



**ACUFF & ASSOCIATES**  
The Retirement Plan Authority

**A BETTER PLAN. A BETTER PARTNER. A BETTER RETIREMENT.**

# Actuarial Valuation Report As of January 1, 2017

*Prepared for*  
**DRAFT**

## CITY OF FRANKLIN EMPLOYEES' PENSION PLAN AND TRUST

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## Introduction

This report has been prepared for the City of Franklin (the "City") by Acuff & Associates, Inc. to:

1. Present the results of a valuation of the City of Franklin Employees' Pension Plan (the "Plan") for the plan year beginning January 1, 2017
2. Review the experience of the Plan for the period ended December 31, 2016
3. Provide the City with the recommended contribution under the Plan for the City's fiscal year beginning July 1, 2017
4. Provide reporting and disclosure information for government agencies and other interested parties

This report contains the results of four classifications, or tiers, of pension benefits for employees.

Tier one: Employees hired before July 1, 2006

Tier two: Employees hired between July 1, 2006 and February 15, 2010

Tier three: Employees hired after February 15, 2010 who elected to contribute to the Plan.

Tier four: Employees hired after February 15, 2010 who elected to contribute to a defined contribution plan. This valuation holds no liability for this group even though there is a possibility of joining the Plan at a later date.

Note: It appears that the contribution to the 401(a) defined contribution plan is sufficient to provide the expected benefit that could accrue for Tier Four employees under the provisions of the Plan.

This report is divided into the following three sections:

**Section 1** contains the actuarial results of the valuation. It includes the experience and reporting disclosure for the plan year ending December 31, 2016 and the current normal cost and expected contribution for the year beginning January 1, 2017.

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## Introduction (Continued)

**Section 1.4** shows the determination of the City's recommended contribution for the fiscal year beginning July 1, 2017 as summarized below.

	07/01/2017	4 Quarterly Contributions
Recommended Contribution	\$ 3,915,726	\$ 4,021,340
As a Percent of Expected Covered Payroll	12.70%	13.04%

**Section 1.5** provides GASB (Government Accounting Standards Board) Statement Number 67 Information.

**Section 2** summarizes the Plan's provisions, provides information relating to the Plan's participants, and describes the funding methods and actuarial assumptions used in determining actuarial liabilities and costs.

**Section 3** contains historical information and active participant demographic tables.

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## Executive Summary of Principal Valuation Results

A summary of the principal valuation results from the current valuation and last year's valuation follows:

Summary of Data	Actuarial Valuation as of	
	01/01/2017	01/01/2016
Number of Participants Included in Valuation		
Active Participants	556	564
Vested Terminated Participants	166	156
Disabled Participants	3	4
Retired Participants and Beneficiaries	183	170
Total	908	894
Expected Covered Payroll for Participants Included in the Valuation	\$ 30,832,419	\$ 30,410,847
<b>Summary of Actuarial Results</b>		
Present Value of Benefits	\$ 129,177,012	\$ 121,009,985
Actuarial Accrued Liability	\$ 117,949,394	\$ 108,425,076
Unfunded Actuarial Accrued Liability	\$ 24,636,951	\$ 21,592,665
Net Normal Cost - <i>9/25/17</i> <i>employee &amp; employer</i>	\$ 1,785,128	\$ 1,911,994
Normal Cost Rate	5.79%	6.29%
Recommended Contribution Paid Quarterly	\$ 4,021,340	\$ 3,888,628
As a Percent of Payroll	13.04%	12.79%
<b>Summary of Actuarial Value of Plan Assets and Actuarial Present Values</b>		
Actuarial Value of Plan Assets on the Valuation Date	\$ 93,312,443	\$ 86,832,411
Actuarial Present Value of Accumulated Plan Benefits	\$ 100,153,251	\$ 90,511,186
Funding Ratio	93.17%	95.94%

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## Section 1.1 – Assets

### Reconciliation of Assets

The following is a summary of the asset information as submitted by US Bank.

1.	Market Value of Trust Assets as of January 1, 2016	\$ 86,832,411
2.	Contributions and Disbursements	
a.	Employer Contributions	\$ 1,944,314
b.	Employee Contributions	548,163
c.	Benefit Payments	(4,238,026)
d.	Expenses	(171,371)
e.	Transferred	0
f.	Net	\$ (1,916,920)
3.	Investment Income	
a.	Interest/Dividends	\$ N/A
b.	Realized Gain/(Loss)	N/A
c.	Unrealized Gain/(Loss)	N/A
d.	Other Adjustments	N/A
e.	Net Investment Income/(Loss)	\$ 6,452,638
4.	Market Value of Trust Assets as of December 31, 2016	\$ 91,368,129
5.	Receivable Employer Contribution	1,944,314
6.	Other Recievables	0
7.	Actuarial Value of Assets as of December 31, 2016	\$ 93,312,443
	(4) + (5) + (6)	
8.	Rate of Return	7.51%
9.	Rate of Return Net of Expenses	7.31%



## Section 1.1 – (Continued)

### Reconciliation of Cash Balance Employee Contributions

	Mandatory	Voluntary	Rollover	Totals
1. As of 01/01/2016	\$6,056,573.10	\$ 258,639.63	\$ 0.00	\$6,315,212.73
2. Employee Contributions	248,618.91	17,912.34	0.00	266,531.25
3. Interest Credited	369,818.86	15,903.33	0.00	385,722.19
4. Payouts	(110,900.04)	(3,914.24)	0.00	(114,814.28)
5. Adjustments	0.00	0.00	0.00	0.00
6. Totals as of 12/31/2016	<u>\$6,564,110.83</u>	<u>\$ 288,541.06</u>	<u>\$ 0.00</u>	<u>\$6,852,651.89</u>

### Mandatory Employee Contributions

	Total Accumulated	2016 Contribution
Tier 3	\$ 653,705	\$281,631
Tier 4	\$ 506,676	\$ 293,084

## Section 1.2 – Actuarial Results

The following schedule shows the development of the Actuarial Accrued Liability, Unfunded Actuarial Accrued Liability and Normal Cost at the current valuation date and compared to the previous valuation date.

	2017 Valuation @ 7.50%	2016 Valuation @ 7.50%
1. Actuarial Accrued Liability		
a. Active Participants	\$ 56,231,658	\$ 52,316,028
b. Cash Balance Accounts	6,852,652	6,315,213
c. Retired Participants and Beneficiaries	49,725,174	45,093,564
d. Vested Terminated Participants	5,010,744	4,524,075
e. Disabled Participants	129,166	176,196
Total	\$ 117,949,394	\$ 108,425,076
2. Actuarial Value of Assets	93,312,443	86,832,411
3. Unfunded Actuarial Accrued Liability (1) - (2)	\$ 24,636,951	\$ 21,592,665
4. Contribution		
a. Normal Cost	\$ 1,785,128	\$ 1,911,994
b. Expected Employee Contribution	(310,127)	(259,586)
c. Net Normal Cost	\$ 1,475,002	\$ 1,652,408
d. As a Percent of Pay	4.78%	5.43%
e. Amortization Payment	2,301,660	1,999,615
f. January 1, Payment (c. + e.)	\$ 3,776,662	\$ 3,652,023
g. December 31, Payment (f * 1.075)	\$ 4,059,911	\$ 3,925,925
h. Estimated Covered Payroll	\$ 30,832,419	\$ 30,410,847
i. As a Percent of Covered Payroll (g / h)	13.17%	12.91%
j. Contribution at July 1, (f * 1.075 <sup>.5</sup> )	\$ 3,915,726	\$ 3,786,498
k. As a Percent of Covered Payroll (j / h)	12.70%	12.45%

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### **Section 1.3 – Actuarial Experience**

For the cost determined in this report, we used the Entry Age Normal Cost method. Under the Entry Age Normal Cost method, the experience gain or loss is determined by comparing the Expected Unfunded Actuarial Accrued Liability as if all actuarial assumptions had been exactly met during the past plan year to the Actual Unfunded Actuarial Accrued Liability at the valuation date. If the Expected Unfunded Actuarial Accrued Liability exceeds the Actual Unfunded Actuarial Accrued Liability, there is an actuarial gain; conversely, if the Expected Unfunded Actuarial Accrued Liability is less than the Actual Unfunded Actuarial Accrued Liability, there is an actuarial loss.

During the past plan year, the Plan experienced a total net actuarial loss of \$3.3 Million. The total loss is comprised of the following: (1) an asset loss of \$.2M – the actual return net expenses on Plan assets net of expenses was less than the assumed rate of return of 7.50%, (2) a liability loss of \$3.1 Million - the actual Plan experience differed from assumptions related to mortality, salary increases and retirement. The two main decrements causing loss are retirement and terminations. Many retirees compensation in their last year of employment was greater than expected.

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### Section 1.3 – Actuarial Experience - (Continued)

1.	Unfunded Actuarial Accrued Liability/(Surplus) as of 01/01/2016	\$ 21,592,665
2.	Expected Increases During the Year	
a.	Normal Cost Due at the Beginning of the Year	\$ 1,911,994
b.	Interest for One Year On	
	(i) Normal Cost	\$143,400
	(ii) Unfunded Actuarial Accrued Liability	1,619,450
	Total Interest (i) + (ii)	<u>\$1,762,850</u>
c.	Total Expected Increases (a) + (b)	\$3,674,844
3.	Expected Decreases During the Year	
a.	Employer Contributions for the Year	\$ 3,888,628
b.	Interest on Employer Contributions from Date of Contribution to the end of the Year	<u>\$52,069</u>
c.	Total Expected Decreases (a) + (b)	\$3,940,697
4.	Expected Unfunded Actuarial Accrued Liability/(Surplus) at End of Year (1) + (2c) - (3c)	\$ 21,326,812
5.	Actual Unfunded Actuarial Accrued Liability/(Surplus)	<u>24,636,951</u>
6.	Actuarial Experience Gain/(Loss) for the Year	<u>\$ (3,310,139)</u>

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## Section 1.4 – Funding

IRC (Internal Revenue Code) Section 404(a)(1) describes the limitations on tax deductible contributions to a pension trust, and IRC Section 412 sets forth minimum funding standards for non-government entities. Since the City is a government entity and tax consequences can be affected by factors not considered here, we recommend the City seek the advice of counsel with respect to the tax consequences of any contribution to be made. Furthermore, state tax law may differ from federal tax law; the amounts determined below may have some tax consequences to the City and its employees.

On the basis of the valuation as of January 1, 2017, the following is the determination of the recommended contribution amount for the City's fiscal year beginning July 1, 2017.

The recommended contribution is the Normal Cost plus 15-year amortization of the Unfunded Actuarial Accrued Liability as of January 1, 2014, plus 20-year amortization of any future actuarial gains or losses after 2014, plus interest to the date the contribution is actually deposited.

### Recommended Quarterly Contribution

Recommended Contribution Schedule		2017 Valuation	2016 Valuation
1.	Net Normal Cost	\$ 1,475,002	\$ 1,652,408
	Amortization Payment	2,301,660	1,999,615
2.	Recommended Contribution at January 1	\$ 3,776,662	\$ 3,652,023
3.	Recommended Contribution July 1	\$ 3,915,726	\$ 3,786,498
4.	As a Percent of Expected Covered Payroll	12.70%	12.45%
5.	Interest to December 31	\$ 283,250	\$ 273,902
6.	Recommended Contribution December 31	\$ 4,059,911	\$ 3,925,925
7.	As a Percent of Expected Covered Payroll	13.17%	12.91%
8.	Quarterly Contributions		
	July 1, 2016 / July 1, 2015	\$ 1,005,335	\$ 972,157
	October 1, 2016 / October 1, 2015	1,005,335	972,157
	January 1, 2017 / January 1, 2016	1,005,335	972,157
	April 1, 2017 / April 1, 2016	1,005,335	972,157
	Total	\$ 4,021,340	\$ 3,888,628
9.	As a Percent of Expected Covered Payroll	13.04%	12.79%
	Estimated Covered Payroll	\$ 30,832,419	\$ 30,410,847

## Section 1.5 – GASB Statement Nos. 67 & 68 - (Continued)

### Schedule of Changes in the Plan's Net Pension Liability and Related Ratios

<b>Total Pension Liability</b>	<b>2016</b>	<b>2015</b>
Service Cost	\$ 1,911,994	\$ 2,093,993
Interest	7,983,916	7,209,696
Changes of Benefit Terms	0	0
Differences between Expected and Actual Experience	3,866,434	3,542,156
Changes of Assumptions/Method	0	1,852,274
Benefit Payments, Including Refunds of Member Contributions	(4,238,026)	(3,699,996)
Net Change in Total Pension Liability	\$ 9,524,318	\$ 10,998,123
Total Pension Liability - Beginning	108,425,076	97,426,953
Total Pension Liability - Ending (a)	\$ 117,949,394	\$ 108,425,076
<b>Plan Fiduciary Net Position</b>		
Contributions - Employer	\$ 3,888,628	\$ 2,846,724
Contributions - Member	548,163	525,364
Net Investment Income	6,452,638	(1,678,689)
Benefit Payments, Including Refunds of Member Contributions	(4,238,026)	(3,699,996)
Administrative Expense	(171,371)	(584,138)
Other	0	0
Net Change in Plan Fiduciary Net Position	\$ 6,480,032	\$ (2,590,735)
Plan Fiduciary Net Position - Beginning	86,832,411	89,423,146
Plan Fiduciary Net Position - Ending (b)	\$ 93,312,443	\$ 86,832,411
Plan's Net Pension Liability - Ending (a) - (b)	\$ 24,636,951	\$ 21,592,665
<b>Plan's Fiduciary Net Position as a Percentage of the</b>		
<b>Total Pension Liability</b>	79.11%	80.09%
<b>Covered-Employee Payroll</b>	\$ 30,832,419	\$ 30,362,659
<b>Plan's Net Pension Liability as a Percentage of Covered-</b>		
<b>Employee Payroll</b>	79.91%	71.12%

## Section 1.5 – GASB Statement Nos. 67 & 68 - (Continued)

### Changes in Net Pension Liability

	Increase (Decrease)		
	(a)	(b)	(a) - (b)
	Total Pension Liability (TPL)	Plan Fiduciary Net Position	Net Pension Liability (NPL)
<b>Balances as 12/31/2015</b>	\$ 108,425,076	\$ 86,832,411	\$ 21,592,665
Changes for the Year:			
Service Cost	\$ 1,911,994		\$ 1,911,994
Interest	7,983,916		7,983,916
Difference Between Actual and Expected	3,866,434		3,866,434
Contributions - Employer		3,888,628	(3,888,628)
Contributions - Employee		548,163	(548,163)
Net Investment Income		6,452,638	(6,452,638)
Benefit Payments	(4,238,026)	(4,238,026)	0
Administrative Expense		(171,371)	171,371
<b>Net Changes</b>	<b>\$ 9,524,318</b>	<b>\$ 6,480,032</b>	<b>\$ 3,044,286</b>
<b>Balances as 12/31/2016</b>	<b>\$ 117,949,394</b>	<b>\$ 93,312,443</b>	<b>\$ 24,636,951</b>



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## Section 1.5 – GASB Statement Nos. 67 & 68 - (Continued)

### Net Pension Liability (NPL)

#### Determination of Net Pension Liability

The components of the Net Pension Liability at December 31, 2016

Total Pension Liability	\$ 117,949,394
Plan Fiduciary Net Position	\$ (93,312,443)
Net Pension Liability	\$ 24,636,951

Plan Fiduciary Net Position as a Percentage of Total Pension Liability	79.11%
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#### Sensitivity of Net Pension Liability to changes in the Discount Rate

	<b>6.50%</b>	<b>7.50%</b>	<b>8.50%</b>
	<b>1% Decrease</b>	<b>Current Rate</b>	<b>1% Increase</b>
Net Pension Liability	\$133,188,363	\$ 117,949,394	\$105,383,063

#### Schedule of Investment Returns

	<u>2016</u>	<u>2015</u>	<u>2014</u>
Annual Money-Weighted Rate of Return	7.31%	-2.54%	6.42%
Net of Investment Expense			



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## **Section 2.1 – Summary of the Plan Provisions**

### **Name of Plan**

City of Franklin Employees' Pension Plan

### **Plan Sponsor & Plan Administrator**

City of Franklin

### **Trustees**

City of Franklin

### **City of Franklin Employee Pension and Trust Investment**

Human Resource Director, two (2) members of the Board appointed by the Mayor, two (2) City Employee Representatives elected by the Employee population covered by this Plan, and two (2) Citizen Representatives who shall be appointed initially by the Mayor.

### **Effective Date**

The Plan was originally established effective May 1, 1971. The restated Plan document is effective July 1, 2009. Last amended effective February 15, 2010.

### **Plan Year**

The plan year is the calendar year.

### **Eligibility**

A full-time employee who works 30 hours or more per week will become an active member on the first day of the month after meeting the following requirements:

- Completes one year of continuous service
- Reaches age 21
- An Employee hired on or after February 15, 2010, shall become eligible to participate in the Plan and become a Participant as of the first day of the month immediately following the commencement of the Employee's employment by the City, provided, however, that such Employee shall be eligible to participate in the Plan only upon his election to participate.

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## **Section 2.1 – (Continued)**

### **Credited Service**

Credited Service under the Plan is based on completed calendar months during which an Employee has been in continuous employment with the City of Franklin. Periods of absence due to disability, military service, or approved leave are not considered discontinuance of employment.

### **Plan Compensation**

Plan Compensation is W-2 Compensation, including deferrals made under this Plan as mandatory pre-tax employee contributions, any amounts made under a cafeteria (§125) plan, overtime pay, bonuses, holiday pay, fringe benefits (cash or non-cash), deferred compensation, welfare benefits, and other regular pay. Compensation excludes reimbursements or other expense allowances, moving expenses, uniform allowances, and supplemental pay for police officers and firefighters, long-term disability benefits, pay in-lieu-of notice, severance pay, tuition reimbursements, or automobile allowances.

On November 17, 2016, the City approved the creation of a Retirement Health Savings (RHS) Plan that is exempt from income tax when disbursements are made for medical expenses and related health insurance payments and premiums. The initial phase of the RHS plan includes the City Administrator, Assistant City Administrators, and Department Directors. Funds contributed to the RHS plan are not considered wages in pension benefit calculations.

### **Average Compensation**

“Average Compensation” shall mean the average of the Participant’s Compensation over the three (3) consecutive whole calendar years of a Participant’s Employment during which his Compensation was the greatest out of the last ten (10) calendar years, or over a lesser number of Years of Employment actually served provided, however, that for a Participant who was first hired by the City on or after February 15, 2010, “Average Compensation” shall mean the average of the Participant’s Compensation over the five (5) consecutive whole calendar years of a Participant’s Employment during which his Compensation was the greatest out of the last ten (10) calendar years or over a lesser number of Years of Employment actually served.

### **Accrued Benefit**

The Accrued Benefit is determined in the same manner as Normal Retirement Benefit using Average Compensation and Service at date of determination.

Participants’ Cash Balance Accounts are the account balances on the date of determination.

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## **Section 2.1 – (Continued)**

### **Normal Retirement**

#### **Eligibility**

Normal retirement occurs at age 65 and completion of 5 years of Plan participation. With respect to employees hired before July 1, 2006, normal retirement occurs when they complete 25 years of service.

#### **Benefit**

For employees hired before July 1, 1995, the benefit formula is the greater of

- 2% of Average Compensation multiplied by the number of years of Credited Service, less 50% of the monthly Primary Insurance Amount provided under Social Security at the time of retirement, or
- 1% of Average Compensation multiplied by the number of years of Credited Service.

For all retirements and terminations after July 1, 2003, the benefit formula is 2% of Average Compensation multiplied by the number of years of Credited Service.

#### **Cash Balance Accounts**

Cash Balance Accounts include the sum of all pre-tax employee contributions, post-tax employee contributions, discretionary City contributions, and interest credits.

### **Early Retirement**

#### **Eligibility**

Completion of ten years of Credited Service and attainment of age 55, or completion of 25 years of Credited Service regardless of age.

#### **Benefit**

The benefit is determined under the Accrued Benefit formula stated above, which is based on service and compensation to date, and is payable at age 65. A reduced benefit is payable immediately. The reduction for immediate commencement of benefits is 5% per year for each year preceding normal retirement with a prorated adjustment for partial years, rounded to the nearest month. A participant hired before February 15, 2010 who has attained age 62 with twenty years of Credited Service will receive an Early Retirement Benefit without reduction.

Participants hired after July 1, 2006 and before February 15, 2010 can retire after age 55 with at least 25 year of service with no reduction for early retirement.

Participants' Cash Balance Accounts are the account balances on the Early Retirement Date.



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## Section 2.1 – (Continued)

### Late Retirement

#### Benefit

The late retirement benefit is the greater of the benefit determined under Normal Retirement above calculated as of the Normal Retirement Date actuarially increased to the late retirement date, or the benefit determined under Normal Retirement above recognizing pay and service to the late retirement date.

Participants' Cash Balance Accounts are the account balances on the actual Retirement Date.

### Disability Retirement

#### Eligibility

A participant must be totally and permanently disabled.

#### Benefit

The benefit is the accrued retirement benefit reduced for early payment or deferred to age 65 if the participant is not otherwise eligible to receive a benefit.

#### Vesting

A participant will be vested in his Accrued Benefit according to the following schedule adopted after January 1, 2003.

Credited Service	Vested Percentage
Less than 5 years	0%
5 years	100%

A participant is 100% vested immediately in all Cash Balance Accounts.

### Death Before Retirement

#### Eligibility

Attainment of age 21 and one year of Credited Service is required to be eligible for this benefit upon death.

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## **Section 2.1 – (Continued)**

### **Benefit**

The beneficiary receives the monthly benefit that can be provided by the actuarial present value of the accrued benefit. If the employee dies before becoming eligible for Early Retirement, the beneficiary may receive a Lump Sum equal to the actuarial present value of the accrued benefit.

### **Death After Retirement**

No benefit is payable unless an optional form of settlement has been elected. Otherwise, the benefit is the employee's contributions, plus interest, less the amount of annuity payments paid.

### **Annuity Forms**

The following forms of settlement are available:

#### **Normal Form**

- The normal form for the monthly benefit is a life annuity benefit. However, each participant married at retirement who does not elect otherwise will receive a joint annuity in a reduced amount providing for a 50% continuation to a surviving spouse.
- The normal form for the Cash Balance Accounts is a lump sum. However, it may be converted to an annuity payable for life with a death benefit refund of the account at the Participant's Retirement Date, minus the sum of the monthly payments that have been made.

#### **Optional Forms**

- Contingent options at 50%, 75%, or 100% of the benefit being paid to the beneficiary upon death of the retiree
- Five, ten, and fifteen year certain and life annuities
- Social Security adjustment option
- Special option upon request and granted by the City

### **Contributions**

#### **Mandatory Participant Contributions**

Employees that elect to participate, who were first hired by the City on or after February 15, 2010, shall make a mandatory contribution to the Plan in an amount equal to 5% of the Participant's Compensation. Employees are 100% vested in total accumulated contribution without interest.



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## **Section 2.1 – (Continued)**

### **Pre-Tax Employee Contributions**

Employees hired before July 1, 1995 may contribute from 3% to 10% on a pre-tax basis to a Cash Balance Account. For employees hired on or after July 1, 1995, a 3% pre-tax contribution is required, but an additional contribution up to 7% may be made if elected on a one-time basis.

### **Post-Tax Employee Contributions**

Employees may make a voluntary after-tax contribution of 1% to 10% of annual salary to a Cash Balance Account.

### **Discretionary City Contributions**

The City may make additional contributions to Participants' Cash Balance Accounts on a discretionary basis.

### **Regular City Contributions**

The City will make regular contributions as required to fund the Plan.

Interest on Cash Balance Accounts will be credited each year with interest calculated at the rate for U.S. Treasury Bills as of November 1 of the previous year plus 1%. The minimum interest to be credited will be no less than 6% per year.

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## Section 2.1 – (Continued)

The rates used to date are:

Year	Rate
1995	9.08%
1996	7.26%
1997	7.48%
1998	7.11%
1999	6.25%
2000	7.15%
2001	6.78%
2002	6.12%
2003	6.00%
2004	6.12%
2005-2016	6.00%

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## Section 2.2 – Actuarial Basis

### What is an Actuarial Valuation?

An actuarial valuation is a mathematical method for measuring the liabilities under a pension plan and for determining a schedule of contributions to finance the plan. The actual cost of a pension plan cannot be determined until its entire experience is complete; however, actuarial techniques determine a pattern of contributions that will finance the liabilities in an orderly fashion. Assumptions are made regarding future experience with regard to the rate of investment return on invested funds; the probability of death, disability, or other termination from employment; the rate of future salary increases; etc. The set of actuarial assumptions and the valuation method selected by the actuary become the basis for making a valuation of the pension plan. The degree of conservatism to be reflected in the actuarial assumptions is a matter of judgment of the actuary and the City offering their best estimates of anticipated experience under the plan.

An actuarial valuation does not determine ultimate pension plan costs; only the actual experience with regard to the many variables involved will establish the true cost of the plan. An actuarial valuation, however, reveals the year to year incidence of contributions necessary to soundly fund pension benefits. The incidence of contributions, also known as funding schedule, may be increasing, level, or decreasing from year to year as a percentage of payroll, depending on the actuarial funding method utilized. Annual actuarial valuations are made to adjust contributions gradually as actual experience emerges. Changes in the assumptions may be required if the experience consistently departs from the valuation assumptions.

### Description of Valuation Method - Entry Age Normal Cost Method

Actuarial Liabilities and Contributions shown in this report are computed using the Entry Age Normal Cost Method of funding.

A detailed description of the calculation follows:

The **Normal Cost** is the annual amount that would have to be paid for each member from his original date of entry (employment) to his assumed retirement (termination, disability, or death) date in order to fund his projected benefits, over the whole of his working life (membership in the plan). This computation is made in such a way that each year's annual payment is a level dollar.

The **Unfunded/(Surplus) Actuarial Accrued Liability** is determined by calculating the Present Value of Projected Benefits at that date, and subtracting the Present Value of Future Normal Costs, as determined above, together with any applicable assets of the Fund.

A **Past Service Contribution** (amortization payments) is calculated as the amount needed to fund the Initial Unfunded Actuarial Accrued Liability plus any changes in the Unfunded Actuarial

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## Section 2.2 – (Continued)

Accrued Liability due to plan changes, assumption changes, or actuarial experience gains / (losses), together with interest thereon, in equal annual installments as required by the regulations. See amortization schedule.

Active participants are treated for funding purpose as terminated participants due to the ceasing of benefit accruals. Therefore, there is no normal cost, and the actuarial accrued liability is equal to the present value of their benefits.

The recommended City's contribution is the Normal Cost plus the Past Service Contribution with interest to expected dates of the contributions.

### Economic Actuarial Assumptions

#### Interest

Funding rates:

Pre-Retirement 7.50% per year, compounded annually, net of expenses

Post-Retirement 7.50% per year, compounded annually, net of expenses

#### Projected Salary Increase

Salaries are assumed to increase at 3.50% per year.

#### Cost of Living Increase

Post-Retirement Benefit Increase is assumed to increase at 2.00% per year.

### Demographic Actuarial Assumptions

#### Healthy Mortality

Male: SOA - RP 2000 Mortality Table for males with blue collar adjustment

Female: SOA - RP 2000 Mortality Table for females with blue collar adjustment

#### Post Disablement Mortality

Male: PBGC for Unhealthy Lives Table for males

Female: PBGC for Unhealthy Lives Table for females

See the Table at the end of this section for selected rates.



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## Section 2.2 – (Continued)

### Termination or Withdrawal from Service

Male: Twice the T-3 Table less 1951 Group Annuity Table for males

Female: Twice the T-3 Table less 1951 Group Annuity Table for males

See the Table at the end of this section for sample values.

### Age at Retirement

See the Table at the end of this section for sample values.

### Possibility of Disability

Male: 100% of UAW Table for males

Female: 100% of UAW Table for females

See the Table at the end of this section for selected rates.

### Expenses

Plan expenses are reflected in the interest funding rate.

**Sample Annual Decrement Rates Per 100 Participants**

Attained Age	Disability		Termination
	Males	Females	
20	.0300	.0400	13.1550
25	.0300	.0500	10.5408
30	.0400	.0600	9.6624
35	.0500	.0800	8.9472
40	.0700	.1000	7.6824
45	.1000	.1500	6.4298
50	.1800	.2600	3.0490
55	.3600	.4900	.6688
60	.9000	1.2100	.0000
65	.0000	.0000	.0000



## Section 2.2 – (Continued)

Sample Annual Decrement Rates Per 100 Participants

Attained Age	Healthy Mortality		Post-Disability Mortality	
	Males	Females	Males	Females
20	.0345	.0191	4.83	2.63
25	.0376	.0207	4.83	2.63
30	.0726	.0293	3.62	2.37
35	.1087	.0519	2.78	2.14
40	.1371	.0878	2.82	2.09
45	.1793	.1387	3.22	2.24
50	.2412	.1963	3.83	2.57
55	.4196	.2795	4.82	2.95
60	.8270	.4949	6.03	3.31
65	1.5539	1.0398	6.78	3.70
70	2.6758	1.8634	7.39	4.11
75	4.3131	3.0887	8.42	4.92
80	7.0547	4.8953	11.28	7.46
85	11.5077	8.3100	16.82	11.28
90	18.1757	13.6686	25.25	16.82
95	25.9466	19.2564	37.89	25.25
100	34.4556	23.7467	56.84	37.89
105	39.7886	29.3116	85.77	56.84
110	40.0000	36.4617	100.00	100.00
115	40.0000	40.0000		
120	100.0000	100.0000		

## Section 2.2 – (Continued)

### Retirement Decrement

#### General for Tier 1

Age/Service	<5	5 to 9	10 to 19	20 to 24	25+
Less than 40	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000	0.001
41	0.000	0.000	0.000	0.000	0.001
42	0.000	0.000	0.000	0.000	0.001
43	0.000	0.000	0.000	0.000	0.001
44	0.000	0.000	0.000	0.000	0.001
45	0.000	0.000	0.000	0.000	0.001
46	0.000	0.000	0.000	0.000	0.001
47	0.000	0.000	0.000	0.000	0.001
48	0.000	0.000	0.000	0.000	0.001
49	0.000	0.000	0.000	0.000	0.001
50	0.000	0.000	0.000	0.000	0.125
51	0.000	0.000	0.000	0.000	0.125
52	0.000	0.000	0.000	0.000	0.125
53	0.000	0.000	0.000	0.000	0.125
54	0.000	0.000	0.000	0.000	0.125
55	0.000	0.000	0.100	0.100	0.125
56	0.000	0.000	0.050	0.050	0.100
57	0.000	0.000	0.050	0.050	0.075
58	0.000	0.000	0.050	0.050	0.075
59	0.000	0.000	0.050	0.050	0.075
60	0.000	0.000	0.050	0.050	0.125
61	0.000	0.000	0.050	0.050	0.125
62	0.000	0.000	0.250	0.500	0.500
63	0.000	0.000	0.150	0.250	0.250
64	0.000	0.000	0.150	0.250	0.250
65	0.000	0.500	0.500	0.500	0.500
66	0.000	0.500	0.500	0.500	0.500
67	0.000	0.500	0.500	0.500	0.500
68	0.000	0.500	0.500	0.500	0.500
69	0.000	0.200	0.200	0.500	0.500
70+	0.000	1.000	1.000	1.000	1.000

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## Section 2.2 – (Continued)

### Retirement Decrements

#### General for Tiers 2 and 3

Age/Service	< 5	5 to 9	10 to 19	20 to 24	25+
Less than 55	0.000	0.000	0.000	0.000	0.000
55	0.000	0.000	0.100	0.100	0.125
56	0.000	0.000	0.050	0.050	0.100
57	0.000	0.000	0.050	0.050	0.075
58	0.000	0.000	0.050	0.050	0.075
59	0.000	0.000	0.050	0.050	0.075
60	0.000	0.000	0.050	0.050	0.125
61	0.000	0.000	0.050	0.050	0.125
62	0.000	0.000	0.250	0.500	0.500
63	0.000	0.000	0.150	0.250	0.250
64	0.000	0.000	0.150	0.250	0.250
65	0.000	0.500	0.500	0.500	0.500
66	0.000	0.500	0.500	0.500	0.500
67	0.000	0.500	0.500	0.500	0.500
68	0.000	0.500	0.500	0.500	0.500
69	0.000	0.500	0.500	0.500	0.500
70+	0.000	1.000	1.000	1.000	1.000

## Section 2.2 – (Continued)

### Retirement Decrement

#### Police and Fire Tiers 2 and 3

Age/Service	< 5	5 to 9	10 to 20	20 to 24	25	26	27	28
Less than 55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
55	0.000	0.000	0.100	0.100	0.200	0.200	0.200	0.200
56	0.000	0.000	0.050	0.050	0.200	0.400	0.400	0.400
57	0.000	0.000	0.050	0.050	0.200	0.400	0.600	0.600
58	0.000	0.000	0.050	0.050	0.200	0.400	0.600	0.800
59	0.000	0.000	0.050	0.050	0.200	0.400	0.600	0.800
60	0.000	0.000	0.050	0.050	0.200	0.400	0.600	0.800
61	0.000	0.000	0.050	0.050	0.200	0.400	0.600	0.800
62	0.000	0.000	0.250	1.000	1.000	1.000	1.000	1.000
63	0.000	0.000	0.150	1.000	1.000	1.000	1.000	1.000
64	0.000	0.000	0.150	1.000	1.000	1.000	1.000	1.000
65	0.000	0.500	0.500	1.000	1.000	1.000	1.000	1.000
66	0.000	0.500	0.500	1.000	1.000	1.000	1.000	1.000
67	0.000	0.500	0.500	1.000	1.000	1.000	1.000	1.000
68	0.000	0.500	0.500	1.000	1.000	1.000	1.000	1.000
69	0.000	0.100	0.100	1.000	1.000	1.000	1.000	1.000
70+	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

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## **Section 2.2 – (Continued)**

### **Other Assumptions**

#### **Years of Service Subsequent to the Valuation Date**

It is assumed that each participant will earn one year of service in each future year.

#### **Assumed Age of Commencement for Deferred Vested Benefits**

Age 65

#### **Assumed Age of Commencement for Disabled Benefits**

Age 55

#### **Actuarial Value of Assets**

The Actuarial Value of Assets is equal to the Market Value plus any employee and/or employer contributions due for the plan year.

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## Section 2.3 – (Continued)

	Active Participants	Inactive Participants			Total	Expected
		Terminated Deferred Benefits	Disabled With Deferred Benefits	Receiving Benefits		
1. As of January 1, 2016	564	156	4	170	894	
2. Changes in Status:						
a. Age Retirements	(18)	0	0	18	0	18
b. Disability Terminations	0	0	0	0	0	0
c. Deaths Without Benefits	(1)	0	(1)	(5)	(7)	5
d. Deaths With Benefits	0	0	0	0	0	0
e. Non-Vested Terminations	(18)	N/A	N/A	0	(18)	10
f. Vested Terminations	(10)	10	0	N/A	0	30
g. Expiration of Benefits	N/A	N/A	N/A	0	0	
h. Lump Sums	0	0	0	0	0	
i. Data Correction	0	0	0	0	0	
j. New Entrants	39	0	N/A	0	39	
3. Net Change	(8)	10	(1)	13	14	
4. As of December 31, 2016	556	166	3	183	908	

### Section 3.1 – Historical Yearly Comparison

	01/01/2013	01/01/2014	01/01/2015	01/01/2016	01/01/2017
Number of Active Participants	572	562	560	564	556
Expected Payroll	\$ 28,902,947	\$ 27,440,025	\$ 28,177,068	\$ 30,410,847	\$ 30,832,419
Average Earnings	\$ 51,984	\$ 49,353	\$ 50,678	\$ 54,696	\$ 55,454
Number of Active Participants Age 65 or Over	13	13	12	17	10
Number of Retired Participants and Beneficiaries	128	138	155	170	183
Pensions to be Paid	\$ 2,653,331	\$ 2,892,206	\$ 3,367,517	\$ 3,952,053	\$ 4,419,701
Number of Vested Terminated Participants	123	137	146	156	166
Annual Pensions to be Paid	\$ 811,172	\$ 921,619	\$ 1,041,618	\$ 1,153,844	\$ 1,245,262
Number of Disabled Participants	3	4	4	4	3
Annual Pensions to be Paid	\$ 26,750	\$ 26,750	\$ 27,411	\$ 27,771	\$ 19,885
Present Value of Benefits	\$ 100,695,151	\$ 101,820,337	\$ 110,699,479	\$ 121,009,985	\$ 129,177,012
Present Value of Accumulated Benefits	\$ 69,757,870	\$ 77,113,277	\$ 84,467,387	\$ 90,511,186	\$ 100,153,251
Actuarial Value of Assets	\$ 63,532,465	\$ 84,471,689	\$ 89,423,146	\$ 86,832,411	\$ 93,312,443
Normal Cost Rate	6.9%	6.8%	7.4%	7.2%	5.8%
Normal Cost	\$ 1,988,187	\$ 1,859,464	\$ 2,093,993	\$ 1,911,994	\$ 1,785,128
Recommended Contribution as of July 1/Quarterly	\$ 4,033,372	\$ 2,417,920	\$ 2,846,724	\$ 3,888,628	\$ 4,021,340
Contribution as Rate of Payroll	14.0%	8.8%	10.1%	12.8%	13.0%
Actual Contribution	\$ 15,072,104	\$ 2,354,417	\$ 2,846,724	\$ 3,888,628	N/A

	Salary Scale 3.5%	Salary Scale 4.0%
1. Actuarial Accrued Liability		
a. Active Participants	\$ 56,231,658	\$ 57,541,425
b. Cash Balance Accounts	6,852,652	6,852,652
c. Retired Participants and Beneficiaries	49,725,174	49,725,174
d. Vested Terminated Participants	5,010,744	5,010,744
e. Disabled Participants	129,166	129,166
Total	<u>\$ 117,949,394</u>	<u>\$ 119,259,161</u>
2. Actuarial Value of Assets	93,312,443	93,312,443
3. Unfunded Actuarial Accrued Liability (1) - (2)	\$ 24,636,951	\$ 25,946,718
4. Contribution		
a. Normal Cost	\$ 1,785,128	\$ 1,889,621
b. Expected Employee Contribution	<u>(310,127)</u>	<u>(311,518)</u>
c. Net Normal Cost	\$ 1,475,002	\$ 1,578,103
d. As a Percent of Pay	4.78%	5.09%
e. Amortization Payment	2,301,660	2,421,175
f. January 1, Payment (c. + e.)	\$ 3,776,662	\$ 3,999,278
g. December 31, Payment (f. * 1.075)	\$ 4,059,911	\$ 4,299,224
h. Estimated Covered Payroll	\$ 30,832,419	\$ 30,981,368
i. As a Percent of Covered Payroll (g / h)	13.17%	13.88%
j. Contribution at July 1, 2017 (f * 1.075 <sup>.5</sup> )	\$ 3,915,726	\$ 4,146,539
k. As a Percent of Covered Payroll (j / h)	12.70%	13.38%

