



City of Ann Arbor Employees' Retirement System

June 30, 2017 Actuarial
Valuation of Pension Benefits

December 2017

December 2017

Board of Trustees
City of Ann Arbor Employees' Retirement System
Ann Arbor, Michigan

Certification of Actuarial Valuation

Ladies and Gentlemen:

This report summarizes the actuarial valuation results of City of Ann Arbor Employees' Retirement System as of June 30, 2017 performed by Conduent HR Consulting, LLC ("Conduent").

The actuarial valuation is based on unaudited financial and member data provided by the Executive Director and staff of the Retirement System and summarized in this report. The benefits considered are those delineated in the plan as amended and restated effective June 30, 2017. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under the Plan were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Conduent HR Consulting, LLC is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of the Plan.

The City of Ann Arbor Employees' Retirement System is funded by Employer and Member Contributions in accordance with the funding policy adopted by the Retirement Board, based on actuarially determined contributions (ADC), which require contributions be sufficient to pay the Normal Costs of active plan members, Plan expenses, and amortize the Unfunded Actuarial Accrued Liability over a declining period. Prior to this valuation, the period was 25 years and amortization payments were a level percentage of payroll. Effective with the 2017 valuation, the Board approved a change to a level dollar amortization that decreases by one year in each year until a 15-year open amortization period is obtained. Additionally, Section 1.3 of the City of Ann Arbor General Pension Policy allows for more than the Minimum Required policy as follows:

"The City of Ann Arbor will strive to achieve 100% funding of the City of Ann Arbor Employees' Retirement Plan. To the extent that 100% funding has been achieved, the City will continue to fund at a minimum the Normal Cost as defined by an outside actuary. To the extent that 100% funding had not been achieved, the City shall budget each fiscal year the higher of the ADC or the existing level of funding in the current budget year adjusted annually for the change in general fund budgeted revenues. In some years this may result in an excess contribution to the Pension Fund, which will serve to pay down the unfunded actuarial accrued liability and reduce future city cost increases."

We refer to this as the "Funding Plan" contribution in this report. In this report, we projected the impact of the Funding Plan contribution by assuming 2% revenue growth. Under the Plan Funding policy, we project a funded ratio of 100% is to be achieved by 2032. This date will vary from valuation to valuation.

The continuation of the normal cost contribution and the potential for excess contributions do improve the funding policy. We will continue to monitor the policy with the Board.

The funding objective is currently being met and is projected to continue to be met in the future. In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the Plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the Plan. The actuary performs an analysis of Plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience.

As required under the ordinance Chapter 18, 1:558, this valuation was prepared on the basis of the interest, salary and demographic assumptions that were determined from the Experience Study for the period July 1, 2008 to June 30, 2013 prepared by Conduent and approved by the Board for use beginning with the June 30, 2013 actuarial valuation. These assumptions will remain in effect for valuation purposes until such time as the Board adopts revised assumptions, which is scheduled to be performed before the June 30, 2018 valuation.

Actuarial Standards of Practice now require that the likelihood and extent of future mortality improvements be considered. We have reflected future mortality improvement in this valuation. A summary of the actuarial assumptions and methods used in this actuarial valuation are shown in Section 6.

The assumptions and methods used to determine the Actuarially Determined Contribution (ADC) of the City of Ann Arbor Employees' Retirement System as outlined in this report and all supporting schedules meet the parameters and requirements for disclosure of Governmental Accounting Standards Board (GASB) Statement No. 67, financial Reporting for Pension Plans and No. 68, accounting and Financial Reporting for Pensions. Based on member data and asset information provided by the Executive Director and staff of the Retirement System, we have prepared the Schedule of Funding Progress that is included in the Financial Section of the Comprehensive Annual Financial Report.

Use of this report for any other purpose may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Conduent will not accept any liability for any statement made about the report without prior review by Conduent.

Where presented, references to "funded ratio" and "unfunded accrued liability" typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. Because of limited scope, Conduent performed no analysis of the potential range of such future differences.

The undersigned are Enrolled Actuaries and Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all Applicable Actuarial Standards of Practice. We are available to answer any questions on the material contained in the report, or to provide explanations or further details as may be appropriate.

Respectfully submitted,

Conduent Human Resource Services

A handwritten signature in black ink, appearing to read "Timothy Bowen", enclosed in a thin black rectangular border.

Timothy Bowen, EA, MAAA, FCA
Principal Retirement Consulting

A handwritten signature in black ink, appearing to read "Chih-Hung Peng", enclosed in a thin black rectangular border.

Chih Hung Peng, ASA, MAAA, EA
Consultant

TB/CHP/jac
AAERS 10122017_2017PensionRpt.doc

Table of Contents

- Summary of Results** 1
- Comparative Summary of Key Actuarial Valuation Results** 7
- Section 1 Actuarial Funding Results** 8
 - Section 1.1 - Actuarial Liabilities and Normal Cost 9
 - Section 1.2 - Actuarial Contributions 10
 - Section 1.3 - Actuarial (Gain) / Loss 11
 - Section 1.4 - Analysis of Financial Experience 12
 - Section 1.5 - Actuarial Balance Sheet 13
 - Section 1.6 - History of UAAL and Funded Ratio 14
 - Section 1.7 - Solvency Test 15
- Section 2 Plan Assets** 16
 - Section 2.1 - Summary of Fair Value of Assets 17
 - Section 2.2 - Changes in Fair Value of Assets 18
 - Section 2.3 - Actuarial Value of Assets 19
 - Section 2.4 - Historical Asset Rate of Return 20
 - Section 2.5 - Forecast of Expected Benefit Payments 21
 - Section 2.6 - Analysis of Changes In Reserves For The Year Ended June 30, 2017 22
 - Section 2.7 - Reserve For Retired Benefit Payments 23
- Section 3 Accounting Information** 24
 - Section 3.1 - Schedule of Changes in Net Pension Liability as of June 30, 2017 25
 - Section 3.2 - Net Pension Liability (Asset) 26
 - Section 3.3 – Sensitivity 27
 - Section 3.4 – GASB 68 Information 28
 - Section 3.5 - Supporting Exhibits 32
- Section 4 Actuarial Funding Projections** 35
 - Section 4.1 - Projection Assumptions and Methods 36
 - Section 4.2 - Membership Projection 37
 - Section 4.3 - Projection of Employer Contribution Rates 39
 - Section 4.4 - Projection of Employer Contribution Amounts 40
 - Section 4.5 - Projection of Funded Status 41
 - Section 4.6 - Table of Projected Actuarial Results (\$'s in 000's) 42
 - Section 4.7 - Sensitivity Analysis 43

Table of Contents (continued)

Section 5 Member Data	44
Section 5.1 - Summary of Members Included.....	45
Section 5.2 - Age and Service Distribution of Active Members As of June 30, 2017.....	46
Section 5.3 - Member Data Reconciliation.....	50
Section 5.4 - Schedule of Active Member Data.....	51
Section 5.5 - Schedule of Inactive Member Data.....	52
Section 5.6 - Schedule of Retired Members by Type of Benefit and Option Elected.....	53
Section 5.7 - Schedule of Retired Members and Beneficiaries.....	54
Section 5.8 - Retirees Added to and Removed from Rolls.....	55
Section 5.9 - Schedule of Benefit Payments.....	56
Section 6 Basis of the Actuarial Valuation	58
Section 6.1 - Brief Summary of Benefit Provisions - (June 30, 2017).....	59
Section 6.2 - Description of Actuarial Methods and Valuation Procedures.....	64
Section 6.3 - Summary of Actuarial Assumptions and Changes in Assumptions.....	66
Glossary of Terms	71

Summary of Results

Overview

The City of Ann Arbor Employees' Retirement System provides pension and ancillary benefit payments to the terminated and retired employees of the City of Ann Arbor, Michigan. A Retirement Board comprised of employer, employee, and appointed representatives is responsible for administering the Plan and making investment decisions. This report presents the results of the actuarial valuation of the Plan benefits as of the valuation date of June 30, 2017.

Purpose

An actuarial valuation is performed on the retirement plan annually as of the beginning of the fiscal year. The main purposes of the actuarial valuation detailed in this report are:

1. To determine if the Board's funding policy for the Retirement Plan is being met considering current assets and the current employer and member contribution rates; or determine the employer contribution necessary to meet the Board's funding policy for the Plan;
2. To disclose the funding assets and liability measures as of the valuation date;
3. To disclose the accounting measures for the Plan required by GASB 67 and collective amounts under GASB 68 for the City;
4. To review the current funded status of the Plan;
5. To compare actual and expected experience under the Plan during the last fiscal year;
6. And to report trends in contributions, assets, liabilities, and funded status over the last several years.

This actuarial valuation provides a "snapshot" of the funded position of the Retirement Plan based on the plan provisions, membership, assets, and actuarial assumptions as of the valuation date. Actuarial projections are also performed to provide a long-term view of the expected future funding status and contribution patterns.

Membership

Actives

As of June 30, 2017, there were 696 employees in active service covered under the provisions of the Plan. The significant age, service, salary and accumulated contribution information for these employees is summarized below, along with comparative figures from the last actuarial valuation one year earlier.

	June 30, 2017	June 30, 2016
Number of active employees	696	685
Average age	44.6	45.2
Average years of service	11.5	12.1
Total annual valuation salary	\$53,583,277	\$50,057,471
Average annual salary	\$76,987	\$73,077
Total accumulated contributions	\$53,334,398	\$54,330,778
Average accumulated contributions	\$76,630	\$79,315

The number of active members increased by 1.6% from the previous valuation date. The average age of the active members decreased by 0.6 years and the average years of service decreased from 12.1 to 11.5. The total annual valuation salary increased by 7.0%. The average salary increased by 5.4% from the previous valuation. There were 626 active members who were also reported active in the June 30, 2016 actuarial valuation. The total

Summary of Results (continued)

salary for this group increased by 9.4%, which was higher than the 4.9% increase we expected for the group. Note that the 9.4% increase reflected an additional pay period that occurred during the fiscal year and higher than normal overtime earnings; contributing to the higher than expected increase in salary for continuing actives. Distributions of active members by age, service, and salary are given in Section 5.2. The salaries shown for active members are the actual annualized salaries reported.

A schedule of active member data and reconciliation of the active membership from the previous year is shown in Sections 5.3 and 5.4.

Inactives

In addition to the active members, there were 150 inactive vested members who did not elect to receive their accumulated contributions when they left covered employment. The significant age and annual benefit information for these inactive members are summarized below with comparative figures from the last actuarial valuation one year earlier.

	June 30, 2017	June 30, 2016
Number of inactive members	150	151
Average age	51.1	51.2
Average annual benefit payments	\$14,369	\$13,177

The number of inactive vested members decreased by 0.7% from the previous valuation. The average age of the inactive vested members decreased by 0.1 years. The Average Annual Pension Benefit for these members increased by 9.0% from the previous valuation.

Distributions of inactive members by age and pension benefit are presented in Section 5.9.

Retirees and Beneficiaries

In addition to the active and inactive members, there were 889 retired members and 151 beneficiaries who are receiving monthly benefit payments on the valuation date. Key age and annual benefit information for these members are summarized below with comparative figures from the last actuarial valuation performed last year.

	June 30, 2017	June 30, 2016
Number of members receiving payments		
➤ Retirees	889	873
➤ Beneficiaries	151	144
➤ Total	1,040	1,017
Average age	68.6	68.4
Annual benefit amounts		
➤ Retirees	\$31,523,858	\$30,349,630
➤ Beneficiaries	\$3,301,485	\$3,145,464
➤ Total	\$34,825,342	\$33,495,094
Average annual benefit payments	\$33,486	\$32,935

The number of retired members and beneficiaries increased by 2.3% from the previous valuation date. The average age of this group increased by 0.2 years, while their average annual benefit payments increased by 1.7% from the previous valuation date.

Distributions of retired members by age and form of payment are given in Sections 5.6 through 5.9.

Summary of Results (continued)

In our opinion, the membership data collected and prepared for use in this actuarial valuation meets the data quality standards required under Actuarial Standards of Practice No. 23.

Plan Assets

The Plan's assets are held in trust and invested for the exclusive benefit of plan members. The trust is funded by member and employer contributions, and pays benefits directly to eligible members in accordance with plan provisions. The assets are audited annually and are reported at fair value. On a fair value basis, the Plan has Net Assets Available for Benefits of \$491.3 million as of June 30, 2017. This includes an increase of \$34.7 million over the Net Assets Available for Benefits of \$456.6 million as of June 30, 2016. During the prior year, the fair value of assets experienced an investment rate of return of 11.96%.

In order to reduce the volatility investment gains and losses can have on the Plan's actuarially required contribution and funded status, the Board has adopted a five-year smoothing method to determine the actuarial value of assets used for funding purposes. This method recognizes gains and losses, i.e. the difference between actual investment return during the year and the expected return based on the valuation interest rate, on a level basis over a five year period. In our opinion, this method complies with Actuarial Standards of Practice No. 44.

As of June 30, 2017, the assets available for benefits on an actuarial value basis were \$489.9 million. This represents an increase of \$19.9 million over the actuarial value of assets of \$470.0 million as of June 30, 2016. During the prior year, on an actuarial value of assets basis, the plan experienced an actuarial rate of return of 8.42%.

A summary of the assets held for investment, a summary of changes in assets, and the development of the actuarial value of assets is shown in Section 2.

Actuarial Experience

Differences between the expected experience based on the actuarial assumptions and the actual experience create changes in the actuarial accrued liability, actuarial value of assets, and the unfunded actuarial accrued liability from one year to the next. These changes create an actuarial gain if the experience is favorable and an actuarial loss if the experience is unfavorable. The Plan experienced a total net actuarial loss of \$3.7 million during the prior year. This net loss is about 0.7% of the plan's prior year actuarial accrued liability. The net loss is a combination of two principal factors, demographic experience and investment performance.

The demographic experience tracks actual changes in the plan's population compared to the assumptions for decrements such as mortality, turnover, and retirement, as well as pay increases. The Plan experienced a demographic loss of \$10.2 million during the year ending June 30, 2017. This loss increased the unfunded actuarial accrued liability by \$10.2 million and decreased the funded ratio by 1.6%.

Continued tracking of the demographic experience is warranted in order to confirm the appropriateness of the actuarial assumptions. Details of the demographic, economic, and other assumptions used to value the plan liabilities and normal cost can be found in Section 6. In our opinion, the economic assumptions comply with Actuarial Standards of Practice No. 27 and the demographic assumptions comply with Actuarial Standards of Practice No. 35.

The Plan experienced a gain on an actuarial value of assets basis. The actual rate of return on the actuarial value of plan assets for the year ending June 30, 2017 was approximately 8.42% compared to the assumption of 7.0%, resulting in an asset gain of \$6.5 million and increased the funded ratio by 1.1%.

Summary of Results (continued)

The rate of return on the fair value of assets for the year ending June 30, 2017 was higher than the assumed rate of 7.0%. The actuarial value of the assets recognizes only 20% of the 2017 fiscal year gain on fair value, delaying the recognition of the remaining 80% over the next four years. Moreover, the actuarial value of assets also recognizes deferred portions of prior years' gains and losses on fair value. It should be noted that the plan's assumed asset return of 7.0% is a long-term rate and short-term performance is not necessarily indicative of expected long-term future returns.

A summary of the actuarial gains and losses experienced during the prior year is shown in Section 1.3.

Actuarial Contributions

The Board has adopted a Funding Policy that requires contributions to be sufficient to pay the normal cost and amortize the unfunded actuarial accrued liability over a specified period. As of this valuation, the period is 24 years. This period will reduce by 1 each year for the next 9 years, until it reaches 15 years. The City contributed \$13.3 million under the Funding Plan during year ended June 30, 2017, which was \$1.9 million more than the contribution determined under the Minimum Required Policy (the amount developed in the June 30, 2015 actuarial valuation), increasing the funded ratio by about 0.4%.

The normal cost represents the cost of the benefits that accrue during the year for active members under the Entry Age Actuarial Cost Method. It is determined as a level percentage of pay which, if paid from entry age to the assumed retirement age, assuming all the actuarial assumptions are exactly met by experience would accumulate to a fund sufficient to pay all benefits provided by the Plan. The expected member contributions are subtracted from this amount to determine the employer normal cost. The employer normal cost for 2019 has been determined to be \$6.6 million, or 11.54% of payroll. This represents a decrease in the employer normal cost rate of 1.35% of pay from last year's employer normal cost rate of 12.89%.

The cost method also determines the actuarial accrued liability which represents the value of all accumulated past normal cost payments. This amount is compared to the actuarial value of assets to determine if the Plan is ahead or behind in funding as of the valuation date. The difference between the total actuarial accrued liability and the actuarial value of assets equals the amount of unfunded actuarial accrued liability or surplus (if negative) on the valuation date. This amount is amortized and added to the employer normal cost to determine the annual actuarially required employer contribution for the year.

The unfunded actuarial accrued liability as of June 30, 2017 is \$81.1 million. This represents an increase of \$2.9 million in the unfunded actuarial accrued liability from last year's amount of \$78.2 million. The annual payment required to amortize the unfunded actuarial accrued liability of \$81.1 million as of June 30, 2017 is \$6.8 million, or 11.9% of pay.

The annual actuarially required employer contribution for 2019 is \$13.5 million, or 23.4% of pay. This represents an increase of \$1.7 million in the employer contribution amount of \$11.8 million for 2018, or an increase of 1.5% of pay from last year's employer contribution rate of 21.9%.

The actuarial liabilities and development of the annual actuarial employer contribution is shown in Sections 1.1 and 1.2.

In our opinion, the measurement of the benefit obligations and determination of the actuarial cost of the Plan is performed in compliance with Actuarial Standards of Practice No. 4.

Funded Status

The funded status is a measure of the progress that has been made in funding the plan as of the valuation date. It is determined as a ratio of the actuarial value of assets divided by the total actuarial accrued liability on the

Summary of Results (continued)

valuation date. A ratio of over 100% represents a plan that is ahead in funding, and a ratio of less than 100% represents a plan that is behind in funding on the valuation date.

As of June 30, 2017 the funded ratio of the Plan is 85.8%. This represents an increase of 0.1% from last year's funded ratio of 85.7% as of June 30, 2016. The funded ratio is not intended to measure the adequacy of funding in any analysis of a possible settlement of plan liabilities. Additionally, the measurement of a Funded Ratio using the Market Value of Assets would not be materially different.

A history of the unfunded actuarial accrued liability and the funded ratio is shown in Section 1.6.

Schedule of Funding Progress (\$'s in 000's)

Liabilities and assets resulting from the last ten actuarial valuations are as follows:

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b-a)/c]
June 30, 2008	428,689	430,438	1,749	99.59%	51,287	3.41%
June 30, 2009	426,283	455,219	28,936	93.64%	50,120	57.73%
June 30, 2010	421,387	466,883	45,496	90.26%	48,688	93.44%
June 30, 2011	423,734	481,330	57,596	88.03%	45,921	125.42%
June 30, 2012	410,709	496,770	86,061	82.68%	44,004	195.58%
June 30, 2013	407,170	507,436	100,266	80.24%	45,063	222.50%
June 30, 2014	433,854	523,461	89,607	82.88%	47,957	186.85%
June 30, 2015	459,480	533,198	73,718	86.17%	48,759	151.19%
June 30, 2016	470,029	548,201	78,172	85.74%	50,057	156.17%
June 30, 2017	489,943	571,074	81,131	85.79%	53,583	151.41%

Accounting Information

The Governmental Accounting Standards Board (GASB) issues statements which establish financial reporting standards for defined benefit pension plans and accounting for the pension expenditures and expenses for governmental employers. The required financial reporting information under GASB No. 67 and 68 for the City of Ann Arbor employees Retirement System can be found in Section 3.

Summary of Results (continued)

Projections

As part of the annual actuarial valuation, a forecast of expected future valuation results is performed over a 30 year period beginning on the valuation date. This analysis provides a dynamic look into the future to identify trends in future employer contributions and funded status. The forecast replaces active members who are assumed to decrement (terminate, retire, etc.) during the period with new employees resulting in a stable active membership. The forecast assumes all actuarial assumptions are exactly realized each year during the forecast period. A sensitivity analysis is also included to show the impact the investment return assumption can have on the future funding measures. The results of these forecasts can be found in Section 4.

Changes in Plan Provisions

Effective January 1, 2017, the Retirement System was amended and restated to add to the existing defined benefit plan (to be called the "Traditional Retirement Plan"), a defined contribution money purchase pension plan (the "Dual Retirement Plan") which will only apply to non-union, AFSCME, and Teamsters Civilian Supervisor employees first hired or rehired on or after January 1, 2017. Specifically, the rate of accruals for the aforementioned groups is 50% of the rate of accruals for the members not first hired or rehired on or after January 1, 2017. This change has no impact on the actuarial accrued liability but will reduce the normal cost over time.

Changes in Actuarial Assumptions, Methods, or Procedures

As of June 30, 2017, the Actuarially Determined Contribution was revised to reflect a level dollar amortization of unfunded actuarial liabilities. The amortization period as of June 30, 2017 is 24 years. This period will decline by one year in each year until a 15 year period is obtained. There have been no other changes to the actuarial cost method, asset valuation method, or valuation procedures since the prior valuation.

Beginning with the June 30, 2017 actuarial valuation, General, Police and Fire employees are assumed to receive \$4,000, \$1,000 and \$1,000 respectively in additional compensation upon retirement related to accumulated time banks. The assumed time banks are indexed at 3.5% from the valuation date to the assumed date of retirement. This change increased the unfunded actuarial accrued liability by \$1.5 million.

All other assumptions are the same as those used in the June 30, 2016 actuarial valuation.

Comparative Summary of Key Actuarial Valuation Results

Comparative Summary of Key Actuarial Valuation Results

	Actuarial Valuation as of	
	June 30, 2017	June 30, 2016
Summary of Member Data		
Number of Members Included in the Valuation		
▪ Active Members	696	685
▪ Inactive Members	150	151
▪ Retirees and beneficiaries	1,040	1,017
▪ Total	1,886	1,853
Annual Payroll		
▪ Average (actual)	\$ 76,987	\$ 73,077
Annual Benefit Payments		
▪ Inactive Members(Average)	\$ 14,370	\$ 13,177
▪ Retirees and beneficiaries (Average)	\$ 33,486	\$ 32,935
Summary of Assets		
Fair Value		
▪ <i>Rate of Return</i>	11.96%	0.37%
Actuarial Value		
▪ <i>Rate of Return</i>	8.42%	6.22%
Summary of Liabilities		
Total Actuarial Accrued Liability	\$ 571,074,022	\$ 548,201,472
Actuarial Value of Assets	\$ 489,943,346	\$ 470,028,788
Unfunded Actuarial Accrued Liability	\$ 81,130,676	\$ 78,172,684
Funded Ratio	85.79%	85.74%
Actuarial Employer Contribution Rate		
Employer Normal Cost Rate	11.54%	12.89%
Amortization of Unfunded Actuarial Accrued Liability (Surplus) Rate	11.91%	9.04%
Employer Actuarial Contribution Rate	23.45%	21.93%
Employee Contribution Rate	5.92%	6.00%
Total Actuarial Contribution Rate	29.37%	27.93%
Actual/Statutory Contribution Rate	29.37%	27.93%
Funding Period (years)	24	25

Section 1: Actuarial Funding Results

Section 1.1 - Actuarial Liabilities and Normal Cost

Actuarial Liabilities	General Members	Police Members	Fire Members	Totals
1. Present Value of Projected Benefits				
Active Members				
• Retirement Benefits	125,006,344	66,154,130	43,843,455	235,003,929
• Withdrawal Benefits	9,264,749	448,567	450,220	10,163,536
• Disability Benefits	4,330,733	1,737,970	375,651	6,444,354
• Death Benefits	1,002,597	196,113	274,099	1,472,809
Total	139,604,423	68,536,780	44,943,425	253,084,628
2. Inactive Members with Deferred Benefits	12,585,887	941,031	450,964	13,977,882
3. Retired Members and Beneficiaries Receiving Benefits	193,966,387	108,534,158	72,875,523	375,376,068
4. Total Present Value of Projected Benefits (1. + 2. + 3.)	346,156,697	178,011,969	118,269,912	642,438,578
5. Present Value of Future Normal Costs	44,891,993	16,052,059	10,420,504	71,364,556
6. Total Actuarial Accrued Liability (4. - 5.)	301,264,704	161,959,910	107,849,408	571,074,022

Normal Cost 2019	General Members	Police Members	Fire Members	Totals
1. Active Members				
a. Retirement Benefits	13.15%	18.12%	19.22%	
b. Withdrawal Benefits	2.24%	0.57%	0.65%	
c. Disability Benefits	0.73%	0.83%	0.27%	
d. Death Benefits	0.12%	0.06%	0.13%	
2. Total Normal Cost (As a % of pay)	16.23%	19.59%	20.26%	17.46%
3. Expected Member Contribution(As a % of pay)	5.88%	6.00%	6.00%	5.92%
4. Expected Member Contribution(Dollar amount*)	2,222,669	722,673	453,036	3,398,378
5. Employer Normal Cost (As a % of pay)	10.35%	13.59%	14.26%	11.54%
6. Employer Normal Cost (Dollar amount*)	3,912,801	1,636,854	1,076,715	6,626,370

*City's dollar contribution includes a payroll projection factor of 1.0712 to project active member payroll to the applicable fiscal year

Section 1.2 - Actuarial Contributions

Fiscal Year Ending	June 30, 2019				June 30, 2018
	General	Police	Fire	Total	Total
Development of Employer Contribution					
Minimum Required Contribution					
1. Annual Payroll*	37,803,265	12,044,548	7,550,593	57,398,406	53,621,563
2. Total Actuarial Accrued Liability	301,264,704	161,959,910	107,849,408	571,074,022	548,201,472
3. Actuarial Value of Assets**	258,464,982	138,950,779	92,527,585	489,943,346	470,028,788
4. Unfunded Actuarial Accrued Liability (UAAL) (2.- 3.)	42,799,722	23,009,131	15,321,823	81,130,676	78,172,684
5. Funded Ratio (3. / 2.)	85.79%	85.79%	85.79%	85.79%	85.74%
6. UAAL as a Percent of Annual Payroll (4. / 1.)	113.22%	191.03%	202.92%	141.35%	145.79%
7. Amortization Payment for UAAL ***					
a. Amount	3,607,538	1,939,412	1,291,458	6,838,408	4,846,209
b. As a % of pay	9.54%	16.10%	17.10%	11.91%	9.04%
8. Employer Normal Cost					
a. Amount	3,912,801	1,636,854	1,076,715	6,626,370	6,911,083
b. As a % of pay	10.35%	13.59%	14.26%	11.54%	12.89%
9. Actuarial Employer Contribution					
a. Amount	7,520,339	3,576,266	2,368,173	13,464,778	11,757,292
b. As a % of pay	19.89%	29.69%	31.36%	23.45%	21.93%
10. Funding Period (years)	24	24	24	24	25
Funding Plan					
11. Assumed revenue increase				2%	
12. Estimated Funding Plan Contribution				13,343,470	13,081,834 ^
Estimated City Contribution					
13. Estimated City Contribution (Greater of 9 and 12)				13,464,778	13,081,834

* Includes a payroll projection factor of 1.0712 to project active member payroll to the applicable fiscal year

** Actuarial Value of Assets for the three employee groups are allocated proportional to Actuarial Accrued Liability

*** At the July 10, 2017 Board meeting, the Board adopted a level dollar 24-year amortization for the fiscal year ending June 30, 2017 contribution. This period is scheduled to decline by one year each year until fiscal year ending June 30, 2026 and thereafter a 15-year amortization period is used. Actual FYE 2018 contribution will likely be higher than ADC since the minimum increase in contributions is the increase in City revenues.

^ FYE18 contribution is projected to be \$13,081,834 reported by City

Section 1.3 - Actuarial (Gain) / Loss

(\$'s in 000's)

Development of Actuarial (Gain) / Loss	Amount
1. Expected Actuarial Accrued Liability	
a. Actuarial Accrued Liability at June 30, 2016	548,201
b. Normal Cost at June 30, 2016	8,869
c. Interest on a. + b. to End of Year	38,995
d. Benefit Payments and Refund of Contributions through June 30, 2017, with Interest to End of Year	36,676
e. Expected Actuarial Accrued Liability Before Changes (a. + b. + c. - d.)	559,389
f. Change in Actuarial Accrued Liability at June 30, 2017, Due to Change in Actuarial Assumptions	1,502
g. Change in Actuarial Accrued Liability at June 30, 2017, Due to Change in Plan Provisions	0
h. Expected Actuarial Accrued Liability at June 30, 2017 (e. + f. + g.)	560,891
2. Actuarial Accrued Liability at June 30, 2017	571,074
3. Liability (Gain) / Loss (2. - 1.h.)	10,183
4. Expected Actuarial Value of Assets	
a. Actuarial Value of Assets at June 30, 2016	470,029
b. Interest on a. to End of Year	32,902
c. Contributions Made for June 30, 2016	16,578
d. Interest on c. to End of Year	580
e. Benefit Payments and Refund of Contributions for June 30, 2016, with Interest to End of Year	36,676
f. Change in Actuarial Value of Assets at June 30, 2017 due to Change in Method	0
g. Expected Actuarial Value of Assets at June 30, 2017 (a. + b. + c. + d. - e. - f.)	483,413
5. Actuarial Value of Assets as of June 30, 2017	489,943
6. Actuarial Asset (Gain) / Loss (4.g. - 5.)	(6,530)
7. Actuarial (Gain) / Loss (3. + 6.)	3,653

Section 1.4 - Analysis of Financial Experience

Analysis of Actuarial (Gains) and Losses

Resulting From Differences Between Assumed Experience and Actual Experience

(\$'s in 000's)

Type of (Gain) or Loss	As a % of	
	Year End June 30, 2017	Last Year's AAL
(1) COLA Experience	0	0.00%
(2) Salary Experience	7,031	1.28%
(3) Investment Experience	(6,530)	-1.19%
(4) Retiree Mortality Experience	1,373	0.25%
(5) Contribution Shortfall	0	0.00%
(6) (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5)	1,874	0.34%
(7) Asset Valuation Method	0	0.00%
(8) Data correction	0	0.00%
(9) Return to work	0	0.00%
(10) Form of payment Changes	(431)	-0.08%
(11) Turnover	408	0.07%
(12) Retirement	742	0.14%
(13) Deaths among actives	147	0.03%
(14) Disability retirements	35	0.01%
(15) Other	878	0.16%
(16) Total (Gain) or Loss During Year, (6) + (7) + (8) + (9) + (10)+ (11)+ (12) + (13)+ (14)+ (15)	3,653	0.67%

Section 1.5 - Actuarial Balance Sheet

Financial Resources	June 30, 2017
1. Actuarial Value of Assets	489,943,346
2. Present Value of Future Contributions	
(a) Expected Member contributions	24,192,502
(b) Employer Normal Cost	47,172,054
(c) State Appropriations	0
(d) Total	71,364,556
3. Unfunded Actuarial Accrued Liability/(Reserve)	81,130,676
4. Total Assets [1 + 2(d) + 3]	642,438,578

Benefit Obligations	June 30, 2017
1. Present Value of Future Benefits	
(a) Active members	253,084,628
(b) Inactive members	13,977,882
(c) Retirees, disabilities and beneficiaries	375,376,068
(d) Total	642,438,578

Section 1.6 - History of UAAL and Funded Ratio

(\$'s in 000's)

Valuation Date	Actuarial Accrued Liability (AAL)	Actuarial Value of Assets (AVA)	Funded Ratio (AVA as a % of AAL)	Unfunded Actuarial Accrued Liability (UAAL)
June 30, 2008	430,438	428,689	99.59%	1,749
June 30, 2009	455,219	426,283	93.64%	28,936
June 30, 2010	466,883	421,387	90.26%	45,496
June 30, 2011	481,330	423,734	88.03%	57,596
June 30, 2012	496,770	410,709	82.68%	86,061
June 30, 2013	507,436	407,170	80.24%	100,266
June 30, 2014	523,461	433,854	82.88%	89,607
June 30, 2015	533,198	459,480	86.17%	73,718
June 30, 2016	548,201	470,029	85.74%	78,172
June 30, 2017	571,074	489,943	85.79%	81,131

Section 1.7 - Solvency Test

Valuation Date	Aggregate Accrued Liability For:			Valuation Assets (000's)	Portion of Accrued Liabilities Covered by Assets		
	(1) Active Member Contributions (000's)	(2) Inactive Members (000's)	(3) Active Members (Employer- Financed Portion) (000's)		(1)	(2)	(3)
June 30, 2008	2,726			428,689			
June 30, 2009	2,815	276,709	175,695	426,283	100.00%	100.00%	83.53%
June 30, 2010	3,148	306,296	157,439	421,387	100.00%	100.00%	71.10%
June 30, 2011	2,790	327,964	150,576	423,734	100.00%	100.00%	61.75%
June 30, 2012	2,797	348,249	145,724	410,709	100.00%	100.00%	40.94%
June 30, 2013	2,858	353,683	150,895	407,170	100.00%	100.00%	33.55%
June 30, 2014	2,948	356,397	164,116	433,854	100.00%	100.00%	45.40%
June 30, 2015	3,013	361,314	168,871	459,480	100.00%	100.00%	56.35%
June 30, 2016	3,139	374,798	170,264	470,029	100.00%	100.00%	54.09%
June 30, 2017	3,325	389,354	178,395	489,943	100.00%	100.00%	54.52%

Section 2: Plan Assets

Section 2.1 - Summary of Fair Value of Assets

Asset Category	Fair Value as of June 30, 2017		Fair Value as of June 30, 2016	
	Amount	%	Amount	%
1. Cash and Short-Term Investments				
a. Cash in Bank	0	0.00%	0	0.00%
b. Other short-term	7,559,727	1.53%	10,763,660	2.34%
c. Total	7,559,727	1.53%	10,763,660	2.34%
2. Investments at Fair Value				
a. U.S. Treasury Notes	0	0.00%	0	0.00%
b. Fixed Income	157,572,414	31.82%	156,764,196	34.04%
c. Domestic Stocks and Equity	275,421,437	55.62%	242,660,096	52.68%
d. International Equity	0	0.00%	0	0.00%
e. Real Estate	35,400,542	7.15%	34,807,044	7.56%
f. Hedge Funds	14,302,701	2.89%	14,730,692	3.20%
g. Total	482,697,094	97.48%	448,962,028	97.48%
3. Other Assets	4,950,587	1.00%	870,434	0.19%
4. Total Assets (1.c + 2.g + 3.)	495,207,408	100%	460,596,122	100%
5. Receivables				
a. Interest and Dividends	0			
b. Investments Sold	0		0	
c. Other Receivables	0		0	
d. Total	0		0	
6. Payables				
a. Payable for Investments Purchased	0		0	
b. Securities Lending Obligation in Excess of Collateral	0		0	
c. Accounts Payable and Accrued Liabilities	3,808,421		3,956,735	
d. Deferred Inflow of Resources	141,475		19,066	
e. Total	3,949,896		3,975,801	
7. Net Assets for Pension Benefits [4. + 5.d – 6.e.]	491,257,512		456,620,321	

Section 2.2 - Changes in Fair Value of Assets

Transactions	June 30, 2017	June 30, 2016
Additions		
1. Contributions		
a. Contributions from Employers	13,253,118	13,352,412
b. Contributions from Plan Members	3,325,000	3,139,266
c. Total	16,578,118	16,491,678
2. Net Investment Income		
a. Interest and Dividends	3,627,415	2,920,866
b. Net Appreciation(Depreciation)	51,430,540	258,186
c. Rental Income	0	0
d. Net Securities Lending Income	0	0
e. Securities Lending Unrealized Gain/(Loss)	0	0
f. Miscellaneous	0	0
g. Total	55,057,955	3,179,052
h. Investment Expense	815,294	739,738
i. Net Investment Income	54,242,661	2,439,314
3. Total Additions	70,820,779	18,930,992
Deductions		
4. Benefits and Expenses		
a. Retirement Benefits	34,408,549	32,996,135
b. Refund of Contributions	1,027,105	963,896
c. Death	0	0
d. Supplemental Payment	0	0
e. Administrative Expenses	747,934	724,536
f. Prior year adjustment to Reserves for Pension Liability	0	0
5. Total Deductions	36,183,588	34,684,567
6. Net Increase	34,637,191	(15,753,575)
7. Net Assets Held in Trust for Pension Benefits		
a. Beginning of Year	456,620,321	472,373,896
b. End of Year	491,257,512	456,620,321

Section 2.3 - Actuarial Value of Assets

Development of Actuarial Value of Assets	Amount																								
1. Actuarial Value of Assets as of June 30, 2016	470,028,788																								
2. Unrecognized Return as of June 30, 2016	(13,408,467)																								
3. Fair Value of Assets as of June 30, 2016 (1. + 2.)	456,620,321																								
4. Contributions																									
(a) Member (includes purchased service)	3,325,000																								
(b) Employer	13,253,118																								
(c) State appropriations	0																								
(d) Total	16,578,118																								
5. Distributions																									
(a) Benefit payments	34,408,549																								
(b) Refund of contributions	1,027,105																								
(c) Total	35,435,654																								
6. Expected Return at 7.00% on																									
(a) Item 1	32,902,015																								
(b) Item 2	(938,593)																								
(c) Item 4 (d)	580,234																								
(d) Item 5 (c)	1,240,248																								
(e) Total [(a) + (b) + (c) – (d)]	31,303,408																								
7. Actual Return on Fair Value for Fiscal year, Net of Investment Expenses & Administrative Expenses	53,494,726																								
8. Return to be Spread for Fiscal year (7. – 6.e+6.b)	21,252,725																								
9. Total Fair Value of Assets as of June 30, 2017	491,257,512																								
10. Return to be Spread																									
	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Fiscal Year</th> <th>Return to be Spread</th> <th>Unrecognized Percent</th> <th>Unrecognized Return</th> </tr> </thead> <tbody> <tr> <td>2017</td> <td style="text-align: right;">21,252,725</td> <td style="text-align: center;">80%</td> <td style="text-align: right;">17,002,180</td> </tr> <tr> <td>2016</td> <td style="text-align: right;">(29,837,440)</td> <td style="text-align: center;">60%</td> <td style="text-align: right;">(17,902,464)</td> </tr> <tr> <td>2015</td> <td style="text-align: right;">(10,329,845)</td> <td style="text-align: center;">40%</td> <td style="text-align: right;">(4,131,938)</td> </tr> <tr> <td>2014</td> <td style="text-align: right;">31,731,939</td> <td style="text-align: center;">20%</td> <td style="text-align: right;">6,346,388</td> </tr> <tr> <td colspan="3" style="text-align: center;">Total</td> <td style="text-align: right;">1,314,166</td> </tr> </tbody> </table>	Fiscal Year	Return to be Spread	Unrecognized Percent	Unrecognized Return	2017	21,252,725	80%	17,002,180	2016	(29,837,440)	60%	(17,902,464)	2015	(10,329,845)	40%	(4,131,938)	2014	31,731,939	20%	6,346,388	Total			1,314,166
Fiscal Year	Return to be Spread	Unrecognized Percent	Unrecognized Return																						
2017	21,252,725	80%	17,002,180																						
2016	(29,837,440)	60%	(17,902,464)																						
2015	(10,329,845)	40%	(4,131,938)																						
2014	31,731,939	20%	6,346,388																						
Total			1,314,166																						
11. Actuarial Value of Assets (9. – 10.)	489,943,346																								
12. Recognized Rate of Return for the Year on Actuarial Value of Assets	8.42%																								
13. Rate of Return for the Year on Market Value of Assets	11.96%																								

Section 2.4 - Historical Asset Rate of Return

Year Ending 30-Jun	Actuarial Value Annual Recognized Rate of Return	Fair Value Annual Market Rate of Return
2008	7.20%	-5.70%
2009	1.30%	-20.00%
2010	1.60%	12.50%
2011	3.78%	23.37%
2012	0.60%	0.01%
2013	4.04%	12.28%
2014	11.18%	14.23%
2015	9.96%	4.22%
2016	6.22%	0.37%
2017	8.42%	11.96%

Section 2.5 - Forecast of Expected Benefit Payments

Year Ending June 30	Active Employees				Retired Members, Disabled Members and Beneficiaries				Grand Total			
	General Members	Police Members	Fire Members	Subtotal	General Members	Police Members	Fire Members	Subtotal	General Members	Police Members	Fire Members	Subtotal
2017	622,883	431,555	230,316	1,284,754	18,274,172	9,598,569	7,000,287	34,873,028	18,897,055	10,030,124	7,230,603	36,157,782
2018	1,815,425	1,116,543	643,454	3,575,422	18,157,561	9,526,363	6,911,207	34,595,131	19,972,986	10,642,906	7,554,661	38,170,553
2019	2,926,598	1,536,733	1,021,063	5,484,394	18,009,386	9,444,021	6,796,488	34,249,895	20,935,984	10,980,754	7,817,551	39,734,289
2020	3,921,109	1,987,373	1,314,453	7,222,935	17,845,267	9,351,308	6,678,153	33,874,728	21,766,376	11,338,681	7,992,606	41,097,663
2021	4,875,849	2,618,202	1,647,307	9,141,358	17,700,601	9,248,153	6,555,550	33,504,304	22,576,450	11,866,355	8,202,857	42,645,662
2022	5,783,583	3,324,980	1,979,132	11,087,695	17,471,040	9,134,532	6,427,614	33,033,186	23,254,623	12,459,512	8,406,746	44,120,881
2023	6,636,142	3,976,174	2,347,716	12,960,032	17,201,575	9,030,101	6,294,329	32,526,005	23,837,717	13,006,275	8,642,045	45,486,037
2024	7,432,801	4,545,308	2,680,893	14,659,002	16,972,112	8,895,367	6,155,107	32,022,586	24,404,913	13,440,675	8,836,000	46,681,588
2025	8,233,700	4,989,508	3,033,553	16,256,761	16,638,822	8,800,156	6,009,571	31,448,549	24,872,522	13,789,664	9,043,124	47,705,310
2026	9,097,877	5,395,228	3,425,307	17,918,412	16,408,028	8,645,094	5,857,445	30,910,567	25,505,905	14,040,322	9,282,752	48,828,979
2027	9,950,761	5,856,152	3,795,207	19,602,120	16,111,575	8,480,181	5,698,432	30,290,188	26,062,336	14,336,333	9,493,639	49,892,308
2028	10,813,733	6,172,599	4,116,749	21,103,081	15,926,755	8,305,626	5,569,516	29,801,897	26,740,488	14,478,225	9,686,265	50,904,978
2029	11,646,368	6,293,135	4,361,367	22,300,870	15,649,251	8,168,810	5,396,263	29,214,324	27,295,619	14,461,945	9,757,630	51,515,194
2030	12,447,698	6,351,412	4,578,527	23,377,637	15,289,776	7,975,738	5,216,197	28,481,711	27,737,474	14,327,150	9,794,724	51,859,348
2031	13,236,564	6,355,412	4,797,067	24,389,043	14,882,688	7,816,559	5,029,507	27,728,754	28,119,252	14,171,971	9,826,574	52,117,797
2032	13,945,893	6,390,158	4,958,928	25,294,979	14,482,471	7,606,618	4,836,783	26,925,872	28,428,364	13,996,776	9,795,711	52,220,851
2033	14,732,623	6,492,546	5,081,254	26,306,423	14,009,501	7,387,539	4,638,905	26,035,945	28,742,124	13,880,085	9,720,159	52,342,368
2034	15,457,007	6,640,785	5,169,293	27,267,085	13,625,569	7,160,841	4,436,408	25,222,818	29,082,576	13,801,626	9,605,701	52,489,903
2035	16,228,000	6,811,825	5,236,388	28,276,213	13,180,944	6,926,983	4,237,275	24,345,202	29,408,944	13,738,808	9,473,663	52,621,415
2036	16,854,361	7,055,340	5,295,069	29,204,770	12,711,652	6,686,483	4,027,461	23,425,596	29,566,013	13,741,823	9,322,530	52,630,366
2037	17,514,149	7,429,284	5,384,806	30,328,239	12,200,122	6,440,196	3,815,670	22,455,988	29,714,271	13,869,480	9,200,476	52,784,227
2038	18,103,759	7,736,718	5,433,708	31,274,185	11,646,842	6,188,546	3,602,756	21,438,144	29,750,601	13,925,264	9,036,464	52,712,329
2039	18,668,562	8,048,558	5,445,841	32,162,961	11,079,156	5,931,664	3,389,749	20,400,569	29,747,718	13,980,222	8,835,590	52,563,530
2040	19,074,748	8,355,596	5,476,443	32,906,787	10,516,822	5,670,304	3,178,090	19,365,216	29,591,570	14,025,900	8,654,533	52,272,003
2041	19,315,974	8,470,423	5,482,847	33,269,244	9,919,658	5,405,716	2,968,834	18,294,208	29,235,632	13,876,139	8,451,681	51,563,452
2042	19,474,317	8,520,405	5,465,720	33,460,442	9,305,555	5,138,845	2,762,973	17,207,373	28,779,872	13,659,250	8,228,693	50,667,815
2043	19,481,474	8,534,768	5,423,729	33,439,971	8,688,085	4,870,365	2,561,557	16,120,007	28,169,559	13,405,133	7,985,286	49,559,978
2044	19,360,157	8,490,624	5,384,473	33,235,254	8,071,342	4,601,311	2,365,617	15,038,270	27,431,499	13,091,935	7,750,090	48,273,524
2045	19,094,884	8,413,881	5,307,020	32,815,785	7,460,163	4,332,853	2,176,239	13,969,255	26,555,047	12,746,734	7,483,259	46,785,040
2046	18,752,222	8,288,727	5,199,877	32,240,826	6,859,835	4,065,822	1,994,297	12,919,954	25,612,057	12,354,549	7,194,174	45,160,780
2047	18,404,175	8,143,561	5,080,005	31,627,741	6,274,820	3,801,230	1,820,506	11,896,556	24,678,995	11,944,791	6,900,511	43,524,297

*Forecast based on the present employees without assumption about replacement employees

Section 2.6 - Analysis of Changes In Reserves For The Year Ended June 30, 2017

	---Reserve for Employer Contributions---				Reserve for	
	Reserve for Employee Contributions	Regular Account	Undistributed Investment Income	Total	Retired Benefit Payments	Total Reserves
Balance June 30, 2016	\$62,493,224	\$31,819,877	\$0	\$31,819,877	\$362,307,221	\$456,620,321
Prior Year Adjustment	\$0	\$171,282	\$0	\$171,282	(\$171,282)	\$0
Adjustment to the value of the pension	\$0	\$0	\$0	\$0	\$0	\$0
Additions:						
Employee contributions	\$3,325,000			\$0		\$3,325,000
Employer contributions		\$13,253,118		\$13,253,118		\$13,253,118
Investment income			\$55,057,954	\$55,057,954		\$55,057,954
Transfers:						
Board Transfers						
Allowances awarded 7/1/2016 Mark to Market	(\$6,014,362)	(\$16,159,016)		(\$16,159,016)	\$22,173,377	\$0
Deductions:						
Benefits paid					(\$34,408,549)	(\$34,408,549)
Refunds	(\$1,027,105)					(\$1,027,105)
Investment and admin. services Insurance payments			(\$1,563,228)	(\$1,563,228)		(\$1,563,228)
Investment income distributions:						
Regular	\$3,482,210	\$2,137,675	(\$30,541,170)	(\$28,403,495)	\$24,921,285	\$0
Extra interest						
Closing entry		\$22,953,557	(\$22,953,557)	\$0		\$0
Balance June 30, 2017	\$62,258,967	\$54,176,493	\$0	\$54,176,493	\$374,822,052	\$491,257,512

Section 2.7 - Reserve For Retired Benefit Payments

-----Reserve for Retired Benefits Payments-----				
	Regular Account	Pension Contingency Account	Pension Adjustment Account	Total
Balance June 30, 2016	\$362,307,221	\$0	\$0	\$362,307,221
Miscellaneous Adjustments	0			0
Adjustment for benefit reserve	0			0
Beginning of Year Adjustments:				
Special Transfers (per Board action)	0			0
Adjustment per 6/30/2015 Actuarial valuation	<u>(171,282)</u>	<u>0</u>	<u>0</u>	<u>(171,282)</u>
Balance July 1, 2016	\$362,135,939	\$0	\$0	\$362,135,939
Transfers for New Retirees:				
Employer assets	16,159,016			16,159,016
Member contributions	6,014,362			6,014,362
Deductions:				
Benefits Paid	(34,408,549)			(34,408,549)
Miscellaneous adjustment:				
Investment Income Credited:				
Regular	24,921,285			24,921,285
Extra Interest				
End of Year Adjustments:				
Special Transfers (per Board action)	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Balance June 30, 2017	\$374,822,052	\$0	\$0	\$374,822,052

* Conduent HR Consultants recommend that regular account be reset to the retiree liability as of June 30, 2017.

Section 3: Accounting Information

Section 3.1 - Schedule of Changes in Net Pension Liability as of June 30, 2017

The GASB Statement No. 67 Change in Net Pension Liability:

Schedule of Changes In Net Pension Liability	Fiscal Year Ending June 30, 2017	Fiscal Year Ending June 30, 2016
Total pension liability		
Service Cost	\$ 8,869,000	\$ 8,729,000
Interest	37,755,000	36,746,000
Changes of benefit terms	-	-
Differences between expected and actual experience	3,488,000	(3,826,000)
Changes of assumptions	-	-
Benefit payments, including refunds of member contributions	<u>(35,436,000)</u>	<u>(33,960,000)</u>
Net change in total pension liability	14,676,000	7,689,000
Total pension liability - beginning	\$ 544,714,000	\$ 537,025,000
Total pension liability - ending (a)	\$ 559,390,000	\$ 544,714,000
Plan fiduciary net position		
Contributions - employer	\$ 13,253,000	\$ 13,352,000
Contributions - member	3,325,000	3,139,000
Net investment income	54,243,000	2,439,000
Benefit payments, including refunds of member contributions	(35,436,000)	(33,960,000)
Administrative expense	\$ (747,000)	(724,000)
Other	-	-
Net change in plan fiduciary net position	<u>34,638,000</u>	<u>(15,754,000)</u>
Plan fiduciary net position - beginning	\$ 456,620,000	\$ 472,374,000
Plan fiduciary net position - ending (b)	\$ 491,258,000	\$ 456,620,000
Net pension liability (asset) - ending (a)-(b)	\$ 68,132,000	\$ 88,094,000

Section 3.2 - Net Pension Liability (Asset)

The GASB Statement No. 67 Net Pension Liability

Net pension liability (asset)	6/30/2017	6/30/2016
Total pension liability	\$ 559,390,000	\$ 544,714,000
Plan fiduciary net position	<u>491,258,000</u>	<u>456,620,000</u>
Net pension liability (asset)	<u>\$ 68,132,000</u>	<u>\$ 88,094,000</u>
Plan fiduciary net position as a percentage of the total pension liability	87.82%	83.83%
Covered employee payroll	\$ 53,583,000	\$ 50,057,000
Net pension liability (asset) as a percentage of covered employee payroll	127.15%	175.99%

Section 3.3 - Sensitivity

The GASB Statement No. 67 Sensitivity of Net Pension Liability

Sensitivity of the Net Pension Liability to Changes in the Discount Rate at June 30, 2017	1% Decrease	Current Discount Rate	1 % increase
Discount rate	6.00%	7.00%	8.00%
Total pension liability	\$ 620,138,000	\$ 559,390,000	\$ 508,070,000
Plan fiduciary net position	<u>491,258,000</u>	<u>491,258,000</u>	<u>491,258,000</u>
Net pension liability (asset)	\$ 128,880,000	\$ 68,132,000	\$ 16,812,000

Section 3.4 – GASB 68 Information

Collective Pension Expense

Pension Expense	Measurement Year Ending June 30, 2017	Measurement Year Ending June 30, 2016
Service Cost	\$ 8,869,000	\$ 8,729,000
Interest Cost on Total Pension Liability	37,755,000	36,746,000
Projected Earnings On Plan Investments	(31,277,000)	(32,429,000)
Contributions - Member	(3,325,000)	(3,139,000)
Administrative Expense	747,000	724,000
Current period		
Plan changes	-	-
Changes of Assumptions	-	-
Differences between expected and actual liab. experience	1,132,000	(1,226,000)
Difference between projected and actual earnings	(4,593,200)	5,998,000
<u>Recognition of prior years'</u>		
Deferred outflows	8,526,800	2,528,800
Deferred inflows	(1,226,000)	-
Other changes in fiduciary net position	-	-
Total Pension Expense	16,608,600	17,931,800

Pension expense is generally the difference in net pension liability from one measurement date to the next, with the exception of certain amounts that are called deferred inflows and outflows of resources and employer contributions. Inflows are amounts that reduce the net pension liability, while outflows increase the net pension liability. A portion of inflow and outflows are recognized in the current year's pension expense and the rest is deferred and recognized in future years.

The following table shows the change in net pension liability for the 2017 measurement year, isolating the amounts that are subject to deferral. Comparable results from the prior measurement period are also shown.

Change in Net Pension Liability	Fiscal Year Ending June 30, 2017	Fiscal Year Ending June 30, 2016
Balances at beginning of the Year	\$ 88,094,000	\$ 64,651,000
Change for the year:		
Service cost	8,869,000	8,729,000
Interest cost on total pension liability	37,755,000	36,746,000
Projected earnings on plan investments	(31,277,000)	(32,429,000)
Contributions - employer	(13,253,000)	(13,352,000)
Contributions - member	(3,325,000)	(3,139,000)
Administrative expense	747,000	724,000
Plan changes	-	-
<u>Amounts subject to deferral</u>		
Changes in assumptions	-	-
Differences between expected and actual liab. experience	3,488,000	(3,826,000)
Difference between projected and actual earnings	(22,966,000)	29,990,000
Prior year adjustment to Reserves for Pension Liability	-	-
Net changes	(19,962,000)	23,443,000
Balances at end of the Year	\$ 68,132,000	\$ 88,094,000

Section 3.4 – GASB 68 Information (continued)

Details of the recognized and deferred inflows and outflows of resources

Amortization of Changes in Assumptions

**CITY OF ANN ARBOR EMPLOYEES’ RETIREMENT SYSTEM
GASB 68 INFORMATION**

Amortization of Changes in Assumptions

Measurement Year	2015	2016	2017	Total	Outflows	Inflows
Amount Established \$	-	-	-			
Recognition Period	3.12	3.12	3.08			
Annual Recognition \$	-	-	-			
Amount Recognized						
2015 \$	-	-	-	-	-	-
2016	-	-	-	-	-	-
2017	-	-	-	-	-	-
2018	-	-	-	-	-	-
2019	-	-	-	-	-	-
2020	-	-	-	-	-	-
2021	-	-	-	-	-	-
2022	-	-	-	-	-	-
2023	-	-	-	-	-	-
2024	-	-	-	-	-	-
2025	-	-	-	-	-	-
2026	-	-	-	-	-	-
2027	-	-	-	-	-	-
Deferred Balance						
2015 \$	-	-	-	-	-	-
2016	-	-	-	-	-	-
2017	-	-	-	-	-	-
2018	-	-	-	-	-	-
2019	-	-	-	-	-	-
2020	-	-	-	-	-	-
2021	-	-	-	-	-	-
2022	-	-	-	-	-	-
2023	-	-	-	-	-	-
2024	-	-	-	-	-	-
2025	-	-	-	-	-	-
2026	-	-	-	-	-	-
2027	-	-	-	-	-	-

Section 3.4 – GASB 68 Information (continued)

Details of the recognized and deferred inflows and outflows of resources

Amortization of Difference between Actual and Expected Experience

Measurement Year	2015	2016	2017	Total	Outflows	Inflows
Amount Established \$	279,000	(3,826,000)	3,488,000			
Recognition Period	3.12	3.12	3.08			
Annual Recognition \$	89,000	(1,226,000)	1,132,000			
Amount Recognized						
2015 \$	89,000			89,000	89,000	-
2016	89,000	(1,226,000)		(1,137,000)	89,000	(1,226,000)
2017	89,000	(1,226,000)	1,132,000	(5,000)	1,221,000	(1,226,000)
2018	12,000	(1,226,000)	1,132,000	(82,000)	1,144,000	(1,226,000)
2019	-	(148,000)	1,132,000	984,000	1,132,000	(148,000)
2020	-	-	92,000	92,000	92,000	-
2021	-	-	-	-	-	-
2022	-	-	-	-	-	-
2023	-	-	-	-	-	-
2024	-	-	-	-	-	-
2025	-	-	-	-	-	-
2026	-	-	-	-	-	-
2027	-	-	-	-	-	-
Deferred Balance						
2015 \$	190,000			190,000	190,000	-
2016	101,000	(2,600,000)		(2,499,000)	101,000	(2,600,000)
2017	12,000	(1,374,000)	2,356,000	994,000	2,368,000	(1,374,000)
2018	-	(148,000)	1,224,000	1,076,000	1,224,000	(148,000)
2019	-	-	92,000	92,000	92,000	-
2020	-	-	-	-	-	-
2021	-	-	-	-	-	-
2022	-	-	-	-	-	-
2023	-	-	-	-	-	-
2024	-	-	-	-	-	-
2025	-	-	-	-	-	-
2026	-	-	-	-	-	-
2027	-	-	-	-	-	-

Section 3.4 – GASB 68 Information (continued)

Details of the recognized and deferred inflows and outflows of resources

Amortization of Difference between Projected and Actual Earnings

**CITY OF ANN ARBOR EMPLOYEES' RETIREMENT SYSTEM
GASB 68**

Amortization of Difference between Projected and Actual Earnings

Measurement Year	2015	2016	2017	Total	Outflows	Inflows
Amount Established \$	12,199,000	29,990,000	(22,966,000)			
Recognition Period	5.00	5	5			
Annual Recognition \$	2,439,800	5,998,000	(4,593,200)			
Amount Recognized						
2015 \$	2,439,800			2,439,800	2,439,800	-
2016	2,439,800	5,998,000		8,437,800	8,437,800	-
2017	2,439,800	5,998,000	(4,593,200)	3,844,600	8,437,800	(4,593,200)
2018	2,439,800	5,998,000	(4,593,200)	3,844,600	8,437,800	(4,593,200)
2019	2,439,800	5,998,000	(4,593,200)	3,844,600	8,437,800	(4,593,200)
2020	-	5,998,000	(4,593,200)	1,404,800	5,998,000	(4,593,200)
2021	-	-	(4,593,200)	(4,593,200)	-	(4,593,200)
2022	-	-	-	-	-	-
2023	-	-	-	-	-	-
2024	-	-	-	-	-	-
2025	-	-	-	-	-	-
2026	-	-	-	-	-	-
2027	-	-	-	-	-	-
Deferred Balance						
2015 \$	9,759,200			9,759,200	9,759,200	-
2016	7,319,400	23,992,000		31,311,400	31,311,400	-
2017	4,879,600	17,994,000	(18,372,800)	4,500,800	22,873,600	(18,372,800)
2018	2,439,800	11,996,000	(13,779,600)	656,200	14,435,800	(13,779,600)
2019	-	5,998,000	(9,186,400)	(3,188,400)	5,998,000	(9,186,400)
2020	-	-	(4,593,200)	(4,593,200)	-	(4,593,200)
2021	-	-	-	-	-	-
2022	-	-	-	-	-	-
2023	-	-	-	-	-	-
2024	-	-	-	-	-	-
2025	-	-	-	-	-	-
2026	-	-	-	-	-	-
2027	-	-	-	-	-	-

Section 3.5 - Supporting Exhibits

Development of Discount Rate - Projection of Fiduciary Net Position

This projection is used only for determining if the plan has a crossover point for developing the discount rate under GASB 67. For this projection, member contributions and benefit payments do not include amounts for future new members. Employer contributions include projected amounts for current members, plus amounts for new members to the extent the employer contribution exceeds the employer normal cost for the new members.

Since the projection does not produce a crossover point, the discount rate will be the assumed investment rate of return of 7.00%.

Fiscal Year Ending 6/30/	Projected Beginning Fiduciary Net Position (a)	Projected Member Contributions (b)	Projected Employer Contributions (c)	Projected Benefit payments (d)	Projected Investment Earnings* (e)	Projected Ending Fiduciary Net Position (f)=sum (a) thru (e)
2017	456,620,000	3,325,000	13,253,000	(35,435,000)	53,495,000	491,258,000
2018	491,258,000	2,821,148	12,647,103	(36,334,210)	33,658,000	504,050,041
2019	504,050,041	2,665,107	12,498,313	(37,965,657)	34,485,000	515,732,805
2020	515,732,805	2,526,392	12,367,160	(39,382,640)	35,244,000	526,487,717
2021	526,487,717	2,401,234	12,246,800	(40,683,818)	35,943,000	536,394,933
2022	536,394,933	2,269,830	12,125,331	(42,090,592)	36,578,000	545,277,501
2023	545,277,501	2,119,855	11,973,843	(43,452,201)	37,142,000	553,060,998
2024	553,060,998	1,974,868	11,821,516	(44,702,518)	37,633,000	559,787,864
2025	559,787,864	1,837,389	11,666,942	(45,771,180)	38,056,000	565,577,015
2026	565,577,015	1,707,317	11,519,170	(46,721,528)	38,418,000	570,499,975
2027	570,499,975	1,580,516	11,362,042	(47,743,629)	38,717,000	574,415,904
2028	574,415,904	1,433,278	11,250,269	(48,740,598)	38,947,000	577,305,852
2029	577,305,852	1,292,608	11,081,188	(49,665,038)	39,106,000	579,120,610
2030	579,120,610	1,177,615	10,928,153	(50,205,879)	39,205,000	580,225,500
2031	580,225,500	1,088,371	10,796,725	(50,485,255)	39,265,000	580,890,340
2032	580,890,340	1,000,206	10,665,034	(50,728,232)	39,295,000	581,122,349
2033	581,122,349	925,490	10,587,960	(50,761,580)	39,305,000	581,179,219
2034	581,179,219	835,788	10,467,662	(50,809,323)	39,300,000	580,973,347
2035	580,973,347	734,081	10,317,119	(50,886,022)	39,274,000	580,412,526
2036	580,412,526	634,399	10,150,761	(50,928,042)	39,224,000	579,493,645
2037	579,493,645	536,569	9,978,080	(50,749,943)	39,156,000	578,414,350
2038	578,414,350	445,486	9,863,486	(50,592,934)	39,079,000	577,209,389
2039	577,209,389	351,549	9,740,952	(50,201,049)	39,001,000	576,101,841
2040	576,101,841	278,853	9,611,670	(49,786,914)	38,931,000	575,136,451
2041	575,136,451	181,251	9,441,015	(49,247,819)	38,873,000	574,383,897
2042	574,383,897	120,983	9,303,314	(48,314,441)	38,846,000	574,339,753
2043	574,339,753	74,335	9,224,607	(47,172,246)	38,878,000	575,344,450
2044	575,344,450	43,867	9,159,810	(45,837,592)	38,992,000	577,702,534
2045	577,702,534	27,456	9,097,520	(44,363,445)	39,206,000	581,670,065
2046	581,670,065	17,077	9,021,574	(42,766,925)	39,536,000	587,477,791
2047	587,477,791	10,610	8,937,628	(41,086,212)	39,999,000	595,338,817
2048	595,338,817	6,883	8,847,571	(39,435,747)	40,603,000	605,360,524

Section 3.5 – Supporting Exhibits (continued)

Development of Discount Rate - Projection of Fiduciary Net Position (continued)

Fiscal Year Ending 6/30/	Projected Beginning Fiduciary Net Position (a)	Projected Member Contributions (b)	Projected Employer Contributions (c)	Projected Benefit payments (d)	Projected Investment Earnings* (e)	Projected Ending Fiduciary Net Position (f)=sum (a) thru (e)
2049	605,360,524	4,545	8,768,588	(37,777,597)	41,360,000	617,716,060
2050	617,716,060	3,038	8,674,768	(36,133,738)	42,279,000	632,539,127
2051	632,539,127	1,994	8,564,853	(34,351,194)	43,375,000	650,129,780
2052	650,129,780	1,298	8,428,641	(32,609,073)	44,663,000	670,613,647
2053	670,613,647	845	8,278,290	(30,839,418)	46,153,000	694,206,364
2054	694,206,364	513	8,136,394	(29,074,264)	47,862,000	721,131,007
2055	721,131,007	294	7,981,400	(27,337,169)	49,802,000	751,577,533
2056	751,577,533	151	7,810,947	(25,633,035)	51,987,000	785,742,596
2057	785,742,596	89	7,615,744	(23,966,733)	54,430,000	823,821,696
2058	823,821,696	48	7,396,454	(22,344,695)	57,144,000	866,017,503
2059	866,017,503	23	7,173,827	(20,771,842)	60,145,000	912,564,511
2060	912,564,511	11	6,940,938	(19,251,710)	63,449,000	963,702,750
2061	963,702,750	3	6,691,907	(17,787,970)	67,071,000	1,019,677,690
2062	1,019,677,690	2	6,414,411	(16,383,494)	71,029,000	1,080,737,609
2063	1,080,737,609	0	6,107,585	(15,041,061)	75,339,000	1,147,143,133
2064	1,147,143,133	0	5,785,600	(13,763,153)	80,021,000	1,219,186,581
2065	1,219,186,581	0	5,446,689	(12,549,997)	85,094,000	1,297,177,272
2066	1,297,177,272	0	5,088,526	(11,401,604)	90,581,000	1,381,445,194
2067	1,381,445,194	0	4,698,802	(10,319,940)	96,504,000	1,472,328,057
2068	1,472,328,057	0	4,278,116	(9,305,407)	102,887,000	1,570,187,766
2069	1,570,187,766	0	3,829,272	(8,355,575)	109,755,000	1,675,416,462
2070	1,675,416,462	0	3,357,229	(7,469,634)	117,135,000	1,788,439,058
2071	1,788,439,058	0	2,859,500	(6,647,253)	125,058,000	1,909,709,305
2072	1,909,709,305	0	2,331,546	(5,887,641)	133,555,000	2,039,708,210
2073	2,039,708,210	0	1,922,591	(5,187,663)	142,665,000	2,179,108,138
2074	2,179,108,138	0	1,992,603	(4,544,729)	152,448,000	2,329,004,013
2075	2,329,004,013	0	2,065,010	(3,958,393)	162,964,000	2,490,074,630
2076	2,490,074,630	0	2,139,892	(3,425,925)	174,260,000	2,663,048,597
2077	2,663,048,597	0	2,217,369	(2,942,923)	186,388,000	2,848,711,043
2078	2,848,711,043	0	2,297,710	(2,507,274)	199,402,000	3,047,903,480
2079	3,047,903,480	0	2,381,069	(2,118,417)	213,362,000	3,261,528,132
2080	3,261,528,132	0	2,467,382	(1,774,235)	228,331,000	3,490,552,279

* The contributions and benefit payments occur halfway through the year and Investment Return is net of Administrative Expenses

**There is no crossover point in this analysis.

After 2047, the projected investment earnings will exceed the projected benefit payments.

3.5 – Supporting Exhibits (continued)

Actuarial Assumptions, Method and Additional Information under GASB No. 67

The total pension liability as of June 30, 2017 was determined by rolling forward the total pension liability as of June 30, 2016 to June 30, 2017 using the following actuarial methods and assumptions, applied to all periods included in the measurement. All other assumptions such as Mortality table, retirement rates, termination rates, and disability rates used to determine the total pension liability are set forth in Section 6.3.

Valuation Date: 6/30/2016
 Actuarial Cost Method: Entry Age

Amortization Method: For pension expense, the differences between expected and actual liability experience and changes of assumptions are amortized over the the average of the expected remaining service lives of all members. The difference between projected and actual earnings is amortized over a closed period of five years.

Asset valuation method: Market value
 Actuarial assumptions:

- Investment Rate of Return 7%
- Projected Salary Increases 3.50%
- Payroll Increases 0.3%-6.0%
- Inflation Assumption 3.50%
- Cost of Living Adjustments Adjustments are funded by financial gains, and are not guaranteed

Discount rate: The discount rate used to measure the total pension liability was 7.00%. The projection of cash flows used to determine the discount rate assumed that System contributions will continue to follow the current funding policy. Based on those assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Please see Section 3.5 for additional detail. The cross over analysis produces a single rate of 7.00%, which reflects the long-term expected rate of return on ERS investments. Therefore, the discount rate was applied to all periods of projected benefit payments to determine the total pension liability. In the event of benefit payments not covered by the Plan's fiduciary net position, a municipal bond rate of 3.13 percent would have been used to discount the benefit payments not covered by the Plan's fiduciary net position. The 3.13 percent rate equals the S&P Municipal Bond 20-Year High Grade Rate Index (yield to maturity) at June 30, 2017.

The average expected remaining years of service: The period is 3.12 years last year.

The following is a summary of the membership counts and the development of the average expected remaining years of service as of June 30, 2016.

Remaining service lives			
Group	Number	Service	Average
Retired members and survivors of deceased members currently receiving benefits	1,017	-	
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	151	-	
Active members	<u>685</u>	<u>5,706</u>	
Total	1,853	5,706	3.08

Section 4: Actuarial Funding Projections

Section 4.1 - Projection Assumptions and Methods

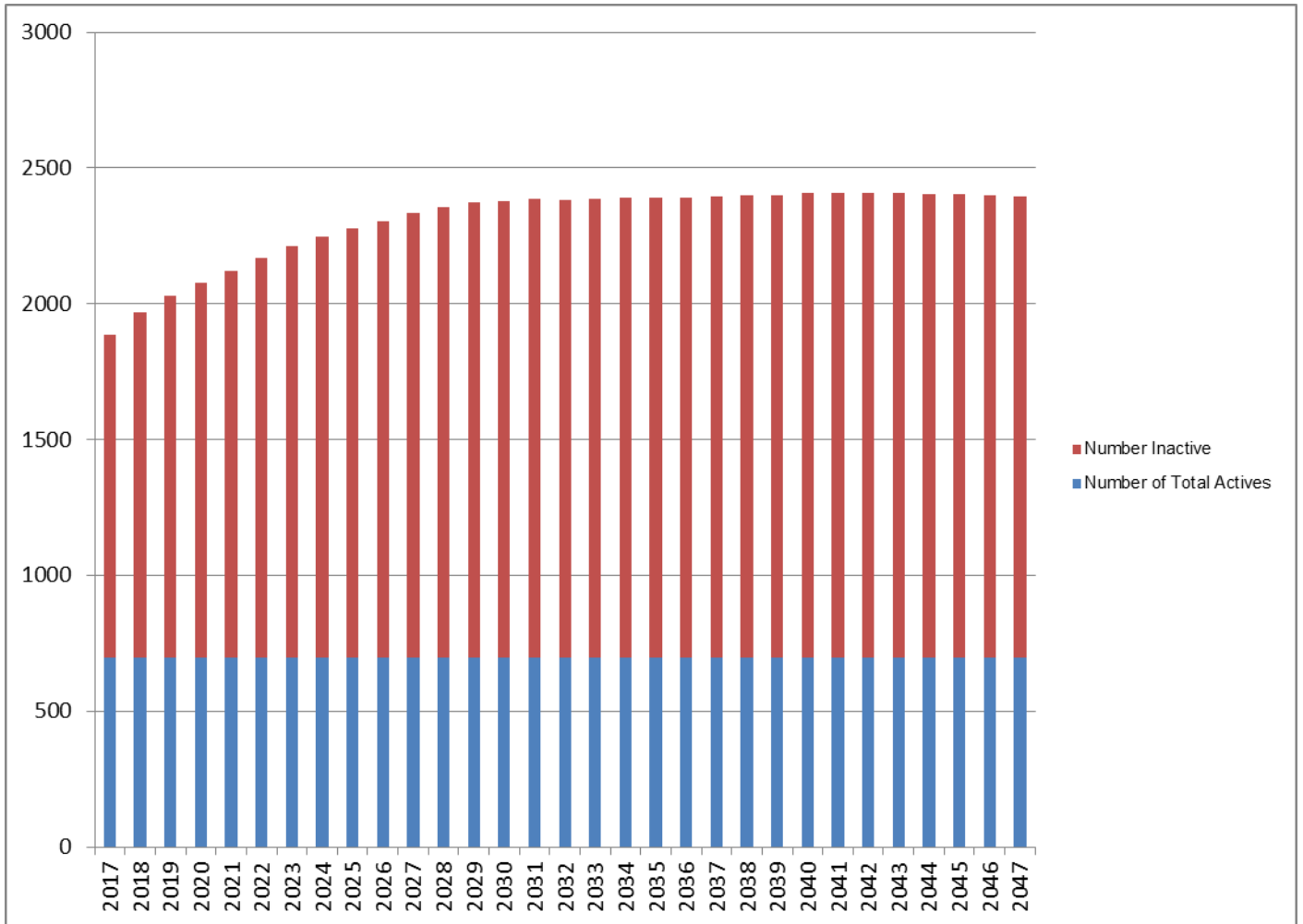
Key Assumptions

- 7.0% investment return on the Fair Value of Assets in all future years.
- 7.0% discount rate for determining liability.
- The Actuarial Value of Assets reflects the deferred gains and losses generated by the smoothing method. The current deferred amounts are recognized in the first four years of the projections.
- Actuarial assumptions and methods as described in Section 6. All future demographic experience is assumed to be exactly realized.
- The actuarially calculated contribution rate is contributed each year.
- Projections assume a 0% increase in the total active member population. All new future members are expected to enter the plan upon date of hire and contribution rates are determined as a percent of total payroll.
- The projections are based on the combined impact of the Minimum Required Policy and the Funding Plan.
- For the Sensitivity Analysis, all assumptions and methods are the same except investment returns on the Fair Value of Assets are assumed as follows:
 - Base Case: 7.00% for all future years
 - Optimistic: 8.00% for all future years
 - Pessimistic: 6.00% for all future years

These scenarios are intended to illustrate the impact if investment return assumptions are different than the 7.00% assumed investment return. They do not illustrate the effect of changing the assumed discount rate for determining liabilities.

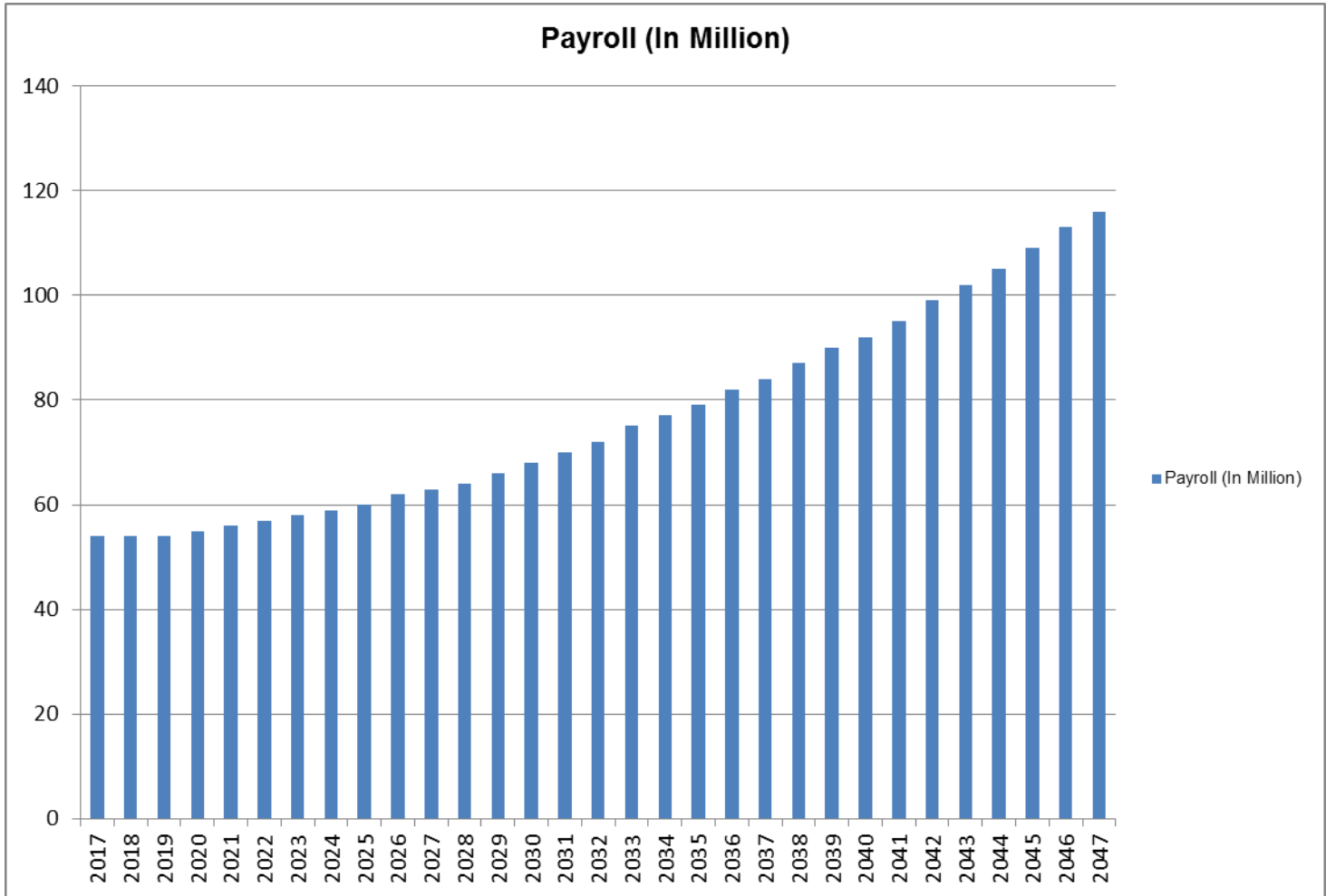
Section 4.2 - Membership Projection

Projected Member Count

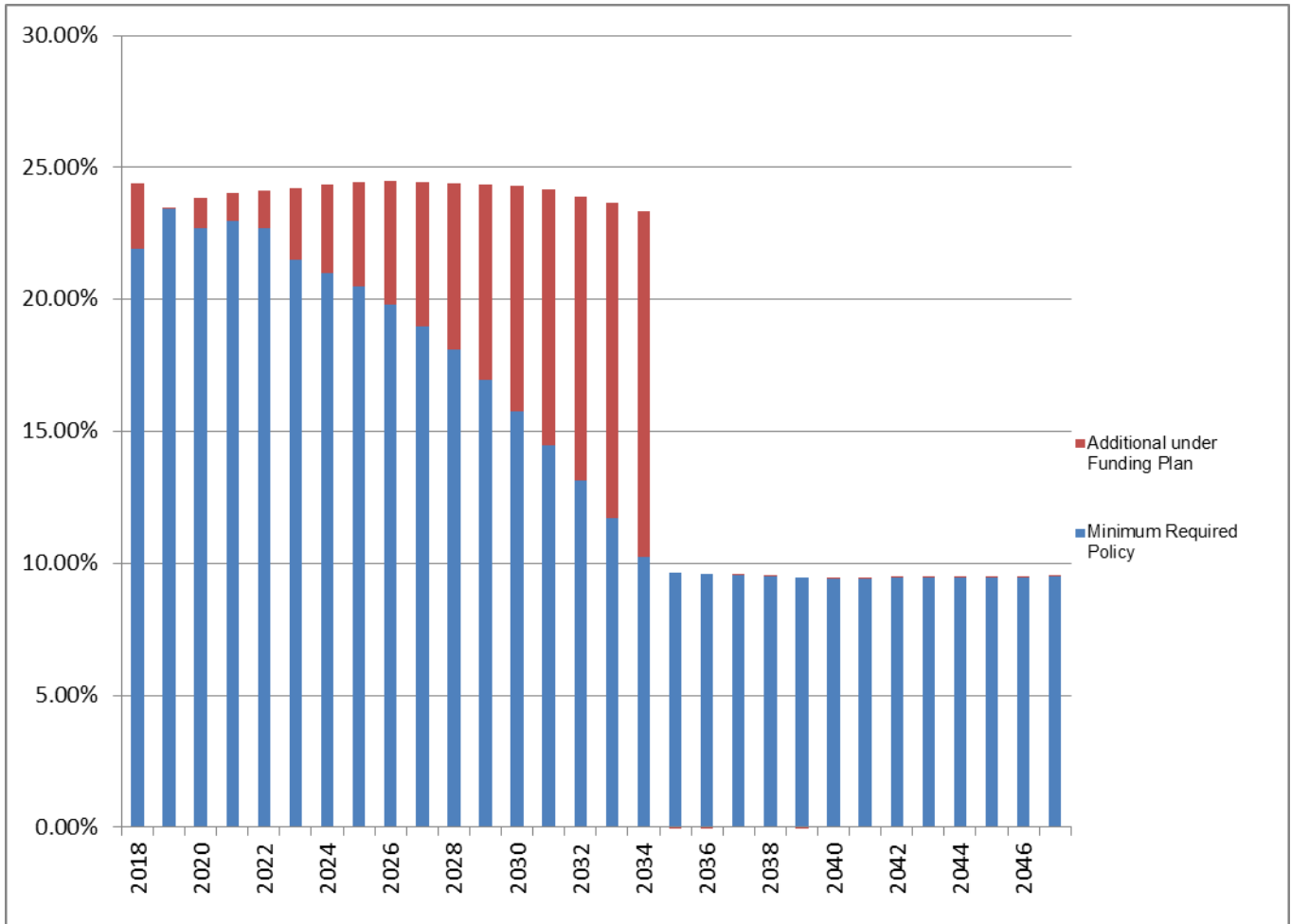


Section 4.2 Membership Projection (continued)

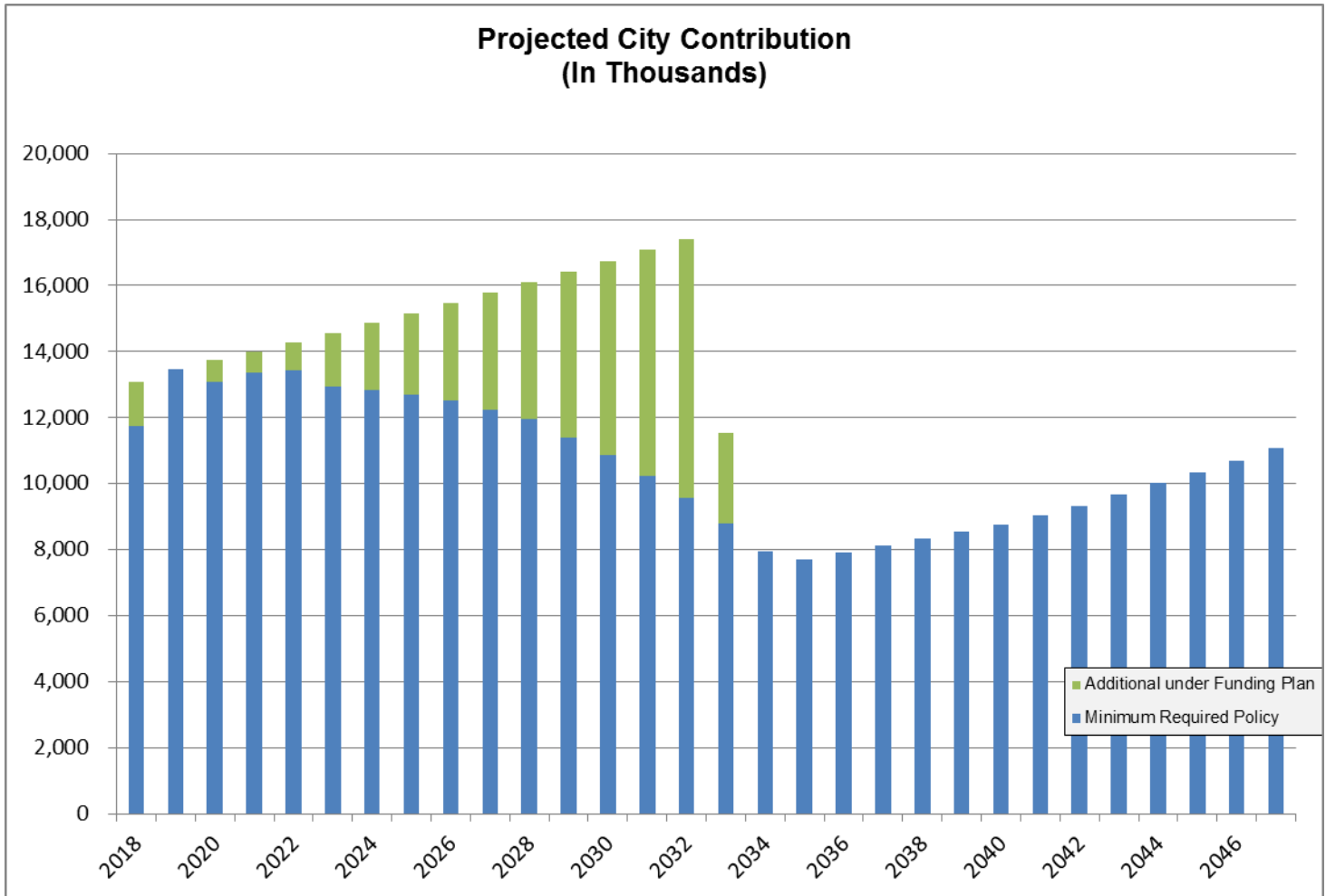
Projected Current and New Member Payroll



Section 4.3 - Projection of Employer Contribution Rates

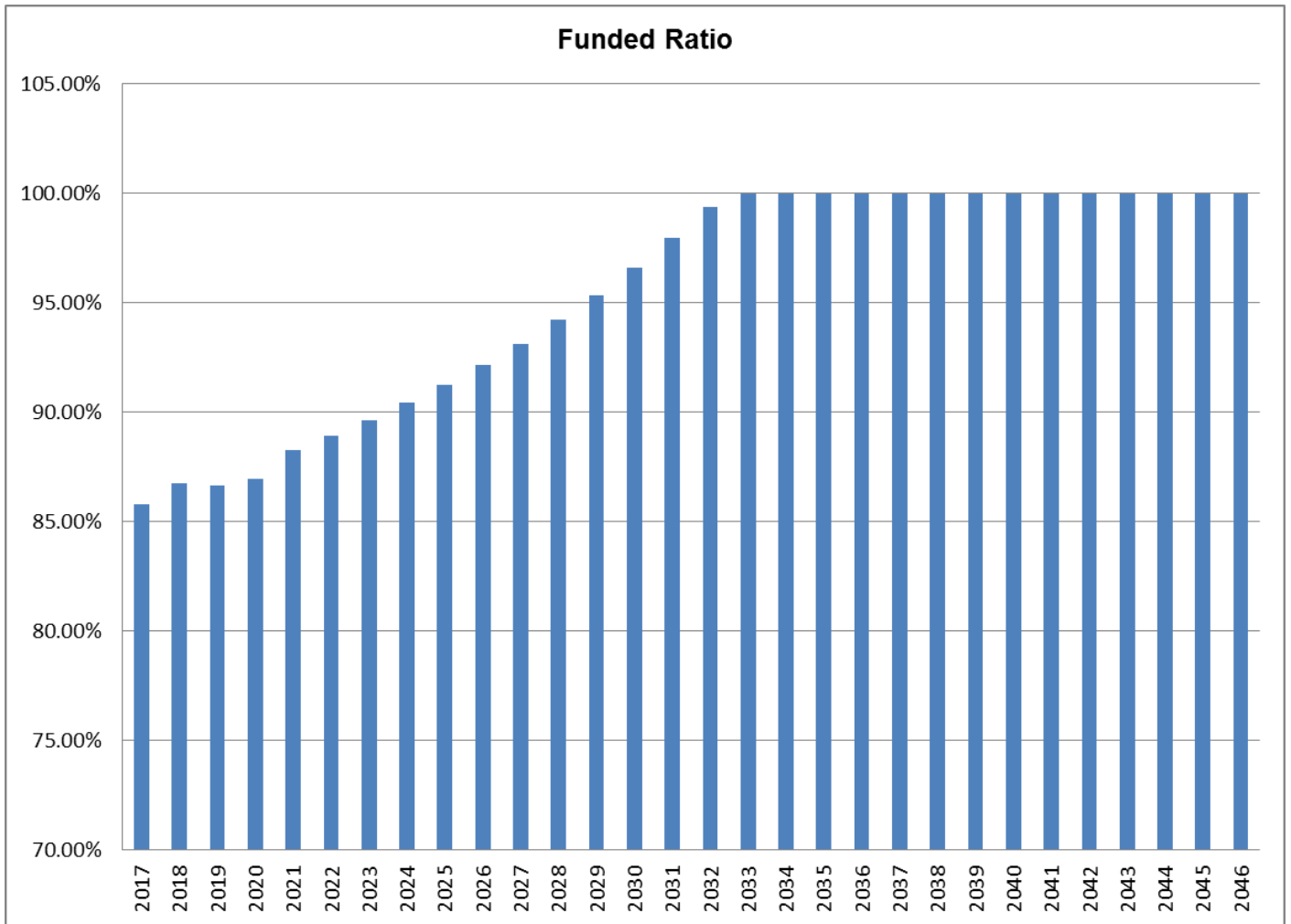


Section 4.4 - Projection of Employer Contribution Amounts



T

Section 4.5 - Projection of Funded Status



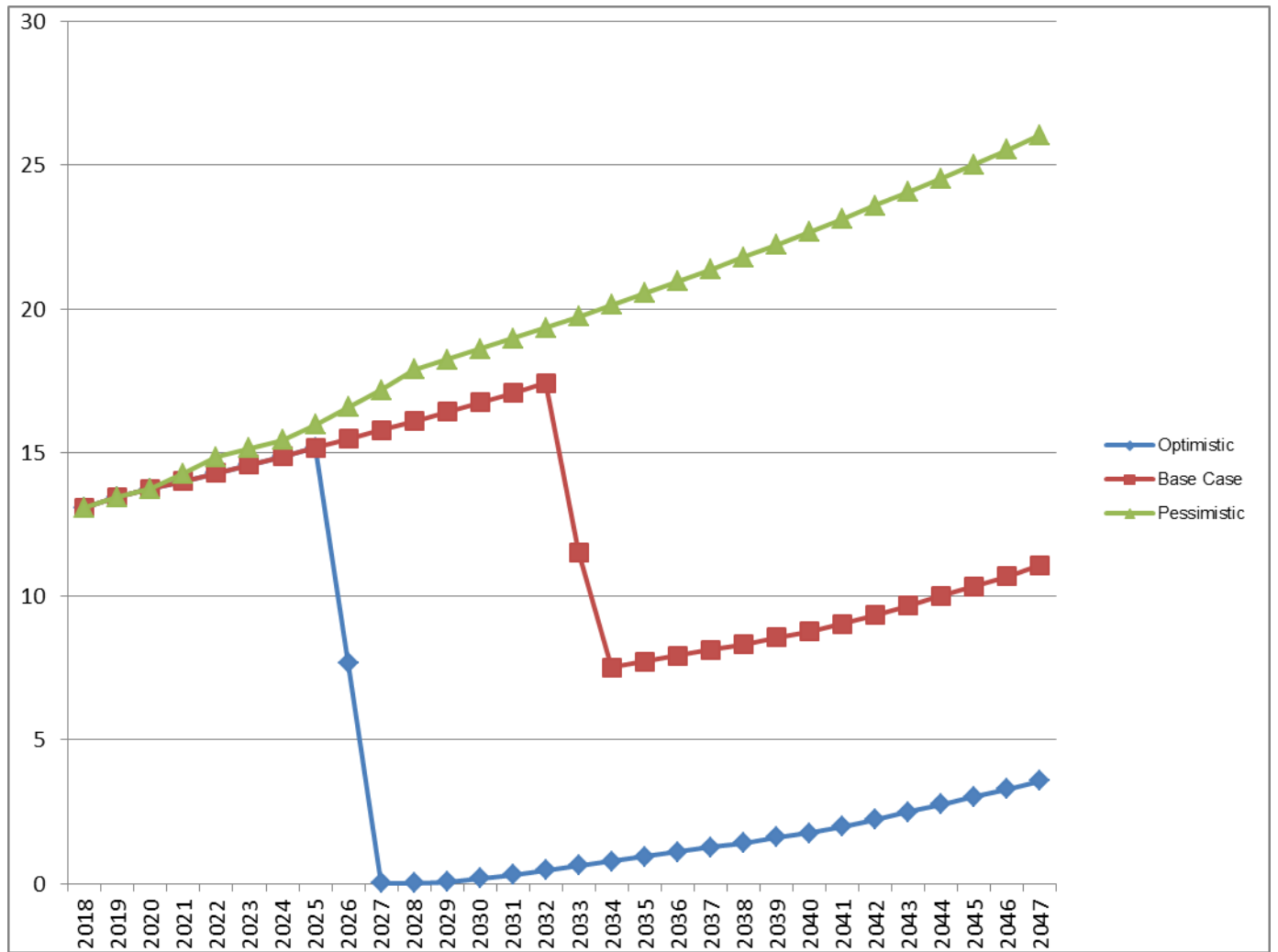
Section 4.6 - Table of Projected Actuarial Results (\$'s in 000's)

Year	Cashflows for the next year							Valuation Amounts on June 30				
	Contributions						Benefit Payments	Investment Earnings	Actuarial	Actuarial		Surplus (Deficit)
	Employer Contributions			Employee Contributions	Total Contributions	Value of Asset			Accrued Liability	Funded Ratio		
	Min Req'd	Additional	Funding Plan			Value of Asset			Accrued Liability	Funded Ratio		
2017	11,757	1,325	13,082	3,172	16,254	36,159	36,255	489,943	571,074	85.79%	(81,131)	
2018	13,465	0	13,465	3,102	16,566	38,171	30,814	506,294	583,640	86.75%	(77,346)	
2019	13,074	660	13,734	3,070	16,804	39,735	33,743	515,503	594,878	86.66%	(79,375)	
2020	13,380	629	14,009	3,059	17,068	41,098	40,549	526,314	605,241	86.96%	(78,926)	
2021	13,442	847	14,289	3,043	17,332	42,646	37,112	542,833	614,909	88.28%	(72,076)	
2022	12,954	1,621	14,575	3,017	17,591	44,122	37,896	554,631	623,591	88.94%	(68,960)	
2023	12,827	2,039	14,866	2,995	17,861	45,487	38,653	565,996	631,303	89.66%	(65,307)	
2024	12,695	2,468	15,164	2,984	18,147	46,683	39,393	577,023	638,119	90.43%	(61,095)	
2025	12,520	2,947	15,467	2,983	18,450	47,708	40,128	587,881	644,206	91.26%	(56,325)	
2026	12,234	3,542	15,776	2,991	18,767	48,833	40,860	598,750	649,710	92.16%	(50,960)	
2027	11,957	4,135	16,092	2,982	19,073	49,898	41,589	609,545	654,443	93.14%	(44,899)	
2028	11,404	5,010	16,413	2,986	19,399	50,935	42,318	620,309	658,476	94.20%	(38,167)	
2029	10,851	5,891	16,742	3,012	19,753	51,594	43,062	631,091	661,815	95.36%	(30,724)	
2030	10,229	6,848	17,077	3,059	20,136	52,005	43,846	642,313	664,900	96.60%	(22,587)	
2031	9,560	7,858	17,418	3,114	20,532	52,355	44,687	654,290	667,998	97.95%	(13,708)	
2032	8,797	2,737	11,534	3,181	14,715	52,557	45,376	667,153	671,207	99.40%	(4,054)	
2033	7,953	(430)	7,523	3,241	10,764	52,798	45,757	674,688	674,688	100.00%	0	
2034	7,722	0	7,722	3,299	11,021	53,090	46,016	678,411	678,411	100.00%	0	
2035	7,929	0	7,929	3,363	11,292	53,401	46,291	682,358	682,358	100.00%	0	
2036	8,130	0	8,130	3,431	11,561	53,614	46,586	686,541	686,541	100.00%	0	
2037	8,322	0	8,322	3,500	11,822	54,005	46,899	691,074	691,074	100.00%	0	
2038	8,562	0	8,562	3,564	12,126	54,298	47,229	695,790	695,790	100.00%	0	
2039	8,770	0	8,770	3,650	12,420	54,684	47,580	700,847	700,847	100.00%	0	
2040	9,044	0	9,044	3,715	12,759	55,075	47,950	706,162	706,162	100.00%	0	
2041	9,338	0	9,338	3,813	13,151	55,222	48,353	711,798	711,798	100.00%	0	
2042	9,664	0	9,664	3,919	13,583	55,338	48,804	718,080	718,080	100.00%	0	
2043	10,007	0	10,007	4,038	14,046	55,420	49,311	725,130	725,130	100.00%	0	
2044	10,342	0	10,342	4,169	14,511	55,575	49,877	733,066	733,066	100.00%	0	
2045	10,690	0	10,690	4,298	14,988	55,807	50,503	741,880	741,880	100.00%	0	
2046	11,069	0	11,069	4,436	15,504	56,040	51,191	751,564	751,564	100.00%	0	

Note: Forecast based on the present employees with assumption about replacement employees and change in plan Provisions apply to new members.

Section 4.7 - Sensitivity Analysis

Impact Various Investment Rates of Return Have on the Employer Contribution Amount



Section 5: Member Data

Section 5.1 - Summary of Members Included

As of June 30	Summary of Members Included							
	General		Police		Fire		Total	
	2017	2016	2017	2016	2017	2016	2017	2016
Active Members								
(1) Number	495	488	121	120	80	77	696	685
(2) Average Age	45.4	45.9	41.6	42.0	44.3	45.6	44.6	45.2
(3) Average Credited Service	10.3	10.6	13.9	14.9	15.7	17	11.5	12.1
(4) Average Annual Earnings	\$ 71,294	\$ 67,288	\$ 92,925	\$ 87,396	\$ 88,109	\$ 87,446	\$ 76,987	\$ 73,077
Retirees, Disableds and Beneficiaries								
(1) Number	672	661	207	202	161	154	1,040	1,017
(2) Average Age	69.0	68.6	65.9	66.0	70.5	70.6	68.6	68.4
(3) Average Monthly Pension Benefit	\$ 2,250	\$ 2,224	\$ 3,877	\$ 3,782	\$ 3,650	\$ 3,621	\$ 2,790	\$ 2,745
Vested Terminations (vested at time of termination, not refunded contributions or commenced benefit)								
(1) Number	139	139	8	9	3	3	150	151
(2) Average Age	51.2	51.4	48.8	48.7	49.9	48.9	51.1	51.2
(3) Average Monthly Pension Benefit	\$ 1,152	\$ 1,037	\$ 1,709	\$ 1,760	\$ 1,923	\$ 1,923	\$ 1,197	\$ 1,098
Total Number of Members	1,306	1,288	336	331	244	234	1,886	1,853

Section 5.2 - Age and Service Distribution of Active Members As of June 30, 2017

Total

Attained Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
15-19	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
20-24	Number	14	0	0	0	0	0	0	0	14
	Total Salary	617,264	0	0	0	0	0	0	0	617,264
	Average Salary	44,090	0	0	0	0	0	0	0	44,090
25-29	Number	49	5	0	0	0	0	0	0	54
	Total Salary	2,689,927	339,798	0	0	0	0	0	0	3,029,725
	Average Salary	54,896	67,960	0	0	0	0	0	0	56,106
30-34	Number	49	11	4	0	0	0	0	0	64
	Total Salary	2,911,670	796,522	265,867	0	0	0	0	0	3,974,059
	Average Salary	59,422	72,411	66,467	0	0	0	0	0	62,095
35-39	Number	45	17	14	6	0	0	0	0	82
	Total Salary	2,854,003	1,202,112	1,029,758	448,407	0	0	0	0	5,534,280
	Average Salary	63,422	70,712	73,554	74,735	0	0	0	0	67,491
40-44	Number	31	15	23	38	11	0	0	0	118
	Total Salary	1,992,778	1,116,151	1,804,540	3,326,092	1,086,060	0	0	0	9,325,621
	Average Salary	64,283	74,410	78,458	87,529	98,733	0	0	0	79,031
45-49	Number	23	18	24	37	44	10	0	0	156
	Total Salary	1,571,336	1,482,112	1,921,303	3,383,746	4,284,461	974,294	0	0	13,617,252
	Average Salary	68,319	82,340	80,054	91,453	97,374	97,429	0	0	87,290
50-54	Number	12	10	14	20	21	24	2	0	103
	Total Salary	653,170	734,290	1,143,831	1,630,719	2,000,554	2,238,383	262,844	0	8,663,791
	Average Salary	54,431	73,429	81,702	81,536	95,264	93,266	131,422	0	84,114
55-59	Number	13	8	15	17	13	10	1	0	77
	Total Salary	1,022,372	570,793	1,302,142	1,277,099	1,257,406	980,087	64,146	0	6,474,045
	Average Salary	78,644	71,349	86,809	75,123	96,724	98,009	64,146	0	84,079
60-64	Number	2	6	5	3	3	0	3	0	22
	Total Salary	262,140	450,354	338,235	200,135	317,523	0	282,850	0	1,851,237
	Average Salary	131,070	75,059	67,647	66,712	105,841	0	94,283	0	84,147
65-69	Number	0	2	0	0	3	0	0	1	6
	Total Salary	0	156,541	0	0	234,384	0	0	105,080	496,005
	Average Salary	0	78,271	0	0	78,128	0	0	105,080	82,668
TOTAL	Number	238	92	99	121	95	44	6	1	696
	Total Salary	14,574,659	6,848,673	7,805,675	10,266,199	9,180,388	4,192,764	609,840	105,080	53,583,278
	Average Salary	61,238	74,442	78,845	84,845	96,636	95,290	101,640	105,080	76,987

Section 5.2 - Age and Service Distribution of Active Members As of June 30, 2017 (continued)

General

Attained Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
15-19	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
20-24	Number	9	0	0	0	0	0	0	0	9
	Total Salary	371,696	0	0	0	0	0	0	0	371,696
	Average Salary	41,300	0	0	0	0	0	0	0	41,300
25-29	Number	35	4	0	0	0	0	0	0	39
	Total Salary	1,825,439	244,437	0	0	0	0	0	0	2,069,876
	Average Salary	52,155	61,109	0	0	0	0	0	0	53,074
30-34	Number	27	7	3	0	0	0	0	0	37
	Total Salary	1,601,190	443,719	174,900	0	0	0	0	0	2,219,809
	Average Salary	59,303	63,388	58,300	0	0	0	0	0	59,995
35-39	Number	34	16	12	3	0	0	0	0	65
	Total Salary	2,090,534	1,112,564	844,335	140,864	0	0	0	0	4,188,297
	Average Salary	61,486	69,535	70,361	46,955	0	0	0	0	64,435
40-44	Number	30	15	19	12	2	0	0	0	78
	Total Salary	1,927,662	1,116,151	1,476,383	788,606	172,441	0	0	0	5,481,243
	Average Salary	64,255	74,410	77,704	65,717	86,221	0	0	0	70,272
45-49	Number	22	16	19	17	17	4	0	0	95
	Total Salary	1,510,085	1,302,807	1,479,430	1,357,160	1,363,523	296,862	0	0	7,309,867
	Average Salary	68,640	81,425	77,865	79,833	80,207	74,216	0	0	76,946
50-54	Number	11	10	14	18	11	13	1	0	78
	Total Salary	601,105	734,290	1,143,831	1,411,446	987,489	1,009,745	117,523	0	6,005,429
	Average Salary	54,646	73,429	81,702	78,414	89,772	77,673	117,523	0	76,993
55-59	Number	13	8	15	15	7	7	1	0	66
	Total Salary	1,022,372	570,793	1,302,142	1,088,650	600,703	648,315	64,146	0	5,297,121
	Average Salary	78,644	71,349	86,809	72,577	85,815	92,616	64,146	0	80,259
60-64	Number	2	6	5	3	3	0	3	0	22
	Total Salary	262,140	450,354	338,235	200,135	317,523	0	282,850	0	1,851,237
	Average Salary	131,070	75,059	67,647	66,712	105,841	0	94,283	0	84,147
65-69	Number	0	2	0	0	3	0	0	1	6
	Total Salary	0	156,541	0	0	234,384	0	0	105,080	496,005
	Average Salary	0	78,271	0	0	78,128	0	0	105,080	82,668
TOTAL	Number	183	84	87	68	43	24	5	1	495
	Total Salary	11,212,223	6,131,654	6,759,255	4,986,860	3,676,062	1,954,922	464,519	105,080	35,290,575
	Average Salary	61,269	72,996	77,693	73,336	85,490	81,455	92,904	105,080	71,294

Section 5.2 - Age and Service Distribution of Active Members As of June 30, 2017 (continued)

Police

Attained Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
15-19	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
20-24	Number	4	0	0	0	0	0	0	0	4
	Total Salary	202,953	0	0	0	0	0	0	0	202,953
	Average Salary	50,738	0	0	0	0	0	0	0	50,738
25-29	Number	10	1	0	0	0	0	0	0	11
	Total Salary	676,783	95,362	0	0	0	0	0	0	772,145
	Average Salary	67,678	95,362	0	0	0	0	0	0	70,195
30-34	Number	14	4	1	0	0	0	0	0	19
	Total Salary	923,199	352,803	90,967	0	0	0	0	0	1,366,969
	Average Salary	65,943	88,201	90,967	0	0	0	0	0	71,946
35-39	Number	9	0	1	2	0	0	0	0	12
	Total Salary	641,955	0	98,851	214,562	0	0	0	0	955,368
	Average Salary	71,328	0	98,851	107,281	0	0	0	0	79,614
40-44	Number	0	0	0	17	5	0	0	0	22
	Total Salary	0	0	0	1,681,992	521,775	0	0	0	2,203,767
	Average Salary	0	0	0	98,941	104,355	0	0	0	100,171
45-49	Number	0	0	1	11	21	2	0	0	35
	Total Salary	0	0	92,597	1,176,738	2,255,049	247,361	0	0	3,771,745
	Average Salary	0	0	92,597	106,976	107,383	123,681	0	0	107,764
50-54	Number	1	0	0	2	4	4	1	0	12
	Total Salary	52,066	0	0	219,273	444,314	442,256	145,321	0	1,303,230
	Average Salary	52,066	0	0	109,637	111,079	110,564	145,321	0	108,603
55-59	Number	0	0	0	0	5	1	0	0	6
	Total Salary	0	0	0	0	551,423	116,375	0	0	667,798
	Average Salary	0	0	0	0	110,285	116,375	0	0	111,300
60-64	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
65-69	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
TOTAL	Number	38	5	3	32	35	7	1	0	121
	Total Salary	2,496,956	448,165	282,415	3,292,567	3,772,561	805,992	145,321	0	11,243,977
	Average Salary	65,709	89,633	94,138	102,893	107,787	115,142	145,321	0	92,925

Section 5.2 - Age and Service Distribution of Active Members As of June 30, 2017 (continued)

Fire

Attained Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
15-19	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
20-24	Number	1	0	0	0	0	0	0	0	1
	Total Salary	42,614	0	0	0	0	0	0	0	42,614
	Average Salary	42,614	0	0	0	0	0	0	0	42,614
25-29	Number	4	0	0	0	0	0	0	0	4
	Total Salary	187,704	0	0	0	0	0	0	0	187,704
	Average Salary	46,926	0	0	0	0	0	0	0	46,926
30-34	Number	8	0	0	0	0	0	0	0	8
	Total Salary	387,280	0	0	0	0	0	0	0	387,280
	Average Salary	48,410	0	0	0	0	0	0	0	48,410
35-39	Number	2	1	1	1	0	0	0	0	5
	Total Salary	121,514	89,547	86,572	92,981	0	0	0	0	390,614
	Average Salary	60,757	89,547	86,572	92,981	0	0	0	0	78,123
40-44	Number	1	0	4	9	4	0	0	0	18
	Total Salary	65,116	0	328,157	855,494	391,844	0	0	0	1,640,611
	Average Salary	65,116	0	82,039	95,055	97,961	0	0	0	91,145
45-49	Number	1	2	4	9	6	4	0	0	26
	Total Salary	61,250	179,306	349,276	849,848	665,890	430,072	0	0	2,535,642
	Average Salary	61,250	89,653	87,319	94,428	110,982	107,518	0	0	97,525
50-54	Number	0	0	0	0	6	7	0	0	13
	Total Salary	0	0	0	0	568,752	786,382	0	0	1,355,134
	Average Salary	0	0	0	0	94,792	112,340	0	0	104,241
55-59	Number	0	0	0	2	1	2	0	0	5
	Total Salary	0	0	0	188,449	105,279	215,396	0	0	509,124
	Average Salary	0	0	0	94,225	105,279	107,698	0	0	101,825
60-64	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
65-69	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
TOTAL	Number	17	3	9	21	17	13	0	0	80
	Total Salary	865,480	268,853	764,004	1,986,773	1,731,765	1,431,850	0	0	7,048,725
	Average Salary	50,911	89,618	84,889	94,608	101,869	110,142	0	0	88,109

Section 5.3 - Member Data Reconciliation

	Active Members	Inactive Members				Total
		With Deferred Benefits	Retired Members	Disabled Members	Bene-ficiaries	
As of 6/30/2016	685	151	844	29	144	1,853
Age Retirements	(34)	(2)	34			(2)
Disability Retirements	0		0	0	0	0
Deaths Without Beneficiary		(2)	(8)	0	(9)	(19)
Deaths With Beneficiary			(12)	(1)	16	3
Non-vested Terminations	(14)	0				(14)
Vested Terminations	(11)	11	2		0	2
Rehires	0	0				0
Cash-outs	0	0		0		0
Expiration of Benefits						0
Data Corrections	0	(8)	0			(8)
Transfers Out						0
Pick Ups			1			1
Net Change	(59)	(1)	17	(1)	7	(37)
New Entrants During the Year	70					70
As of 6/30/2017	696	150	861	28	151	1,886

Number Added To And Removed From Active Membership

Year Ended	Number Added During Year		Terminations During Year										Active Members End of Year
			Age & Service Retirement		Disability Retirement		Died-in Service		Withdrawals				
	A	E	A	E	A	E	A	E	Vested	Other*	Total		

GENERAL MEMBERS

2013	36	37	11	16.8	2	1.4	2	0.7	14	8	22	22.2	460
2014	38	22	14	19.5	0	1.4	0	0.8	3	5	8	17.8	476
2015	48	41	23	23.8	1	1.4	0	0.8	8	9	17	18.0	483
2016	46	41	23	26.7	1	1.4	0	0.8	9	8	17	18.0	488
2017	51	44	19	26.7	0	1.4	0	0.8	11	14	25	18.0	495
5-Yr. Totals			90	113.5	4	7.0	2	3.9			89	94.0	

POLICE MEMBERS

2013	9	7	7	3.4	0	0.3	0	0.1	0	0	0	1.7	115
2014	3	3	2	4.3	0	0.3	0	0.1	0	1	1	1.6	115
2015	10	4	1	4.6	0	0.3	0	0.1	1	2	3	1.3	121
2016	7	8	7	7.2	0	0.4	0	0.1	0	1	1	1.8	120
2017	10	9	9	7.2	0	0.4	0	0.1	0	0	0	1.8	121
5-Yr. Totals			26	26.7	0	1.7	0	0.5			5	8.2	

FIRE MEMBERS

2013	9	0	0	3.3	0	0.1	0	0.1	0	0	0	0.9	85
2014	0	1	1	3.3	0	0.1	0	0.1	0	0	0	0.9	84
2015	1	1	1	3.9	0	0.1	0	0.1	0	0	0	0.9	84
2016	-2 **	5	5	4.4	0	0.1	0	0.1	0	0	0	0.8	77
2017	9	6	6	4.4	0	0.1	0	0.1	0	0	0	0.8	80
5-Yr. Totals			13	19.3	0	0.5	0	0.5			0	4.3	

A represents actual number.

E represents expected number.

*Balancing item.

** Transfer to General member

Section 5.4 - Schedule of Active Member Data

Valuation Date	Number				Annual Earnings	Annual Average Earnings	Percent Increase/ (Decrease) in Average Earnings
	General	Police	Fire	Total			
June 30, 2008	564	149	92	805	51,287,330	63,711	0.7%
June 30, 2009	547	148	91	786	52,559,496	66,870	5.0%
June 30, 2010	516	124	88	728	48,688,316	66,880	0.0%
June 30, 2011	462	119	83	664	45,921,381	69,159	3.4%
June 30, 2012	461	113	76	650	44,003,987	67,698	-2.1%
June 30, 2013	460	115	85	660	45,063,112	68,277	0.9%
June 30, 2014	476	115	84	675	47,956,745	71,047	4.1%
June 30, 2015	483	121	84	688	48,759,189	70,871	-0.2%
June 30, 2016	488	120	77	685	50,057,471	73,077	3.1%
June 30, 2017	495	121	80	696	53,583,277	76,987	5.4%

Section 5.5 - Schedule of Inactive Member Data

Valuation Date	Number				Benefit Payments	Annual Benefit Payments
	General	Police	Fire	Total		
June 30, 2012	138	12	3	153	\$ 1,838,157	\$ 12,014
June 30, 2013	133	9	3	145	\$ 1,955,314	\$ 13,485
June 30, 2014	128	9	3	140	\$ 1,836,967	\$ 13,121
June 30, 2015	132	10	3	145	\$ 1,912,274	\$ 13,188
June 30, 2016	139	9	3	151	\$ 1,989,657	\$ 13,177
June 30, 2017	139	8	3	150	\$ 2,155,289	\$ 14,369

Section 5.6 - Schedule of Retired Members by Type of Benefit and Option Elected

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit			Option Selected								
		1	2	3	1	2	3	4	5	6	7	8	
\$ 1 - \$ 300	8	8	0	0	6	0	1	1	0	0	0	0	0
301 - 600	42	29	9	4	24	0	8	3	1	4	0	2	
601 - 900	69	51	15	3	42	0	17	6	0	2	0	2	
901 - 1,200	101	58	35	8	65	0	22	5	2	6	0	1	
1,201 - 1,500	64	45	15	4	34	3	17	5	3	1	1	0	
1,501 - 1,800	57	42	13	2	24	1	16	9	4	2	0	1	
1,801 - 2,100	56	39	16	1	28	1	17	5	3	0	0	2	
2,101 - 2,400	76	63	11	2	34	5	19	9	5	3	0	1	
2,401 - 2,700	93	81	9	3	36	6	28	12	11	0	0	0	
2,701 - 3,000	59	54	5	0	22	3	18	11	5	0	0	0	
3,001 - 3,300	72	66	6	0	29	0	21	16	5	1	0	0	
3,301 - 3,600	57	53	4	0	21	2	19	11	3	1	0	0	
3,601 - 3,900	50	47	3	0	13	1	24	6	5	0	0	1	
3,901 - 4,200	42	37	4	1	13	1	18	8	1	0	0	1	
Over \$4,200	194	188	6	0	52	14	69	44	7	2	1	5	
Totals	1,040	861	151	28	443	37	314	151	55	22	2	16	

Type of Pension Benefit

1. Regular retirement
2. Survivor payment
3. Disability

Option Selected

1. Whole Life Annuity
2. 50% Joint and Contingent Annuity
3. 100% Joint and Contingent Annuity
4. 50% Joint and Contingent and pop up Annuity
5. 100% Joint and Contingent and pop up Annuity
6. Straight Life equated
7. Certain and Life
8. Cash refund

Section 5.7 - Schedule of Retired Members and Beneficiaries

As of June 30	2017	2016	2015	2014	2013
Service					
(1) Number, Fiscal Year Start	844	826	814	808	797
(2) Net Change	17	18	12	6	11
(3) Number, Fiscal Year End	861	844	826	814	808
(4) Average Current Age	67.6	67.4	67.2	66.7	66.2
(5) Average Monthly Pension Benefit	\$ 3,005	\$ 2,947	\$ 2,893	\$ 2,901	\$ 2,870
Surviving Spouse's Benefits					
(1) Number, Fiscal Year Start	144	142	138	134	136
(2) Net Change	7	2	4	4	-2
(3) Number, Fiscal Year End	151	144	142	138	134
(4) Average Current Age	75.0	74.7	74.6	73.9	73.7
(5) Average Monthly Pension Benefit	\$ 1,822	\$ 1,820	\$ 1,816	\$ 1,781	\$ 1,714
Disabilities					
(1) Number, Fiscal Year Start	29	28	28	29	29
(2) Net Change	-1	1	0	-1	0
(3) Number, Fiscal Year End	28	29	28	28	29
(4) Average Current Age	65.9	65.1	64.8	65.1	63.8
(5) Average Monthly Pension Benefit	\$ 1,406	\$ 1,451	\$ 1,416	\$ 1,340	\$ 1,363
Total					
(1) Number, Fiscal Year Start	1,017	996	980	971	962
(2) Net Change	23	21	16	9	9
(3) Number, Fiscal Year End	1,040	1,017	996	980	971
(4) Average Current Age	68.6	68.4	68.2	67.6	67.1
(5) Average Monthly Pension Benefit	\$ 2,790	\$ 2,745	\$ 2,698	\$ 2,699	\$ 2,665

Section 5.8 - Retirees Added to and Removed from Rolls

Year Ended	Added to Rolls		Removed from Rolls		Rolls – End of Year		Percent Increase in Annual Pension Allowances	Average Annual Pension Allowance
	No.	Annual Pension Allowances	No.	Annual Pension Allowances	No.	Annual Pension Allowances		
June 30, 2008	21	587,394	21	434,680	820	24,044,369	0.6%	29,322
June 30, 2009	35	1,058,152	21	492,876	834	24,609,645	2.4%	29,508
June 30, 2010	64	2,799,052	19	234,046	879	27,174,651	10.4%	30,915
June 30, 2011	70	2,348,793	16	359,570	933	29,163,874	7.3%	31,258
June 30, 2012	52	1,738,639	23	363,419	962	30,539,094	4.7%	31,745
June 30, 2013	39	1,088,155	30	570,919	971	31,056,330	1.7%	31,984
June 30, 2014	34	1,077,287	25	399,142	980	31,734,475	2.2%	32,382
June 30, 2015	36	1,092,699	20	577,986	996	32,249,189	1.6%	32,379
June 30, 2016	45	1,816,942	24	571,037	1,017	33,495,094	3.9%	32,935
June 30, 2017	53	2,004,609	30	674,361	1,040	34,825,342	4.0%	33,486

Section 5.9 - Schedule of Benefit Payments

Attained Ages	Regular retirement & Survivor payment		Disability		Total	
	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances
<30	2	29,612	0	0	2	29,612
30-34	0	0	0	0	0	0
35-39	0	0	1	9,625	1	9,625
40-44	4	150,981	0	0	4	150,981
45-49	11	531,041	2	35,577	13	566,618
50-54	57	2,742,865	2	32,515	59	2,775,380
55-59	127	5,248,979	3	69,428	130	5,318,407
60-64	193	7,540,279	3	40,259	196	7,580,538
65-69	197	7,083,783	8	166,173	205	7,249,956
70-74	174	5,206,644	5	72,495	179	5,279,139
75	20	632,757	0	0	20	632,757
76	24	710,005	0	0	24	710,005
77	17	458,752	1	13,345	18	472,097
78	9	194,843	0	0	9	194,843
79	16	330,709	0	0	16	330,709
80	22	544,939	0	0	22	544,939
81	14	341,628	0	0	14	341,628
82	18	537,601	0	0	18	537,601
83	10	258,370	0	0	10	258,370
84	11	206,827	1	5,509	12	212,336
85	15	343,286	1	13,930	16	357,216
86	12	214,828	0	0	12	214,828
87	7	150,368	0	0	7	150,368
88	11	219,988	0	0	11	219,988
89	11	162,628	0	0	11	162,628
90	10	213,803	0	0	10	213,803
91	2	17,073	0	0	2	17,073
92	6	80,913	0	0	6	80,913
93	1	15,899	1	13,702	2	29,601
94	5	82,508	0	0	5	82,508
95	3	42,642	0	0	3	42,642
96	2	43,242	0	0	2	43,242
97	0	0	0	0	0	0
98	0	0	0	0	0	0
99	1	14,989	0	0	1	14,989
100	0	0	0	0	0	0
101	0	0	0	0	0	0
102	0	0	0	0	0	0
103	0	0	0	0	0	0
Total	1,012	34,352,782	28	472,560	1,040	34,825,342

Section 5.9 - Schedule of Benefit Payments (continued)

Inactive Members as of June 30, 2017 Tabulated By Attained Ages

Attained Ages	Inactive Members	
	No.	Estimated Annual Allowances
35	0	0
36	2	27,513
37	1	16,084
38	2	27,872
39	1	9,059
40	4	60,741
41	8	103,083
42	6	67,265
43	4	48,168
44	1	983
45	8	112,713
46	6	62,730
47	7	140,604
48	7	178,908
49	10	196,115
50	7	94,353
51	6	70,150
52	10	136,297
53	6	93,673
54	3	27,605
55	8	109,100
56	11	190,336
57	5	92,413
58	10	91,245
59	7	91,750
60	2	5,837
61	2	45,844
62	2	16,066
63	1	11,364
64	1	10,898
66	0	0
67	0	0
68	0	0
69	2	16,519
Total	150	2,155,289

Section 6: Basis of the Actuarial Valuation

Section 6.1 - Brief Summary of Benefit Provisions - (June 30, 2017)

Regular Retirement (no reduction factor for age)

Eligibility

General

Age 50 with 25 years of service, or age 60 with 5 years of service.

Police-Fire

25 years of service, or age 55 with 5 years of service.

If new hires or rehires on or after the effective date in the table below, vesting year in above changed from 5 to 10 years.

Employee Group	Effective date
AAPOA	1/1/2012
AFSCME	8/29/2011
CSS/PSS	1/1/2012
DEPCHIEFS	7/2/2012
FIRE	7/1/2012
NON-Union	7/1/2011
POLICEPRO	7/2/2012
TEAMSTERS	7/2/2012

Mandatory Retirement Age

None.

Annual Amount

General

AFSCME, Non-Union and Teamsters Hired or Rehired on or after 1/1/2017:

Total service x 1.25% of FAC.

All Other:

Total service x 2.5% of final average comp (FAC).

A member may elect to receive all or a portion of his accumulated contributions in a lump sum at retirement and receive a lesser benefit.

Police-Fire

Total service times 2.75% of final average compensation.

A member may elect to receive all or a portion of his accumulated contributions in a lump sum at retirement and receive a lesser benefit.

Section 6.1 - Brief Summary of Benefit Provisions - (June 30, 2017) (continued)

Type of Final Average Compensation

Employee Group	Effective date
AAPOA	1/1/2012
AFSCME	8/29/2011
CSS/PSS	1/1/2012
DEPCHIEFS	7/2/2012
FIRE	7/1/2012
NON-Union	7/1/2011
POLICEPRO	7/2/2012
TEAMSTERS	7/2/2012

Hired or rehired before effective date – highest 3 consecutive years out of last 10. Some lump sums included.

Hired or rehired on or after effective date – highest 5 consecutive years out of last 10

Early Retirement (age reduction factor used)

Eligibility

General

Age 50 with 20 years of service.

Police-Fire

Age 50 with 20 years of service.

Annual Amount

Computed as regular retirement but the pension portion of the allowance is reduced by .33% for each month by which retirement precedes:

General

Earlier of a) age 60, or b) the age the member would have had 25 years of service.

Police-Fire

Earlier of a) age 55 or b) the age the member would have had 25 years of service.

The annuity portion of the allowance is unreduced.

Section 6.1 - Brief Summary of Benefit Provisions - (June 30, 2017) (continued)

Deferred Retirement (vested benefit)

Eligibility

5 years of service. Payable at age 60.

If new hires or rehires on or after the effective date in the table on the prior page, vesting year in above changed from 5 to 10 years.

Annual Amount

Same as regular retirement but based upon service and final average compensation at termination. (A member may elect to receive all or a portion of his accumulated contributions at termination, if the member's age plus service total at least 50, and receive a lesser benefit at age 60.)

Duty Disability Retirement

Eligibility

No age or service requirement.

Annual Amount

General

Computed as regular retirement. Minimum to age 60 is 18% of final average compensation. Minimum after age 60 is sum of a) 12% of the portion of final average compensation not in excess of Social Security base, plus b) 18% of final average compensation in excess of Social Security base. Upon termination of worker's compensation, additional service credit is granted for period in receipt of worker's compensation and benefit is recomputed.

Police-Fire

Computed as regular retirement. Minimum benefit is 25% of final average compensation. Upon termination of worker's compensation, additional service credit is granted for period in receipt of worker's compensation and benefit is recomputed.

Non-Duty Disability Retirement

Eligibility

5 or more years of service.

If new hires or rehires on or after the effective date in the table on the prior page, vesting year in above changed from 5 to 10 years.

Section 6.1 - Brief Summary of Benefit Provisions - (June 30, 2017) (continued)

Annual Amount

General

Computed as regular retirement. Minimum to age 60 is 18% of final average compensation. Minimum after age 60 is sum of a) 12% of the portion of final average compensation not in excess of Social Security base, plus b) 18% of final average compensation in excess of Social Security base.

Police-Fire

Computed as regular retirement. Minimum benefit is 25% of final average compensation.

Duty Death Before Retirement

Eligibility

No age and service requirement.

Annual Amount

Computed as regular retirement but actuarially reduced in accordance with a 100% joint and survivor election. If the member had less than 25 years of service at time of death, a minimum of 25 years of service will be used to compute the benefits. Worker's compensation payments made to the member's beneficiary will offset the benefits paid by the Retirement System. Upon termination of worker's compensation payments the amount paid to the beneficiary will be the greater of the annual worker's compensation payment and the computed 100% joint and survivor retirement benefit.

Non-Duty Death Before Retirement

Eligibility

5 years of service.

If new hires or rehires on or after the effective date in the table in the regular retirement section, vesting year in above changed from 5 to 10 years.

Annual Amount

Computed as regular retirement but actuarially reduced in accordance with a 100% joint and survivor election. If there is no named beneficiary, a lump sum will be payable to the estate.

Post-Retirement Adjustments

Adjustments are made every July 1 to retirants and beneficiaries on the rolls at least 12 months. Adjustments are funded by financial gains, and are not guaranteed.

Section 6.1 - Brief Summary of Benefit Provisions - (June 30, 2017) (continued)

Member Contributions: 6% of annual Compensation with effective date in the following table

Employee Group	Effective date
AAPOA	1/1/2012
AFSCME	10/23/2011
CSS/PSS	8/14/2011
DEPCHIEFS	8/1/2010
FIRE	2/1/2010
NON-Union	7/1/2010
POLICEPRO	8/1/2010
TEAMSTERS	8/1/2010
COAM	5/6/2012

Member Contributions: 3% of annual Compensation with effective date in the following table

Employee Group	Effective date
AFSCME	1/1/2017
NON-Union	1/1/2017
TEAMSTERS	1/1/2017

Ledger Balances Of Reserve Funds

The ledger balances (market value) of the Retirement System, as of June 30, 2017, were reported to the actuary to total \$ 491,257,512 as follows:

Account	Ledger Balance	
	6/30/2017	6/30/2016
Reserve for Employee Contributions	62,258,967	62,493,224
Reserve for Employer Contributions	54,176,493	31,819,876
Reserve for Retired Benefit Payments	374,822,052	362,307,221
Reserve for Undistributed Investment Income	0	0
Totals	491,257,512	456,620,321

The Analysis of Changes in Reserves is shown in section 2.6 and section 2.7.

Section 6.2 - Description of Actuarial Methods and Valuation Procedures

Actuarial Cost Method

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

Sometimes called a “funding method,” this is a particular technique used by actuaries for establishing the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily the annual contribution to the plan is comprised of (1) the normal cost and (2) an amortization payment on the unfunded actuarial accrued liability.

Under the Entry Age Actuarial Cost Method, the **Normal Cost** is computed as the level percentage of pay which, if paid from the earliest time each Member would have been eligible to join the Plan if it then existed (thus, entry age) until his retirement or termination, would accumulate with interest at the rate assumed in the valuation to a fund sufficient to pay all benefits under the Plan.

The Normal Cost for the Plan is determined by summing individual results for each active Member and determining an average normal cost rate by dividing the summed individual normal costs by the total payroll of Members before assumed retirement age.

The **Actuarial Accrued Liability** under this method at any point in time is the theoretical amount of the fund that would have accumulated had annual contributions equal to the Normal Cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date.)

Lump sum redemption factors are assumed to be:

Members hired before July 1, 1982:	General - 10%
Members hired after June 30, 1982:	0%

The **Unfunded Actuarial Accrued Liability** is the excess of the Actuarial Accrued Liability over the Actuarial Value of Plan Assets actually on hand on the valuation date. The Unfunded Actuarial Accrued Liability is amortized as a level dollar over a declining period. As of this valuation, the period is 24 years. This period of 24 years will be reduced by one year each subsequent year. This step down by one year will continue until the amortization period reduces to 15 years.

Under this method experience gains or losses, i.e. decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the Unfunded Actuarial Accrued Liability.

Asset Valuation Method

The actuarial value of assets is based on a five-year smoothing method and is determined by spreading the effect of each year’s investment return in excess of or below the expected return. The Fair Value of assets at the valuation date is reduced by the sum of the following:

- (i) 80% of the return to be spread during the first year preceding the valuation date,
- (ii) 60% of the return to be spread during the second year preceding the valuation date,
- (iii) 40% of the return to be spread during the third year preceding the valuation date, and
- (iv) 20% of the return to be spread during the fourth year preceding the valuation date.

The return to be spread is the difference between (1) the actual investment return on Fair Value and (2) the expected return on Fair Value.

Section 6.2 - Description of Actuarial Methods and Valuation Procedures (continued)

Valuation Procedures

No actuarial liability is included for members who terminated non-vested prior to the valuation date, except those due a refund of contributions.

The compensation amounts used in the projection of benefits and liabilities were June 30, 2017, amount earned during the year provided by staff of the Retirement System.

No termination or retirement benefits were projected to be greater than the dollar limitation required by the Internal Revenue Code Section 415 for governmental plans.

Annual increases in salary were limited to the dollar amount defined under Internal Revenue Code Section 401(a)(17) for affected members.

Section 6.3 - Summary of Actuarial Assumptions and Changes in Assumptions

The current actuarial assumptions were adopted by the Board at its September 19, 2013 Board Meeting based on the results of Conduent's quinquennial Experience Review for the period July 1, 2008 through June 30, 2013. The assumptions were first used with the June 30, 2013 actuarial valuation. The next Experience Review will cover the period of July 1, 2013 through June 30, 2018. The assumptions from that review will be first used in the June 30, 2018 valuation.

The **Rate of Investment Return, net of expenses, (regular interest)** used in making the valuation was 7.0% per annum, compounded annually. This assumption is established by the Board of Trustees as provided in the Retirement System Ordinance, and was first used for the June 30, 1982 actuarial valuation. This rate consists of a real rate of return of 3.5% a year plus a long-term rate of wage inflation of 3.5% a year. This wage inflation assumption was first used in the June 30, 2004 actuarial valuation. Approximate internal rates of investment return, for the purposes of comparisons with assumed rates, have been as follows:

	Year Ended June 30					5-Year Arithmetic Average
	2017	2016	2015	2014	2013	
1) Nominal rate*	11.96%	0.37%	4.2%	14.2%	12.3%	
2) Valuation Asset Adjustment	<u>(3.56)</u>	<u>5.83</u>	<u>5.78</u>	<u>(3.03)</u>	<u>(8.28)</u>	
3) Total rate	8.4	6.2	10	11.2	4	7.96%
4) Increase in CPI	1.6	1.0	0.1	2.1	1.8	1.33%
5) Average salary increase	5.4	3.1	-0.2	4.1	0.9	2.66%
6) Real Return						
-investment purposes (3)-(4)	6.8	5.2	9.9	9.1	2.2	6.63%
-funding purposes (3)-(5)	3.0	3.1	10.2	7.1	3.1	5.30%
-assumption	3.5	3.5	3.5	3.5	3.5	3.50%

* The nominal rate of return was computed using the approximate formula $i = I \text{ divided by } 1/2 (A + B - I)$, where I is realized investment income net of expenses, A is the beginning of year asset value, and B is the end of year asset value.

The **Mortality Table** used to measure post-retirement mortality was the RP 2000 Combined Table projected to 2007 set forward 2 years for males and set back 3 years for females. Disabled mortality rates are the standard post-retirement mortality rates set forward 10 years. These tables first used for the June 30, 2008 actuarial valuation. Pre-retirement mortality rates are assumed to be 75% of post-retirement mortality rates. For Police and Fire 50% of deaths-in-service are assumed to be duty related.

Section 6.3 - Summary of Actuarial Assumptions and Changes in Assumptions (continued)

The above Mortality table is applied using full generational projection using mortality improvement scale AA. Actuarial Standards of Practice now require that the likelihood and extent of future mortality improvements be considered for valuations performed on or after June 30, 2011. Future generational rates are projected from 2012 based on Scale AA.

Sample Ages	Single Life Retirement Values							
	Present Value of \$1 Monthly for Life				Future Life Expectancy (Years)			
	Men	Women	Disabled Men	Disabled Women	Men	Women	Disabled Men	Disabled Women
45	\$158.26	\$163.96	\$142.76	\$152.87	37.31	43.33	28.04	33.83
50	151.10	159.01	130.98	144.19	32.12	38.26	23.05	28.86
55	141.54	152.39	116.91	133.42	27.03	33.27	18.43	24.13
60	129.55	143.79	100.91	121.01	22.19	28.40	14.28	19.77
65	115.47	133.09	83.31	106.92	17.74	23.75	10.64	15.80
70	99.40	120.58	65.48	91.40	13.73	19.43	7.61	12.25
75	81.52	106.26	49.02	74.72	10.18	15.48	5.25	9.14
80	63.47	90.41	36.11	58.13	7.24	11.95	3.64	6.56

Probabilities of retirement for members eligible to retire were:

Retirement Age	Age Based				Service Based				
	General		Police		Fire		Years of		
	Normal	Early	Normal	Early	Normal	Early	Service	Police	Fire
50	45 %	23 %		35 %		25 %	25	70 %	50 %
51	40	15		35		25	26	70	35
52	40	15		35		25	27	70	35
53	40	15		35		25	28	50	35
54	40	18		35		25	29	50	25
55	40	30	75 %		24 %		30	75	25
56	40	42	75		24		31	75	25
57	40	42	75		24		32	75	25
58	25	42	75		24		33	75	25
59	25	42	75		34		34	75	25
60	25		100		100		35	100	100
61	35								
62	35								
63	35								
64	35								
65	60								
66	40								
67	40								
68	40								
69	40								
70	100								

Section 6.3 - Summary of Actuarial Assumptions and Changes in Assumptions (continued)

The assumed conditions for retirement were:

Group	Eligibility Conditions for Retirement
General	50 years of age with 20 or more years of service (reduced); or 50 years of age with 25 or more years of service; or, 60 years of age with 5 or more years of service.
Police-Fire	50 years of age with 20 or more years of service (reduced); or 25 or more years of service; or, 55 years of age with 5 or more years of service.

The above retirement rate assumptions were first used for the June 30, 2013 actuarial valuation.

If new hires or rehires on or after the effective date in the table in the regular retirement portion of section 6.1, vesting year in above changed from 5 to 10 years.

Salary Adjustment Factors for Projections of Current Salaries to FAC					Probabilities of Becoming Disabled			
Sample Ages	Percent Increase in Salary During Next Year				Sample Ages	Percent Becoming Disabled Within Next Year		
	Base	Merit & Longevity				General	Police	Rare
		General	Police	Fire				
20	3.50 %	4.0 %	6.0 %	5.8 %	20	0.06 %	0.08 %	0.02 %
25	3.50	3.6	5.1	5.0	25	0.06	0.08	0.02
30	3.50	2.8	3.2	3.4	30	0.06	0.08	0.02
35	3.50	2.1	1.9	1.9	35	0.06	0.08	0.02
40	3.50	1.8	1.2	1.2	40	0.10	0.14	0.03
45	3.50	1.5	0.9	0.9	45	0.24	0.32	0.08
50	3.50	1.0	0.7	0.7	50	0.42	0.56	0.14
55	3.50	0.7	0.5	0.5	55	0.65	0.86	0.22
60	3.50	0.5	0.3	0.4	60	0.86	1.14	0.29

Percent of disabilities assumed to be duty related

General	25%
Police and Fire	50%

Section 6.3 - Summary of Actuarial Assumptions and Changes in Assumptions (continued)

Sample Rates of Separation from Active Employment Before Retirement, Death, or Disability					
% of Active Members Separating Within Next Year					
Ages	Years of Service	General		Police	Fire
		Male	Female		
ALL	0	6.00 %	16.00 %	6.00 %	4.50 %
	1	4.80	13.00	6.00	4.00
	2	4.00	11.00	4.00	3.60
	3	3.20	8.00	3.00	3.60
	4	2.40	6.00	2.50	3.60
20	5 and Over	3.20	6.50	2.40	1.40
25		3.20	6.50	2.40	1.40
30		3.20	6.50	2.40	1.10
35		2.50	5.00	1.75	0.90
40		2.50	5.00	0.74	1.00
45		2.50	5.00	0.48	0.90
50		2.50	5.00	0.48	0.50
55		2.50	5.00	0.48	0.50
60		2.50	5.00	0.48	0.50
65		2.50	5.00	0.48	0.50

The interest rate credited on refunds of accumulated contributions paid to terminating members was assumed to be 8.0% per annum, compounded quarterly.

The above withdrawal assumptions were first used for the June 30, 2013 actuarial valuation.

The above salary and disability assumptions were first used for the June 30, 2008 actuarial valuation.

Summary of Assumptions Used Miscellaneous and Technical Assumptions

Marriage Assumption

100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits.

Pay Increase Timing

Middle of (Fiscal) year.

Decrement Timing

Decrements of all types are assumed to occur mid-year.

Eligibility Testing

Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

Section 6.3 - Summary of Actuarial Assumptions and Changes in Assumptions (continued)

Benefit Service

Exact fractional service is used to determine the amount of benefit payable.

Decrement Relativity

Decrement rates are used without adjustment for multiple decrement table effects.

Decrement Operation

Disability decrements do not operate during the first 5 years of service. Disability and withdrawal do not operate during retirement eligibility.

Normal Form of Benefit

The assumed normal form of benefit is straight life.

Incidence of Contributions

Contributions are assumed to be received continuously throughout the year based upon the computed percent-of-payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.

Changes in Actuarial Assumptions, Methods, or Procedures

Beginning with the June 30, 2017, the Actuarially Determined Contribution was revised to reflect a level dollar amortization of unfunded actuarial liabilities. The amortization period as of June 30, 2017 is 24 years. This period will decline by one year in each year until a 15 year period is obtained. There have been no other changes to the actuarial cost method, asset valuation method, or valuation procedures since the prior valuation.

Beginning with the June 30, 2017 actuarial valuation, General, Police and Fire employees are assumed to receive \$4,000, \$1,000 and \$1,000 respectively in additional compensation upon retirement related to accumulated time banks. The assumed time banks are indexed at 3.5% from the valuation date to the assumed date of retirement. This change increased the unfunded actuarial accrued liability by \$1.5 million.

Glossary of Terms

Actuarial Accrued Liability

Total accumulated cost to fund pension benefits arising from service in all prior years.

Actuarial Cost Method

Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension plan for a group of plan members to the years of service that give rise to that cost.

Actuarial Present Value of Future Benefits

Amount which, together with future interest, is expected to be sufficient to pay all future benefits.

Actuarial Valuation

Study of probable amounts of future pension benefits and the necessary amount of contributions to fund those benefits.

Actuary

Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.

Annual Required Contribution

Disclosure measure of annual pension cost.

GASB 67

Governmental Accounting Standards Board Statement Number 67.

GASB 68

Governmental Accounting Standards Board Statement Number 68.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.