Classic Values, Innovative Advice

City of San José Police and Fire Department Retirement Plan

Actuarial Valuation Report as of June 30, 2016

Produced by Cheiron

January 2017

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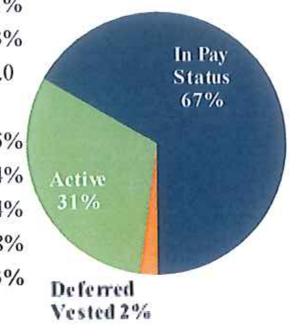
SECTION I – BOARD SUMMARY

The Dashboard

Contributions

	Fiscal Year Ending 2018	2017
Member Rate	11.16%	10.81%
City Rate	81.25%	72.33%
City MOY Amount	$ 162.8	$ 138.0
Normal Cost Rate	39.38%	39.05%
Interest on UAL	44.97%	34.74%
Additional UAL Rate	8.05%	9.34%
Total UAL Rate	53.02%	44.08%
Total Rate	**92.41%**	**83.13%**

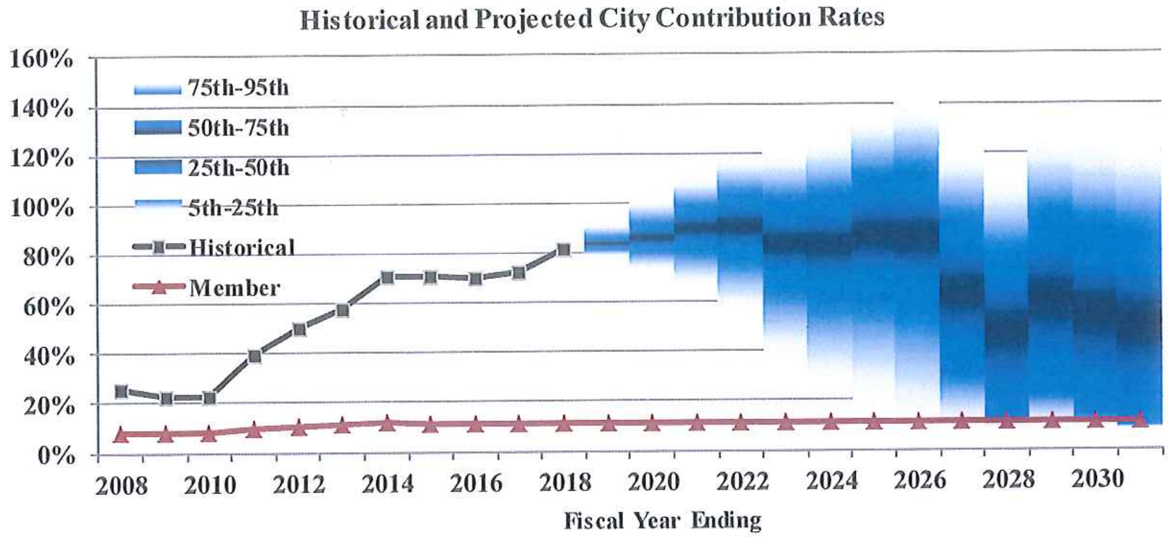
Actuarial Liability

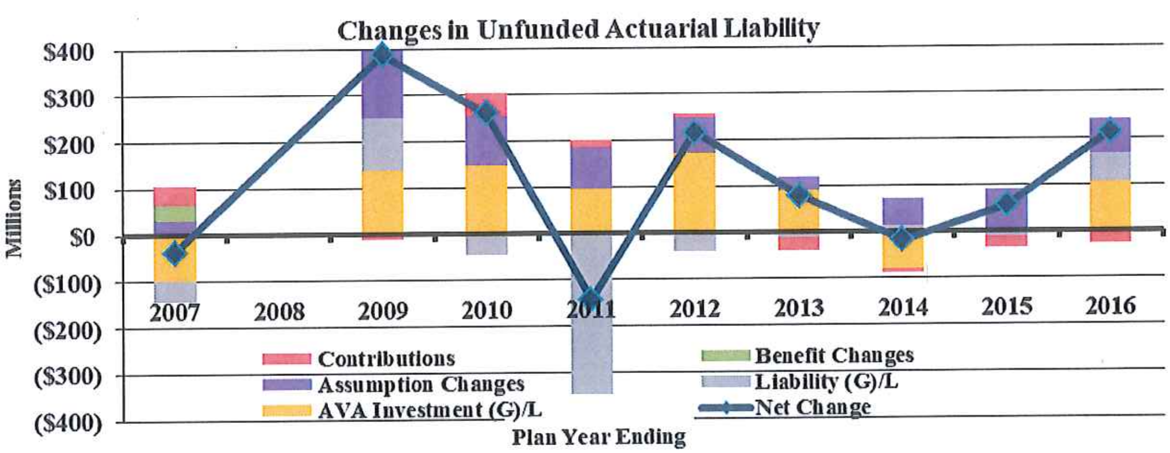


Funding Status

	Valuation Date 2016	2015
Actuarial Liability (AL)	$ 4,356	$ 4,058
Market Value of Assets (MVA)	3,044	3,110
Unfunded AL (UAL) - MVA	**$ 1,312**	**$ 948**
Funded Ratio - MVA	69.9%	76.6%
Actuarial Value of Assets (AVA)	3,297	3,213
UAL - AVA	**$ 1,059**	**$ 846**
Funded Ratio - AVA	75.7%	79.2%

Amounts in Millions





Membership

As shown in Table I-1 below, total membership grew 1.6% from 2015 to 2016, but active membership increased only 0.3%. Tier 1 active membership decreased by 75 members while Tier 2 active membership increased by 80 members. Total payroll increased by 5.1% in aggregate, with Tier 1 payroll increasing 0.5% and Tier 2 payroll increasing 59.4%.

Table I-1

Total Membership	June 30, 2016	June 30, 2015	Change
Active Members			
Tier 1	1,393	1,468	-5.1%
Tier 2	189	109	73.4%
Total Actives	1,582	1,577	0.3%
Deferred Vested Members	317	298	6.4%
Members In Pay Status	2,149	2,108	1.9%
Total	4,048	3,983	1.6%
Active Member Payroll			
Tier 1	$ 171,422	$ 170,528	0.5%
Tier 2	22,650	14,205	59.4%
Total	$ 194,072	$ 184,733	5.1%

Dollar amounts in thousands

As shown in the chart on the following page, the number of active members has declined about 26% from 2,136 in 2007 to 1,582 in 2016. At the same time, the number of members in pay status has increased 45% from 1,477 in 2007 to 2,149 in 2016. As a result, the number of members in pay status that each active member has to support if there are actuarial losses has increased from approximately 0.7 in 2007 to 1.4 in 2016. This type of progression is to be expected for a maturing plan, but the impact of the recession accelerated the trend significantly. As there are more retirees to be supported by each active, contributions tend to become more volatile and sensitive to gains and losses. Future growth in the number of active members could stabilize or reverse this trend.

Funded Status

This report measures assets and liabilities for funding purposes. These measures are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations. Table I-2 on the next page summarizes the Actuarial Liability, assets, and related ratios as of June 30, 2015 and 2016.

SECTION I – BOARD SUMMARY

Table I-2

Summary of Aggregate Funded Status and Related Ratios			
	June 30, 2016	June 30, 2015	Change
1. Actuarial Liability			
a. Actives	$ 1,356,217	$ 1,239,000	9.5%
b. Deferred Vested	97,793	61,667	58.6%
c. In Pay Status	2,901,980	2,757,743	5.2%
d. Total	$ 4,355,990	$ 4,058,410	7.3%
2. Market Value of Assets (MVA)	$ 3,043,651	$ 3,110,064	-2.1%
3. UAL - MVA Basis (1.d. - 2.)	$ 1,312,339	$ 948,346	38.4%
4. Funding Ratio - MVA Basis (2. ÷ 1.d.)	69.9%	76.6%	-6.8%
5. Actuarial Value of Assets (AVA)	$ 3,297,068	$ 3,212,776	2.6%
6. UAL - AVA Basis (1.d. - 5.)	$ 1,058,922	$ 845,634	25.2%
7. Funding Ratio - AVA Basis (5. ÷ 1.d.)	75.7%	79.2%	-3.5%
8. Expected Payroll	$ 194,072	$ 184,733	5.1%
9. Asset Leverage Ratio (2. ÷ 8.)	15.7	16.8	-6.8%
10. Actuarial Liability Leverage Ratio (1.d. ÷ 8.)	22.4	22.0	2.2%
11. Interest on UAL - MVA Basis	$ 87,273	$ 64,176	36.0%
12. Interest Cost as Percent of Payroll (11. ÷ 8.)	45.0%	34.7%	10.2%

Dollar amounts in thousands

The Actuarial Liability represents the target amount of assets the plan should have in the trust as of the valuation date based on the actuarial cost method. The Actuarial Liability increased 7.3% while the Market Value of Assets decreased 2.1%. As a result, the Unfunded Actuarial Liability (UAL) measured on the Market Value of Assets increased 38% from approximately $948.3 million to $1,312.3 million, and the funding ratio on an MVA basis decreased from 76.6% to 69.9%.

The asset smoothing method deferred 80% of the investment loss, resulting in a 2.6% increase in the Actuarial Value of Assets. The UAL measured on the Actuarial Value of Assets increased 25% from approximately $845.6 million to $1,058.9 million and the funding ratio decreased from 79.2% to 75.7%. The Market Value of Assets is smaller than the actuarial value, so if assumptions are met in the future, we expect an increase in contribution rates as the deferred asset losses are recognized in the Actuarial Value of Assets.

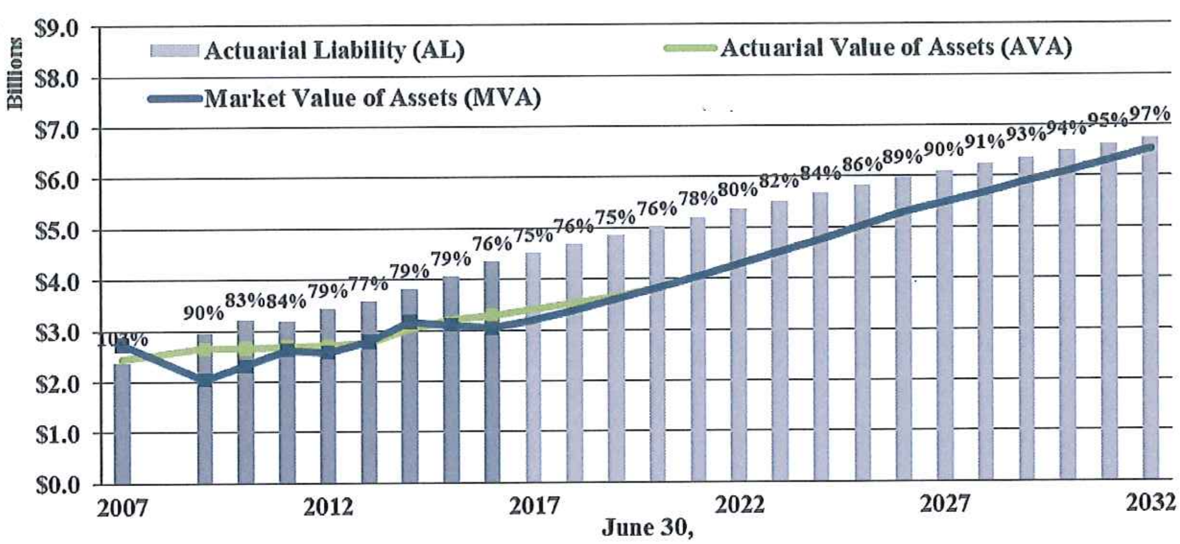
SECTION I – BOARD SUMMARY

The asset leverage ratio of 15.7 means that if the Plan experiences a 10% loss on assets compared to the discount rate of 6.875%, the loss would be equivalent to 157% of payroll. Interest payments on such a loss would be approximately 10.79% of payroll.

Interest payments on the current UAL are approximately 45% of payroll, increasing from 35% of payroll in the prior year due to the increased UAL. As the Plan becomes better funded, the asset leverage ratio will increase, and if it was 100% funded, the leverage ratio would be 22.4. This leverage ratio is extremely high compared to other plans indicating that this plan is far more sensitive to investment gains and losses than other large public pension plans.

The chart below shows the historical and projected trends for assets (both market and smoothed actuarial) versus the Actuarial Liability, and also shows the progress of the funding ratios (based on the Actuarial Value of Assets) since 2007. The historical Actuarial Liability is shown in dark gray while the projected Actuarial Liability is shown in a lighter gray. From 2007 to 2013, (with the exception of 2011), the funding ratio declined primarily because the plan experienced lower than expected investment returns on the Actuarial Value of Assets and reduced its assumption of future investment returns. If all assumptions are met in the future, the funded status is expected to reach 97% by 2032.

Historical and Projected Assets and Actuarial Liability

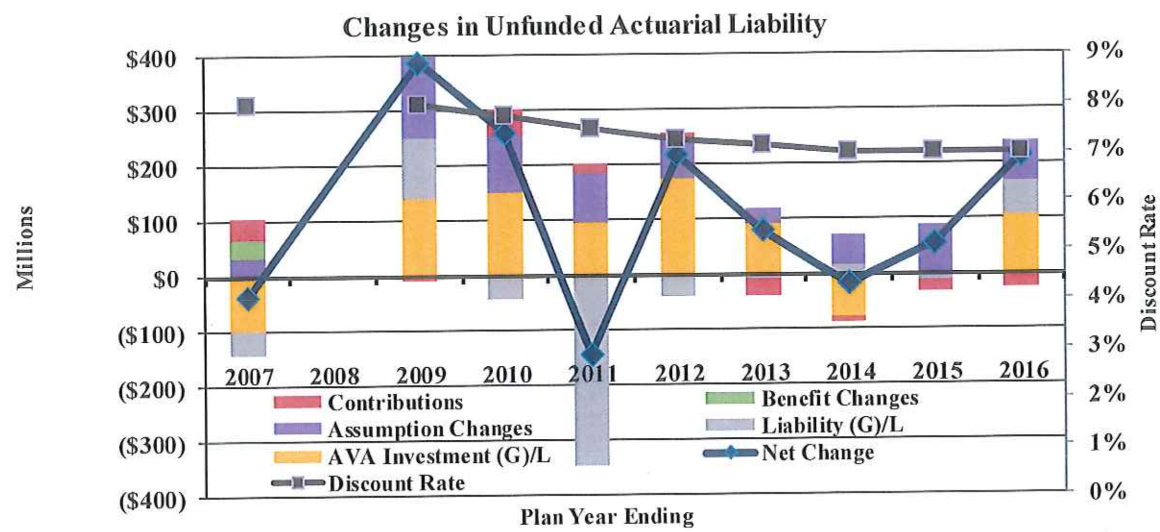


While the funded status is expected to improve, there is a wide range of projected UAL depending on investment returns.

More detail on the assets can be found in section III of this report, and more detail on the measures of liability can be found in section IV of this report.

Changes in UAL

The chart below shows the historical changes to the UAL, including investment gains and losses on the Actuarial Value of Assets, liability gains and losses, assumption changes, benefit changes and contributions compared to normal cost plus interest on the UAL. It is worth noting that 2007, 2014, and 2015 are the only years in the last 10 years in which there were investment gains on the Actuarial Value of Assets. Three years in the last ten, 2009, 2014 and 2016, experienced a liability loss. This year is also the ninth consecutive valuation in which assumption changes were adopted that increased the measure of liability. This year the assumption change is a reduction in the discount rate from 7.0% to 6.875%. Appendix B provides a summary of the assumptions, and more detail, including the rationale for each assumption, can be found in the experience study report.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Discount Rate	8.00%		8.00%	7.75%	7.50%	7.25%	7.125%	7.00%	7.00%	6.875%
Source										
AVA (G)/L	$ (97.1)	#N/A	$ 138.4	$ 149.6	$ 96.5	$ 172.8	$ 91.3	$ (78.5)	$ (2.8)	$ 106.8
Liability (G)/L	(46.9)	#N/A	113.5	(43.9)	(346.1)	(39.4)	(9.9)	14.7	(7.3)	61.3
Assumptions	33.1	#N/A	145.4	104.2	89.1	75.2	28.2	56.3	90.0	72.7
Benefit Changes	34.1	#N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contributions	39.1	#N/A	(9.9)	49.9	17.1	7.9	(30.3)	(9.9)	(23.4)	(27.1)
Total	$ (37.7)	#N/A	$ 387.3	$ 259.8	$(143.5)	$ 216.5	$ 79.3	$ (17.4)	$ 56.5	$ 213.7

Table I-3 on the following page shows the breakdown of the experience gains and losses incurred in the last year by source. In total, there was a loss of approximately $168 million, mostly attributed to investment experience with additional losses due to salary increases and changes to deferred vested benefits.

SECTION I – BOARD SUMMARY

Table I-3

Sources of FYE 2016 Experience Gain or (Loss)		
Source		**Amount**
Investment experience	$	(106,785)
Salary experience		(21,962)
Deferred vested benefit data		(26,431)
Other experience		(12,863)
Total	$	(168,041)

Dollar amounts in thousands

Contribution Rates

Table I-4 on the next page summarizes the contribution rates and City contribution amounts for the fiscal years ending in 2018 and 2017. Tier 1 rates increased significantly from 2017 to 2018, reflecting the assumption changes and the liability and investment losses. Tier 2 rates increased slightly largely due to the assumption changes.

SECTION I – BOARD SUMMARY

Table I-4

Summary of Contributions	Fiscal Year Ending 2018			Fiscal Year Ending 2017		
	Fire	Police	Total	Fire	Police	Total
Tier 1						
Member Rate	11.38%	10.88%	11.11%	11.07%	10.59%	10.80%
City Rate	96.06%	95.31%	95.65%	81.61%	80.40%	80.92%
Total Rate	**107.44%**	**106.19%**	**106.76%**	**92.68%**	**90.99%**	**91.72%**
Projected Payroll	$ 75,555	$ 90,550	$ 166,104	$ 72,350	$ 94,977	$ 167,328
City Contribution Amounts						
Beginning of Year	71,247	84,716	155,963	57,080	73,819	130,898
Throughout the Year	$ 72,582	$ 86,303	$ 158,885	$ 59,044	$ 76,359	$ 135,402
Tier 2						
Member Rate	11.77%	11.31%	11.45%	10.61%	10.97%	10.89%
City Rate	11.77%	11.31%	11.45%	10.61%	10.97%	10.89%
Total Rate	**23.54%**	**22.62%**	**22.89%**	**21.22%**	**21.94%**	**21.79%**
Projected Payroll	$ 10,188	$ 24,088	$ 34,275	$ 5,035	$ 18,374	$ 23,409
City Contribution Amounts						
Beginning of Year	1,177	2,674	3,851	516	1,949	2,465
Throughout the Year	$ 1,199	$ 2,724	$ 3,923	$ 534	$ 2,016	$ 2,550

Dollar amounts in thousands

As shown in the dashboard, projected City contribution rates are expected to remain relatively level in the short term before declining significantly when portions of the UAL are fully amortized. There is a wide range of contribution rates due to the potential volatility of investment returns. As a result, the range of contribution rates from the 5^{th} to the 95^{th} percentile in FYE 2023 (based on a valuation five years from now), is from 35% of payroll to 120% of payroll. Such a range is due to the combination of the size of the assets compared to payroll and the standard deviation of the investment portfolio. The range of contribution rates could be narrowed somewhat by extending amortization periods, but that only controls short-term volatility. Fundamentally, the risk of very high contribution rates would need to be controlled through the plan's investments.

The chart on the following page shows historical and projected aggregate contribution amounts for the Plan compared to those projected in the prior valuation. The purple bars are member contribution amounts for Police and Fire for both Tier 1 and Tier 2. The gold bars are city contribution amounts for Police and Fire for both Tier 1 and Tier 2. The darker shaded bars represent historical amounts and the lighter shades represent projected amounts. The projected amounts assume that all assumptions are met. The red line represents the projection from the prior valuation.

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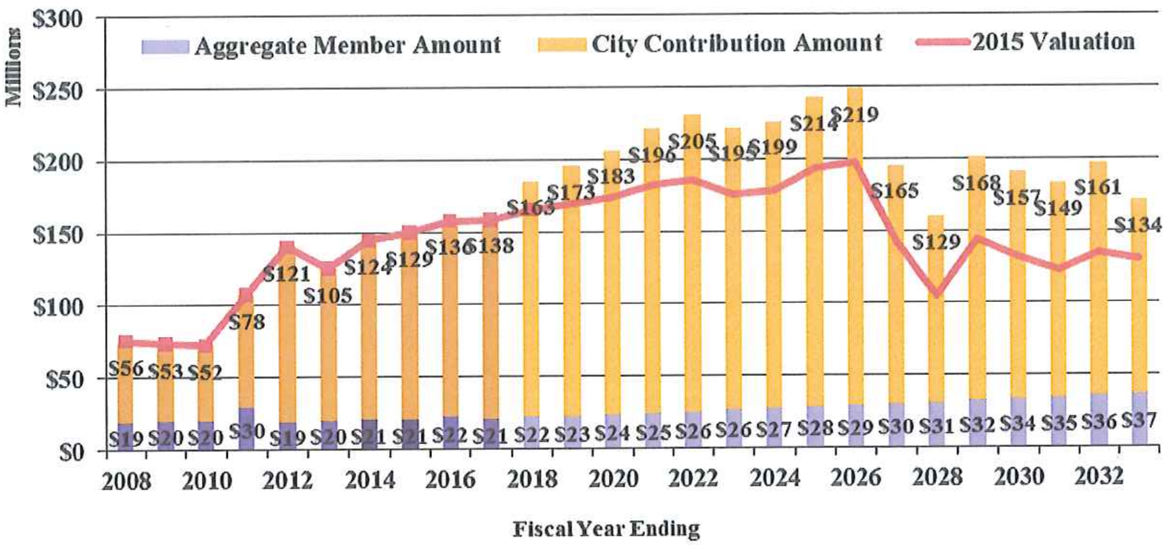
Historical and Projected Aggregate Contribution Amounts



Since the last valuation, the investment losses and the assumption changes have increased projected City contribution amounts. There is a significant decrease in City contribution amounts projected between FYE 2026 and FYE 2028 due to the completion of payments on the amortization schedules for the 2009 and 2010 assumption changes and experience losses.

Section V of this report provides additional detail on the contribution rates and the amortization schedules.

SECTION II – CERTIFICATION

The purpose of this report is to present the June 30, 2016 actuarial valuation of the City of San José Police and Fire Department Retirement Plan ("Plan"). This report is for the use of the Plan and the City of San José.

In preparing our report, we relied on information, some oral and some written, supplied by the Plan. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

The discount rate, wage inflation, and price inflation assumptions in this report were adopted by the Board of Administration with our input at the January 5, 2017 Board meeting. All other assumptions were adopted at the December 3, 2015 Board meeting based on recommendations from our experience study covering plan experience during the period from July 1, 2009 through June 30, 2015. Changes in plan provisions arising from Measure F are not reflected in this report.

The funding ratios in this report are for the purpose of establishing contribution rates. These measures are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

Future actuarial measurements may differ significantly from the current measurements due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and, changes in plan provisions or applicable law.

To the best of our knowledge, this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

This report was prepared for the Plan for the purposes described herein. This report is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

William R. Hallmark

William R. Hallmark, ASA, EA, FCA, MAAA
Consulting Actuary

Gene Kalwarski

Gene Kalwarski, FSA, EA, FCA, MAAA
Principal Consulting Actuary

SECTION III – ASSETS

The Plan uses and discloses two different asset measurements which are presented in this section of the report: market value and Actuarial Value of Assets. The market value represents, as of the valuation date, the value of the assets if they were liquidated on that date. The Actuarial Value of Assets is a value that smooths annual investment returns over multiple years to reduce the impact of short-term investment volatility on contribution rates. The Market Value of Assets is used primarily for reporting and disclosure, and the Actuarial Value of Assets is used primarily to determine contribution rates.

This section shows the changes in the Market Value of Assets and develops the Actuarial Value of Assets.

Statement of Changes in the Market Value of Assets

Table III-1 shows the changes in the Market Value of Assets by tier for the current fiscal year and in total for the prior fiscal year.

Table III-1

Change in Market Value of Assets	Fiscal Year Ending 2016				FYE 2015
	Tier 1	Tier 2 Fire	Tier 2 Police	Total	Total
Beginning Market Value	$ 3,108,346	$ 118	$ 1,599	$ 3,110,064	$ 3,168,171
Contributions					
Member	20,232	253	1,024	21,508	20,747
City	131,203	253	1,024	132,480	129,279
Total	$ 151,435	$ 506	$ 2,048	$ 153,988	$ 150,025
Net Investment Earnings	(29,178)	(3)	(24)	(29,206)	(27,690)
Benefit Payments	186,809	20	111	186,939	176,252
Administrative Expenses	4,242	4	10	4,256	4,191
Market Value, End of Year	**$ 3,039,552**	**$ 597**	**$ 3,501**	**$ 3,043,651**	**$ 3,110,064**
Estimated Rate of Return	-0.9%	-1.0%	-0.9%	-0.9%	-0.9%

Dollar amounts in thousands

The net investment earnings for the year ended June 30, 2016 represent approximately a -0.9% return on the Market Value of Assets compared to an assumed return of 7.00%. For the year ended June 30, 2015, the net investment return was approximately -0.9% (7.00% was assumed).

SECTION III – ASSETS

Actuarial Value of Assets

To determine on-going contribution amounts, most pension funds use an Actuarial Value of Assets that smooths year-to-year market value returns in order to reduce the volatility of contribution rates.

The Actuarial Value of Assets is calculated by recognizing the deviation of actual investment returns compared to the expected return (7.00% for 2015-16, 7.00% for 2014-15, 7.125% for 2013-14, 7.25% for 2012-13, and 7.50% for 2011-12) over a five-year period. The dollar amount of the expected return on the Market Value of Assets is determined using the actual contributions, benefit payments, and administrative expenses during the year. Any difference between the expected return and the actual net investment earnings is considered a gain or loss. Table III-2 on the next page shows the calculation of the Actuarial Value of Assets separately for each tier. For each of the last four years, it shows the actual earnings, the expected earnings, the gain or loss and the portion of the gain or loss that is not recognized in the current Actuarial Value of Assets. These deferred amounts will be recognized in future years.

SECTION III – ASSETS

Table III-2

Development of Actuarial Value of Assets					
	Fiscal Year Ending 2016				FYE 2015
	Tier 1	Tier 2 Fire	Tier 2 Police	Total	Total
Market Value of Assets (MVA)	$ 3,039,552	$ 597	$ 3,501	$ 3,043,651	$ 3,110,064
FYE 2016					
Actual Earnings	(29,178)	(3)	(24)	(29,206)	(27,690)
Expected Earnings	216,221	25	178	216,424	220,725
Investment Gain or (Loss)	(245,399)	(28)	(203)	(245,630)	(248,415)
Deferred (80%)	(196,319)	(23)	(162)	(196,504)	(198,732)
FYE 2015					
Actual Earnings	(27,680)	(1)	(9)	(27,690)	$ 404,979
Expected Earnings	220,647	4	75	220,725	202,301
Investment Gain or (Loss)	(248,327)	(5)	(84)	(248,415)	202,678
Deferred (60%)	(148,996)	(3)	(50)	(149,049)	121,607
FYE 2014					
Actual Earnings	$ 404,941	$ 0	$ 37	$ 404,979	$ 248,258
Expected Earnings	202,283	0	18	202,301	192,935
Investment Gain or (Loss)	202,658	0	20	202,678	55,323
Deferred (40%)	81,063	0	8	81,071	22,129
FYE 2013					
Actual Earnings	$ 248,258	$ 0	$ 0	$ 248,258	$ (33,877)
Expected Earnings	192,935	0	0	192,935	204,706
Investment Gain or (Loss)	55,323	0	0	55,323	(238,582)
Deferred (20%)	11,065	0	0	11,065	(47,716)
Total Deferred Gain or (Loss)	$ (253,187)	$ (25)	$ (205)	$ (253,417)	$ (102,713)
Preliminary Actuarial Value of Assets	$ 3,292,739	$ 623	$ 3,706	$ 3,297,068	$ 3,212,776
Minimum (80% of MVA)	$ 2,431,642	$ 478	$ 2,801	$ 2,434,920	$ 2,488,051
Maximum (120% of MVA)	$ 3,647,463	$ 717	$ 4,201	$ 3,652,381	$ 3,732,077
Actuarial Value of Assets	**$ 3,292,739**	**$ 623**	**$ 3,706**	**$ 3,297,068**	**$ 3,212,776**
Ratio of Actuarial to Market	108.2%	104.3%	105.8%	108.3%	103.3%
Estimated Rate of Return	3.7%	5.0%	4.8%	3.7%	7.1%

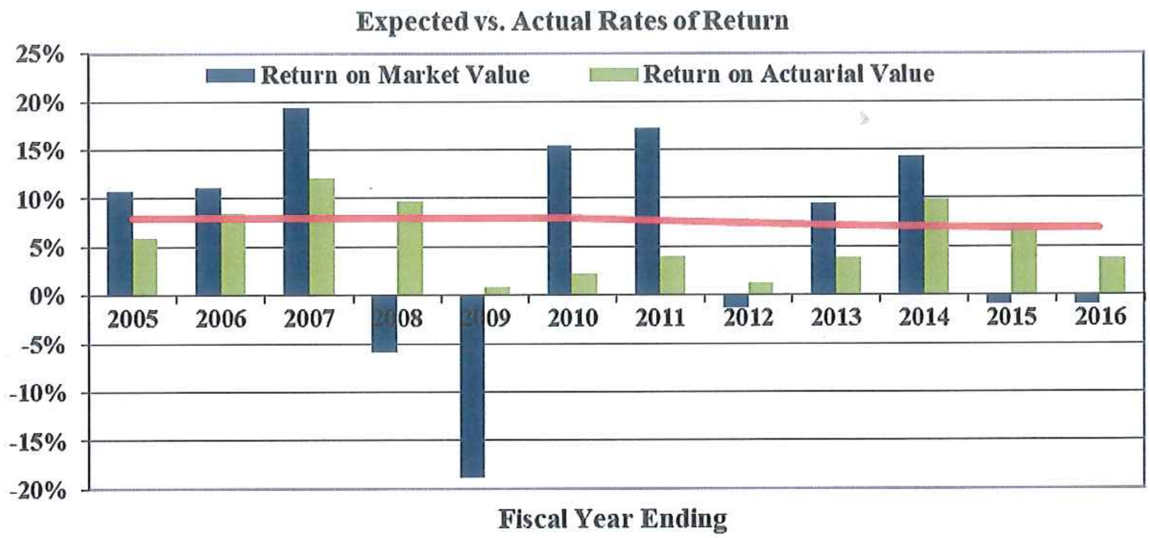
Dollar amounts in thousands

On the basis of the smoothed Actuarial Value of Assets, the return for the year ending June 30, 2016 was approximately 3.7%, which is less than the assumed return of 7.00%, but more than the return on the Market Value of Assets. The estimated rate of return varies by tier,

SECTION III – ASSETS

reflecting the different cash flows for each tier and the different effective dates of the tiers that affect the number of years included in the smoothing.

The chart below shows the historical rates of return on both the Market and Actuarial Values of Assets compared to the assumed rates of return. Because of the 5-year smoothing, the return on the actuarial value is less volatile than the return on the market value.



SECTION IV – MEASURES OF LIABILITY

This section presents detailed information on liability measures for the Plan for funding purposes, including:

- Present Value of Future Benefits,
- Normal cost
- Actuarial Liability, and
- Analysis of changes in the Unfunded Actuarial Liability during the year.

Present Value of Future Benefits

The Present Value of Future Benefits represents the amount of money today that is expected to be needed to pay all benefits both earned as of the valuation date and expected to be earned in the future by current plan members under the current plan provisions if all assumptions are met. Table IV-1 below shows the Present Value of Future Benefits as of June 30, 2016 and June 30, 2015 separately by Tier for Police and Fire. Police Tier 2 members entered the Plan beginning August 4, 2013. Fire Tier 2 members entered the Plan beginning January 2, 2015.

Table IV-1

Present Value of Future Benefits						
	Fire			Police		
	6/30/2016	6/30/2015	% Change	6/30/2016	6/30/2015	% Change
Tier 1						
Actives	$ 814,718	$ 734,054	11.0%	$ 1,045,722	$ 1,016,441	2.9%
Deferred Vested	11,140	9,228	20.7%	86,412	52,250	65.4%
In Pay Status	1,082,089	1,037,714	4.3%	1,819,891	1,720,029	5.8%
Total Tier 1	**$ 1,907,947**	**$ 1,780,996**	**7.1%**	**$ 2,952,024**	**$ 2,788,720**	**5.9%**
Tier 2						
Actives	$ 16,225	$ 4,551	N/A	$ 30,917	$ 18,960	63.1%
Deferred Vested	10	0	N/A	231	188	22.7%
In Pay Status	0	0	N/A	0	0	N/A
Total Tier 2	**$ 16,235**	**$ 4,551**	**N/A**	**$ 31,148**	**$ 19,149**	**62.7%**
Total	**$ 1,924,182**	**$ 1,785,547**	**7.8%**	**$ 2,983,173**	**$ 2,807,869**	**6.2%**

Dollar amounts in thousands

Normal Cost

Under the Entry Age (EA) actuarial cost method, the Present Value of Future Benefits for each individual is spread over the individual's expected working career under the Plan as a level percentage of the individual's expected pay. The normal cost rate is determined by taking the value, as of entry age into the Plan, of each member's projected future benefits divided by the value, also at entry age, of the each member's expected future salary. The normal cost rate is multiplied by current salary to determine each member's normal cost. The normal cost of the Plan is the sum of the normal costs for each individual in the Plan. The normal cost represents the amount of money today that is expected to be needed to pay the benefits attributed to the next year of service under the Entry Age actuarial cost method if all assumptions are met. In addition, administrative expenses are added to the EA normal cost rate to get the Total normal cost rate. Table IV-2 below shows the EA normal cost and Total normal cost rates as of June 30, 2016 and June 30, 2015 separately by Tier for Police and Fire. Fire Tier 2 members are new to the valuation this year.

Table IV-2

Entry Age Normal Cost By Group	Fire			Police		
	6/30/2016	6/30/2015	% Change	6/30/2016	6/30/2015	% Change
Tier 1						
Retirement	$ 17,485	$ 16,021	9.1%	$ 18,363	$ 18,307	0.3%
Termination	1,391	1,335	4.2%	4,829	4,968	-2.8%
Death	364	339	7.5%	391	398	-1.7%
Disability	10,337	9,560	8.1%	11,749	11,808	-0.5%
Reciprocity	177	161	9.8%	686	700	-2.0%
Total Tier 1 Normal Cost	**$ 29,754**	**$ 27,416**	**8.5%**	**$ 36,018**	**$ 36,182**	**-0.5%**
Expected Payroll	$ 73,539	$ 69,640	5.6%	$ 92,278	$ 95,216	-3.1%
Normal Cost Rate	40.46%	39.38%	1.08%	39.02%	38.01%	1.01%
Administrative Expense Rate	1.90%	1.90%	0.00%	1.90%	1.90%	0.00%
Total Normal Cost Rate	**42.36%**	**41.28%**	**1.08%**	**40.92%**	**39.91%**	**1.01%**
Tier 2						
Retirement	$ 266	$ 72	268.7%	$ 542	$ 347	56.0%
Termination	63	18	256.2%	368	241	52.6%
Death	19	5	264.2%	33	22	50.6%
Disability	646	164	294.2%	1,190	769	54.6%
Total Tier 2 Normal Cost	**$ 994**	**$ 259**	**283.9%**	**$ 2,132**	**$ 1,380**	**54.5%**
Expected Payroll	$ 4,595	$ 1,347	241.2%	$ 10,267	$ 6,881	49.2%
Normal Cost Rate	21.64%	19.22%	2.42%	20.76%	20.05%	0.71%
Administrative Expense Rate	1.90%	1.90%	0.00%	1.90%	1.91%	-0.01%
Total Normal Cost Rate	**23.54%**	**21.12%**	**2.42%**	**22.66%**	**21.96%**	**0.70%**

Dollar amounts in thousands

SECTION IV – MEASURES OF LIABILITY

Table IV-3 below shows the breakdown of the normal cost rate between the Retirement and COLA funds.

Table IV-3

Normal Cost Rate Breakdown	Fire			Police		
	Retirement	COLA	Total	Retirement	COLA	Total
Tier 1						
Normal Cost Rate	27.82%	12.64%	40.46%	26.94%	12.08%	39.02%
Administrative Expense Rate	1.31%	0.59%	1.90%	1.31%	0.59%	1.90%
Total Normal Cost Rate	**29.13%**	**13.23%**	**42.36%**	**28.25%**	**12.67%**	**40.92%**
Tier 2						
Normal Cost Rate	18.49%	3.14%	21.63%	17.47%	3.29%	20.76%
Administrative Expense Rate	1.63%	0.28%	1.90%	1.59%	0.31%	1.90%
Total Normal Cost Rate	**20.12%**	**3.42%**	**23.54%**	**19.06%**	**3.60%**	**22.66%**

SECTION IV – MEASURES OF LIABILITY

Actuarial Liability

The Actuarial Liability represents the amount of money today that is expected to be needed to pay for benefits attributed to service prior to the valuation date under the EA method if all assumptions are met. It is the difference between the Present Value of Future Benefits and the present value of future normal costs. Table IV-4 below shows the Actuarial Liability as of June 30, 2016 and June 30, 2015 separately by Tier for Police and Fire.

Table IV-4

Actuarial Liability	Fire			Police		
	6/30/2016	6/30/2015	% Change	6/30/2016	6/30/2015	% Change
Tier 1						
Actives						
Retirement	$ 393,394	$ 338,643	16.2%	$ 645,882	$ 607,132	6.4%
Termination	4,402	3,841	14.6%	22,346	22,746	-1.8%
Death	1,750	1,616	8.3%	1,944	1,970	-1.3%
Disability	152,025	134,609	12.9%	130,459	126,832	2.9%
Total Actives	$ 551,571	$ 478,709	15.2%	$ 800,632	$ 758,680	5.5%
Deferred Vested	$ 11,140	$ 9,228	20.7%	$ 86,412	$ 52,250	65.4%
In Pay Status						
Service Retirees	$ 426,051	$ 401,828	6.0%	$ 1,176,472	$ 1,105,462	6.4%
Beneficiaries	73,858	67,313	9.7%	68,512	63,949	7.1%
Disabled Retirees	582,180	568,573	2.4%	574,907	550,618	4.4%
Total In Pay Status	$ 1,082,089	$ 1,037,714	4.3%	$ 1,819,891	$ 1,720,029	5.8%
Tier 1 Actuarial Liability	**$ 1,644,800**	**$ 1,525,651**	**7.8%**	**$ 2,706,934**	**$ 2,530,959**	**7.0%**
Tier 2						
Actives						
Retirement	$ 186	$ 47	293.7%	$ 955	$ 386	147.5%
Termination	32	19	69.3%	893	413	116.2%
Death	8	2	293.9%	32	13	140.5%
Disability	397	107	269.4%	1,513	624	142.5%
Total Actives	$ 622	$ 175	254.9%	$ 3,393	$ 1,436	136.3%
Deferred Vested	$ 10	$ 0	N/A	$ 231	$ 188	22.7%
Tier 2 Actuarial Liability	**$ 633**	**$ 175**	**260.8%**	**$ 3,623**	**$ 1,624**	**123.1%**
Total Actuarial Liability	**$ 1,645,432**	**$ 1,525,651**	**7.9%**	**$ 2,710,558**	**$ 2,532,584**	**7.0%**

Dollar amounts in thousands

SECTION IV – MEASURES OF LIABILITY

Table IV-5 below shows the breakdown of the Actuarial Liability as of June 30, 2016 between the Retirement and COLA funds.

Table IV-5

Actuarial Liability Breakdown	Fire			Police		
	Retirement	COLA	Total	Retirement	COLA	Total
Tier 1						
Actives	$ 377,471	$ 174,100	$ 551,571	$ 542,128	$ 258,503	$ 800,632
Deferred Vested	7,051	4,089	11,140	55,584	30,828	86,412
In Pay Status	577,873	504,216	1,082,089	978,494	841,397	1,819,891
Tier 1 Total	**$ 962,395**	**$ 682,405**	**$ 1,644,800**	**$ 1,576,206**	**$ 1,130,728**	**$ 2,706,934**
Tier 2						
Actives	$ 531	$ 91	$ 622	$ 2,930	$ 462	$ 3,393
Deferred Vested	10	0	10	231	0	231
Tier 2 Total	**$ 541**	**$ 91**	**$ 633**	**$ 3,161**	**$ 462**	**$ 3,623**
Plan Total	**$ 962,936**	**$ 682,496**	**$ 1,645,432**	**$ 1,579,368**	**$ 1,131,190**	**$ 2,710,558**

Dollar amounts in thousands

Analysis of Change in Unfunded Actuarial Liability (UAL)

The UAL of any retirement plan is expected to change at each subsequent valuation for a variety of reasons. In each valuation, we report on those elements of change in the UAL that have particular significance or could potentially affect the long-term financial outlook of a retirement plan. Table IV-6 below develops the expected UAL by Tier and identifies the primary sources for changes in the UAL since the last valuation.

Table IV-6

Development of Experience Gain or (Loss)	Tier 1	Tier 2 Fire	Tier 2 Police	Total
Unfunded actuarial liability, 6/30/2015	$ 845,611	$ 53	$ (31)	$ 845,633
Interest	59,193	4	(2)	59,194
Expected unfunded actuarial liability payment with interest	(79,897)	(5)	2	(79,899)
Change in assumptions	72,574	18	88	72,680
Expected unfunded actuarial liability, 6/30/2016	$ 897,480	$ 71	$ 58	$ 897,609
Actual unfunded actuarial liability	1,058,995	10	(83)	1,058,922
Experience Gain or (Loss)	**$ (161,515)**	**$ 61**	**$ 141**	**$ (161,313)**
Portion due to investment experience				$ (106,785)
Portion due to salary experience				(21,962)
Portion due to vested terminated benefit changes				(26,431)
Portion due to retirement experience				(3,825)
Portion due to mortality experience				(5,385)
Portion due to other experience				3,075
Total				$ (161,313)

Dollar amounts in thousands

The primary change is due to the investment experience on the Actuarial Value of Assets. In addition, salary increases were greater than expected, and we updated the benefit amounts for vested terminated members from an estimated amount based on the last year's reported salary to benefit amounts that are now provided in the data.

SECTION V – CONTRIBUTIONS

Under the contribution allocation procedure employed by the Plan, there are two components to the total contribution: the normal cost, including assumed administrative expenses, and the Unfunded Actuarial Liability contribution. The normal cost rate was developed in Section IV. This section develops the UAL contribution rate and divides the contributions between the members and the City.

Table V-1

Tier 1 UAL Amortization Bases

Source	Date	Outstanding Balance Retirement	Outstanding Balance COLA	Remaining Period	Amortization Payment Retirement	Amortization Payment COLA
Members						
Ben Improvement (All)	6/30/1996	$ (361)	$ 551	1.0	$ (386)	$ 589
Rate Increase Delay (Police)	12/17/2006	109	42	5.5	23	9
Total Members		**$ (252)**	**$ 593**		**$ (363)**	**$ 598**
City						
UAAL	6/30/2003	$ 1,217	$ (1,856)	1.0	$ 1,301	$ (1,984)
Experience Loss	6/30/2005	(51,004)	77,774	5.0	(11,667)	17,791
Ben Improvement (Police)	6/30/2005	15,807	6,120	5.0	3,616	1,400
Ben Improvement (Fire)	6/30/2007	17,461	6,637	7.0	2,950	1,121
Experience Gain	6/30/2007	(69,421)	(31,161)	7.0	(11,727)	(5,264)
Assumption Change	6/30/2007	15,215	8,169	7.0	2,570	1,380
Experience Loss	6/30/2009	128,943	68,410	9.0	17,509	9,289
Assumption Change	6/30/2009	75,811	41,983	9.0	10,294	5,701
Experience Loss	6/30/2010	87,816	47,418	10.0	10,908	5,890
Assumption Change	6/30/2010	56,403	32,143	10.0	7,006	3,993
Experience Gain	6/30/2011	(134,914)	(85,352)	11.0	(15,484)	(9,796)
Assumption Change	6/30/2011	22,071	31,419	15.0	1,980	2,819
Experience Loss	6/30/2012	79,208	42,641	12.0	8,469	4,559
SRBR Elimination	6/30/2012	(29,716)	0	12.0	(3,177)	0
Assumption Change	6/30/2012	56,622	48,230	16.0	4,838	4,121
Experience Loss	6/30/2013	48,272	28,307	13.0	4,841	2,839
Assumption Change	6/30/2013	6,411	21,348	17.0	524	1,744
Experience Gain	6/30/2014	(43,595)	(17,841)	14.0	(4,125)	(1,688)
Assumption Change	6/30/2014	28,060	27,192	18.0	2,199	2,131
Experience Gain	6/30/2015	(10,367)	370	15.0	(930)	33
Assumption Change	6/30/2015	6,924	82,773	19.0	522	6,240
Experience Gain	6/30/2016	103,607	57,907	15.0	9,295	5,195
Assumption Change	6/30/2016	36,246	36,328	20.0	2,636	2,642
7/1 UAL Payment		31,622	50,997			
Total City		**$ 478,698**	**$ 579,955**		**$ 44,346**	**$ 60,154**
Total Tier 1		**$ 478,446**	**$ 580,549**		**$ 43,983**	**$ 60,752**

Dollar amounts in thousands

Table V-1 above shows the outstanding balance, remaining period and amortization payments for each component of the Tier 1 UAL as of June 30, 2016. Each component is amortized as a

SECTION V – CONTRIBUTIONS

level percent of expected payroll with payroll assumed to increase 3.25% each year. The City is responsible for all components except the 1996 benefit improvement and the contribution rate increase delay for Police in 2006.

Table V-2

Tier 1 UAL Amortization Base Payments						
	Fire			Police		
Source	Retirement	COLA	Total	Retirement	COLA	Total
Members						
1996 Ben Improvement (All)	$ (176)	$ 268	$ 92	$ (211)	$ 321	$ 110
2006 Rate Increase Delay (Police)	0	0	0	23	9	32
Total Members	**$ (176)**	**$ 268**	**$ 92**	**$ (187)**	**$ 330**	**$ 142**
City						
2003 UAAL	$ 592	$ (902)	$ (311)	$ 709	$ (1,081)	$ (372)
2005 Experience Loss	(5,307)	8,092	2,785	(6,360)	9,698	3,338
2005 Ben Improvement (Police)	0	0	0	3,616	1,400	5,016
2007 Ben Improvement (Fire)	2,950	1,121	4,071	0	0	0
2007 Experience Gain	(5,334)	(2,394)	(7,729)	(6,393)	(2,870)	(9,263)
2007 Assumption Change	1,169	628	1,797	1,401	752	2,153
2009 Experience Loss	7,964	4,225	12,189	9,545	5,064	14,608
2009 Assumption Change	4,682	2,593	7,275	5,612	3,108	8,719
2010 Experience Loss	4,962	2,679	7,641	5,946	3,211	9,157
2010 Assumption Change	3,187	1,816	5,003	3,819	2,177	5,996
2011 Experience Gain	(7,043)	(4,456)	(11,499)	(8,441)	(5,340)	(13,781)
2011 Assumption Change	901	1,282	2,183	1,079	1,537	2,616
2012 Experience Loss	3,852	2,074	5,926	4,617	2,485	7,102
2012 SRBR Elimination	(1,445)	0	(1,445)	(1,732)	0	(1,732)
2012 Assumption Change	2,201	1,874	4,075	2,637	2,246	4,884
2013 Experience Loss	2,202	1,291	3,493	2,639	1,548	4,186
2013 Assumption Change	238	793	1,031	285	951	1,236
2014 Experience Gain	(1,876)	(768)	(2,644)	(2,249)	(920)	(3,169)
2014 Assumption Change	1,000	969	1,969	1,198	1,161	2,360
2015 Experience Gain	(423)	15	(408)	(507)	18	(489)
2015 Assumption Change	237	2,838	3,076	285	3,401	3,686
2016 Experience Gain	4,228	2,363	6,591	5,067	2,832	7,899
2016 Assumption Change	1,199	1,202	2,401	1,437	1,440	2,877
Total City	**$ 20,135**	**$ 27,336**	**$ 47,471**	**$ 24,211**	**$ 32,818**	**$ 57,029**
Total Tier 1	**$ 19,959**	**$ 27,604**	**$ 47,563**	**$ 24,024**	**$ 33,148**	**$ 57,172**

Dollar amounts in thousands

Table V-2 above shows the division of the Tier 1 UAL payments between Police and Fire and between the members and the City.

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Table V-3 below shows the outstanding balance, remaining period, and amortization payments for each component of the Tier 2 UAL as of June 30, 2016. Each component is amortized from the valuation date in which it was first recognized. All components of the Tier 2 UAL are split evenly between the members and the City.

Table V-3

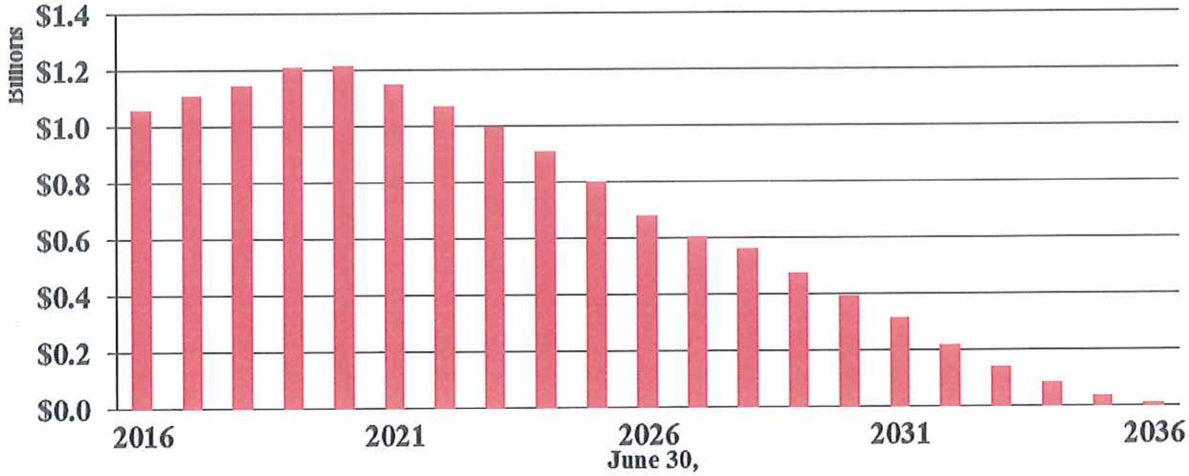
Tier 2 UAL Amortization Bases						
		Outstanding Balance		Remaining	Amortization Payment	
Source	Date	Retirement	COLA	Period	Retirement	COLA
Fire - Members and City						
Experience Gain	6/30/2015	$ 35	$ 10	15.0	$ 3	$ 1
Assumption Change	6/30/2015	5	2	19.0	0	0
Experience Gain	6/30/2016	(55)	(6)	15.0	(5)	(1)
Assumption Change	6/30/2016	15	3	20.0	1	0
Total Tier 2 Fire		**$ (0)**	**$ 10**		**$ (0)**	**$ 1**
Police - Members and City						
Experience Gain	6/30/2014	$ (7)	$ (20)	14.0	$ (1)	$ (2)
Assumption Change	6/30/2014	(4)	(0)	18.0	(0)	(0)
Experience Gain	6/30/2015	30	(11)	15.0	3	(1)
Assumption Change	6/30/2015	(16)	(2)	19.0	(1)	(0)
Experience Gain	6/30/2016	(118)	(22)	15.0	(11)	(2)
Assumption Change	6/30/2016	71	17	20.0	5	1
Total Tier 2 Police		**$ (44)**	**$ (38)**		**$ (5)**	**$ (4)**

Dollar amounts in thousands

The chart on the following page shows the projected aggregate balance of the UAL based on the Market Value of Assets for the Plan under the amortization schedules shown above assuming all expected payments are made and all assumptions are met. This projection includes new amortization bases for the unrecognized investment gains and losses that will be recognized over the next four years.

SECTION V – CONTRIBUTIONS

Projected Unfunded Actuarial Liability Based on Market Value of Assets



In addition to the UAL payments shown above, Tier 1 members pay 3/11ths of the EA normal cost (excluding reciprocity normal cost) plus their historical share of administrative expenses. Tier 2 members pay half of the EA normal cost, half of administrative expenses, and half of the UAL payments. Table V-4 on the following page shows the contribution rates for the 2016-17 fiscal year for members and the City by Tier split between Police and Fire groups.

SECTION V – CONTRIBUTIONS

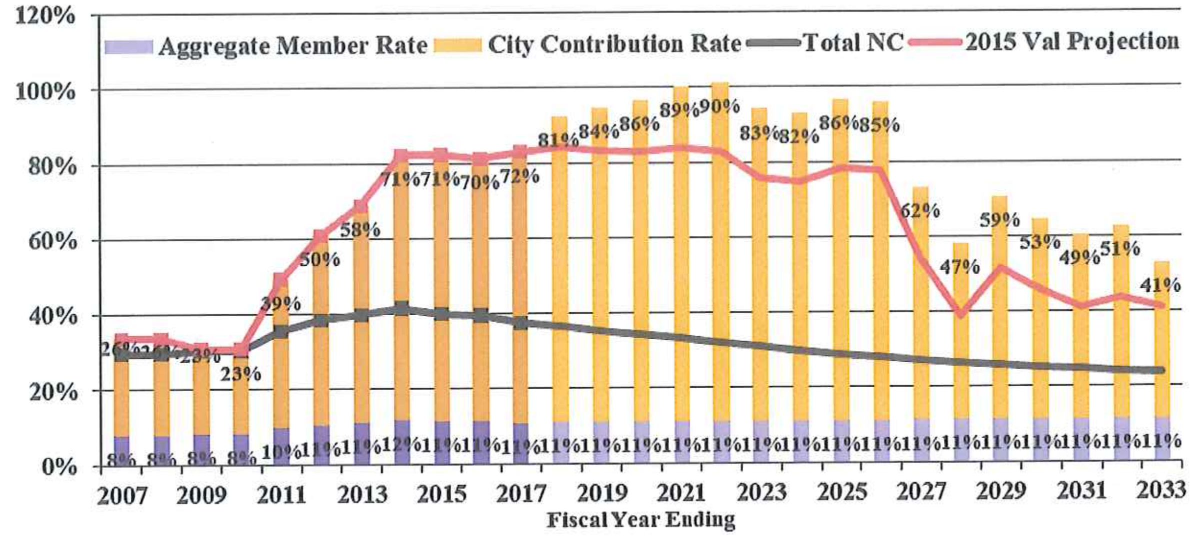
Table V-4

Fiscal Year 2017-18 Contribution Rates	Fire			Police		
	Retirement	COLA	Total	Retirement	COLA	Total
Tier 1 - Members						
Normal Cost	7.73%	3.52%	11.25%	7.38%	3.34%	10.72%
UAL	-0.24%	0.37%	0.13%	-0.21%	0.37%	0.16%
Total	**7.49%**	**3.89%**	**11.38%**	**7.17%**	**3.71%**	**10.88%**
Tier 1 - City						
Normal Cost	21.40%	9.71%	31.11%	20.87%	9.33%	30.20%
UAL	27.55%	37.40%	64.95%	27.64%	37.47%	65.11%
Total	**48.95%**	**47.11%**	**96.06%**	**48.51%**	**46.80%**	**95.31%**
Tier 2 - Members						
Normal Cost	10.06%	1.71%	11.77%	9.53%	1.80%	11.33%
UAL	0.00%	0.00%	0.00%	-0.01%	-0.01%	-0.02%
Total	**10.06%**	**1.71%**	**11.77%**	**9.52%**	**1.79%**	**11.31%**
Tier 2 - City						
Normal Cost	10.06%	1.71%	11.77%	9.53%	1.80%	11.33%
UAL	0.00%	0.00%	0.00%	-0.01%	-0.01%	-0.02%
Total	**10.06%**	**1.71%**	**11.77%**	**9.52%**	**1.79%**	**11.31%**

The chart on the next page shows historical and projected aggregate contribution rates for the Plan compared to those projected in the prior valuation. The purple bars are weighted average member contribution rates for Police and Fire for both Tier 1 and Tier 2. The gold bars are weighted average city contribution rates for Police and Fire for both Tier 1 and Tier 2. The darker shaded bars represent historical amounts and the lighter shades represent projected rates. The projected rates assume that all assumptions are met. The chart in the dashboard shows potential variations from these projections for stochastically generated investment returns. The black line shows the weighted average normal cost rate. All contribution rates above this rate represent payments toward the UAL. The red line represents the projection from the prior valuation.

SECTION V – CONTRIBUTIONS

Historical and Projected Aggregate Contribution Rates



The normal cost rate is projected to decline as Tier 1 members terminate employment or retire and are replaced by Tier 2 members who have a significantly lower normal cost rate. Since the last valuation, the investment losses, higher than expected salary increases, and the assumption changes have increased projected City contribution rates. There is a significant decrease in City contribution rates projected between FYE 2026 and FYE 2028 due to the completion of payments on the amortization schedules for the 2009 and 2010 assumption changes and experience losses.

Table V-5 on the following page shows the estimated dollar amounts of the City's contributions assuming contributions are made at the beginning of the fiscal year. In accordance with the Board's policy, contributions made at the beginning of FYE 2018 are discounted for one-half year of interest at 55% of the valuation discount rate. To the extent the City's contributions are made after the beginning of the fiscal year, the amounts should be adjusted for interest.

SECTION V – CONTRIBUTIONS

Table V-5

Fiscal Year Ending 2018 Estimated City Contribution Amounts Beginning of Year	Fire			Police		
	Retirement	COLA	Total	Retirement	COLA	Total
Tier 1						
Normal Cost	$ 15,870	$ 7,203	$ 23,074	$ 18,554	$ 8,289	$ 26,843
UAL	20,433	27,741	48,173	24,570	33,303	57,873
Total	**$ 36,303**	**$ 34,944**	**$ 71,247**	**$ 43,124**	**$ 41,592**	**$ 84,716**
Tier 2						
Normal Cost	$ 1,006	$ 171	$ 1,177	$ 2,253	$ 426	$ 2,679
UAL	0	0	0	(2)	(2)	(5)
Total	**$ 1,006**	**$ 171**	**$ 1,177**	**$ 2,251**	**$ 423**	**$ 2,674**
Total						
Normal Cost	$ 16,876	$ 7,374	$ 24,251	$ 20,808	$ 8,715	$ 29,522
UAL	20,433	27,741	48,173	24,567	33,301	57,868
Total	**$ 37,309**	**$ 35,115**	**$ 72,424**	**$ 45,375**	**$ 42,016**	**$ 87,391**

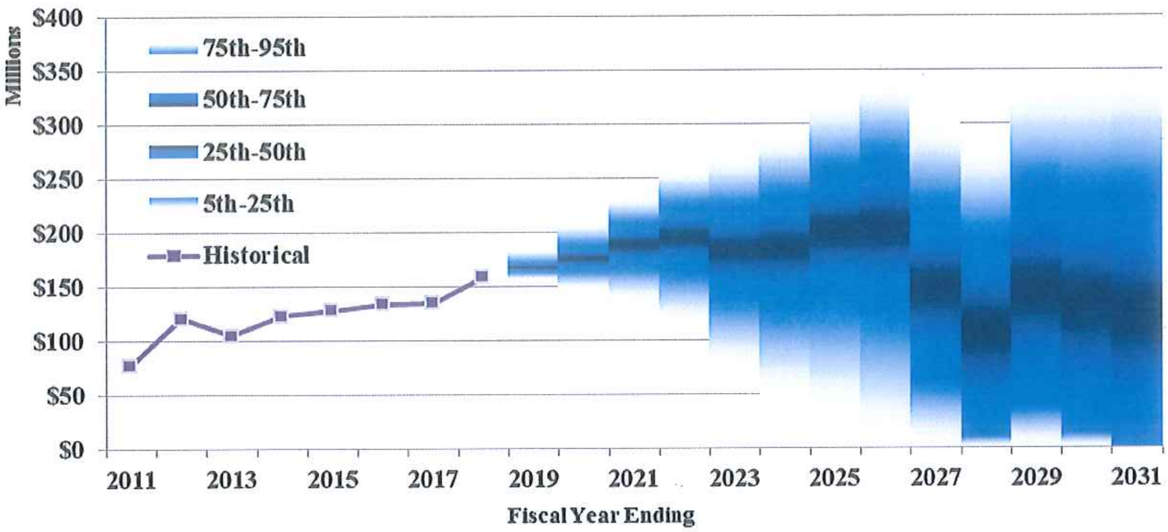
Dollar amounts in thousands

If experience has taught us anything, it is that there is a significant level of uncertainty in projections of the future. The largest source of uncertainty is the projection of investment returns. In order to better understand the potential impact of investment returns on the Plan, we have included some stochastic projections in the dashboard and in this section of the report. The stochastic projections are based on NEPC's 5 to 7 year capital market assumptions for the Plan's investment portfolio, including a 6.7% geometric return and an 11.5% standard deviation. Each projection contains 10,000 trials that are 15 years in length.

The chart on the next page shows the historical and stochastically projected City contribution amounts for Tier 1. The purple line represents the amounts paid historically or the amounts already determined by an actuarial valuation. The projected amounts are shown as bars that are dark blue at the median of the 10,000 trials and fade to white as the range extends to the 5th and 95th percentiles of the 10,000 trials. This range is intended to convey the degree of uncertainty in the projections based on future investment returns.

SECTION V – CONTRIBUTIONS

Historical and Stochastically Projected Tier 1 City Contribution Amounts

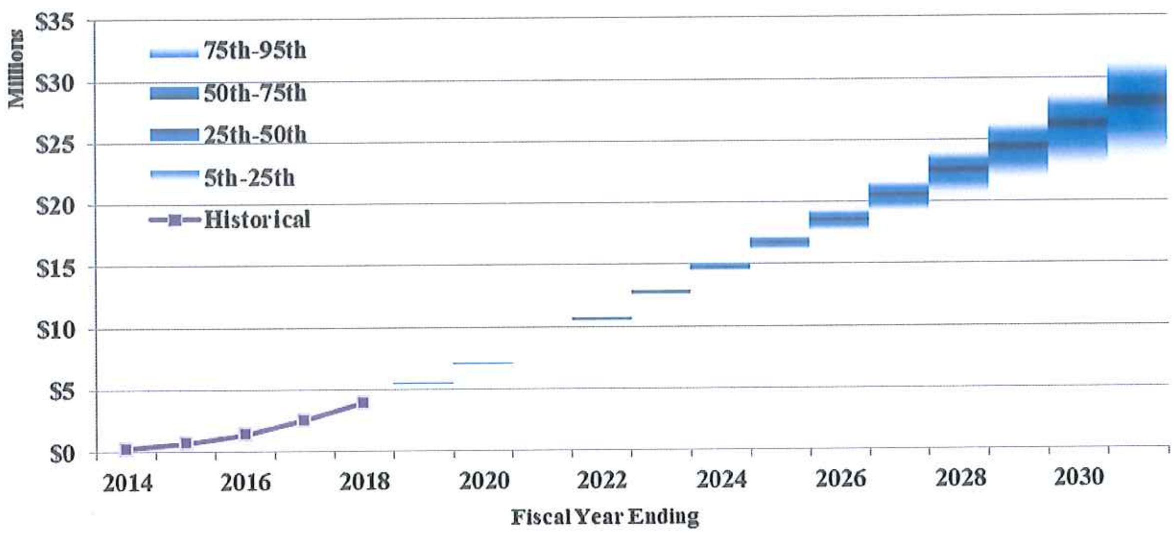


The chart shows a very wide range of potential City contribution amounts depending on actual investment returns. The range between the 5th and 95th percentile for FYE 2023 (based on the 2021 actuarial valuation) is from a contribution of $70 million to a contribution of $270 million. This range is largely driven by the standard deviation of the investment portfolio.

The chart on the following page shows the historical and stochastically projected City contribution amounts for Tier 2. The range of contribution amounts is much narrower for Tier 2 than Tier 1. Tier 2 is projected to grow so quickly and assets are relatively small right now. As a result, actual investment returns have a limited impact on future contribution amounts while the rate of growth will have a larger impact.

SECTION V – CONTRIBUTIONS

Historical and Stochastically Projected Tier 2 City Contribution Amounts



SECTION VI – ACTUARIAL SECTION OF THE CAFR

The Government Finance Officers Association (GFOA) maintains a checklist of items to be included in the System's Comprehensive Annual Financial Report (CAFR) in order to receive recognition for excellence in financial reporting. The schedules in this section are listed by the GFOA for inclusion in the Actuarial Section of the System's CAFR.

Table VI-1

Schedule of Funding Progress						
Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Liability (AL)	Unfunded Actuarial Liability	Funded Ratio	Covered Payroll	Unfunded AL as a % of Covered Payroll
6/30/2016	$ 3,297,068	$ 4,355,990	$ 1,058,922	75.7%	$ 194,072	545.6%
6/30/2015	3,212,776	4,058,410	845,634	79.2%	184,733	457.8%
6/30/2014	3,025,101	3,813,825	788,724	79.3%	188,189	419.1%
6/30/2013	2,771,924	3,578,031	806,107	77.5%	184,645	436.6%
6/30/2012	2,703,539	3,397,792	694,253	79.6%	187,959	369.4%
6/30/2011	2,685,721	3,196,007	510,286	84.0%	190,726	267.5%
6/30/2010	2,576,705	3,230,456	653,751	79.8%	251,058	260.4%
6/30/2009	2,569,569	2,963,482	393,913	86.7%	255,223	154.3%
6/30/2007	2,365,790	2,372,386	6,596	99.7%	227,734	2.9%

Amounts prior to June 30, 2011 calculated by prior actuary *Dollar amounts in thousands*

The Government Finance Officers Association has named the exhibit on the next page, the Solvency Test. It should be noted, however, that it doesn't test the solvency of the plan in the sense understood by financial economists that a 100 percent ratio would mean that there were sufficient assets to settle the obligation on the valuation date. Instead, a 100 percent ratio only means that assets are expected to be sufficient if all assumptions are met in the future, including the expected rate of return on investments.

SECTION VI – ACTUARIAL SECTION OF THE CAFR

Table VI-2

Solvency Test							
	Actuarial Liability For						
Actuarial Valuation Date	Active Member Contributions (A)	Retirees, Beneficiaries and Other Inactives (B)	Remaining Active Members' Liability (C)	Reported Assets	Portion of Actuarial Liability Covered by Reported Assets (A)	(B)	(C)
6/30/2016	$ 294,535	$ 2,999,773	$ 1,061,682	$ 3,297,068	100%	100%	0%
6/30/2015	285,538	2,819,410	953,462	3,212,776	100%	100%	11%
6/30/2014	288,227	2,585,611	939,987	3,025,101	100%	100%	16%
6/30/2013	280,727	2,452,728	844,576	2,771,924	100%	100%	5%
6/30/2012	276,047	2,310,295	811,450	2,703,539	100%	100%	14%
6/30/2011	260,172	2,174,044	761,791	2,685,721	100%	100%	33%
6/30/2010	246,356	1,907,931	1,076,169	2,576,705	100%	100%	39%
6/30/2009	243,302	1,630,914	1,089,266	2,569,569	100%	100%	64%
6/30/2007	227,191	1,240,126	905,069	2,365,790	100%	100%	99%

Amounts prior to June 30, 2011 calculated by prior actuary *Dollar amounts in thousands*

In the exhibit below, non-recurring items include changes in assumptions and changes in plan provisions.

Table VI-3

Analysis of Financial Experience					
	Gain or (Loss) for Year(s) Ending on Valuation Date Due To:				
Actuarial Valuation Date	Investment Income	Combined Liability Experience	Total Financial Experience	Non-Recurring Items	Total Experience
6/30/2016	$ (106,785)	$ (54,528)	$ (161,313)	$ (72,680)	$ (233,993)
6/30/2015	2,806	7,291	10,097	(90,004)	(79,907)
6/30/2014	78,462	(14,678)	63,784	(55,787)	7,997
6/30/2013	(92,499)	11,115	(81,384)	(28,233)	(109,618)
6/30/2012	(172,759)	39,432	(133,327)	(75,220)	(208,548)
6/30/2011	(96,473)	278,051	181,578	12,360	193,938
6/30/2010	(149,621)	43,880	(105,741)	(104,240)	(209,981)
6/30/2009	(138,383)	(113,495)	(251,878)	(145,351)	(397,229)
6/30/2007	97,135	47,735	144,870	(93,343)	51,527

Amounts prior to June 30, 2011 calculated by prior actuary *Dollar amounts in thousands*

SECTION VI – ACTUARIAL SECTION OF THE CAFR

The schedule of active member data summarizes the total active count, payroll, and increase in average pay for the Plan.

Table VI-4

City of San José Police and Fire Department Retirement Plan
Schedule of Active Member Data

Valuation Year	Active Count	Annual Payroll	Monthly Average Pay	Percent Change in Average Pay*
2016	1,582	$ 194,072,093	$ 10,223	4.72%
2015	1,577	$ 184,733,063	$ 9,762	2.96%
2014	1,654	$ 188,188,712	$ 9,481	5.19%
2013	1,707	$ 184,645,250	$ 9,014	-1.13%
2012	1,718	$ 187,958,523	$ 9,117	-0.48%
2011	1,735	$ 190,726,258	$ 9,161	-11.51%
2010	2,021	$ 251,058,473	$ 10,352	1.38%
2009	2,083	$ 255,222,552	$ 10,211	14.92%
2007	2,136	$ 227,734,449	$ 8,885	1.68%

** Years prior to 2009 are increases over a two-year period, not an annual increase*

SECTION VI – ACTUARIAL SECTION OF THE CAFR

The last CAFR schedule summarizes the number of retirees and beneficiaries added to and removed from the plan, as well as their total annual benefit amounts.

Table VI-5

City of San José Police and Fire Department Retirement Plan
Schedule Of Retirees and Beneficiaries Added to and Removed from Rolls

	Beginning of Period		Added to Rolls		Removed from Rolls		End of Period			
Period	Count	Annual Allowances	Count	Annual Allowances	Count	Annual Allowances	Count	Annual Allowances	% Increase in Annual Allowances*	Average Annual Allowances
2015-2016	2,108	$182,185	72	$5,450	31	-$3,262	2,149	$190,897	4.78%	$88,831
2014-2015	2,032	$170,872	115	$13,700	39	$2,387	2,108	$182,185	6.62%	$86,426
2013-2014	1,994	$162,716	73	$10,142	35	$1,986	2,032	$170,872	5.01%	$84,091
2012-2013	1,942	$154,381	91	$10,259	39	$1,924	1,994	$162,716	5.40%	$81,603
2011-2012	1,885	$144,139	88	$11,583	31	$1,341	1,942	$154,381	7.11%	$79,496
2010-2011	1,810	$131,014	133	$15,384	58	$2,259	1,885	$144,139	10.02%	$76,466
2009-2010	1,700	$115,573	152	$17,238	42	$1,797	1,810	$131,014	13.36%	$72,383
2007-2009	1,477	$90,061	276	$27,537	53	$2,025	1,700	$115,573	28.33%	$67,984
2005-2007	1,385	$76,071	143	$15,913	51	$1,923	1,477	$90,061	18.39%	$60,976
2003-2005	1,271	$62,314	161	$15,619	47	$1,862	1,385	$76,071	22.08%	$54,925

** Years prior to 2009-2010 are increases over a two-year period, not an annual increase*

Annual Allowances in Thousands

APPENDIX A – MEMBERSHIP INFORMATION

Data Assumptions and Methods

In preparing our data, we relied on information supplied by the San José Department of Retirement Services. This information includes, but is not limited to, plan provisions, employee data, and financial information. Our methodology for obtaining the data used for the valuation is based upon the following assumptions and practices:

- Records on the "Active" data file are considered to be Active if they do not have a reason for termination.
- Records on any of the data files are considered to be Inactive if they have a reason for termination of deferred vested or leave of absence/inactive.
- Records on the "Retiree" and "Beneficiary/QDRO" files are considered in pay status if they do not have a date of death, are not inactive and have not withdrawn from the plan.
- Salary for the year commencing on the valuation date is defined as the greater of:
    - Annualized "compensation rate 2," increased with one year of wage inflation and one half year of merit increase; and,
    - "Pensionable compensation" for the year ending on the valuation date, increased with one year of wage inflation and one year of merit increase.
- The annual benefit for deferred vested members is set to be the accrued benefit provided. If an accrued benefit is not provided, then an annual benefit is estimated at the later of their current age and assumed retirement age, using the benefit service provided and annualized "compensation rate 2."
- We assume any member found in last year's "Retiree" file and not in this year's file is deceased without a beneficiary and should be removed from the valuation data.
- We assume all deceased members with payments continuing to a beneficiary have already been accounted for in the "Retiree" file.
- If a spouse continuance amount is not provided on a retiree or disabled member's record, it is assumed to equal the member's benefit, multiplied by 37.5% and divided by the member's benefit multiplier at retirement.

APPENDIX A – MEMBERSHIP INFORMATION

Table A-1

City of San José Police and Fire Department Retirement Plan
Active Member Data

	June 30, 2016			June 30, 2015	
	Tier 1	Tier 2	Total	Total	% Change
Total					
Count	1,393	189	1,582	1,577	0.3%
Average Current Age	44.0	30.6	42.4	42.2	0.5%
Average Vesting Service	16.0	1.8	14.3	14.2	0.7%
Expected Pensionable Earnings					
Total	$ 177,611,521	$ 16,460,571	$ 194,072,092	$ 184,733,063	5.1%
Average	$ 127,503	$ 87,093	$ 122,675	$ 117,142	4.7%

Table A-2

City of San José Police and Fire Department Retirement Plan
Non-Active Member Data

	Count			Average Age		
	June 30, 2016	June 30, 2015	%Change	June 30, 2016	June 30, 2015	%Change
Total						
Retired & Disabled	1,854	1,827	1.5%	65.8	65.4	0.6%
Beneficiaries	295	281	5.0%	66.9	66.5	0.6%
Payee Total	2,149	2,108	1.9%	65.9	65.5	0.6%
Deferred Vesteds	314	298	5.4%	41.0	40.4	1.5%

Table A-3

City of San José Police and Fire Department Retirement Plan
Non-Active Member Data

	Total Annual Benefit*			Average Annual Benefit*		
	June 30, 2016	June 30, 2015	%Change	June 30, 2016	June 30, 2015	%Change
Total						
Retired & Disabled	$ 178,929,360	$ 171,194,802	4.5%	$ 96,510	$ 93,703	3.0%
Beneficiaries	11,967,590	10,990,283	8.9%	40,568	39,111	3.7%
Payee Total	$ 190,896,949	$ 182,185,085	4.8%	$ 88,831	$ 86,426	2.8%
Deferred Vesteds**	$ 6,279,561	$ 3,608,869	74.0%	$ 19,999	$ 12,110	65.1%

* Benefits provided in June 30 valuation data.
** Deferred vested benefit amounts are estimated based on the last known salary and benefit service.

APPENDIX A – MEMBERSHIP INFORMATION

Table A-4

City of San José Police and Fire Department Retirement Plan
Distribution of Active Members as of June 30, 2016

	Years of Benefit Service								
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 and Up	Total
Under 25	8	4	-	-	-	-	-	-	12
25 to 29	42	72	1	-	-	-	-	-	115
30 to 34	21	71	64	11	-	-	-	-	167
35 to 39	9	51	111	59	16	-	-	-	246
40 to 44	4	13	49	80	135	17	-	-	298
45 to 49	1	4	30	49	188	158	28	1	459
50 to 54	2	1	2	15	59	107	51	2	239
55 to 59	-	-	-	3	12	21	7	-	43
60 to 64	-	-	-	-	1	1	1	-	3
65 to 69	-	-	-	-	-	-	-	-	-
70 and up	-	-	-	-	-	-	-	-	-
Total Count	87	216	257	217	411	304	87	3	1,582

Table A-5

City of San José Police and Fire Department Retirement Plan
Distribution of Active Members as of June 30, 2016

	Average Expected Salary Years of Benefit Service								
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 and Up	Total
Under 25	$ 83,788	$ 88,830	$ -	$ -	$ -	$ -	$ -	$ -	$ 85,468
25 to 29	78,671	95,327	107,081	-	-	-	-	-	89,346
30 to 34	82,808	98,982	120,783	124,781	-	-	-	-	107,003
35 to 39	79,660	105,076	121,682	125,777	123,903	-	-	-	117,828
40 to 44	78,835	104,724	121,354	124,639	128,534	141,968	-	-	125,368
45 to 49	76,358	107,610	121,425	126,223	129,900	136,735	137,728	121,151	131,454
50 to 54	79,920	99,434	117,317	126,591	130,756	134,376	144,248	148,153	134,471
55 to 59	-	-	-	123,151	125,348	132,618	142,444	-	131,528
60 to 64	-	-	-	-	124,358	121,151	179,604	-	141,704
65 to 69	-	-	-	-	-	-	-	-	-
70 and up	-	-	-	-	-	-	-	-	-
Avg. Salary	$ 80,252	$ 99,522	$ 121,275	$ 125,427	$ 129,194	$ 135,862	$ 142,411	$ 139,152	$ 122,675

APPENDIX A – MEMBERSHIP INFORMATION

Table A-6

City of San José Police and Fire Department Retirement Plan
Retirees and Disabled by Attained Age and Benefit Effective Date
As of June 30, 2016

Benefit	Age										
Effective	Under 50	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85 to 89	90 and up	Total
Pre-1996	-	3	4	9	16	91	130	82	41	12	388
PYE 1996	-	-	2	-	2	18	19	1	-	-	42
PYE 1997	-	1	-	2	9	30	16	4	-	-	62
PYE 1998	-	-	1	2	23	30	10	1	-	-	67
PYE 1999	-	-	-	2	13	28	9	1	-	-	53
PYE 2000	-	-	1	-	21	19	6	1	-	-	48
PYE 2001	-	1	2	3	24	22	2	1	-	-	55
PYE 2002	-	1	2	3	21	22	-	-	-	-	49
PYE 2003	1	1	3	10	36	21	2	-	-	-	74
PYE 2004	-	-	1	12	25	7	-	-	-	-	45
PYE 2005	-	2	2	23	36	9	3	-	-	-	75
PYE 2006	-	-	-	12	17	8	-	-	-	-	37
PYE 2007	-	3	2	33	21	6	-	-	-	-	65
PYE 2008	4	-	8	28	19	3	-	-	-	-	62
PYE 2009	1	4	28	73	42	5	1	-	-	-	154
PYE 2010	1	2	59	60	13	2	-	-	-	-	137
PYE 2011	4	4	66	36	2	-	1	-	-	-	113
PYE 2012	6	14	38	9	3	-	-	-	-	-	70
PYE 2013	10	23	16	3	3	-	-	-	-	-	55
PYE 2014	9	25	18	2	-	-	-	-	-	-	54
PYE 2015	12	49	28	5	1	-	-	-	-	-	95
PYE 2016	7	35	9	3	-	-	-	-	-	-	54
Total	55	168	290	330	347	321	199	91	41	12	1,854

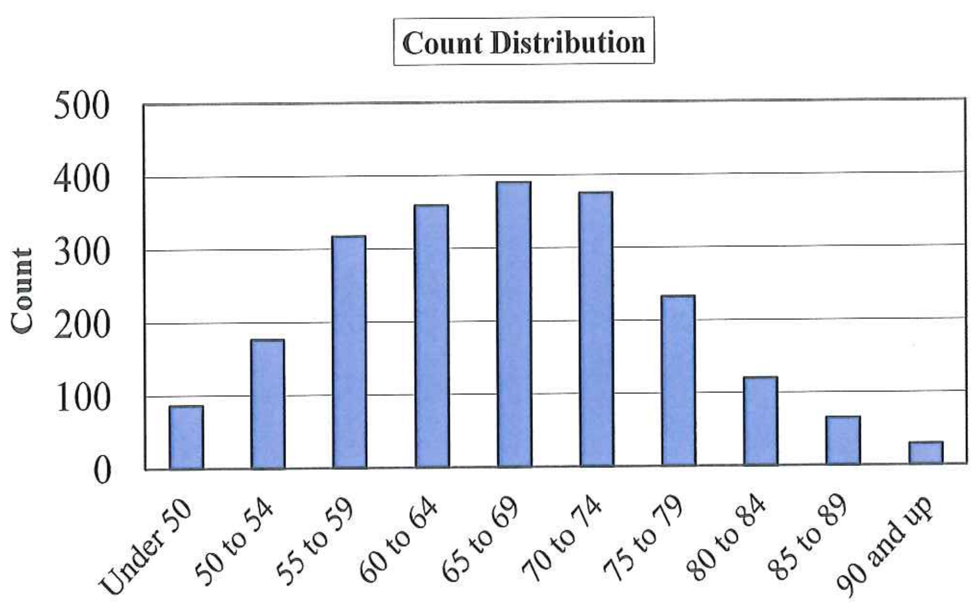
Average Age at Retirement/Disability	52.4
Average Current Age	65.8
Average Annual Pension	$ 96,510

APPENDIX A – MEMBERSHIP INFORMATION

Table A-7

City of San José Police and Fire Department Retirement Plan Distribution of Retirees, Disabled Members, and Beneficiaries as of June 30, 2016	
Age	**Count**
Under 50	86
50 to 54	176
55 to 59	317
60 to 64	359
65 to 69	390
70 to 74	375
75 to 79	232
80 to 84	120
85 to 89	65
90 and up	29
Total	2,149

Chart A-1



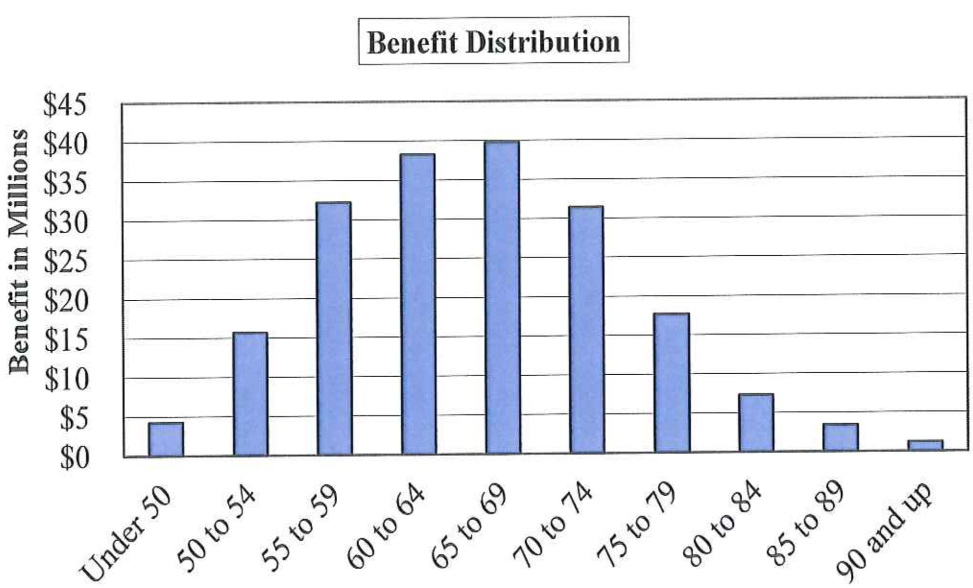
APPENDIX A – MEMBERSHIP INFORMATION

Table A-8

City of San José Police and Fire Department Retirement Plan Distribution of Retirees, Disabled Members, and Beneficiaries as of June 30, 2016

Age	Annual Benefit
Under 50	$ 4,219,555
50 to 54	15,653,157
55 to 59	32,180,301
60 to 64	38,247,118
65 to 69	39,746,098
70 to 74	31,387,689
75 to 79	17,648,377
80 to 84	7,265,093
85 to 89	3,378,785
90 and up	1,170,777
Total	$ 190,896,949

Chart A-2



APPENDIX A – MEMBERSHIP INFORMATION

Table A-9

City of San José Police and Fire Department Retirement Plan Change in Plan Membership	Actives	Deferred Vesteds	Retirees	Disabilities	Beneficiaries	Total
June 30, 2015	1,577	298	912	915	281	3,983
New Entrants	82	0	0	0	0	82
Rehires	4	(4)	0	0	0	0
Vested Deferrals	(25)	25	0	0	0	0
Return of Contributions	(5)	(5)	0	0	0	(10)
Disabilities	(12)	(1)	(6)	19	0	0
Retirements	(38)	(4)	42	0	0	0
Deaths	0	0	(6)	(22)	15	(13)
Beneficiary Deaths	0	0	0	0	(2)	(2)
Miscellaneous Adjustments	(1)	8	0	0	1	8
June 30, 2016	1,582	317	942	912	295	4,048

A. Actuarial Assumptions

The discount rate, wage inflation, and price inflation assumptions shown below were adopted by the Board of Administration with our input at the January 5, 2017 Board meeting. All other assumptions were adopted at the December 3, 2015 Board meeting based on recommendations from our experience study covering plan experience during the period from July 1, 2009 through June 30, 2015. Please refer to the experience study for the rationale for each of the assumptions.

1. Discount Rate

6.875% net of investment expenses. The long-term expected return on assets based on NEPC's capital market assumptions for a 30-year time horizon is 7.7%. The Board applied a margin for adverse deviation to improve the probability of achieving the discount rate.

2. Wage Inflation

3.25% per annum.

3. Price Inflation

2.75% per annum.

4. Salary Increase Rate

The following merit component is added to wage inflation, based on an individual member's years of service:

Table B-1

Salary Merit Increases	
Years of Service	**Merit/ Longevity**
0	6.75%
1	6.00
2	5.25
3	4.50
4	3.75
5	3.25
6	2.75
7	2.25
8	1.75
9	1.25
10+	1.00

5. Family Composition

Percentage married is shown in the following Table B-2. Women are assumed to be three years younger than men.

Table B-2

Percentage Married	
Gender	**Percentage**
Males	85%
Females	85%

6. Rates of Termination

Sample rates of termination are shown in the following Table B-3.

Table B-3

Rates of Termination		
Service	**Police**	**Fire**
0	13.75%	20.00%
1	11.75	20.00
2	9.85	3.50
3	8.35	2.00
4	7.00	1.30
5	5.75	1.10
6	4.60	1.00
7	3.80	0.90
8	3.10	0.80
9	2.65	0.70
10	2.20	0.60
11	2.00	0.50
12	1.85	0.50
13	1.70	0.50
14	1.65	0.50
15+	1.60	0.50

* Termination rates do not apply once a member is eligible for retirement.

75% of terminating employees are assumed to subsequently work for a reciprocal employer and receive 3.25% pay increases per year.

7. Rates of Disability

For Police, disability rates are equal to the CalPERS police industrial and non-industrial rates for public agencies multiplied by 90% for ages under 50 and 140% for ages 50 and older. For Fire, disability rates are equal to the CalPERS fire industrial and non-industrial rates for public agencies multiplied by 90% for ages under 50 and 180% for ages 50 and older. Sample disability rates of active participants are provided in Table B-4.

Table B-4

Rates of Disability at Selected Ages		
Age	**Police**	**Fire**
25	0.16%	0.03%
30	0.45	0.08
35	0.74	0.15
40	1.03	0.28
45	1.32	0.50
50	2.70	5.08
55	6.88	7.54
60	8.71	10.77
65	10.47	14.84

100% of disabilities are assumed to be duty related.

8. Rates of Mortality

Mortality rates for actives, retirees, beneficiaries, terminated vested, and reciprocals are based on the sex-distinct employee and annuitant mortality tables shown on the next page. Future mortality improvements are reflected by applying the SOA MP-2015 projection scale on a generational basis from the base year of 2009.

	Base Mortality Tables	
Category	**Male**	**Female**
Healthy Annuitant	0.948 times the CalPERS 2009 Healthy Annuitant Mortality Table (Male), projected using Scale MP-2015 on a generational basis	1.048 times the CalPERS 2009 Healthy Annuitant Mortality Table (Female), projected using Scale MP-2015 on a generational basis
Healthy Non-Annuitant	0.948 times the CalPERS 2009 Employee Mortality Table (Male), projected using Scale MP-2015 on a generational basis	1.048 times the CalPERS 2009 Employee Mortality Table (Female), projected using Scale MP-2015 on a generational basis
Disabled Annuitant	0.903 times the CalPERS 2009 Industrial Disability Mortality Table (Male), projected using Scale MP-2015 on a generational basis	0.903 times the CalPERS 2009 Industrial Disability Mortality Table (Male), projected using Scale MP-2015 on a generational basis

It is assumed that 50% of active deaths are service related.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

9. Rates of Retirement

Rates of retirement are based on age and service according to the following Table B-5.

Table B-5

Rates of Retirement by Age						
	Police			Fire		
Age	Tier 1	Tier 2 <30 Years	Tier 2 30+ Years	Tier 1	Tier 2 <30 Years	Tier 2 30+ Years
50	60.00%	0.00%	0.00%	35.00%	0.00%	0.00%
51 - 55	50.00	0.00	0.00	35.00	0.00	0.00
56 - 59	40.00	0.00	0.00	27.50	0.00	0.00
60 - 61	50.00	50.00	100.00	27.50	25.00	50.00
62 - 64	100.00	50.00	100.00	100.00	25.00	50.00
65 - 69	100.00	50.00	100.00	100.00	35.00	100.00
70+	100.00	100.00	100.00	100.00	100.00	100.00

These retirement rates apply only to those eligible for unreduced benefits.

Tier 1 vested terminated members are assumed to retire at age 55 and Tier 2 vested terminated members are assumed to retire at age 60.

10. Administrative Expenses

1.90% of valuation payroll is added to normal cost. The administrative expenses are assumed to increase with wage inflation. Historically, the administrative expenses were assumed to reduce the investment return assumption by 10 basis points which resulted in a higher Normal Cost. To maintain the same historic division of member and City contributions for administrative expenses for this valuation, members were allocated a portion of the administrative expenses equal to 3/11ths of the difference in Normal Cost that a 10 basis point reduction in the investment return assumption would cause.

11. Changes Since Last Valuation

- The discount rate was changed from 7.000% net of investment expenses to 6.875% net of investment expenses.

B. Contribution Allocation Procedure

The contribution allocation procedure primarily consists of an actuarial cost method, an asset smoothing method, and an amortization method as described below. All components of the contribution allocation procedure were established prior to the June 30, 2011 actuarial valuation except as specifically noted below.

1. Actuarial Cost Method

The Entry Age actuarial cost method was used for active employees, whereby the normal cost is computed as the level annual percentage of pay required to fund the retirement benefits between each member's date of hire and assumed retirement. The Actuarial Liability is the difference between the Present Value of Future Benefits and the present value of future normal cost. The Unfunded Actuarial Liability is the difference between the Actuarial Liability and the Actuarial Value of Assets.

2. Asset Valuation Method

For the purposes of determining the employer's contribution, we use an Actuarial Value of Assets. The asset smoothing method dampens the volatility in asset values that could occur because of the fluctuations in market conditions. Use of an asset smoothing method is consistent with the long-term nature of the actuarial valuation process. Assets are assumed to be used exclusively for the provision of retirement benefits and expenses.

The Actuarial Value of Assets is calculated by recognizing the deviation of actual investment returns compared to the expected return (7.00% for 2015-16, 7.00% for 2014-15, 7.125% for 2013-14, 7.25% for 2012-13, and 7.50% for 2011-12) over a five-year period. The dollar amount of the expected return on the Market Value of Assets is determined using the actual contributions and benefit payments during the year. Any difference between this amount and the actual net investment earnings is considered a gain or loss.

Finally, the Actuarial Value of Assets is restricted to a corridor between 80 percent and 120 percent of the Market Value of Assets.

3. Amortization Method

Actuarial gains and losses and plan changes are amortized as a level percentage of pay assuming 3.25% annual growth in payroll over a 15-year period beginning with the valuation date in which they first arise. In previous valuations, actuarial gains and losses and plan changes were amortized over a 16-year period. Changes in methods and assumptions are amortized as a level percentage of pay assuming 3.25% annual growth in payroll over a 20-year period (16 years for changes prior to June 30, 2011) beginning with the valuation date on which they are effective.

APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 1

1. Membership Requirement

Participation in the plan is immediate upon the first day of employment with the City of San José as a police officer or fire fighter except for the following:

- Independent contractors,
- Person in City service principally for training or educational purposes,
- Auxiliary or voluntary police officers or fire fighters,
- Part-time or non-salaried employees, and
- Employees receiving credit in any other retirement or pension system.

2. Final Compensation

The highest twelve consecutive months of compensation in covered employment. However, in determining Final Compensation, no compensation in the last 12 months of employment that exceeds 108% of compensation during the 12 months immediately preceding the last 12 month shall be considered. Compensation excludes overtime pay and expense allowances.

3. Credited Service

Years of service in covered employment plus service purchased for military leave of absence, Federated service, and unpaid leaves of absence.

4. Contributions

a. Member:

The amount needed to fund 3/11ths of normal cost calculated under the Entry Age actuarial cost method plus the amortization payment on the February 4, 1996 benefit improvement. For Police members, there is an additional amortization payment for member contributions not made for the last 6 months of 2006.

b. Employer:

The Employer contributes the remaining amounts necessary to fund the Plan in accordance with the Board's funding policy.

APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 1

5. Service Retirement

Eligibility

Age 55 with 20 years of service, age 50 with 25 years of service, age 70 with no service requirement, or any age with 30 years of service. Reduced benefits are also available at age 50 with 20 years of service.

Benefit

Police: 2.5% of Final Compensation for each year of credited service up to 20 years plus 4.0% of Final Compensation for each year of credited service in excess of 20, subject to a maximum of 90% of Final Compensation.

Fire: For members with less than 20 years of service, 2.5% of Final Compensation for each year of credited service. For members with 20 or more years of service, 3.0% of Final Compensation for each year of service, subject to a maximum of 90% of Final compensation.

6. Service Connected Disability Retirement

Eligibility

No age or service requirement.

Benefit

Police: 50% of Final Compensation plus 4.0% of Final Compensation for each year of credited service in excess of 20, subject to a maximum of 90% of Final Compensation.

Fire: For members with less than 20 years of service, 50% of Final Compensation. For members with 20 or more years of service, 3.0% of Final Compensation for each year of service, subject to a maximum of 90% of Final Compensation.

7. Non-Service Connected Disability Retirement

Eligibility

Two years of service.

Benefit

For members with less than 20 years of service, 32% of Final Compensation plus 1% of Final Compensation for each year of service in excess of two. For members with 20 or more years of service, the benefit amount equals the amount that would be calculated under the service retirement formula.

8. Non-Service-Connected Death

Less than 2 Years of Service:
Lump sum benefit equal to the greater of accumulated employee contributions with interest or $1,000.

Disabled retirees or members ineligible for service retirement:
Spouse receives 24% of Final Compensation plus 0.75% of Final Compensation for each year of service in excess of two, subject to a maximum of 37.5% of Final Compensation. If a member has eligible dependent children, an additional benefit is payable as follows:

1 Child:25% of Final Compensation
2 Children:37.5% of Final Compensation
3+ Children:50% of Final Compensation

The total benefit payable to a family is limited to 75% of Final Compensation.

If a member does not have a spouse or eligible dependent children, a lump sum benefit equal to the greater of accumulated employee contributions with interest or $1,000.

Service retirees or members eligible for service retirement:
Spouse receives the greater of 37.5% of Final Compensation or 50% of the member's service retirement benefit, subject to a maximum of 42.5% of Final Compensation for Police and 45% of Final Compensation for Fire. Eligible dependent children will receive the same benefit as defined under the non-service-connected death for disabled retirees or members ineligible for service retirement. The total benefit payable to a family is limited to 75% of Final Compensation.

9. Service-Connected Death

Spouse receives the greater of 37.5% of Final Compensation or 50% of the member's service retirement benefit, subject to a maximum of 42.5% of Final Compensation for Police and 45% of Final Compensation for Fire. If a member has eligible dependent children, an additional benefit of 25% of Final Compensation is payable for each eligible dependent child. The total benefit payable to a family is limited to 75% of Final Compensation.

APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 1

10. Termination Benefits

Less than 10 Years of Service:
Lump sum benefit equal to the accumulated employee contributions with interest at 2% per annum.

10 or more years of credited service:
The amount of the service retirement benefit, payable at the later of age 55 or 20 years from date of membership.

11. Post-retirement Cost-of-Living Benefit

Benefits are increased every February 1 by 3.0%.

APPENDIX C - SUMMARY OF PLAN PROVISIONS
TIER 2

1. Membership Requirement

Any police officer who is hired, rehired or reinstated by the City on or after August 4, 2013, or any fire fighter who is hired, rehired or reinstated by the City on or after January 2, 2015.

2. Final Compensation

The average annual compensation earnable during the highest three consecutive years of service. Final compensation only includes base pay, excluding premium pay and any other additional compensation.

3. Credited Service

One year of service credit is given for 2,080 or more hours of city service rendered in any calendar year. A partial year (fraction with the numerator equal to the hours worked, and the denominator equal to 2,080) is given for each calendar year with less than 2,080 hours worked.

4. Member Contributions

50% of total Tier 2 contributions to the pension plan, including, but not limited to administrative expenses, normal cost, and Unfunded Actuarial Liability.

5. Unreduced Service Retirement

Eligibility

Age 60 with ten years of service.

Benefit - Member

2.0% of Final Compensation for each year of credited service attributable to Tier 2 plus the applicable Tier 1 multiplier for each year of credited service attributable to Tier 1, subject to a maximum of 65% of Final Compensation.

Benefit - Survivor

Single life annuity.

6. Early Service Retirement

Eligibility

Age 50 with ten years of service.

Benefit - Member

Reduced benefit actuarially equivalent to the unreduced service retirement benefits commencing at age 60. The early retirement reduction is applied to the benefit after the application of the maximum of 65% of final compensation.

7. Service-Connected Disability Retirement

Eligibility

No age or service requirement.

Benefit - Member

Monthly benefit equivalent to 50% of Final Compensation.

8. Non-Service Connected Disability Retirement

Eligibility

Five years of service.

Benefit - Member

2.0% of Final Compensation for each year of credited service attributable to Tier 2 plus the applicable Tier 1 multiplier for each year of credited service attributable to Tier 1, subject to a minimum of 20% of Final Compensation and a maximum of 50% of Final Compensation.

9. Death Before Retirement

If death occurs before retirement eligibility is reached and after two years of service

Monthly benefit equal to the greater of:
- 10% of Final Compensation or
- 2% of Final Compensation for each year of service up to a maximum of 30% of Final Compensation

APPENDIX C - SUMMARY OF PLAN PROVISIONS
TIER 2

If death occurs after retirement eligibility is reached

Benefit equivalent to what the employee would have received if retired at the time of death.

Employees killed in the line of duty

Monthly benefit equal to the greater of:

- 50% of Final Compensation or
- Benefit equivalent to what the employee would have received if retired at the time of death.

10. Withdrawal Benefits

Less than ten Years of Service

Lump sum benefit equal to the accumulated employee contributions with interest.

Ten or more years of credited service

The amount of the service retirement benefit, actuarially reduced for early retirement, and payable when retirement eligibility is reached.

11. Benefit Forms

Annuity benefits are paid in the form of a life annuity or an actuarially equivalent annuity with 50%, 75% or 100% continuance to a survivor.

12. Post-retirement Cost-of-Living Benefit

Benefits are increased every April 1 by the change in the December CPI-U for San José-San Francisco-Oakland, subject to a cap of 1.5%. The first COLA after retirement shall be prorated based on the number of months retired.

Note: **The summary of major plan provisions is designed to outline principal plan benefits. If the Department of Retirement Services should find the plan summary not in accordance with the actual provisions, the actuary should immediately be alerted so the proper provisions are valued.**

APPENDIX D – GLOSSARY OF TERMS

1. **Actuarial Liability**

   The Actuarial Liability is the difference between the Present Value of Future Benefits and the present value of total future Normal Costs. This is also referred to by some actuaries as the "accrued liability" or "actuarial accrued liability." The Actuarial Liability represents the amount of assets a plan should have as of a valuation date according to the Actuarial Cost Method.

2. **Actuarial Assumptions**

   Estimates of future experience with respect to rates of mortality, disability, turnover, retirement rate or rates of investment income, and salary increases. Demographic actuarial assumptions (rates of mortality, disability, turnover, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (price inflation, wage inflation, and investment income) are generally based on expectations for the future that may differ from the Plan's past experience.

3. **Actuarial Cost Method**

   A mathematical budgeting procedure for allocating the dollar amount of the Present Value of Future Benefits between future Normal Cost and Actuarial Liability.

4. **Actuarial Gain (Loss)**

   The difference between actual experience and the anticipated experience based on the actuarial assumptions during the period between two actuarial valuation dates.

5. **Actuarial Present Value**

   The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at the discount rate and by probabilities of payment.

6. **Actuarially Determined Contribution**

   The payment to the Plan as determined by the actuary using a Contribution Allocation Procedure. It may or may not be the actual amount contributed to the Plan.

7. **Amortization Method**

   A method for determining the amount, timing, and pattern of payment of the Unfunded Actuarial Liability.

APPENDIX D – GLOSSARY OF TERMS

8. Asset Valuation Method

The method used to develop the Actuarial Value of Assets from the Market Value of Assets typically by smoothing investment returns above or below the assumed rate of return over a period of time.

9. Contribution Allocation Procedure

A procedure typically using an Actuarial Cost Method, an Asset Valuation Method, and an Amortization Method to develop the Actuarially Determined Contribution.

10. Discount Rate

The rate of interest used to discount future benefit payments to determine the Actuarial Present Value. For purposes of determining an Actuarially Determined Contribution, the Discount Rate is typically based on the long-term expected return on assets.

11. Funded Status or Funding Ratio

Either the Market or Actuarial Value of Assets divided by the Actuarial Liability. For purposes of this report, the Funded Status represents the proportion of the actual assets as of the valuation date compared to the assets expected by the Actuarial Cost Method. These measures are for contribution budgeting purposes and are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

12. Normal Cost

The portion of the Present Value of Future Benefits allocated to the current year by the Actuarial Cost Method.

13. Present Value of Future Benefits

The Actuarial Present Value of all benefits both earned as of the valuation date and expected to be earned in the future by current plan members based on current plan provisions and actuarial assumptions.

14. Unfunded Actuarial Liability (UAL)

The Unfunded Actuarial Liability is the difference between actuarial liability and either the Market or the Actuarial Value of Assets. This value is sometimes referred to as "Unfunded Actuarial Accrued Liability." It represents the difference between the actual assets and the amount of assets expected by the Actuarial Cost Method as of the valuation date.

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