

State Teachers Retirement System of Ohio

**Actuarial Valuation and Review of Retiree Health
Care Benefits for Reporting Date June 30, 2017 in
Accordance with GASB Statement No. 74**



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101 NORTH WACKER DRIVE, SUITE 500 CHICAGO, IL 60606
T 312.984.8500 F 312.896.9364 www.segalco.com

November 13, 2017

Board of Trustees
State Teachers Retirement System of Ohio
275 East Broad Street
Columbus, Ohio 43215

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review of Retiree Health Care Benefits as of June 30, 2017 under Governmental Accounting Standards Board Statement 74. The report summarizes the actuarial data used in the valuation, discloses the Net OPEB Liability (NOL) as of June 30, 2017, and analyzes the preceding year's experience.

This report was based on information received from State Teachers Retirement System of Ohio. The actuarial projections are based on the assumptions and methods described in Exhibit I and the plan of benefits as summarized in Exhibit II.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

A handwritten signature in black ink, appearing to read "Kim Nicholl", is written over a horizontal line.

Kim Nicholl, FSA MAAA EA
Senior Vice President and Actuary

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IMPORTANT INFORMATION ABOUT ACTUARIAL VALUATIONS

An actuarial valuation is a budgeting tool with respect to the defining future uncertain obligations of a postretirement health plan. As such, it will never forecast the precise future stream of benefit payments. It is an estimated forecast – the actual cost of the plan will be determined by the benefits and expenses paid, not by the actuarial valuation.

In order to prepare a valuation, Segal Consulting (“Segal”) relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. For example, a plan may provide health benefits to post-65 retirees that coordinates with Medicare. If so, changes in the Medicare law or administration may change the plan’s costs without any change in the terms of the plan itself. It is important for the System to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by the plan. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. For most plans, it is not possible or desirable to take a snapshot of the actual work force on the valuation date. In any event, the actuarial valuation is based on a future work force that is presumed to be the same as the active population included in the valuation, but in fact, employment varies from year to year, sometimes quite considerably. It is not necessary to have perfect data for an actuarial valuation: the valuation is an estimated forecast, not a prediction. The uncertainties in other factors are such that even perfect data does not produce a “perfect” result. Notwithstanding the above, it is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** Part of the cost of a plan will be paid from existing assets – the balance will need to come from future contributions and investment income. The valuation is based on the asset values as of the valuation date, typically reported by the auditor. Some plans include assets, such as private equity holdings, real estate, or hedge funds, that are not subject to valuation by reference to transactions in the marketplace. A snapshot as of a single date may not be an appropriate value for determining a single year’s contribution requirement, especially in volatile markets. Plan sponsors often use an “actuarial value of assets” that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal starts by developing a forecast of the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year, as well as forecasts of the plan’s benefits for each of those events. The forecasted benefits are then discounted to a present value, typically based on an estimate of the rate of return that will be achieved on the plan’s assets or, if there are no assets, a rate of return on high quality fixed income investments. All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which assumptions the actuary selects within that range. That is, there is no right answer (except with hindsight). It is important for any user of an actuarial valuation to understand and accept this constraint. The actuarial model may use approximations and estimates that will have an immaterial impact on our results and will have no impact

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on the actual cost of the plan. In addition, the actuarial assumptions may change over time, and while this can have a significant impact on the reported results, it does not mean that the previous assumptions or results were unreasonable or wrong.

Given the above, the user of Segal's actuarial valuation (or other actuarial calculations) needs to keep the following in mind:

- The actuarial valuation is prepared for use by the State Teachers Retirement System of Ohio. It includes information for compliance with accounting standards and for the plan's auditor. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- If the State Teachers Retirement System of Ohio is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- An actuarial snapshot is a measurement at a specific date – it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of financial measurements, except where otherwise noted. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- Critical events for a plan include, but are not limited to, decisions about changes in benefits and contributions. The basis for such decisions needs to consider many factors such as the risk of changes in employment levels, variation in claims and investment losses, not just the current valuation results.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The State Teachers Retirement System of Ohio should look to their other advisors for expertise in these areas.
- While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.
- Segal's report shall be deemed to be final and accepted by the State Teachers Retirement System of Ohio upon delivery and review. The State Teachers Retirement System of Ohio should notify Segal immediately of any questions or concerns about the final content.

As Segal Consulting has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Plan.

**SECTION 1: Executive Summary for the State Teachers Retirement System of Ohio
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PURPOSE

This report presents the results of our actuarial valuation of the State Teachers Retirement System of Ohio Retiree Health Care Benefits Plan as of June 30, 2017, required by Governmental Accounting Standards Board (GASB) Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other than Pension Plans*. The actuarial computations made are for purposes of fulfilling plan accounting requirements. Determinations for purposes other than meeting financial accounting requirements may be significantly different from the results reported here.

HIGHLIGHTS OF THE VALUATION

The Net OPEB Liability (NOL) as of June 30, 2017 is \$3,901,631,137, compared to \$5,348,025,760 a year earlier.

Plan Changes

The NOL as of June 30, 2017 includes the following plan changes effective January 1, 2017:

- The *HealthSpan HMO plans* were eliminated.
- The subsidy multiplier for non-Medicare benefit recipients was reduced to 1.9% per year of service from 2.1%.
- Medicare Part B premium reimbursements were discontinued for survivors and beneficiaries who were age 65 by 2008 and either receiving a benefit or named as a beneficiary as of January 1, 2008.
- The remaining Medicare Part B premium reimbursements will be phased out over a three-year period.
- *Express Scripts Prescription Drug program*: Various deductibles, out-of-pocket limits, coinsurance percentages, and copayments were increased.
- *Medical Mutual Basic PPO, Aetna Basic PPO, Paramount HMO plans*: Various copayments were increased.
- *Aetna Medicare Advantage plan*: Various copayments were increased.

Assumption Changes

The June 30, 2017 NOL includes the following assumption changes:

- The discount rate was increased from 3.26% to 4.13% based on the methodology defined under GASB 74.
- The long-term rate of return was reduced to 7.45%.
- Valuation-year per capita health costs were updated.
- The percentage of future retirees electing each option was updated based on current data.
- The assumed future trend rates were modified.
- Decrement rates including mortality, disability, retirement, and withdrawal were modified.
- The assumed percentage of future disabled retirees assumed to elect health coverage was decreased from 84% to 65%, and the assumed percentage of terminated vested participants assumed to elect health coverage at retirement was decreased from 47% to 30%.
- The assumed salary scale was modified.

Other

- The portion of the prescription drug rebates allocated toward retiree contribution rates was reduced.

**SECTION 1: Executive Summary for the State Teachers Retirement System of Ohio
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SUMMARY OF VALUATION RESULTS (\$ IN THOUSANDS)

	<u>June 30, 2017</u>	<u>June 30, 2016</u>
GASB 74 Discount Rate	4.13%	3.26%
Total OPEB Liability	\$7,377,410	\$8,533,654
Plan Fiduciary Net Position (Health Care Fund Assets)	<u>3,475,779</u>	<u>3,185,628</u>
Net OPEB Liability	\$3,901,631	\$5,348,026
Plan Fiduciary Net Position as a percentage of Total OPEB Liability	47.1%	37.3%
<hr/>		
Actuarially Determined Contribution (ADC) as of:	<u>June 30, 2017</u>	
ADC Discount Rate	4.51%	
Normal cost	\$141,618	
Amortization of the unfunded actuarial accrued liability	<u>97,812</u>	
Total Actuarially Determined Contribution	\$239,430	

The ADC is determined using the assumptions described in the State Teachers Retirement System of Ohio Actuarial Valuation and Review of Retiree Health Care Benefits as of January 1, 2017, dated March 14, 2017.

November 13, 2017

ACTUARIAL CERTIFICATION

This is to certify that Segal Consulting, a Member of The Segal Group, Inc. has conducted an actuarial valuation of certain benefit obligations of the State Teachers Retirement System of Ohio's other postemployment benefit programs as of June 30, 2017, in accordance with generally accepted actuarial principles and practices. The actuarial calculations presented in this report have been made on a basis consistent with our understanding of GASB Statement 74 for the determination of the liability for postemployment benefits other than pensions.

The actuary prepared the following supporting schedules included in the Financial and Actuarial Sections of the System's Comprehensive Annual Financial Report:

- Financial/Required Supplementary Information
 - Net OPEB Liability
 - Schedule of Changes to Net OPEB Liability
 - Schedule of Employer Contributions Related to Health Care
 - Statement of Net Fiduciary Position
 - Notes to Health Care Trend Data
- Actuarial
 - Key Methods and Assumptions Used in Health Care Actuarial Valuation
 - Summary of Membership Data

The actuarial valuation is completed on an annual basis and is based on the plan of benefits and participant, premium, claims and expense data provided by the System or from vendors employed by the System. Segal Consulting does not audit the data provided. The accuracy and comprehensiveness of the data is the responsibility of those supplying the data. Segal, however, does review the data for reasonableness and consistency.

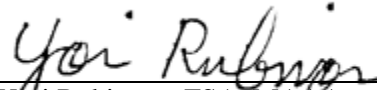
Some of the demographic assumptions used in this valuation (including mortality, disability, withdrawal, retirement, payroll increases, salary increases, relative ages of spouses, and the assumed percentage of eligible retirees assumed to elect health coverage) were based on the demographic assumptions adopted by the Board of Trustees, reflecting the five-year experience review covering the period July 1, 2011 to June 30, 2016. The remaining demographic assumptions, such as plan elections, and the percent of retirees assumed to enroll an eligible spouse in health benefits were based on the experience of the Plan and the experience of similar plans. The actuarial assumptions and methods used for funding purposes meet the parameters set by Actuarial Standards of Practice.

The actuarial computations made are for purposes of fulfilling plan accounting requirements. Determinations for purposes other than meeting financial accounting requirements may be significantly different from the results reported here. Accordingly, additional determinations may be needed for other purposes, such as judging benefit security at termination of the plan, or determining short-term cash flow requirements.

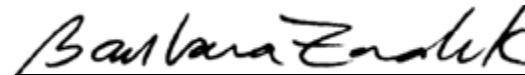
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Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: retiree group benefits program experience or rates of return on assets differing from that anticipated by the assumptions; changes in assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in retiree group benefits program provisions or applicable law. Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. The scope of the assignment did not include performing an analysis of the potential change of such future measurements except where noted.

To the best of our knowledge, this report is complete and accurate and in our opinion presents the information necessary to comply with GASB Statements 74 with respect to the benefit obligations addressed. The signing actuaries are members of the Society of Actuaries, the American Academy of Actuaries, and other professional actuarial organizations and collectively meet their “General Qualification Standards for Statements of Actuarial Opinions” to render the actuarial opinion contained herein.



Yori Rubinson, FSA, MAAA
Vice President and Retiree Health Actuary



Barbara Zaveduk, EA, MAAA
Vice President and Actuary

**SECTION 2: Valuation Results and Note Disclosures for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

CHART 1: General Information about the OPEB Plan

Plan Administration. Ohio law authorizes the State Teachers Retirement Board to offer a cost-sharing, multiple-employer health care plan. The State Teachers Retirement System of Ohio provides access to health care coverage to eligible retirees who participated in the Defined Benefit or Combined Plans and their eligible dependents.

Plan Membership. On December 31, 2016, the State Teachers Retirement System of Ohio membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	125,086
Inactive members entitled to but not yet receiving benefits	17,011
Active members eligible for OPEB	<u>169,205</u>
Total	311,302

Benefits Provided. Medical, prescription drug, and partial reimbursements towards Medicare Part B premium benefits are provided to retirees for their lifetime. The partial reimbursement towards Medicare Part B is being phased out and will be eliminated January 1, 2019. Spouses receive the same benefits, except no partial reimbursements towards Medicare Part B premium.

State Teachers Retirement System of Ohio Contributions. The State Teachers Retirement System of Ohio is not contributing to the Health Fund as of the valuation date.

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CHART 2: Net OPEB Liability

Reporting Date under GASB 74	June 30, 2017	June 30, 2016
Measurement Date under GASB 74	June 30, 2017	June 30, 2016
The components of the Net OPEB Liability (in thousands) are as follows:		
Current retirees, beneficiaries, and dependents	\$3,742,207	\$4,762,145
Current active members	3,621,604	3,739,012
Terminated members entitled but not yet eligible	<u>13,599</u>	<u>32,497</u>
Total OPEB Liability	\$7,377,410	\$8,533,654
Plan's Fiduciary Net Position	<u>3,475,779</u>	<u>3,185,628</u>
Net OPEB Liability	\$3,901,631	\$5,348,026
Plan Fiduciary Net Position as a percentage of Total OPEB Liability	47.1%	37.3%

Actuarial Assumptions. The total OPEB liability as of June 30, 2017 was determined by an actuarial valuation as of January 1, 2017, using the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

<i>Payroll increases</i>	3.00%
<i>Salary increases</i>	Varies by age from 2.5% to 12.5%
<i>Discount Rate</i>	4.13%
<i>Healthcare cost trend rates</i>	
<i>Medical U65</i>	7.00% graded down to 4.50% over 15 years
<i>Medical 65+</i>	6.00% graded down to 4.50% over 15 years
<i>Prescription drug</i>	11.00% graded down to 4.50% over 15 years
<i>Mortality rates</i>	
<i>Healthy</i>	RP-2014 Annuitant Mortality Table 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.
<i>Disabled</i>	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.

Some of the demographic assumptions used in this valuation (including mortality, disability, withdrawal, retirement, payroll increases, salary increases, relative ages of spouses, and the assumed percentage of eligible retirees assumed to elect health coverage) were based on the results of an experience study dated March 3, 2017.

**SECTION 2: Valuation Results and Note Disclosures for the State Teachers Retirement System of Ohio
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The remaining demographic assumptions, such as plan elections, and the percent of retirees assumed to enroll an eligible spouse in health benefits were based on the experience of the Plan and the experience of similar plans.

Detailed information regarding all actuarial assumptions can be found in Section 4, Exhibit I.

**SECTION 2: Valuation Results and Note Disclosures for the State Teachers Retirement System of Ohio
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CHART 3: Determination of Discount Rate

CHART 3A. PROJECTION OF OPEB PLAN'S FIDUCIARY NET POSITION FOR USE IN CALCULATION OF DISCOUNT RATE

The projection of cash flow used to determine the discount rate assumed STRS Ohio continues to not make contributions into the Health Fund assets. Based on these assumptions, the OPEB Plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members until 2037.

Year Beginning July 1	Projected Beginning Plan Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Plan Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2017	\$3,475,778,910	\$0	\$241,551,127	\$0	\$249,947,749	\$3,484,175,532
2018	3,484,175,532	0	234,220,474	0	250,846,364	3,500,801,423
2019	3,500,801,423	0	224,132,812	0	252,460,759	3,529,129,370
2020	3,529,129,370	0	232,516,897	0	254,258,884	3,550,871,357
2021	3,550,871,357	0	244,344,946	0	255,438,067	3,561,964,479
2022	3,561,964,479	0	259,168,334	0	255,712,333	3,558,508,478
2023	3,558,508,478	0	275,990,125	0	254,828,249	3,537,346,602
2024	3,537,346,602	0	294,358,610	0	252,567,464	3,495,555,457
2025	3,495,555,457	0	314,213,020	0	248,714,447	3,430,056,884
2026	3,430,056,884	0	335,607,459	0	243,037,860	3,337,487,285
2027	3,337,487,285	0	358,478,955	0	235,289,462	3,214,297,793
2028	3,214,297,793	0	382,660,293	0	225,211,090	3,056,848,590
2029	3,056,848,590	0	408,508,278	0	212,518,287	2,860,858,599
2030	2,860,858,599	0	435,528,042	0	196,910,546	2,622,241,103
2031	2,622,241,103	0	462,180,116	0	178,140,753	2,338,201,740
2032	2,338,201,740	0	487,976,716	0	156,018,897	2,006,243,921
2033	2,006,243,921	0	511,735,831	0	130,403,012	1,624,911,102
2034	1,624,911,102	0	532,848,708	0	101,207,263	1,193,269,657
2035	1,193,269,657	0	550,795,957	0	68,381,440	710,855,141
2036	710,855,141	0	568,427,363	0	31,784,789	174,212,567
2037	174,212,567	0	588,895,887	0	0	0

Notes:

- (1) Amounts may not total exactly due to rounding
- (2) Years beyond 2037 have been omitted from this table as the Fiduciary Net Position is zero.
- (3) Column (c): Projected benefit payments have been determined in accordance with paragraphs 43-47 of GASB Statement No. 74 and are based on the closed group of active, retired members and beneficiaries as of December 31, 2016.
- (4) Column (e): Projected investment earnings are based on the assumed investment rate of return of 7.45% per annum and reflect the assumed timing of benefit payments made at the middle of the year.

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CHART 3B. DEVELOPMENT OF BLENDED DISCOUNT RATE

The discount rate used to measure the total OPEB liability was 4.13% as of July 1, 2017. The projection of cash flow used to determine the discount rate assumed STRS Ohio continues to not make contributions into the Health Fund assets. Based on these assumptions, the OPEB Plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members until 2037.

Year Beg July 1	Projected Fiduciary Net Position	Funded Benefit Payments	Unfunded Benefit Payments	Discounted Funded Benefit Payments	Discounted Unfunded Benefit Payments	Discounted at Blended Rate
				7.45%	3.58%	4.13%
2017	\$3,475,778,910	\$241,551,127	\$0	\$233,026,793	\$0	\$236,709,700
2018	3,484,175,532	234,220,474	0	210,288,356	0	220,417,370
2019	3,500,801,423	224,132,812	0	187,279,133	0	202,553,790
2020	3,529,129,370	232,516,897	0	180,813,998	0	201,791,760
2021	3,550,871,357	244,344,946	0	176,837,542	0	203,641,479
2022	3,561,964,479	259,168,334	0	174,560,762	0	207,423,899
2023	3,558,508,478	275,990,125	0	173,002,275	0	212,121,346
2024	3,537,346,602	294,358,610	0	171,723,050	0	217,260,887
2025	3,495,555,457	314,213,020	0	170,596,300	0	222,711,660
2026	3,430,056,884	335,607,459	0	169,578,432	0	228,435,901
2027	3,337,487,285	358,478,955	0	168,576,199	0	234,320,557
2028	3,214,297,793	382,660,293	0	167,470,984	0	240,200,607
2029	3,056,848,590	408,508,278	0	166,387,468	0	246,249,602
2030	2,860,858,599	435,528,042	0	165,093,302	0	252,118,534
2031	2,622,241,103	462,180,116	0	163,049,011	0	256,929,446
2032	2,338,201,740	487,976,716	0	160,213,679	0	260,504,781
2033	2,006,243,921	511,735,831	0	156,365,126	0	262,347,179
2034	1,624,911,102	532,848,708	0	151,527,539	0	262,330,304
2035	1,193,269,657	550,795,957	0	145,771,283	0	260,404,967
2036	710,855,141	568,427,363	0	140,007,013	0	258,075,911
2037	174,212,567	0	588,895,887	0	286,340,272	256,758,594
2038	0	0	610,254,053	0	286,469,690	255,511,890
2039	0	0	629,972,414	0	285,504,943	253,300,442
2040	0	0	648,763,533	0	283,858,970	250,504,090
2041	0	0	665,961,650	0	281,312,809	246,940,080
2042	0	0	678,769,538	0	276,813,154	241,701,131
2043	0	0	689,951,222	0	271,648,218	235,933,006
2044	0	0	701,735,389	0	266,738,648	230,439,893
2045	0	0	714,987,213	0	262,382,541	225,474,034

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2046	0	0	725,661,902	0	257,095,855	219,758,943
2047	0	0	728,710,169	0	249,252,588	211,924,437
2048	0	0	724,450,798	0	239,231,209	202,324,780
2049	0	0	712,655,138	0	227,202,159	191,132,076
2050	0	0	695,371,988	0	214,029,835	179,095,767
2051	0	0	674,812,546	0	200,523,080	166,903,427
2052	0	0	649,581,490	0	186,354,101	154,287,137
2053	0	0	619,688,577	0	171,633,831	141,346,007
2054	0	0	586,718,971	0	156,885,798	128,515,100
2055	0	0	552,654,502	0	142,669,554	116,249,666
2056	0	0	525,957,755	0	131,084,864	106,243,615
2057	0	0	514,235,336	0	123,733,613	99,753,436
2058	0	0	518,928,582	0	120,547,293	96,669,064
2059	0	0	534,323,913	0	119,833,592	95,586,929
2060	0	0	551,348,137	0	119,377,910	94,718,276
2061	0	0	567,283,117	0	118,582,885	93,588,331
2062	0	0	581,594,290	0	117,372,507	92,141,643
2063	0	0	593,464,798	0	115,628,609	90,291,061
2064	0	0	603,036,437	0	113,432,626	88,106,373
2065	0	0	610,463,931	0	110,860,934	85,652,048
2066	0	0	615,186,559	0	107,857,278	82,889,316
2067	0	0	617,087,593	0	104,451,222	79,845,879
2068	0	0	616,044,701	0	100,670,687	76,547,655
2069	0	0	611,953,530	0	96,545,791	73,021,724
2070	0	0	604,759,711	0	92,113,194	69,299,558
2071	0	0	594,463,316	0	87,415,440	65,416,401
2072	0	0	581,152,590	0	82,504,447	61,413,767
2073	0	0	565,041,380	0	77,444,669	57,341,597
2074	0	0	546,465,089	0	72,309,905	53,255,680
2075	0	0	525,717,002	0	67,160,123	49,200,499
2076	0	0	502,982,511	0	62,034,950	45,204,778
2077	0	0	478,445,654	0	56,969,218	41,293,153
2078	0	0	452,324,881	0	51,997,470	37,489,520
2079	0	0	424,869,131	0	47,153,183	33,816,492
2080	0	0	396,355,867	0	42,468,333	30,295,118
2081	0	0	367,079,588	0	37,972,068	26,943,969
2082	0	0	337,399,410	0	33,695,541	23,782,616
2083	0	0	307,692,438	0	29,666,686	20,827,929
2084	0	0	278,189,244	0	25,895,043	18,083,545
2085	0	0	249,124,356	0	22,388,066	15,551,540
2086	0	0	220,826,308	0	19,159,109	13,237,989
2087	0	0	193,599,980	0	16,216,379	11,145,267
2088	0	0	167,721,456	0	13,563,173	9,272,306

**SECTION 2: Valuation Results and Note Disclosures for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

2089	0	0	143,437,226	0	11,198,469	7,615,089
2090	0	0	120,964,542	0	9,117,567	6,167,159
2091	0	0	100,482,230	0	7,311,967	4,919,606
2092	0	0	82,118,774	0	5,769,146	3,860,979
2093	0	0	65,942,468	0	4,472,582	2,977,380
2094	0	0	51,957,512	0	3,402,245	2,252,845
2095	0	0	40,108,770	0	2,535,600	1,670,076
2096	0	0	30,287,902	0	1,848,565	1,211,100
2097	0	0	22,337,256	0	1,316,192	857,738
2098	0	0	16,059,419	0	913,573	592,200
2099	0	0	11,233,864	0	616,974	397,816
2100	0	0	7,631,566	0	404,646	259,526
2101	0	0	5,025,616	0	257,262	164,123
2102	0	0	3,201,820	0	158,237	100,413
2103	0	0	1,969,755	0	93,982	59,323
2104	0	0	1,168,863	0	53,842	33,805
2105	0	0	669,079	0	29,755	18,583
2106	0	0	369,839	0	15,879	9,864
2107	0	0	197,828	0	8,200	5,067
2108	0	0	102,626	0	4,107	2,524
2109	0	0	51,684	0	1,997	1,221
2110	0	0	25,069	0	935	569
2111	0	0	11,328	0	408	247
2112	0	0	4,360	0	152	91
2113	0	0	1,094	0	37	22
2114	0	0	0	0	0	0
Total				\$3,432,168,244	+ \$7,133,586,374	= \$10,565,754,618

**SECTION 2: Valuation Results and Note Disclosures for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

CHART 4: Sensitivity

The following presents the Net OPEB Liability (NOL) of the State Teachers Retirement System of Ohio as well as what the State Teachers Retirement System of Ohio’s NOL would be if it were calculated using a discount rate that is 1 percentage lower or 1 percentage higher than the current discount rate. Also shown is the NOL as if it were calculated using health care cost trend rates that were 1 percentage point lower or 1 percentage point higher than the current healthcare cost trend rates.

Sensitivity of Net OPEB Liability to changes in discount and health care cost trend rates (in thousands)			
	1% decrease in Discount Rate (3.13%)	Current Discount Rate (4.13%)	1% increase in Discount rate (5.13%)
Net OPEB Liability (Asset)	\$5,237,877	\$3,901,631	\$2,845,560
	1% decrease in Trend Rates	Current Trend Rates	1% increase in Trend Rates
Net OPEB Liability (Asset)	\$2,710,686	\$3,901,631	\$5,469,054

**SECTION 2: Valuation Results and Note Disclosures for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

CHART 5: Schedule of Changes to Net OPEB Liability (In Thousands)

Reporting Date under GASB 74	June 30, 2017
Measurement Date under GASB 74	June 30, 2017
Total OPEB Liability	
Service cost	\$225,094
Interest	277,562
Changes of benefit terms	(1,065,892)
Differences between expected and actual experience	262,764
Changes of assumptions	(366,671)
Benefit payments + expenses	<u>(489,101)</u>
Net change in total OPEB liability	(\$1,156,244)
Total OPEB liability – beginning	\$8,533,654
(a) Total OPEB liability – end	<u>\$7,377,410</u>
Plan Fiduciary Net Position	
Contributions—employer	\$0
Contributions—employee	339,056
Net investment income	440,196
Benefit payments	(486,605)
Administrative expenses	<u>(2,496)</u>
Net change in plan fiduciary net position	\$290,151
Plan fiduciary net position – beginning	\$3,185,628
(b) Plan fiduciary net position – end	\$3,475,779
(c) Net OPEB Liability—ending (a)-(b)	<u>\$3,901,631</u>
Plan Fiduciary net position as a % of total OPEB liability	47.1%
Covered employee Payroll	\$10,767,964
Plan Net OPEB Liability as a % of covered employee payroll	36.2%

This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, we are presenting those years for which information is available.

**SECTION 2: Valuation Results and Note Disclosures for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

Notes to Chart 5:

Benefit Changes:

- The subsidy multiplier for non-Medicare benefit recipients was reduced to 1.9% per year of service from 2.1%.
- Medicare Part B premium reimbursements were discontinued for survivors and beneficiaries who were age 65 by 2008 and either receiving a benefit or named as a beneficiary as of January 1, 2008.
- The remaining Medicare Part B premium reimbursements will be phased out over a three-year period.

Changes of assumptions:

- The discount rate was increased from 3.26% to 4.13% based on the methodology prescribed in GASB 74.
- The long-term rate of return was reduced to 7.45%.
- Valuation-year per capita health costs were updated.
- The percentage of future retirees electing each option was updated based on current data.
- The assumed future trend rates were modified.
- Decrement rates including mortality, disability, retirement, and withdrawal were modified.
- The assumed percentage of future disabled retirees assumed to elect health coverage was decreased from 84% to 65%, and the assumed percentage of terminated vested participants assumed to elect health coverage at retirement was decreased from 47% to 30%.
- The assumed salary scale was modified.
- The portion of the prescription drug rebates allocated toward retiree contribution rates was reduced.

**SECTION 2: Valuation Results and Note Disclosures for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

CHART 6: Schedule of Contributions (\$ in thousands)

This schedule is presented to illustrate the requirement to show information for ten years. However, until a full 10-year trend is compiled, we are presenting information for those years which are available.

Year ended June 30	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency/ (Excess)	Covered-Employee Payroll	Contributions as a Percentage of Covered Employee Payroll
2017	\$239,430	\$0	\$239,430	\$10,767,964	0.00%

The ADC is determined using the assumptions described in the State Teachers Retirement System of Ohio Actuarial Valuation and Review of Retiree Health Care Benefits as of January 1, 2017, dated March 14, 2017.

**SECTION 2: Valuation Results and Note Disclosures for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

CHART 7: Actuarially Determined Contribution

	For Fiscal Year ended	June 30, 2017	% of Payroll
Discount Rate		4.51%	
Accrued Liability as of January 1		\$5,886,166	
Assets as of January 1		<u>3,222,093</u>	
Unfunded Accrued Liability as of January 1		\$2,664,073	
Normal Cost as of June 30		\$141,618	1.26%
Amortization of Unfunded Liability as of June 30		<u>97,812</u>	<u>0.87%</u>
Total Actuarially Determined Contribution		\$239,430	2.13%
Estimated Projected Payroll		\$11,237,517	

The Actuarially Determined Contribution (ADC) is a target of recommended contributions to a defined benefit OPEB Plan for the reporting period, determined in conformity with Actuarial Standards of Practice.

The ADC calculation consists of adding the Normal Cost of the plan to an amortization payment, both with adjustments to the end of the accounting period.

Net OPEB Liability is amortized using an open 30 year amortization period calculated as a level percent of payroll.

The ADC is determined using the assumptions described in the State Teachers Retirement System of Ohio Actuarial Valuation and Review of Retiree Health Care Benefits as of January 1, 2017, dated March 14, 2017.

**SECTION 2: Valuation Results and Note Disclosures for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

CHART 8: Statement of Net Fiduciary Position

	June 30, 2017
Assets	
Cash and short term investments	\$52,041
Receivables	
Accrued interest and dividends	\$9,595
Securities sold	<u>7,416</u>
Total receivables	\$17,011
Investments	
Fixed Income	\$678,727
Common and preferred stock	1,019,268
International	891,881
Real estate	457,446
Alternative investments	<u>494,509</u>
Total investments	\$3,541,831
Invested Securities Lending Collateral	<u>63,402</u>
Total assets	\$3,674,285
Liabilities	
Securities purchased and other investment liabilities	\$11,822
Debt on real estate investments	114,780
Accrued expenses and other liabilities	1,533
Medical benefits payable	6,994
Obligations under securities lending	<u>63,377</u>
Total liabilities	\$198,506
Net position for OPEB	\$3,475,779

**SECTION 2: Valuation Results and Note Disclosures for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

CHART 9: Schedule of Investment Returns

Year	Annual Money Weighted Rate of Return, Net of Investment Expense
2017	14.15%

The above information is required beginning in 2016. A full 10-year trend will be compiled in future years.

**SECTION 3: Census Data for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

EXHIBIT A

Summary of Participant Data

	<u>January 1, 2017</u>	<u>January 1, 2016</u>
Retirees Enrolled in Health Care		
Number of retirees	103,966	105,839
Average age of retirees	72.2	71.6
Number of spouses and dependents (excluding children)	16,376	17,722
Average age of spouses	72.7	71.9
Surviving Spouses Enrolled in Health Care		
Number	4,744	4,880
Average age	80.9	80.4
Terminated Members Entitled but Not Yet Eligible		
Number of terminated members	17,011	17,275
Average age of terminated members	50.6	50.4
Active Participants		
Number	169,205	164,925
Average age	43.6	43.4
Average years of service	12.3	12.1
Payroll (in thousands)	\$10,767,963*	\$10,628,269**
Average expected retirement age	62.8	62.8

* Payroll for the fiscal year ending June 30, 2017 is based on actual payroll as of June 30, 2016 projected forward at the assumed rate of payroll growth.

** Payroll for the fiscal year ending June 30, 2016 is shown on a calendar year basis and is based on the actual payroll for the fiscal year ending prior to the calendar year, projected forward at the assumed rate of payroll growth.

**SECTION 3: Census Data for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

EXHIBIT B

Participants in Active Service as of January 1, 2017 By Age and Service

Age	Service									Total
	0-4	5-9	10-14	15-19	20-24	25 – 29	30 – 34	35 – 39	40 & Over	
Under 20	35	0	0	0	0	0	0	0	0	35
20 – 24	3,983	0	0	0	0	0	0	0	0	3,983
25 – 29	14,181	3,007	2	0	0	0	0	0	0	17,190
30 – 34	7,757	10,529	3,631	0	0	0	0	0	0	21,917
35 – 39	5,938	5,002	10,393	4,471	0	0	0	0	0	25,804
40 – 44	4,690	3,249	3,900	10,300	2,822	0	0	0	0	24,961
45 – 49	4,200	2,914	3,221	4,914	8,396	2,255	0	0	0	25,900
50 – 54	2,773	2,135	2,410	2,941	3,110	5,314	1,420	0	0	20,103
55 – 59	2,084	1,490	1,868	2,616	2,488	2,278	1,854	196	0	14,874
60 – 64	1,477	1,010	1,167	1,651	1,724	1,561	795	200	21	9,606
65 – 69	844	462	415	411	499	478	321	106	34	3,570
70 & over	456	220	122	90	95	100	73	46	60	1,262
Total	48,418	30,018	27,129	27,394	19,134	11,986	4,463	548	115	169,205

**SECTION 3: Census Data for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

EXHIBIT C

Reconciliation of Enrollees

	January 1, 2016	Added	Terminated	January 1, 2017
Retirees	101,539	2,260	3,964	99,835
Disabled retirees	4,300	109	278	4,131
Survivors	4,880	395	531	4,744
Spouses and dependents (excluding children)	17,722	577	1,923	16,376
Total	128,441	3,341	6,696	125,086
Annual allowance (in thousands)	\$426,730	\$19,691	\$18,728	\$427,693

**SECTION 3: Census Data for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

EXHIBIT D

Participants with Retiree Health Care Coverage by Benefit Plan Enrollment

	Benefit Plan					
	PPO & Indemnity			HMO		Total
	Aetna MA	Medical Mutual Basic	AultCare	Paramount Elite Medicare	Paramount Health Care	
Benefit Recipient without Medicare	0	19,126	836	0	688	20,650
Spouse without Medicare*	<u>0</u>	<u>2,610</u>	<u>87</u>	<u>0</u>	<u>83</u>	<u>2,780</u>
Total without Medicare	0	21,736	923	0	771	23,430
Benefit Recipient with Medicare	82,041	4,099	1,157	763	0	88,060
Spouse with Medicare	<u>12,156</u>	<u>1,109</u>	<u>187</u>	<u>144</u>	<u>0</u>	<u>13,596</u>
Total with Medicare	94,197	5,208	1,344	907	0	101,656
Grand Total	94,197	26,944	2,267	907	771	125,086

* Spouse figures include sponsored dependents.

**SECTION 4: Supporting Information for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

EXHIBIT I

Actuarial Assumptions and Actuarial Cost Method

Data:	Detailed census data, claim experience, and summary plan descriptions for postretirement welfare benefits were provided by STRS Ohio. Active and inactive member census data was collected as of July 1, 2016, and the retiree, survivor and dependent census data was collected as of January 1, 2017. The active and inactive populations were projected to January 1, 2017 by removing members who retired prior to this date and replacing them with new hires with the same entry age. All replacement new hires were assumed to receive an annual salary of \$31,000, based on the average salary of actives with one full year of service.
Actuarial Cost Method:	Entry-Age Normal, Level Percentage of Payroll
Asset Valuation Method:	Market Value
Measurement Date:	June 30, 2017
Actuarial Valuation Date:	January 1, 2017
Discount Rate:	4.13%, based on a 3.58% short-term bond rate and a 7.45% long-term rate of return on invested plan assets blended as prescribed in GASB 74.
Payroll Increase Rate:	3.00% per annum
Salary Increase Rate:	Varies by age from 2.5% to 12.5%
Demographic Assumptions:	<p>Some of the demographic assumptions used in this valuation (including mortality, disability, withdrawal, retirement, payroll increases, salary increases, relative ages of spouses, and the assumed percentage of eligible retirees assumed to elect health coverage) were based on the results of an experience study dated March 3, 2017.</p> <p>The remaining demographic assumptions, such as plan elections and the percent of retirees assumed to enroll an eligible spouse in health benefits, were based on the experience of the Plan and the experience of similar plans.</p>

**SECTION 4: Supporting Information for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

Postretirement Mortality Rates:

Healthy RP-2014 Annuitant Mortality Table 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 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.

The mortality tables reasonably reflect the projected mortality experience of the Plan, including provisions for future mortality improvement.

Termination Rates before Retirement:

Age	Rate (%)				
	<u>Mortality*</u>		<u>Withdrawal**</u>		<u>Disability</u>
	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 those before any generational projection.

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

<u>Non-Vested Terminations</u>		
<u>Service</u>	<u>Male</u>	<u>Female</u>
Under 1 Year	30.00%	25.00%
1 to 2 Years	20.00%	20.00%
2 to 3 Years	15.00%	10.00%
3 to 5 Years	10.00%	10.00%

**SECTION 4: Supporting Information for the State Teachers Retirement System of Ohio
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Retirement Rates: Pension eligibility requirements are age 60 with 5 years of service, or 30 years of service regardless of age, or the following schedule:

Retirement Between:	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:

**SECTION 4: Supporting Information for the State Teachers Retirement System of Ohio
June 30, 2017 Measurement Under GASB 74**

Retirement Rates (continued):

Defined Benefit Plan – Grandfathered Male Rates				
Age	Under 25 Years of Service	25-29 Years of Service	30-34 Years of Service	35 or More Years of Service
<53	0%	0%	20%	30%
53	0%	0%	20%	30%
54	0%	0%	20%	40%
55	0%	6%	20%	40%
56	0%	6%	20%	40%
57	0%	6%	20%	40%
58	0%	6%	20%	40%
59	0%	7%	20%	40%
60	10%	7%	20%	40%
61	10%	7%	20%	40%
62	12%	8%	20%	40%
63	12%	8%	25%	35%
64	12%	12%	25%	25%
65	20%	20%	25%	25%
66	20%	20%	25%	25%
67	15%	20%	25%	25%
68	15%	20%	25%	20%
69	15%	20%	25%	20%
70	15%	20%	25%	20%
71	15%	20%	25%	20%
72	15%	20%	25%	20%
73	15%	20%	25%	20%
74	15%	20%	25%	20%
75	100%	100%	100%	100%

Defined Benefit Plan – Grandfathered Female Rates				
Age	Under 25 Years of Service	25-29 Years of Service	30-34 Years of Service	35 or More Years of Service
<53	0%	0%	20%	35%
53	0%	0%	20%	35%
54	0%	0%	20%	40%
55	0%	9%	20%	40%
56	0%	9%	20%	40%
57	0%	9%	20%	40%
58	0%	9%	20%	40%
59	0%	10%	25%	40%
60	10%	10%	30%	45%
61	10%	10%	30%	45%
62	10%	12%	30%	45%
63	10%	12%	35%	45%
64	15%	20%	35%	45%
65	25%	30%	35%	45%
66	20%	30%	35%	45%
67	20%	20%	35%	45%
68	20%	20%	35%	45%
69	20%	20%	35%	45%
70	20%	20%	35%	40%
71	20%	20%	35%	40%
72	20%	20%	35%	40%
73	20%	20%	35%	40%
74	20%	20%	35%	40%
75	100%	100%	100%	100%

**SECTION 4: Supporting Information for the State Teachers Retirement System of Ohio
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Retirement Rates (continued):

Defined Benefit Plan – Non-grandfathered Male Rates					Defined Benefit Plan – Non-grandfathered Female Rates				
Age	Under 25 Years of Service	25-29 Years of Service *	30-34 Years of Service **	35 or More Years of Service **	Age	Under 25 Years of Service	25-29 Years of Service *	30-34 Years of Service **	35 or More Years of Service **
<53	0%	3%	20%	20%	<53	0%	5%	20%	20%
53	0%	3%	20%	20%	53	0%	5%	20%	20%
54	0%	3%	20%	20%	54	0%	5%	20%	20%
55	0%	3%	20%	20%	55	0%	5%	20%	20%
56	0%	3%	20%	20%	56	0%	5%	20%	20%
57	0%	3%	20%	20%	57	0%	5%	20%	20%
58	0%	3%	20%	20%	58	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	20%	20%	25%	20%	70	20%	20%	35%	30%
71	20%	20%	25%	20%	71	20%	20%	35%	30%
72	20%	20%	25%	20%	72	20%	20%	35%	30%
73	20%	20%	25%	20%	73	20%	20%	35%	30%
74	20%	20%	25%	20%	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)

**SECTION 4: Supporting Information for the State Teachers Retirement System of Ohio
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Retirement Age for Terminated Members: 5% at each early retirement age through age 64 and 100% at age 65, or the first age at which unreduced benefits are available.

Missing Participant Data: A missing census item for a given participant was assumed to equal the average value of that item over all other participants of the same status for whom the item is known.

Participation and Coverage Election: 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. Future enrollees are assumed to elect medical plans in the same proportion as the 2017 elections for the current enrollees. The current breakdown is:

	Medicare Advantage	Basic PPO	AultCare PPO	HMO
Pre-65 retirees	0.0%	92.8%	3.9%	3.3%
Retirees age 65+	92.7%	5.1%	1.3%	0.9%

Dependents: Demographic data was provided for spouses of current retirees. For future retirees, males are assumed to be three years older than their spouse, and females are assumed to be one year younger than their spouse. Of those future retirees who elect to continue their health coverage at retirement, 20% were assumed to have an eligible spouse who also opts for health coverage at that time.

Per Capita Cost Development: Per capita claims costs were developed based on the 2017 projected net costs (premium rate developed by Willis Towers Watson less applicable subsidies). Actuarial factors were then applied to the weighted average cost to estimate individual retiree and spouse costs by age and by gender.

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Per Capita Health Costs:

Medical and prescription drug claims costs for the year beginning January 1, 2017, including assumed third-party administrative fees, are shown in the table below for retirees and for spouses at selected ages. These costs are net of deductibles and other benefit plan cost sharing provisions.

Age	Medicare Advantage (MA) Medical				Medicare Advantage (MA) Rx			
	Retiree		Spouse		Retiree		Spouse	
	Male	Female	Male	Female	Male	Female	Male	Female
50	\$637	\$726	\$445	\$583	\$1,116	\$1,271	\$779	\$1,020
55	757	781	595	674	1,325	1,368	1,043	1,181
60	898	842	797	782	1,574	1,475	1,396	1,370
64	1,031	893	1,006	880	1,805	1,564	1,762	1,542
65	1,067	907	1,067	907	1,869	1,589	1,869	1,589
70	1,237	977	1,237	977	2,166	1,712	2,166	1,712
75	1,333	1,052	1,333	1,052	2,334	1,843	2,334	1,843

Age	Basic Plan Medical				AultCare Medical			
	Retiree		Spouse		Retiree		Spouse	
	Male	Female	Male	Female	Male	Female	Male	Female
50	\$5,794	\$6,599	\$4,047	\$5,299	\$5,069	\$5,773	\$3,540	\$4,636
55	6,881	7,104	5,415	6,134	6,019	6,215	4,737	5,366
60	8,172	7,657	7,250	7,114	7,149	6,699	6,342	6,223
64	9,375	8,123	9,152	8,007	8,201	7,106	8,006	7,004
65	1,062	903	1,062	903	2,162	1,838	2,162	1,838
70	1,231	973	1,231	973	2,506	1,980	2,506	1,980
75	1,326	1,047	1,326	1,047	2,700	2,132	2,700	2,132

Age	HMO Medical				HMO/Basic/AultCare Rx			
	Retiree		Spouse		Retiree		Spouse	
	Male	Female	Male	Female	Male	Female	Male	Female
50	\$4,224	\$4,812	\$2,951	\$3,863	\$1,693	\$1,929	\$1,183	\$1,549
55	5,017	5,180	3,948	4,472	2,011	2,076	1,583	1,792
60	5,958	5,583	5,286	5,187	2,388	2,238	2,119	2,079
64	6,835	5,923	6,673	5,838	2,740	2,374	2,675	2,340
65	1,858	1,579	1,858	1,579	1,869	1,589	1,869	1,589
70	2,153	1,702	2,153	1,702	2,166	1,712	2,166	1,712
75	2,321	1,832	2,321	1,832	2,334	1,843	2,334	1,843

CMS PDP Direct Subsidy:

These calculations include an estimate of \$224 per Medicare participant for retiree prescription drug plan federal subsidies that the Plan is eligible to receive.

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Health Care Cost Trend Rates: Health care trend measures the anticipated overall rate at which health plan costs are expected to increase in future years. The rates shown below are “net” and are applied to the net per capita costs shown above. The trend shown for a particular plan year is the rate that is applied to that year’s cost to yield the next year’s projected cost.

Year Ending December 31,	Rate (%)			
	Pre-65	Medical 65+	Prescription Drug	CMS PDP Direct Subsidies
2017	7.00	6.00*	11.00	-4.54
2018	6.83	5.90	10.54	-4.76
2019	6.66	5.80	10.08	-5.00
2020	6.49	5.70	9.62	-5.26
2021	6.32	5.60	9.16	-5.55
2022	6.15	5.50	8.70	0.00
2023	5.98	5.40	8.24	0.00
2024	5.81	5.30	7.78	0.00
2025	5.64	5.20	7.32	0.00
2026	5.47	5.10	6.86	0.00
2027	5.30	5.00	6.40	0.00
2028	5.13	4.90	5.94	0.00
2029	4.96	4.80	5.48	0.00
2030	4.79	4.70	5.02	0.00
2031	4.62	4.60	4.56	0.00
2032+	4.50	4.50	4.50	0.00

*An additional factor of 19.9% was applied to year ending December 31, 2017 Medicare Advantage claims to account for the health insurers fee returning January 1, 2018 under ACA.

The trend rate assumptions were developed using Segal’s internal guidelines, which are established each year using data sources such as the 2016 Segal Health Trend Survey, internal client results, trends from other published surveys prepared by the S&P Dow Jones Indices, consulting firms and brokers, and CPI statistics published by the Bureau of Labor Statistics.

Retiree Contribution Increase Rate: Retiree self-pay contribution rates were assumed to increase with health trend.

Plan Design: Development of plan liabilities was based on the substantive plan of benefits in effect as described in Exhibit III.

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Health Care Reform Assumption: The plan is assumed to be in compliance with the Patient Protection and Affordable Care Act (PPACA) and the Health Care and Education Reconciliation Act (HCERA) of 2010 as of the valuation date. The valuation includes the projected effect of the Act's provision which imposes an excise tax on high cost employer-sponsored health coverage beginning in 2020 as well as a moratorium on the Health Insurance Providers Fee for 2017. The excise tax limit is assumed to increase by 2.5% each year after 2018.

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EXHIBIT II

Summary of Plan

This exhibit summarizes the major benefit provisions as included in the valuation. To the best of our knowledge, the summary represents the substantive plans as of the measurement date. It is not intended to be, nor should it be interpreted as, a complete statement of all benefit provisions.

Eligibility:

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

- Service retirees who retire before August 2023 with 15 or more years of service and service retirees who retire on or after August 2023 with 20 years of service receive access to health care coverage and a premium subsidy if they enroll
- Service retirees with less than 15 years of service and a benefit effective date prior to January 1, 2004 receive access to health care coverage but do not receive a premium subsidy
- Service retirees who retire before August 2023 with less than 15 years of service and service retirees who retire on or after August 2023 with less than 20 years of service and a benefit effective date on or after January 1, 2004 are not eligible for health care coverage
- Disability retirees receive access to health care coverage and a premium subsidy if they enroll

Members who purchase the following types of service to qualify for retirement benefits pay the full cost of retiree health care benefits until they would have been eligible to retire without the purchased service:

- Non-Ohio valued credit
- Waived Ohio public service
- Service as an Ohio school board member
- Retirement incentive credit

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Effective Date of Coverage:

Service retirement benefit or survivor benefit recipients:

- The first of the month following the date the STRS Ohio Retirement Board approves the application, or if later
- The effective date of retirement

Disability benefit recipients:

- The first of the month following the date the STRS Ohio Retirement Board approves the disability benefit, or if later
- The first of the month following the date the application is received by STRS Ohio

Benefit Types:

Medical, prescription drug, and partial reimbursements towards Medicare Part B premium.

Duration of Coverage:

Lifetime, except partial reimbursements towards Medicare Part B premium will be eliminated January 1, 2019.

Dependent Benefits:

Same benefits as retirees, except no partial reimbursements 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 became 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.

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Retiree Contributions: Non-Medicare retirees receive a subsidy of 1.9% per year of service to a maximum of 30 years. Medicare retirees receive a subsidy of 2.1% per year of service to a maximum of 30 years. For those who retire on or after August 2023, the first 5 years of service do not count towards the subsidy, so subsidy percentages are shifted 5 years and those with less than 20 years of service receive no subsidy.

Sample monthly retiree contribution rates for the year beginning January 1, 2017 are shown below.

		Basic Plans	AultCare PPO	Paramount Health HMO
<u>Without Medicare</u>				
30 or more years of service		\$380	\$347	\$302
25 years of service		464	423	369
20 years of service		548	500	436
15 years of service		632	576	503
Less than 15 years of service (Service Ret)		884	806	703
10 years of service (Disability Ret)		716	653	569
5 years of service (Disability Ret)		800	729	636
Less than 5 years of service (Disability Ret)		884	806	703
Spouse		884	806	703
	MA Plans	Basic Plans	AultCare PPO	Paramount Elite HMO
<u>With Medicare</u>				
30 or more years of service	\$127	\$111	\$225	\$195
25 years of service	162	142	260	230
20 years of service	198	174	296	266
15 years of service	234	205	332	302
Less than 15 years of service (Service Ret)	342	300	440	410
10 years of service (Disability Ret)	270	237	368	338
5 years of service (Disability Ret)	306	268	404	374
Less than 5 years of service (Disability Ret)	342	300	440	410
Spouse	342	300	440	410

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**Medicare Part B Premium
Reimbursement:**

Service retirees and disabled retirees who are enrolled in a State Teachers Retirement System of Ohio medical plan and who participate in Medicare Part B receive reimbursements towards the Part B premiums. This benefit will be phased out and eliminated effective January 1, 2019, as follows:

Service	Monthly Reimbursement		
	2017	2018	2019+
30+	\$35.22	\$29.90	\$0.00
29	34.05	29.90	0.00
28	32.87	29.90	0.00
27	31.70	29.90	0.00
26	30.53	29.90	0.00
25 and below	29.90	29.90	0.00

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Benefit Descriptions for the Year Beginning January 1, 2017:

NON-MEDICARE

Medical	<u>Medical Mutual</u>		<u>AultCare PPO</u>		<u>Paramount Health Care HMO</u>
	<u>Basic PPO or Aetna Basic PPO*</u>		In-network	Out-of-network	
<i>Deductible</i>	In-network	Out-of-network	In-network	Out-of-network	
	\$2,500	\$5,000	\$2,500	\$5,000	\$2,000
<i>Out-of-Pocket Maximum</i>	\$6,500	\$13,000	\$6,500	\$13,000	\$4,000
<i>Hospital Inpatient</i>	20%	50%	20%	50%	20%
<i>Emergency Room (waived if admitted)</i>		\$150		\$150	\$150
<i>Physician Office Visit</i>	20%	50%	20%	50%	\$10/\$20
Prescription Drug	<u>Express Scripts</u>				
<i>Copays</i>	<u>Retail (31-day supply)**</u>		<u>Mail (90-day supply)</u>		
<i>Generic</i>	\$10		\$9 low-cost/\$25 others		
<i>Brand-name</i>	\$30 after \$250 deductible		\$75 after \$250 deductible		
<i>Specialty</i>	13% coinsurance up to \$550 max per fill limit		13% coinsurance up to \$550 max per fill limit		
<i>Out-of-Pocket Maximum</i>	\$4,950				

* Enrollees residing in Ohio are in the Medicare Mutual Basic PPO plan, and those residing outside of Ohio are in the Aetna Basic PPO plan.

** Copays increase by \$10 if a non-preferred pharmacy is used.

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Benefit Descriptions for the Year Beginning January 1, 2017 (continued):

MEDICARE

Medical	<u>Aetna Medicare Advantage</u>		<u>Medical Mutual Basic PPO</u>		<u>AultCare PPO</u>		<u>Paramount Elite HMO</u>
	<u>PPO</u>		<u>In-network</u>	<u>Out-of-network</u>	<u>In-network</u>	<u>Out-of-network</u>	
	<u>In-network</u>	<u>Out-of-network</u>					
<i>Deductible</i>	\$150	\$500	\$2,500	\$5,000	\$150	\$500	\$150
<i>Out-of-Pocket Maximum</i>	\$1,500	\$2,500	\$6,500	\$13,000	\$1,500	\$2,500	\$1,500
<i>Hospital Inpatient</i>	4%	8%	20%	50%	4%	8%	4%
<i>Emergency Room (waived if admitted)</i>		\$75		\$150		\$75	\$75
<i>Physician Office Visit</i>	\$15/\$25	\$40/\$55	20%	20%	\$15/\$25	\$40/\$55	\$15/\$25
Prescription Drug	<u>Express Scripts</u>						
<i>Copays</i>	<u>Retail (30-90 day supply)*</u>			<u>Mail (90 day supply)</u>			
<i>Generic</i>	\$10			\$9 low-cost/\$25 others			
<i>Brand-name</i>	\$30 after \$250 deductible			\$75 after \$250 deductible			
<i>Specialty</i>	13% coinsurance up to \$550 maximum per fill limit			13% coinsurance up to \$550 maximum per fill limit			
<i>Out-of-Pocket Maximum</i>				\$4,950			

* Copays increase by \$10 if a non-preferred pharmacy is used.

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EXHIBIT III

Definitions of Terms

The following list defines certain technical terms for the convenience of the reader:

**Assumptions or Actuarial
Assumptions:**

The estimates on which the cost of the Plan is calculated including:

- (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;
- (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) Retirement rates — the rate or probability of retirement at a given age;
- (d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

Total OPEB Liability

Present value of all future benefit payments for current retirees and active employees taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions.

Service Cost:

The amount of contributions required to fund the benefit allocated to the current year of service.

**Actuarially Determined
Contribution:**

A target or recommended contribution to an OPEB plan for the reporting period based on the most recent measurement available.

Valuation Date:

The date at which the actuarial valuation is performed.

Covered Employee Payroll:

The payroll of the employees that are provided OPEB benefits.

Discount Rate:

The single rate of return, that when applied to all projected benefit payments results in an actuarial present value that is the sum of the following:

- (1) the actuarial present value of projected benefit payments projected to be funded by plan assets using a long term rate of return, and

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(2) the actuarial present value of projected benefit payments that are non included in (1) using a yield or index rate for 20 year tax exempt general obligation municipal bonds with an average rating of AA/Aa or higher

Entry Age Actuarial Cost Method: An actuarial cost method where the present value of the projected benefits for an individual is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age.

Healthcare Cost Trend Rates: The rate of change in per capita health costs over time

Net OPEB Liability: The Total OPEB Liability less the Plan Net Fiduciary Position

Plan Net Fiduciary Position: Market Value of Assets

Real Rate of Return: The rate of return on an investment after removing inflation

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EXHIBIT IV

Accounting Requirements

The Governmental Accounting Standards Board (GASB) issued Statement Number 74 – *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*, and Statement Number 75 – *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*. Under these statements, all state and local government entities that provide other post-employment benefits (OPEB) are required to report the cost of these benefits on their financial statements. The accounting standards supplement cash accounting, under which the expense for postemployment benefits is equal to benefit and administrative costs paid on behalf of retirees and their dependents (*i.e.*, a pay-as-you-go basis).

The statements cover postemployment benefits of health, prescription drug, dental, vision and life insurance coverage for retirees; long-term care coverage, life insurance and death benefits that are *not* offered as part of a pension plan; and long-term disability insurance for employees. The benefits valued in this report are limited to those described in Exhibit II of Section 4, which are based on those provided under the terms of the substantive plan in effect at the time of the valuation and on the pattern of sharing costs between the employer and plan members. The projection of benefits is not limited by legal or contractual limits on funding the plan unless those limits clearly translate into benefit limits on the substantive plan being valued.

The new standards introduce an accrual-basis accounting requirement, thereby recognizing the employer cost of postemployment benefits over an employee’s career. The standards also introduce a consistent accounting requirement for both pension and non-pension benefits.

The total cost of providing postemployment benefits is projected, taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions. These assumptions are summarized in Exhibit I of Section 4. This amount is then discounted to determine the Total OPEB Liability. The Net OPEB Liability (NOL) is the difference between the Total OPEB Liability and market value of assets in the Plan, called the Net Plan Fiduciary Position.

Once the NOL is determined, the Annual OPEB Expense is determined as the change in NOL from the prior year with deferred recognition of certain elements. In addition, Required Supplementary Information (RSI) must be reported, including historical information about the Net OPEB liability and the Contributions made to the Plan. Exhibit III of Section 4 contains a definition of terms as well as more information about GASB 74/75 concepts.

The calculation of an accounting obligation does not, in and of itself, imply that there is any legal liability to provide the benefits valued, nor is there any implication that the Employer is required to implement a funding policy to satisfy the projected expense.

Actuarial calculations reflect a long-term perspective, and the methods and assumptions use techniques designed to reduce short-term volatility in accrued liabilities and the actuarial value of assets, if any.

Actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future, and the actuarially determined amounts are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future.