



KERS

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November 10, 2015

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

Dear Members of the Board:

Presented in this report are the results of the annual actuarial valuation of the retirement and insurance benefits provided under the Kentucky Employees Retirement System (KERS). The purpose of the valuation was to measure the System's funding progress and to determine the required employer contribution rates for the fiscal years beginning July 1, 2016 and July 1, 2017. The date of the valuation was June 30, 2015.

The valuation was based upon data, furnished by the Executive Director and the Kentucky Retirement Systems (KRS) staff, concerning active, inactive and retired members along with pertinent financial information. The complete cooperation of the KRS staff in furnishing materials requested is hereby acknowledged with appreciation.

Since the previous valuation, the revised assumptions from the economic and demographic experience investigation covering the five-year period from July 1, 2008 to June 30, 2013 have been reflected in this valuation.

To the best of our knowledge, this report is complete and accurate. The valuation was 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 undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. The valuation was prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board.

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.

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144

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

[www.CavMacConsulting.com](http://www.CavMacConsulting.com)

Offices in Englewood, CO • Kennesaw, GA • Bellevue, NE



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, in the aggregate, internally consistent and reasonably based on the actual experience of the system.

Respectfully submitted,

A handwritten signature in cursive script that reads "Todd B. Green".

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

A handwritten signature in cursive script that reads "Alisa Bennett".

Alisa Bennett, FSA, EA, FCA, MAAA  
Principal and Consulting Actuary

TBG/AB:kc



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**REPORT ON THE ANNUAL VALUATION OF THE  
KENTUCKY EMPLOYEES RETIREMENT SYSTEM**

**PREPARED AS OF JUNE 30, 2015**

**SECTION I – SUMMARY OF PRINCIPAL RESULTS**

This report, prepared as of June 30, 2015, presents the results of the annual actuarial valuation of the retirement and insurance benefits provided under the System. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results, broken down between non-hazardous and hazardous members, are summarized in the following table.

**SUMMARY OF PRINCIPAL RESULTS**

	KERS Non-Hazardous		KERS Hazardous		KERS Totals	
	6/30/2015	6/30/2014	6/30/2015	6/30/2014	6/30/2015	6/30/2014
<b>Contributions for next fiscal year:</b>						
Retirement	38.93%	33.57%	21.08%	17.09%		
Insurance	<u>8.35</u>	<u>7.74</u>	<u>2.74</u>	<u>7.12</u>	N/A	N/A
Total	47.28%	41.31%	23.82%	24.21%		
<b>Funded status as of valuation date:</b>						
<b>Retirement</b>						
Actuarial accrued liability	\$12,359,672,849	\$11,550,110,224	\$895,433,387	\$816,850,063	\$13,255,106,236	\$12,366,960,287
Actuarial value of assets	2,350,989,940	2,423,956,716	556,687,757	527,897,261	2,907,677,697	2,951,853,977
Unfunded liability on actuarial value of assets	10,008,682,909	9,126,153,508	338,745,630	288,952,802	10,347,428,539	9,415,106,310
Funded ratio on actuarial value of assets	19.02%	20.99%	62.17%	64.63%	21.94%	23.87%
Market value of assets	\$2,307,858,072	\$2,560,419,519	\$550,120,310	\$559,504,340	\$2,857,978,382	\$3,119,923,859
Unfunded liability on market value of assets	10,051,814,777	8,989,690,705	345,313,077	257,345,723	10,397,127,854	9,247,036,428
Funded ratio on market value of assets	18.67%	22.17%	61.44%	68.50%	21.56%	25.23%
<b>Insurance</b>						
Actuarial accrued liability	\$2,413,705,252	\$2,226,759,925	\$374,904,234	\$396,986,820	\$2,788,609,486	\$2,623,746,745
Actuarial value of assets	695,018,262	621,236,646	451,514,191	419,395,867	1,146,532,453	1,040,632,513
Unfunded liability on actuarial value of assets	1,718,686,990	1,605,523,279	(76,609,957)	(22,409,047)	1,642,077,033	1,583,114,232
Funded ratio on actuarial value of assets	28.79%	27.90%	120.43%	105.64%	41.11%	39.66%
Market value of assets	\$687,684,080	\$664,775,708	\$441,626,285	\$435,503,976	\$1,129,310,365	\$1,100,279,684
Unfunded liability on market value of assets	1,726,021,172	1,561,984,217	(66,722,051)	(38,517,156)	1,659,299,121	1,523,467,061
Funded ratio on market value of assets	28.49%	29.85%	117.80%	109.70%	40.50%	41.94%
<b>Demographic data as of valuation date:</b>						
Number of retired participants and beneficiaries	42,269	41,223	3,758	3,620	46,027	44,843
Number of vested former members	9,806	7,891	460	365	10,266	8,256
Number of former members due a refund	38,454	38,748	4,094	3,643	42,548	42,391
Number of active members	39,056	40,365	3,886	4,024	42,942	44,389
Total salary	\$1,544,234,409	\$1,577,496,447	\$128,680,130	\$129,076,038	\$1,672,914,539	\$1,706,572,485
Average salary	\$39,539	\$39,081	\$33,114	\$32,077	\$38,958	\$38,446



The Kentucky Employees Retirement System is a defined benefit pension fund that provides pensions and health care coverage for employees of state government, non-teaching staff at regional state supported universities, local health departments, regional mental health/mental retardation agencies, and other quasi-state agencies. The Kentucky Employees Retirement System includes both non-hazardous and hazardous duty benefits. This report presents the results of the June 30, 2015 actuarial funding valuation for both the Retirement Plan and the Insurance Fund. The primary purpose of performing the actuarial funding valuations are to:

- Calculate the actuarially determined contribution rates for the fiscal years beginning July 1, 2016 and July 1, 2017 for both the Retirement Plan and the Insurance Fund.
- Determine the experience of the System since the last valuation date.
- Disclose asset and liability measures as of the valuation date.
- Analyze and report on trends in contributions, assets, and liabilities over the past several years.

Since the previous valuation there were no changes to the plan provisions, however the actuarial methods and assumptions were updated to reflect an experience study performed over the five-year period ending June 30, 2013 dated April 30, 2014. This experience study was adopted by the Board on December 4, 2014. The experience study reviewed the actuarial assumptions and methods used in the actuarial valuation process of both the Retirement Plan and Insurance Fund. For the Retirement Plan the assumptions fall into three categories. The first are economic assumptions which include price inflation, wage inflation and investment return. The second category includes demographic assumptions which includes assumed rates of mortality, service retirement, disability retirement, withdrawal and salary increases for merits and promotions. For the Insurance Fund the assumptions fall into three categories. The first two, economic assumptions and demographic assumptions are the same as those used for the Retirement Plan. The third category includes other post-employment benefit assumptions.

As a result of the experience the following assumptions were updated:

Summary of Assumptions Changes	
<b>Economic Assumptions</b>	
<b>Salary</b>	Composed of Inflation component, Real Rate of Salary Increase component and Merit/Promotion Scale
Inflation	Reduction to annual assumed rate of inflation assumption from 3.50% to 3.25%.
Wage Inflation	Reduction to annual assumed rate from real salary increase assumption from 1.00% to 0.75%
<b>Investment Rate of Return</b>	Composed of Inflation component (3.25% from above) and Real Rate of Return component. Reduction from 7.75% to 7.50% net investment return assumption.
<b>Payroll Growth</b>	Reduce from 4.50% to 4.00%.



Summary of Assumptions Changes	
Demographic Assumptions	
<b>Withdrawal</b>	Increase rates of withdrawal
<b>Retirement</b>	Adjusted rates of retirement
<b>Disability</b>	Decreased rates of disability
<b>Base Mortality</b>	Healthy Retirees – RP-2000 Mortality Tables Set back one year for females. Disabled Retirees – RP-2000 Combined Disabled Mortality Tables for disabled annuitants set back four years for males. Actives – 50% of the RP-2000 Combined Mortality for males, 30% of the RP-2000 Combined Mortality for Females.
<b>Mortality Projection</b>	Healthy Retiree and Beneficiary – Mortality rates are projected to 2013 using improvement Scale BB Disable Retirees – Mortality rates are projected to 2013 using improvement Scale BB Active Members – Mortality rates are projected to 2013 using improvement Scale BB
<b>Other Post-Employment Benefit Assumptions</b>	Updated participation assumptions

The actuarial valuation results provide “snapshot” view the System’s financial condition on June 30, 2015. Actuarial gains and losses result when actuarial experience of the plan (such as asset return, pay increases, turnover, deaths, etc.) is different from the expected by the actuarial assumptions.

**Non-Hazardous**

The Retirement Plan’s Unfunded Actuarial Accrued Liability (UAAL) was expected to be \$9,320.0 million taking into account contributions from both the employer and members of \$632.8 million. The actual UAAL was \$10,014.6 million. The increase of \$694.6 million was due to the change in actuarial assumptions and methods offset by an actuarial gain due to actual experience different than what was anticipated by the assumptions. The Insurance Fund’s UAAL was expected to be \$1,641.2 million taking into account expected employer and member contributions of \$125.1 million. The actual UAAL was \$1,718.7 million. The increase in the UAAL of \$77.5 million was due to the change in actuarial assumptions and methods offset by an actuarial gain due to actuarial experience different than what was anticipated by the assumptions.

The remaining amortization period of the UAAL of both the Pension and Insurance Funds is 28-years as of June 30, 2015. Detailed analysis of the gains and losses are presented in Section V of the report.

As of June 30, 2015 the Pension and Insurance Funds had net assets of \$2,307,858,072 and \$687,684,080 respectively. The market value of assets is not used directly in the calculation of the unfunded actuarial accrued liability and the actuarially determined contribution. The asset valuation



method which recognizes the annual unexpected portion of market value investment returns over a five-year period, attempts to dampen the effect of market volatility. The resulting amount is called the "actuarial value of assets" and is utilized to determine the actuarial valuation results. In this year's actuarial valuation, the actuarial value of assets as of June 30, 2015 was \$2,350,989,940 and \$695,018,262 respectively for the Pension and Insurance Funds.

On a market basis, the estimated rate of return was 1.84% and 1.29% respectively for the Pension and Insurance Funds, assuming all cash flows occur in the middle of the year. Due to better than assumed prior returns on the market value of assets the net rate of return measured on the actuarial value of assets was 9.85% and 9.48% respectively for both the Pension and Insurance Funds. Please see Section III and Schedule B of this report for more detailed information on the market and actuarial value of assets.

### **Hazardous**

The Retirement Plan's Unfunded Actuarial Accrued Liability (UAAL) was expected to be \$286.3 million taking into account contributions from both the employer and members of \$42.2 million. The actual UAAL was \$338.7 million. The increase of \$52.4 million was due to the change in actuarial assumptions and methods and an actuarial loss due to actual experience different than what was anticipated by the assumptions. The Insurance Funds UAAL was expected to be (\$23.0) million taking into account expected employer and member contributions of \$9.6 million. The actual UAAL was (\$76.6) million. The decrease in the UAAL of \$53.6 million was due to the change in actuarial assumptions and methods and an actuarial gain due to actuarial experience different than what was anticipated by the assumptions.

The remaining amortization period of the UAAL of both the Pension and Insurance Funds is 28-years as of June 30, 2015. Detailed analysis of the gains and losses are presented in Section V of the report.

As of June 30, 2015 the Pension and Insurance Funds had net assets of \$550,120,310 and \$441,626,285 respectively. The market value of assets is not used directly in the calculation of the unfunded actuarial accrued liability and the actuarially determined contribution. The asset valuation method which recognizes the annual unexpected portion of market value investment returns over a five-year period, attempts to dampen the effect of market volatility. The resulting amount is called the "actuarial value of assets" and is utilized to determine the actuarial valuation results. In this year's actuarial valuation, the actuarial value of assets as of June 30, 2015 was \$556,687,757 and \$451,514,191 respectively for the Pension and Insurance Funds.

On a market basis, the estimated rate of return was 1.58% and 1.79% respectively for the Pension and Insurance Funds, assuming all cash flows occur in the middle of the year. Due to better than assumed prior returns on the market value of assets the net rate of return measured on the actuarial value of assets was 9.03% and 8.07% respectively for both the Pension and Insurance Funds. Please see Section III and Schedule B of this report for more detailed information on the market and actuarial value of assets.



Schedule F provides sensitivity analysis for three different sets of economic assumptions; the discount rate assumption, the inflation assumption, and the payroll growth assumption. Two assumption change scenarios are presented for each economic assumption. The results of the economic assumption change scenarios are presented along with the valuation results for comparison.

The long-term financial health of this retirement System, like all retirement systems, is heavily dependent on two key items: (1) future investment returns and (2) contributions to the System. The System has recently been strengthened due to two reasons. They are: recent legislative action that provides 100% funding of the actuarially determined contribution and the elimination of unfunded ad hoc cost-of-living adjustments for retirees. The cost for providing cost-of-living adjustments for retirees must be prefunded in advance.



**SECTION II – MEMBERSHIP DATA**

Data regarding the membership of the System for use as a basis for the valuation were furnished by the System’s office. The following tables summarize the membership of the system as of June 30, 2015 upon which the valuation was based. Detailed tabulations of the data are given in Schedule E.

**Active Members**

Employee Group	Number	Payroll	Group Averages		
			Salary	Age	Service
Non-Hazardous	39,056	\$1,544,234,409	\$39,539	45.0	10.6
Hazardous	3,886	128,680,130	33,114	40.7	7.5
<b>Total in KERS</b>	<b>42,942</b>	<b>\$1,672,914,539</b>	<b>\$38,958</b>	<b>44.6</b>	<b>10.3</b>

The following tables show a six-year history of active member valuation data.

**SCHEDULE OF NON-HAZARDOUS KERS ACTIVE MEMBER VALUATION DATA**

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Increase in Average Pay
6/30/2010	47,090	\$1,815,146,388	\$38,546	1.2%
6/30/2011	46,617	1,731,632,748	37,146	(3.6)
6/30/2012	42,196	1,644,896,681	38,982	4.9
6/30/2013	42,226	1,644,408,698	38,943	(0.1)
6/30/2014	40,365	1,577,496,447	39,081	0.4
6/30/2015	39,056	1,544,234,409	39,539	1.2

**SCHEDULE OF HAZARDOUS KERS ACTIVE MEMBER VALUATION DATA**

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Increase in Average Pay
6/30/2010	4,291	\$143,557,944	\$33,456	(0.7%)
6/30/2011	4,291	133,053,792	31,008	(7.3)
6/30/2012	4,086	131,976,754	32,300	4.2
6/30/2013	4,127	132,015,368	31,988	(1.0)
6/30/2014	4,024	129,076,038	32,077	0.3
6/30/2015	3,886	128,680,130	33,114	3.2



The following tables show the number and annual retirement allowances payable to retired members and their beneficiaries on the roll of the Retirement System as of the valuation date as well as certain group averages.

#### Non-Hazardous Retired Lives

Type of Benefit Payment	Number	Annual Benefits*	Group Averages	
			Benefit	Age
Retiree	35,867	\$796,779,222	\$22,215	68.0
Disability	1,910	24,556,716	12,857	64.7
Beneficiary	4,492	62,245,624	13,857	69.8
Total in KERS	42,269	\$883,581,562	\$20,904	68.1

\* Does not include number and annual benefits for those members included in the hazardous system who are also receiving benefits from the non-hazardous system. There were 2,214 members in the hazardous system also receiving an annual benefit from the non-hazardous System. Total annual benefits for these members is \$19,738,904.

#### Hazardous Retired Lives

Type of Benefit Payment	Number	Annual Benefits	Group Averages	
			Benefit	Age
Retiree	3,226	\$51,432,997	\$15,943	63.5
Disability	152	1,326,242	8,725	58.4
Beneficiary	380	3,671,860	9,663	64.5
Total in KERS	3,758	\$56,431,099	\$15,016	63.4

This valuation also includes 52,814 inactive members (48,260 Non-Hazardous and 4,554 Hazardous; of which 9,806 Non-Hazardous are vested and 460 Hazardous are vested).



**SECTION III – ASSETS**

- As of June 30, 2015 the total market value of assets amounted to \$3,987,288,747 as shown in the following table. The Insurance assets include both the amount in the health care trust and the amount in the 401(h) account in the pension trust established to meet the requirements of HB1.

**MARKET VALUE OF ASSETS BY FUND  
AS OF JUNE 30, 2015**

Member Group	Retirement	Insurance	KERS Total
Non-Hazardous	\$2,307,858,072	\$687,684,080	\$2,995,542,152
Hazardous	<u>550,120,310</u>	<u>441,626,285</u>	<u>991,746,595</u>
Total	\$2,857,978,382	\$1,129,310,365	\$3,987,288,747

- The five-year smoothed market related actuarial value of assets used for the current valuation was \$4,054,210,150. Schedule B shows the development of the actuarial value of assets as of June 30, 2015. The following table shows the actuarial value of assets allocated among member groups.

**COMPARISON OF ACTUARIAL VALUE OF ASSETS**

	June 30, 2015	June 30, 2014
<b>Retirement</b>		
Non-Hazardous	\$ 2,350,989,940	\$ 2,423,956,716
Hazardous	<u>556,687,757</u>	<u>527,897,261</u>
Total	\$ 2,907,677,697	\$ 2,951,853,977
<b>Insurance</b>		
Non-Hazardous	\$ 695,018,262	\$ 621,236,646
Hazardous	<u>451,514,191</u>	<u>419,395,867</u>
Total	\$ 1,146,532,453	\$ 1,040,632,513
<b>KERS Total</b>		
Non-Hazardous	\$ 3,046,008,202	\$ 3,045,193,362
Hazardous	<u>1,008,201,948</u>	<u>947,293,128</u>
Total	\$ 4,054,210,150	\$ 3,992,486,490



## SECTION IV - COMMENTS ON VALUATION

Schedule A of this report contains the valuation balance sheets which show the present and prospective assets and liabilities of the System as of June 30, 2015. Separate balance sheets are shown for each employee group as well as in total for Retirement and Insurance. Since the previous valuation, the revised assumptions from the economic and demographic experience investigation covering the five-year period from July 1, 2008 to June 30, 2013 have been reflected in this valuation.

### Retirement

1. The total valuation balance sheet on account of retirement benefits shows that the System has total prospective retirement benefit liabilities of \$14,452,312,749, of which \$9,694,146,920 is for the prospective benefits payable on account of present retired members and beneficiaries of deceased members, \$376,510,149 is for the prospective benefits payable on account of present inactive members, and \$4,381,655,680 is for the prospective benefits payable on account of present active members. Against these retirement benefit liabilities the System has a total present actuarial value of assets of \$2,907,677,697 as of June 30, 2015. The difference of \$11,544,635,052 between the total liabilities and the total present actuarial value of assets represents the present value of contributions to be made in the future on account of retirement benefits. Of this amount, \$763,785,056 is the present value of future contributions expected to be made by members, and the balance of \$10,780,849,996 represents the present value of future contributions payable by the employers.
2. The employers' contributions to the System on account of retirement benefits consist of normal contributions, accrued liability contributions and contributions for administrative expenses. The valuation indicates that employer normal contributions at the rate of 2.96% of payroll for non-hazardous members and 6.30% of payroll for hazardous members are required to fund the continuing benefit accruals for the average active member of KERS.
3. Prospective employer normal contributions on account of retirement benefits at the above rates have a present value of \$433,421,457. When this amount is subtracted from \$10,780,849,996, which is the present value of the total future contributions to be made by the employers, there remains \$10,347,428,539 as the amount of future accrued liability contributions.
4. For non-hazardous members, it is recommended that the accrued liability contribution rate payable by the State on account of retirement benefits be set at 35.33% of payroll. For hazardous members, it is recommended that the accrued liability contribution rate payable by the State on account of retirement benefits be set at 14.15% of payroll. These rates are sufficient to liquidate the unfunded accrued liability of \$10,008,682,909 for non-hazardous members and \$338,745,630 for hazardous members over 28 years on the assumption that the aggregate payroll for non-hazardous and hazardous members will increase by 4.00% each year.
5. The contribution rate for administrative expenses is determined to be 0.64% of payroll for non-hazardous members and 0.63% of payroll for hazardous members.



### Insurance

1. The total valuation balance sheet on account of insurance benefits shows that the System has total prospective insurance benefit liabilities of \$3,157,765,303, of which \$1,513,706,511 is for the prospective benefits payable on account of present retired members and beneficiaries of deceased members, \$135,758,341 is for the prospective benefits payable on account of present inactive members, and \$1,508,300,451 is for the prospective benefits payable on account of present active members. Against these retirement benefit liabilities the System has a total present actuarial value of assets of \$1,146,532,453 as of June 30, 2015. The difference of \$2,011,232,850 between the total liabilities and the total present actuarial value of assets represents the present value of contributions to be made in the future on account of retirement benefits. Of this amount, \$38,938,755 is the present value of future contributions expected to be made by members, and the balance of \$1,972,294,095 represents the present value of future contributions payable by the employers.
2. The employers' contributions to the System on account of insurance benefits consist of normal contributions, accrued liability contributions and contributions for administrative expenses. The valuation indicates that employer normal contributions at the rate of 2.29% of payroll for non-hazardous members and 5.87% of payroll for hazardous members are required to fund the continuing benefit accruals for the average active member of KERS.
3. Prospective employer normal contributions on account of insurance benefits at the above rates have a present value of \$330,217,062. When this amount is subtracted from \$1,972,294,095, which is the present value of the total future contributions to be made by the employers, there remains \$1,642,077,033 as the amount of future accrued liability contributions.
4. For non-hazardous members, it is recommended that the accrued liability contribution rate payable by the State on account of insurance benefits be set at 6.00% of payroll. For hazardous members, it is recommended that the accrued liability contribution rate payable by the State on account of insurance benefits be set at (3.21%) of payroll. These rates are sufficient to liquidate the unfunded accrued liability of \$1,718,686,990 for non-hazardous members and \$(76,609,957) for hazardous members over 28 years on the assumption that the aggregate payroll for non-hazardous and hazardous members will increase by 4.00% each year.
5. The contribution rate for administrative expenses is determined to be 0.06% of payroll for non-hazardous members and 0.08% of payroll for hazardous members.



**SECTION V – DERIVATION OF EXPERIENCE GAINS AND LOSSES**

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is assumed that gains and losses will be in balance over a period of years, but sizable year to year fluctuations are common. Detail on the derivation of the experience gain (loss) for the year ended June 30, 2015 is shown below (\$ millions).

**Experience Gain/(Loss)  
Retirement Benefits**

		Non-Hazardous Group	Hazardous Group	Total
(1)	UAAL* as of 6/30/14	\$ 9,126.2	\$ 289.0	\$ 9,415.2
(2)	Normal cost from last valuation	133.5	17.4	150.9
(3)	Contributions	632.8	42.2	675.0
(4)	Interest accrual: [(1) + (2)] x .0775 - (3) x .03875	693.1	22.1	715.2
(5)	Expected UAAL before changes: (1) + (2) - (3) + (4)	\$ 9,320.0	\$ 286.3	\$ 9,606.3
(6)	Change due to Actuarial Audit	(11.8)	1.0	(10.8)
(7)	Change due to new actuarial assumption or methods	(682.8)	(53.1)	(735.9)
(8)	Expected UAAL after changes: (5) - (6) - (7)	\$ 10,014.6	\$ 338.4	\$ 10,353.0
(9)	Actual UAAL as of 6/30/15	\$ 10,008.7	\$ 338.7	\$ 10,347.4
(10)	Gain/(loss): (8) - (9)	\$ 5.9	\$ (0.3)	\$ 5.6
(11)	Accrued liabilities as of 6/30/14	\$ 11,550.1	\$ 816.9	\$ 12,367.0
(12)	Gain/(loss) as percent of actuarial accrued liabilities at start of year	0.1%	(0.0%)	0.0%

\*Unfunded actuarial accrued liability



**Experience Gain/(Loss)  
Insurance Benefits**

		Non-Hazardous Group	Hazardous Group	Total
(1)	UAAL* as of 6/30/14	\$ 1,605.5	\$ (22.4)	\$ 1,583.1
(2)	Normal cost from last valuation	42.8	10.7	53.5
(3)	Expected contributions	<u>125.1</u>	<u>9.6</u>	<u>134.7</u>
(4)	Interest accrual: [(1) + (2) - (3)] x .0775	118.0	(1.7)	116.3
(5)	Expected UAAL before changes: (1) + (2) - (3) + (4)	\$ 1,641.2	\$ (23.0)	\$ 1,618.2
(6)	Change due to Actuarial Audit	(4.0)	(0.4)	(4.4)
(7)	Change due to new actuarial assumption or methods	(175.9)	30.3	(145.6)
(8)	Expected UAAL after changes: (5) - (6) - (7)	\$ 1,821.1	\$ (52.9)	\$ 1,768.2
(9)	Actual UAAL as of 6/30/15	\$ 1,718.7	\$ (76.6)	\$ 1,642.1
(10)	Gain/(loss): (8) - (9)	\$ 102.4	\$ 23.7	\$ 126.1
(11)	Accrued liabilities as of 6/30/14	\$ 2,226.8	\$ 397.0	\$ 2,623.8
(12)	Gain/(loss) as percent of actuarial accrued liabilities at start of year	4.6%	6.0%	4.8%

\* *Unfunded actuarial accrued liability*



**NON-HAZARDOUS KERS MEMBERS  
ANALYSIS OF FINANCIAL EXPERIENCE**

**Gains & Losses in Accrued Liabilities  
Resulting from Difference Between  
Assumed Experience & Actual Experience  
(\$ Millions)**

Type of Activity	Retirement \$ Gain (or Loss) For Year Ending 6/30/15	Insurance \$ Gain (or Loss) For Year Ending 6/30/15
<b>Age &amp; Service Retirements.</b> If members retire at older ages, there is a gain. If younger ages, a loss.	\$ (115.6)	\$ (35.8)
<b>Disability Retirements.</b> If disability claims are less than assumed, there is a gain. If more claims, a loss.	(9.3)	0.9
<b>Death-in Service Benefits.</b> If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	(0.4)	(1.6)
<b>Withdrawal From Employment.</b> If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	62.8	(5.7)
<b>Pay or Claims Increases.</b> If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss. For insurance, smaller claims increases than assumed creates a gain; larger, a loss.	51.2	112.3
<b>New Members.</b> Additional unfunded accrued liability will produce a loss.	(7.6)	(3.7)
<b>Investment Income.</b> If there is a greater investment income than assumed, there is a gain. If less income, a loss.	56.5	10.9
<b>Death or Waiver After Retirement.</b> If retired members live longer than assumed, there is a loss. If not as long, a gain. If retired members receiving health benefits later waive coverage, there is a gain.	(8.5)	19.1
<b>Other.</b> Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, insurance election changes, etc.	<u>(23.3)</u>	<u>6.0</u>
<b>Gain (or Loss) During Year From Financial Experience</b>	<b>\$ 5.9</b>	<b>\$ 102.4</b>
<b>Non-Recurring Items.</b> Adjustments for plan amendments, assumption changes, method changes and data corrections	<u>(694.6)</u>	<u>(179.9)</u>
<b>Composite Gain (or Loss) During Year</b>	<b>\$ (688.7)</b>	<b>\$ (77.5)</b>



**HAZARDOUS WERS MEMBERS  
ANALYSIS OF FINANCIAL EXPERIENCE**

**Gains & Losses in Accrued Liabilities  
Resulting from Difference Between  
Assumed Experience & Actual Experience  
(\$ Millions)**

Type of Activity	Retirement \$ Gain (or Loss) For Year Ending 6/30/15	Insurance \$ Gain (or Loss) For Year Ending 6/30/15
<b>Age &amp; Service Retirements.</b> If members retire at older ages, there is a gain. If younger ages, a loss.	\$ (16.9)	\$ (8.4)
<b>Disability Retirements.</b> If disability claims are less than assumed, there is a gain. If more claims, a loss.	(0.7)	0.4
<b>Death-in Service Benefits.</b> If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	0.1	0.0
<b>Withdrawal From Employment.</b> If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	15.8	2.8
<b>Pay or Claims Increases.</b> If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss. For insurance, smaller claims increases than assumed creates a gain; larger, a loss.	2.0	19.8
<b>New Members.</b> Additional unfunded accrued liability will produce a loss.	(3.1)	(2.5)
<b>Investment Income.</b> If there is a greater investment income than assumed, there is a gain. If less income, a loss.	7.4	1.3
<b>Death or Waiver After Retirement.</b> If retired members live longer than assumed, there is a loss. If not as long, a gain. If retired members receiving health benefits later waive coverage, there is a gain.	1.9	5.1
<b>Other.</b> Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, insurance election changes, etc.	<u>(6.8)</u>	<u>5.2</u>
<b>Gain (or Loss) During Year From Financial Experience</b>	\$ (0.3)	\$ 23.7
<b>Non-Recurring Items.</b> Adjustments for plan amendments, assumption changes, method changes and data corrections	<u>(52.1)</u>	<u>29.9</u>
<b>Composite Gain (or Loss) During Year</b>	\$ (52.4)	\$ 53.6



**TOTAL KERS MEMBERS  
ANALYSIS OF FINANCIAL EXPERIENCE**

**Gains & Losses in Accrued Liabilities  
Resulting from Difference Between  
Assumed Experience & Actual Experience  
(\$ Millions)**

Type of Activity	Retirement \$ Gain (or Loss) For Year Ending 6/30/15	Insurance \$ Gain (or Loss) For Year Ending 6/30/15
<b>Age &amp; Service Retirements.</b> If members retire at older ages, there is a gain. If younger ages, a loss.	\$ (132.5)	\$ (44.2)
<b>Disability Retirements.</b> If disability claims are less than assumed, there is a gain. If more claims, a loss.	(10.0)	1.3
<b>Death-in Service Benefits.</b> If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	(0.3)	(1.6)
<b>Withdrawal From Employment.</b> If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	78.6	(2.9)
<b>Pay or Claims Increases.</b> If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss. For insurance, smaller claims increases than assumed creates a gain; larger, a loss.	53.2	132.1
<b>New Members.</b> Additional unfunded accrued liability will produce a loss.	(10.7)	(6.2)
<b>Investment Income.</b> If there is a greater investment income than assumed, there is a gain. If less income, a loss.	63.9	12.2
<b>Death or Waiver After Retirement.</b> If retired members live longer than assumed, there is a loss. If not as long, a gain. If retired members receiving health benefits later waive coverage, there is a gain.	(6.6)	24.2
<b>Other.</b> Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, insurance election changes, etc.	<u>(30.1)</u>	<u>11.2</u>
<b>Gain (or Loss) During Year From Financial Experience</b>	\$ 5.6	\$ 126.1
<b>Non-Recurring Items.</b> Adjustments for plan amendments, assumption changes, method changes and data corrections	<u>(746.7)</u>	<u>(150.0)</u>
<b>Composite Gain (or Loss) During Year</b>	\$ (741.1)	\$ (23.9)



## SECTION VI – REQUIRED CONTRIBUTION RATES

The valuation balance sheet gives the basis for determining the percentage rates for contributions to be made by employers to the Retirement System. The following tables show the rates of contribution payable by employers as determined from the present valuation. These rates are for informational purposes only.

### **Required Contribution Rates Non-Hazardous Retirement**

<b>Contribution Rate for</b>	<b>% of Payroll</b>
<b>A. Normal Cost:</b>	
(1) Service retirement benefits	7.63%
(2) Disability benefits	0.25
(3) Survivor benefits	0.08
(4) Total	<u>7.96%</u>
<b>B. Member Contributions</b>	5.00%
<b>C. Employer Normal Cost: [A(4) - B]</b>	2.96%
<b>D. Administrative Expenses</b>	0.64%
<b>E. Unfunded Actuarial Accrued Liability Contributions*:</b>	
(1) UAAL Contribution Based on 6/30/14 Valuation:	29.47%
(2) Change due to:	
a. Active decrements	0.22%
b. Pay increases	(0.18)%
c. Retiree mortality	0.03%
d. Investment return	(0.20)%
e. Assumption Changes	2.41%
f. Payroll Growth Method	1.38%
g. Other	2.20%
h. Total Change	<u>5.86%</u>
(3) UAAL Contribution Based on 6/30/15 Valuation: [E(1) +E(2)h]	35.33%
<b>F. Total Recommended Employer Contribution Rate:     [C+D+E(3)]</b>	<b>38.93%</b>

*\*Based on 28 year amortization of the UAAL from June 30, 2015*



**Required Contribution Rates  
Hazardous Retirement**

Contribution Rate for	% of Payroll
A. Normal Cost:	
(1) Service retirement benefits	13.79%
(2) Disability benefits	0.34
(3) Survivor benefits	0.17
(4) Total	<u>14.30%</u>
B. Member Contributions	8.00%
C. Employer Normal Cost: [A(4) - B]	6.30%
D. Administrative Expenses	0.63%
E. Unfunded Actuarial Accrued Liability Contributions*:	
(1) UAAL Contribution Based on 6/30/14 Valuation:	11.40%
(2) Change due to:	
a. Active decrements	0.08%
b. Pay increases	(0.08)%
c. Retiree mortality	(0.08)%
d. Investment return	(0.31)%
e. Assumption Changes	2.22%
f. Payroll Growth Method	0.52%
g. Other	0.40%
h. Total Change	<u>2.75%</u>
(3) UAAL Contribution Based on 6/30/15 Valuation: [E(1) +E(2)h]	14.15%
F. Total Recommended Employer Contribution Rate: [C+D+E(3)]	21.08%

*\*Based on 28 year amortization of the UAAL from June 30, 2015*



**Required Contribution Rates  
Non-Hazardous Insurance**

Contribution for	% of Payroll
A. Normal Cost:	2.59%
B. Member Contributions*	0.30%
C. Employer Normal Cost: [A - B]	2.29%
D. Administrative Expenses	0.06%
E. Unfunded Actuarial Accrued Liability**:	6.00%
F. Total Recommended Employer Contribution Rate: [C+D+E]	8.35%

*\*The liabilities are net of retiree contributions towards their healthcare.  
\*\* Based on 28 year amortization of the UAAL from June 30, 2015*

**Required Contribution Rates  
Hazardous Insurance**

Contribution for	% of Payroll
A. Normal Cost:	6.31%
B. Member Contributions*	0.44%
C. Employer Normal Cost: [A - B]	5.87%
D. Administrative Expenses	0.08%
E. Unfunded Actuarial Accrued Liability**:	(3.21%)
F. Total Recommended Employer Contribution Rate: [C+D+E]	2.74%

*\*The liabilities are net of retiree contributions towards their healthcare.  
\*\* Based on 28 year amortization of the UAAL from June 30, 2015*



**SECTION VII - ACCOUNTING INFORMATION**

Governmental Accounting Standards Board Statements (GASB) 43, 45, 67 and 68 set forth certain items of required supplementary information to be disclosed in the financial statements of the System and the employer. The information required under GASB 67 and 68 will be issued in separate reports. We are providing the retirement benefit information for information purposes only. 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, 2015**

GROUP	NUMBER		
	Non-Hazardous*	Hazardous	Total
Retirees and beneficiaries currently receiving benefits	42,269	3,758	46,027
Terminated employees entitled to benefits but not yet receiving benefits	48,260	4,554	52,814
Active Members	<u>39,056</u>	<u>3,886</u>	<u>42,942</u>
Total	129,585	12,198	141,783

*\* Does not include members included in the hazardous system who are also receiving benefits from the non-hazardous system. There were 2,214 members in in the hazardous system also receiving an annual benefit from the non-hazardous System*

Another such item is the Schedule of Funding Progress for retirement and insurance benefits separately as shown in the following tables.



**RETIREMENT BENEFITS  
SCHEDULE OF FUNDING PROGRESS**

Actuarial Valuation Date	Value of Plan Assets (a)	Actuarial Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / (c))
<b>Non-Hazardous Members</b>						
6/30/2010	\$ 4,210,215,585	\$ 11,004,795,089	\$ 6,794,579,504	38.3%	\$ 1,815,146,388	374.3%
6/30/2011	3,726,986,087	11,182,142,032	7,455,155,945	33.3	1,731,632,748	430.5
6/30/2012	3,101,316,738	11,361,048,136	8,259,731,398	27.3	1,644,896,681	502.1
6/30/2013	2,636,122,852	11,386,602,159	8,750,479,307	23.2	1,644,408,698	532.1
6/30/2014	2,423,956,716	11,550,110,224	9,126,153,508	21.0	1,577,496,447	578.5
6/30/2015*	2,350,989,940	12,359,672,849	10,008,682,909	19.0	1,544,234,409	648.1
<b>Hazardous Members</b>						
6/30/2010	\$ 502,729,009	\$ 688,149,451	\$ 185,420,442	73.1%	\$ 143,557,944	129.2%
6/30/2011	510,748,505	721,293,444	210,544,939	70.8	133,053,792	158.2
6/30/2012	497,226,296	752,699,457	255,473,161	66.1	131,976,754	193.6
6/30/2013	505,656,808	783,980,594	278,323,786	64.5	132,015,368	210.8
6/30/2014	527,897,261	816,850,063	288,952,802	64.6	129,076,038	223.9
6/30/2015*	556,687,757	895,433,387	338,745,630	62.2	128,680,130	263.2
<b>Total KERS Members</b>						
6/30/2010	\$ 4,712,944,594	\$ 11,692,944,540	\$ 6,979,999,946	40.3%	\$ 1,958,704,332	356.4%
6/30/2011	4,237,734,592	11,903,435,476	7,665,700,884	35.6	1,864,686,540	411.1
6/30/2012	3,598,543,034	12,113,747,593	8,515,204,559	29.7	1,776,873,435	479.2
6/30/2013	3,141,779,660	12,170,582,752	9,028,803,092	25.8	1,776,424,066	508.3
6/30/2014	2,951,853,977	12,366,960,287	9,415,106,310	23.9	1,706,572,485	551.7
6/30/2015	2,907,677,697	13,255,106,236	10,347,428,539	21.9	1,672,914,539	618.5

\* Discount rate changed from 7.75% to 7.50%



**INSURANCE BENEFITS  
SCHEDULE OF FUNDING PROGRESS**

Actuarial Valuation Date	Value of Plan Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / (c))
<b>Non-Hazardous Members</b>						
6/30/2010	\$ 471,341,628	\$ 4,466,136,041	\$ 3,994,794,413	10.6%	\$ 1,815,146,388	220.1%
6/30/2011	451,620,442	4,280,089,633	3,828,469,191	10.6	1,731,632,748	221.1
6/30/2012	446,080,511	3,125,330,157	2,679,249,646	14.3	1,644,896,681	162.9
6/30/2013*	497,584,327	2,128,754,134	1,631,169,807	23.4	1,644,408,698	99.2
6/30/2014	621,236,646	2,226,759,925	1,605,523,279	27.9	1,577,496,447	101.8
6/30/2015**	695,018,262	2,413,705,252	1,718,686,990	28.8	1,544,234,409	111.3
<b>Hazardous Members</b>						
6/30/2010	\$ 314,427,296	\$ 493,297,529	\$ 178,870,233	63.7%	\$ 143,557,944	124.6%
6/30/2011	329,961,615	507,058,767	177,097,152	65.1	133,053,792	133.1
6/30/2012	345,573,948	384,592,406	39,018,458	89.9	131,976,754	29.6
6/30/2013	370,774,403	385,517,675	14,743,272	96.2	132,015,368	11.2
6/30/2014	419,395,867	396,986,820	(22,409,047)	105.6	129,076,038	(17.4)
6/30/2015**	451,514,191	374,904,234	(76,609,957)	120.4	128,680,130	(59.5)
<b>Total KERS Members</b>						
6/30/2010	\$ 785,768,924	\$ 4,959,433,570	\$ 4,173,664,646	15.8%	\$ 1,958,704,332	213.1%
6/30/2011	781,582,057	4,787,148,400	4,005,566,343	16.3	1,864,686,540	214.8
6/30/2012	791,654,459	3,509,922,563	2,718,268,104	22.6	1,776,873,435	153.0
6/30/2013	868,358,730	2,514,271,809	1,645,913,079	34.5	1,776,424,066	92.7
6/30/2014	1,040,632,513	2,623,746,745	1,583,114,232	39.7	1,706,572,485	92.8
6/30/2015	1,146,532,453	2,788,609,486	1,642,077,033	41.1	1,672,914,539	98.2

\* Discount rate changed from 4.50% to 7.75%

\*\* Discount rate changed from 7.75% to 7.50%



**INSURANCE BENEFITS  
SCHEDULE OF EMPLOYER CONTRIBUTIONS**

Year Ended	Annual Required Contribution	Retiree Drug Subsidy (RDS) Contribution	Employer Contributions	Total Contributions	Percentage Contributed
<b>Non-Hazardous Members</b>					
June 30, 2010	\$376,556,187	\$8,550,914	\$93,976,917	\$102,527,831	27.2%
June 30, 2011	294,897,813	0	129,335,552	129,335,552	43.9
June 30, 2012	297,904,224	0	156,057,216	156,057,216	52.4
June 30, 2013	286,143,134	0	165,330,557	165,330,557	57.8
June 30, 2014	208,880,813	0	166,609,592	166,609,592	79.8
June 30, 2015	130,455,026	0	135,940,337	135,940,337	104.2
<b>Hazardous Members</b>					
June 30, 2010	\$35,045,278	\$319,059	\$21,921,535	\$22,240,594	63.5%
June 30, 2011	29,585,257	0	19,952,580	19,952,580	67.4
June 30, 2012	28,326,206	0	24,538,087	24,538,087	86.6
June 30, 2013	26,252,911	0	25,682,403	25,682,403	97.8
June 30, 2014	15,627,018	0	23,873,967	23,873,967	152.8
June 30, 2015	13,151,938	0	14,882,343	14,882,343	113.2
<b>Total KERS Members</b>					
June 30, 2010	\$411,601,465	\$8,869,973	\$115,898,452	\$124,768,425	30.3%
June 30, 2011	324,483,070	0	149,288,132	149,288,132	46.0
June 30, 2012	326,230,430	0	180,595,303	180,595,303	55.4
June 30, 2013	312,396,045	0	191,012,960	191,012,960	61.1
June 30, 2014	224,507,831	0	190,483,559	190,483,559	84.8
June 30, 2015	143,606,964	0	150,822,680	150,822,680	105.0

Only Insurance Benefits Schedule of Employer Contributions is required under GASB 67, which replaced GASB 27.



The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2015. Additional information as of the latest actuarial valuation follows.

	Non-Hazardous Members	Hazardous Members
Valuation date	6/30/2015	6/30/2015
Actuarial cost method	Entry Age	Entry Age
Amortization	Level Percent Closed	Level Percent Closed
Remaining amortization period	28 years	28 years
Asset valuation method	5 Year Smoothed Market	5 Year Smoothed Market
Medical Trend Assumption (Pre-Medicare)	7.50% - 5.00%	7.50% - 5.00%
Medical Trend Assumption (Post-Medicare)	5.50% - 5.00%	5.50% - 5.00%
Year Ultimate Trend	2020	2020
Dollar Contribution Trend	1.50%	1.50%
Actuarial assumptions:		
Investment rate of return*	7.50%	7.50%
*Includes price inflation at	3.25%	3.25%



**SCHEDULE A**

**Valuation Balance Sheet and Solvency Test**

The following valuation balance sheets show the assets and liabilities of the retirement system as of the current valuation date of June 30, 2015 and, for comparison purposes, as of the immediately preceding valuation date of June 30, 2014. The items shown in the balance sheet are present values actuarially determined as of the relevant valuation date.

**VALUATION BALANCE SHEETS  
SHOWING THE ASSETS AND LIABILITIES OF THE  
KENTUCKY EMPLOYEES RETIREMENT SYSTEM**

**RETIREMENT BENEFITS  
NON-HAZARDOUS KERS MEMBERS**

	June 30, 2015	June 30, 2014
<b>ASSETS</b>		
Current actuarial value of assets	\$ 2,350,989,940	\$ 2,423,956,716
Prospective contributions		
Member contributions	\$ 672,048,227	\$ 709,583,930
Employer normal contributions	366,345,728	448,523,568
Unfunded accrued liability contributions	<u>10,008,682,909</u>	<u>9,126,153,508</u>
Total prospective contributions	<u>\$ 11,047,076,864</u>	<u>\$ 10,284,261,006</u>
 Total assets	 <u>\$ 13,398,066,804</u>	 <u>\$ 12,708,217,722</u>
<b>LIABILITIES</b>		
Present value of benefits payable on account of present retired members and beneficiaries	\$ 9,088,328,416	\$ 8,564,988,130
Present value of benefits payable on account of active members	3,960,599,033	3,837,525,126
Present value of benefits payable on account of inactive members	<u>349,139,355</u>	<u>305,704,466</u>
 Total liabilities	 <u>\$ 13,398,066,804</u>	 <u>\$ 12,708,217,722</u>



**VALUATION BALANCE SHEET  
RETIREMENT BENEFITS  
HAZARDOUS KERS MEMBERS**

	June 30, 2015	June 30, 2014
<b>ASSETS</b>		
Current actuarial value of assets	\$ 556,687,757	\$ 527,897,261
Prospective contributions		
Member contributions	\$ 91,736,829	\$ 87,081,053
Employer normal contributions	67,075,729	58,811,616
Unfunded accrued liability contributions	<u>338,745,630</u>	<u>288,952,802</u>
Total prospective contributions	<u>\$ 497,558,188</u>	<u>\$ 434,845,471</u>
 Total assets	 <u>\$ 1,054,245,945</u>	 <u>\$ 962,742,732</u>
<b>LIABILITIES</b>		
Present value of benefits payable on account of present retired members and beneficiaries	\$ 605,818,504	\$ 558,849,406
 Present value of benefits payable on account of active members	 421,056,647	 381,511,432
 Present value of benefits payable on account of inactive members	 <u>27,370,794</u>	 <u>22,381,894</u>
 Total liabilities	 <u>\$ 1,054,245,945</u>	 <u>\$ 962,742,732</u>



VALUATION BALANCE SHEET  
RETIREMENT BENEFITS  
TOTAL KERS MEMBERS

	June 30, 2015	June 30, 2014
<b>ASSETS</b>		
Current actuarial value of assets	\$ 2,907,677,697	\$ 2,951,853,977
Prospective contributions		
Member contributions	\$ 763,785,056	\$ 796,664,983
Employer normal contributions	433,421,457	507,335,184
Unfunded accrued liability contributions	<u>10,347,428,539</u>	<u>9,415,106,310</u>
Total prospective contributions	<u>\$ 11,544,635,052</u>	<u>\$ 10,719,106,477</u>
Total assets	<u>\$ 14,452,312,749</u>	<u>\$ 13,670,960,454</u>
<b>LIABILITIES</b>		
Present value of benefits payable on account of present retired members and beneficiaries	\$ 9,694,146,920	\$ 9,123,837,536
Present value of benefits payable on account of active members	4,381,655,680	4,219,036,558
Present value of benefits payable on account of inactive members	<u>376,510,149</u>	<u>328,086,360</u>
Total liabilities	<u>\$ 14,452,312,749</u>	<u>\$ 13,670,960,454</u>



**VALUATION BALANCE SHEET  
INSURANCE BENEFITS  
NON-HAZARDOUS KERS MEMBERS**

	June 30, 2015	June 30, 2014
<b>ASSETS</b>		
Current actuarial value of assets	\$ 695,018,262	\$ 621,236,646
Prospective contributions		
Member contributions	\$ 34,833,822	\$ 43,587,814
Employer normal contributions	277,045,451	309,167,195
Unfunded accrued liability contributions	<u>1,718,686,990</u>	<u>1,605,523,279</u>
Total prospective contributions	<u>\$ 2,030,566,263</u>	<u>\$ 1,958,278,288</u>
 Total assets	 <u>\$ 2,725,584,525</u>	 <u>\$ 2,579,514,934</u>
<b>LIABILITIES</b>		
Present value of benefits payable on account of present retired members and beneficiaries	\$ 1,302,716,841	\$ 1,243,505,028
Present value of benefits payable on account of active members	1,297,234,668	1,153,910,365
Present value of benefits payable on account of inactive members	<u>125,633,016</u>	<u>182,099,541</u>
 Total liabilities	 <u>\$ 2,725,584,525</u>	 <u>\$ 2,579,514,934</u>



**VALUATION BALANCE SHEET  
INSURANCE BENEFITS  
HAZARDOUS KERS MEMBERS**

	June 30, 2015	June 30, 2014
<b>ASSETS</b>		
Current actuarial value of assets	\$ 451,514,191	\$ 419,395,867
Prospective contributions		
Member contributions	\$ 4,104,933	\$ 4,775,581
Employer normal contributions	53,171,611	73,670,480
Unfunded accrued liability contributions	<u>(76,609,957)</u>	<u>(22,409,047)</u>
Total prospective contributions	<u>\$ (19,333,413)</u>	<u>\$ 56,037,014</u>
Total assets	<u>\$ 432,180,778</u>	<u>\$ 475,432,881</u>
<b>LIABILITIES</b>		
Present value of benefits payable on account of present retired members and beneficiaries	\$ 210,989,670	\$ 186,628,983
Present value of benefits payable on account of active members	211,065,783	268,955,476
Present value of benefits payable on account of inactive members	<u>10,125,325</u>	<u>19,848,422</u>
Total liabilities	<u>\$ 432,180,778</u>	<u>\$ 475,432,881</u>



**VALUATION BALANCE SHEET  
INSURANCE BENEFITS  
TOTAL KERS MEMBERS**

	June 30, 2015	June 30, 2014
<b>ASSETS</b>		
Current actuarial value of assets	\$ 1,146,532,453	\$ 1,040,632,513
Prospective contributions		
Member contributions	\$ 38,938,755	\$ 48,363,395
Employer normal contributions	330,217,062	382,837,675
Unfunded accrued liability contributions	<u>1,642,077,033</u>	<u>1,583,114,232</u>
Total prospective contributions	<u>\$ 2,011,232,850</u>	<u>\$ 2,014,315,302</u>
 Total assets	 <u>\$ 3,157,765,303</u>	 <u>\$ 3,054,947,815</u>
<b>LIABILITIES</b>		
Present value of benefits payable on account of present retired members and beneficiaries	\$ 1,513,706,511	\$ 1,430,134,011
Present value of benefits payable on account of active members	1,508,300,451	1,422,865,841
Present value of benefits payable on account of inactive members	<u>135,758,341</u>	<u>201,947,963</u>
 Total liabilities	 <u>\$ 3,157,765,303</u>	 <u>\$ 3,054,947,815</u>



The following tables provide the solvency test for non-hazardous and hazardous KERS members.

**Solvency Test  
Retirement Benefits  
Non-Hazardous KERS Members**

Valuation Date	Aggregate Accrued Liabilities For				Portion of Accrued Liabilities Covered by Reported Asset		
	(1)	(2)	(3)	Actuarial Value of Assets	(1)	(2)	(3)
	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Financed Portion)				
6/30/2010	\$ 869,484,042	\$ 8,329,757,802	\$ 1,805,553,245	\$ 4,210,215,585	100.0%	40.1%	0.0%
6/30/2011	916,568,932	8,482,714,356	1,782,858,744	3,726,986,087	100.0	33.1	0.0
6/30/2012	885,137,183	8,708,536,338	1,767,374,615	3,101,316,738	100.0	25.4	0.0
6/30/2013	922,928,027	8,709,323,622	1,754,350,510	2,636,122,852	100.0	19.7	0.0
6/30/2014	928,557,540	8,870,692,596	1,750,860,088	2,423,956,716	100.0	16.9	0.0
6/30/2015	925,933,970	9,437,467,771	1,996,271,108	2,350,989,940	100.0	15.1	0.0

**Solvency Test  
Retirement Benefits  
Hazardous KERS Members**

Valuation Date	Aggregate Accrued Liabilities For				Portion of Accrued Liabilities Covered by Reported Asset		
	(1)	(2)	(3)	Actuarial Value of Assets	(1)	(2)	(3)
	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Financed Portion)				
6/30/2010	\$ 88,511,283	\$ 441,657,241	\$ 157,980,927	\$ 502,729,009	100.0%	93.8%	0.0%
6/30/2011	86,614,205	490,395,078	144,284,161	510,748,505	100.0	86.5	0.0
6/30/2012	82,100,877	521,688,803	148,909,777	497,226,296	100.0	79.6	0.0
6/30/2013	82,145,602	545,596,534	156,238,458	505,656,808	100.0	77.6	0.0
6/30/2014	83,663,535	581,231,300	151,955,228	527,897,261	100.0	76.4	0.0
6/30/2015	83,606,204	633,189,298	178,637,885	556,687,757	100.0	74.7	0.0



**Solvency Test  
Insurance Benefits  
Non-Hazardous KERS Members**

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Reported Asset		
	(1)	(2)	(3)			(1)	(2)	(3)
	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Financed Portion)					
6/30/2010	\$ 0	\$ 2,744,534,054	\$ 1,721,601,987	\$ 471,341,628	100.0%	17.2%	0.0%	
6/30/2011	0	2,568,002,978	1,712,086,655	451,620,442	100.0	17.6	0.0	
6/30/2012	0	1,924,068,623	1,201,261,534	446,080,511	100.0	23.2	0.0	
6/30/2013	0	1,338,772,860	789,981,274	497,584,327	100.0	37.2	0.0	
6/30/2014	0	1,425,604,569	801,155,356	621,236,646	100.0	43.6	0.0	
6/30/2015	0	1,428,349,857	985,355,395	695,018,262	100.0	48.7	0.0	

**Solvency Test  
Insurance Benefits  
Hazardous KERS Members**

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Reported Asset		
	(1)	(2)	(3)			(1)	(2)	(3)
	Active Member Contributions	Retired Members & Beneficiaries	Active Members (Employer Financed Portion)					
6/30/2010	\$ 0	\$ 268,510,709	\$ 224,786,820	\$ 314,427,296	100.0%	100.0%	20.4%	
6/30/2011	0	285,539,861	221,518,906	329,961,615	100.0	100.0	20.1	
6/30/2012	0	196,578,935	188,013,471	345,573,948	100.0	100.0	79.2	
6/30/2013	0	202,031,515	183,486,160	370,774,403	100.0	100.0	92.0	
6/30/2014	0	206,477,405	190,509,415	419,395,867	100.0	100.0	100.0	
6/30/2015	0	221,114,995	153,789,239	451,514,191	100.0	100.0	100.0	



**SCHEDULE B**

**Development of Actuarial Value of Assets  
Retirement Benefits  
Non-Hazardous Members**

	Valuation date June 30:	2014	2015	2016	2017	2018	2019
A.	Actuarial Value Beginning of Year	\$ 2,636,122,852	\$ 2,423,956,716				
B.	Market Value End of Year	2,560,419,519	2,307,858,072				
C.	Market Value Beginning of Year	2,747,428,086	2,560,419,519				
D.	Cash Flow						
	D1. Contributions	389,777,286	632,777,097				
	D2. Benefit Payments	(903,563,734)	(919,342,856)				
	D3. Administrative Expenses	(11,144,929)	(10,473,878)				
	D4. Investment Expenses	<u>(9,152,919)</u>	<u>(16,315,268)</u>				
	D5. Net	(534,084,296)	(313,354,905)				
E.	Investment Income						
	E1. Market Total: B.-C.-D5.	347,075,729	60,793,458				
	E2. Assumed Rate	7.75%	7.75%				
	E3. Amount for Immediate Recognition	201,737,505	203,237,495				
	E4. Amount for Phased-In Recognition	145,338,224	(142,444,037)				
F.	Phased-In Recognition of Investment Income						
	F1. Current Year: 0.20*E4.	29,067,645	(28,488,807)	0	0	0	0
	F2. First Prior Year	15,221,118	29,067,645	(28,488,807)	0	0	0
	F3. Second Prior Year	(46,821,807)	15,221,118	29,067,645	(28,488,807)	0	0
	F4. Third Prior Year	68,172,485	(46,821,807)	15,221,118	29,067,645	(28,488,807)	0
	F5. Fourth Prior Year	<u>54,541,214</u>	<u>68,172,485</u>	<u>(46,821,807)</u>	<u>15,221,118</u>	<u>29,067,645</u>	<u>(28,488,807)</u>
	F6. Total Recognized Investment Gain	120,180,655	37,150,634	(31,021,851)	15,799,956	578,838	(28,488,807)
G.	Actuarial Value End of Year:						
	A.+D5.+E3.+F6.	\$ 2,423,956,716	\$ 2,350,989,940				
H.	Difference Between Market & Actuarial Values	\$ 136,462,803	\$ (43,131,868)	\$ (12,110,017)	\$ (27,909,973)	\$ (28,488,807)	\$ 0

The Actuarial Valuation of Assets recognizes assumed investment income (line E3) fully each year. Differences between actual and assumed investment income (line E4) are phased in over a closed 5 year period. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than market value. If assumed rates are exactly realized for 4 consecutive years, actuarial value will become equal to market value.



**Development of Actuarial Value of Assets  
Retirement Benefits  
Hazardous Members**

Valuation date June 30:	2014	2015	2016	2017	2018	2019
A. Actuarial Value Beginning of Year	\$ 505,656,808	\$ 527,897,261				
B. Market Value End of Year	559,504,340	550,120,310				
C. Market Value Beginning of Year	513,162,166	559,504,340				
D. Cash Flow						
D1. Contributions	23,665,778	42,153,137				
D2. Benefit Payments	(57,150,606)	(59,382,637)				
D3. Administrative Expenses	(897,111)	(844,208)				
D4. Investment Expenses	(2,261,049)	(4,013,205)				
D5. Net	(36,642,988)	(22,086,913)				
E. Investment Income						
E1. Market Total: B.-C.-D5.	82,985,162	12,702,883				
E2. Assumed Rate	7.75%	7.75%				
E3. Amount for Immediate Recognition	40,698,817	46,674,435				
E4. Amount for Phased-In Recognition	42,286,345	(33,971,552)				
F. Phased-In Recognition of Investment Income						
F1. Current Year: 0.20*E4.	8,457,269	(6,794,310)	0	0	0	0
F2. First Prior Year	2,416,270	8,457,269	(6,794,310)	0	0	0
F3. Second Prior Year	(9,594,554)	2,416,270	8,457,269	(6,794,310)	0	0
F4. Third Prior Year	9,718,299	(9,594,554)	2,416,270	8,457,269	(6,794,310)	0
F5. Fourth Prior Year	7,187,340	9,718,299	(9,594,554)	2,416,270	8,457,269	(6,794,310)
F6. Total Recognized Investment Gain	18,184,624	4,202,974	(5,515,325)	4,079,229	1,662,959	(6,794,310)
G. Actuarial Value End of Year:						
A.+D5.+E3.+F6.	\$ 527,897,261	\$ 556,687,757				
H. Difference Between Market & Actuarial Values	\$ 31,607,079	\$ (6,567,447)	\$ (1,052,122)	\$ (5,131,351)	\$ (6,794,310)	\$ 0

The Actuarial Valuation of Assets recognizes assumed investment income (line E3) fully each year. Differences between actual and assumed investment income (line E4) are phased in over a closed 5 year period. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than market value. If assumed rates are exactly realized for 4 consecutive years, actuarial value will become equal to market value.



**Development of Actuarial Value of Assets  
Insurance Benefits  
Non-Hazardous Members**

Valuation date June 30:	2014	2015	2016	2017	2018	2019
A. Actuarial Value Beginning of Year	\$ 497,584,327	\$ 621,236,646				
B. Market Value End of Year	664,775,708	687,684,080				
C. Market Value Beginning of Year	509,364,080	664,775,708				
D. Cash Flow						
D1. Contributions	172,080,578	140,393,102				
D2. Benefit Payments	(112,671,651)	(125,273,008)				
D3. Administrative Expenses	(735,604)	(896,134)				
D4. Investment Expenses	(1,929,107)	(3,654,438)				
D5. Net	56,744,216	10,569,522				
E. Investment Income						
E1. Market Total: B.-C.-D5.	98,667,412	12,338,850				
E2. Assumed Rate	7.75%	7.75%				
E3. Amount for Immediate Recognition	43,678,414	55,725,734				
E4. Amount for Phased-In Recognition	54,988,998	(43,386,884)				
F. Phased-In Recognition of Investment Income						
F1. Current Year: 0.20*E4.	10,997,800	(8,677,377)	0	0	0	0
F2. First Prior Year	675,909	10,997,800	(8,677,377)	0	0	0
F3. Second Prior Year	(6,969,893)	675,909	10,997,800	(8,677,377)	0	0
F4. Third Prior Year	11,459,921	(6,969,893)	675,909	10,997,800	(8,677,377)	0
F5. Fourth Prior Year	7,065,952	11,459,921	(6,969,893)	675,909	10,997,800	(8,677,377)
F6. Total Recognized Investment Gain	23,229,689	7,486,360	(3,973,561)	2,996,332	2,320,423	(8,677,377)
G. Actuarial Value End of Year:						
A.+D5.+E3.+F6.	\$ 621,236,646	\$ 695,018,262				
Difference Between Market & Actuarial Values	\$ 43,539,062	\$ (7,334,182)	\$ (3,360,621)	\$ (6,356,953)	\$ (8,677,377)	\$ 0

The Actuarial Valuation of Assets recognizes assumed investment income (line E3) fully each year. Differences between actual and assumed investment income (line E4) are phased in over a closed 5 year period. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than market value. If assumed rates are exactly realized for 4 consecutive years, actuarial value will become equal to market value.



**Development of Actuarial Value of Asset  
Insurance Benefits  
Hazardous Members**

Valuation date June 30:	2014	2015	2016	2017	2018	2019
A. Actuarial Value Beginning of Year	\$ 370,774,403	\$ 419,395,867				
B. Market Value End of Year	435,503,976	441,626,285				
C. Market Value Beginning of Year	374,309,576	435,503,976				
D. Cash Flow						
D1. Contributions	24,462,622	15,433,627				
D2. Benefit Payments	(15,404,747)	(17,000,969)				
D3. Administrative Expenses	(77,471)	(100,809)				
D4. Investment Expenses	(1,621,522)	(2,765,329)				
D5. Net	7,358,882	(4,433,480)				
E. Investment Income						
E1. Market Total: B.-C.-D5.	53,835,518	10,555,789				
E2. Assumed Rate	7.75%	7.75%				
E3. Amount for Immediate Recognition	30,978,505	36,452,246				
E4. Amount for Phased-in Recognition	22,857,013	(25,896,457)				
F. Phased-in Recognition of Investment Income						
F1. Current Year: 0.20*E4.	4,571,403	(5,179,291)	0	0	0	0
F2. First Prior Year	1,027,388	4,571,403	(5,179,291)	0	0	0
F3. Second Prior Year	(4,939,727)	1,027,388	4,571,403	(5,179,291)	0	0
F4. Third Prior Year	4,619,785	(4,939,727)	1,027,388	4,571,403	(5,179,291)	0
F5. Fourth Prior Year	5,005,228	4,619,785	(4,939,727)	1,027,388	4,571,403	(5,179,291)
F6. Total Recognized Investment Gain	10,284,077	99,558	(4,520,227)	419,500	(607,888)	(5,179,291)
G. Actuarial Value End of Year:						
A.+D5.+E3.+F6.	\$ 419,395,867	\$ 451,514,191				
H. Difference Between Market & Actuarial Values	\$ 16,108,109	\$ (9,887,906)	\$ (5,367,679)	\$ (5,787,179)	\$ (5,179,291)	\$ 0

The Actuarial Valuation of Assets recognizes assumed investment income (line E3) fully each year. Differences between actual and assumed investment income (line E4) are phased in over a closed 5 year period. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than market value. If assumed rates are exactly realized for 4 consecutive years, actuarial value will become equal to market value.



**SCHEDULE C**

**STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS**

The assumptions and methods used in the valuation were based on the actuarial experience study for the five-year period ending June 30, 2013, submitted April 30, 2014, and adopted by the Board on December 4, 2014.

INVESTMENT RATE OF RETURN: 7.50% per annum, compounded annually for retirement and insurance benefits.

PRICE INFLATION: 3.25% per annum, compounded annually.

PAYROLL GROWTH: 4.00% per annum, compounded annually.

SALARY INCREASES: The assumed annual rates of future salary increases for both non-hazardous and hazardous members are as follows and include inflation at 4.00% per annum:

Service Years	Annual Rates of Salary Increases				
	Merit & Seniority		Base (Economy)	Increase Next Year	
	Non-Hazardous	Hazardous		Non-Hazardous	Hazardous
0-1	12.02%	15.87%	4.00%	16.50%	20.50%
1-2	4.33%	4.33%	4.00%	8.50%	8.50%
2-3	1.92%	2.40%	4.00%	6.00%	6.50%
3-4	1.44%	1.92%	4.00%	5.50%	6.00%
4-5	1.44%	1.44%	4.00%	5.50%	5.50%
5-6	1.44%	0.96%	4.00%	5.50%	5.00%
6-7	0.96%	0.48%	4.00%	5.00%	4.50%
7-8	0.96%	0.48%	4.00%	5.00%	4.50%
8-9	0.96%	0.48%	4.00%	5.00%	4.50%
9-10	0.48%	0.48%	4.00%	4.50%	4.50%
10 & Over	0.48%	0.48%	4.00%	4.50%	4.50%

DISABILITY: Representative assumed annual rates of disability for both non-hazardous and hazardous members are as follows:

Nearest Age	Annual Rates of Disability			
	Non-Hazardous		Hazardous	
	Male	Female	Male	Female
20	0.02%	0.02%	0.03%	0.03%
30	0.03%	0.03%	0.05%	0.05%
40	0.07%	0.07%	0.10%	0.10%
50	0.19%	0.19%	0.28%	0.28%
60	0.49%	0.49%	0.73%	0.73%



RETIREMENT: The assumed annual rates of retirement for both non-hazardous and hazardous members are as follows:

Annual Rates of Retirement					
Non-Hazardous			Hazardous		
Age	Those Eligible for Service Retirement*	Those Eligible for Service Retirement**	Service	Those Eligible for Service Retirement*	Those Eligible for Service Retirement**
55	8.0%		20	40.0%	
56	8.0%		21	40.0%	
57	8.0%		22	40.0%	
58	8.0%		23	40.0%	
59	8.0%		24	40.0%	
60	10.0%	10.0%	25	47.0%	40.0%
61	20.0%	20.0%	26	47.0%	40.0%
62	20.0%	20.0%	27	47.0%	40.0%
63	20.0%	20.0%	28	47.0%	40.0%
64	20.0%	20.0%	29	47.0%	40.0%
65	20.0%	25.0%	30	47.0%	47.0%
66	20.0%	25.0%	31	47.0%	47.0%
67	20.0%	25.0%	32	50.0%	47.0%
68	20.0%	25.0%	33	50.0%	47.0%
69	20.0%	25.0%	34	50.0%	47.0%
70	20.0%	25.0%	35	60.0%	47.0%
71	20.0%	25.0%	36	60.0%	47.0%
72	20.0%	25.0%	37	60.0%	50.0%
73	20.0%	25.0%	38	60.0%	50.0%
74	20.0%	25.0%	39	60.0%	50.0%
75	100.0%	100.0%	40	60.0%	60.0%

\* For members participating before September 1, 2008. If service is at least 27 years, the rate is 35%.

\*\* For members participating on or after September 1, 2008. If age plus service is at least 87, the rate is 35%.

+ For members participating before September 1, 2008. The annual rate of service retirement is 100% at age 65.

++ For members participating on or after September 1, 2008. The annual rate of service retirement is 100% at age 60.



**WITHDRAWAL:** The assumed annual rates of withdrawal for both non-hazardous and hazardous members are as follows:

Service Years	Annual Rates of Withdrawal	
	Non-Hazardous	Hazardous
0-1	22.50%	25.00%
1-2	15.50%	10.50%
2-3	12.50%	7.50%
3-4	10.50%	6.50%
4-5	9.00%	5.50%
5-6	6.50%	4.50%
6-7	5.50%	3.00%
7-8	5.00%	3.00%
8-9	4.50%	3.00%
9-10	4.50%	2.50%
10-11	4.00%	2.50%
11-13	4.00%	2.00%
13-15	3.50%	2.00%
15 & Over	3.00%	2.00%

**DEATH BEFORE RETIREMENT:** The rates of mortality for the period before retirement are according to the RP-2000 Combined Mortality Table projected with Scale BB to 2013 (multiplied by 50% for males and 30% for females).

**DEATH AFTER RETIREMENT:** The rates of mortality for the period after service retirement are according to the RP-2000 Combined Mortality Table projected with Scale BB to 2013 (set back 1 year for females) for all healthy retired members and beneficiaries. The RP-2000 Combined Disabled Mortality Table projected with Scale BB to 2013 (set back 4 years for males) is used for the period after disability retirement. These assumptions are used to measure the probabilities of each benefit payment being made after retirement. These assumptions contain margin for mortality improvements.

**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.

**FORM OF PAYMENT:** Participants are assumed to elect a life-only form of payment.

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



**ACTUARIAL COST METHOD:** Costs were determined using the Entry Age Normal, Level Percentage of Pay Actuarial Cost Method. Under this method, a calculation is made for retirement benefits to determine the uniform and constant percentage rate of contribution which, if applied to the compensation of the average new member during the entire period of his or her anticipated covered service, would be required to meet the cost of benefits payable. Actuarial gains and losses are reflected in the unfunded actuarial accrued liability.

**MULTIPLE STATUS/MULTIPLE SYSTEM MEMBERS:** Some members may be represented under more than one retirement system and/or may have more than one status (e.g., active in one system, deferred vested in another and retired from a different system). For pension purposes, members that are active in one System but have service in another are assumed to retire from the System in which they are currently active. Any deferred pension benefits from another System are assumed to begin once the member terminates from their current active position. The insurance liabilities for multiple status/multiple system members are calculated assuming only one benefit is payable across all Systems and that benefit is payable from the combination of status and System which produces the highest economic value to the member.

**AFFORDABLE CARE ACT (ACA):** The impact of the Affordable Care Act (ACA) was addressed in this valuation. Review of the information currently available did not identify any specific provisions of the ACA that are anticipated to significantly impact results. While the impact of certain provisions such as the excise tax on high-value health insurance plans beginning in 2018 (if applicable), mandated benefits and participation changes due to the individual mandate should be recognized in the determination of liabilities, overall future plan costs and the resulting liabilities are driven by the assumed rate of health care inflation (i.e., trend). The trend assumption forecasts the anticipated increase to initial per capita costs, taking into account health care cost inflation, increases in benefit utilization, government-mandated benefits, and technological advances. Given the uncertainty regarding the ACA's implementation (e.g., the impact of excise tax on high-value health insurance plans, changes in participation resulting from the implementation of state-based health insurance exchanges), continued monitoring of the ACA's impact on the insurance liability will be required.

**HEALTH CARE BENEFITS VALUED:** Medical and drug benefits for retirees under age 65 and Medicare eligible.

**HEALTH CARE SPOUSE AGE DIFFERENCE:** Wives are assumed to be three years younger than husbands.

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

Year	Annual Rate of Increase		
	Under Age 65	Age 65 & Older	Dollar Contribution*
2015	7.50%	5.50%	1.50%
2016	6.75%	5.25%	1.50%
2017	6.25%	5.00%	1.50%
2018	5.75%	5.00%	1.50%
2019	5.25%	5.00%	1.50%
2020 & Beyond	5.00%	5.00%	1.50%

\* Applies to members participating on or after July 1, 2003



**HEALTH CARE AGE RELATED MORBIDITY:** For retirees ages 65 and older, per capita health care costs are adjusted to reflect expected health care cost changes related to age. The increase to the net incurred claims was assumed to be:

Participant Age	Annual Increase
65 – 69	3.00%
70 – 74	2.50%
75 – 79	2.00%
80 – 84	1.00%
85 – 89	0.50%
90 & Beyond	0.00%

For the retiree health care liabilities of those under age 65, the current premium charged by the Kentucky Employees' Health Plan (KEHP) is used as the base cost and is projected forward using the healthcare trend assumption. No implicit rate subsidy is calculated or recognized as the implicit rate subsidy is deemed the responsibility of the KEHP.

**HEALTH CARE DEFERRED VESTED BENEFIT RECIPIENT INITIAL AGE OF BENEFIT RECEIPT FOR MEMBERS:** Health care benefits are assumed to begin at the following ages for deferred vested benefit recipients:

Deferred Vested Initial Age of Benefit Receipt		
Applies Only to Members with Non-Hazardous Service		
Members Participating Before July 1, 2003	Members Participating Between July 1, 2003 to September 1, 2008	Members Participating On or After September 1, 2008
55	55	60

Deferred Vested Initial Age of Benefit Receipt		
Applies Only to Members with Hazardous Service		
Members Participating Before July 1, 2003	Members Participating Between July 1, 2003 to September 1, 2008	Members Participating On or After September 1, 2008
50	50	50



**HEALTH CARE ANTICIPATED PLAN PARTICIPATION:** Representative values of the assumed annual rates of member participation and spouse coverage are as follows:

Plan Elections of Covered Members Age 65 and Older as of January 1, 2016		
Kentucky Retirement System Health Plan	Non-Hazardous	Hazardous
Medical Only	5.71%	2.92%
Essential	2.72%	1.44%
Premium	91.58%	95.64%

Retirement Participation Rates			
Service at Retirement	Members Participating Before July 1, 2003	Members Participating Between July 1, 2003 to September 1, 2008	Members Participating On or After September 1, 2008
Under 10	50.00%	100.00%	100.00%
10 – 14	75.00%	100.00%	100.00%
15 – 19	90.00%	100.00%	100.00%
20+	100.00%	100.00%	100.00%

Disability/Death Participation Rates	
Members Participating Before July 1, 2003	
Duty-Disability	Duty Death-In-Service
100.00%	100.00%

Deferred Vested Member Participation Rates		
Members Participating Before July 1, 2003	Members Participating Between July 1, 2003 to September 1, 2008	Members Participating On or After September 1, 2008
50.00%	100.00%	100.00%

Members Electing Spouse Coverage		
Applies Only to Members with Hazardous Service		
Members Participating Before July 1, 2003	Members Participating Between July 1, 2003 to September 1, 2008	Members Participating On or After September 1, 2008
50.00%	50.00%	50.00%



**HEALTH CARE MONTHLY PLAN COSTS:** Assumed per capita health care costs were based on past experience and trended based on the assumptions. Following are charts detailing retiree per capita assumptions for the year following the valuation date. The amounts include medical and drug costs. Members under 65 are assumed to elect the LivingWell PPO. For retirees ages 65 and older, the full costs shown are before averaging. The average costs are then normalized to age 65 and age adjusted in calculating liabilities. The dollar amount contribution level is the cost to the system per year of service for members participating on or after July 1, 2003.

<b>Under Age 65 (KEHP) Full Costs as of January 1, 2016</b>				
<b>Tier Elected</b>	<b>LivingWell CDHP</b>	<b>LivingWell PPO</b>	<b>Standard PPO</b>	<b>Standard CDHP</b>
Single	\$ 702.10	\$ 721.14	\$ 677.74	\$ 663.68
Parent Plus	967.18	1,023.04	963.36	930.34
Couple	1,302.74	1,564.20	1,474.84	1,429.26
Family	1,453.94	1,738.40	1,640.84	1,591.52
Family C-R	810.00	865.64	814.72	792.90

<b>Age 65 and Older Full Costs as of January 1, 2016</b>	
Kentucky Retirement System Health Plan - Medical Only	\$158.25
Kentucky Retirement System Health Plan - Essential	77.76
Kentucky Retirement System Health Plan - Premium	244.25

<b>Age 65 and Older Average Cost as of the Valuation Date Based on Actual Retiree Elections</b>	
<b>Non-Hazardous</b>	<b>Hazardous</b>
\$218.33	\$227.19

<b>Dollar Amount Contribution Level Per Year of Service as of July 1, 2015</b>	
<b>Applies to members participating on or after July 1, 2003</b>	
<b>Non-Hazardous</b>	<b>Hazardous</b>
\$12.80	\$19.19



**SCHEDULE D**

**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.

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 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.

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.



**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 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 55 or has less than 20 years of 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 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 60 or has less than 25 years of 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.



**Non-Hazardous Insurance Plan for Retirees:**

*Members whose participation began before 7/1/2003*

*Requirement*

In receipt of a monthly retirement allowance.

*Amount*

The Retirement System pays a portion of lifetime medical premiums for retirees based on the retired member's years of service credit. The percentage of the monthly contribution rate paid is show in the following table.

Service Credit	Percentage Paid*
0 – 3 years	0%
4 – 9 years	25%
10 – 14 years	50%
15 – 19 years	75%
20 or more years	100%

*\*100% of the monthly contribution is paid towards the health insurance for a retired member who is totally disabled from any employment as a result of a duty-related injury regardless of actual service. 100% of the monthly contribution is paid toward health insurance for the spouse and dependent children of a member who dies as a result of a duty related injury, regardless of the deceased member's service. The insurance benefit will be provided as long as the spouse and dependent children are eligible for a monthly retirement benefit.*

*Members whose participation began on or after 7/1/2003, but before 9/1/2008*

*Requirement*

Monthly retirement allowance with at least 120 months of service at retirement.

*Amount*

The Retirement System pays \$12.80 per month for each year of earned service for retirees. This amount is shown as of the valuation date and is increased annually by 1.5%.

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

*Requirement*

Monthly retirement allowance with at least 180 months of service at retirement.

*Amount*

The Retirement System pays \$12.80 per month for each year of earned service for retirees. This amount will be increased annually by 1.5%.



**Hazardous Insurance Plan for Retirees:**

*Members whose participation began before 7/1/2003*

*Requirement*

In receipt of a monthly retirement allowance.

*Amount*

The Retirement System pays a portion of lifetime medical premiums for retirees, their spouse and their dependents based on the retired member's years of service credit. The percentage of the monthly contribution rate paid is show in the following table.

Service Credit	Percentage Paid*
0 – 3 years	0%
4 – 9 years	25%
10 – 14 years	50%
15 – 19 years	75%
20 or more years	100%

*\*100% of the monthly contribution is paid towards the health insurance for a member, member's spouse and dependents if the member is disabled in the line of duty as a result of a duty-related injury, regardless of actual service. 100% of the monthly contribution is paid toward health insurance for the spouse and dependent children of a member who dies in the line of duty regardless of the deceased member's service. The insurance benefit will be provided as long as the spouse and dependent children are eligible for a monthly retirement benefit.*

*Members whose participation began on or after 7/1/2003, but before 9/1/2008*

*Requirement*

Monthly retirement allowance with at least 120 months of service at retirement.

*Amount*

The Retirement System pays \$19.19 per month for each year of earned service for retirees. Upon the retiree's death, the surviving spouse will receive \$12.80 per month for each year of earned. These amounts are shown as of the valuation date and are increased annually by 1.5%.

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

*Requirement*

Monthly retirement allowance with at least 180 months of service at retirement.

*Amount*

The Retirement System pays \$19.19 per month for each year of earned service for retirees. Upon the retiree's death, the surviving spouse will receive \$12.80 per month for each year of earned. These amounts will be increased annually by 1.5%.





**Schedule of Hazardous Retired Members Added to and Removed From Rolls  
Last Six Fiscal Years**

Year Ending June 30	2010	2011	2012	2013	2014	2015
Beginning of Year	2,648	2,835	3,064	3,253	3,430	3,620
Added	282	288	243	229	256	393
Removed	95	59	54	52	66	65
End of Year	2,835	3,064	3,253	3,430	3,620	3,758
			<b>Number</b>			
Beginning of Year	\$ 38,695,501	\$ 41,114,800	\$ 45,609,229	\$ 49,231,205	\$ 51,122,456	\$ 54,271,718
Added	3,315,361	5,012,933	4,213,360	2,390,928	3,761,697	3,144,016
Removed	896,062	518,504	591,384	499,677	612,435	984,635
End of Year	\$ 41,114,800	\$ 45,609,229	\$ 49,231,205	\$ 51,122,456	\$ 54,271,718	\$ 56,431,099
% Increase in Allowances	6.25%	10.93%	7.94%	3.84%	6.16%	3.98%
Average Annual Allowance	\$ 14,503	\$ 14,886	\$ 15,134	\$ 14,905	\$ 14,992	\$ 15,016



**Non-Hazardous Retired Lives Summary June 30, 2015**

	Male Lives		Female Lives		Total	
	Number	Monthly Benefits	Number	Monthly Benefits	Number	Monthly Benefits
Basic Form	3,694	\$ 6,751,823.38	10,736	\$ 15,872,249.83	14,430	\$ 22,624,073.21
Straight Life (Old Plan)	0	0.00	0	0.00	0	0.00
Joint & Survivor						
100% to Beneficiary	2,009	3,774,214.24	883	1,106,032.08	2,892	4,880,246.32
66-2/3% to Beneficiary	782	2,260,446.51	474	980,407.69	1,256	3,240,854.20
50% to Beneficiary	1,122	2,860,975.83	1,348	2,749,061.18	2,470	5,610,037.01
Pop-up Option	3,797	9,399,074.45	3,372	6,669,421.53	7,169	16,068,495.98
10 Years Certain	0	0.00	0	0.00	0	0.00
10 Years Certain & Life	922	1,619,661.11	2,076	3,157,126.16	2,998	4,776,787.27
Social Security Option						
Age 62 Basic	402	997,824.99	960	1,743,639.00	1,362	2,741,463.99
Age 62 Survivorship	808	1,839,490.00	585	1,089,989.73	1,393	2,929,479.73
Partial Deferred (Old Plan)	0	0.00	0	0.00	0	0.00
Widows Age 60	0	0.00	0	0.00	0	0.00
Dependent Child	0	0.00	0	0.00	0	0.00
Refund	0	0.00	0	0.00	0	0.00
15 Years Certain & Life	402	648,323.84	549	836,829.65	951	1,485,153.49
20 Years Certain & Life	398	877,030.51	558	896,756.57	956	1,773,787.08
5 Years Certain	0	0.00	0	0.00	0	0.00
PLSO 12 Month Basic	82	134,530.89	298	451,479.99	380	586,010.88
PLSO 24 Month Basic	36	42,772.42	160	202,669.85	196	245,442.27
PLSO 36 Month Basic	150	133,464.60	408	308,031.64	558	441,496.24
PLSO 12 Month Survivor	107	227,600.43	102	174,083.95	209	401,684.38
PLSO 24 Month Survivor	85	133,057.14	78	114,819.45	163	247,876.59
PLSO 36 Month Survivor	237	256,602.72	157	135,169.64	394	391,772.36
<b>Total</b>	<b>15,033</b>	<b>\$ 31,956,893.06</b>	<b>22,744</b>	<b>\$ 36,487,767.94</b>	<b>37,777</b>	<b>\$ 68,444,661.00</b>



**Hazardous Retired Lives Summary June 30, 2015**

	Male Lives		Female Lives		Total	
	Number	Monthly Benefits	Number	Monthly Benefits	Number	Monthly Benefits
Basic Form	546	\$ 623,173.09	417	\$ 441,902.23	963	\$ 1,065,075.32
Straight Life (Old Plan)	0	0.00	0	0.00	0	0.00
Joint & Survivor						
100% to Beneficiary	270	321,675.94	32	35,992.59	302	357,668.53
66-2/3% to Beneficiary	95	124,113.01	25	28,470.28	120	152,583.29
50% to Beneficiary	151	226,570.36	53	82,243.85	204	308,814.21
Pop-up Option	790	1,178,355.10	149	190,433.91	939	1,368,789.01
10 Years Certain	38	50,671.18	8	9,483.17	46	60,154.35
10 Years Certain & Life	108	122,407.40	67	59,303.30	175	181,710.70
Social Security Option						
Age 62 Basic	58	102,424.11	32	54,945.63	90	157,369.74
Age 62 Survivorship	144	293,499.19	18	26,316.41	162	319,815.60
Partial Deferred (Old Plan)	0	0.00	0	0.00	0	0.00
Widows Age 60	0	0.00	0	0.00	0	0.00
Dependent Child	0	0.00	0	0.00	0	0.00
Refund	0	0.00	0	0.00	0	0.00
15 Years Certain & Life	46	56,665.05	16	15,177.42	62	71,842.47
20 Years Certain & Life	55	75,938.29	25	35,627.47	80	111,565.76
5 Years Certain	0	0.00	0	0.00	0	0.00
PLSO 12 Month Basic	11	10,996.56	13	10,878.00	24	21,874.56
PLSO 24 Month Basic	15	15,174.89	9	7,947.86	24	23,122.75
PLSO 36 Month Basic	46	39,101.25	24	20,365.85	70	59,467.10
PLSO 12 Month Survivor	21	27,586.95	6	5,150.84	27	32,737.79
PLSO 24 Month Survivor	19	27,990.82	9	11,029.16	28	39,019.98
PLSO 36 Month Survivor	47	46,297.04	15	18,695.05	62	64,992.09
<b>Total</b>	<b>2,460</b>	<b>\$ 3,342,640.23</b>	<b>918</b>	<b>\$ 1,053,963.02</b>	<b>3,378</b>	<b>\$ 4,396,603.25</b>



Non-Hazardous Beneficiary Lives Summary June 30, 2015

	Male Lives		Female Lives		Total	
	Number	Monthly Benefits	Number	Monthly Benefits	Number	Monthly Benefits
Basic Form	11	\$ 6,472.34	26	\$ 28,627.42	37	\$ 35,099.76
Straight Life (Old Plan)	0	0.00	0	0.00	0	0.00
Joint & Survivor						
100% to Beneficiary	286	240,679.96	1,507	1,592,664.10	1,793	1,833,344.06
66-2/3% to Beneficiary	46	51,612.90	325	361,214.09	371	412,826.99
50% to Beneficiary	136	103,829.36	445	321,638.85	581	425,468.21
Pop-up Option	148	232,355.30	583	951,704.41	731	1,184,059.71
10 Years Certain	89	70,741.25	88	64,315.24	177	135,056.49
10 Years Certain & Life	27	27,939.89	31	34,592.49	58	62,532.38
Social Security Option						
Age 62 Basic	1	272.14	9	11,008.65	10	11,280.79
Age 62 Survivorship	60	90,697.76	280	517,510.81	340	608,208.57
Partial Deferred (Old Plan)	0	0.00	0	0.00	0	0.00
Widows Age 60	0	0.00	4	1,500.58	4	1,500.58
Dependent Child	0	0.00	0	0.00	0	0.00
Refund	3	2,135.64	7	8,134.18	10	10,269.82
15 Years Certain & Life	14	18,496.87	46	64,497.76	60	82,994.63
20 Years Certain & Life	23	31,188.28	71	126,372.04	94	157,560.32
5 Years Certain	51	52,570.42	52	41,085.99	103	93,656.41
PLSO 12 Month Basic	0	0.00	1	1,791.60	1	1,791.60
PLSO 24 Month Basic	0	0.00	0	0.00	0	0.00
PLSO 36 Month Basic	0	0.00	2	3,357.39	2	3,357.39
PLSO 12 Month Survivor	5	8,931.63	16	25,203.66	21	34,135.29
PLSO 24 Month Survivor	11	12,668.80	19	13,422.70	30	26,091.50
PLSO 36 Month Survivor	18	13,121.41	51	54,779.42	69	67,900.83
Total	929	\$ 963,713.95	3,563	\$ 4,223,421.38	4,492	\$ 5,187,135.33



Hazardous Beneficiary Lives Summary June 30, 2015

	Male Lives		Female Lives		Total	
	Number	Monthly Benefits	Number	Monthly Benefits	Number	Monthly Benefits
Basic Form	2	\$ 1,051.91	3	\$ 1,857.03	5	\$ 2,908.94
Straight Life (Old Plan)	0	0.00	0	0.00	0	0.00
Joint & Survivor						
100% to Beneficiary	10	4,162.37	131	95,844.42	141	100,006.79
66-2/3% to Beneficiary	0	0.00	18	8,090.57	18	8,090.57
50% to Beneficiary	2	1,450.30	28	12,494.57	30	13,944.87
Pop-up Option	11	10,157.51	81	72,693.99	92	82,851.50
10 Years Certain	3	3,404.88	17	13,950.13	20	17,355.01
10 Years Certain & Life	4	3,098.69	2	1,122.75	6	4,221.44
Social Security Option						
Age 62 Basic	0	0.00	0	0.00	0	0.00
Age 62 Survivorship	0	0.00	27	47,797.10	27	47,797.10
Partial Deferred (Old Plan)	0	0.00	0	0.00	0	0.00
Widows Age 60	0	0.00	0	0.00	0	0.00
Dependent Child	0	0.00	0	0.00	0	0.00
Refund	1	262.55	3	2,151.81	4	2,414.36
15 Years Certain & Life	3	1,422.71	6	3,186.33	9	4,609.04
20 Years Certain & Life	0	0.00	5	2,328.34	5	2,328.34
5 Years Certain	1	634.60	3	1,302.48	4	1,937.08
PLSO 12 Month Basic	0	0.00	0	0.00	0	0.00
PLSO 24 Month Basic	0	0.00	0	0.00	0	0.00
PLSO 36 Month Basic	0	0.00	1	125.74	1	125.74
PLSO 12 Month Survivor	0	0.00	3	3,344.12	3	3,344.12
PLSO 24 Month Survivor	1	995.41	3	2,021.84	4	3,017.25
PLSO 36 Month Survivor	2	706.28	9	10,329.90	11	11,036.18
<b>Total</b>	<b>40</b>	<b>\$ 27,347.21</b>	<b>340</b>	<b>\$ 278,641.12</b>	<b>380</b>	<b>\$ 305,988.33</b>



**Non-Hazardous Members  
Retired and Beneficiary Information June 30, 2015  
Tabulated by Attained Ages**

Attained Age	Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 45	38	\$ 768,838	29	\$ 359,797	95	\$ 617,027	162	\$ 1,745,662
45-49	451	\$ 11,860,925	92	\$ 1,441,952	39	\$ 470,958	582	\$ 13,773,835
50-54	1,619	\$ 46,248,053	166	\$ 2,357,480	124	\$ 1,765,543	1,909	\$ 50,371,076
55-59	4,109	\$ 117,452,704	267	\$ 3,605,427	218	\$ 3,046,380	4,594	\$ 124,104,511
60-64	7,067	\$ 181,076,208	394	\$ 5,306,557	364	\$ 6,501,062	7,825	\$ 192,883,827
65-69	8,754	\$ 195,996,103	385	\$ 4,857,730	507	\$ 9,133,847	9,646	\$ 209,987,680
70-74	5,689	\$ 114,236,855	254	\$ 3,100,310	538	\$ 9,301,283	6,481	\$ 126,638,448
75-79	3,726	\$ 66,357,625	191	\$ 2,188,882	542	\$ 8,078,072	4,459	\$ 76,624,579
80-84	2,311	\$ 35,338,257	85	\$ 906,308	541	\$ 8,016,658	2,937	\$ 44,261,223
85-89	1,397	\$ 19,659,343	37	\$ 360,404	543	\$ 7,624,089	1,977	\$ 27,643,836
90 & Over	706	\$ 7,784,311	10	\$ 71,869	981	\$ 7,690,706	1,697	\$ 15,546,886
Totals	35,867	\$ 796,779,222	1,910	\$ 24,556,716	4,492	\$ 62,245,625	42,269	\$ 883,581,563



**Hazardous Members  
Retired and Beneficiary Information June 30, 2015  
Tabulated by Attained Ages**

Attained Age	Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 45	27	\$ 517,235	13	\$ 161,596	16	\$ 75,930	56	\$ 754,761
45-49	182	\$ 3,961,540	18	\$ 203,632	7	\$ 91,988	207	\$ 4,257,160
50-54	304	\$ 5,991,557	26	\$ 250,024	10	\$ 123,588	340	\$ 6,365,169
55-59	505	\$ 10,051,273	25	\$ 233,500	31	\$ 341,481	561	\$ 10,626,254
60-64	679	\$ 11,194,560	30	\$ 227,917	49	\$ 647,439	758	\$ 12,069,916
65-69	818	\$ 11,835,271	21	\$ 165,169	57	\$ 634,108	896	\$ 12,634,548
70-74	397	\$ 4,833,025	9	\$ 46,086	64	\$ 542,592	470	\$ 5,421,703
75-79	191	\$ 2,023,682	6	\$ 28,701	55	\$ 586,747	252	\$ 2,639,130
80-84	80	\$ 593,034	4	\$ 9,617	48	\$ 278,483	132	\$ 881,134
85-89	37	\$ 278,646			27	\$ 181,166	64	\$ 459,812
90 & Over	6	\$ 153,175			16	\$ 168,338	22	\$ 321,513
<b>Totals</b>	<b>3,226</b>	<b>\$ 51,432,998</b>	<b>152</b>	<b>\$ 1,326,242</b>	<b>380</b>	<b>\$ 3,671,860</b>	<b>3,758</b>	<b>\$ 56,431,100</b>



**Total Non-Hazardous Active Members as of June 30, 2015  
Tabulated by Attained Ages and Years of Service**

Attained Age	Years of Service to Valuation Date										Totals
	0-4	5-9	10-14	15-19	20-24	25-26	27-29	30+			
Under 20 Avg Pay	20 \$17,737										20 \$17,737
20-24 Avg Pay	886 \$23,391	1 \$33,425									887 \$23,403
25-29 Avg Pay	2,664 \$28,960	439 \$32,731	5 \$29,684								3,108 \$29,494
30-34 Avg Pay	2,141 \$31,287	1,708 \$36,816	445 \$37,865	21 \$36,062							4,315 \$34,177
35-39 Avg Pay	1,535 \$31,952	1,522 \$38,305	1,479 \$42,376	539 \$43,306	24 \$47,931						5,099 \$38,148
40-44 Avg Pay	1,304 \$32,339	1,213 \$39,112	1,298 \$43,735	1,212 \$45,002	418 \$47,814	43 \$48,845	18 \$59,836	4 \$87,422			5,510 \$40,733
44-49 Avg Pay	1,141 \$31,597	1,105 \$38,396	1,079 \$44,761	1,020 \$46,435	928 \$49,845	236 \$49,274	140 \$56,690	59 \$61,249			5,708 \$42,673
50-54 Avg Pay	1,005 \$32,949	1,033 \$36,903	1,030 \$42,453	865 \$45,858	740 \$49,486	283 \$51,184	291 \$55,774	195 \$60,909			5,442 \$42,970
55-59 Avg Pay	702 \$32,449	977 \$38,477	934 \$40,153	807 \$44,954	603 \$47,580	224 \$48,259	195 \$56,113	161 \$62,583			4,603 \$42,292
60-64 Avg Pay	427 \$35,924	628 \$40,253	666 \$41,579	567 \$43,715	370 \$48,348	136 \$50,916	120 \$53,633	112 \$62,896			3,026 \$43,420
65-69 Avg Pay	102 \$40,162	235 \$44,643	257 \$41,651	194 \$46,324	116 \$55,042	28 \$48,604	38 \$56,458	36 \$65,539			1,006 \$46,252
70 & over Avg Pay	32 \$38,039	59 \$39,453	78 \$38,113	69 \$49,389	49 \$53,186	18 \$44,090	13 \$60,320	14 \$69,652			332 \$45,243
Totals Avg Pay	11,959 \$30,853	8,920 \$38,034	7,271 \$42,269	5,294 \$45,170	3,248 \$49,133	968 \$49,693	815 \$55,892	581 \$62,471			39,056 \$39,539



**Total Hazardous Active Members as of June 30, 2015  
Tabulated by Attained Ages and Years of Service**

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 26	27 - 29		30+
Under 20 Avg Pay									
20-24 Avg Pay	237 \$23,433								237 \$23,433
25-29 Avg Pay	498 \$27,179	63 \$32,539							561 \$27,781
30-34 Avg Pay	320 \$28,166	211 \$33,457	44 \$36,244						575 \$30,726
35-39 Avg Pay	150 \$28,884	154 \$34,290	155 \$36,682	39 \$39,649	1 \$36,516				499 \$33,831
40-44 Avg Pay	160 \$28,351	126 \$36,108	137 \$38,562	133 \$41,991	26 \$47,190				582 \$36,390
44-49 Avg Pay	133 \$27,905	114 \$33,652	108 \$36,597	85 \$41,865	45 \$47,547	6 \$63,485	1 \$55,249	1 \$44,796	493 \$35,861
50-54 Avg Pay	113 \$28,471	86 \$35,423	76 \$36,238	64 \$40,473	27 \$46,346	11 \$53,618	6 \$56,491	1 \$64,218	384 \$36,074
55-59 Avg Pay	72 \$28,869	67 \$33,784	79 \$36,060	57 \$40,850	13 \$47,907	4 \$60,395		4 \$61,752	296 \$35,914
60-64 Avg Pay	46 \$28,263	50 \$35,068	46 \$38,441	31 \$37,662	14 \$43,967	4 \$46,616	1 \$48,383	2 \$60,357	194 \$35,879
65-69 Avg Pay	3 \$38,807	16 \$41,438	15 \$37,813	11 \$46,940	2 \$74,676	2 \$49,752	1 \$52,436		50 \$43,285
70 & over Avg Pay	2 \$24,952	2 \$21,001	6 \$33,219	4 \$47,329		1 \$45,591			15 \$35,075
Totals Avg Pay	1,734 \$27,361	889 \$34,358	666 \$37,015	424 \$41,230	128 \$47,204	28 \$55,138	9 \$55,002	8 \$59,592	3,886 \$33,114



## SCHEDULE F

### SENSITIVITY ANALYSIS

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

- The discount rate assumption sensitivity analysis shows the valuation results with the baseline discount rate assumption, 7.50%, together with a decrease in the discount rate to 6.50% and an increase in the discount rate to 8.50%. Under this scenario, the underlying inflation rate assumption is held constant at 3.25% and the payroll growth assumption is held constant at 4.00%.
- The inflation assumption sensitivity analysis shows the valuation results with the baseline underlying inflation rate assumption, 3.25%, together with decreases in the inflation rate to 3.00% and 2.75%. Under this scenario, the decrease in the underlying inflation rate assumption leads to corresponding decreases in the discount rate, the payroll growth assumption and the healthcare trend assumption for members hired before 7/1/2003.
- The payroll growth assumption sensitivity analysis shows the valuation results with the baseline underlying payroll growth assumption, 4.00%, together with decreases in the payroll growth assumption to 2.00% and 0.00%. Under this scenario, all other assumptions, including the individual member salary scale, are held constant so that the only impact is in the amortization of the unfunded liability, leading to higher employer contribution rates.



**NON-HAZARDOUS  
ASSUMED DISCOUNT RATE SENSITIVITY ANALYSIS**

	Decrease Discount Rate	Valuation Results	Increase Discount Rate
<b>Retirement</b>			
Actuarial Accrued Liability	\$ 13,627,857,276	\$ 12,359,672,849	\$ 11,286,839,300
Actuarial Value of Assets	<u>2,350,989,940</u>	<u>2,350,989,940</u>	<u>2,350,989,940</u>
Unfunded Liability	\$ 11,276,867,336	\$ 10,008,682,909	\$ 8,935,849,360
Funded Ratio	17.25%	19.02%	20.83%
Contribution Rate	40.88%	38.93%	37.46%
Discount Rate	6.50%	7.50%	8.50%
Payroll Growth	4.00%	4.00%	4.00%
Inflation Rate	3.25%	3.25%	3.25%
<b>Insurance</b>			
Actuarial Accrued Liability	\$ 2,722,781,798	\$ 2,413,705,252	\$ 2,157,244,101
Actuarial Value of Assets	<u>695,018,262</u>	<u>695,018,262</u>	<u>695,018,262</u>
Unfunded Liability	\$ 2,027,763,536	\$ 1,718,686,990	\$ 1,462,225,839
Funded Ratio	25.53%	28.79%	32.22%
Contribution Rate	9.44%	8.35%	7.44%
Discount Rate	6.50%	7.50%	8.50%
Payroll Growth	4.00%	4.00%	4.00%
Inflation Rate	3.25%	3.25%	3.25%
<b>KERS Non-Hazardous Total</b>			
Actuarial Accrued Liability	\$ 16,350,639,074	\$ 14,773,378,101	\$ 13,444,083,401
Actuarial Value of Assets	<u>3,046,008,202</u>	<u>3,046,008,202</u>	<u>3,046,008,202</u>
Unfunded Liability	\$ 13,304,630,872	\$ 11,727,369,899	\$ 10,398,075,199
Funded Ratio	18.63%	20.62%	22.66%
Contribution Rate	50.32%	47.28%	44.90%
Discount Rate	6.50%	7.50%	8.50%
Payroll Growth	4.00%	4.00%	4.00%
Inflation Rate	3.25%	3.25%	3.25%



**NON-HAZARDOUS  
INFLATION ASSUMPTION SENSITIVITY ANALYSIS**

Valuation Results	Decrease Inflation Rate 25 basis points	Decrease Inflation Rate 50 basis points
<b>Retirement</b>		
Actuarial Accrued Liability	\$ 12,359,672,849	\$ 12,630,546,443
Actuarial Value of Assets	<u>2,350,989,940</u>	<u>2,350,989,940</u>
Unfunded Liability	\$ 10,008,682,909	\$ 10,279,556,503
Funded Ratio	19.02%	18.61%
Contribution Rate	38.93%	40.23%
Discount Rate	7.50%	7.25%
Payroll Growth	4.00%	3.75%
Inflation Rate	3.25%	3.00%
<b>Insurance</b>		
Actuarial Accrued Liability	\$ 2,413,705,252	\$ 2,420,702,362
Actuarial Value of Assets	<u>695,018,262</u>	<u>695,018,262</u>
Unfunded Liability	\$ 1,718,686,990	\$ 1,725,684,100
Funded Ratio	28.79%	28.71%
Contribution Rate	8.35%	8.42%
Discount Rate	7.50%	7.25%
Payroll Growth	4.00%	3.75%
Inflation Rate	3.25%	3.00%
<b>KERS Non-Hazardous Total</b>		
Actuarial Accrued Liability	\$ 14,773,378,101	\$ 15,051,248,805
Actuarial Value of Assets	<u>3,046,008,202</u>	<u>3,046,008,202</u>
Unfunded Liability	\$ 11,727,369,899	\$ 12,005,240,603
Funded Ratio	20.62%	20.24%
Contribution Rate	47.28%	48.65%
Discount Rate	7.50%	7.25%
Payroll Growth	4.00%	3.75%
Inflation Rate	3.25%	3.00%



**NON-HAZARDOUS  
PAYROLL GROWTH ASSUMPTION SENSITIVITY ANALYSIS**

	Valuation Results	Decrease Payroll Growth 2%	No Payroll Growth
<b>Retirement</b>			
Actuarial Accrued Liability	\$ 12,359,672,849	\$ 12,359,672,849	\$ 12,359,672,849
Actuarial Value of Assets	<u>2,350,989,940</u>	<u>2,350,989,940</u>	<u>2,350,989,940</u>
Unfunded Liability	\$ 10,008,682,909	\$ 10,008,682,909	\$ 10,008,682,909
Funded Ratio	19.02%	19.02%	19.02%
Contribution Rate	38.93%	48.00%	58.40%
Discount Rate	7.50%	7.50%	7.50%
Payroll Growth	4.00%	2.00%	0.00%
Inflation Rate	3.25%	3.25%	3.25%
<b>Insurance</b>			
Actuarial Accrued Liability	\$ 2,413,705,252	\$ 2,413,705,252	\$ 2,413,705,252
Actuarial Value of Assets	<u>695,018,262</u>	<u>695,018,262</u>	<u>695,018,262</u>
Unfunded Liability	\$ 1,718,686,990	\$ 1,718,686,990	\$ 1,718,686,990
Funded Ratio	28.79%	28.79%	28.79%
Contribution Rate	8.35%	9.74%	11.30%
Discount Rate	7.50%	7.50%	7.50%
Payroll Growth	4.00%	2.00%	0.00%
Inflation Rate	3.25%	3.25%	3.25%
<b>KERS Non-Hazardous Total</b>			
Actuarial Accrued Liability	\$ 14,773,378,101	\$ 14,773,378,101	\$ 14,773,378,101
Actuarial Value of Assets	<u>3,046,008,202</u>	<u>3,046,008,202</u>	<u>3,046,008,202</u>
Unfunded Liability	\$ 11,727,369,899	\$ 11,727,369,899	\$ 11,727,369,899
Funded Ratio	20.62%	20.62%	20.62%
Contribution Rate	47.28%	57.74%	69.70%
Discount Rate	7.50%	7.50%	7.50%
Payroll Growth	4.00%	2.00%	0.00%
Inflation Rate	3.25%	3.25%	3.25%



**HAZARDOUS  
ASSUMED DISCOUNT RATE SENSITIVITY ANALYSIS**

	Decrease Discount Rate	Valuation Results	Increase Discount Rate
<b>Retirement</b>			
Actuarial Accrued Liability	\$ 993,666,440	\$ 895,433,387	\$ 813,020,323
Actuarial Value of Assets	<u>556,687,757</u>	<u>556,687,757</u>	<u>556,687,757</u>
Unfunded Liability	\$ 436,978,683	\$ 338,745,630	\$ 256,332,566
Funded Ratio	56.02%	62.17%	68.47%
Contribution Rate	26.30%	21.08%	16.42%
Discount Rate	6.50%	7.50%	8.50%
Payroll Growth	4.00%	4.00%	4.00%
Inflation Rate	3.25%	3.25%	3.25%
<b>Insurance</b>			
Actuarial Accrued Liability	\$ 424,497,259	\$ 374,904,234	\$ 334,316,325
Actuarial Value of Assets	<u>451,514,191</u>	<u>451,514,191</u>	<u>451,514,191</u>
Unfunded Liability	\$ (27,016,932)	\$ (76,609,957)	\$ (117,197,866)
Funded Ratio	106.36%	120.43%	135.06%
Contribution Rate	6.59%	2.74%	-0.76%
Discount Rate	6.50%	7.50%	8.50%
Payroll Growth	4.00%	4.00%	4.00%
Inflation Rate	3.25%	3.25%	3.25%
<b>KERS Hazardous Total</b>			
Actuarial Accrued Liability	\$ 1,418,163,699	\$ 1,270,337,621	\$ 1,147,336,648
Actuarial Value of Assets	<u>1,008,201,948</u>	<u>1,008,201,948</u>	<u>1,008,201,948</u>
Unfunded Liability	\$ 409,961,751	\$ 262,135,673	\$ 139,134,700
Funded Ratio	71.09%	79.36%	87.87%
Contribution Rate	32.89%	23.82%	15.66%
Discount Rate	6.50%	7.50%	8.50%
Payroll Growth	4.00%	4.00%	4.00%
Inflation Rate	3.25%	3.25%	3.25%



**HAZARDOUS  
INFLATION ASSUMPTION SENSITIVITY ANALYSIS**

Valuation Results	Decrease Inflation Rate 25 basis points	Decrease Inflation Rate 50 basis points
<b>Retirement</b>		
Actuarial Accrued Liability	\$ 895,433,387	\$ 919,056,850
Actuarial Value of Assets	<u>556,687,757</u>	<u>556,687,757</u>
Unfunded Liability	\$ 338,745,630	\$ 362,369,093
Funded Ratio	62.17%	60.57%
Contribution Rate	21.08%	22.36%
Discount Rate	7.50%	7.25%
Payroll Growth	4.00%	3.75%
Inflation Rate	3.25%	3.00%
<b>Insurance</b>		
Actuarial Accrued Liability	\$ 374,904,234	\$ 376,207,536
Actuarial Value of Assets	<u>451,514,191</u>	<u>451,514,191</u>
Unfunded Liability	\$ (76,609,957)	\$ (75,306,655)
Funded Ratio	120.43%	120.02%
Contribution Rate	2.74%	2.92%
Discount Rate	7.50%	7.25%
Payroll Growth	4.00%	3.75%
Inflation Rate	3.25%	3.00%
<b>KERS Hazardous Total</b>		
Actuarial Accrued Liability	\$ 1,270,337,621	\$ 1,295,264,386
Actuarial Value of Assets	<u>1,008,201,948</u>	<u>1,008,201,948</u>
Unfunded Liability	\$ 262,135,673	\$ 287,062,438
Funded Ratio	79.36%	77.84%
Contribution Rate	23.82%	25.28%
Discount Rate	7.50%	7.25%
Payroll Growth	4.00%	3.75%
Inflation Rate	3.25%	3.00%



**HAZARDOUS  
PAYROLL GROWTH ASSUMPTION SENSITIVITY ANALYSIS**

	Valuation Results	Decrease Payroll Growth 2%	No Payroll Growth
<b>Retirement</b>			
Actuarial Accrued Liability	\$ 895,433,387	\$ 895,433,387	\$ 895,433,387
Actuarial Value of Assets	<u>556,687,757</u>	<u>556,687,757</u>	<u>556,687,757</u>
Unfunded Liability	\$ 338,745,630	\$ 338,745,630	\$ 338,745,630
Funded Ratio	62.17%	62.17%	62.17%
Contribution Rate	21.08%	24.72%	28.89%
Discount Rate	7.50%	7.50%	7.50%
Payroll Growth	4.00%	2.00%	0.00%
Inflation Rate	3.25%	3.25%	3.25%
<b>Insurance</b>			
Actuarial Accrued Liability	\$ 374,904,234	\$ 374,904,234	\$ 374,904,234
Actuarial Value of Assets	<u>451,514,191</u>	<u>451,514,191</u>	<u>451,514,191</u>
Unfunded Liability	\$ (76,609,957)	\$ (76,609,957)	\$ (76,609,957)
Funded Ratio	120.43%	120.43%	120.43%
Contribution Rate	2.74%	2.00%	1.16%
Discount Rate	7.50%	7.50%	7.50%
Payroll Growth	4.00%	2.00%	0.00%
Inflation Rate	3.25%	3.25%	3.25%
<b>KERS Hazardous Total</b>			
Actuarial Accrued Liability	\$ 1,270,337,621	\$ 1,270,337,621	\$ 1,270,337,621
Actuarial Value of Assets	<u>1,008,201,948</u>	<u>1,008,201,948</u>	<u>1,008,201,948</u>
Unfunded Liability	\$ 262,135,673	\$ 262,135,673	\$ 262,135,673
Funded Ratio	79.36%	79.36%	79.36%
Contribution Rate	23.82%	26.72%	30.05%
Discount Rate	7.50%	7.50%	7.50%
Payroll Growth	4.00%	2.00%	0.00%
Inflation Rate	3.25%	3.25%	3.25%