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**GASB STATEMENT NO. 67 REPORT**  
**FOR THE**  
**KENTUCKY EMPLOYEES RETIREMENT SYSTEM**  
**PREPARED AS OF JUNE 30, 2014**





# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

November 17, 2014

Board of Trustees  
Kentucky Retirement System  
Perimeter Park West  
1260 Louisville Road  
Frankfort, KY 40601

Ladies and Gentlemen:

Presented in this report is information to assist the Kentucky Employees Retirement System in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 67. The information is presented for the period ending June 30, 2014.

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of June 30, 2014. The valuation was based upon data, furnished by the Executive Director and the Kentucky Retirement Systems staff, concerning active, inactive and retired members along with pertinent financial information.

To the best of our knowledge, this report is complete and accurate. The necessary calculations were performed by, and under the supervision of independent actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems.

The calculations were prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board, and, in our opinion, meet the requirements of GASB 67.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the System, and on actuarial assumptions that are, individually and in the aggregate, internally consistent and reasonably based on the actual experience of the System. In addition, the calculations were completed in compliance with the laws governing the System. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

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Board of Trustees  
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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.

Respectfully submitted,

A handwritten signature in blue ink that reads 'Thomas J. Cavanaugh'.

Thomas J. Cavanaugh, FSA, FCA, EA, MAAA  
Chief Executive Officer

A handwritten signature in blue ink that reads 'Todd B. Green'.

Todd B. Green ASA, FCA, MAAA  
Principal and Consulting Actuary

TJC/TBG:tbg



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**REPORT OF THE ANNUAL GASB STATEMENT NO. 67  
REQUIRED INFORMATION FOR THE  
KENTUCKY EMPLOYEES RETIREMENT SYSTEM  
PREPARED AS OF JUNE 30, 2014**

**SECTION I – INTRODUCTION**

The Governmental Accounting Standards Board issued Statement No. 67 (GASB 67), “*Financial Reporting For Pension Plans*”, in June 2012. GASB 67’s effective date is for plan years beginning after June 15, 2013. This report, prepared as of June 30, 2014 (the Measurement Date), presents information to assist the Kentucky Employees Retirement System in meeting the requirements of GASB 67. Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of the County Employees Retirement System as of June 30, 2014. The results of that valuation were detailed in a report dated November 12, 2014.

GASB 67 replaces GASB 25, and represents a significant departure from the requirements of that older statement. GASB 25 was issued as a funding friendly statement that required pension plans to report items consistent with the results of the plan’s actuarial valuations, as long as those valuations met certain parameters. GASB 67 basically divorces accounting and funding, creating disclosure and reporting requirements that may or may not be consistent with the basis used for funding the System.

A major change in GASB 67 is the requirement to determine the Total Pension Liability (TPL) utilizing the Entry Age Normal actuarial funding method. The Net Pension Liability (NPL) is then set equal to the TPL minus the System’s Fiduciary Net Position (FNP) (basically the market values of assets). The benefit provisions recognized in the calculation of the TPL are summarized in Schedule B.

Among the assumptions needed for the liability calculation is a Single Equivalent Interest Rate (SEIR). To determine the SEIR, the FNP must be projected into the future for as long as there are anticipated benefits payable under the plan’s provision applicable to the membership and beneficiaries of the System on the Measurement Date. If the FNP is projected to not be depleted at any point in the future, the long term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR.

If, however, the FNP is projected to be depleted, the SEIR is determined as the single rate that will generate a present value of benefit payments equal to the sum of the present value determined by discounting all projected benefit payments through the date of depletion by the long term expected rate of return, and the present value determined by discounting those benefits after the date of depletion by a 20-year tax-exempt municipal bond (rating AA/Aa or higher)



rate. The rate used, if necessary, for this purpose is the Bond Buyer General Obligation 20-year Municipal Bond Index published monthly by the Board of Governors of the Federal Reserve System.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 67 for note disclosure and Required Supplementary Information (RSI).



## SECTION II – FINANCIAL STATEMENT NOTES

The material presented herein will follow the order presented in GASB 67. Paragraph numbers are provided for ease of reference.

**Paragraphs 30(a) (1)-(3):** The information required is to be supplied by the System.

**Paragraph 30(a) (4):** The data required regarding the membership of the Kentucky Employees Retirement System were furnished by the Kentucky Retirement Systems office. The following table summarizes the membership of the system as of June 30, 2014, the Measurement Date.

### Membership

	Non-Hazardous	Hazardous
Inactive Members Or Their Beneficiaries Currently Receiving Benefits	43,419	3,620
Inactive Members Entitled To But Not Yet Receiving Benefits	46,639	4,008
Active Members	40,365	4,024
Total	130,423	11,652

**Paragraphs 30(a)(5)-(6) and Paragraphs 30(b)-(f):** The information required is to be supplied by the System.



**Paragraphs 31(a) (1)-(4):** The information is provided in the following table. As stated above, the NPL is equal to the TPL minus the FNP. That result as of June 30, 2014 is presented in the table below (\$ thousands).

**Fiscal Year End June 30, 2014**

	Non-Hazardous	Hazardous
Total Pension Liability	\$11,550,110	\$816,850
Fiduciary Net Position	<u>2,578,291</u>	<u>561,484</u>
Net Pension Liability	\$8,971,819	\$255,366
Ratio of Fiduciary Net Position to Total Pension Liability	22.32%	68.74%



**Paragraph 31(b) (1)(a)-(f):** This paragraph requires information regarding the actuarial assumptions used to measure the TPL. The actuarial assumptions utilized in developing the TPL are outlined in Schedule C. The total pension liability was determined by an actuarial valuation as of June 30, 2014, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.5 percent
Salary increases	4.5 percent, average, including inflation
Investment rate of return	7.75 percent, net of pension plan investment expense, including inflation

The rates of mortality for the period after service retirement are according to the 1983 Group Annuity Mortality Table for all retired members and beneficiaries as of June 30, 2006 and the 1994 Group Annuity Mortality Table for all other members. The Group Annuity Mortality Table set forward 5 years is used for the period after disability retirement.

The actuarial assumptions used in the June 30, 2014 valuation were based on the results of an actuarial experience study for the period July 1, 2005 – June 30, 2008.

**Paragraph 31.b.(1)**

- (a) Discount rate:** The discount rate used to measure the total pension liability was 7.75%
- (b) Projected cash flows:** The projection of cash flows used to determine the discount rate assumed that local employers would contribute the actuarially determined contribution rate of projected compensation over the remaining 29 year amortization period of the unfunded actuarial accrued liability. The actuarial determined contribution rate is adjusted to reflect the phase in of anticipated gains on actuarial value of assets over the first four years of the projection period.
- (c) Long term rate of return:** The long-term expected return on plan assets is reviewed as part of the regular experience studies prepared every five years for the System. The most recent analysis, performed for the period covering fiscal years 2005 through 2008, is outlined in a report dated August 25, 2009. Several factors are considered in evaluating the long-term rate of return assumption including long term historical data, estimates inherent in current market data, and a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected return, net of investment expense and inflation) were developed by the investment consultant for each major asset class. These ranges were combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and then adding expected inflation. The capital market assumptions developed by the investment consultant are intended for use over a 10-year horizon and may not be useful in setting the long-term rate of return for funding pension plans which covers a longer



timeframe. The assumption is intended to be a long term assumption and is not expected to change absent a significant change in the asset allocation, a change in the inflation assumption, or a fundamental change in the market that alters expected returns in future years.

- (d) **Municipal bond rate:** the discount rate determination does not use a municipal bond rate.
- (e) **Periods of projected benefit payments:** projected future benefit payments for all current plan members were projected through 2116.
- (f) **Assumed Asset Allocation:** The target asset allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic equity	30%	8.45%
International equity	22	8.85
Emerging Market Equity	5	10.50
Private Equity	7	1.25
Real Estate	5	7.00
Core US Fixed Income	10	5.25
High Yield US Fixed Income	5	7.25
Non-US Fixed Income	5	5.50
Commodities	5	7.75
TIPS	5	5.00
Cash	<u>1</u>	3.25
Total	100%	



**Paragraph 31(b) (1) (g):** This paragraph requires disclosure of the sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability of the System, calculated using the discount rate of percent, as well as what the System's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.75 percent) or 1-percentage-point higher (8.75 percent) than the current rate for non-hazardous and (6.75 percent) or 1-percentage-point higher (8.75 percent) than the current rate for hazardous (\$ thousands):

**Non-Hazardous**

	1% Decrease (6.75%)	Current Discount Rate (7.75%)	1% Increase (8.75%)
System's net pension liability	\$10,093,046	\$8,971,819	\$7,960,935

**Hazardous**

	1% Decrease (6.75%)	Current Discount Rate (7.75%)	1% Increase (8.75%)
System's net pension liability	\$342,685	\$255,366	\$180,571

**Paragraph 31(c):** June 30, 2014 is the actuarial valuation date upon which the TPL is based. No update procedures were used to determine the TPL. An expected TPL is determined as of July 1, 2013 using standard roll back techniques. The roll back calculation subtracts the annual normal cost (also called the service cost), adds the actual benefit payments and refunds for the plan year and then applies the expected investment rate of return for the year. The procedure was used to determine the TPL as of July 1, 2013, as shown in the tables on the following page:



### Non-Hazardous

TPL Roll-Back (\$ in thousands)	
(a) TPL as of June 30, 2014	\$11,550,110
(b) Entry Age Normal Cost for the Year July 1, 2013 – June 30, 2014	133,361
(c) Actual Benefit Payments for the Year July 1, 2013 – June 30, 2014	903,564
(d) TPL as of July 1, 2013 = [ (a) - (b) + ( (c) x (1.03875) ) ] / 1.0775	\$11,466,660

### Hazardous

TPL Roll-Back (\$ in thousands)	
(e) TPL as of June 30, 2014	\$816,850
(f) Entry Age Normal Cost for the Year July 1, 2013 – June 30, 2014	16,880
(g) Actual Benefit Payments for the Year July 1, 2013 – June 30, 2014	57,150
(h) TPL as of July 1, 2013 = [ (a) - (b) + ( (c) x (1.03875) ) ] / 1.0775	\$797,527



### **SECTION III – REQUIRED SUPPLEMENTARY INFORMATION**

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

**Paragraphs 32(a)-(c):** The required tables are provided in Schedule A.

**Paragraph 32(d):** The money-weighted rates of return required are to be supplied by the System.

**Paragraph 34:** In addition the following should be noted regarding the RSI:

*Changes of benefit terms:* none.

*Changes of assumption:* none.

***Method and assumptions used in calculations of actuarially determined contributions.*** The actuarially determined contribution rates are determined on a biennial basis beginning with the fiscal years ended 2015 and 2016, determined as of July 1, 2013. The amortization period of the unfunded liability has been reset as of July 1, 2013 to a closed 30-year period. The following actuarial methods and assumptions were used to determine contribution rates reported in that schedule:

Actuarial cost method	Entry age
Amortization method	Level percentage of payroll, closed
Remaining amortization period	29 years
Asset valuation method	5-year smoothed market
Inflation	3.5 percent
Salary increase	4.5 percent, average, including inflation
Investment rate of return	7.75 percent, net of pension plan investment expense, including inflation



**SCHEDULE A**

**REQUIRED SUPPLEMENTARY INFORMATION**

**SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY  
GASB 67 Paragraph 32(a)  
(\$ in Thousands)**

**Non-Hazardous**

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
<b>Total pension liability</b>										
Service Cost	\$133,361									
Interest	853,653									
Benefit changes	-									
Difference between expected and actual experience	-									
Changes of assumptions	-									
Benefit payments	(889,937)									
Refunds of contributions	(13,627)									
<b>Net change in total pension liability</b>	<b>83,450</b>									
<b>Total pension liability - beginning</b>	<b><u>\$11,466,660</u></b>									
<b>Total pension liability - ending (a)</b>	<b><u>\$11,550,110</u></b>									
<b>Plan net position</b>										
Contributions - employer	296,836									
Contributions - member	97,487									
Net investment income	337,923									
Benefit payments	(889,937)									
Administrative expense	(11,145)									
Refunds of contributions	(13,627)									
Other	-									
<b>Net change in plan net position</b>	<b>(182,463)</b>									
<b>Plan net position - beginning</b>	<b><u>\$2,760,754</u></b>									
<b>Plan net position - ending (b)</b>	<b><u>\$2,578,291</u></b>									
<b>Net pension liability - ending (a) - (b)</b>	<b><u>\$8,971,819</u></b>									

**SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY**  
**GASB 67 Paragraph 32(a)**  
**(\$ in Thousands)**



**Hazardous**

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
<b>Total pension liability</b>										
Service Cost	\$16,880									
Interest	59,594									
Benefit changes	0									
Difference between expected and actual experience	0									
Changes of assumptions	0									
Benefit payments	(54,320)									
Refunds of contributions	<u>(2,830)</u>									
<b>Net change in total pension liability</b>	19,323									
<b>Total pension liability - beginning</b>	<u>\$ 797,527</u>									
<b>Total pension liability - ending (a)</b>	<u>\$ 816,850</u>									
<b>Plan net position</b>										
Contributions - employer	11,670									
Contributions - member	12,546									
Net investment income	80,724									
Benefit payments	(54,320)									
Administrative expense	(897)									
Refunds of contributions	(2,830)									
Other	<u>0</u>									
<b>Net change in plan net position</b>	46,893									
<b>Plan net position - beginning</b>	<u>\$ 514,591</u>									
<b>Plan net position - ending (b)</b>	<u>\$ 561,484</u>									
<b>Net pension liability - ending (a) - (b)</b>	<u>\$ 255,367</u>									

**SCHEDULE OF THE NET PENSION LIABILITY**  
**GASB 67 Paragraph 32(b)**  
**(\$ in Thousands)**



**Non-Hazardous**

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Total pension liability	\$11,550,110									
Plan net position	<u>2,578,291</u>									
Net pension liability	<u>\$8,971,819</u>									
Ratio of plan net position to total pension liability	22.32%									
Covered-employee payroll	\$1,577,496									
Net pension liability as a percentage of covered-employee payroll	568.74%									

**Hazardous**

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Total pension liability	\$816,850									
Plan net position	<u>561,484</u>									
Net pension liability	<u>\$255,366</u>									
Ratio of plan net position to total pension liability	68.74%									
Covered-employee payroll	\$129,076									
Net pension liability as a percentage of covered-employee payroll	197.84%									



**SCHEDULE OF EMPLOYER CONTRIBUTIONS**  
**GASB 67 Paragraph 32(c)**  
**(\$ in Thousands)**

**Non-Hazardous**

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Actuarially determined employer contribution	\$520,765	\$485,396	\$441,094	\$381,915	\$348,495	\$294,495	\$264,743	\$176,774	\$129,126	\$85,799
Actual employer contributions	<u>296,836</u>	<u>280,874</u>	<u>214,786</u>	<u>193,754</u>	<u>144,051</u>	<u>112,383</u>	<u>104,655</u>	<u>88,249</u>	<u>60,681</u>	<u>50,333</u>
Annual contribution deficiency (excess)	<u>\$223,929</u>	<u>\$204,522</u>	<u>\$226,308</u>	<u>\$188,161</u>	<u>\$204,444</u>	<u>\$182,112</u>	<u>\$160,088</u>	<u>\$88,525</u>	<u>\$68,445</u>	<u>\$35,466</u>
Covered-employee payroll	\$1,577,496	\$1,644,409	\$1,644,897	\$1,731,633	\$1,815,146	\$1,754,413	\$1,837,873	\$1,780,223	\$1,702,231	\$1,655,907
Actual contributions as a percentage of covered-employee payroll	18.82%	17.08%	13.06%	11.19%	7.94%	6.41%	5.69%	4.96%	3.56%	3.04%

**Hazardous**

	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
Actuarially determined employer contribution	\$13,570	\$21,502	\$20,265	\$20,605	\$17,815	\$15,708	\$14,147	\$12,220	\$10,787	\$9,450
Actual employer contributions	<u>11,670</u>	<u>27,334</u>	<u>20,809</u>	<u>19,141</u>	<u>17,658</u>	<u>15,843</u>	<u>15,257</u>	<u>13,237</u>	<u>10,803</u>	<u>9,759</u>
Annual contribution deficiency (excess)	<u>\$1,900</u>	<u>(\$5,832)</u>	<u>(\$544)</u>	<u>\$1,465</u>	<u>\$157</u>	<u>(\$135)</u>	<u>(\$1,110)</u>	<u>(\$1,018)</u>	<u>(\$16)</u>	<u>(\$309)</u>
Covered-employee payroll	\$129,076	\$131,015	\$131,977	\$133,054	\$143,558	\$146,044	\$148,710	\$144,838	\$138,747	\$131,687
Actual contributions as a percentage of covered-employee payroll	9.04%	20.86%	15.77%	14.39%	12.30%	10.85%	10.26%	9.14%	7.79%	7.41%



## SCHEDULE B

### SUMMARY OF MAIN BENEFIT AND CONTRIBUTION PROVISIONS

This schedule summarizes the major retirement benefit provisions of KERS included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

**Plan Year:** July 1 through June 30

**Non-Hazardous Normal Retirement:**

*Members whose participation began before 8/1/2004*

<i>Age Requirement</i>	65
<i>Service Requirement</i>	At least one month of non-hazardous duty service credit
<i>Amount</i>	<p>If a member has at least 48 months of service, the monthly benefit is 1.97% times final average compensation times years of service. For members who were participants in any one of the state retirement systems from January 1, 1998 through January 1, 1999, the benefit factor is 2.00%. For those members who retired between January 1, 1999 and January 31, 2009 with at least 240 months of service, the benefit factor is 2.20%.</p> <p>Final compensation is calculated by taking the average of the highest five (5) fiscal years of salary. If the number of months of service credit during the five (5) year period is less than forty-eight (48), one (1) or more additional fiscal years shall be used.</p> <p>If a member has less than 48 months of service, the monthly benefit is the actuarial equivalent of two times the member's contributions with interest.</p>

*Members whose participation began on or after 8/1/2004, but before 9/1/2008*

<i>Age Requirement</i>	65
<i>Service Requirement</i>	At least one month of non-hazardous duty service credit
<i>Amount</i>	<p>If a member has at least 48 months of service, the monthly benefit is 2.00% multiplied by final average compensation, multiplied by years of service.</p> <p>Final compensation is calculated by taking the average of the highest five (5) fiscal years of salary. If the number of months of service credit during the five (5) year period is less than forty-eight (48), one (1) or more additional fiscal years shall be used.</p> <p>If a member has less than 48 months of service, the monthly benefit is the actuarial equivalent of two times the member's contributions with interest.</p>



**Non-Hazardous Normal Retirement (continued):**

*Members whose participation began on or after 9/1/2008 but before 1/1/2014*

*Requirement*

Age 65 with 60 months of non-hazardous duty service credit, or age 57 if age plus service equals at least 87.

*Amount*

The monthly benefit is the following benefit factor based on service credit at retirement plus 2.00% for each year of service greater than 30 years, multiplied by final average compensation, multiplied by years of service.

Service Credit	Benefit Factor
10 years or less	1.10%
10+ – 20 years	1.30%
20+ – 26 years	1.50%
26+ – 30 years	1.75%

Final compensation is calculated by taking the average of the last (not highest) five (5) complete fiscal years of salary. Each fiscal year used to determine final compensation must contain twelve (12) months of service credit.

*Members whose participation began on or after 1/1/2014*

*Requirement*

Age 65 with 60 months of non-hazardous duty service credit, or age 57 if age plus service equals at least 87.

*Amount*

Each year that a member is an active contributing member to the System, the member and the member’s employer will contribute 5.00% and 4.00% of creditable compensation respectively into a hypothetical account. This hypothetical account will earn interest annually on both the member’s and employer’s contribution at a minimum rate of 4%. If the System’s geometric average net investment return for the previous five years exceeds 4%, then the hypothetical account will be credited with an additional amount of interest equal to 75% of the amount of the return which exceeds 4%. All interest credits will be applied to the hypothetical account balance on June 30 based on the account balance as of June 30 of the previous year.

Upon retirement the hypothetical account which includes member contributions, employer contributions and interest credits can be withdrawn from the System as a lump sum or annuitized into a single life annuity option.



**Hazardous Normal Retirement:**

*Members whose participation began before 9/1/2008*

- Age Requirement* 55
- Service Requirement* At least one month of hazardous duty service credit
- Amount* If a member has at least 60 months of service, the monthly benefit is 2.49% multiplied by final average compensation, multiplied by years of service.  
  
Final compensation is calculated by taking the average of the highest three (3) fiscal years of salary. If the number of months of service credit during the three (3) year period is less than twenty-four (24), one (1) or more additional fiscal years shall be used.  
  
If a member has less than 60 months of service, the monthly benefit is the actuarial equivalent of two times the member's contributions with interest.

*Members whose participation began on or after 9/1/2008 but before 1/1/2014*

- Age Requirement* 60
- Service Requirement* At least 60 months of hazardous duty service credit
- Amount* The monthly benefit is the following benefit factor based on service credit at retirement, multiplied by final average compensation, multiplied by years of service.

Service Credit	Benefit Factor
10 years or less	1.30%
10+ – 20 years	1.50%
20+ – 25 years	2.25%
25+ years	2.50%

Final compensation is calculated by taking the average of the highest three (3) complete fiscal years of salary. Each fiscal year used to determine final compensation must contain twelve (12) months of service credit.



**Hazardous Normal Retirement (continued):**

*Members whose participation began on or after 1/1/2014*

<i>Age Requirement</i>	60
<i>Service Requirement</i>	At least 60 months of hazardous duty service credit or 25 or more years of service, with no age requirement
<i>Amount</i>	<p>Each year that a member is an active contributing member to the System, the member and the member's employer will contribute 8.00% and 7.50% of creditable compensation respectively into a hypothetical account. This hypothetical account will earn interest annually on both the member's and employer's contribution at a minimum rate of 4%. If the System's geometric average net investment return for the previous five years exceeds 4%, then the hypothetical account will be credited with an additional amount of interest equal to 75% of the amount of the return which exceeds 4%. All interest credits will be applied to the hypothetical account balance on June 30 based on the account balance as of June 30 of the previous year.</p> <p>Upon retirement the hypothetical account which includes member contributions, employer contributions and interest credits can be withdrawn from the System as a lump sum or annuitized into a single life annuity option.</p>

**Non-Hazardous Early Retirement:**

*Members whose participation began before 9/1/2008*

<i>Requirement</i>	Age 55 with 60 months of service or any age with 25 years of service.
<i>Amount</i>	Normal retirement benefit reduced by 6.5% per year for the first five years and 4.5% per year for the next five years for each year the member is younger than age 65 or has less than 27 years of service, whichever is smaller.



**Non-Hazardous Early Retirement (continued):**

*Members whose participation began on or after 9/1/2008 but before 1/1/2014*

<i>Requirement</i>	Age 60 with 10 years of service.
<i>Amount</i>	Normal retirement benefit reduced by 6.5% per year for the first five years and 4.5% per year for the next five years for each year the member is younger than age 65, or does not meet the rule of 87 (age plus service) and is younger than age 57, whichever is smaller.

**Hazardous Early Retirement:**

*Members whose participation began before 9/1/2008*

<i>Requirement</i>	Age 50 with 15 years of service or any age with 20 years service.
<i>Amount</i>	Normal retirement benefit reduced by 6.5% per year for the first five years and 4.5% per year for the next five years for each year the member is younger than age 55 or has less than 20 years service, whichever is smaller.

*Members whose participation began on or after 9/1/2008 but before 1/1/2014*

<i>Requirement</i>	Age 50 with 15 years of service or any age with 25 years service.
<i>Amount</i>	Normal retirement benefit reduced by 6.5% per year for the first five years and 4.5% per year for the next five years for each year the member is younger than age 60 or has less than 25 years service, whichever is smaller.

**Non-Hazardous Disability:**

<i>Age Requirement</i>	None
<i>Service Requirement</i>	60 months

*Members whose participation began before 8/1/2004*

Normal retirement benefit except that service credit will be added to total service for the period from the last day of plan employment to the member's 65th birthday or until the combined total service as of the last day of paid employment and added service equals 25 years. The total amount of service credit added shall not exceed the member's actual service credit on the last day of paid employment. For members with at least 25 years of service but less than 27 years of service, total service shall be 27 years. For employees with 27 or more years of service credit, actual service will be used.



**Non-Hazardous Disability (continued):**

A contributing member in a non-hazardous position who is disabled in the line of duty is entitled to a retirement benefit of not less than 25% of the member's final monthly rate of pay plus 10% of the member's final monthly rate of pay for each dependent child. The maximum dependent child's benefit is 40% of the member's final monthly rate of pay.

*Members whose participation began on or after 8/1/2004 but before 1/1/2014*

Normal retirement benefit based on actual service with no penalty or, if larger, 20% of the Final Rate of Pay. May apply for disability even after normal retirement age.

*Members whose participation began on or after 1/1/2014*

The hypothetical account which includes member contributions, employer contributions and interest credits can be withdrawn from the System as a lump sum or an annuity equal to the larger of 20% of the member's monthly final rate of pay or the annuitized hypothetical account into a single life annuity option.

**Hazardous Disability:**

*Age Requirement*

None

*Service Requirement*

60 months (waived if in line of duty disability)

*Members whose participation began before 8/1/2004*

Normal retirement benefit except if the member's total service credit is less than 20 years, service credit will be added for the period from the last day of paid employment to the member's 55th birthday.

The maximum service credit added will not exceed the total service the member had on this last day of paid employment and the maximum service credit for calculating his retirement allowance, including total service and service added will not exceed 20 years. May not apply if eligible for an unreduced retirement allowance.

A member in a hazardous position who is disabled in the line of duty is entitled to the normal retirement benefit based on years of service and final compensation determined as of the date of disability (no penalty), except that the monthly retirement allowance payable shall not be less than 25% of the member's monthly final monthly rate of pay. Each dependent child shall receive 10% of the disabled member's monthly final rate of pay; however the total maximum dependent children's benefit shall not exceed 40% of the member's monthly final rate of pay.



**Hazardous Disability (continued):**

*Members whose participation began on or after 8/1/2004 but before 1/1/2014*

Normal retirement benefit based on years of service and final compensation determined as of the date of disability (no penalty) or, if larger, 25% of the member’s monthly final rate of pay. May apply for disability even after normal retirement age.

*Members whose participation began on or after 1/1/2014*

The hypothetical account which includes member contributions, employer contributions and interest credits can be withdrawn from the System as a lump sum or an annuity equal to the larger of 25% of the member’s monthly final rate of pay or the annuitized hypothetical account into a single life annuity option.

**Vesting:**

*Members whose participation began before 9/1/2008*

*Age Requirement*

None

*Service Requirement*

60 months. Service purchased after August 1, 2004 does not count toward vesting insurance benefits. Service purchased by employees who began participating on or after August 1, 2004 does not count toward vesting retirement benefits. Recontribution of refunds and omitted service purchases are the exception to this rule for service requirement.

*Amount*

Normal retirement benefit deferred to normal retirement age or reduced benefit payable at early retirement age.

*Normal Retirement Age*

65 for non-hazardous members and 55 for hazardous members.

*Members whose participation began on or after 9/1/2008 but before 1/1/2014*

*Age Requirement*

None

*Service Requirement*

60 months. Service purchased after August 1, 2004 does not count toward vesting insurance benefits.

Service purchased by employees who began participating on or after August 1, 2004 does not count toward vesting retirement benefits. Recontribution of refunds and omitted service purchases are the exception to this rule for service requirement.

*Amount*

Normal retirement benefit deferred to normal retirement age or reduced benefit payable at early retirement age.



**Vesting (continued):**

*Normal Retirement Age* 65 for non-hazardous members and 60 for hazardous members.

*Members whose participation began on or after 1/1/2014*

*Age Requirement* None

*Service Requirement* 60 months.

*Amount* Upon termination the hypothetical account which includes member contributions, employer contributions and interest credits can be withdrawn from the System as a lump sum or the member can elect to leave the hypothetical account balance in the System. If the member does not withdraw the account balance, it will continue to earn 4% interest. Upon reaching normal retirement age the member can apply for retirement and receive the account balance as a lump sum payment or annuitize the account balance into a single life annuity.

**Pre-Retirement Death Benefit (not in line of duty):**

*Members whose participation began before 1/1/2014*

*Requirement* Eligible for Normal or Early Retirement, or any age in active employment with 60 months service, or any age and not in active employment with at least 144 months of service.

*Amount* Benefit equal to the benefit the member would have received had the member retired on the day before the date of death and elected a 100% joint and survivor form. Benefit is actuarially reduced if member is less than normal retirement age at the date of death.

*Members whose participation began on or after 1/1/2014*

*Requirement* 60 months service

*Amount* The maximum of the benefit equal to the benefit the member would have received had the member retired on the day before the date of death.



**Spouse's Pre-Retirement Death Benefit (in line of duty):**

<i>Requirement</i>	None
<i>Amount</i>	The spouse may choose (1) a \$10,000 lump sum payment and monthly payments of 25% of the member's final monthly rate of pay or (2) benefit options offered under death not in line of duty.

**Dependent Non-Spouse's Death Benefit (in line of duty) – Hazardous Plan:**

<i>Requirement</i>	None
<i>Amount</i>	The non-spouse may choose (1) a \$10,000 lump sum payment or (2) benefit options offered under death not in line of duty.

**Dependent Child's Death Benefit (in line of duty):**

<i>Requirement</i>	None
<i>Amount</i>	10% of member's final monthly rate of pay. Dependent child payments cannot exceed 40% of the member's monthly final rate of pay.

**Post-Retirement Death Benefit:**

<i>Requirement</i>	Retired member in receipt of monthly benefit based on at least 48 months or more of combined service with KERS, CERS or SPRS.
<i>Amount</i>	\$5,000

**Non-Hazardous Member Contributions:**

<i>Members whose participation began before 9/1/2008</i>	5% of all creditable compensation. Interest paid on the members' accounts is currently 2.5% shall not be less than 2.0%. Member entitled to a full refund of contributions with interest.
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<i>Members whose participation began on or after 9/1/2008</i>	6% of all creditable compensation, with 5% being credited to the member's account and 1% deposited to the KRS 401(h) Account. Interest paid on the members' accounts will be set at 2.5%. Member entitled to a full refund of contributions and interest in their individual account, however, the 1% contributed to the insurance fund is non-refundable.
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**Non-Hazardous Member Contributions (continued):**

*Members whose participation began on or after 1/1/2014*

6% of all creditable compensation, with 5% being credited to the member's account and 1% deposited to the KRS 401(h) Account. Member entitled to a full refund of contributions and interest on the member's portion of the hypothetical account, however, the 1% contributed to the insurance fund is non-refundable.

**Hazardous Member Contributions:**

*Members whose participation began before 9/1/2008*

8% of all creditable compensation. Interest paid on the members' accounts is currently set at 2.5% and per statute, shall not be less than 2.0%. Member entitled to a full refund of contributions with interest.

*Members whose participation began on or after 9/1/2008 and up to 1/1/2014*

9% of all creditable compensation, with 8% being credited to the member's account and 1% deposited to the KRS 401(h) Account. Interest paid on the members' accounts will be set at 2.5%. Member entitled to a full refund of contributions and interest in their individual account, however, the 1% contributed to the insurance fund is non-refundable.

*Members whose participation began on or after 1/1/2014*

9% of all creditable compensation, with 8% being credited to the member's account and 1% deposited to the KRS 401(h) Account. Member entitled to a full refund of contributions and interest on the member's portion of the hypothetical account, however, the 1% contributed to the insurance fund is non-refundable.



## SCHEDULE C

### STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions and methods used in the valuation were based on the actuarial experience study prepared as of June 30, 2008, submitted August 14, 2009, and adopted by the Board on August 20, 2009.

INVESTMENT RATE OF RETURN: 7.75% per annum, compounded annually for retirement and insurance benefits.

SALARY INCREASES: Representative values of the assumed annual rates of future salary increases for both non-hazardous and hazardous members are as follows and include inflation at 4.50% per annum:

Service	Annual Rates of				
	Merit & Seniority		Base (Economy)	Increase Next Year	
	Non-Hazardous	Hazardous		Non-Hazardous	Hazardous
0-1	8.50%	15.50%	4.50%	13.00%	20.00%
1-2	5.00%	6.00%	4.50%	9.50%	10.50%
2-3	1.50%	2.00%	4.50%	6.00%	6.50%
3-4	1.50%	1.25%	4.50%	6.00%	5.75%
4-5	1.00%	1.00%	4.50%	5.50%	5.50%
5-6	1.00%	0.50%	4.50%	5.50%	5.00%
6-7	0.75%	0.00%	4.50%	5.25%	4.50%
7-8	0.75%	0.00%	4.50%	5.25%	4.50%
8-9	0.50%	0.00%	4.50%	5.00%	4.50%
9-10	0.50%	0.00%	4.50%	5.00%	4.50%
10 & Over	0.25%	0.00%	4.50%	4.75%	4.50%



SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed annual rates of death, disability, withdrawal and retirement are shown in the following tables:

**Non-Hazardous Members**

Age	Withdrawal and Vesting*	Death			Service Retirement**
		Male	Female	Disability	
20	5.75%	0.03%	0.01%	0.04%	
25	5.75	0.03	0.01	0.05	
30	5.30	0.04	0.02	0.06	
35	4.40	0.04	0.02	0.09	
40	3.70	0.05	0.04	0.13	
45	3.02	0.08	0.05	0.22	
50	2.70	0.13	0.07	0.37	
55	2.20	0.22	0.11	0.61	8.0%
60	0.75	0.40	0.22	0.97	10.0
65		0.73	0.43		22.0
70		1.19	0.69		22.0
75					100.0

\* Select rates of withdrawal apply in the first five years of employment regardless of age. The rates are 25.0%, 14.0%, 10.0%, 8.0% and 6.5%, respectively.

\*\* If service is at least 27 years, the rate is 30% for members participating before 9/1/2008. If age plus service is at least 87, the rate is 30% for members participating on or after 9/1/2008.

**Hazardous Members**

Age	Withdrawal and Vesting*	Death**			Service Retirement		
		Male	Female	Disability	Service	Rate <sup>+</sup>	Rate <sup>++</sup>
20	3.00%	0.03%	0.01%	0.05%	20	20.0%	
25	2.70	0.03	0.01	0.07	25	33.0	20.0%
30	2.50	0.04	0.02	0.09	30	33.0	33.0
35	2.50	0.04	0.02	0.13	35	40.0	33.0
40	2.50	0.05	0.04	0.20	40		40.0
45	2.50	0.08	0.05	0.33			
50	2.50	0.13	0.07	0.56			
55		0.22	0.11	0.92			
60		0.40	0.22	1.46			

\* Select rates of withdrawal apply in the first five years of employment regardless of age. The rates are 14.0%, 7.5%, 6.0%, 4.5% and 4.0%, respectively.

\*\* 75% are presumed to be non-duty related, and 25% are assumed to be duty related.

+ Applies to members participating before 9/1/2008. The annual rate of service retirement is 100% at age 62.

++ Applies to members participating on or after 9/1/2008. The annual rate of service retirement is 100% at age 60.



**DEATH AFTER RETIREMENT:** The rates of mortality for the period after service retirement are according to 1983 Group Annuity Mortality Table for all retired members and beneficiaries as of June 30, 2006 and the 1994 Group Annuity Mortality Table for all other members. The Group Annuity Mortality Table set forward 5 years is used for the period after disability retirement. There is some margin in the current mortality tables for possible future improvement in mortality rates and that margin will be reviewed again when the next experience investigation is conducted.

**PERCENT MARRIED:** 100% of employees are assumed to be married, with the wife 3 years younger than the husband.

**DEPENDENT CHILDREN:** For hazardous members' duty-related death benefits, it is assumed that the member is survived by two dependent children each age 6.

**ACTUARIAL METHOD:** Entry age normal cost method. Actuarial gains and losses are reflected in the unfunded actuarial accrued liability.

**ASSET VALUATION METHOD:** The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected market value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected market value.