

Kentucky Teachers' Retirement System

2014



**Actuarial
Section**



Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

December 12, 2014

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

Members of the Board:

Section 161.400 of the law governing the operation of the Teachers' Retirement System of the State of Kentucky provides that the actuary shall make an actuarial valuation of the System. We have submitted the results of the annual actuarial valuation prepared as of June 30, 2014. While not verifying the data at source, the actuary performed tests for consistency and reasonability. The combined member and state contributions for the fiscal year ending June 30, 2017 required to support the benefits of the System are as follows:

| <u>Group</u> | <u>Combined Member and State Contribution Requirement</u> |
|---|---|
| University members hired before July 1, 2008 | 34.97% |
| University members hired on or after July 1, 2008 | 35.97% |
| Non-University members hired before July 1, 2008 | 37.93% |
| Non-University members hired on or after July 1, 2008 | 38.93% |

These rates represent an increase since the previous valuation in the Pension required employer contribution rate of 0.63% of payroll for the fiscal year ending June 30, 2017. In addition, there has been a net decrease in the expected state special appropriation from 2.90% to 2.70%, or 0.20% of payroll and no change in the amount required for life insurance benefits. Therefore, the net impact on the required increase in the total employer contribution rate is 0.83% of payroll.

For the fiscal year ending June 30, 2017, in addition to the State statutory contribution rates and the state special appropriation, there is a required increase in the employer contribution rate of 13.80%; 0.83% from this valuation and 12.97% from the previous valuation.

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

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144

Phone (678) 388-1700 • Fax (678) 388-1730

www.CavMacConsulting.com

Offices in Englewood, CO • Kennesaw, GA • Bellevue, NE • Hilton Head Island, SC



Board of Trustees
December 12, 2014
Page 2

Five-year market related value of plan assets is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded accrued liability that is being amortized by regular annual contributions as a level percentage of payroll within a 30-year period, on the assumption that payroll will increase by 4.0% 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.

The valuation reflects that a portion of the annual required contributions to the fund from 2005 to 2010 were allocated to the Medical Insurance Fund and are being repaid over time. A pension obligation bond was issued August 26, 2010 and was used to repay the balances of a substantial portion of the loans previously made to the Medical Insurance Fund. No additional contributions were allocated during the 2014 fiscal year.

Since the previous valuation, the Board has adopted a funding policy, which is shown in Schedule H of the Report. In addition, the valuation interest smoothing methodology which was utilized in the previous valuation will no longer be used to determine the discount rate. The assumed discount rate will be 7.50%, which was the ultimate investment rate of return in the previous valuation.

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 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 retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

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.

In our opinion, the System is not being funded on an actuarially sound basis since the actuarially required contributions are not being made by the employer. If contributions by the employer to the System continue to be less than those required, the assets are expected to become insufficient to pay promised benefits. Assuming that contributions to the System are made by the employer 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,

Edward A. Macdonald, ASA, FCA, MAAA
President

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



**Report of Actuary on the Valuation
Prepared as of June 30, 2014
Section I - Summary of Principal Results**

1. For convenience of reference, the principal results of the valuation and a comparison with the results of the previous valuation are summarized below (dollar amounts in thousands):

| Valuation Date | June 30, 2014 | June 30, 2013 |
|--|---------------|---------------|
| Number of active members | 73,407 | 74,831 |
| Annual salaries | \$ 3,486,327 | \$ 3,480,066 |
| Number of annuitants and beneficiaries | 48,576 | 47,406 |
| Annual allowances | \$ 1,684,852 | \$ 1,608,659 |
| Assets | | |
| Market value | \$ 18,092,571 | \$ 16,108,808 |
| Actuarial value | \$ 16,174,199 | \$ 14,962,758 |
| Unfunded actuarial accrued liability | \$ 14,010,205 | \$ 13,854,474 |
| Funded Ratio | 53.6 % | 51.9 % |
| Amortization period (years) | 30 | 30 |

Contribution Rates for University Members

| Valuation Date | June 30, 2014 | | June 30, 2013 | |
|-------------------------|----------------------------------|---------------------------------------|----------------------------------|---------------------------------------|
| For Fiscal Year Ending | June 30, 2017 | | June 30, 2016 | |
| | Members hired before 7/1/2008 | Members hired on or after 7/1/2008 | Members hired before 7/1/2008 | Members hired on or after 7/1/2008 |
| Pension Plan: | | | | |
| Normal | 12.270 % | 12.270 % | 12.290 % | 12.290 % |
| Accrued liability | 22.700 | 23.700 | 22.050 | 23.050 |
| Total | 34.970 % | 35.970 % | 34.340 % | 35.340 % |
| Member | 7.625 % | 7.625 % | 7.625 % | 7.625 % |
| State (ARC) | 27.345 | 28.345 | 26.715 | 27.715 |
| Total | 34.970 % | 35.970 % | 34.340 % | 35.340 % |
| Life Insurance Fund: | | | | |
| State | 0.030 % | 0.030 % | 0.030 % | 0.030 % |
| Medical Insurance Fund: | | | | |
| Member | 2.775 % | 2.775 % | 2.775 % | 2.775 % |
| State Match | 2.775 | 1.775 | 2.775 | 1.775 |
| Total | 5.550 % | 4.550 % | 5.550 % | 4.550 % |
| Total Contributions | <u>40.550 %</u> | <u>40.550 %</u> | <u>39.920 %</u> | <u>39.920 %</u> |
| Member Statutory | 10.400 % | 10.400 % | 10.400 % | 10.400 % |
| State Statutory | 13.650 | 13.650 | 13.650 | 13.650 |
| Required Increase | 13.800 | 13.800 | 12.970 | 12.970 |
| State Special | 2.700 | 2.700 | 2.900 | 2.900 |
| Total | 40.550 % | 40.550 % | 39.920 % | 39.920 % |



Contribution Rates for Non-University Members

| Valuation Date For Fiscal Year Ending | June 30, 2014 | | June 30, 2013 | |
|--|----------------------------------|---------------------------------------|----------------------------------|---------------------------------------|
| | June 30, 2017 | | June 30, 2016 | |
| | Members hired before 7/1/2008 | Members hired on or after 7/1/2008 | Members hired before 7/1/2008 | Members hired on or after 7/1/2008 |
| Pension Plan: | | | | |
| Normal | 16.720 % | 16.720 % | 15.810 % | 15.810 % |
| Accrued liability | 21.210 | 22.210 | 21.490 | 22.490 |
| Total | 37.930 % | 38.930 % | 37.300 % | 38.300 % |
| Member | 9.105 % | 9.105 % | 9.105 % | 9.105 % |
| State (ARC) | 28.825 | 29.825 | 28.195 | 29.195 |
| Total | 37.930 % | 38.930 % | 37.300 % | 38.300 % |
| Life Insurance Fund: | | | | |
| State | 0.030 % | 0.030 % | 0.030 % | 0.030 % |
| Medical Insurance Fund: | | | | |
| Member | 3.750 % | 3.750 % | 3.750 % | 3.750 % |
| State Match | 3.750 | 2.750 | 3.750 | 2.750 |
| Total | 7.500 % | 6.500 % | 7.500 % | 6.500 % |
| Total Contributions | 45.460 % | 45.460 % | 44.830 % | 44.830 % |
| Member Statutory | 12.855 % | 12.855 % | 12.855 % | 12.855 % |
| State Statutory | 16.105 | 16.105 | 16.105 | 16.105 |
| Required Increase | 13.800 | 13.800 | 12.970 | 12.970 |
| State Special | 2.700 | 2.700 | 2.900 | 2.900 |
| Total | 45.460 % | 45.460 % | 44.830 % | 44.830 % |

- The valuation includes only the assets and liabilities associated with the pension plan. The valuation of the Medical Insurance Fund and the Active and Retired Life Insurance Benefits will be prepared separately.
- Comments on the valuation results as of June 30, 2014 are given in Section IV and further discussion of the contribution levels is set out in Sections V and VI.
- Schedule B shows the development of the actuarial value of assets. Schedule D of this report outlines the full set of actuarial assumptions and methods employed in the current valuation. Since the previous valuation, the Board has adopted a funding policy, which is shown in Schedule H of the Report. In addition, the valuation interest smoothing methodology which was utilized in the previous valuation will no longer be used to determine the discount rate. The assumed discount rate will be 7.50%, which was the ultimate investment rate of return in the previous valuation.
- 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.



Section II - MEMBERSHIP DATA

- 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, 2014 on the basis of which the valuation was prepared.

| Group | Number | Annual Salaries (\$1,000's) |
|--|----------------------|-----------------------------|
| University Full Time hired before 7/1/2008 | 2,235 | \$ 158,132 |
| University Full Time hired after 7/1/2008 | 1,172 | 57,918 |
| University Part Time hired before 7/1/2008 | 31 | 1,452 |
| University Part Time hired after 7/1/2008 | 66 | 1,667 |
| Non-University Full Time hired before 7/1/2008 | 43,827 | 2,653,054 |
| Non-University Full Time hired after 7/1/2008 | 12,562 | 537,383 |
| Non-University Part Time hired before 7/1/2008 | 6,911 | 51,444 |
| Non-University Part Time hired after 7/1/2008 | 6,603 | 25,277 |
| TOTAL | <u>73,407</u> | <u>\$ 3,486,327</u> |

The table reflects the active membership for whom complete valuation data was submitted. The results of the valuation were adjusted to take account of inactive members and members for whom incomplete data was submitted.

- 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, 2014**

| Group | Number | Annual Retirement Allowances ¹ (\$1,000's) |
|-----------------------------------|----------------------|---|
| Service Retirements | 42,308 | \$ 1,536,273 |
| Disability Retirements | 2,641 | 74,947 |
| Beneficiaries of Deceased Members | 3,627 | 73,632 |
| TOTAL | <u>48,576</u> | <u>\$ 1,684,852</u> |

¹Includes cost-of-living adjustments effective through July 1, 2014.

- 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 2 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, 2014 the market value of Pension Plan assets for valuation purposes held by the System amounted to \$18,092,570,615. This value excludes assets in the Medical Insurance Fund, the 403(b) Program Reserve Fund, and the Life Insurance Fund, which are not included in the assets used for Pension Plan valuation purposes.
2. The five-year market related value of Pension Plan assets used for valuation purposes as of June 30, 2014 was \$16,174,199,191. Schedule B shows the development of the actuarial value of assets as of June 30, 2014.
3. 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.

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 as of June 30, 2014. 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 \$16,977,257,916 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 \$18,389,363,616 of which \$801,066,667 is for special appropriations remaining to be made toward funding minimum annuities, 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 \$286,908,616. The total prospective liabilities of the System amounts to \$35,653,530,148. Against these liabilities, the System has present assets for valuation purposes of \$16,174,199,191. When this amount is deducted from the total liabilities of \$35,653,530,148, there remains \$19,479,330,957 as the present value contributions to be made in the future.
3. The employer's contributions to the System consist of normal contributions and accrued liability contributions. The valuation indicates that employer normal contributions at the rate of 12.27% of payroll for University and 16.72% of payroll for Non-University are required.
4. Prospective normal employer and employee contributions have a present value of \$5,469,126,099. When this amount is subtracted from \$19,479,330,957, which is the present value of the total future contributions to be made by the employer, there remains \$14,010,204,858 as the amount of future unfunded accrued liability contributions.

Section V - CONTRIBUTIONS PAYABLE UNDER THE SYSTEM

1. Section 161.540 of the retirement law provides that each university member contribute 10.400% of annual salary to the System and each non-university member contribute 12.855% of annual salary. Of this amount, for each university member, 2.775% is paid to the Medical Insurance Fund for medical benefits and for each non-university member, 3.75% is paid to the Medical Insurance Fund 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. Section 161.550 provides that the State will match a portion of the member contributions and contribute a supplemental 3.25% of members' salaries towards discharging the System's unfunded obligations. Additional contributions are made to the Medical Insurance Fund as required under 161.550(3).
3. Therefore for university members, 10.875% of the salaries of active members who become members before July 1, 2008 and 11.875% of the salaries of active members who become members on or after July 1, 2008 is funded by statute or supplemental funding for the Pension Plan and Life Insurance Fund. For non-university members, 12.355% of the salaries of active members who become members before July 1, 2008 and 13.355% of the salaries of active members who become members on or after July 1, 2008 is funded by statute or supplemental funding for the Pension Plan and Life Insurance Fund. Of these amounts, 0.03% of payroll will be allocated to the Life Insurance Fund. Based on the results of the valuation, an additional 13.80% of payroll for both university and non-university will be required in order to maintain the amortization of the unfunded liability of the Pension Plan within a 30-year period. An additional special appropriation of 2.70% of total payroll will be made by the



State. Therefore, the total required employer contribution rate to the Pension Plan is 27.345% for university members who become members before July 1, 2008 and 28.345% for university members who become members on or after July 1, 2008. The total required employer contribution rate to the Pension Plan is 28.825% for non-university members who become members before July 1, 2008 and 29.825% for non-university members who become members on or after July 1, 2008. The total member and employer contribution rates to the Pension Plan are shown in the following table.

| Contribution Rates by Source University | | |
|--|----------------------------------|---------------------------------------|
| | Members hired before 7/1/2008 | Members hired on or after 7/1/2008 |
| <u>Member</u> | | |
| Statutory Total | 10.400 % | 10.400 % |
| Statutory Medical Insurance Fund | (2.775) | (2.775) |
| Contribution to Pension Plan | 7.625 % | 7.625 % |
| <u>Employer</u> | | |
| Statutory Matching Total | 10.400 % | 10.400 % |
| Statutory Medical Insurance Fund | (2.775) | (1.775) |
| Supplemental Funding | 3.250 | 3.250 |
| Subtotal | 10.875 % | 11.875 % |
| Life Insurance | (0.030) % | (0.030) % |
| Additional to Maintain 30-Year Amortization | 13.800 | 13.800 |
| Special Appropriation | 2.700 | 2.700 |
| Contribution to Pension Plan | 27.345 % | 28.345 % |
| Total Contribution to Pension Plan | 34.970 % | 35.970 % |

| Contribution Rates by Source Non-University | | |
|--|----------------------------------|---------------------------------------|
| | Members hired before 7/1/2008 | Members hired on or after 7/1/2008 |
| <u>Member</u> | | |
| Statutory Total | 12.855 % | 12.855 % |
| Statutory Medical Insurance Fund | (3.750) | (3.750) |
| Contribution to Pension Plan | 9.105 % | 9.105 % |
| <u>Employer</u> | | |
| Statutory Matching Total | 12.855 % | 12.855 % |
| Statutory Medical Insurance Fund | (3.750) | (2.750) |
| Supplemental Funding | 3.250 | 3.250 |
| Subtotal | 12.355 % | 13.355 % |
| Life Insurance | (0.030) % | (0.030) % |
| Additional to Maintain 30-Year Amortization | 13.800 | 13.800 |
| Special Appropriation | 2.700 | 2.700 |
| Contribution to Pension Plan | 28.825 % | 29.825 % |
| Total Contribution to Pension Plan | 37.930 % | 38.930 % |



4. The valuation indicates that normal contributions at the rate of 12.27% of active university members' salaries and 16.72% of active non-university members' salaries are required. 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 accrued liability rate is 22.70% for university members hired before July 1, 2008, 23.70% for university members hired on and after July 1, 2008, 21.21% for non-university members hired before July 1, 2008, and 22.21% for non-university members hired on and after July 1, 2008. These rates include special appropriations of 2.70% of payroll to be made by the State. These rates are shown in the following table.

| Actuarially Determined Contribution Rates | | | | |
|--|--|------------------------------------|-------------------------------|------------------------------------|
| Rate | Percentage of Active Members' Salaries | | | |
| | UNIVERSITY | | NON-UNIVERSITY | |
| | Members hired before 7/1/2008 | Members hired on or after 7/1/2008 | Members hired before 7/1/2008 | Members hired on or after 7/1/2008 |
| Normal | 12.27 % | 12.27 % | 16.72 % | 16.72 % |
| Accrued Liability * | 22.70 | 23.70 | 21.21 | 22.21 |
| Total | 34.97 % | 35.97 % | 37.93 % | 38.93 % |

** Includes special appropriations of 2.70% of payroll to be made by the State.*

5. Since the previous valuation, the Board adopted a funding policy, shown in Schedule H of this report. This policy states that the unfunded liability determined as of this valuation, known as the "legacy unfunded liability" will be amortized over a closed 30 year period. New sources of unfunded liability each year after June 30, 2014 will be amortized over closed 20 year periods. The unfunded actuarial accrued liability (legacy unfunded liability) amounts to \$14,010,204,858 as of the valuation date. Accrued liability contributions at the rates in the table above are sufficient to amortize the unfunded actuarial accrued liability over a 30-year period, based on the assumption that the payroll will increase by 4.0% annually.

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, the annual 1.5% increases in the allowances of retired members and beneficiaries, and the liabilities for minimum annuities, ad hoc increases and sick leave allowances granted after 1981.
2. The valuation indicates that the present statutory contribution rates, supplemental funding and special appropriations, if continued at the current level percentage, along with an additional required contribution of 13.80%, not currently provided in statute, are sufficient to meet the cost of benefits currently accruing and provide for the amortization of the unfunded actuarial accrued liability over a period of 30 years. However, as existing special contributions expire, the statutory contributions or supplemental funding will be required to increase as an equal percentage of payroll, in order to amortize the unfunded liability within a period of 30 years.



3. During the 2005 through 2010 fiscal years, a portion of the contributions required for the pension fund were allocated as loans to the Medical Insurance Fund for Stabilization Funding. Beginning with the 2009 fiscal year, contributions have also been allocated as loans for non-single subsidy funding. Payments are being made to repay these loans. In August 2010, a pension obligation bond was issued with proceeds used to fully repay the loans for the Stabilization Funding. Beginning with the 2011 fiscal year, there have been no further loans for Stabilization Funding. In addition, there were no loans for single-subsidy funding for fiscal years 2013 or 2014. The table on the following page shows the amounts borrowed, annual payments and remaining balances for the non-single subsidy funding as of June 30, 2014:

| Medical Insurance Fund Stabilization Funding | | | |
|---|----------------------|---------------------|--------------------------------|
| FISCAL YEAR | LOAN AMOUNT | ANNUAL PAYMENT | BALANCE AS OF JUNE 30, 2014 |
| 2008/2009 | \$ 8,400,000 | \$ 1,228,900 | \$ 5,084,887 |
| 2009/2010 | 9,200,000 | 1,345,200 | 6,451,844 |
| 2010/2011 | 10,700,000 | 1,564,500 | 8,460,286 |
| 2011/2012 | <u>12,300,000</u> | <u>1,798,700</u> | <u>10,747,650</u> |
| TOTAL | \$ 40,600,000 | \$ 5,937,300 | \$ 30,744,667 |

4. There are no excess assets or contributions available to provide additional benefits, and there is a cumulative increase in the required employer contribution of 13.80% of payroll for the fiscal year ending June 30, 2017, as shown in the following table:

| VALUATION DATE | FISCAL YEAR | INCREASE | CUMULATIVE INCREASE | AMOUNT |
|-------------------|----------------|----------|------------------------|--------------|
| June 30, 2004 | June 30, 2007 | 0.11% | 0.11% | \$ 3,174,600 |
| June 30, 2005 | June 30, 2008 | 1.21 | 1.32 | 38,965,900 |
| June 30, 2006 | June 30, 2009 | 0.56 | 1.88 | 60,499,800 |
| June 30, 2007 | June 30, 2010 | 0.58 | 2.46 | 82,331,200 |
| June 30, 2008 | June 30, 2011 | 1.13 | 3.59 | 121,457,000 |
| June 30, 2009 | June 30, 2012 | 2.22 | 5.81 | 208,649,000 |
| June 30, 2010 | June 30, 2013 | 1.46 | 7.27 | 260,980,000 |
| June 30, 2011 | June 30, 2014 | 0.75 | 8.02 | 299,420,000 |
| June 30, 2012 | June 30, 2015 | 2.40 | 10.42 | 386,400,000 |
| June 30, 2013 | June 30, 2016 | 2.55 | 12.97 | 487,400,000 |
| June 30, 2014 | June 30, 2017 | 0.83 | 13.80 | 520,372,000 |



In addition, as existing special contributions expire, the statutory contributions or supplemental funding will be required to increase as an equal percentage of payroll, in order to amortize the legacy unfunded liability within 30 years. Any further benefit improvements 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 \$155,730,786 in the unfunded accrued liability from \$13,854,474,072 to \$14,010,204,858 during the year ending June 30, 2014.

| Analysis of Financial Experience <i>(Dollar amounts in thousands)</i> | |
|--|-----------------------------------|
| ITEM | AMOUNT OF INCREASE/ (DECREASE) |
| Interest (7.68%) added to previous unfunded accrued liability | \$ 1,064,024 |
| Expected accrued liability contribution | (332,765) |
| Contributions allocated to the Medical Insurance Fund (MIF) for Stabilization Funding during 2013/2014 fiscal year with interest | 0 |
| Repayment of prior year's MIF Stabilization Funding with interest | (6,165) |
| Experience: | |
| Valuation asset growth | (913,255) |
| Pensioners' mortality | 42,234 |
| Turnover and retirements | (177,990) |
| New entrants | 49,210 |
| Salary increases | (190,240) |
| Amendments | 0 |
| Assumption changes* | 620,678 |
| Method changes | <u>0</u> |
| Total | \$ 155,731 |

* Change from interest smoothing methodology to 7.50% annual assumed rate of return.



Section VIII - ACCOUNTING INFORMATION

1. Governmental Accounting Standards Board (GASB) has issued Statement No. 67 which replaces Statement 25 for plan years beginning after June 15, 2013. The information required under GASB 67 was issued in a separate report. The following information is provided for informational purposes and for disclosure in the financial statements of the employer under GASB 27. The following is a distribution of the number of employees by type of membership.

| GROUP | NUMBER |
|---|---------------|
| Retirees and beneficiaries currently receiving benefits | 48,576 |
| Terminated vested employees entitled to benefits but not yet receiving benefits | 7,762 |
| Inactive non-vested members | 27,689 |
| Active plan members | <u>73,407</u> |
| Total | 157,434 |

2. The schedule of funding progress is shown below.

| Actuarial Valuation Date | Actuarial Value of Assets (a) | Actuarial Accrued Liability (AAL)* (b) | Unfunded AAL (UAAL) (b-a) | Funded Ratio (a/b) | Covered Payroll (c) | UAAL as a Percentage of Covered Payroll ((b-a) / c) |
|--------------------------|-------------------------------|--|---------------------------|--------------------|---------------------|---|
| 6/30/2009 | \$ 14,885,981 | \$ 23,400,426 | \$ 8,514,445 | 63.6% | \$ 3,253,077 | 261.7% |
| 6/30/2010 | 14,851,330 | 24,344,316 | 9,492,986 | 61.0 | 3,321,614 | 285.8 |
| 6/30/2011** | 14,908,138 | 25,968,692 | 11,060,554 | 57.4 | 3,451,756 | 320.4 |
| 6/30/2012 | 14,691,371 | 26,973,854 | 12,282,483 | 54.5 | 3,479,567 | 353.0 |
| 6/30/2013 | 14,962,758 | 28,817,232 | 13,854,474 | 51.9 | 3,480,066 | 398.1 |
| 6/30/2014*** | 16,174,199 | 30,184,404 | 14,010,205 | 53.6 | 3,486,327 | 401.9 |

* Funding method Projected Unit Credit prior to 6/30/2011
Funding method Entry Age Normal 6/30/2011 and after.
** Reflects change in assumptions and methods.
*** Reflects change in assumption.



3. The information presented above was determined as part of the actuarial valuation at June 30, 2014. Additional information as of the latest actuarial valuation follows.

| | | |
|-------------------------------|------------------------------|---|
| Valuation date | 06/30/2014 | Actuarial Assumptions: <u>Investment rate of return*</u> 7.50% <u>Projected salary increases**</u> 4.00 - 8.20% <u>Cost-of-living adjustments</u> 1.50% Annually *Includes price inflation at 3.50% **Includes wage inflation at 4.00% |
| Actuarial cost method | Entry age | |
| Amortization method | Level percent of pay, closed | |
| Remaining amortization period | 30 years | |
| Asset valuation method | 5-year smoothed market | |

Schedule of Employer Contributions

| Fiscal Year Ended June 30 | Annual Required Contributions | Actual Employer Contributions | Percentage Contributed | |
|--------------------------------------|--|--|-----------------------------------|--------------------|
| 2009 | \$ 600,282,735 | \$ 442,549,935 | 74 % | |
| 2010 | 633,938,088 | 479,805,088 | 76 | |
| 2011 | 678,741,428 | 1,037,935,993* | 153 | * Includes Pension |
| 2012 | 757,822,190 | 557,339,552 | 74 | Obligation Bond |
| 2013 | 802,984,644 | 568,233,446 | 71 | proceeds of |
| 2014 | 823,446,156 | 563,326,249 | 68 | \$465,384,165. |

4. Following is the calculation of the annual pension cost and net pension obligation for the fiscal year ending June 30, 2014. Since KTRS is a cost sharing multi employer pension plan, GASB Statement 27 does not require the participating employers to disclose this information.

Annual Pension Cost and Net Obligation for Fiscal Year Ending June 30, 2014

| | | |
|-----|---|--------------------|
| (a) | Employer annual required contribution | \$ 823,446,156 |
| (b) | Interest on net pension obligation | 52,412,161 |
| (c) | <u>Adjustment to annual required contribution</u> | <u>38,367,910</u> |
| (d) | Annual pension cost: (a) + (b) - (c) | \$ 837,490,407 |
| (e) | <u>Employer contributions made for fiscal year ending June 30, 2014</u> | <u>563,326,249</u> |
| (f) | Increase (decrease) in net pension obligation: (d) - (e) | \$ 274,164,158 |
| (g) | <u>Net pension obligation beginning of fiscal year</u> | <u>682,450,008</u> |
| (h) | Net pension obligation end of fiscal year: (f) + (g) | \$ 956,614,166 |

**Trend Information**

| YEAR ENDING | ANNUAL PENSION COST (APC) | PERCENTAGE OF APC CONTRIBUTED | NET PENSION OBLIGATION (NPO) |
|------------------------|--------------------------------------|--|---|
| June 30, 2012 | \$ 763,914,684 | 73% | \$ 436,123,560 |
| June 30, 2013 | 814,559,894 | 70 | 682,450,008 |
| June 30, 2014 | 837,490,407 | 67 | 956,614,166 |

SCHEDULE A

**VALUATION BALANCE SHEET
SHOWING THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES
AS OF JUNE 30, 2014
(Dollar amount in thousands)**

ACTUARIAL LIABILITIES

| | | |
|-----|--|-----------------------------|
| (1) | Present value of prospective benefits payable on account of present active members | |
| | - Service retirement benefits | \$ 15,860,700 |
| | - Disability retirement benefits | 744,709 |
| | - Death and survivor benefits | 138,806 |
| | - Refunds of member contributions | 233,043 |
| | <u>Total</u> | <u>\$ 16,977,258</u> |
| (2) | Present value of prospective benefits payable on account of present retired members, beneficiaries of deceased members, and members entitled to deferred vested benefits | |
| | - Service retirement benefits | \$ 17,017,825 |
| | - Disability retirement benefits | 716,654 |
| | - Death and survivor benefits | 654,885 |
| | <u>Total</u> | <u>\$ 18,389,364</u> |
| (3) | Present value of prospective benefits payable on account of inactive members and members entitled to deferred vested benefits | \$ 286,908 |
| (4) | TOTAL ACTUARIAL LIABILITIES | <u><u>\$ 35,653,530</u></u> |

PRESENT AND PROSPECTIVE ASSETS

| | | |
|-----|--|-----------------------------|
| (5) | Actuarial value of assets | \$ 16,174,199 |
| (6) | Present value of total future contributions = (4)-(5) | 19,479,331 |
| (7) | Present value of future member contributions and employer normal contributions | 5,469,126 |
| (8) | Prospective unfunded accrued liability contributions = (6)-(7) | 14,010,205 |
| (9) | TOTAL PRESENT AND PROSPECTIVE ASSETS | <u><u>\$ 35,653,530</u></u> |



Schedule A continued ...

| Solvency Test | | | | | | | |
|-------------------------------------|-----------------------------|-----------------------------|--|---------------------|--|------|-----|
| <i>(dollar amounts in millions)</i> | | | | | | | |
| Valuation Date | (1) | (2) | (3) | Valuation of Assets | Portion of Accrued Liabilities Covered by Assets | | |
| | Active Member Contributions | Retirants And Beneficiaries | Active Members (Employer Financed Portion) | | (1) | (2) | (3) |
| 6/30/2009 | \$ 3,042.3 | \$ 14,309.9 | \$ 6,048.2 | \$ 14,886.0 | 100% | 83 % | 0% |
| 6/30/2010 | 3,196.3 | 15,010.4 | 6,137.6 | 14,851.3 | 100 | 78 | 0 |
| 6/30/2011 | 3,325.7 | 15,557.9 | 7,085.1 | 14,908.1 | 100 | 74 | 0 |
| 6/30/2012 | 3,415.2 | 16,472.2 | 7,086.4 | 14,691.4 | 100 | 68 | 0 |
| 6/30/2013 | 3,514.4 | 17,716.4 | 7,586.4 | 14,962.8 | 100 | 65 | 0 |
| 6/30/2014 | 3,629.7 | 18,676.3 | 7,878.4 | 16,174.2 | 100 | 67 | 0 |

SCHEDULE B

| Development of Actuarial Value of Assets as of June 30, 2014 | | |
|---|---|-------------------------|
| (1) | Actuarial Value of Assets Beginning of Year | \$ 14,962,758,316 |
| (2) | Market Value of Assets End of Year | 18,092,570,615 |
| (3) | Market Value of Assets Beginning of Year | 16,108,808,305 |
| (4) | Cash Flow | |
| a. | Contributions | 868,307,869 |
| b. | Benefit Payments | 1,679,837,543 |
| c. | Administrative Expense | 7,955,972 |
| d. | Net: (4)a - (4)b - (4)c | (819,485,646) |
| (5) | Investment Income | |
| a. | Market total: (2) - (3) - (4)d | 2,803,247,956 |
| b. | Assumed Rate | 7.50% |
| c. | Amount for Immediate Recognition: [(3) x (5)b] + [(4)d x (5)b x 0.5] | 1,177,429,911 |
| d. | Amount for Phased-In Recognition: (5)a - (5)c | 1,625,818,045 |
| (6) | Phased-In Recognition of Investment Income | |
| a. | Current Year: 0.20 x (5)d | 325,163,609 |
| b. | First Prior Year | 191,479,441 |
| c. | Second Prior Year | (160,195,981) |
| d. | Third Prior Year | 363,670,625 |
| e. | Fourth Prior Year | 133,378,916 |
| f. | Total Recognized Investment Gain | 853,496,610 |
| (7) | Actuarial Value of Assets End of Year: (1) + (4)d + (5)c + (6)f | 16,174,199,191 |
| (8) | Difference Between Market & Actuarial Values: (2) - (7) | <u>\$ 1,918,371,424</u> |
| (9) | Rate of Return on Actuarial Value: | 13.96% |



SCHEDULE C

PENSION PLAN ASSETS
Summary of Receipts & Disbursements*
(Market Value)

| Receipts for the Year | For the Year Ending | |
|---|--------------------------|--------------------------|
| | June 30, 2014 | June 30, 2013 |
| Contributions | | |
| Members | \$ 304,981,620 | \$ 304,738,728 |
| Employers | 563,326,249 | 568,233,446 |
| Total | 868,307,869 | 872,972,174 |
| Net Investment Income | 2,803,247,956 | 2,039,874,263 |
| Total | 3,671,555,825 | 2,912,846,437 |
| Disbursements for the Year | | |
| Benefit Payments | 1,654,375,700 | 1,570,722,924 |
| Refunds to Members | 25,461,843 | 22,059,094 |
| Miscellaneous, including expenses | 7,955,972 | 8,377,003 |
| Total | 1,687,793,515 | 1,601,159,021 |
| Excess of Receipts over Disbursements | 1,983,762,310 | 1,311,687,416 |
| Reconciliation of Asset Balances | | |
| Asset Balance as of the Beginning of the Year | 16,108,808,305 | 14,797,120,889 |
| Excess of Receipts over Disbursements | 1,983,762,310 | 1,311,687,416 |
| Asset Balances as of the End of the Year | <u>\$ 18,092,570,615</u> | <u>\$ 16,108,808,305</u> |
| Rate of Return | 18.1% | 14.1% |

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



SCHEDULE D
Outline of Actuarial Assumptions and Methods

The assumptions and methods used in the valuation were selected based on the actuarial experience study prepared as of June 30, 2010, submitted to and adopted by the Board on September 19, 2011.

ULTIMATE INVESTMENT RATE OF RETURN: 7.5% per annum, compounded annually.

SALARY INCREASES: Representative values of the assumed annual rates of future salary increases are as follows and include inflation at 3.50% per annum:

| Age | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Annual Rate | 8.10% | 7.20% | 6.20% | 5.50% | 5.00% | 4.60% | 4.50% | 4.30% | 4.20% | 4.00% |

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

| MALES: Annual Rate of ... | | | | | | | |
|---------------------------|--------|------------|------------------|-------|-------|-------------------------------|-------------------------------|
| AGE | DEATH | DISABILITY | WITHDRAWAL | | | RETIREMENT | |
| | | | SERVICE 0 - 4 | 5 - 9 | 10+ | Before 27 Years of Service | After 27 Years of Service* |
| 20 | 0.012% | 0.01% | 9.00% | | | | |
| 25 | 0.015 | 0.01 | 9.00 | 3.00% | | | |
| 30 | 0.020 | 0.02 | 9.00 | 3.00 | 3.00% | | |
| 35 | 0.035 | 0.05 | 10.00 | 3.25 | 1.75 | | |
| 40 | 0.046 | 0.09 | 10.00 | 4.00 | 1.40 | | |
| 45 | 0.058 | 0.18 | 11.00 | 4.00 | 1.50 | | 17.0% |
| 50 | 0.074 | 0.33 | 9.00 | 4.00 | 2.00 | | 17.0 |
| 55 | 0.124 | 0.55 | 12.00 | 3.50 | 2.50 | 5.5% | 35.0 |
| 60 | 0.244 | 0.70 | 12.00 | 3.50 | 2.50 | 13.0 | 24.0 |
| 62 | 0.324 | 0.70 | 12.00 | 3.50 | 2.50 | 15.0 | 25.0 |
| 65 | 0.480 | 0.70 | 12.00 | 3.50 | 2.50 | 21.0 | 26.0 |
| 70 | 0.821 | 0.70 | 0.00 | 0.00 | 0.00 | 100.0 | 100.0 |

*Plus 10% in year when first eligible for unreduced retirement with 27 years of service.



Schedule D continued ...

FEMALES: Annual Rate of ...

| AGE | DEATH | DISABILITY | WITHDRAWAL | | | RETIREMENT | |
|-----|--------|------------|------------|------------------|-------|-------------------------------|-------------------------------|
| | | | 0 - 4 | SERVICE 5 - 9 | 10+ | Before 27 Years of Service | After 27 Years of Service* |
| 20 | 0.007% | 0.01% | 7.00% | | | | |
| 25 | 0.008 | 0.02 | 8.50 | 4.00% | | | |
| 30 | 0.010 | 0.04 | 9.00 | 4.00 | 1.65% | | |
| 35 | 0.017 | 0.08 | 9.00 | 3.75 | 1.85 | | |
| 40 | 0.024 | 0.14 | 8.50 | 3.25 | 1.50 | | |
| 45 | 0.037 | 0.32 | 7.50 | 3.25 | 1.25 | | 15.0% |
| 50 | 0.055 | 0.42 | 9.50 | 3.50 | 1.75 | | 15.0 |
| 55 | 0.103 | 0.56 | 11.00 | 4.00 | 2.00 | 6.0% | 35.0 |
| 60 | 0.201 | 0.85 | 11.00 | 4.00 | 2.00 | 14.0 | 30.0 |
| 62 | 0.263 | 0.85 | 11.00 | 4.00 | 2.00 | 12.0 | 25.0 |
| 65 | 0.390 | 0.85 | 11.00 | 4.00 | 2.00 | 22.0 | 30.0 |
| 70 | 0.672 | 0.85 | 0.00 | 0.00 | 0.00 | 100.0 | 100.0 |

*Plus 10% in year when first eligible for unreduced retirement with 27 years of service.

DEATHS AFTER RETIREMENT: The RP-2000 Combined Mortality Table projected to 2020 using scale AA (set back one year for females) is used for death after service retirement and beneficiaries. The RP-2000 Disabled Mortality Table (set back seven years for males and set forward five years for females) is used for death after disability retirement. Mortality improvement is anticipated under these assumptions as recent mortality experience shows actual deaths are approximately 4% greater for healthy lives and 5% greater for disabled lives than expected under the selected tables. Representative values of the assumed annual rates of death after service retirement and after disability retirement are shown below.

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 7.50%. The amount recognized each year is 20% of the difference between market value and expected actuarial value.

EXPENSE LOAD: None.

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

LOADS: Unused sick leave: 2% of active liability.

| AGE | Annual Rate of Death After ... | | | |
|-----|--------------------------------|---------|-----------------------|---------|
| | SERVICE RETIREMENT | | DISABILITY RETIREMENT | |
| | MALE | FEMALE | MALE | FEMALE |
| 45 | 0.1161% | 0.0745% | 2.2571% | 1.1535% |
| 50 | 0.1487 | 0.1100 | 2.2571 | 1.6544 |
| 55 | 0.2469 | 0.2064 | 2.6404 | 2.1839 |
| 60 | 0.4887 | 0.4017 | 3.2859 | 2.8026 |
| 65 | 0.9607 | 0.7797 | 3.9334 | 3.7635 |
| 70 | 1.6413 | 1.3443 | 4.6584 | 5.2230 |
| 75 | 2.8538 | 2.1680 | 5.6909 | 7.2312 |
| 80 | 5.2647 | 3.6066 | 7.3292 | 10.0203 |
| 85 | 9.6240 | 6.1634 | 9.7640 | 14.0049 |
| 90 | 16.9280 | 11.2205 | 12.8343 | 19.4509 |
| 95 | 25.6992 | 17.5624 | 16.2186 | 23.7467 |



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 (currently at 7.50%), of each active member's expected benefit at retirement or death is determined, based on his 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 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 accrued liability contribution.
3. The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new member during the entire period of his anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his behalf.
4. The unfunded accrued liability is determined by subtracting the present value of prospective employer normal contributions and member contributions, together with the current actuarial value of assets held, from the present value of expected benefits to be paid from the System.

SCHEDULE F

Summary of Main System Provisions as Interpreted for Valuation Purposes

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, 2014. 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 for Members Before 7/1/2008

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:
 - (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.



Schedule F continued ...

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.

Service Retirement Allowance for Members on and after 7/1/2008

Condition for Allowance

- 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.

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.

Disability Retirement Allowance

Condition for Allowance

- Totally and permanently incapable of being employed as a teacher and under age 60 but after completing 5 years of service.

Amount of Allowance

- The disability allowance is equal to the greater of the service retirement allowance or 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 fund has been created as of June 30, 2000 to pay benefits on behalf of deceased KTRS active and retired members.

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.



Schedule F continued ...

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

| Number of Children | Annual Allowance |
|--------------------|------------------|
| 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 contribute 7.625% of salary to the Retirement System. Non-university members contribute 9.105% of salary to the Retirement System. Member contributions are picked up by the employer.



SCHEDULE G
Table 1: Age - Service Table
Distribution of Active Members as of June 30, 2014
by Age and Service Groups

| Attained Age | 0 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | >= 35 | TOTAL |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|------------|---------------|
| 24 & under | 1,204 | | | | | | | | 1,204 |
| Total Pay | 30,306,197 | | | | | | | | 30,306,197 |
| Avg. Pay | 25,171 | | | | | | | | 25,171 |
| 25 to 29 | 5,580 | 1,434 | | | | | | | 7,014 |
| Total Pay | 193,970,612 | 67,358,025 | | | | | | | 261,328,637 |
| Avg. Pay | 34,762 | 46,972 | | | | | | | 37,258 |
| 30 to 34 | 2,781 | 5,186 | 1,217 | | | | | | 9,184 |
| Total Pay | 92,513,906 | 256,970,385 | 66,796,986 | | | | | | 416,281,277 |
| Avg. Pay | 33,266 | 49,551 | 54,887 | | | | | | 45,327 |
| 35 to 39 | 1,898 | 2,496 | 4,429 | 863 | 1 | | | | 9,687 |
| Total Pay | 56,555,071 | 124,293,536 | 256,631,937 | 54,675,650 | 53,340 | | | | 492,209,534 |
| Avg. Pay | 29,797 | 49,797 | 57,944 | 63,355 | 53,340 | | | | 50,811 |
| 40 to 44 | 5,052 | 1,716 | 2,366 | 4,050 | 747 | 16 | | | 13,947 |
| Total Pay | 80,379,772 | 83,794,962 | 135,195,300 | 259,149,673 | 49,078,966 | 163,529 | | | 607,762,202 |
| Avg. Pay | 15,910 | 48,832 | 57,141 | 63,988 | 65,701 | 10,221 | | | 43,577 |
| 45 to 49 | 1,458 | 1,205 | 1,432 | 1,995 | 2,861 | 691 | 7 | | 9,649 |
| Total Pay | 33,919,137 | 60,198,868 | 82,097,312 | 126,497,133 | 194,503,113 | 48,070,745 | 176,601 | | 545,462,909 |
| Avg. Pay | 23,264 | 49,958 | 57,331 | 63,407 | 67,984 | 69,567 | 25,229 | | 56,531 |
| 50 to 54 | 1,071 | 794 | 1,103 | 1,293 | 1,454 | 1,789 | 327 | 3 | 7,834 |
| Total Pay | 23,600,498 | 40,049,425 | 63,071,897 | 81,900,405 | 99,886,590 | 128,070,681 | 23,619,195 | 138,015 | 460,336,706 |
| Avg. Pay | 22,036 | 50,440 | 57,182 | 63,341 | 68,698 | 71,588 | 72,230 | 46,005 | 58,761 |
| 55 to 59 | 1,476 | 467 | 746 | 1,030 | 1,109 | 919 | 451 | 66 | 6,264 |
| Total Pay | 23,836,597 | 22,197,101 | 43,680,065 | 66,568,849 | 75,368,014 | 69,124,953 | 36,616,202 | 4,867,334 | 342,259,115 |
| Avg. Pay | 16,149 | 47,531 | 58,552 | 64,630 | 67,960 | 75,218 | 81,189 | 73,747 | 54,639 |
| 60 to 64 | 1,996 | 463 | 446 | 655 | 626 | 534 | 138 | 116 | 4,974 |
| Total Pay | 26,390,926 | 18,546,024 | 26,950,845 | 42,661,444 | 45,836,673 | 41,747,171 | 10,565,625 | 10,334,994 | 223,033,702 |
| Avg. Pay | 13,222 | 40,056 | 60,428 | 65,132 | 73,222 | 78,178 | 76,563 | 89,095 | 44,840 |
| 65 & over | 2,062 | 532 | 213 | 254 | 220 | 203 | 69 | 97 | 3,650 |
| Total Pay | 18,463,630 | 14,329,380 | 11,856,787 | 16,552,947 | 16,366,985 | 15,093,672 | 6,003,364 | 8,679,755 | 107,346,520 |
| Avg. Pay | 8,954 | 26,935 | 55,666 | 65,169 | 74,395 | 74,353 | 87,005 | 89,482 | 29,410 |
| Total | 24,578 | 14,293 | 11,952 | 10,140 | 7,018 | 4,152 | 992 | 282 | 73,407 |
| Total Pay | 579,936,346 | 687,737,706 | 686,281,129 | 648,006,101 | 481,093,681 | 302,270,751 | 76,980,987 | 24,020,098 | 3,486,326,799 |
| Avg. Pay | 23,596 | 48,117 | 57,420 | 63,906 | 68,551 | 72,801 | 77,602 | 85,178 | 47,493 |

Average Age: 44.1

Average Service: 10.7



Schedule G continued ...

Table 2: Number of Retired Members and Beneficiaries and their Benefits by Age as of June 30, 2014

| Attained Age | Number of Members | Total Annual Benefits | Average Annual Benefits |
|---------------------|-------------------|-----------------------------------|-------------------------|
| 49 & Under | 829 | \$ 10,522,724 | \$ 12,693 |
| 50 - 54 | 1,217 | 44,794,025 | 36,807 |
| 55 - 59 | 4,222 | 173,283,069 | 41,043 |
| 60 - 64 | 10,080 | 391,957,441 | 38,885 |
| 65 - 69 | 12,149 | 441,374,364 | 36,330 |
| 70 - 74 | 8,076 | 279,210,994 | 34,573 |
| 75 - 79 | 5,073 | 162,581,658 | 32,048 |
| 80 - 84 | 3,409 | 97,645,359 | 28,643 |
| 85 - 89 | 2,174 | 55,087,542 | 25,339 |
| 90 & Over | 1,347 | 28,394,502 | 21,080 |
| TOTAL | 48,576 | \$ 1,684,851,678 | \$ 34,685 |
| Average Age: | 68.7 | Average Age at Retirement: | 55.7 |

Table 3: Schedule of Retirants, Beneficiaries and Survivors Added to and Removed from Rolls

| Fiscal Year | ADD TO ROLLS | | REMOVED FROM ROLLS | | ROLLS END OF YEAR | | Increase In Annual Allowances | Average Annual Allowance |
|-------------|--------------|------------------------------|--------------------|------------------------------|-------------------|------------------------------|-------------------------------|--------------------------|
| | Number | Annual Allowances (Millions) | Number | Annual Allowances (Millions) | Number | Annual Allowances (Millions) | | |
| 2005 | 2,644 | \$ 105.1 | 1,036 | \$ 18.9 | 37,346 | \$ 973.1 | 9.7% | \$ 26,058 |
| 2006 | 2,266 | 121.1 | 1,115 | 20.0 | 38,497 | 1,074.2 | 10.4 | 27,902 |
| 2007 | 2,050 | 82.1 | 1,041 | 20.7 | 39,506 | 1,135.6 | 5.7 | 28,746 |
| 2008 | 2,183 | 90.6 | 950 | 19.4 | 40,739 | 1,206.8 | 6.3 | 29,623 |
| 2009 | 2,351 | 96.2 | 1,040 | 22.7 | 42,050 | 1,280.3 | 6.1 | 30,447 |
| 2010 | 2,105 | 93.7 | 1,021 | 21.8 | 43,134 | 1,352.2 | 5.6 | 31,348 |
| 2011 | 2,133 | 98.9 | 848 | 17.7 | 44,419 | 1,433.4 | 6.0 | 32,270 |
| 2012 | 2,513 | 111.2 | 838 | 19.4 | 46,094 | 1,525.2 | 6.4 | 33,089 |
| 2013 | 2,303 | 105.7 | 991 | 22.2 | 47,406 | 1,608.7 | 5.5 | 33,934 |
| 2014 | 2,146 | 99.6 | 976 | 23.4 | 48,576 | 1,684.9 | 4.7 | 34,685 |



Schedule H

Board Funding Policy

Introduction

Pursuant to the provisions of KRS 161.250, the Board of Trustees ("Board") of the Kentucky Teachers' Retirement Systems ("KTRS") 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 ("state law") shall control if any inconsistency exists between state law and this policy.

Background

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

Since fiscal year 2008, the state has not paid the recommended annual retirement appropriations necessary to pre-fund the benefit requirements of members of the retirement system as determined by the actuary. Over this period of time, because of the failure to fund, the state's annual retirement appropriations have grown significantly from \$60.5 million (Fiscal Year 2009) to \$487 million (Fiscal Year 2016). The following schedule details the growth of the annual retirement appropriations payable by the state:

| | Cumulative Increase as a % of Payroll | Cumulative Increase of Annual Retirement Appropriations Payable by the State |
|------|---------------------------------------|--|
| 2009 | 1.88 | \$ 60,499,800 |
| 2010 | 2.46 | 82,331,200 |
| 2011 | 3.59 | 121,457,000 |
| 2012 | 5.81 | 208,649,000 |
| 2013 | 7.27 | 260,980,000 |
| 2014 | 8.02 | 299,420,000 |
| 2015 | 10.42 | 386,400,000 |
| 2016 | 12.97 | 487,400,000 |

(Source: KTRS Report of the Actuary on the Annual Valuation Prepared as of June 30, 2013).

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

1. 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.)



Section H: Board Funding Policy continued ...

2. Calculation of Annual Retirement Appropriations Payable by the State: The Board will recommend annual retirement appropriations payable by the state, which-if paid-will meet the benefit requirements of the members of the retirement system consistent with generally accepted actuarial principles. Based upon technical advice from the Board's actuary, the Board hereby adopts the following principles for calculating the recommended annual retirement appropriations payable by the state:
- Use the Entry Age Normal actuarial cost method;
 - Use a five-year asset smoothing method;
 - Use a thirty-year closed period to amortize legacy unfunded liability ("legacy unfunded liability" is that unfunded liability recognized as of the valuation prepared for June 30, 2014);
 - Use a twenty-year closed period to amortize new sources of unfunded liability ("new sources of unfunded liability" is that 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
 - Reach a 100 percent minimum funded ratio within the thirty-year closed amortization period.

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

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

This page was intentionally left blank.