



City of San José Federated City Employees' Retirement System

Actuarial Valuation Report as of June 30, 2016

Produced by Cheiron

January 11, 2017

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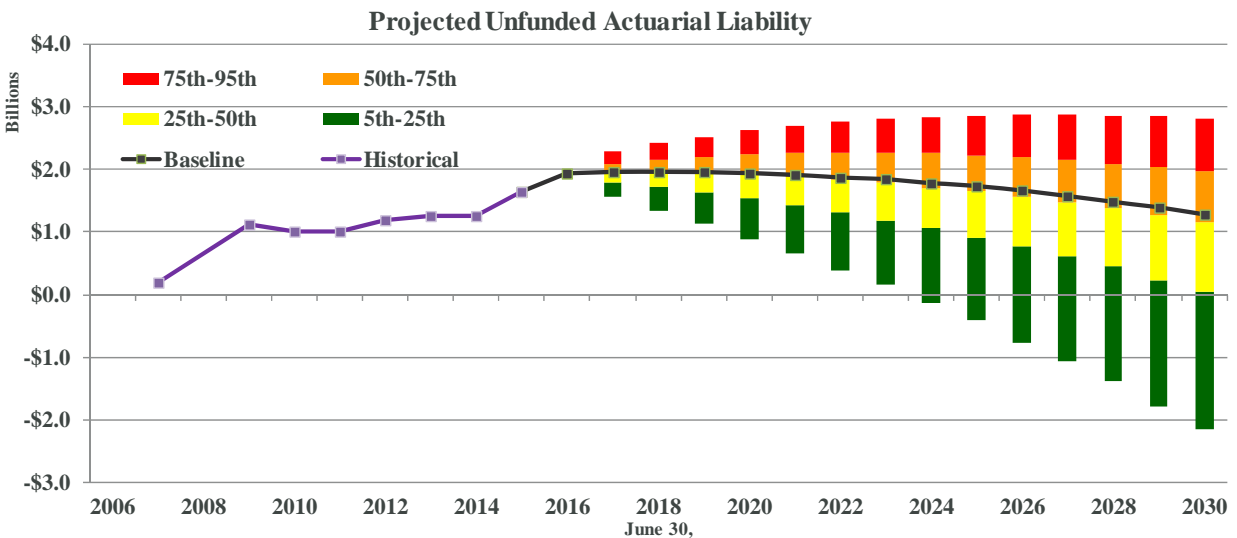
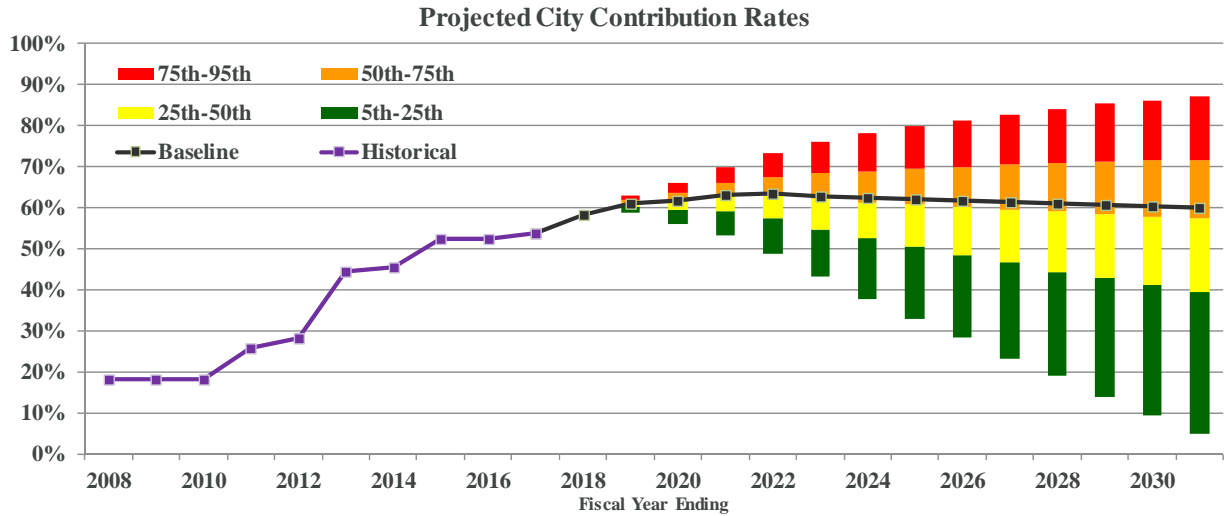
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SECTION I – BOARD SUMMARY

Highlights of this report are summarized in the tables and graphs below.

<u>Contributions</u>			Actuarial Liability	<u>Funding Status</u>		
	Fiscal Year Ending				Valuation Date	
	2018	2017		6/30/2016	6/30/2015	
Member Rate	6.46%	6.33%		Actuarial Liability (AL)	\$ 3,787	\$ 3,570
City Rate	58.33%	53.60%		Market Value of Assets (MVA)	1,859	1,926
City MOY Amount	\$ 160.1	\$ 138.6		Unfunded AL (UAL) - MVA	\$ 1,928	\$ 1,644
				Funded Ratio - MVA	49.1%	53.9%
Normal Cost Rate	20.45%	20.85%		Actuarial Value of Assets (AVA)	2,035	2,004
Interest on MVA UAL	47.41%	43.63%		UAL - AVA	\$ 1,752	\$ 1,565
Additional UAL Rate	-3.06%	-4.55%		Funded Ratio - AVA	53.7%	56.1%
Total UAL Rate	44.34%	39.08%				
Total Rate	64.79%	59.93%				<i>Amounts in Millions</i>



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Membership

Underlying the changes in the actuarial valuation from one year to the next are changes in the membership of the System. These changes affect the liability of the System as well as contributions to the System. As shown in Table I-1 below, total membership grew 2.7% from 2015 to 2016. In particular, active membership increased 1.9% and total payroll increased by 6.1%. Approximately one third of active members are now Tier 2 members.

**Table I-1
Total Membership**

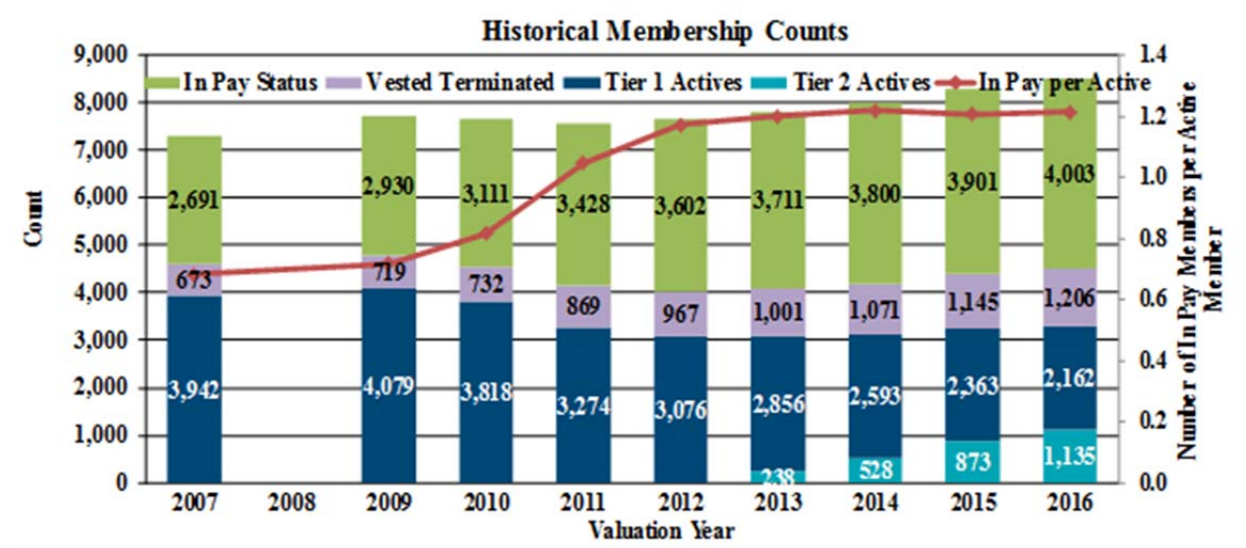
	June 30, 2016	June 30, 2015	% Change
Active Members			
Tier 1	2,162	2,363	-8.5%
Tier 2	1,135	873	30.0%
Total Actives	<u>3,297</u>	<u>3,236</u>	1.9%
Terminated Vested Members			
Tier 1	1,038	1,047	-0.9%
Tier 2	168	98	71.4%
Total Terminated Vesteds	<u>1,206</u>	<u>1,145</u>	5.3%
Members In Pay Status			
Service Retirees	3,296	3,205	2.8%
Beneficiaries	511	493	3.7%
Disabled Retirees	196	203	-3.4%
Total In Pay Status	<u>4,003</u>	<u>3,901</u>	2.6%
Total Membership	8,506	8,282	2.7%
Active Member Payroll			
Tier 1	\$ 186,249	\$ 192,615	-3.3%
Tier 2	80,574	58,814	37.0%
Total	<u>\$ 266,823</u>	<u>\$ 251,430</u>	6.1%
Average Pay per Active Member			
Tier 1	\$ 86.1	\$ 81.5	5.7%
Tier 2	71.0	67.4	5.4%
Total	<u>\$ 80.9</u>	<u>\$ 77.7</u>	4.2%

Dollar amounts in thousands

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As shown in the chart below, the number of active members declined about 25% from 4,079 in 2009 to 3,076 in 2012. Since then, there has been a gradual increase in the number of active members to 3,297 in 2016. At the same time, the number of members in pay status has increased 37% from 2,930 in 2009 to 4,003 in 2016. As a result, the ratio of the members in pay status to the active members has increased from approximately 0.7 in 2009 to 1.2 in 2016. This type of progression is to be expected for a maturing plan over a long period of time, but the impact of the recession accelerated the trend significantly. As there are fewer actives to support each retiree, contributions tend to become more volatile and sensitive to gains and losses.



Assets and Liabilities

This report measures assets and liabilities for funding purposes only. There is a separate report for financial reporting. Table I-2 on the next page summarizes the actuarial liability, assets, and related ratios for the System as of June 30, 2016 compared to June 30, 2015. The actuarial liability grew over 6%, reflecting the continued accrual of benefits and the change in discount rate that was adopted this year. Before reflecting the discount rate change, the actuarial liability grew approximately 4.4%. The discount rate change increased the actuarial liability another 1.6%.

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SECTION I – BOARD SUMMARY

**Table I-2
Summary of Funded Status and Related Ratios**

	June 30, 2016	June 30, 2015	% Change
Actuarial Liability			
Actives	\$ 1,063,526	\$ 1,015,529	4.7%
Deferred Vested	208,080	186,816	11.4%
In Pay Status	<u>2,515,124</u>	<u>2,367,553</u>	<u>6.2%</u>
Total	\$ 3,786,730	\$ 3,569,898	6.1%
Market Value of Assets (MVA)	\$ 1,858,880	\$ 1,925,774	-3.5%
Unfunded Actuarial Liability - MVA Basis	\$ 1,927,850	\$ 1,644,124	17.3%
Funding Ratio - MVA Basis	49.1%	53.9%	-9.0%
Actuarial Value of Assets (AVA)	\$ 2,034,741	\$ 2,004,481	1.5%
Unfunded Actuarial Liability - AVA Basis	\$ 1,751,989	\$ 1,565,417	11.9%
Funding Ratio - AVA Basis	53.7%	56.1%	-4.3%
FYE 2017 Expected Payroll	\$ 266,823	\$ 251,430	6.1%
Asset Leverage Ratio	7.0	7.7	-9.0%
Actuarial Liability Leverage Ratio	14.2	14.2	0.0%
Interest on UAL - MVA Basis	\$ 128,206	\$ 111,260	15.2%
Interest Cost as Percent of Payroll	48.0%	44.3%	8.6%

Dollar amounts in thousands

The market value of assets is less 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.

The asset leverage ratio (market value of assets divided by payroll) of 7.0 means that if the System experiences a 10% loss on assets compared to the discount rate of 6.875%, the loss would be equivalent to 70% of payroll. Interest payments on such a loss would be approximately 4.8% of payroll. Interest payments on the current UAL are approximately 48% of payroll. As the System becomes better funded, the asset leverage ratio will increase, and if it was 100% funded, the leverage ratio would be 14.2 (actuarial liability divided by payroll). Higher asset leverage ratios indicate that a system is more sensitive to investment gains and losses. That is, the same level of investment gain or loss will have a greater impact on contribution rates for a system with a higher ratio than for a system with a lower ratio.

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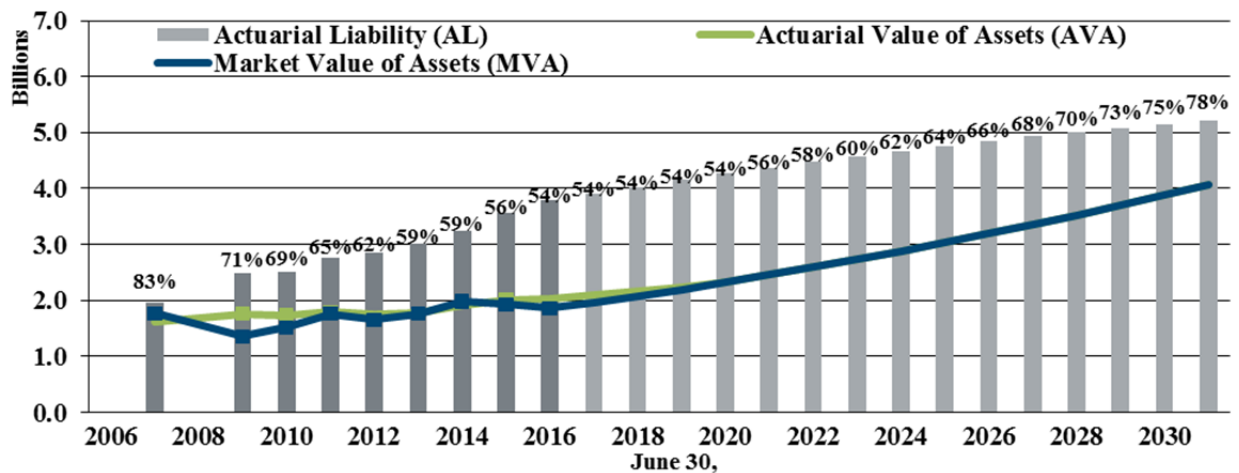
SECTION I – BOARD SUMMARY

By comparison, the median asset leverage ratio in our survey of California retirement systems was 7.2, indicating that the System is slightly less sensitive to investment returns than the median California plan. The decline in asset leverage ratio reflects both the decline in the market value of assets and the increase in payroll.

Despite the tendency to focus on the most recent valuation results, it is important to remember that each valuation is merely a snapshot of the long-term progress of the System. The results of the current year's valuation should be evaluated in the context of historical trends, as well as trends expected into the future.

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 funded 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, the funding ratio declined primarily because the System experienced lower than expected investment returns on the actuarial value of assets and reduced its assumption of future investment returns. Declines since 2014 are also primarily due to lower than expected investment returns and assumption changes, including further reductions in the discount rate. If all assumptions are met in the future including an expected return of 6.875% each year, the funded status is expected to reach about 78% by 2031.

Assets and Actuarial Liability 2006-2031



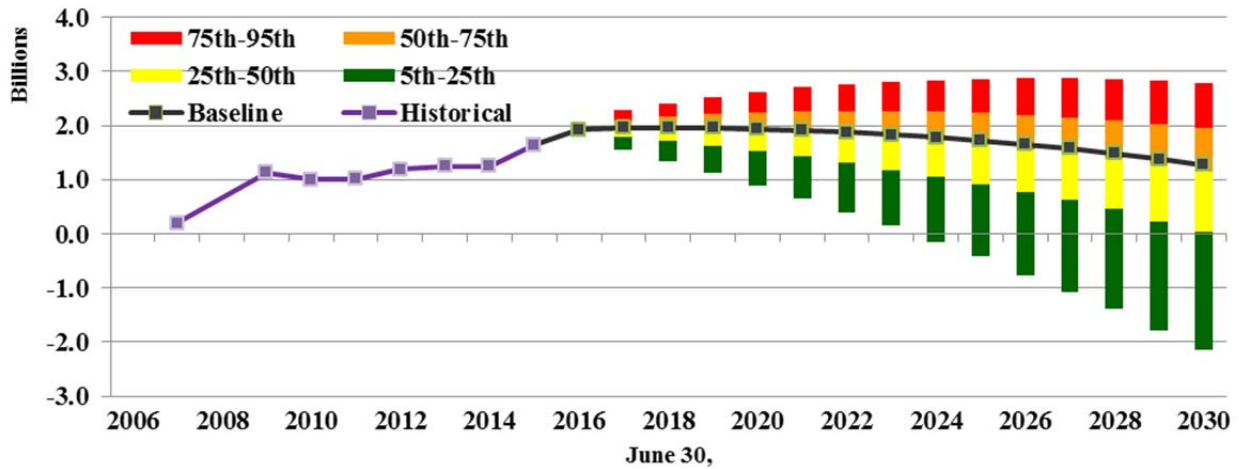
If experience has taught us anything, it is that there is a significant level of uncertainty in projections of the future. The largest source of uncertainty is the projection of investment returns. In order to better understand the potential impact of investment returns on the System, we have included stochastic projections throughout this report based on Meketa's 20-year assumed rate of return of 7.21% and estimated standard deviation of 11.91%. Each projection contains 10,000 trials that are 15 years in length.

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The chart below shows the historic and stochastically projected unfunded actuarial liability based on the market value of assets. The black line shows the projected UAL for each year if all valuation assumptions are met, including a 6.875% investment return each and every year. The colored ranges represent different percentiles of the 10,000 results. For example, the red range represents the 5th through 25th percentile of the UAL for each year seen among the 10,000 trials. Based on the assumed distribution of investment returns, there is a 5% chance the result will be worse than the red range and a 5% chance that the result will be better than the green range.

Historical and Stochastic Projection of Unfunded Actuarial Liability



While the amortization methods are designed to pay off the entirety of the current UAL in 23 years, the stochastic projection shows that there is a 5% chance that it will be paid off in as early as eight years. It also shows, however, that the UAL could approach \$3.0 billion over a similar timeframe.

The following chart summarizes the historical changes in the unfunded actuarial liability over the last 10 years. Five categories of changes are shown: benefit changes, contributions, assumption changes, investment gains or losses on the actuarial value of assets, and liability gains or losses. The only benefit change in the last ten years that affected the UAL was the elimination of the SRBR in 2012. Actual contributions have consistently been less than the normal cost plus interest on the UAL, resulting in an annual increase in the amount of the UAL as shown by the red bars. This pattern is a result of the prior policy of a 30-year rolling amortization that is being phased out. Starting in 2009, the rolling amortization was converted to a closed amortization and new changes in the UAL are amortized over 20-year closed periods. As the 2009 amortization shortens and the phase-in of the 2015 assumption changes is complete, contributions will be sufficient to reduce the UAL.

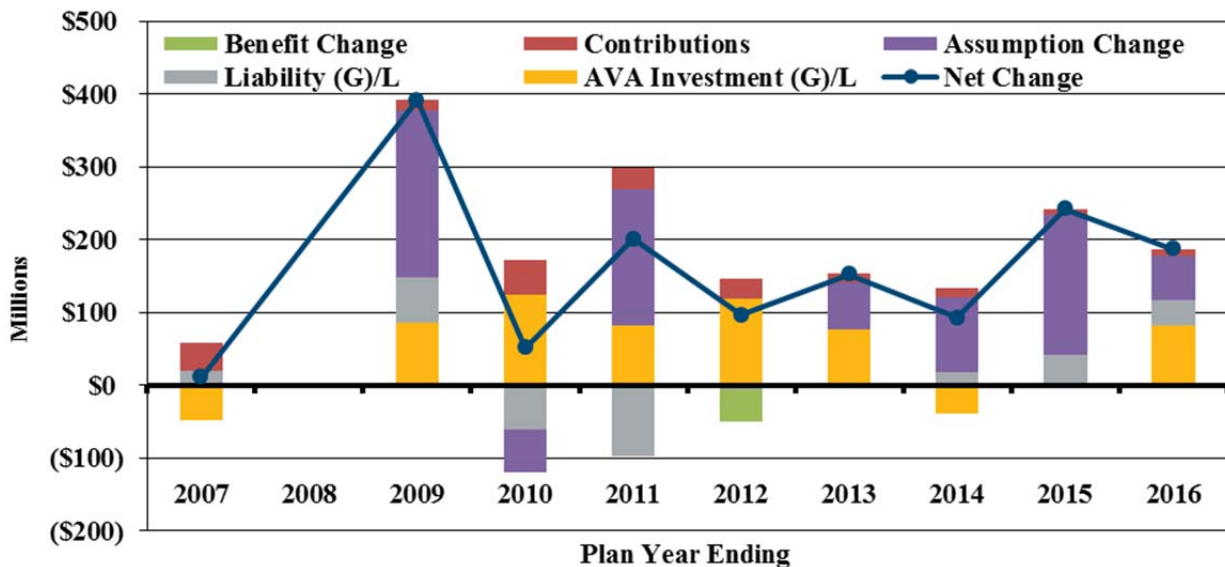
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There have been significant assumption changes as shown by the purple bars, including reductions in the discount rate in steps from 8.25% in 2007 to 6.875% in 2016 that have significantly increased the measure of the unfunded actuarial liability. Investment losses have also contributed significantly to the growth in the UAL with 2007 and 2014 as the only years in the last ten in which there was an investment gain on the actuarial value of assets. This year is the second year in a row in which there was an actuarial loss on the actuarial liability, and six of the last nine actuarial valuations have reported an actuarial loss on the actuarial liability. In 2011, the only valuation in the last nine with a significant gain on the actuarial liability, there were significant one-time reductions in pay across the board that created the gain.

In aggregate, the UAL has increased in every year of the ten-year period as shown by the blue line.

Historical Changes in Unfunded Actuarial Liability (UAL)



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Table I-3 below breaks out the sources of the changes in UAL for the fiscal year ending June 30, 2016. The UAL increased about \$187 million since the prior year. About \$82 million was due to investment losses on the actuarial value of assets and approximately \$60 million was due to the reduction in the discount rate from 7.0 percent to 6.875 percent. Of the \$33 million in liability losses for 2016, \$26 million is due to higher than expected salary increases. Finally, contributions less than normal cost plus interest on the UAL added about \$12 million to the UAL during the year.

Table I-3	
Changes in Unfunded Actuarial Liability	
	Amount
Unfunded Actuarial Liability, June 30, 2016	\$ 1,751,989
Unfunded Actuarial Liability, June 30, 2015	<u>1,565,417</u>
Change in Unfunded Actuarial Liability	\$ 186,572
<u>Sources of Changes</u>	
Benefit Changes	\$ 0
Assumption Changes	60,233
Contributions less Normal Cost and Interest on UAL	11,774
Investment (gain) or loss on Actuarial Value of Assets	81,539
Liability (gain) or loss	
Salary experience	\$ 23,325
Retirement experience	6,276
Mortality experience	1,067
Other experience	<u>2,358</u>
Total Liability (gain) or loss	<u>\$ 33,026</u>
Total Changes	\$ 186,572

Dollar amounts in thousands

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Contribution Rates

The System's contribution policy sets City contributions for Tier 1 equal to a portion (8/11th) of the Normal Cost Rate (plus all of the rate attributable to reciprocity) including administrative expenses plus the UAL rate.

For Tier 2, City contributions equal 50% of the total contribution rate for Tier 2.

Member contributions equal 3/11th of the Normal Cost Rate (excluding reciprocity) for Tier 1 and 50% of the total contribution rate for Tier 2.

Table I-4 below summarizes the member and City contribution rates and amounts for the fiscal years ending in 2017 and 2018. Tier 1 rates have increased significantly from 2017 to 2018, reflecting the discount rate change, the phase-in of the 2015 assumption changes and the decline in Tier 1 payroll. Tier 2 rates have increased slightly due to the discount rate change.

Table I-4 Components of Contribution Rates						
	Fiscal Year Ending 2018			Fiscal Year Ending 2017		
	NC	UAL	Total	NC	UAL	Total
Tier 1						
Member Rate	6.60%	0.00%	6.60%	6.47%	0.00%	6.47%
City Rate	<u>18.00%</u>	<u>76.04%</u>	<u>94.04%</u>	<u>17.70%</u>	<u>60.36%</u>	<u>78.06%</u>
Total Rate	24.60%	76.04%	100.64%	24.17%	60.36%	84.53%
Projected Payroll			\$ 162,812			\$ 170,792
City Contribution Amounts						
Beginning of Year	28,863	121,430	\$ 150,293	29,917	100,257	\$ 130,174
Throughout the Year	29,306	123,803	\$ 153,109	30,230	103,095	\$ 133,325
Tier 2						
Member Rate	6.23%	0.02%	6.25%	6.02%	0.02%	6.04%
City Rate	<u>6.23%</u>	<u>0.02%</u>	<u>6.25%</u>	<u>6.02%</u>	<u>0.02%</u>	<u>6.04%</u>
Total Rate	12.46%	0.04%	12.50%	12.04%	0.04%	12.08%
Projected Payroll			\$ 111,616			\$ 87,803
City Contribution Amounts						
Beginning of Year	6,849	(1)	\$ 6,848	5,231	(54)	\$ 5,177
Throughout the Year	6,954	22	\$ 6,976	5,286	17	\$ 5,303

Dollar amounts in thousands

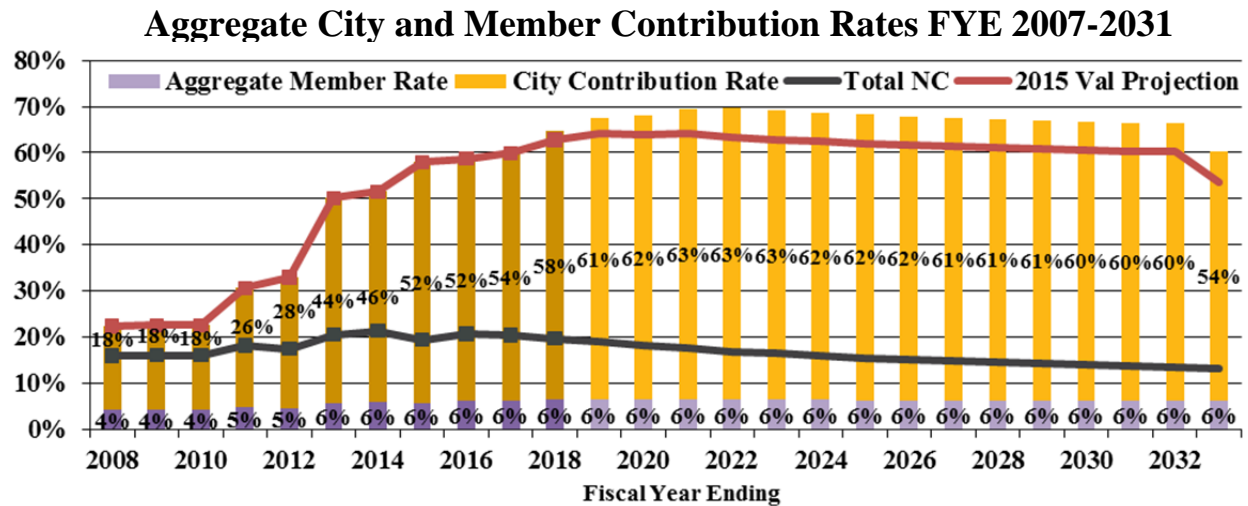
The change in the discount rate increased the actuarial liability by approximately 1.6%, increasing the aggregate UAL contribution rate by 1.7% of Tier 1 and Tier 2 payroll. It also

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increased the total normal cost rate by 0.7% of pay for Tier 1 members and by 0.3% for Tier 2 members.

The chart below shows the historical and projected aggregate member contribution rates (purple bars) and City contribution rates (gold bars) compared to the projection of member plus City contributions from the prior valuation, indicated by the red line. These contribution rates assume that all assumptions are met. The black line shows the historical and projected total normal cost rate. Historical rates and rates calculated through the fiscal year ending June 30, 2018 are shown in a darker shade than the projected future contribution rates.



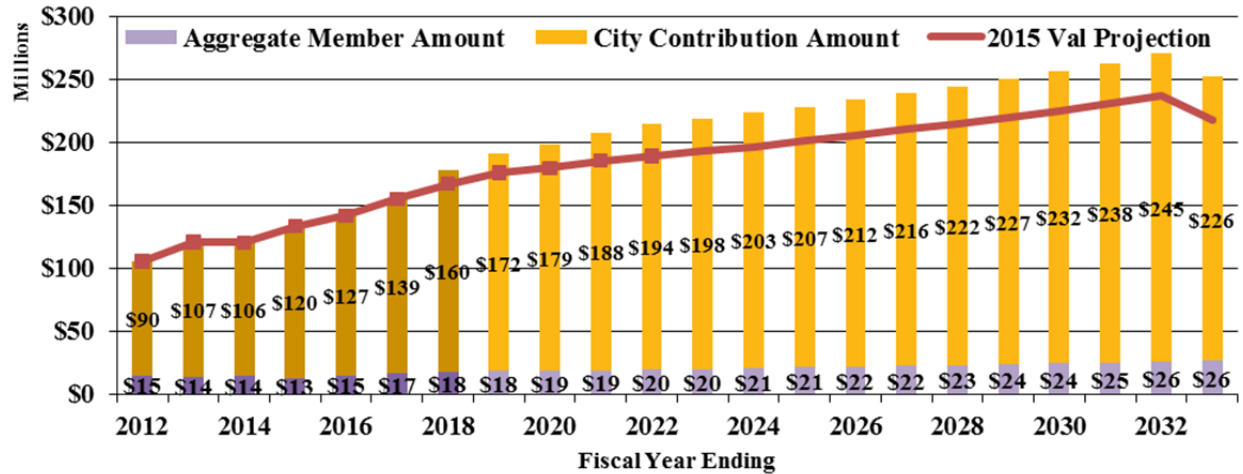
The aggregate City contribution rate has increased dramatically since FYE 2010 primarily due to investment losses, assumption changes, and reductions in payroll that increased the UAL rate. In aggregate, the discount rate over this period has been reduced from 8.25% to 6.875%. Future aggregate City contribution rates are expected to increase slightly in the next few years due to the recognition of recent investment losses and the phase-in of the amortization of the 2015 assumption changes, and then gradually decrease over time after that. The gradual decrease in the total rate is driven by the projected gradual decrease in total normal cost rate as Tier 2 becomes a greater proportion of the active membership. After the projection period shown, contribution rates are expected to drop more rapidly as some amortization bases are fully paid off.

The chart on the following page shows historical and projected member (purple bars) and City (gold bars) contribution amounts (assuming contributions throughout the year) compared to the projected amounts shown in the prior valuation. If all actuarial assumptions are exactly met, City contributions are expected to increase at a rate slower than payroll growth from \$160 million in FYE 2018 to a peak of approximately \$245 million in FYE 2032, before declining as portions of the UAL are paid off.

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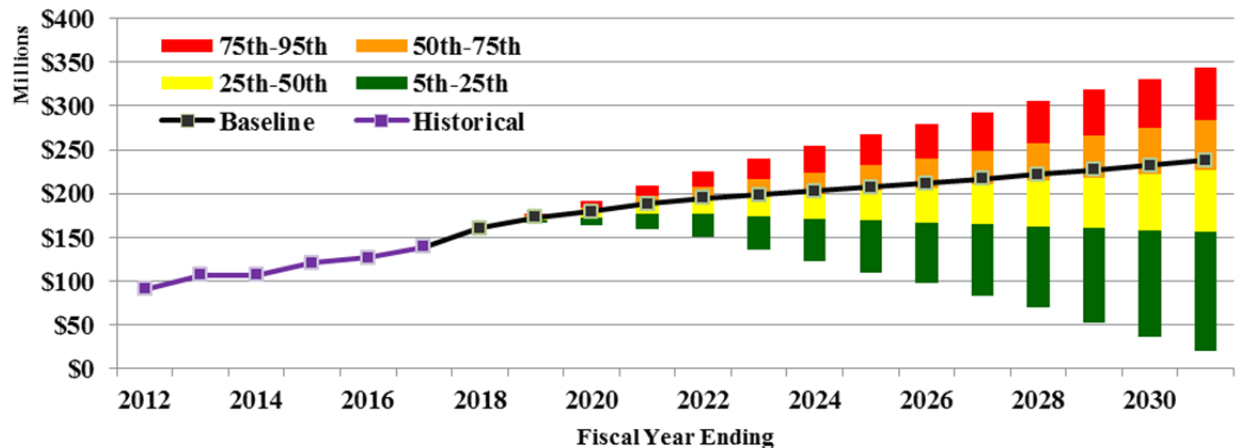
SECTION I – BOARD SUMMARY

Historical and Deterministic Projection of Contribution Amounts



The chart below shows the historical and stochastic projection of City contribution amounts. The purple line shows the historical amounts, and the black line shows the projected contribution amount for each year if all assumptions are met. The colored ranges represent different percentiles of the 10,000 trials. There is significant uncertainty in the level of City contributions depending on investment returns.

Historical and Stochastic Projection of City Contribution Amounts



In the worst scenarios, the City’s contribution amount could exceed \$250 million by 2024 and \$300 million by 2028. In the best scenarios, the City’s contribution amount could drop below \$100 million by 2026. The chart on the dashboard (page 1) shows similar information based on City contribution rates as a percentage of payroll instead of contribution amounts.

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SECTION II - CERTIFICATION

The purpose of this report is to present the June 30, 2016 Actuarial Valuation of the City of San José Federated City Employees' Retirement System ("System"). This report is for the use of the System 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 was adopted at the December 15, 2016 Board meeting with our input. All other assumptions in this report were adopted at the November 19, 2015 Board meeting based on recommendations from our Experience Study covering plan experience during the period from July 1, 2010 through June 30, 2015. Please refer to the Experience Study Report for an explanation of the rationale for each assumption.

The liability measures and 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 System's benefit obligations.

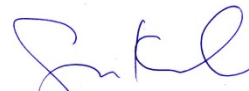
Future actuarial measurements may differ significantly from the current measurements due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and, changes in plan provisions or applicable 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 City of San José Federated City Employees' Retirement System for the purposes described herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.



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



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

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SECTION III - ASSETS

The System uses and discloses two different asset measurements: the market value and actuarial value of assets. The market value represents the value of the assets if they were liquidated on the valuation date. The actuarial value of assets is a value that smooths annual investment returns over five years to reduce the impact of short-term investment volatility on employer 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 Change in Market Value of Assets

Table III-1 shows the changes in the market value of assets for the current and prior fiscal years for each tier.

Table III-1 Change in Market Value of Assets						
	Fiscal Year Ending 2016			Fiscal Year Ending 2015		
	Tier 1	Tier 2	Total	Tier 1	Tier 2	Total
Beginning Market Value	\$1,917,339	\$ 8,435	\$1,925,774	\$1,978,358	\$ 4,146	\$1,982,504
Contributions						
Member	11,952	3,968	15,920	11,062	2,559	13,621
City	125,488	3,968	129,456	112,192	2,559	114,751
Total	\$ 137,440	\$ 7,936	\$ 145,376	\$ 123,254	\$ 5,118	\$ 128,372
Net Investment Earnings	(34,786)	(225)	(35,011)	(16,587)	(53)	(16,640)
Benefit Payments	(172,983)	(335)	(173,318)	(164,264)	(299)	(164,563)
Administrative Expenses	(3,853)	(88)	(3,941)	(3,422)	(477)	(3,899)
Market Value, End of Year	\$1,843,157	\$ 15,723	\$1,858,880	\$1,917,339	\$ 8,435	\$1,925,774
Estimated Rate of Return	-1.8%	-1.8%	-1.8%	-0.8%	-0.8%	-0.8%

Dollar amounts in thousands

The net investment earnings for the year ended June 30, 2016 represent approximately a -1.8% return on the market value of assets compared to an assumed return of 7.00%. This return produced an investment loss of \$173.1 million for the year ending June 30, 2016. For the year ended June 30, 2015, the net investment return was approximately -0.8% (7.00% was assumed), which produced an investment loss of \$158.0 million.

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SECTION III - ASSETS

Actuarial Value of Assets

To determine on-going contributions, most pension systems utilize an actuarial value of assets that differs from the market value of assets. The actuarial value of assets smooths year-to-year market value returns in order to reduce the volatility of contributions.

The actuarial value of assets is calculated by recognizing the deviation of actual investment returns compared to the expected return (7.00% for FYE 2016 and 2015, 7.25% for FYE 2014, and 7.50% for FYE 2013) over a five-year period. The dollar amount of the expected return on the market value of assets is determined using actual contributions, benefit payments, and administrative expenses during the year. Any difference between this amount and the actual net investment earnings is considered a gain or loss. Table III-2 below shows the calculation of the actuarial value of assets separately for Tier 1 and Tier 2. 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.

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SECTION III - ASSETS

**Table III-2
Development of Actuarial Value of Assets**

	Tier 1			Tier 2		
	Basic	COLA	Total	Basic	COLA	Total
Market Value of Assets (MVA)	\$1,283,882	\$ 559,275	\$1,843,157	\$ 14,213	\$ 1,511	\$ 15,723
FYE 2016						
Actual Earnings	(24,477)	(10,310)	(34,787)	(203)	(21)	(224)
Expected Earnings	95,959	41,366	137,325	771	78	849
Investment Gain or (Loss)	(120,436)	(51,676)	(172,112)	(974)	(99)	(1,073)
Deferred (80%)	(96,349)	(41,340)	(137,689)	(779)	(79)	(858)
FYE 2015						
Actual Earnings	(11,897)	(4,691)	(16,588)	(49)	(5)	(54)
Expected Earnings	100,386	40,564	140,949	403	37	440
Investment Gain or (Loss)	(112,283)	(45,255)	(157,537)	(452)	(42)	(494)
Deferred (60%)	(67,370)	(27,153)	(94,522)	(271)	(25)	(296)
FYE 2014						
Actual Earnings	\$ 193,556	\$ 69,725	\$ 263,281	\$ 374	\$ 32	\$ 406
Expected Earnings	93,765	36,000	129,765	150	13	163
Investment Gain or (Loss)	99,791	33,725	133,516	224	19	243
Deferred (40%)	\$ 39,917	\$ 13,490	\$ 53,407	\$ 90	\$ 7	\$ 97
FYE 2013						
Actual Earnings	\$ 109,541	\$ 36,811	\$ 146,353	\$ 12	\$ 1	\$ 13
Expected Earnings	92,786	33,568	126,354	10	1	11
Investment Gain or (Loss)	16,755	3,243	19,999	2	0	2
Deferred (20%)	\$ 3,351	\$ 649	\$ 4,000	\$ 0	\$ 0	\$ 0
Total Deferred Gain or (Loss)	\$ (120,451)	\$ (54,354)	\$ (174,805)	\$ (960)	\$ (97)	\$ (1,057)
Actuarial Value of Assets	\$ 1,404,333	\$ 613,629	\$ 2,017,961	\$ 15,173	\$ 1,607	\$ 16,780
Ratio of Actuarial to Market	109.4%	109.7%	109.5%	106.8%	106.4%	106.7%
Estimated Rate of Return	3.0%	3.1%	3.0%	4.7%	4.7%	4.7%

Dollar amounts in thousands

On an actuarial value of assets basis, the aggregate return for the year ending June 30, 2016 was 3.0% for Tier 1 and 4.7% for Tier 2, both less than the assumed return of 7.00%, but more than the return on the market value of assets. This return on the actuarial value of assets produced an investment loss of \$81.5 million for the year ending June 30, 2016.

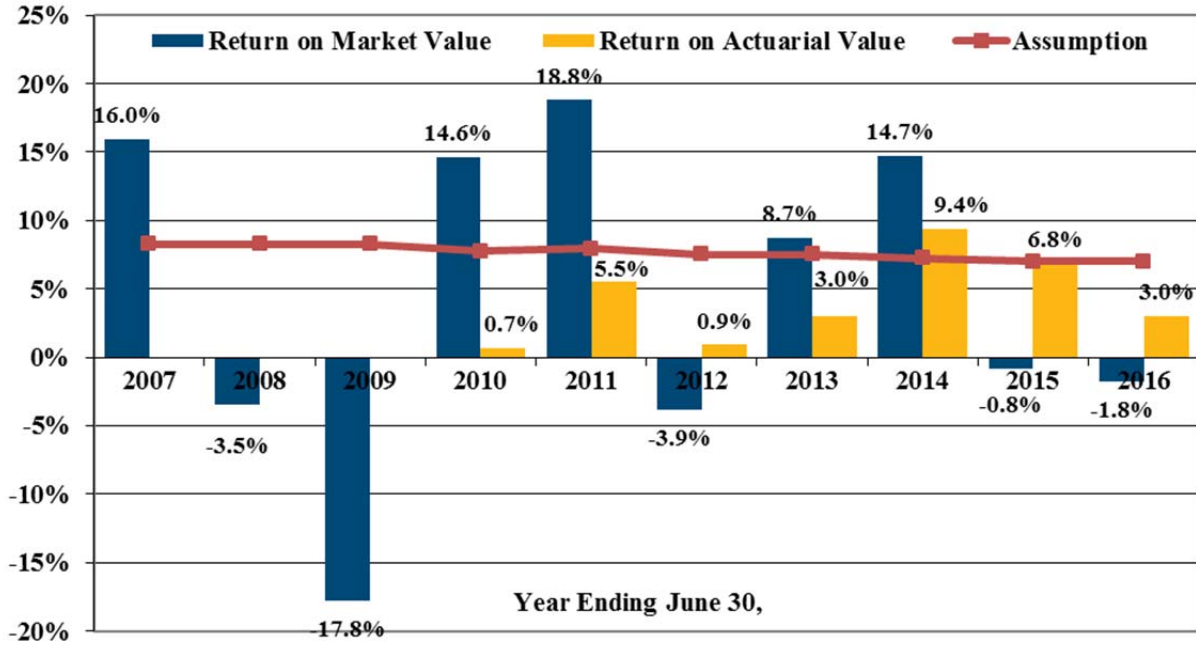
As shown in the chart below, over the last ten years the investment return on the market value of assets has varied significantly from negative 17.8% in 2009 to 18.8% in 2011. The geometric average return was 3.1% and 3.9% over the last five and 10 years respectively. The return on the actuarial value of assets is more stable than on the market value with a geometric average of

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

SECTION III - ASSETS

4.6% over the last five years. The return on the actuarial value of assets was not reported prior to 2010 by the prior actuary when valuations were performed every two years.

Historical Rates of Return



**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
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SECTION IV - MEASURES OF LIABILITY

This section presents detailed information on liability measures for the System 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 expected amount of money needed today if all assumptions are met to pay for 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. Table IV-1 below shows the present value of future benefits as of June 30, 2016 and June 30, 2015 separately by Tier.

Table IV-1 Present Value of Future Benefits					
	June 30, 2016			June 30, 2015	% Change
	Basic	COLA	Total	Total	
Tier 1					
Actives	\$ 924,294	\$ 372,489	\$ 1,296,783	\$ 1,266,593	2.4%
Deferred Vested	146,501	60,609	207,110	186,340	11.1%
In Pay Status	<u>1,444,676</u>	<u>1,070,438</u>	<u>2,515,114</u>	<u>2,367,553</u>	<u>6.2%</u>
Tier 1 Total	\$ 2,515,471	\$ 1,503,536	\$ 4,019,007	\$ 3,820,486	5.2%
Tier 2					
Actives	\$ 83,251	\$ 11,636	\$ 94,887	\$ 62,358	52.2%
Deferred Vested	<u>932</u>	<u>38</u>	<u>970</u>	<u>476</u>	<u>103.8%</u>
Tier 2 Total	\$ 84,183	\$ 11,674	\$ 95,857	\$ 62,834	52.6%
Total	\$ 2,599,654	\$ 1,515,210	\$ 4,114,864	\$ 3,883,320	6.0%

Dollar amounts in thousands

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

SECTION IV - MEASURES OF LIABILITY

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 System 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 System, 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 System is the sum of the normal costs for each individual. The normal cost represents the expected amount of money needed to fund the benefits attributed to the next year of service under the Entry Age actuarial cost method. 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.

Table IV-2 Normal Cost						
	June 30, 2016			June 30, 2015		% Change
	Basic	COLA	Total	Total		
Tier 1						
Retirement	\$ 19,802	\$ 7,924	\$ 27,726	\$ 28,002		-1.0%
Termination	7,368	2,163	9,531	9,807		-2.8%
Death	549	219	768	925		-17.0%
Disability	955	413	1,368	1,424		-3.9%
Reciprocity	477	201	678	759		-10.7%
Total	\$ 29,151	\$ 10,920	\$ 40,071	\$ 40,917		-2.1%
PV of Annual Payroll	\$ 169,790	\$ 169,790	\$ 169,790	\$ 176,632		-3.9%
Normal Cost Rate	17.17%	6.43%	23.60%	23.17%		1.9%
Admin Expense	<u>0.70%</u>	<u>0.30%</u>	<u>1.00%</u>	<u>1.00%</u>		<u>0.0%</u>
Total Rate	17.87%	6.73%	24.60%	24.17%		1.8%
Tier 2						
Retirement	\$ 5,493	\$ 811	\$ 6,304	\$ 4,387		43.7%
Termination	1,410	128	1,538	1,070		43.7%
Death	92	12	104	83		25.3%
Disability	356	59	415	294		41.2%
Total	\$ 7,351	\$ 1,010	\$ 8,361	\$ 5,834		43.3%
PV of Annual Payroll	\$ 72,923	\$ 72,923	\$ 72,923	\$ 52,868		37.9%
Normal Cost Rate	10.08%	1.38%	11.46%	11.04%		3.8%
Admin Expense	<u>0.90%</u>	<u>0.10%</u>	<u>1.00%</u>	<u>1.00%</u>		<u>0.0%</u>
Total Rate	10.98%	1.48%	12.46%	12.04%		3.5%

Dollar amounts in thousands

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

SECTION IV - MEASURES OF LIABILITY

Actuarial Liability

The actuarial liability represents the expected amount of money needed today if all assumptions are met to pay for benefits attributed to service prior to the valuation date under the Entry Age actuarial cost method. As such, it is the amount of assets targeted by the actuarial cost method for the System to hold as of the valuation date. It is not the amount necessary to settle the obligation. Table IV-3 below shows the actuarial liability as of June 30, 2016 and June 30, 2015 separately by Tier.

Table IV-3 Actuarial Liability					
	June 30, 2016			June 30, 2015	% Change
	Basic	COLA	Total	Total	
Tier 1					
Actives					
Retirement	\$ 690,893	\$ 276,861	\$ 967,754	\$ 927,749	4.3%
Termination	38,621	22,074	60,695	59,145	2.6%
Death	5,580	2,057	7,637	8,831	-13.5%
Disability	<u>7,798</u>	<u>3,053</u>	<u>10,851</u>	<u>10,794</u>	<u>0.5%</u>
Total Actives	\$ 742,892	\$ 304,045	\$ 1,046,937	\$ 1,006,519	4.0%
Deferred Vested	\$ 146,501	\$ 60,609	\$ 207,110	\$ 186,340	11.1%
In Pay Status					
Retirees	\$ 1,327,805	\$ 955,785	\$ 2,283,590	\$ 2,149,044	6.3%
Beneficiaries	72,956	73,669	146,625	133,729	9.6%
Disabled	<u>43,915</u>	<u>40,984</u>	<u>84,899</u>	<u>84,780</u>	<u>0.1%</u>
Total In Pay Status	\$ 1,444,676	\$ 1,070,438	\$ 2,515,114	\$ 2,367,553	6.2%
Tier 1 Total	\$ 2,334,069	\$ 1,435,092	\$ 3,769,161	\$ 3,560,412	5.9%
Tier 2					
Actives					
Retirement	\$ 11,774	\$ 1,743	\$ 13,517	\$ 6,603	104.7%
Termination	1,992	274	2,266	1,947	16.4%
Death	192	22	214	135	58.5%
Disability	<u>508</u>	<u>83</u>	<u>591</u>	<u>326</u>	<u>81.3%</u>
Total Actives	\$ 14,466	\$ 2,122	\$ 16,588	\$ 9,011	84.1%
Deferred Vested	932	38	970	476	103.8%
Tier 2 Total	\$ 15,398	\$ 2,160	\$ 17,558	\$ 9,487	85.1%
System Total	\$ 2,349,467	\$ 1,437,252	\$ 3,786,719	\$ 3,569,899	6.1%

Dollar amounts in thousands

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

SECTION V - CONTRIBUTIONS

Amortization of the Unfunded Actuarial Liability

Under the contribution allocation procedure employed by the System, there are two components to the contribution: the normal cost (including administrative expenses) and an amortization payment on the unfunded actuarial liability. The normal cost rate was developed in Section IV. This section develops the UAL contribution rate.

The difference between the actuarial liability and the actuarial value of assets is the unfunded actuarial liability. The UAL is made up of the unamortized UAL as of June 30, 2015 plus the impact of the 2016 experience, the 2016 assumption changes, and the 2015 UAL payment that is made by the City on July 1, 2016.

Table V-1(a) provides the payment schedule to amortize the Tier 1 UAL as of June 30, 2009 over 30 years, and any additional actuarial gains/(losses), assumption or method changes after June 30, 2009 over 20 years from the valuation in which they are first recognized. Table V-1(b) provides the payment schedule to amortize the components of the Tier 2 UAL over 20 years from the valuation in which the component is first recognized. The amortization payment for the 2015 assumption changes is phased in over a 3-year period such that the payment in the first year is one third of the regular amortization payment. The amortization payments increase 2.85% each year so that they are a level percent of expected combined Tier 1 and Tier 2 payroll.

Table V-1(a) UAL Amortization - Tier 1							
	Outstanding Balance			Remaining Period	Payment		
	Basic	COLA	Total		Basic	COLA	Total
Golden Handshake	\$ 17,073	\$ 4,152	\$ 21,225	23	\$ 1,172	\$ 285	\$ 1,457
2009 UAL	611,744	149,808	761,552	23	41,987	10,282	52,270
2010 (Gain) or Loss	44,475	3,241	47,716	14	4,306	314	4,619
2010 Assumption Change	(35,727)	(19,833)	(55,561)	14	(3,459)	(1,920)	(5,379)
2011 (Gain) or Loss	8,889	(11,735)	(2,847)	15	817	(1,079)	(262)
2011 Assumption Changes	110,987	66,895	177,881	15	10,205	6,151	16,355
2012 (Gain) or Loss	(185,200)	298,081	112,881	16	(16,243)	26,143	9,900
SRBR Elimination	(41,482)		(41,482)	16	(3,638)		(3,638)
2013 (Gain) or Loss	50,448	21,087	71,535	17	4,236	1,771	6,007
2013 Assumption Changes	31,267	30,656	61,923	17	2,626	2,574	5,200
2014 (Gain) or Loss	(22,756)	(2,325)	(25,080)	18	(1,836)	(188)	(2,023)
2014 Assumption Changes	58,516	43,285	101,801	18	4,721	3,492	8,213
2015 (Gain) or Loss	28,351	20,104	48,455	19	2,204	1,563	3,767
2015 Assumption Changes	94,657	105,009	199,667	19	4,905	5,442	10,347
2016 (Gain) or Loss	77,617	34,492	112,108	20	5,829	2,590	8,419
2016 Assumption Changes	32,245	27,515	59,760	20	2,422	2,066	4,488
7/1/2016 Payment	48,632	51,033	99,665				
Total	\$ 929,736	\$ 821,464	\$1,751,200		\$ 60,254	\$ 59,486	\$119,740

Dollar amounts in thousands

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

SECTION V - CONTRIBUTIONS

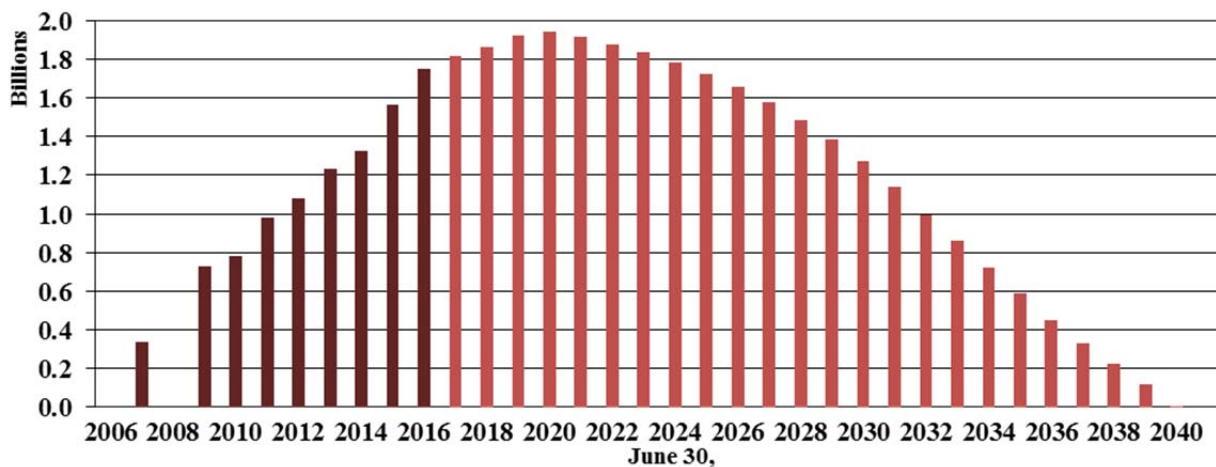
**Table V-1 (b)
UAL Amortization - Tier 2**

	Outstanding Balance			Remaining Period	Payment		
	Basic	COLA	Total		Basic	COLA	% of Pay
2013 (Gain) or Loss	\$ 40	\$ 10	\$ 49	17	\$ 3	\$ 1	\$ 4
2013 Assumption Changes	1	(1)	0	17	0	(0)	0
2014 (Gain) or Loss	(620)	1	(619)	18	(50)	0	(50)
2014 Assumption Changes	94	19	113	18	8	2	9
2015 (Gain) or Loss	717	173	891	19	56	13	69
2015 Assumption Changes	330	91	421	19	17	5	22
2016 (Gain) or Loss	(740)	160	(581)	20	(56)	12	(44)
2016 Assumption Changes	388	84	473	20	29	6	36
7/1/2016 Payment	24	18	42		0	0	0
Total	\$ 234	\$ 555	\$ 789		\$ 7	\$ 39	\$ 46

Dollar amounts in thousands

The chart below shows the historical UAL and its projected decline if all assumptions are met as unrecognized investment gains and losses from the asset smoothing method are recognized over the next four years and as payments are made on the amortization schedules over the next 23 years.

Historical and Deterministic Projected Unfunded Actuarial Liability



This amortization structure results in a total UAL rate of 44.4% of payroll for FYE 2018, which is less than the amount needed to pay the interest on the UAL based on the market value of assets (48.0% of payroll). As a result, the dollar amount of the UAL is expected to increase in the short term as shown in the chart above. As the recent investment losses are recognized in the actuarial value of assets, the phase-in of the amortization for the 2015 assumption changes is completed and as the remaining period for the amortization of the 2009 UAL shortens, the UAL rate will exceed the interest cost on the UAL and pay off the principal and interest in 23 years.

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

SECTION V - CONTRIBUTIONS

Contribution Rates and Amounts

Tier 1 members pay 3/11ths of the EA normal cost (including administrative expenses, but excluding reciprocity normal cost). For Tier 1, the City pays 8/11ths of the EA normal cost (including administrative expenses, but excluding reciprocity normal cost) plus the reciprocity normal cost and the UAL payments shown above.

For Tier 2, members and the City each pay half of the EA normal cost, half of administrative expenses, and half of the UAL payments.

Table V-2 shows the components of the contribution rates for FYE 2018 and 2017. The UAL rate is calculated as the payment shown in Table V-1 increased with one-half year of interest and divided by the projected payroll for the fiscal year. For FYE 2018, the projected payroll is \$162.8 million for Tier 1 and \$111.6 million for Tier 2.

**Table V-2
Contribution Rates**

	Fiscal Year Ending 2018			Fiscal Year Ending 2017		
	Basic	COLA	Total	Basic	COLA	Total
<u>Tier 1</u>						
Member Rate	4.80%	1.80%	6.60%	4.75%	1.72%	6.47%
City Service Normal Rate	12.79%	4.81%	17.60%	12.69%	4.58%	17.27%
City Reciprocity Normal Rate	<u>0.28%</u>	<u>0.12%</u>	<u>0.40%</u>	<u>0.21%</u>	<u>0.22%</u>	<u>0.43%</u>
City Normal Cost Rate	13.07%	4.93%	18.00%	12.90%	4.80%	17.70%
City Deficiency Rate	37.52%	37.59%	75.11%	28.76%	30.74%	59.49%
City Golden Handshake Rate	<u>0.74%</u>	<u>0.19%</u>	<u>0.93%</u>	<u>0.70%</u>	<u>0.17%</u>	<u>0.87%</u>
City UAL Rate	38.26%	37.78%	76.04%	29.45%	30.91%	60.36%
City Rate	51.33%	42.71%	94.04%	42.35%	35.71%	78.06%
<u>Tier 2</u>						
Member Normal Rate	5.49%	0.74%	6.23%	5.34%	0.68%	6.02%
Member UAL Rate	<u>0.00%</u>	<u>0.02%</u>	<u>0.02%</u>	<u>0.01%</u>	<u>0.01%</u>	<u>0.02%</u>
Member Rate	5.49%	0.76%	6.25%	5.35%	0.69%	6.04%
City Normal Cost Rate	5.49%	0.74%	6.23%	5.34%	0.68%	6.02%
City UAL Rate	<u>0.00%</u>	<u>0.02%</u>	<u>0.02%</u>	<u>0.01%</u>	<u>0.01%</u>	<u>0.02%</u>
City Rate	5.49%	0.76%	6.25%	5.35%	0.69%	6.04%

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
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SECTION V - CONTRIBUTIONS

Table V-3 shows the City's contribution dollar amounts for FYE 2018 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 contributions are made after the beginning of the fiscal year, the amounts should be adjusted for interest.

**Table V-3
City Contribution Amounts (BOY)**

	July 1, 2017			July 1, 2016		
	Basic	COLA	Total	Basic	COLA	Total
Tier 1						
City Service Normal Cost	\$ 20,509	\$ 7,713	\$ 28,222	\$ 21,449	\$ 7,741	\$ 29,191
City Reciprocity Normal Cost	449	192	641	355	372	727
City Normal Cost	\$ 20,958	\$ 7,905	\$ 28,863	\$ 21,804	\$ 8,113	\$ 29,918
City Deficiency Cost	\$ 60,164	\$ 60,276	\$120,439	\$ 48,605	\$ 51,957	\$100,561
City Golden Handshake Cost	1,187	305	1,491	1,181	287	1,468
City UAL Cost	\$ 61,350	\$ 60,580	\$121,931	\$ 49,785	\$ 52,244	\$102,029
City Contribution	\$ 82,035	\$ 68,259	\$150,293	\$ 71,589	\$ 60,357	\$131,946
Tier 2						
City Normal Cost	\$ 6,035	\$ 813	\$ 6,849	\$ 4,640	\$ 591	\$ 5,231
City UAL Cost	0	22	22	8	8	17
City Contribution	\$ 6,015	\$ 833	\$ 6,848	\$ 4,649	\$ 599	\$ 5,248

Dollar amounts in thousands

Table V-4 shows sources for the change in the Tier 1 contribution rates and the City's Tier 1 contribution amount from the rates and amount calculated in the prior report. The increase in the City's Tier 1 contribution rate is due to the discount rate change, the phase-in of the 2015 assumption changes, investment and demographic experience. Payroll for Tier 1 is expected to decrease over time as members leave the system and new entrants join Tier 2. However, Tier 1 payroll is larger than was projected in the last valuation, partially offsetting the UAL rate increase from asset experience, demographic experience, and assumption changes.

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
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SECTION V - CONTRIBUTIONS

**Table V-4
Reconciliation of Changes in Tier 1 Contribution Rates and Amounts**

	Member Rate	City Normal Cost	City UAL Rate	City Total Rate	Projected Payroll	City Amount
FYE 2017 Contribution	6.47%	17.70%	60.36%	78.06%	\$170,792	\$ 133,325
Expected FYE 2018 Contribution	6.47%	17.70%	73.04%	90.74%	158,042	143,407
Changes Due to:						
Asset experience	0.00%	0.00%	1.51%	1.51%	158,042	2,386
Demographic experience	-0.06%	-0.22%	1.73%	1.51%	158,042	2,386
Payroll Change	0.00%	0.00%	-2.26%	-2.26%	162,812	795
Assumption Change	<u>0.19%</u>	<u>0.52%</u>	<u>2.02%</u>	<u>2.54%</u>	<u>162,812</u>	<u>4,135</u>
Subtotal	0.13%	0.30%	3.00%	3.30%	162,812	\$ 9,702
FYE 2018 Contribution	6.60%	18.00%	76.04%	94.04%	\$162,812	\$ 153,109

Dollar amounts in thousands

Table V-5 shows sources for the change in the Tier 2 contribution rates and the City's Tier 2 contribution amount from the rates and amount calculated in the prior report. The increase in the City's Tier 2 contribution rate is primarily due to the discount rate change.

**Table V-5
Reconciliation of Changes in Tier 2 Member + City Contribution Rates and Amounts**

	Normal Cost	UAL Rate	Total Rate	Projected Payroll	Amount
FYE 2017 Contribution	12.04%	0.04%	12.08%	\$ 87,803	\$ 10,607
Expected FYE 2018 Contribution	12.04%	0.10%	12.14%	107,924	13,102
Changes Due to:					
Investment experience	0.00%	-0.12%	-0.12%	107,924	(130)
Demographic experience	0.12%	0.08%	0.20%	107,924	216
Payroll Change	0.00%	-0.04%	-0.04%	111,616	407
Assumption Change	<u>0.30%</u>	<u>0.02%</u>	<u>0.32%</u>	<u>111,616</u>	<u>357</u>
Subtotal	0.42%	-0.06%	0.36%	111,616	\$ 850
FYE 2018 Contribution	12.46%	0.04%	12.50%	\$111,616	\$ 13,952

Dollar amounts in thousands

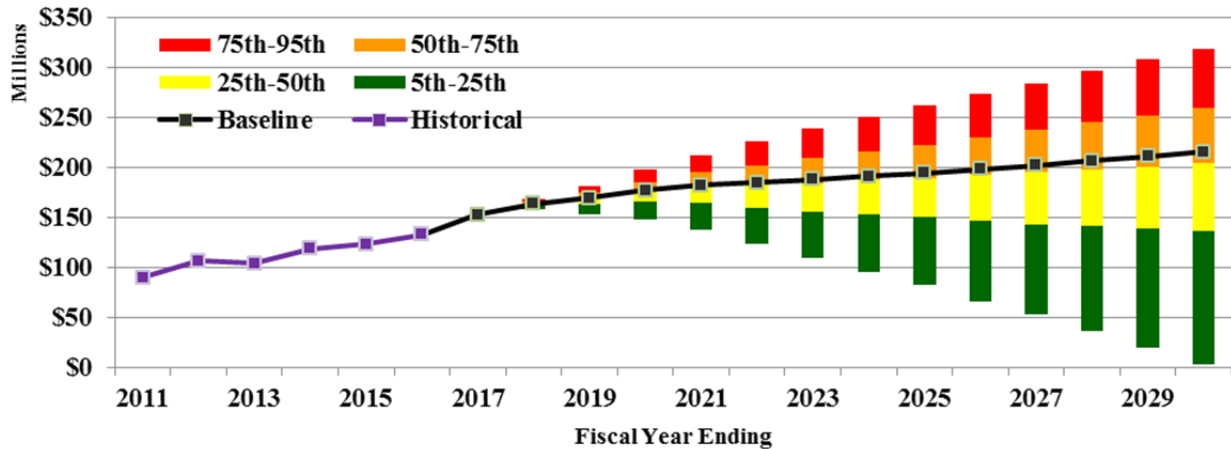
With declining payroll for the closed Tier 1, projections of contribution rates are not meaningful. As a result, the projections shown below show the projected range of City contribution amounts for Tier 1. For the fiscal year ending 2024 (based on the 2022 valuation), the range from the 5th

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SECTION V - CONTRIBUTIONS

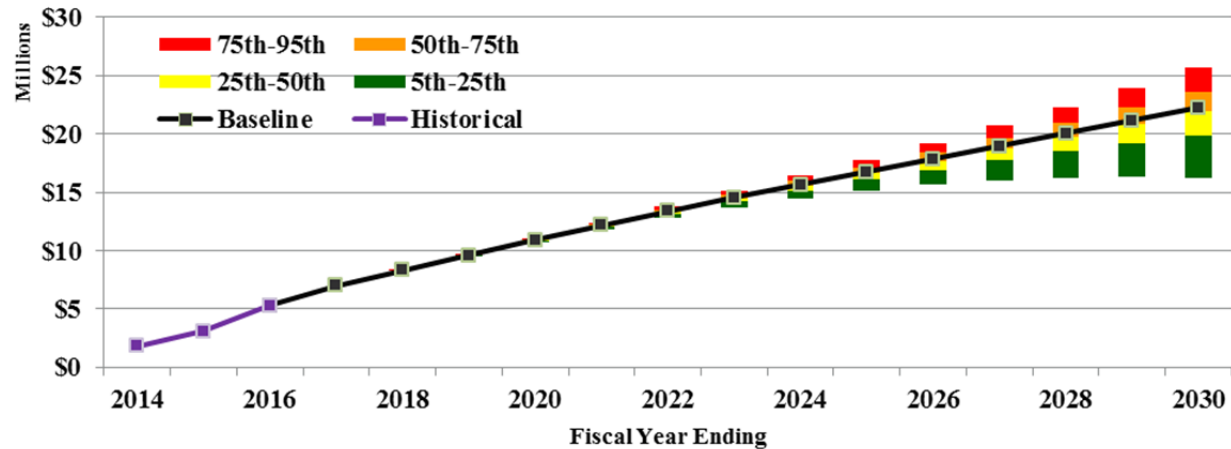
to 95th percentile for City's Tier 1 contribution is from \$90 million to \$249 million. By the end of the projection period, the range extends up to \$314 million.

Historical and Stochastic Projection of Tier 1 City Contribution Amounts



Because Tier 2 is relatively young and growing rapidly, the contribution amounts are much less sensitive to investment returns. By the end of the projection period, the range from the 5th to 95th percentile for City's Tier 2 contribution is only from \$16 million to \$26 million. Tier 2 member contributions are identical to the City's contributions.

Historical and Stochastic Projection of Tier 2 City Contribution Amounts



**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
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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. All amounts prior to June 30, 2010 were calculated by the prior actuary.

**Table VI-1
Schedule of Funding Progress**

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Liability (AL)	Unfunded AL	Funded Ratio	Covered Payroll	Unfunded AL as a % of Covered Payroll
6/30/2016 ⁸	\$ 2,034,741	\$ 3,786,730	\$ 1,751,989	54%	\$ 266,823	657%
6/30/2015 ⁷	2,004,481	3,569,898	1,565,417	56%	251,430	623%
6/30/2014 ⁶	1,911,773	3,235,065	1,323,292	59%	234,677	564%
6/30/2013 ⁵	1,783,270	3,013,763	1,230,493	59%	225,779	545%
6/30/2012 ⁴	1,762,973	2,841,000	1,078,027	62%	225,859	477%
6/30/2011 ³	1,788,660	2,770,227	981,567	65%	228,936	429%
6/30/2010 ²	1,729,413	2,510,358	780,945	69%	300,811	260%
6/30/2009 ¹	1,756,558	2,486,155	729,597	71%	323,020	226%
6/30/2007	1,622,851	1,960,943	338,092	83%	291,405	116%

Dollar amounts in thousands

- ¹ Demographic and economic assumption changes, including reducing the discount rate from 8.25% to 7.75% increased the AL by \$229 million
- ² Increasing the discount rate from 7.75% to 7.95% decreased the AL by \$59 million.
- ³ Demographic and economic assumption changes, including reducing the discount rate from 7.95% to 7.5% increased the AL by \$188 million
- ⁴ Elimination of the Supplemental Retirement Benefit Reserve reduced the AL by \$43 million
- ⁵ Reducing the discount rate from 7.5% to 7.25% and wage inflation to 2% for five years and 2.85% thereafter increased the AL by \$64 million
- ⁶ Reducing the discount rate from 7.25% to 7.0% and eliminating the temporary 2% wage inflation increased the AL by \$103 million
- ⁷ Demographic and economic assumption changes decreased the AL by \$192 million.
- ⁸ Reducing the discount rate from 7.00% to 6.875% increased the AL by \$60 million.

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

SECTION VI - ACTUARIAL SECTION OF THE CAFR

**Table VI-2
Solvency Test**

Valuation Date	Actuarial Liability For				Portion of Actuarial Liability Covered by Reported Assets		
	(A)	(B)	(C)	Reported Assets*	(A)	(B)	(C)
	Active Member Contributions	Retirees, Beneficiaries and Other Inactives	Remaining Active Members' Liabilities				
6/30/2016	\$ 240,872	\$ 2,722,224	\$ 823,634	\$ 2,034,741	100%	66%	0%
6/30/2015	243,828	2,553,892	772,178	2,004,481	100%	69%	0%
6/30/2014	233,289	2,331,656	670,120	1,911,773	100%	72%	0%
6/30/2013	234,217	2,164,153	615,393	1,783,270	100%	72%	0%
6/30/2012	234,619	2,001,498	604,883	1,762,973	100%	76%	0%
6/30/2011	234,574	1,848,254	687,400	1,788,660	100%	84%	0%
6/30/2010	242,944	1,504,698	762,716	1,729,413	100%	99%	0%
6/30/2009	228,967	1,393,114	864,074	1,756,558	100%	100%	16%
6/30/2007	214,527	1,003,001	743,415	1,622,851	100%	100%	55%

* Actuarial Value of Assets

Dollar amounts in thousands

The Government Finance Officers Association has named this exhibit 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 (e.g., by purchasing annuities). 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.

**Table VI-3
Analysis of Financial Experience**

Actuarial Valuation Date	Gain or (Loss) for Year Ending on Valuation Date Due To:				
	Investment Income	Combined Liability Experience	Total Financial Experience	Non-Recurring Items	Total Experience
6/30/2016	\$ (81,539)	\$ (29,989)	\$ (111,528)	\$ (60,233)	\$ (171,760)
6/30/2015	(3,641)	(45,998)	(49,639)	(191,527)	(241,167)
6/30/2014	39,675	(13,600)	26,075	(103,404)	(77,329)
6/30/2013	(76,502)	2,899	(73,603)	(63,668)	(137,271)
6/30/2012	(119,331)	2,023	(117,308)	43,109	(74,199)
6/30/2011	(82,166)	83,403	1,237	(187,548)	(186,311)
6/30/2010	(124,137)	45,785	(78,352)	(18,467)	(96,819)

Dollar amounts in thousands

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

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.
- Service for inactives that have no service amount is calculated to be the time from date of hire to date of termination.
- The most recent annual salary for continuing actives is set to be “earnable income.” If “earnable income” was not provided, then the most recent annual salary is calculated to be “compensation rate 2” multiplied by 26.
- The annual salary for new active hires and rehires is calculated to be “compensation rate 2” multiplied by 26.
- The Tier 1 annual benefit for inactives is set to be the accrued benefit provided. If an accrued benefit is not provided, then the annual benefit is calculated to be 2.5% of final compensation per year of service in Tier 1, up to a maximum of 75% of final compensation. Members who terminated prior to June 30, 2001 have their final compensation adjusted for a three-year average rather than a 12-month average.
- The Tier 2 annual benefit for inactives is set to be the accrued benefit provided. If an accrued benefit is not provided, then the annual benefit is calculated to be 2.0% of final compensation per year of service in Tier 2, up to a maximum of 65% of final compensation. The final compensation is adjusted for a three-year average.
- 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.

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A - MEMBERSHIP INFORMATION

**Table A-1
San Jose Federated City Employees' Retirement System
Active Member Data**

	June 30, 2016	June 30, 2015	% Change
<u>Tier 1</u>			
Count	2,162	2,363	-8.5%
Average Current Age	49.0	48.3	1.4%
Average Eligibility Service	15.6	14.8	5.4%
Average Benefit Service	15.3	14.6	4.8%
Annual Expected Pensionable Earnings	\$ 186,249,410	\$ 192,615,490	-3.3%
Average Expected Pensionable Earnings	\$ 86,147	\$ 81,513	5.7%
<u>Tier 2</u>			
Count	1,135	873	30.0%
Average Current Age	37.2	36.8	1.1%
Average Eligibility Service	2.0	1.5	33.3%
Average Tier 2 Benefit Service	1.6	1.1	45.5%
Average Total Benefit Service*	1.8	1.4	28.6%
Annual Expected Pensionable Earnings	\$ 80,573,965	\$ 58,814,232	37.0%
Average Expected Pensionable Earnings	\$ 70,990	\$ 67,370	5.4%
<u>Total</u>			
Count	3,297	3,236	1.9%
Average Current Age	44.9	45.2	-0.7%
Average Eligibility Service	10.9	11.2	-2.7%
Average Benefit Service	10.6	11.0	-3.6%
Annual Expected Pensionable Earnings	\$ 266,823,375	\$ 251,429,721	6.1%
Average Expected Pensionable Earnings	\$ 80,929	\$ 77,698	4.2%

* Includes service attributable to Tier 1 benefits

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A - MEMBERSHIP INFORMATION

Table A-2			
San Jose Federated City Employees' Retirement System			
Payee Member Data			
	June 30, 2016	June 30, 2015	%Change
Retired & Disabled			
Count	3,492	3,408	2.5%
Average Age	68.8	68.6	0.3%
Total Annual Benefit	\$ 165,313,149	\$ 157,347,079	5.1%
Average Annual Benefit	\$ 47,341	\$ 46,170	2.5%
Beneficiaries & SADROs			
Count	511	493	3.7%
Average Age	74.4	74.5	-0.1%
Total Annual Benefit	\$ 12,437,426	\$ 11,569,776	7.5%
Average Annual Benefit	\$ 24,339	\$ 23,468	3.7%
Total			
Count	4,003	3,901	2.6%
Average Age	69.5	69.4	0.1%
Total Annual Benefit	\$ 177,750,575	\$ 168,916,855	5.2%
Average Annual Benefit	\$ 44,404	\$ 43,301	2.5%

Benefits provided in June 30 valuation data

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A - MEMBERSHIP INFORMATION

**Table A-3
San Jose Federated City Employees' Retirement System
Inactive Member Data**

	Count		%Change
	June 30, 2016	June 30, 2015	
Tier 1			
Vested			
Count	775	766	1.2%
Average Age	47.4	47.1	0.6%
Total Annual Benefit	\$ 15,980,725	\$ 15,144,608	5.5%
Average Annual Benefit	\$ 20,620	\$ 19,771	4.3%
Total Contribution Balance with Interest	\$ 54,279,017	\$ 50,719,943	7.0%
Average Contribution Balance with Interest	\$ 70,037	\$ 66,214	5.8%
Non-Vested			
Count	263	281	-6.4%
Average Age	44.5	43.3	2.8%
Total Annual Benefit	\$ 1,082,754	\$ 1,072,775	0.9%
Average Annual Benefit	\$ 4,117	\$ 3,818	7.8%
Total Contribution Balance with Interest	\$ 4,273,552	\$ 4,189,688	2.0%
Average Contribution Balance with Interest	\$ 16,249	\$ 14,910	9.0%
Total			
Count	1,038	1,047	-0.9%
Average Age	46.7	46.1	1.3%
Total Annual Benefit	\$ 17,063,479	\$ 16,217,383	5.2%
Average Annual Benefit	\$ 16,439	\$ 15,489	6.1%
Total Contribution Balance with Interest	\$ 58,552,569	\$ 54,909,631	6.6%
Average Contribution Balance with Interest	\$ 56,409	\$ 52,445	7.6%

For Inactives, benefit is calculated on the data assumptions and methods outlined in Appendix A if not provided in the June 30 valuation data.

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A - MEMBERSHIP INFORMATION

**Table A-3 (continued)
San Jose Federated City Employees' Retirement System
Inactive Member Data**

	Count		%Change
	June 30, 2016	June 30, 2015	
Tier 2			
Vested			
Count	8	1	700.0%
Average Age	43.0	29.0	48.3%
Total Annual Benefit*	\$ 43,846	2,719	1512.6%
Average Annual Benefit*	\$ 5,481	2,719	101.6%
Total Contribution Balance with Interest**	\$ 224,063	11,956	1774.1%
Average Contribution Balance with Interest**	\$ 28,008	11,956	134.3%
Non-Vested			
Count	160	97	64.9%
Average Age	37.5	38.4	-2.3%
Total Annual Benefit*	\$ 214,829	\$ 98,322	118.5%
Average Annual Benefit*	\$ 1,343	\$ 1,014	32.4%
Total Contribution Balance with Interest**	\$ 888,500	\$ 596,319	49.0%
Average Contribution Balance with Interest**	\$ 5,553	\$ 6,148	-9.7%
Total			
Count	168	98	71.4%
Average Age	37.7	38.3	-1.6%
Total Annual Benefit*	\$ 258,675	\$ 101,040	156.0%
Average Annual Benefit*	\$ 1,540	\$ 1,031	49.4%
Total Contribution Balance with Interest**	\$ 1,112,563	\$ 608,275	82.9%
Average Contribution Balance with Interest**	\$ 6,622	\$ 6,207	6.7%
Total			
Count	1,206	1,145	5.3%
Average Age	45.4	45.4	0.0%
Total Annual Benefit	\$ 17,322,154	\$ 16,318,423	6.2%
Average Annual Benefit	\$ 14,363	\$ 14,252	0.8%
Total Contribution Balance with Interest	\$ 59,665,132	\$ 55,517,906	7.5%
Average Contribution Balance with Interest	\$ 49,474	\$ 48,487	2.0%

For Inactives, benefit is calculated on the data assumptions and methods outlined in Appendix A if not provided in the June 30 valuation data.

** Includes benefits attributable to Tier 1*

*** Includes contributions attributable to Tier 1*

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A - MEMBERSHIP INFORMATION

**Table A-4
San Jose Federated City Employees' Retirement System
Distribution of Active Members as of June 30, 2016**

Age	Years of Service										Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up		
Under 25	35	18	0	0	0	0	0	0	0	0	0	53
25 to 29	96	169	6	0	0	0	0	0	0	0	0	271
30 to 34	76	190	84	7	0	0	0	0	0	0	0	357
35 to 39	51	168	112	67	45	0	0	0	0	0	0	443
40 to 44	29	80	73	80	155	13	0	0	0	0	0	430
45 to 49	29	85	70	72	163	53	35	0	0	0	0	507
50 to 54	24	54	51	58	170	59	129	4	0	0	0	549
55 to 59	13	57	65	33	98	22	70	6	0	0	0	364
60 to 64	4	36	34	37	71	19	21	1	1	0	0	224
65 to 69	2	9	14	17	22	9	2	0	0	1	0	76
70 and up	2	0	7	4	9	1	0	0	0	0	0	23
Total Count	361	866	516	375	733	176	257	11	1	1	1	3,297

**Table A-5
San Jose Federated City Employees' Retirement System
Distribution of Active Members as of June 30, 2016**

Age	Average Expected Salary										Total
	Years of Service										
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up	
Under 25	\$ 54,627	\$ 52,650	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 53,955
25 to 29	61,078	63,241	62,111	0	0	0	0	0	0	0	62,450
30 to 34	70,166	68,624	74,489	89,410	0	0	0	0	0	0	70,740
35 to 39	73,615	74,289	75,705	82,370	78,588	0	0	0	0	0	76,228
40 to 44	73,687	78,533	80,466	80,982	84,728	95,972	0	0	0	0	81,750
45 to 49	79,818	81,500	83,845	85,611	85,953	91,207	91,065	0	0	0	85,418
50 to 54	80,748	82,476	83,731	84,811	91,958	91,075	92,738	102,203	0	0	89,179
55 to 59	82,735	78,261	89,766	95,518	85,868	94,773	93,010	105,388	0	0	88,369
60 to 64	65,613	81,055	84,287	88,053	88,946	96,254	91,041	70,809	50,860	0	86,972
65 to 69	62,263	94,213	75,589	87,772	98,061	97,462	95,971	0	0	133,368	90,561
70 and up	108,613	0	92,091	77,969	93,576	51,074	0	0	0	0	89,869
Avg. Salary	\$ 69,063	\$ 72,800	\$ 80,476	\$ 85,121	\$ 87,370	\$ 92,597	\$ 92,471	\$ 101,086	\$ 50,860	\$ 133,368	\$ 80,929

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A - MEMBERSHIP INFORMATION

**Table A-6
San Jose Federated City Employees' Retirement System
Retirees and Disabled by Attained Age and Benefit Effective Date
as of June 30, 2016**

Benefit Effective Fiscal Year End	Age										Total
	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	
Prior to 1995	0	2	3	8	8	20	121	144	137	91	534
1996	2	0	0	1	1	1	21	8	1	0	35
1997	0	1	0	0	1	15	34	10	2	2	65
1998	0	1	0	2	2	23	14	13	0	0	55
1999	0	0	0	2	5	39	16	9	5	0	76
2000	0	0	0	1	8	52	19	5	1	0	86
2001	0	0	1	2	4	42	24	5	1	0	79
2002	0	0	2	1	36	59	29	7	2	0	136
2003	0	1	1	3	55	28	22	5	2	0	117
2004	1	2	1	12	68	27	15	3	0	0	129
2005	0	0	2	12	82	42	24	7	1	0	170
2006	2	3	4	17	71	36	16	2	0	0	151
2007	0	1	4	35	70	26	15	1	3	0	155
2008	1	1	6	63	44	34	9	2	0	0	160
2009	2	2	10	65	37	23	6	0	0	0	145
2010	0	0	17	106	53	29	5	1	0	0	211
2011	2	2	33	160	96	41	10	1	1	0	346
2012	0	5	52	83	47	21	8	0	0	0	216
2013	0	2	83	21	29	7	2	0	0	0	144
2014	1	6	96	26	17	6	0	0	0	0	152
2015	0	14	100	29	16	3	2	0	0	0	164
2016	1	19	94	21	28	2	0	1	0	0	166
Total	12	62	509	670	778	576	412	224	156	93	3,492

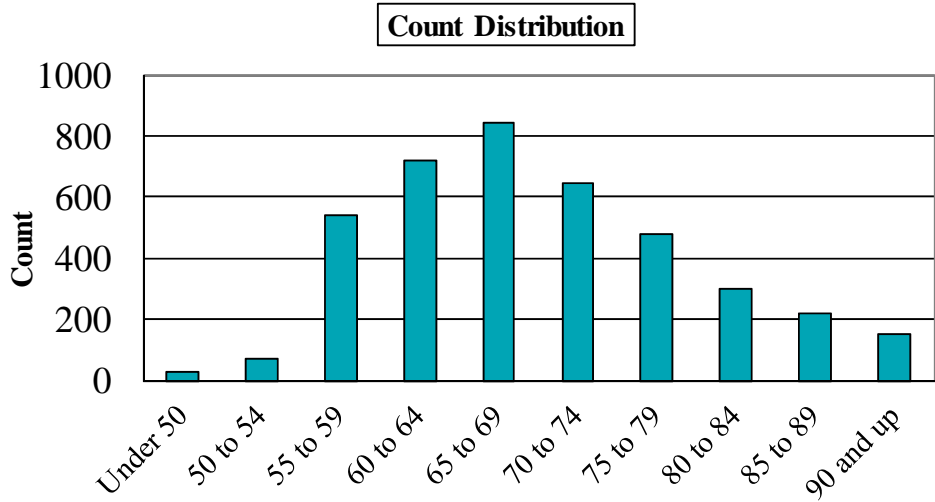
Average Age at Retirement/Disability 57.5
Average Current Age 68.8
Average Annual Pension \$ 47,341

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A - MEMBERSHIP INFORMATION

Table A-7	
San Jose Federated City Employees' Retirement System Distribution of Retirees, Disabled Members, and Beneficiaries as of June 30, 2016	
Age	Count
Under 50	29
50 to 54	72
55 to 59	543
60 to 64	722
65 to 69	840
70 to 74	643
75 to 79	477
80 to 84	302
85 to 89	221
90 and up	154
Total	4,003

Chart A-1

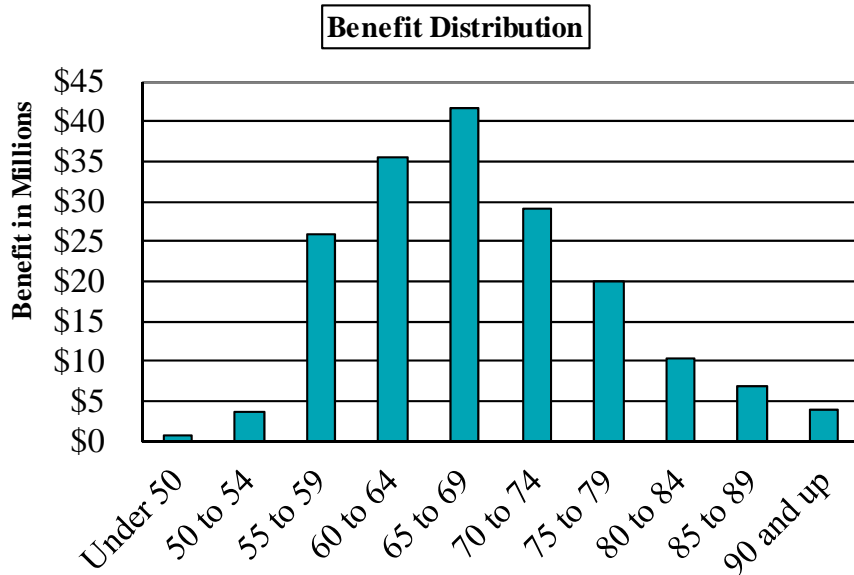


**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A - MEMBERSHIP INFORMATION

Table A-8		
San Jose Federated City Employees' Retirement System Distribution of Retirees, Disabled Members, and Beneficiaries as of June 30, 2016		
Age	Annual Benefit	
Under 50	\$	802,029
50 to 54		3,674,238
55 to 59		25,964,058
60 to 64		35,591,025
65 to 69		41,565,099
70 to 74		29,041,385
75 to 79		19,950,167
80 to 84		10,360,369
85 to 89		6,929,103
90 and up		3,873,103
Total	\$	177,750,575

Chart A-2



**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A - MEMBERSHIP INFORMATION

Table A-9 San Jose Federated City Employees' Retirement System Change in Plan Membership							
TIER 1							
	Actives	Vested Terminations*	Service Disabilities	Non-Service Disabilities	Retirees	Beneficiaries/ SADRO	Total
June 30, 2015	2,363	1,047	125	78	3,205	493	7,311
New Entrants	0	0	0	0	0	0	0
Rehires	7	(7)	0	0	0	0	0
Vested Terminations	(74)	74	0	0	0	0	0
Return of Contributions	(6)	(26)	0	0	0	0	(32)
Service Disabilities	0	(1)	1	0	0	0	0
Non-Service Disabilities	0	(1)	0	1	0	0	0
Retirements	(122)	(44)	0	0	166	0	0
Deaths	(5)	0	(4)	(5)	(76)	41	(49)
Beneficiary Deaths	0	0	0	0	0	(25)	(25)
Benefit Ceased	0	0	0	0	0	0	0
Tier Adjustment **	(1)	(5)	0	0	0	0	(6)
Miscellaneous Adjustments	0	1	0	0	0	2	3
June 30, 2016	2,162	1,038	122	74	3,295	511	7,202
TIER 2							
	Actives	Vested Terminations*	Service Disabilities	Non-Service Disabilities	Retirees	Beneficiaries/ SADRO	Total
June 30, 2015	873	98	0	0	0	0	971
New Entrants	369	0	0	0	0	0	369
Rehires	5	(5)	0	0	0	0	0
Vested Terminations	(78)	78	0	0	0	0	0
Return of Contributions	(39)	(26)	0	0	0	0	(65)
Service Disabilities	0	0	0	0	0	0	0
Non-Service Disabilities	0	0	0	0	0	0	0
Retirements	(1)	0	0	0	1	0	0
Deaths	0	0	0	0	0	0	0
Beneficiary Deaths	0	0	0	0	0	0	0
Benefit Ceased	0	0	0	0	0	0	0
Tier Adjustment **	6	0	0	0	0	0	6
Miscellaneous Adjustments	0	23	0	0	0	0	23
June 30, 2016	1,135	168	0	0	1	0	1,304
TOTAL							
	Actives	Vested Terminations*	Service Disabilities	Non-Service Disabilities	Retirees	Beneficiaries/ SADRO	Total
June 30, 2015	3,236	1,145	125	78	3,205	493	8,282
New Entrants	369	0	0	0	0	0	369
Rehires	12	(12)	0	0	0	0	0
Vested Terminations	(152)	152	0	0	0	0	0
Return of Contributions	(45)	(52)	0	0	0	0	(97)
Service Disabilities	0	(1)	1	0	0	0	0
Non-Service Disabilities	0	(1)	0	1	0	0	0
Retirements	(123)	(44)	0	0	167	0	0
Deaths	(5)	0	(4)	(5)	(76)	41	(49)
Beneficiary Deaths	0	0	0	0	0	(25)	(25)
Benefit Ceased	0	0	0	0	0	0	0
Tier Adjustment **	5	(5)	0	0	0	0	0
Miscellaneous Adjustments	0	24	0	0	0	2	26
June 30, 2016	3,297	1,206	122	74	3,296	511	8,506

* Vested terminations includes non-vested and reciprocal terms that are still due a refund or benefit.

** Members that terminated from Tier 1 and rehired into Tier 2

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Assumptions

The discount rate assumption was adopted by the Board of Administration with our input at the December 15, 2016 Board meeting. All other assumptions were adopted at the November 19, 2015 Board meeting based on recommendations from our Experience Study covering plan experience during the period from July 1, 2010 through June 30, 2015. Please refer to the full Experience Study Report for details, including the rationale for each assumption.

1. Discount Rate

6.875%. The Board expects a long-term rate of return of 7.21% based on Meketa's 20-year capital market assumptions and the System's current investment policy. A margin for adverse deviation was used to improve the probability of achieving the discount rate.

2. Wage Inflation and Payroll Growth

2.85%, compounded annually.

3. Price Inflation

2.50%, compounded annually.

4. Administrative Expenses

1.0% of payroll is added to the normal cost of the system for expected administrative expenses.

FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

5. Salary Increase Rate

In addition to the wage inflation component of 2.85% shown above, the following merit component is added based on an individual member's years of service:

Table B-1 Salary Merit Increases	
Years of Service	Merit/ Longevity
0	4.50%
1	3.50
2	2.50
3	1.85
4	1.40
5	1.15
6	0.95
7	0.75
8	0.60
9	0.50
10	0.45
11	0.40
12	0.35
13	0.30
14	0.25
15+	0.25

6. Family Composition

Percentage married is shown in the following Table B-2. Male retirees are assumed to be three years older than their partner, and female retirees are assumed to be two years younger than their partner.

Table B-2 Percentage Married	
Gender	Percentage
Males	80%
Females	60%

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

7. Rates of Termination

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

Table B-3 Rates of Termination			
Age	0 Years of Service	1-4 Years of Service	5 or more Years of Service
20	18.00%	17.50%	9.00%
25	18.00	15.50	9.00
30	18.00	13.50	7.00
35	18.00	11.50	5.50
40	18.00	9.50	4.50
45	18.00	8.00	3.50
50	18.00	7.00	3.00
55	18.00	6.00	3.00
60	18.00	5.00	0.00
65	0.00	0.00	0.00

*Withdrawal/termination rates do not apply once a member is eligible for retirement

25% of terminating employees are assumed to subsequently work for a reciprocal employer and receive 2.85% pay increases per year.

8. Rates of Refund

Tier 1:

Sample rates of vested terminated employees electing a refund of contributions are shown in the following Table B-4.

Table B-4 Rates of Refund	
Age	Refund
20	40.00%
25	40.00
30	27.50
35	17.00
40	8.00
45	3.00
50	1.00
55	0.00

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Tier 2:

Vested terminated employees are expected to take a refund if it exceeds the actuarial present value of their deferred benefit payment.

9. Rates of Disability

Sample disability rates of active members are provided in Table B-5.

Table B-5 Rates of Disability at Selected Ages	
Age	Disability
20	0.014%
25	0.014
30	0.021
35	0.063
40	0.136
45	0.201
50	0.218
55	0.200
60	0.181
65	0.167
70	0.149

40% of disabilities are assumed to be duty related, and 60% are assumed to be non-duty.

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10. Rates of Mortality

Mortality rates for actives, retirees, beneficiaries, terminated vested, and reciprocals are based on the sex-distinct employee and annuitant CalPERS mortality tables as described below. The CalPERS tables are from their 2014 experience study with a central experience year of 2009 and prior to the 20-year projection of those rates using Scale BB. 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	0.952 times the CalPERS 2009 Healthy Annuitant Mortality Table (Male)	0.921 times the CalPERS 2009 Healthy Annuitant Mortality Table (Female)
Healthy Non-Annuitant	0.919 times the CalPERS 2009 Employee Mortality Table (Male)	0.918 times the CalPERS 2009 Employee Mortality Table (Female)
Disabled Annuitant	1.051 times the CalPERS 2009 Ordinary Disability Mortality Table (Male)	1.002 times the CalPERS 2009 Ordinary Disability Mortality Table (Female)

100% of Tier 1 active member deaths and 99% of Tier 2 active member deaths are assumed to be non-service connected.

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APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

11. Rates of Retirement

Rates of retirement for Tier 1 members are based on age according to the following Table B-6 – Tier 1.

Table B-6 – Tier 1 Rates of Retirement by Age and Service			
Age	Less than 15 Years of Service	15 or more Years of Service and less than 30 Years of Service	30 or more Years of Service
50	0.0%	0.0%	70.0%
51	0.0	0.0	70.0
52	0.0	0.0	70.0
53	0.0	0.0	70.0
54	0.0	0.0	70.0
55	8.0	35.0	50.0
56	8.0	22.5	50.0
57	8.0	22.5	50.0
58	8.0	22.5	50.0
59	8.0	22.5	50.0
60	8.0	22.5	45.0
61	8.0	30.0	45.0
62	9.0	30.0	45.0
63	10.0	30.0	45.0
64	15.0	35.0	45.0
65	20.0	40.0	45.0
66	20.0	40.0	45.0
67	20.0	40.0	45.0
68	20.0	40.0	45.0
69	20.0	40.0	45.0
70 & over	100.0	100.0	100.0

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Rates of retirement for Tier 2 members are based on age according to the following Table B-6 – Tier 2.

Table B-6 – Tier 2 Rates of Retirement by Age and Service		
Age	Less than 32.5 Years of Service	32.5 or more Years of Service
55	4.0%	7.0%
56	3.0	6.0
57	3.0	6.0
58	3.0	6.0
59	5.0	10.0
60	7.5	15.0
61	10.0	25.0
62	10.0	25.0
63	10.0	25.0
64	10.0	25.0
65	40.0	70.0
66	25.0	50.0
67	25.0	50.0
68	25.0	50.0
69	25.0	50.0
70 & over	100.0	100.0

12. Deferred Member Benefit

The benefit was estimated based on information provided by the Department of Retirement Services. The data used to value the estimated deferred benefit were credited service, date of termination, and last pay rate. Based on the data provided, the highest average salary was estimated.

Tier 1 terminated vested members are assumed to retire at age 57 and Tier 2 terminated vested members are assumed to retire at age 65.

13. Changes Since Last Valuation

The discount rate was reduced from 7.00% to 6.875%.

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APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

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, 2010 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 all benefits between each member's date of hire and last assumed date of employment. The actuarial liability is the difference between the present value of future benefits and the present value of future normal costs. Or, equivalently, it is the accumulation of normal costs for all periods prior to the valuation date. The normal cost and actuarial liability are calculated on an individual basis. The sum of the individual amounts is the normal cost and actuarial liability for the System. The actuarial liability for the System represents the target amount of assets the System should have as of the valuation date according to the actuarial cost method.

2. Asset Valuation Method

For the purpose of determining contribution rates and amounts, an actuarial value of assets is used that dampens the volatility in the market value of assets, resulting in a smoother pattern of contribution rates.

The actuarial value of assets is calculated by recognizing 20% of the difference in each of the prior four years of actual investment returns compared to the expected return on the market value of assets.

3. Amortization Method

The unfunded actuarial liability is the difference between the actuarial liability and the actuarial value of assets. The unfunded actuarial liability as of June 30, 2009 is amortized as a level percentage of Tier 1 pay over a closed 30-year period commencing June 30, 2009. Actuarial gains and losses, assumption changes, and plan changes are amortized as a level percentage of Tier 1 and Tier 2 pay over 20-year periods beginning with the valuation date in which they first arise. The amortization payment for the 2015 assumption changes is phased in over a 3-year period. The phase-in is calculated by multiplying the first year amortization payment by one third. For the second year, the amortization schedule is recalculated reflecting the one-third payment in the first year and the remaining 19-year period, and the calculated amortization payment is then multiplied by two-thirds. For the third year, the amortization schedule is again recalculated reflecting the prior payments and the remaining 18-year period. To remain a level percentage of expected future payroll, each annual amortization payment increases by 2.85%.

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APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

4. Contributions

The Board adopted a policy in 2010 and modified it in 2015 setting the City's contribution to be the UAL contribution amount reported in the actuarial valuation plus the greater of the normal cost dollar amount reported in the actuarial valuation (adjusted for interest based on the time of the contribution) and the dollar amount determined by applying the normal cost as a percent of payroll reported in the actuarial valuation to the actual payroll for the fiscal year. The City and Member contributions determined by a valuation become effective for the fiscal year commencing one year after the valuation date. For Tier 1, City contributions are normally made on the first day of the fiscal year. All other contributions are made on a payroll-by-payroll basis.

The total contribution rate is the sum of the normal cost rate (including assumed administrative expenses) and the UAL rate. The normal cost rate is determined by dividing the total normal cost determined under the actuarial cost method by the payroll expected for members active on the valuation date. The UAL payments are adjusted for interest from the valuation date to the date of expected payment in the following fiscal year. The UAL rate is determined by dividing the UAL payments by the total expected payroll for the year (including members active on the valuation date and new entrants expected to replace active members who are expected to leave employment).

For Tier 1, members contribute 3/11ths of the normal cost rate (including administrative expenses, but excluding reciprocity), and the City pays the remainder of the total contribution rate. For Tier 2, the members and the City each pay half of the total contribution rate.

5. Changes Since Last Valuation

The Board modified its contribution policy to fix the UAL contribution based on the dollar amount shown in the actuarial valuation report.

FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX C - SUMMARY OF PLAN PROVISIONS
TIER 1

1. Membership Requirement

Participation in the Plan is immediate upon the first day of full-time employment for members hired before September 30, 2012.

2. Final Compensation

Members who separated from city service prior to June 30, 2001

The highest average annual compensation earnable during any period of three consecutive years.

Members who separated from city service on or after June 30, 2001

The highest average annual compensation earnable during any period of twelve consecutive months.

3. Credited Service

One year of service credit is given for 1,739 or more hours of Federated city service rendered in any calendar year. A partial year (fraction with the numerator equal to the hours worked, and the denominator equal to 1,739) is given for each calendar year with less than 1,739 hours worked.

4. Member Contributions

Member

The amount needed to fund 3/11ths of benefits accruing for the current year. These contributions are credited with interest at 3.0% per year, compounded annually.

Employer

The Employer contributes the remaining amounts necessary to maintain the soundness of the Retirement System.

5. Service Retirement

Eligibility

Age 55 with five years of service, or any age with 30 years of service.

FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX C - SUMMARY OF PLAN PROVISIONS
TIER 1

Benefit – Member

2.5% of Final Compensation for each year of credited service, subject to a maximum of 75% of Final Compensation.

Benefit - Survivor

50% of the service retirement benefit paid to a qualified survivor.

6. Service-Connected Disability Retirement

Eligibility

No age or service requirement.

Benefit - Member

2.5% of Final Compensation for each year of credited service, subject to a minimum of 40% and a maximum of 75% of Final Compensation. Workers' Compensation benefits are generally offset from the service-connected benefits under this system.

Benefit - Survivor

50% of the disability retirement benefit paid to a qualified survivor.

7. Non-Service Connected Disability Retirement

Eligibility

Five years of service.

Benefit - Member

Members who were hired prior to September 1, 1998:

The amount of the service-connected benefit reduced by 0.5% for each year that the disability age preceded 55.

Members who were hired on or after September 1, 1998:

20% of Final Compensation, plus 2% of Final Compensation for each year of credited service between six and 16 years, plus 2.5% of Final Compensation for each year of credited service in excess of 16 years, subject to a maximum of 75% of Final Compensation.

FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX C - SUMMARY OF PLAN PROVISIONS
TIER 1

Benefit - Survivor

50% of the disability retirement benefit paid to a qualified survivor.

8. Death While an Active Employee

Less than five Years of Service, or No Qualified Survivor

Lump sum benefit equal to the accumulated refund of all employee contributions with interest, plus one month of salary for each year of service, up to a maximum of six years.

Five or more Years of Service

2.5% of Final Compensation for each year of credited service, subject to a minimum of 40% and a maximum of 75% of Final Compensation. The benefit is payable until the spouse or registered domestic partner marries or establishes a domestic partnership. If the member was age 55 with 20 years of service at death, the benefit is payable for the lifetime of the member's spouse or registered domestic partner.

9. Withdrawal Benefits

Less than five Years of Service

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

Five or more years of credited service

The amount of the service retirement benefit, payable at age 55.

10. Additional Post-retirement Death Benefit

A death benefit payable as a lump sum equal to \$500 will be paid to a qualified survivor upon the member's death.

11. Post-retirement Cost-of-Living Benefit

Benefits are increased every April 1 by 3.0%, regardless of actual inflation.

12. Changes Since Last Valuation

None.

FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
JUNE 30, 2016 ACTUARIAL VALUATION REPORT

APPENDIX C - SUMMARY OF PLAN PROVISIONS
TIER 2

1. Membership Requirement

Any person who is hired, rehired or reinstated by the City on or after September 30, 2012.

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 Federated 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 65 with five years of service.

Benefit - Member

2.0% of Final Compensation for each year of credited service attributable to Tier 2 and 2.5% of Final Compensation for each year of credited service attributable to Tier 1, subject to a maximum of 65% of Final Compensation.

Benefit - Survivor

Single life annuity.

FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX C - SUMMARY OF PLAN PROVISIONS
TIER 2

6. Early Service Retirement

Eligibility

Age 55 with five years of service.

Benefit - Member

Reduced benefit actuarially equivalent to the unreduced service retirement benefits commencing at age 65. 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 less the amounts specified in Section 3.28.1330 and Section 3.28.1340.

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 and 2.5% of Final Compensation 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 less the amounts specified in Section 3.28.1330 and Section 3.28.1340.

FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX C - SUMMARY OF PLAN PROVISIONS
TIER 2

9. Death Before Retirement

If death occurs before retirement eligibility is reached

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

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 equivalent to 50% of Final Compensation.

10. Withdrawal Benefits

Less than five Years of Service

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

Five 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 as the “accrued liability” or “actuarial accrued liability.” The Actuarial Liability represents the targeted 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 System as determined by the actuary using a Contribution Allocation Procedure. It may or may not be the actual amount contributed to the System.

7. Amortization Method

A method for determining the amount, timing, and pattern of payments 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

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 compared to the target established by the Actuarial Cost Method as of the valuation date. 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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