

November 15, 2013

#### VIA ELECTRONIC MAIL

Mr. Richard G. Boersma Executive Officer Firefighters' Retirement System City Hall, 2nd Floor 414 East 12th Street Kansas City, Missouri 64106

Re: Cost Statement Regarding Proposed Amendment to Firefighters' Pension System

Dear Mr. Boersma:

The purpose of this study is to provide a cost statement of a soon to be introduced ordinance, which would amend the City of Kansas City, Missouri Firefighters' Pension (the "System").

The following table summarizes the proposed changes:

Plan Provision	Current Employees	New Hires	
		Beginning 1/1/2014	
Benefit Multiplier	2.5%	2.5%	
Normal Retirement Eligibility	25 years	27 years	
COLA	3% simple	Ad Hoc COLA* payable at 27 <sup>th</sup> anniversary of date of hire	
Member Contribution Increase	1.00%	1.00%	

<sup>\*</sup> An ad-hoc COLA, payable if the prior year funding ratio is greater than or equal to 80%. The COLA will be equal to the consumer price index, up to a maximum of 2.50%.

Since the changes primarily affect new hires after January 1, 2014, the financial effects will gradually be recognized over a period of many years. Exhibit 1 shows projections of the Actuarial Accrued Liability and employer Normal Cost as a percent of active payroll over 30 years.

The following information is provided as of the May 1, 2013 valuation date in accordance with the requirements of the Missouri Statutes, Section 105.665.

(1) The level normal cost of plan benefits currently in effect for members as a percent of active employee payroll is 22.74%. Of this amount, 9.55% of compensation is paid by



- employees, so the total employer normal cost as a percent of active employee payroll is 13.19%.
- (2) The contribution for unfunded accrued liabilities currently payable by the plan as a percentage of active plan payroll is 14.54%. Amortizations of changes in unfunded liability are amortized as a level percent of pay over 30 years from each valuation date. The current average amortization period is 25.8 years.
- (3) The total employer contribution rate as a percent of active employee payroll is 27.73%.
- (4) The City of Kansas City does not currently make contributions for the full actuarially computed contribution. The current City contribution rate is 19.60%.
- (5) The proposed changes in the plan would immediately reduce the employer contribution rate by 1%, due to the additional contributions from plan members. Over the next 30 year period, the employer normal cost rate would be expected to be 3.27% lower than under the current plan, and the actuarial accrued liability would be expected to be \$58 million lower than under the current plan.
- (6) It is our understanding that future employer contributions to the System are not mandated by the proposed amendments.
- (7) We do not believe that the proposed amendments will impair the ability of the plan to meet the ongoing obligations.
- (8) The actuarial assumptions used for our calculations are included as Exhibit 2 to this statement.
- (9) We believe that the actuarial assumptions used for this cost statement produce results that are reasonable in the aggregate.
- (10) The actuarial funding method is described within Exhibit 2 to this statement.
- (11) The immediate decrease in the total annual contribution amount determined by multiplying the increase in the member contribution rate of 1% by the active employee payroll is \$0.6 million.

In preparing this cost estimate, we relied without audit, on the census data provided to us by the System. The calculations in this letter are based upon the assumptions, methods and plan provisions as used to produce the May 1, 2013 actuarial valuation of the Firefighters' Pension System, which are included in Exhibit 2 and Exhibit 3. We believe that the actuarial assumptions used for this cost estimate produce results that are reasonable in the aggregate for purposes of this estimate.

I hereby certify that, to the best of my knowledge, this letter and its contents, which are work products of Cheiron, Inc., have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as a credentialed actuary, I meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this letter. This letter does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.



Mr. Richard G. Boersma November 15, 2013

This letter was prepared solely for the City of Kansas City Employees' Retirement System for the purposes described herein, except that the plan auditor may rely on this report solely for the purpose of completing an audit related to the matters herein. Cheiron does not intend to benefit any other person who receives this report and assumes no duty or liability to such a person.

Sincerely, Cheiron

Stephen T. McElhaney, FCA, FSA Principal Consulting Actuary

**Exhibits** 

cc: Jacqui King



#### **EXHIBIT 1**

# City of Kansas City, Missouri Firefighters' Pension System Projection Based on April 30, 2013 Actuarial Valuation

Amounts in millions

	Current	Plan	Proposed Ar	nendment	Chang	je
		Employer	_	Employer		Employer
Valuation as of	Actuarial Accrued	Normal Cost	Actuarial Accrued	Normal Cost	Actuarial Accrued	Normal Cost
April 30,	Liability (AAL)	Rate	Liability (AAL)	Rate	Liability (AAL)	Rate
2013	\$ 548	13.19%	\$ 548	13.19%	\$ -	0.00%
2014	\$ 571	13.07%	\$ 571	12.02%	\$ 0	-1.05%
2015	\$ 596	13.07%	\$ 596	11.99%	\$ (0)	-1.08%
2016	\$ 623	13.07%	\$ 623	11.96%	\$ (0)	-1.11%
2017	\$ 651	13.08%	\$ 651	11.93%	\$ (0)	-1.15%
2018	\$ 680	13.09%	\$ 680	11.90%	\$ (0)	-1.19%
2019	\$ 711	13.10%	\$ 710	11.85%	\$ (0)	-1.25%
2020	\$ 742	13.13%	\$ 741	11.82%	\$ (1)	-1.31%
2021	\$ 775	13.17%	\$ 774	11.80%	\$ (1)	-1.37%
2022	\$ 808	13.23%	\$ 807	11.78%	\$ (1)	-1.45%
2023	\$ 841	13.29%	\$ 839	11.74%	\$ (2)	-1.55%
2024	\$ 875	13.32%	\$ 873	11.70%	\$ (2)	-1.62%
2025	\$ 911	13.37%	\$ 908	11.66%	\$ (3)	-1.71%
2026	\$ 947	13.40%	\$ 943	11.61%	\$ (4)	-1.79%
2027	\$ 984	13.44%	\$ 979	11.57%	\$ (5)	-1.87%
2028	\$ 1,022	13.50%	\$ 1,015	11.52%	\$ (6)	-1.98%
2029	\$ 1,059	13.55%	\$ 1,052	11.48%	\$ (7)	-2.07%
2030	\$ 1,098	13.59%	\$ 1,089	11.44%	\$ (9)	-2.15%
2031	\$ 1,138	13.64%	\$ 1,127	11.40%	\$ (11)	-2.24%
2032	\$ 1,180	13.65%	\$ 1,167	11.33%	\$ (13)	-2.32%
2033	\$ 1,222	13.67%	\$ 1,207	11.26%	\$ (15) \$ (18)	-2.41%
2034	\$ 1,265	13.71%	\$ 1,247	11.20%		-2.51%
2035	\$ 1,309	13.75%	\$ 1,288	11.14%	\$ (21)	-2.61%
2036	\$ 1,354	13.78%	\$ 1,330	11.08%	\$ (24)	-2.70%
2037	\$ 1,399	13.84%	\$ 1,372	11.01%	\$ (28)	-2.83%
2020		12.050/		10.050/		2.020/
2038	\$ 1,445	13.87%	\$ 1,413	10.95%	\$ (32)	-2.92%
2039	\$ 1,492	13.90%	\$ 1,456	10.88%	\$ (36)	-3.02%
2040	\$ 1,541 \$ 1,502	13.92%	\$ 1,500	10.82%	\$ (41)	-3.10%
2041	\$ 1,592 \$ 1,646	13.92% 13.92%	\$ 1,546 \$ 1,594	10.77% 10.71%	\$ (46) \$ (52)	-3.15% -3.21%
2042	\$ 1,646	13.92%	\$ 1,594	10./1%	φ (52)	-3.41%
2043	\$ 1,702	13.91%	\$ 1,644	10.64%	\$ (58)	-3.27%
2043	ψ 1,702	13.7170	φ 1,044	10.0470	Ψ (38)	-3.2170

Projections assume a constant population and no actuarial gains and losses



# EXHIBIT 2 ACTUARIAL ASSUMPTIONS AND METHODS

## A. Actuarial Assumptions

## 1. Mortality Rates

Healthy: RP-2000 Combined Mortality Table set forward one year for males and

females with 5% of deaths assumed to be Duty related.

The most recent experience study covering the period 2007-2011 showed that there was approximately a 10% margin in these rates to provide for future improvement in

mortality.

	Healthy Mortality		
	(sample rates)		
Age	Male	Female	
20	0.04%	0.02%	
25	0.04%	0.02%	
30	0.05%	0.03%	
35	0.08%	0.05%	
40	0.11%	0.08%	
45	0.16%	0.12%	
50	0.24%	0.19%	
55	0.42%	0.31%	
60	0.77%	0.58%	

Disabled: RP-2000 Combined Mortality Table set forward three years for males and

females.

The most recent experience study covering the period 2007-2011 showed that there were sufficient margins in these rates to provide for potential future improvement in mortality.

	Disabled Mortality		
	(sample rates)		
Age	Male	Female	
20	0.04%	0.02%	
25	0.04%	0.02%	
30	0.06%	0.04%	
35	0.10%	0.06%	
40	0.13%	0.09%	
45	0.19%	0.14%	
50	0.29%	0.22%	
55	0.53%	0.39%	
60	1.00%	0.76%	



# EXHIBIT 2 ACTUARIAL ASSUMPTIONS AND METHODS

# 2. Disability and Withdrawal Rates

Rates before Retirement (sample rates)			
Age	Disability*	<b>Withdrawal</b>	
20 - 24	0.01%	1.50%	
25 - 29	0.20%	1.50%	
30 - 34	0.20%	1.25%	
35 - 39	0.35%	0.50%	
40 - 44	0.75%	0.50%	
45 – 49	1.00%	0.50%	
50 - 54	2.00%	0.20%	
55 – 59	7.00%		
60 - 64	10.00%		
65 and up			

<sup>\*</sup> Disability rates are set to zero once 25 years of service is earned.

# 3. Percentage of Disability Retirements that are Duty Related

Disability Retirement Rates (Duty Related)			
Age	Annual Rate (%)		
20 - 24	95.0%		
25 - 29	95.0		
30 - 34	95.0		
35 - 39	95.0		
40 - 44	80.0		
45 - 49	80.0		
50 - 54	80.0		
55 – 59	80.0		
60 and up	80.0		



# EXHIBIT 2 ACTUARIAL ASSUMPTIONS AND METHODS

# 4. Retirement Rates for Active Employees

Rates of Active Employees		
Years of Service	Rate (%)	
25	5.00%	
26	5.00	
27	5.00	
28	5.00	
29	10.00	
30	15.00	
31	35.00	
32	35.00	
33	35.00	
34	35.00	
35 years, or age 65 if earlier	100.00	

## 5. Retirement Age for Inactive Vested Members

50

# 6. Unknown Data for Members

Same as those exhibited by members with similar known characteristics

#### 7. Percent Married

85% of active participants

# 8. Age of Spouse

Females three years younger than males

# 9. Eligible Children

None

#### 10. Net Investment Return

7.75% net of investment fees and administrative expenses, including inflation at 2.50%



# EXHIBIT 2 ACTUARIAL ASSUMPTIONS AND METHODS

# 11. Salary Increase

Total Wage Growth: 3.00%, including inflation at 2.50%. Total assumed salary increase including step and promotional increases are based upon age and shown in the table below.

Age	<b>Rate</b> (%)
Less than 25	8.0%
25 - 29	8.0%
30 - 34	6.0%
35 - 39	5.0%
40 - 44	4.0%
45 – 49	3.5%
50 - 54	3.5%
55 – 59	3.5%
60 - 64	3.5%
65 and up	3.0%

## 12. Change in Assumptions

None



# EXHIBIT 2 ACTUARIAL ASSUMPTIONS AND METHODS

#### **B.** Actuarial Methods

#### 1. Funding Method

Entry Age Normal Actuarial Cost Method: Entry age is the age at the time the participant commenced employment. Normal cost and actuarial liability are calculated on an individual basis and are allocated by salary, with normal cost determined as if the current benefit accrual rate had always been in effect.

#### 2. Actuarial Value of Assets

A preliminary actuarial value of assets is calculated as the sum of the beginning of the year actuarial value of assets, the net new money and the expected return on an actuarial basis. The gains and losses over the last 4 years are recognized over the next 5-year period. The gain or loss of each year is the excess of market value of assets over the preliminary value of assets, minus the sum of the unrecognized gains and losses from each of the 4 years. Finally, an adjustment is made so that the final actuarial value of assets is at least 80% but no more than 120% of the market value.

#### 3. Amortization of Unfunded Actuarial Liability/(Surplus)

30-year layered amortization method – level percent of pay. Under the layered approach, the May 1, 2008 unfunded actuarial liability is written down over a 30-year period and all future changes to the unfunded actuarial liability establish new 30-year amortization periods. Payroll is expected to increase 3.0% per year.

#### 4. Changes in Methods

None



## **EXHIBIT 3 SUMMARY OF PLAN PROVISIONS** TIER 1

#### 1. Plan Year

May 1 through April 30

### 2. Membership

All Firefighters hire prior to January 1, 2014 become members as a condition of employment. Membership begins on the first day of employment.

#### 3. Creditable Service

Total creditable service is defined as the sum of the service as a Firefighter after becoming a member after July 1, 1953, plus any service earned prior to July 1, 1953, if continuous.

#### 4. Contributions

Pension System: Members contribute 9.55% of base salary. Effective January 1,

2014, the member contribution is 10.55%. The City currently

contributes 19.6% of payroll.

Interest on Employee 3.0% per year.

Contributions:

Health Insurance

Subsidy:

Effective January 1, 2001, the City contribution is 2% of base

salary and the employee contribution is 1% of base salary.

Contributions and benefits for the Health Insurance Subsidy are separately accounted for under the Plan. The assets, liabilities, contributions, and benefits of the Health Insurance Subsidy are

excluded from this valuation.

#### 5. Normal Retirement

Eligibility requirements: 25 years of service.

Amount: The base pension is 2.5% of average final compensation per year of

> creditable service to a maximum of 80%. Average final compensation is defined as the average of the two highest years of base compensation in the last ten years. The minimum retirement

benefit is \$600 per month.



## EXHIBIT 3 SUMMARY OF PLAN PROVISIONS TIER 1

## 6. Duty Disability Benefit

Age Requirement: None.

Service Requirement: None.

Amount: The pension is 62.5% of average final compensation at disability

with a minimum 62.5% of the current maximum salary payable to the rank of a firefighter. The current maximum monthly salary as

of May 1, 2013 is \$5,886.

## 7. Non-duty Disability

Age Requirement: Less than 65.

Service Requirement: 10 years of service.

Amount: The pension is 25% of the average final compensation plus 2.5% of

average final compensation per year of creditable service in excess of 10 years, not to exceed 80% of average final compensation, with

a minimum of \$600 per month.

#### 8. Vesting

Age Requirement: None.

Service Requirement: 10 years of service.

Amount: 2.5% of average final compensation per year of creditable service,

not to exceed 62.5% of average final compensation, payable at age

50.

If the employee dies in a deferred status, before age 50, the beneficiary receives a lump-sum equal to member contributions with interest. If such death occurs after age 50, the widow and children receive the same benefits as for pre-retirement non-duty death, but reduced by the ratio of the member's service to 25 years.

## 9. Withdrawal (Refund) Benefits

Age Requirement: None.

Service Requirement: Less than 10 years of creditable service.



## EXHIBIT 3 SUMMARY OF PLAN PROVISIONS TIER 1

Amount: If an employee terminates before becoming eligible for a

deferred pension, he or she receives a return of member contributions with interest. This benefit is reduced by a service charge of 10%, 8%, 6%, 4% or 2% if employee withdraws with less than one year, two years, three years, four years, or five

years of employment respectively.

## 10. Pre-Retirement Duty Death Benefits

Age Requirement: None.

Service Requirement: None.

Funeral Benefit A lump-sum payment of \$2,000.

Surviving Spouse

Benefit: of the average final compensation for a period of ten years.

The surviving spouse's benefit for spouses of active firefighters eligible for a service pension is 100% of the regular pension reduced for the election of optional 100% joint and survivor coverage. The minimum benefit is \$275 per

100% of the accrued pension is paid with a minimum of 62.5%

month.

Child's Benefit: If there is no surviving spouse or the spouse dies or remarries,

the spouse's benefit is divided equally to the children and paid until age 18 (or 21 if a student). If a surviving spouse exists, \$100 per month is paid until age 18 (or age 21 if a student).

Return of Contribution:

A return of accumulated contributions is guaranteed. If there is no surviving spouse or dependent children, or if the spouse remarries, the accumulated contributions or the unpaid balance thereof shall be paid to the City or to a named beneficiary.

#### 11. Pre-Retirement Non-duty Death Benefits

Age Requirement: None.

Service Requirement: None.

Funeral Benefit: A lump-sum payment of \$2,000.

Surviving Spouse

Benefit:

50% of the accrued pension is paid with a minimum of 25% of average final compensation payable for the life of the surviving spouse. The surviving spouse's benefit for active



## EXHIBIT 3 SUMMARY OF PLAN PROVISIONS TIER 1

firefighters eligible for a service pension is 100% of the regular pension, reduced for the election of optional 100% joint and survivor coverage. The minimum benefit is \$275 per month.

Child's Benefit: If no surviving spouse or the spouse dies, the spouse's benefit

is divided equally to the children and paid until age 18 (or 21 if a student). If a surviving spouse exists, \$100 per month is

paid until age 18 (or 21 if a student).

Return of A return of accumulated contributions is guaranteed. If there Contributions: is no surviving spouse or dependent children, or if the

surviving spouse is no longer eligible to receive payments because of remarriage, the accumulated contributions or the unpaid balance thereof shall be paid to the City or to a named

beneficiary.

#### 12. Post-Retirement Death Benefit

Age Requirement: None.

Service Requirement: None.

Amount: If married, pension benefits are paid in the form of a Joint and

50% Survivor annuity or in any other available optional form elected by the member and spouse in an actuarially equivalent amount, not less than 25% of the retiree's final average compensation per month. The minimum benefit is \$275. Payments equal to the amount of the member's accumulated contribution are guaranteed. In addition, a lump-sum funeral

benefit of \$2,000 is paid.

## 13. Cost-of-Living Adjustment (COLA)

A maximum increase of 3% of the original pension (prior to election of option) will be made annually. This does not apply to funeral benefits. Members must retire on or before January 1<sup>st</sup>, in order to receive a COLA in the next year.

## 14. Changes since Last Valuation

The member contribution rate will increase by 1.00% effective January 1, 2014.



## **EXHIBIT 3 SUMMARY OF PLAN PROVISIONS** TIER 2

#### 1. Plan Year

May 1 through April 30

### 2. Membership

All Firefighters hired on or after January 1, 2014 become members as a condition of employment. Membership begins on the first day of employment.

#### 3. Creditable Service

Total creditable service is defined as the sum of the service as a Firefighter after becoming a member after July 1, 1953, plus any service earned prior to July 1, 1953, if continuous.

#### 4. Contributions

Pension System: Members contribute 10.55% of base salary. The City currently

contributes 19.6% of payroll.

Interest on Employee

Contributions:

3.0% per year.

Health Insurance

Subsidy:

Effective January 1, 2001, the City contribution is 2% of base

salary and the employee contribution is 1% of base salary.

Contributions and benefits for the Health Insurance Subsidy are separately accounted for under the Plan. The assets, liabilities, contributions, and benefits of the Health Insurance Subsidy are

excluded from this valuation.

#### 5. Normal Retirement

Eligibility requirements: 27 years of service.

The base pension is 2.5% of average final compensation per year of Amount:

creditable service to a maximum of 80%. Average final compensation is defined as the average of the two highest years of base compensation in the last ten years. The minimum retirement

benefit is \$600 per month.



## EXHIBIT 3 SUMMARY OF PLAN PROVISIONS TIER 2

## 6. Duty Disability Benefit

Age Requirement: None.

Service Requirement: None.

Amount: The pension is 62.5% of average final compensation at disability

with a minimum 62.5% of the current maximum salary payable to the rank of a firefighter. The current maximum monthly salary as

of May 1, 2013 is \$5,886.

## 7. Non-duty Disability

Age Requirement: Less than 65.

Service Requirement: 10 years of service.

Amount: The pension is 25% of the average final compensation plus 2.5% of

average final compensation per year of creditable service in excess of 10 years, not to exceed 80% of average final compensation, with

a minimum of \$600 per month.

#### 8. Vesting

Age Requirement: None.

Service Requirement: 10 years of service.

Amount: 2.5% of average final compensation per year of creditable service,

not to exceed 62.5% of average final compensation, payable at age

50.

If the employee dies in a deferred status, before age 50, the beneficiary receives a lump-sum equal to member contributions with interest. If such death occurs after age 50, the widow and children receive the same benefits as for pre-retirement non-duty death, but reduced by the ratio of the member's service to 25 years.

#### 9. Withdrawal (Refund) Benefits

Age Requirement: None.

Service Requirement: Less than 10 years of creditable service.



## EXHIBIT 3 SUMMARY OF PLAN PROVISIONS TIER 2

Amount: If an employee terminates before becoming eligible for a

deferred pension, he or she receives a return of member contributions with interest. This benefit is reduced by a service charge of 10%, 8%, 6%, 4% or 2% if employee withdraws with less than one year, two years, three years, four years, or five

years of employment respectively.

## 10. Pre-Retirement Duty Death Benefits

Age Requirement: None.

Service Requirement: None.

Funeral Benefit A lump-sum payment of \$2,000.

**Surviving Spouse** 

Benefit:

100% of the accrued pension is paid with a minimum of 62.5% of the average final compensation for a period of ten years. The surviving spouse's benefit for spouses of active firefighters eligible for a service pension is 100% of the regular pension reduced for the election of optional 100% joint and survivor coverage. The minimum benefit is \$275 per

month.

Child's Benefit: If there is no surviving spouse or the spouse dies or remarries,

the spouse's benefit is divided equally to the children and paid until age 18 (or 21 if a student). If a surviving spouse exists, \$100 per month is paid until age 18 (or age 21 if a student).

Return of Contribution:

A return of accumulated contributions is guaranteed. If there is no surviving spouse or dependent children, or if the spouse remarries, the accumulated contributions or the unpaid balance thereof shall be paid to the City or to a named beneficiary.

#### 11. Pre-Retirement Non-duty Death Benefits

Age Requirement: None.

Service Requirement: None.

Funeral Benefit: A lump-sum payment of \$2,000.

Surviving Spouse

Benefit:

50% of the accrued pension is paid with a minimum of 25% of average final compensation payable for the life of the surviving spouse. The surviving spouse's benefit for active



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surviving spouse is no longer eligible to receive payments because of remarriage, the accumulated contributions or the unpaid balance thereof shall be paid to the City or to a named

beneficiary.

#### 12. Post-Retirement Death Benefit

Age Requirement: None.

Service Requirement: None.

Amount: If married, pension benefits are paid in the form of a Joint and

50% Survivor annuity or in any other available optional form elected by the member and spouse in an actuarially equivalent amount, not less than 25% of the retiree's final average compensation per month. The minimum benefit is \$275. Payments equal to the amount of the member's accumulated contribution are guaranteed. In addition, a lump-sum funeral

benefit of \$2,000 is paid.

### 13. Cost-of-Living Adjustment (COLA)

COLA will only be payable if the prior year's funding ratio is greater than or equal to 80% and will be equal to the percentage increase in the consumer price index, up to a maximum of 2.50%, payable when an employee has, or would have, reached 27 years of service. This does not apply to funeral benefits. Members must retire on or before January 1<sup>st</sup>, in order to receive a COLA in the next year.

## 14. Changes since Last Valuation

N/A

