City of Ferguson, Missouri

Actuarial Review and Analysis of City Pension Plan as of July 1, 2009

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Summary of Results

Introduction

This Report presents the results of an actuarial review and analysis of the City of Ferguson Pension Plan (the Plan) as of July 1, 2009. The purposes of this review are:

- To compute the annual contribution required in order to fund the Plan in accordance with actuarial principles, and
- To determine the funding ratio of the Plan, and
- To present those items required for disclosure under Statement No. 25 of the Governmental Accounting Standards Board (GASB 25).

Computations

	7/1/2008	7/1/2009
Fully Projected Actuarial Liability	$22.6 M	$23.1 M
Actuarial Accrued Liability	18.6 M	19.2 M
Actuarial Value of Assets	21.6 M	20.5 M
Funding Ratio	116%	107%
Unfunded Actuarial Accrued Liability (UAAL)	($3.0) M	($1.3) M
Amortization of UAAL (% of Pay)	(5.81%)	(2.48%)
Normal Cost (% of Pay)	7.53%	7.63%
Total Contribution Rate (% Pay)	1.72%	5.15%
Projected Payroll	$6.3 M	$6.2 M
Total Contribution for following Fiscal Year	$107,526	$317,969

Contribution Rates

The employer contribution rate increased from 1.72% of payroll as of July 1, 2008 to 5.15% of payroll a year later. The reasons for this change can be broken down as follows:

Change in Contribution Rate	Rate	Amount
Contribution rate as of 7/1/2008	1.72%	$ 107,526
Change due to:		
Investment Experience	3.50%	210,175
Demographic and Salary Experience	(0.15)%	(13,248)
New Plan Entrants	0.08%	13,516
Total Change	3.43%	210,443
Contribution rate as of 7/1/2009	5.15%	$317,969

The primary reasons for changes in the employer contribution rate since July 1, 2008 are summarized below:

- Investment Experience

  During the year ended June 30, 2009; the return on the market value of Plan assets was -15%, over a 20% loss versus the assumed 7.5% return. On an actuarial basis – recognizing gains/losses from prior years and deferring part of the fiscal 2009 losses – the return was (0.8%), representing an actuarial loss compared to the assumed actuarial return of 7.5%. The effect of this loss was an increase in the contribution rate of 3.5% of payroll.

- Demographic Experience

  This refers to the movement of employees from the prior year. As part of an actuarial valuation, assumptions are made regarding employee termination, death, disability, and retirement rates. Future increases in member pay are also projected. When actual experience during the year differs from assumed levels, actuarial gains or losses occur that affect the employer contribution rate.

  Overall, the demographic experience – including data corrections – was slightly favorable, causing the contribution rate to decrease by .15% active payroll.

- New Entrants

  Each year, as employees leave active service, they are replaced by new entrants, thereby increasing the total covered payroll and the cost of the Plan. The addition of 5 new entrants increased the contribution rate by 0.08%, or about $14,000.

The combination of all experience increased the cost of the Plan by 3.43% of active member payroll.

Conclusion

Currently, the UAAL amortization serves as a partial offset to the Plan's normal cost, since the funding ratio remains above 100%, on an actuarial basis. If all investment losses were recognized immediately, the funding ratio would be near 90%, and the contribution rate would be approximately 12% of pay (about $0.7 million for fiscal 2011). Contributions are expected to increase over the next few years as investment losses from 2009 are gradually recognized according to the plan's five year asset smoothing method.

The nature of funding pension benefits is such that there will be gains and losses each year due to demographic, salary, and investment experience, causing contributions to fluctuate. These gains and losses are expected to balance out over the long term; however, actuarial assumptions should be reviewed every few years, through an actuarial experience study, to validate their reasonability and to mitigate the chances of a consistent pattern of gains or losses.

This statement has been prepared in accordance with generally accepted actuarial principles and practices.

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Section 1:

Summary of Plan Provisions, Member Statistics, and Actuarial Assumptions

1.1: Brief Outline of Plan Provisions

Definitions

Credited Service

Service is defined as a period of continuous, uninterrupted employment as an employee of the City of Ferguson. Credited Service begins on the first day of the month coincident with or following the date of hire, and is counted in years and completed months.

Normal Retirement Date

The Normal Retirement Date is the first day of the month coincident with or following the completion of eight years of Credited Service, provided the participant is at least 60 years old

Average Monthly Compensation

The highest average of the monthly compensation received during 60 consecutive months which are part of the last 96 months of service.

Funding

There are no employee contributions. The City contributes the amount necessary to fund any remaining cost over the future lifetime of current participants.

Participation

All regular, full time uniformed and non-uniformed employees are covered under the Plan.

Retirement Benefit

Eligibility

A Plan participant may retire at his or her Normal Retirement Date or upon completion of eight years of Credited Service and after age 55. Retirement before the Normal Retirement Date is reduced by one-quarter of one percent for each month that the retirement date precedes the Normal Retirement Date. The participant may also retire without a reduced benefit after his or her 55th birthday, provided the sum of his or her age plus Credited Service is equal to at least 82½.

Benefit Amount

The benefit is equal to one and three-fourths of a percent of Average Monthly Compensation for each year of Credited Service.

Form of Benefit

The benefit begins at retirement and continues for the Participant's life. Alternate optional forms which provide either a continuance benefit or a guaranteed certain period are also available. A reduction in benefit is applied for alternate forms.

Termination Benefit

An employee who has completed at least eight years of service is entitled to receive a monthly benefit calculated in accordance with the Retirement Benefit formula beginning at his or her Normal Retirement Date.

Disability Retirement

Eligibility

Total and permanent disability as deemed by the Board.

Benefit Amount

The monthly benefit, payable for the lifetime of the participant, is determined in accordance with Retirement Benefit provisions, and is payable immediately. In no event may the monthly amount be lower than $450.

Death Benefits

Retirement Eligible

If a participant dies while in active service and eligible for retirement, his beneficiary shall receive a benefit determined as an actuarial equivalent of the benefit as if the participant had actually retired on the date before their death. The benefit will be paid for 120 months.

Not Retirement Eligible

If a participant dies while in active service and vested but not eligible for retirement, his beneficiary shall receive 120 monthly payments equal to the amount of benefit accrued to the date of death, with no reduction for early retirement.

Supplemental Benefit

Upon retirement before Medicare Eligibility, the participant will receive a monthly supplement equal to $5 for each year of service (up to 30 years). The benefit is payable until the retiree is eligible for Medicare.

Changes in Benefit Provisions since Prior Valuation

There have been no changes in benefits since the prior valuation.

1.2: Participant Data

Active Participants	July 1, 2008	July 1, 2009
Number Active	132	131
Average Age	42.7	43.1
Average Service	11.1	11.7
Average Pay	$45,539	$45,318

Inactive Participants	July 1, 2008	July 1, 2009
Number of Retired Participants	61	65
Average Age	69.6	70.3
Average Monthly Benefit	$973	$961
Number of Disabled Participants	8	8
Average Age	63.6	64.6
Average Monthly Benefit	$798	$798
Number of Terminated Vested Participants	23	18
Average Age	55.4	55.1
Average Monthly Benefit	$592	$635
Number of Beneficiaries	9	10
Average Age	64.2	64.2
Average Monthly Benefit	$563	$863

Summary of Active Participants

Number of Participants	Years of Service								
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	Total
20-24	8								**8**
25-29	8	4							**12**
30-34	12	6	1						**19**
35-39	7	6	6	3					**22**
40-44		2	6	3					**11**
45-49		3	4	3	5				**15**
50-54	1	4	3	2	2	1	5		**18**
55-59	2	4	1		2		4	1	**14**
60-64	2	2	2			3		2	**11**
65+			1						**1**
Total	**40**	**31**	**24**	**11**	**9**	**4**	**9**	**3**	**131**

Summary of Active Participant Pay

Average Pay	Years of Service								
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	Total
20-24	33,935								**33,935**
25-29	32,411	38,964							**34,595**
30-34	37,661	40,059	46,821						**38,901**
35-39	35,979	39,419	47,580	54,922					**42,664**
40-44		36,379	46,207	51,164					**45,772**
45-49		49,553	41,304	51,678	51,770				**48,517**
50-54	29,474	38,657	48,020	46,205	54,174	55,370	69,658		**51,810**
55-59	54,995	40,893	40,872		63,232		67,184	56,708	**54,453**
60-64	50,565	48,599	34,850			54,015			**49,772**
65+			98,675						**98,675**
Total	**36,879**	**40,953**	**47,003**	**51,427**	**54,851**	**54,354**	**68,559**	**56,708**	**45,318**

Changes in Plan Membership

	Active	Terminated Vested	Retired	Disabled	Surviving Beneficiaries	Total
Members on July 1, 2008	132	23	61	8	9	**233**
New Hires	5	-	-	-	-	**5**
Disabilities	-	-	-	-	-	**0**
Retirements/ New Beneficiaries	(1)	(5)	6	-	2	**2**
Terminations with Vested Benefits	-	-	-	-	-	**0**
Died or Terminated without a Vested Benefit	(3)	-	(3)	-	(1)	**(7)**
Benefits Expired	-	-	-	-	-	**0**
Data Corrections	(2)	-	1	-	-	**(1)**
Members on July 1, 2009	**131**	**18**	**65**	**8**	**10**	**232**

1.3: Actuarial Methods and Assumptions

Actuarial Method

Annual contributions to the Plan are computed under the Entry Age Normal Actuarial cost method.

Under this cost method, the annual employer contribution is computed as follows:

Normal Cost

- The benefit obligation for all future benefits payable under the Plan to current participants is computed. This is called the Fully Projected Liability (or Present Value of Future Benefits).
- Entry age is established based on the dates provided in the data from the City.
- A portion of the Fully Projected Liability is assigned for each participant to estimate prior Entry Age Normal costs, based on assumed past earnings The sum of these portions is called the Actuarial Accrued Liability.
- The excess of the total Fully Projected Liability over the Actuarial Accrued Liability is divided by the present value of future pay to determine the Normal Cost as a percentage of pay. The percentage for each individual is multiplied by their respective pay. The sum of these is the Employer Normal Cost.
- The Employer Normal Cost is divided by the total payroll to determine the Employer Normal Cost Rate as a percentage of payroll.

Amortization Cost

- The value of assets used in the valuation (Actuarial Value of Assets) is subtracted from the Actuarial Accrued Liability, producing the Unfunded Actuarial Accrued Liability.
- The Unfunded Actuarial Accrued Liability is amortized as a level percentage of pay (assuming 4% per year growth in total payroll) over an open period of 10 years. The payment for a given year is the Amortization Cost Rate, and is expressed as a percentage of projected active member payroll for that year.
- Amortizations of future gains and losses can be tracked individually and amortized over different periods.

The sum of the Employer Normal Cost Rate and the Amortization Cost Rate is the total employer contribution rate. The Plan's actuarial cost for a given fiscal year is determined by multiplying the projected payroll for that year, generally the fiscal year beginning one year after the valuation date, by the contribution rate.

Actuarial Value of Plan Assets

The actuarial value of Plan assets (AVA) is based on a five year smoothed market value. The AVA for a given year is defined as the expected actuarial value, plus 20% of the difference between the actual market value and the expected actuarial value. The AVA cannot be less than 80% or more than 120% of the market value of assets.

Changes in Assumptions since Prior Valuation

There have been no changes in actuarial assumptions since the prior valuation.

Actuarial Assumptions

Valuation Date	All assets and liabilities are computed as of July 1, 2009.
Rate of Return	The annual rate of return on all Plan assets is assumed to be 7.50%, net of all investment and administrative expenses.
Increases in Pay	Salary levels are assumed to increase by 4.0% per year, due to inflation.
Active, Retired, and Disabled Mortality	Rates of mortality for active and retired Participants are given by the 1983 Group Annuity Mortality Tables for males and females published by the Society of Actuaries. For deaths while employed, it is assumed that all members will have an eligible beneficiary.
Service Retirement	25% of participants are assumed to retire when first eligible. Rates for other ages are based on the following:

Age	Rate
55-61	0.05
62	0.75
63-64	0.20
65+	1.00

Disability

Rates of disability for Participants are given by the Period 2, Benefit 4 rates in the 1952 disability study. Representative rates are as follows:

Age	Rate
20	0.0105
30	0.0012
40	0.0020
50	0.0046
60+	0.000

Termination

Rates of termination for all Participants from causes other than death, disability, and service retirement are based on the Participant's age, and are applied when not eligible for retirement. Representative rates are as follows:

Age	Rate
20	0.0658
30	0.0483
40	0.0384
50	0.0153
60	0.0150

Participant Data

Data on active and inactive Participants as of July 1, 2009 was updated by City staff. Participant data was reviewed for reasonableness and consistency but was neither verified nor audited.

Section 2:

Asset Information

2.1: Statement of Net Plan Assets

	June 30, 2008	June 30, 2009
Assets		
Interest Receivable	50,194	63,436
Investments		
Common Stock	11,828,182	8,737,927
Fixed Income Securities	7,920,442	7,977,855
Cash and Equivalents	1,207,277	295,253
Total Assets	21,006,095	17,074,471
Liabilities		
Accounts Payable	0	0
Accrued Expenses	0	0
Total Liabilities	0	0
Net Assets Available For Benefits	**21,006,095**	**17,074,471**

2.2: Statement of Changes in Net Plan Assets for Year Ending June 30, 2009

	Market Value	Expected Actuarial Value	Actuarial Value
Beginning of Plan Year	21,006,095	21,600,485	21,600,485
Contributions			
Employer Contributions	35,496	35,496	35,496
Employee Contributions	0	0	0
Total Contributions	35,496	35,496	35,496
Investment Income			
Interest and Dividends	524,525	N/A	N/A
Appreciation/(Depreciation) in Market Value	(2,740,118)	N/A	N/A
Other Investment Income	13,692	N/A	N/A
Realized Gains/(Losses)	(787,837)	N/A	N/A
Total Investment Income	(2,989,738)	1,583,828	(169,234)
Disbursements			
Benefit Payments	(911,429)	N/A	N/A
Other Payments	0	N/A	N/A
Expenses	(65,953)	N/A	N/A
Total Disbursements	(977,382)	(977,382)	(977,382)
End of Plan Year	17,074,471	22,242,427	20,489,365
Approximate Rate of Return	(14.56%)	7.50%	(0.80%)

Section 3:

Actuarial Computations

3.1: Computation of Employer Contribution Rate

		With Expected Assets	With Actual Assets	With New Entrants
	Present Value of Future Benefits			
	Active Members	14,027,505	14,027,505	14,166,630
	Beneficiaries of Deceased Members	779,951	779,951	779,951
	Disabled Members	752,768	752,768	752,768
	Retired Members	6,482,033	6,482,033	6,482,033
	Terminated Vested Members	942,891	942,891	942,891
(1)	Total Present Value of Future Benefits	22,985,148	22,985,148	23,124,274
(2)	Actuarial Accrued Liability (AAL)	19,200,043	19,200,043	19,215,789
(3)	Actuarial Value of Plan Assets (AVA)	22,242,427	20,489,365	20,489,365
(4)	Unfunded Actuarial Accrued Liability (UAAL) (2) – (3)	(3,042,384)	(1,289,322)	(1,273,576)
(5)	Amortization of UAL	(351,513)	(148,967)	(147,147)
(6)	Normal Cost	441,964	441,964	453,107
(7)	**Employer Contribution Rate as a Percentage of Payroll (not < 0%) [(5) + (6)] ÷ (8)**	**1.57%**	**5.07%**	**5.15%**
(8)	Total Payroll	5,774,026	5,774,026	5,936,682
(9)	Projected Payroll	6,004,987	6,004,987	6,174,150
(10)	**Contribution for FY 2010 (7) × (9)**	**94,278**	**304,453**	**317,969**

3.2: Change in Present Value of Accumulated Benefits

Present Value of Accumulated Benefits as of 7/1/2008		16,275,706
Change from:		
New Accruals	358,888	
Interest	1,213,416	
Changes in Assumptions	-	
Plan Amendments	-	
(Gain)/Loss	(114,411)	
Benefits Paid	(911,429)	
Total Change in Present Value		546,464
Present Value of Accumulated Benefits as of 7/1/2009		16,822,170

Section 4:

Disclosure Information Required Under GASB 25

Schedule of Employer Contributions

Year Ended (6/30)	Annual Required Contribution	Percentage Contributed
1999	$ 0	100%
2000	0	100%
2001	0	100%
2002	0	100%
2003	0	100%
2004	0	100%
2005	0	100%
2006	0	100%
2007	0	100%
2008	7,075	100%
2009	35,496	100%

Schedule of Funding Status

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	Unfunded Liability as a Percent of Payroll
7/1/2006	$20,277,743	$16,810,351	($3,467,392)	121%	$5,668,903	(61%)
7/1/2007	$21,097,686	$17,605,559	($3,492,127)	120%	$5,688,280	(61%)
7/1/2008	$21,600,485	$18,575,389	($3,025,096)	116%	$6,011,092	(50%)
7/1/2009	$20,489,365	$19,215,789	($1,273,576)	107%	$5,936,682	(21%)