



Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve



**Teachers' Retirement System
of the State of Kentucky
Report of the Actuary on the
Annual Valuation of the
Retiree Health and Life
Insurance Trusts**

Prepared as of June 30, 2020





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The experience and dedication you deserve

Board of Trustees
November 12, 2020

November 12, 2020

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

Members of the Board:

This report covers the Retiree Medical Plan funded by the Health Insurance Trust (health trust) and OPEB liabilities related to the Life Insurance Plan funded by the Life Insurance Trust (life trust). Cavanaugh Macdonald Consulting, LLC (CMC) has submitted the results of the annual actuarial valuation prepared as of June 30, 2020. While not verifying the data at source, the actuary performed tests for consistency and reasonability.

The valuation indicates a total actuarially determined contribution of 3.54% as of percentage of active member payroll for the health trust payable for the fiscal year ending June 30, 2021 is required to support the benefits of the Kentucky Employees' Health Plan (KEHP) and the Medicare Eligible Health Plan (MEHP). Of this amount, 2.775% of payroll is estimated to be paid by University members and 3.750% of payroll is estimated to be paid by all other members, leaving 0.765% and (0.210)% respectively, as the remaining actuarially determined contribution. This actuarially determined contribution reflects the actuarial value of assets of the health trust and an 8.00% discount rate for valuing liabilities.

The initial per capita costs of health care and the rates of health care inflation used to project the per capita health care costs have been revised since the previous valuation to reflect recent experience and revised expectations. Beginning in plan year 2021, the Medicare Advantage plan premium rates exclude the Affordable Care Act Health Insurer Fee, which was repealed on December 20, 2019, resulting in lower claims projections.

We note that as we are preparing this report, the world is in the midst of a pandemic. We have considered available information, but do not believe that there is yet sufficient data to warrant the modification of any of our assumptions. We will continue to monitor the situation and advise the Board in the future of any adjustments that we believe would be appropriate.

The Life Insurance Plan valuation indicates a total actuarially determined contribution of 0.08% of active member payroll payable for the fiscal year ending June 30, 2023 is required to support the benefits of the life trust. This actuarially determined contribution reflects the actuarial value of assets of the life trust and a 7.50% discount rate for valuing liabilities.



Board of Trustees
November 12, 2020
Page 2

The promised benefits of the Retiree Medical and Life Insurance Plans are included in the actuarially calculated contribution rates that are developed using the entry age normal actuarial cost method. Five-year market related value of plan assets is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded actuarial accrued liability that is being amortized by regular annual contributions as a level percentage of payroll within a 20-year period for the Retiree Medical Plan and a 24-year period for the Life Insurance Plan, on the assumption that payroll will increase by 3.50% annually. The assumptions recommended by the actuary and adopted by the Board are in aggregate reasonably related to the experience under the Retiree Medical and Life Insurance Plans and to reasonable expectations of anticipated experience under the Retiree Medical and Life Insurance Plans.

CMC has prepared the trend information shown in the Schedule of Funding Progress in the Financial Section of the Annual Report and Section VII shown in the Actuarial Section of the Annual Report.

This is to certify that the independent consulting actuaries are members of the American Academy of Actuaries and have experience in performing valuations for public retirement systems, that the valuation was 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 Retiree Medical and Life Insurance Plans and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the Plans.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

This actuarial valuation was performed to determine the recommended funding amount for the System. The asset values used to determine unfunded liabilities and funded ratios are not market values, but less volatile market-related values. A smoothing technique is applied to market values to determine the market-related values. The unfunded liability amounts and funded ratios using the market value of assets would be different. The interest rate used for determining liabilities is based on the expected return of assets. Therefore, liability amounts in this report cannot be used to assess a settlement of the obligation.



Board of Trustees
November 12, 2020
Page 3

In our opinion, if the contributions to the Health Insurance Trust continue at the current statutorily required levels, the funded ratio of the Retiree Medical Plan will continue to increase, and the ability of the health trust to fund the benefits called for under the Retiree Medical Plan will improve.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Alisa Bennett'.

Alisa Bennett, FSA, EA, FCA, MAAA
President

A handwritten signature in blue ink, appearing to read 'Edward J. Koebel'.

Edward J. Koebel, EA, FCA, MAAA
Chief Executive Officer

AB: jf



Table of Contents

<u>Section</u>	<u>Item</u>	<u>Page No.</u>
I	Summary of Principal Results	1
II	Membership Data	6
III	Assets	7
IV	Comments on Valuation	8
V	Derivation of Experience Gains and Losses	10
VI	Contributions Payable under the Plans	11
VII	Comments on Level of Funding	14
VIII	Accounting Information	15

Schedule

A	Results of the Valuation and Solvency Test	19
B	Development of the Actuarial Value of Assets	21
C	Summary of Receipts and Disbursements	23
D	Statement of Actuarial Assumptions and Methods	25
E	Summary of Main Plan Provisions as Interpreted for Valuation Purposes	33
F	Tables of Member Data	38
G	Health Insurance Trust Sensitivity Analysis	42
H	Life Insurance Trust Sensitivity Analysis	47
I	Health Insurance Trust 20-Year Baseline Projection	51
J	Life Insurance Trust 20-Year Baseline Projection	53



Section I – Summary of Principal Results

TEACHERS' RETIREMENT SYSTEM OF THE STATE OF KENTUCKY REPORT OF THE ACTUARY ON THE ANNUAL VALUATION OF THE RETIREE HEALTH AND LIFE INSURANCE TRUSTS PREPARED AS OF JUNE 30, 2020

- For convenience of reference, the principal results of the valuation and a comparison with the results of the previous valuation are summarized below:

HEALTH INSURANCE TRUST (Dollar amounts in \$1,000's)

Valuation Date	June 30, 2020	June 30, 2019
Number of Active Members	73,151	72,647
Annual Salaries	\$ 3,723,482	\$ 3,648,428
Number of Deferred Vested Members	7,270	7,268
Number of Annuitants in Medical Plans	41,154	40,711
Number of Spouses and Beneficiaries in Medical Plans*	6,883	7,569
Total	48,037	48,280
Assets:		
Market Value	\$ 1,616,675	\$ 1,414,020
Actuarial Value	\$ 1,700,968	\$ 1,442,522
Unfunded Actuarial Accrued Liability	\$ 1,056,685	\$ 1,690,680
Funded Ratio Based on Actuarial Value of Assets	61.7%	46.0%
Amortization Period (Years)	20	21
Discount Rate	8.00%	8.00%

*Spouses of 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. 100% of the full contribution for non-Medicare eligible dependents is paid through a combination of payments from beneficiaries and the State. The non-Medicare dependent subsidy amount dropped to two thirds in calendar year 2019, one third in calendar year 2020 and is not allowed starting in 2021.



Section I – Summary of Principal Results

HEALTH INSURANCE TRUST CONTRIBUTION RATES FOR UNIVERSITY MEMBERS

Valuation Date	June 30, 2020		June 30, 2019	
Contribution for fiscal year ending:	June 30, 2021		June 30, 2020	
	Hired prior to 7/1/08	Hired on or after 7/1/08	Hired prior to 7/1/08	Hired on or after 7/1/08
Normal	1.48 %	1.48 %	1.62 %	1.62 %
Accrued liability	2.06	2.06	3.27	3.27
Total	3.54 %	3.54 %	4.89 %	4.89 %
Member	2.775 %	2.775 %	2.775 %	2.775 %
Employer	2.775	1.775	2.775	1.775
State	2.320	2.320	2.190	2.190
Statutorily Required Prefunding*	(4.330)	(3.330)	(2.850)	(1.850)
Total	3.540 %	3.540 %	4.890 %	4.890 %

HEALTH INSURANCE TRUST CONTRIBUTION RATES FOR SCHOOL DISTRICT EMPLOYEES (NON-FEDERAL)

Valuation Date	June 30, 2020		June 30, 2019	
Contribution for fiscal year ending:	June 30, 2021		June 30, 2020	
	Hired prior to 7/1/08	Hired on or after 7/1/08	Hired prior to 7/1/08	Hired on or after 7/1/08
Normal	1.48 %	1.48 %	1.62 %	1.62 %
Accrued liability	2.06	2.06	3.27	3.27
Total	3.54 %	3.54 %	4.89 %	4.89 %
Member	3.750 %	3.750 %	3.750 %	3.750 %
Employer	3.000	3.000	3.000	3.000
State	2.320	2.320	2.190	2.190
Statutorily Required Prefunding*	(5.530)	(5.530)	(4.050)	(4.050)
Total	3.540 %	3.540 %	4.890 %	4.890 %

* This represents funding by active members, local school districts, universities and other employers toward the unfunded liability of the health trust. See KRS 161.540(1)(c)(3) & 161.550(5).



Section I – Summary of Principal Results

HEALTH INSURANCE TRUST CONTRIBUTION RATES FOR OTHER EMPLOYEES

Valuation Date	June 30, 2020		June 30, 2019	
Contribution for fiscal year ending:	June 30, 2021		June 30, 2020	
	Hired prior to 7/1/08	Hired on or after 7/1/08	Hired prior to 7/1/08	Hired on or after 7/1/08
Normal	1.48 %	1.48 %	1.62 %	1.62 %
Accrued liability	2.06	2.06	3.27	3.27
Total	3.54 %	3.54 %	4.89 %	4.89 %
Member	3.750 %	3.750 %	3.750 %	3.750 %
Employer	3.750	2.750	3.750	2.750
State	2.320	2.320	2.190	2.190
Statutorily Required Prefunding*	(6.280)	(5.280)	(4.800)	(3.800)
Total	3.540 %	3.540 %	4.890 %	4.890 %

* This represents funding by active members, local school districts, universities and other employers toward the unfunded liability of the health trust. See KRS 161.540(1)(c)(3) & 161.550(5).

LIFE INSURANCE TRUST

(Dollar amounts in \$1,000's)

Valuation Date	June 30, 2020	June 30, 2019
Number of Active Members	73,151	72,647
Annual Salaries	\$ 3,723,482	\$ 3,648,428
Number of Vested Former Members	9,139	8,992
Number of Retirees in Life Insurance Plan	52,262	51,438
Assets:		
Market Value	\$ 87,368	\$ 85,758
Actuarial Value	\$ 92,229	\$ 92,506
Unfunded Actuarial Accrued Liability**	\$ 29,965	\$ 24,979
Funded Ratio Based on Actuarial Value of Assets	75.5%	78.7%
Amortization Period (Years)	24	25
Discount Rate	7.50%	7.50%
Contribution for fiscal year ending:	June 30, 2023	June 30, 2022
Normal	0.03 %	0.03 %
Accrued Liability	0.05	0.04
Total	0.08 %	0.07 %

** Includes liability for death in active service. This amount could be segregated from the OPEB liability and assets could be split for active and post-employment purposes. However, since this could be administratively burdensome and since death in active service liabilities can be considered de minimis, we will consider the entire liability an OPEB liability under GASB 74 and 75.



Section I – Summary of Principal Results

2. The valuation indicates combined member, employer, and State contributions of 3.54% of active member payroll would be sufficient to support the current benefits of the Retiree Medical Plan and State contributions of 0.08% of active member payroll would be sufficient to support the current benefits of the Life Insurance Plan. Comments on the valuation results as of June 30, 2020 are given in Section IV and further discussion of the contribution levels is set out in Sections VI and VII.
3. Schedule B shows the development of the actuarial value of assets. The assumed investment rate of return is 8.00% for the health trust and 7.50% for the life trust.
4. Schedule D of this report outlines the full set of actuarial assumptions and methods employed in the current valuation. Since the previous valuation, the initial per capita costs of health care and the rates of health care inflation used to project the per capita health care costs have been revised to reflect recent experience. Beginning in plan year 2021, the MAPD plan premium rates exclude the ACA Health Insurer Fee, which was repealed on December 20, 2019, resulting in lower claims projections.
5. The impact of the COVID-19 pandemic was considered in this valuation; however, no changes were incorporated at this time due to the level of uncertainty regarding the impact on both plan costs and contribution levels going forward. Given the uncertainty regarding COVID-19 (e.g., the impact of routine care being deferred, direct COVID-19 treatment and prevention costs, changes in contribution and budget projections), continued monitoring of the impact on the Plan's liability will be required.
6. Provisions of the System, as summarized in Schedule E, were taken into account in the current valuation. As in the previous valuation, the phase out of the KEHP dependent subsidies offered to retirees has been reflected. In 2020, TRS one-third of the non-single premium was contributed. Beginning in 2021, no subsidy is allowed by law.



Section I – Summary of Principal Results

7. The funded ratio shown in the Summary of Principal Results, is the ratio of actuarial value of assets to the actuarial accrued liability. The funded status would be different based on the market value of assets. The funded ratio is an indication of progress in funding the promised benefits. Since the ratio is less than 100%, there is a need for additional contributions toward the payment of the unfunded actuarial accrued liability. In addition, this funded ratio does not have any relationship to measuring the sufficiency if the plan had to settle its liabilities.



Section II – Membership Data

1. Data regarding the membership of the Retiree Medical and Life Insurance Plans for use as a basis of the valuation were furnished by the System's office. The following tables summarize the membership of the System as of June 30, 2020, upon which the valuation was based. Detailed tabulations of the data are given in Schedule F.

ACTIVE MEMBERS AS OF JUNE 30, 2020

Group	Number	Annual Salaries (\$1,000's)
University Full Time hired before 7/1/2008	1,294	\$ 98,639
University Full Time hired after 7/1/2008	1,827	93,852
Non-University Full Time hired before 7/1/2008	30,530	2,109,507
Non-University Full Time hired after 7/1/2008	26,638	1,340,951
Non-University Part Time hired before 7/1/2008	1,563	13,321
Non-University Part Time hired after 7/1/2008	11,299	67,212
Total	73,151	\$ 3,723,482

2. The following tables show the number of retired members and their beneficiaries receiving health care as of the valuation date as well as average ages.

RETIREEES RECEIVING HEALTH BENEFITS AS OF JUNE 30, 2020

	Under 65	Over 65	Total
Number	9,934	31,220	41,154
Average Age	59.58	74.55	70.94

SPOUSES RECEIVING HEALTH BENEFITS AS OF JUNE 30, 2020

	Under 65	Over 65	Total
Number	1,925	4,958	6,883
Average Age	59.98	74.96	70.77

3. The Retiree Medical Plan valuation includes 7,270 deferred vested members eligible for health care at age 60 and the Life Insurance Plan valuation includes 9,139 deferred vested members eligible for retiree life insurance at age 60.



Section III – Assets

1. As of June 30, 2020, the market value of the health trust assets held by the Retiree Medical Plan amounted to \$1,616,675,260 and the market value of the life trust assets held by the Life Insurance Plan amounted to \$87,367,891. The estimated market investment return for the plan year was 2.30% for the health trust and 6.32% for the life trust.
2. The five-year market related value of the health trust assets used for valuation purposes as of June 30, 2020 was \$1,700,968,245 and the five-year market related value of the life trust assets used for valuation purposes as of June 30, 2020 was \$92,228,536. Schedule B shows the development of the actuarial value of assets as of June 30, 2020.
3. Schedule C shows the receipts and disbursements for the year preceding the valuation date and a reconciliation of the asset balances for the health trust and the life trust.



Section IV – Comments on Valuation

1. Schedule A of this report outlines the results of the actuarial valuation. The valuation was prepared in accordance with the actuarial assumptions and the actuarial cost method, which are described in Schedule D.
2. The valuation shows the Retiree Medical Plan has an actuarial accrued liability of \$1,403,650,842 for benefits expected to be paid on account of the present active membership, based on service to the valuation date. The liability on account of deferred vested members amounts to \$41,412,253. The liability on account of benefits payable to retirees and covered spouses amounts to \$1,312,589,981. The total actuarial accrued liability of the Retiree Medical Plan amounts to \$2,757,653,076. Against these liabilities, the Retiree Medical Plan has present assets for valuation purposes of \$1,700,968,245. When this amount is deducted from the actuarial accrued liability of \$2,757,653,076, there remains \$1,056,684,831 as the unfunded actuarial accrued liability for the Retiree Medical Plan.
3. The normal contribution is equal to the actuarial present value of benefits accruing during the current year. The normal contribution for the Retiree Medical Plan is determined to be \$54,948,001, or 1.48% of payroll.
4. The valuation shows that the Life Insurance Plan has an actuarial accrued liability of \$18,679,761 for benefits expected to be paid on account of the present active membership, based on service to the valuation date. The liability on account of deferred vested members amounts to \$4,037,197. The liability on account of benefits payable to retirees amounts to \$99,476,950. The total actuarial accrued liability of the Life Insurance Plan amounts to \$122,193,908. This amount includes liability for death in active service. The liability for death in active service could be segregated from the OPEB liability and assets could be split for active and post-employment purposes. As this could be administratively burdensome and, as death in active service liabilities can be considered de minimis, we will consider the entire liability an OPEB liability under GASB 74 and 75. Against these liabilities, the Life Insurance Plan has present assets for valuation purposes of \$92,228,536. When this amount is deducted from the actuarial accrued liability of \$122,193,908, there remains \$29,965,372 as the unfunded actuarial accrued liability for the life insurance plan.



Section IV – Comments on Valuation

5. The normal contribution is equal to the actuarial present value of benefits accruing during the current year. The normal contribution for the life insurance plan is determined to be \$1,198,953, or 0.03% of payroll.



Section V – Derivation of Experience Gains and Losses

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is assumed that gains and losses will be in balance over a period of years, but sizable year-to-year fluctuations are common. Detail on the derivation of the experience gain (loss) for the year ended June 30, 2020 is shown below (\$1,000's).

Experience Gain/(Loss)* of the:		Health Insurance Trust	Life Insurance Trust
(1)	UAAL as of 6/30/2019	\$ 1,690,680	\$ 24,979
(2)	Normal cost from last valuation	59,226	1,209
(3)	Expected employer contributions	178,446	1,768
(4)	Interest accrual: [(1) + (2)] x .080 - (3) x .080/2 for MIF [(1) + (2)] x .075 - (3) x .075/2 for LIF	<u>132,855</u>	<u>1,898</u>
(5)	Expected UAAL before changes: (1) + (2) - (3) + (4)	\$ 1,704,315	\$ 26,318
(6)	Change due to claim experience	<u>(533,032)</u>	<u>0</u>
(7)	Expected UAAL after changes: (5) + (6)	\$ 1,171,283	\$ 26,318
(8)	Actual UAAL as of 6/30/2020	1,056,685	29,965
(9)	Total gain/(loss): (7) - (8)	114,598	(3,647)
	(a) Contribution and investment gain/(loss)	<u>109,287</u>	<u>(3,533)</u>
	(b) Experience gain/(loss) (9) - (9a)	5,311	(114)
(10)	Accrued liabilities as of 6/30/2019	\$ 3,133,202	\$ 117,485
(11)	Experience gain/(loss) as percent of actuarial accrued liabilities at start of year (9b) / (10)	0.2%	(0.1%)

* Rows labeled as a change, rather than a gain/(loss), are expressed as negative if the UAAL is decreased and positive if the UAAL is increased.



Section VI – Contributions Payable Under the Plans

1. Sections 161.420 and 161.550 of the Kentucky Revised Statutes provide the amounts employers and the State are required to contribute to the Health Insurance Trust. These contribution amounts vary by date of membership and employee type.

Employer Percentage of Payroll Contribution Made to Health Insurance Trust					
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	1.775	3.000	3.000	3.750	2.750

** In addition to the amounts contributed by School Districts on behalf of Non-Federal employees, the State contributes 0.75%.*

2. For the fiscal year ending June 30, 2020, member contributions will be 2.775% for University employees and 3.750% for all other members. Based upon the amortization of the unfunded actuarial accrued liability over a 20-year period as a level percentage of payroll, the valuation indicates employer and State contributions of 0.765% of payroll for University employees and (0.210)% of payroll for all other members.
3. The State is scheduled to contribute 0.07% of salary to the Life Insurance Trust for the fiscal year ending June 30, 2022. Based upon the amortization of the unfunded actuarial liability over a 24-year period as a level percentage of payroll, CMC's valuation indicates a contribution of 0.08% for the fiscal year ending June 30, 2023 is required to support sufficiently the benefits of the Life Insurance Plan.



Section VI – Contributions Payable Under the Plans

REQUIRED CONTRIBUTION RATES

Health Insurance Trust For Fiscal Year Ending June 30, 2021						
Normal	1.48 %					
Accrued Liability	<u>2.06</u>					
Total	3.54 %					
	University Employees		School District Employees (Non-Federal)		Other Employees	
	Hired prior to 7/1/08	Hired on or after 7/1/08	Hired prior to 7/1/08	Hired on or after 7/1/08	Hired prior to 7/1/08	Hired on or after 7/1/08
Member	2.775 %	2.775 %	3.750 %	3.750 %	3.750 %	3.750 %
Employer	2.775	1.775	3.000	3.000	3.750	2.750
State	2.320	2.320	2.320	2.320	2.320	2.320
Statutorily Required Prefunding*	<u>(4.330)</u>	<u>(3.330)</u>	<u>(5.530)</u>	<u>(5.530)</u>	<u>(6.280)</u>	<u>(5.280)</u>
Total	3.540 %	3.540 %	3.540 %	3.540 %	3.540 %	3.540 %

Life Insurance Trust For Fiscal Year Ending June 30, 2023	
Normal	0.03 %
Accrued Liability	<u>0.05</u>
Total	0.08 %
Member	0.00 %
State	<u>0.08</u>
Total	0.08 %

* This represents funding by active members, local school districts, universities and other employers toward the unfunded liability of the health trust. See KRS 161.540(1)(c)(3) & 161.550(5).

- The valuation indicates that a total normal contribution of 1.48% of payroll is required to meet the cost of benefits currently accruing under the Retiree Medical Plan and 0.03% of payroll is required to meet the cost of benefits currently accruing under the Life Insurance Plan. The difference between the total contribution and the normal contribution remains to be applied toward the liquidation of the unfunded actuarial accrued liability. This accrued liability payment is 2.06% of payroll for the Retiree Medical Plan and 0.05% of payroll for the Life Insurance Plan.



Section VI – Contributions Payable Under the Plans

5. The unfunded actuarial accrued liability amounts to \$1,056,684,831 for the Retiree Medical Plan and \$29,965,372 for the Life Insurance Plan as of the valuation date. An accrued liability contribution rate of 2.06% of payroll for the Retiree Medical Plan and 0.05% of payroll for the Life Insurance Plan is sufficient to amortize the unfunded actuarial accrued liabilities over a 20-year period for the Retiree Medical Plan and a 24-year period for the Life Insurance Plan, based on the assumption that the payroll will increase by 3.50% annually.



Section VII – Comments on Level of Funding

1. The System's monthly contribution for retirees who opt into the Retiree Medical Plan is based upon date of hire, date of attaining age 65, and years of service at retirement. Additionally, beneficiary contributions may vary by date of hire, date of attaining age 65, years of service at retirement, plan election, Medicare eligibility, and tobacco use. Beneficiary contributions for dependents are targeted to be 100% of the cost of expected claims and/or insured premiums for spouses age 65 and older. Historically, this target has been achieved. 100% of the full cost for non-Medicare eligible dependents is paid through a combination of payments from beneficiaries and the State on a current disbursement basis. Current employer and State contributions have been determined to be sufficient to fund the cost of the benefits to be provided. Benefits for university, school district (non-Federal), and other members are identical, although active employee contributions collected from university, school district (non-Federal), and other members differ. A listing of active member Retiree Medical Plan contributions by fiscal year, date of membership, and employer type is provided in Schedule E.
2. This valuation provides the contributions required to fund sufficiently the Retiree Medical Plan and to ensure the future solvency of the Health Insurance Trust. For University employees, a member contribution of 2.775% of payroll together with employer and State contributions of 0.765% of payroll are required to meet the cost of benefits currently accruing and provide for the amortization of the unfunded actuarial accrued liability over a period of 20 years. For the remaining membership, a member contribution of 3.750% of payroll together with employer and State contributions of (0.210)% of payroll is required to meet the cost of benefits currently accruing and provide for the amortization of the unfunded actuarial accrued liability over a period of 20 years.



Section VIII – Accounting Information

1. The information required under Governmental Accounting Standards Board (GASB) Statements No. 74 and 75 will be issued in separate reports. The following information is provided for informational purposes only.

NUMBER OF ACTIVE AND RETIRED MEMBERS IN RETIREE MEDICAL PLAN AS OF JUNE 30, 2020	
GROUP	NUMBER
Retirees currently receiving health benefits	41,154
Spouses of retirees currently receiving health benefits	6,883
Terminated employees entitled to benefits but not yet receiving benefits	7,270
Active plan members	<u>73,151</u>
Total	128,458

NUMBER OF ACTIVE AND RETIRED MEMBERS IN LIFE INSURANCE PLAN AS OF JUNE 30, 2020	
GROUP	NUMBER
Retirees	52,262
Terminated employees	9,139
Active plan members	<u>73,151</u>
Total	134,552



Section VIII – Accounting Information

SCHEDULE OF FUNDING PROGRESS

Health Insurance Trust

(Dollar amounts in \$1,000's)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Annual Salary (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
6/30/2012	\$ 338,746	\$ 3,594,540	\$ 3,255,794	9.4 %	\$ 3,479,567	93.6 %
6/30/2013	412,185	3,521,073	3,108,888	11.7	3,480,066	89.3
6/30/2014	508,913	3,194,689	2,685,776	15.9	3,486,327	77.0
6/30/2015	637,839	3,525,584	2,887,745	18.1	3,515,113	82.2
6/30/2016 ¹	795,055	3,634,073	2,839,018	21.9	3,537,226	80.3
6/30/2017	985,694	3,691,719	2,706,025	26.7	3,563,584	75.9
6/30/2018	1,213,918	3,340,709	2,126,791	36.3	3,605,116	58.9
6/30/2019	1,442,522	3,133,202	1,690,680	46.0	3,648,428	46.3
6/30/2020	1,700,968	2,757,653	1,056,685	61.7	3,723,482	28.4

¹Reflects change in decrement and participation assumptions.

SCHEDULE OF FUNDING PROGRESS

Life Insurance Trust

(Dollar amounts in \$1,000's)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Annual Salary (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
6/30/2012	\$ 92,241	\$ 91,398	\$ (843)	100.9 %	\$ 3,479,567	(0.02) %
6/30/2013	94,863	94,325	(538)	100.6	3,480,066	(0.02)
6/30/2014	96,130	97,354	1,224	98.7	3,486,327	0.04
6/30/2015	97,186	98,739	1,553	98.4	3,515,113	0.04
6/30/2016 ¹	97,269	106,059	8,790	91.7	3,537,226	0.25
6/30/2017	95,730	109,069	13,339	87.8	3,563,584	0.37
6/30/2018	93,808	112,471	18,663	83.4	3,605,116	0.52
6/30/2019	92,506	117,485	24,979	78.7	3,648,428	0.68
6/30/2020	92,229	122,194	29,965	75.5	3,723,482	0.80

¹Reflects change in decrement and participation assumptions.



Section VIII – Accounting Information

2. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2020. Additional information as of the latest actuarial valuation follows.

Valuation date	6/30/2020	
Actuarial Cost Method	Entry Age	
Amortization Method	Level Percent of Pay, Closed	
Remaining Amortization Period	20 Years Retiree Medical Plan	
	24 Years Life Insurance Plan	
Asset Valuation Method	5-Year Smoothed Market	
Actuarial Assumptions:		
Investment Rate of Return*	8.00% Retiree Medical Plan	
	7.50% Life Insurance Plan	
	Pre-Medicare**	Medicare
Medical Trend Assumption	7.00%	5.125%
Ultimate Trend Rate	5.00%	5.00%
Year of Ultimate Trend Rate	2028	2021

*Includes price inflation at 3.00%.

**Alternate trend rates were used for Medicare Part B premiums and are disclosed in Schedule D.



Section VIII – Accounting Information

SCHEDULE OF EMPLOYER CONTRIBUTIONS - Health Insurance Trust

Fiscal Year Ending Date	Actuarially Determined Contribution (a)	Actual Employer Contribution (b)	Percentage of ADC Contributed ((b) / (a))
6/30/2013	\$ 186,725,823	\$ 166,611,420	89.2 %
6/30/2014	159,583,400	162,568,395	101.9
6/30/2015	106,606,132	168,084,353	157.7
6/30/2016	97,982,580	178,638,320	182.3
6/30/2017	102,854,017	180,375,986	175.4
6/30/2018	118,837,620	187,102,413	157.4
6/30/2019	76,596,876	183,146,155	239.1
6/30/2020	43,908,838	184,625,474	420.5

SCHEDULE OF EMPLOYER CONTRIBUTIONS - Life Insurance Trust

Fiscal Year Ending Date	Actuarially Determined Contribution (a)	Actual Employer Contribution (b)	Percentage of ADC Contributed ((b) / (a))
6/30/2013	\$ 1,739,908	\$ 1,680,495	96.6 %
6/30/2014	1,044,959	1,006,091	96.3
6/30/2015	1,050,216	1,019,519	97.1
6/30/2016	1,057,851	1,037,769	98.1
6/30/2017	1,065,122	1,049,683	98.6
6/30/2018	1,075,305	1,058,329	98.4
6/30/2019	1,081,535	1,421,227	131.4
6/30/2020	1,842,977	1,796,389	97.5



Schedule A – Results of the Valuation and Solvency Test

RESULTS OF THE VALUATION AS OF JUNE 30, 2020 (Dollar amounts in \$1,000's)

	Health Insurance Trust	Life Insurance Trust
PAYROLL	\$ 3,723,482	\$ 3,723,482
ACTUARIAL ACCRUED LIABILITY Present value of prospective benefits payable in respect of:		
(a) Present active members	\$ 1,403,651	\$ 18,680
(b) Present terminated vested members	41,412	4,037
(c) Present retired members and covered spouses	1,312,590	99,477
(d) Total actuarial accrued liability	\$ 2,757,653	\$ 122,194
PRESENT ASSETS FOR VALUATION PURPOSES	\$ 1,700,968	\$ 92,229
UNFUNDED ACTUARIAL ACCRUED LIABILITY	\$ 1,056,685	\$ 29,965
CONTRIBUTIONS:	Fiscal Year Ending June 30, 2021	Fiscal Year Ending June 30, 2023
Normal	1.48 %	0.03 %
Accrued Liability	<u>2.06</u>	<u>0.05</u>
Total	3.54 %	0.08 %



Schedule A – Results of the Valuation and Solvency Test

HEALTH INSURANCE TRUST SOLVENCY TEST

(Dollar amounts in millions)

Valuation Date	(1) Active Member Contributions	(2) Retirants And Beneficiaries	(3) Active Members (Employer Financed Portion)	Valuation Assets	Portion of Accrued Liabilities Coved by Assets		
					(1)	(2)	(3)
6/30/2013	n/a	\$ 2,001.8	\$ 1,519.3	\$ 412.2	n/a	21	0
6/30/2014	n/a	1,771.9	1,422.8	508.9	n/a	29	0
6/30/2015	n/a	1,982.2	1,543.4	637.8	n/a	32	0
6/30/2016	n/a	1,950.9	1,683.2	795.1	n/a	41	0
6/30/2017	n/a	1,985.1	1,706.6	985.7	n/a	50	0
6/30/2018	n/a	1,692.3	1,648.4	1,213.9	n/a	72	0
6/30/2019	n/a	1,604.3	1,528.9	1,442.5	n/a	90	0
6/30/2020	n/a	1,354.0	1,403.7	1,701.0	n/a	100	25

LIFE INSURANCE TRUST SOLVENCY TEST

(Dollar amounts in millions)

Valuation Date	(1) Active Member Contributions	(2) Retirants And Beneficiaries	(3) Active Members (Employer Financed Portion)	Valuation Assets	Portion of Accrued Liabilities Coved by Assets		
					(1)	(2)	(3)
6/30/2012	n/a	\$ 75.2	\$ 16.2	\$ 92.2	n/a	100	105
6/30/2013	n/a	78.1	16.2	94.9	n/a	100	104
6/30/2014	n/a	81.0	16.3	96.1	n/a	100	93
6/30/2015	n/a	82.7	16.0	97.2	n/a	100	91
6/30/2016	n/a	89.0	17.1	97.3	n/a	100	49
6/30/2017	n/a	92.1	17.0	95.7	n/a	100	21
6/30/2018	n/a	94.2	18.3	93.8	n/a	99	0
6/30/2019	n/a	99.1	18.4	92.5	n/a	93	0
6/30/2020	n/a	103.5	18.7	92.2	n/a	89	0



Schedule B – Development of the Actuarial Value of Assets

HEALTH INSURANCE TRUST

AS OF JUNE 30, 2020

(1) Actuarial Value of Assets Beginning of Year	\$ 1,442,522,017
(2) Market Value of Assets End of Year	\$ 1,616,675,260
(3) Market Value of Assets Beginning of Year	\$ 1,414,020,056
(4) Cash Flow	
a. Contributions	\$ 318,214,245
b. Benefit Payments	145,986,752
c. Administrative Expense	2,047,238
d. Net: (4)a - (4)b - (4)c	\$ 170,180,255
(5) Investment Income	
a. Market Total: (2) - (3) - (4)d	\$ 32,474,949
b. Assumed Rate	8.00%
c. Amount for Immediate Recognition: [(3) x (5)b] + [(4)d x (5)b x 0.5]	119,928,815
d. Amount for Phased-In Recognition: 5(a) - 5(c)	\$ (87,453,866)
(6) Phased-In Recognition of Investment Income	
a. Current Year: 0.20 x (5)d	\$ (17,490,773)
b. First Prior Year	(5,362,227)
c. Second Prior Year	(2,260,479)
d. Third Prior Year	6,277,740
e. Fourth Prior Year	(12,827,103)
f. Total Recognized Investment Gain/(Loss)	\$ (31,662,842)
(7) Actuarial Value of Assets End of Year (1) + (4)d + (5)c + (6)f	\$ 1,700,968,245
(8) Difference Between Market & Actuarial Values: (2) - (7)	\$ (84,292,985)
(9) Rate of Return on Actuarial Value:	5.78%



Schedule B – Development of the Actuarial Value of Assets

LIFE INSURANCE TRUST

AS OF JUNE 30, 2020

(1) Actuarial Value of Assets Beginning of Year	\$	92,505,791
(2) Market Value of Assets End of Year	\$	87,367,891
(3) Market Value of Assets Beginning of Year	\$	85,758,279
(4) Cash Flow		
a. Contributions	\$	1,796,389
b. Benefit Payments		5,317,000
c. Administrative Expense		35,980
d. Net: (4)a - (4)b - (4)c	\$	(3,556,591)
(5) Investment Income		
a. Market Total: (2) - (3) - (4)d	\$	5,166,203
b. Assumed Rate		7.50%
c. Amount for Immediate Recognition: [(3) x (5)b] + [(4)d x (5)b x 0.5]		6,298,499
d. Amount for Phased-In Recognition: 5(a) - 5(c)	\$	(1,132,296)
(6) Phased-In Recognition of Investment Income		
a. Current Year: 0.20 x (5)d	\$	(226,459)
b. First Prior Year		(227,080)
c. Second Prior Year		(1,061,385)
d. Third Prior Year		(1,150,797)
e. Fourth Prior Year		(353,442)
f. Total Recognized Investment Gain/(Loss)	\$	(3,019,163)
(7) Actuarial Value of Assets End of Year (1) + (4)d + (5)c + (6)f	\$	92,228,536
(8) Difference Between Market & Actuarial Values: (2) - (7)	\$	(4,860,645)
(9) Rate of Return on Actuarial Value:		3.61%



Schedule C – Summary of Receipts and Disbursements

HEALTH INSURANCE TRUST SUMMARY OF RECEIPTS AND DISBURSEMENTS (Market Value)

	For the Year Ending	
	June 30, 2020	June 30, 2019
Receipts for the Year		
Contributions		
Members Statutory	\$ 133,588,771	\$ 131,676,820
Payment by Retired Members	59,220,473	57,767,461
Total Members	\$ 192,809,244	\$ 189,444,281
State Statutory Contributions	\$ 23,157,120	\$ 22,674,899
Employer Contributions	107,434,414	106,764,314
State Contributions	54,033,940	53,706,942
Total Employer	\$ 184,625,474	\$ 183,146,155
Grand Total	\$ 377,434,718	\$ 372,590,436
Recovery Income	100,375,749	0
Net Investment Income	32,474,949	74,385,482
TOTAL	\$ 510,285,416	\$ 446,975,918
Disbursements for the Year		
Administrative Expense	\$ 2,047,238	\$ 1,803,192
Medical Insurance Expense	305,582,974	221,433,478
TOTAL	\$ 307,630,212	\$ 223,236,670
Excess of Receipts over Disbursements	\$ 202,655,204	\$ 223,739,248
Reconciliation of Asset Balances		
Asset Balance as of the Beginning of the Year	\$ 1,414,020,056	\$ 1,190,280,808
Excess of Receipts over Disbursements	202,655,204	223,739,248
Asset Balance as of the End of the Year	\$ 1,616,675,260	\$ 1,414,020,056
Investment Rate of Return on Market Value	2.30%	6.11%



Schedule C – Summary of Receipts and Disbursements

LIFE INSURANCE TRUST SUMMARY OF RECEIPTS AND DISBURSEMENTS (Market Value)

	For the Year Ending	
	June 30, 2020	June 30, 2019
Receipts for the Year		
Contributions		
Members	\$ 0	\$ 0
State	1,543,413	1,209,055
Employer	252,976	212,172
Total	\$ 1,796,389	\$ 1,421,227
Net Investment Income	5,166,203	5,058,188
TOTAL	\$ 6,962,592	\$ 6,479,415
Disbursements for the Year		
Benefit Payments	\$ 5,317,000	\$ 5,153,000
Refunds to Members	0	0
Medical Insurance Payments	0	0
Miscellaneous, including expenses	35,980	30,392
TOTAL	\$ 5,352,980	\$ 5,183,392
Excess of Receipts over Disbursements	\$ 1,609,612	\$ 1,296,023
Reconciliation of Asset Balances		
Asset Balance as of the Beginning of the Year	\$ 85,758,279	\$ 84,462,256
Excess of Receipts over Disbursements	1,609,612	1,296,023
Asset Balance as of the End of the Year	\$ 87,367,891	\$ 85,758,279
Investment Rate of Return on Market Value	6.32%	6.49%



Schedule D – 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, 2020

DISCOUNT RATE: 8.00% per annum, compounded annually for the Health Insurance Trust
7.50% per annum, compounded annually for the Life Insurance Trust

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

Fiscal Year Ended	Annual Trend Rate		
	Medicare Part B	Under Age 65	Ages 65 and Older
2021	4.40%	7.00%	5.125%
2022	4.31	6.75	5.000
2023	5.83	6.50	5.000
2024	6.00	6.25	5.000
2025	5.85	6.00	5.000
2026	5.76	5.75	5.000
2027	5.79	5.50	5.000
2028	5.71	5.25	5.000
2029	5.72	5.00	5.000
2030	5.49	5.00	5.000
2031	5.12	5.00	5.000
2032 and beyond	5.00	5.00	5.000

AGE RELATED MORBIDITY: For retirees ages 65 and older, 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
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



Schedule D – Statement of Actuarial Assumptions and Methods

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.

The impact of aging on a valuation's results can be as significant as the use of mortality, trend, and discounting. It has been the long-standing position that the responsibility for compliance with GASB Statement No. 43, when it relates to KEHP implicit subsidies, rests with KEHP, not the System, as the System has no operational authority over KEHP. As such, KEHP implicit subsidies are excluded from the OPEB valuation process of the Retiree Medical Plan. As GASB 74 and 75 prohibit such a deviation from ASOP No. 6, additional consideration to the current treatment of KEHP implicit rate subsidies may be needed in the future. Valuing the KEHP implicit subsidies will increase the actuarial accrued liability for GASB 74 and 75 purposes.

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. An additional \$8.00 per month is paid to the Department of Employee Insurance (DEI) and is not included in the under age 65 costs listed below. For retirees ages 65 and older, the average costs shown are normalized to age 65 and then age adjusted in calculating liabilities.

Monthly Under Age 65 KEHP Full Costs as of January 1, 2021				
Tier Elected	LivingWell CDHP	LivingWell PPO	LivingWell Basic CDHP	LivingWell Limited HDHP
Single	\$732.26	\$753.76	\$704.08	\$626.48
Parent Plus	\$1,011.78	\$1,075.44	\$970.78	\$892.76
Couple	\$1,383.08	\$1,653.10	\$1,501.56	\$1,374.22
Family	\$1,545.50	\$1,841.08	\$1,673.40	\$1,530.02
Family C-R	\$846.00	\$907.84	\$825.88	\$753.62

RETIREE MEDICAL PLAN CONTRIBUTION: The portion of the medical plan premiums paid by participants is composed of a Plan Option Cost, a Time-Specific Adjustment Cost and a Shared Responsibility Cost. Retirees under the age of 65 who do not complete their LivingWell Promise will be charged an additional \$40 per month above the Plan Option Cost detailed below. An additional contribution is 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).

Monthly Under Age 65 KEHP Plan Option Cost as of January 1, 2021				
Tier Elected	LivingWell CDHP	LivingWell PPO	LivingWell Basic CDHP	LivingWell Limited HDHP
Single	\$52.42	\$87.40	\$27.78	\$25.00
Parent Plus	\$134.38	\$249.12	\$66.20	\$59.58
Couple	\$323.18	\$560.54	\$275.90	\$248.32
Family	\$379.92	\$702.58	\$331.06	\$297.96
Family C-R*	\$85.20	\$167.14	\$30.88	\$27.78
Spouse – Single	\$740.26	\$761.76	\$712.08	\$634.48
Spouse – Parent Plus	\$1,019.78	\$1,083.44	\$978.78	\$900.76

*Per employee/retiree



Schedule D – Statement of Actuarial Assumptions and Methods

TIME-SPECIFIC ADJUSTMENT PLUS SHARED RESPONSIBILITY COST: The chart below and on the page following are the Time-Specific Adjustment costs paid by Retirees in addition to the Plan Option Costs shown prior.

Abbreviations for Time-Specific Adjustment Charts:

LW CDHP = LivingWell CDHP

LW PPO = LivingWell PPO

LW Basic = LivingWell Basic CDHP

LW Limited = LivingWell Limited HDHP

Time-Specific Adjustments for Retirees Employed Before July 1, 2002 as of January 1, 2021						
Plan	Years of Service	Single	Parent Plus	Couple	Family	Family C-R
LW CDHP	5 – 9.99	\$547.01	\$744.57	\$927.07	\$1,032.75	\$627.97
	10 – 14.99	414.17	611.73	794.23	899.91	495.13
	15 – 19.99	281.34	478.90	661.40	767.08	362.30
	20 or More	148.50	346.06	528.56	634.24	229.46
LW PPO	5 – 9.99	\$536.90	\$693.49	\$959.73	\$1,005.67	\$607.87
	10 – 14.99	407.43	560.65	826.89	872.83	475.03
	15 – 19.99	277.97	427.82	694.06	740.00	342.20
	20 or More	148.50	294.98	561.22	607.16	209.36
LW Basic	5 – 9.99	\$544.35	\$771.75	\$1,092.83	\$1,209.51	\$662.17
	10 – 14.99	412.40	638.91	959.99	1,076.67	529.33
	15 – 19.99	280.45	506.08	827.16	943.84	396.50
	20 or More	148.50	373.24	694.32	811.00	263.66
LW Limited	5 – 9.99	\$488.24	\$700.35	\$993.07	\$1,099.23	\$593.01
	10 – 14.99	374.99	567.51	860.23	966.39	460.17
	15 – 19.99	261.75	434.68	727.40	833.56	327.34
	20 or More	148.50	301.84	594.56	700.72	194.50



Schedule D – Statement of Actuarial Assumptions and Methods

Time-Specific Adjustments for Retirees Employed On/After July 1, 2002 as of January 1, 2021						
Plan	Years of Service	Single	Parent Plus	Couple	Family	Family C-R
LW CDHP	5 – 9.99	\$626.71	\$824.27	\$1,006.77	\$1,112.45	\$707.67
	10 – 14.99	547.01	744.57	927.07	1,032.75	627.97
	15 – 19.99	440.74	638.30	820.80	926.48	521.70
	20 – 24.99	334.47	532.03	714.53	820.21	415.43
	25 – 25.99	201.63	399.19	581.69	687.37	282.59
	26 – 26.99	175.07	372.63	555.13	660.81	256.03
	27 or More	148.50	346.06	528.56	634.24	229.46
LW PPO	5 – 9.99	\$614.57	\$773.19	\$1,039.43	\$1,085.37	\$687.57
	10 – 14.99	536.90	693.49	959.73	1,005.67	607.87
	15 – 19.99	433.33	587.22	853.46	899.40	501.60
	20 – 24.99	329.76	480.95	747.19	793.13	395.33
	25 – 25.99	200.29	348.11	614.35	660.29	262.49
	26 – 26.99	174.40	321.55	587.79	633.73	235.93
	27 or More	148.50	294.98	561.22	607.16	209.36
LW Basic	5 – 9.99	\$623.52	\$851.45	\$1,172.53	\$1,289.21	\$741.87
	10 – 14.99	544.35	771.75	1,092.83	1,209.51	662.17
	15 – 19.99	438.79	665.48	986.56	1,103.24	555.90
	20 – 24.99	333.23	559.21	880.29	996.97	449.63
	25 – 25.99	201.28	426.37	747.45	864.13	316.79
	26 – 26.99	174.89	399.81	720.89	837.57	290.23
	27 or More	148.50	373.24	694.32	811.00	263.66
LW Limited	5 – 9.99	\$556.18	\$780.05	\$1,072.77	\$1,178.93	\$672.71
	10 – 14.99	488.24	700.35	993.07	1,099.23	593.01
	15 – 19.99	397.64	594.08	886.80	992.96	486.74
	20 – 24.99	307.05	487.81	780.53	886.69	380.47
	25 – 25.99	193.80	354.97	647.69	753.85	247.63
	26 – 26.99	171.15	328.41	621.13	727.29	221.07
	27 or More	148.50	301.84	594.56	700.72	194.50

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:

Years of Service	Member Participation		
	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



Schedule D – Statement of Actuarial Assumptions and Methods

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	LivingWell Basic CDHP	LivingWell Limited HDHP
53%	43%	3%	1%

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.



Schedule D – Statement of Actuarial Assumptions and Methods

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 other than plan design features and fees currently mandated by the ACA and incorporated in the plan designs, which are included in the current baseline claims costs. Continued monitoring of the ACA's impact on the Plan's liability will be required.

COVID-19: The impact of the COVID-19 pandemic was considered in this valuation; however, no changes were incorporated at this time due to the level of uncertainty regarding the impact on both plan costs and contribution levels going forward. Given the uncertainty regarding COVID-19 (e.g., the impact of routine care being deferred, direct COVID-19 treatment and prevention costs, changes in contribution and budget projections), continued monitoring of the impact on the Plan's liability will be required.

ASSET VALUATION METHOD: Five-year market related actuarial value, as developed in Schedule B. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected actuarial value of assets, based on the ultimate assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected actuarial value. The ultimate assumed valuation rate of return is assumed to be 8.00% for the Health Insurance Trust and 7.50% for the Life Insurance Trust.

ACTUARIAL COST METHOD: The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future, of each active member's expected benefit at retirement or death is determined, based on his/her age, service, and gender. The calculations take into account the probability of a member's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his/her terminating with a service, disability or survivor's benefit. The present value of the expected benefits payable on account of the active members is added to the present value of the expected future payments to retired members and beneficiaries and deferred vested members to obtain the present value of all expected benefits payable from the System on account of the present group of members and beneficiaries.

The employer contributions required to support the benefits of the System 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/her anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his/her behalf.

The unfunded actuarial 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 System.



Schedule D – Statement of Actuarial Assumptions and Methods

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								
Age	Annual Rate of							
	SALARY*	DEATH	DISABILITY	WITHDRAWAL			RETIREMENT	
				Years of Service			Before 27 Years of Service	After 27 Years of Service**
				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								
Age	Annual Rate of							
	SALARY*	DEATH	DISABILITY	WITHDRAWAL			RETIREMENT	
				Years of Service			Before 27 Years of Service	After 27 Years of Service**
				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 D – Statement of Actuarial Assumptions and Methods

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 projected to 2025 using scale BB (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:

Age	Annual Rate of Death After			
	Service Retirement		Disability Retirement	
	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 E – Summary of Main Plan Provisions

AS INTERPRETED FOR VALUATION PURPOSES

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 with reduced pension benefits. 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 with reduced pension benefits, or the attainment of age 60 and 5 years of service with unreduced pension benefits, 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 upon approval for TRS disability retirement benefits. Disabled employees hired after July 1, 2008 must have 15 years of service to be eligible for Retiree Medical Plan coverage upon approval for TRS disability retirement benefits.

Members and dependents under age 65 and eligible for Medicare due to a disability after January 1, 2013 are only eligible to enroll in the MEHP. Under age 65 members who retired prior to January 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. All future disabled members under the age of 65 with Medicare are placed on the MEHP and not the KEHP. This has been consistently applied since 2013.

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 if elected within 30 days of the employee's/retiree's death with no future remarriage. Otherwise, survivor is not eligible for Retiree Medical Plan coverage.

Spousal Shared Risk Waiver for MEHP: Beginning in 2013, eligible spouses who waive the MEHP coverage, will no longer have the opportunity to enroll during any annual MEHP open enrollment so most spousal waivers on the MEHP are now permanent waivers unless a TRS specific qualifying event is met. This does not apply to the KEHP. This MEHP eligibility rule became necessary to mitigate spousal adverse selection with zero premium Medicare Advantage plans on the individual and open market.

Termination: For employees hired prior to July 1, 2008 and who terminated with at least 5 years of service, Retiree Medical Plan coverage is assumed to begin 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 is assumed to begin at age 60.

Reemployed Retirees: Effective January 1, 2019 and because of the Affordable Care Act (ACA) and Medicare secondary payer (MSP) federal rules, if a TRS retiree returns to work and is offered the same health insurance coverage as any full time employee (whether the KEHP, MEHP, or another plan), then the member must waive coverage through TRS. For valuation purposes, active employees identified as currently receiving retiree health care through the System are valued as retirees. Retirees making active contributions into a second account do not qualify for insurance on that second account.



Schedule E – Summary of Main Plan Provisions

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	$(1/3 \times \$110.50)$	\$ 37.00
January 1, 2011	115.40	$(1/3 \times 115.40)$	39.00
July 1, 2011	115.40	$(2/3 \times 115.40)$	77.00
January 1, 2012	99.90	$(2/3 \times 99.90)$	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
January 1, 2018	134.00	134.00	134.00
January 1, 2019	135.50	135.50	135.50
January 1, 2020	144.60	144.60	144.60
January 1, 2021	148.50	148.50	148.50

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*				
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	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 E – Summary of Main Plan Provisions

COVERED MEMBER RETIREE MEDICAL PLAN CONTRIBUTIONS (CONTINUED):

For 2021, the TRS Board of Trustees approved a single contribution amount of up to \$679.84. TRS will contribute this amount towards insurance costs, less the Shared Responsibility cost of \$148.50. Starting in 2021, there will be no subsidy for non-single KEHP coverage. Under-65 retirees who are not Medicare eligible and continue on the Kentucky Employees' Health Plan (KEHP) are responsible for the remaining costs left from the total premium costs. The total premium costs are shown below.

Monthly Under Age 65 (KEHP) Full Costs* Effective January 1, 2021					
Tier Elected	Under Age 65 (KEHP)				Ages-65 and Older (MEHP)
	LivingWell CDHP	LivingWell PPO	LivingWell Basic CDHP	LivingWell Limited HDHP	
Single	\$732.26	\$753.76	\$704.08	\$626.48	\$178.00
Parent Plus	\$1,011.78	\$1,075.44	\$970.78	\$892.76	n/a
Couple	\$1,383.08	\$1,653.10	\$1,501.56	\$1,374.22	n/a
Family	\$1,545.50	\$1,841.08	\$1,673.40	\$1,530.02	n/a
Family C-R	\$846.00	\$907.84	\$825.88	\$753.62	n/a

* 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). Also, this does not include the additional contribution required to be paid by retirees under the age of 65 who do not complete their LivingWell Promise, which is an additional \$40 per month for all levels of coverage—single, parent +, couple, and family. Approximately 1,500 retirees across all four KEHP plans did not complete their LivingWell Promise for 2019. The additional contribution for these retirees will begin in 2020. For valuation purposes, it is conservatively assumed that, over time, 100% of KEHP retirees will complete their LivingWell Promise. This assumption will be monitored in future experience studies.

Spouse Contributions: 100% of the full cost for non-Medicare eligible dependents is paid through a combination of payments from beneficiaries and the State. For 2021, neither the State nor TRS will pay any subsidy for family style coverage.

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 if elected within 30 days of the employee's/retiree's death with no future remarriage. Otherwise, survivor is not eligible for Retiree Medical Plan coverage.

Spousal Shared Risk Waiver for MEHP: Beginning in 2013, eligible spouses who waive the MEHP coverage, will no longer have the opportunity to enroll during any annual MEHP open enrollment so most spousal waivers on the MEHP are now permanent waivers unless a TRS specific qualifying event is met. This does not apply to the KEHP. This MEHP eligibility rule became necessary to mitigate spousal adverse selection with zero premium Medicare Advantage plans on the individual and open market.

Monthly Surviving Spouse Contribution Effective January 1, 2021					
Tier Elected by Surviving Spouse	Under Age 65 (KEHP)				Ages 65 and Older (MEHP)
	LivingWell CDHP	LivingWell PPO	LivingWell Basic CDHP	LivingWell Limited HDHP	
Single	\$740.26	\$761.76	\$712.08	\$634.48	\$178.00
Parent Plus	\$1,019.78	\$1,083.44	\$978.78	\$900.76	n/a



Schedule E – Summary of Main Plan Provisions

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

For 2021, the TRS Board of Trustees approved a single contribution amount of up to \$679.84. TRS will contribute this amount towards insurance costs, less the Shared Responsibility cost of \$148.50. Starting in 2021, there will be no subsidy for non-single KEHP coverage. Under-65 retirees who are not Medicare eligible and continue on the Kentucky Employees' Health Plan (KEHP) are responsible for the remaining costs left from the total premium costs. The total premium costs are shown below.

Monthly Under Age 65 (KEHP) Full Costs Effective January 1, 2021					
Tier Elected	Under Age 65 (KEHP)				Ages-65 and Older (MEHP)
	LivingWell CDHP	LivingWell PPO	LivingWell Basic CDHP	LivingWell Limited HDHP	
Single	\$732.26	\$753.76	\$704.08	\$626.48	\$178.00
Parent Plus	\$1,011.78	\$1,075.44	\$970.78	\$892.76	n/a
Couple	\$1,383.08	\$1,653.10	\$1,501.56	\$1,374.22	n/a
Family	\$1,545.50	\$1,841.08	\$1,673.40	\$1,530.02	n/a
Family C-R	\$846.00	\$907.84	\$825.88	\$753.62	n/a

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

Active Member Percentage of Payroll Contribution Made to Health Insurance Trust					
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 E – Summary of Main Plan Provisions

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 F – Tables of Member Data

TABLE 1
ACTIVE MEMBER AGE AND SERVICE TABLE AS OF JUNE 30, 2020

Distribution of Active Members as of June 30, 2020 by Age and Service Groups

Attained Age	Completed Years of Service									Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Over	No.	Payroll
Under 25	1,644	1,754	4	0	0	0	0	0	0	3,402	\$ 82,097,488
25 to 29	963	4,538	1,801	0	0	0	0	0	0	7,302	292,413,583
30 to 34	660	1,914	4,403	1,546	3	0	0	0	0	8,526	408,737,279
35 to 39	645	1,540	2,187	4,310	1,627	2	0	0	0	10,311	556,918,177
40 to 44	604	1,244	1,362	2,058	4,210	1,270	5	0	0	10,753	630,994,996
45 to 49	450	946	1,046	1,422	2,042	3,849	1,095	2	0	10,852	683,664,756
50 to 54	614	713	674	988	1,316	1,844	2,184	368	3	8,704	537,397,081
55 to 59	881	844	432	583	877	941	854	248	42	5,702	297,546,435
60 to 64	772	938	318	255	455	464	360	112	50	3,724	149,382,482
65 to 69	605	820	270	126	138	173	130	50	47	2,359	60,865,741
70 & Over	407	610	266	72	56	37	33	14	21	1,516	23,463,558
Total Count	8,245	15,861	12,763	11,360	10,724	8,580	4,661	794	163	73,151	\$ 3,723,481,576

Average Age: 43.8

Average Service: 11.1



Schedule F – Tables of Member Data

TABLE 2
SCHEDULE OF TOTAL ACTIVE MEMBER VALUATION DATA

Valuation Date	Number	Annual Payroll	Annual Average Payroll	Percentage Increase in Average Pay
6/30/2020	73,151	\$ 3,723,481,576	\$ 50,901	1.35 %
6/30/2019	72,647	3,648,427,710	50,221	0.58
6/30/2018	72,205	3,605,115,787	49,929	1.06
6/30/2017	72,130	3,563,584,342	49,405	0.35
6/30/2016	71,848	3,537,226,348	49,232	1.19
6/30/2015	72,246	3,515,113,126	48,655	2.45
6/30/2014	73,407	3,486,326,799	47,493	2.12
6/30/2013	74,831	3,480,066,406	46,506	1.51
6/30/2012	75,951	3,479,567,004	45,813	1.33

TABLE 3
ELIGIBLE DEFERRED VESTED MEMBERS AS OF JUNE 30, 2020
MALE AND FEMALE DEMOGRAPHIC BREAKDOWN

Attained Age	Health Insurance Trust			Life Insurance Trust		
	Number of		Total	Number of		Total
	Males	Female	Number	Males	Female	Number
Under 30	0	0	0	7	25	32
30 - 34	28	80	108	158	520	678
35 - 39	235	802	1,037	341	1,068	1,409
40 - 44	336	945	1,281	404	1,141	1,545
45 - 49	344	1,122	1,466	387	1,318	1,705
50 - 54	281	1,038	1,319	306	1,167	1,473
55 - 59	229	845	1,074	261	926	1,187
60 & Over	246	739	985	290	820	1,110
Total	1,699	5,571	7,270	2,154	6,985	9,139



Schedule F – Tables of Member Data

TABLE 4
ALL RETIREES AND SPOUSES RECEIVING HEALTH CARE BENEFITS AS OF JUNE 30, 2020
MALE AND FEMALE DEMOGRAPHIC BREAKDOWN

Attained Age	Number of		Total Number
	Males	Female	
Under 40	2	11	13
40 - 44	5	34	39
45 - 49	72	147	219
50 - 54	413	1,023	1,436
55 - 59	1,118	2,539	3,657
60 - 64	1,979	4,516	6,495
65 - 69	3,176	7,453	10,629
70 - 74	3,768	7,591	11,359
75 - 79	2,514	4,415	6,929
80 - 84	1,373	2,482	3,855
85 - 89	747	1,405	2,152
90 - 94	234	735	969
95 - 99	49	208	257
100 & Over	4	24	28
Total	15,454	32,583	48,037



Schedule F – Tables of Member Data

TABLE 5
SCHEDULE OF RETIRANTS, BENEFICIARIES AND SURVIVORS ADDED TO AND REMOVED FROM ROLLS*

Health Insurance Trust									
Fiscal Year Ending June 30	Number of Members Added to Rolls	Number of Spouses** Added to Rolls	Total Number Added to Rolls	Number of Members Removed from Rolls	Number of Spouses** Removed from Rolls	Total Number Removed from Rolls	Number of Members on Rolls at the End of the Year	Number of Spouses** on Rolls at the End of the Year	Total Number on Rolls at the End of the Year
2012	1,996	702	2,698	1,029	616	1,645	36,000	7,008	43,008
2013	1,853	664	2,517	1,076	619	1,695	36,777	7,053	43,830
2014	1,663	638	2,301	1,165	660	1,825	37,275	7,031	44,306
2015	1,990	731	2,721	1,190	633	1,823	38,075	7,129	45,204
2016	2,045	726	2,771	1,305	674	1,979	38,815	7,181	45,996
2017	1,835	699	2,534	1,153	691	1,844	39,497	7,189	46,686
2018	1,903	828	2,731	1,170	422	1,592	40,230	7,595	47,825
2019	1,701	666	2,367	1,220	692	1,912	40,711	7,569	48,280
2020	1,500	487	1,987	1,057	1,173	2,230	41,154	6,883	48,037

*Reflects members, spouses, and beneficiaries participating in a health care plan.

**Includes spouses, beneficiaries, and surviving spouses.

TABLE 6
SCHEDULE OF RETIRANTS, BENEFICIARIES AND SURVIVORS ADDED TO AND REMOVED FROM ROLLS*

Life Insurance Trust								
Fiscal Year Ending June 30	Number Added to Rolls	Life Insurance Benefit (\$1,000's)	Number Removed from Rolls	Life Insurance Benefit (\$1,000's)	Number on Rolls at the End of the Year	Life Insurance Benefit (\$1,000's)	Increase in Life Insurance Benefit	Average Life Insurance Benefit
2012	2,364	11,820	880	4,400	42,602	213,010	3.61 %	5,000
2013	2,195	10,975	952	4,760	43,845	219,225	2.92	5,000
2014	1,964	9,820	954	4,770	44,855	224,275	2.30	5,000
2015	2,270	11,350	1,641	8,205	45,484	227,420	1.40	5,000
2016	2,394	11,970	807	4,035	47,071	235,355	3.49	5,000
2017	2,175	10,875	1,021	5,105	48,225	241,125	2.45	5,000
2018	2,605	13,025	1,408	7,040	49,422	247,110	2.48	5,000
2019	2,226	11,130	210	1,050	51,438	257,190	4.08	5,000
2020	2,003	10,015	1,179	5,895	52,262	261,310	1.60	5,000

*The life insurance benefit is payable upon the death of only members retired for service or disability. Numbers do not include life insurance benefits payable upon the death of an active contributing member.



Schedule G – Health Insurance Trust Sensitivity Analysis

The June 30, 2020 valuation results of the Health Insurance Trust (health trust) are projections based on the actuarial assumptions. Actual experience will differ from these assumptions, either increasing or decreasing cost. The charts on the following pages provide a simple analysis on how the costs are sensitive to changes to the assumed discount rate, the assumed inflation rate, the assumed rate of payroll growth, and the assumed rates of health care inflation (trend). The charts show the actuarial accrued liability, the unfunded liability, the funded ratio and the employer contribution rate under the following scenarios:

- The discount rate assumption sensitivity analysis shows the valuation results with the baseline discount rate assumption, 8.00%, together with a decrease in the discount rate to 7.00% and an increase in the discount rate to 9.00%. Under this scenario, the underlying inflation rate assumption is held constant at 3.00% and the payroll growth assumption is held constant at 3.50%.
- The inflation assumption sensitivity analysis shows the valuation results with the baseline underlying inflation rate assumption, 3.00%, together with decreases in the inflation rate to 2.75% and 2.50%. Under this scenario, the decrease in the underlying inflation rate assumption leads to corresponding decreases in the discount rate, the payroll growth assumption, and the assumed rates of salary increase for active members. The assumed decreases in inflation are not assumed to impact the assumed rates of health care inflation (trend).
- The wage inflation assumption sensitivity analysis shows the valuation results with the baseline underlying payroll growth assumption, 3.50%, together with decreases in the wage inflation assumption to 2.00% and 0.00%. Under this scenario, all other assumptions, including the individual member salary scale, are held constant so that the only impact is in the amortization of the unfunded liability, leading to higher employer contribution rates.
- The health care inflation (trend) assumption sensitivity analysis shows the valuation results with the baseline trend assumption along with a 1.00% increase in all assumed trend rates and a 1.00% decrease in all assumed trend rates.



Schedule G – Health Insurance Trust Sensitivity Analysis

TEACHERS' RETIREMENT SYSTEM OF KENTUCKY HEALTH INSURANCE TRUST ASSUMED DISCOUNT RATE SENSITIVITY ANALYSIS (\$1,000's)			
	Decrease Discount Rate	Valuation Results	Increase Discount Rate
Actuarial Accrued Liability	\$ 3,119,944	\$ 2,757,653	\$ 2,456,805
Actuarial Value of Assets	1,700,968	1,700,968	1,700,968
Unfunded Liability	\$ 1,418,976	\$ 1,056,685	\$ 755,837
Funded Ratio	54.52%	61.68%	69.23%
Contributions			
Normal Cost	1.93%	1.48%	1.13%
Accrued Liability	2.57%	2.06%	1.59%
Total	4.50%	3.54%	2.72%
Member	(3.70%)	(3.70%)	(3.70%)
Employer/State	0.80%	(0.16%)	(0.98%)
Discount Rate	7.00%	8.00%	9.00%
Payroll Growth	3.50%	3.50%	3.50%
Inflation Rate	3.00%	3.00%	3.00%



Schedule G – Health Insurance Trust Sensitivity Analysis

TEACHERS' RETIREMENT SYSTEM OF KENTUCKY HEALTH INSURANCE TRUST INFLATION ASSUMPTION SENSITIVITY ANALYSIS (\$1,000's)			
	Valuation Results	Decrease Inflation Rate 0.25%	Decrease Inflation Rate 0.50%
Actuarial Accrued Liability	\$ 2,757,653	\$ 2,853,851	\$ 2,955,697
Actuarial Value of Assets	1,700,968	1,700,968	1,700,968
Unfunded Liability	\$ 1,056,685	\$ 1,152,883	\$ 1,254,729
Funded Ratio	61.68%	59.60%	57.55%
Contributions			
Normal Cost	1.48%	1.56%	1.66%
Accrued Liability	2.06%	2.25%	2.45%
Total	3.54%	3.81%	4.11%
Member	(3.70%)	(3.70%)	(3.70%)
Employer/State	(0.16%)	0.11%	0.41%
Discount Rate	8.00%	7.75%	7.50%
Payroll Growth	3.50%	3.25%	3.00%
Inflation Rate	3.00%	2.75%	2.50%



Schedule G – Health Insurance Trust Sensitivity Analysis

TEACHERS' RETIREMENT SYSTEM OF KENTUCKY HEALTH INSURANCE TRUST WAGE INFLATION ASSUMPTION SENSITIVITY ANALYSIS (\$1,000's)			
	Valuation Results	Decrease Wage Inflation to 2%	No Wage Inflation
Actuarial Accrued Liability	\$ 2,757,653	\$ 2,757,653	\$ 2,757,653
Actuarial Value of Assets	1,700,968	1,700,968	1,700,968
Unfunded Liability	\$ 1,056,685	\$ 1,056,685	\$ 1,056,685
Funded Ratio	61.68%	61.68%	61.68%
Contributions			
Normal Cost	1.48%	1.48%	1.48%
Accrued Liability	2.06%	2.31%	2.68%
Total	3.54%	3.79%	4.16%
Member	(3.70%)	(3.70%)	(3.70%)
Employer/State	(0.16%)	0.09%	0.46%
Discount Rate	8.00%	8.00%	8.00%
Payroll Growth	3.50%	2.00%	0.00%
Inflation Rate	3.00%	3.00%	3.00%



Schedule G – Health Insurance Trust Sensitivity Analysis

TEACHERS' RETIREMENT SYSTEM OF KENTUCKY HEALTH INSURANCE TRUST HEALTH CARE TREND ASSUMPTION SENSITIVITY ANALYSIS (\$1,000's)			
	Decrease Trend Rates 1.00%	Valuation Results	Increase Trend Rates 1.00%
Actuarial Accrued Liability	\$ 2,424,293	\$ 2,757,653	\$ 3,168,458
Actuarial Value of Assets	1,700,968	1,700,968	1,700,968
Unfunded Liability	\$ 723,325	\$ 1,056,685	\$ 1,467,490
Funded Ratio	70.16%	61.68%	53.68%
Contributions			
Normal Cost	1.18%	1.48%	1.87%
Accrued Liability	1.41%	2.06%	2.87%
Total	2.59%	3.54%	4.74%
Member	(3.70%)	(3.70%)	(3.70%)
Employer/State	(1.11%)	(0.16%)	1.04%
Discount Rate	8.00%	8.00%	8.00%
Payroll Growth	3.50%	3.50%	3.50%
Inflation Rate	3.00%	3.00%	3.00%



Schedule H – Life Insurance Trust Sensitivity Analysis

The June 30, 2020 valuation results of the Life Insurance Trust (life trust) are projections based on the actuarial assumptions. Actual experience will differ from these assumptions, either increasing or decreasing cost. The charts on the following pages provide a simple analysis on how the costs are sensitive to changes to the assumed discount rate, the assumed inflation rate, and the assumed rate of payroll growth. The charts show the actuarial accrued liability, the unfunded liability, the funded ratio and the employer contribution rate under the following scenarios:

- The discount rate assumption sensitivity analysis shows the valuation results with the baseline discount rate assumption, and 7.50% together with a decrease in the discount rate to 6.50% and an increase in the discount rate to 8.50%. Under this scenario, the underlying inflation rate assumption is held constant at 3.00% and the payroll growth assumption is held constant at 3.50%.
- The inflation assumption sensitivity analysis shows the valuation results with the baseline underlying inflation rate assumption, 3.00%, together with decreases in the inflation rate to 2.75% and 2.50%. Under this scenario, the decrease in the underlying inflation rate assumption leads to corresponding decreases in the discount rate, the payroll growth assumption, and the assumed rates of salary increase for active members.
- The wage inflation assumption sensitivity analysis shows the valuation results with the baseline underlying wage inflation assumption, 3.50%, together with decreases in the wage inflation assumption to 2.00% and 0.00%. Under this scenario, all other assumptions, including the individual member salary scale, are held constant so that the only impact is in the amortization of the unfunded liability, leading to higher employer contribution rates.



Schedule H – Life Insurance Trust Sensitivity Analysis

TEACHERS' RETIREMENT SYSTEM OF KENTUCKY LIFE INSURANCE TRUST ASSUMED DISCOUNT RATE SENSITIVITY ANALYSIS (\$1,000's)			
	Decrease Discount Rate	Valuation Results	Increase Discount Rate
Actuarial Accrued Liability	\$ 137,911	\$ 122,194	\$ 109,259
Actuarial Value of Assets	92,229	92,229	92,229
Unfunded Liability	\$ 45,682	\$ 29,965	\$ 17,030
Funded Ratio	66.88%	75.48%	84.41%
Contributions			
Normal Cost	0.04%	0.03%	0.03%
Accrued Liability	0.07%	0.05%	0.03%
Total	0.11%	0.08%	0.06%
Member	(0.00%)	(0.00%)	(0.00%)
Employer/State	0.11%	0.08%	0.06%
Discount Rate	6.50%	7.50%	8.50%
Payroll Growth	3.50%	3.50%	3.50%
Inflation Rate	3.00%	3.00%	3.00%



Schedule H – Life Insurance Trust Sensitivity Analysis

TEACHERS' RETIREMENT SYSTEM OF KENTUCKY LIFE INSURANCE TRUST INFLATION ASSUMPTION SENSITIVITY ANALYSIS (\$1,000's)				
	Valuation		Decrease	Decrease
	Results		Inflation Rate	Inflation Rate
			0.25%	0.50%
Actuarial Accrued Liability	\$ 122,194	\$	126,014	\$ 130,044
Actuarial Value of Assets	92,229		92,229	92,229
Unfunded Liability	\$ 29,965	\$	33,785	\$ 37,815
Funded Ratio	75.48%		73.19%	70.92%
Contributions				
Normal Cost	0.03%		0.03%	0.04%
Accrued Liability	0.05%		0.06%	0.06%
Total	0.08%		0.09%	0.10%
Member	(0.00%)		(0.00%)	(0.00%)
Employer/State	0.08%		0.09%	0.10%
Discount Rate	7.50%		7.25%	7.00%
Payroll Growth	3.50%		3.25%	3.00%
Inflation Rate	3.00%		2.75%	2.50%



Schedule H – Life Insurance Trust Sensitivity Analysis

TEACHERS' RETIREMENT SYSTEM OF KENTUCKY LIFE INSURANCE TRUST WAGE INFLATION ASSUMPTION SENSITIVITY ANALYSIS (\$1,000's)				
	Valuation Results	Decrease Wage Inflation to 2%	No Wage Inflation	
Actuarial Accrued Liability	\$ 122,194	\$ 122,194	\$ 122,194	
Actuarial Value of Assets	92,229	92,229	92,229	
Unfunded Liability	\$ 29,965	\$ 29,965	\$ 29,965	
Funded Ratio	75.48%	75.48%	75.48%	
Contributions				
Normal Cost	0.03%	0.03%	0.03%	
Accrued Liability	0.05%	0.06%	0.07%	
Total	0.08%	0.09%	0.10%	
Member	(0.00%)	(0.00%)	(0.00%)	
Employer/State	0.08%	0.09%	0.10%	
Discount Rate	7.50%	7.50%	7.50%	
Payroll Growth	3.50%	2.00%	0.00%	
Inflation Rate	3.00%	3.00%	3.00%	



Schedule I – Health Insurance Trust 20-Year Baseline Projection

The results of actuarial valuations are a “snapshot” of the financial position on the valuation date, based on the assumed number of active employees and current beneficiaries. Projections simulate future actuarial valuation results over a forecast period (twenty years in this case) by “creating” future new hires and performing valuations using the projected membership. The following items are assumed for the projected results provided on the following page.

- Active Employee Growth Rate: 0.00%
- Valuation Discount Rate: 8.00%
- Investment Rate of Return: 8.00% each year
- Actuarial Value of Assets: 5 year smoothing, No Corridor
- Amortization Method: Level Percent of Payroll, Closed
- Amortization Period: 20-year period as of Valuation Date
- Future Contributions: Based on the contribution rates defined in statute

All other demographic and economic changes are assumed to occur in accordance with the actuarial assumptions used for the actuarial valuation.



Schedule I – Health Insurance Trust 20-Year Baseline Projection

Projections assume all actuarial assumptions are met and do not include any adjustment for adverse experience due to COVID-19 (either impacting claims or demographics), changes in the ACA, larger than expected increases to Medicare Advantage premiums, or lower than expected investment return or payroll growth.

(Dollar amounts in \$1,000s)

Fiscal Year End	Non-University Payroll (1)	University Payroll (2)	Total Payroll (3)	Unfunded Accrued Liability (4)	Funding Ratio (5)	Actuarially Determined Contribution in Dollars (6)
2021	\$3,530,991	\$192,491	\$3,723,482	\$1,056,685	61.7%	\$131,774
2022	3,623,284	189,258	3,812,542	882,252	69.6%	124,624
2023	3,716,763	188,454	3,905,217	689,384	77.4%	115,392
2024	3,810,973	188,452	3,999,425	466,599	85.5%	102,908
2025	3,907,520	189,788	4,097,308	208,799	93.8%	86,308
2026	4,003,397	191,807	4,195,204	0	100.0%	72,271
2027	4,098,744	194,531	4,293,275	0	100.0%	75,791
2028	4,194,908	198,021	4,392,929	0	100.0%	79,400
2029	4,295,997	201,887	4,497,884	0	100.0%	83,189
2030	4,400,886	205,828	4,606,714	0	100.0%	87,224
2031	4,509,648	210,000	4,719,648	0	100.0%	91,509
2032	4,623,125	214,241	4,837,366	0	100.0%	96,000
2033	4,741,595	218,364	4,959,959	0	100.0%	100,739
2034	4,863,604	223,292	5,086,896	0	100.0%	105,730
2035	4,993,467	227,687	5,221,154	0	100.0%	111,031
2036	5,129,751	232,104	5,361,855	0	100.0%	116,639
2037	5,273,440	237,377	5,510,817	0	100.0%	122,556
2038	5,425,178	242,986	5,668,164	0	100.0%	128,831
2039	5,585,919	249,262	5,835,181	0	100.0%	135,444
2040	5,755,718	255,985	6,011,703	0	100.0%	142,455



Schedule J – Life Insurance Trust 20-Year Baseline Projection

The results of actuarial valuations are a “snapshot” of the financial position on the valuation date, based on the assumed number of active employees and current beneficiaries. Projections simulate future actuarial valuation results over a forecast period (twenty years in this case) by “creating” future new hires and performing valuations using the projected membership. The following items are assumed for the projected results provided on the following page.

- Active Employee Growth Rate: 0.00%
- Valuation Discount Rate: 7.50%
- Investment Rate of Return: 7.50% each year
- Actuarial Value of Assets: 5 year smoothing, No Corridor
- Amortization Method: Level Percent of Payroll, Closed
- Amortization Period: 24-year period as of Valuation Date
- Future Contributions: Based on Expected Actuarially Determined Contributions

All other demographic and economic changes are assumed to occur in accordance with the actuarial assumptions used for the actuarial valuation



Schedule J – Life Insurance Trust 20-Year Baseline Projection

(Dollar amounts in \$1,000s)

Fiscal Year End	Non-University Payroll (1)	University Payroll (2)	Total Payroll (3)	Unfunded Accrued Liability (4)	Funding Ratio (5)	Actuarially Determined Contribution in Dollars (6)
2023	\$3,530,991	\$192,491	\$3,723,482	\$29,965	75.5%	\$3,065
2024	3,623,284	189,258	3,812,542	33,396	73.3%	3,343
2025	3,716,763	188,454	3,905,217	35,455	72.3%	3,552
2026	3,810,973	188,452	3,999,425	36,293	72.2%	3,691
2027	3,907,520	189,788	4,097,308	36,802	72.4%	3,818
2028	4,003,397	191,807	4,195,204	36,987	72.8%	3,933
2029	4,098,744	194,531	4,293,275	37,080	73.2%	4,053
2030	4,194,908	198,021	4,392,929	37,070	73.7%	4,179
2031	4,295,997	201,887	4,497,884	36,944	74.2%	4,308
2032	4,400,886	205,828	4,606,714	36,687	74.7%	4,443
2033	4,509,648	210,000	4,719,648	36,284	75.3%	4,583
2034	4,623,125	214,241	4,837,366	35,718	76.0%	4,729
2035	4,741,595	218,364	4,959,959	34,970	76.7%	4,883
2036	4,863,604	223,292	5,086,896	34,019	77.6%	5,043
2037	4,993,467	227,687	5,221,154	32,842	78.5%	5,212
2038	5,129,751	232,104	5,361,855	31,413	79.6%	5,389
2039	5,273,440	237,377	5,510,817	29,703	80.8%	5,576
2040	5,425,178	242,986	5,668,164	27,680	82.2%	5,776
2041	5,585,919	249,262	5,835,181	25,307	83.8%	5,989
2042	5,755,718	255,985	6,011,703	22,542	85.6%	6,221