City of Ferguson
Pension Plan

Actuarial Funding Valuation

as of July 1, 2014 (for Fiscal Year 2016 Contribution)

February, 2015

BOOMERSHINE CONSULTING GROUP, L.L.C.
ACTUARIAL & RETIREMENT PLAN SOLUTIONS

February 3, 2015

Mayor James Knowles III
& City Council
City of Ferguson
110 Church Street
Ferguson, MO 63135

Re: City of Ferguson Pension Plan Actuarial Valuation as of July 1, 2014

Mr. Mayor and Members of the Council:

The following report presents the results of the Actuarial Valuation of City of Ferguson Pension Plan (''the Plan'') as of July 1, 2014 and sets forth the recommended contribution for fiscal year 2016 (as of July, 2015), according to the City's funding policy. The report is based on participant data as of July 1, 2014 as submitted by the City. Investment data was provided by the City for the fiscal year ended June 30, 2014. We have relied on this information without auditing it.

INVESTMENT PERFORMANCE

The market value of Plan assets for the year ended June 30, 2014 is $24,501,867. The actuarial value of assets, reflecting smoothing of past gains and losses as of June 30, 2014 is $22,739,652. The investment return for the Plan year ending June 30, 2014 was 17.83% on a market value basis and 6.55% on an actuarial basis.

The Plan uses a smoothing method to determine Plan costs. Under this method, asset gains or losses are spread over a 5-year period. The gains and losses are determined every year by comparing actual investment returns with expected asset performance. Details of the development of the Actuarial Asset value is shown on page 9.

FUNDING RECOMMENDATION

The total required contribution for fiscal year 2016 is $547,950, which represents 7.8% of total expected payroll. This is a slight increase over last year's computed contribution.

FUNDED STATUS

The Actuarial Accrued Liability of the Plan as of July 1, 2014 is $22,609,469 compared to the Actuarial Value of Assets of $22,739,652, resulting in a funded ratio of 100.6%. On a market value basis (disregarding asset smoothing), this ratio is 108.4%

PLAN CHANGES AND ASSUMPTION CHANGES

There were no changes in benefits or actuarial assumptions for this valuation. The only recommended change is a technical revision to the asset smoothing method to align the Plan with best practices.

This report has been prepared in accordance with generally accepted actuarial principles and practices. In the opinion of the City and its actuaries, the actuarial assumptions used are reasonably related to Plan experience and expectations, and represent the best estimate of anticipated Plan experience.

The first undersigned is a member of the American Academy of Actuaries, and is qualified to render the actuarial opinions presented in this report.

Respectfully Submitted,

BOOMERSHINE CONSULTING GROUP, L.L.C.

Gregory M. Stump, FSA, EA, MAAA, FCA

Darlene A. Morgan, CEBS

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1. Executive Summary

The information in the table below represents a high level summary of the valuation results, shown in comparison to the most recent study (one year prior), as well as the relative changes during the year.

Funding Progress	7/1/2013	7/1/2014	*Increase/(Decrease)*
Actuarial Accrued Liability ($ million)	$ 22.1	$22.6	*2.5%*
Plan Asset Value ($ million)			
Market Value	21.4	24.5	*14.4%*
Actuarial (smoothed) Value	22.0	22.7	*3.4%*
Ratio			
Market Value	97%	108%	
Actuarial (smoothed) Value	100%	101%	
Plan Contributions			
Normal Cost	491,664	525,226	*6.8%*
Amortization of Unfunded	5,248	(15,505)	*-395.4%*
Interest for Contribution Timing	37,269	38,229	*2.6%*
Net Employer Contribution	534,181	547,950	*2.6%*
Percentage of Pay	7.9%	7.8%	
Plan Membership			
Active Members	132	134	*1.5%*
Inactive Members	115	118	*2.6%*
Total Plan Membership	247	252	*2.0%*

From the above, we can see that the Plan's asset value increased by about $0.7 million (Actuarial Value), and the Actuarial Liability increased by a similar amount ($0.5 million). This serves to maintain the contribution at a relatively steady level for another year. The table below shows the primary factors influencing this change.

	Employer Contribution
Prior Valuation	$534,181
Change due to:	
Expected Increase/(Decrease)	(13,882)
Investment Experience	(37,908)
Demographic/Salary Experience	(53,833)
New Entrants	45,394
Plan Changes	-
Method Change (Asset smoothing)	73,998
Assumption Changes	-
Total Change	$13,769
Current Valuation	$547,950

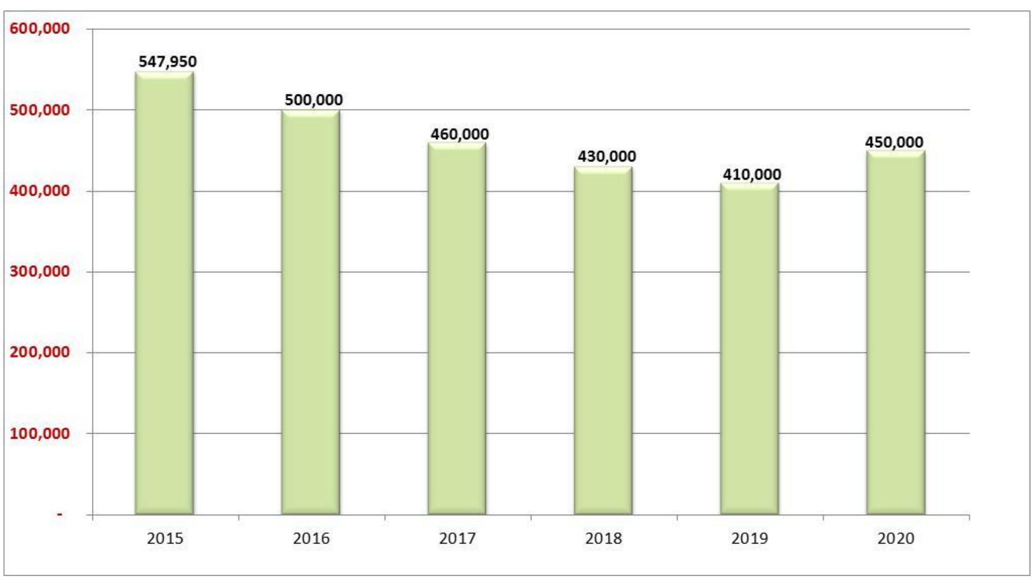
FUNDING and CONTRIBUTIONS: PAST and FUTURE TRENDS

The funding of the Plan, as measured by the Actuarial Value of Assets divided by the Actuarial Accrued Liability (AVA/AAL), over the past 7 years has remained close to or above 100%. Over this time period, the Unfunded Actuarial Accrued Liability (UAAL) has increased from ($3.5) million to its current level of ($708,126). Each of these is shown in the graph below.

History of Plan Funding

The graph below shows that the City contribution is expected to decrease over the next few years, as recent investment gains are recognized. During this time, the Plan's funding ratio is expected to remain close to 100% as well. This scenario is based on no gains or losses from any source, which is impossible. Therefore, the actual contributions will differ from what is shown below. The unrecognized gains will still provide downward pressure on contributions nonetheless.

Projection of City Contributions



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2. Plan Asset Information

Asset Statements

	Year Ending	Year Ending
	June 30, 2013	June 30, 2014
Market Value of Assets as of the Beginning of the Year	19,829,144	21,412,846
Employer Contributions	489,851	524,100
Interest and Dividends	534,201	609,455
Realized Gains/(Losses)	1,079,285	2,054,860
Market Appreciation/(Depreciation)	673,684	1,124,345
Benefit Payments	(1,174,409)	(1,161,198)
Expenses	(50,454)	(71,848)
Market Value as of End of Plan Year prior to Accruals	21,381,302	24,492,560
Net Accrued	31,544	9,306
Market Value as of End of Plan Year	21,412,846	24,501,867

Asset Mix	**June 30, 2013**		**June 30, 2014**	
Equity Securities and Funds	14,976,578	70%	15,455,392	63%
Fixed Income Securities and Funds	6,114,890	29%	7,978,212	33%
Other Assets	0	0%	430,330	2%
Cash and Equivalents	289,834	1%	598,821	2%
Total Invested Assets	21,381,302	100%	24,462,755	100%
Net Accrued	31,544		39,111	
Net Assets	21,412,846		24,501,867	

Actuarial Value of Assets

The Actuarial Value of Assets is determined by recognizing one-fifth of each year's investment gain or loss. The gain or loss was determined as the amount by which the actual market value differs from the expected market value of assets[1].

The actuarial value is limited to not more than 120% and not less than 80% of the market value of assets.

		July 1, 2014
1.	Market Value of Assets as of Beginning of Year	21,412,846
2.	Contributions	524,100
3.	Benefit Payments and Expenses	(1,233,046)
4.	Expected Return at 7.50%	1,595,198
5.	Expected Market Value as of End of Plan Year	22,299,098
	[Line 1 + Line 2 + Line 3 + Line 4]	
6.	Actual Market Value as of End of Plan Year	24,501,867
7.	Asset Gain/(Loss) for Plan Year[Line 6 - Line 5]	2,202,769
8.	Amount of Gain/(Loss) to defer [80% of Line 7]	1,762,215
9.	Actuarial Value of Assets as of End of Plan Year	22,739,652
	[Line 6 - Line 8; not less than 80% or more	
	than 120% of the Market Value of Assets]	
10.	Actuarial Value as % of Market Value of Assets	92.8%
11.	Estimated Rate of Return on Actuarial Value of Assets	6.55%

[1] For the prior valuation, the gain or loss was determined as the amount by which the actual market value differs from the expected ***actuarial*** value of assets.

3. Participant Summary

	July 1, 2013	July 1, 2014
Active Participants		
Number of Participants	132	134
Average Age	43.0	43.3
Average Years of Service from hire	11.7	11.9
Total Compensation	6,517,439	6,772,763
Average Compensation	49,375	50,543
Retired Participants		
Number of Participants	70	72
Average Age	71.3	71.3
Total Annual Benefit	940,260	909,527
Average Annual Benefit	13,432	12,632
Disabled Retired Participants		
Number of Participants	10	10
Average Age	66.1	67.1
Total Annual Benefit	119,535	119,535
Average Annual Benefit	11,953	11,953
Beneficiaries		
Number of Participants	12	13
Average Age	75.6	77.3
Total Annual Benefit	121,430	141,696
Average Annual Benefit	10,119	10,900
Terminated Deferred Vested Participants		
Number of Participants	23	23
Average Age	53.9	52.7
Total Annual Benefit	188,248	207,045
Average Annual Benefit	8,185	9,002

PARTICIPANT RECONCILIATION

	Active	Retired	Disabled Retirees	Beneficiary	Deferred Terminated Vested	Total
as of July 1, 2013	132	70	10	12	23	247
New Participants	14	-	-	-	-	14
Rehires	-	-	-	-	-	-
Terminated Vested	(3)	-	-	-	3	-
Nonvested	(6)	-	-	-	-	(6)
Retired	(3)	6	-	-	(3)	-
Disabled Retiree	-	-	-	-	-	-
Deceased - w/Benef	-	(1)	-	1	-	-
Deceased - No Benef	-	(2)	-	-	-	(2)
Certain Period Compl.	-	-	-	-	-	-
Data Adjustments*	-	(1)	-	-	-	(1)
as of June 30, 2014	134	72	10	13	23	252

*(comment from City Finance Office) Cannot locate the retiree. Payments have stopped.

DISTRIBUTION OF ACTIVE PARTICIPANTS BY AGE AND SERVICE AS OF JULY 1, 2014

	Years of Service							
Age	<5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total
<20	-	-	-	-	-	-	-	-
20 - 24	5	-	-	-	-	-	-	5
25 - 29	10	4	-	-	-	-	-	14
30 - 34	10	5	3	-	-	-	-	18
35 - 39	8	6	5	2	-	-	-	21
40 - 44	6	4	5	3	3	-	-	21
45 - 49	3	-	1	6	2	-	-	12
50 - 54	2	-	1	2	3	5	-	13
55 - 59	4	1	3	1	2	2	5	18
60 - 64	1	2	1	2	-	2	4	12
>64	-	-	-	-	-	-	-	-
Total	49	22	19	16	10	9	9	134

4. Valuation Summary

Development of Unfunded Actuarial Accrued Liability

		7/1/2013	7/1/2014
1.	Number of Participants		
	Active	132	134
	Retired and Beneficiaries	82	85
	Disabled Retired	10	10
	Terminated Deferred Vested	23	23
	Total	247	252
2.	Active compensation		
	Actual as of current date	6,517,439	6,772,763
	Projected for the following plan year	6,729,256	6,992,878
3.	Actuarial Accrued Liability (AAL)		
	Active	11,188,857	11,997,823
	Retired and Beneficiaries	8,558,424	8,327,270
	Disabled Retired	1,158,583	1,132,813
	Terminated Deferred Vested	1,153,777	1,151,563
	Total	22,059,641	22,609,469
4.	Actuarial Value of Assets (AVA)	22,015,577	22,739,652
5.	Unfunded Actuarial Accrued Liability (UAAL)	44,064	(130,183)

Development of Actuarial Gain/Loss

1.		Expected Actuarial Accrued Liability	
	(a)	Actuarial Accrued Liability as of July 1, 2013	22,059,641
	(b)	Normal Cost as of July 1, 2013	491,664
	(c)	Interest on (a) and (b) to June 30, 2014	1,691,348
	(d)	Actual benefit payments for the prior plan year	(1,161,198)
	(e)	Interest on (d) to June 30, 2014	(42,758)
	(f)	Expected Actuarial Accrued Liability as of July 1, 2014	23,038,697
		[(a) + (b) +(c) + (d) + (e)]	
2.		Actual Actuarial Accrued Liability as of July 1, 2014	22,609,469
3.		Gain/(Loss) on Actuarial Accrued Liability [Line 1(f) - Line 2]	429,228
4.		Expected Actuarial Value of Assets	
	(a)	Actuarial Value of Assets as of July 1, 2013	22,015,577
	(b)	Expected Return on (a) to June 30, 2014	1,651,168
	(c)	City contributions made for year ending June 30, 2014	524,100
	(d)	Interest on (c) to June 30, 2014	34,638
	(e)	Actual benefit payments and expenses for the prior plan year	(1,233,046)
	(f)	Expected Return on (e) to June 30, 2014	(45,403)
	(g)	Expected Actuarial Value of Assets as of July 1, 2014	22,947,034
		[(a) + (b) + (c) + (d) + (e) + (f)]	
5.		Actual Actuarial Value of Assets as of July 1, 2014	22,739,652
6.		Gain/(Loss) on Actuarial Value of Assets [Line 5 - Line 4(g)]	(207,382)
7.		Total Actuarial Gain/(Loss) [Line 3 + Line 6]	221,846

Development of City Contribution

			July 1, 2013	July 1, 2014
1.	Present Value of Future Benefits			
		Active	15,893,179	16,972,634
		Retired and Beneficiaries	8,558,424	8,327,270
		Disabled	1,158,583	1,132,813
		Terminated Vested	1,153,777	1,151,563
		Total	26,763,963	27,584,280
2.	Actuarial Accrued Liability		22,059,641	22,609,469
3.	Actuarial Value of Assets		22,015,577	22,739,652
4.	Unfunded Actuarial Accrued Liability			
	[Line 2 - Line 3]		44,064	(130,183)
5.	Amortization of Unfunded Actuarial Accrued Liability,			
	beginning of Plan Year		5,248	(15,505)
6.	Normal Cost, beginning of Plan Year		491,664	525,226
7.	Total Contribution, beginning of Plan Year			
	[Line 5 + Line 6]		496,912	509,721
8.	Total Contribution, end of Plan Year			
	[Line 28 plus 7.50% interest]		534,181	547,950
9.	Projected Payroll		6,729,256	6,992,878
10.	Total Contribution as a % of Payroll		7.94%	7.84%
	[Line 8 / Line 9]			

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Present Value of Accrued Benefits

			7/1/2013	7/1/2014
1.	Present Value of Vested Benefits			
		Active	$7,281,971	$7,928,916
		Retired and Beneficiaries	8,558,424	8,327,270
		Disabled Retired	1,158,583	1,132,813
		Terminated Deferred Vested	1,153,777	1,151,563
		Total	18,152,755	18,540,562
2.	Present Value of Nonvested Benefits		521,888	626,842
3.	Total Present Value of Accrued Benefits		18,674,643	19,167,404
4.	Market Value of Assets		21,412,846	24,501,867
5.	Unfunded Value of Accrued Benefits		(2,738,203)	(5,334,463)
6.	Funded Ratio [(4) / (3)]		114.66%	127.83%

CHANGE IN PRESENT VALUE OF ACCRUED BENEFITS			
Present Value of Accrued Benefits as of July 1, 2013			18,674,643
Change from:			
	New Accruals	491,664	
	Interest	1,394,715	
	Changes in Assumptions	0	
	Plan Amendments	0	
	(Gain)/Loss	(232,420)	
	Benefits Paid	(1,161,198)	
Total Change in Present Value			492,761
Present Value of Accrued Benefits as of July 1, 2014			19,167,404

The figures above were determined using the same assumptions as were used to compute the Actuarial Accrued Liability; however, the actuarial cost method used was the Unit Credit method. Only benefits accrued prior to the valuation date are taken into account under this cost method.

5. Actuarial Assumptions and Methods

Actuarial Cost Method:

The Entry Age Normal Actuarial Cost Method was used for this study. The contribution equals the Normal Cost plus the amount needed to amortize the Unfunded Actuarial Accrued Liability over a rolling ten year period, as a level percentage of payroll. The Normal Cost is the level annual payment that would be required to fund the Plan if paid from the date each employee became eligible to participate to the date of exit. The Actuarial Accrued Liability is the accumulated value of the Normal Cost for each employee from date of participation to the present. The Unfunded Actuarial Accrued Liability is the Actuarial Accrued Liability minus the Plan Value of Assets. Actuarial gains and losses reduce or increase the Unfunded Actuarial Accrued Liability.

All actuarial liabilities were computed as of July 1, 2014. An experience study was conducted in 2011 to establish the demographic assumptions outlined below.

Actuarial Assumptions:

Assumed Investment Return: 7.50% per year, net of expenses.

Salary Increases: 3.25% per year, plus a service-based merit increase, as follows:

Years of Service	Addt'l Increase
0 - 4	3.5%
5 - 9	2.5%
10 - 14	2.0%
15 - 19	1.0%
20+	0.0%

Mortality: Rates of mortality for active and retired Participants are given by the Retired Pensioners (RP) 2000 Mortality Tables for males and females published by the Society of Actuaries. No explicit assumption has been made for future generational improvements because the actual number of deaths from the last experience study was more than expected, implying an implicit margin for future improvement. For deaths while employed, it is assumed that all members will have an eligible beneficiary.

Disability Rates: 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	Assumed Rate
20	1.05%
30	0.12%
40	0.20%
50	0.46%
60+	0.00%

Termination Rates: Rates vary by service as follows:

Years Service	Assumed Rate
0 – 4	11%
5 - 8	7%
9+	1%

Terminated vested members are assumed to begin collecting benefits at age 60.

Retirement Rates: Rates of retirement are based on the Participant's age as follows:

Age	Assumed Rate
55 - 59	10%
60 - 64	20%
65 - 69	50%
70+	100%

Assumed Form of Payment: Single Life Annuity

Changes in assumptions and methods since the prior valuation:
There have been no changes in actuarial assumptions since the prior valuation. There was a technical change in the asset smoothing method, to define the investment gain or loss based on expected market value. Previously it was based on expected actuarial value.

6. Highlights 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. Unreduced benefits are also available at age 55 if the sum of the member's age and service is at least 82½.

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 Benefits:

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 Benefits:
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 Benefits:

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.

There have been no changes in Plan provisions since the prior valuation.

Glossary of Terms

Actuarial Accrued Liability (AAL):	The portion of benefits deemed to be accrued by participants based on past service. The AAL serves as the asset **funding** target, when annual contributions are determined.
Actuarial Value of Assets (AVA):	The smoothed value of assets, used to compute the Unfunded AAL. The purpose of the AVA is to control volatility in annual **cash contributions**.
Amortization of Unfunded Liability:	The portion of the **annual cash contribution** that represents a portion of the Unfunded AAL. The amortization can be positive or negative.
Actuarially Determined Employer Contribution (ADEC):	The contribution determined by the actuary for **funding purposes**.
Funded Ratio	The ratio of Plan assets to Actuarial liability.
Market Value of Assets (MVA):	The total value of Plan assets available to pay benefits.
Normal Cost:	That portion of the annual contribution that represents one year's accrual of benefits. In funding calculations, this is known as the Normal Cost.
Unfunded Actuarial Accrued Liability:	The difference between the Actuarial Value of Assets and the Actuarial Accrued Liability, used for **funding purposes**.