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March 12, 2013

Mr. Jim Pyle
Executive Director
Police Retirement System of Kansas City, Missouri
9701 Marion Park Drive, B
Kansas City, MO 64137

Re: Fiscal Note Information for Senate Bill 215 and House Bill 418

Dear Jim:

We previously prepared cost studies to measure the impact of the revised pension plan design for the Police Retirement System of Kansas City, Missouri (Police Retirement System) and the Civilian Employees' Retirement System of the Police Department of Kansas City, Missouri (Civilian Employees' Retirement System) under Senate Bill 215 (SB 215) and House Bill 418 (HB 418). The prior cost studies were dated February 5, 2013 and February 7, 2013 respectively. The actuarial projections in the prior studies were based on the April 30, 2011 actuarial valuation. As you requested, we are providing updated information for fiscal years 2014, 2015 and 2016 based on the results of the most recent actuarial valuation as of April 30, 2012.

Provisions of SB 215/HB 418

The proposed pension changes in SB 215/HB 418 impact the benefits of current retirees, current actives, and future actives (new hires). In addition, in recent years the City has contributed a fixed contribution rate that has not been equal to the actuarial required contribution rate. As part of the pension changes in SB 215/HB 418 the City will make the full actuarial contribution rate to each System in future years. This is a critical component in ensuring the long term financial health of the Systems.

Presently, the benefits received by retirees and beneficiaries of the Police Retirement System include a supplemental benefit of $420 per month. Under SB 215/HB 418, only $220 per month of the supplemental benefit will be paid from the System for current retirees and beneficiaries and for current active members when they retire. The remaining $200 per month will be paid directly by the City outside the System. As a result, the amount of the supplemental benefit to be funded by the System reduces to $220 per month, compared to $420 per month in the current benefit structure. From the System's perspective, this change in benefits for current members results in an immediate reduction in the unfunded actuarial accrued liability and a decrease in the normal cost rate.

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The Board of Trustees currently has the authority to grant a cost of living adjustment (COLA) to retirees and beneficiaries depending upon the actuarial condition of the System. By law, the maximum adjustment each year is 3% of the base pension (the benefit amount initially paid at retirement). The valuation has historically assumed future ad hoc COLAs of 3% each year. For purposes of the actuarial projections for SB 215/HB 418, it was assumed that the average COLA in future years would be a 2.5% COLA. This was assumed for both current and future retirees. New hires are eligible for a simple COLA, but it does not start until the date the member would have worked 32 years. Several additional changes apply to the benefit structure for those becoming members on or after August 28, 2013 as shown in the table below:

POLICE RETIREMENT SYSTEM			
	Current Plan Provisions	**SB 215/HB 418 Provisions**	
		Current Actives	**Future Hires (Tier II)**
Service Retirement	Age 60 with 10 Years Service or 25 Years of Service. Mandatory retirement at the later of 32 Years or Age 65.	No change except mandatory retirement at the later of 35 Years or Age 65.	Age 60 with 15 Years of Service or 27 Years of Service. Mandatory retirement at 35 Years.
Benefit Formula	2.5% times years of service, not to exceed 75%	2.5% times years of service, not to exceed 80%	2.5% times years of service, not to exceed 80%
Final Compensation	Average of highest two years	No change	Average of highest three years
Form of Payment	Joint and 80% survivor benefit, if married. Life only if single.	No change	Joint and 50% survivor benefit, if married, Life only if single.
Cost of Living	At Board's discretion based on actuarial condition of the system, but not to exceed a 3% simple COLA.	No change	At Board's discretion based on actuarial condition of System. If the member retires with less than 32 years of service, the COLA is deferred to point at which the member would have reached 32 years of service.
Supplemental Benefit	$420 per month	$220 per month*	None
Member Contributions	10.55%	11.55%	11.55%
City Contributions	19.70% of covered payroll	Actuarial contribution rate as determined by the System's actuary	Actuarial contribution rate as determined by the System's actuary

*Also applies to current retirees and beneficiaries.

The following table compares the key plan provisions of the current plan and the proposed changes under SB 215/HB 418 for the Police Civilians Retirement System.

CIVILIAN EMPLOYEES' RETIREMENT SYSTEM			
	Current Plan Provisions	**SB 215/HB 418 Provisions**	
		Current Actives	**Future Hires (TierII)**
Service Retirement	Normal retirement at age 65 with 5 Years of Service, Age 60 with 10 Years of Service, and Rule of 80 (Age plus Service total 80).	No change	Normal retirement at Age 67 with 5 Years of Service, Age 62 with 20 Years of Service, Rule of 85 (Age plus Service total 85).
Benefit Formula	2.0% times years of service	No change	No change
Final Compensation	Average of highest two years	No change	Average of highest three years of service
Form of Payment	Joint and 50% survivor benefit, if married. Life only if single.	No change	No change
Cost of Living	At Board's discretion based on actuarial condition of the system, but not to exceed a 3% simple COLA.	No change	No change
Supplemental Benefit	$160 per month	No change	No change
Member Contributions	5.0%	No change	No change
City Contributions	Actuarial required contribution rate as determined by the System's actuary	No change	No change

Actuarial Assumptions

The actuarial assumptions used to develop the funded status and contribution rates for the current plan design are the same as those used in the April 30, 2012 actuarial valuation. A different set of actuarial assumptions was used in developing the funded status and contribution rates under SB 215/HB 418 including a 7.5% investment return assumption and a 2.5% assumed annual cost of living adjustment for the Police Retirement System.

In the annual actuarial valuation, a separate amortization base is created each year based on the difference between the actual unfunded actuarial liability and the expected unfunded actuarial liability. That base is then amortized over a closed 24 year period, with payments determined as a level percent of payroll. This methodology was retained for purposes of projecting the actuarial results for the current plan design. However, for purposes of the cost projections for SB 215/HB 418, an open thirty year amortization period was used with payments on the unfunded actuarial liability determined as a level percent of payroll. The actuarial cost method and asset valuation method used in the April 30, 2012 actuarial valuation were also used in developing the contribution rates under SB 215/HB 418. A summary of the actuarial methods and assumptions is shown below:

	April 30, 2012 Valuation	**SB 215/HB 418 Costs**
Investment Return	7.75%	7.5%
Amortization Policy		
Period	24 years	30 years
Open or Closed	Closed	Open
One Base or Multiple	Multiple bases	One base
Level Dollar or Level Percent of Payroll	Level percent of payroll	Level percent of payroll
Cost of Living	3.0%	2.5%
Asset Value	Actuarial value	Actuarial value

Please see the Appendix, attached to this letter, for a detailed listing of all of the assumptions and methods used in the estimated results included in this letter. In our opinion, the assumptions used in the actuarial projections produce results which, in the aggregate, are reasonable. However, because not all of the assumptions will unfold exactly as expected, actual results will differ from the projections. To the extent that actual experience deviates significantly from the assumptions, results could be significantly better or significantly worse than indicated in this study

Actuarial Analysis

The changes to the benefit and contribution provisions of the System for current members (retirees and current actives) will have an immediate impact on the valuation results upon implementation, reducing both the unfunded actuarial liability and the normal cost rate. The tables on the following pages summarize the estimated impact of the changes in the benefits and contributions in SB 215/HB 418 for FY 2014, 2015, and 2016.

	Police Retirement System of Kansas City, Missouri		
	Current Plan with Original Assumptions	**SB 215/HB 418 with New Assumptions**	**Difference**
FY 2014			
UAAL ($M)	$268.7	$212.2	($56.5)
Normal Cost Rate (with expenses)	25.57%	25.46%	(0.11%)
UAAL Contribution Rate	23.83%	12.41%	(11.42%)
Total Contribution Rate	49.40%	37.87%	(11.53%)
Employee Contribution Rate	(10.55%)	(11.55%)	(1.00%)
Employer Contribution Rate	38.85%	26.32%	(12.53%)
Employer Contribution ($M)	$35.5	$24.1	($11.4)
FY 2015			
UAAL ($M)	$283.1	$231.1	($52.0)
Normal Cost Rate (with expenses)	25.63%	25.44%	(0.19%)
UAAL Contribution Rate	26.22%	13.04%	(13.18%)
Total Contribution Rate	51.85%	38.48%	(13.37%)
Employee Contribution Rate	(10.55%)	(11.55%)	(1.00%)
Employer Contribution Rate	41.30%	26.93%	(14.37%)
Employer Contribution ($M)	$39.0	$25.5	($13.5)
FY 2016			
UAAL ($M)	$294.5	$249.8	($44.7)
Normal Cost Rate (with expenses)	25.69%	25.41%	(0.28%)
UAAL Contribution Rate	27.46%	13.61%	(13.85%)
Total Contribution Rate	53.15%	39.02%	(14.13%)
Employee Contribution Rate	(10.55%)	(11.55%)	(1.00%)
Employer Contribution Rate	42.60%	27.47%	(15.13%)
Employer Contribution ($M)	$41.5	$26.9	($14.6)

	Civilian Employees' Retirement System of the Police Department of Kansas City, Missouri		
	Current Plan with Original Assumptions	**SB 215/HB 418 with New Assumptions**	**Difference**
FY 2014			
UAAL ($M)	$38.6	$43.7	$5.1
Normal Cost Rate (with expenses)	13.54%	14.32%	0.78%
UAAL Contribution Rate	11.86%	8.82%	(3.04%)
Total Contribution Rate	25.40%	23.14%	(2.26%)
Employee Contribution Rate	(5.00%)	(5.00%)	0.00%
Employer Contribution Rate	20.40%	18.14%	2.26%
Employer Contribution ($M)	$5.4	$4.8	($0.6)
FY 2015			
UAAL ($M)	$40.5	$46.6	$6.1
Normal Cost Rate (with expenses)	13.63%	14.40%	0.77%
UAAL Contribution Rate	12.88%	9.14%	(3.74%)
Total Contribution Rate	26.51%	23.54%	(2.97%)
Employee Contribution Rate	(5.00%)	(5.00%)	0.00%
Employer Contribution Rate	21.51%	18.54%	(2.97%)
Employer Contribution ($M)	$5.8	$5.0	($0.8)
FY 2016			
UAAL ($M)	$42.1	$49.4	$7.3
Normal Cost Rate (with expenses)	13.68%	14.40%	0.72%
UAAL Contribution Rate	13.07%	9.42%	(3.65%)
Total Contribution Rate	26.75%	23.82%	(2.93%)
Employee Contribution Rate	(5.00%)	(5.00%)	0.00%
Employer Contribution Rate	21.75%	18.82%	(2.93%)
Employer Contribution ($M)	$6.1	$5.2	($0.9)

Please note that the unfunded actuarial liability and the contribution rates under SB 215/HB 418 shown in the above tables were developed using a different set of actuarial assumptions. Any direct comparison of the results under SB 215/HB 418 to those of the current plan will reflect the net impact of both the plan changes and the assumption changes.

In preparing the above projections, the City is assumed to contribute the full Actuarial Required Contribution (ARC), which is the sum of the normal cost rate, the payment on the unfunded actuarial accrued liability and the expense load of 0.40%.

The projected valuation results shown in the tables above provide a reasonable estimate of the short term impact of SB 215/HB 418. However, the plan changes also include different benefit provisions for new hires which will unfold over time as current active members leave covered employment and are replaced by new employees who are covered by the new benefit structure (Tier II). The long term impact of the plan design for Tier II is not reflected in the results shown in the tables above.

The projections in the attached exhibits assume that all actuarial assumptions, including the applicable assumed investment return, are met in the future. To the extent the assumptions are not met in the future, the actuarial projections are expected to change. The projections are sensitive to the assumptions used, particularly the investment return assumption. Further analysis can be provided upon request if it is deemed to be necessary or helpful.

Disclaimers, Caveats, and Limitations

The results of this cost study are based on projections using the April 30, 2012 actuarial valuation and the actuarial assumptions used in the 2012 valuation, unless noted otherwise in this letter. Significant items are noted below:

- The investment return in all future years is assumed to be the assumed rate of return (either 7.75% or 7.5% depending on the set of assumptions being used) on a market value basis, unless otherwise indicated.
- All demographic assumptions regarding mortality, disability, retirement, salary increases, and termination of employment are assumed to hold true in the future.
- The number of active members covered by the System in the future is assumed to remain level (neither growth nor decline in the number of active members). As active members leave covered employment, they are assumed to be replaced by new employees who have a similar demographic profile as recent new hires.
- The actuarial assumptions and methods are as set out earlier in this letter.
- We relied upon the membership data provided by the System for the April 30, 2012 actuarial valuation. The numerical results depend on the integrity of this information. If there are material inaccuracies in the data, the results presented herein may be different and the projections may need to be revised.

The projected valuation results are based on the System's estimated financial status on April 30, 2012, and project future events using one set of assumptions out of a range of many reasonable possibilities. A different set of assumptions would lead to different results. The projections do not predict the System's financial condition or its ability to pay benefits in the future and do not provide any guarantee of future financial soundness of the System. Over time, a defined benefit plan's total cost will depend on a number of factors, including the amount of benefits paid, the number of people paid benefits, the duration of the benefit payments, plan expenses, and the amount of earnings on assets invested to pay benefits. These amounts and other variables are uncertain and unknowable at the time the projections were prepared. Because not all of the assumptions will unfold exactly as expected, actual results will differ from the projections. To the extent that actual experience deviates significantly from the assumptions, results could be significantly better or significantly worse than indicated in this study.

If any of the information disclosed in this letter is inaccurate, or in any way incomplete, it may impact the reliability of our results. If you have any concerns, please contact us immediately.

We, Patrice A. Beckham, FSA and Brent A. Banister, FSA, are consulting actuaries with Cavanaugh Macdonald Consulting, LLC. We are members of the American Academy of Actuaries, Fellows of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

If you have any questions or additional information is needed, please let us know. We are available to provide additional analysis or explanation.

Sincerely,

Patrice Beckham

Brent A. Banister

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

Brent A. Banister, PhD, FSA, EA, FCA, MAAA
Chief Pension Actuary

APPENDIX

Summary of Actuarial Assumptions and Methods

Actuarial Cost Method

The actuarial cost method is a procedure for allocating the actuarial present value of pension benefits and expenses to time periods. The method used for the valuation is known as the Entry Age Normal actuarial cost method, and has the following characteristics.

(i) The annual normal costs for each individual active member are sufficient to accumulate the value of the member's pension at time of retirement.

(ii) Each annual normal cost is a constant percentage of the member's year-by-year projected covered compensation.

The Entry Age Normal actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's assumed pensionable compensation rates between the entry age of the member and the assumed exit ages. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called actuarial accrued liability. Deducting actuarial assets from the actuarial accrued liability determines the unfunded actuarial accrued liability or (surplus).

Asset Valuation Method

Under the asset valuation method, the difference between the actual and assumed investment return on the market value of assets is recognized evenly over a five year period. No corridor is used with the new method. The change to a new asset smoothing method was implemented by resetting the actuarial value of assets at April 30, 2011 equal to the market value of assets.

Amortization of Unfunded Actuarial Accrued Liability

In the actuarial valuation, the difference in the actual and expected UAAL is set up as a separate base each year, which is amortized over a closed 24 year period. As a result, there are multiple amortization bases each with an amortization payment. The payments are calculated as a level percent of payroll, assuming future increases in covered payroll of 4.0% per year.

For projections for SB 215/HB 418, the UAAL was amortized over an open 30 year period with payments that are calculated as a level percent of payroll, assuming future increases in covered payroll of 4.0% per year.

Actuarial Assumptions – Police Retirement System

Investment return: **Current Plan:** 7.75% per year, compounded annually
SB 215/HB 418: 7.50% per year, compounded annually.

Pay increase assumption: Rates for sample years of service are shown below.

	Annual Rate of Pay Increase		
Years of Service	General Wage Growth	Merit and Longevity	Total
0	4.0%	5.75%	9.75%
1	4.0%	5.50%	9.50%
2	4.0%	4.50%	8.50%
3	4.0%	4.00%	8.00%
4	4.0%	4.00%	8.00%
5	4.0%	4.00%	8.00%
10	4.0%	3.50%	7.50%
15	4.0%	0.00%	4.00%
20	4.0%	0.00%	4.00%
25	4.0%	0.00%	4.00%

Price inflation: 3.0% per year, compounded annually.

Active member payroll growth: 4.0% per year, compounded annually.

Mortality Tables:

Healthy Retirees: RP-2000 Healthy Annuitant Table using Scale AA to model future mortality improvement.

Disabled Retirees: RP-2000 Healthy Annuitant Table set forward 5 years using Scale AA to model future mortality improvement.

Actives: RP-2000 Employee Table using Scale AA to model future mortality improvement.

Rates of termination from active membership:

	% of Active Members Terminating Within Next Year	
Sample Ages	Male	Female
25	5.8%	6.3%
30	3.8%	5.0%
35	2.4%	3.5%
40	1.6%	1.6%
45	1.1%	0.5%
50	0.6%	0.0%

The rates do not apply to members eligible to retire and do not include separation on account of death or disability. All vested members are assumed to leave their contribution with the System and receive a deferred benefit.

Rates of Disability:

Sample Ages	% of Active Members Becoming Disabled Within Next Year	
	Male	Female
30	0.062%	0.134%
35	0.312%	0.672%
40	0.416%	0.896%
45	0.437%	0.941%
50	0.759%	1.635%
55	1.456%	3.136%
60	2.579%	5.555%

55% of disabilities are assumed to be duty related

Rates of Retirement:

Active Members Retiring Within Next Year			
Current Plan		SB 215/HB 418	
Years of Service	Percent Retiring	Years of Service	Percent Retiring
25	25%	27	20%
26	25%	28	20%
27	25%	29	20%
28	25%	30	20%
29	25%	31	20%
30	35%	32	35%
31	55%	33	30%
32	100%	34	30%
		35	100%

Current Plan: Inactive vested members are assumed to retire at age 55.
SB 215/HB 418: Inactive vested members are assumed to retire at age 60 (Tier II).

Miscellaneous and Technical Assumptions

Marriage Assumption:	85% of males and 55% of females are assumed to be married for purposes of death-in-service benefits and death-after-retirement benefits. Males are assumed to be 3 years older than their spouses. Actual reported data is utilized for retirees and beneficiaries.
Pay Increase Timing:	Assumed to occur at the start of the fiscal year.
Pay Annualization:	Reported pays for members with less than 1 year of service were annualized for valuation purposes.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year at the start of the year in which the decrement is assumed to occur.
Benefit Service:	Service calculated to the nearest month, as of the decrement date, is used to determine the amount of benefit payable.
Child Beneficiaries:	None assumed.
Other:	Turnover decrement does not operate during retirement eligibility.
Form of Payment:	The assumed normal form of payment is an 80% joint and survivor annuity, if married (50% for those becoming members after August 28, 2013). Otherwise, a single life annuity.
Administrative Expense:	0.40% of payroll each year. Administrative expenses beyond this allocation and all investment expenses are assumed to be funded by investment return in excess of the actuarial assumed rate of return.
Cost of Living Adjustment:	Current Plan: It was assumed the Retirement Board will grant the full 3% cost of living adjustment each year. SB 215/HB 418: It was assumed the Retirement Board will grant a 2.5% cost of living adjustment each year.

Actuarial Assumptions –Civilian Employees' Retirement System

Investment return: **Current Plan:** 7.75% per year, compounded annually
SB 215/HB 418: 7.50% per year, compounded annually.

Pay increase assumption: Rates for sample years of service are shown below.

Years of Service	Annual Rate of Pay Increase General Wage Growth	Merit and Longevity	Total
0	4.0%	5.75%	9.75%
1	4.0%	4.75%	8.75%
2	4.0%	3.75%	7.75%
3	4.0%	2.75%	6.75%
4	4.0%	2.25%	6.25%
5	4.0%	2.10%	6.10%
10	4.0%	1.60%	5.60%
15	4.0%	1.00%	5.00%
20	4.0%	0.55%	4.55%
25	4.0%	0.25%	4.25%

Price inflation: 3.0% per year, compounded annually.

Active member payroll growth: 4.0% per year, compounded annually.

Mortality Tables:

Healthy Retirees: RP-2000 Healthy Annuitant Table with a one year age set forward using Scale AA to model future mortality improvement.

Disabled Retirees: RP-2000 Healthy Annuitant Table set forward 5 years using Scale AA to model future mortality improvement.

Actives: RP-2000 Employee Table using Scale AA with a one year age set forward to model future mortality improvement.

Rates of termination from active membership:

Years of Service	% of Active Members Separating Within Next Year Male	Female
0	25.0%	20.0%
1	20.0%	18.0%
2	15.0%	16.0%
3	12.0%	14.0%
4	11.0%	12.0%

Sample Ages	Years of Service	% of Active Members Separating Within Next Year Male	Female
25	5 & Over	8.0%	9.4%
30		7.0%	8.4%
35		6.0%	7.0%
40		4.0%	4.0%
45		1.5%	1.5%
50		0.5%	0.5%
55		0.0%	0.0%

The rates do not apply to members eligible to retire and do not include separation on account of death or disability.

Rates of Disability:

Sample Ages	% of Active Members Becoming Disabled Within Next Year
25	0.023%
30	0.030%
35	0.038%
40	0.053%
45	0.075%
50	0.135%
55	0.270%
60	0.675%
65	3.200%

It is assumed that 1/3 of disabilities will be duty related.

Rates of Electing Refund Upon Termination:

Sample Ages	% of Members Terminating From Active Membership Who Elect Refund
35	95%
40	75%
45	30%
50	0%

Rates of Retirement:
Current Plan

Age	Reduced	Unreduced
50		25%
51		20%
52		20%
53		15%
54		15%
55	5%	15%
56	5%	25%
57	5%	25%
58	5%	25%
59	5%	25%
60	5%	15%
61	10%	15%
62	35%	15%
63	5%	20%
64	5%	20%
65		35%
66		20%
67		20%
68		20%
69		20%
70 & Over		100%

Inactive vested members are assumed to retire at first unreduced retirement age.

Miscellaneous and Technical Assumptions

Marriage Assumption:	85% of males and 55% of females are assumed to be married for purposes of death-in-service benefits and death-after-retirement benefits. Males are assumed to be 3 years older than their spouses. Actual reported data is utilized for retirees and beneficiaries.
Pay Increase Timing:	Assumed to occur at the start of the fiscal year.
Pay Annualization:	Reported pays for members with less than 1 year of service were annualized for valuation purposes.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year at the start of the year in which the decrement is assumed to occur.
Benefit Service:	Service calculated to the nearest month, as of the decrement date, is used to determine the amount of benefit payable.
Other:	Turnover decrement does not operate during retirement eligibility.
Interest on Member Contributions:	None assumed.
Form of Payment:	The assumed normal form of payment is 50% joint and survivor annuity, if married. Otherwise, a single life annuity.
Administrative Expense:	0.40% of payroll each year. Administrative expenses beyond this allocation and all investment expenses are assumed to be funded by investment return in excess of the actuarial assumed rate of return.
Cost of Living Adjustment:	It was assumed the Retirement Board will grant the full 3% cost of living adjustment each year.