

The following table shows a comparison of actual and expected service retirements based on new proposed rates of retirement.

**COMPARISON OF ACTUAL AND EXPECTED RETIREMENTS
BASED ON PROPOSED RETIREMENT RATES**

MEMBERS WITH LESS THAN 27 YEARS OF SERVICE

AGE	NUMBER OF RETIREMENTS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
55	39	51.2	0.762	179	184.5	0.970
56	46	50.1	0.918	162	174.6	0.928
57	49	51.1	0.959	159	165.2	0.963
58	46	48.4	0.950	145	151.1	0.960
59	63	47.9	1.315	169	151.7	1.114
60	94	104.0	0.904	288	319.8	0.901
61	63	88.3	0.714	273	262.5	1.040
62	92	89.6	1.027	226	212.0	1.066
63	69	64.5	1.070	191	182.4	1.047
64	57	61.2	0.931	116	139.2	0.833
65	66	65.0	1.015	142	152.0	0.934
66	42	46.4	0.905	113	101.9	1.109
67	34	35.8	0.950	58	52.6	1.104
68	29	24.0	1.208	37	35.3	1.049
69	17	16.8	1.012	28	24.7	1.135
SUBTOTAL	806	844.2	0.955	2,286	2,309.2	0.990
70 & Over	38	87.0	0.437	65	113.4	0.573
TOTAL	844	931.2	0.906	2,351	2,422.6	0.970
Average Retirement Age	62.0	62.6	0.991	61.0	61.3	0.996

**COMPARISON OF ACTUAL AND EXPECTED RETIREMENTS
BASED ON PROPOSED RETIREMENT RATES**

MEMBERS WITH 27 YEARS OF SERVICE AND MORE

AGE	NUMBER OF RETIREMENTS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
52 & Under	204	191.7	1.064	798	831.4	0.960
53	49	50.2	0.976	225	249.4	0.902
54	80	67.2	1.190	308	269.2	1.144
55	197	196.2	1.004	788	715.2	1.102
56	114	110.1	1.035	437	424.6	1.029
57	93	94.8	0.982	295	290.6	1.015
58	87	86.8	1.002	260	258.4	1.006
59	60	54.3	1.105	234	232.8	1.005
60	78	72.3	1.079	257	228.8	1.123
61	61	58.6	1.041	188	185.1	1.016
62	44	43.7	1.007	165	154.6	1.067
63	45	40.8	1.103	153	136.2	1.123
64	28	27.6	1.016	103	92.1	1.118
65	25	24.6	1.016	86	64.6	1.331
66	33	32.6	1.012	60	47.9	1.253
67	19	18.2	1.047	44	35.3	1.248
68	18	16.3	1.104	32	24.3	1.317
69	9	9.7	0.928	16	16.4	0.976
SUBTOTAL	1,244	1,195.5	1.041	4,449	4,256.8	1.045
70 & Over	40	51.1	0.783	49	82.0	0.598
TOTAL	1,284	1,246.6	1.030	4,498	4,338.8	1.037
Average Retirement Age	57.5	57.6	0.998	56.7	56.6	1.002

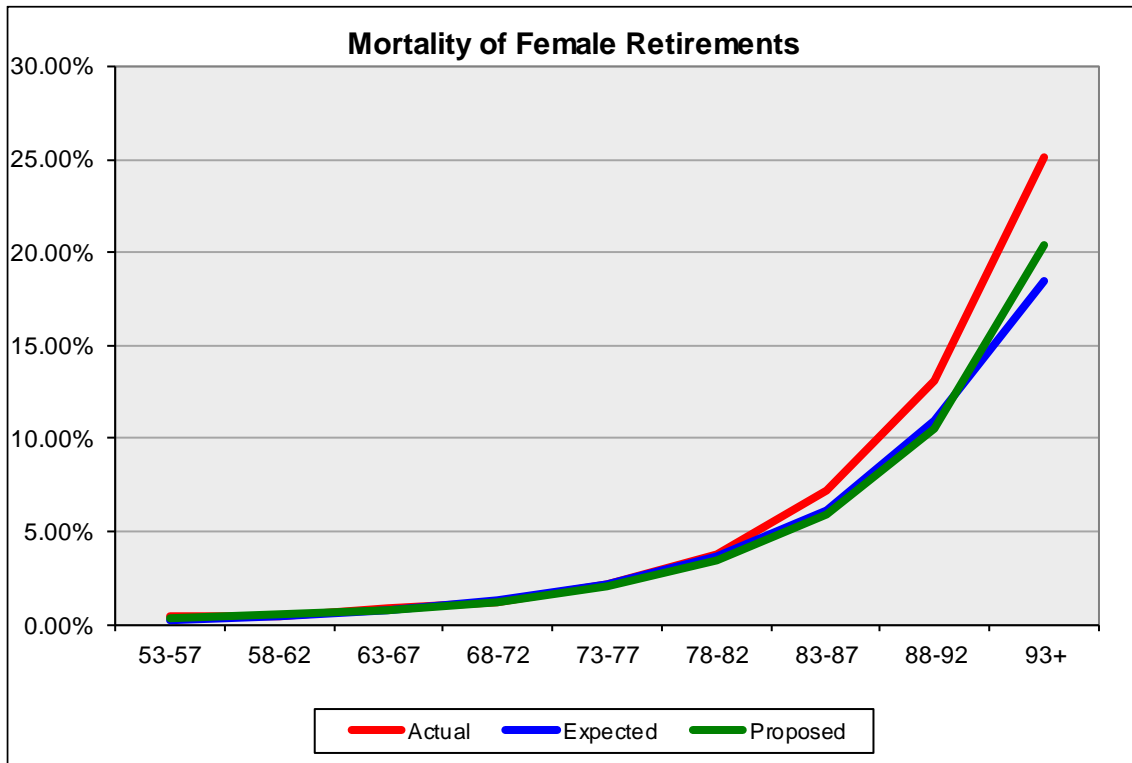
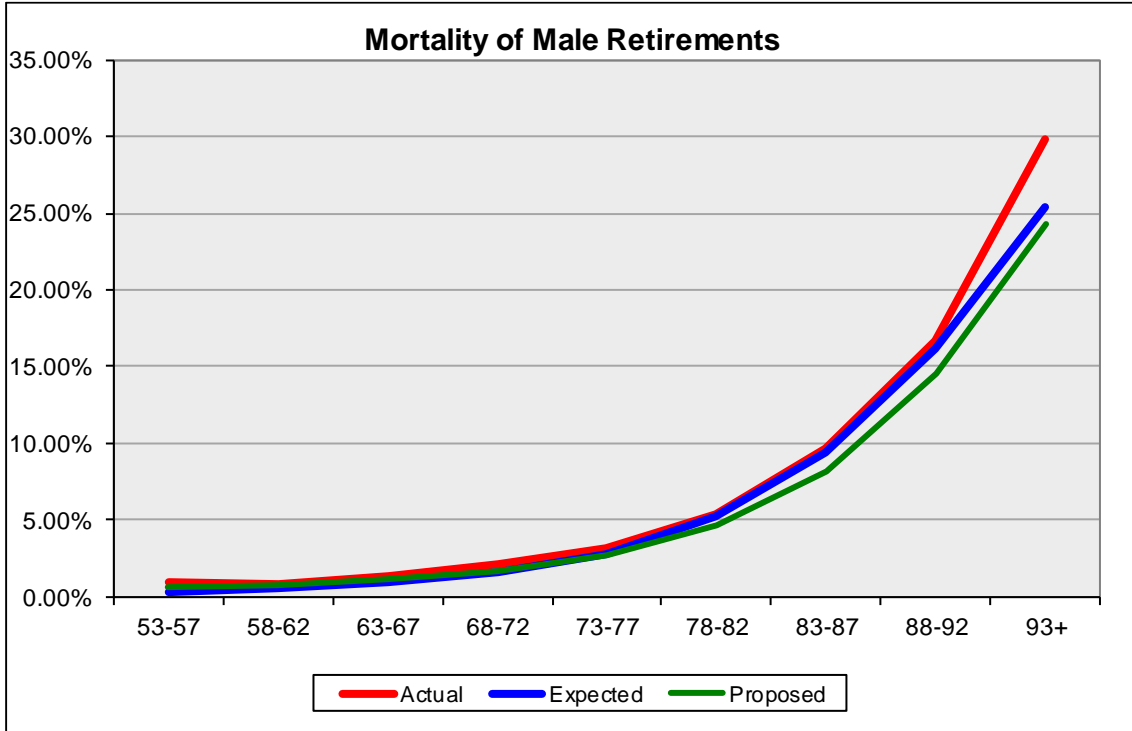
RATES OF POST-RETIREMENT MORTALITY

**COMPARISON OF ACTUAL AND EXPECTED CASES OF
POST-RETIREMENT DEATHS**

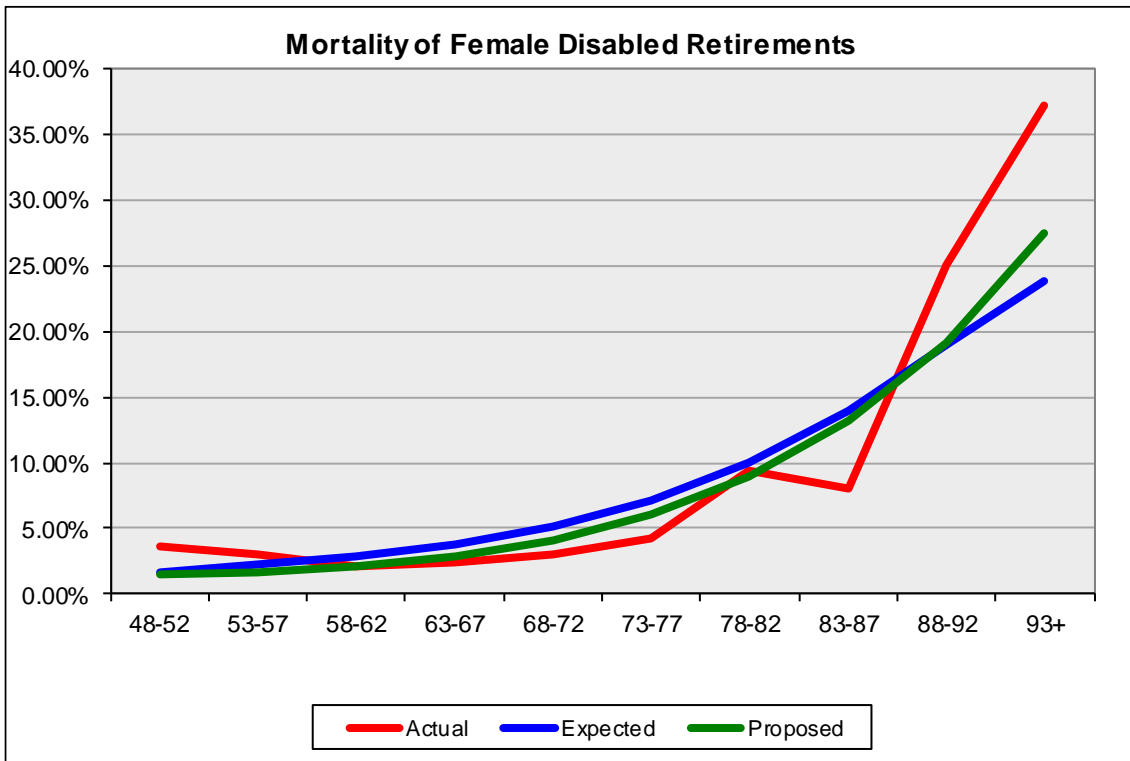
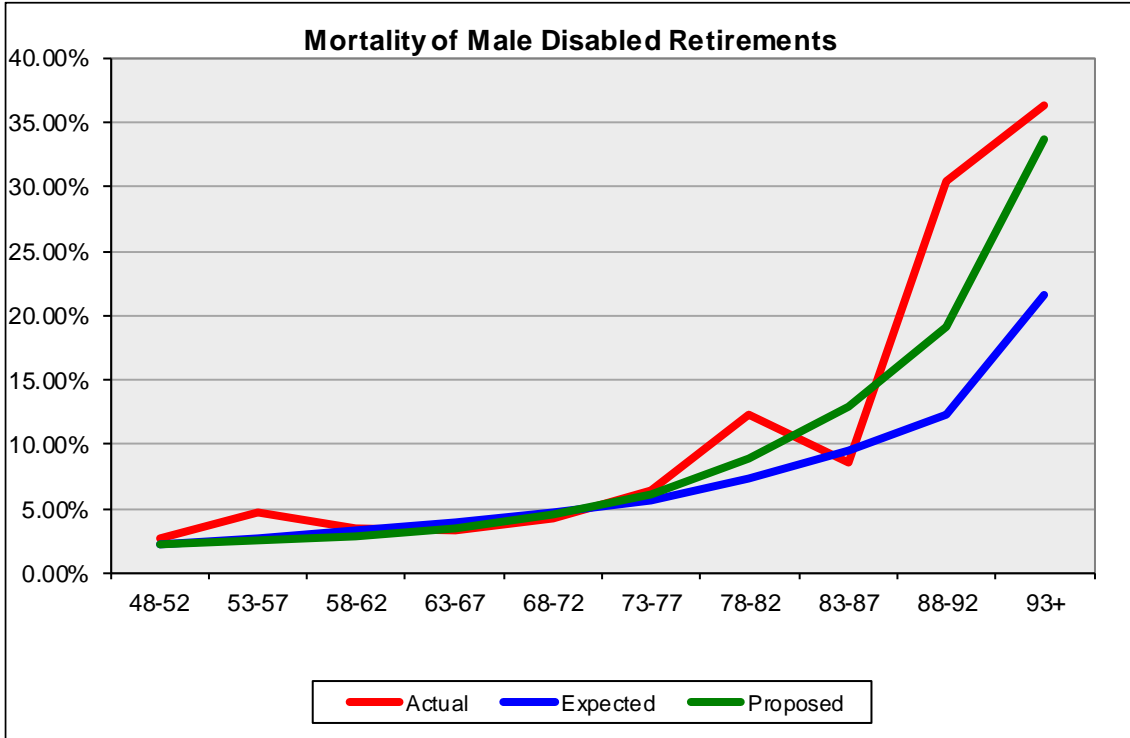
CENTRAL AGE OF GROUP	NUMBER OF POST-RETIREMENT DEATHS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
	SERVICE RETIREMENTS					
57 & UNDER	55	10.4	5.288	73	25.6	2.852
60	81	55.4	1.462	125	127.7	0.979
65	229	165.1	1.387	343	291.7	1.176
70	292	223.9	1.304	303	335.1	0.904
75	293	259.3	1.130	360	360.3	0.999
80	332	324.9	1.022	442	428.5	1.032
85	318	311.1	1.022	644	552.1	1.166
90	235	227.8	1.032	661	552.3	1.197
93 & OVER	127	107.8	1.178	717	529.0	1.355
TOTAL	1,962	1,685.7	1.164	3,668	3,202.3	1.145
	DISABILITY RETIREMENTS					
52 & UNDER	11	7.0	1.571	72	22.3	3.229
55	15	8.5	1.765	42	30.4	1.382
60	22	20.8	1.058	47	62.9	0.747
65	22	26.5	0.830	50	75.5	0.662
70	20	21.8	0.917	30	50.9	0.589
75	19	16.7	1.138	24	40.2	0.597
80	16	9.5	1.684	29	30.6	0.948
85	4	4.5	0.889	19	33.1	0.574
90	7	2.8	2.500	25	18.9	1.323
93 & OVER	4	2.4	1.667	13	8.3	1.566
TOTAL	140	120.5	1.162	351	373.1	0.941

The following graphs show a comparison of the present, actual and proposed rates of post-retirement deaths.

**POST-RETIREMENT DEATHS
SERVICE RETIREMENTS**



**POST-RETIREMENT DEATHS
DISABILITY RETIREMENTS**



The preceding results indicate that the actual number of post-retirement deaths for both males and females was greater than expected at most ages. For disability retirement, the actual number of deaths were more than expected for males and less than expected at most ages for females. Since the experience is showing more deaths than expected, we recommend maintaining the same mortality table, the RP 2000 Combined Mortality Table for service retirements and dependents of deceased pensioners, with mortality improvements projected to 2025 using Scale BB set forward 2 years for males and 1 year for females.

For the period after disability retirement, we recommend that the rates of mortality be revised to the RP 2000 Disabled Mortality Table set forward 2 years for males and 7 years for females.

These assumed rates of mortality recognize the expectation of continued improvement in longevity. The following table shows a comparison between the present and proposed rates of mortality.

COMPARATIVE RATES OF POST-RETIREMENT MORTALITY

AGE	SERVICE RETIREMENTS AND DEPENDENTS OF DECEASED MEMBERS			
	MALES		FEMALES	
	Present	Proposed	Present	Proposed
35	0.07%	0.08%	0.03%	0.05%
40	0.09%	0.11%	0.05%	0.07%
45	0.12%	0.15%	0.07%	0.11%
50	0.15%	0.23%	0.11%	0.17%
55	0.25%	0.39%	0.21%	0.27%
60	0.49%	0.63%	0.40%	0.44%
65	0.96%	1.04%	0.78%	0.81%
70	1.64%	1.68%	1.34%	1.37%
75	2.85%	2.89%	2.17%	2.29%
80	5.26%	4.94%	3.61%	3.76%
85	9.62%	8.42%	6.16%	6.39%
90	16.93%	15.54%	11.22%	11.25%

COMPARATIVE RATES OF POST-RETIREMENT MORTALITY

AGE	DISABILITY RETIREMENTS			
	MALES		FEMALES	
	Present	Proposed	Present	Proposed
35	2.26%	0.97%	0.75%	0.53%
40	2.26%	1.34%	0.75%	0.88%
45	2.26%	1.85%	1.15%	1.15%
50	2.26%	2.15%	1.65%	1.37%
55	2.64%	2.38%	2.18%	1.52%
60	3.29%	2.62%	2.80%	1.83%
65	3.93%	3.08%	3.76%	2.47%
70	4.66%	4.06%	5.22%	3.59%
75	5.69%	5.62%	7.23%	5.34%
80	7.33%	8.16%	10.02%	7.92%
85	9.76%	12.62%	14.00%	11.75%
90	12.83%	19.86%	19.45%	18.33%

The following shows a comparison of the actual and expected post-retirement deaths based on new revised rates of mortality.

**COMPARISON OF ACTUAL AND EXPECTED CASES OF
POST-RETIREMENT DEATHS
BASED ON REVISED MORTALITY RATES**

CENTRAL AGE OF GROUP	NUMBER OF POST-RETIREMENT DEATHS					
	MALES			FEMALES		
	Actual	Expected	Ratio of Actual to Expected	Actual	Expected	Ratio of Actual to Expected
SERVICE RETIREMENTS						
57 & UNDER	55	23.7	2.321	73	42.3	1.726
60	81	86.6	0.935	125	154.9	0.807
65	229	188.0	1.218	343	289.5	1.185
70	292	232.2	1.258	303	309.3	0.980
75	293	253.2	1.157	360	333.8	1.078
80	332	289.4	1.147	442	404.1	1.094
85	318	269.5	1.180	644	528.9	1.218
90	235	204.9	1.147	661	529.8	1.248
93 & OVER	127	103.3	1.229	717	584.6	1.226
TOTAL	1,962	1,650.8	1.189	3,668	3,177.2	1.154
DISABILITY RETIREMENTS						
52 & UNDER	11	5.9	1.864	72	20.5	3.512
55	15	7.8	1.923	42	23.7	1.772
60	22	18.0	1.222	47	46.9	1.002
65	22	23.4	0.940	50	56.6	0.883
70	20	21.2	0.943	30	40.0	0.750
75	19	18.1	1.050	24	33.8	0.710
80	16	11.5	1.391	29	27.5	1.055
85	4	6.1	0.656	19	31.4	0.605
90	7	4.4	1.591	25	19.1	1.309
93 & OVER	4	3.7	1.081	13	9.6	1.354
TOTAL	140	120.1	1.166	351	309.1	1.136

RATES OF SALARY INCREASE

**COMPARISON OF ACTUAL AND EXPECTED SALARIES
OF ACTIVE MEMBERS**

CENTRAL AGE OF GROUP	SALARIES AT END OF YEAR (\$1,000's)		
	MALES AND FEMALES		
	Actual	Expected	Ratio of Actual to Expected
25	\$1,057,005	\$1,067,948	0.990
30	1,826,395	1,859,146	0.989
35	2,199,785	2,240,941	0.986
40	2,590,229	2,643,228	0.984
45	2,415,041	2,467,984	0.980
50	2,143,172	2,185,019	0.981
55	1,613,087	1,627,362	0.990
60	935,017	937,372	0.996
63+	343,492	343,658	0.996
TOTAL	\$15,571,191	\$15,748,427	0.989

During the period under investigation, the actual rates of salary increase were lower than expected for both males and females at all ages. The rates of salary increase consist of wage inflation and a scale for merit and promotion. We recommended in the Economic section of this report that the wage inflation assumption be reduced by 0.50% from 4.00% to 3.50%. In addition, we recommend a decrease of 0.25% in the rates of merit and promotion at all age bands.

Section IV Assumptions Specific to the Medical Insurance Fund and the Life Insurance Fund

Health Care Cost Trend Rates

Background: In addition to the economic assumptions used in all of the actuarial valuations performed for the Teachers' Retirement System of the State of Kentucky (System), the health care cost trend rates reflect the change in per capita health claims rates over time due to factors such as medical inflation, utilization, plan design, and technology improvements. For the Medical Insurance Fund (MIF), health care cost trend rates are needed to project the future cost of providing benefits of the MIF, including Kentucky Employees' Health Plan (KEHP) premiums, Medicare Eligible Health Plan (MEHP) costs, and Shared Responsibility contributions based upon Medicare Part B premiums.

The Actuarial Standards Board has issued Actuarial Standard of Practice (ASOP) No. 6, "Measuring Retiree Group Benefit Obligations", which provides guidance to actuaries in selecting economic assumptions for measuring obligations of postretirement plans other than pensions. As noted in ASOP No. 6, the actuary should consider the following key components in setting the health care cost trend rate: inflation, medical inflation, definition of covered charges, frequency of services, leveraging caused by plan design features not explicitly modeled, and plan participation. The actuary should not consider aging of the covered population when selecting the trend assumption for projecting future costs.

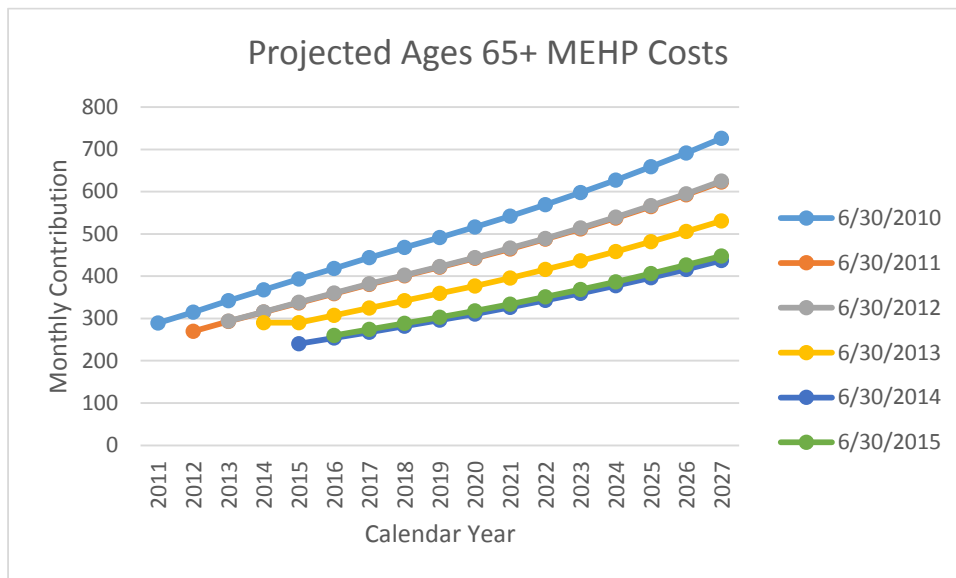
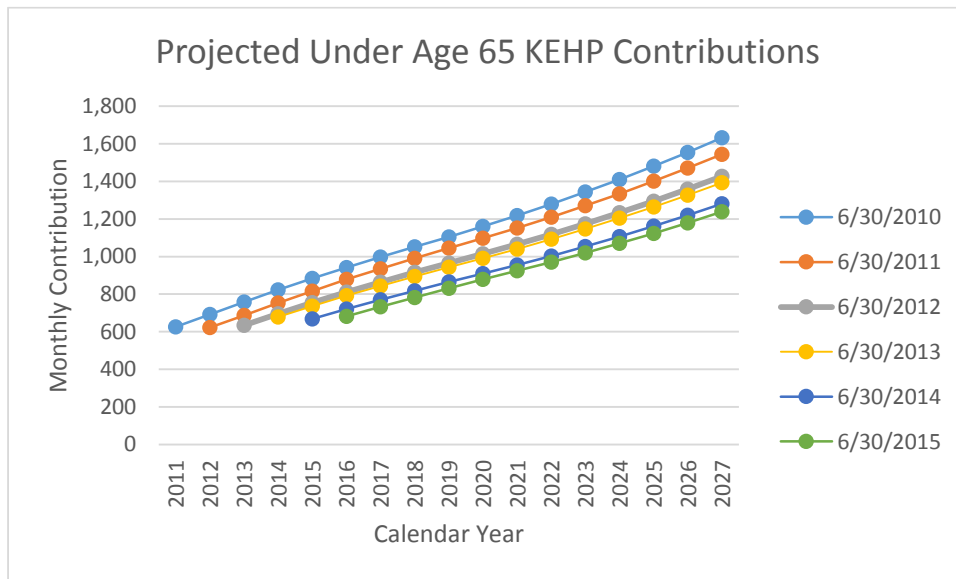
Currently, the System's valuations utilize initial trend rates based upon input from the System regarding near-term expectations and an annual meta-analysis of trend surveys. The initial trend rates grade to an ultimate trend rate of 5.00% over a three (MEHP) to five (KEHP) year period.

In projecting medical and prescription drug premiums and costs, Cavanaugh Macdonald Consulting, LLC (CMC) assumes health care plan cost trend rates will decrease from an initial rate to an ultimate level. For the initial trend rate, CMC's methodology includes input from the Teachers' Retirement System of the State of Kentucky (the System) regarding near-term expectations and the use of published annual health care inflation surveys in conjunction with actual plan experience, where credible. Given the volatile nature of medical and prescription drug costs, the initial trend rate assumption is subject to continued update and review with each valuation performed. As for the decrease to the ultimate trend rate, there are various approaches used to determine the timing and level of the decreases (e.g., multi-year grading period, SOA-Getzen Model). The assumed decrease in health care cost trend rates reflects the belief that health care inflation cannot indefinitely outstrip the growth rate of employer budgets and the overall economy. As a standard of practice, CMC typically assumes a grading period of around five years, depending on the level of change (i.e., larger differences between the initial trend rate and the ultimate trend rate are assumed to require a longer reduction period). For the ultimate trend rate assumption, Medicare expenditures increasing at the rate of long-term per capita GDP growth + 1.0% was felt to be reasonable by a 2004 Medicare Trustees Technical Review Panel, and is widely used. As a standard of practice, CMC believes the use of the "GDP+1%" assumption is reasonable and typically assumes an ultimate trend rate of 5.0%. As with any standard of practice, the specifics of each plan are reviewed to ensure there is nothing unusual that would necessitate a long-term trend rate that is either higher or lower than what is typical. It appears to be reasonable to use an ultimate rate of 5.0% and beyond.

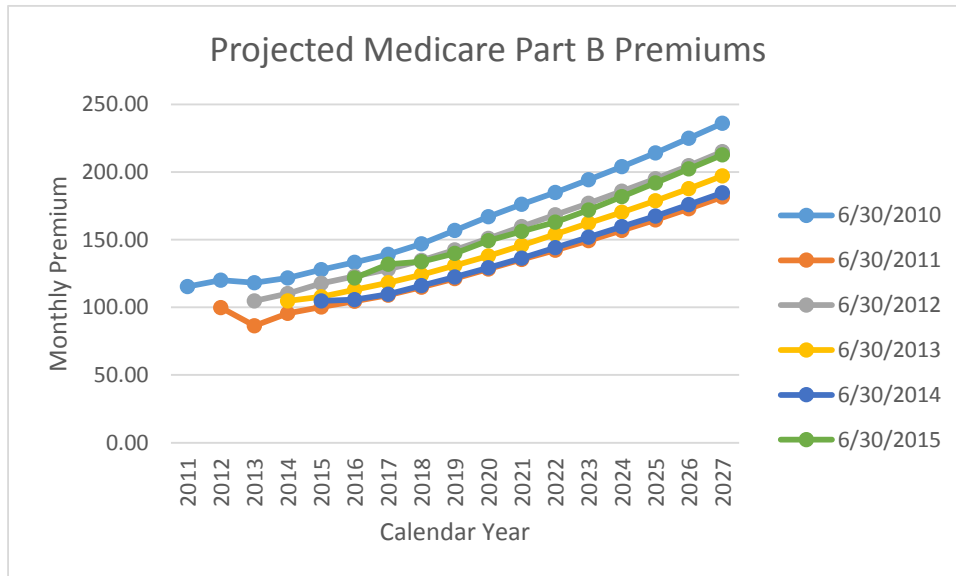
In projecting the offsets associated with the Federal Supplementary Medical Insurance Trust Fund (Medicare Part B Premiums), projected trends from the CMS actuary in the most recent annual report to the trustees appear to provide a reasonable basis for the projection of these costs. As a standard of practice, CMC typically develops the trend assumptions for these benefits based upon the CMS actuary's most recent estimates.

Health Care Cost Trend Rates (continued)

In our opinion, the economic assumptions recommended in this report have been developed in accordance with ASOP No. 6. The following tables illustrate the projected results generated by the trend assumptions used over the experience period.



Health Care Cost Trend Rates (continued)



Recommendation: In our opinion, the health care cost trend rates recommended in each year’s valuation report are developed in accordance with ASOP No. 6. We recommend the continued update and review of the initial rates with each year’s valuation. As for the ultimate health care cost trend rate, CMC typically uses an ultimate rate of 5.0%, reflecting research (e.g., Follette & Sheiner, Chernew, Hirth, & Cutler) suggesting that health care spending growth is sustainable in the long-term only up to a one percentage point gap between the growth rates of health spending and GDP (i.e., higher increases will lead to a decline in non-health consumption, leaving no resources for non-health care consumption). As there appears to be nothing unusual about the System’s medical plans that would necessitate a long-term trend that is either higher or lower than what is typically used for this type of calculation, we believe this assumption to be reasonable.

Morbidity

Background: The Actuarial Standards Board has issued Actuarial Standard of Practice (ASOP) No. 6, “Measuring Retiree Group Benefit Obligations”, which provides guidance to actuaries when developing benefit cost projection assumptions for measuring obligations of postretirement plans other than pensions. As noted in ASOP No. 6, the actuary should consider the variation in rates by age for the benefits being modeled and use appropriate age bands if the rates vary significantly. The age bands should not be overly broad, based on the expected rate variations within the bands. If rates vary significantly by age, it is inappropriate to assume a single per capita rate that does not vary by age. The relationship between the rates at various ages is an actuarial assumption that may be based on normative databases.

Morbidity (continued)

Recommendation: In the absence of credible plan experience, CMC assumes the projected medical and prescription drug costs of MEHP vary significantly by age from the average cost at the central age of the applicable group based upon the paper “Aging Curves for Health Care Costs in Retirements”, The North American Actuarial Journal, July 2005, Jeffrey P. Petertil. Here, the paper’s “Representative Curve for General Use” is used for ages 50 and older, and factors developed from a national average claims and utilization database are used for ages below 50. CMC continuously monitors all available data, publications, and research projects undertaken by actuarial organizations regarding age-related morbidity (e.g., “Health Care Costs—From Birth to Death”, Health Care Cost Institute’s Independent Report Series – Report 2013-1, June 2013, Dale H. Yamamoto) and see no indication of the factors no longer being appropriate.

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 health care trend assumption (i.e., no implicit rate subsidy is calculated or recognized). Under Actuarial Standard of Practice No. 6 (ASOP No. 6), aging subsidies (or implicit rate subsidies) should be recognized, as the differences in health care utilization and cost due to age have been demonstrated and well quantified. The impact of aging on a valuation’s results can be as significant as the use of mortality, trend, and discounting. It has been the long-standing position that the responsibility for compliance with GASB Statement No. 43, when it relates to KEHP implicit subsidies, rests with KEHP, not the System, as the System has no operational authority over KEHP. As such, KEHP implicit subsidies are excluded from the OPEB valuation process of the MIF. As GASB 74 and 75 prohibit such a deviation from ASOP No. 6, additional consideration to the current treatment of KEHP implicit rate subsidies may be needed in the future.

Coverage Assumptions

In addition to covering eligible retirees, many plans cover the spouse and dependents of retirees. In addition, plans may offer some or all participants a choice of coverage such as HMOs, PPOs, and POS plans. The magnitude of the retiree group benefit obligation can vary significantly as a result of the coverage assumptions. The actuary should therefore consider historical participation rates and trends in coverage rates when selecting the coverage assumptions.

Member Participation

Background: For plans that require some form of contribution to maintain coverage, some eligible inactive members may not elect to be covered, particularly if they have other coverage available from their most recent employer. Empirical data on plan participation, where available and credible, should be considered when selecting the participation assumption for future covered retirees that retire from an eligible inactive status. When developing the participation rates, how plan eligibility rules, plan choices, or retiree contribution rates have changed over time should be considered.

Furthermore, plan participation may be different in the future due to participants’ response to changes in retiree contribution levels and plan choices. For plans that anticipate changes in retiree contributions, the appropriateness of participation rates that vary over the projection period for both current and future retirees should be considered. In addition, plan eligibility rules governing dropping coverage and subsequent re-enrollment when selecting participation rates should be considered.

Coverage Assumptions (continued)

Recommendation: Historical MIF participation levels suggest an adjustment to the current assumption. The use of the historical average is proposed, with adjustments to reflect an increase in participation as the System’s contribution amount increases.

KTRS Contribution %	Valuation Date					Total
	6/30/2011	6/30/2012	6/30/2013	6/30/2014	6/30/2015	
Number of Retirees Electing MIF Coverage						
10%	36	52	63	67	n/a	218
25%	198	207	222	229	n/a	856
45%	2	2	2	6	n/a	12
50%	682	747	798	808	n/a	3,035
65%	0	1	4	3	n/a	8
70%	252	239	218	203	n/a	912
75%	1,097	1,220	1,294	1,343	n/a	4,954
80%	449	401	372	346	n/a	1,568
90%	718	629	590	553	n/a	2,490
95%	0	0	0	0	n/a	0
100%	31,599	32,502	33,214	33,715	n/a	131,030
Number of Retirees Eligible for MIF Coverage						
10%	138	206	273	333	n/a	950
25%	1,006	1,062	1,143	1,224	n/a	4,435
45%	4	8	16	27	n/a	55
50%	1,356	1,502	1,622	1,735	n/a	6,215
65%	3	4	10	19	n/a	36
70%	561	538	501	476	n/a	2,076
75%	1,574	1,721	1,841	1,947	n/a	7,083
80%	661	627	586	545	n/a	2,419
90%	894	843	785	736	n/a	3,258
95%	0	3	5	5	n/a	13
100%	34,555	35,686	36,560	37,264	n/a	144,065
% Electing MIF Coverage						
10%	26%	25%	23%	20%	n/a	23%
25%	20%	19%	19%	19%	n/a	19%
45%	50%	25%	13%	22%	n/a	22%
50%	50%	50%	49%	47%	n/a	49%
65%	0%	25%	40%	16%	n/a	22%
70%	45%	44%	44%	43%	n/a	44%
75%	70%	71%	70%	69%	n/a	70%
80%	68%	64%	63%	63%	n/a	65%
90%	80%	75%	75%	75%	n/a	76%
95%	n/a	0%	0%	0%	n/a	0%
100%	91%	91%	91%	90%	n/a	91%

Coverage Assumptions (continued)

Summary of MIF Election Rates			
KTRS Contribution %	Experience	Current	Proposed
10%	23%	9%	20%
25%	19%	23%	20%
45%	22%	41%	41%
50%	49%	45%	49%
65%	22%	59%	61%
70%	44%	n/a	n/a
75%	70%	68%	70%
80%	65%	n/a	n/a
90%	76%	81%	76%
95%	0%	86%	84%
100%	91%	93%	91%

Plan Elections

Background: As KEHP costs vary by plan, the future level of participation in the plans for covered members under 65 should be considered based upon historical participation rates, and how plan eligibility rules, plan choices, and retiree contribution rates have changed over time.

Recommendation: Based upon recent experience, plan election options can change, and plan election rates can shift over time. As a result, continued monitoring of experience and annual updating of the KEHP coverage assumption is proposed.

Valuation Date	Standard PPO	Capitol Choice	Optimum PPO	LivingWell CDHP	LivingWell PPO	Standard PPO	Standard CDHP	Total
KEHP Retiree Coverage Elections								
6/30/2011	489	2,948	12,487	n/a	n/a	n/a	n/a	15,924
6/30/2012	651	2,772	11,839	n/a	n/a	n/a	n/a	15,262
6/30/2013	753	2,554	11,270	n/a	n/a	n/a	n/a	14,577
6/30/2014	n/a	n/a	n/a	4,364	6,890	1,295	873	13,422
6/30/2015	n/a	n/a	n/a	4,887	5,736	1,044	805	12,472
KEHP Retiree Coverage Election %s								
6/30/2011	3%	19%	78%	n/a	n/a	n/a	n/a	100%
6/30/2012	4%	18%	78%	n/a	n/a	n/a	n/a	100%
6/30/2013	n/a*	n/a*	n/a*	35%	55%	10%	0%	100%
6/30/2014	n/a	n/a	n/a	32%	51%	10%	7%	100%
6/30/2015	n/a	n/a	n/a	39%	46%	8%	7%	100%

*As the actual plan elections for January 1, 2014 were not known on the valuation date, the prospective election percentages were determined via migration analysis.

Coverage Assumptions (continued)

Spouse Participation

Background: Those who are eligible for coverage under the plan should be considered and appropriate assumptions made regarding the coverage of spouses and dependents. Additionally, the impact of plan rules governing changes in coverage after retirement, such as remarriage, if significant should be considered. A review of historical data on spouse and dependent coverage rates when selecting the assumption to be used in the projection should be made.

Recommendation: The percentage of those electing MIF coverage for their spouses has remained steady over time and MIF's benefits and rules regarding dependent coverage are not anticipated to change. As a result, the use of the historical spouse coverage election average is proposed.

Valuation Date	Gender		
	Male	Female	Total
Number of Retirees Electing to Cover a Spouse			
6/30/2011	2,464	3,542	6,006
6/30/2012	2,425	3,655	6,080
6/30/2013	2,386	3,728	6,114
6/30/2014	2,272	3,804	6,076
6/30/2015	3,115	3,049	6,164
<i>Total</i>	<i>12,662</i>	<i>17,778</i>	<i>30,440</i>
Number of Retirees Electing Coverage			
6/30/2011	10,400	24,633	35,033
6/30/2012	10,539	25,461	36,000
6/30/2013	10,684	26,093	36,777
6/30/2014	10,680	26,595	37,275
6/30/2015	10,779	27,296	38,075
<i>Total</i>	<i>53,082</i>	<i>130,078</i>	<i>183,160</i>
% Electing Spouse Coverage			
6/30/2011	24%	14%	17%
6/30/2012	23%	14%	17%
6/30/2013	22%	14%	17%
6/30/2014	21%	14%	16%
6/30/2015	29%	11%	16%
<i>Total</i>	<i>24%</i>	<i>14%</i>	<i>17%</i>
Current Assumption	20%		
Proposed %	25%	15%	

Coverage Assumptions (continued)

KEHP Dependent Coverage Elections

Background: Beginning with the June 30, 2015 valuation, a liability for the State’s KEHP Spouse/Dependent Subsidy is recognized. To determine the value of the KEHP Spouse/Dependent Subsidy for future retirees, an assumption regarding coverage tier elections is needed.

Recommendation: As historical experience is not available, continued monitoring of experience and annual updating of the assumption is proposed.

Valuation Date	KEHP Coverage Tier					
	Family Cross Reference	Couple	Family	Parent Plus	Single	Total
Number of Retirees Electing Coverage Tier						
6/30/2015	632	1,361	400	708	9,313	12,414
% of Retirees Electing Coverage Tier						
6/30/2015	5%	11%	3%	6%	75%	100%

Coverage Assumptions (continued)

Terminated and Vested Participation

Background: Although eligible inactive members may begin receiving benefits once meeting the age and service requirements for retirement eligibility, some members may withdrawal, and those members electing to receive benefits may not begin receiving benefits at the earliest eligibility date. For eligible inactive members, a rate of benefit participation and an average age in which benefits are to begin must be assumed.

Recommendation: Based upon the four most recent years of experience, the rates of withdrawal for those active members under the age of 55 who have less than 27 years of service have increased slightly. As the average rate of withdrawal has remained relatively steady over time, the use of the historical average is proposed for members under the age of 55 who have less than 27 years of service.

Rates of Withdrawal			
Experience Period	Years of Service		
	5-10	10-15	15-27
Number of Active Members Under Age 55 Entering Vested and Terminated Status			
7/1/2011 – 6/30/2012	463	144	83
7/1/2012 – 6/30/2013	496	179	90
7/1/2013 – 6/30/2014	504	170	120
7/1/2014 – 6/30/2015	518	221	91
<i>Total</i>	<i>1,981</i>	<i>714</i>	<i>384</i>
Number of Active Members Under Age 55 Entering Vested and Terminated Status or Withdrawing			
7/1/2011 – 6/30/2012	567	168	94
7/1/2012 – 6/30/2013	612	216	101
7/1/2013 – 6/30/2014	649	205	135
7/1/2014 – 6/30/2015	647	272	112
<i>Total</i>	<i>2,475</i>	<i>861</i>	<i>442</i>
% of Active Members Under Age 55 Electing to Retain Membership upon Termination			
7/1/2011 – 6/30/2012	82%	86%	88%
7/1/2012 – 6/30/2013	81%	83%	89%
7/1/2013 – 6/30/2014	78%	83%	89%
7/1/2014 – 6/30/2015	80%	81%	81%
<i>Total</i>	<i>80%</i>	<i>83%</i>	<i>87%</i>
Current Assumption	50%		
Proposed %	80%	85%	90%*

*To be used for all other age/service combinations.

Coverage Assumptions (continued)

Based upon the four most recent years of experience, the rates of vested and terminated benefit participation have decreased. To prevent giving too much weight to the most recent year, the recommendation reflects an equal weighting of each of the four years. As the average age of initial benefit receipt has remained relatively steady over time, the use of the historical average is proposed for the age of initial benefit receipt.

Terminated and Vested Rates of Benefit Participation								
Experience Period	Years of Service							Total
	5 - 10	10 - 15	15 - 20	20 - 25	25 - 26	26 - 27	27+	
Number Receiving a Pension Benefit or Returning to Active Status								
7/1/2011 – 6/30/2012	329	159	60	26	14	11	21	620
7/1/2012 – 6/30/2013	405	157	75	32	9	7	17	702
7/1/2013 – 6/30/2014	355	155	69	25	8	9	15	636
7/1/2014 – 6/30/2015	470	200	83	60	12	15	20	860
Total	1,559	671	287	143	43	42	73	2,818
Number Receiving a Pension Benefit, Returning to Active Status, or Withdrawing								
7/1/2011 – 6/30/2012	412	178	66	26	14	11	23	730
7/1/2012 – 6/30/2013	515	181	82	33	9	7	20	847
7/1/2013 – 6/30/2014	508	182	76	26	8	9	16	825
7/1/2014 – 6/30/2015	666	263	104	88	18	25	97	1,261
Total	2,101	804	328	173	49	52	156	3,663
% Receiving a Pension Benefit or Returning to Active Status								
7/1/2011 – 6/30/2012	80%	89%	91%	100%	100%	100%	91%	85%
7/1/2012 – 6/30/2013	79%	87%	91%	97%	100%	100%	85%	83%
7/1/2013 – 6/30/2014	70%	85%	91%	96%	100%	100%	94%	77%
7/1/2014 – 6/30/2015	71%	76%	80%	68%	67%	60%	21%	68%
Total	74%	83%	88%	83%	88%	81%	47%	77%
Average %	75%	84%	88%	90%	92%	90%	73%	78%
Current Assumption	70%							
Proposed %	75%	85%	90%				75%	
Average Age of Initial Pension Benefit								
7/1/2011 – 6/30/2012	61	59	60	59	60	51	59	60
7/1/2012 – 6/30/2013	62	60	59	59	67	59	59	61
7/1/2013 – 6/30/2014	61	60	57	57	60	59	59	59
7/1/2014 – 6/30/2015	64	60	60	58	54	56	64	62
Total	62	60	59	58	61	57	60	61
Average Age	62	60	59	58	60	56	60	60
Current Assumption	60							
Proposed	60							

Coverage Assumptions (continued)

Spouse Age Difference

Background: The actual data for the age of the covered spouse and dependents of retired participants is used. The spouse and dependents of an active employee today may not be the same spouse and dependents covered at retirement, therefore the actuary should generally select an assumed covered spouse age difference for purposes of projecting future spouse coverage and assumed dependents' ages for projecting dependent coverage.

Recommendation: The average age difference between MIF covered male and female spouses has remained steady over time. As a result, the use of the historical average is proposed.

Valuation Date	Gender		
	Male	Female	Total
Average Age of Retiree Electing to Cover a Spouse			
6/30/2011	69	65	66
6/30/2012	69	65	67
6/30/2013	69	65	67
6/30/2014	70	66	67
6/30/2015	Excluded	Excluded	Excluded
<i>Average</i>	69	65	67
Average Age of Covered Spouse			
6/30/2011	65	66	66
6/30/2012	66	66	66
6/30/2013	66	67	66
6/30/2014	66	67	67
6/30/2015	Excluded	Excluded	Excluded
<i>Average</i>	66	67	66
Age Difference			
6/30/2011	3	-1	1
6/30/2012	3	-1	0
6/30/2013	3	-1	0
6/30/2014	3	-1	0
6/30/2015	Excluded	Excluded	Excluded
<i>Average</i>	3	-1	0
Current Assumption	3	-3	
Proposed %	3	-1	

Coverage Assumptions (continued)

No Part A Subsidy

Background: The premiums charged to an enrollee who is age sixty-five or older and who is not eligible for premium-free benefits under Medicare Part A is the same as the premium charged to an enrollee eligible for premium-free benefits under Medicare Part A with the same service credit. As a result, an additional, “No Part A” subsidy is paid on behalf of those enrollees who are age sixty-five or older and are not eligible for premium-free benefits under Medicare Part A.

9% of current retirees under the age of 65 who were hired prior to 4/1/1986 are currently assumed to be ineligible for premium-free Medicare Part A benefits upon reaching Medicare eligibility (age 65) based upon the current population that is ineligible for premium-free Medicare Part A benefits. 0% of these retirees are assumed to cover a spouse, reflecting the MIF’s current benefit policy. All active members are assumed to have begun contributing to Medicare as of 4/1/1986 and are assumed eligible for premium-free Medicare Part A benefits.

Recommendation: As of June 30, 2015, the System began to provide member-level data for those retiree receiving the “No Part A” Subsidy. As a result, continued monitoring of experience and annual updating of the assumption is proposed.

Valuation Date	Experience	Assumption
6/30/2011	n/a	0%
6/30/2012	n/a	17%
6/30/2013	n/a	19%
6/30/2014	n/a	21%
6/30/2015	9%	9%

Section V Other Assumptions and Methods

AMORTIZATION METHOD: Currently, the unfunded accrued liability is amortized using the level percent of payroll amortization method. We recommend no change in this methodology. We also recommend no change in the layered UAAL approach that was adopted by the Board in the Funding Policy.

ASSETS: Currently, the actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected market value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected market value. In addition, the actuarial value of assets cannot be less than 80% or more than 120% of the market value of assets. We recommend maintaining the current smoothing method.

ADMINISTRATIVE TOOLS: We recommend that any administrative tools utilized by the Retirement System be revised to be based on the mortality table and investment rate of return recommended for the valuation.

OPTION FACTORS: The option factors currently used by the Retirement System are based on the mortality tables and investment rate of return (discount rate) used in the valuation. We recommend that the factors be revised to be based on the mortality table recommended for the valuation.

VALUATION COST METHOD: Currently, the valuation uses the Entry Age Normal (EAN) Cost Method. This is the most widely used cost method of large public sector plans and has demonstrated the highest degree of stability as compared to alternative methods. We recommend no change in the cost method.

PERCENT MARRIED: Currently, 100% of all members are assumed to be married with the male three years older than his spouse. This assumption is used to determine if anyone is entitled to a Survivor Benefit from a death in active service. The survivor benefits for members with 10 years of service before death can be paid to either spouses or dependent children or other dependents. An analysis of active members shows that 99% of all active members have listed either a spouse or a dependent beneficiary on file. Therefore, we recommend no change in this assumption at this time.

PART-TIMERS: Currently, we assume that all part time employees will accrue 0.25 years of service each year while in that status. After review of the data for the past 5 years, part-timers are averaging 0.24 years of service each year, therefore, we recommend no change in this assumption at this time.

UNUSED SICK LEAVE: Currently, we assume a load of 2.0% to all active liability for all unused sick leave added at retirement. KTRS staff has supplied us with average service credits due to unused sick leave for those active members that retired in the last 10 years that were not in Local School Districts. The average unused sick leave credit for these individuals was approximately 0.33 years of service. For those active members retiring from the Local School Districts, Final Average Compensation is increased by the average additional payroll they received from their unused sick leave time. Average additional payroll for these members averaged around \$10,000. Using these figures, we are computing that the load for unused sick leave should be 2.0% and we recommend no change at this time.

Appendix A

Historical June CPI (U) Index

Year	CPI (U)	Year	CPI (U)
1960	29.6	1988	118.0
1961	29.8	1989	124.1
1962	30.2	1990	129.9
1963	30.6	1991	136.0
1964	31.0	1992	140.2
1965	31.6	1993	144.4
1966	32.4	1994	148.0
1967	33.3	1995	152.5
1968	35.7	1996	156.7
1969	34.7	1997	160.3
1970	38.8	1998	163.0
1971	40.6	1999	166.2
1972	41.7	2000	172.4
1973	44.2	2001	178.0
1974	49.0	2002	179.9
1975	53.6	2003	183.7
1976	56.8	2004	189.7
1977	60.7	2005	194.5
1978	65.2	2006	202.9
1979	72.3	2007	208.352
1980	82.7	2008	218.815
1981	90.6	2009	215.693
1982	97.0	2010	217.965
1983	99.5	2011	225.722
1984	103.7	2012	229.478
1985	107.6	2013	233.504
1986	109.5	2014	238.343
1987	113.5	2015	238.638

Appendix B

Capital Market Assumptions and Asset Allocation

Geometric Rates of Return and Standard Deviations by Asset Class

Asset Class	Expected Geometric Real Rates of Return	Standard Deviation
U.S. Equity	4.4%	17.8%
International Equity	5.3%	21.7%
Fixed Income	1.5%	5.0%
Additional Categories*	3.6%	8.5%
Real Estate	4.4%	12.5%
Private Equity	6.7%	24.5%
Cash	0.8%	2.0%

* Includes Hedge Funds, High Yield and Non-US Developed Bonds

Long Term Asset Allocation Targets

Asset Class	Asset Allocation
U.S. Equity	42%
International Equity	20%
Fixed Income	16%
Additional Categories	9%
Real Estate	5%
Private Equity	6%
Cash	2%

Appendix C

Social Security Administration Wage Index

Year	Wage Index	Annual Increase	Year	Wage Index	Annual Increase
1957	\$3,641.72		1986	17,321.82	2.97
1958	3,673.80	0.88%	1987	18,426.51	6.38
1959	3,855.80	4.95	1988	19,334.04	4.93
1960	4,007.12	3.92	1989	20,099.55	3.96
1961	4,086.76	1.99	1990	21,027.98	4.62
1962	4,291.40	5.01	1991	21,811.60	3.73
1963	4,396.64	2.45	1992	22,935.42	5.15
1964	4,576.32	4.09	1993	23,132.67	0.86
1965	4,658.72	1.80	1994	23,753.53	2.68
1966	4,938.36	6.00	1995	24,705.66	4.01
1967	5,213.44	5.57	1996	25,913.90	4.89
1968	5,571.76	6.87	1997	27,426.00	5.84
1969	5,893.76	5.78	1998	28,861.44	5.23
1970	6,186.24	4.96	1999	30,469.84	5.57
1971	6,497.08	5.02	2000	32,154.82	5.53
1972	7,133.80	9.80	2001	32,921.92	2.39
1973	7,580.16	6.26	2002	33,252.09	1.00
1974	8,030.76	5.94	2003	34,064.95	2.44
1975	8,630.92	7.47	2004	35,648.55	4.65
1976	9,226.48	6.90	2005	36,952.94	3.66
1977	9,779.44	5.99	2006	38,651.41	4.60
1978	10,556.03	7.94	2007	40,405.48	4.54
1979	11,479.46	8.75	2008	41,334.97	2.30
1980	12,513.46	9.01	2009	40,711.61	(1.50)
1981	13,773.10	10.07	2010	41,673.83	2.36
1982	14,531.34	5.51	2011	42,979.61	3.13
1983	15,239.24	4.87	2012	44,321.67	3.12
1984	16,135.07	5.88	2013	44,888.16	1.28
1985	16,822.51	4.26	2014	46,481.52	3.55

Appendix D
TABLE 1

RATES OF SEPARATION FROM ACTIVE SERVICE – MALES

AGE	RATES OF WITHDRAWAL			DEATH	DISABILITY	RATES OF RETIREMENT BEFORE 27 YEARS OF SERVICE	RATES OF RETIREMENT AFTER 27 YEARS OF SERVICE*
	Service						
	0 – 4	5 – 9	10+				
20	0.1100			0.000192	0.00010		
21	0.1100			0.000199	0.00010		
22	0.1100			0.000204	0.00010		
23	0.1100			0.000208	0.00010		
24	0.1100			0.000209	0.00010		
25	0.1100	0.0300		0.000209	0.00010		
26	0.1100	0.0300		0.000210	0.00010		
27	0.1100	0.0300		0.000213	0.00010		
28	0.1100	0.0300		0.000219	0.00010		
29	0.1100	0.0300		0.000229	0.00010		
30	0.1100	0.0300	0.0300	0.000247	0.00010		
31	0.1120	0.0310	0.0268	0.000278	0.00016		
32	0.1140	0.0320	0.0236	0.000313	0.00022		
33	0.1160	0.0330	0.0204	0.000351	0.00028		
34	0.1180	0.0340	0.0172	0.000391	0.00034		
35	0.1200	0.0350	0.0140	0.000430	0.00040		
36	0.1200	0.0370	0.0140	0.000468	0.00050		
37	0.1200	0.0390	0.0140	0.000503	0.00060		
38	0.1200	0.0410	0.0140	0.000537	0.00070		
39	0.1200	0.0430	0.0140	0.000568	0.00080		
40	0.1200	0.0450	0.0140	0.000601	0.00090		
41	0.1200	0.0450	0.0138	0.000636	0.00112		
42	0.1200	0.0450	0.0136	0.000676	0.00134		
43	0.1200	0.0450	0.0134	0.000723	0.00156		
44	0.1200	0.0450	0.0132	0.000778	0.00178		
45	0.1200	0.0450	0.0130	0.000839	0.00200		0.170
46	0.1240	0.0450	0.0142	0.000899	0.00220		0.170
47	0.1280	0.0450	0.0154	0.000965	0.00240		0.170
48	0.1320	0.0450	0.0166	0.001035	0.00260		0.170
49	0.1360	0.0450	0.0178	0.001110	0.00280		0.170
50	0.1400	0.0450	0.0190	0.001190	0.00300		0.170
51	0.1420	0.0450	0.0200	0.001363	0.00356		0.170
52	0.1440	0.0450	0.0210	0.001484	0.00412		0.160
53	0.1460	0.0450	0.0220	0.001623	0.00468		0.130
54	0.1480	0.0450	0.0230	0.001779	0.00524		0.150
55	0.1500	0.0450	0.0240	0.002017	0.00580	0.050	0.450
56	0.1500	0.0440	0.0240	0.002338	0.00614	0.050	0.350
57	0.1500	0.0430	0.0240	0.002547	0.00648	0.055	0.350
58	0.1500	0.0420	0.0240	0.002791	0.00682	0.055	0.350
59	0.1500	0.0410	0.0240	0.003069	0.00716	0.055	0.250
60	0.1500	0.0400	0.0240	0.003396	0.00750	0.130	0.350
61	0.1500	0.0390	0.0240	0.003768	0.00750	0.130	0.300
62	0.1500	0.0380	0.0240	0.004191	0.00750	0.150	0.250
63	0.1500	0.0370	0.0240	0.004673	0.00750	0.130	0.250
64	0.1500	0.0360	0.0240	0.005133	0.00750	0.150	0.250
65	0.1500	0.0350	0.0240	0.005651	0.00750	0.200	0.250
66	0.1600	0.0280	0.0192	0.006233	0.00750	0.200	0.300
67	0.1700	0.0210	0.0144	0.006780	0.00750	0.200	0.250
68	0.1800	0.0140	0.0096	0.007349	0.00750	0.200	0.250
69	0.1900	0.0070	0.0048	0.008143	0.00750	0.200	0.200
70	0.2000	0.0000	0.0000	0.009131	0.00750	0.200	0.200
71	0.2000	0.0000	0.0000	0.010103	0.00750	0.200	0.200
72	0.2000	0.0000	0.0000	0.011218	0.00750	0.200	0.200
73	0.2000	0.0000	0.0000	0.012495	0.00750	0.200	0.200
74	0.2000	0.0000	0.0000	0.013940	0.00750	0.200	0.200
75	0.2000	0.0000	0.0000	0.015557	0.00750	1.000	1.000

*Plus 7.5% in year when first eligible for unreduced retirement with 27 years of service.

**TABLE 2
RATES OF SEPARATION FROM ACTIVE SERVICE – FEMALES**

AGE	RATES OF WITHDRAWAL			RATES OF DEATH	RATES OF DISABILITY	RATES OF RETIREMENT BEFORE 27 YEARS OF SERVICE	RATES OF RETIREMENT AFTER 27 YEARS OF SERVICE*
	0 – 4	5 – 9	10+				
20	0.0900			0.000071	0.00010		
21	0.0900			0.000071	0.00010		
22	0.0900			0.000072	0.00010		
23	0.0900			0.000073	0.00010		
24	0.0900			0.000075	0.00010		
25	0.0900	0.0400		0.000077	0.00010		
26	0.0960	0.0400		0.000079	0.00014		
27	0.1020	0.0400		0.000083	0.00018		
28	0.1080	0.0400		0.000087	0.00022		
29	0.1140	0.0400		0.000092	0.00026		
30	0.1200	0.0400	0.0165	0.000098	0.00030		
31	0.1200	0.0400	0.0162	0.000114	0.00036		
32	0.1200	0.0400	0.0159	0.000130	0.00042		
33	0.1200	0.0400	0.0156	0.000146	0.00048		
34	0.1200	0.0400	0.0153	0.000161	0.00054		
35	0.1200	0.0400	0.0150	0.000176	0.00060		
36	0.1200	0.0400	0.0146	0.000191	0.00072		
37	0.1200	0.0400	0.0142	0.000206	0.00084		
38	0.1200	0.0400	0.0138	0.000222	0.00096		
39	0.1200	0.0400	0.0134	0.000240	0.00108		
40	0.1200	0.0400	0.0130	0.000262	0.00120		
41	0.1220	0.0400	0.0128	0.000287	0.00146		
42	0.1240	0.0400	0.0126	0.000316	0.00172		
43	0.1260	0.0400	0.0124	0.000348	0.00198		
44	0.1280	0.0400	0.0122	0.000382	0.00224		
45	0.1300	0.0400	0.0120	0.000417	0.00250		0.150
46	0.1300	0.0420	0.0126	0.000454	0.00288		0.150
47	0.1300	0.0440	0.0132	0.000492	0.00326		0.150
48	0.1300	0.0460	0.0138	0.000532	0.00364		0.150
49	0.1300	0.0480	0.0144	0.000575	0.00402		0.170
50	0.1300	0.0500	0.0150	0.000622	0.00440		0.180
51	0.1340	0.0500	0.0160	0.000687	0.00482		0.180
52	0.1380	0.0500	0.0170	0.000749	0.00524		0.180
53	0.1420	0.0500	0.0180	0.000819	0.00566		0.180
54	0.1460	0.0500	0.0190	0.000877	0.00608		0.180
55	0.1500	0.0500	0.0200	0.000959	0.00650	0.055	0.500
56	0.1500	0.0500	0.0200	0.001063	0.00690	0.055	0.450
57	0.1500	0.0500	0.0200	0.001167	0.00730	0.055	0.400
58	0.1500	0.0500	0.0200	0.001284	0.00770	0.055	0.400
59	0.1500	0.0500	0.0200	0.001417	0.00810	0.060	0.400
60	0.1500	0.0500	0.0200	0.001573	0.00850	0.140	0.400
61	0.1500	0.0480	0.0200	0.001764	0.00850	0.140	0.400
62	0.1500	0.0460	0.0200	0.001969	0.00850	0.140	0.400
63	0.1500	0.0440	0.0200	0.002262	0.00850	0.150	0.400
64	0.1500	0.0420	0.0200	0.002549	0.00850	0.150	0.400
65	0.1500	0.0400	0.0200	0.002871	0.00850	0.220	0.350
66	0.1500	0.0320	0.0160	0.003240	0.00850	0.220	0.350
67	0.1500	0.0240	0.0120	0.003598	0.00850	0.180	0.350
68	0.1500	0.0160	0.0080	0.003977	0.00850	0.180	0.350
69	0.1500	0.0080	0.0040	0.004395	0.00850	0.180	0.350
70	0.1500	0.0000	0.0000	0.004952	0.00850	0.200	0.350
71	0.1500	0.0000	0.0000	0.005495	0.00850	0.200	0.350
72	0.1500	0.0000	0.0000	0.006113	0.00850	0.200	0.350
73	0.1500	0.0000	0.0000	0.006794	0.00850	0.200	0.350
74	0.1500	0.0000	0.0000	0.007530	0.00850	0.200	0.350
75	0.1500	0.0000	0.0000	0.008313	0.00850	1.000	1.000

*Plus 7.5% in year when first eligible for unreduced retirement with 27 years of service.

TABLE 3

**RATES OF ANTICIPATED SALARY INCREASES
(For Both Males and Females)**

AGE	RATE*
19	1.038
20	1.037
21	1.035
22	1.034
23	1.032
24	1.030
25	1.029
26	1.027
27	1.025
28	1.023
29	1.021
30	1.019
31	1.018
32	1.016
33	1.015
34	1.013
35	1.012
36	1.011
37	1.010
38	1.009
39	1.008
40	1.007
41	1.006
42	1.006
43	1.005
44	1.004
45	1.003
46	1.003
47	1.003
48	1.002
49	1.002
50	1.002
51	1.001
52	1.001
53	1.000
54	1.000
55	1.000
56	1.000
57	1.000
58	1.000
59	1.000
60	1.000
61	1.000
62	1.000
63	1.000
64	1.000
65	1.000
66	1.000
67	1.000
68	1.000
69	1.000
70	1.000

*Does not include wage inflation assumption at 3.50% per annum.

TABLE 4

**RATES OF MORTALITY FOR MEMBERS RETIRED ON ACCOUNT OF SERVICE
AND BENEFICIARIES OF DECEASED MEMBERS**

AGE	MALES	FEMALES	AGE	MALES	FEMALES
19	0.000331	0.000177	71	0.020825	0.015281
20	0.000340	0.000178	72	0.023233	0.016986
21	0.000346	0.000180	73	0.025929	0.018826
22	0.000349	0.000183	74	0.028900	0.020784
23	0.000349	0.000186	75	0.032147	0.022899
24	0.000351	0.000192	76	0.035722	0.025220
25	0.000354	0.000199	77	0.039700	0.027801
26	0.000365	0.000207	78	0.044114	0.030693
27	0.000382	0.000218	79	0.049373	0.033926
28	0.000412	0.000230	80	0.055160	0.037551
29	0.000463	0.000245	81	0.061487	0.041628
30	0.000521	0.000285	82	0.068382	0.046222
31	0.000585	0.000325	83	0.075906	0.051406
32	0.000651	0.000365	84	0.084158	0.057269
33	0.000717	0.000404	85	0.095631	0.063873
34	0.000780	0.000441	86	0.108574	0.071239
35	0.000839	0.000477	87	0.123063	0.079348
36	0.000894	0.000514	88	0.139099	0.088111
37	0.000947	0.000555	89	0.155385	0.099870
38	0.001001	0.000601	90	0.172787	0.112476
39	0.001059	0.000655	91	0.191152	0.125732
40	0.001127	0.000718	92	0.210317	0.139427
41	0.001205	0.000790	93	0.230128	0.153358
42	0.001296	0.000869	94	0.250467	0.167340
43	0.001399	0.000955	95	0.271263	0.181190
44	0.001499	0.001043	96	0.285234	0.194718
45	0.001609	0.001135	97	0.306313	0.202595
46	0.001725	0.001230	98	0.319624	0.214644
47	0.001851	0.001330	99	0.341120	0.220284
48	0.001983	0.001438	100	0.353540	0.232882
49	0.002272	0.001555	101	0.373578	0.242074
50	0.002474	0.001718	102	0.382320	0.259472
51	0.002705	0.001872	103	0.397886	0.272162
52	0.002965	0.002047	104	0.400000	0.293116
53	0.003362	0.002193	105	0.400000	0.307811
54	0.003896	0.002397	106	0.400000	0.322725
55	0.004246	0.002658	107	0.400000	0.337441
56	0.004652	0.002918	108	0.400000	0.351544
57	0.005115	0.003209	109	0.400000	0.364617
58	0.005660	0.003543	110	0.400000	0.376246
59	0.006280	0.003932	111	0.400000	0.386015
60	0.006985	0.004409	112	0.400000	0.393507
61	0.007788	0.004923	113	0.400000	0.398308
62	0.008555	0.005656	114	0.400000	0.400000
63	0.009419	0.006374	115	0.400000	0.400000
64	0.010389	0.007177	116	0.400000	0.400000
65	0.011300	0.008100	117	0.400000	0.400000
66	0.012248	0.008994	118	1.000000	0.400000
67	0.013571	0.009942	119	1.000000	1.000000
68	0.015219	0.010989	120	1.000000	1.000000
69	0.016839	0.012380			
70	0.018697	0.013739			

TABLE 5

RATES OF MORTALITY FOR MEMBERS RETIRED ON ACCOUNT OF DISABILITY

AGE	MALES	FEMALES	AGE	MALES	FEMALES
19	0.020938	0.006911	71	0.050230	0.046990
20	0.020938	0.006911	72	0.053122	0.050131
21	0.020938	0.006911	73	0.056244	0.053473
22	0.020938	0.006911	74	0.059591	0.057039
23	0.020938	0.006911	75	0.063153	0.060857
24	0.020938	0.006911	76	0.066917	0.064954
25	0.020938	0.006911	77	0.070859	0.069358
26	0.020938	0.006911	78	0.074957	0.074098
27	0.020938	0.006911	79	0.079187	0.079197
28	0.020938	0.006911	80	0.083527	0.084679
29	0.020938	0.006911	81	0.087959	0.090559
30	0.020938	0.006911	82	0.092468	0.096851
31	0.020938	0.006911	83	0.097046	0.106215
32	0.020938	0.006911	84	0.101687	0.116438
33	0.020938	0.006911	85	0.109122	0.127572
34	0.020938	0.006911	86	0.116934	0.139427
35	0.020938	0.006911	87	0.125144	0.153358
36	0.020938	0.006911	88	0.139099	0.167340
37	0.020938	0.006911	89	0.155385	0.181190
38	0.020938	0.006911	90	0.172787	0.194718
39	0.020938	0.007592	91	0.191152	0.202595
40	0.020938	0.008311	92	0.210317	0.214644
41	0.020938	0.009068	93	0.230128	0.220284
42	0.020938	0.009865	94	0.250467	0.232882
43	0.020938	0.010700	95	0.271263	0.242074
44	0.022121	0.011574	96	0.285234	0.259472
45	0.023306	0.012482	97	0.306313	0.272162
46	0.024493	0.013418	98	0.319624	0.293116
47	0.025684	0.014019	99	0.341120	0.307811
48	0.026878	0.014595	100	0.353540	0.322725
49	0.028078	0.015140	101	0.373578	0.337441
50	0.029279	0.015650	102	0.382320	0.351544
51	0.030481	0.016124	103	0.397886	0.364617
52	0.031681	0.016567	104	0.400000	0.376246
53	0.032877	0.016987	105	0.400000	0.386015
54	0.034074	0.017395	106	0.400000	0.393507
55	0.034400	0.017807	107	0.400000	0.398308
56	0.034701	0.018704	108	0.400000	0.400000
57	0.034987	0.019670	109	0.400000	0.400000
58	0.035271	0.020725	110	0.400000	0.400000
59	0.035565	0.021884	111	0.400000	0.400000
60	0.035881	0.023164	112	0.400000	0.400000
61	0.036234	0.024576	113	0.400000	1.000000
62	0.036637	0.026129	114	0.400000	1.000000
63	0.037102	0.027830	115	0.400000	1.000000
64	0.037645	0.029683	116	0.400000	1.000000
65	0.038275	0.031687	117	0.400000	1.000000
66	0.039002	0.033845	118	1.000000	1.000000
67	0.040855	0.036157	119	1.000000	1.000000
68	0.042891	0.038623	120	1.000000	1.000000
69	0.045123	0.041246			
70	0.047566	0.044032			

Appendix E

ADOPTION OF TABLES HEREIN PRESENTED

In order that the tables herein presented may have the official approval of the Board of Trustees, the following resolutions are recommended for adoption.

WHEREAS, The investigation of the mortality, service and compensation experience of the members of the Teachers' Retirement System of the State of Kentucky which was prepared as of June 30, 2015 indicated that the mortality tables and active service tables previously adopted by the Board of Trustees require modification in order that they may reflect more closely the actual past experience of the membership, and

WHEREAS, The actuary has prepared new tables of rates which he recommends for adoption, therefore, be it

RESOLVED, That the Board of Trustees, acting in accordance with Section 161.400 of the retirement law and upon the recommendation of the actuary, hereby discontinues the use in calculating the State's rates of contribution and in valuing the liabilities of the System of the active service tables and mortality tables adopted by the Board on September 19, 2011, and approves for use instead the attached active service tables, and mortality tables, and be in further

RESOLVED, That the use of the new tables in the valuation as of June 30, 2016 and in all actuarial valuations thereafter, is hereby approved.

The Board of Trustees of the Teachers' Retirement System of the State of Kentucky approved the preceding resolution at a meeting held on September 19, 2016.

KENTUCKY
BOARD OF TRUSTEES,
TEACHERS' RETIREMENT SYSTEM OF THE STATE OF

By
Chairperson

Attest:

.....
Secretary