



State Teachers Retirement System of Ohio Retiree Health Care Benefits Plan

Actuarial Valuation and GASB 74 and 75 Report as of June 30, 2021

**Produced by Cheiron
October 2021**

TABLE OF CONTENTS

<i>Section</i>		<i>Page</i>
Section I	Valuation Summary	1
Section II	GASB 74 and 75 Summary.....	10
Section III	Certification	12
Section IV	Determination of Discount Rate	14
Section V	GASB 74 Reporting Information.....	15
Section VI	GASB 75 Reporting Information.....	19
 <i>Appendices</i>		
Appendix A	Membership Information	24
Appendix B	Actuarial Assumptions and Methods	26
Appendix C	Summary of Plan Provisions.....	37
Appendix D	Glossary of Terms.....	41
Appendix E	Supporting Schedules.....	45

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION I – VALUATION SUMMARY

The State Teachers Retirement System of Ohio has engaged Cheiron to provide an analysis of its post-employment benefit liabilities as of June 30, 2021. The primary purposes of performing this actuarial valuation are to:

- Estimate the Actuarially Determined Contribution (ADC) and the Net OPEB Liability (NOL) of the retiree health benefits using GASB 74 and 75 methodology under the current funding strategy,
- Provide disclosures for financial statements, and
- Provide projections for ADC, Net OPEB Liability (NOL), and Actuarial Liabilities.

We have determined costs, liabilities, and trends for the substantive plan using actuarial assumptions and methods that we consider reasonable.

GASB’s OPEB Requirements

GASB’s Statement 74 refers to the financial reporting for post-employment benefit plans other than pension plans, and Statement 75 refers to the employer accounting for these plans. Statement 74 is generally applicable where an entity has a separate trust or fund for OPEB benefits. We understand that the State Teachers Retirement System of Ohio (STRS Ohio) has a trust used to fund future OPEB obligations. The GASB No. 74 Statements are effective for the plan year ending June 30, 2017. The GASB 74 and 75 valuation sections are provided below.

Statement 75, which was adopted in the Fiscal Year Ending (FYE) June 30, 2018, requires the employer to book the actuarial cost (net of employee, retiree, and their dependents’ contributions) of the Plan as an expense on its financial statements. Additional disclosures required by GASB 74 and 75 include a description of the substantive plan, summary of significant accounting policies (which we have not included in this report), contributions, and a statement of funding progress, along with the methods and assumptions used for these disclosures.

Funding Policy

The State Teachers Retirement System of Ohio has a funding policy to contribute to the Actuarially Determined Contribution (ADC). For this purpose, the ADC is calculated as the Normal Cost determined under the Entry Age Normal actuarial cost method, plus the amortization of the Unfunded Actuarial Liability over a 30-year open level percent of pay, plus anticipated administrative expenses. Currently, the ADC is negative and is projected to remain negative, thus the employer is not expected to make any future contributions to the Health Fund.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION I – VALUATION SUMMARY

Table I-1 below summarizes the June 30, 2021 and June 30, 2020 actuarial valuation results.

Table I-1 Summary of Key Valuation Results		
Valuation Date	June 30, 2021	June 30, 2020
Discount Rate	7.00%	7.45%
Actuarial Liability		
Current retirees, beneficiaries, and dependents	\$ 1,680,827,181	\$ 1,206,850,616
Current active members	1,137,504,841	930,667,673
Terminated members entitled but not yet eligible	2,989,499	2,278,569
Total Actuarial Liability	\$ 2,821,321,521	\$ 2,139,796,858
Health care fund assets	4,929,739,778	3,897,296,153
Unfunded actuarial liability (UAL)	\$ (2,108,418,257)	\$ (1,757,499,295)
Funded Ratio	174.73%	182.13%

The Total Actuarial Liability increased from \$2.14 billion under the prior valuation to \$2.82 billion under this valuation. In addition to the expected increase in liability of \$ 11.02 million due to normal cost, benefit payments, and interest, the Plan experienced other changes in liability attributable to \$556.99 million increase due to benefit changes, \$16.54 million decrease due to population changes, and a \$130.04 million decrease due to changes in assumptions and benefits. A description on these changes are listed below on page 4 and in Appendix B and C.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION I – VALUATION SUMMARY

The Actuarially Determined Contribution (ADC), calculated in Table I-2 below, is the recommended contribution to the Retiree Health Care Plan for the reporting period, determined in conformity with Actuarial Standards of Practice. The State Teachers Retirement System of Ohio has elected to define the ADC in a manner consistent with the annual required contribution under the previous GASB 43 accounting rules. The ADC calculation consists of adding the Normal Cost of the Plan to the amortization of the Unfunded Liability. The Normal Cost and Actuarial Liability are determined using a 7.00% discount rate for June 30, 2021 and 7.45% for June 30, 2020, and the Unfunded Liability (if any) is amortized using an open 30-year amortization period calculated as a level percent of payroll. The ADC for June 30, 2021 and June 30, 2020 was calculated to be zero due to the Plan being over 100% funded.

Table I-2		
Calculation of Actuarially Determined Contribution (ADC)		
(\$ thousands)		
For Fiscal Year Ending	June 30, 2022	June 30, 2021
Normal cost	\$38,323	\$30,123
Amortization of UAL	(115,700)	(105,149)
Interest adjustment	(5,416)	(5,589)
Total ADC (not less than \$0)	\$0	\$0
Projected payroll	\$ 12,202,078	\$ 11,921,722
ADC as a percentage of pay	0.00%	0.00%
Expected/Actual Net Benefit Payments	\$ 177,743	\$ 86,913

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION I – VALUATION SUMMARY

Table I-3 shows a reconciliation of the Actuarial Liability from the prior valuation to this valuation.

Table I-3 Reconciliation of Actuarial Liability (\$ thousands)		
Actuarial Liability at June 30, 2020	\$	2,139,797
Normal Cost + Retiree Contributions		284,137
Gross Benefits paid throughout the year		(437,404)
Interest		164,290
Expected Actuarial Liability at June 30, 2021	\$	2,150,820
Actuarial Liability at June 30, 2021		2,821,321
Gain or (Loss)	\$	(670,501)
Gain or (Loss) due to:		
Benefit changes	\$	(556,994)
Census changes		16,537
Change in claims, trend and discount assumptions		(130,044)
Total changes	\$	(670,501)

Benefit changes: refers to the change in the 2022 subsidy percentage and the base amount for Non-Medicare participants, from 2.055% per year to 2.1% per year, max 30 years. Medicare medical cost decreased 16%, whereas the Medicare net pharmacy cost increased 30%, while the actual premium charged retirees dropped 16%.

Census changes: refers to the change in population and how it impacts the valuation results. The updated census with trended claims provided a gain to the Plan.

Change in claims, trends and discount assumptions: refers to the change in claim curves, trend and discount assumptions. The discount rate was lowered from 7.45% to 7.0% for this valuation year. The change in discount rate increased the liabilities.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION I – VALUATION SUMMARY

Table I-4 below summarizes the assets for the OPEB Trust as of June 30, 2021 and June 30, 2020. The actual return on assets for the period ending June 30, 2021 was 29.05%, which was more than the assumed rate of 7.45%.

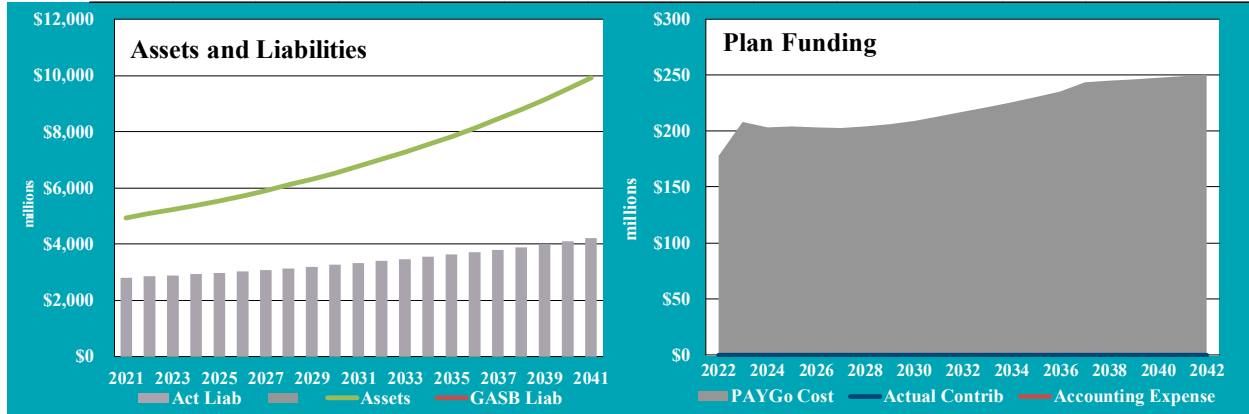
Table I-4 Reconciliation of OPEB Assets		
Fiscal Year Ending	June 30, 2021	June 30, 2020
Additions		
Contributions received		
Employer	\$ 0	\$ 0
Government reimbursements	96,477,619	81,876,139
Benefit recipient healthcare premiums	<u>254,013,632</u>	<u>295,778,835</u>
Total contributions	\$ 350,491,251	\$ 377,654,973
Net investment income	<u>1,121,700,000</u>	<u>140,300,000</u>
Total Additions	\$ 1,472,191,251	\$ 517,954,973
Deductions		
Benefit Payments	\$ 437,403,980	\$ 490,559,232
Administrative expense	2,343,646	2,257,277
Other	<u>0</u>	<u>0</u>
Total Deductions	\$ 439,747,626	\$ 492,816,509
Net increase in net position	\$ 1,032,443,625	\$ 25,138,464
Net position restricted to OPEB		
Beginning of Year	\$ 3,897,296,153	\$ 3,872,157,689
End of Year	\$ 4,929,739,778	\$ 3,897,296,153
Asset return for the year	29.05%	3.62%

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION I – VALUATION SUMMARY

Projected Trends – Asset Return 7.00%

Looking beyond 2021, the charts below project the assets and liabilities and the funding costs for the next 20 years. The projection below assumes the Plan contributes the ADC (Normal Cost plus the amortization of the Unfunded Liability) when the amount is greater than \$0. The projection also assumes the Plan earns 7.00% return over the entire period.



The left-hand chart shows the projected Actuarial Liability (grey bars) increasing from \$2.8 billion to over \$4.2 billion over the next 20 years. The red line on the same chart projects the GASB liability (i.e., the figure that appears on the employer’s financial statements). As of June 30, 2021, the Net OPEB Liability (NOL) is currently less than \$0 and is projected to remain less than \$0 over the next 20 years. The green line projects the assets in the Plan increasing from \$4.90 billion to approximately \$9.9 billion. The funding percentage is expected to grow from 175% to 236% over the next 20 years.

The right-hand chart shows the annual costs. Benefit payments, net of retiree contributions, are shown by the grey area and are projected from \$178 million to \$250 million over the 20 year period. The blue line represents the System’s assumed contributions to the Trust, the Actuarially Determined Contributions (ADC). Currently, the ADC is zero and projected to remain at zero over the next 20 years, thus not shown in the graph above. The accounting expense is the change in the Unfunded Liability plus the change in deferred outflows/inflows plus the employer contributions. The accounting expense, shown by the red line, is projected to remain below zero, thus not shown in the graph above, over the next 20 years.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

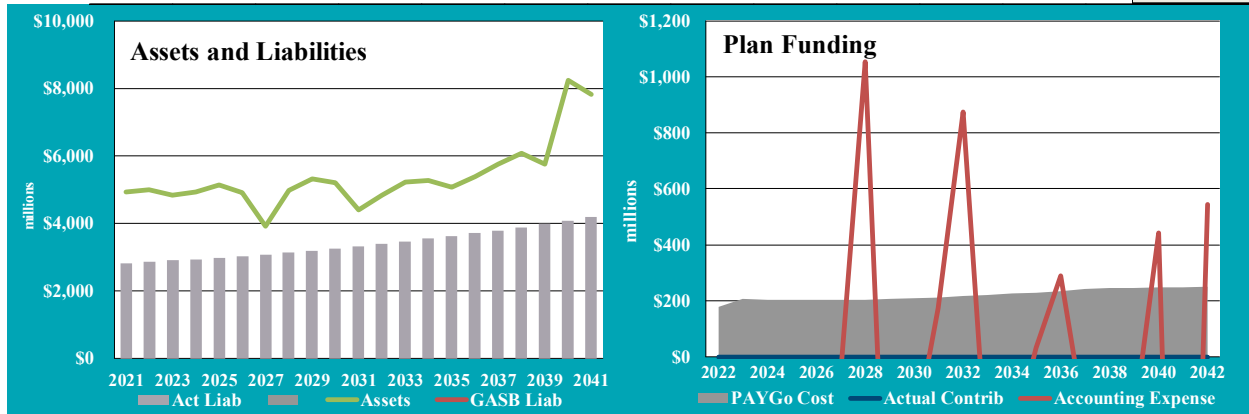
SECTION I – VALUATION SUMMARY

Projected Trends – Variable Asset Returns

The charts below show the expected assets and liabilities for the next 20 years should the fund earn returns that follow those from 1963 to 1983, with 60% invested in equities and 40% in fixed income. The average expected return over the 20-year period is 6.75%.

The assumed returns are:

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Average Return
Fiscal Year Ending	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2021-2030
Expected Return	5.17%	1.21%	6.25%	8.39%	-0.21%	-16.34%	32.62%	11.39%	1.97%	-11.59%	3.14%
Fiscal Year Ending	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2031-2040
Expected Return	15.64%	12.79%	5.30%	0.45%	11.31%	11.81%	10.22%	-1.52%	48.70%	-2.14%	10.49%
											2021-2040
											6.75%



The left-hand chart shows the projected Actuarial Liability (grey bars) increasing from \$2.8 billion to almost \$4.2 billion over the next 20 years. The red line on the same chart projects the GASB liability (i.e., the figure that appears on the employer’s financial statements). As of June 30, 2021, the Net OPEB Liability (NOL) is currently less than \$0 and is projected to remain less than \$0 over the next 20 years. The green line projects the assets in the Plan increasing from \$4.90 billion to approximately \$7.8 billion. The funding percentage is expected to jump around starting at 175% and ending at 186% over the next 20 years.

The right-hand chart shows the annual costs. Benefit payments, net of retiree contributions, are shown by the grey area and are projected from \$178 million to \$250 million. The blue line represents the System’s assumed contributions to the Trust, the Actuarially Determined Contributions (ADC). Currently, the ADC is zero and projected to remain at zero over the next 20 years, thus not shown in the graph above. The accounting expense is the change in the unfunded liability plus the change in deferred outflows/inflows plus the employer contributions. The accounting expense, shown by the red line, is projected to become very volatile due to the investment gains and losses, thus the red spikes.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION I – VALUATION SUMMARY

Table I-5 below summarizes the expected fiduciary net position and total expected net benefit payments for the next 30 years. The projection below is used to determine the discount rate assuming the STRS Ohio continues to not make contributions to the Health Fund assets. Based on these assumptions, the OPEB Plan’s Fiduciary Net Position is projected to be available to make all projected future benefit payments of current Plan members.

Table I-5 Expected Fiduciary Net Position and Net Benefit Payments (\$ thousands)								
Fiscal Year Ending	Projected Beginning Fiduciary Net Position	Projected Contributions	Projected Net Benefits Retirees	Projected Net Benefits Future Retirees	Projected Total Net Benefits	Projected Administrative Expenses	Projected Investment Earnings	Projected Ending Fiduciary Net Position
June 30	(a)	(b)	(c)	(d)	(e) = (c) + (d)	(f)	(g)	(h) = (a) + (b) - (e) - (f) + (g)
2021	\$ 3,897,296				\$ 86,913	\$ 2,344	\$ 1,121,700	\$ 4,929,740
2022	\$ 4,929,740	\$ 0	\$ 166,549	\$ 11,194	\$ 177,743	\$ 2,414	\$ 338,883	\$ 5,088,466
2023	5,088,466	0	184,427	23,497	207,924	2,486	348,953	5,227,009
2024	5,227,009	0	171,433	32,017	203,450	2,561	358,802	5,379,800
2025	5,379,800	0	163,160	40,615	203,775	2,638	369,484	5,542,871
2026	5,542,871	0	153,975	49,004	202,979	2,717	380,923	5,718,098
2027	5,718,098	0	145,303	57,422	202,725	2,799	393,195	5,905,769
2028	5,905,769	0	137,939	65,890	203,829	2,883	406,291	6,105,348
2029	6,105,348	0	131,728	74,189	205,917	2,969	420,187	6,316,649
2030	6,316,649	0	126,766	82,328	209,094	3,058	434,866	6,539,363
2031	6,539,363	0	122,901	89,840	212,741	3,150	450,327	6,773,799
2032	6,773,799	0	120,262	96,553	216,815	3,245	466,594	7,020,333
2033	7,020,333	0	118,650	102,284	220,934	3,342	483,706	7,279,763
2034	7,279,763	0	117,451	107,838	225,289	3,442	501,713	7,552,745
2035	7,552,745	0	116,747	113,293	230,040	3,545	520,655	7,839,815
2036	7,839,815	0	116,447	118,535	234,982	3,651	540,576	8,141,758
2037	8,141,758	0	116,454	126,832	243,286	3,761	561,423	8,456,134
2038	8,456,134	0	111,518	133,154	244,672	3,874	583,377	8,790,965
2039	8,790,965	0	106,271	140,154	246,425	3,990	606,751	9,147,301
2040	9,147,301	0	100,728	146,826	247,554	4,110	631,652	9,527,289
2041	9,527,289	0	94,965	154,208	249,173	4,233	658,191	9,932,074
2042	9,932,074	0	89,035	161,247	250,282	4,360	686,483	10,363,915
2043	10,363,915	0	83,003	167,476	250,479	4,491	716,701	10,825,646
2044	10,825,646	0	76,927	174,195	251,122	4,626	748,995	11,318,893
2045	11,318,893	0	70,858	181,232	252,090	4,765	783,485	11,845,523
2046	11,845,523	0	64,860	189,067	253,927	4,908	820,281	12,406,969
2047	12,406,969	0	58,986	197,180	256,166	5,055	859,500	13,005,248
2048	13,005,248	0	53,284	205,024	258,308	5,207	901,300	13,643,033
2049	13,643,033	0	47,802	213,584	261,386	5,363	945,834	14,322,118
2050	14,322,118	0	42,568	222,409	264,977	5,524	993,241	15,044,858
2051	15,044,858	0	37,632	231,300	268,932	5,690	1,043,691	15,813,927

The expected return on the fiduciary net position is assumed to remain at 7.00%. The projected administrative expenses are assumed to grow at 3%.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION I – VALUATION SUMMARY

Table I-6 below summarizes the expected net benefits payments (open group projection), assets, and Actuarial Liability. The expected ADC is determined to be zero over the entire period. The Plan is expected to remain over-funded during the entire period.

Table I-6 Expected Net Benefits, Assets, AL and ADC Current Funding Policy (\$ thousands)					
Valuation Date as of June 30,	Expected Net Benefit Payments & Administrative Expenses	Expected Actuarial Value of Assets	Expected Actuarial Liability	Fiscal Year Ending June 30,	Expected ADC Amount
2021	180,158	4,929,740	2,821,547	2022	0
2022	210,409	5,088,466	2,874,410	2023	0
2023	206,010	5,227,008	2,903,580	2024	0
2024	206,414	5,379,800	2,941,150	2025	0
2025	205,695	5,542,870	2,982,800	2026	0
2026	205,524	5,718,098	3,030,060	2027	0
2027	206,711	5,905,769	3,082,790	2028	0
2028	208,886	6,105,350	3,140,050	2029	0
2029	212,151	6,316,650	3,201,190	2030	0
2030	215,891	6,539,365	3,265,450	2031	0
2031	220,059	6,773,801	3,332,620	2032	0
2032	224,276	7,020,336	3,402,530	2033	0
2033	228,731	7,279,766	3,475,420	2034	0
2034	233,585	7,552,749	3,551,330	2035	0
2035	238,632	7,839,819	3,630,150	2036	0

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION II –GASB 74 AND 75 SUMMARY

The purpose of the remainder of this report is to provide accounting and financial disclosure information under the Governmental Accounting Standards Board (GASB) Statement No. 74 and 75 for the Other Postemployment Benefits Plan provided by the State Teachers Retirement System of Ohio. This information includes:

- Determination of the discount rate as of June 30, 2021,
- Sensitivity of the Net OPEB Liability to changes in discount rates and health care cost trend rates,
- Note disclosures and required supplementary information under GASB 74 for the Plan, and
- Note disclosures and required supplementary information under GASB 75 for the collective employers.

Highlights

The OPEB Plan is currently funded in an OPEB trust. As a result, this report also contains disclosures required by GASB 74. The measurement date is June 30, 2021, which is used for the Plan’s GASB 74 reporting. The employer’s GASB 75 reporting as of June 30, 2021, is based on the June 30, 2020 measurement date. Measurements are based on the Total OPEB Liability and the fair value of assets as of June 30, 2021.

Table II-1 provides a summary of the key GASB 74/75 results during this measurement period.

Table II-1 Summary of Key Results		
Reporting Date under GASB 75	6/30/2022	6/30/2021
Reporting Date under GASB 74	6/30/2021	6/30/2020
Measurement Date under GASB 74 and 75	6/30/2021	6/30/2020
Net OPEB Liability	\$ (2,108,419)	\$ (1,757,498)
Deferred Outflows	209,751	203,217
Deferred Inflows	<u>2,228,542</u>	<u>2,019,396</u>
Net Impact on Statement of Net Position	\$ (89,628)	\$ 58,681
OPEB Expense (\$ Amount)	\$ (148,309)	\$ (104,275)
OPEB Expense (% of Payroll)	(1.28%)	(0.92%)

Amounts in Thousands

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION II –GASB 74 AND 75 SUMMARY

At the June 30, 2021 reporting date, the System will report a Net OPEB Liability (NOL) of (\$2,108.4) million, deferred outflows of resources of \$209.8 million, and Deferred Inflows of Resources of \$2,228.5 million related to the Plan. Consequently, the net impact on the System's statement of net position due to the Plan would be (\$89.6) million $[(\$89.6) = (\$2,108.4) - \$209.8 + \$2,228.5]$. In addition, any contributions between the measurement date and the reporting date would be reported as deferred outflows of resources to offset the cash outflows reported.

The NOL decreased by approximately \$350.9 million during the measurement period. Changes in NOL due to Plan changes are recognized immediately. Change in NOL due to actuarial gains and losses as well as assumption changes is recognized over the average remaining service life, determined at the beginning of each measurement period, which is seven years as of both the current and prior measurement period for the Plan. The change in NOL due to investment gains and losses is recognized in OPEB expense over five years, beginning in the year of occurrence. Unrecognized amounts are reported as deferred outflows of resources and Deferred Inflows of Resources.

For the reporting year ending June 30, 2021, the annual OPEB expense is (\$148.3) million or (1.28%) of covered-employee payroll. This amount reflects the employer's contributions to the Plan during the measurement period, \$0.0 million, plus the change in the net impact on the System's statement of net position $[(\$148.3) = \$0.0 + (\$89.6) - \$58.7]$. Volatility in OPEB expense from year to year is to be expected. A breakdown of the components of the net OPEB expense is shown in Section VI of this report.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION III – CERTIFICATION

This report presents the June 30, 2021 actuarial valuation and disclosure information under the Governmental Accounting Standards Board (GASB) Statement Nos. 74 and 75 for the Other Postemployment Benefits (OPEB) Plan provided by the State Teachers Retirement System of Ohio (STRS Ohio). This report is for the use of STRS Ohio and their auditors in preparing financial reports in accordance with applicable law and accounting requirements. This report is not appropriate for other purposes, including the measurement of funding requirements for the Plan.

The actuary prepared the following supporting schedules including the Financial and Actuarial Sections of the *Comprehensive Annual Financial Report*:

- Financial/Required Supplementary Information
 - Schedule of Changes in Employers' Net OPEB Liability
 - Schedule of Employers' Net OPEB Liability
 - Schedule of Employers' Contributions – OPEB
 - Notes to Required Supplementary Information - OPEB
 - Sensitivity of the Net OPEB Liability to the Discount Rate and Trend Rate Assumptions

- Actuarial
 - Health Care Solvency Test
 - Key methods and assumptions used in Health Care Actuarial Valuation
 - Summary of Membership Data

In preparing our report, we relied on information (some oral and some written) supplied by STRS Ohio. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

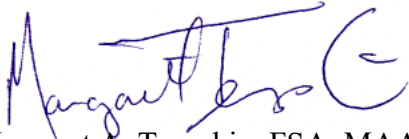
Future actuarial measurements may differ significantly from the current measurements due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, changes in healthcare assumptions, and changes in plan provisions or applicable law. This report does not contain any adjustment for the potential impact of COVID-19. We anticipate the virus will impact both mortality and claims in the short term, as well as potentially other demographic experience. However, the net impact is not determinable at this time.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION III – CERTIFICATION

This report was prepared for STRS Ohio for the purposes described herein and for the use by the auditors in completing an audit related to the matters herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any such other user.



Margaret A. Tempkin, FSA, MAAA, EA
Principal Consulting Actuary



Gaëlle Gravot, FSA, MAAA
Principal Consulting Actuary

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION IV – DETERMINATION OF DISCOUNT RATE

The discount rate as of June 30, 2021 is 7.00%, which is the assumed long-term expected rate of return on plan investments. Projections of the Plan's Fiduciary Net Position have indicated that it is expected to be sufficient to make projected benefit payments for current plan members following the procedures described in paragraphs 48-53 of GASB Statement 74. As such, the single rate of return, as required by the Statement, is equal to the long-term expected rate of return on the Plan's assets, which is 7.00%. The prior year's discount rate was 7.45% based on the assumed long-term expected rate of return on plan investments of 7.45%.

In developing the projection of cash flows used to determine the discount rate, we assumed that no employer contributions would go into the Health Fund. Projections indicate that all future net claims will be covered by current plan assets, and trust fund earnings on investments.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION V – GASB 74 REPORTING INFORMATION

Note Disclosures

The tables below show the changes in the Total OPEB Liability (TOL), the Plan Fiduciary Net Position (i.e., fair value of plan assets) (FNP), and the Net OPEB Liability (NOL) during the measurement period ending on June 30, 2021.

Table V - 1 Change in Net OPEB Liability			
	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability
Balances at 6/30/2020	\$ 2,139,798	\$ 3,897,296	\$ (1,757,498)
Changes for the year:			
Service cost BOY, including retired member contributions	284,137		284,137
Interest	167,884		167,884
Changes of benefits	556,994		556,994
Differences between expected and actual experience	(116,611)		(116,611)
Changes of assumptions	130,045		130,045
Contributions - employer		0	0
On behalf contributions		96,478	(96,478)
Contributions - retired members		254,014	(254,014)
Net investment income		1,121,700	(1,121,700)
Benefit payments	(340,926)	(437,404)	96,478
Administrative expense		(2,344)	2,344
Net changes	<u>681,523</u>	<u>1,032,444</u>	<u>(350,921)</u>
Balances at 6/30/2021	<u>\$ 2,821,321</u>	<u>\$ 4,929,740</u>	<u>\$ (2,108,419)</u>

Amounts in Thousands

During the measurement year, the NOL decreased by approximately \$0.35 billion. The service cost and interest cost increased the NOL by approximately \$0.45 billion, while contributions plus investment gains offset by administrative expenses decreased the NOL by approximately \$1.47 billion.

There were changes in benefits during the year, which increased the TOL by approximately \$0.56 billion. There were changes in assumptions during the measurement year, which decreased the TOL by approximately \$0.13 billion. The assumption changes included the change in discount rate. There was a liability gain of approximately \$0.12 billion during the year due to experience.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION V – GASB 74 REPORTING INFORMATION

Changes in the discount rate affect the measurement of the TOL. Lower discount rates produce a higher TOL, and higher discount rates produce a lower TOL. The table below shows the sensitivity of the NOL to the discount rate.

Table V - 2 Sensitivity of Net OPEB Liability to Changes in Discount Rate			
	1% Decrease 6.00%	Discount Rate 7.00%	1% Increase 8.00%
Total OPEB Liability	\$ 3,150,561	\$ 2,821,321	\$ 2,546,292
Plan Fiduciary Net Position	<u>4,929,740</u>	<u>4,929,740</u>	<u>4,929,740</u>
Net OPEB Liability	<u>\$ (1,779,179)</u>	<u>\$ (2,108,419)</u>	<u>\$ (2,383,448)</u>
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	156.5%	174.7%	193.6%

Amounts in Thousands

A one percent decrease in the discount rate increases the TOL by approximately 12% and increases the NOL by approximately 16%. A one percent increase in the discount rate decreases the TOL by approximately 10% and decreases the NOL by approximately 13%.

Changes in healthcare trends also affect the measurement of the TOL. Lower healthcare trends produce lower TOL, and higher healthcare trends produce a higher TOL. The table below shows the sensitivity of the NOL to healthcare trends.

Table V - 3 Sensitivity of Net OPEB Liability to Changes in Healthcare Cost Trend Rates			
	1% Decrease	Healthcare Trend	1% Increase
Total OPEB Liability	\$ 2,557,436	\$ 2,821,321	\$ 3,147,641
Plan Fiduciary Net Position	<u>4,929,740</u>	<u>4,929,740</u>	<u>4,929,740</u>
Net OPEB Liability	<u>\$ (2,372,304)</u>	<u>\$ (2,108,419)</u>	<u>\$ (1,782,099)</u>
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	192.8%	174.7%	156.6%

Amounts in Thousands

A one percent decrease in healthcare trends decreases the TOL by approximately 9% and decreases the NOL by approximately 13%. A one percent increase in healthcare trends increases the TOL by approximately 12% and increases the NOL by approximately 15%.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION V – GASB 74 REPORTING INFORMATION

Required Supplementary Information

The schedules of required supplementary information generally start with information as of the implementation of GASB 74 and eventually will build up to 10 years of information.

The schedules below show the changes in NOL and related ratios required by GASB.

Table V - 4 Schedule of Changes in Net OPEB Liability and Related Ratios					
	FYE 2021	FYE 2020	FYE 2019	FYE 2018	FYE 2017
Total OPEB Liability					
Service cost (BOY), including retired member contributions	\$ 284,137	\$ 324,526	\$ 338,776	\$ 633,316	\$ 225,094
Interest (includes interest on service cost)	167,884	174,040	164,544	320,157	277,562
Changes of benefit terms	556,994	428,480	53,985	(3,340,847)	(1,065,892)
Differences between expected and actual experience	(116,611)	(329,525)	(7,285)	(109,227)	262,764
Changes of assumptions	130,045	(264,958)	40,616	(2,248,888)	(366,671)
Benefit payments + expenses, including refunds of member contributions	(340,926)	(408,683)	(489,169)	(517,470)	(489,101)
Net change in total OPEB liability	\$ 681,523	\$ (76,120)	\$ 101,467	\$ (5,262,959)	\$ (1,156,244)
Total OPEB liability - beginning	2,139,798	2,215,918	2,114,451	7,377,410	8,533,654
Total OPEB liability - ending	\$ 2,821,321	\$ 2,139,798	\$ 2,215,918	\$ 2,114,451	\$ 7,377,410
Plan fiduciary net position					
Contributions - employer	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
On behalf contributions	96,478	81,876	84,789	107,197	79,357
Contributions - retired members	254,014	295,779	312,842	329,305	339,056
Net investment income	1,121,700	140,299	244,699	328,965	440,196
Benefit payments, including refunds of member contributions	(437,404)	(490,559)	(489,169)	(517,470)	(565,962)
Administrative expense	(2,344)	(2,257)	(2,352)	(2,427)	(2,496)
Net change in plan fiduciary net position	\$ 1,032,444	\$ 25,138	\$ 150,809	\$ 245,570	\$ 290,151
Plan fiduciary net position - beginning	3,897,296	3,872,158	3,721,349	3,475,779	3,185,628
Plan fiduciary net position - ending	\$ 4,929,740	\$ 3,897,296	\$ 3,872,158	\$ 3,721,349	\$ 3,475,779
Net OPEB liability - ending	\$ (2,108,419)	\$ (1,757,498)	\$ (1,656,240)	\$ (1,606,898)	\$ 3,901,631
Plan fiduciary net position as a percentage of the total OPEB liability	174.73%	182.13%	174.74%	176.00%	47.11%
Covered employee payroll	\$ 11,610,016	\$ 11,392,013	\$ 11,088,785	\$ 10,775,526	\$ 10,767,964
Net OPEB liability as a percentage of covered employee payroll	-18.16%	-15.43%	-14.94%	-14.91%	36.23%

Amounts in Thousands

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION V – GASB 74 REPORTING INFORMATION

We have provided the FYE 2017, 2018, 2019, 2020, and 2021 columns in the schedule of employer contributions below. An additional year will be added each year until a full ten-year history is shown in this schedule.

Table V - 5 Schedule of Employer Contributions					
	FYE 2021	FYE 2020	FYE 2019	FYE 2018	FYE 2017
Actuarially Determined Contribution (ADC)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 239,430
Actual Contribution related to ADC	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Contribution Deficiency/(Excess) relative to ADC	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 239,430</u>
Covered-Employee Payroll (Pay)	\$ 11,610,016	\$ 11,392,013	\$ 11,088,785	\$ 10,775,526	\$ 10,767,964
Actual Contributions as % of Pay	0.00%	0.00%	0.00%	0.00%	0.00%

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION VI – GASB 75 REPORTING INFORMATION

The schedules in this section provide the information the System needs to report under GASB 75. The impact of experience gains or losses and assumption changes on the TOL are recognized in the expense over the average expected remaining service life of all active and inactive members of the Plan. As of the measurement date, this recognition period was seven years.

The table below summarizes the current balances of deferred outflows and Deferred Inflows of Resources related to the Plan along with the net recognition over the next five years and the total recognition thereafter if any.

Table VI - 1		
Schedule of Deferred Inflows and Outflows of Resources as of June 30, 2021 Measurement Date		
	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 75,074	\$ 386,300
Changes in assumptions	134,677	1,257,825
Net difference between projected and actual earnings on OPEB plan investments	0	584,417
Total	<u>\$ 209,751</u>	<u>\$ 2,228,542</u>
Amounts reported as deferred outflows and deferred inflows of resources will be recognized in OPEB expense as follows:		
Year ended June 30:		
2022	(576,939)	
2023	(562,313)	
2024	(553,273)	
2025	(245,178)	
2026	(83,008)	
Thereafter	\$ 1,920	

Amounts in Thousands

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION VI – GASB 75 REPORTING INFORMATION

During the year, benefit changes increased the TOL by approximately \$557.0 million. Benefit changes are recognized immediately.

During the year, actual experience differed from assumed experience decreasing the TOL by approximately \$116.6 million. Approximately one-seventh of this was recognized in the current year, and an identical amount will be recognized in each of the next six years, resulting in a Deferred Outflow of Resources of approximately \$100.0 million. In addition, assumption changes (including a change in healthcare cost and trends) decreased the TOL by approximately \$130.0 million. Approximately \$18.6 million was recognized in the current year, and an identical amount will be recognized in each of the next six years, resulting in a deferred inflow of resources of approximately \$111.5 million.

The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment gain of \$834.7 million. Of that gain, \$166.9 million was recognized in the current year, and an identical amount will be recognized in each of the next four years, resulting in a deferred inflow of resources as of June 30, 2020 of \$667.7 million.

Please refer to table VI – 2 for the complete schedule of deferred inflows and deferred outflows of resources.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION VI – GASB 75 REPORTING INFORMATION

The table below shows the schedule of deferred inflows and outflows since inception of GAB 74/75.

Table VI - 2 Schedule of Deferred Inflows and Outflows of Resources as of June 30, 2021 Projected Fiscal Year End June 30, 2021 Measurement Date												
Recognition of Experience (Gains) and Losses												
Experience	Recognition	Total	BOY Remaining	EOY Remaining	Recognition Year							
Year	Period	Amount	Amount	Amount	2021	2022	2023	2024	2025	2026	2027	
2021	7.00	\$ (116,611)	\$ (116,611)	\$ (99,952)	\$ (16,659)	\$ (16,659)	\$ (16,659)	\$ (16,659)	\$ (16,659)	\$ (16,659)	\$ (16,657)	
2020	7.00	\$ (329,525)	\$ (282,450)	\$ (235,375)	\$ (47,075)	\$ (47,075)	\$ (47,075)	\$ (47,075)	\$ (47,075)	\$ (47,075)	-	
2019	7.00	\$ (7,285)	\$ (5,203)	\$ (4,162)	\$ (1,041)	\$ (1,041)	\$ (1,041)	\$ (1,041)	\$ (1,039)	-	-	
2018	7.00	\$ (109,227)	\$ (62,415)	\$ (46,811)	\$ (15,604)	\$ (15,604)	\$ (15,604)	\$ (15,603)	-	-	-	
2017*	7.00	\$ 262,764	\$ 112,612	\$ 75,074	\$ 37,538	\$ 37,538	\$ 37,536	-	-	-	-	
Recognition of liability gains and losses			\$ (354,067)	\$ (311,226)	\$ (42,841)	\$ (42,841)	\$ (42,843)	\$ (80,378)	\$ (64,773)	\$ (63,734)	\$ (16,657)	
Recognition of Assumption Changes												
Experience	Recognition	Total	BOY Remaining	EOY Remaining	Recognition Year							
Year	Period	Amount	Amount	Amount	2021	2022	2023	2024	2025	2026	2027	
2021	7.00	\$ 130,045	\$ 130,045	\$ 111,467	\$ 18,578	\$ 18,578	\$ 18,578	\$ 18,578	\$ 18,578	\$ 18,578	\$ 18,577	
2020	7.00	\$ (264,958)	\$ (227,107)	\$ (189,256)	\$ (37,851)	\$ (37,851)	\$ (37,851)	\$ (37,851)	\$ (37,851)	\$ (37,852)	-	
2019	7.00	\$ 40,616	\$ 29,012	\$ 23,210	\$ 5,802	\$ 5,802	\$ 5,802	\$ 5,802	\$ 5,804	-	-	
2018	7.00	\$ (2,248,888)	\$ (1,285,078)	\$ (963,808)	\$ (321,270)	\$ (321,270)	\$ (321,270)	\$ (321,268)	-	-	-	
2017*	7.00	\$ (366,671)	\$ (157,143)	\$ (104,761)	\$ (52,382)	\$ (52,382)	\$ (52,379)	-	-	-	-	
Recognition of assumption changes			\$ (1,510,271)	\$ (1,123,148)	\$ (387,123)	\$ (387,123)	\$ (387,120)	\$ (334,739)	\$ (13,469)	\$ (19,274)	\$ 18,577	
Recognition of Investment (Gains) and Losses												
Experience	Recognition	Total	BOY Remaining	EOY Remaining	Recognition Year							
Year	Period	Amount	Amount	Amount	2021	2022	2023	2024	2025			
2021	5	\$ (834,676)	\$ (834,676)	\$ (667,741)	\$ (166,935)	\$ (166,935)	\$ (166,935)	\$ (166,935)	\$ (166,936)			
2020	5	\$ 143,887	\$ 115,110	\$ 86,333	\$ 28,777	\$ 28,777	\$ 28,777	\$ 28,779	-			
2019	5	\$ 29,044	\$ 17,426	\$ 11,617	\$ 5,809	\$ 5,809	\$ 5,808	-	-			
2018	5	\$ (73,126)	\$ (29,251)	\$ (14,626)	\$ (14,625)	\$ (14,626)	-	-	-			
2017*	5	\$ (208,456)	\$ (41,692)	-	\$ (41,692)	-	-	-	-			
Recognition of investment gains and losses			\$ (773,083)	\$ (584,417)	\$ (188,666)	\$ (146,975)	\$ (132,350)	\$ (138,156)	\$ (166,936)			
Total (Gains) and Losses		Total	Remaining Amounts		Recognition Year							
		Amount	BOY	EOY	2021	2022	2023	2024	2025	2026	2027	
Total (Gains) and Losses		\$ (3,953,067)	\$ (2,637,421)	\$ (2,018,791)	\$ (618,630)	\$ (576,939)	\$ (562,313)	\$ (553,273)	\$ (245,178)	\$ (83,008)	\$ 1,920	

* 2017 was calculated by the prior actuary

Amounts in Thousands



**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION VI – GASB 75 REPORTING INFORMATION

Annual OPEB Expense

The annual OPEB expense can be calculated in two different ways. First, it is the change in the amounts reported on the System’s Statement of Net Position that relate to the Plan and are not attributable to employer contributions. That is, it is the change in the NOL minus the change in deferred outflows plus the change in deferred inflows plus employer contributions during the year.

Alternatively, annual OPEB expense can be calculated by its individual components. While GASB does not require or suggest the organization of the individual components shown in the table on the next page, we believe it helps to understand the level and volatility of the OPEB expense.

In the calculation of OPEB expense by individual components, there are three separate sections. First, there are components referred to as operating expenses. These are items directly attributable to the operation of the Plan during the measurement year. Service cost less employee contributions represents the increase in employer-provided benefits attributable to the measurement year, and administrative expenses are the cost of operating the Plan for the year.

Second, there are the financing expenses: the interest on the TOL less the expected return on assets.

The final category is changes. This category will drive most of the volatility in OPEB expense from year to year. It includes any changes in benefits made during the year and the recognized amounts due to assumption changes, gains or losses on the TOL, and investment gains or losses.

The table on the following page shows the development of the OPEB expense through both of these methodologies. In addition to the information shown below, any contributions between the measurement date and the reporting date would be reported as deferred outflows of resources to offset the cash outflows reported.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

SECTION VI – GASB 75 REPORTING INFORMATION

	Measurement Year Ending	
	2021	2020
Change in Net OPEB Liability	\$ (350,921)	\$ (101,258)
Change in Deferred Outflows	(6,534)	(18,253)
Change in Deferred Inflows	209,146	15,236
Employer Contributions	<u>0</u>	<u>0</u>
OPEB Expense	\$ (148,309)	\$ (104,275)
OPEB Expense as % of Payroll	-1.28%	-0.92%
Operating Expenses		
Service cost	\$ 284,137	\$ 324,526
On behalf contributions	(96,478)	(81,876)
Retired members contributions	(254,014)	(295,779)
Benefits Paid by on Behalf	96,478	81,876
Administrative expenses	<u>2,344</u>	<u>2,257</u>
Total	\$ 32,467	\$ 31,004
Financing Expenses		
Interest cost	\$ 167,884	\$ 174,040
Expected return on assets	<u>(287,024)</u>	<u>(284,186)</u>
Total	\$ (119,140)	\$ (110,146)
Changes		
Benefit changes	\$ 556,994	\$ 428,480
Recognition of assumption changes	(387,123)	(405,701)
Recognition of liability gains and losses	(42,841)	(26,182)
Recognition of investment gains and losses	<u>(188,666)</u>	<u>(21,730)</u>
Total	\$ (61,636)	\$ (25,133)
OPEB Expense	\$ (148,309)	\$ (104,275)

Amounts in Thousands

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX A – MEMBERSHIP INFORMATION

The census data used to develop the Total OPEB Liability (TOL) as of June 30, 2021 was provided by the System.

	June 30, 2021	June 30, 2020	% Change
Active Participants			
Number	166,424	167,838	-0.8%
Average age	44.21	44.28	-0.2%
Average years of service	13.57	13.33	1.8%
Projected payroll (in thousands)	\$ 12,202,078	\$ 11,921,722	2.4%
Average expected retirement age	61.4	61.5	-0.2%
Retirees Enrolled in Health Care			
Number of retirees	96,322	97,925	-1.6%
Average age of retirees	74.5	72.6	2.6%
Numbers of spouses and dependents (excluding children)	12,605	13,321	-5.4%
Average age of spouses	74.9	74.5	0.5%
Surviving Spouses Enrolled in Health Care			
Number	4,237	4,377	-3.2%
Average age	82.6	82.4	0.2%
Terminated Members Entitled but Not Yet Eligible			
Number	20,430	19,415	5.2%
Average age	50.9	50.48	0.8%
Number of terminated members eligible	3,818	3,536	8.0%
Average age	58.0	57.7	0.5%

Active Member Data as of June 30, 2021

COUNTS BY AGE/SERVICE											
Age	Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 25	2,332	2,995	5	0	0	0	0	0	0	0	5,332
25 to 29	1,589	8,518	4,370	0	0	0	0	0	0	0	14,477
30 to 34	1,084	4,168	10,444	2,942	0	0	0	0	0	0	18,638
35 to 39	1,074	3,463	5,600	9,165	3,914	0	0	0	0	0	23,216
40 to 44	948	3,010	4,006	4,158	9,378	4,965	0	0	0	0	26,465
45 to 49	726	2,300	2,886	2,675	3,513	9,571	3,157	0	0	0	24,828
50 to 54	581	1,789	2,274	2,264	2,742	4,457	7,525	2,414	0	0	24,046
55 to 59	394	1,090	1,393	1,457	2,015	2,566	2,674	3,287	437	0	15,313
60 to 64	261	709	865	886	1,251	1,865	1,832	1,295	502	63	9,529
65 to 69	165	411	360	320	384	456	407	360	218	53	3,134
70 & up	198	287	188	114	98	106	134	117	108	96	1,446
Total	9,352	28,740	32,391	23,981	23,295	23,986	15,729	7,473	1,265	212	166,424

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX A – MEMBERSHIP INFORMATION

Reconciliation of Members							
	Active	Retired	Surviving Spouse	Disabled	Spouse of Retiree	Term Vested	Total
June 30, 2020	167,838	94,456	4,377	3,469	13,321	19,415	302,876
Changes due to:							
Active							
To Retired	(1,750)	1,750	-	-	-	-	-
To Disabled	(20)	-	-	20	-	-	-
To Death	(7)	-	-	-	-	-	(7)
To Term Vested	(3,077)	-	-	-	-	3,077	-
Retired							
To Active	-	-	-	-	-	-	-
To Term Vested	-	-	-	-	-	-	-
Disabled							
To Active	1	-	-	(1)	-	-	-
To Retired	-	17	-	(17)	-	-	-
To Death	-	-	-	(1)	-	-	(1)
To Term Vested	-	-	-	-	-	-	-
Spouse of Retiree							
To Surviving Spouse	-	-	321	-	(2)	-	319
Term Vested							
To Active	887	-	-	-	-	(887)	-
To Retired	-	55	-	-	-	(55)	-
To Surviving Spouse	-	-	-	-	-	-	-
To Disabled	-	-	-	1	-	(1)	-
To Death	-	-	-	-	-	(4)	(4)
Additions	13,931	1,170	38	45	567	63	15,814
Departures	(11,379)	(4,403)	(499)	(239)	(1,281)	(1,178)	(18,979)
June 30, 2021	166,424	93,045	4,237	3,277	12,605	20,430	300,018

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions for this valuation were selected based on recent experience and expectations for the future. Many of the demographic assumptions were selected by the prior actuary based on their prior experience study. We have not performed our own experience study but reviewed the reports and letters of the prior actuary and believe the assumptions to be reasonable.

Economic Assumptions

- 1. Expected Return on Assets** 7.00% per year, based on the long-term rate of return on invested plan assets

- 2. Municipal Bond Yield** 2.16% as of June 30, 2021
Bond Buyer 20-Bond GO Index as of June 26, 2021

- 3. Discount Rate** 7.00%, based on a blend of 2.16% municipal bond yield rate and the expected return on invested plan assets. The assets are sufficient to cover all expected benefits, thus the long-term rate of return is used.

- 4. Payroll Increase Rate** 3.00% per year for purposes of attributing individual costs under the Entry Age actuarial cost method

- 5. Salary Increase Rate** Varies by age from 2.5% to 12.5%

- 6. Per Person Health Care Cost Trends**

Medical trend assumptions used were developed using the Society of Actuaries (SOA) Long-Run Medical Cost Trend Model. The SOA model was released in December 2007, and version 2020_b was used for this valuation. The following assumptions were used as input variables into this model:

Trend Assumption Inputs	
Variable	Rate
Rate of Inflation	2.50%
Rate of Growth in Real Income/GDP per capita 2029+	1.50%
Extra Trend due to Taste/Technology 2029+	1.20%
Expected Health Share of GDP 2029	20.0%
Health Share of GDP Resistance Point	25.0%
Year for Limiting Cost Growth to GDP Growth	2040

The SOA Long-Run Medical Cost Trend Model and its baseline projection are based on an econometric analysis of historical U.S. medical expenditures and the judgments of experts in the field. The long-run baseline projection and input variables have been developed under the guidance of the SOA Project Oversight Group.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Year	Medical		Prescription Drugs		Premium Trends		Contribution
	Pre-Medicare	Medicare	Pre-Medicare	Medicare	Pre-Medicare	Medicare	Limited Medicare
2021	5.00%	-16.18%	6.50%	29.98%	5.34%	-6.77%	-6.77%
2022	4.93%	2.20%	6.33%	21.83%	5.26%	-3.29%	-5.41%
2023	4.87%	13.11%	6.17%	13.06%	5.17%	10.16%	6.00%
2024	4.80%	11.05%	6.00%	13.57%	5.08%	9.32%	6.00%
2025	4.73%	9.13%	5.83%	10.96%	5.00%	8.22%	6.00%
2026	4.67%	7.41%	5.67%	10.02%	4.91%	7.27%	6.00%
2027	4.60%	6.43%	5.50%	7.42%	4.82%	6.83%	6.00%
2028	4.53%	6.08%	5.33%	5.13%	4.73%	6.54%	6.00%
2029	4.47%	5.75%	5.17%	5.00%	4.64%	6.26%	6.00%
2030	4.40%	5.50%	5.00%	4.86%	4.55%	5.94%	6.00%
2031	4.33%	5.25%	4.83%	4.71%	4.46%	5.61%	6.00%
2032	4.27%	5.00%	4.67%	4.57%	4.37%	5.29%	6.00%
2033	4.20%	4.75%	4.50%	4.43%	4.27%	4.97%	6.00%
2034	4.13%	4.50%	4.33%	4.29%	4.18%	4.65%	6.00%
2035	4.07%	4.25%	4.17%	4.14%	4.09%	4.32%	6.00%
2036+	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	6.00%

The ultimate trend rate reflects an assumed nominal per capita GDP growth.

7. Changes Since the Last Valuation

2021 Healthcare trends were updated to reflect the FYE 2022 projected Medicare rates. Medicare premium and contribution trends were updated as a result of a change in methodology regarding the adjustments made to gross costs to determine the Medicare premiums. This methodology change resulted in lower premium and therefore lower retiree contribution.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Demographic Assumptions

1. Retirement Rates

Pension eligibility requirements are age 60 with five years of service, or 30 years of service regardless of age, or according to the following schedule:

Retirement Effective Date	Minimum Age and Years of Service
8/1/2015 - 7/1/2017	Age 55 and 26 years
8/1/2017 - 7/1/2019	Age 55 and 27 years
8/1/2019 - 7/1/2021	Age 55 and 28 years
8/1/2021 - 7/1/2023	Age 55 and 29 years
8/1/2023	Age 55 and 30 years

After meeting pension eligibility requirements, the following rates apply.

The defined benefit participants’ grandfathered group is set to be those eligible to retire on or before 7/1/2015.

Grandfathered Males					Grandfathered Females				
Age	Service				Age	Service			
	<25	25 - 29	30 - 34	35 +		<25	25 - 29	30 - 34	35 +
<54	0%	0%	20%	30%	<54	0%	0%	20%	35%
54	0%	0%	20%	40%	54	0%	0%	20%	40%
55-58	0%	6%	20%	40%	55-58	0%	9%	20%	40%
59	0%	7%	20%	40%	59	0%	10%	25%	40%
60	10%	7%	20%	40%	60	10%	10%	30%	45%
61	10%	7%	20%	40%	61	10%	10%	30%	45%
62	12%	8%	20%	40%	62	10%	12%	30%	45%
63	12%	8%	25%	35%	63	10%	12%	35%	45%
64	12%	12%	25%	25%	64	15%	20%	35%	45%
65	20%	20%	25%	25%	65	25%	30%	35%	45%
66	20%	20%	25%	25%	66	20%	30%	35%	45%
67	15%	20%	25%	25%	67	20%	20%	35%	45%
68	15%	20%	25%	20%	68	20%	20%	35%	45%
69	15%	20%	25%	20%	69	20%	20%	35%	45%
70-74	15%	20%	25%	20%	70-74	20%	20%	35%	40%
75+	100%	100%	100%	100%	75+	100%	100%	100%	100%

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

For those defined benefit participants not eligible to retire on or before 7/1/2015, the following rates apply.

Non-Grandfathered Males					Non-Grandfathered Females				
Age	Service				Age	Service			
	<25	25 - 29*	29 - 34**	35 +**		<25	25 - 29*	29 - 34**	35 +**
<59	0%	3%	20%	20%	<59	0%	5%	20%	20%
59	0%	5%	20%	20%	59	0%	5%	25%	25%
60	5%	5%	20%	25%	60	10%	10%	30%	30%
61	6%	6%	20%	25%	61	10%	10%	30%	30%
62	7%	7%	20%	25%	62	10%	10%	30%	30%
63	8%	8%	25%	25%	63	10%	10%	35%	35%
64	10%	10%	25%	25%	64	15%	15%	35%	35%
65	20%	20%	25%	25%	65	30%	30%	35%	35%
66	20%	20%	25%	25%	66	30%	30%	35%	35%
67	20%	20%	25%	25%	67	20%	20%	35%	35%
68	20%	20%	25%	20%	68	20%	20%	35%	35%
69	20%	20%	25%	20%	69	20%	20%	35%	35%
70-74	20%	20%	25%	20%	70-74	20%	20%	35%	30%
75+	100%	100%	100%	100%	75+	100%	100%	100%	100%

* Rates prior to age 60 are zero if retirement eligibility requirements are not met

** Use two times 25-29 years of service rates if not eligible for unreduced retirement (prior to age 65)

Combined Plan					
Age	Male	Female	Age	Male	Female
60	13%	22%	68	12%	12%
61	7%	9%	69	12%	12%
62	7%	9%	70	12%	12%
63	7%	9%	71	12%	12%
64	9%	15%	72	12%	12%
65	17%	20%	73	12%	12%
66	15%	13%	74	12%	12%
67	12%	13%	75	100%	100%

For terminated members: we assumed 100% at age 62 or the first age at which unreduced benefits are available.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

2. Rates of Termination/Withdrawal

Age	Vested Termination Rate				
	Mortality*		Withdrawal**		Disability
	Male	Female	Male	Female	
20	0.04%	0.02%	11.25%	13.25%	0.01%
30	0.05%	0.02%	2.75%	3.75%	0.01%
40	0.06%	0.04%	1.75%	1.50%	0.05%
50	0.17%	0.11%	2.00%	1.75%	0.18%

* RP-2014 Employee Mortality Table, projected forward generationally using mortality improvement scale MP-2016. Rates shown are before any generational projection.

** During the first five years of service, the following rates apply:

Service	Non-Vested Termination Rate	
	Male	Female
< 1 Year	30.00%	25.00%
1-2 Years	20.00%	20.00%
2-3 Years	15.00%	10.00%
3-5 Years	10.00%	10.00%

3. Rates of Mortality

Healthy Mortality: RP-2014 Annuitant Mortality Tables with 50% of rates through age 69, 70% of rates between ages 70 and 79, 90% of rates between ages 80 and 84, and 100% of rates thereafter, projected forward generationally using mortality improvement scale MP-2016.

Disabled Mortality: RP-2014 Disabled Mortality table with 90% of rates for males and 100% of rates for females, projected forward generationally using mortality improvement scale MP-2016.

4. Percent of Retirees Electing Coverage

- 75% of future eligible service retirees and 65% of future eligible disabled retirees are assumed to elect coverage.
- 100% of combined plan and 50% of defined benefit plan future inactive vested participants are assumed to cash out.
- 30% of inactive vested participants who do not cash out are assumed to elect coverage.
- Current and future participants for whom the value of the benefits received is less than their contribution are assumed to drop coverage.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

5. Benefit Elections

Below is a summary of the medical plan election rates for future retirees by Medicare status.

Pre-Medicare Medical Plans	Benefit Election Rate
Medical Mutual / Aetna Basic PPC	93.7%
AdultCare PPO	3.0%
Paramount Health Care HMO	3.3%

Medicare Medical Plans	Benefit Election Rate
Aetna Medicare Advantage	94.2%
Medical Mutual / Aetna Basic PPC	3.9%
AdultCare PPO	1.0%
Paramount Health Care HMO	0.9%

These weights were used to blend premium rates developed by Wakely, less applicable subsidies, discounts, and rebates (the “Recoveries”), to estimate individual retiree and spouse costs by age and gender.

6. Spousal Coverage

Of those future retirees who elect to continue health coverage, 20% were assumed to have an eligible spouse who also opts for health coverage at that time.

7. Dependent Age

For current retirees, the actual spouse date of birth was used when available.

For future retirees, male retirees are assumed to be three-years older than their partners, and female retirees are assumed to be one-year younger than their partners.

8. Administrative Expenses

Health plan administrative expenses are included in the per capita claims costs.

9. Changes Since the Last Valuation

None

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Claim and Expense Assumptions

The claims costs are developed based on CY 2020 and CY 2021 projected premiums provided by STRS Ohio and developed by its vendor (Wakely, Aetna, AultCare, and Paramount). For the EGWP plans, claims costs are defined as the Plan cost net of all recoveries (i.e., net of Rx rebates, Gap Discount rebates, Part D direct subsidy, Low-income cost share, and Federal Reinsurance), using the gross paid claims PMPM, the Rx rebates and pharma Gap Discounts PMPM, and the CMS Part D Direct subsidy and Federal Reinsurance payment PMPM as projected by Wakely and documented in Wakely's 2021 Final Self Funded Rates memo dated July 16, 2020. For each plan (e.g., Basic vs. Aetna vs. Aultcare vs. Paramount), each benefit (i.e., medical vs. Rx), and each population (i.e., Non-Medicare vs Medicare A&B vs. Medicare B only) we calculate the projected FYE 2021 rate PMPM as the average of the CY 2020 and CY 2021 rate. Using the June 30, 2020 retiree membership distribution by plan and population, we calculate four rates: a Non-Medicare Eligible (NME) medical rate, a NME Rx rate, a Medicare Eligible (ME) medical rate, and a ME Rx rate. The resulting PMPM rates are then adjusted using age curves.

1. Average Annual Claims and Expense Assumptions

The following 7/1/2020-6/30/2021 claims costs were developed based on:

- The average of the 2020 and 2021 premium rates the System pays its vendors,
- The average Wakely's projected 2019 and 2020 Employer Group Waiver Program (EGWP) Recoveries that the System is expected to receive for CY 2020 and CY 2021 prescription filled dates, and
- An estimate of the Rx rebates PPPM for the Non-Medicare population-based on actual 2018 Non-Medicare Rx rebates.

All rates were converted from a Per Adult or Per Child rate to a composite Per Person rate. A child load of 3.1% for medical and 1.9% for Rx was added onto the NME pre-65 claims and expenses to account for the fact that only adults are inputted in ProVal.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Fiscal Year Ending 6/30/2021 Average Claim and Expense Assumptions								
Age	Medical NME		Rx NME		Medical ME		Rx ME	
	Male	Female	Male	Female	Male	Female	Male	Female
40	\$3,164	\$5,740	\$819	\$1,016	\$638	\$574	\$1,372	\$1,315
45	\$4,177	\$5,944	\$1,063	\$1,213	\$918	\$827	\$1,976	\$1,893
50	\$5,474	\$6,841	\$1,351	\$1,433	\$1,165	\$1,049	\$2,508	\$2,403
55	\$7,054	\$8,375	\$1,683	\$1,678	\$1,277	\$1,150	\$2,748	\$2,633
60	\$8,916	\$9,860	\$2,059	\$1,948	\$1,204	\$1,084	\$2,591	\$2,483
64	\$10,610	\$10,015	\$2,392	\$2,180	\$1,013	\$912	\$2,180	\$2,089
65	\$10,481	\$9,916	\$2,441	\$2,206	\$614	\$562	\$1,320	\$1,288
70	\$11,492	\$10,994	\$2,898	\$2,518	\$740	\$637	\$1,486	\$1,348
75	\$12,601	\$12,190	\$3,399	\$2,854	\$902	\$760	\$1,449	\$1,324
80	\$13,816	\$13,516	\$3,943	\$3,214	\$1,070	\$894	\$1,313	\$1,249
85	\$15,148	\$14,986	\$4,531	\$3,597	\$1,223	\$1,012	\$1,155	\$1,154

For the Medicare population, we also calculate the projected FYE 2022 rates PMPM as the average of the CY 2021 and CY 2022 rate, using Wakely’s 2022 Final Self Funded Rates memo dated June 15, 2021. 2021 trends were adjusted to match the current projected FYE 2022 Medicare rates.

2. Retiree Contributions

In 2020, non-Medicare retirees receive a subsidy of 1.984% per year of service to a maximum of 30 years, and Medicare AMA retirees receive a subsidy of 2.1% per year of service to a maximum of 30 years. In 2021, Non-Medicare retirees receive a subsidy of 2.055% per year of service to a maximum of 30 years. In 2022, Non-Medicare retirees will received a subsidy of 2.1%.

Beginning in 2023, the STRS Ohio subsidy dollar amount for Non-Medicare plans will be frozen at the current 2022 levels. Annual increases in the STRS Ohio subsidy dollar amount for Medicare plans will be based on the annual percentage increase in the Aetna Medicare Advantage Plan, limited at 6%.

For those who retire on or after August 2023, the first five years of service do not count towards the subsidy, so subsidy percentages are shifted five years, and those with less than 20 years of service receive no subsidy. The following table shows the blended medical and Rx premium for pre-Medicare and Medicare plans.

Sample monthly premium subsidies paid by the STRS of Ohio pays for Eligible Retirees for the year beginning January 1, 2021 are shown on the next page.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

2022 Rates Years of Service	Pre-Medicare Plans			Medicare Plans			
	Medical Mutual / Aetna Basic PPO	AultCare PPO	Paramount HMO	Aetna Medicare Advantage	Medical Mutual Basic PPO	AultCare PPO	Paramount HMO
Total Cost¹	\$1,144	\$910	\$873	\$289	\$326	\$288	\$328
	Frozen at 2022 Levels			Based on increase in Aetna MA plan, limit 6%			
15	\$360	\$287	\$275	\$91	\$91	\$91	\$91
16	\$384	\$306	\$293	\$97	\$97	\$97	\$97
17	\$408	\$325	\$312	\$103	\$103	\$103	\$103
18	\$432	\$344	\$330	\$109	\$109	\$109	\$109
19	\$456	\$363	\$348	\$115	\$115	\$115	\$115
20	\$480	\$382	\$367	\$121	\$121	\$121	\$121
21	\$505	\$401	\$385	\$127	\$127	\$127	\$127
22	\$529	\$420	\$403	\$134	\$134	\$133	\$134
23	\$553	\$440	\$422	\$140	\$140	\$139	\$140
24	\$577	\$459	\$440	\$146	\$146	\$145	\$146
25	\$601	\$478	\$458	\$152	\$152	\$151	\$152
26	\$625	\$497	\$477	\$158	\$158	\$157	\$158
27	\$649	\$516	\$495	\$164	\$164	\$163	\$164
28	\$673	\$535	\$513	\$170	\$170	\$169	\$170
29	\$697	\$554	\$532	\$176	\$176	\$175	\$176
30 +	\$721	\$573	\$550	\$182	\$182	\$181	\$182
Cost Per Child	\$293	\$257	\$247	\$289	\$326	\$288	\$328

¹ Also applies to spousal coverage, retirees not eligible for premium subsidy, and disabled adult child (sponsored dependent)

A weighted average total cost across the Plans shown above is used as the STRS Ohio subsidy. These amounts are assumed to increase with health trend.

Weighted Average Premiums	
Pre-65 retirees	\$ 13,139.52
Retirees age 65+	\$ 3,810.89

3. Medicare Part D Subsidy

The Medicare Part D subsidy is expected to be negative in CY 2022. An estimate of -\$0.78 per Medicare participant is included in the FYE 2022 rates. We assumed the Part D Direct subsidy decreases by \$36 annually for the first 3 years, then by 25% for the next 12 years; subsequently, the Part D Direct subsidy is implicitly trended when the trends showed on page 16 of this report are applied to the net Medicare Rx claims and expenses. Per GASB guidance, RDS Part D Subsidies are not reflected in valuations.

4. Medicare Part B Premium Subsidy

Service retirees and disabled retirees who are enrolled in an STRS Ohio medical plan and who participate in Medicare Part B receive \$29.90 monthly reimbursement towards the Part B premiums.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

5. Medicare Eligibility

All retirees who turn age 65 are assumed to be eligible for Medicare.

6. Geography

Implicitly assumed to remain the same as current retirees.

7. Changes Since the Last Valuation

The Non-Medicare subsidy percentage was increased effective January 1, 2022 from 2.055% to 2.1%. The Non-Medicare frozen subsidy base premium was increased effective January 1, 2022. The Medicare Part D Subsidy was updated to reflect it is expected to be negative in CY 2022. The Part B monthly reimbursement elimination date was postponed indefinitely.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Disclosure of Models Used

ProVal

Cheiron utilizes ProVal, an actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate the liabilities, Normal Costs, and projected benefit payments. We have relied on WinTech as the developer of ProVal. We have reviewed ProVal and have a basic understanding of it and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this actuarial valuation.

Getzen Trend Model

Medical Trend assumptions were developed using the Society of Actuaries (SOA) Long-Run Medical Cost Trend Model version 2020_b. We have relied on the Society of Actuaries as the developer of the Model. We have reviewed the Model and have a basic understanding of the Model and have used the Model in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of the Model that would affect this report.

Projection Model

Projections in this report were developed using H-Scan, our proprietary tool for developing deterministic projections to illustrate the impact of changes in assumptions, methods, plan provisions, or actual experience (particularly investment experience) on the future financial status of the Plan.

The H-Scan projection uses standard roll-forward techniques that implicitly assume a stable active population. Changes in the demographic characteristics of the active population will lead to different results

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Summary of Key Substantive Plan Provisions

Eligibility

The eligibility requirements for access to retiree health care coverage and premium subsidies are as follows:

Service Retiree Who Retires Before August 2023

If with 15 or more years of service, then retiree receives access to healthcare coverage and a premium subsidy if they enroll.

If with less than 15 years of service and a benefit effective date prior to January 1, 2004, then the retiree receives access to healthcare coverage but no premium subsidy.

If with less than 15 years of service and a benefit effective date on or after January 1, 2004, then the retiree is not eligible for health care coverage.

Service Retiree Who Retires After August 2023

If with 20 or more years of service, then retiree receives access to healthcare coverage and a premium subsidy if they enroll.

If with less than 20 years of service and a benefit effective date on or after January 1, 2004, then the retiree is not eligible for health care coverage.

Disabled Retiree

Receives access to healthcare coverage and a premium subsidy if they enroll.

Effective Date of Coverage

Service Retirement Benefit of Survivor Benefit Recipients

The first of the month following the date the STRS Ohio Retirement Board approves the application, or the effective date of retirement, whichever is later.

Service Retirement Benefit of Disability Benefit Recipients

The first of the month following the date the STRS Ohio Retirement Board approves the disability benefits, or the first of the month following the date the application is received by STRS Ohio, whichever is later.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Duration of Coverage

Lifetime

Dependent Benefits

Same as retirees, except for no partial reimbursement towards Medicare Part B premium.

Dependent Coverage

Dependents of retirees and survivors are eligible to enroll in health care coverage but do not receive a premium subsidy. Individuals who become surviving spouses prior to January 1, 2015 receive a premium subsidy at the same level as the deceased member for five years with first-year beginning the later of January 1, 2004, or the effective date of benefit commencement. After five years, surviving spouses receive access to coverage with no premium subsidy. Individuals who become surviving spouses on or after January 1, 2015, do not receive a premium subsidy.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Summary of 2022 Benefit Plans

State Teachers Retirement System of Ohio - Non Medicare Retirees			
Plan	Medical Mutual (Ohio) / Aetna (outside Ohio) Indemnity¹ or PPO	AultCare PPO	Paramount Health Care HMO (NW Ohio, S Michigan)
<u>In-Network (INN) Benefits</u>			
Deductible per Enrollee	\$2,500	\$2,500	\$2,000/\$4,000 Single/Family
Coinsurance	80%	80%	80%
Out-of-Pocket Max per Enrollee	\$6,500	\$6,500	\$4,000/\$8,000 Single/Family
Coverages			
Preventive Care	Fully Covered	Fully Covered	Fully Covered
Well Woman	Fully Covered	Fully Covered	Fully Covered
Office Visit (OV)-Primary Care	\$20 Copay for first 2 Visits, DC* After	\$20 Copay for first 2 Visits, DC* After	\$10
OV - Specialist Care Provider (SCP)	DC*	DC*	\$20
Hospital Emergency Room (ER)	\$150 Copay + DC*	\$150 Copay + DC*	\$150 Copay
Urgent Care (UC)	\$40 Copay + DC*	\$40 Copay + DC*	\$40 Copay
Outpatient Surgery	DC*	DC*	DC*
Hospital Inpatient	DC*	DC*	DC*
Lifetime Max	No Limit	No Limit	No Limit
<u>Out-of-Network (OON) Benefits</u>			
Deductible per Enrollee	\$5,000	\$5,000	
Coinsurance	50%	50%	
Out-of-Pocket Max per Enrollee	\$13,000	\$13,000	
Office Visit (OV)-Primary Care (PCP)	DC*	DC*	
OV - Specialist Care Provider (SCP)	DC*	DC*	
<u>Mental Health and Substance Abuse</u>			
Mental Health and Substance Abuse Inpatient	DC*	DC*	DC*
Mental Health and Substance Abuse Outpatient	\$20 Copay for first 2 Visits, DC* After	\$20 Copay for first 2 Visits, DC* After	\$10
<u>Prescription Drug Benefits</u>			
Deductible (Brand and Specialty Only)	\$275	\$275	\$275
Out-of-Pocket Max per Person	\$5,100	\$5,100	\$5,100
Preferred Pharmacy Coverage:			
Retail: Generic / Preferred Brand / non-Preferred Brand / Specialty	\$10 / \$30 / \$75 / 8% up to max \$450 **	\$10 / \$30 / \$75 / 8% up to max \$450 **	\$10 / \$30 / \$75 / 8% up to max \$450 **
Mail Order: Low-Cost Generic / Generic / Preferred Brand / non-Preferred Brand / Specialty	\$9 / \$25 / \$75 / \$187.50 / 8% up to max \$1,350 **	\$9 / \$25 / \$75 / \$187.50 / 8% up to max \$1,350 **	\$9 / \$25 / \$75 / \$187.50 / 8% up to max \$1,350 **
Non-Preferred Pharmacy Coverage:			
Retail	Preferred Pharmacy copays + \$10	Preferred Pharmacy copays + \$10	Preferred Pharmacy copays + \$10

*DC = Deductible and Coinsurance

** Specific max is \$450 for 1-30, \$900 for 31-60 and \$1,350 for 61-90 day script

¹ No network, benefits same as in-network benefits

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

State Teachers Retirement System of Ohio - Medicare Retirees				
Plan	Aetna Medicare Plan (Medicare Advantage PPO)	Medical Mutual Basic (Indemnity ¹ or PPO)	AultCare PPO	Paramount Elite HMO (Medicare Advantage)
<u>In-Network (INN) Benefits</u>				
Deductible per Enrollee	\$150	\$2,500	\$150	\$150
Coinsurance	96%	80%	96%	96%
Out-of-Pocket Max per Enrollee	\$1,500	\$6,500	\$1,500	\$1,500
Coverages				
Preventive Care	Fully Covered	Fully Covered	Fully Covered	Fully Covered
Well Woman	Fully Covered	Fully Covered	Fully Covered	Fully Covered
Office Visit (OV)-Primary Care	\$15	\$20 Copay for first 2 Visits, DC* After	\$15 Copay	\$15 Copay
OV - Specialist Care Provider (SCP)	\$25	DC*	\$25 Copay	\$25 Copay
Hospital Emergency Room (ER)	\$75	\$150 Copay + DC*	\$75	\$75
Urgent Care (UC)	\$40	\$40 Copay + DC*	\$40	\$40
Outpatient Surgery	DC*	DC*	DC*	DC*
Hospital Inpatient	DC*	DC*	DC*	DC*
Lifetime Max	No Limit	No Limit	No Limit	No Limit
<u>Out-of-Network (OON) Benefits</u>				
Deductible per Enrollee	\$500	\$5,000	\$500	
Coinsurance	92%	50%	92%	
Out-of-Pocket Max per Enrollee	\$2,500	\$13,000	\$2,500	
Office Visit (OV)-Primary Care (PCP)	\$40	Same as In-Network	\$40	
OV - Specialist Care Provider (SCP)	\$55	Same as In-Network	\$55	
<u>Mental Health and Substance Abuse</u>				
Mental Health and Substance Abuse Inpatient	DC*	DC*	DC*	DC*
Mental Health and Substance Abuse Outpatient	\$25	\$55 after deductible	DC*	\$25
<u>Prescription Drug Benefits</u>				
Deductible (Brand and Specialty Only)	\$275	\$275	\$275	\$275
Out-of-Pocket Max per Person	\$5,100	Included in Medical	\$5,100	\$5,100
Preferred Pharmacy Coverage:				
Retail: Generic / Preferred Brand / non-Preferred Brand / Specialty	\$10 / \$30 / \$75 / 8% up to max \$450 **	\$10 / \$30 / \$75 / 8% up to max \$450 **	\$10 / \$30 / \$75 / 8% up to max \$450 **	\$10 / \$30 / \$75 / 8% up to max \$450 **
Mail Order: Low-Cost Generic / Generic / Preferred Brand / non-Preferred Brand / Specialty	\$9 / \$25 / \$75 / \$187.50 / 8% up to max \$1,350 **	\$9 / \$25 / \$75 / \$187.50 / 8% up to max \$1,350 **	\$9 / \$25 / \$75 / \$187.50 / 8% up to max \$1,350 **	\$9 / \$25 / \$75 / \$187.50 / 8% up to max \$1,350 **
Non Preferred Pharmacy Coverage:				
Retail	Preferred Pharmacy copays + \$10	Preferred Pharmacy copays + \$10	Preferred Pharmacy copays + \$10	Preferred Pharmacy copays + \$10

*DC = Deductible and Coinsurance

** Specific max is \$450 for 1-30, \$900 for 31-60 and \$1,350 for 61-90 day script

¹ No network, benefits same as in-network benefits

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX D – GLOSSARY OF TERMS

1. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting OPEB costs, such as mortality, withdrawal, and retirement; changes in compensation; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

2. Actuarial Cost Method

A procedure for determining the Actuarial Present Value of OPEB plan benefits and expenses and for developing an allocation of such value to each year of service, usually in the form of a Normal Cost and an Actuarial Liability.

3. Actuarially Determined Contribution

A target or recommended contribution for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

4. Actuarial Gain (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

5. Actuarial Liability

The portion of the Actuarial Present Value of projected benefits which will not be paid by future Normal Costs. It represents the value of the past Normal Costs with interest to the valuation date.

6. Actuarial Present Value (Present Value)

The value as of a given date of a future amount or series of payments, the Actuarial Present Value discounts the payments to the given date at the assumed investment return and includes the probability of the payment being made. As a simple example: assume you owe \$100 to a friend one year from now. Also, assume there is a 1% probability of your friend dying over the next year, in which case you will not be obligated to pay him. If the assumed investment return is 10%, the Actuarial Present Value is:

$$\frac{\text{Amount}}{\$100} \times \frac{\text{Probability of Payment}}{(1 - .01)} \times \frac{1/}{1/(1+.1)} = \frac{\text{Present Value}}{\$90}$$

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX D – GLOSSARY OF TERMS

7. Actuarial Valuation Date

The date as of which an actuarial valuation is performed. This date may be up to 24 months prior to the measurement date and up to 30 months prior to the employer's reporting date.

8. Actuarial Value of Assets

The value of cash, investments, and other property belonging to an OPEB plan as used by the actuary for the purpose of an actuarial valuation. The purpose of an Actuarial Value of Assets is to smooth out fluctuations in market values. This way long-term costs are not distorted by short-term fluctuations in the market.

9. Amortization Payment

The portion of the OPEB plan contribution which is designed to pay interest and principal on the Unfunded Actuarial Liability in order to pay for that liability in a given number of years.

10. Entry Age Normal Actuarial Cost Method

A method under which the Actuarial Present Value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings of the individual between Entry Age and assumed exit ages.

11. Normal Cost

That portion of the Actuarial Present Value of OPEB plan benefits and expenses which is allocated to a valuation year by the actuarial cost method.

12. Unfunded Actuarial Liability

The excess of the Actuarial Liability over the Actuarial Value of Assets.

13. Funded Percentage

The ratio of the Actuarial Value of Assets to the Actuarial Liabilities.

14. Mortality Table

A set of percentages which estimate the probability of death at a particular point in time. Typically, the rates are annual and based on age and sex.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX D – GLOSSARY OF TERMS

15. Discount Rate

The assumed interest rate used for converting projecting dollar related values to a present value as of the valuation date.

16. Medical Trend

The assumed increase in dollar related values in the future due to the increase in the cost of health care.

17. Deferred Inflow of Resources

An acquisition of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 75, these are experience gains on the Total OPEB Liability, assumption changes reducing the Total OPEB Liability, or investment gains that are recognized in future reporting periods.

18. Deferred Outflow of Resources

A consumption of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 75, these are experience losses on the Total OPEB Liability, assumption changes increasing the Total OPEB Liability, or investment losses that are recognized in future reporting periods.

19. Entry Age Actuarial Cost Method

The actuarial cost method required for GASB 74 and 75 calculations. Under this method, the Actuarial Present Value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings of the individual between Entry Age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the service cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future service costs is called the Total OPEB Liability.

20. Measurement Date

The date as of which the Total OPEB Liability and Plan Fiduciary Net Position are measured, the Total OPEB Liability may be projected from the actuarial valuation date to the measurement date. The measurement date must be the same as the reporting date for the plan.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX D – GLOSSARY OF TERMS

21. Net OPEB Liability

The liability of employers and non-employer contributing entities for employees for benefits provided through a defined benefit OPEB plan. It is calculated as the Total OPEB Liability less the Plan Fiduciary Net Position.

22. Plan Fiduciary Net Position

The fair or Market Value of Assets.

23. Reporting Date

The last day of the Plan or employer's fiscal year.

24. Service Cost

The portion of the Actuarial Present Value of projected benefit payments that is attributed to the current period of employee service in conformity with the requirements of GASB 74 and 75. The service cost is the Normal Cost calculated under the Entry Age actuarial cost method.

25. Total OPEB Liability

The portion of the Actuarial Present Value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of GASB 74 and 75. The Total OPEB Liability is the Actuarial Liability calculated under the Entry Age actuarial cost method.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2021 MEASUREMENT DATE**

APPENDIX E – SUPPORTING SCHEDULES

Health Care Schedule of Funded Liabilities by Type, 2015 - 2021 (dollars in thousands)							
Actuarial Valuation Date	Accrued Liability For:			Fair Market Value of Assets	Portion of Accrued Liability Covered by Fair Value of Assets:		
	(1) Active Members	(2) Inactive Members	(3) Retirees, Survivors & Dependents		(1)	(2)	(3)
Jan 1, 2015	\$1,742,597	\$15,459	\$2,918,167	\$3,454,000	100%	100%	58%
Jan 1, 2016	\$1,830,799	\$19,435	\$3,303,997	\$3,258,197	100%	100%	43%
Jan 1, 2017	\$2,596,979	\$18,783	\$3,271,404	\$3,222,093	100%	100%	19%
Jan 1, 2018	\$777,500	\$2,424	\$1,636,026	\$3,691,399	100%	100%	178%
June 30, 2018	\$784,921	\$1,965	\$1,327,565	\$3,721,349	100%	100%	221%
June 30, 2019	\$872,892	\$2,251	\$1,340,775	\$3,872,158	100%	100%	224%
June 30, 2020	\$930,668	\$2,279	\$1,206,851	\$3,897,296	100%	100%	246%
June 30, 2021	\$1,137,505	\$2,989	\$1,680,827	\$4,929,740	100%	100%	225%

Key Methods and Assumptions Used in Health Care Actuarial Valuation	
Valuation Date	6/30/2021
Actuarial cost method	Entry Age Normal, Level Percent of Pay
Amortization method	30 year open level percent of pay
Asset valuation method	Fair Market Value
Actuarial Assumptions:	
Investment Rate of Return	7.00%
Discount rate	7.00%
Amortization growth rate	3.00%
Salary increases	Varies by age from 2.5% to 12.5%

Health Care Cost Trend Rates									
Year	Medical		Prescription Drugs		Year	Medical		Prescription Drugs	
	Pre-Medicare	Medicare	Pre-Medicare	Medicare		Pre-Medicare	Medicare	Pre-Medicare	Medicare
2021	5.00%	-16.18%	6.50%	29.98%	2031	4.33%	5.25%	4.83%	4.71%
2022	4.93%	2.20%	6.33%	18.41%	2032	4.27%	5.00%	4.67%	4.57%
2023	4.87%	13.11%	6.17%	7.50%	2033	4.20%	4.75%	4.50%	4.43%
2024	4.80%	11.05%	6.00%	8.63%	2034	4.13%	4.50%	4.33%	4.29%
2025	4.73%	9.13%	5.83%	6.16%	2035	4.07%	4.25%	4.17%	4.14%
2026	4.67%	7.41%	5.67%	5.40%	2036	4.00%	4.00%	4.00%	4.00%
2027	4.60%	6.43%	5.50%	5.26%	2037	4.00%	4.00%	4.00%	4.00%
2028	4.53%	6.08%	5.33%	5.13%	2038	4.00%	4.00%	4.00%	4.00%
2029	4.47%	5.75%	5.17%	5.00%	2039	4.00%	4.00%	4.00%	4.00%
2030	4.40%	5.50%	5.00%	4.86%	2039+	4.00%	4.00%	4.00%	4.00%

Summary of Membership Data									
Valuation Date:	Jan 1, 2015	Jan 1, 2016	Jan 1, 2017	Jan 1, 2018	June 30, 2018	June 30, 2019	June 30, 2020	June 30, 2021	
Active Members	169,295	164,925	169,205	168,132	170,327	170,004	167,838	166,424	
Inactive Members	16,823	17,275	17,011	17,694	18,384	18,762	19,415	20,430	
STRS Ohio Health Care Program Enrollees									
	Jan 1, 2018	June 30, 2018	June 30, 2019	June 30, 2020	Added	Terminated	June 30, 2021		
Retirees	98,231	97,830	96,235	94,456	2,992	4,403	93,045		
Disabled Retirees	3,939	3,823	3,639	3,469	66	258	3,277		
Survivors	4,826	4,766	4,498	4,377	359	499	4,237		
Spouses and Dependents (excluding Children)	15,458	14,913	14,154	13,321	567	1,283	12,605		
Total	122,454	121,332	118,526	115,623	3,984	6,443	113,164		
Annual Allowance (\$thousands)	\$351,457	\$348,743	\$326,560	\$320,907	\$28,348	\$613	\$348,642		
Valuation Date	Jan 1, 2017	Jan 1, 2018	June 30, 2018	June 30, 2019	June 30, 2020	June 30, 2021			
Average per health care participant annual benefit	\$2,205	\$273	\$667	\$772	\$976	\$768			