



**Teachers' Retirement System
of the State of Kentucky
Report of the Actuary on the
Annual Valuation**

Prepared as of June 30, 2010

December 10, 2010

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, 2010. 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, 2013 required to support the benefits of the System are 29.41% of payroll for university members hired before July 1, 2008, 30.41% of payroll for university members hired on and after July 1, 2008, 32.37% of payroll for non-university members hired before July 1, 2008, and 33.37% of payroll for non-university members hired on and after July 1, 2008.

These rates represent an increase since the previous valuation in the required employer contribution rate of 1.27% of payroll for the 2012/2013 fiscal year. There has been a net decrease in the expected state special appropriation from 3.88% to 3.69%, or -0.19% of payroll. Therefore, for the 2012/2013 fiscal year, in addition to the State statutory contribution rates and the state special appropriation, there is a required increase in the employer contribution rate of 7.27%; 1.46% from this valuation and 5.81% from the previous valuation. In order to maintain the actuarial soundness of the retirement system, the entire required contributions will need to be made without any being used as a Stabilization Contribution for the Medical Insurance Fund.

The valuation takes into account the effect of amendments to the System enacted through the most recent Session of the Legislature.

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 unit credit actuarial cost method with projected benefits.

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 in the aggregate reasonably related to the experience under the System and to reasonable expectations of anticipated experience under the System and meet the parameters for the disclosures under GASB 25 and 27.

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 have been allocated to the Medical Insurance Fund and are being repaid over time.

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, since a portion of the annual contributions required to fund the pension benefits have been allocated to the Medical Insurance Fund by the employer, the retirement fund is not funded by the employer on an actuarially sound basis. 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 retirement fund 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 Senior Actuary

EAM/EJK:kc

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**TEACHERS' RETIREMENT SYSTEM
OF THE STATE OF KENTUCKY
REPORT OF ACTUARY ON THE VALUATION
PREPARED AS OF JUNE 30, 2010**

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 (all dollar amounts are \$1,000's):

Valuation Date	June 30, 2010	June 30, 2009
Number of active members	76,387	75,937
Annual salaries	\$ 3,321,614	\$ 3,253,077
Number of annuitants and beneficiaries	43,134	42,050
Annual allowances	\$ 1,352,158	\$ 1,280,316
Assets:		
Market value	\$ 12,456,619	\$ 11,515,884
Actuarial value	\$ 14,851,330	\$ 14,885,981
Unfunded actuarial accrued liability	\$ 9,492,986	\$ 8,514,445
Funded Ratio	61.0%	63.6%
Amortization Period (years)	30	30

Contribution rates are shown separately for university and non-university members on the following pages.

CONTRIBUTION RATES FOR UNIVERSITY MEMBERS

Valuation Date	June 30, 2010		June 30, 2009	
For fiscal year ending:	June 30, 2013		June 30, 2012	
	Members hired before 7/1/2008	Members on and after 7/1/2008	Members hired before 7/1/2008	Members on and after 7/1/2008
Pension Plan:				
Normal	13.31%	13.31%	13.41%	13.41%
Accrued liability	16.10	17.10	14.73	15.73
Total	<u>29.41%</u>	<u>30.41%</u>	<u>28.14%</u>	<u>29.14%</u>
Member	7.625%	7.625%	7.625%	7.625%
State (ARC)	21.785	22.785	20.515	21.515
Total	29.41%	30.41%	28.14%	29.14%
Life Insurance Fund:				
State *	0.05%	0.05%	0.05%	0.05%
Medical Insurance Fund:				
Member	1.43%	1.75%	0.75%	1.75%
State Match	1.43	0.75	0.75	0.75
State Additional	0.00	0.00	0.00	0.00
Total	<u>2.86%</u>	<u>2.50%</u>	<u>1.50%</u>	<u>2.50%</u>
Total Contributions	<u>32.32%</u>	<u>32.96%</u>	<u>29.69%</u>	<u>31.69%</u>
Member Statutory	9.055%	9.375%	8.375%	9.375%
State Statutory	12.305	12.625	11.625	12.625
Required Increase *	7.27	7.27	5.81	5.81
State Special	3.69	3.69	3.88	3.88
Total	32.32%	32.96%	29.69%	31.69%

* The 2009 Valuation Results were revised from last year due to a reduction in the Life Insurance Fund State Contribution Rate from 0.17% to 0.05%. This in turn lowered the required increase for the 2012 fiscal year from 5.93% to 5.81%.

CONTRIBUTION RATES FOR NON-UNIVERSITY MEMBERS

Valuation Date	June 30, 2010		June 30, 2009	
For fiscal year ending:	June 30, 2013		June 30, 2012	
	Members hired before 7/1/2008	Members on or after 7/1/2008	Members hired before 7/1/2008	Members on or after 7/1/2008
Pension Plan:				
Normal	17.21%	17.21%	17.19%	17.19%
Accrued liability	<u>15.16</u>	<u>16.16</u>	<u>13.91</u>	<u>14.91</u>
Total	<u>32.37%</u>	<u>33.37%</u>	<u>31.10%</u>	<u>32.10%</u>
Member	9.105%	9.105%	9.105%	9.105%
State (ARC)	<u>23.265</u>	<u>24.265</u>	<u>21.995</u>	<u>22.995</u>
Total	<u>32.37%</u>	<u>33.37%</u>	<u>31.10%</u>	<u>32.10%</u>
Life Insurance Fund:				
State *	0.05%	0.05%	0.05%	0.05%
Medical Insurance Fund:				
Member	1.75%	1.75%	0.75%	1.75%
State Match	1.75	0.75	0.75	0.75
State Additional	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
Total	<u>3.50%</u>	<u>2.50%</u>	<u>1.50%</u>	<u>2.50%</u>
Total Contributions	<u>35.92%</u>	<u>35.92%</u>	<u>32.65%</u>	<u>34.65%</u>
Member Statutory	10.855%	10.855%	9.855%	10.855%
State Statutory	14.105	14.105	13.105	14.105
Required Increase *	7.27	7.27	5.81	5.81
State Special	<u>3.69</u>	<u>3.69</u>	<u>3.88</u>	<u>3.88</u>
Total	<u>35.92%</u>	<u>35.92%</u>	<u>32.65%</u>	<u>34.65%</u>

* The 2009 Valuation Results were revised from last year due to a reduction in the Life Insurance Fund State Contribution Rate from 0.17% to 0.05%. This in turn lowered the required increase for the 2012 fiscal year from 5.93% to 5.81%.

2. 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.
3. Comments on the valuation results as of June 30, 2010 are given in Section IV and further discussion of the contribution levels is set out in Sections V and VI.
4. 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.
5. Provisions of the System, as summarized in Schedule E, were taken into account in the current valuation. The valuation takes into account the effect of amendments to the System enacted through the most recent Session of the Legislature.

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, 2010 on the basis of which the valuation was prepared.

GROUP	NUMBER	ANNUAL SALARIES (\$1,000's)
Full Time	58,983	\$ 3,211,563
Part Time	<u>17,404</u>	<u>110,051</u>
Total	76,387	\$ 3,321,614

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.

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, 2010

GROUP	NUMBER	ANNUAL RETIREMENT ALLOWANCES¹ (\$1,000's)
Service Retirements	37,667	\$ 1,237,529
Disability Retirements	2,284	58,736
Beneficiaries of Deceased Members	<u>3,183</u>	<u>55,893</u>
Total	43,134	\$ 1,352,158

¹ Includes cost-of-living adjustments effective through July 1, 2010.

3. Table 1 of Schedule F 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, 2010 the market value of Pension Plan assets for valuation purposes held by the System amounted to \$12,456,619,082. 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, 2010 was \$14,851,329,749. This amount includes a Pension Obligation Bond of \$465,000,000 contributed on August 26, 2010. Schedule B shows the development of the actuarial value of assets as of June 30, 2010.
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 outlines the results of the actuarial valuation. The valuation was prepared in accordance with the actuarial assumptions and the actuarial cost method, which are described in Schedule D.
2. The valuation shows that the System has an actuarial accrued liability of \$9,333,934,383 for benefits expected to be paid on account of the present active membership, based on service to the valuation date. The liability on account of benefits payable to annuitants and beneficiaries amounts to \$14,790,872,620 of which \$990,508,323 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 \$219,508,635. The total actuarial accrued liability of the System amounts to \$24,344,315,638. Against these liabilities, the System has present assets for valuation purposes of \$14,851,329,749. When this amount is deducted from the actuarial accrued liability of \$24,344,315,638, there remains \$9,492,985,889 as the unfunded actuarial accrued liability.
3. The normal contribution rate is equal to the actuarial present value of benefits accruing during the current year divided by the annual active members' payroll. The normal contribution rate is

determined to be 13.31% of payroll for university members and 17.21% for non-university members.

SECTION V - CONTRIBUTIONS PAYABLE UNDER THE SYSTEM

1. Section 161.540 of the retirement law provides that each university member who becomes a member before July 1, 2008 will contribute 9.055% of annual salary to the System and each non-university member who becomes a member before July 1, 2008 will contribute 10.855% of annual salary. Of this amount, for each university member, 1.43% is paid to the Medical Insurance Fund for medical benefits and for each non-university member, 1.75% if 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 161.540 also provides that each university member who becomes a member on or after July 1, 2008 will contribute 9.375% of annual salary to the System and each non-university member who becomes a member on or after July 1, 2008 will contribute 10.855% of annual salary. Of this amount, 1.75% is paid to the Medical Insurance Fund for medical benefits leaving 7.625% for university for university members and 9.105% for non-university members applicable for the retirement benefits taken into account in the valuation.
3. Section 161.550 provides that the State will match the member contributions and contribute a supplemental 3.25% of members' salaries towards discharging the System's unfunded obligations. The System was amended as of June 30, 2000 to allow the Board to allocate up to a maximum of the entire 3.25% to the Medical Insurance Fund. **For the 2012/2013 fiscal year, we recommend that the Board allocate the entire 3.25% towards the Pension Plan.**
4. 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, 0.05% of payroll will be allocated to the Life Insurance Fund. Based on the results of the valuation, an additional 7.27% 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 3.69% of total payroll will be made by the State. Therefore, the total required employer contribution rate to the Pension Plan is 21.785% for university members who become members before July 1, 2008 and 22.785% for university members who become members on or after July 1, 2008. The total required employer contribution rate to the Pension Plan is 23.265% for non-university members who become members before July 1, 2008 and 24.265% 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 and after 7/1/2008
<u>Member</u>		
Statutory Total	9.055%	9.375%
Statutory Medical Insurance Fund	<u>(1.43)</u>	<u>(1.75)</u>
Contribution to Pension Plan	7.625%	7.625%
<u>Employer</u>		
Statutory Matching Total	9.055%	9.375%
Statutory Medical Insurance Fund	(1.43)	(0.75)
Supplemental Funding	<u>3.25</u>	<u>3.25</u>
Subtotal	10.875%	11.875%
Life Insurance	(0.05)%	(0.05)%
Additional to Maintain 30-Year Amortization	7.27	7.27
Special Appropriation	<u>3.69</u>	<u>3.69</u>
Contribution to Pension Plan	21.785%	22.785%
Total Contribution to Pension Plan	29.41%	30.41%

NON-UNIVERSITY

	Members hired before 7/1/2008	Members hired on and after 7/1/2008
<u>Member</u>		
Statutory Total	10.855%	10.855%
Statutory Medical Insurance Fund	<u>(1.75)</u>	<u>(1.75)</u>
Contribution to Pension Plan	9.105%	9.105%
<u>Employer</u>		
Statutory Matching Total	10.855%	10.855%
Statutory Medical Insurance Fund	(1.75)	(0.75)
Supplemental Funding	<u>3.25</u>	<u>3.25</u>
Subtotal	12.355%	13.355%
Life Insurance	(0.05)%	(0.05)%
Additional to Maintain 30-Year Amortization	7.27	7.27
Special Appropriation	<u>3.69</u>	<u>3.69</u>
Contribution to Pension Plan	23.265%	24.265%
Total Contribution to Pension Plan	32.37%	33.37%

4. The valuation indicates that normal contributions at the rate of 13.31% of active university members' salaries are required to meet the cost of benefits currently accruing. The normal rate for non-university members is 17.21%. 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 16.10% for university members hired before July 1, 2008, 17.10% for university members hired on and after July 1, 2008, 15.16% for non-university members hired before July 1, 2008, and 16.16% for non-university members hired on and after July 1, 2008. These rates include special appropriations of 3.69% 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 and after 7/1/2008	Members hired before 7/1/2008	Members hired on and after 7/1/2008
Normal	13.31%	13.31%	17.21%	17.21%
Accrued Liability*	<u>16.10</u>	<u>17.10</u>	<u>15.16</u>	<u>16.16</u>
Total	29.41%	30.41%	32.37%	33.37%

* Includes special appropriations of 3.69% of payroll to be made by the State.

5. The unfunded actuarial accrued liability amounts to \$9,492,985,889 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 7.27%, 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. Since the 2005 fiscal year, a portion of the contributions required for the pension fund have been allocated as loans to the Medical Insurance Fund for Stabilization Funding. Beginning with the 2009 fiscal year, additional contributions have also been allocated as loans for non-single subsidy funding. Payments are being made to repay these loans. It is our understanding that beginning with the 2011 fiscal year, there will be no further loans for stabilization funding. The following table shows the amounts borrowed, annual payments and remaining balances as of June 30, 2010:

**MEDICAL INSURANCE FUND
STABILIZATION FUNDING**

	Loan Amount	Annual Payment	Balances as of June 30, 2010
2004/2005	\$29,169,700	\$4,249,600	\$17,193,538
2005/2006	62,294,800	9,075,500	42,598,781
2006/2007	73,000,000	10,207,400	53,174,638
2007/2008	125,000,000	18,280,000	106,522,125
2008/2009*	133,400,000	19,516,900	123,970,500
2009/2010**	<u>134,200,000</u>	<u>19,611,300</u>	<u>134,200,000</u>
Total	\$557,064,500	\$80,940,700	\$477,659,582

* Includes \$125,000,000 for Stabilization Funding and \$8,400,000 for non-single subsidy funding.

** Includes \$125,000,000 for Stabilization Funding and \$9,200,000 for non-single subsidy funding.

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 7.27% of payroll for the fiscal year ending June 30, 2013, as shown in the following table:

Valuation Date	Fiscal Year	Increase	Cumulative Increase
June 30, 2004	June 30, 2007	0.11%	0.11%
June 30, 2005	June 30, 2008	1.21	1.32
June 30, 2006	June 30, 2009	0.56	1.88
June 30, 2007	June 30, 2010	0.58	2.46
June 30, 2008	June 30, 2011	1.13	3.59
June 30, 2009	June 30, 2012	2.22 *	5.81 *
June 30, 2010	June 30, 2013	1.46	7.27

* The 2009 Valuation Results were revised from last year due to a reduction in the Life Insurance Fund State Contribution Rate from 0.17% to 0.05%. This in turn lowered the required increase for the 2012 fiscal year from 5.93% to 5.81%.

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 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 \$978,540,691 in the unfunded accrued liability from \$8,514,445,198 to \$9,492,985,889 during the year ending June 30, 2010.

ANALYSIS OF FINANCIAL EXPERIENCE

(Dollar amounts in thousands)

ITEM	AMOUNT OF INCREASE/ (DECREASE)
Interest (7.50%) added to previous unfunded accrued liability	\$ 638,583
Expected Accrued liability contribution	(294,071)
Contributions allocated to the Medical Insurance Fund (MIF) for Stabilization Funding during 2009/2010 fiscal year with interest	139,233
Repayment of prior year's MIF Stabilization Funding with interest	(63,544)
Pension Obligation Bond contribution made in August 2010	(465,000)
Experience:	
Valuation asset growth	1,026,250
Pensioners' mortality	20,027
Turnover and retirements	18,096
New entrants	56,140
Salary increases	(97,173)
Amendments	0
Assumption and method changes	0
	<hr/>
Total	\$ 978,541

SECTION VIII - ACCOUNTING INFORMATION

1. Governmental Accounting Standards Board Statements 25 and 27 set forth certain items of required supplementary information to be disclosed in the financial statements of the System and the employer. One such item is a distribution of the number of employees by type of membership, as follows:

**NUMBER OF ACTIVE AND RETIRED MEMBERS
AS OF JUNE 30, 2010**

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	43,134
Terminated employees entitled to benefits but not yet receiving benefits	5,637
Active plan members	<u>76,387</u>
Total	125,158

2. Another such item is the schedule of funding progress as shown below.

SCHEDULE OF FUNDING PROGRESS
(Dollar amounts in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Liability (AAL) Projected Unit Credit (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
6/30/2005	\$14,598,843	\$19,134,870	\$4,536,027	76.3%	\$2,703,430	167.8%
6/30/2006 *	14,857,641	20,324,781	5,467,140	73.1	2,859,477	191.2
6/30/2007	15,284,955	21,254,974	5,970,019	71.9	2,975,289	200.7
6/30/2008	15,321,325	22,460,304	7,138,979	68.2	3,190,332	223.8
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

* Reflects change in decremental assumptions.

3. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2010. Additional information as of the latest actuarial valuation follows.

Valuation date	6/30/2010
Actuarial cost method	Projected unit credit
Amortization method	Level percent of pay, open
Remaining amortization period	30 years
Asset valuation method	5-year smoothed market
Actuarial assumptions:	
Investment rate of Return*	7.50%
Projected salary Increases*	4.00 - 8.20%
Cost-of-living adjustments	1.50% Annually
*Includes inflation at	4.00%

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year Ended June 30	Annual Required Contributions	Percentage Contributed
2005	\$412,946,526	93%
2006	464,152,466	87
2007	494,565,369	88
2008	563,789,483	83
2009	600,282,735	74
2010	633,938,088	76

4. Following is the calculation of the annual pension cost and net pension obligation for the fiscal year ending June 30, 2010. 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 Pension Obligation for Fiscal Year Ending June 30, 2010

(a) Employer annual required contribution	\$ 633,938,088
(b) Interest on net pension obligation	30,996,927
(c) Adjustment to annual required contribution	22,094,107
(d) Annual pension cost: (a) + (b) - (c)	<u>\$ 642,840,908</u>
(e) Employer contributions made for fiscal year ending June 30, 2010	479,805,088
(f) Increase (decrease) in net pension obligation: (d) - (e)	<u>\$ 163,035,820</u>
(g) Net pension obligation beginning of fiscal year	413,292,362
(h) Net pension obligation end of fiscal year: (f) + (g)	<u>\$ 576,328,182</u>

TREND INFORMATION

Year Ending	Annual Pension Cost (APC)	Percentage of APC Contributed	Net Pension Obligation (NPO)
June 30, 2008	\$567,007,965	82%	\$250,170,583
June 30, 2009	605,671,714	73	413,292,362
June 30, 2010	642,840,908	75	576,328,182

SCHEDULE A

**RESULTS OF THE VALUATION
PREPARED AS OF JUNE 30, 2010
(\$1,000's)**

1. ACTUARIAL ACCRUED LIABILITY		
Present value of prospective benefits payable in respect of:		
(a) Present active members		
- Service retirement benefits	\$ 8,706,018	
- Disability retirement benefits	393,535	
- Death and survivor benefits	72,141	
- Refunds of member contributions	<u>162,240</u>	
Total		\$ 9,333,934
(b) Present inactive members and members entitled to deferred vested benefits:		219,509
(c) Present annuitants and beneficiaries:		
- Service retirement benefits	\$ 13,828,755	
- Disability retirement benefits	467,724	
- Death and survivor benefits	<u>494,394</u>	
Total		<u>\$ 14,790,873</u>
(d) Total actuarial accrued liability		\$ 24,344,316
2. PRESENT ASSETS FOR VALUATION PURPOSES		\$ 14,851,330
3. UNFUNDED ACTUARIAL ACCRUED LIABILITY		
[1(d) - 2]		\$ 9,492,986
4. NORMAL CONTRIBUTION RATE		
	<u>UNIVERSITY</u>	<u>NON-UNIVERSITY</u>
(a) Actuarial present value of benefits accruing annually	\$ 27,520	\$ 536,038
(b) Annual payroll of active members	\$ 206,823	\$ 3,114,792
(c) Normal contribution rate		
[(4(a) / 4(b)]	13.31%	17.21%

SCHEDULE A

(continued)

**SOLVENCY TEST
(in millions of dollars)**

Fiscal Year Ending	(1)	(2)	(3)	Valuation Assets	Portion of Accrued Liabilities Covered by Assets		
	Active Member Contributions	Retirants And Beneficiaries	Active Members (Employer Financed Portion)		(1)	(2)	(3)
6/30/2005	\$2,621.3	\$11,370.4	\$5,143.2	\$14,598.8	100%	100%	12%
6/30/2006	2,615.8	12,216.6	5,492.4	14,857.6	100	100	0
6/30/2007	2,762.8	12,843.7	5,648.5	15,285.0	100	97	0
6/30/2008	2,899.0	13,585.8	5,975.5	15,321.3	100	91	0
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

SCHEDULE B

**DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS
AS OF JUNE 30, 2010**

(1)	Actuarial Value of Assets Beginning of Year	\$ 14,885,981,251
(2)	Market Value of Assets End of Year	\$ 12,456,619,082
(3)	Market Value of Assets Beginning of Year	\$ 11,515,883,575
(4)	Cash Flow	
	a. Contributions	\$ 777,419,053
	b. Benefit Payments	1,337,119,450
	c. Administrative Expense	<u>8,830,054</u>
	d. Net: (4)a - (4)b - (4)c	\$ (568,530,451)
(5)	Investment Income	
	a. Market total: (2) - (3) - (4)d	\$ 1,509,265,958
	b. Assumed Rate	7.50%
	c. Amount for Immediate Recognition: [(3) x (5)b] + [(4)d x (5)b x 0.5]	\$ 842,371,376
	d. Amount for Phased-In Recognition: (5)a - (5)c	\$ 666,894,582
(6)	Phased-In Recognition of Investment Income	
	a. Current Year: 0.20 x (5)d	\$ 133,378,916
	b. First Prior Year	(611,235,941)
	c. Second Prior Year	(409,879,449)
	d. Third Prior Year	190,240,386
	e. Fourth Prior Year	<u>(75,996,339)</u>
	f. Total Recognized Investment Gain	\$ (773,492,427)
(7)	Actuarial Value of Assets End of Year: (1) + (4)d + (5)c + (6)f	\$ 14,386,329,749
(8)	Additional Contribution from Pension Obligation Bond	\$ 465,000,000
(9)	Final Actuarial Value of Assets End of Year: (7) + (8)	\$ 14,851,329,749
(10)	Difference Between Market & Actuarial Values: (2) - (7) (prior to Pension Obligation Bond)	\$ (1,929,710,667)

SCHEDULE C

**PENSION PLAN ASSETS
SUMMARY OF RECEIPTS AND DISBURSEMENTS*
(Market Value)**

	For the Year Ending	
	June 30, 2010	June 30, 2009
Receipts for the Year		
Contributions		
Members	\$ 297,613,965	\$ 293,678,564
Employers	<u>479,805,088</u>	<u>442,549,935</u>
Total	\$ 777,419,053	\$ 736,228,499
Net Investment Income	<u>1,509,265,958</u>	<u>(2,020,682,522)</u>
TOTAL	\$ 2,286,685,011	\$ (1,284,454,023)
Disbursements for the Year		
Benefit Payments	\$ 1,321,808,770	\$ 1,252,980,407
Refunds to Members	15,310,680	15,208,419
Medical Insurance Payments	0	0
Miscellaneous, including expenses	<u>8,830,054</u>	<u>8,165,757</u>
TOTAL	\$ 1,345,949,504	\$ 1,276,354,583
Excess of Receipts over Disbursements	\$ 940,735,507	\$ (2,560,808,606)
Reconciliation of Asset Balances		
Asset Balance as of the Beginning of the Year	\$ 11,515,883,575	\$ 14,076,692,181
Excess of Receipts over Disbursements	<u>940,735,507</u>	<u>(2,560,808,606)</u>
Asset Balances as of the End of the Year	<u>\$ 12,456,619,082</u>	<u>\$ 11,515,883,575</u>
Rate of Return	13.44%	-14.64%

* 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, 2005, submitted to and adopted by the Board on September 18, 2006.

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 4.0% per annum:

<u>Age</u>	<u>Annual Rate</u>
20	8.10%
25	7.20
30	6.20
35	5.50
40	5.00
45	4.70
50	4.50
55	4.30
60	4.20
65	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

Age	Annual Rate of						
	DEATH	DISABILITY	WITHDRAWAL			RETIREMENT	
			Service			Before 27 Years of Service	After 27 Years of Service*
			0 – 4	5 – 9	10+		
20	0.003%	0.01%	9.00%				
25	0.010%	0.01%	9.00%	1.50%			
30	0.016%	0.02%	9.00%	3.00%	3.00%		
35	0.032%	0.05%	10.00%	3.25%	1.50%		
40	0.048%	0.08%	10.00%	3.75%	1.50%		
45	0.064%	0.22%	9.50%	2.50%	1.50%		25.0%
50	0.104%	0.42%	10.00%	4.00%	3.00%		20.0%
55	0.216%	0.60%	11.00%	3.00%	2.70%	6.0%	35.0%
60	0.375%	0.79%	11.00%	3.00%	2.70%	14.0%	25.0%
62	0.438%	0.83%	11.00%	3.00%	2.70%	14.0%	23.0%
65	0.566%	0.90%	11.00%	3.00%	2.70%	22.5%	35.0%
70	0.905%	0.00%	0.00%	0.00%	0.00%	100.0%	100.0%

*Plus 5% before age 55 and 15% after age 55 in year when first eligible for unreduced retirement with 27 years of service.

Females

Age	Annual Rate of						RETIREMENT	
	DEATH	DISABILITY	WITHDRAWAL			Before 27 Years of Service	After 27 Years of Service*	
			Service					
			0 – 4	5 – 9	10+			
20	0.002%	0.03%	6.00%					
25	0.007%	0.03%	8.50%	3.00%				
30	0.014%	0.04%	9.00%	4.00%	1.50%			
35	0.026%	0.11%	8.50%	4.00%	2.00%			
40	0.044%	0.22%	8.50%	2.50%	1.50%			
45	0.055%	0.38%	7.00%	2.50%	1.50%		25.0%	
50	0.066%	0.44%	8.50%	3.00%	2.25%		20.0%	
55	0.085%	0.56%	10.00%	3.50%	2.50%	7.5%	35.0%	
60	0.122%	0.85%	11.00%	3.50%	2.50%	16.5%	30.0%	
62	0.137%	0.85%	11.00%	3.50%	2.50%	12.5%	25.0%	
65	0.159%	0.85%	11.00%	3.50%	2.50%	26.0%	30.0%	
70	0.195%	0.00%	0.00%	0.00%	0.00%	100.0%	100.0%	

*Plus 5% before age 55 and 20% after age 55 in year when first eligible for unreduced retirement with 27 years of service.

DEATHS AFTER RETIREMENT: According to the 1994 Group Annuity Mortality Table for the period after service retirement. Special rates are used for the period after disability retirement. Representative values of the assumed annual rates of death after service and disability retirement are as follows:

Age	Annual Rate of Death After			
	Service Retirement		Disability Retirement	
	Male	Female	Male	Female
45	0.1578%	0.0973%	6.500%	6.500%
50	0.2579	0.1428	10.000	10.000
55	0.4425	0.2294	10.000	10.000
60	0.7976	0.4439	9.000	9.000
65	1.4535	0.8636	10.000	10.000
70	2.3730	1.3730	6.500	4.500
75	3.7211	2.2686	7.000	6.000
80	6.2027	3.9396	10.000	6.500
85	9.7240	6.7738	12.500	7.500
90	15.2931	11.6265	15.000	17.500
95	23.3606	18.6213	23.368	31.702

ACTUARIAL METHOD: Unit Credit Actuarial Cost Method with projected benefits. Actuarial gains and losses are reflected in the unfunded actuarial accrued liability.

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 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: 1% of active liability

SCHEDULE E

**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, 2010. Effective July 1, 2008, the System has been amended to change the benefit structure for members hired on or after that date. These plan changes are reflected in the June 30, 2009 valuation. 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

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.

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.

Members on and after 7/1/2008

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.

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.

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

Members Before 7/1/2008

University members contribute 8.375% of salary of which 7.625% is contributed to the Retirement System and 0.75% is contributed to the Medical Insurance Fund. Non-university members contribute 9.855% of salary of which 9.105% is contributed to the Retirement System and 0.75% is contributed to the Medical Insurance Fund. Member contributions are picked up by the employer.

Members on and after 7/1/2008

University members contribute 9.375% of salary of which 7.625% is contributed to the Retirement System and 1.75% is contributed to the Medical Insurance Fund. Non-university members contribute 10.855% of salary of which 9.105% is contributed to the Retirement System and 1.75% is contributed to the Medical Insurance Fund. Member contributions are picked up by the employer.

SCHEDULE F

**TABLE 1
AGE – SERVICE TABLE**

Distribution of Active Members as of June 30, 2010 by Age and Service Groups

Attained Age	Completed Years of Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	>= 35	
24 & under	2,552								2,552
Total Pay	41,410,302								41,410,302
Avg. Pay	16,227								16,227
25 to 29	7,342	1,401							8,743
Total Pay	217,949,175	63,246,757							281,195,932
Avg. Pay	29,685	45,144							32,162
30 to 34	3,818	4,865	937						9,620
Total Pay	111,452,897	227,947,351	49,974,032						389,374,280
Avg. Pay	29,191	46,855	53,334						40,475
35 to 39	2,817	2,509	4,012	706					10,044
Total Pay	74,313,656	120,604,468	225,193,125	42,603,634					462,714,883
Avg. Pay	26,380	48,069	56,130	60,345					46,069
40 to 44	3,879	1,808	2,277	2,904	723				11,591
Total Pay	79,944,872	88,446,267	128,003,793	178,515,920	46,125,557				521,036,409
Avg. Pay	20,610	48,919	56,216	61,472	63,797				44,952
45 to 49	1,814	1,269	1,334	1,528	2,155	639			8,739
Total Pay	44,689,939	62,904,777	75,802,300	95,801,767	138,579,018	42,056,954			459,834,755
Avg. Pay	24,636	49,570	56,823	62,697	64,306	65,817			52,619
50 to 54	1,657	1,023	1,173	1,232	1,377	1,645	476		8,583
Total Pay	34,303,799	50,798,111	67,243,927	77,191,072	90,754,269	113,263,204	32,669,109		466,223,491
Avg. Pay	20,702	49,656	57,326	62,655	65,907	68,853	68,633		54,319
55 to 59	2,510	755	944	1,083	1,158	823	707	103	8,083
Total Pay	39,542,880	39,660,051	56,148,619	70,541,207	77,380,607	59,083,162	54,593,179	8,806,679	405,756,384
Avg. Pay	15,754	52,530	59,479	65,135	66,823	71,790	77,218	85,502	50,199
60 to 64	2,844	431	487	573	583	372	165	122	5,577
Total Pay	39,563,979	23,085,640	30,037,551	37,299,758	40,586,147	27,094,465	13,907,160	11,098,734	222,673,434
Avg. Pay	13,911	53,563	61,679	65,096	69,616	72,835	84,286	90,973	39,927
65 & over	2,096	148	134	119	129	98	47	84	2,855
Total Pay	19,263,491	7,200,683	8,811,446	8,107,359	9,067,291	7,442,506	3,632,962	7,868,617	71,394,355
Avg. Pay	9,191	48,653	65,757	68,129	70,289	75,944	77,297	93,674	25,007
Total	31,329	14,209	11,298	8,145	6,125	3,577	1,395	309	76,387
Total Pay	702,434,990	683,894,105	641,214,793	510,060,717	402,492,889	248,940,291	104,802,410	27,774,030	3,321,614,225
Avg. Pay	22,421	48,131	56,755	62,623	65,713	69,595	75,127	89,884	43,484

Average Age: 43.5

Average Service:

10.8

SCHEDULE F

TABLE 2

**NUMBER OF RETIRED MEMBERS AND BENEFICIARIES
AND THEIR BENEFITS BY AGE
AS OF JUNE 30, 2010**

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefits
49 & Under	761	\$ 8,716,500	\$ 11,454
50 - 54	1,166	38,144,970	32,714
55 - 59	6,003	221,760,971	36,942
60 - 64	10,935	386,467,941	35,342
65 - 69	8,197	271,854,309	33,165
70 - 74	5,781	176,024,375	30,449
75 - 79	4,103	113,668,963	27,704
80 & Over	<u>6,188</u>	<u>135,519,537</u>	<u>21,900</u>
Total	43,134	\$ 1,352,157,566	\$ 31,348

SCHEDULE F**TABLE 3****SCHEDULE OF RETIRANTS, BENEFICIARIES AND SURVIVORS
ADDED TO AND REMOVED FROM ROLLS**

Year Ended	ADDED TO ROLLS		REMOVED FROM ROLLS		ROLLS AT END OF YEAR		Increase in Annual Allowances	Average Annual Allowance
	Number	Annual Allowances (in millions)	Number	Annual Allowances (in millions)	Number	Annual Allowances (in millions)		
2001	2,410	\$77.0	1,128	\$16.5	31,897	\$679.8	9.8%	\$21,311
2002	2,577	86.2	1,063	16.8	33,408	749.2	10.2	22,425
2003	2,252	86.7	1,015	16.9	34,645	819.0	9.3	23,641
2004	2,126	85.4	1,033	17.5	35,738	887.0	8.3	24,819
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