# City of Ferguson
# Pension Plan

## Actuarial Funding Valuation

**as of July 1, 2017 (for Fiscal Year 2019 Contribution)**

December 2017

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

December 29, 2017

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, 2017**

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, 2017 and sets forth the recommended contribution for fiscal year 2019 (as of July, 2018), according to the City's funding policy. The report is based on participant data as of July 1, 2017 as submitted by the City. Investment data was provided by the City for the fiscal year ended June 30, 2017. We have relied on this information without auditing it.

**INVESTMENT PERFORMANCE**

The market value of Plan assets for the year ended June 30, 2017 is $25,837,448. The actuarial value of assets, reflecting smoothing of past gains and losses as of June 30, 2017 is $25,867,832. The investment return for the Plan year ending June 30, 2017 was 11.67% on a market value basis and 7.96% 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 are shown on page 8.

**FUNDING RECOMMENDATION**

The total required contribution for fiscal year 2019 is $335,853, which represents 5.54% of total expected payroll.

**FUNDED STATUS**

The Actuarial Accrued Liability of the Plan as of July 1, 2017 is $24,472,740 compared to the Actuarial Value of Assets of $25,867,832, resulting in a funded ratio of 105.7%. On a market value basis (disregarding asset smoothing), this ratio is 105.6%.

**PLAN CHANGES AND ASSUMPTION CHANGES**

There were no changes in benefits or assumptions for this valuation.

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

Erika Richardson

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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** | 7/1/2016 | 7/1/2017 | *Increase/(Decrease)* |
|---|---|---|---|
| Actuarial Accrued Liability ($ million) | $ 23.6 | $24.5 | *3.6%* |
| Plan Asset Value ($ million) | | | |
| Market Value | 24.2 | 25.8 | *6.8%* |
| Actuarial (smoothed) Value | 25.0 | 25.9 | *3.3%* |
| Ratio | | | |
| Market Value | 102% | 106% | |
| Actuarial (smoothed) Value | 106% | 106% | |
| | | | |
| **Plan Contributions** | | | |
| Normal Cost | $ 445,882 | $ 478,580 | *7.3%* |
| Amortization of Unfunded Liability | (170,249) | (166,159) | *-2.4%* |
| Interest for Contribution Timing | 20,672 | 23,432 | *13.4%* |
| Net Employer Contribution | $ 296,305 | $ 335,853 | *13.3%* |
| *Percentage of Pay** | 5.2% | 5.5% | |
| | | | |
| **Plan Membership** | | | |
| Active Members | 108 | 109 | *0.9%* |
| Inactive Members | 134 | 138 | *3.0%* |
| Total Plan Membership | 242 | 247 | *2.1%* |

* To satisfy the actuarial contribution requirement, the percentage of pay cost can be applied to actual payroll, rather than contributing the estimated amount shown above.

Since last year, the Plan's investment experience was favorable, but with asset smoothing only a portion of the gain was recognized. This resulted in a slight increase in the Actuarial Value of Assets. This served to increase the City's actuarial contribution rate. The table below shows the factors influencing this change.

| | Employer Contribution | % of Payroll |
|---|---|---|
| Prior Valuation | $296,305 | 5.2% |
| Change due to: | | |
| Expected Increase/(Decrease) | 11,663 | 0.0% |
| Investment Experience | (20,591) | (0.3%) |
| Demographic/Salary Experience | (13,745) | 0.1% |
| New Entrants | 62,221 | 0.5% |
| Plan Changes | N/A | N/A |
| Assumption Changes | N/A | N/A |
| Total Change | $39,548 | 0.3% |
| Current Valuation | $335,853 | 5.5% |


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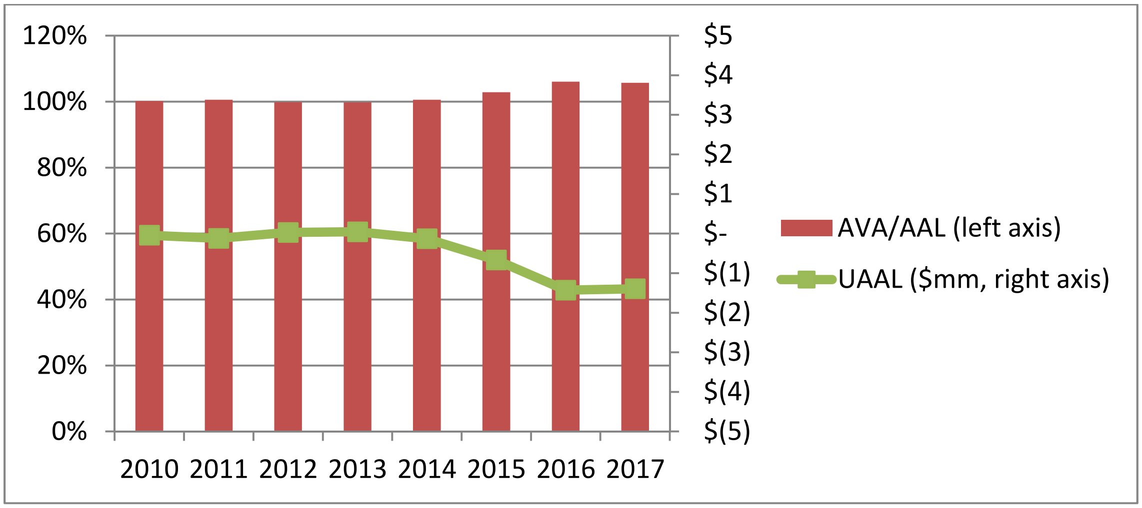
**FUNDING and CONTRIBUTIONS: PAST and FUTURE TRENDS**

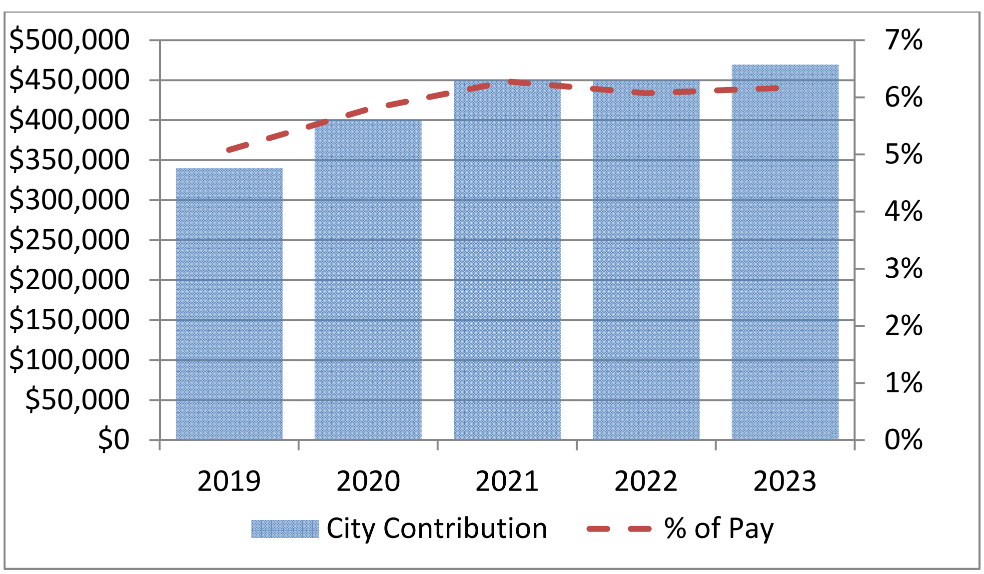
The funding of the Plan, as measured by the Actuarial Value of Assets divided by the Actuarial Accrued Liability (AVA/AAL), over the past 8 years has remained close to or above 100%. Over this time period, the Unfunded Actuarial Accrued Liability (UAAL) has remained close to or below $0. Each of these is shown in the graph below.

**History of Plan Funding**




The graph below shows that the City contribution is expected to increase over the next few years, as funding decreases from the current level towards 100%. Because the amortization is rolling, the ratio is expected to remain above 100%. This exact 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 percentage of pay cost is expected to gradually approach the normal cost rate of about 8%.

**Projection of City Contributions**



## 2. Plan Asset Information

### Asset Statements

| | Year Ending June 30, 2016 | Year Ending June 30, 2017 |
|---|---|---|
| Market Value of Assets as of the Beginning of the Year | $ 24,912,059 | $ 24,201,059 |
| Employer Contributions | 547,500 | 398,610 |
| Interest and Dividends | 576,878 | 532,282 |
| Realized Gains/(Losses) | 771,242 | 987,902 |
| Market Appreciation/(Depreciation) | (1,186,332) | 1,256,450 |
| Benefit Payments | (1,322,238) | (1,448,216) |
| Expenses | (84,728) | (83,462) |
| Market Value as of End of Plan Year prior to Accruals | $ 24,214,381 | $ 25,844,625 |
| Net Accrued | (13,322) | (7,177) |
| Market Value as of End of Plan Year | $ 24,201,059 | $ 25,837,448 |

| ***Asset Mix ($000)*** | **June 30, 2016** | | **June 30, 2017** | |
|---|---|---|---|---|
| Equity Securities and Funds | 15,453 | 64% | 17,159 | 67% |
| Fixed Income Securities and Funds | 8,200 | 33% | 7,792 | 30% |
| Other Assets | 510 | 2% | 479 | 2% |
| Cash and Equivalents | 227 | 1% | 377 | 1% |
| Total Invested Assets | 24,390 | 100% | 25,807 | 100% |
| Net Accrued, Payables | (189) | | 30 | |
| Net Assets | 24,201 | | 25,837 | |

## 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.

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

| | | | | | July 1, 2017 |
|---|---|---|---|---|---|
| **1.** | Market Value of Assets as of Beginning of Year | | | | $ 24,201,059 |
| **2.** | Contributions | | | | 398,610 |
| **3.** | Benefit Payments and Expenses | | | | (1,531,678) |
| **4.** | Expected Return at 7.50% | | | | 1,778,755 |
| **5.** | Expected Market Value as of End of Plan Year | | | | $ 24,846,746 |
| | [Line 1 + Line 2 + Line 3 + Line 4] | | | | |
| | | | | | |
| **6.** | Actual Market Value as of End of Plan Year | | | | 25,837,448 |
| **7.** | Asset Gain/(Loss) for Plan Year[Line 6 - Line 5] | | | | 990,702 |
| | | | | | |
| **8.** | Market Value of Assets at End of Plan Year | | | | 25,837,448 |
| | | | | | |
| **9.** | Less: 80% of 2017 Gain/(Loss) | 80% of | 990,702 | 792,562 | |
| | Less: 60% of 2016 Gain/(Loss) | 60% of | (1,704,085) | (1,022,451) | |
| | Less: 40% of 2015 Gain/(Loss) | 40% of | (602,622) | (241,049) | |
| | Less: 20% of 2014 Gain/(Loss) | 20% of | 2,202,769 | 440,554 | |
| | Total | | | | (30,384) |
| | | | | | |
| **10.** | Actuarial Value of Assets as of End of Plan Year | | | | $ 25,867,832 |
| | [Line 8 - Line 9; not less than 80% or more | | | | |
| | than 120% of the Market Value of Assets] | | | | |
| | | | | | |
| **10.** | Actuarial Value as % of Market Value of Assets | | | | 100.1% |
| **11.** | Estimated Rate of Return on Actuarial Value of Assets | | | | 7.96% |

## 3. Participant Summary

| | July 1, 2016 | July 1, 2017 |
|---|---|---|
| | | |
| Active Participants | | |
| Number of Participants | 108 | 109 |
| Average Age | 45.5 | 46.5 |
| Average Years of Service from hire | 12.2 | 11.6 |
| Total Compensation | $ 5,503,871 | $ 5,870,884 |
| Average Compensation | 50,962 | 53,861 |
| | | |
| Retired Participants | | |
| Number of Participants | 76 | 78 |
| Average Age | 71.8 | 71.6 |
| Total Annual Benefit* | $ 1,163,319 | $ 1,228,579 |
| Average Annual Benefit* | 15,307 | 15,751 |
| | | |
| Disabled Retired Participants | | |
| Number of Participants | 9 | 9 |
| Average Age | 68.3 | 69.3 |
| Total Annual Benefit | $ 103,688 | $ 102,607 |
| Average Annual Benefit | 11,521 | 11,401 |
| | | |
| Beneficiaries | | |
| Number of Participants | 12 | 11 |
| Average Age | 79.2 | 79.1 |
| Total Annual Benefit | $ 134,427 | $ 130,695 |
| Average Annual Benefit | 11,202 | 11,881 |
| | | |
| Terminated Deferred Vested Participants | | |
| Number of Participants | 37 | 40 |
| Average Age | 48.2 | 47.7 |
| Total Annual Benefit* | $ 359,502 | $ 398,033 |
| Average Annual Benefit* | 9,716 | 9,951 |

*Includes temporary supplemental benefits.

## PARTICIPANT RECONCILIATION

| | Active | Retired | Disabled Retirees | Beneficiary | Deferred Terminated Vested | Total |
|---|---|---|---|---|---|---|
| **as of July 1, 2016** | 108 | 76 | 9 | 12 | 37 | 242 |
| New Participants | 14 | - | - | - | - | 14 |
| Rehires | - | - | - | - | - | - |
| Terminated Vested | (5) | - | - | - | 5 | - |
| Non-vested | (10) | - | - | - | - | (10) |
| Retired | (2) | 4 | - | - | (2) | - |
| Disabled Retiree | - | - | - | - | - | - |
| Deceased – w/ Beneficiary | - | - | - | - | - | - |
| Deceased – No Beneficiary | - | (2) | - | (1) | - | (3) |
| Certain Period Complete | - | - | - | - | - | - |
| Data Adjustments* | 4 | - | - | - | - | 4 |
| **as of June 30, 2017** | 109 | 78 | 9 | 11 | 40 | 247 |

*Four participants were listed as terminated non-vested in the data last year but were actually still active.

## DISTRIBUTION OF ACTIVE PARTICIPANTS BY AGE AND SERVICE AS OF JULY 1, 2017

| | Years of Service | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | <5 | 5 - 9 | 10 - 14 | 15 - 19 | 20 - 24 | 25 - 29 | 30+ | Total |
| <20 | - | - | - | - | - | - | - | - |
| 20 - 24 | 2 | - | - | - | - | - | - | 2 |
| 25 - 29 | 5 | 3 | - | - | - | - | - | 8 |
| 30 - 34 | 3 | 5 | 1 | - | - | - | - | 9 |
| 35 - 39 | 4 | 3 | 3 | 1 | - | - | - | 11 |
| 40 - 44 | 10 | 2 | 4 | 1 | 1 | - | - | 18 |
| 45 - 49 | 7 | - | 3 | 4 | 4 | 1 | - | 19 |
| 50 - 54 | 5 | 1 | - | 2 | - | 5 | 1 | 14 |
| 55 - 59 | 3 | 2 | - | 2 | 2 | 3 | 3 | 15 |
| 60 - 64 | 4 | 1 | 1 | 2 | - | - | 3 | 11 |
| >64 | - | - | - | - | 1 | 1 | - | 2 |
| Total | 43 | 17 | 12 | 12 | 8 | 10 | 7 | 109 |

## 4. Valuation Summary

### Development of Unfunded Actuarial Accrued Liability

| | | 7/1/2016 | 7/1/2017 |
|---|---|---|---|
| **1.** | Number of Participants | | |
| | Active | 108 | 109 |
| | Retired and Beneficiaries | 88 | 89 |
| | Disabled Retired | 9 | 9 |
| | Terminated Deferred Vested | 37 | 40 |
| | Total | 242 | 247 |
| | | | |
| **2.** | Active compensation | | |
| | Actual as of current date | $ 5,503,871 | $ 5,870,884 |
| | Projected for the following plan year | 5,682,747 | 6,061,688 |
| | | | |
| **3.** | Actuarial Accrued Liability (AAL) | | |
| | Active | $ 10,037,894 | $ 10,399,393 |
| | Retired and Beneficiaries | 11,009,150 | 11,451,464 |
| | Disabled Retired | 860,387 | 842,156 |
| | Terminated Deferred Vested | 1,707,957 | 1,779,727 |
| | Total | $ 23,615,388 | $ 24,472,740 |
| | | | |
| **4.** | Actuarial Value of Assets (AVA) | 25,044,816 | 25,867,832 |
| | | | |
| **5.** | Unfunded Actuarial Accrued Liability (UAAL) | (1,429,428) | (1,395,092) |
| | | | |
| | Funding Ratio (AVA/AAL) | 106% | 106% |

## Development of Actuarial Gain/Loss

| | | | |
|---|---|---|---|
| 1. | | Expected Actuarial Accrued Liability | |
| | (a) | Actuarial Accrued Liability as of July 1, 2016 | $ 23,615,388 |
| | (b) | Normal Cost as of July 1, 2016 | 445,882 |
| | (c) | Interest on (a) and (b) to June 30, 2017 | 1,804,595 |
| | (d) | Actual benefit payments for the prior plan year | (1,448,216) |
| | (e) | Interest on (d) to June 30, 2017 | (53,326) |
| | (f) | Expected Actuarial Accrued Liability as of July 1, 2017 | $ 24,364,323 |
| | | [(a) + (b) +(c) + (d) + (e)] | |
| **2.** | | Actual Actuarial Accrued Liability as of July 1, 2017 | 24,472,740 |
| **3.** | | Gain/(Loss) on Actuarial Accrued Liability [Line 1(f) - Line 2] | (108,417) |
| **4.** | | Expected Actuarial Value of Assets | |
| | (a) | Actuarial Value of Assets as of July 1, 2016 | $ 25,044,816 |
| | (b) | Expected Return on (a) to June 30, 2017 | 1,878,361 |
| | (c) | City contributions made for year ending June 30, 2017 | 398,610 |
| | (d) | Interest on (c) to June 30, 2017 | 20,076 |
| | (e) | Actual benefit payments and expenses for the prior plan year | (1,531,678) |
| | (f) | Expected Return on (e) to June 30, 2017 | (56,400) |
| | (g) | Expected Actuarial Value of Assets as of July 1, 2017 | $ 25,753,785 |
| | | [(a) + (b) + (c) + (d) + (e) + (f)] | |
| **5.** | | Actual Actuarial Value of Assets as of July 1, 2017 | $ 25,867,832 |
| **6.** | | Gain/(Loss) on Actuarial Value of Assets [Line 5 - Line 4(g)] | 114,047 |
| **7.** | | Total Actuarial Gain/(Loss) [Line 3 + Line 6] | $ 5,630 |

## Development of Actuarially Determined City Contribution

| | | July 1, 2016 | July 1, 2017 |
|---|---|---|---|
| **1.** | Present Value of Future Benefits | | |
| | Active | $ 13,980,966 | $ 14,460,675 |
| | Retired and Beneficiaries | 11,009,150 | 11,451,464 |
| | Disabled | 860,387 | 842,156 |
| | Terminated Vested | 1,707,957 | 1,779,727 |
| | Total | $ 27,558,460 | $ 28,534,022 |
| **2.** | Actuarial Accrued Liability | 23,615,388 | 24,472,740 |
| **3.** | Actuarial Value of Assets | $ 25,044,816 | $ 25,867,832 |
| **4.** | Unfunded Actuarial Accrued Liability | (1,429,428) | (1,395,092) |
| | [Line 2 - Line 3] | | |
| **5.** | Amortization of Unfunded Actuarial Accrued Liability, | | |
| | beginning of Plan Year | (170,249) | (166,159) |
| **6.** | Normal Cost, beginning of Plan Year | 445,882 | 478,580 |
| **7.** | Total Contribution, beginning of Plan Year | $ 275,633 | $ 312,421 |
| | [Line 5 + Line 6] | | |
| **8.** | Total Contribution, end of Plan Year | **$ 296,305** | **$ 335,853** |
| | [Line 8 plus 7.50% interest] | | |
| **9.** | Projected Payroll | 5,682,747 | 6,061,688 |
| **10.** | Total Contribution Rate (% of Payroll) | 5.21% | 5.54% |
| | [Line 8 / Line 9] | | |

## Present Value of Accrued Benefits

| | | | 7/1/2016 | 7/1/2017 |
|---|---|---|---|---|
| **1.** | Present Value of Vested Benefits | | | |
| | | Active | $6,963,203 | $7,196,966 |
| | | Retired and Beneficiaries | 11,009,150 | 11,451,464 |
| | | Disabled Retired | 860,387 | 842,156 |
| | | Deferred Vested | 1,707,957 | 1,779,727 |
| | | Total | $ 20,540,697 | $ 21,270,313 |
| | | | | |
| **2.** | Present Value of Nonvested Benefits | | 453,879 | 537,333 |
| | | | | |
| **3.** | Total Present Value of Accrued Benefits | | 20,994,576 | 21,807,646 |
| | | | | |
| **4.** | Market Value of Assets | | 24,201,059 | 25,837,448 |
| | | | | |
| **5.** | Unfunded Value of Accrued Benefits | | (3,206,483) | (4,029,802) |
| | | | | |
| **6.** | Funded Ratio [(4) / (3)] | | 115.27% | 118.48% |

| CHANGE IN PRESENT VALUE OF ACCRUED BENEFITS | | | |
|---|---|---|---|
| | | | |
| Present Value of Accrued Benefits as of July 1, 2016 | | | $ 20,994,576 |
| | | | |
| Change from: | | | |
| | New Accruals | $ 515,964 | |
| | Interest | 1,559,964 | |
| | Changes in Assumptions | 0 | |
| | Plan Amendments | 0 | |
| | (Gain)/Loss | 185,358 | |
| | Benefits Paid | (1,448,216) | |
| Total Change in Present Value | | | $ 813,070 |
| Present Value of Accrued Benefits as of July 1, 2017 | | | $ 21,807,646 |

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, 2017. An experience study was conducted in 2011 to establish the demographic assumptions outlined below. The mortality assumption was reviewed and updated in 2015.

**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, with Blue Collar adjustments and projected to 2020 using Scale BB. For disabled members, the RP 2000 Disabled tables (male, female) were used.

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 | 0.11% |
| 30 | 0.12% |
| 40 | 0.20% |
| 50 | 0.46% |
| 60+ | 0.00% |

Termination Rates: Rates vary by service as follows:

| Years of 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.

## 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.

Benefit Change: If the participant has completed thirty or more years of Credited Service and is greater than the age of 55, then the benefit is equal to two percent of Average Monthly Compensation for each year of Credited Service until the participant reaches age 65. At that time, the benefit reverts 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**. |