

Teachers' Retirement System of the State of Kentucky



Annual Valuation of the Retirement Annuity Trust

Prepared as of June 30, 2024



November 15, 2024

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

Members of the Board:

Kentucky Revised Statutes (KRS) 161.400 of the law governing the operation of the Teachers' Retirement System (TRS) of the State of Kentucky provides that the actuary shall make an actuarial valuation of the Retirement Annuity Trust. We are pleased to submit the results of the annual actuarial valuation prepared as of June 30, 2024. While not verifying the data at source, the actuary performed tests for consistency and reasonability.

During the 2021 valuation, a new set of economic and demographic assumptions was adopted by the TRS Board of Trustees (Board) that resulted in an increase in liabilities and contribution requirements. To help alleviate the pressure on immediate increased contributions, a direct-rate smoothing technique was implemented to phase in the required contribution increase, estimated at 8.59% of payroll, over a five-year period beginning with the 2021 valuation. For this 2024 valuation and the next valuation, we will recognize an increase in contributions of at least 1.72% of payroll as a result of the cost of the change in assumptions.

The total combined member and employer contribution rates broken down for members hired before July 1, 2002 (TRS 1), members hired between July 1, 2002 and June 30, 2008 (TRS 2) and members hired between July 1, 2008 and December 31, 2021 (TRS 3), as a percentage of payroll for the fiscal years ending June 30, 2027 and June 30, 2026, required to support the benefits are shown on pages 2 and 4 of the enclosed report. The rates represent an increase since the previous valuation in the total pension actuarially determined employer contribution rates (ADEC) of 2.98% of payroll for the fiscal year ending June 30, 2027.

A breakdown of the changes in the components of the ADEC is as follows:

- an expected increase of 1.72% of payroll for the direct rate smoothing technique of phasing in contribution requirements due to the 2021 assumption changes,
- no change in the percent of payroll due to the amount required for life insurance benefits, and
- an increase of 1.26% of payroll due to the overall experience of the System for the fiscal year ending June 30, 2024.

The total combined member and employer statutorily required contributions for TRS 4 members are shown on pages 3 and 5 of the enclosed report.



The financing objective of the system is that contribution rates will remain relatively level over time as a percentage of payroll, except as otherwise noted. The promised benefits of the system are included in the actuarially calculated contribution rates which are developed using the entry age normal cost method.

Five-year market related value of plan assets is used for actuarial valuation purposes. Gains and losses are reflected in the total unfunded actuarial accrued liability that is being amortized by regular annual contributions as a level percentage of payroll in accordance with the funding policy adopted by the Board, on the assumption that payroll will increase by 2.75% annually. The assumptions recommended by the actuary and adopted by the Board are reasonably related to the experience under the system and to reasonable expectations of anticipated experience under the system.

We have prepared the trend information shown in the Schedule of Funding Progress in the Financial Section of the Annual Report and Schedule A, Schedule B, Schedule C, Solvency Test and Analysis of Financial Experience shown in the Actuarial Section of the Annual Report. We have also included a Sensitivity Analysis that is required under Actuarial Standards of Practice Statement No. 51 (ASOP 51) and the Low Default Risk Obligation Measure that is required under ASOP 4.

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 assumptions and methods used for funding purposes meet the parameters set by Actuarial Standards of Practice, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the system.

In order to prepare the results in this report, we have utilized actuarial models that were developed to measure liabilities and develop actuarial costs. These models include tools that we have produced and tested, along with commercially available valuation software that we have reviewed to confirm the appropriateness and accuracy of the output. In utilizing these models, we develop and use input parameters and assumptions about future contingent events along with recognized actuarial approaches to develop the needed results.

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 actuarial accrued 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 actuarial accrued 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.

For fiscal years ending 2007 through 2018, the system was not funded on an actuarially sound basis as the full actuarially determined employer contributions were not made by the State. However, since that time, the State has appropriated enough to satisfy the actuarially determined employer contributions. Also, it is our understanding that the state budget includes an additional appropriation to the pension plan equal to the ADEC for the 2025 fiscal year.

If contributions by the employer to the system in subsequent fiscal years are less than those required, the assets are expected to become insufficient to pay promised benefits. However, assuming that contributions to the system are made by the employer and state from year to year in the future at rates recommended on the basis of the successive actuarial valuations, the continued sufficiency of the assets to provide the benefits called for under the system may be safely anticipated.

Respectfully submitted,

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Chief Executive Officer

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SECTION I – SUMMARY OF PRINCIPAL RESULTS



1. For convenience of reference, the principal results of the aggregate valuation (TRS 1, TRS 2, TRS 3, and TRS 4) and a comparison with the results of the previous valuation are summarized below (all dollar amounts are \$1,000s):

Valuation Date	June 30, 2024	June 30, 2023
Number of active members	76,014	75,644
Annual salaries	\$ 4,308,468	\$ 4,138,909
Number of annuitants and beneficiaries	60,358	59,559
Annual allowances	\$ 2,497,828	\$ 2,423,859
Assets:		
Market value	\$ 26,108,136	\$ 24,244,554
Actuarial value	\$ 25,728,190	\$ 24,725,018
Actuarial Accrued Liability	\$ 43,545,752	\$ 42,179,888
Unfunded Actuarial Accrued Liability (UAAL)	\$ 17,817,562	\$ 17,454,870
Funded Ratio based on Actuarial Value of Assets	59.1%	58.6%
Amortization period (years)	19.9	20.9

2. KRS 161.633 requires that the actuary assess the funding levels, unfunded liabilities, and the actuarially required employer contribution rates payable solely on behalf of individuals who first become members on or after January 1, 2022. The following table shows the results of the valuation as of June 30, 2024 for TRS 4 members (all dollar amounts in \$1,000s):

Group	University		Non-University	
	Foundational	Supplemental	Foundational	Supplemental
Number of active members	395		11,902	
Annual salaries	\$ 17,893		\$ 296,773	
Actuarial Value of Assets	\$ 2,978	\$ 1,118	\$ 76,414	\$ 18,085
Actuarial Accrued Liability	\$ 2,002	\$ 610	\$ 56,670	\$ 9,777
Unfunded Actuarial Accrued Liability/(Surplus)	\$ (976)	\$ (508)	\$ (19,744)	\$ (8,308)
Funded Ratio	148.7%	183.4%	134.8%	185.0%



SECTION I – SUMMARY OF PRINCIPAL RESULTS



3. Contribution rates are shown separately for university and non-university members, as well as by member group (TRS 1 through TRS 4) below and on the following pages.

CONTRIBUTION RATES FOR UNIVERSITY MEMBERS (OTHER THAN TRS 4)				
Valuation Date	June 30, 2024		June 30, 2023	
For fiscal year ending:	June 30, 2027		June 30, 2026	
Member Group:	TRS 1 & TRS 2	TRS 3	TRS 1 & TRS 2	TRS 3
Retirement Annuity Trust:				
Normal*	11.980%	11.980%	12.130%	12.130%
Actuarial Accrued Liability	<u>31.980</u>	<u>31.980</u>	<u>28.850</u>	<u>28.850</u>
Total**	43.960%	43.960%	40.980%	40.980%
Member	7.625%	7.625%	7.625%	7.625%
State/Employer	<u>36.335</u>	<u>36.335</u>	<u>33.355</u>	<u>33.355</u>
Total**	43.960%	43.960%	40.980%	40.980%
Life Insurance Trust:				
State/Employer	0.080%	0.080%	0.080%	0.080%
Health Insurance Trust:				
Member	2.775%	2.775%	2.775%	2.775%
State/Employer Match	<u>2.775</u>	<u>2.775</u>	<u>2.775</u>	<u>2.775</u>
Total	5.550%	5.550%	5.550%	5.550%
Total Contributions	<u>49.590%</u>	<u>49.590%</u>	<u>46.610%</u>	<u>46.610%</u>
Member Fixed	10.400%	10.400%	10.400%	10.400%
State/Employer Fixed	13.650	13.650	13.650	13.650
Required Increase	25.540	25.540	22.560	22.560
State Special	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
Total	49.590%	49.590%	46.610%	46.610%

* Includes a load for administrative expenses.

** Total Contribution Rates for fiscal year ending June 30, 2026 and June 30, 2027 shown above apply a 5-year contribution direct rate smoothing methodology and are anticipated to increase each year until the full funding rates are achieved in not more than 5 years from the 2021 valuation. Please see the projections in Schedule H of the report for anticipated increases to the total contribution rates.



SECTION I – SUMMARY OF PRINCIPAL RESULTS



CONTRIBUTION RATES FOR UNIVERSITY MEMBERS IN TRS 4				
Valuation Date	June 30, 2024		June 30, 2023	
For fiscal year ending:	June 30, 2027		June 30, 2026	
	Foundational	Supplemental	Foundational	Supplemental
Retirement Annuity Trust:				
Normal*	7.170%	2.190%	7.170%	2.200%
Accrued liability	<u>3.525</u>	<u>1.810</u>	<u>3.525</u>	<u>1.800</u>
Total	10.695%	4.000%	10.695%	4.000%
Member	5.000%	2.000%	5.000%	2.000%
Employer	<u>5.695</u>	<u>2.000</u>	<u>5.695</u>	<u>2.000</u>
Total	10.695%	4.000%	10.695%	4.000%
Life Insurance Trust:				
Employer	0.080%	0.000%	0.080%	0.000%
Health Insurance Trust:				
Member	2.775%	0.000%	2.775%	0.000%
Employer	<u>2.000</u>	<u>0.000</u>	<u>2.000</u>	<u>0.000</u>
Total	4.775%	0.000%	4.775%	0.000%
Total Contributions	<u>15.550%</u>	<u>4.000%</u>	<u>15.550%</u>	<u>4.000%</u>
Member Fixed	7.775%	2.000%	7.775%	2.000%
Employer Fixed	<u>7.775</u>	<u>2.000</u>	<u>7.775</u>	<u>2.000</u>
Total	15.550%	4.000%	15.550%	4.000%

* Includes a load for administrative expenses.



SECTION I – SUMMARY OF PRINCIPAL RESULTS



CONTRIBUTION RATES FOR NON-UNIVERSITY MEMBERS (OTHER THAN TRS 4)				
Valuation Date	June 30, 2024		June 30, 2023	
For fiscal year ending:	June 30, 2027		June 30, 2026	
Member Group:	TRS 1 & TRS 2	TRS 3	TRS 1 & TRS 2	TRS 3
Retirement Annuity Trust:				
Normal*	16.080%	16.080%	16.150%	16.150%
Accrued liability	<u>30.840</u>	<u>31.840</u>	<u>27.790</u>	<u>28.790</u>
Total**	46.920%	47.920%	43.940%	44.940%
Member	9.105%	9.105%	9.105%	9.105%
State/Employer	<u>37.815</u>	<u>38.815</u>	<u>34.835</u>	<u>35.835</u>
Total**	46.920%	47.920%	43.940%	44.940%
Life Insurance Trust:				
State/Employer	0.080%	0.080%	0.080%	0.080%
Health Insurance Trust:				
Member	3.750%	3.750%	3.750%	3.750%
State/Employer Match	<u>3.750</u>	<u>3.750</u>	<u>3.750</u>	<u>3.750</u>
Total	7.500%	7.500%	7.500%	7.500%
Total Contributions	<u>54.500%</u>	<u>55.500%</u>	<u>51.520%</u>	<u>52.520%</u>
Member Fixed	12.855%	12.855%	12.855%	12.855%
State/Employer Fixed	16.105	17.105	16.105	17.105
Required Increase	25.540	25.540	22.560	22.560
State Special	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
Total	54.500%	55.500%	51.520%	52.520%

* Includes a load for administrative expenses.

** Total Contribution Rates for fiscal year ending June 30, 2026 and June 30, 2027 shown above apply a 5-year contribution direct rate smoothing methodology and are anticipated to increase each year until the full funding rates are achieved in not more than 5 years from the 2021 valuation. Please see the projections in Schedule H of the report for anticipated increases to the total contribution rates.



SECTION I – SUMMARY OF PRINCIPAL RESULTS



CONTRIBUTION RATES FOR NON-UNIVERSITY MEMBERS IN TRS 4				
Valuation Date	June 30, 2024		June 30, 2023	
For fiscal year ending:	June 30, 2027		June 30, 2026	
	Foundational	Supplemental	Foundational	Supplemental
Retirement Annuity Trust:				
Normal*	11.760%	2.120%	11.380%	2.130%
Accrued liability	<u>5.160</u>	<u>1.880</u>	<u>5.540</u>	<u>1.870</u>
Total	16.920%	4.000%	16.920%	4.000%
Member	9.000%	2.000%	9.000%	2.000%
Employer	<u>7.920</u>	<u>2.000</u>	<u>7.920</u>	<u>2.000</u>
Total	16.920%	4.000%	16.920%	4.000%
Life Insurance Trust:				
Employer	0.080%	0.000%	0.080%	0.000%
Health Insurance Trust:				
Member	3.750%	0.000%	3.750%	0.000%
Employer	<u>3.750</u>	<u>0.000</u>	<u>3.750</u>	<u>0.000</u>
Total	7.500%	0.000%	7.500%	0.000%
Total Contributions	<u>24.500%</u>	<u>4.000%</u>	<u>24.500%</u>	<u>4.000%</u>
Member Fixed	12.750%	2.000%	12.750%	2.000%
Employer Fixed	<u>11.750</u>	<u>2.000</u>	<u>11.750</u>	<u>2.000</u>
Total	24.500%	4.000%	24.500%	4.000%

* Includes a load for administrative expenses.



SECTION I – SUMMARY OF PRINCIPAL RESULTS



4. The valuation includes only the assets and liabilities associated with the Retirement Annuity Trust. The valuation of the Health Insurance Trust and the active and retired life insurance benefits has been prepared separately.
5. Comments on the valuation results as of June 30, 2024 are given in Section IV and further discussion of the contribution levels and funding is set out in Sections V and VI.
6. Schedule B shows the development of the actuarial value of assets. The assumed investment rate of return is 7.10%.
7. Schedule D of this report outlines the full set of actuarial assumptions and methods employed in the current valuation. There have been no changes since the previous valuation. However, direct-rate smoothing is being used to phase in the impact of the June 30, 2021 assumption changes to the required contributions over a five-year period. The cost of the assumption changes was estimated at 8.59% of payroll beginning with the June 30, 2021 valuation, which represents an expected increase of at least 1.72% of payroll each year over a five-year period to cover the cost of the change in assumptions.
8. Provisions of the system, as summarized in Schedule F, were taken into account in the current valuation. There have been no changes since the previous valuation.
9. The aggregate funded ratio for TRS 1 through TRS 4, shown in the Summary of Principal Results on page 1, 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. The ratio is less than 100% for TRS 1 through TRS 3, and therefore, there is a need for additional contributions toward the payment of the unfunded actuarial accrued liability. For TRS 4, the ratio is above 100%, so there is no need for additional contributions. 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 system for use as a basis of the valuation were furnished by the Retirement System office. The following table shows the number of active members and their annual salaries as of June 30, 2024 on the basis of which the valuation was prepared.

GROUP	NUMBER	ANNUAL SALARIES (\$1,000s)
<u>University Active Members</u>		
TRS 1 and TRS 2 Members	1,239	\$ 94,584
TRS 3 Members	1,303	82,773
TRS 4 Members	<u>395</u>	<u>17,893</u>
Total University Active Members	2,937	\$ 195,250
<u>Non-University Active Members</u>		
Full Time TRS 1 and TRS 2 Members	25,775	\$ 2,014,121
Full Time TRS 3 Members	28,966	1,735,679
Full Time TRS 4 Members	5,799	260,122
Part Time TRS 1 and TRS 2 Members	990	9,681
Part Time TRS 3 Members	5,444	56,963
Part Time TRS 4 Members	<u>6,103</u>	<u>36,652</u>
Total Non-University Members	73,077	\$ 4,113,218
Grand Total	76,014	\$ 4,308,468



SECTION II – MEMBERSHIP DATA



2. The following table shows the number and annual retirement allowances payable to annuitants and beneficiaries on the roll of the retirement system as of the valuation date.

THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES OF ANNUITANTS AND BENEFICIARIES ON THE ROLL AS OF JUNE 30, 2024		
GROUP	NUMBER	ANNUAL RETIREMENT ALLOWANCES ¹ (\$1,000s)
Service Retirements	52,741	\$ 2,274,920
Disability Retirements	2,742	90,043
Beneficiaries of Deceased Members	<u>4,875</u>	<u>132,865</u>
Total	60,358	\$ 2,497,828

¹ Includes cost-of-living adjustments effective through July 1, 2024.

3. In addition, there are 11,957 terminated vested employees entitled to benefits in the future and 53,459 inactive non-vested members.
4. Table 1 of Schedule G shows a distribution by age and years of service of the number and annual salaries of active members included in the valuation, while Table 3 shows the number and annual retirement allowances of annuitants and beneficiaries included in the valuation, distributed by age.



SECTION III – ASSETS



1. As of June 30, 2024, the total market value of pension plan assets for valuation purposes held by the system amounted to \$26,108,136,077. This value excludes assets in the Health Insurance Trust, the 403(b) Program Reserve Fund, and the Life Insurance Trust, which are not included in the assets used for pension plan valuation purposes. As provided by staff, the estimated net investment return for the plan year ending June 30, 2024 on a market value basis was 11.9%. Schedule C shows the receipts and disbursements for the year preceding the valuation date and a reconciliation of the asset balances for the pension plan.
2. The five-year market related value of pension plan assets used for valuation purposes as of June 30, 2024 was \$25,728,189,539. The estimated investment return for the plan year ending June 30, 2024 on an actuarial value of assets basis was 8.1%, compared to the assumed investment rate of return for the period of 7.10%. Schedule B shows the development of the actuarial value of assets as of June 30, 2024.
3. Below is a history of actual investment rates of return for the pension plan over the past five years:

Fiscal Year End	Rate of Return	
	Market Value	Actuarial Value
2024	11.9%	8.1%
2023	10.2%	6.6%
2022	(10.9)%	7.9%
2021	29.6%	12.9%
2020	5.5%	7.0%



SECTION IV – COMMENTS ON VALUATION



1. Schedule A of this report contains the valuation balance sheet which shows the present and prospective assets and liabilities of the system for TRS 1 through TRS 4 as of June 30, 2024. The valuation was prepared in accordance with the actuarial assumptions and the actuarial cost method, which are described in Schedule D and Schedule E.
2. The valuation balance sheet shows that the system has total prospective liabilities of \$21,752,512,188 for benefits expected to be paid on account of the present active members. The liability on account of benefits payable to annuitants and beneficiaries amounts to \$26,790,434,556 of which there are no remaining special appropriations to be made toward funding ad hoc increases and sick leave allowances granted after 1981. The liability for benefits expected to be paid to inactive members and to members entitled to deferred vested benefits is \$637,712,372. The total prospective liability of the system amounts to \$49,180,659,116. Against these liabilities, the system has present assets for valuation purposes of \$25,728,189,539. When this amount is deducted from the total liabilities of \$49,180,659,116, there remains \$23,452,469,577 as the present value contributions to be made in the future.
3. The contributions to the system consist of normal contributions and actuarial accrued liability contributions. The valuation indicates that total normal contributions (including a load for administrative expenses of 0.32% of payroll) are required at the rate of:
 - 11.98% of payroll for University members other than TRS 4,
 - 9.36% of payroll for University TRS 4 members for both Foundational and Supplemental Plans,
 - 16.08% of payroll for Non-University members other than TRS 4, and
 - 13.88% of payroll for Non-University TRS 4 members for both Foundational and Supplemental Plans.
4. Prospective normal employer and employee contributions have a present value of \$5,634,907,035. When this amount is subtracted from \$23,452,469,577, which is the present value of the total future contributions to be made by the employer, there remains \$17,817,562,542 as the amount of future unfunded actuarial accrued liability contributions.
5. Although the unfunded actuarial accrued liability (UAAL) increased by approximately \$362.7 million for the plan year ending June 30, 2024, the funded ratio increased from 58.6% to 59.1%. The increase in the UAAL was primarily due to salary increases that were more than expected and the contribution deficiency as a result of the phase-in of contributions, offset somewhat by the investment return experience which was better than expected. See Section VII for a complete breakdown of the experience of the system.



SECTION V – CONTRIBUTIONS PAYABLE UNDER THE SYSTEM



Employee Contributions

1. KRS 161.540 provides that for members hired before January 1, 2022, each university member will contribute 10.400% of annual compensation to the system and each non-university member will contribute 12.855% of annual compensation. Of this amount, for each university member, 2.775% is paid to the Health Insurance Trust for medical benefits and for each non-university member, 3.75% is paid to the Health Insurance Trust for medical benefits. The remainder, 7.625% for university members and 9.105% for non-university members, is applicable for the retirement benefits taken into account in the valuation.
2. KRS 161.540 also provides that for members hired on and after January 1, 2022, each university member will contribute 9.775% of annual compensation to the system for both Foundational and Supplemental and each non-university member will contribute 14.75% of annual compensation for both Foundational and Supplemental. Of this amount, for each university member, 2.775% is paid to the Health Insurance Trust for medical benefits and for each non-university member, 3.75% is paid to the Health Insurance Trust for medical benefits. Of the remainder, 5.00% for university members and 9.00% for non-university members is applicable to the foundational benefit component of the retirement benefits. Finally, an additional 2.00% is applicable to the supplemental benefit component of the retirement benefits for all TRS 4 members.

Employer Contributions

3. KRS 161.550 provides that, for members hired before January 1, 2022, each employer will contribute an amount to fund pension and life insurance benefits equal to 10.875% of the total annual compensation of university members, 12.355% of the total annual compensation of non-university members hired prior to July 1, 2008, and 13.355% of the total annual compensation of non-university members hired on and after July 1, 2008. Additional contributions are made to the Health Insurance Trust as required under KRS 161.550.
4. KRS 161.550 also provides that, for members hired on or after January 1, 2022, each employer will contribute an amount to fund pension and life insurance benefits equal to 5.775% for university members and 8.00% for non-university members.
5. Based on the results of the current valuation, of the amounts shown above, 0.08% of payroll will be allocated to the Life Insurance Trust.



SECTION V – CONTRIBUTIONS PAYABLE UNDER THE SYSTEM



6. Based on the results of the current valuation, an additional 27.26% of payroll for both university and non-university members other than TRS 4, would be required in order to maintain the amortization schedule of the unfunded actuarial accrued liability in accordance with the funding policy adopted by the Board. However, due to the results of the experience study adopted by the Board, direct-rate smoothing of contribution rates will be used to phase in the impact over a 5-year period. The resulting required increase based on direct-rate smoothing is 25.54% of payroll for the fiscal year ending June 30, 2027.
7. The total Actuarially Determined Employer Contribution (ADEC) to the pension plan is 36.335% for university members other than TRS 4. The total ADEC rate to the pension plan is 37.815% for non-university TRS 1 and TRS 2 members and 38.815% for non-university TRS 3 members. The total member and employer contribution rates to the pension plan for members other than TRS 4, are shown in the following tables.

CONTRIBUTION RATES BY SOURCE UNIVERSITY MEMBERS (OTHER THAN TRS 4)	
	TRS 1, TRS 2, and TRS 3 Members
<u>Member</u>	
Fixed Total	10.400%
Fixed Health Insurance Trust	<u>(2.775)</u>
Contribution to Retirement Annuity Trust	7.625%
<u>Employer</u>	
Fixed Total	13.650%
Fixed Health Insurance Trust	<u>(2.775)</u>
Subtotal	10.875%
Life Insurance Trust	(0.080)%
Additional Required for Unfunded Actuarial Accrued Liability using Direct-Rate Smoothing of the Impact of the Assumption Changes over Five Years	25.540
Special Appropriation	<u>0.000</u>
ADEC Contribution to Retirement Annuity Trust	36.335%
Total Member and Employer Contribution to Retirement Annuity Trust	43.960%



SECTION V – CONTRIBUTIONS PAYABLE UNDER THE SYSTEM



CONTRIBUTION RATES BY SOURCE NON-UNIVERSITY MEMBERS (OTHER THAN TRS 4)		
	TRS 1 and TRS 2 Members	TRS 3 Members
<u>Member</u>		
Fixed Total	12.855%	12.855%
Fixed Health Insurance Trust	<u>(3.750)</u>	<u>(3.750)</u>
Contribution to Retirement Annuity Trust	9.105%	9.105%
<u>Employer</u>		
Fixed Total	16.105%	17.105%
Fixed Health Insurance Trust	<u>(3.750)</u>	<u>(3.750)</u>
Subtotal	12.355%	13.355%
Life Insurance Trust	(0.080)%	(0.080)%
Additional Required for Unfunded Actuarial Accrued Liability using Direct-Rate Smoothing of the Impact of the Assumption Changes over Five Years	25.540	25.540
Special Appropriation	<u>0.000</u>	<u>0.000</u>
ADEC Contribution to Retirement Annuity Trust	37.815%	38.815%
Total Member and Employer Contribution to Retirement Annuity Trust	46.920%	47.920%

8. The valuation indicates that normal contributions at the rate of 11.98% of active university members' salaries and 16.08% of active non-university members' salaries are required for members other than TRS 4. In addition, the valuation indicates that normal contributions at the rate of 9.36% of active university members' salaries and 13.88% of active non-university members' salaries are required for TRS 4 members. The difference between the total contribution rate and the normal rate remains to be applied toward the liquidation of the unfunded actuarial accrued liability.

This actuarial accrued liability rate, based on the assumptions set forth in the Board's funding policy and including the impact of direct-rate smoothing of contributions, is 31.98% for university members other than TRS 4, 30.84% for non-university TRS 1 and TRS 2 members, and 31.84% for non-university TRS 3 members. The actuarial accrued liability rate for TRS 4 members is 5.335% for university members and 7.04% for non-university members. These rates are shown in the tables on the following page:



SECTION V – CONTRIBUTIONS PAYABLE UNDER THE SYSTEM



COMBINED MEMBER AND EMPLOYER CONTRIBUTION RATES (OTHER THAN TRS 4)			
RATE	PERCENTAGE OF ACTIVE MEMBERS' SALARIES		
	UNIVERSITY		NON-UNIVERSITY
	TRS 1, TRS 2 and TRS 3 Members	TRS 1 and TRS 2 Members	TRS 3 Members
Total Normal Cost*	11.98%	16.08%	16.08%
Actuarial Accrued liability	<u>31.98</u>	<u>30.84</u>	<u>31.84</u>
Total**	43.96%	46.92%	47.92%

* Includes a load for administrative expenses.

** Total Contribution Rates shown above apply a 5-year contribution direct rate smoothing methodology and are anticipated to increase each year until the full funding rates are achieved in not more than 5 years from the 2021 valuation. Please see the projections in Schedule H of the report for anticipated increases to the total contribution rates.

FIXED CONTRIBUTION RATES TRS 4 MEMBERS				
RATE	PERCENTAGE OF ACTIVE MEMBERS' SALARIES			
	UNIVERSITY		NON-UNIVERSITY	
	Foundational	Supplemental	Foundational	Supplemental
Total Normal Cost*	7.170%	2.19%	11.76%	2.12%
Actuarial Accrued liability	<u>3.525</u>	<u>1.81</u>	<u>5.16</u>	<u>1.88</u>
Total	10.695%	4.00%	16.92%	4.00%

* Includes a load for administrative expenses.



SECTION V – CONTRIBUTIONS PAYABLE UNDER THE SYSTEM



9. The following table shows the components of the total Unfunded Actuarial Accrued Liability (UAAL) and the derivation of the UAAL contribution rate in accordance with the funding policy:

TOTAL UAAL AND UAAL CONTRIBUTION PAYMENT (Dollar amounts in thousands)				
	UAAL		AMORTIZATION	
	ORIGINAL	CURRENT	YEARS REMAINING	PAYMENT
Legacy	\$14,010,205	\$15,284,988	20	\$1,148,081
New Incremental 6/30/2015	(351,610)	(303,052)	11	(35,030)
New Incremental 6/30/2016*	340,766	303,257	12	32,752
New Incremental 6/30/2017	(428,468)	(392,174)	13	(39,845)
New Incremental 6/30/2018	(192,240)	(179,922)	14	(17,297)
New Incremental 6/30/2019	53,306	50,761	15	4,640
New Incremental 6/30/2020	112,464	108,490	16	9,472
New Incremental 6/30/2021*	2,042,379	1,988,348	17	166,414
New Incremental 6/30/2022	(79,030)	(77,851)	18	(6,267)
New Incremental 6/30/2023	605,417	601,677	19	46,724
New Incremental 6/30/2024	433,041	<u>433,041</u>	20	<u>32,526</u>
Total UAAL		\$17,817,563		\$1,342,170**
Blended amortization period (years)				19.9

* Includes assumption changes

** The UAAL payment above is the total payment before the application of the board funding policy's direct rate smoothing technique.



SECTION VI – COMMENTS ON LEVEL OF FUNDING



1. Our calculations indicate that the contribution rates shown in the previous section will be sufficient to cover the benefits of the system and the annual 1.5% increases in the allowances of retired members and beneficiaries.
2. The valuation indicates that the present fixed contribution rates, if continued at the current level percentage, along with an additional required contribution for members other than TRS 4 members, are sufficient to meet the cost of benefits currently accruing and provide for the amortization of the unfunded actuarial accrued liability in accordance with the Board funding policy and the direct rate smoothing methodology of phasing in the additional required contribution.
3. The Actuarially Determined Employer Contribution (ADEC) is determined based on the Board's funding policy and the amortization and direct rate smoothing methodologies. Each year, we determine the required increase percentage needed, in addition to the present fixed contribution rates to fund the ADEC over the closed amortization period. The table on the next page provides a historical view of the special appropriations and required increase as a percentage of payroll.



SECTION VI – COMMENTS ON LEVEL OF FUNDING



Valuation Year End June 30	Fiscal Year End June 30	Special Appropriations Rate	Cumulative Required Increase Rate	Cumulative Total State Additional Contribution Rate	Cumulative Total State Required Contribution Amounts
2005	2008	4.17%	1.32%	5.49%	\$162,062,900
2006	2009	4.25	1.88	6.13	197,267,800
2007	2010	4.28	2.46	6.74	225,574,200
2008	2011	4.15	3.59	7.74	261,860,000
2009	2012	3.88	5.81	9.69	347,988,000
2010	2013	3.69	7.27	10.96	393,444,000
2011	2014	3.50	8.02	11.52	430,090,000
2012	2015	3.00	10.42	13.42	497,648,000
2013	2016	2.90	12.97	15.87	596,397,000
2014	2017	2.70	13.80	16.50	622,184,000
2015	2018	2.94	13.49	16.43	624,660,000
2016	2019	2.83	14.61	17.44	660,830,000
2017	2020	3.00	14.10	17.10	652,775,000
2018	2021	2.89	14.27	17.16	662,701,000
2019	2022	3.05	14.82	17.87	698,411,000
2020	2023	2.61	15.78	17.39	733,520,000
2021	2024	2.38	16.18	18.56	741,547,000
2022	2025	0.00	18.92	18.92	805,690,000
2023	2026	0.00	22.56	22.56	948,616,000
2024	2027	0.00	25.54	25.54	1,076,889,000

4. The amounts above are calculated by the actuary as the minimum additional dollar amounts to be contributed by the State in order to comply with the Board's funding policy and include the impact of direct-rate smoothing of the cost of assumption changes over five years beginning with the 2021 valuation. For the years that are colored above, the State required contribution amounts were made or are expected to be made in full.



SECTION VI – COMMENTS ON LEVEL OF FUNDING



5. As can be seen from the table on the previous page, the total State additional contribution rate increase is 2.98% of payroll from FYE26 to FYE27. This increase is based on:
 - an expected increase of 1.72% of payroll for the direct rate smoothing technique of phasing in contribution requirements due to the 2021 assumption changes,
 - an increase of 1.26% of payroll due to the overall experience of the System for the fiscal year ending June 30, 2024.

6. Effective September 21, 2020, the amount to be provided by the State shall not be less than the prior year's dollar amount until the plan (TRS 1 through TRS 3) reaches a funded ratio of 100%. Any further benefit improvements or return to work changes must be accompanied by the entire additional contributions necessary to support the benefits.



SECTION VII – ANALYSIS OF FINANCIAL EXPERIENCE



The following table shows the estimated gain or loss from various factors that resulted in an increase of \$362,692,562 in the unfunded actuarial accrued liability from \$17,454,869,980 to \$17,817,562,542 during the year ending June 30, 2024. The increase in the unfunded actuarial accrued liability was primarily due to salary increases that were more than expected and the contribution deficiency as a result of the phase-in of contributions for the fiscal year ending June 30, 2024. These losses were partially offset by a gain due to investment return on an actuarial value basis that was greater than expected (8.1% vs. 7.1%), gains due to turnover and retirements, and gains due to mortality (more deaths than expected).

ANALYSIS OF FINANCIAL EXPERIENCE (Dollar amounts in thousands)	
ITEM	AMOUNT OF INCREASE/ (DECREASE)
Interest (7.10%) added to previous unfunded actuarial accrued liability	\$ 1,239,296
Expected actuarial accrued liability contribution	(954,748)
Experience:	
Valuation asset growth	(231,536)
Pensioners' mortality	(25,496)
Turnover and retirements	(41,582)
New entrants	50,624
Salary increases	326,135
Amendments	0
Assumption changes	0
Total	\$ 362,693



SECTION VIII – ACCOUNTING INFORMATION



The information required under Governmental Accounting Standards Board (GASB) Statements No. 67 and 68 will be issued in separate reports. The following information is provided for informational purposes only.

- The following is a distribution of the number of employees by type of membership.

NUMBER OF ACTIVE AND RETIRED MEMBERS AS OF JUNE 30, 2024	
GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	60,358
Terminated vested employees entitled to benefits but not yet receiving benefits	11,957
Inactive non-vested members	53,459
Active plan members	<u>76,014</u>
Total	201,788

- The schedule of funding progress is shown below.

SCHEDULE OF FUNDING PROGRESS (Dollar amounts in thousands)						
Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Annual Salaries (c)	UAAL as a Percentage of Annual Salaries ((b - a) / c)
6/30/2019	\$20,154,161	\$34,676,712	\$14,522,551	58.1%	\$3,648,428	398.0%
6/30/2020	20,796,494	35,582,250	14,785,756	58.4	3,723,482	397.1
6/30/2021*	22,624,398	39,581,704	16,957,306	57.2	3,784,400	448.1
6/30/2022	24,090,355	40,970,441	16,880,086	58.8	4,033,509	418.5
6/30/2023	24,725,018	42,179,888	17,454,870	58.6	4,138,909	421.7
6/30/2024	25,728,190	43,545,752	17,817,562	59.1	4,308,468	413.5

* Reflects change in assumptions



SECTION VIII – ACCOUNTING INFORMATION



3. The information presented in the previous table was determined as part of the actuarial valuation at June 30, 2024. Additional information as of the latest actuarial valuation follows.

Valuation date	6/30/2024
Actuarial cost method	Entry Age
Amortization method	Level percent of pay, closed
Remaining amortization period	19.9 years
Asset valuation method	5-year smoothed market
Actuarial assumptions:	
Investment Rate of Return*	7.10%
Projected salary Increases**	3.00% - 7.50%
Cost-of-living adjustments	1.50% Annually
*Includes price inflation at	2.50%
**Includes wage inflation at	2.75%

SCHEDULE OF EMPLOYER CONTRIBUTIONS*			
Fiscal Year Ending June 30	Actuarially Determined Employer Contributions	Actual Employer Contributions	Percentage Contributed
2019	\$ 1,123,034,823	\$ 1,123,034,823	100%
2020	1,134,281,095	1,134,281,095	100
2021	1,146,977,669	1,146,977,669	100
2022	1,200,342,369	1,679,584,669	140
2023	1,144,448,806	1,144,448,806	100
2024	1,178,681,973	1,178,681,973	100

- * The contribution for the fiscal year ending June 30, 2024 is the first year of the phase-in of contributions. If the Plan were not phasing in the contributions, the ADEC for the fiscal year ending June 30, 2024 would have been \$1,453,167,000.



SECTION IX – RISK ASSESSMENT



Actuarial Standards of Practice (ASOP) No. 51, issued by the Actuarial Standards Board, provides guidance on assessing and disclosing risks related to pension plan funding. This guidance is binding on all credentialed actuaries practicing in the United States. This standard was issued as final in September 2017 with application to measurement dates on or after November 1, 2018.

The term “risk” frequently has a negative connotation, but from an actuarial perspective, it may be thought of as simply the fact that what actually happens in the real world will not always match what was expected, based on actuarial assumptions. Of course, when actual experience is better than expected, the favorable risk is easily absorbed. The risk of unfavorable experience will likely be unpleasant, and so there is an understandable focus on aspects of risk that are negative.

Risk usually can be reduced or eliminated at some cost. Consumers, for example, buy auto and home insurance to reduce the risk associated with accidents or catastrophes. Another way to express this concept, however, is that there is generally some reward for assuming risk. Thus, retirement plans invest not just in US Treasury bonds which have almost no risk, but also in equities which are considerably riskier – because they have an expected reward of a higher return that justifies the risk.

Under ASOP 51, the actuary is called on to identify the significant risks to the pension plan and provide information to help those sponsoring and administering the plan understand the implications of these risks. In this section, we identify some of the key risks for the Plan and provide information to help interested parties better understand these risks.





Sensitivity Analysis

The valuation results are a projection of expected benefit payments based on the actuarial assumptions. Actual experience will differ from these assumptions, either increasing or decreasing liabilities and valuation results. The charts on the following pages provide a simple analysis on how the costs are sensitive to changes in the assumed discount rate, the assumed price inflation rate and the rate of wage inflation. The charts show the actuarial accrued liability, the unfunded actuarial accrued liability, the funded ratio and the employer contribution rate under each of the following scenarios:

- **TABLE 1** - The discount rate assumption sensitivity analysis shows the valuation results with the baseline discount rate assumption, 7.10%, together with an increase and a decrease of 1.00% in the discount rate. Under this scenario, the underlying price inflation rate assumption is held constant at 2.50% and the wage inflation assumption is held constant at 2.75%.
- **TABLE 2** - The price inflation assumption sensitivity analysis shows the valuation results with the baseline underlying price inflation rate assumption, 2.50%, together with decreases in the price inflation rate to 2.25% and 2.00%. Under this scenario, the decrease in the underlying price inflation rate assumption leads to corresponding decreases in the discount rate (6.85% and 6.60%, respectively), the wage inflation assumption (2.50% and 2.25%, respectively), and the assumed rates of salary increase for active members.
- **TABLE 3** - The wage inflation assumption sensitivity analysis shows the valuation results with the baseline underlying wage inflation assumption, 2.75%, together with decreases in the wage inflation assumption to 1.25% 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 actuarial accrued liability, leading to higher employer contribution rates.



SECTION IX – RISK ASSESSMENT



TRS KENTUCKY			
TABLE 1			
ASSUMED DISCOUNT RATE SENSITIVITY ANALYSIS AS OF JUNE 30, 2024 (\$1,000s)			
	Decrease Discount Rate	Valuation Results	Increase Discount Rate
Actuarial Accrued Liability	\$ 48,832,670	\$ 43,545,752	\$ 39,154,330
Actuarial Value of Assets	<u>25,728,190</u>	<u>25,728,190</u>	<u>25,728,190</u>
Unfunded Actuarial Accrued Liability	\$ 23,104,480	\$ 17,817,562	\$ 13,426,140
Funded Ratio	52.7%	59.1%	65.7%
Employer ADEC – University	49.015%	38.055%	28.515%
Employer ADEC – Non-University*	51.495%	40.535%	30.995%
Discount Rate	6.10%	7.10%	8.10%
Wage Inflation Rate	2.75%	2.75%	2.75%
Price Inflation Rate	2.50%	2.50%	2.50%

* Less 1% for TRS 1 and TRS 2 members. The ADEC rates do not include the impact of direct-rate smoothing.

TRS KENTUCKY			
TABLE 2			
PRICE INFLATION ASSUMPTION SENSITIVITY ANALYSIS AS OF JUNE 30, 2024 (\$1,000s)			
	Valuation Results	Decrease Inflation Rate 0.25%	Decrease Inflation Rate 0.50%
Actuarial Accrued Liability	\$ 43,545,752	\$ 44,624,084	\$ 45,750,683
Actuarial Value of Assets	<u>25,728,190</u>	<u>25,728,190</u>	<u>25,728,190</u>
Unfunded Actuarial Accrued Liability	\$ 17,817,562	\$ 18,895,894	\$ 20,022,493
Funded Ratio	59.1%	57.7%	56.2%
Employer ADEC – University	38.055%	40.655%	43.405%
Employer ADEC – Non-University*	40.535%	43.135%	45.885%
Discount Rate	7.10%	6.85%	6.60%
Wage Inflation Rate	2.75%	2.50%	2.25%
Price Inflation Rate	2.50%	2.25%	2.00%

* Less 1% for TRS 1 and TRS 2 members. The ADEC rates do not include the impact of direct-rate smoothing.





TRS KENTUCKY			
TABLE 3			
WAGE INFLATION ASSUMPTION SENSITIVITY ANALYSIS AS OF JUNE 30, 2024			
(\$1,000s)			
	Valuation Results	Decrease Wage Inflation to 1.25%	No Wage Inflation
Actuarial Accrued Liability	\$ 43,545,752	\$ 43,545,752	\$ 43,545,752
Actuarial Value of Assets	<u>25,728,190</u>	<u>25,728,190</u>	<u>25,728,190</u>
Unfunded Actuarial Accrued Liability	\$ 17,817,562	\$ 17,817,562	\$ 17,817,562
Funded Ratio	59.1%	59.1%	59.1%
Employer ADEC – University	38.055%	42.735%	46.965%
Employer ADEC – Non-University*	40.535%	45.215%	49.445%
Discount Rate	7.10%	7.10%	7.10%
Wage Inflation Rate	2.75%	1.25%	0.00%
Price Inflation Rate	2.50%	2.50%	2.50%

* Less 1% for TRS 1 and TRS 2 members. The ADEC rates do not include the impact of direct-rate smoothing.





Low-Default-Risk Obligation Measure

Under the revised Actuarial Standards of Practice (ASOP) No. 4 effective for valuations after February 15, 2023, we are required to include a low-default-risk obligation measure of the System's liability in our funding valuation report. This is an informational disclosure as described below and would not be appropriate for assessing the funding progress or health of the plan. This measure uses the unit credit cost method and reflects all the assumptions and provisions of the funding valuation (including the assumed COLA paid), except that the discount rate is derived from considering low-default-risk fixed income securities. We considered the FTSE Pension Discount Curve based on market bond rates published by the Society of Actuaries as of June 30, 2024 and with the 30-year spot rate used for all durations beyond 30 because this provides an appropriate set of discount rates for this intended purpose.

Using these assumptions, we calculate a liability of approximately \$47.7 billion. This amount approximates the termination liability if the plan (or all covered employment) ended on the valuation date and all of the accrued benefits had to be paid with cash-flow matched bonds. If the plan were funded with the intent of being able to be terminated at any valuation date, contribution requirements may need to increase and would also be more volatile. This assurance of funded status and benefit security is typically more relevant for corporate plans than for governmental plans since governments rarely have the need or option to completely terminate a plan. However, this informational disclosure is required for all plans whether corporate or governmental and care should be taken to ensure the one size fits all metric is not misconstrued.



SCHEDULE A – VALUATION BALANCE SHEET AND SOLVENCY TEST



**PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES
AS OF JUNE 30, 2024
FOR TRS 1 THROUGH TRS 4
(Dollar amounts in thousands)**

ACTUARIAL LIABILITIES

(1)	Present value of prospective benefits payable on account of present active members		
	- Service retirement benefits	\$ 20,628,837	
	- Disability retirement benefits	746,482	
	- Death and survivor benefits	122,191	
	- Refunds of member contributions	<u>255,002</u>	
	Total		\$ 21,752,512
(2)	Present value of prospective benefits payable on account of present retired and disabled members, and beneficiaries of deceased members		
	- Service retirement benefits	\$ 24,705,334	
	- Disability retirement benefits	997,251	
	- Death and survivor benefits	<u>1,087,850</u>	
	Total		\$ 26,790,435
(3)	Present value of prospective benefits payable on account of inactive members and members entitled to deferred vested benefits		<u>\$ 637,712</u>
(4)	TOTAL ACTUARIAL LIABILITIES		<u>\$ 49,180,659</u>

PRESENT AND PROSPECTIVE ASSETS

(5)	Actuarial value of assets		\$ 25,728,190
(6)	Present value of total future contributions = (4)-(5)	\$ 23,452,469	
(7)	Present value of future member contributions and employer normal contributions		\$ 5,634,907
(8)	Prospective unfunded actuarial accrued liability contributions = (6)-(7)		<u>\$ 17,817,562</u>
(9)	TOTAL PRESENT AND PROSPECTIVE ASSETS		<u>\$ 49,180,659</u>



SCHEDULE A – VALUATION BALANCE SHEET AND SOLVENCY TEST



SOLVENCY TEST FOR TRS 1 THROUGH TRS 4 (Dollar amounts in millions)							
Valuation Date	<u>Aggregate Actuarial Accrued Liability</u>			Valuation Assets	<u>Portion of Accrued Liabilities Covered by Assets</u>		
	(1)	(2)	(3)		(1)	(2)	(3)
	Active Member Contributions	Retirants And Beneficiaries	Active Members (Employer Financed Portion)				
6/30/2019	\$4,022.4	\$22,601.6	\$8,052.8	\$20,154.2	100%	71%	0%
6/30/2020	4,158.7	23,158.6	8,264.9	20,796.5	100	72	0
6/30/2021	4,282.8	25,367.6	9,931.2	22,624.4	100	72	0
6/30/2022	4,420.7	26,002.2	10,547.6	24,090.4	100	76	0
6/30/2023	4,511.0	26,788.6	10,880.3	24,725.0	100	75	0
6/30/2024	4,636.5	27,428.1	11,481.2	25,728.2	100	77	0



SCHEDULE B – DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS



ACTUARIAL VALUE OF ASSETS AS OF JUNE 30, 2024 FOR TRS 1 THROUGH TRS 4		
(1)	Actuarial Value of Assets Beginning of Year	\$ 24,725,018,062
(2)	Net Position at Market Value at End of Year	\$ 26,108,136,077
(3)	Net Position at Market Value at Beginning of Year	\$ 24,244,554,125
(4)	Cash Flow	
	a. Contributions	\$ 1,564,588,485
	b. Benefit Payments	2,499,893,273
	c. Administrative Expense	<u>14,807,287</u>
	d. Net: (4)a – (4)b – (4)c	\$ (950,112,075)
(5)	Investment Income	
	a. Market total: (2) – (3) – (4)d	\$ 2,813,694,027
	b. Assumed Rate	7.10%
	c. Amount for Immediate Recognition: [(3) x (5)b] + [(4)d x (5)b x 0.5]	\$ 1,687,634,364
	d. Amount for Phased-In Recognition: (5)a – (5)c	\$ 1,126,059,663
(6)	Phased-In Recognition of Investment Income	
	a. Current Year: 0.20 x (5)d	\$ 225,211,933
	b. First Prior Year	134,580,241
	c. Second Prior Year	(911,655,908)
	d. Third Prior Year	898,669,898
	e. Fourth Prior Year	<u>(81,156,976)</u>
	f. Total Recognized Investment Income	\$ 265,649,188
(7)	Actuarial Value of Assets End of Year: (1) + (4)d + (5)c + (6)f	\$ 25,728,189,539
(8)	Difference Between Market & Actuarial Values: (2) – (7)	\$ 379,946,538
(9)	Net Investment Rate of Return on Actuarial Value:	8.1%



SCHEDULE C – SUMMARY OF RECEIPTS AND DISBURSEMENTS



SUMMARY OF RECEIPTS AND DISBURSEMENTS*		
FOR TRS 1 THROUGH TRS 4		
(Market Value)		
	For the Year Ending	
	June 30, 2024	June 30, 2023
Receipts for the Year		
Contributions		
Members	\$ 385,906,512	\$ 366,774,504
Employers	<u>1,178,681,973</u>	<u>1,144,448,806</u>
Total	1,564,588,485	1,511,223,310
Net Investment Income	<u>2,813,694,027</u>	<u>2,266,085,160</u>
TOTAL	\$ 4,378,282,512	\$ 3,777,308,470
Disbursements for the Year		
Benefit Payments	\$ 2,466,971,497	\$ 2,391,326,201
Refunds to Members	32,921,776	26,909,781
Miscellaneous, including expenses	<u>14,807,287</u>	<u>14,470,733</u>
TOTAL	\$ 2,514,700,560	\$ 2,432,706,715
Excess of Receipts over Disbursements	\$ 1,863,581,952	\$ 1,344,601,755
Reconciliation of Net Position		
Net Position as of the Beginning of the Year	\$ 24,244,554,125	\$ 22,899,952,370
Excess of Receipts over Disbursements	<u>1,863,581,952</u>	<u>1,344,601,755</u>
Net Position as of the End of the Year	<u>\$ 26,108,136,077</u>	<u>\$ 24,244,554,125</u>
Net Investment Rate of Return on Market Value	11.9%	10.2%

* Excludes assets for Health Insurance Trust, the 403(b) Program Reserve Fund and the Life Insurance Trust.



SCHEDULE D – ACTUARIAL ASSUMPTIONS & METHODS



The assumptions and methods used in the valuation were selected based on the actuarial experience study prepared as of June 30, 2020, submitted to, and adopted by the Board on September 20, 2021. The combined effect of the assumptions is expected to have no significant bias.

INVESTMENT RATE OF RETURN: 7.10% per annum, compounded annually, including price inflation at 2.50% per annum.

SALARY INCREASES: Representative values of the assumed annual rates of future salary increases are as follows and include wage inflation at 2.75% per annum:

Service	Annual Rate
1	7.50%
2	5.50%
3	5.00%
4	5.00%
5	5.00%
6	4.75%
7	4.50%
8	4.25%
9	4.00%
10	4.00%
11	4.00%
12	3.75%
13	3.50%
14	3.50%
15	3.25%
16	3.25%
>=17	3.00%



SCHEDULE D – ACTUARIAL ASSUMPTIONS & METHODS



SEPARATIONS FROM SERVICE: Representative values of the assumed annual rates of death, disability, withdrawal are as follows:

Age	Annual Rates for Males				
	Death*	Disability	Withdrawal		
			Years of Service		
			0 – 4	5 – 9	10+
20	0.030%	0.01%	20.00%		
25	0.017	0.01	11.00	3.25%	
30	0.024	0.01	10.00	3.60	2.80%
35	0.032	0.02	11.00	3.60	1.55
40	0.046	0.07	12.50	4.00	1.25
45	0.074	0.18	11.50	4.00	1.10
50	0.122	0.28	14.25	4.50	1.10
55	0.187	0.40	15.00	6.00	1.25
60	0.291	0.50	15.00	0.00	0.00
62	0.354	0.50	15.00	0.00	0.00
65	0.481	0.50	20.00	0.00	0.00
70	0.774	0.50	20.00	0.00	0.00
75	1.234	0.50	20.00	0.00	0.00

* Base Rates

Age	Annual Rates for Females				
	Death*	Disability	Withdrawal		
			Years of Service		
			0 – 4	5 – 9	10+
20	0.013%	0.01%	13.00%		
25	0.009	0.01	9.00	4.50%	
30	0.011	0.02	11.00	4.25	1.00%
35	0.017	0.06	11.00	3.50	1.60
40	0.026	0.10	12.50	4.00	1.20
45	0.040	0.24	13.50	4.00	1.00
50	0.062	0.38	15.00	4.50	1.25
55	0.090	0.50	15.00	5.00	1.60
60	0.132	0.60	17.50	0.00	0.00
62	0.158	0.62	17.50	0.00	0.00
65	0.213	0.65	25.00	0.00	0.00
70	0.372	0.65	25.00	0.00	0.00
75	0.696	0.65	25.00	0.00	0.00

* Base Rates



SCHEDULE D – ACTUARIAL ASSUMPTIONS & METHODS



SEPARATIONS FROM SERVICE: Representative values of the assumed annual rates of retirement are as follows:

TRS 1, TRS 2 & TRS 3 Members				
Age	Annual Rates for Males		Annual Rates for Females	
	Before 27 Years of Service	After 27 Years of Service*	Before 27 Years of Service	After 27 Years of Service**
45		17.0%		17.0%
50		25.0		20.0
55	5.25%	40.0	5.0%	50.0
60	13.50	33.0	15.0	40.0
62	15.00	30.0	15.0	40.0
65	20.00	30.0	25.0	40.0
70	25.00	30.0	30.0	35.0
75	100.00	100.0	100.0	100.0

*Plus 8.5% in year when first eligible for unreduced retirement with 27 years of service

**Plus 10.0% in year when first eligible for unreduced retirement with 27 years of service

TRS 4 Members						
Age	Annual Rates for Males			Annual Rates for Females		
	Before 20 Years of Service	20-29 Years of Service	30 or More Years of Service*	Before 20 Years of Service	20-29 Years of Service	30 or More Years of Service*
57	3.0%	5.0%	25.0%	3.0%	5.0%	30.0%
60	8.5	13.5	25.0	10.0	15.0	30.0
62	12.0	15.0	25.0	12.0	15.0	30.0
65	20.0	20.0	25.0	25.0	25.0	30.0
70	25.0	25.0	25.0	30.0	30.0	30.0
75	100.0	100.0	100.0	100.0	100.0	100.0

* Plus 20.0% in the first year attaining 30 years of service; plus 25% at age 65 in the first year attaining 30 years of service



SCHEDULE D – ACTUARIAL ASSUMPTIONS & METHODS



DEATHS AFTER RETIREMENT: Mortality rates were based on the Pub2010 (Teachers Benefit-Weighted) Mortality table, projected generationally based on Projection Scale MP-2020, with various set-forwards, set-backs, and adjustments for each of the groups. Below is a summary of the specific mortality tables and adjustments for each of the groups:

<u>Group</u>	<u>Membership Table</u>	<u>Set Forward (+)/ Setback (-)</u>	<u>Adjustment to Rates</u>	<u>Projection Scale</u>
Service Retirees	Teachers Benefit-Weighted	Male: +2 Female: +2	Male: 102%, Female: 98%	75% of MP-2020
Contingent Annuitants	Teachers Benefit-Weighted	Male: +2 Female: None	Male: 101%, Female: 100%	75% of MP-2020
Disabled Retirees	Teachers Benefit-Weighted	Male: +1 Female: -2	Male: 96%, Female: 94%	75% of MP-2020
Actives	Teachers Benefit-Weighted	Male: +1 Female: -2	Male: 100%, Female: 98%	75% of MP-2020

Representative values of the assumed annual rates of death after service retirement, disability retirement, and survivors of deceased members are shown below:

Age	Annual Base Rates of Death For					
	Service Retirees		Contingent Annuitants		Disability Retirees	
	Male	Female	Male	Female	Male	Female
45	0.0836%	0.0568%	0.6020%	0.2620%	1.0646%	0.7755%
50	0.1357	0.0843	0.7545	0.3200	1.6435	1.1910
55	0.2744	0.2215	0.8959	0.4460	2.1130	1.5416
60	0.4427	0.3322	1.1413	0.6220	2.4806	1.7616
65	0.7579	0.5351	1.6443	0.8990	3.0653	1.9834
70	1.4066	0.9682	2.5876	1.3530	3.9485	2.4149
75	2.6816	1.8649	4.1006	2.1510	5.3155	3.2562
80	5.0500	3.5819	6.5630	3.5730	7.6118	4.7705
85	9.4585	6.8071	10.7717	6.3160	11.2109	7.3423
90	16.9116	12.6077	17.7306	11.3290	16.9738	11.1653
95	26.9423	21.5110	26.8670	18.5900	24.2170	15.7356



SCHEDULE D – ACTUARIAL ASSUMPTIONS & METHODS



ASSETS: 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 of 7.10%. The amount recognized each year is 20% of the difference between market value and expected actuarial value.

ADMINISTRATIVE EXPENSE LOAD: 0.32% of payroll added to the normal cost rate.

PERCENT MARRIED: 100%, with females 3 years younger than males.

PART-TIMERS: Assume 0.25 years of accrual service per year

UNUSED SICK LEAVE LOAD: 3% of active liability at the time of retirement for members other than TRS 4.

LEVEL PERCENTAGE OF PAYROLL GROWTH ASSUMPTION: 2.75%



SCHEDULE E – ACTUARIAL COST METHOD



1. 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, sex and compensation. 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. Future salary increases and post-retirement cost-of-living adjustments are also anticipated. 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 inactive members to obtain the present value of all expected benefits payable from the system on account of the present group of members and beneficiaries.
2. 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 actuarial accrued liability contribution.
3. Under the entry age normal cost method, the actuarial present value of each member's projected benefits is allocated on a level basis over the member's compensation between the entry age of the member and the assumed exit ages. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The actuarial present value of benefits allocated to prior years of service is called the actuarial liability. The unfunded actuarial liability represents the difference between the actuarial liability and the actuarial value of assets as of the valuation date. The unfunded actuarial liability is calculated each year and reflects experience gains/losses. The accrued liability contribution amortizes the balance of the unfunded actuarial accrued liability over a period of years from the valuation date.



SCHEDULE F – MAIN SYSTEM PROVISIONS



The Teachers' Retirement System of the State of Kentucky was established on July 1, 1940. The valuation took into account amendments to the system effective through June 30, 2024. The following summary describes the main benefit and contribution provisions of the system as interpreted for the valuation.

1 – DEFINITIONS

"Final average salary" means the average of the five highest annual salaries which the member has received for service in a covered position and on which the member has made contributions or on which the public board, institution or agency has picked up the member contributions. For a member who retires after attaining age 55 with 27 years of service, "final average salary" means the average of the three highest annual salaries.

2 - BENEFITS

Service Retirement Allowance

TRS 1 and TRS 2 Members

Condition for Allowance	Completion of 27 years of service or attainment of age 55 and 5 years of service.
Amount of Allowance	The annual retirement allowance for non-university members is equal to: <ul style="list-style-type: none">(a) 2.0% of final average salary multiplied by service before July 1, 1983, plus(b) 2.5% of final average salary multiplied by service after July 1, 1983.(c) For individuals who become members of the retirement system on or after July 1, 2002 and have less than 10 years of service at retirement, the retirement allowance is 2.0% of final average salary multiplied by service. If, however, they have 10 or more years, they receive a benefit percentage of 2.5% for all years of service up to 30 years.(d) For members retiring on or after July 1, 2004, the retirement allowance formula is 3.0% of final average salary for each year of service credit earned in excess of 30 years.





The annual retirement allowance for university members is equal to 2.0% of final average salary multiplied by all years of service.

For all members, the annual allowance is reduced by 5% per year from the earlier of age 60 or the date the member would have completed 27 years of service.

The minimum annual service allowance for all members is \$440 multiplied by credited service.

TRS 3 Members

Condition for Retirement

Completion of 27 years of service, attainment of age 60 and 5 years of service or attainment of age 55 and 10 years of service.

Amount of Allowance

The annual retirement allowance for non-university members is equal to:

- 1.7% of final average salary if service is 10 years or less.
- 2.0% of final average salary if service is greater than 10 years and no more than 20 years.
- 2.3% of final average salary if service is greater than 20 years but no more than 26 years.
- 2.5% of final average salary if service is greater than 26 years but no more than 30 years.
- 3.0% of final average salary for years of service greater than 30 years.

The annual retirement allowance for university members is equal to:

- 1.5% of final average salary if service is 10 years or less.
- 1.7% of final average salary if service is greater than 10 years and no more than 20 years.
- 1.85% of final average salary if service is greater than 20 years but less than 27 years.
- 2.0% of final average salary if service is greater than or equal to 27 years.



SCHEDULE F – MAIN SYSTEM PROVISIONS



For all members, the annual allowance is reduced by 6% per year from the earlier of age 60 or the date the member would have completed 27 years of service.

TRS 4 Members

Condition for Retirement Attainment of age 57 and 10 years of service or attainment of age 65 and 5 years of service.

Amount of Allowance

Foundational Benefit The annual foundational benefit for members is equal to service times a multiplier times final average salary.

The multiplier for non-university members is shown in the following table:

Age	Years of Service			
	5-9.99	10-19.99	20-29.99	30 or more
57-60	-	1.70%	1.95%	2.20%
61	-	1.74%	1.99%	2.24%
62	-	1.78%	2.03%	2.28%
63	-	1.82%	2.07%	2.32%
64	-	1.86%	2.11%	2.36%
65 & over	1.90%	1.90%	2.15%	2.40%

The multiplier for university members is shown in the following table:

Age	Years of Service			
	5-9.99	10-19.99	20-29.99	30 or more
57-60	-	0.70%	0.95%	1.20%
61	-	0.74%	0.99%	1.24%
62	-	0.78%	1.03%	1.28%
63	-	0.82%	1.07%	1.32%
64	-	0.86%	1.11%	1.36%
65 & over	0.90%	0.90%	1.15%	1.40%

The annual foundational benefit is reduced by 6% per year from the earlier of age 60 or the date the member would have completed 30 years of service.



SCHEDULE F – MAIN SYSTEM PROVISIONS



Supplemental Benefit	The annual supplemental benefit is equal to the account balance which includes member and employer contributions and interest credited annually on June 30. Options include annuitizing the balance or receiving the balance as a lump sum either at the time of retirement or at a later date.
Disability Retirement Allowance	
Condition for Allowance	For members hired before January 1, 2022, totally and permanently incapable of being employed as a teacher and under 27 years of service but after completing 5 years of service.
Amount of Allowance	The disability allowance is equal to 60% of the member's final average salary. The disability allowance is payable over an entitlement period equal to 25% of the service credited to the member at the date of disability or five years, whichever is longer. After the disability entitlement period has expired and if the member remains disabled, he will be retired under service retirement. The service retirement allowance will be computed with service credit given for the period of disability retirement. The allowance will not be less than \$6,000 per year. The service retirement allowance will not be reduced for commencement of the allowance before age 60 or the completion of 27 years of service.
Benefits Payable on Separation from Service	Any member who ceases to be in service is entitled to receive his contributions with allowable interest. A member who has completed 5 years of creditable service and leaves his contributions with the system may be continued in the membership of the system after separation from service, and file application for service retirement after the attainment of age 60.
Life Insurance	A separate Life Insurance Trust has been created as of June 30, 2000 to pay benefits on behalf of deceased TRS active and retired members.



SCHEDULE F – MAIN SYSTEM PROVISIONS



Death Benefits

A surviving spouse of an active member with less than 10 years of service may elect to receive an annual allowance of \$2,880 except that if income from other sources exceeds \$6,600 per year the annual allowance will be \$2,160.

A surviving spouse of an active member with 10 or more years of service may elect to receive an allowance which is the actuarial equivalent of the allowance the deceased member would have received upon retirement. The allowance will commence on the date the deceased member would have been eligible for service retirement and will be payable during the life of the spouse.

If the deceased member is survived by unmarried children under age 18 the following schedule of annual allowances applies:

<u>Number of Children</u>	<u>Annual Allowance</u>
1	\$ 2,400
2	4,080
3	4,800
4 or more	5,280

The allowances are payable until a child attains age 18, or age 23 if a full-time student.

If the member has no eligible survivor, a refund of his accumulated contributions is payable to his estate.

Options

In lieu of the regular Option 1, a retirement allowance payable in the form of a life annuity with refundable balance, any member before retirement may elect to receive a reduced allowance which is actuarially equivalent to the full allowance, in one of the following forms:

Option 2. A single life annuity payable during the member's lifetime with payments for 10 years certain.





Option 3. At the death of the member his allowance is continued throughout the life of his beneficiary.

Option 3(a). At the death of the beneficiary designated by the member under Option 3, the member's benefit will revert to what would have been paid had he not selected an option.

Option 4. At the death of the member one half of his allowance is continued throughout the life of his beneficiary.

Option 4(a). At the death of the beneficiary designated by the member under Option 4, the member's benefit will revert to what would have been paid had he not selected an option.

Post-Retirement Adjustments

The retirement allowance of each retired member and of each beneficiary shall be increased by 1.50% each July 1.

3 - CONTRIBUTIONS

Member Contributions

- University members other than TRS 4 contribute 7.625% of salary to the retirement system.
- Non-university members other than TRS 4 contribute 9.105% of salary to the retirement system.
- University TRS 4 members contribute 7.00% of salary to the retirement system.
- Non-university TRS 4 members contribute 11.00% of salary to the retirement system.
- 2.00% of each is for the supplemental plan.



SCHEDULE G – TABLES OF EMPLOYEE DATA



**TABLE 1
DISTRIBUTION OF ACTIVE MEMBERS
BY ATTAINED AGE AND SERVICE GROUPS
AS OF JUNE 30, 2024**

Age	Completed Years of Service										Total	
	Less Than 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 26	27 to 29	30 to 34	35 & Over	No.	Payroll
	Under 25	2,437	2,147	7								4,591
25 to 29	927	4,801	2,108	1							7,837	348,749,181
30 to 34	622	2,024	4,049	1,407	1						8,103	423,693,514
35 to 39	616	1,546	1,984	3,903	1,446						9,495	562,239,697
40 to 44	623	1,449	1,583	1,981	4,233	1,491	6	1			11,367	738,849,100
45 to 49	445	982	1,104	1,248	1,951	3,976	1,018	134	3		10,861	772,334,410
50 to 54	625	970	782	960	1,403	1,929	1,336	1,576	393	1	9,975	701,722,041
55 to 59	855	1,064	470	493	831	1,029	515	431	352	45	6,085	365,083,982
60 to 64	715	1,034	368	322	390	469	185	173	119	56	3,831	182,154,030
65 to 69	524	783	240	115	99	132	56	63	68	35	2,115	66,413,089
70 & Over	464	709	267	79	59	55	16	34	28	43	1,754	37,988,096
Total	8,853	17,509	12,962	10,509	10,413	9,081	3,132	2,412	963	180	76,014	\$4,308,468,045

Average Age: 43.8

Average Service: 11.1

Retirement Eligible: 9,864





**TABLE 2
SCHEDULE OF ACTIVE MEMBER VALUATION DATA**

Valuation Date	Number	Annual Payroll	Average Pay	
			Annual	% Increase
6/30/2024	76,014	\$ 4,308,468,045	\$ 56,680	3.59%
6/30/2023	75,644	4,138,908,992	54,716	1.45
6/30/2022	74,785	4,033,509,178	53,935	(1.30)
6/30/2021	69,256	3,784,400,223	54,644	7.35
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	3,515,113,127	48,655	2.45





TABLE 3 NUMBER OF RETIRED MEMBERS AND BENEFICIARIES AND THEIR BENEFITS BY AGE AS OF JUNE 30, 2024			
Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefits
49 & Under	805	\$ 9,280,723	\$ 11,529
50 - 54	1,662	71,285,568	42,891
55 - 59	4,726	225,566,681	47,729
60 - 64	6,891	305,240,089	44,295
65 - 69	9,241	392,203,668	42,442
70 - 74	12,780	540,735,603	42,311
75 - 79	12,232	500,120,508	40,886
80 - 84	6,825	270,015,197	39,563
85 - 89	3,348	123,655,878	36,934
90 - 94	1,416	46,568,335	32,887
95 & Over	<u>432</u>	<u>13,155,897</u>	<u>30,453</u>
Total	60,358	\$ 2,497,828,147	\$ 41,384

Average Current Age: 71.5

Average Age at Retirement: 56.3





TABLE 4

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

Fiscal Year Ending June 30	ADDED TO ROLLS		REMOVED FROM ROLLS		ROLLS AT END OF YEAR		ANNUAL ALLOWANCE	
	No.	Annual Allowances (in millions)	No.	Annual Allowances (in millions)	No.	Annual Allowances (in millions)	% Increase	Average
2015	2,917	\$119.1	1,671	\$36.3	49,822	\$1,767.6	4.9%	\$35,479
2016	2,753	128.2	1,012	26.9	51,563	1,868.9	5.7%	36,244
2017	2,638	119.8	1,235	35.2	52,966	1,953.5	4.5%	36,881
2018	2,499	120.0	1,088	30.0	54,377	2,043.5	4.6%	37,581
2019	2,355	113.8	1,119	32.8	55,613	2,124.5	4.0%	38,201
2020	2,145	107.6	1,129	34.0	56,629	2,198.1	3.5%	38,816
2021	2,137	108.3	1,301	41.1	57,465	2,265.3	3.1%	39,421
2022	2,308	117.2	1,335	42.0	58,438	2,340.5	3.3%	40,051
2023	2,421	125.9	1,300	42.5	59,559	2,423.9	3.6%	40,697
2024	2,262	122.2	1,463	48.3	60,358	2,497.8	3.1%	41,384



SCHEDULE H – 30-YEAR BASELINE PROJECTION OF TRS



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 (thirty 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: 7.10%
- Investment Rate of Return: 7.10% each year
- Actuarial Value of Assets: 5-year smoothing, No Corridor
- Amortization Method: Level Percent of Payroll, Closed
- Amortization Bases:
 - Legacy amortization from 2014 valuation amortized over closed 30-year period
 - Subsequent bases amortized over closed 20-year period from date of valuation
- Amortization Period: Weighted 19.9-year period as of Valuation Date
- Future Contributions: Based on Expected Actuarially Determined Contributions including the impact of direct-rate smoothing of the impact of the assumption changes over a 5-year period beginning with the 2021 valuation

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



SCHEDULE H – 30-YEAR BASELINE PROJECTION OF TRS



30-YEAR BASELINE PROJECTION (\$ in Millions)								
Fiscal Year End	Non-University Payroll (1)	University Payroll (2)	Total Payroll (3)=(1)+(2)	Unfunded Accrued Liability (4)	Funded Ratio (5)	Direct Rate Smoothing Contribution in Dollars (6)	Salary Percentage Contribution in Dollars (7)	Additional for Unfunded Accrued Liability (8)=(6)-(7)
2027	\$4,229	\$193	\$4,422	\$17,818	59.1%	\$1,625	\$548	\$1,077
2028	4,291	195	4,486	17,671	60.3%	1,705	557	1,148
2029	4,357	198	4,555	18,273	59.9%	1,805	567	1,238
2030	4,425	202	4,627	17,785	61.7%	1,827	578	1,249
2031	4,493	205	4,698	17,353	63.4%	1,856	589	1,267
2032	4,565	209	4,774	16,998	64.9%	1,898	600	1,298
2033	4,640	214	4,854	16,596	66.3%	1,944	612	1,332
2034	4,716	219	4,935	16,135	67.9%	1,991	624	1,367
2035	4,797	223	5,020	15,598	69.5%	2,040	637	1,403
2036	4,882	228	5,110	14,976	71.2%	2,091	650	1,441
2037	4,972	234	5,206	14,261	73.0%	2,144	663	1,481
2038	5,069	240	5,309	13,445	74.9%	2,249	677	1,572
2039	5,171	247	5,418	12,518	77.0%	2,264	692	1,572
2040	5,279	254	5,533	11,472	79.2%	2,384	708	1,676
2041	5,394	263	5,657	10,245	81.7%	2,474	724	1,750
2042	5,515	271	5,786	8,916	84.2%	2,540	741	1,799
2043	5,641	281	5,922	7,371	87.1%	2,593	759	1,834
2044	5,775	290	6,065	5,625	90.3%	2,385	777	1,608
2045	5,915	301	6,216	3,691	93.7%	2,436	796	1,640
2046	6,062	312	6,374	1,567	97.4%	2,395	817	1,578
2047	6,214	324	6,538	-	100.0%	-	838	-
2048	6,374	336	6,710	-	100.0%	-	860	-
2049	6,541	349	6,890	-	100.0%	-	882	-
2050	6,715	362	7,077	-	100.0%	-	906	-
2051	6,903	375	7,278	-	100.0%	-	931	-
2052	7,103	388	7,491	-	100.0%	-	957	-
2053	7,311	400	7,711	-	100.0%	-	985	-
2054	7,524	413	7,937	-	100.0%	-	1,014	-
2055	7,744	424	8,168	-	100.0%	-	1,044	-
2056	7,973	437	8,410	-	100.0%	-	1,074	-





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.

The board's policy is to achieve full funding within specific, closed 30-year periods without extending or resetting those periods. The underpinning of this is to request, as a minimum appropriation, amounts consistent with the annual actuarial valuations. The actuary focuses on a long investment horizon to promote cost stability, predictability and equity among current and future taxpayers. This policy, as detailed below for each trust, confirms the board's process for recommending annual appropriations payable and the primary actuarial assumptions and methodologies associated with calculating the annual 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.

Also, the board may provide options for funding the Retirement Annuity Trust that could accelerate the paying of its unfunded liability ahead of the amortization schedule and reduce costs for the state thereafter to the normal cost.

This policy is in keeping with the board's direction for the Investment Committee to continue investing for maximum returns within the parameters of prudent risk.

This policy will be reviewed regularly and amended or revised as necessary consistent with the advice of the board's independent actuary.

BACKGROUND

The level of benefits and funding for teachers' pension and health care are mandated in law by the General Assembly. Also, state law requires that the board, as fiduciary, adopt reasonable actuarial assumptions based upon the advice of a qualified independent actuary and other professionals. Additionally, state law mandates that actuarial assumptions be set using rigorous and transparent processes that adhere to recognized actuarial and financial standards. These processes reflect national best practices, including the Government Finance Officers Association's best practice guidelines for valuations, experience studies and actuarial audits.

TRS evaluates actuarial assumptions (demographic and economic) each year during the actuarial valuation. Several other regular reviews are conducted as well. The return assumptions are reviewed annually by the board's Investment Committee as it evaluates asset allocation. Every two years, the actuary conducts a review of economic assumptions and incorporates any changes into valuations. Every five years, the actuary conducts an experience investigation and





recommends to the board adjustments to assumptions based upon past trends, current behavior and forecasted experience. TRS also conducts an actuarial audit (an audit of the actuary) at least every 10 years to ensure that assumptions are reasonable and appropriately reflect the cost of the plans. In the investment context, TRS conducts an asset liability modeling study at least every five years — and more often if material changes warrant an updated study. The annual valuation determines the additional required employer contribution that is included in TRS's biennial budget requests.

The amount that the state owes for benefits consists of two components, normal cost and amortization of unfunded liability. The normal cost is included in the statutory payroll contributions made by members, the state and employers. The amortization of the unfunded liability includes the balance of the statutory payroll contributions paid by the state and employers above amounts needed for the normal cost. In addition, TRS requests additional contributions necessary to amortize the unfunded liability. The funding for medical insurance is outlined by statute as a shared responsibility of employees, employers, retirees and the state.

State law requires, and the TRS board uses, a qualified independent actuary that follows the generally accepted actuarial standards of practice. Some factors considered by the actuary include the length of amortization periods; the projected pattern of cash flows; current and projected interest rates and rates of inflation; and historical and projected returns of the funds. The actuary focuses on a long investment horizon to promote cost stability, predictability and equity among current and future taxpayers.

1. Retirement Annuity Trust Appropriations

KRS 161.714 provides that the retirement benefits promised to members of TRS are “an inviolable contract of the Commonwealth.” 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 – solely is 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 under KRS 161.550.

Beginning in 2019, the state made its full actuarially determined contribution. Prior to that, from fiscal year 2009 through 2018, the state did not pay the full annual retirement appropriations necessary to prefund the benefit requirements of members of the retirement system. Over this period, the state's annual retirement appropriations grew primarily because of the failure to fund.

The board always has acted as required by state law and requested annual retirement appropriations payable by the state that would ensure that the state meets the contractual obligations to members.





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 present the actuarially determined annual retirement appropriations payable by the state, which if paid, are the minimum to 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 that began fiscal year 2014 to amortize the unfunded liability. This is calculated by the actuary as the minimum dollar amount for the state to pay each year, and the amount to be provided by the state shall not be less than the prior year's dollar amount until the plan reaches a funded ratio of 100%;
- D. Use a 20-year closed period to amortize 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% within the closed period adopted by the board.

Accelerated Funding Options

In recognition that the state may want to pay off the unfunded liability earlier than the closed amortization period and thereby reduce its costs long-term, the board may provide options for funding over and above the actuarially required minimum. The board will provide the analytical data showing the impact of each of these on the current costs and the potential savings.





2. Retiree Health Insurance Trust

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 contained in HB 540 (2010 RS). The contributions mandated by Shared Responsibility will meet the benefit requirements of the members of the retirement system, consistent with generally accepted actuarial principles.

Projections of longer term funded status assume both the continuation of current revenue sources beyond state or TRS control and that costs remain in line with assumptions. Regulatory, legislative and other changes, which cannot be predicted and could be severe, would alter the actual future experience. Examples include changes in the solvency of Medicare; in the Inflation Reduction Act, Affordable Care Act or other federal legislation; in Medicare Advantage premiums; and in prescription medication subsidies, rebates or discounts.

Based upon technical advice from the board's actuary, the board hereby adopts the following principles concerning the retiree health insurance plan:

- A. Use the Entry Age Normal actuarial cost method;
- B. Use a five-year asset smoothing method;
- C. Use a 30-year closed period that began fiscal year 2011 to amortize the unfunded liability;
- D. Reach a minimum funded ratio of 100% within the closed period adopted by the board; and
- E. For projecting future funded ratios, the same assumptions shall be used including income received from all current sources. Also, a separate schedule in the valuation will address the risk of trust income disruption if income sources beyond the control of the state and TRS – such as prescription medication rebates and subsidies – are eliminated. For that projection, income from sources other than those mandated by Shared Responsibility (from active members, retirees, employers and the state) shall not be used when calculating the funded ratios.





3. Life Insurance Trust

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 30-year closed period that began fiscal year 2014 to amortize the unfunded liability;
- 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% within the closed period adopted by the board.

Adopted December 16, 2013; amended December 9, 2015, September 19, 2016, September 18, 2017, December 18, 2017, September 16, 2019, September 21, 2020; December 18, 2023.

