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February 7, 2014

CONFIDENTIAL

Ms. Judith Delaney
Executive Assistant
Missouri State Employees'
Retirement System
907 Wildwood Drive
Jefferson City, MO 65109

Re: House Bill No. 1682 (HB 1682)

Dear Judy:

Enclosed are the results of a supplemental actuarial valuation related to proposed plan changes for the Missouri State Employees' Retirement System.

We recommend legal counsel review the decrease in vesting proposed with regard to Section 105.684 of the State of Missouri Revised Statutes. For certain circumstances, it will result in an increase in benefits from MOSERS and the funded ratio is 72.7% as of June 30, 2013.

If you have any questions or comments, please contact us.

Respectfully submitted,

Brad Lee Armstrong, ASA, EA, FCA, MAAA

David T. Kausch, FSA, EA, FCA, MAAA

BLA/DTK:ah
Enclosures

Missouri State Employees' Retirement System
Supplemental Actuarial Valuation
as of June 30, 2013

REQUESTED BY: Ms. Judith Delaney, Executive Assistant

SUBMITTED BY: Brad L. Armstrong, ASA, EA, FCA, MAAA and David T. Kausch, FSA, EA, FCA, MAAA
Gabriel, Roeder, Smith & Company

DATE: February 7, 2014

This report presents results of a supplemental actuarial valuation to determine the effects of establishing a Hybrid Plan for all employees hired for the first time on or after January 1, 2015.

This report is intended to describe the financial effect of the proposed changes. No statement in this report is intended to be interpreted as a recommendation in favor of the changes, or in opposition to them. The date of the valuation was June 30, 2013. Brad Armstrong and David Kausch are Members of the American Academy of Actuaries (MAAA) as indicated, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

If the scheduled contributions are made (subject to normal year-to-year experience fluctuations), then the System will be able to pay all benefits promised, when due. Our understanding is that the State is currently paying the appropriate total contribution rate.

Actuarial assumptions and methods were consistent with those used in the regular actuarial valuation of the Retirement System on the valuation date, unless otherwise noted. In particular:

- The assumed rate of interest was 8.0%;
- Payroll was assumed to increase 3% per year; and
- For this supplemental valuation, Unfunded Actuarial Accrued Liability as of June 30, 2013 is amortized over 30 years.

The active group size is assumed to remain constant.

A brief summary of the data used in this valuation follows:

			Group Averages		
Valuation Group	**Number**	**Payroll**	**Salary**	**Age(yrs.)**	**Service(yrs.)**
Elected Officials	6	$ 659,969	$ 109,995	48.3	6.4
Legislators	197	7,081,591	35,947	50.5	3.7
Others	50,630	1,872,471,390	36,983	45.8	11.4
Total MOSERS	**50,833**	**$ 1,880,212,950**	**$ 36,988**	**45.8**	**11.3**

Members hired on or after January 1, 2015 will be eligible to participate in a **Defined Benefit Plan** with the following provisions:

Regular State Employees:

Benefit Formula: 1.0% x credited service x Final Average Pay

Temporary benefit: 0.8% x service x Final Average Pay to age 62 (for those retiring under Rule of 90)

Vesting period: 5 years

Normal Retirement Eligibility: Age 67 with 5 years of credited service or age 55 with age plus credited service equal to 90 or more.

Early Retirement Eligibility: Age 62 with 5 years of credited service, with normal retirement amount reduced by ½% for each month that retirement precedes eligibility for normal retirement. Normal retirement is age 67.

COLA: 80% of increase in CPI (2% maximum)

Members of the General Assembly:

Benefit Formula: 1/48 of pay times years of credited service as a member of the General Assembly. The benefit is capped at 50% of pay.

Elected Officials:

Benefit Formula: 1/48 of pay times years of credited service as a statewide Elected Official. The benefit is capped at 25% of pay.

All Members:

Employee Contribution: 3.0%

All members hired on or after January 1, 2015 will also participate in a **Defined Contribution Plan** with 3.0% employer contributions and 1.0% employee contributions.

The proposed removal of benefits for new hires has **no effect** on the MOSERS' current benefit obligation or current employer contributions for the active members currently covered under the Missouri State Employees' Retirement System plan.

Projected Change in Annual Employer Contributions

				Projected DB/DC Employer Contributions									
				Before Proposed Changes		Estimated Impact of Proposed Changes		After Proposed Change					
Fiscal Year	Valuation Payroll Projected	Pre-2015 Payroll*	Post-2014 Payroll (new hires)	Total Rate	Dollars	Total Rate	Total Dollars	DB Rate*	DB Dollars	DC Rate*	DC Dollar	Total Dollars	Rate*
2013	$1,880,212,950	$ 1,880,212,950	$ 0										
2014	1,936,619,339	1,936,619,339	0										
2015	1,994,717,919	1,895,873,039	98,844,880	16.97%	$ 338,503,631	0.15%	$ 2,965,346	16.97%	$ 338,503,631	0.15%	$ 2,965,346	$ 341,468,977	17.12%
2016	2,054,559,457	1,776,887,603	277,671,854	16.33%	335,509,559	0.35%	7,097,421	16.27%	334,276,824	0.41%	8,330,156	342,606,980	16.68%
2017	2,116,196,241	1,675,190,775	441,005,466	15.84%	335,205,485	0.45%	9,421,010	15.66%	331,396,331	0.63%	13,230,164	344,626,495	16.29%
2018	2,179,682,128	1,585,351,198	594,330,930	15.38%	335,235,111	0.54%	11,726,818	15.10%	329,132,001	0.82%	17,829,928	346,961,929	15.92%
2019	2,245,072,592	1,504,332,169	740,740,423	14.94%	335,413,845	0.63%	14,139,952	14.58%	327,331,584	0.99%	22,222,213	349,553,797	15.57%
2020	2,312,424,770	1,428,828,559	883,596,211	14.53%	335,995,319	0.72%	16,564,460	14.10%	326,051,893	1.15%	26,507,886	352,559,779	15.25%
2021	2,381,797,513	1,357,121,226	1,024,676,287	14.14%	336,786,168	0.79%	18,831,302	13.64%	324,877,181	1.29%	30,740,289	355,617,470	14.93%
2022	2,453,251,438	1,287,734,708	1,165,516,730	13.76%	337,567,398	0.87%	21,227,294	13.20%	323,829,190	1.43%	34,965,502	358,794,692	14.63%
2023	2,526,848,981	1,219,983,454	1,306,865,527	13.40%	338,597,763	0.92%	23,286,818	12.77%	322,678,615	1.55%	39,205,966	361,884,581	14.32%
2024	2,602,654,450	1,153,943,753	1,448,710,697	13.07%	340,166,937	1.00%	26,023,536	12.40%	322,729,152	1.67%	43,461,321	366,190,473	14.07%

* *DB, DC, and total contribution rates are based on open group payroll.*
DC contribution is based on a 3% employer contribution for post-2014 hires only.

Comment A: The long-term effect of the proposed Hybrid Plan is an increase in total employer contribution of 1.69% of total MOSERS' payroll. The components of this long-term increase are as follows:

Components of Changes in Long-Term Total Employer Contribution Rate (as a percent of payroll)	
A. Change in total DB Normal Cost	(2.31)%
B. Change in DB member contribution rate	(1.00)%
C. Change in employer DB Normal Cost (A. – B.)	(1.31)%
D. Change in employer DC contribution rate	3.00%
E. Total change in employer contribution rate (C. + D.)	**1.69%**

These increases would emerge over time as new employees replace the existing workforce. For purposes of this supplemental valuation, the change in the DB employer contribution rate is reflected beginning July 1, 2015, since the employer contribution rate for the year ending June 30, 2015 has already been certified by the Board of Trustees. The change in DC employer contribution rate is reflected beginning January 1, 2015. Since the DB plan remains open in the hybrid plan, there is no change in the amortization of the Unfunded Accrued Liability contributions.

Comment B: The proposal does not specify vesting of the 3% employer defined contribution rate nor does it discuss the treatment of forfeitures for non-vested employer DC contributions. For purposes of this supplemental valuation, we have assumed that the DC vesting will be immediate and therefore there will be no forfeitures.

Comment C: The proposal changes the Defined Benefit vesting period from 10 years to 5 years for new hires on and after January 1, 2015 and proposes similar changes to the service requirements in the retirement eligibility definitions. The proposed conditions are more favorable for new hires than current members hired on and after January 1, 2011. This should be reviewed by legal counsel for compliance with Section 105.684 of the State of Missouri Revised Statutes. We did not adjust the retirement rates for the new eligibility conditions.

Comment D: The calculations are based upon assumptions regarding future events, which may or may not materialize. They are also based upon present and proposed assumptions that are outlined in the report. In particular, the number of active members is assumed to remain constant over the projection period and total payroll is assumed to grow at a rate of 3% per year. These assumptions are very sensitive to actual hiring practices of the state and short-term economic conditions.

If you have reason to believe that the assumptions that were used are unreasonable, that the plan provisions are incorrectly described, that important plan provisions relevant to this proposal are not described, or that conditions have changed since the calculations were made, you should contact the authors of this report prior to relying on information in the report.

Comment E: If you have reason to believe that the information provided in this report is inaccurate, or is in any way incomplete, or if you need further information in order to make an informed decision on the subject matter of this report, please contact the authors of the report prior to making such decision.

Comment F: In the event that more than one plan change is being considered, it is very important to remember that the results of separate actuarial valuations cannot generally be added together to produce a correct estimate of the combined effect of all of the changes. The total can be considerably greater than the sum of the parts due to the interaction of various plan provisions with each other, and with the assumptions that must be used.

Comment G: This report is intended to describe the financial effect of the proposed plan changes on the Retirement System. Except as otherwise noted, potential effects on other benefit plans were not considered.

Comment H: The reader of this report should keep in mind that actuarial calculations are mathematical estimates based on current data and assumptions about future events (which may or may not materialize). Please note that actuarial calculations can and do vary from one valuation year to the next. As a result, the cost impact of a benefit change may fluctuate over time, as the demographics of the group changes.

Summary of Assumptions Used
for the June 30, 2013 Actuarial Valuation

- - - - - - - - - - -Economic Assumptions - - - - - - - - - -

The investment return rate used in the valuations was 8.0% per year, compounded annually (net after investment expenses). This assumption is used to account for the fact that equal amounts of money payable at different points in time in the future do not have the same value presently.

Pay increase assumptions for individual active members are shown for sample ages on page 8. Part of the assumption for each age is for merit and/or seniority increase, and the other 3.0% recognizes wage inflation. This assumption is used to project a member's current salary to the salaries upon which benefits will be based.

The active member payroll is assumed to increase 3.0% annually, which is the portion of the individual pay increase assumptions attributable to wage inflation.

The annual cost-of-living adjustment (COLA) is assumed to be 4.00%, on a compounded basis, when a minimum COLA of 4% is in effect (4.0% for 12 years, 3.06% the next year to reach a cumulative 65% followed by 2.0%). When no minimum COLA is in effect, price inflation is assumed to be 2.5% and the annual COLA is assumed to be 2.0% (80% of 2.5%), on a compounded basis.

- - - - - - - - - - Non-Economic Assumptions - - - - - - - - - -

The mortality table, for post-retirement mortality, used in evaluating allowances to be paid was the RP 2000 combined healthy mortality table, projected to 2016 with Scale AA. Related values are shown on page 9. This assumption is used to measure the probabilities of each benefit payment being made after retirement. The pre-retirement mortality rates used were 100% of the post-retirement mortality rates for males and 80% of the post-retirement mortality for females.

The mortality tables include a margin of 15% for men and 17% for women for mortality improvements based on the four year experience study from June 30, 2007 to June 30, 2011. The mortality assumption was first used in the June 30, 2012 valuation.

Summary of Assumptions Used
for the June 30, 2013 Actuarial Valuation

The probabilities of age and service retirement are shown on page 10. It was assumed that each member will be granted one half year (4 months for 2011 plan members) of service credit for unused leave upon retirement and military service purchases.

The probabilities of withdrawal from service, disability and death-in-service are shown for sample ages on page 8. For disability retirement, impaired longevity was recognized by use of special mortality tables.

The entry age normal actuarial cost method of valuation was used in determining liabilities and normal cost. Each member's normal cost was based on the benefit provisions applicable to that member. The normal cost is projected to the applicable fiscal year. Differences in the past between assumed experience and actuarial experience ("actuarial gains and losses") become part of actuarial accrued liabilities. Unfunded actuarial accrued liabilities are amortized to produce payments, (principal & interest) which are level percents of payroll contributions.

The amortization of the unfunded actuarial accrued liability is based on a 30-year amortization period, level percent of payroll amortization. The amortization is based on the projected unfunded actuarial accrued liability at the beginning of the fiscal year. This method was first used in the June 30, 2010 valuation.

Employer contribution dollars were assumed to be ***paid in equal installments*** throughout the employer's fiscal year.

Actuarial value of assets. Valuation assets recognize assumed investment return fully each year. Differences between actual and assumed investment return are phased-in over an open three-year period. Valuation assets are not permitted to deviate from the market value by less than 80% or more than 125%.

The data about persons now covered and about present assets were furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

The liabilities for active members hired on or after January 1, 2011 were based on MSEP 2011 benefits. The liabilities for active members hired on or after July 1, 2000 (April 26, 2005 for administrative law judges) were based on MSEP 2000 benefits. The liabilities for active members hired before July 1, 2000 for elected officials, General Assembly, and uniformed water patrol were based on MSEP benefits. The liabilities for all other active members hired before July 1, 2000 were based on the assumption that members would elect MSEP 2000 prior to age 62 and MSEP on or after age 62.

For member on long-term disability, the actuarial accrued liability is the present value of benefit under active assumptions plus the difference of the present value of benefit with and without future pay growth to reflect indexing of pay in ultimate retirement benefits.

- -

The actuarial valuation computations were made by or under the supervision of Brad Lee Armstrong and David T. Kausch who are Members of the American Academy of Actuaries (MAAA).

Separations From Active Employment Before Service Retirement & Individual Pay Increase Assumptions June 30, 2013

		Percent of Active Members - - - - - - Separating within the Next Year - - - - -						Pay Increase Assumptions - - For An Individual Employee - -		
		Withdrawal ***		Death*		Disability		Merit &	Base	Increase
Sample Ages	Years of Service	Men	Women	Men	Women	Men	Women	Seniority**	(Economy)	Next Year
	0	23.0 %	26.9 %							
	1	18.0	20.5							
	2	15.0	15.4							
	3	13.0	12.5							
	4	11.0	10.9							
25	5+	13.0	13.3	0.03 %	0.01 %	0.17 %	0.30 %	2.9 %	3.0 %	5.9 %
30		10.2	10.5	0.04	0.02	0.17	0.30	2.2	3.0	5.2
35		7.9	8.1	0.07	0.03	0.21	0.30	1.6	3.0	4.6
40		5.6	5.7	0.09	0.04	0.26	0.32	1.2	3.0	4.2
45		4.2	4.3	0.12	0.07	0.34	0.38	0.9	3.0	3.9
50		2.8	2.9	0.16	0.10	0.49	0.57	0.7	3.0	3.7
55		2.8	2.9	0.27	0.19	1.07	0.89	0.5	3.0	3.5
60		2.8	2.9	0.52	0.37	1.50	1.50	0.4	3.0	3.4
65		2.8	2.9	1.02	0.72	1.60	1.70	0.3	3.0	3.3
70		2.8	2.9	1.74	1.24	1.60	1.70	0.2	3.0	3.2

* *2% of the deaths in active service are assumed to be duty related.*
** *Does not apply to members of the General Assembly.*
*** *Does not apply to Elected Officials and Legislators.*

Elected Officials and Legislators

Percent of Active Members Separating within the Next Year	
Years of Service	Withdrawal Male/Female
1	8.0 %
2	8.0
3	8.0
4	8.0
5	12.0
6	12.0
7	12.0
8+	35.0

Post-Retirement Mortality Rates

The mortality tables were the RP 2000 mortality table, projected to 2016 with Scale AA, including a margin of 15% for men and 17% for women for mortality improvements. Disabled mortality tables are the healthy mortality tables set forward 10 years. The pre-retirement mortality rates used were 100% of the post-retirement mortality rates for males and 80% of the post-retirement mortality for females.

Age	Service		Disability	
	Men	Women	Men	Women
45	0.0012	0.0009	0.0027	0.0024
50	0.0016	0.0013	0.0052	0.0047
55	0.0027	0.0024	0.0102	0.0090
60	0.0052	0.0047	0.0174	0.0155
65	0.0102	0.0090	0.0302	0.0247
70	0.0174	0.0155	0.0548	0.0410
75	0.0302	0.0247	0.0990	0.0703
80	0.0548	0.0410	0.1720	0.1255
85	0.0990	0.0703	0.2591	0.1884

Retirement Values
June 30, 2013

Sample Attained Ages	Present Value of $1/Month the First Year (with 50% Joint & Survivor) Increasing 4.0% / 2.0% Yearly				Present Value of $1/Month the First Year Increasing 2.0% Yearly			
	Service		Disability		Service		Disability	
	Men	Women	Men	Women	Men	Women	Men	Women
40	$224.11	$224.12	$212.76	$211.89	$184.40	$186.75	$169.01	$172.32
45	217.22	217.01	202.65	201.39	177.68	180.43	157.94	162.08
50	208.28	207.81	190.14	188.39	169.01	172.32	144.49	149.76
55	196.76	196.07	175.18	172.83	157.94	162.08	128.94	135.56
60	182.48	181.61	157.88	154.80	144.49	149.76	111.76	119.87
65	165.46	164.49	138.11	134.44	128.94	135.56	92.72	102.82
70	145.94	144.91	116.94	112.03	111.76	119.87	73.10	84.62
75	123.90	123.17	96.04	88.83	92.72	102.82	55.15	66.19
80	100.55	100.10	76.52	68.15	73.10	84.62	40.28	50.49
85	78.09	77.41	59.89	52.82	55.15	66.19	30.32	40.10

Sample Attained Ages	Future Life Expectancy (Years)			
	Service		Disability	
	Men	Women	Men	Women
40	41.95	44.10	32.39	34.43
45	37.15	39.24	27.68	29.69
50	32.39	34.43	23.13	25.13
55	27.68	29.69	18.87	20.84
60	23.13	25.13	14.96	16.90
65	18.87	20.84	11.39	13.32
70	14.96	16.90	8.29	10.12
75	11.39	13.32	5.83	7.37
80	8.29	10.12	4.03	5.31
85	5.83	7.37	2.91	4.05

Percent of Eligible Active Members Retiring Next Year

Normal Retirement Pattern					Early Retirement Pattern		
Retirement Age	MSEP and MSEP 2000 Percent Eligible 1st Year	2nd Year	3rd Year	MSEP 2011 Percent Eligible	Retirement Age	MSEP and MSEP 2000 Percent Eligible	MSEP 2011 Percent Eligible
48	22%						
49	22	10%					
50	22	10	21%				
51	22	10	21				
52	22	10	21				
53	22	10	18				
54	22	10	18				
55	22	12	26	45%			
56	22	12	25	45			
57	22	12	22	35	57	2.5%	
58	22	12	22	35	58	3.5	
59	22	12	20	30	59	3.5	
60	21	12	22	35	60	5.0	
61	20	12	20	25	61	6.0	
62	19	22	30	40	62	6.0	10%
63	15	18	25	30	63	6.0	10
64	15	20	17	20	64	6.0	10
65	20	20	27	30	65	6.0	50
66	22	20	26	25	66	6.0	50
67	15	25	22	20	67	6.0	
68	15	20	22	20	68	6.0	
69	15	20	22	20	69	6.0	
70	25	20	22	20	70	6.0	
71	25	20	22	20	71	6.0	
72	25	20	22	20	72	6.0	
73	25	20	22	20	73	6.0	
74	25	20	22	20	74	6.0	
75	50	50	22	50	75	6.0	
76	50	50	22	50	76	6.0	
77	75	75	22	75	77	6.0	
78	100	100	100	100	78	100.0	

* *For members hired prior to January 1, 2011.*
** *For members hired on or after January 1, 2011.*

GRS
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February 13, 2014

Ms. Pam Henry
Deputy Executive Director
Missouri Department of Transportation and
Highway Patrol Employees' Retirement System (MPERS)
1913 William Street
Jefferson City, Missouri 65109

**Re: Supplemental Valuation – HB 1682 Proposed Change to RSMo 104
Relating to Creating a Hybrid Plan**

Dear Pam:

Enclosed are the results of a supplemental actuarial valuation to measure the financial effects of creating a Hybrid Plan for new hires, as requested.

Respectfully submitted,

Kenneth G. Alberts

KGA:clh
Enclosure

cc: Scott Simon, Executive Director
Heidi Barry (GRS)

MPERS
Supplemental Actuarial Valuation
as of June 30, 2013

REQUESTED BY: Ms. Pam Henry, Deputy Executive Director
Missouri Department of Transportation and
Highway Patrol Employees' Retirement System

DATE: February 13, 2014

SUBMITTED BY: Kenneth G. Alberts and Heidi Barry, A.S.A., M.A.A.A.
Gabriel, Roeder, Smith & Company

This report contains the results of a supplemental actuarial valuation of a proposed change to RSMo 104 which would create a Hybrid Plan for new hires, as requested by MPERS.

This report may be shared with other parties, but only in its entirety and only with the permission of MPERS.

Supplemental valuations do not predict the result of future actuarial valuations. (Future activities can affect future valuation results in an unpredictable manner.) Rather, supplemental valuations give an indication of the probable effect of the **change only** on future valuations without comment on the complete end result of the future valuations.

Heidi Barry is a Member of the American Academy of Actuaries (M.A.A.A.) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

The valuation was based upon data furnished by MPERS for the June 30, 2013 actuarial valuation. Actuarial methods and assumptions, except where otherwise noted, were the same as those used in the last regular annual actuarial valuation as of June 30, 2013. In particular:

- The assumed rate of interest was 7.75%.
- The valuation method was the entry-age actuarial cost method.
- The amortization period was 11 years for unfunded retiree liabilities and 26 years for unfunded active liability; amortizations were calculated assuming payroll would increase 1.50% for 1 year and 3.50% per year thereafter before the changes.
- Price inflation is assumed to be 3.00% per year.

A brief summary of the data used in this valuation is presented on the next page.

MPERS
Supplemental Actuarial Valuation
as of June 30, 2013

Active and Retiree

Group	Number	Covered Payroll/ Annual Benefits	Average in Years Age	Average in Years Service
MoDOT Employees	4,978	$205,790,486	45.1	13.8
Civilian Patrol Employees	1,122	$ 43,091,397	44.9	12.4
Uniformed Patrol	1,219	$ 74,323,885	40.1	14.7
Total	7,319	$323,205,768	44.2	13.7
Retirees and Beneficiaries	8,290	$210,904,448	70.2	N/A

Term Vested

Number
2,152

Proposed Provisions:

Establish a Hybrid Plan for any person who is hired for the first time as a state employee on or after January 1, 2015. For the Defined Contribution component, the member contribution rate would be 1.0% of payroll and the employer contribution rate would be 3.0% of payroll. Provisions for the Defined Benefit component of the Hybrid Plan would be similar to the current 2011 Tier Defined Benefit provisions, with the following exceptions:

- The benefit multiplier for the life annuity will be 1% instead of 1.7%.
- Annual post retirement cost-of-living increases will be capped at 2% of current benefit instead of 5%.
- Vesting is reduced to 5 years from 10 years.
- Early retirement eligibility at age 62 with 5 years of service instead of age 62 with 10 years of service.
- Member contributions for the defined benefit are reduced to 3% from 4%.
- A defined contribution benefit is added to the defined benefit and is based on 1% member contributions, 3% employer contributions plus accumulated interest.

Discussion

Benefits payable under the Closed Plan and the Y2K Plan for members hired prior to January 1, 2015 are not affected by the proposal; therefore, there is no immediate change in the employer contribution rates. The long-term employer contributions for the 2011 Tier (the current open plan provisions) are 6.69% of pay for non-uniformed members and 10.88% of pay for uniformed members. The estimated long-term employer contributions for the proposed Hybrid plan are 6.37% of pay for non-uniformed members and 9.48% of pay for uniformed members (including the DB and DC components). This represents a decrease of approximately 0.32% of pay over the 2011 Tier benefits for non-uniformed members and 1.40% of pay for uniformed members.

It is important to note that most MPERS members are currently covered by older plans/tiers. The average long-term cost of benefits for the current members (based on their current benefits) is 12.66% of pay for non-uniformed members and 18.61% of pay for uniformed members. The proposed plan represents a decrease in long-term employer costs over the average current level of approximately 6.29% of pay to 9.13% of pay. As discussed above, most of this decrease is attributable to the 2011 Tier. Changes in the employer contribution will evolve as new hires enter the plan.

Please see the comments on pages 4 and 5, and the projections on page 6 for more information.

Comments

Comment 1: The proposed plan does not indicate if the DC account can be annuitized by the plan for members covered by the Hybrid plan. If such an option is allowed, cost estimates could be different than contained herein, depending on how account balances are annuitized.

Comment 2: The long-term cost of the proposed plan was estimated by modeling what the entry-age normal cost would be if all current MPERS members were covered by the proposed provisions. Additional cost for expenses and disability insurance premiums were assumed not to change as a result of the proposed plan changes. Implementation of the DC plan may result in additional administrative expenses.

Comment 3: The simplified projections on page 6 show the possible total contributions in each of the next ten years before and after the proposed change. These projections also account for the market gains and losses prior to June 30, 2013 that are scheduled to be recognized in the next two years. Due to time constraints, the simplified projection methods are based on:

- the June 30, 2013 covered payroll projected with wage inflation;
- a closed group payroll population projection to determine the (current) Defined Benefit payroll;
- computed contributions based on funding value and market value as of June 30, 2013;
- closed amortization periods that are the equivalent single amortization period for the specific group (Non-uniform – 17.3 years on a valuation asset basis or 17.4 years on a market asset basis; Uniform – 22.2 years on a valuation asset basis or 22.6 years on a market asset basis); and
- no future gains or losses (beyond the market gains and losses already experienced as of June 30, 2013).

Comment 4: HB 1682 states that annual post-retirement cost-of-living increases will be capped at 2%, instead of the current 5%. If the proposed COLA provision (80% of CPI, capped at 2% annually) had been in place during the past 20 years the average annual COLA would have been approximately 1.66%, based on historical CPI increases over the last 20 years. Therefore, we have used an assumed COLA of 1.66% for the cost estimates of the normal cost under the proposed provisions.

Comment 5: For the purposes of this study, we have made certain assumptions regarding the provisions outlined in HB 1682. In particular, HB 1682 is silent in regard to the commencement age of deferred vested benefits for Uniformed members (the language indicates age 67 for everyone). We have assumed that Uniformed members would still commence any deferred benefits upon attainment at age 55. Also, for simplicity, we have continued the assumption of 4.0% interest crediting on defined benefit member contributions.

Comments

Comment 6: This calculation is based upon assumptions regarding future events, which may or may not materialize. It is also based upon present and proposed plan provisions that are outlined in the report. If you have reason to believe that the assumptions that were used are unreasonable, that the plan provisions are incorrectly described, that important plan provisions relevant to this proposal are not described, or that conditions have changed since the calculations were made, you should contact the authors of this report prior to relying on information in the report.

Comment 7: This report is intended to describe the financial effects of the proposed plan changes. No statement in this report is intended to be interpreted as a recommendation in favor of or in opposition to the proposed changes.

Comment 8: In the event that more than one plan change is being considered, it is very important to remember that the results of separate actuarial valuations cannot generally be added together to produce a correct estimate of the combined effect of all of the changes. The total can be considerably greater than the sum of the parts due to the interaction of various plan provisions with each other, and with the assumptions that must be used.

Comment 9: A comparison of the expected benefit levels and a comparison of the volatility of valuation results (before and after the proposed changes) was outside the scope of this project.

Comment 10: In the projection we assumed an additional 5% of payroll would be attributed to members that would be covered by the 2011 Tier each year (before the proposal).

MPERS
Supplemental Actuarial Valuation
as of June 30, 2013

Non Uniform

Fiscal Year	Val Payroll Projected	DB Payroll	Hybrid Payroll	Employer Contribution Rate Current	Proposed DB	Proposed DC	Dollar Contributions Current	Proposed	Difference
2013	$248,881,882	$248,881,882	$ 0						
2014	253,476,939	253,476,939	0						
2015	262,348,632	252,135,365	10,213,267	58.76%	58.76%	3.00%	$154,156,056	$154,462,454	$306,398
2016	271,530,834	242,791,386	28,739,448	58.55%	58.55%	3.00%	158,981,303	159,843,487	862,184
2017	281,034,413	234,018,535	47,015,878	57.56%	57.00%	3.00%	161,763,408	161,612,957	(150,451)
2018	290,870,617	224,962,715	65,907,902	57.16%	56.41%	3.00%	166,261,645	166,050,739	(210,906)
2019	301,051,089	215,934,009	85,117,080	56.77%	55.83%	3.00%	170,906,703	170,634,329	(272,374)
2020	311,587,877	206,864,495	104,723,382	56.39%	55.27%	3.00%	175,704,404	175,369,289	(335,115)
2021	322,493,453	197,433,205	125,060,248	56.00%	54.71%	3.00%	180,596,334	180,196,141	(400,193)
2022	333,780,724	187,560,407	146,220,317	55.62%	54.17%	3.00%	185,648,839	185,180,934	(467,905)
2023	345,463,049	177,128,247	168,334,802	55.23%	53.61%	3.00%	190,799,242	190,260,571	(538,671)
2024	357,554,256	166,223,524	191,330,732	54.83%	53.05%	3.00%	196,046,999	195,434,740	(612,259)

Uniform

Fiscal Year	Val Payroll Projected	DB Payroll	Hybrid Payroll	Employer Contribution Rate Current	Proposed DB	Proposed DC	Dollar Contributions Current	Proposed	Difference
2013	$74,323,885	$74,323,885	$ 0						
2014	76,925,221	76,925,221	0						
2015	79,617,604	77,881,088	1,736,516	58.19%	58.19%	3.00%	$46,329,484	$46,381,579	$52,095
2016	82,404,220	77,956,049	4,448,171	57.98%	57.98%	3.00%	47,777,967	47,911,412	133,445
2017	85,288,368	77,969,480	7,318,888	57.00%	56.62%	3.00%	48,614,370	48,511,905	(102,465)
2018	88,273,461	77,976,619	10,296,842	56.60%	56.09%	3.00%	49,962,779	49,818,623	(144,156)
2019	91,363,032	77,956,635	13,406,397	56.21%	55.56%	3.00%	51,355,160	51,167,471	(187,689)
2020	94,560,738	77,884,316	16,676,422	55.85%	55.07%	3.00%	52,812,172	52,578,702	(233,470)
2021	97,870,364	77,729,020	20,141,344	55.46%	54.55%	3.00%	54,278,904	53,996,925	(281,979)
2022	101,295,827	77,741,890	23,553,937	55.08%	54.06%	3.00%	55,793,742	55,463,986	(329,756)
2023	104,841,181	77,593,031	27,248,150	54.70%	53.56%	3.00%	57,348,126	56,966,652	(381,474)
2024	108,510,622	77,292,427	31,218,195	54.30%	53.03%	3.00%	58,921,268	58,484,213	(437,055)

Total

Fiscal Year	Val Payroll Projected	DB Payroll	Hybrid Payroll	Employer Contribution Rate Current	Proposed DB	Proposed DC	Dollar Contributions Current	Proposed	Difference
2013	$323,205,767	$323,205,767	$ 0						
2014	330,402,160	330,402,160	0						
2015	341,966,236	330,016,453	11,949,783	58.63%	58.63%	3.00%	$200,485,540	$200,844,033	$358,493
2016	353,935,054	320,747,435	33,187,619	58.42%	58.42%	3.00%	206,759,270	207,754,899	995,629
2017	366,322,781	311,988,015	54,334,766	57.43%	56.91%	3.00%	210,377,778	210,124,862	(252,916)
2018	379,144,078	302,939,334	76,204,744	57.03%	56.33%	3.00%	216,224,424	215,869,362	(355,062)
2019	392,414,121	293,890,644	98,523,477	56.64%	55.76%	3.00%	222,261,863	221,801,800	(460,063)
2020	406,148,615	284,748,810	121,399,805	56.26%	55.22%	3.00%	228,516,576	227,947,991	(568,585)
2021	420,363,817	275,162,225	145,201,592	55.87%	54.67%	3.00%	234,875,238	234,193,066	(682,172)
2022	435,076,551	265,302,297	169,774,254	55.49%	54.13%	3.00%	241,442,581	240,644,920	(797,661)
2023	450,304,230	254,721,278	195,582,952	55.11%	53.60%	3.00%	248,147,368	247,227,223	(920,145)
2024	466,064,878	243,515,951	222,548,927	54.71%	53.05%	3.00%	254,968,267	253,918,953	(1,049,314)