.75%
5	3.75%	2.75%	6.50%
6	2.50%	2.75%	5.25%
7	2.00%	2.75%	4.75%
8	1.50%	2.75%	4.25%
9	1.00%	2.75%	3.75%
10	1.00%	2.75%	3.75%
11	1.00%	2.75%	3.75%
12	1.00%	2.75%	3.75%
13	1.00%	2.75%	3.75%
14	1.00%	2.75%	3.75%
15	1.00%	2.75%	3.75%
16	1.00%	2.75%	3.75%
17	1.00%	2.75%	3.75%
18	1.00%	2.75%	3.75%
19	1.00%	2.75%	3.75%
20	1.00%	2.75%	3.75%
21	1.00%	2.75%	3.75%
22	1.00%	2.75%	3.75%
23	1.00%	2.75%	3.75%
24	1.00%	2.75%	3.75%
25	1.00%	2.75%	3.75%
Ref:	861 - -2.75%		

# Valuation Assumptions

## Fire (Continued)

**The rates of retirement** used to measure the probability of eligible members retiring during the next year were as follows:

(Applying to Eligible Members)

For Members Hired Prior to July 1, 2011 Who Have Vested Status as of January 1, 2012		For Members Hired on or After July 1, 2011 and for Members Hired Prior to July 1, 2011 Who Have Non-Vested Status as of January 1, 2012				
Retirement Ages	% of Active Members Retiring within Next Year	Age 46 with 21 Years	Age 47 with 22 Years	Age 48 with 23 Years	Age 49 with 24 Years	Age 50 with 25 Years
45	11%					
46	11%	15%				
47	11%	15%	18%			
48	11%	15%	18%	22%		
49	11%	15%	18%	22%	26%	
50	16%	15%	18%	21%	26%	30%
51	16%	16%	18%	21%	26%	30%
52	16%	16%	16%	21%	21%	30%
53	16%	16%	16%	16%	21%	22%
54	16%	16%	16%	16%	16%	22%
55	19%	19%	19%	19%	19%	19%
56	19%	19%	19%	19%	19%	19%
57	19%	19%	19%	19%	19%	19%
58	19%	19%	19%	19%	19%	19%
59	19%	19%	19%	19%	19%	19%
60	23%	23%	23%	23%	23%	23%
61	23%	23%	23%	23%	23%	23%
62	23%	23%	23%	23%	23%	23%
63	23%	23%	23%	23%	23%	23%
64	23%	23%	23%	23%	23%	23%
65	28%	28%	28%	28%	28%	28%
66	28%	28%	28%	28%	28%	28%
67	28%	28%	28%	28%	28%	28%
68	28%	28%	28%	28%	28%	28%
69	28%	28%	28%	28%	28%	28%
70	100%	100%	100%	100%	100%	100%
Ref.	3091					
	45					

## Valuation Assumptions

### Fire (Concluded)

**Rates of separation from active membership** were as shown below (rates do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Male	Female
	0	7.25%	7.25%
	1	5.00%	5.00%
	2	2.50%	2.50%
	3	2.00%	2.00%
	4	1.50%	1.50%
25	5 & Over	1.15%	1.15%
30		1.15%	1.15%
35		1.15%	1.15%
40		1.15%	1.15%
45		1.15%	1.15%
50		1.15%	1.15%
55		1.15%	1.15%
60		1.15%	1.15%
Ref.		151	151
		1.15	1.15
		1271	1271

**Rates of disability** among active members. 40% percent are assumed to be ordinary disability and 60% percent are assumed to be accidental disability.

Sample Ages	% of Active Members Becoming Disabled within Next Year	
	Ordinary	Accidental
20	0.029%	0.043%
25	0.042%	0.063%
30	0.051%	0.076%
35	0.062%	0.093%
40	0.085%	0.127%
45	0.125%	0.187%
50	0.182%	0.274%
55	0.275%	0.413%
Ref	3	3
	0.24	0.36

# Valuation Assumptions

## Healthy Mortality

The standard mortality tables for death after retirement are the Pub-2010 Healthy Retiree Mortality Tables with credibility adjustments for each group (Police and Fire combined) and projected fully generational mortality improvements using Scale MP-2019.

The applicable published healthy mortality tables for each valuation group are shown below.

**Employees:** *PubG-2010 amount-weighted Healthy Retiree General Mortality Tables*  
**Teachers:** *PubT-2010 amount-weighted Healthy Retiree Teachers Mortality Tables*  
**Police and Fire:** *PubS-2010 amount-weighted Healthy Retiree Safety Mortality Tables*

This assumption is used to measure the probabilities of each benefit payment being made after retirement.

Sample rates of mortality and future life expectancy years are shown in the following tables.

### Employees

Sample Attained Ages	Probability of Dying Next Year*			Future Life Expectancy (Years)*		
	Male		Female	Male	Female	
35	0.069%		0.034%	51.20	53.62	
40	0.085%		0.046%	45.91	48.28	
45	0.114%		0.070%	40.66	42.97	
50	0.281%		0.232%	35.53	37.78	
55	0.423%		0.326%	30.63	32.82	
60	0.645%		0.446%	25.92	27.98	
65	0.931%		0.647%	21.42	23.28	
70	1.438%		1.044%	17.15	18.77	
75	2.442%		1.859%	13.20	14.55	
80	4.399%		3.424%	9.72	10.78	
Ref:	2705	x	1.01	2706	x	1.09

\* Applicable to calendar year 2021. Rates and life expectancy in future years are determined by the MP-2019 projection scale. The rates shown include the credibility adjustment for each member classification.

## Valuation Assumptions

### Teachers

Sample Attained Ages	Probability of Dying Next Year*			Future Life Expectancy (Years)*		
	Male		Female	Male	Female	
35	0.045%		0.029%	53.69	55.77	
40	0.055%		0.038%	48.41	50.46	
45	0.070%		0.050%	43.13	45.16	
50	0.109%		0.082%	37.90	39.89	
55	0.221%		0.212%	32.74	34.72	
60	0.378%		0.321%	27.76	29.75	
65	0.610%		0.453%	22.98	24.91	
70	1.018%		0.728%	18.43	20.19	
75	1.875%		1.390%	14.20	15.73	
80	3.579%		2.767%	10.44	11.71	
Ref:	2701	x	1.02	2702	x	1.05

### Police and Fire

Sample Attained Ages	Probability of Dying Next Year*			Future Life Expectancy (Years)*		
	Male		Female	Male	Female	
35	0.066%		0.049%	51.75	53.62	
40	0.078%		0.060%	46.46	48.30	
45	0.121%		0.085%	41.23	43.01	
50	0.172%		0.141%	36.06	37.77	
55	0.286%		0.267%	30.98	32.65	
60	0.507%		0.471%	26.07	27.74	
65	0.854%		0.738%	21.43	23.09	
70	1.405%		1.185%	17.10	18.67	
75	2.456%		2.058%	13.13	14.57	
80	4.469%		3.667%	9.66	10.95	
Ref:	2703	x	0.96	2704	x	0.99

\* Applicable to calendar year 2021. Rates and life expectancy in future years are determined by the MP-2019 projection scale. The rates shown include the credibility adjustment for each member classification.

# Valuation Assumptions

## Disabled Mortality

Disabled pension mortality is based on the Pub-2010 Disabled Retiree Mortality Tables for males and females with fully generational mortality improvements using Scale MP-2019. Due to limited disabled mortality experience, credibility adjustments were not applied.

The applicable published disabled mortality tables for each valuation group are shown below.

**Employees:** *PubG-2010 amount-weighted Disabled Retiree General Mortality Tables*  
**Teachers:** *PubT-2010 amount-weighted Disabled Retiree Teachers Mortality Tables*  
**Police and Fire:** *PubS-2010 amount-weighted Disabled Retiree Safety Mortality Tables*

The probabilities of disabled mortality at sample attained ages are as follows:

### Employees

Sample Ages	Probability of Occurrence Next Year*	
	Disabled Death	
	Male	Female
20	0.437%	0.259%
25	0.335%	0.203%
30	0.498%	0.351%
35	0.670%	0.547%
40	0.822%	0.741%
45	1.037%	0.976%
50	1.500%	1.421%
55	2.056%	1.820%
Ref	2711	2712
	1.00	1.00

\* Applicable to calendar year 2021. Rates and life expectancy in future years are determined by the MP-2019 projection scale.

# Valuation Assumptions

## Teachers

Sample Ages	Probability of Occurrence Next Year*	
	Disabled Death	
	Male	Female
20	0.437%	0.259%
25	0.335%	0.203%
30	0.498%	0.351%
35	0.670%	0.547%
40	0.822%	0.741%
45	1.037%	0.976%
50	1.500%	1.421%
55	2.056%	1.820%
Ref	2707	2708
	1.00	1.00

## Police and Fire

Sample Ages	Probability of Occurrence Next Year*	
	Disabled Death	
	Male	Female
20	0.128%	0.059%
25	0.129%	0.081%
30	0.172%	0.122%
35	0.202%	0.165%
40	0.222%	0.193%
45	0.249%	0.221%
50	0.330%	0.291%
55	0.467%	0.482%
Ref	2709	2710
	1.00	1.00

\* Applicable to calendar year 2021. Rates and life expectancy in future years are determined by the MP-2019 projection scale.



# Valuation Assumptions

## Pre-Retirement Mortality

For active members dying before retirement, the Pub-2010 Employee Mortality Tables for males and females with fully generational mortality improvements using Scale MP-2019. Due to limited active member mortality experience, credibility adjustments were not applied.

The applicable published disabled mortality tables for each valuation group are shown below.

**Employees:** *PubG-2010 amount-weighted Employee General Mortality Tables*  
**Teachers:** *PubT-2010 amount-weighted Employee Teachers Mortality Tables*  
**Police and Fire:** *PubS-2010 amount-weighted Employee Safety Mortality Tables*

The probabilities of dying prior to retirement at sample attained ages are as follows:

### Employees

Sample Ages	Probability of Occurrence Next Year*					
	Death Before Retirement					
	Male			Female		
20	0.039%			0.015%		
25	0.034%			0.011%		
30	0.051%			0.021%		
35	0.069%			0.031%		
40	0.084%			0.042%		
45	0.101%			0.056%		
50	0.139%			0.080%		
55	0.213%			0.129%		
Ref	2723	x	1.00	2724	x	1.00

\* Applicable to calendar year 2021. Rates and life expectancy in future years are determined by the MP-2019 projection scale.

# Valuation Assumptions

## Teachers

Sample Ages	Probability of Occurrence Next Year*					
	Death Before Retirement					
	Male			Female		
20	0.036%			0.015%		
25	0.019%			0.011%		
30	0.031%			0.019%		
35	0.044%			0.027%		
40	0.054%			0.037%		
45	0.069%			0.048%		
50	0.104%			0.070%		
55	0.167%			0.112%		
Ref	2719	x	1.00	2720	x	1.00

## Police and Fire

Sample Ages	Probability of Occurrence Next Year*					
	Death Before Retirement					
	Male			Female		
20	0.044%			0.018%		
25	0.044%			0.025%		
30	0.058%			0.037%		
35	0.069%			0.049%		
40	0.075%			0.058%		
45	0.085%			0.066%		
50	0.112%			0.087%		
55	0.170%			0.129%		
Ref	2721	x	1.00	2722	x	1.00

\* Applicable to calendar year 2021. Rates and life expectancy in future years are determined by the MP-2019 projection scale.

## **Weighting of Mortality**

The weighting of ordinary and accidental deaths by member classification is as follows:

	Employees	Teachers	Police	Fire
Ordinary	98%	98%	50%	50%
Accidental	2%	2%	50%	50%

## Miscellaneous and Technical Assumptions

<b>Administrative &amp; Investment Expenses</b>	The investment return assumption is intended to be the return net of investment expenses. Assumed administrative expenses are added to the Normal Cost, and were 0.35% of payroll.
<b>Benefit Service</b>	Exact Fractional service is used to determine the amount of benefit payable.
<b>COLA</b>	None assumed.
<b>Data Adjustments</b>	<p><b>Active Data</b></p> <ul style="list-style-type: none"><li>- New active member pays were annualized.</li><li>- 136 active records were excluded due to reported pays being \$0.</li><li>- 2 active records were excluded due to reported employment service being less than 0.</li><li>- 3 active members reported as being vested as of 12/31/2011 were also reported as being hired on or after 7/1/2011. For the purposes of retirement eligibility, it was assumed these members were not hired on or after 7/1/2011.</li></ul> <p><b>Deferred Data</b></p> <ul style="list-style-type: none"><li>- 111 deferred members had a reported accrued benefit of \$0. Prior year reported accrued benefit was used to value 34 of these members and 77 were valued based on the contribution balance.</li></ul> <p><b>Retiree Data</b></p> <ul style="list-style-type: none"><li>- 904 payee records were excluded due to non-blank Benefit Termination Dates.</li></ul> <p><b>Medical Subsidy Data</b></p> <ul style="list-style-type: none"><li>- 369 records were excluded due to non-blank Benefit Termination Dates.</li></ul>
<b>Decrement Operation</b>	Disability and turnover decrements do not operate during normal retirement eligibility for Group I and Group II members. They do operate for early retirement for Group I members.
<b>Decrement Timing</b>	Normal and early retirement decrements for the Teachers group are assumed to occur at the beginning of the year. All other decrements for all groups were assumed to occur mid-year.
<b>Eligibility Testing</b>	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
<b>Incidence of Contributions</b>	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.

***IRC Sections 415(b) and 401(a)(17)***

For purposes of the valuation, the limitations under IRC Sections 401(a)(17) and 415(b) were not reflected due to immateriality.

***Liability Adjustments***

Normal, early and vesting retirement liabilities are increased by 8.5%, 5.5%, 11.0% and 12.0% for Employees, Teachers, Police and Fire respectively to account for end of career pay increases. Members hired after July 1, 2011 or who have non-vested status as of January 1, 2012 are assumed to have no adjustment for end of career payments.

***Marriage Assumption***

Group I: 55% of males and 55% of females are assumed to be married for purposes of death-in-service benefits. Group II: 65% of males and 65% of females are assumed to be married for purposes of death-in-service and death after retirement benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.

***Medical Subsidy***

Actual medical subsidy recipients are included in the valuation plus 25% of those who opted-out. For those members reported as eligible in the future but not currently receiving, we assumed that members would commence benefits at age eligibility.

The solvency rates for the medical subsidy benefits were determined to provide an estimated margin of 20% of the benefits (50% for Teachers) by the end of the first year of the biennium and thereafter. The margin is intended to mitigate the risk of insolvency due to adverse experience.

A retired member's medical subsidy amount is provided by System staff. If the member is under the age of 65, the pre-65 subsidy amount used is the amount reported by System staff, and the post-65 subsidy amount is assumed to be at the post-65 rates.

It is assumed that 80% of active married members will have their spouses continue to receive a medical subsidy under the plan.

***Normal Form of Benefit***

This valuation assumes that members will elect the normal form of payment. Alternate forms of payment are available and are actuarially adjusted based on the valuation interest and mortality.

Group I: The assumed normal form of benefit is a straight life benefit.

Group II: The assumed normal form of benefit is straight life for single members and joint and 50% survivor for married members.

***Option Factors***

Each option factor is determined on an actuarial equivalent basis using valuation assumptions. No adjustment for optional forms of payment are reflected in the valuation.

<b><i>Pay Increase Timing</i></b>	Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
<b><i>New Entrant Profile</i></b>	For purposes of projecting the normal cost to the beginning of the rate setting biennium, the new entrant profile is based on actual members with 3-8 years of service on the valuation date.
<b><i>Service Credit Accruals</i></b>	It is assumed that members accrue one year of service credit per year.
<b><i>Service Purchases</i></b>	One month of service was added to the reported service for all active participants in consideration of potential subsidized service purchases in the future.
<b><i>Split Benefits</i></b>	Active members with service in more than one plan are valued as if all service accrued is in their current plan. Split benefits are valued upon retirement, as reported in the data.

**SECTION F**

---

**GLOSSARY**

## Glossary

<b><i>Actuarial Accrued Liability (AAL)</i></b>	The difference between the Actuarial Present Value of Future Benefits, and the Actuarial Present Value of Future Normal Costs.
<b><i>Actuarial Assumptions</i></b>	Assumptions about future plan experience that affect costs or liabilities, such as: mortality, withdrawal, disablement, and retirement; future increases in salary; future rates of investment earnings; future investment and administrative expenses; characteristics of members not specified in the data, such as marital status; characteristics of future members; future elections made by members; and other items.
<b><i>Actuarial Cost Method</i></b>	A procedure for allocating the Actuarial Present Value of Future Benefits between the Actuarial Present Value of future Normal Costs and the Actuarial Accrued Liability.
<b><i>Actuarial Equivalent</i></b>	Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.
<b><i>Actuarial Present Value (APV)</i></b>	The amount of funds required to provide a payment or series of payments in the future. It is determined by discounting the future payments with an assumed interest rate and with the assumed probability each payment will be made.
<b><i>Actuarial Present Value of Future Benefits (APVFB)</i></b>	The Actuarial Present Value of amounts which are expected to be paid at various future times to active members, retired members, beneficiaries receiving benefits, and inactive, nonretired members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
<b><i>Actuarial Valuation</i></b>	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan.
<b><i>Actuarial Value of Assets</i></b>	The value of the assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets or a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the Annual Required Contribution (ARC).

## Glossary

<b><i>Amortization Method</i></b>	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the rate at which total covered payroll of all active members is assumed to increase.
<b><i>Amortization Payment</i></b>	That portion of the plan contribution or ARC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.
<b><i>Amortization Period</i></b>	The period used in calculating the Amortization Payment.
<b><i>Annual Required Contribution (ARC)</i></b>	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation. The ARC consists of the Employer Normal Cost and Amortization Payment.
<b><i>Closed Amortization Period</i></b>	A specific number of years that is reduced by one each year, and declines to zero with the passage of time. For example if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc.
<b><i>Employer Normal Cost</i></b>	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
<b><i>Equivalent Single Amortization Period</i></b>	For plans that do not establish separate amortization bases (separate components of the UAAL), this is the same as the Amortization Period. For plans that do establish separate amortization bases, this is the period over which the UAAL would be amortized if all amortization bases were combined upon the current UAAL payment.
<b><i>Experience Gain/Loss</i></b>	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two actuarial valuations. To the extent that actual experience differs from that assumed, Unfunded Actuarial Accrued Liabilities emerge which may be larger or smaller than projected. Gains are due to favorable experience, e.g., the assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, losses are the result of unfavorable experience, i.e., actual results that produce Unfunded Actuarial Accrued Liabilities which are larger than projected.



## Glossary

<b><i>Funded Ratio</i></b>	The ratio of the Actuarial Value of Assets to the Actuarial Accrued Liability.
<b><i>GASB</i></b>	Governmental Accounting Standards Board.
<b><i>Normal Cost</i></b>	The annual cost assigned, under the Actuarial Cost Method, to the current plan year.
<b><i>Open Amortization Period</i></b>	An open amortization period is one which is used to determine the amortization payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the amortization period each year. In theory, if an open amortization period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear, but will become smaller each year, either as a dollar amount or in relation to covered payroll.
<b><i>Unfunded Actuarial Accrued Liability</i></b>	The difference between the Actuarial Accrued Liability and Actuarial Value of Assets.
<b><i>Solvency Rate</i></b>	The minimum contribution necessary to prevent insolvency (a fund balance less than \$0) during or after the biennium in which contributions are being calculated. If fund balances are projected to be less than \$0 prior to the beginning of the biennium (due to the lag between the valuation date and contribution certification), then the solvency rate is the minimum contribution necessary to bring the balance back to \$0 by the end of the biennium. After the fund balance reaches \$0, the solvency rate becomes the pay-as-you-go rate.
<b><i>Valuation Date</i></b>	The date as of which the Actuarial Present Value of Future Benefits are determined. The benefits expected to be paid in the future are discounted to this date.

## **SECTION G**

---

### **SUMMARY OF PLAN PROVISIONS**

## Plan Provisions – Group I

<b>Statute</b>	Amended and Restated under New Hampshire Revised Statutes Annotated (RSA) Chapter 100-A. Most recently amended under legislation passed in the year ending June 30, 2011.
<b>Effective Date</b>	July 1, 1967
<b>Plan Year</b>	July 1 through June 30
<b>Type of Plan</b>	Qualified, governmental defined benefit retirement plan; it is a single plan for financial reporting purposes.
<b>Eligibility Requirements</b>	Any employee or teacher becomes a Group I member as a condition of employment. Membership is optional for elected officials, officials appointed for fixed terms, unclassified state employees or employees of the general court.
<b>Creditable Service</b>	Service measured from date of employment to date of retirement or prior termination plus service credited under one or more of the predecessor systems.
<b>Earnable Compensation</b>	<p>For members who have attained vested status prior to January 1, 2012, full base rate of compensation paid plus any overtime pay, holiday and vacation pay, sick pay, longevity or severance pay, cost of living bonus, additional pay for extracurricular and instructional activities or any military differential pay, plus the fair market value of non-cash compensation such as meals or living quarters if subject to federal income tax. Earnable compensation in the final 12 months prior to termination shall be limited to 1 ½ times the higher of the earnable compensation in the 12-month period preceding the final 12 months or the highest compensation year excluding the final 12 months. Earnable compensation is subject to IRC section 401(a)(17) limits. Compensation for extra and special duty, as determined by the employer, shall be included but limited during the highest 3 years of creditable service as provided in paragraph RSA 100-A:1 XVIII as amended.</p> <p>For members who have not attained vested status prior to January 1, 2012, full base rate of compensation paid plus any overtime pay, longevity pay, cost of living bonus, additional pay for extracurricular and instructional activities, and any military differential pay, plus the fair market value of non-cash compensation such as meals or living quarters if subject to federal income tax, but excluding other compensation except supplemental pay paid by the employer while the member is receiving workers' compensation and teacher development pay that is not part of the contracted annual salary. Earnable compensation is subject to IRC section 401(a)(17) limits. Compensation for extra and special duty, as determined by the employer, shall be included but limited during the highest 5 years of creditable service as provided in paragraph RSA 100-A:1 XVIII as amended. Compensation for extra and special duty shall be eliminated for members who commence service on or after July 1, 2011. Earnable compensation shall not include incentives to encourage</p>

## Plan Provisions – Group I

members to retire, severance pay, or end-of-career longevity payments and pay for unused sick or vacation time. Earnable compensation in the final 12 months prior to termination shall be limited to 1 ½ times the higher of the earnable compensation in the 12-month period preceding the final 12 months or the highest compensation year excluding the final 12 months.

The new definition of earnable compensation is applicable January 1, 2012 for members who have not attained vested status prior to January 1, 2012 and immediately for members who commence service on or after July 1, 2011.

### ***Average Final Compensation (AFC)***

For members who have attained vested status prior to January 1, 2012 – Average annual earnable compensation during the highest 3 years of creditable service.

For members who commence service on or after July 1, 2011 or who have not attained vested status prior to January 1, 2012 – Average annual earnable compensation during the highest 5 years of creditable service.

### ***Service Retirement***

Eligibility: Age 60 years (age 65 for members who commence service on or after July 1, 2011).

Benefit: A member annuity that is the actuarial equivalent of the member's accumulated contributions plus a state annuity.

Prior to age 65, the state annuity, together with the member annuity, shall be equal to 1/60<sup>th</sup> of AFC times creditable service (1/66<sup>th</sup> of AFC times creditable service for members who commence service on or after July 1, 2011).

After age 65, the state annuity, together with the member annuity, shall be equal to 1/66<sup>th</sup> of AFC times creditable service.

Normal Form: Straight life annuity.

### ***Early Retirement***

Eligibility: Completion of 20 years of creditable service and age plus service at least 70, or attainment of age 50. (Age 60 with 30 years of creditable service for members who commence service on or after July 1, 2011.)

Benefit: Service Retirement Benefit accrued to date of retirement, reduced for each month prior to age 60 by 1/8 of 1% if the member has 35 years or more of creditable service, by 1/4 of 1% if the member has 30 years but less than 35, by 1/3 of 1% if the member has at least 25 years but not 30, by 5/12 of 1% if the member has at least 20 years but not 25, and by 5/9 of 1% if the member has less than 20 years of creditable service.

For members who commence service on or after July 1, 2011, normal retirement benefit is reduced 1/4 of 1% for each month prior to age 65.

## Plan Provisions – Group I

### ***Ordinary Disability***

Eligibility: 10 or more years of creditable service.

Benefit: If age 60 or older, the Service Retirement Benefit at attained normal retirement eligibility age as calculated under benefit provisions for members hired prior to July 1, 2011. Under age 60, a member annuity plus state annuity that shall be equal to 1.5% times AFC times years of creditable service. The disability retirement allowance shall not be less than 25% of AFC.

### ***Accidental Disability***

Eligibility: Permanently disabled in the performance of duty.

Benefit: Service Retirement Benefit if at least age 60, not less than 50% of AFC. Under age 60, a member annuity plus state annuity that shall be equal to 50% times AFC.

### ***Accidental Death Benefits***

Eligibility: Accidental death in the performance of duty.

Benefit: 50% times AFC.

### ***Ordinary Death Benefits***

Eligibility: Death other than accidental death.

Benefit: If 10 years creditable service or eligible for service retirement, surviving spouse receives 50% of the service retirement benefit until death or remarriage. If no surviving spouse, designated beneficiary receives a lump sum equal to the greater of \$3,600 or the member's annual compensation.

If less than 10 years creditable service and not eligible for service retirement, the member's spouse or designated beneficiary receives a lump sum equal to the greater of \$3,600 or the member's annual compensation.

### ***Post Retirement Death***

Not applicable.

### ***Optional Forms***

Each of the following options shall be of equivalent actuarial value to the allowance payable in the absence of election of an option.

Option 1. Full cash refund.

Option 2. 100% Joint and Survivor.

Option 3. 50% Joint and Survivor.

Option 4. Other Joint and Survivor.

### ***Vested Termination***

If a member terminates with less than 10 years of service, the member's accumulated contributions are refunded. If a member terminates with 10 or more years of service, the member either receives a service retirement benefit beginning at any age after age 60 (age 65 for members who commence service on or after July 1, 2011) or a reduced early service retirement benefit beginning at any age after age 50 (age 60 for members who commence service on or after July 1, 2011 and have at least 30 years of creditable service) or the member may apply for a refund of the member's accumulated contributions.

## Plan Provisions – Group I

### ***Maximum Benefit***

For members who commenced service prior to July 1, 2009 or have attained vested status prior to January 1, 2012, a member's retirement benefit shall not exceed 100% of the member's highest year of earnable compensation. For members who commenced service on or after July 1, 2009 and have not attained vested status prior to January 1, 2012, a member's retirement benefit shall not exceed the lesser of 85% of the member's highest average final compensation or \$120,000.

### ***Refunds***

1. Termination for reasons other than retirement or death and the member has not elected a vested deferred retirement benefit.
2. Upon death in service other than accidental death described above, the member's accumulated contributions are payable to the beneficiary or estate if, at the time of death, the member is not eligible for a service retirement.
3. Upon death prior to age 60 of a member electing vested deferred retirement, the member's accumulated contributions at the time of death are payable to the beneficiary or estate.
4. Upon death of a retired member prior to electing an optional allowance, any excess of the member's accumulated contributions at retirement over the sum of retirement allowance payments received.

### ***Member Contributions***

7.0% of earnable compensation. Interest on member contributions shall be 2 percentage points less than either the most recent board of trustees approved assumed rate of return determined under RSA 100-A:16, II(g) or the actual rate of return, whichever is lower.

### ***Employer Contributions***

As prescribed in RSA 100-A:16.

### ***Temporary Supplemental Allowances***

All System members who retired on or before July 1, 2014, or any beneficiaries of such members receiving a survivorship pension benefit shall receive a one-time 1.5% COLA on the first \$50,000 of an annual pension benefit. The COLA will take effect on the retired member's first anniversary date of retirement occurring after July 1, 2020. The adjustment shall become a permanent addition to the member's base retirement allowance.

### ***Other Ancillary Benefits***

There are no ancillary benefits - retirement type benefits not required by statutes but which might be deemed a liability if continued beyond the availability of funding by the current funding source.

## Plan Provisions – Group II

<b>Statute</b>	Amended and Restated under New Hampshire Revised Statutes Annotated (RSA) Chapter 100-A. Most recently amended under legislation passed in the year ending June 30, 2011.
<b>Effective Date</b>	July 1, 1967
<b>Plan Year</b>	July 1 through June 30
<b>Type of Plan</b>	Qualified, governmental defined benefit retirement plan; it is a single plan for financial reporting purposes.
<b>Eligibility Requirements</b>	Any permanent policeman or permanent fireman becomes a Group II member as a condition of employment.
<b>Creditable Service</b>	Service measured from date of employment to date of retirement or prior termination plus service credited under one or more of the predecessor systems.
<b>Earnable Compensation</b>	<p>For members who have attained vested status prior to January 1, 2012, full base rate of compensation paid plus any overtime pay, holiday and vacation pay, sick pay, longevity or severance pay, cost of living bonus, additional pay for extracurricular and instructional activities or for other extra or special duty, and other compensation paid to the member by the employer, plus the fair market value of non-cash compensation such as meals or living quarters if subject to federal income tax. Earnable compensation in the final 12 months prior to termination shall be limited to 1 ½ times the higher of the earnable compensation in the 12-month period preceding the final 12 months or the highest compensation year excluding the final 12 months. Earnable compensation is subject to IRC section 401(a)(17) limits. Compensation for extra and special duty, as determined by the employer, shall be included but limited during the highest 3 years of creditable service as provided in paragraph RSA 100-A:1 XVIII as amended.</p> <p>For members who have not attained vested status prior to January 1, 2012, full base rate of compensation paid plus any overtime pay, longevity pay, cost of living bonus, additional pay for extracurricular and instructional activities, and any military differential pay, plus the fair market value of non-cash compensation such as meals or living quarters if subject to federal income tax, but excluding other compensation except supplemental pay paid by the employer while the member is receiving workers' compensation and teacher development pay that is not part of the contracted annual salary. Earnable compensation is subject to IRC section 401(a)(17) limits. Compensation for extra and special duty, as determined by the employer, shall be included but limited during the highest 5 years of creditable service as provided in paragraph RSA 100-A:1 XVIII as amended. Compensation for extra and special duty shall be eliminated for members who commence service on or after July 1, 2011.</p>

## Plan Provisions – Group II

Earnable compensation shall not include incentives to encourage members to retire, severance pay, or end-of-career longevity payments and pay for unused sick or vacation time. Earnable compensation in the final 12 months prior to termination shall be limited to 1 ½ times the higher of the earnable compensation in the 12-month period preceding the final 12 months or the highest compensation year excluding the final 12 months.

The new definition of earnable compensation is applicable January 1, 2012 for members who have not attained vested status prior to January 1, 2012 and immediately for members who commence service on or after July 1, 2011.

### ***Average Final Compensation (AFC)***

For members who have attained vested status prior to January 1, 2012 – Average annual earnable compensation during the highest 3 years of creditable service.

For members who commence service on or after July 1, 2011 or who have not attained vested status prior to January 1, 2012 – Average annual earnable compensation during the highest 5 years of creditable service.

### ***Service Retirement***

Eligibility: Age 45 and 20 years of creditable service or age 60 (age 50 with 25 years of creditable service or age 60 for members who commence service on or after July 1, 2011).

Benefit: A member annuity that is the actuarial equivalent of the member's accumulated contributions plus a state annuity.

The state annuity, together with the member annuity, shall be equal to 2-1/2% of AFC times creditable service up to 40 years (2% of AFC times creditable service up to 42.5 years for members who commence service on or after July 1, 2011. However, a member who commenced service on or after July 1, 2011 shall not receive a service retirement allowance until attaining the age of 52.5, but may receive a reduced allowance after age 50 if the member has at least 25 years of creditable service where the allowance shall be reduced, for each month by which the benefit commencement date precedes the month after which the member attains 52.5 years of age, by ¼ of 1%).

Members hired prior to July 1, 2011 who have not attained vested status prior to January 1, 2012 shall be subject to transition provisions for years of service required for regular service retirement, the minimum age for regular service retirement, and the multiplier used to calculate the retirement annuity, which shall be applicable on January 1, 2012. The state annuity, together with the member annuity, shall be equal to the multiplier times AFC times creditable service up to 40.5 years. The transition provisions are provided in the following table.



## Plan Provisions – Group II

Creditable Service on January 1, 2012	Minimum Years of Service	Minimum Age Attained	Annuity Multiplier
(1) Less than 4 years	24 Years	Age 49	2.1%
(2) At least 4 years but less than 6 years	23 Years	Age 48	2.2%
(3) At least 6 years but less than 8 years	22 Years	Age 47	2.3%
(4) At least 8 years but less than 10 years	21 Years	Age 46	2.4%

Members who have attained vested status prior to January 1, 2012 who have attained the age of 45 with at least 20 years of creditable service, members who commenced service on or after July 1, 2011 who have attained the age of 50 with at least 25 years of creditable service, and members hired prior to July 1, 2011 who have not attained vested status prior to January 1, 2012 who qualify as provided in the transition provisions shall receive a minimum annual service retirement allowance of \$10,000.

Normal Form: Straight life annuity (with surviving spouse's benefit payable as described under post-retirement death benefit).

### ***Ordinary Disability***

Eligibility: 10 or more years of creditable service.

Benefit: Service Retirement Benefit. The disability retirement allowance shall not be less than 25% of the member's final compensation at the date of the member's disability.

### ***Accidental Disability***

Eligibility: Permanently disabled in the performance of duty.

Benefit: Members who have attained vested status prior to January 1, 2012 are eligible for an accidental disability benefit and shall receive a benefit equal to 2/3 of AFC. If a member has more than 26-2/3 years of service, the member will receive a supplemental disability benefit equal to 2-1/2% of AFC times years of creditable service in excess of 26-2/3 years but not in excess of 40 years.

Members hired prior to July 1, 2011 who have not attained vested status prior to January 1, 2012 are eligible for an accidental disability benefit and shall receive a benefit equal to 2/3 of AFC. The calculation of the supplemental allowance shall be as provided in the transition provisions with the number of years for the supplement adjusted proportionally.

Members who commence service on or after July 1, 2011 are eligible for an accidental disability benefit and shall receive a benefit equal to 2/3 of AFC. If a member has more than 33-1/3 years of service, the member will receive a supplemental disability benefit equal to 2% of AFC times years of creditable service in excess of 33-1/3 years but not in excess of 42.5 years.

## Plan Provisions – Group II

<b><i>Accidental Death Benefits</i></b>	<p>Eligibility: Accidental death in the performance of duty.</p> <p>Benefit: 50% times the member's annual rate of earnable compensation at the date of the member's death.</p>
<b><i>Post Retirement Death</i></b>	<p>Retired prior to April 1, 1987, benefit payable to surviving spouse until death or remarriage equal to 50% of the member's service (if the member had at least 20 years of creditable service), ordinary disability or accidental disability retirement allowance. Upon the death of a member receiving a service or ordinary disability retirement, a lump sum of \$3,600 is payable also.</p> <p>Retired on or after April 1, 1987, benefit payable to surviving spouse until death or remarriage equal to 50% of the member's service, ordinary disability or accidental disability retirement allowance plus a lump sum as defined below.</p> <p>Retired on or after April 1, 1987, but before July 1, 1988, hired before July 1, 1988, lump sum of \$3,600.</p> <p>Retired on or after July 1, 1988, hired before July 1, 1988, lump sum of \$10,000.</p> <p>Retired on or after July 1, 1988, hired on or after July 1, 1988 but before July 1, 1993, lump sum of \$3,600.</p>
<b><i>Optional Forms</i></b>	<p>Each of the following options shall be of equivalent actuarial value to the straight life allowance payable in the absence of election of an option.</p> <p>Option 1. Full cash refund.</p> <p>Option 2. 100% Joint and Survivor.</p> <p>Option 3. 50% Joint and Survivor.</p> <p>Option 4. Other Joint and Survivor.</p>
<b><i>Vested Termination</i></b>	<p>If a member terminates with less than 10 years of service, the member's accumulated contributions are refunded. If a member terminates with 10 or more years of service, the member either receives his service retirement at the age the member would have attained service or reduced early service retirement eligibility requirement, or age 60 or the member may apply for a refund of accumulated contributions.</p>

## Plan Provisions – Group II

### ***Maximum Benefit***

For members who commenced service prior to July 1, 2009 or have attained vested status prior to January 1, 2012, a member's retirement benefit shall not exceed 100% of the member's highest year of earnable compensation. For members who commenced service on or after July 1, 2009 and have not attained vested status prior to January 1, 2012, a member's retirement benefit shall not exceed the lesser of 85% of the member's highest average final compensation or \$120,000.

### ***Refunds***

1. Termination for reasons other than retirement or death and the member has not elected a vested deferred retirement benefit.
2. Upon death in service other than accidental death described above, the member's accumulated contributions are payable to the beneficiary or estate, if at the time of death, the member is not eligible for a service retirement.
3. Upon death prior to commencement of benefits of a member electing vested deferred retirement, the member's accumulated contributions are payable to the beneficiary or estate at the time of death.
4. Upon death of a survivor of a member retired on accidental disability with spouse receiving accidental disability survivor benefits, the excess of the member's accumulated contributions at retirement over the sum of payments received.
5. Upon death of a retired member prior to electing an optional allowance, any excess of the member's accumulated contributions at retirement over the sum of retirement allowance payments received.

### ***Member Contributions***

Fire members: 11.80% of earnable compensation.  
Police members: 11.55% of earnable compensation.

Member contributions cease for members who have attained vested status prior to January 1, 2012 with creditable service in excess of 40 years. Member contributions cease for all other Group II members with creditable service in excess of 42.5 years.

Interest on member contributions shall be 2 percentage points less than either the most recent board of trustees approved assumed rate of return determined under RSA 100-A:16, II(g) or the actual rate of return, whichever is lower.

### ***Employer Contributions***

As prescribed in RSA 100-A:16.

### ***Temporary Supplemental Allowances***

All System members who retired on or before July 1, 2014, or any beneficiaries of such members receiving a survivorship pension benefit shall receive a one-time 1.5% COLA on the first \$50,000 of an annual pension benefit. The COLA will take effect on the retired member's first anniversary date of retirement occurring after July 1, 2020. The adjustment shall become a permanent addition to the member's base retirement allowance.

### ***Other Ancillary Benefits***

There are no ancillary benefits - retirement type benefits not required by statutes but which might be deemed a liability if continued beyond the availability of funding by the current funding source.



# History of Recent Changes in Plan Provisions

## **2019 Legislative Session**

### **House Bill No. 616:**

This bill grants a one-time, 1.5% COLA on the first \$50,000 of an annual pension benefit to members who retired on or before July 1, 2014, or any beneficiaries of such member who is receiving a survivorship pension benefit. The COLA will take effect on the retired member's first anniversary date of retirement occurring after July 1, 2020. The adjustment shall become a permanent addition to the member's base retirement allowance.

## **2014 Legislative Session**

### **House Bill No. 1494:**

This bill: (1) adds definitions of terms used in RSA 100-A and clarifies existing definitions; (2) revises the procedure for calculating the cost of purchasing credit for certain types of prior service; (3) clarifies the ability to earn service credit while on a salary continuance plan; (4) corrects an inconsistency in the statute regarding the approval date of the Annual Comprehensive Financial Report; (5) adds penalties for employers who fail to remit correct data in a timely manner; and (6) repeals obsolete provisions.

## **2012 Legislative Session**

- (a) Modifies the calculation of Average Final Compensation (AFC) for members not vested prior to January 1, 2012, by changing the "compensation over base pay" factor used in the AFC formula from a dollar average to a percentage average.
- (b) Clarifies the date from which NHRS must begin calculating a 7-year average of Extra or Special Duty Pay for Group II (Police and Fire) members vested prior to January 1, 2012. This change excludes from the calculation any months prior to July 1, 2009, which is when ESDP began to be separately reported to NHRS.
- (c) Clarifies the number of years of creditable service Group II (Police and Fire) members in service prior to July 1, 2011, but not vested prior to January 1, 2012, must have in order to qualify for the supplemental disability benefit available to eligible Accidental Disability retirees.
- (d) Changes the annual effective date of changes to the member interest rate from a fiscal year to a calendar year.
- (e) Clarifies the definition of "compensation over base pay" for members not vested prior to January 1, 2012.
- (f) Clarifies that the maximum benefit limit for members hired before July 1, 2009, is 100 percent of Earnable Compensation and the maximum benefit limit for members hired after that date, and not vested by January 1, 2012, is the lesser of 85 percent of AFC or \$120,000 per year.
- (g) Modifies the definition of "part-time" for NHRS retirees employed by NHRS-participating employers.
- (h) Changes the date by which NHRS Trustees must approve the retirement system's Annual Comprehensive Financial Report from December 1 to December 31 of each year.



## History of Recent Changes in Plan Provisions (Continued)

- (i) RSA 100-A:53, II; RSA 100-A:53-e, II; RSA 100-A:16, II(h); and RSA 100-A:16, II(j), relative to the Special Account, are repealed.
- (j) RSA 100-A:16, III-a, commonly known as the employer “spiking” assessment, is repealed.

### **2011 Legislative Session**

Legislation enacted in the 2011 legislative session is summarized below:

#### **House Bill No. 2 as Amended by 2011-2513-CofC:**

- (a) Change the definition of Earnable Compensation for active members who begin service on or after July 1, 2011 or who are not in vested status on and after January 1, 2012.
- (b) For active members who commenced service on or after July 1, 2011 or who have non-vested status on or after January 1, 2012 AFC equals the average annual earnable compensation during the highest 5 years of creditable service.
- (c) For members who commenced service on or after July 1, 2009 or are non-vested as of January 1, 2012, a member’s retirement benefit shall not exceed the lesser of 85% of the member’s highest average final compensation or \$120,000.
- (d) Group I members commencing service on or after July 1, 2011 are eligible to retire at age 65 and are eligible for a reduced annuity at age 60 with 30 years of creditable service. Prior to age 65, the state annuity, together with the member annuity, shall be equal to 1/66th of AFC times creditable service reduced for each month prior to the month after the member attains age 65 by 1/4 of 1%. After age 65, the state annuity, together with the member annuity, shall be equal to 1/66th of AFC times creditable service, reduced for each month prior to the month after the member attains age 65 by 1/4 of 1%.
- (e) Group II members commencing service on or after July 1, 2011 are eligible to retire at age 50 with 25 years of creditable service or age 60. The benefit shall be equal to 2% of AFC times creditable service up to 42.5 years. However, a member who commenced service on or after July 1, 2011 shall not receive a service retirement allowance until attaining the age of 52.5, but may receive a reduced allowance after age 50 if the member has at least 25 years of creditable service where the allowance shall be reduced, for each month by which the benefit commencement date precedes the month after which the member attains 52.5 years of age, by ¼ of 1%.
- (f) Group II members hired prior to July 1, 2011 who have non-vested status as of January 1, 2012 shall be subject to transition provisions for years of service required for regular service retirement, the minimum age for regular service retirement, and the multiplier used to calculate the retirement annuity, which shall be applicable on January 1, 2012.

## History of Recent Changes in Plan Provisions (Continued)

- (g) Group II members commencing service on or after July 1, 2011 are eligible for an accidental disability benefit and shall receive a benefit equal to 2/3 of AFC. If a member has more than 33-1/3 years of service, the member will receive a supplemental disability benefit equal to 2% of AFC times years of creditable service in excess of 33-1/3 years but not in excess of 42.5 years.
- (h) *Member Contributions*  
Group I members: 7.0% of earnable compensation.  
Group II fire members: 11.80% of earnable compensation.  
Group II police members: 11.55% of earnable compensation.  
Group II member contributions cease for members who are in vested status before January 1, 2012 with creditable service in excess of 40 years. Member contributions cease for all other Group II members with creditable service in excess of 42.5 years.
- (i) *Medical Subsidy* – After July 1, 2007 and including each July 1, thereafter, the rate payable shall not be increased.
- (j) Interest on the individual accounts of members in the member annuity savings fund shall be credited interest at 2 percentage points less than either the most recent board of trustees approved assumed rate of return determined under RSA 100-A:16, II(h) or the actual rate of return, whichever is lower for the immediately preceding fiscal year as reported in the ACFR as approved and accepted by the board of trustees by December 1, of each year, provided the rate shall not be less than zero.
- (k) Any retired member who is receiving a medical subsidy under RSA 100-A:52 or RSA 100-A:52-a shall be entitled to receive an additional supplemental allowance. The amount of the additional temporary supplemental allowance shall be \$500 for retirees taking a one-person medical benefit and \$1,000 for retirees taking a 2-person medical benefit, paid from the respective component of the reserve for TSAs. The supplemental allowance shall apply only for the fiscal years beginning July 1, 2008 up to and including the fiscal year beginning July 1, 2012.
- (l) Transfer the balance in each special account component (Employees, Teachers, Police and Fire) to the corresponding components of the State annuity accumulation fund except for funds necessary to comply with RSA 100-A:41-d, III as amended.

# History of Recent Changes in Plan Provisions (Concluded)

## 2010 Legislative Session

Legislation enacted in the 2010 legislative session is summarized below:

- (a) **Special Session House Bill No. 1: COLA, TSA approved** - Provides cost-of-living adjustments (COLAs) and temporary supplemental allowances (TSAs) for eligible retirees or beneficiaries;
- (b) **Senate Bill 504: “Spiking” provision deferred** - Extends the effective date of the 2008 legislation creating the so-called “spiking” provision (125% assessment) from July 1, 2010 to July 1, 2011. A study commission continues to evaluate proposals for the assessment methodology;
- (c) **House Bill 1668: State medical subsidy insurance for Group II members** [RSA 21-I30] - Requires Group II (Police and Fire) members whose service with a state agency or department began on or after July 1, 2010, complete at least 20 years of creditable service with the state in order to qualify for post-retirement state medical subsidy insurance coverage.

## Medical Subsidy Plan Provisions

Subsidy Benefits as of July 1, 2007 and thereafter are as follows:

	Monthly Amounts	
	Pre-65	Post-65
Single	\$375.56	\$236.84
Couple	\$751.12	\$473.68

The above amounts will not increase.

The following Group I members and their qualified spouses are eligible for coverage under the postretirement medical plan:

- Employee and Teacher members of political subdivisions who are eligible to retire as of July 1, 2008, on Service, Early Service or Ordinary Disability, have at least 20 years of credited service as of July 1, 2008 and who actually retire on or before July 1, 2009 would become eligible for the medical subsidy at age 60 with at least 20 years of creditable service; or as early as age 55 with at least 30 years of creditable service.
- Employee and Teacher members of political subdivisions who are eligible to retire as of July 1, 2008, on Vested Deferred retirement and who actually retire on or before July 1, 2009 would become eligible for the medical subsidy at age 60 with at least 20 years of creditable service; or as early as age 55 with at least 30 years of creditable service.
- Employee and Teacher members of political subdivisions who retired on Accidental Disability Retirement on or before July 1, 2004.
- Employee members of the State who retired on or before July 1, 2004, on Service, Ordinary Disability or Vested Deferred Retirement would become eligible for the medical subsidy at age 60 with at least 20 years of creditable service; or as early as age 55 with at least 30 years of creditable service.
- Employee and Teacher members of political subdivisions who are eligible to retire as of July 1, 2008 and who actually retire on or before July 1, 2009, on Service, Early Service, Vested Deferred or Ordinary Disability retirement after completing at least 20 years of creditable service and who subsequently attain age 60 or after completing at least 30 years of creditable service and who subsequently attain age 55.
- Surviving spouses of deceased Employee and Teacher members of political subdivisions who die while in service and would otherwise have been eligible for a medical subsidy benefit, provided that such surviving spouse was covered as the member's spouse in the employer-sponsored plan before the member's death and is entitled to a monthly allowance under Accidental Death, Ordinary Death, or an Optional Allowance.
- Surviving spouses and children of Employee and Teacher members of political subdivisions who die as the natural and proximate result of injuries suffered while in the performance of duty. Eligibility for the medical subsidy ceases when the dependent child attains age 18, or age 23 if attending school on a full-time basis.



## Medical Subsidy Plan Provisions (Concluded)

- Surviving spouses and children of Employee members of the State who died as the natural and proximate result of injuries suffered while in the performance of duty. Payment of the subsidy ceases when the dependent child attains age 18 or age 23, if attending school on a full-time basis.
- Vested terminated Employee members of the State (and spouses) who completed at least 20 years of creditable service and prior to July 1, 2004 receives an allowance and who subsequently attains age 60.
- Employee members of the State (and spouses) who retire after completing at least 20 years of creditable service and who subsequently attains age 60 before July 1, 2004 or after completing at least 30 years of creditable service and who subsequently attains age 55 before July 1, 2004.
- Surviving spouses of deceased Employee members of the State who died while in service on or before July 1, 2004, provided that such surviving spouse was covered as the member's spouse in the employer-sponsored plan before the member's death and is entitled to a monthly allowance under Accidental Death, Ordinary Death, or an Optional Allowance.
- Any certifiably dependent child with a disability living in the household and being cared for by the qualified retired member, member's spouse, or qualified surviving spouse would also qualify.

The following Group II members are eligible for the postretirement medical premium subsidy:

- Active or Retired Group II police officer members (or beneficiaries) as of June 30, 2000.
- Active or Retired Group II firefighter members (or beneficiaries) as of June 30, 2000.
- Persons who prior to July 1, 1988 had completed at least 20 years of Group II service and are eligible as of July 1, 1993 for a vested deferred retirement benefit.
- Group II members retired as of July 1, 1991 with a split benefit under RSA 100-A:19-c who have at least 10 years of Group II service.
- Group II members as of June 30, 2005 who subsequently became disabled while in the performance of duty at any time in the future.
- Surviving spouses of deceased Group II members who retired prior to April 1, 1987 and who are not receiving a monthly allowance.

The System subsidy covers the retired member's spouse and any of the retired member's certifiably dependent and disabled children.

It is the legislative intent that future members shall be included only to the extent that the total cost can be terminally funded.

## SECTION H

---

### FUNDING POLICY

**New Hampshire Retirement System**  
**Actuarial Funding Policy**  
**(Adopted: March 11, 2014**  
**Revised: March 10, 2020)**

**FUNDING OBJECTIVES**

The main financial objective of the New Hampshire Retirement System (NHRS) is to receive employer and member contributions to fund the long-term costs of benefits provided by statute to plan members and beneficiaries. From the perspective of the members and beneficiaries, a funding policy based on actuarially determined contributions is one which will pay all benefits provided by statute when due. From the perspective of the contributing plan sponsors and taxpayers, the actuarially determined contributions have the additional objectives of keeping contribution rates relatively stable as a percentage of active member payroll and equitably allocating the costs over the active members' period of active service. For pension funding, the payment of benefits is supported in part by income earned on investment assets. This funding policy meets those criteria. It is stipulated by state law and implemented through the application of Board adopted governance policies.

**Statutory Pension Funding Policy for NHRS**

The statute that establishes the pension funding policy for NHRS is RSA 100-A:16.

**RSA 100-A:16 Excerpts:**

**100-A:16 Method of Financing** – All of the assets of the Retirement System shall be credited, according to the purpose for which they are held, between 2 funds, namely, the member annuity savings fund and the state annuity accumulation fund. Each of the funds shall be subdivided on account of the various member classifications. In making the determinations required under this section for financing the Retirement System, the Board of Trustees shall use the entry age normal funding methodology. The Board of Trustees shall direct the System's actuary to prepare biennial valuations of the System's assets and liabilities commencing with the valuation prepared as of June 30, 2007. Such biennial valuation shall be the basis for determining the annual contribution requirements of the System until the next following biennial valuation.

II(b) The contributions of each employer for benefits under the retirement system on account of group II members shall consist of a percentage of the earnable compensation of its members to be known as the "normal contribution," and an additional amount to be known as the "accrued liability contribution;" provided that beginning with state fiscal year 2013 and for each state fiscal year thereafter, any employer shall pay the full amount of such total contributions. The rate percent of such normal contribution, including contributions on behalf of group II members whose group II creditable service is in excess of 40 years, in each instance shall be fixed on the basis of the liabilities of the system with respect to the particular members of the various member classifications as shown by actuarial valuations,

II(c) The contributions of each employer for benefits under the retirement system on account of group I members shall consist of a percentage of the earnable compensation of its members to be known as the "normal contribution," and an additional amount to be known as the "accrued liability contribution;" provided that beginning with state fiscal year 2013 and for each state fiscal



**New Hampshire Retirement System**  
**Actuarial Funding Policy**  
**(Adopted: March 11, 2014**  
**Revised: March 10, 2020)**

year thereafter, any employer shall pay both normal and accrued liability contributions. The rate percent of such normal contribution in each instance shall be fixed on the basis of the liabilities of the system with respect to the particular members of the various member classifications as shown by actuarial valuation,

...

II(e)(1) Immediately following the actuarial valuation prepared as of June 30 of each fiscal year, the Board shall have an actuary determine the amount of the unfunded accrued liability for each member classification as the amount of the total liabilities of the state annuity accumulation fund on account of such classification which is not dischargeable by the total of the funds in hand to the credit of the state annuity accumulation fund on account of such classification, and the aforesaid normal contributions to be made on account of the members in such classification during the remainder of their active service. The amount so determined with respect to each member classification shall be known as the "unfunded accrued liability" with respect to such classification.

(2) On the basis of each such unfunded accrued liability, the board shall have an actuary determine the level annual contribution required to discharge such amount as provided in subparagraph (3).

(3) The unfunded liability as of June 30, 2017 shall be amortized through 2039. Each subsequent change in liability as calculated in odd-numbered years shall be separately amortized over a fixed period of no longer than 20 years.

**Board Established Policy Associated with Funding:**

**Actuarial Cost Method**

The law stipulates under RSA 100-A:16 the use of the entry age normal actuarial cost method for each of the four member classifications. The purpose of this method is to determine the annual Normal Cost for each individual active member, payable from the date of employment to the date of retirement, that is:

Sufficient to accumulate to the value of the member's benefit at the time of retirement, and a constant percentage of the member's year by year projected covered pay.

The Actuarial Accrued Liability under this cost method is the accumulation of normal costs accrued prior to the actuarial valuation date. The Actuarial Accrued Liability represents the theoretical amount of assets required to fund benefits earned on members' past service. The Normal Cost represents the cost required to fund benefits accruing during the current year.

Under RSA 100-A:16, II (i), if the actuarially determined normal contribution rate as set forth in subparagraphs (b) and (c) on account of any of the various member classifications shall be negative in any fiscal year, then the excess amount resulting from the difference between zero and the negative actuarially determined normal contribution rate shall be used to reduce the member contribution rate for that member classification in that fiscal year.



**New Hampshire Retirement System**  
**Actuarial Funding Policy**  
**(Adopted: March 11, 2014**  
**Revised: March 10, 2020)**

Under RSA 100-A:16, II-a(a), if within a member classification the employer rates have lowered to require them to be equal to the member rates, then for all subsequent years the employer rates and the members' rates for such member classification shall continue to be equal whether the system liabilities increase or decrease.

**Asset Valuation Method**

The Actuarial Value of Assets is based on the market value with investment gains and losses smoothed over 5 years. The Actuarial Value of Assets will not consistently be above or below the Market Value and is expected to converge to the Market Value in a relatively short period of time. At any time, it may be either greater or less than Market Value. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than Market Value. If assumed rates are exactly realized for 4 consecutive years, the Actuarial Value will become equal to Market Value.

Actuarial Value is limited to a 20% corridor around the Market Value. This means that if the preliminary development of the Actuarial Value results in an amount that is greater than 120% of the Market Value (or less than 80% of the Market Value), the final Actuarial Value is limited to 120% (or 80%) of the Market Value. Any gains or losses on the Market Value outside of the 20% corridor are therefore recognized immediately.

**Amortization Method**

Pursuant to the Laws of 2018, Chapter 48, RSA 100-A:16, II(e), was revised in June 2018 and stipulates that the Unfunded Accrued Actuarial Liability as of June 30, 2017 shall be amortized through 2039. It further states that each subsequent change in liability as calculated in odd-years will be amortized as a level percentage of pay for no longer than 20 years. For each Actuarial Valuation in the subsequent odd years, a new 20-year amortization, as a level percentage of payroll, of the actuarial gain or loss will be created in that actuarial valuation. This Actuarial Funding Policy implements the intent of the statute.

Beginning with the June 30, 2007 actuarial valuation which determined the employer contribution rates beginning with the fiscal year ending June 30, 2010, the 30-year period is a closed period ending June 30, 2039.

The amortization method is a level percentage of payroll, consistent with RSA 100-A:16, II(b) and (c).

**Funding Target**

The funding objective is to achieve 100% funding. For this purpose, 100% funding means that the Actuarial Value of Assets equals the Actuarial Accrued Liability. The amortization objective is to reach 100% funding by June 30, 2039 for the Unfunded Accrued Actuarial Liability as of June 30, 2017.



**New Hampshire Retirement System**  
**Actuarial Funding Policy**  
**(Adopted: March 11, 2014**  
**Revised: March 10, 2020)**

**Risk Management**

The main financial objective of this funding policy is to fund the long-term costs of benefits provided by statute to plan members and beneficiaries. There are numerous risks that NHRS faces in trying to achieve this objective including funding risk, demographic risk, investment risk, and benefit risk. The Board policies for managing these risks are outlined in this section.

*Funding Risk*

*Frequency of Actuarial Valuations*

Regular valuations manage funding risk by allowing employer contribution rates to reflect actual experience as it emerges. Funding valuations are required by RSA 100- A:16, III, as of June 30 every other year on the odd years to determine employer contribution rates for the biennium beginning two years after the valuation date.

Interim funding valuations on June 30 of the even years are required for financial reporting. Funding calculations from interim valuations may be used as additional information for budgeting contributions in anticipation of the next rate setting valuation.

*Demographic and Investment Risk*

*Process for Reviewing and Updating Actuarial Assumptions*

The Board adopts actuarial assumptions based on recommendations of the actuary. Demographic and investment risks may be managed in part by having regular reviews of the actuarial assumptions. The law stipulates that the Board shall have the actuary make an actuarial investigation into the experience of the System at least every 5 years (RSA 100-A:14, IX) and shall adopt actuarial assumptions as necessary. The Board shall have the actuary make an actuarial investigation into the experience of the System every 4 years and shall adopt actuarial assumptions as necessary. If circumstances warrant, the Board may undertake an experience study or change assumptions more frequently based on the recommendation of the actuary.

The experience study report shall include, but not necessarily be limited to analysis of and recommendations regarding the following assumptions.

- i. Pre-retirement withdrawal rates
- ii. Retirement rates
- iii. Disability rates
- iv. Pay increase rates
- v. Mortality rates both before and after retirement
- vi. Investment returns considering both real return and inflation, which must be consistent with the investment policy

**New Hampshire Retirement System**  
**Actuarial Funding Policy**  
**(Adopted: March 11, 2014**  
**Revised: March 10, 2020)**

The actuary shall assume no change in the active member population unless there is compelling evidence to support the expectation of a significant increase or decrease in the workforce covered by the System.

The experience study report will serve as the basis for determinations by the Board regarding whether or not demographic or economic assumptions should be modified for future valuations.

In the interim years, the actuary shall issue a written opinion in regard to the reasonableness of the assumed rate of return that shall address any difference between the assumed rate of return and the expected rate of return as determined by the investment committee (RSA 100-A:15, VII(c)(1)).

*Responding to Favorable/Unfavorable Investment Experience*

Investment risk is addressed in the System's Investment Manual. Annual investment experience other than assumed is reflected in the valuation asset method described above.

*Asset Liability Studies*

The Board adopts an asset allocation based on recommendations from the Independent Investment Committee (IIC), which relies upon the advice from the Director of Investments and the Investment Consultant to formulate its recommendations to the Board. The asset allocation approved by the Board will reflect the results of an Asset Liability Study performed at least once in every five-year period, or more often, as recommended by the IIC, System staff, and Investment Consultant.

*Risk Measures*

In order to quantify the risks outlined in this actuarial funding policy, the following metrics will be included in annual valuation reports. These metrics provide quantifiable measurements of risk and its movement over time:

- i. Funded ratio (Actuarial Value of Assets divided by Actuarial Accrued Liability).
  - Measures progress towards the funding objective of the 100% target funded ratio.
- ii. Actual Total Payroll versus expected Total Payroll for each member classification.
  - Measures the funding risk associated with receiving contributions as a level percent of payroll.
- iii. Dollar standard deviation of investment return divided by Total Payroll
  - Measures the risk associated with negative asset returns relative impact on the funded status of the plan. A decrease in this measure indicates a decrease in investment risk.

**New Hampshire Retirement System  
Actuarial Funding Policy  
(Adopted: March 11, 2014  
Revised: March 10, 2020)**

- iv. Total Unfunded Actuarial Accrued Liability (UAAL) divided by Total Payroll
  - Measures the risk associated with contribution decreases relative impact on the ability to fund the UAAL. A decrease in this measure indicates a decrease in contribution risk.
- v. Total Actuarial Accrued Liability (AAL) divided by Total Payroll
  - Measures the risk associated with the ability to respond to liability experience through adjustments in contributions. A decrease in this measure indicates a decrease in experience risk. This also provides a long-term measure of the asset risk in situations where the System has a funded ratio below 100%.
- vi. Total Actuarial Value of Assets divided by Total Payroll
  - Measures the risk associated with the ability to respond to asset experience through adjustments in contributions. A decrease in this measure indicates a decrease in asset risk.
- vii. Dollar standard deviation of contribution rate divided by Total Payroll
  - Measures the impact of a one standard deviation change in investment return on the annual contribution rate. This rate is expected to stabilize with the introduction of layered amortization.
- viii. Net Cash Flow as a Percent of Market Value of Assets
  - Measures money coming in less money going out. This ratio is expected to be negative and trend toward the negative of the real return assumption.
- ix. Ratio of Actives to Retirees
  - Fully mature plans may have ratios near 1.0.

**Benefit Risk**

***Responding to Legislative Proposals and Changes***

Benefit risk may be managed as follows:

1. The NHRS shall review legislative proposals and changes for the potential legal, administrative, IRC compliance, and funding impact on the System. If a legislative proposal has the potential for a meaningful impact on plan funding, the Board shall consult with the actuary to estimate the actuarial impact to the System.
2. Under RSA 100-A:15 VII (d), the NHRS may request or recommend legislative proposals to comply with other state or federal regulations, improve administration, or secure funding for benefits provided by statute.

The NHRS does not determine the eligibility requirements for benefits nor the level of benefits.



**New Hampshire Retirement System  
Actuarial Funding Policy  
(Adopted: March 11, 2014  
Revised: March 10, 2020)**

**Statutory Medical Subsidy Funding Policy for NHRS**

The statutes that establish the medical subsidy funding policy for NHRS are RSA 100-A:53, 53-b, 53-c, and 53-d.

**RSA 100-A:53, 53-b, 53-c, and 53-d Excerpts:**

**Medical Subsidy Funding Policy**

Medical Subsidy benefits provided through NHRS are funded on a pay-as-you-go basis. The medical subsidy benefits provided by statute are fixed amounts for a declining population and therefore pay-as-you-go is a reasonable funding method.

The four sections of the statute refer to four separate member classifications for funding Medical Subsidy benefits provided through the NHRS. These member classifications differ from the pension member classifications and are RSA 100-A:53, Group II; 100-A:53-b, Group I Teachers; 100-A:53-c, Group I Political Subdivision Employees; 100-A:53-d, Group I State Employees.

The comparable funding provisions of the four sections of the statute are as follows:

The benefits provided under RSA 100-A:52, 52-a, and 52-b shall be provided by a 401(h) subtrust of the New Hampshire Retirement System. Beginning July 1, 2009, the 401(h) subtrust shall be funded by allocating to the subtrust the lesser of:

- (a) 25 percent of member classification employer contributions; or
- (b) The percentage of employer contributions made for the member classification determined by the actuary to be the minimum rate necessary to maintain the benefits provided under RSA 100-A:52, 52-a, and 52-b.

All contributions made to the Retirement System to provide medical benefits under RSA 100-A:52, 52-a, and 52-b shall be maintained in a separate account, the 401(h) subtrust. All funds and accumulated interest shall not be used for or diverted to any purpose other than to provide said medical benefits. Similarly, none of the funds accumulated to provide the retirement benefits set forth in this chapter, may be used or diverted to provide medical benefits under RSA 100-A:52, 52-a, and 52-b. The funds, if any, providing medical benefits under RSA 100-A:52, 52-a, and 52-b may be invested pursuant to the provisions of RSA 100-A:15.

**Board Established Policy Associated with Funding:**

The law stipulates under RSA 100-A:53, 53-b, 53-c, and 53-d the minimum rate necessary to maintain benefits. For purposes of this determination, the contribution rate calculations are made with respect to

**New Hampshire Retirement System**  
**Actuarial Funding Policy**  
**(Adopted: March 11, 2014**  
**Revised: March 10, 2020)**

the market value of assets for each member classification separately. Any shortfall in assets for a member classification is to be made up through funding in the nearest rate setting biennium.

**Risk Management**

There are fewer risks in a pay-as-you-go medical subsidy arrangement than for pension pre-funding.

*Solvency Risk*

The greatest risk facing the pay-as-you-go financing of the statutory medical subsidy benefits is maintaining solvency of the four IRC Section 401(h) subtrusts. The contribution rate setting based on the June 30<sup>th</sup> valuation in the odd years determines the rates for the biennium beginning two years after the valuation and ending four years after the valuation date.

In order to mitigate the financing risk, the Board has adopted a policy of determining the employer contribution rate such that the expected assets in each of the four subtrusts will exceed the expected benefit payments for the year by at least 20% (50% for Teachers) each year. This is referred to as a solvency margin. The Board may review the sufficiency of the margin and make changes based upon the recommendation of the actuary.

*Risk Measures*

In order to quantify the risks outlined in this actuarial funding policy, the following metrics will be included in annual valuation reports. These metrics provide quantifiable measurements of risk and its movement over time:

- i. 20-year projections of contributions and benefit payments.
  - Measures progress towards the funding objective of solvency with a 20% margin (50% for Teachers).
- ii. Actual Total Payroll versus expected Total Payroll for each member classification.
  - Measures the funding risk associated with receiving contributions as a level percent of payroll.

**Miscellaneous Matters Associated with Funding:**

**Overall Conformance with Professional Standards of Practice**

By law, the actuary shall be a member of the American Academy of Actuaries and have at least 7 years of actuarial experience (RSA 100-A:1, XXIX). The actuary shall meet the Qualification Standards of the American Academy of Actuaries and the work of the actuary in connection with this policy shall conform to Actuarial Standards of Practice for public employee retirement plans promulgated by the Actuarial Standards Board and shall satisfy the requirements of the Governmental Accounting Standards Board with respect to the development of information needed by the system and by employers for financial reporting purposes.



## APPENDIX

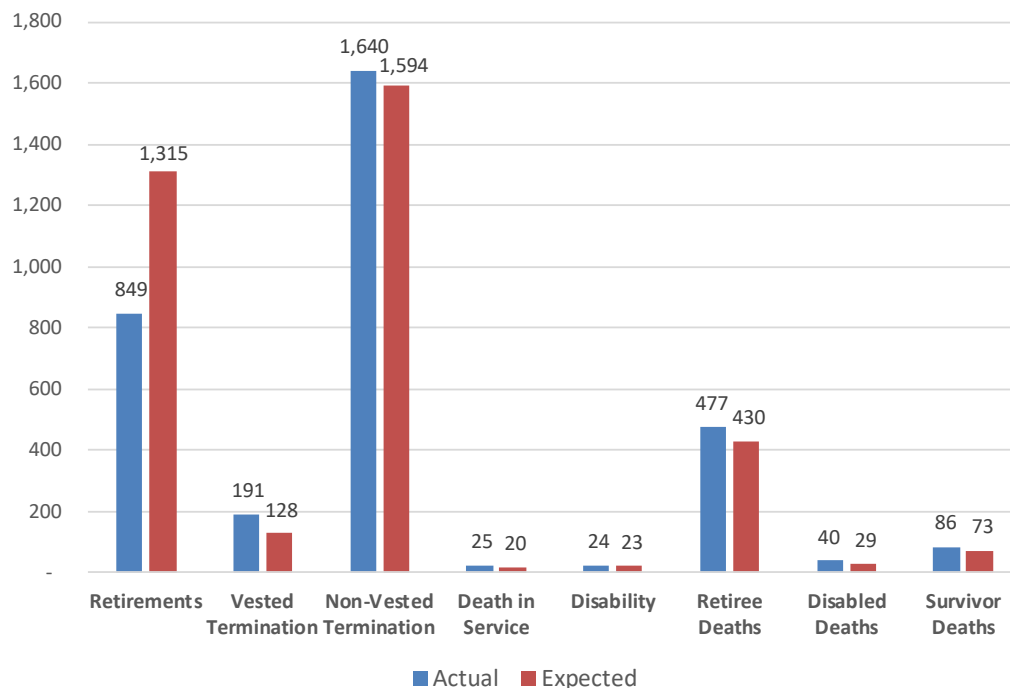
---

### SUPPLEMENTAL DATA SCHEDULES

## Reconciliation of Member Record Counts – Employees

	Active Members	Inactive, Nonretired Members		Annuitants		
		Vested	Non Vested	Service Retirees	Disabled Retirees	Survivors
<b>Participants 6/30/2020</b>	24,602	1,402	9,282	16,834	928	1,672
Terminations - Refund paid	(432)	(17)	(173)			
Terminations - Refund due	(1,208)		1,208			
Vested Termination	(191)	191				
Retirement	(849)	(119)		993	1	
Disability	(24)				24	
Death before retirement - refund	(20)	(2)	(3)			
Death before retirement - annuity	(5)					5
Death of annuitant - survivor benefit due				(107)	(7)	118
Death of annuitant - no further benefits due				(370)	(33)	(86)
New Entrants	2,582					
Transfers to Other Member Group	(172)					
Transfers from Other Member Group	71					
Reemployments	204	(45)	(152)	(7)		
Data adjustments and corrections		5	54	51	17	13
<b>Participants 6/30/2021</b>	<b>24,558</b>	<b>1,415</b>	<b>10,216</b>	<b>17,394</b>	<b>930</b>	<b>1,722</b>

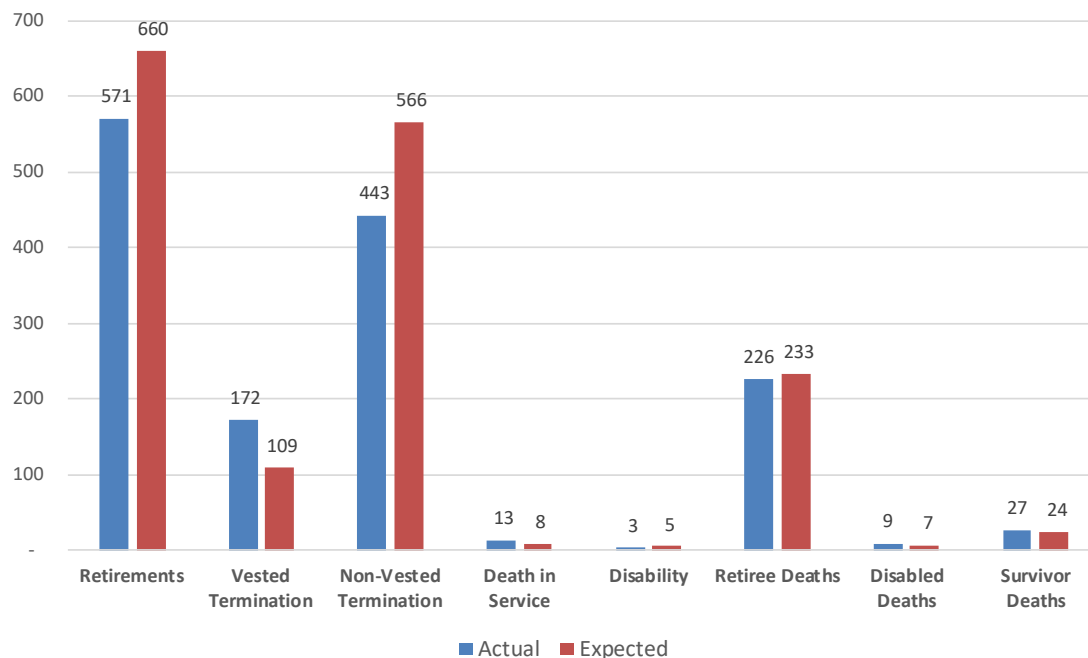
### Actual vs. Expected Decrements - Employees



## Reconciliation of Member Record Counts – Teachers

	Active Members	Inactive, Nonretired Members		Annuitants		
		Vested	Non Vested	Service Retirees	Disabled Retirees	Survivors
Participants 6/30/2020	17,917	1,100	3,662	13,227	191	780
Terminations - Refund paid	(68)	(12)	(82)			
Terminations - Refund due	(375)		375			
Vested Termination	(172)	172				
Retirement	(571)	(68)		661	2	
Disability	(3)				3	
Death before retirement - refund	(10)	(1)				
Death before retirement - annuity	(3)					3
Death of annuitant - survivor benefit due				(57)	(3)	60
Death of annuitant - no further benefits due				(169)	(6)	(27)
New Entrants	1,110					
Transfers to Other Member Group	(53)					
Transfers from Other Member Group	141					
Reemployments	218	(49)	(166)	(3)		
Data adjustments and corrections		3	23	9	2	12
Participants 6/30/2021	<b>18,131</b>	<b>1,145</b>	<b>3,812</b>	<b>13,668</b>	<b>189</b>	<b>828</b>

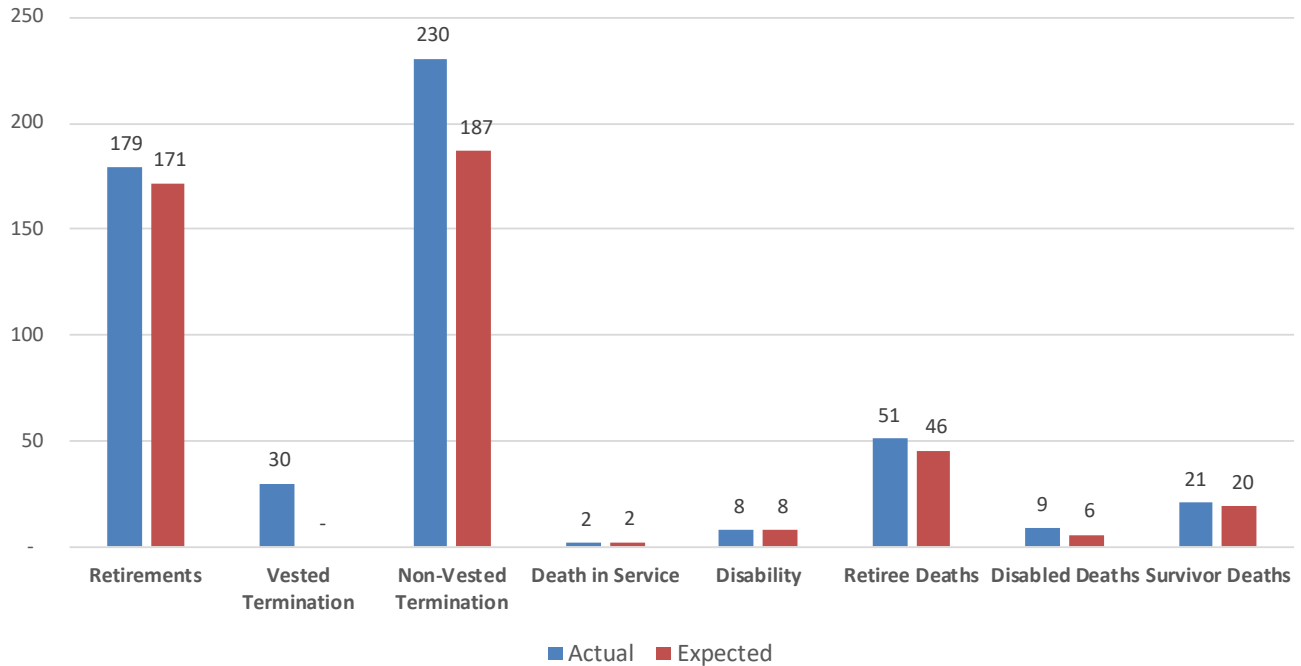
### Actual vs. Expected Decrements - Teachers



## Reconciliation of Member Record Counts – Police

	Active Members	Inactive, Nonretired Members		Annuitants		
		Vested	Non Vested	Service Retirees	Disabled Retirees	Survivors
Participants 6/30/2020	4,256	133	753	3,294	398	535
Terminations - Refund paid	(97)	(5)	(29)			
Terminations - Refund due	(133)		133			
Vested Termination	(30)	30				
Retirement	(179)	(14)		199	2	
Disability	(8)				8	
Death before retirement - refund	(1)					
Death before retirement - annuity	(1)					1
Death of annuitant - survivor benefit due				(28)	(7)	49
Death of annuitant - no further benefits due				(23)	(2)	(21)
New Entrants	350					
Transfers to Other Member Group	(21)					
Transfers from Other Member Group	31					
Reemployments	17	(1)	(14)	(2)		
Data adjustments and corrections			4	13	2	9
Participants 6/30/2021	4,184	143	847	3,453	401	573

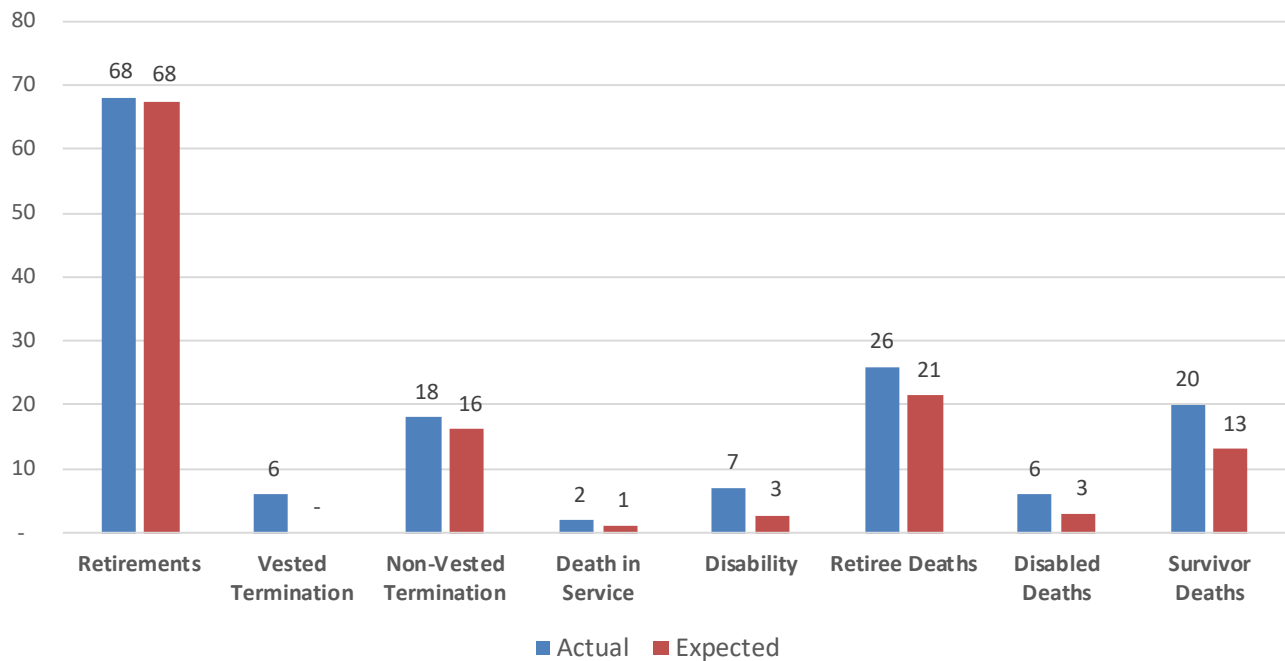
### Actual vs. Expected Decrements - Police



## Reconciliation of Member Record Counts – Fire

	Active Members	Inactive, Nonretired Members		Annuitants		
		Vested	Non Vested	Service Retirees	Disabled Retirees	Survivors
Participants 6/30/2020	1,704	26	63	1,328	120	305
Terminations - Refund paid	(8)	(1)	(4)			
Terminations - Refund due	(10)		10			
Vested Termination	(6)	6				
Retirement	(68)	(4)		75		
Disability	(7)				7	
Death before retirement - refund	(1)					
Death before retirement - annuity	(1)					1
Death of annuitant - survivor benefit due				(15)	(3)	28
Death of annuitant - no further benefits due				(11)	(3)	(20)
New Entrants	100					
Transfers to Other Member Group	(4)					
Transfers from Other Member Group	7					
Reemployments	3		(2)	(1)		
Data adjustments and corrections			4	5		
Participants 6/30/2021	1,709	27	71	1,381	121	314

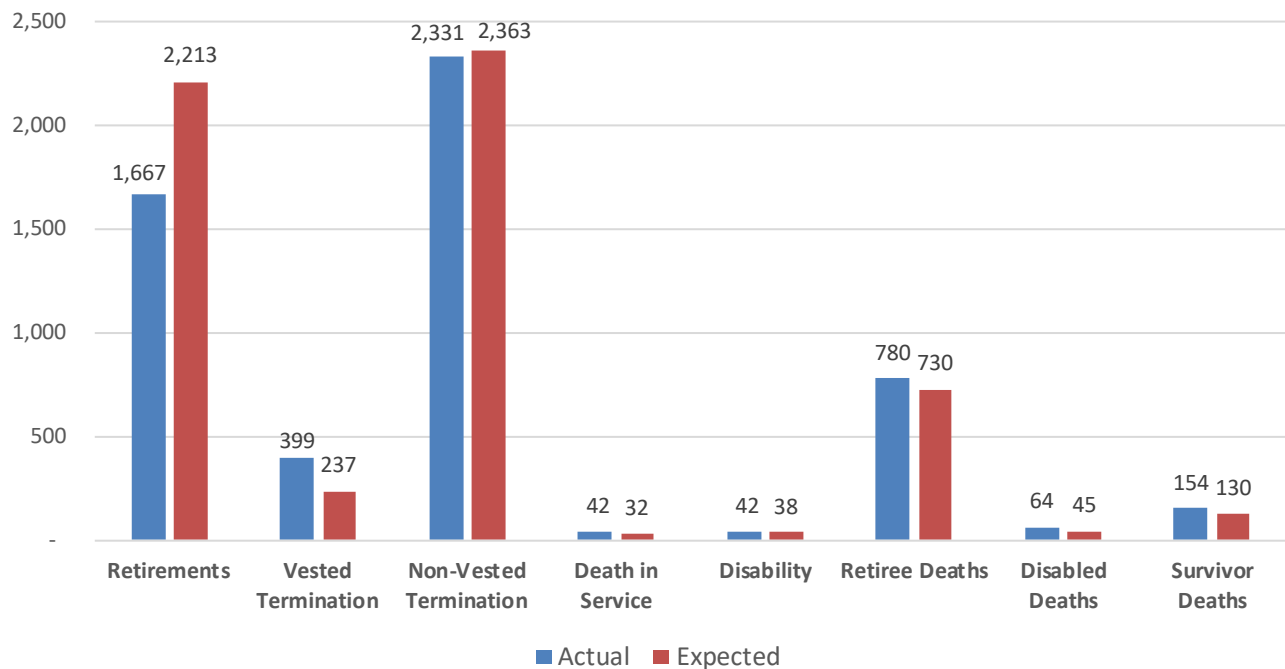
### Actual vs. Expected Decrements - Fire



## Reconciliation of Member Record Counts – NHRS Total

	Inactive, Nonretired Members			Annuitants		
	Active Members	Vested	Non Vested	Service Retirees	Disabled Retirees	Survivors
Participants 6/30/2020	48,479	2,661	13,760	34,683	1,637	3,292
Terminations - Refund paid	(605)	(35)	(288)			
Terminations - Refund due	(1,726)		1,726			
Vested Termination	(399)	399				
Retirement	(1,667)	(205)		1,928	5	
Disability	(42)				42	
Death before retirement - refund	(32)	(3)	(3)			
Death before retirement - annuity	(10)					10
Death of annuitant - survivor benefit due				(207)	(20)	255
Death of annuitant - no further benefits due				(573)	(44)	(154)
New Entrants	4,142					
Reemployments	442	(95)	(334)	(13)		
Data adjustments and corrections		8	85	78	21	34
Participants 6/30/2021	<b>48,582</b>	<b>2,730</b>	<b>14,946</b>	<b>35,896</b>	<b>1,641</b>	<b>3,437</b>

### Actual vs. Expected Decrements - NHRS Total





## Historical Member Data – Actives

### Employees

Fiscal Year	Active Members		Valuation Payroll		Average Salary		Average Age	Average Service
	Number	Percent Change	Amount in \$ Thousands	Percent Change	\$ Amount	Percent Change		
2021	24,558	-0.2%	\$ 1,300,926	2.1%	\$ 52,974	2.2%	48.9	10.7
2020	24,602	-0.2%	1,274,597	2.4%	51,809	2.6%	49.0	10.8
2019	24,654	0.6%	1,244,930	3.3%	50,496	2.7%	49.0	10.8
2018	24,511	0.1%	1,205,121	2.2%	49,167	2.0%	49.1	11.0
2017	24,478	-0.2%	1,179,518	3.8%	48,187	4.0%	49.2	11.1
2016	24,520	0.9%	1,136,451	0.8%	46,348	-0.1%	49.2	11.2
2015	24,298	-1.0%	1,127,766	3.6%	46,414	4.7%	49.2	11.2
2014	24,545	-1.1%	1,088,508	0.9%	44,347	1.9%	49.2	11.2
2013	24,809	0.3%	1,079,245	0.2%	43,502	0.0%		
2012	24,747	-3.1%	1,076,831	-3.3%	43,514	-0.2%		
2011	25,539	-1.7%	1,113,867	1.9%	43,614	3.7%		
2010	25,987	-1.4%	1,093,147	1.3%	42,065	2.7%		
2009	26,352	-0.6%	1,079,157	6.8%	40,952	7.5%		
2008	26,507	0.1%	1,010,032	7.2%	38,104	7.1%		
2007	26,474	0.2%	942,319	7.2%	35,594	6.9%		
2005	26,414	0.2%	879,419	10.2%	33,294	10.0%		
2003	26,371	8.0%	798,241	18.0%	30,270	9.2%		
2001	24,413	8.4%	676,536	15.0%	27,712	6.1%		
1999	22,519	5.7%	588,290	9.8%	26,124	3.9%		
1997	21,307	2.8%	535,936	1.6%	25,153	-1.3%		

### Teachers

Fiscal Year	Active Members		Valuation Payroll		Average Salary		Average Age	Average Service
	Number	Percent Change	Amount in \$ Thousands	Percent Change	\$ Amount	Percent Change		
2021	18,131	1.2%	\$ 1,198,236	3.2%	\$ 66,088	2.0%	45.6	13.2
2020	17,917	1.1%	1,160,884	2.2%	64,792	1.2%	45.8	13.3
2019	17,730	-0.1%	1,135,607	1.7%	64,050	1.9%	46.0	13.4
2018	17,752	0.8%	1,116,218	4.0%	62,878	3.2%	46.0	13.4
2017	17,617	-0.9%	1,073,447	0.7%	60,932	1.7%	46.1	13.5
2016	17,784	0.3%	1,065,621	1.4%	59,920	1.1%	46.2	13.5
2015	17,732	-1.4%	1,050,447	1.6%	59,240	3.1%	46.3	13.4
2014	17,986	-0.5%	1,033,867	-0.6%	57,482	0.0%	46.3	13.4
2013	18,084	-0.4%	1,039,933	0.3%	57,506	0.7%		
2012	18,161	-1.7%	1,036,605	0.0%	57,079	1.7%		
2011	18,466	-0.7%	1,036,376	1.5%	56,123	2.3%		
2010	18,603	-0.6%	1,020,745	1.7%	54,870	2.3%		
2009	18,709	1.1%	1,003,514	4.9%	53,638	3.7%		
2008	18,509	0.2%	957,068	3.8%	51,708	3.6%		
2007	18,477	0.0%	922,308	8.3%	49,917	8.3%		
2005	18,474	-1.3%	851,664	6.5%	46,101	7.9%		
2003	18,710	5.6%	799,544	14.2%	42,734	8.1%		
2001	17,718	10.5%	700,361	14.9%	39,528	4.0%		
1999	16,034	6.5%	609,275	9.9%	37,999	3.3%		
1997	15,062	4.5%	554,208	7.7%	36,795	3.1%		

## Historical Member Data – Actives

### Police

Fiscal Year	Active Members		Valuation Payroll		Average Salary		Average Age	Average Service
	Number	Percent Change	Amount in \$ Thousands	Percent Change	\$ Amount	Percent Change		
2021	4,184	-1.7%	\$ 327,342	1.3%	\$ 78,237	3.1%	38.8	10.6
2020	4,256	0.9%	322,994	3.2%	75,891	2.2%	39.0	10.8
2019	4,216	0.5%	313,016	3.6%	74,245	3.1%	38.9	10.8
2018	4,197	1.1%	302,199	3.8%	72,004	2.7%	38.9	10.8
2017	4,151	0.3%	291,004	3.7%	70,104	3.4%	39.1	11.0
2016	4,139	-0.8%	280,577	0.4%	67,789	1.2%	39.2	11.0
2015	4,174	0.2%	279,555	3.3%	66,975	3.1%	39.2	10.9
2014	4,166	-0.5%	270,497	1.4%	64,930	1.9%	39.3	11.1
2013	4,187	1.7%	266,775	1.9%	63,715	0.2%		
2012	4,118	-0.3%	261,865	0.9%	63,590	1.2%		
2011	4,130	-2.4%	259,509	0.4%	62,835	2.9%		
2010	4,231	-2.0%	258,472	0.2%	61,090	2.3%		
2009	4,318	-0.3%	257,934	5.6%	59,735	5.9%		
2008	4,332	1.6%	244,314	4.7%	56,398	3.0%		
2007	4,263	-6.8%	233,348	5.4%	54,738	13.0%		
2005	4,573	6.2%	221,456	13.0%	48,427	6.4%		
2003	4,305	4.4%	196,022	14.3%	45,534	9.5%		
2001	4,124	14.6%	171,489	24.3%	41,583	8.5%		
1999	3,600	6.1%	137,981	10.7%	38,328	4.3%		
1997	3,393	4.3%	124,669	8.4%	36,743	4.0%		

### Fire

Fiscal Year	Active Members		Valuation Payroll		Average Salary		Average Age	Average Service
	Number	Percent Change	Amount in \$ Thousands	Percent Change	\$ Amount	Percent Change		
2021	1,709	0.3%	\$ 146,464	7.5%	\$ 85,702	7.2%	41.1	12.8
2020	1,704	0.9%	136,234	3.6%	79,949	2.7%	41.3	13.1
2019	1,688	1.6%	131,453	2.1%	77,875	0.5%	41.3	13.1
2018	1,661	1.3%	128,697	4.1%	77,481	2.8%	41.4	13.2
2017	1,640	0.9%	123,643	4.1%	75,392	3.2%	41.3	13.2
2016	1,626	1.1%	118,754	1.3%	73,034	0.1%	41.4	13.2
2015	1,608	-0.1%	117,263	1.9%	72,925	2.1%	41.3	13.2
2014	1,610	0.1%	115,027	-0.7%	71,445	-0.8%	41.5	13.3
2013	1,608	0.6%	115,788	3.0%	72,007	2.4%		
2012	1,599	-0.2%	112,456	4.1%	70,329	4.4%		
2011	1,603	-2.6%	108,028	-0.9%	67,391	1.7%		
2010	1,646	-0.4%	109,020	1.2%	66,233	1.7%		
2009	1,653	0.8%	107,682	11.1%	65,144	10.2%		
2008	1,640	3.3%	96,907	-0.5%	59,090	-3.6%		
2007	1,588	-0.7%	97,365	7.0%	61,313	7.7%		
2005	1,599	4.9%	91,029	15.1%	56,929	9.7%		
2003	1,524	6.4%	79,072	17.2%	51,885	10.2%		
2001	1,433	7.0%	67,485	16.2%	47,094	8.6%		
1999	1,339	3.9%	58,081	10.6%	43,376	6.5%		
1997	1,289	0.0%	52,500	4.7%	40,729	4.7%		

## Historical Member Data – Benefit Recipients

Year Ending June 30,	Employees		Teachers		Police		Fire	
	Number of Recipients	Average Monthly Benefit	Number of Recipients	Average Monthly Benefit	Number of Recipients	Average Monthly Benefit	Number of Recipients	Average Monthly Benefit
2021	20,046	\$ 1,214	14,685	\$ 1,894	4,427	\$ 3,183	1,816	\$ 3,579
2020	19,434	1,184	14,198	1,872	4,227	3,113	1,753	3,447
2019	18,824	1,165	13,740	1,853	4,082	3,076	1,706	3,384
2018	18,193	1,141	13,223	1,836	3,923	3,027	1,673	3,314
2017	17,573	1,121	12,696	1,817	3,786	2,992	1,639	3,253
2016	16,142	1,152	11,410	1,928	3,629	2,978	1,595	3,213
2015	15,483	1,122	10,859	1,913	3,457	2,917	1,551	3,130
2014	15,314	1,078	10,965	1,783	3,282	2,930	1,493	3,047
2013	14,712	1,063	10,407	1,780	3,163	2,905	1,447	3,050
2012	14,141	1,049	9,956	1,777	2,981	2,894	1,376	3,038
2011	13,487	1,040	9,427	1,777	2,880	2,823	1,336	2,967

## Historical Retirement System Cash Flows

June 30	Contributions <sup>1</sup>	Expenditures					External Cash Flow for the Year <sup>3</sup>	Market Value of Assets	External Cash Flow as a Percent of Market Value
		Benefit Payments	Refunds	Administrative Expenses	Other <sup>2</sup>	Total			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2021	\$696,156,378	\$ (858,210,462)	\$ (19,883,792)	\$ (8,417,146)	\$ (790,708)	\$ (887,302,108)	\$ (191,145,730)	\$ 11,523,879,340	(1.7)%
2020	674,747,435	(816,708,118)	(23,312,151)	(8,281,785)	(892,659)	(849,194,713)	(174,447,278)	9,097,364,441	(1.9)%
2019	658,402,312	(780,906,714)	(23,464,493)	(7,436,447)	(958,942)	(812,766,596)	(154,364,284)	9,170,772,530	(1.7)%
2018	640,230,909	(741,752,669)	(24,010,459)	(7,767,254)	(911,824)	(774,442,206)	(134,211,297)	8,836,866,976	(1.5)%
2017	579,713,841	(706,303,846)	(23,408,460)	(7,670,827)	(1,254,518)	(738,637,651)	(158,923,810)	8,253,987,979	(1.9)%
2016	565,431,123	(670,359,868)	(24,233,277)	(7,061,317)	(1,263,550)	(702,918,012)	(137,486,889)	7,434,317,371	(1.8)%
2015	536,357,394	(631,310,997)	(26,344,739)	(7,581,315)	(1,626,866)	(666,863,917)	(130,506,523)	7,509,926,452	(1.7)%
2014	527,477,252	(599,475,606)	(26,119,759)	(7,376,270)	(1,446,882)	(634,418,517)	(106,941,265)	7,390,628,021	(1.4)%
2013	446,324,216	(573,470,316)	(23,190,984)	(6,998,526)	(1,804,939)	(605,464,765)	(159,140,549)	6,404,983,965	(2.5)%

<sup>1</sup> Column (2) includes employee and employer contributions.

<sup>2</sup> Includes other custodial, professional and non-investment expenses, and contributions other than for contribution effort.

<sup>3</sup> Column (8) = Column (2) + Column (7)

Based on financial statements provided to the actuary by NHRS staff.



## Historical Rates of Investment Return

Plan Year Ending June 30 of	Market*	Actuarial
2012	0.33%	3.22%
2013	14.38%	7.12%
2014	17.23%	12.28%
2015	3.41%	10.72%
2016	0.83%	6.83%
2017	13.31%	9.11%
2018	8.77%	8.40%
2019	5.58%	6.55%
2020	1.12%	5.54%
2021	29.08%	10.82%

### Average Returns

Last 5 Years	11.18%	8.07%
Last 10 Years	9.07%	8.03%

\* Annual market rate of return calculated by the actuary is determined on a simplified money-weighted basis, using market value of assets at beginning and end of year and reported cashflows during the year. The rates of return shown above will differ from calculations of investment return on a time-weighted basis, and may differ slightly from rates of return calculated on a dollar-weighted basis by investment professionals.

## Historical Rates of Investment Return (Market vs. Actuarial)

