Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve

TEACHERS'
Retirement System
TRS
KENTUCKY

GASB Statement No. 74 Report
for the
Teachers' Retirement System
of the State of Kentucky

Retiree Medical and Life Insurance Plans

Prepared as of June 30, 2017

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

November 14, 2017

Board of Trustees
Teachers' Retirement System of the
State of Kentucky
479 Versailles Road
Frankfort, KY 40601-3800

Members of the Board:

Presented in this report is information to assist the Teachers' Retirement System of the State of Kentucky (System) in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 74 for the Retiree Medical Plan funded by the Medical Insurance Fund (MIF) and the Life Insurance Plan funded by the Life Insurance Fund (LIF). The information is presented for the one-year period ending June 30, 2017. These calculations have been made on a basis that is consistent with our understanding of the accounting standard.

The annual actuarial valuation performed as of June 30, 2016 was used as the basis for much of the information presented as of June 30, 2017 in this report. The valuation was based upon data furnished by the System concerning active, inactive, and retired members along with pertinent claims data and financial information. This information was reviewed for completeness and internal consistency, but was not audited. The valuation results depend on the integrity of the data. If any of the information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

To the best of our knowledge, the information contained in this report is complete and accurate. These calculations were performed by, and under the supervision of, independent consulting actuaries with experience in performing valuations for public retirement systems. In addition, the valuation was prepared in accordance with generally accepted actuarial principles and practices as well as with Actuarial Standards of Practice prescribed by the Actuarial Standards Board.

Our calculation of the liabilities associated with the benefits described in this report was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB Statement No. 74. The calculation of the MIF and LIF liabilities for this report may not be applicable for funding purposes of the MIF and LIF. A calculation of the MIF's and LIF's liabilities for purposes other than satisfying the requirements of GASB No. 74 may produce significantly different results.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuations were prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the medical plans and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of each plan.

Respectfully submitted,

Alisa Bennett, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

Edward J. Koebel, EA, FCA, MAAA
Principal and Consulting Actuary

Cathy Turcot
Principal and Managing Director

Table of Contents

Section II – Introduction

The Governmental Accounting Standards Board issued Statement No. 74 (GASB 74), *"Financial Reporting for Postemployment Benefit Plans other than Pension Plans,"* in June 2015. The effective date for reporting under GASB 74 is plan years beginning after June 15, 2016, which is the fiscal year ending June 30, 2017 for the System. For the purposes of reporting under GASB 74, the MIF and LIF are assumed to be cost-sharing, multiple-employer, other than insured, defined benefit OPEB plans with a special funding situation, where assets are accumulated in trusts or equivalent arrangements that meet the criteria in paragraph 3 of GASB 74.

This report, prepared as of June 30, 2017 (Measurement Date or MD), presents information to assist the System in meeting the requirements of GASB 74. Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of the MIF and LIF, as of June 30, 2016 (Valuation Date or VD). The results of that valuation were detailed in a report dated November 21, 2016.

GASB 74 replaced GASB 43, which was more closely tied to funding efforts in that it required OPEB plans to report items consistent with the results of a plan's actuarial valuations, as long as those valuations met certain parameters. GASB 74 basically separates accounting from funding by creating disclosure and reporting requirements that may or may not be consistent with the basis used for funding a plan.

GASB 74 requires the determination of the Total OPEB Liability (TOL) utilizing the Entry Age Normal (EAN) actuarial cost method. If the valuation date at which the TOL is determined is before the measurement date, as is the case here, the TOL must be rolled forward to the measurement date. The Net OPEB Liability (NOL) is then set equal to the rolled forward TOL minus the plan's Fiduciary Net Position (FNP) (basically the market value of assets as of the Measurement Date). The plan provisions recognized in the calculation of the TOL of the MIF and LIF are summarized in Schedule B. The development of the roll-forward of the TOL of the MIF and LIF is shown in the table on page 9 and page 10.

Among the assumptions needed for the liability calculation is the discount rate, as defined by GASB, or a Single Equivalent Interest Rate (SEIR). To determine the SEIR, the FNP must be projected into the future for as long as there are anticipated benefits payable under the plan's provisions applicable to the membership and beneficiaries of the Plan on the Measurement Date. Future contributions are to be projected in accordance with a plan's funding policy and/or the application of professional judgment to consider the recent contribution history of the employers and non-employer contributing entities. If the FNP is not projected to be depleted at any point in the future, the long term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR.

If, however, at a future measurement date, the FNP is projected to be depleted, the SEIR is determined as the single rate that will generate a present value of benefit payments equal to the sum of the present value determined by discounting all projected benefit payments through the date of depletion by the long-term expected rate of return, and the present value determined by discounting those benefits after the date of depletion by a 20-year tax-exempt municipal bond (rating AA/Aa or higher) rate (Municipal Bond Index Rate). The Municipal Bond Index Rate used for this purpose is the June average of the Bond Buyer General Obligation 20-year Municipal Bond Index published weekly by the Board of Governors of the Federal Reserve System. Our calculations indicated the FNP is not projected to be depleted, so the Municipal Bond Index Rate was not used in the determination of the SEIR. Please see Paragraph 35(b) in the GASB 74 section for more explanation into the development of the SEIR.

Section II – Introduction (continued)

The FNP projections are based upon the Plan's financial status on the Valuation Date, the indicated set of methods and assumptions, and the requirements of GASB 74. As such, the FNP projections are not reflective of the cash flows and asset accumulations that would occur on an ongoing plan basis, reflecting the impact of future members. Therefore, the results of this test do not necessarily indicate whether or not the fund will actually run out of money, the financial condition of the Plan, or the Plan's ability to make benefit payments in future years.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 74, for note disclosure and Required Supplementary Information (RSI).

Section II – Financial Statement Notes

The material presented herein will follow the order presented in GASB 74. There are non-actuarial items required which are not included in this report. Paragraph numbers are provided for ease of reference.

Paragraphs 34(a)(1)-(3): CMC was not expected to supply this information.

Paragraph 34(a)(4): The data required regarding the membership of the MIF and LIF were furnished by the System. The following table summarizes the membership of the Plan as of June 30, 2016, the Valuation Date.

Membership

	Number	
	MIF	LIF
Inactive Members or Their Beneficiaries Currently Receiving Benefits	39,764	47,071
Inactive Members Entitled to but not yet Receiving Benefits	8,145	9,058
Active Members	71,848	71,848
Total Membership	119,757	127,977

Paragraphs 34(a)(5)-(6) and 34(b)-(e): CMC was not expected to supply this information.

Paragraph 35(a)(1)-(4): The information is provided in the following table. As stated previously, the NOL is equal to the TOL minus the FNP. That result as of June 30, 2017, the Measurement Date, is presented in the table below.

Measurement Date of June 30, 2017 ($ in Thousands)		
	MIF	LIF
TOL*	$ 4,524,172	$ 109,736
FNP	958,390	87,777
NOL	$ 3,565,782	$ 21,959
Ratio of FNP to TOL	21.18%	79.99%

**For the MIF, the TOL includes the additional consideration for the current treatment of KEHP implicit subsidies that may be needed in the future. This is an additional liability from our funding MIF accrued liabilities.*

Section II – Financial Statement Notes (continued)

Paragraph 35(b): Listed below is the information to be disclosed regarding the actuarial assumptions and other inputs used to measure the TOL. The complete set of actuarial assumptions and other inputs utilized in developing the TOL are outlined in Schedule C. The TOL was determined by an actuarial valuation as of June 30, 2016, using the following key actuarial assumptions and other inputs:

Inflation	3.00%
Real wage growth	0.50%
Wage inflation	3.50%
Salary increases, including wage inflation	3.50% - 7.20%
Long-term Investment Rate of Return, net of OPEB plan investment expense, including inflation	
MIF	8.00%
LIF	7.50%
Municipal Bond Index Rate	3.56%
Year FNP is projected to be depleted	
MIF	n/a
LIF	n/a
Single Equivalent Interest Rate, net of OPEB plan investment expense, including price inflation	
MIF	8.00%
LIF	7.50%
MIF Health Care Cost Trends	
Under Age 65	7.75% for FYE 2017 decreasing to an ultimate rate of 5.00% by FYE 2023
Ages 65 and Older	5.75% for FYE 2017 decreasing to an ultimate rate of 5.00% by FYE 2020
Medicare Part B Premiums	1.02% for FYE 2017 with an ultimate rate of 5.00% by 2029

Mortality rates were based on the RP-2000 Combined Mortality Table projected to 2025 with projection scale BB and set forward two years for males and one year for females is used for the period after service retirement and for dependent beneficiaries. The RP-2000 Disabled Mortality Table set forward two years for males and seven years for females is used for the period after disability retirement.

Section II – Financial Statement Notes (continued)

The demographic actuarial assumptions for retirement, disability incidence, withdrawal, rates of plan participation, and rates of plan election used in the June 30, 2016 valuation were based on the results of the most recent actuarial experience studies for the System, which covered the five-year period ending June 30, 2015.

The remaining actuarial assumptions (e.g., initial per capita costs, health care cost trends) used in the June 30, 2016 valuation of the MIF were based on a review of recent plan experience done concurrently with the June 30, 2016 valuation.

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

The target asset allocation and best estimates of arithmetic real rates of return for each major asset class, as provided by TRS's investment consultant, are summarized in the following table:

MIF		
Asset Class	Target Allocation	30 Year Expected Geometric Real Rate of Return
Global Equity	60.0%	5.1%
Fixed Income	9.0%	1.2%
Real Estate	4.5%	4.0%
Private Equity	5.5%	6.6%
High Yield	10.0%	4.3%
Other Additional Categories*	10.0%	3.3%
Cash (LIBOR)	1.0%	0.5%
Total	100.00%	

**Modeled as 50% High Yield and 50% Bank Loans.*

Section II – Financial Statement Notes (continued)

LIF*		
Asset Class	Target Allocation	30 Year Expected Geometric Real Rate of Return
U.S. Large Cap Equity	38.4%	4.3%
U.S. Small Cap Equity	2.6%	4.8%
Developed Int'l Equity	15.8%	5.2%
Emerging Markets Equity	4.2%	5.4%
Fixed Income – Inv Grade	16.0%	1.2%
Real Estate	6.0%	4.0%
Private Equity	7.0%	6.6%
High Yield	2.0%	4.3%
Other Additional Categories*	7.0*	3.3%
Cash (LIBOR)	2.0%	0.5%
Total	100.00%	

**As the LIF investment policy is to change, the above table reflects the pension allocation and returns that achieve the targeted 7.50% long-term rate of return.*
***Modeled as 50% High Yield and 50% Bank Loans.*

MIF Discount rate (SEIR). The discount rate used to measure the TOL as of the Measurement Date was 8.00%. The projection of cash flows used to determine the discount rate was performed in accordance with GASB 74. The projection's basis was an actuarial valuation performed as of June 30, 2016. In addition to the actuarial methods and assumptions of the June 30, 2016 actuarial valuation, the following actuarial methods and assumptions were used in the projection of cash flows:

- Total payroll for the initial projection year consists of the payroll of the active membership present on the Valuation Date. In subsequent projection years, total payroll was assumed to increase annually at a rate of 3.50%.
- For the retiree health care costs of those beneficiaries under age 65, the KEHP implicit rate subsidies were assumed to be paid in all years by the employer directly to plan members as the benefits come due.
- As administrative expenses were assumed to be paid in all years by the employer as they come due, they were not considered.
- Cash flows occur mid-year.

Section II – Financial Statement Notes (continued)

- Future contributions to the MIF were based upon the contribution rates defined in statute and the projected payroll of active employees. Per KRS 161.540(1)(c).3 and 161.550(5), when the MIF achieves a sufficient prefunded status, as determined by the retirement system's actuary, the following MIF statutory contributions are to be decreased, suspended, or eliminated:
  - Employee contributions
  - School District/University Contributions
  - State Contributions for KEHP premium subsidies payable to retirees who retire after June 30, 2010

  To reflect these adjustments, open group projections were used and assumed an equal, pro rata reduction to the current statutory amounts in the years if/when the MIF is projected to achieve a Funded Ratio of 100% or more. Here, the current statutory amounts are adjusted to achieve total contributions equal to the Actuarially Determined Contribution (ADC), as determined by the prior year's valuation and in accordance with the MIF's funding policy (Schedule E). As the specific methodology to be used for the adjustments has yet to be determined, there may be differences between the projected results and future experience. This may also include any changes to retiree contributions for KEHP coverage pursuant to KRS 161.675(4)(b).

- In developing the adjustments to the statutory contributions in future years, the following was assumed:
  - Liabilities and cash flows are net of expected retiree contributions and any implicit subsidies attributable to coverage while participating in KEHP.
  - A 0% active member growth rate was assumed for the purposes of developing estimates for new entrants (membership dates beyond June 30, 2016).

Based on these assumptions, the MIF's FNP was <u>not</u> projected to be depleted.

LIF Discount rate (SEIR). The discount rate used to measure the TOL as of the Measurement Date was 7.50%. The projection of cash flows used to determine the discount rate was performed in accordance with GASB 74. The projection's basis was an actuarial valuation performed as of June 30, 2016. In addition to the actuarial methods and assumptions of the June 30, 2016 actuarial valuation, the following actuarial methods and assumptions were used in the projection of the LIF's cash flows:

- Total payroll for the initial projection year consists of the payroll of the active membership present on the Valuation Date. In subsequent projection years, total payroll was assumed to increase annually at a rate of 3.50%.
- The employer will contribute the Actuarially Determined Contribution (ADC) in accordance with the LIF's funding policy (Schedule E) determined by a valuation performed on a date two years prior to the beginning of the fiscal year in which the ADC applies.
- As administrative expenses were assumed to be paid in all years by the employer as they come due, they were not considered.
- Active employees do not explicitly contribute to the plan.
- Cash flows occur mid-year.

Based on these assumptions, the LIF's FNP was <u>not</u> projected to be depleted.

Section II – Financial Statement Notes (continued)

The FNP projections are based upon the MIF's and the LIF's financial statuses on the Valuation Date, the indicated set of methods and assumptions, and the requirements of GASB 74. As such, the FNP projections are not reflective of the cash flows and asset accumulations that would occur on an ongoing basis, reflecting the impact of future members. Therefore, the results of these tests do not necessarily indicate whether or not the MIF and the LIF will actually run out of money, the financial condition of the MIF and the LIF, or the MIF's and the LIF's ability to make benefit payments in future years.

Paragraphs 35(b)(1) and 35(b)(2)(g): These paragraph require disclosure of the sensitivity of the NOL to changes in the health care cost trend rates for the MIF and the discount rate for the MIF and the LIF. The following exhibit presents the NOL of the MIF, calculated using the health care cost trend rates, as well as what the MIF's NOL would be if it were calculated using a health care cost trend rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate. Similarly, the exhibit presents the NOL of the MIF and LIFE, calculated using the Single Equivalent Interest Rate, as well as what the MIF's and LIF's NOL would be if they were calculated using a Discount Rate that is 1-percentage-point lower or 1-percentage-point higher than the current Single Equivalent Interest Rate:

Net OPEB Liability MIF ($ in Thousands)			
	Health Care Cost Trend Rates		
Discount Rate	1% Decrease	Current	1% Increase
1% Increase (8.50%)		$ 3,077,490	
Current (7.50%)	$ 2,986,247	$ 3,565,782	$ 4,281,292
1% Decrease (6.50%)		$ 4,152,368	

Discount Rate	Net OPEB Liability – LIF ($ in Thousands)
1% Increase (8.50%)	$ 10,055
Current (7.50%)	$ 21,959
1% Decrease (6.50%)	$ 36,497

Section II – Financial Statement Notes (continued)

Paragraph 35(c): The TOL of the MIF and LIF is based upon an actuarial valuation performed as of the Valuation Date, June 30, 2016. An expected TOL is determined as of June 30, 2017 using standard roll-forward techniques. The roll-forward calculation begins with the TOL, as of June 30, 2016, subtracts the actual benefit payments (net of retiree contributions, if applicable) for the year, applies interest at the discount rate for the year, and then adds the annual normal cost (also called the Service Cost). If applicable, actuarial gains and losses arising from the difference between estimates and actual experience (excluding amounts related to benefit changes and changes in assumptions or other inputs) are reconciled to the TOL as of the Measurement Date. Last, any changes of assumptions or other inputs are reflected. The procedure used to determine the TOL of the MIF and LIF, as of June 30, 2017, is shown in the following tables:

TOL Roll-Forward – MIF ($ in Thousands)		
(a)	TOL as of June 30, 2016*	$ 4,264,131
(b)	Actual Benefit Payments and Refunds for the Year July 1, 2016 – June 30, 2017	(178,500)
(c)	Interest on TOL = [(a) x (0.080)] + [(b) x (0.040)]	333,990
(d)	Service Cost for the Year July 1, 2016 – June 30, 2017 at the End of the Year	95,625
(e)	Changes of Benefit Terms	8,926
(f)	Differences Between Expected and Actual Experience at the End of the Year	0
(g)	Changes of Assumptions or Other Inputs	0
(h)	TOL Rolled Forward to June 30, 2017 = (a) + (b) + (c) + (d) + (e) + (f) + (g)	$ 4,524,172

* The TOL used in the roll-forward as of June 30, 2016 is calculated using the discount rate as of the Prior Measurement Date.

Section II – Financial Statement Notes (continued)

TOL Roll-Forward – LIF ($ in Thousands)		
(a) TOL as of June 30, 2016*	$	106,059
(b) Actual Benefit Payments and Refunds for the Year July 1, 2016 – June 30, 2017		(5,151)
(c) Interest on TOL = [(a) x (0.075)] + [(b) x (0.0375)]		7,761
(d) Service Cost for the Year July 1, 2016 – June 30, 2017 at the End of the Year		1,067
(e) Changes of Benefit Terms		0
(f) Differences Between Expected and Actual Experience at the End of the Year		0
(g) Changes of Assumptions or Other Inputs		0
(h) TOL Rolled Forward to June 30, 2017 = (a) + (b) + (c) + (d) + (e) + (f) + (g)	$	109,736

* The TOL used in the roll-forward as of June 30, 2016 is calculated using the discount rate as of the Prior Measurement Date.

Section III – Required Supplementary Information

There are several tables of Required Supplementary Information (RSI) that need to be included in the Plan's financial statements:

Paragraphs 36(a)-(c): The required tables of schedules are provided in Appendix A.

Paragraph 36(d): The required schedule presenting the annual money-weighted rates of return is to be supplied by the City.

Paragraph 38: Information regarding changes to benefit terms and changes to assumptions or other inputs should be noted regarding the RSI. The information should be listed by the date for which the indicated change was first reflected in reported amounts.

Changes to benefit terms:

June 30, 2017 (Valuation Date: June 30, 2016)

MIF

- With the passage of House Bill 471, the eligibility for non-single subsidies (NSS) for the KEHP-participating members who retired prior to July 1, 2010 is restored, but the State will only finance, via its KEHP "shared responsibility" contributions, the costs of the NSS related to those KEHP-participating members who retired on or after July 1, 2010.

LIF

- None

Changes to assumptions or other inputs:

None.

Section III – Required Supplementary Information (continued)

Methods and assumptions used in calculations of Actuarially Determined Contributions. The Actuarially Determined Contribution rates, as a percentage of payroll, used to determine the Actuarially Determined Contribution amounts in the Schedule of Employer Contributions (Schedule A) are calculated as of the indicated Valuation Date. The following actuarial methods and assumptions (from the indicated actuarial valuations) were used to determine contribution rates reported in that schedule for the year ending June 30, 2017:

Valuation Date	
MIF	June 30, 2016
LIF	June 30, 2014
Actuarial cost method	Entry Age Normal
Amortization method	Level Percent of Payroll
Amortization period	30 years, Open
Asset valuation method	
MIF	Five-year smoothed value
LIF	Market Value
Inflation	
MIF	3.00%
LIF	3.50%
Real wage growth	0.50%
Wage Inflation	
MIF	3.50%
LIF	4.00%
Salary increases, including wage inflation	
MIF	3.50% - 7.20%
LIF	4.00% - 8.10%
Discount Rate	
MIF	8.00%
LIF	7.50%
MIF Health Care Cost Trends	
Under Age 65	7.75% for FYE 2017 decreasing to an ultimate rate of 5.00% by FYE 2023
Ages 65 and Older	5.75% for FYE 2017 decreasing to an ultimate rate of 5.00% by FYE 2020
Medicare Part B Premiums	1.02% for FYE 2017 with an ultimate rate of 5.00% by 2029
MIF Under Age 65 Claims	The current premium charged by KEHP is used as the base cost and is projected forward using only the health care trend assumption (no implicit rate subsidy is recognized).

Schedule A – Required Supplementary Information Tables

SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
GASB 74 Paragraph 36(a)
($ in Thousands)

Medical Insurance Fund (MIF)										
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Total OPEB Liability										
Service Cost at end of year	$ 95,625									
Interest	333,990									
Changes of benefit terms	8,926									
Difference between expected and actual experience	0									
Changes of assumptions or other inputs	0									
Benefit payments	(178,500)									
Net change in Total OPEB Liability	$ 260,041									
Total OPEB Liability – beginning	$ 4,264,131									
Total OPEB Liability – ending (a)	$ 4,524,172									
Plan Net Position										
Contributions – State of Kentucky	$ 75,497									
Contributions – Other Employers	$ 104,879									
Contributions – Active Member	128,819									
Net investment income	95,453									
Benefit payments	(178,500)									
Administrative expense	(1,539)									
Other	0									
Net change in Plan Net Position	$ 224,609									
Plan Net Position – beginning	$ 733,781									
Plan Net Position – ending (b)	$ 958,390									
Net OPEB Liability – ending (a) – (b)	$ 3,565,782									

Schedule A – Required Supplementary Information Tables (continued)

SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
GASB 74 Paragraph 36(a)
($ in Thousands)

Life Insurance Fund (LIF)										
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Total OPEB Liability										
Service Cost at end of year	$ 1,067									
Interest	7,761									
Changes of benefit terms	0									
Difference between expected and actual experience	0									
Changes of assumptions or other inputs	0									
Benefit payments	(5,151)									
Net change in Total OPEB Liability	$ 3,677									
Total OPEB Liability – beginning	$ 106,059									
Total OPEB Liability – ending (a)	$ 109,736									
Plan Net Position										
Contributions – State of Kentucky	$ 882									
Contributions – Other Employers	$ 168									
Contributions – Active Member	0									
Net investment income	915									
Benefit payments	(5,151)									
Administrative expense	(28)									
Other	0									
Net change in Plan Net Position	$ (3,214)									
Plan Net Position – beginning	$ 90,991									
Plan Net Position – ending (b)	$ 87,777									
Net OPEB Liability – ending (a) – (b)	$ 21,959									

Schedule A – Required Supplementary Information Tables (continued)

SCHEDULE OF THE NET OPEB LIABILITY
GASB 74 Paragraph 36(b)
($ in Thousands)

Medical Insurance Fund (MIF)										
	2017	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**
Total OPEB Liability	$ 4,524,172									
Plan Fiduciary Net Position	958,390									
Net OPEB Liability	$ 3,565,782									
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	21.18%									
Covered payroll*	$ 3,415,432									
Net OPEB Liability as a percentage of covered payroll	104.40%									

Schedule A – Required Supplementary Information Tables (continued)

SCHEDULE OF THE NET OPEB LIABILITY
GASB 74 Paragraph 36(b)
($ in Thousands)

Life Insurance Fund (LIF)										
	2017	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**
Total OPEB Liability	$ 109,736									
Plan Fiduciary Net Position	87,777									
Net OPEB Liability	$ 21,959									
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability	79.99%									
Covered payroll*	$ 3,415,432									
Net OPEB Liability as a percentage of covered payroll	0.64%									

Schedule A – Required Supplementary Information Tables (continued)

SCHEDULE OF EMPLOYER CONTRIBUTIONS
GASB 74 Paragraph 36(c)
($ in Thousands)

Medical Insurance Fund (MIF)										
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Actuarially Determined Employer Contribution	$ 102,854	$ 97,983	$ 106,606	$ 159,583	$ 186,726	$ 470,217	$ 477,723	$ 457,054	$ 467,313	$ 395,282
Contributions in relation to the Actuarially Determined Contribution	180,376	221,967	168,084	162,568	166,611	177,748	188,735	173,380	178,092	160,866
Annual contribution deficiency (excess)	$ (77,522)	$ (123,984)	$ (61,478)	$ (2,985)	$ 20,115	$ 292,469	$ 288,988	$ 283,674	$ 289,221	$ 234,416
Covered Payroll*	$ 3,415,432	$ 3,390,539	$ 3,455,008	$ 3,317,422	$ 3,310,710	$ 3,310,176	$ 3,283,749	$ 3,321,614	$ 3,253,077	$ 3,190,332
Actual contributions as a percentage of covered payroll	5.28%	6.55%	4.86%	4.90%	5.03%	5.37%	5.75%	5.22%	5.47%	5.04%

Schedule A – Required Supplementary Information Tables (continued)

SCHEDULE OF EMPLOYER CONTRIBUTIONS
GASB 74 Paragraph 36(c)
($ in Thousands)

Life Insurance Fund (LIF)										
	2017	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**
Actuarially Determined Employer Contribution	$ 1,065	$ 1,058	$ 1,050	$ 1,045	$ 1,740	$ 1,733	$ 1,726	$ 1,993	$ 1,498	$ 1,914
Contributions in relation to the Actuarially Determined Contribution	1,050	1,038	1,020	1,006	1,680	1,685	1,669	1,967	5,455	5,411
Annual contribution deficiency (excess)	$ 15	$ 20	$ 30	$ 39	$ 60	$ 48	$ 57	$ 26	$ (3,957)	$ (3,497)
Covered Payroll*	$ 3,415,432	$ 3,390,539	$ 3,455,008	$ 3,317,422	$ 3,310,710	$ 3,310,176	$ 3,283,749	$ 3,321,614	$ 3,253,077	$ 3,190,332
Actual contributions as a percentage of covered payroll	0.03%	0.03%	0.03%	0.03%	0.05%	0.05%	0.05%	0.06%	0.17%	0.17%

Schedule B – Summary of Main Benefit Provisions

ELIGIBILITY FOR ACCESS TO RETIREE MEDICAL PLAN COVERAGE:

Service Retirement: For employees hired prior to July 1, 2008, Retiree Medical Plan coverage eligibility is attained when an employee retires, which is possible after the completion of 27 years of service or attainment of age 55 and 5 years of service. For employees hired on or after July 1, 2008, employees may retire after the completion of 27 years of service, the attainment of age 55 and 10 years of service, or the attainment of age 60 and 5 years of service, but must complete a minimum of 15 years of service to be eligible for Retiree Medical Plan coverage.

Disability Retirement: Disabled employees hired prior to July 1, 2008 with at least 5 years of service, who are totally and permanently incapable of being employed as a teacher, are eligible for Retiree Medical Plan coverage. Disabled employees hired after July 1, 2008 must have 15 years of service to be eligible for Retiree Medical Plan coverage.

Members and dependents under age 65 and eligible for Medicare due to a disability after January 1, 2013 are required to be covered under MEHP. Under age 65 members who retired prior to Jan. 1, 2013, are grandfathered from this requirement and allowed a choice of KEHP or MEHP coverage. Actual census data and current plan elections were used for current disabled retirees. Until sufficient experience emerges, the valuation conservatively assumes all future disabled members under the age of 65 will be covered under KEHP.

Survivors: Spouses of employees who die in service while eligible to retire, as well as survivors of service and disabled retirees, are eligible for Retiree Medical Plan coverage.

Termination: For employees hired prior to July 1, 2008 and who terminated with at least 5 years of service, Retiree Medical Plan coverage eligibility is attained at age 60. For employees hired on or after July 1, 2008 and who terminated with at least 15 years of service, Retiree Medical Plan coverage eligibility is attained at age 60.

Reemployed Retirees: Retirees who return to work in an agency that participates in KEHP are required to terminate their coverage through the System. Additionally, if a retiree returns to work somewhere that does not participate in the KEHP, but offers health insurance, the retiree must terminate System coverage unless the employer coverage is of lesser value. For valuation purposes, active employees identified as currently receiving retiree health care through the System are valued as retirees.

COVERED MEMBER RETIREE MEDICAL PLAN CONTRIBUTIONS:

Under Age 65 Retiree Shared Responsibility Contribution: Effective July 1, 2010, retirees under the age of 65 began a three-year phase-in of the Shared Responsibility Contribution. This contribution reduces the applicable amount of the full contribution provided by the System to retirees, by adjusting the Shared Responsibility Contribution amount by 100% less the appropriate percentage from the Retiree Percentage Contribution table below. Effective July 1, 2012, the full Shared Responsibility Contribution equals the Standard Medicare Part B premium paid by retirees ages 65 and older.

Monthly Under Age 65 Shared Responsibility Contribution Timeline			
Effective Date	Medicare Part B Monthly Cost	Formula	Shared Responsibility Contribution
July 1, 2010	$110.50	(1/3 x $110.50)	$ 37.00
January 1, 2011	115.40	(1/3 x 115.40)	39.00
July 1, 2011	115.40	(2/3 x 115.40)	77.00
January 1, 2012	99.90	(2/3 x 99.90)	66.00
July 1, 2012	99.90	99.90	99.90
January 1, 2013	104.90	104.90	104.90
January 1, 2014	104.90	104.90	104.90
January 1, 2015	104.90	104.90	104.90
January 1, 2016	121.80	121.80	121.80
January 1, 2017	134.00	134.00	134.00

Retiree Years of Service Percentage Contribution: Retirees contribute the following percentages based on years of service at retirement, which are then applied to the Retiree Contribution Rate Basis:

Retiree Percentage Contribution*				
	Entered System Before 7/1/2002			
Year of Service	Age 65 or Older and Covered Before 1/1/2005	Age 65 After or Covered After 12/31/2004	Entered System After 6/30/2002 and Before 7/1/2008	Entered System After 6/30/2008
5 – 9.99	30%	75%	90%	Not Eligible
10 – 14.99	20	50	75	Not Eligible
15 – 19.99	10	25	55	55%
20 – 24.99	0	0	35	35
25 – 25.99	0	0	10	10
26 – 26.99	0	0	5	5
27 or more	0	0	0	0

**0% for disabled retirees that retired prior to 1/1/2002*

Schedule B – Summary of Main Benefit Provisions (continued)

COVERED MEMBER RETIREE MEDICAL PLAN CONTRIBUTIONS (CONTINUED):

Monthly Retiree Contribution Rate Basis Effective January 1, 2017					
	Under Age 65 (KEHP)				
Tier Elected	LivingWell CDHP	LivingWell PPO	Standard PPO	Standard CDHP	Ages-65 and Older (MEHP)
Single	$ 654.12	$ 641.16	$ 629.76	$ 650.70	$252.00
Parent Plus*	844.20	795.06	840.38	870.36	n/a
Couple*	1,014.76	1,051.22	1,186.86	1,179.28	n/a
Family*	1,115.96	1,095.42	1,302.86	1,291.54	n/a
Family C-R*	732.02	712.66	736.74	764.92	n/a

**For members who retired prior to July 1, 2010, the monthly Retiree Contribution Rate Basis is $654.12*

Under Age 65 Retiree Plan Cost Contribution: An additional contribution according to the table below is required to be paid by retirees under the age of 65 based upon the plan elected and the date of retirement:

Monthly Under Age 65 Plan Cost Contribution* Effective January 1, 2017				
Tier Elected	LivingWell CDHP	LivingWell PPO	Standard PPO	Standard CDHP
Retired Prior to July 1, 2010				
Single	$ 47.98	$ 79.98	$ 48.46	$ 13.10
Parent Plus	313.06	368.92	310.46	276.82
Couple	648.62	910.08	823.60	777.64
Family	799.82	1,084.28	990.10	940.40
Family C-R	155.88	211.52	161.38	139.06
Retired After June 30, 2010				
Single	$ 47.98	$ 79.98	$ 48.46	$ 13.10
Parent Plus	122.98	227.98	124.20	60.58
Couple	287.98	512.98	290.86	252.48
Family	337.98	642.98	341.36	302.98
Family C-R	77.98	152.98	78.76	28.26

** Does not include the additional contribution required to be paid by retirees under the age of 65 who use tobacco ($40 for Single or Family Cross-Reference, and $80 for Parent Plus, Couple or Family).*

Schedule B – Summary of Main Benefit Provisions (continued)

COVERED MEMBER MEDICAL PLAN CONTRIBUTIONS (CONTINUED):

Spouse Contributions: 100% of the full cost for non-Medicare eligible dependents is paid through a combination of payments from beneficiaries and the State. Spouses of current post-65 retirees and surviving spouses of deceased retirees with a date of death on or after July 1, 2002 pay 100% of the full contribution. Spouses of active members who died while eligible to retire prior to July 1, 2002, are provided the same subsidy by the System that would have been provided to the retiree for the lifetime of the spouse, or until remarriage. Spouses of active members who die while eligible to retire on or after July 1, 2002 later pay 100% of the full contribution.

Monthly Surviving Spouse Contribution Effective January 1, 2017					
Tier Elected by Surviving Spouse	Under Age 65 (KEHP)				Ages 65 and Older (MEHP)
	LivingWell CDHP	LivingWell PPO	Standard PPO	Standard CDHP	
Single	$709.24	$728.28	$685.36	$670.94	$252.00
Parent Plus	974.32	1030.18	971.72	938.08	n/a

SYSTEM RETIREE MEDICAL PLAN CONTRIBUTIONS: The System Contribution Rate Basis is determined annually by the System; and the full cost is projected based on historical claims data. For retirees, the following percentages are based on years of service at retirement and are then applied to the System Contribution Rate Basis:

Percentage of System Contribution Rate Provided to Retirees*				
Year of Service	Entered System Before 7/1/2002		Entered System After 6/30/2002 and Before 7/1/2008	Entered System After 6/30/2008
	Age 65 or Older and Covered Before 1/1/2005	Age 65 After or Covered After 12/31/2004		
5 – 9.99	70%	25%	10%	Not Eligible
10 – 14.99	80	50	25	Not Eligible
15 – 19.99	90	75	45	45%
20 – 24.99	100	100	65	65
25 – 25.99	100	100	90	90
26 – 26.99	100	100	95	95
27 or more	100	100	100	100

**100% for disabled retirees that retired prior to 1/1/2002*

Schedule B – Summary of Main Benefit Provisions (continued)

SYSTEM RETIREE MEDICAL PLAN CONTRIBUTIONS (CONTINUED):

Monthly System Contribution Rate Basis Effective January 1, 2017					
	Under Age 65 (KEHP)*				Ages-65 and Older (MEHP)
Tier Elected	LivingWell CDHP	LivingWell PPO	Standard PPO	Standard CDHP	
Single	$ 654.12	$ 641.16	$ 629.76	$ 650.70	$252.00
Parent Plus**	844.20	795.06	840.38	870.36	n/a
Couple**	1,014.76	1,051.22	1,186.86	1,179.28	n/a
Family**	1,115.96	1,095.42	1,302.86	1,291.54	n/a
Family C-R**	732.02	712.66	736.74	764.92	n/a

**Irrespective of a participating retiree's service, an additional $7.14 per month is paid by the System to the Department of Employee Insurance (DEI) for KEHP coverage.*

***For members who retired prior to July 1, 2010, the monthly Retiree Contribution Rate Basis is $654.12*

ACTIVE MEMBER RETIREE MEDICAL PLAN CONTRIBUTIONS: Actively employed members make payroll contributions to the Medical Insurance Fund based upon the following schedule:

Active Member Percentage of Payroll Contribution Made to Medical Insurance Fund

Active Member Percentage of Payroll Contribution Made to Medical Insurance Fund					
University Employees		School District Employees (Non-Federal)		Other Employees	
Hired Before 7/1/2008	Hired On or After 7/1/2008	Hired Before 7/1/2008	Hired On or After 7/1/2008	Hired Before 7/1/2008	Hired On or After 7/1/2008
2.775	2.775	3.750	3.750	3.750	3.750

Schedule B – Summary of Main Benefit Provisions (continued)

LIFE INSURANCE PLAN BENEFITS:

(1) Effective July 1, 2000, the Teachers' Retirement System shall:

(a) Provide a life insurance benefit in a minimum amount of five thousand dollars ($5,000) for its members who are retired for service or disability. This life insurance benefit shall be payable upon the death of a member retired for service or disability to the member's estate or to a party designated by the member on a form prescribed by the retirement system; and

(b) Provide a life insurance benefit in a minimum amount of two thousand dollars ($2,000) for its active contributing members. This life insurance benefit shall be payable upon the death of an active contributing member to the member's estate or to a party designated by the member on a form prescribed by the retirement system.

Note: Members employed on a substitute or part-time basis and working at least 69% of a full contract year in a single fiscal year will be eligible for a life insurance benefit for the balance of the fiscal year or the immediately succeeding fiscal year under certain conditions. For non-vested members employed on a substitute or part-time basis, the life insurance benefit is provided if death occurs as the result of a physical injury on the job. For vested members employed on a substitute or part-time basis, death does not have to be the result of a physical injury on the job for life insurance benefits to be provided.

Schedule C – Statement of Actuarial Assumptions and Methods

The rates of retirement, disability, mortality, termination, salary increases, and rates of future benefit participation used in the valuation were selected based on the actuarial experience study prepared as of June 30, 2015, submitted to and adopted by the Board on September 19, 2016. The health care cost trend rates, and expected plan costs were determined by the actuary based on recent experience.

VALUATION DATE: June 30, 2016

DISCOUNT RATE: 8.0% per annum, compounded annually for the Medical Insurance Fund
7.5% per annum, compounded annually for the Life Insurance Fund

HEALTH CARE COST TREND RATES: Following is a chart detailing health care trend assumptions.

	Annual Trend Rate		
Fiscal Year Ended	Medicare Part B	Under Age 65	Ages 65 and Older
2017	1.02%	7.75%	5.75%
2018	(0.93)	7.00	5.50
2019	5.66	6.50	5.25
2020	4.84	6.00	5.00
2021	4.23	5.50	5.00
2022	5.04	5.25	5.00
2023	5.44	5.00	5.00
2024	5.10	5.00	5.00
2025	5.42	5.00	5.00
2026	5.62	5.00	5.00
2027	5.37	5.00	5.00
2028	5.12	5.00	5.00
2029 and beyond	5.00	5.00	5.00

AGE RELATED MORBIDITY: Per capita health care costs are adjusted to reflect expected health care cost changes related to age. The increase to the net incurred health care claims is assumed to be:

Participant Age	Annual Increase
Under 30	0.0%
30 – 34	1.0
35 – 39	1.5
40 – 44	2.0
45 – 49	2.6
50 – 54	3.3
55 – 59	3.6
60 – 64	4.2
65 – 69	3.0
70 – 74	2.5
75 – 79	2.0
80 – 84	1.0
85 - 89	0.5
90 and over	0.0

RETIREE MEDICAL PLAN COSTS: Assumed per capita health care costs were based on past experience and trended based on the assumptions. Following are charts detailing retiree per capita assumptions. These amounts include medical, drug, and administrative costs and represent the amount that the System pays as the full contribution amount. The amounts include medical and drug costs. An additional $7.14 per month is paid to the Department of Employee Insurance (DEI) and is not included in the under age 65 costs listed below.

Monthly Under Age 65 (KEHP) Full Costs as of January 1, 2017				
Tier Elected	LivingWell CDHP	LivingWell PPO	Standard PPO	Standard CDHP
Single	$ 702.10	$ 721.14	$ 678.22	$ 663.80
Parent Plus	967.18	1,023.04	964.58	930.94
Couple	1,302.74	1,564.20	1,477.72	1,431.76
Family	1,453.94	1,738.40	1,644.22	1,594.52
Family C-R	810.00	865.64	815.50	793.18

For retirees ages 65 and older, the average costs shown are normalized to age 65 and then age adjusted in calculating liabilities.

Average Monthly System Full Costs and Contributions			
Year	Under Age-65 (KEHP) Contributions	Ages 65 and Older (MEHP) Full Costs	Ages 65 and Older (MEHP) Contributions
CY 2007	$458	$283	$283
CY 2008	484	278	278
CY 2009	545	301[1]	285
CY 2010	594	373[1]	342
CY 2011	626	289	289
CY 2012	622	270[2]	270
CY 2013	635	294[2]	290
CY 2014	679	290[2]	290
CY 2015	669	240[2]	240
CY 2016	681	260[2]	260
CY 2017	680[3]	252[2]	252

[1] Under GASB 43 and 45, cost reductions for the amount of the Medicare Part D Retiree Drug Subsidy cannot be taken into account in the gross cost calculations.

[2] 2,183 current, Medicare-eligible benefit recipients have been identified by the client to be ineligible for premium-free Medicare Part A benefits. For these individuals, the full cost of coverage is, on average, $589 per month. It is assumed 9% of current retirees under the age of 65 who were hired prior to 4/1/1986 will be ineligible for premium-free Medicare Part A benefits upon reaching Medicare eligibility (age 65) and 0% of these retirees will cover a spouse. All active members are assumed to have begun contributing to Medicare as of 4/1/1986 and are assumed eligible for premium-free Medicare Part A benefits.

[3] For the retiree health care liabilities of those under age 65, the current premium charged by the Kentucky Employees' Health Plan (KEHP) is used as the base cost and is projected forward using the health care trend assumption. No implicit rate subsidy is calculated or recognized as the implicit rate subsidy is deemed the responsibility of the KEHP. Under Actuarial Standard of Practice No. 6 (ASOP No. 6), aging subsidies (or implicit rate subsidies) should be recognized, as the differences in health care utilization and cost due to age have been demonstrated and well quantified. As GASB 74 and 75 prohibit such a deviation from ASOP No. 6, the results presented in this report reflect KEHP implicit rate subsidies using a normalized to age 65 monthly cost of $1,109.

Schedule C – Statement of Actuarial Assumptions and Methods (continued)

CURRENT RETIREE MEDICAL PLAN PARTICIPATION: Actual census data and current plan elections (including waivers) provided by the System were used for those retirees currently participating in the Retiree Medical Plan. Current participants are assumed to maintain their current Retiree Medical Plan coverage until they are no longer eligible.

ANTICIPATED RETIREE MEDICAL PLAN PARTICIPATION: The assumed annual rates of health care plan participation for future retirees are as follows:

	Member Participation		
Years of Service	Entered System Before 7/1/2002	Entered System After 6/30/2002 and Before 7/1/2008	Entered System After 6/30/2008
5-9.99	20%	20%	Not Eligible
10-14.99	49	20	Not Eligible
15-19.99	70	41	41%
20-24.99	91	61	61
25-25.99	91	76	76
26-26.99	91	84	84
27 or more	91	91	91

ANTICIPATED RETIREE MEDICAL PLAN ELECTIONS: The assumed rates of plan election for future retirees participating in the KEHP plans are provided in the following table. As the assumed plan election rates are estimates and actual results may be materially different, this assumption will need to be revised as experience evolves.

LivingWell CDHP	LivingWell PPO	Standard PPO	Standard CDHP
40%	45%	7%	8%

SPOUSE COVERAGE IN RETIREE MEDICAL PLAN: Actual census data and current plan elections were used for MEHP and KEHP covered spouses (including beneficiaries) of current retirees. For spouses of future retirees, 25% of future male retirees are assumed to cover their spouse and 15% of future female retirees are assumed to cover their spouse. Male retirees are assumed to be three years older than their spouse and female retirees are assumed to be one year younger than their spouse.

DISABLED DEPENDENT CHILDREN IN RETIREE MEDICAL PLAN: The liability associated with disabled dependent children was determined to be de minimis and was therefore excluded from this valuation.

WITHDRAWAL ASSUMPTION: Future vested members who terminate employment prior to retirement are assumed to elect to withdraw their contributions based upon their age and service at termination of employment as follows:

Rates of Withdrawal Upon Termination of Employment			
Age at Termination of Employment	Years of Service		
	5 - 10	10 - 15	15+
Under Age 55	20%	15%	10%
Ages 55+	10%	10%	10%

All vested members who terminate employment prior to retirement are assumed to elect to withdraw their contributions prior to receiving a pension benefit based upon their service as follows:

Rates of Withdrawal Prior to Receiving a Pension Benefit			
Years of Service			
5 - 10	10 - 15	15 - 27	27+
25%	15%	10%	25%

All vested members who terminate employment prior to retirement and who are assumed to elect to receive a pension benefit are assumed to begin receiving their benefit at age 60.

PAYROLL GROWTH: 3.50% per annum, compounded annually.

PRICE INFLATION: 3.00% per annum, compounded annually.

AFFORDABLE CARE ACT (ACA): The impact of the Affordable Care Act (ACA) was addressed in this valuation. Review of the information currently available did not identify any specific provisions of the ACA that are anticipated to significantly impact results. While the impact of certain provisions such as the excise tax on high-value health insurance plans beginning in 2020 (if applicable), mandated benefits and participation changes due to the individual mandate should be recognized in the determination of liabilities, overall future plan costs and the resulting liabilities are driven by the assumed rate of health care inflation (i.e., trend). The trend assumption forecasts the anticipated increase to initial per capita costs, taking into account health care cost inflation, increases in benefit utilization, government-mandated benefits, and technological advances. Given the uncertainty regarding the ACA's implementation (e.g., the impact of excise tax on high-value health insurance plans, changes in participation resulting from the implementation of state-based health insurance exchanges), continued monitoring of the ACA's impact on the Retiree Medical Plan's liability will be required.

ASSET VALUATION METHOD: Market Value of Assets.

Schedule C – Statement of Actuarial Assumptions and Methods (continued)

SEPARATIONS FROM SERVICE: Representative values of the assumed annual rates of salary increases, death, disability, withdrawal, service retirement and early retirement are as follows:

MALES								
	Annual Rate of							
				WITHDRAWAL			RETIREMENT	
				Years of Service			Before 27 Years of Service	After 27 Years of Service**
Age	SALARY*	DEATH	DISABILITY	0 – 4	5 – 9	10+		
20	7.20%	0.019%	0.01%	11.00%				
25	6.40	0.021	0.01	11.00	3.00%			
30	5.40	0.025	0.01	11.00	3.00	3.00%		
35	4.70	0.043	0.04	12.00	3.50	1.40		
40	4.20	0.060	0.09	12.00	4.50	1.40		
45	3.80	0.084	0.20	12.00	4.50	1.30		17.0%
50	3.70	0.119	0.30	14.00	4.50	1.90		17.0
55	3.50	0.202	0.58	15.00	4.50	2.40	5.0%	45.0
60	3.50	0.340	0.75	15.00	4.00	2.40	13.0	35.0
62	3.50	0.419	0.75	15.00	3.80	2.40	15.0	25.0
65	3.50	0.565	0.75	15.00	3.50	2.40	20.0	25.0
70	3.50	0.913	0.75	20.00	0.00	0.00	20.0	20.0
75	3.50	1.556	0.75	20.00	0.00	0.00	100.0	100.0
FEMALES								
	Annual Rate of							
				WITHDRAWAL			RETIREMENT	
				Years of Service			Before 27 Years of Service	After 27 Years of Service**
Age	SALARY*	DEATH	DISABILITY	0 – 4	5 – 9	10+		
20	7.20%	0.007%	0.01%	9.00%				
25	6.40	0.008	0.01	9.00	4.00%			
30	5.40	0.010	0.03	12.00	4.00	1.65%		
35	4.70	0.018	0.06	12.00	4.00	1.50		
40	4.20	0.026	0.12	12.00	4.00	1.30		
45	3.80	0.042	0.25	13.00	4.00	1.20		15.0%
50	3.70	0.062	0.44	13.00	5.00	1.50		18.0
55	3.50	0.096	0.65	15.00	5.00	2.00	5.5%	50.0
60	3.50	0.157	0.85	15.00	5.00	2.00	14.0	40.0
62	3.50	0.197	0.85	15.00	4.60	2.00	14.0	40.0
65	3.50	0.287	0.85	15.00	4.00	2.00	22.0	35.0
70	3.50	0.495	0.85	15.00	0.00	0.00	20.0	35.0
75	3.50	0.831	0.85	15.00	0.00	0.00	100.0	100.0

** Includes wage inflation at 3.5% per annum.*
*** Plus 7.5% in year when first eligible for unreduced retirement with 27 years of service.*

Schedule C – Statement of Actuarial Assumptions and Methods (continued)

DEATHS AFTER RETIREMENT: The RP-2000 Combined Mortality Table projected to 2025 using scale BB (set forward two years for males and one year for females) is used for death after service retirement and beneficiaries. The RP-2000 Disabled Mortality Table (set forward two years for males and seven years for females) is used for death after disability retirement. There is a margin for future mortality improvement in the tables used by the System. Based on the results of the most recent experience study adopted by the Board on September 19, 2016, the numbers of expected future deaths are 15-19% less than the actual number of deaths that occurred during the study period for healthy retirees and 13-17% less than expected under the selected table for disabled retirees. Representative values of the assumed annual rates of death after service retirement and after disability retirement are shown below:

	Annual Rate of Death After			
	Service Retirement		Disability Retirement	
Age	Male	Female	Male	Female
45	0.1609%	0.1135%	2.3306%	1.2482%
50	0.2474	0.1718	2.9279	1.5650
55	0.4246	0.2658	3.4400	1.7807
60	0.6985	0.4409	3.5881	2.3164
65	1.1300	0.8100	3.8275	3.1687
70	1.8697	1.3739	4.7566	4.4032
75	3.2147	2.2899	6.3153	6.0857
80	5.5160	3.7551	8.3527	8.4679
85	9.5631	6.3873	10.9122	12.7572
90	17.2787	11.2476	17.2787	19.4718
95	27.1263	18.1190	27.1263	24.2074

Schedule D – Actuarial Cost Method

The valuations of the MIF and LIF are prepared on the projected benefit basis, which is used to determine the present value of each member's expected benefit payable at retirement, disability or death. The calculations are based on the member's age, years of service, sex, compensation, expected future salary increases, and an assumed future investment rate of return. The calculations consider the probability of a member's death or termination of employment prior to becoming eligible for a benefit and the probability of the member terminating with a service, disability, or survivor's benefit. The present value of the expected benefits payable to active members is added to the present value of the expected future payments to current benefit recipients to obtain the present value of all expected benefits payable to the present group of members and survivors.

The employer contributions required to support the benefits of the MIF and LIF are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.

The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new member during the entire period of his anticipated covered service, would be required in addition to the contributions of the member, if applicable, to meet the cost of all benefits payable on his behalf.

The unfunded accrued liability is determined by subtracting the present value of prospective employer normal contributions and member contributions, together with the current actuarial value of assets held, from the present value of expected benefits to be paid from the MIF and LIF.

BOARD GOVERNANCE MANUAL

APPENDIX 17
POLICIES ON ANNUAL RETIREMENT APPROPRIATIONS
PAYABLE BY THE STATE, RETIREE MEDICAL PLAN AND LIFE INSURANCE PLAN

INTRODUCTION

Pursuant to the provisions of KRS 161.250, the Board of Trustees (board) of the Teachers' Retirement System of the State of Kentucky (TRS) is vested with the responsibility for the general administration and management of the retirement system. The board may adopt procedures necessary to conduct the business of the retirement system as needed. The applicable provisions of the Kentucky Revised Statutes shall control if any inconsistency exists between state law and this policy.

1. Retirement Appropriations

State law provides that the retirement benefits promised to members of TRS are "an inviolable contract of the Commonwealth … (KRS 161.714)." To satisfy this solemn commitment, the Commonwealth of Kentucky (state) is required to pay annual retirement appropriations necessary to fund the benefit requirements of retirement system members. All employers participating in TRS are responsible for paying the fixed employer contribution rate set forth in state law. However, the state – as plan guarantor – is solely responsible for paying the additional annual retirement appropriations necessary to keep the retirement system actuarially sound and able to satisfy the contract with members to provide promised benefits (KRS 161.550 (6)).

Since fiscal year 2008, the state has not paid the full recommended annual retirement appropriations necessary to prefund the benefit requirements of members of the retirement system as determined by the actuary. Over this period, because of the failure to fund, the state's annual retirement appropriations have grown significantly from $60.5 million (Fiscal Year 2009) to $487.4 million (Fiscal Year 2016). The following schedule details the growth of the annual retirement appropriations payable by the state:

Fiscal Year	Cumulative Increase as a % of Payroll	Cumulative Increase of Annual Retirement Appropriations Payable by the State
2009	1.88	$ 60,499,800
2010	2.46	82,331,200
2011	3.59	121,457,000
2012	5.81	208,649,000
2013	7.27	260,980,000
2014	8.02	299,420,000
2015	10.42	386,400,000
2016	12.97	487,400,000
2017	13.80	520,372,000
2018	13.49	512,883,000
2019	14.61	553,597,000

(Source: TRS Report of the Actuary on the Annual Valuation Prepared as of June 30, 2016).

The board always has acted as required by state law and recommended annual retirement appropriations payable by the state that would ensure that the state meets the contractual obligations to members. This policy confirms the board's process for recommending annual retirement appropriations payable by the state and the primary actuarial assumptions and methodologies associated with calculating the annual retirement appropriations. Other related actuarial assumptions and methodologies not listed in this policy are reported in annual valuations, the most recent experience study or resolutions adopted by the board.

Schedule E – Board Funding Policy

Annual Retirement Appropriations Payable by the State

In each biennial budget request, the board will recommend annual retirement appropriations payable by the state to meet the benefit requirements of the members of the retirement system. The annual retirement appropriations payable by the state are the sum of the fixed employer contribution rate set by state law and the additional annual retirement appropriations necessary to fund the benefit requirements of members of the retirement system (KRS 161.550). The recommended additional annual retirement appropriations payable by the state are calculated by the board's actuary based upon the results of an annual valuation preceding the beginning of each biennium (KRS 161.400).

Calculation of Annual Retirement Appropriations Payable by the State

The board will recommend annual retirement appropriations payable by the state, which if paid, will meet the benefit requirements of the members of the retirement system, consistent with generally accepted actuarial principles. Based upon technical advice from the board's actuary, the board hereby adopts the following principles for calculating the recommended annual retirement appropriations payable by the state:

A. Use the Entry Age Normal actuarial cost method;
B. Use a five-year asset smoothing method;
C. Use a 30-year closed period to amortize, as a level percentage of pay, legacy unfunded liability (legacy unfunded liability is that unfunded liability recognized as of the valuation prepared for June 30, 2014);
D. Use a 20-year closed period to amortize, as a level percentage of pay, new sources of unfunded liability (new sources of unfunded liability are the unfunded liability consisting of all benefit changes, assumption and method changes and experience gains and/or losses that have occurred since the previous valuation); and
E. Reach a minimum funding ratio of 100 percent within the 30-year closed amortization period.

The board also recognizes that the state may desire to contribute lump sum payments toward satisfaction of unfunded liability rather than amortization of the debt. Total unfunded liability is published in every annual valuation of the retirement system, and TRS will work with the state to develop reasonable and appropriate plans for receipt of lump sum payments toward the satisfaction of unfunded liability.

2. Retiree Medical Plan

State law provides for a retiree medical plan (KRS 161.675). Since July 1, 2010, retired teachers, active teachers, local school boards, universities and the state have paid contributions for funding the retiree medical plan in accordance with the "Shared Responsibility Solution" (HB 540, RS 2010). The contributions mandated by Shared Responsibility will meet the benefit requirements of the members of the retirement system, consistent with generally accepted actuarial principles. Based upon technical advice from the board's actuary, the board hereby adopts the following principles concerning the retiree medical plan:

A. Use the Entry Age Normal actuarial cost method;
B. Use a five-year asset smoothing method;
C. Use a 23-year closed period (30 years from July 1, 2010) to amortize, as a level percentage of pay, legacy unfunded liability (legacy unfunded liability is that unfunded liability recognized as of the valuation prepared for June 30, 2017);
D. Use a 20-year closed period to amortize, as a level percentage of pay, new sources of unfunded liability (new sources of unfunded liability are the unfunded liability consisting of all benefit changes, assumption and method changes and experience gains and/or losses that have occurred since the previous valuation); and
E. Reach a minimum funded ratio of 100 percent within the 30-year closed amortization period.

Schedule E – Board Funding Policy

This policy also confirms the primary actuarial assumptions and methodologies associated with the retiree medical plan. Other related actuarial assumptions and methodologies not listed in this policy are reported in annual valuations, the most recent experience study or resolutions adopted by the board.

3. Life Insurance Plan

State law provides for a life insurance plan for active and retired teachers (KRS 161.655). The life insurance plan is funded by employer contributions. Based upon technical advice from the board's actuary, the board hereby adopts the following principles concerning the life insurance plan:

A. Use the Entry Age Normal actuarial cost method;
B. Use a five-year asset smoothing method;
C. Use a 27-year closed period (30 years from June 30, 2014) to amortize, as a level percentage of pay, legacy unfunded liability (legacy unfunded liability is that unfunded liability recognized as of the valuation prepared for June 30, 2017);
D. Use a 20-year closed period to amortize, as a level percentage of pay, new sources of unfunded liability (new sources of unfunded liability are the unfunded liability consisting of all benefit changes, assumption and method changes and experience gains and/or losses that have occurred since the previous valuation); and
E. Reach a minimum funded ratio of 100 percent within the 30-year closed amortization period.

This policy also confirms the primary actuarial assumptions and methodologies associated with the life insurance plan. Other related actuarial assumptions and methodologies not listed in this policy are reported in annual valuations, the most recent experience study or resolutions adopted by the board.

This policy will be reviewed regularly and amended or revised as necessary.

Adopted December 16, 2013; amended December 9, 2015; September 19, 2016, September 18, 2017