buckconsultants A Xerox Company

July 3, 2012

VIA E-MAIL AND MAIL

Mr. C. F. Barnes
Executive Director
Missouri Sheriffs' Retirement System
P.O. Box 105257
Jefferson City, MO 65110-5257

Re: Future Cost Projections

Dear C. F.:

You requested that we perform cost projections to provide some additional information regarding the funded situation of the Missouri Sheriffs' Retirement System under the assumption that current funding levels remain constant into the future.

As you probably assume, System costs are likely to escalate over time and that will give rise to problems if the assumed contributions are at their current level of approximately $1,800,000 annually.

Enclosed is Exhibit 1, which projects liabilities and assets for the next 25 years. Included in the liabilities and costs is a medical supplement of $450 per month to retirees. Please note that the key items are items number 9 and 10. Item 9 shows the anticipated contribution as being $1,800,000 annually. Item 10 indicates that a shortfall is assumed to develop and grow fairly steadily to an ultimate level of $9.3m in 2037. In the context, we define a shortfall as the cumulative amount by which the actuarially computed costs exceed the contributions. A surplus would occur if the anticipated contributions exceed the System's actuarially computed costs. Item 2 is the System's value of assets, which are projected to be depleted by 2035 with negative values showing in 2037. Clearly, this is an indication that a contribution level of $1,800,000 will not be sufficient to adequately fund the System's benefits.

Exhibit 2 focuses on a projection period of 10 years. Note that item 10, the shortfall/(surplus) is $0 in the year of 2022. In order to achieve a projection of having exactly no shortfall or surplus in 10 years requires an annual contribution of $3,014,545 (see item 9).

Exhibit 3 has a focus of 15 years, and you can see that the shortfall/(surplus) in 2027 is $0. The annual contribution needed to achieve this result is $3,132,481.

Exhibit 4 has a 20-year focus and the shortfall/(surplus) in 2032 is $0. In this example, an annual contribution of $3,240,271 is needed to achieve this result.

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Finally, Exhibit 5 has a 25-year focus. The shortfall/(surplus) in 2037 is $0. The annual contribution needed to achieve this result is $3,336,697.

In summary, it can be determined that an annual level contribution of approximately $3.0-$3.3 million would be sufficient to keep the System's costs and contributions in balance over the various time periods examined. This represents a considerable increase from the level of the current contributions.

The projections are based upon the same actuarial assumptions and methods as outlined within the January 1, 2012 actuarial valuation report. Projections are based on actual experience being in accordance with those assumptions throughout the 25-year projection period. As noted above, it is assumed that the retirees are granted a $450 medical supplement each year, and those obligations are part of the annual costs and benefit payments. No increase has been assumed in the $450 dollar amount of the supplement. It is our understanding that the System has a legal opinion that continuing to provide the supplement does not violate Section 401(h) of the Internal Revenue Code.

If the actual System experience deviates from the actuarial assumptions, with respect to participant demographics or investment return, actual required contributions may differ. I am a member of the American Academy of Actuaries and I meet the Academy's Qualification Standards to issue this Statement of Actuarial Opinion.

Please let me know if you have any questions. We would like to discuss this information with you in advance of the upcoming Board meeting to be prepared for a presentation at that meeting.

Sincerely,

Stephen B Siepman

Stephen B. Siepman, F.S.A.
Principal, Retirement Consulting Actuary

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Enclosures

Missouri Sheriffs' Retirement System
Cost Projections
Exhibit 1

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1. Actuarial Accrued Liability	36,108,977	37,174,136	38,713,823	40,323,031	41,950,304	43,319,715	45,057,586	46,851,217	48,760,582	50,271,438	52,314,514
2. Assets											
a. MVA	30,556,697	31,458,067	32,060,325	32,635,911	33,135,362	33,517,597	33,651,691	33,694,928	33,682,187	33,394,872	32,806,860
b. AVA	31,817,591	32,298,663	32,480,623	32,635,911	33,135,362	33,517,597	33,651,691	33,694,928	33,682,187	33,394,872	32,806,860
3. UAL/(surplus) : 1 - 2b	4,291,386	4,875,473	6,233,200	7,687,120	8,814,942	9,802,118	11,405,895	13,156,289	15,078,395	16,876,566	19,507,654
4. Normal Cost											
a. Benefit	631,721	1,077,756	1,096,406	1,113,691	932,768	1,275,296	1,295,135	1,318,135	1,086,588	1,531,991	1,546,982
b. Term Costs	45,439	83,735	89,320	91,333	79,767	109,601	117,515	130,425	127,202	170,304	167,979
c. Expenses	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000
d. Total Normal Cost	847,160	1,331,491	1,355,726	1,375,024	1,182,535	1,554,897	1,582,650	1,618,560	1,383,790	1,872,295	1,884,961
5. 30-Year Funding of UAL	338,006	384,011	490,951	605,468	694,300	772,053	898,373	1,036,241	1,187,634	1,329,265	1,536,500
6. Total Pension Cost : 4 + 5	1,185,166	1,715,502	1,846,677	1,980,492	1,876,835	2,326,950	2,481,023	2,654,801	2,571,424	3,201,560	3,421,461
7. Supplement											
a. Retiree Count	120	156	155	154	153	173	171	169	167	190	186
b. MthlySuppAmt	450	450	450	450	450	450	450	450	450	450	450
Product	648,000	842,400	837,000	831,600	826,200	934,200	923,400	912,600	901,800	1,026,000	1,004,400
8. Total Annual Cost : 6 + 7	1,833,166	2,557,902	2,683,677	2,812,092	2,703,035	3,261,150	3,404,423	3,567,401	3,473,224	4,227,560	4,425,861
	-	-	-	-	-	-	-	-	-	-	-
9. Anticipated Contribution	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000
10. Shortfall/(surplus) : 8 - 9	33,166	757,902	883,677	1,012,092	903,035	1,461,150	1,604,423	1,767,401	1,673,224	2,427,560	2,625,861
Realized Market Value ROR	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%

2024	2025	2026	2027	2028	2029	2030
54,416,460	56,624,588	58,691,079	60,001,960	61,937,945	63,974,566	66,173,642
32,092,125	31,367,940	30,387,262	28,697,198	26,569,123	24,260,827	21,746,380
32,092,125	31,367,940	30,387,262	28,697,198	26,569,123	24,260,827	21,746,380
22,324,335	25,256,648	28,303,817	31,304,762	35,368,822	39,713,739	44,427,262
1,580,846	1,488,970	1,182,330	1,699,645	1,754,214	1,815,301	1,600,979
113,536	121,603	138,081	194,935	166,620	163,879	175,905
170,000	170,000	170,000	170,000	170,000	170,000	170,000
1,864,382	1,780,573	1,490,411	2,064,580	2,090,834	2,149,180	1,946,884
1,758,353	1,989,313	2,229,320	2,465,686	2,785,788	3,128,011	3,499,266
3,622,735	3,769,886	3,719,731	4,530,266	4,876,622	5,277,191	5,446,150
183	179	183	212	208	205	202
450	450	450	450	450	450	450
988,200	966,600	988,200	1,144,800	1,123,200	1,107,000	1,090,800
4,610,935	4,736,486	4,707,931	5,675,066	5,999,822	6,384,191	6,536,950
-	-	-	-	-	-	-
1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000
2,810,935	2,936,486	2,907,931	3,875,066	4,199,822	4,584,191	4,736,950
7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%

2031	2032	2033	2034	2035	2036	2037
67,937,501	69,962,676	72,239,944	74,709,988	76,681,539	79,112,485	81,749,898
18,666,541	15,063,666	11,153,885	6,900,847	1,927,790	(3,690,822)	(9,816,989)
18,666,541	15,063,666	11,153,885	6,900,847	1,927,790	(3,690,822)	(9,816,989)
49,270,960	54,899,010	61,086,059	67,809,141	74,753,749	82,803,307	91,566,887
1,838,672	2,010,786	2,076,676	1,811,263	2,167,956	2,270,614	2,381,151
220,211	192,290	200,973	213,589	271,807	277,325	204,227
170,000	170,000	170,000	170,000	170,000	170,000	170,000
2,228,883	2,373,076	2,447,649	2,194,852	2,609,763	2,717,939	2,755,378
3,880,775	4,324,062	4,811,379	5,340,915	5,887,900	6,521,915	7,212,169
6,109,658	6,697,138	7,259,028	7,535,767	8,497,663	9,239,854	9,967,547
215	217	214	210	224	222	220
450	450	450	450	450	450	450
1,161,000	1,171,800	1,155,600	1,134,000	1,209,600	1,198,800	1,188,000
7,270,658	7,868,938	8,414,628	8,669,767	9,707,263	10,438,654	11,155,547
-	-	-	-	-	-	-
1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000
5,470,658	6,068,938	6,614,628	6,869,767	7,907,263	8,638,654	9,355,547
7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%

Missouri Sheriffs' Retirement System
Cost Projections
Exhibit 2

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1. Actuarial Accrued Liability	36,108,977	37,174,136	38,713,823	40,323,031	41,950,304	43,319,715	45,057,586	46,851,217	48,760,582	50,271,438	52,314,514
2. Assets											
a. MVA	30,556,697	32,717,333	34,673,304	36,704,130	38,767,964	40,831,911	42,773,844	44,760,510	46,836,955	48,795,513	50,621,817
b. AVA	31,817,591	33,557,929	35,093,602	36,704,130	38,767,964	40,831,911	42,773,844	44,760,510	46,836,955	48,795,513	50,621,817
3. UAL/(surplus) : 1 - 2b	4,291,386	3,616,207	3,620,221	3,618,901	3,182,340	2,487,804	2,283,742	2,090,707	1,923,627	1,475,925	1,692,697
4. Normal Cost											
a. Benefit	631,721	1,077,756	1,096,406	1,113,691	932,768	1,275,296	1,295,135	1,318,135	1,086,588	1,531,991	1,546,982
b.Term Costs	45,439	83,735	89,320	91,333	79,767	109,601	117,515	130,425	127,202	170,304	167,979
c. Expenses	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000
d. Total Normal Cost	847,160	1,331,491	1,355,726	1,375,024	1,182,535	1,554,897	1,582,650	1,618,560	1,383,790	1,872,295	1,884,961
5. 30-Year Funding of UAL	338,006	284,827	285,143	285,039	250,654	195,949	179,876	164,672	151,512	116,250	133,324
6. Total Pension Cost : 4 + 5	1,185,166	1,616,318	1,640,869	1,660,063	1,433,189	1,750,846	1,762,526	1,783,232	1,535,302	1,988,545	2,018,285
7. Supplement											
a. Retiree Count	120	156	155	154	153	173	171	169	167	190	186
b. MthlySuppAmt	450	450	450	450	450	450	450	450	450	450	450
Product	648,000	842,400	837,000	831,600	826,200	934,200	923,400	912,600	901,800	1,026,000	1,004,400
8. Total Annual Cost : 6 + 7	1,833,166	2,458,718	2,477,869	2,491,663	2,259,389	2,685,046	2,685,926	2,695,832	2,437,102	3,014,545	3,022,685
	-	-	-	-	-	-	-	-	-	-	-
9. Anticipated Contribution	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545
10. Shortfall/(surplus) : 8 - 9	(1,181,378)	(555,827)	(536,676)	(522,882)	(755,156)	(329,498)	(328,618)	(318,712)	(577,442)	0	8,140
Realized Market Value ROR	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%

2024	2025	2026	2027	2029	2030	2031	2032	2033	2034	2035	2036	2037
54,416,460	56,624,588	58,691,079	60,001,960	63,974,566	66,173,642	67,937,501	69,962,676	72,239,944	74,709,988	76,681,539	79,112,485	81,749,898
52,502,470	54,568,328	56,586,945	58,121,124	60,876,830	62,367,850	63,593,887	64,619,830	65,686,029	66,782,168	67,559,477	68,122,508	68,641,608
52,502,470	54,568,328	56,586,945	58,121,124	60,876,830	62,367,850	63,593,887	64,619,830	65,686,029	66,782,168	67,559,477	68,122,508	68,641,608
1,913,990	2,056,260	2,104,134	1,880,836	3,097,736	3,805,792	4,343,614	5,342,846	6,553,915	7,927,820	9,122,062	10,989,977	13,108,290
1,580,846	1,488,970	1,182,330	1,699,645	1,815,301	1,600,979	1,838,672	2,010,786	2,076,676	1,811,263	2,167,956	2,270,614	2,381,151
113,536	121,603	138,081	194,935	163,879	175,905	220,211	192,290	200,973	213,589	271,807	277,325	204,227
170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000
1,864,382	1,780,573	1,490,411	2,064,580	2,149,180	1,946,884	2,228,883	2,373,076	2,447,649	2,194,852	2,609,763	2,717,939	2,755,378
150,753	161,959	165,730	148,142	243,990	299,759	342,120	420,824	516,212	624,426	718,490	865,614	1,032,461
2,015,135	1,942,532	1,656,141	2,212,722	2,393,170	2,246,643	2,571,003	2,793,900	2,963,861	2,819,278	3,328,253	3,583,553	3,787,839
183	179	183	212	205	202	215	217	214	210	224	222	220
450	450	450	450	450	450	450	450	450	450	450	450	450
988,200	966,600	988,200	1,144,800	1,107,000	1,090,800	1,161,000	1,171,800	1,155,600	1,134,000	1,209,600	1,198,800	1,188,000
3,003,335	2,909,132	2,644,341	3,357,522	3,500,170	3,337,443	3,732,003	3,965,700	4,119,461	3,953,278	4,537,853	4,782,353	4,975,839
-	-	-	-	-	-	-	-	-	-	-	-	-
3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545	3,014,545
(11,209)	(105,413)	(370,204)	342,977	485,625	322,899	717,458	951,155	1,104,917	938,734	1,523,308	1,767,808	1,961,294
7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%

Missouri Sheriffs' Retirement System
Cost Projections
Exhibit 3

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1. Actuarial Accrued Liability	36,108,977	37,174,136	38,713,823	40,323,031	41,950,304	43,319,715	45,057,586	46,851,217	48,760,582	50,271,438	52,314,514
2. Assets											
a. MVA	30,556,697	32,839,612	34,927,033	37,099,167	39,314,908	41,542,155	43,659,635	45,835,014	48,114,325	50,290,966	52,351,707
b. AVA	31,817,591	33,680,208	35,347,331	37,099,167	39,314,908	41,542,155	43,659,635	45,835,014	48,114,325	50,290,966	52,351,707
3. UAL/(surplus) : 1 - 2b	4,291,386	3,493,928	3,366,492	3,223,864	2,635,396	1,777,560	1,397,951	1,016,203	646,257	(19,528)	(37,193)
4. Normal Cost											
a. Benefit	631,721	1,077,756	1,096,406	1,113,691	932,768	1,275,296	1,295,135	1,318,135	1,086,588	1,531,991	1,546,982
b.Term Costs	45,439	83,735	89,320	91,333	79,767	109,601	117,515	130,425	127,202	170,304	167,979
c. Expenses	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000
d. Total Normal Cost	847,160	1,331,491	1,355,726	1,375,024	1,182,535	1,554,897	1,582,650	1,618,560	1,383,790	1,872,295	1,884,961
5. 30-Year Funding of UAL	338,006	275,196	265,158	253,924	207,574	140,008	110,108	80,040	50,902	(1,538)	(2,929)
6. Total Pension Cost : 4 + 5	1,185,166	1,606,687	1,620,884	1,628,948	1,390,109	1,694,905	1,692,758	1,698,600	1,434,692	1,870,757	1,882,032
7. Supplement											
a. Retiree Count	120	156	155	154	153	173	171	169	167	190	186
b. MthlySuppAmt	450	450	450	450	450	450	450	450	450	450	450
Product	648,000	842,400	837,000	831,600	826,200	934,200	923,400	912,600	901,800	1,026,000	1,004,400
8. Total Annual Cost : 6 + 7	1,833,166	2,449,087	2,457,884	2,460,548	2,216,309	2,629,105	2,616,158	2,611,200	2,336,492	2,896,757	2,886,432
	-	-	-	-	-	-	-	-	-	-	-
9. Anticipated Contribution	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481
10. Shortfall/(surplus) : 8 - 9	(1,299,314)	(683,394)	(674,597)	(671,933)	(916,172)	(503,376)	(516,323)	(521,281)	(795,989)	(235,724)	(246,049)
Realized Market Value ROR	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%

2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
54,416,460	56,624,588	58,691,079	60,001,960	61,937,945	63,974,566	66,173,642	67,937,501	69,962,676	72,239,944	74,709,988	76,681,539	79,112,485	81,749,898
54,484,381	56,821,161	59,131,020	60,978,283	62,652,835	64,432,364	66,312,327	67,956,479	69,431,896	70,981,278	72,596,840	73,932,528	75,095,817	76,260,194
54,484,381	56,821,161	59,131,020	60,978,283	62,652,835	64,432,364	66,312,327	67,956,479	69,431,896	70,981,278	72,596,840	73,932,528	75,095,817	76,260,194
(67,921)	(196,573)	(439,941)	(976,323)	(714,890)	(457,798)	(138,685)	(18,978)	530,780	1,258,666	2,113,148	2,749,011	4,016,668	5,489,704
1,580,846	1,488,970	1,182,330	1,699,645	1,754,214	1,815,301	1,600,979	1,838,672	2,010,786	2,076,676	1,811,263	2,167,956	2,270,614	2,381,151
113,536	121,603	138,081	194,935	166,620	163,879	175,905	220,211	192,290	200,973	213,589	271,807	277,325	204,227
170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000
1,864,382	1,780,573	1,490,411	2,064,580	2,090,834	2,149,180	1,946,884	2,228,883	2,373,076	2,447,649	2,194,852	2,609,763	2,717,939	2,755,378
(5,350)	(15,483)	(34,651)	(76,899)	(56,308)	(36,058)	(10,923)	(1,495)	41,806	99,138	166,440	216,523	316,369	432,391
1,859,032	1,765,090	1,455,760	1,987,681	2,034,526	2,113,122	1,935,961	2,227,388	2,414,882	2,546,787	2,361,292	2,826,286	3,034,308	3,187,769
183	179	183	212	208	205	202	215	217	214	210	224	222	220
450	450	450	450	450	450	450	450	450	450	450	450	450	450
988,200	966,600	988,200	1,144,800	1,123,200	1,107,000	1,090,800	1,161,000	1,171,800	1,155,600	1,134,000	1,209,600	1,198,800	1,188,000
2,847,232	2,731,690	2,443,960	3,132,481	3,157,726	3,220,122	3,026,761	3,388,388	3,586,682	3,702,387	3,495,292	4,035,886	4,233,108	4,375,769
-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481	3,132,481
(285,249)	(400,791)	(688,521)	0	25,246	87,641	(105,720)	255,907	454,201	569,906	362,811	903,405	1,100,627	1,243,288
7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%

Missouri Sheriffs' Retirement System
Cost Projections
Exhibit 4

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1. Actuarial Accrued Liability	36,108,977	37,174,136	38,713,823	40,323,031	41,950,304	43,319,715	45,057,586	46,851,217	48,760,582	50,271,438	52,314,514
2. Assets											
a. MVA	30,556,697	32,951,372	35,158,933	37,460,220	39,814,799	42,191,297	44,469,223	46,817,081	49,281,806	51,657,767	53,932,778
b. AVA	31,817,591	33,791,968	35,579,231	37,460,220	39,814,799	42,191,297	44,469,223	46,817,081	49,281,806	51,657,767	53,932,778
3. UAL/(surplus): 1 - 2b	4,291,386	3,382,168	3,134,592	2,862,811	2,135,505	1,128,418	588,363	34,136	(521,224)	(1,386,329)	(1,618,264)
4. Normal Cost											
a. Benefit	631,721	1,077,756	1,096,406	1,113,691	932,768	1,275,296	1,295,135	1,318,135	1,086,588	1,531,991	1,546,982
b.Term Costs	45,439	83,735	89,320	91,333	79,767	109,601	117,515	130,425	127,202	170,304	167,979
c. Expenses	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000
d. Total Normal Cost	847,160	1,331,491	1,355,726	1,375,024	1,182,535	1,554,897	1,582,650	1,618,560	1,383,790	1,872,295	1,884,961
5. 30-Year Funding of UAL	338,006	266,393	246,893	225,486	168,201	88,879	46,342	2,689	(41,054)	(109,193)	(127,461)
6. Total Pension Cost: 4 + 5	1,185,166	1,597,884	1,602,619	1,600,510	1,350,736	1,643,776	1,628,992	1,621,249	1,342,736	1,763,102	1,757,500
7. Supplement											
a. Retiree Count	120	156	155	154	153	173	171	169	167	190	186
b. MthlySuppAmt	450	450	450	450	450	450	450	450	450	450	450
Product	648,000	842,400	837,000	831,600	826,200	934,200	923,400	912,600	901,800	1,026,000	1,004,400
8. Total Annual Cost: 6 + 7	1,833,166	2,440,284	2,439,619	2,432,110	2,176,936	2,577,976	2,552,392	2,533,849	2,244,536	2,789,102	2,761,900
	-	-	-	-	-	-	-	-	-	-	-
9. Anticipated Contribution	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271
10. Shortfall/(surplus): 8 - 9	(1,407,105)	(799,987)	(800,653)	(808,161)	(1,063,336)	(662,296)	(687,880)	(706,423)	(995,735)	(451,169)	(478,371)
Realized Market Value ROR	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%

2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
54,416,460	56,624,588	58,691,079	60,001,960	61,937,945	63,974,566	66,173,642	67,937,501	69,962,676	72,239,944	74,709,988	76,681,539	79,112,485	81,749,898
56,295,791	58,880,187	61,456,232	63,589,646	65,571,809	67,682,021	69,917,468	71,943,765	73,829,987	75,820,986	77,911,286	79,757,316	81,469,224	83,223,366
56,295,791	58,880,187	61,456,232	63,589,646	65,571,809	67,682,021	69,917,468	71,943,765	73,829,987	75,820,986	77,911,286	79,757,316	81,469,224	83,223,366
(1,879,331)	(2,255,599)	(2,765,153)	(3,587,686)	(3,633,864)	(3,707,455)	(3,743,826)	(4,006,264)	(3,867,311)	(3,581,042)	(3,201,298)	(3,075,777)	(2,356,739)	(1,473,468)
1,580,846	1,488,970	1,182,330	1,699,645	1,754,214	1,815,301	1,600,979	1,838,672	2,010,786	2,076,676	1,811,263	2,167,956	2,270,614	2,381,151
113,536	121,603	138,081	194,935	166,620	163,879	175,905	220,211	192,290	200,973	213,589	271,807	277,325	204,227
170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000
1,864,382	1,780,573	1,490,411	2,064,580	2,090,834	2,149,180	1,946,884	2,228,883	2,373,076	2,447,649	2,194,852	2,609,763	2,717,939	2,755,378
(148,024)	(177,660)	(217,794)	(282,580)	(286,217)	(292,014)	(294,878)	(315,549)	(304,605)	(282,057)	(252,147)	(242,260)	(185,626)	(116,056)
1,716,358	1,602,913	1,272,617	1,782,000	1,804,617	1,857,166	1,652,006	1,913,334	2,068,471	2,165,592	1,942,705	2,367,503	2,532,313	2,639,322
183	179	183	212	208	205	202	215	217	214	210	224	222	220
450	450	450	450	450	450	450	450	450	450	450	450	450	450
988,200	966,600	988,200	1,144,800	1,123,200	1,107,000	1,090,800	1,161,000	1,171,800	1,155,600	1,134,000	1,209,600	1,198,800	1,188,000
2,704,558	2,569,513	2,260,817	2,926,800	2,927,817	2,964,166	2,742,806	3,074,334	3,240,271	3,321,192	3,076,705	3,577,103	3,731,113	3,827,322
-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271	3,240,271
(535,713)	(670,758)	(979,455)	(313,472)	(312,455)	(276,105)	(497,466)	(165,937)	-	80,921	(163,566)	336,831	490,842	587,051
7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%

Missouri Sheriffs' Retirement System
Cost Projections
Exhibit 5

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
1. Actuarial Accrued Liability	36,108,977	37,174,136	38,713,823	40,323,031	41,950,304	43,319,715	45,057,586	46,851,217	48,760,582	50,271,438	52,314,514	54,416,460	56,624,588	58,691,079
2. Assets														
a. MVA	30,556,697	33,051,348	35,366,385	37,783,207	40,261,987	42,772,001	45,193,457	47,695,608	50,326,200	52,880,467	55,347,157	57,916,226	60,722,131	63,536,299
b. AVA	31,817,591	33,891,944	35,786,683	37,783,207	40,261,987	42,772,001	45,193,457	47,695,608	50,326,200	52,880,467	55,347,157	57,916,226	60,722,131	63,536,299
3. UAL/(surplus) : 1 - 2b	4,291,386	3,282,192	2,927,140	2,539,824	1,688,317	547,714	(135,871)	(844,391)	(1,565,618)	(2,609,029)	(3,032,643)	(3,499,766)	(4,097,543)	(4,845,220)
4. Normal Cost														
a. Benefit	631,721	1,077,756	1,096,406	1,113,691	932,768	1,275,296	1,295,135	1,318,135	1,086,588	1,531,991	1,546,982	1,580,846	1,488,970	1,182,330
b. Term Costs	45,439	83,735	89,320	91,333	79,767	109,601	117,515	130,425	127,202	170,304	167,979	113,536	121,603	138,081
c. Expenses	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000
d. Total Normal Cost	847,160	1,331,491	1,355,726	1,375,024	1,182,535	1,554,897	1,582,650	1,618,560	1,383,790	1,872,295	1,884,961	1,864,382	1,780,573	1,490,411
5. 30-Year Funding of UAL	338,006	258,518	230,553	200,047	132,978	43,140	(10,702)	(66,508)	(123,314)	(205,497)	(238,863)	(275,655)	(322,739)	(381,629)
6. Total Pension Cost : 4 + 5	1,185,166	1,590,009	1,586,279	1,575,071	1,315,513	1,598,037	1,571,948	1,552,052	1,260,476	1,666,798	1,646,098	1,588,727	1,457,834	1,108,782
7. Supplement														
a. Retiree Count	120	156	155	154	153	173	171	169	167	190	186	183	179	183
b. MthlySuppAmt	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Product	648,000	842,400	837,000	831,600	826,200	934,200	923,400	912,600	901,800	1,026,000	1,004,400	988,200	966,600	988,200
8. Total Annual Cost : 6 + 7	1,833,166	2,432,409	2,423,279	2,406,671	2,141,713	2,532,237	2,495,348	2,464,652	2,162,276	2,692,798	2,650,498	2,576,927	2,424,434	2,096,982
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9. Anticipated Contribution	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697
10. Shortfall/(surplus) : 8 - 9	(1,503,531)	(904,288)	(913,418)	(930,027)	(1,194,984)	(804,460)	(841,349)	(872,045)	(1,174,422)	(643,900)	(686,199)	(759,771)	(912,263)	(1,239,715)
Realized Market Value ROR	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%

Missouri Sheriffs' Retirement System
Cost Projections
Exhibit 5

	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
1. Actuarial Accrued Liability	60,001,960	61,937,945	63,974,566	66,173,642	67,937,501	69,962,676	72,239,944	74,709,988	76,681,539	79,112,485	81,749,898
2. Assets											
a. MVA	65,925,695	68,183,038	70,589,068	73,142,521	75,510,674	77,764,391	80,150,446	82,665,432	84,968,001	87,170,686	89,452,415
b. AVA	65,925,695	68,183,038	70,589,068	73,142,521	75,510,674	77,764,391	80,150,446	82,665,432	84,968,001	87,170,686	89,452,415
3. UAL/(surplus) : 1 - 2b	(5,923,735)	(6,245,093)	(6,614,502)	(6,968,879)	(7,573,173)	(7,801,715)	(7,910,502)	(7,955,444)	(8,286,462)	(8,058,201)	(7,702,517)
4. Normal Cost											
a. Benefit	1,699,645	1,754,214	1,815,301	1,600,979	1,838,672	2,010,786	2,076,676	1,811,263	2,167,956	2,270,614	2,381,151
b.Term Costs	194,935	166,620	163,879	175,905	220,211	192,290	200,973	213,589	271,807	277,325	204,227
c. Expenses	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000
d. Total Normal Cost	2,064,580	2,090,834	2,149,180	1,946,884	2,228,883	2,373,076	2,447,649	2,194,852	2,609,763	2,717,939	2,755,378
5. 30-Year Funding of UAL	(466,577)	(491,888)	(520,984)	(548,896)	(596,493)	(614,494)	(623,062)	(626,602)	(652,674)	(634,696)	(606,681)
6. Total Pension Cost : 4 + 5	1,598,003	1,598,946	1,628,196	1,397,988	1,632,390	1,758,582	1,824,587	1,568,250	1,957,089	2,083,243	2,148,697
7. Supplement											
a. Retiree Count	212	208	205	202	215	217	214	210	224	222	220
b. MthlySuppAmt	450	450	450	450	450	450	450	450	450	450	450
Product	1,144,800	1,123,200	1,107,000	1,090,800	1,161,000	1,171,800	1,155,600	1,134,000	1,209,600	1,198,800	1,188,000
8. Total Annual Cost : 6 + 7	2,742,803	2,722,146	2,735,196	2,488,788	2,793,390	2,930,382	2,980,187	2,702,250	3,166,689	3,282,043	3,336,697
	-	-	-	-	-	-	-	-	-	-	-
9. Anticipated Contribution	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697	3,336,697
10. Shortfall/(surplus) : 8 - 9	(593,894)	(614,552)	(601,502)	(847,910)	(543,307)	(406,315)	(356,511)	(634,448)	(170,009)	(54,654)	0
Realized Market Value ROR	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%