



State Teachers Retirement System of Ohio Retiree Health Care Benefits Plan

**Actuarial Valuation and
GASB 74 and 75 Report
as of June 30, 2022**

**Produced by Cheiron
October 2022**

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.....	36
Appendix D	Glossary of Terms.....	40
Appendix E	Supporting Schedules.....	44

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 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, 2022. The primary purposes of performing this actuarial valuation are to:

- Determine 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. This report has been prepared in accordance with Ohio Revised Code Section 3307.51(E), which requires the board to have prepared annually a report giving a full accounting of the revenues and costs related to the provision of benefits under section 3307.39 of the Revised Code.

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 the 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, 2022 MEASUREMENT DATE**

SECTION I – VALUATION SUMMARY

Table I-1 below summarizes the June 30, 2022 and June 30, 2021 actuarial valuation results.

Table I-1 Summary of Key Valuation Results		
Valuation Date	June 30, 2022	June 30, 2021
Discount Rate	7.00%	7.00%
Actuarial Liability		
Pre-Medicare in pay members	195,835,761	205,473,182
Medicare in pay members	963,932,295	1,475,353,999
Current retirees, beneficiaries, and dependents	\$ 1,159,768,056	\$ 1,680,827,181
Pre-Medicare active members	463,484,705	557,635,463
Medicare active members	353,467,709	579,869,378
Current active members	\$ 816,952,414	\$ 1,137,504,841
Pre-Medicare terminated members	3,572,118	1,966,749
Medicare terminated members	415,021	1,022,750
Terminated members entitled but not yet eligible	3,987,139	2,989,499
Pre-Medicare members	662,892,584	765,075,394
Medicare members	1,317,815,025	2,056,246,127
Total Actuarial Liability	\$ 1,980,707,609	\$ 2,821,321,521
Health care fund assets	4,570,039,934	4,929,739,778
Unfunded actuarial liability (UAL)	\$ (2,589,332,325)	\$ (2,108,418,257)
Funded Ratio	230.73%	174.73%

The Total Actuarial Liability decreased from \$2.82 billion under the prior valuation to \$1.98 billion under this valuation. In addition to the expected increase in liability of \$139.28 million due to normal cost, benefit payments, and interest, the Plan experienced other changes in liability attributable to \$246.06 million increase due to benefit changes, \$94.80 million decrease due to population changes, \$288.86 million decrease due to changes in demographic assumptions, and \$842.30 million decrease due to change in healthcare and trend assumptions. A description of 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, 2022 MEASUREMENT DATE**

SECTION I – VALUATION SUMMARY

The ADC, calculated in Table I-2 below, is the recommended contribution to the Retiree Health Care Benefits 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, 2022 and June 30, 2021, 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, 2022 and June 30, 2021 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, 2023	June 30, 2022
Normal cost	\$26,796	\$38,323
Amortization of UAL	(142,111)	(121,451)
Interest adjustment	(8,072)	(5,819)
Total ADC (not less than \$0)	\$0	\$0
Projected payroll	\$ 12,829,357	\$ 12,202,078
ADC as a percentage of pay	0.00%	0.00%
Expected/Actual Net Benefit Payments	\$ 204,415	\$ 95,860

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 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, 2021	\$	2,821,321
Normal Cost		38,323
Net Benefits paid throughout the year		(95,860)
Interest		196,820
Expected Actuarial Liability at June 30, 2022	\$	2,960,604
Actuarial Liability at June 30, 2022		1,980,707
Gain or (Loss)	\$	979,897
Gain or (Loss) due to:		
Benefit changes	\$	(246,059)
Census changes		94,797
Demographic Assumption changes		288,858
Claims and Trends Assumption changes		842,301
Total changes	\$	979,897

Benefit changes: refers to the change in the 2023 subsidy percentage and the base amount for all participants, from 2.1% per year to 2.2% per year, max 30 years, as well as the changes in Primary Care Physician office visit copays, the PBM network changes for Medicare, and the increase of the Part B premium reimbursement to \$30 per month for all retirees and surviving spouses.

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.

Demographic Assumption Changes: refers to the change in demographic assumptions due to the recent experience study. Demographic assumptions were reviewed and adopted by the Board on February 17, 2022 as part of an experience study performed (report dated and accepted March 11, 2022) covering the period from July 1, 2015 to June 30, 2021, with changes going into effect June 30, 2022. For a description of the prior assumptions, refer to the Actuarial Valuation Report as of June 30, 2021 dated October 2021.

Claims and Trends Assumption Changes: refers to the change in claim curves and trends from those expected. From Plan Year Ending June 30, 2022 to Plan Year Ending June 30, 2023, Medicare projected medical cost decreased 42%, the Medicare projected net pharmacy cost increased 6% and the premium charged to Medicare Eligible Retirees dropped 15%. The Non Medicare projected medical, pharmacy and premium charged to retirees increased 3%, slightly less than expected.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

SECTION I – VALUATION SUMMARY

Table I-4 below summarizes the assets for the OPEB Trust as of June 30, 2022 and June 30, 2021. The actual return on assets for the period ending June 30, 2022 was -5.4%, which was less than the assumed rate of 7.00%.

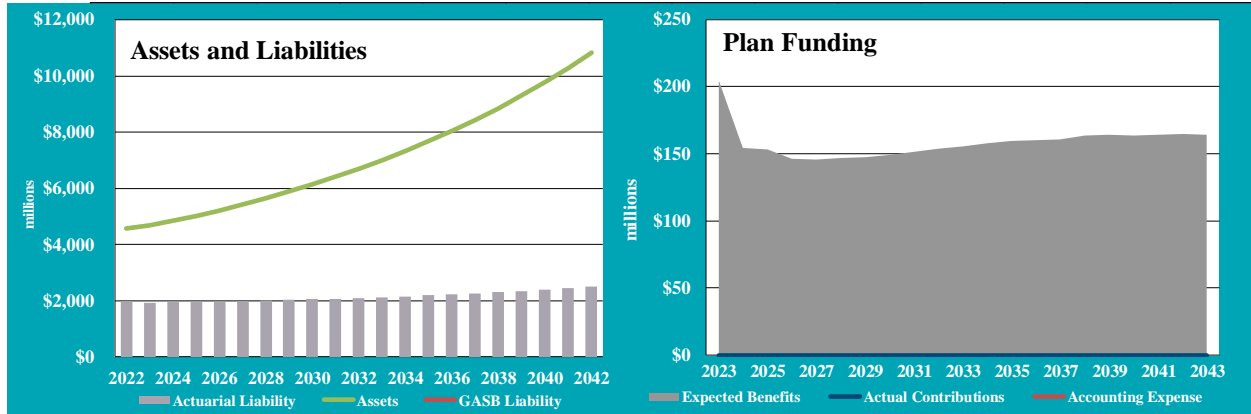
Table I-4 Reconciliation of OPEB Assets		
Fiscal Year Ending	June 30, 2022	June 30, 2021
Additions		
Contributions received		
Employer	\$ 0	\$ 0
Government reimbursements	97,712,437	96,477,619
Total contributions	\$ 97,712,437	\$ 96,477,619
Net investment income	(261,500,000)	1,121,700,000
Total Additions	\$ (163,787,563)	\$ 1,218,177,619
Deductions		
Benefit Payments	\$ 418,103,952	\$ 437,403,980
Administrative expense	2,340,013	2,343,646
Benefit recipient healthcare premiums	(224,531,684)	(254,013,632)
Other	0	0
Total Deductions	\$ 195,912,281	\$ 185,733,994
Net increase in net position	\$ (359,699,844)	\$ 1,032,443,625
Net position restricted to OPEB		
Beginning of Year	\$ 4,929,739,778	\$ 3,897,296,153
End of Year	\$ 4,570,039,934	\$ 4,929,739,778
Asset return for the year	-5.40%	29.05%

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

SECTION I – VALUATION SUMMARY

Projected Trends – Asset Return 7.00%

Looking beyond 2022, 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 each year over the entire period.



The left-hand chart shows the projected Actuarial Liability (grey bars) increasing from \$2.0 billion to over \$2.5 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, 2022, the Net OPEB Liability (NOL) is currently less than \$0 and is projected to remain less than \$0 over the next 20 years, so doesn’t show on the chart. The green line projects the assets in the Plan increasing from \$4.57 billion to approximately \$10.8 billion. The funding percentage is expected to grow from 230% to 432% 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 \$204 million to \$154 million in 2023 and then increases to \$164 million over the next 19 year period. The blue line represents the State Teachers Retirement System’s assumed contributions to the Trust, the 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, 2022 MEASUREMENT DATE**

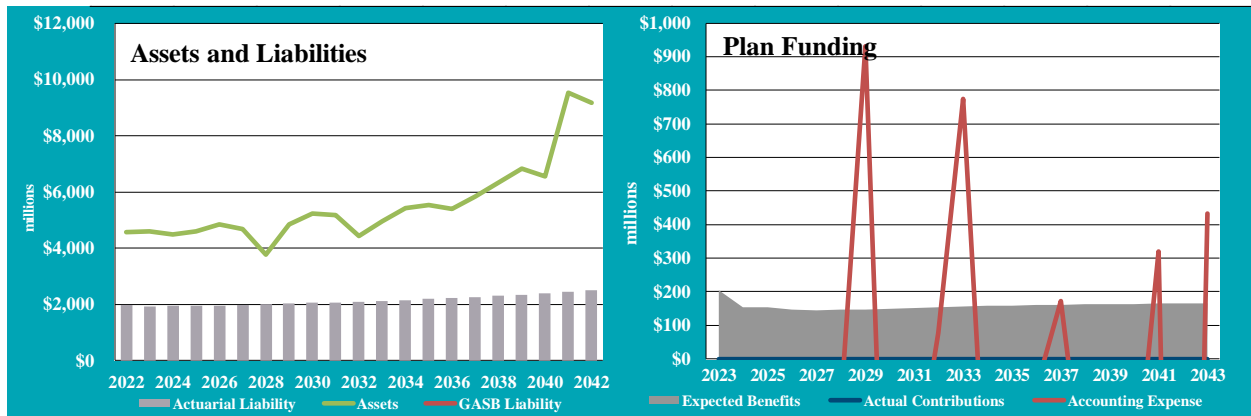
SECTION I – VALUATION SUMMARY

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. This period was chosen to average a 6.75% expected return over the 20-year period.

The assumed returns are:

										Average Return	
Fiscal Year Ending	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2022-2032
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	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2033-2042
Expected Return	15.64%	12.79%	5.30%	0.45%	11.31%	11.81%	10.22%	-1.52%	48.70%	-2.14%	10.49%
											2022-2042
											6.75%



The left-hand chart shows the projected Actuarial Liability (grey bars) increasing from \$2.0 billion to almost \$2.5 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, 2020, the Net OPEB Liability (NOL) is currently less than \$0 and is projected to remain less than \$0 over the next 20 years, so doesn’t show on the chart. The green line projects the assets in the Plan increasing from \$4.57 billion to approximately \$9.2 billion. The funding percentage is expected to remain level over the period until 2040 when it is expected to jump above 300%.

The right-hand chart shows the annual costs. Benefit payments, net of retiree contributions, are shown by the grey area and are projected from \$204 million to \$154 million in 2023 and then increases to \$164 million over the next 19 year period. The blue line represents the State Teachers Retirement System’s assumed contributions to the Trust, the 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, 2022 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 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 June 30	Projected Beginning Fiduciary Net Position (a)	Projected Contributions (b)	Projected Net Benefits Retirees (c)	Projected Net Benefits Future Retirees (d)	Projected Total Net Benefits (e) = (c) + (d)	Projected Administrative Expenses (f)	Projected Investment Earnings (g)	Projected Ending Fiduciary Net Position (h) = (a) + (b) - (e) - (f) + (g)
2022	\$ 4,929,740				\$ 95,860	\$ 2,340	\$ (261,500)	\$ 4,570,040
2023	\$ 4,570,040	\$ 0	\$ 194,629	\$ 9,786	\$ 204,415	\$ 2,410	\$ 312,786	\$ 4,676,001
2024	4,676,001	0	137,061	16,908	153,969	2,482	321,937	4,841,487
2025	4,841,487	0	128,787	24,069	152,856	2,556	333,557	5,019,632
2026	5,019,632	0	115,920	30,548	146,468	2,633	346,244	5,216,775
2027	5,216,775	0	107,640	37,818	145,458	2,712	360,076	5,428,681
2028	5,428,681	0	101,392	45,393	146,785	2,793	374,861	5,653,964
2029	5,653,964	0	94,893	52,817	147,710	2,877	390,596	5,893,973
2030	5,893,973	0	89,252	60,345	149,597	2,963	407,329	6,148,742
2031	6,148,742	0	84,318	67,444	151,762	3,052	425,085	6,419,013
2032	6,419,013	0	80,325	73,631	153,956	3,144	443,925	6,705,838
2033	6,705,838	0	77,263	78,919	156,182	3,238	463,923	7,010,341
2034	7,010,341	0	74,440	84,044	158,484	3,335	485,156	7,333,678
2035	7,333,678	0	71,498	88,710	160,208	3,435	507,727	7,677,762
2036	7,677,762	0	68,605	92,555	161,160	3,538	531,776	8,044,840
2037	8,044,840	0	65,646	96,754	162,400	3,644	557,426	8,436,222
2038	8,436,222	0	61,830	101,628	163,458	3,753	584,782	8,853,793
2039	8,853,793	0	57,277	106,585	163,862	3,866	613,994	9,300,059
2040	9,300,059	0	52,810	110,916	163,726	3,982	645,234	9,777,585
2041	9,777,585	0	48,504	115,838	164,342	4,101	678,635	10,287,777
2042	10,287,777	0	44,357	120,281	164,638	4,224	714,334	10,833,249
2043	10,833,249	0	40,331	123,830	164,161	4,351	752,529	11,417,266
2044	11,417,266	0	36,464	127,430	163,894	4,482	793,415	12,042,305
2045	12,042,305	0	32,753	131,020	163,773	4,616	837,167	12,711,083
2046	12,711,083	0	29,236	134,923	164,159	4,754	883,964	13,426,134
2047	13,426,134	0	25,918	138,757	164,675	4,897	933,995	14,190,557
2048	14,190,557	0	22,820	142,269	165,089	5,044	987,485	15,007,909
2049	15,007,909	0	19,954	146,601	166,555	5,195	1,044,644	15,880,803
2050	15,880,803	0	17,312	151,093	168,405	5,351	1,105,678	16,812,725
2051	16,812,725	0	14,912	155,658	170,570	5,512	1,170,832	17,807,475
2052	17,807,475	0	12,742	160,852	173,594	5,677	1,240,355	18,868,559

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, 2022 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
2022	206,952	4,570,040	1,981,112	2023	0
2023	156,552	4,675,871	1,935,270	2024	0
2024	155,486	4,841,243	1,940,490	2025	0
2025	149,151	5,019,294	1,948,410	2026	0
2026	148,217	5,216,361	1,964,700	2027	0
2027	149,571	5,428,189	1,984,420	2028	0
2028	150,512	5,653,445	2,005,460	2029	0
2029	152,402	5,893,495	2,028,380	2030	0
2030	154,550	6,148,394	2,052,370	2031	0
2031	156,708	6,418,914	2,077,290	2032	0
2032	158,872	6,706,138	2,103,220	2033	0
2033	161,080	7,011,230	2,130,290	2034	0
2034	162,685	7,335,393	2,158,580	2035	0
2035	163,474	7,680,588	2,188,840	2036	0
2036	164,513	8,049,129	2,222,120	2037	0

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 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, 2022,
- 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, 2022, which is used for the Plan’s GASB 74 reporting. The employer’s GASB 75 reporting as of June 30, 2023, is based on the June 30, 2022 measurement date. Measurements are based on the Total OPEB Liability and the fair value of assets as of June 30, 2022.

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		6/30/2023	6/30/2022
Reporting Date under GASB 74		6/30/2022	6/30/2021
Measurement Date under GASB 74 and 75		6/30/2022	6/30/2021
Net OPEB Liability	\$	(2,589,333)	\$ (2,108,419)
Deferred Outflows		192,907	209,751
Deferred Inflows		<u>2,224,954</u>	<u>2,228,542</u>
Net Impact on Statement of Net Position	\$	(557,286)	\$ (89,628)
OPEB Expense (\$ Amount)	\$	(467,658)	\$ (148,309)
OPEB Expense (% of Payroll)		(3.83%)	(1.28%)

Amounts in Thousands

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

SECTION II –GASB 74 AND 75 SUMMARY

At the June 30, 2022 reporting date, the State Teachers Retirement System will report a Net OPEB Liability (NOL) of (\$2,589.3) million, Deferred Outflows of Resources (DOR) of \$192.9 million, and Deferred Inflows of Resources (DIR) of \$2,225.0 million related to the Plan. Consequently, the net impact on the State Teachers Retirement System’s statement of net position due to the Plan would be (\$557.3) million $[(\$557.3) = (\$2,589.3) - \$192.9 + \$2,225.0]$. 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 \$480.9 million during the measurement period. Changes in NOL due to Plan changes are recognized immediately. Changes 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 eight years as of the current and seven years as of the 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 DOR and DIR.

For the reporting year ending June 30, 2022, the annual OPEB expense is (\$467.7) million or (3.83%) of covered-employee payroll. This amount reflects the employer’s contributions to the Plan during the measurement period, \$0, plus the change in the net impact on the State Teachers Retirement System’s statement of net position $[(\$467.7) = \$0 + (\$557.3) - (\$89.6)]$. 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, 2022 MEASUREMENT DATE**

SECTION III – CERTIFICATION

This report presents the most recent annual actuarial valuation as of June 30, 2022 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. This report has been prepared in accordance with Ohio Revised Code Section 3307.51(E), which requires the board to have prepared annually a report giving a full accounting of the revenues and costs related to the provision of benefits under section 3307.39 of the Revised Code.

The actuary prepared the following supporting schedules including the Financial and Actuarial Sections of the *Annual Comprehensive 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
 - Retiree Health Care Benefits Solvency Test
 - Key methods and assumptions used in Retiree Health Care Benefits 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.

We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices. In particular, the assumptions and methods used for funding purposes meet the requirements of the Actuarial Standards of Practice, in particular Standards Nos. 6, 27, 35 and 44.

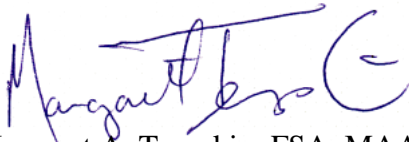
Future actuarial measurements may differ significantly from the current measurements due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, changes in healthcare assumptions, and changes in plan provisions or applicable law. This report does not reflect future changes in benefit, recoveries, or administrative costs that may be required as a result of the Inflation Reduction Act, the 2021 Consolidated Appropriation Act, related legislation, or regulations.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

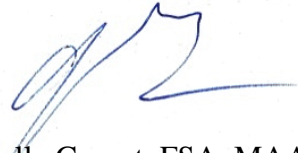
SECTION III – CERTIFICATION

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.

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, 2022 MEASUREMENT DATE**

SECTION IV – DETERMINATION OF DISCOUNT RATE

The discount rate as of June 30, 2022 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 7.00% based on the assumed long-term expected rate of return on plan investments of 7.00%.

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, 2022 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, 2022.

Table V - 1 Change in Net OPEB Liability			
	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability
Balances at 6/30/2021	\$ 2,821,321	\$ 4,929,740	\$ (2,108,419)
Changes for the year:			
Beginning of year service cost	38,323		38,323
Interest	196,820		196,820
Changes of benefits	246,059		246,059
Differences between expected and actual experience	(94,797)		(94,797)
Changes of assumptions	(1,131,159)		(1,131,159)
Contributions - employer		0	0
On behalf contributions		97,712	(97,712)
Contributions - retired members		0	0
Net investment income		(261,500)	261,500
Benefit payments	(95,860)	(193,572)	97,712
Administrative expense		(2,340)	2,340
Net changes	<u>(840,614)</u>	<u>(359,700)</u>	<u>(480,914)</u>
Balances at 6/30/2022	<u>\$ 1,980,707</u>	<u>\$ 4,570,040</u>	<u>\$ (2,589,333)</u>

Amounts in Thousands

During the measurement year, the NOL decreased by approximately \$0.48 billion. The service cost and interest cost increased the NOL by approximately \$0.24 billion, while investment losses and administrative expenses offset by contributions increased the NOL by approximately \$0.17 billion.

There were changes in benefits during the year, which increased the TOL by approximately \$0.25 billion. There were changes in assumptions during the measurement year, which decreased the TOL by approximately \$1.13 billion. The assumption changes were based on the results of the 2021 experience study. There was a liability gain of approximately \$0.09 billion during the year due to experience.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 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	\$ 2,176,270	\$ 1,980,707	\$ 1,813,191
Plan Fiduciary Net Position	<u>4,570,040</u>	<u>4,570,040</u>	<u>4,570,040</u>
Net OPEB Liability	<u>\$ (2,393,770)</u>	<u>\$ (2,589,333)</u>	<u>\$ (2,756,849)</u>
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	210.0%	230.7%	252.0%

Amounts in Thousands

A one percent decrease in the discount rate increases the TOL by approximately 10% and increases the NOL by approximately 8%. A one percent increase in the discount rate decreases the TOL by approximately 8% and decreases the NOL by approximately 6%.

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	\$ 1,884,272	\$ 1,980,707	\$ 2,102,433
Plan Fiduciary Net Position	<u>4,570,040</u>	<u>4,570,040</u>	<u>4,570,040</u>
Net OPEB Liability	<u>\$ (2,685,768)</u>	<u>\$ (2,589,333)</u>	<u>\$ (2,467,607)</u>
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	242.5%	230.7%	217.4%

Amounts in Thousands

A one percent decrease in healthcare trends decreases the TOL by approximately 5% and decreases the NOL by approximately 4%. A one percent increase in healthcare trends increases the TOL by approximately 6% and increases the NOL by approximately 5%.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 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 2022	FYE 2021	FYE 2020	FYE 2019	FYE 2018	FYE 2017
Total OPEB Liability						
Beginning of year service cost (including retired member contributions for FYE2021 and prior)	\$ 38,323	\$ 30,123	\$ 324,526	\$ 338,776	\$ 633,316	\$ 225,094
Interest (includes interest on service cost)	196,820	167,884	174,040	164,544	320,157	277,562
Changes of benefit terms	246,059	556,994	428,480	53,985	(3,340,847)	(1,065,892)
Differences between expected and actual experience	(94,797)	(116,611)	(329,525)	(7,285)	(109,227)	262,764
Changes of assumptions	(1,131,159)	130,045	(264,958)	40,616	(2,248,888)	(366,671)
Benefit payments + expenses, including refunds of member contributions	(95,860)	(86,912)	(408,683)	(489,169)	(517,470)	(489,101)
Net change in total OPEB liability	\$ (840,614)	\$ 681,523	\$ (76,120)	\$ 101,467	\$ (5,262,959)	\$ (1,156,244)
Total OPEB liability - beginning	2,821,321	2,139,798	2,215,918	2,114,451	7,377,410	8,533,654
Total OPEB liability - ending	\$ 1,980,707	\$ 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	\$ 0
On behalf contributions	97,712	96,478	81,876	84,789	107,197	79,357
Contributions - retired members	0	0	295,779	312,842	329,305	339,056
Net investment income	(261,500)	1,121,700	140,299	244,699	328,965	440,196
Benefit payments, including refunds of member contributions	(193,572)	(183,390)	(490,559)	(489,169)	(517,470)	(565,962)
Administrative expense	(2,340)	(2,344)	(2,257)	(2,352)	(2,427)	(2,496)
Net change in plan fiduciary net position	\$ (359,700)	\$ 1,032,444	\$ 25,138	\$ 150,809	\$ 245,570	\$ 290,151
Plan fiduciary net position - beginning	4,929,740	3,897,296	3,872,158	3,721,349	3,475,779	3,185,628
Plan fiduciary net position - ending	\$ 4,570,040	\$ 4,929,740	\$ 3,897,296	\$ 3,872,158	\$ 3,721,349	\$ 3,475,779
Net OPEB liability - ending	\$ (2,589,333)	\$ (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	230.73%	174.73%	182.13%	174.74%	176.00%	47.11%
Covered employee payroll	\$ 12,224,438	\$ 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	-21.18%	-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, 2022 MEASUREMENT DATE**

SECTION V – GASB 74 REPORTING INFORMATION

We have provided the FYE 2017, 2018, 2019, 2020, 2021, and 2022 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 2022	FYE 2021	FYE 2020	FYE 2019	FYE 2018	FYE 2017
Actuarially Determined Contribution (ADC)	\$ 0	\$ 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>	<u>0</u>
Contribution Deficiency/(Excess) relative to ADC	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 239,430</u>
Covered-Employee Payroll (Pay)	\$ 12,224,438	\$ 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%	0.00%

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

SECTION VI – GASB 75 REPORTING INFORMATION

The schedules in this section provide the information the State Teachers Retirement 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 DOR and DIR 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, 2022 Measurement Date		
	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 37,536	\$ 388,868
Changes in assumptions	110,297	1,836,086
Net difference between projected and actual earnings on OPEB plan investments	45,074	0
Total	\$ 192,907	\$ 2,224,954
Amounts reported as deferred outflows and deferred inflows of resources will be recognized in OPEB expense as follows:		
Year ended June 30:		
2023	(594,929)	
2024	(585,889)	
2025	(277,794)	
2026	(115,624)	
2027	(151,325)	
Thereafter	\$ (306,486)	

Amounts in Thousands

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

SECTION VI – GASB 75 REPORTING INFORMATION

During the year, benefit changes increased the TOL by approximately \$246.1 million. Benefit changes are recognized immediately.

During the year, actual experience differed from assumed experience decreasing the TOL by approximately \$94.8 million. Approximately one-eighth of this was recognized in the current year, and an identical amount will be recognized in each of the next seven years, resulting in a DOR of approximately \$82.9 million. In addition, assumption changes (including a change in healthcare cost and trends) decreased the TOL by approximately \$1,131.2 million. Approximately \$141.4 million was recognized in the current year, and an identical amount will be recognized in each of the next seven years, resulting in a DIR of approximately \$989.8 million.

The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment loss of \$603.1 million. Of that loss, \$120.6 million was recognized in the current year, and an identical amount will be recognized in each of the next four years, resulting in a DIR as of June 30, 2020 of \$482.5 million.

Please refer to table VI – 2 for the complete schedule of DOR and DIR.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

SECTION VI – GASB 75 REPORTING INFORMATION

The table below shows the schedule of DOR and DIR since inception of GASB 74/75.

Table VI - 2 Schedule of Deferred Inflows and Outflows of Resources as of June 30, 2022 Projected Fiscal Year End June 30, 2022 Measurement Date													
Recognition of Experience (Gains) and Losses													
Experience Year	Recognition Period	Total Amount	BOY Remaining Amount	EOY Remaining Amount	2022	2023	2024	Recognition Year					
								2025	2026	2027	2028	2029	
2022	8.00	\$ (94,797)	\$ (94,797)	\$ (82,947)	\$ (11,850)	\$ (11,850)	\$ (11,850)	\$ (11,850)	\$ (11,850)	\$ (11,850)	\$ (11,850)	\$ (11,850)	\$ (11,847)
2021	7.00	\$ (116,611)	\$ (99,952)	\$ (83,293)	\$ (16,659)	\$ (16,659)	\$ (16,659)	\$ (16,659)	\$ (16,659)	\$ (16,657)	\$ -	\$ -	\$ -
2020	7.00	\$ (329,525)	\$ (235,375)	\$ (188,300)	\$ (47,075)	\$ (47,075)	\$ (47,075)	\$ (47,075)	\$ (47,075)	\$ -	\$ -	\$ -	\$ -
2019	7.00	\$ (7,285)	\$ (4,162)	\$ (3,121)	\$ (1,041)	\$ (1,041)	\$ (1,041)	\$ (1,039)	\$ -	\$ -	\$ -	\$ -	\$ -
2018	7.00	\$ (109,227)	\$ (46,811)	\$ (31,207)	\$ (15,604)	\$ (15,604)	\$ (15,603)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2017*	7.00	\$ 262,764	\$ 75,074	\$ 37,536	\$ 37,538	\$ 37,536	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Recognition of liability gains and losses			\$ (406,023)	\$ (351,332)	\$ (54,691)	\$ (54,693)	\$ (92,228)	\$ (76,623)	\$ (75,584)	\$ (28,507)	\$ (11,850)	\$ (11,847)	
Recognition of Assumption Changes													
Experience Year	Recognition Period	Total Amount	BOY Remaining Amount	EOY Remaining Amount	2022	2023	2024	Recognition Year					
								2025	2026	2027	2028	2029	
2022	8.00	\$ (1,131,159)	\$ (1,131,159)	\$ (989,764)	\$ (141,395)	\$ (141,395)	\$ (141,395)	\$ (141,395)	\$ (141,395)	\$ (141,395)	\$ (141,395)	\$ (141,394)	\$ (141,394)
2021	7.00	\$ 130,045	\$ 111,467	\$ 92,889	\$ 18,578	\$ 18,578	\$ 18,578	\$ 18,578	\$ 18,578	\$ 18,577	\$ -	\$ -	\$ -
2020	7.00	\$ (264,958)	\$ (189,256)	\$ (151,405)	\$ (37,851)	\$ (37,851)	\$ (37,851)	\$ (37,851)	\$ (37,852)	\$ -	\$ -	\$ -	\$ -
2019	7.00	\$ 40,616	\$ 23,210	\$ 17,408	\$ 5,802	\$ 5,802	\$ 5,802	\$ 5,804	\$ -	\$ -	\$ -	\$ -	\$ -
2018	7.00	\$ (2,248,888)	\$ (963,808)	\$ (642,538)	\$ (321,270)	\$ (321,270)	\$ (321,268)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2017*	7.00	\$ (366,671)	\$ (104,761)	\$ (52,379)	\$ (52,382)	\$ (52,379)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Recognition of assumption changes			\$ (2,254,307)	\$ (1,725,789)	\$ (528,518)	\$ (528,515)	\$ (476,134)	\$ (154,864)	\$ (160,669)	\$ (122,818)	\$ (141,395)	\$ (141,394)	
Recognition of Investment (Gains) and Losses													
Experience Year	Recognition Period	Total Amount	BOY Remaining Amount	EOY Remaining Amount	2022	2023	2024	Recognition Year					
								2025	2026	2027	2028	2029	
2022	5	\$ 603,145	\$ 603,145	\$ 482,516	\$ 120,629	\$ 120,629	\$ 120,629	\$ 120,629	\$ 120,629	\$ -	\$ -	\$ -	\$ -
2021	5	\$ (834,676)	\$ (667,741)	\$ (500,806)	\$ (166,935)	\$ (166,935)	\$ (166,935)	\$ (166,936)	\$ -	\$ -	\$ -	\$ -	\$ -
2020	5	\$ 143,887	\$ 86,333	\$ 57,556	\$ 28,777	\$ 28,777	\$ 28,779	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2019	5	\$ 29,044	\$ 11,617	\$ 5,808	\$ 5,809	\$ 5,808	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2018	5	\$ (73,126)	\$ (14,626)	\$ -	\$ (14,626)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Recognition of investment gains and losses			\$ 18,728	\$ 45,074	\$ (26,346)	\$ (11,721)	\$ (17,527)	\$ (46,307)	\$ 120,629				
Total (Gains) and Losses		Total Amount	Remaining Amounts		2022	2023	2024	Recognition Year					
			BOY	EOY				2025	2026	2027	2028	2029	
Total (Gains) and Losses		\$ (4,367,422)	\$ (2,641,602)	\$ (2,032,047)	\$ (609,555)	\$ (594,929)	\$ (585,889)	\$ (277,794)	\$ (115,624)	\$ (151,325)	\$ (153,245)	\$ (153,241)	

* 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, 2022 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 State Teachers Retirement 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, 2022 MEASUREMENT DATE**

SECTION VI – GASB 75 REPORTING INFORMATION

**Table VI - 3
Calculation of OPEB Expense**

Fiscal Year	Measurement Year Ending	
	2022	2021
Change in Net OPEB Liability	\$ (480,914)	\$ (350,921)
Change in Deferred Outflows	16,844	(6,534)
Change in Deferred Inflows	(3,588)	209,146
Employer Contributions	<u>0</u>	<u>0</u>
OPEB Expense	\$ (467,658)	\$ (148,309)
OPEB Expense as % of Payroll	(3.83%)	(1.28%)
Operating Expenses		
Service cost	\$ 38,323	\$ 30,123
On behalf contributions	(97,712)	(96,478)
Retired members contributions	-	-
Benefits Paid by on Behalf	97,712	96,478
Administrative expenses	<u>2,340</u>	<u>2,344</u>
Total	\$ 40,663	\$ 32,467
Financing Expenses		
Interest cost	\$ 196,820	\$ 167,884
Expected return on assets	<u>(341,645)</u>	<u>(287,024)</u>
Total	\$ (144,825)	\$ (119,140)
Changes		
Benefit changes	\$ 246,059	\$ 556,994
Recognition of assumption changes	(528,518)	(387,123)
Recognition of liability gains and losses	(54,691)	(42,841)
Recognition of investment gains and losses	<u>(26,346)</u>	<u>(188,666)</u>
Total	\$ (363,496)	\$ (61,636)
OPEB Expense	\$ (467,658)	\$ (148,309)

Amounts in Thousands

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

APPENDIX A – MEMBERSHIP INFORMATION

The census data used to develop the Total OPEB Liability (TOL) as of June 30, 2022 was provided by the State Teachers Retirement System.

	June 30, 2022	June 30, 2021	% Change
Active Participants			
Number	174,031	166,424	4.6%
Average age	44.24	44.21	0.1%
Average years of service	13.31	13.57	-1.9%
Projected payroll (in thousands)	\$ 12,829,357	\$ 12,202,078	5.1%
Average expected retirement age	62.6	61.4	1.9%
Retirees Enrolled in Health Care			
Number of retirees	94,349	96,322	-2.0%
Average age of retirees	75.0	74.5	0.7%
Numbers of spouses and dependents (excluding children)	11,868	12,605	-5.8%
Average age of spouses	75.3	74.9	0.5%
Surviving Spouses Enrolled in Health Care			
Number	4,143	4,237	-2.2%
Average age	82.9	82.6	0.4%
Terminated Members Entitled but Not Yet Eligible			
Number	20,190	20,430	-1.2%
Average age	50.8	50.9	-0.2%
Number of terminated members eligible	2,317	3,818	-39.3%
Average age	57.6	58.0	-0.7%

Active Member Data as of June 30, 2022

Age	COUNTS BY AGE/SERVICE										Total
	Service										
	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	3,413	3,418	0	0	0	0	0	0	0	0	6,831
25 to 29	1,977	8,940	4,063	0	0	0	0	0	0	0	14,980
30 to 34	1,474	4,421	10,113	3,086	0	0	0	0	0	0	19,094
35 to 39	1,563	3,703	5,308	8,687	3,867	0	0	0	0	0	23,128
40 to 44	1,439	3,330	4,073	4,322	9,300	4,933	1	0	0	0	27,398
45 to 49	1,009	2,554	2,824	2,692	3,529	9,596	3,340	0	0	0	25,544
50 to 54	856	2,152	2,296	2,243	2,653	4,393	8,298	2,432	1	0	25,324
55 to 59	553	1,233	1,401	1,483	1,935	2,573	2,897	3,987	479	1	16,542
60 to 64	424	823	917	903	1,248	1,870	1,811	1,445	545	64	10,050
65 to 69	315	491	396	321	356	438	407	356	225	67	3,372
70 & up	301	376	236	150	120	123	109	119	120	114	1,768
Total	13,324	31,441	31,627	23,887	23,008	23,926	16,863	8,339	1,370	246	174,031

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

APPENDIX A – MEMBERSHIP INFORMATION

Reconciliation of Members							
	Active	Retired	Surviving Spouse	Disabled	Spouse of Retiree	Term Vested	Total
June 30, 2021	166,424	93,045	4,237	3,277	12,605	20,430	300,018
Changes due to:							
Active							
To Retired	(1,354)	1,354	-	-	-	-	-
To Disabled	(26)	-	-	26	-	-	-
To Death	(4)	-	-	-	-	-	(4)
To Term Vested	(2,584)	-	-	-	-	2,584	-
Retired							
To Active	1	(1)	-	-	-	-	-
To Term Vested	-	-	-	-	-	-	-
To Disabled	-	(1)	-	1	-	-	-
Disabled							
To Active	4	-	-	(4)	-	-	-
To Retired	-	18	-	(18)	-	-	-
To Death	-	-	-	(1)	-	-	(1)
To Term Vested	-	-	-	-	-	-	-
Spouse of Retiree							
To Surviving Spouse	-	-	339	-	(339)	-	-
Term Vested							
To Active	1,496	-	-	-	-	(1,496)	-
To Retired	-	50	-	-	-	(50)	-
To Surviving Spouse	-	-	-	-	-	-	-
To Disabled	-	-	-	-	-	-	-
To Death	-	-	-	-	-	(7)	(7)
Additions-New Hires	15,731	-	-	-	-	-	15,731
Additions-Other	4,850	1,005	41	46	496	52	6,490
Departures	(10,507)	(4,176)	(474)	(272)	(894)	(1,323)	(17,646)
June 30, 2022	174,031	91,294	4,143	3,055	11,868	20,190	304,581

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions for this valuation were selected based on recent experience and expectations for the future. Demographic assumptions were reviewed and adopted by the Board on February 17, 2022 as part of an experience study performed (report dated and accepted March 11, 2022) covering the period from July 1, 2015 to June 30, 2021, with changes going into effect June 30, 2022. For a description of the prior assumptions, refer to the Actuarial Valuation Report as of June 30, 2021 dated October 2021.

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** 3.54% as of June 30, 2022
Bond Buyer 20-Bond GO Index as of June 30, 2022

- 3. Discount Rate** 7.00%, based on a blend of 3.54% 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 service from 2.5% to 8.5%

- 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 2022_f4 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 2031+	1.40%
Extra Trend due to Taste/Technology 2031+	1.00%
Expected Health Share of GDP 2031	19.0%
Health Share of GDP Resistance Point	20.0%
Year for Limiting Cost Growth to GDP Growth	2042

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, 2022 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Short term trends, i.e., the first 4 years of trends that were inputted in the SOA Long-Run Medical Cost Trend Model were set based on STRS historical trends for medical and Rx, and anticipated health care market changes. The table below summarizes the short term trends by year and coverage type. Note that trends are applicable to underlying gross cost, meaning prior to recognizing any recoveries or subsidies for the Part D Employee Group Waiver Program (EGWP) plans, and prior to recognizing the CMS revenue for the Medicare Advantage plans.

Year	Medical Non-Medicare	Rx Non-Medicare	Medical Medicare	Rx Medicare	CMS Revenue
2022	7.5%	9.0%	5.0%	6.0%	4.8%
2023	7.0%	10.0%	6.0%	8.5%	5.9%
2024	6.5%	8.5%	5.5%	6.0%	5.7%
2025	5.2%	5.2%	5.2%	5.2%	5.3%

The CMS revenue trend is assumed match the medical Medicare trend thereafter.

Year	Medical		Prescription Drugs		Premium Trends		Contribution
	Pre-Medicare	Medicare	Pre-Medicare	Medicare	Pre-Medicare	Medicare	Limited Medicare
2022	7.50%	-68.78%	9.00%	-5.47%	7.85%	-4.89%	-4.06%
2023	7.00%	20.85%	10.00%	12.63%	7.70%	9.40%	6.00%
2024	6.50%	0.87%	8.50%	7.87%	6.98%	8.62%	6.00%
2025	5.20%	-8.60%	5.20%	5.59%	5.20%	5.17%	6.00%
2026	5.16%	-0.10%	5.16%	5.18%	5.16%	5.10%	6.00%
2027	5.12%	5.14%	5.12%	5.14%	5.12%	5.80%	6.00%
2028	5.09%	5.11%	5.09%	5.11%	5.09%	5.86%	6.00%
2029	5.05%	5.07%	5.05%	5.07%	5.05%	5.80%	6.00%
2030	5.01%	5.03%	5.01%	5.03%	5.01%	5.74%	6.00%
2031	4.97%	4.99%	4.97%	4.97%	4.97%	5.59%	6.00%
2032	4.97%	4.97%	4.97%	4.97%	4.97%	5.44%	6.00%
2033	4.63%	4.63%	4.63%	4.63%	4.63%	5.29%	6.00%
2034	4.45%	4.45%	4.45%	4.45%	4.45%	5.14%	6.00%
2035	4.35%	4.35%	4.35%	4.35%	4.35%	4.99%	5.89%
2036	4.28%	4.28%	4.28%	4.28%	4.28%	4.84%	5.28%
2037	4.23%	4.23%	4.23%	4.23%	4.23%	4.69%	4.69%
2038	4.19%	4.19%	4.19%	4.19%	4.19%	4.54%	4.54%
2039	4.17%	4.17%	4.17%	4.17%	4.17%	4.39%	4.39%
2040	4.14%	4.14%	4.14%	4.14%	4.14%	4.24%	4.24%
2041	4.04%	4.04%	4.04%	4.04%	4.04%	4.09%	4.09%
2042+	3.94%	3.94%	3.94%	3.94%	3.94%	3.94%	3.94%

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

7. Changes Since the Last Valuation

Salary increase rates were updated based on the 2021 experience study and were changed from age based to service based.

Healthcare trends were updated to reflect emerging claims and recoveries experience.



**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 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 for reduced retirement and age 65 with five years of service for unreduced retirement, or according to the following schedule:

Retirement Effective Date	Reduced Retirement	Unreduced Retirement
7/1/2015	Age 55 and 26 years	30 years
8/1/2015 - 7/1/2017	Age 55 and 26 years	31 years
8/1/2017 - 7/1/2019	Age 55 and 27 years	32 years
8/1/2019 - 7/1/2021	Age 55 and 28 years	33 years
8/1/2021 - 7/1/2023	Age 55 and 29 years	34 years
8/1/2023	Age 55 and 30 years	35 years

After meeting pension eligibility requirements, the following rates apply based on the Plan and type of retirement (reduced or unreduced).

Combined Plan		
Age	Male	Female
60	10.00%	10.00%
61-63	10.00%	15.00%
64	18.00%	20.00%
65	25.00%	30.00%
66	10.00%	25.00%
67	10.00%	15.00%
68	10.00%	15.00%
69-74	15.00%	15.00%
75	100.00%	100.00%

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Age	Reduced Retirement		Unreduced Retirement	
	Male	Female	Male	Female
50-51	2.00%	2.00%	N/A	N/A
52	3.00%	3.00%	N/A	N/A
53	5.00%	5.00%	N/A	N/A
54	9.00%	9.00%	N/A	N/A
55	12.00%	13.00%	23.00%	18.00%
56	10.00%	11.00%	20.00%	20.00%
57	10.00%	11.00%	18.00%	20.00%
58	8.00%	10.00%	22.00%	22.00%
59	11.00%	10.00%	23.00%	26.00%
60	6.50%	9.00%	21.00%	28.00%
61	8.00%	10.00%	20.00%	28.00%
62	8.00%	11.00%	20.00%	28.00%
63	10.00%	12.00%	20.00%	30.00%
64	15.00%	25.00%	24.00%	30.00%
65	N/A	N/A	28.00%	36.00%
66	N/A	N/A	23.00%	28.00%
67	N/A	N/A	22.00%	26.00%
68	N/A	N/A	20.00%	25.00%
69	N/A	N/A	21.00%	25.00%
70-71	N/A	N/A	22.00%	25.00%
72	N/A	N/A	24.00%	25.00%
73	N/A	N/A	20.00%	25.00%
74	N/A	N/A	23.00%	28.00%
75+	N/A	N/A	100.00%	100.00%

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, 2022 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

2. Rates of Termination/Withdrawal

Vested Termination Rate Withdrawal***			
Age	Male	Female	Disability
20	6.00%	6.00%	0.007%
30	2.70%	3.55%	0.007%
40	1.75%	1.40%	0.035%
50	1.95%	1.60%	0.126%
60	4.00%	3.60%	0.175%

**Termination rates stop at first retirement eligibility.*

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

Non-Vested Termination Rate		
Service	Male	Female
< 1 Year	40.00%	35.00%
1-2 Years	16.00%	15.00%
2-3 Years	12.00%	8.00%
3-5 Years	9.00%	8.00%

3. Rates of Mortality

Pre-Retirement: Pub-2010 Teachers Employee Table adjusted 95% for females, projected forward generationally using mortality improvement scale MP-2020.

Healthy Mortality: Pub-2010 Teachers Healthy Annuitant Mortality Table, adjusted 110% for males, projected forward generationally using mortality improvement scale MP-2020.

Disabled Mortality: Pub-2010 Teachers Disabled Annuitant Table projected forward generationally using mortality improvement scale MP-2020.

4. Percent of Retirees Electing Coverage

- 65% of future eligible service retirees and 65% of future eligible disabled retirees are assumed to elect coverage.
- 100% of combined plan and 20% 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, 2022 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 PPO	93.3%
AdultCare PPO	3.3%
Paramount Health Care HMO	3.4%

Medicare Medical Plans	Benefit Election Rate
Aetna Medicare Advantage	95.6%
Medical Mutual / Aetna Basic PPO	2.8%
AdultCare PPO	0.8%
Paramount Health Care HMO	0.8%

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

Demographic assumptions were reviewed and adopted by the Board on February 17, 2022 as part of an Experience Study performed (report dated and accepted March 11, 2022) covering the period from July 1, 2015 to June 30, 2021, with changes going into effect June 30, 2022. For a description of the prior assumptions, refer to the actuarial valuation report as of June 30, 2021 dated October 2021.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

10. Rationale for Assumptions

The updated assumptions were adopted by the Board of Trustees at their February 17, 2022 meeting. The demographic assumptions adopted are based on an experience study covering the period from July 1, 2015 through June 30, 2021 (report dated and accepted March 11, 2022).

Claim and Expense Assumptions

The claims costs are developed based on CY 2022 and CY 2023 projected premiums provided by STRS Ohio and developed by its vendor (Wakely, Aetna, AultCare, and Paramount). For the Part D 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 Per Member Per Month (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 2023 Final Self Funded Rates memo dated June 8, 2022. 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 2023 rate PMPM as the average of the CY 2022 and CY 2023 rate. Using the June 30, 2022 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 Cheiron's proprietary age curves.

1. Average Annual Claims and Expense Assumptions

The following 7/1/2022-6/30/2023 claims costs were developed based on:

- The average of the 2022 and 2023 premium rates the State Teachers Retirement System pays its vendors,
- The average Wakely's projected 2022 and 2023 Employer Group Waiver Program (EGWP) Recoveries that the State Teachers Retirement System is expected to receive for CY 2022 and CY 2023 prescription filled dates, and
- An estimate of the Rx rebates PMPM for the Non-Medicare population-based of \$75.

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 the valuation system, ProVal.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Fiscal Year Ending 6/30/2023 Average Claim and Expense Assumptions								
Age	Medical NME		Rx NME		Medical ME		Rx ME	
	Male	Female	Male	Female	Male	Female	Male	Female
40	\$3,489	\$6,330	\$886	\$1,099	\$296	\$266	\$1,848	\$1,771
45	\$4,607	\$6,555	\$1,150	\$1,312	\$426	\$383	\$2,661	\$2,550
50	\$6,037	\$7,545	\$1,461	\$1,551	\$540	\$486	\$3,378	\$3,237
55	\$7,779	\$9,236	\$1,821	\$1,816	\$592	\$533	\$3,702	\$3,547
60	\$9,833	\$10,874	\$2,228	\$2,107	\$558	\$502	\$3,490	\$3,344
64	\$11,701	\$11,044	\$2,588	\$2,359	\$470	\$423	\$2,936	\$2,813
65	\$11,563	\$10,939	\$2,641	\$2,387	\$284	\$261	\$1,779	\$1,734
70	\$12,678	\$12,129	\$3,136	\$2,725	\$343	\$295	\$2,002	\$1,815
75	\$13,901	\$13,448	\$3,678	\$3,088	\$418	\$352	\$1,952	\$1,783
80	\$15,241	\$14,911	\$4,267	\$3,478	\$496	\$414	\$1,768	\$1,683
85	\$16,711	\$16,532	\$4,903	\$3,893	\$567	\$469	\$1,556	\$1,555

2. Retiree Contributions

In 2022, Non-Medicare and Medicare AMA retirees receive a subsidy of 2.1% per year of service to a maximum of 30 years. In 2023, retirees will receive a subsidy of 2.2%.

Beginning in 2024, the STRS Ohio subsidy dollar amount for Non-Medicare plans will be frozen at the current 2023 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 (medical and Rx), limited to a maximum of 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 STRS Ohio for Eligible Retirees for the year beginning January 1, 2023 are shown on the next page.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

2023 Rates		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
Years of Service								
Total Cost¹		\$1,143	\$930	\$1,050	\$243	\$318	\$286	\$304
Retire before 8/1/2023	Retire on or after 8/1/2023	Frozen at 2023 Levels			Based on increase in Aetna MA plan, limit 6%			
15	20	\$377	\$307	\$347	\$80	\$80	\$80	\$80
16	21	\$402	\$327	\$370	\$86	\$86	\$86	\$86
17	22	\$427	\$348	\$393	\$91	\$91	\$91	\$91
18	23	\$453	\$368	\$416	\$96	\$96	\$96	\$96
19	24	\$478	\$389	\$439	\$102	\$102	\$102	\$102
	-							
20	25	\$503	\$409	\$462	\$107	\$107	\$107	\$107
21	26	\$528	\$430	\$485	\$112	\$112	\$112	\$112
22	27	\$553	\$450	\$508	\$118	\$118	\$118	\$118
23	28	\$578	\$471	\$531	\$123	\$123	\$123	\$123
24	29	\$604	\$491	\$554	\$128	\$128	\$128	\$128
	-							
25	30	\$629	\$512	\$578	\$134	\$134	\$134	\$134
26	31	\$654	\$532	\$601	\$139	\$139	\$139	\$139
27	32	\$679	\$552	\$624	\$144	\$144	\$144	\$144
28	33	\$704	\$573	\$647	\$150	\$150	\$150	\$150
29	34	\$729	\$593	\$670	\$155	\$155	\$155	\$155
	-							
30 +	35 +	\$754	\$614	\$693	\$160	\$160	\$160	\$160
Cost Per Child		\$305	\$243	\$267	\$243	\$318	\$286	\$304

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

The \$30 per month Medicare Part B reimbursement is not shown in the table above.

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	\$ 13,558.47
Retirees age 65+	\$ 3,213.28

3. Medicare Part D Subsidy

The Medicare Part D subsidy is expected to be negative in CY 2023. The Part D direct subsidy is not included in the FYE 2023 rates, meaning the cost of the Part D Direct subsidy is entirely born by the System. We assumed the Part D Direct subsidy decreases by \$36 annually for the first 2 years, then by 25% for the next 12 years; subsequently, the Part D Direct subsidy is implicitly trended when the trends showed above in this report are applied to the net Medicare Rx claims and expenses. Per GASB guidance, RDS Part D Subsidies are not reflected in valuations.

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 MEASUREMENT DATE**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

4. Medicare Part B Premium Subsidy

Service retirees, disabled retirees and surviving spouses who are enrolled in an STRS Ohio medical plan and who participate in Medicare Part B receive \$30.00 monthly reimbursement towards the Part B premiums. The reimbursement is bundled with the retiree premium, effectively reducing the monthly Medicare Eligible Retiree contribution by \$30.

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 subsidy percentage was increased effective January 1, 2023 from 2.1% to 2.2%. The Non-Medicare frozen subsidy base premium was increased effective January 1, 2023. The Part B monthly reimbursement was increased from \$29.90 to \$30 and all retirees and surviving spouses are now eligible for the Part B premium reimbursement.

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 2022_4f. 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, 2022 MEASUREMENT DATE**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Summary of Key Substantive Plan Provisions

Eligibility

The eligibility requirements for access to retiree health care benefits 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, 2022 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, 2022 MEASUREMENT DATE**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Summary of 2023 Benefit Plans

State Teachers Retirement System of Ohio - Non Medicare Retirees			
Plan	Medical Mutual (Ohio) / Aetna (outside Ohio) Indemnity ¹ 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

¹No network, benefits same as in-network benefits



**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 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, 2022 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:

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

**STATE TEACHERS RETIREMENT SYSTEM OF OHIO
ACTUARIAL VALUATION AND GASB 74/75 REPORTING
FOR JUNE 30, 2022 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, 2022 MEASUREMENT DATE**

APPENDIX D – GLOSSARY OF TERMS

15. Discount Rate

The assumed interest rate used for converting projected 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 (DIR)

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 (DOR)

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, 2022 MEASUREMENT DATE**

APPENDIX D – GLOSSARY OF TERMS

21. Net OPEB Liability (NOL)

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, 2022 MEASUREMENT DATE**

APPENDIX E – SUPPORTING SCHEDULES

Health Care Schedule of Funded Liabilities by Type, 2015 - 2022 (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%
June 30, 2022	\$816,952	\$3,987	\$1,159,768	\$4,570,040	100%	100%	323%

Key Methods and Assumptions Used in Health Care Actuarial Valuation	
Valuation Date	6/30/2022
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
2022	7.50%	-68.78%	9.00%	-5.47%	2032	4.97%	4.97%	4.97%	4.97%
2023	7.00%	20.85%	10.00%	12.63%	2033	4.63%	4.63%	4.63%	4.63%
2024	6.50%	0.87%	8.50%	7.87%	2034	4.45%	4.45%	4.45%	4.45%
2025	5.20%	-8.60%	5.20%	5.59%	2035	4.35%	4.35%	4.35%	4.35%
2026	5.16%	-0.10%	5.16%	5.18%	2036	4.28%	4.28%	4.28%	4.28%
2027	5.12%	5.14%	5.12%	5.14%	2037	4.23%	4.23%	4.23%	4.23%
2028	5.09%	5.11%	5.09%	5.11%	2038	4.19%	4.19%	4.19%	4.19%
2029	5.05%	5.07%	5.05%	5.07%	2039	4.17%	4.17%	4.17%	4.17%
2030	5.01%	5.03%	5.01%	5.03%	2040	4.14%	4.14%	4.14%	4.14%
2031	4.97%	4.99%	4.97%	4.97%	2041+	4.04%	4.04%	4.04%	4.04%

Summary of Membership Data									
Valuation Date:	Jan 1, 2016	Jan 1, 2017	Jan 1, 2018	June 30, 2018	June 30, 2019	June 30, 2020	June 30, 2021	June 30, 2022	
Active Members	164,925	169,205	168,132	170,327	170,004	167,838	166,424	174,031	
Inactive Members	17,275	17,011	17,694	18,384	18,762	19,415	20,430	20,190	
STRS Ohio Health Care Program Enrollees									
	June 30, 2018	June 30, 2019	June 30, 2020	June 30, 2021	Added	Terminated	June 30, 2022		
Retirees	97,830	96,235	94,456	93,045	2,427	4,178	91,294		
Disabled Retirees	3,823	3,639	3,469	3,277	73	295	3,055		
Survivors	4,766	4,498	4,377	4,237	380	474	4,143		
Spouses and Dependents (excluding Children)	14,913	14,154	13,321	12,605	496	1,233	11,868		
Total	121,332	118,526	115,623	113,164	3,376	6,180	110,360		
Annual Allowance (\$thousands)	\$348,743	\$326,560	\$320,907	\$348,642	\$11,190	\$69,122	\$290,710		
Valuation Date	Jan 1, 2018	June 30, 2018	June 30, 2019	June 30, 2020	June 30, 2021	June 30, 2022			
Average per health care participant annual benefit	\$273	\$667	\$772	\$976	\$768	\$869			

