



## **City of San José Federated City Employees' Retirement System**

### **Actuarial Valuation Report as of June 30, 2022**

**Produced by Cheiron**

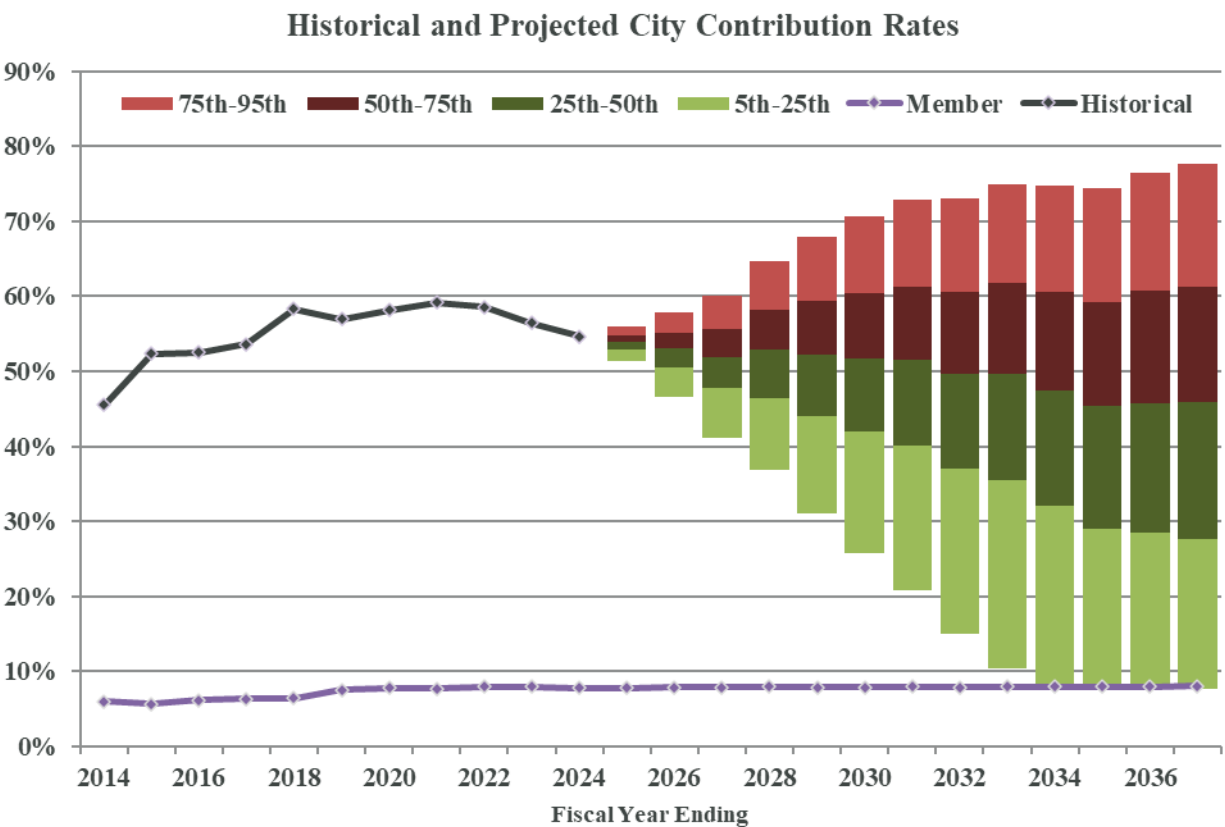
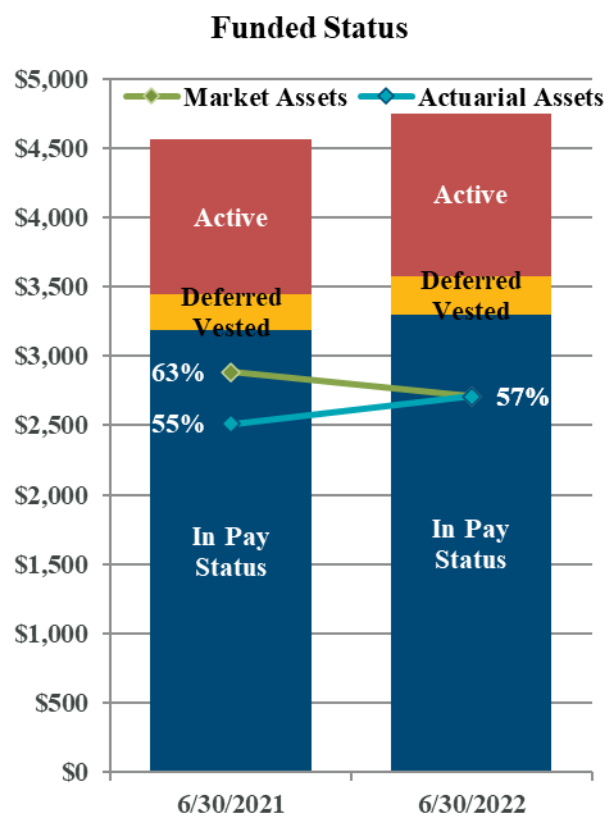
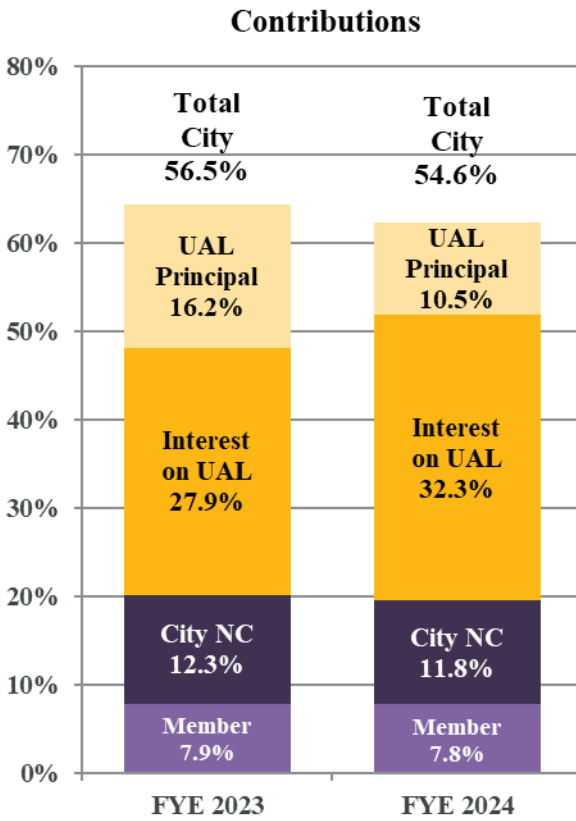
**December 2022**

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**SECTION I – BOARD SUMMARY**



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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 2.9% from 2021 to 2022. Total active membership increased 0.5% with Tier 1 active membership declining by 8.6%, while Tier 2 active membership increased by 5.8%. Total payroll increased by 7.0% which is significantly greater than the assumed increase rate of 3.00%. Tier 2 now accounts for approximately 66% of active members and 61% of payroll.

**Table I-1**

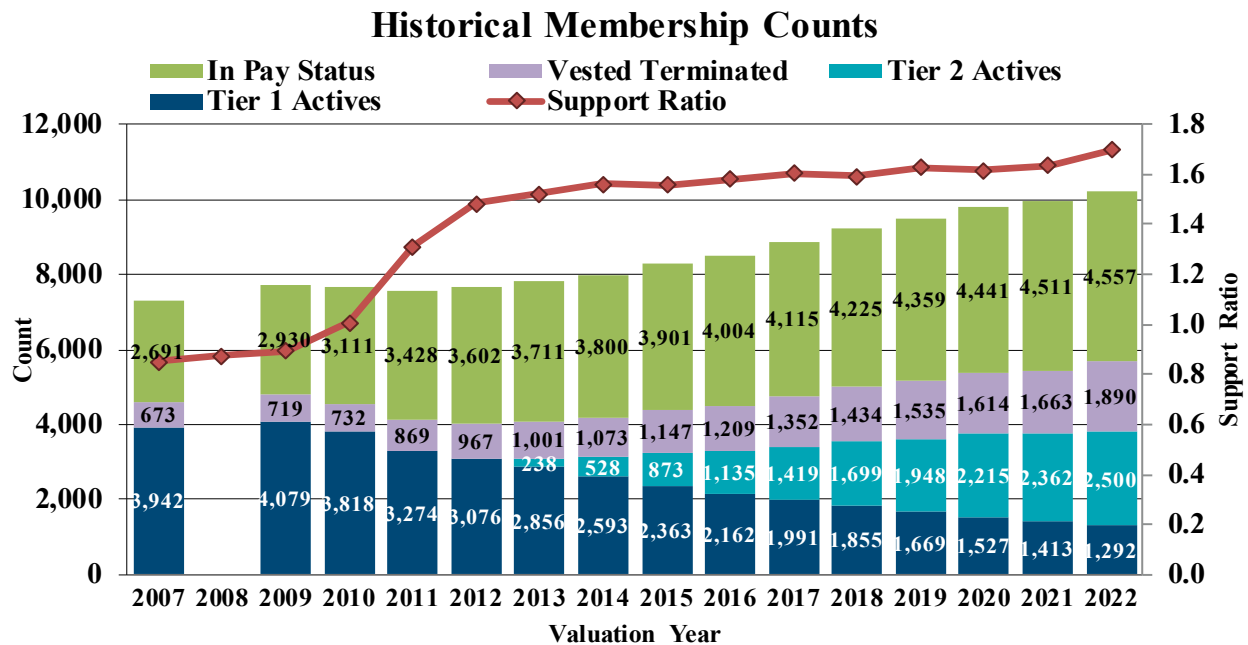
<b>Total Membership</b>			
	<b>June 30, 2021</b>	<b>June 30, 2022</b>	<b>% Change</b>
Active Members			
Tier 1	1,413	1,292	-8.6%
Tier 2	<u>2,362</u>	<u>2,500</u>	<u>5.8%</u>
Total Actives	3,775	3,792	0.5%
Terminated Vested Members	1,663	1,890	13.7%
Members In Pay Status	<u>4,511</u>	<u>4,557</u>	<u>1.0%</u>
Total Membership	9,949	10,239	2.9%
Annual Rate of Pay for Active Members			
Tier 1	\$ 152,080	\$ 149,445	-1.7%
Tier 2	<u>206,982</u>	<u>234,752</u>	<u>13.4%</u>
Total	\$ 359,061	\$ 384,197	7.0%

*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 3,792 in 2022. At the same time, the number of members in pay status has increased about 56% from 2,930 in 2009 to 4,557 in 2022. As a result, the support ratio (the ratio of the number of vested terminated and members in pay status to the number of active members) increased from 0.89 in 2009 to 1.49 in 2012 due to the recession and has increased steadily since then to 1.70 in 2022. As there are more retirees for each active member to support, contributions tend to become more volatile and sensitive to gains and losses. This type of progression is to be expected for a maturing plan over a long period of time, but the impact of the Great Recession accelerated the trend significantly from 2009 to 2012. Following the recession, the ratio returned to a pattern of slow growth, but there is no indication of a return to the lower pre-recession ratio.



## Assets and Liabilities

This report measures assets and liabilities for funding purposes only. These measures are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the System's benefit obligations, and 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, 2022 compared to June 30, 2021.

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**Table I-2**

<b>Summary of Funded Status and Related Ratios</b>			
	<b>June 30, 2021</b>	<b>June 30, 2022</b>	<b>% Change</b>
Actuarial Liability			
Actives	\$ 1,119,013	\$ 1,174,767	5.0%
Deferred Vested	255,364	273,883	7.3%
In Pay Status	3,188,604	3,301,996	3.6%
Total	\$ 4,562,981	\$ 4,750,646	4.1%
Market Value of Assets (MVA)	2,884,344	2,708,026	-6.1%
Unfunded Actuarial Liability - MVA Basis	\$ 1,678,637	\$ 2,042,620	21.7%
Funding Ratio - MVA Basis	63.2%	57.0%	-9.8%
Actuarial Value of Assets (AVA)	2,513,095	2,709,625	7.8%
Unfunded Actuarial Liability - AVA Basis	\$ 2,049,886	\$ 2,041,021	-0.4%
Funding Ratio - AVA Basis	55.1%	57.0%	3.6%
FYE 2023 Expected Payroll	\$ 359,061	\$ 384,197	7.0%
Asset Leverage Ratio	8.0	7.0	-12.3%
Actuarial Liability Leverage Ratio	12.7	12.4	-2.7%

*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 grew 4.1% while the Market Value of Assets decreased 6.1%. The Unfunded Actuarial Liability (UAL) measured on the Market Value of Assets increased 21.7% from approximately \$1,679 million to \$2,043 million. The funding ratio on an MVA basis decreased from 63.2% to 57.0%.

The asset smoothing method deferred 80% of the investment loss while recognizing 20% of the prior four years' gains and losses, resulting in a 7.8% increase in the Actuarial Value of Assets. The UAL measured on the Actuarial Value of Assets decreased 0.4% from approximately \$2,050 million to \$2,041 million and the funding ratio increased from 55.1% to 57.0%. The Market Value of Assets is slightly less than the actuarial value, so if assumptions are met in the future, we expect a slight 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 6.625%, the loss would be equivalent to 70% of payroll. Interest payments on such a loss would be approximately 4.6% of payroll. The decrease in the asset leverage ratio is due both to a decline in the Market Value of Assets and an increase in payroll.

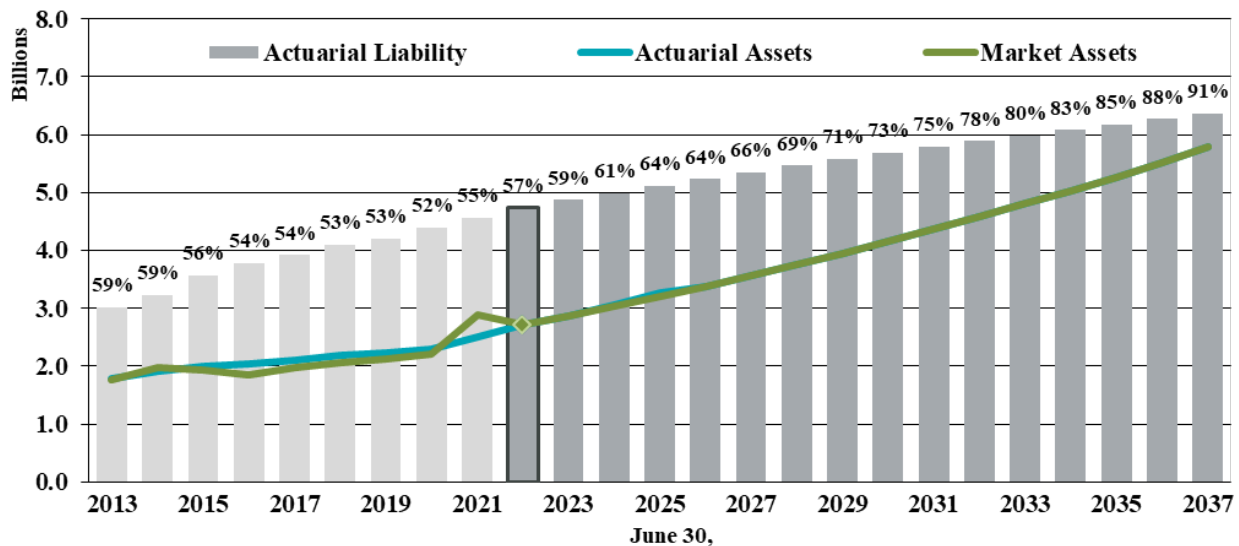
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As the System becomes better funded, the asset leverage ratio will increase, and if it was 100% funded, the leverage ratio would be 12.4 (Actuarial Liability divided by payroll). Higher asset leverage ratios indicate that a system is more sensitive 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.

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 2013. The historical Actuarial Liability is shown in light gray while the projected Actuarial Liability is shown in a darker gray. From 2013 to 2020, the funding ratio declined primarily because the System experienced lower than expected investment returns on the Actuarial Value of Assets and the assumptions used to measure the Actuarial Liability became more conservative, including reducing assumed future investment returns from 7.25% in 2013 to 6.625% in 2020. The funding ratio increased in 2021 and 2022 due to the exceptional investment returns of fiscal year ending 2021 being recognized in the Actuarial Value of Assets. If all assumptions are met in the future including an expected return of 6.625% each year, the funded status is expected to reach about 91% by 2037.

**Historical and Projected Assets and Actuarial Liability**



While the UAL is expected to decline, it is dependent on actual investment returns, changes in assumptions and actuarial gains and losses, so there is potentially a wide range for the projected UAL.

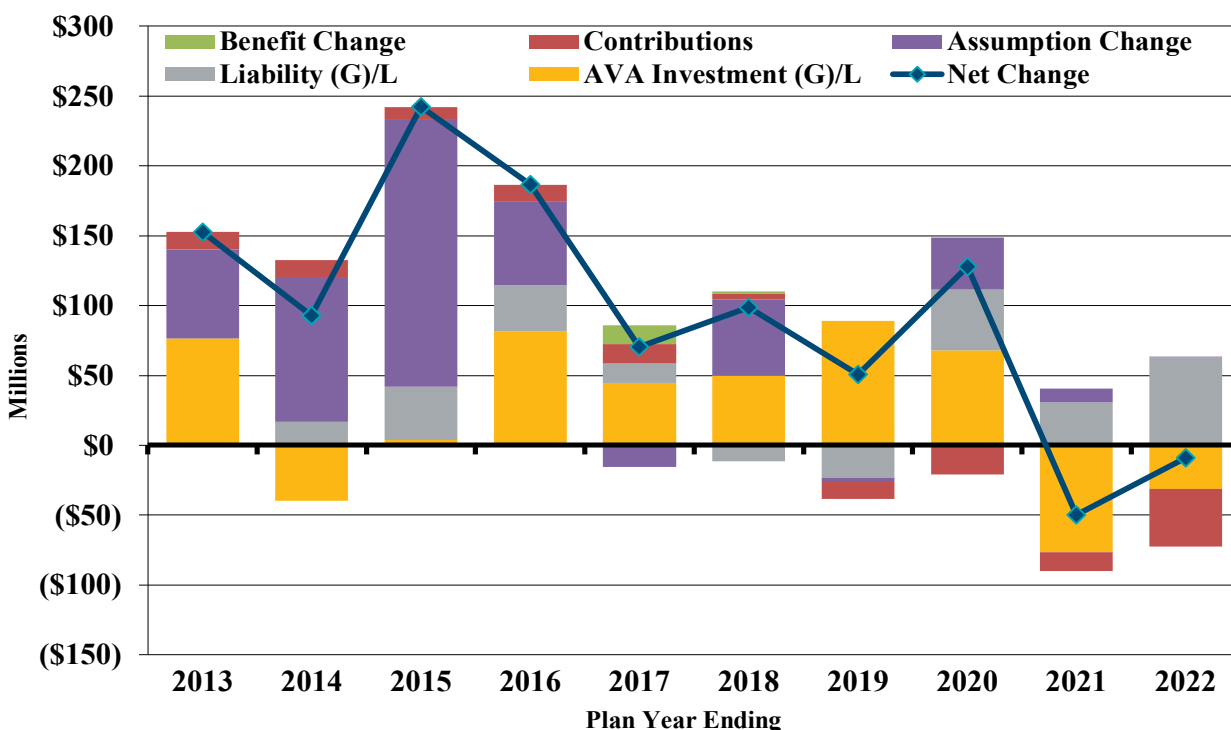
More detail on the assets can be found in section IV of this report, and more detail on the measures of liability can be found in section V of this report.

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### Changes in Unfunded Actuarial Liability

Over the last 10 years, the Unfunded Actuarial Liability (UAL) increased approximately \$963 million. The chart below and Table I-3 on the following page summarize the sources of these changes in the UAL. Five categories of changes are shown: investment gains or losses on the Actuarial Value of Assets, liability gains or losses, assumption changes, benefit changes, and contributions.



There have been significant assumption changes as shown by the purple bars in the chart above, including reductions in the discount rate in steps from 7.25% in 2013 to the current rate of 6.625% that have increased the measure of the UAL by a total of \$501.9 million over the last 10 years.

Investment losses have contributed significantly to the growth in the UAL with 2014, 2021 and 2022 as the only years in the last 10 in which there was an investment gain on the Actuarial Value of Assets. In sum, investment losses have increased the UAL by about \$265.8 million over the last 10 years.

The gains and losses on the Actuarial Liability have varied over the last 10 years. In sum, the gains and losses on the Actuarial Liability have added roughly 204.4 million to the UAL over the last 10 years. Most of these losses occurred in the last three years and were largely attributable to higher than expected salary increases.



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The only benefit changes in the last 10 years that affected the UAL were changes under Measure F in 2017 and 2018, increasing the UAL by \$15.7 million.

Actual contributions were consistently less than the normal cost plus interest on the UAL until 2019, resulting in an annual increase in the amount of the UAL as shown by the red bars in the chart above. Since then, actual contributions have been more than the normal cost plus interest on the UAL. In sum, contributions have reduced the UAL by \$24.9 million over the last 10 years. Contribution rates in the future are expected to continue to exceed normal cost plus interest on the UAL and gradually pay down the UAL.

In aggregate, the UAL has increased in 8 of the last 10 years for a total increase of approximately \$1.0 billion as shown in Table I-3.

**Table I-3**

Changes in Unfunded Actuarial Liability											
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
<b>Discount Rate</b>	<b>7.50%</b>	<b>7.25%</b>	<b>7.00%</b>	<b>7.00%</b>	<b>6.875%</b>	<b>6.875%</b>	<b>6.75%</b>	<b>6.75%</b>	<b>6.625%</b>	<b>6.625%</b>	
<b>Source</b>											
AVA (G)/L	\$ 76.5	\$ (39.7)	\$ 3.6	\$ 81.5	\$ 44.6	\$ 49.9	\$ 88.8	\$ 68.0	\$ (76.5)	\$ (31.0)	\$ 265.8
Liability (G)/L	(0.1)	16.9	38.2	33.0	13.7	(11.5)	(23.2)	43.6	30.7	63.2	204.4
Assumptions	63.7	103.4	191.5	60.2	(15.6)	54.4	(2.9)	37.0	9.7	0.5	501.9
Benefit Changes	0.0	0.0	0.0	0.0	13.8	1.9	0.0	0.0	0.0	0.0	15.7
Contributions	12.4	12.2	8.8	11.8	14.0	4.0	(12.1)	(20.8)	(13.7)	(41.5)	(24.9)
<b>Total Change</b>	<b>\$ 152.5</b>	<b>\$ 92.8</b>	<b>\$ 242.1</b>	<b>\$ 186.6</b>	<b>\$ 70.5</b>	<b>\$ 98.8</b>	<b>\$ 50.6</b>	<b>\$ 127.7</b>	<b>\$ (49.7)</b>	<b>\$ (8.9)</b>	<b>\$ 963.0</b>

*Dollar amounts in millions*

Table I-4 on the next page breaks out the sources of the changes in UAL for the fiscal year ending June 30, 2022. The UAL decreased approximately \$9 million during the year. About \$31 million was due to investment gains on the Actuarial Value of Assets, and contributions greater than normal cost plus interest on the UAL subtracted another \$42 million from the UAL. Offsetting these gains, there were liability losses of about \$63 million, including \$47 million due to salary increases greater than expected and \$13 million due to more retirements than expected. The only assumption change for this valuation was an increase in the price inflation assumption from 2.25% to 2.50% which increased the UAL by approximately \$0.5 million.

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**Table I-4**

<b>Sources of FYE 2022 Change in UAL</b>		
	<b>Amount</b>	<b>% of AL</b>
Unfunded Actuarial Liability, June 30, 2022	\$ 2,041,021	43.0%
Unfunded Actuarial Liability, June 30, 2021	<u>2,049,886</u>	<u>43.1%</u>
<b>Change in Unfunded Actuarial Liability</b>	<b>\$ (8,865)</b>	<b>-0.2%</b>
<b><u>Sources of Changes</u></b>		
Plan Changes	\$ 0	0.0%
Assumption Changes	518	0.0%
Normal Cost and Interest on UAL less Contributions	(41,500)	-0.9%
Investment (gain) or loss on Actuarial Value of Assets	(31,034)	-0.7%
Liability (gain) or loss		
Salary experience	\$ 47,333	1.0%
Retirement experience	13,217	0.3%
Termination experience	(1,589)	0.0%
Other experience	<u>4,190</u>	<u>0.1%</u>
Total Liability (gain) or loss	<u>\$ 63,151</u>	<u>1.3%</u>
<b>Total Changes</b>	<b>\$ (8,865)</b>	<b>-0.2%</b>

*Dollar amounts in thousands*

## Contribution Amounts and Rates

As shown in the upper left corner of the dashboard (page 1), the total City contribution rate decreased from 56.5% for FYE 2023 to 54.6% for FYE 2024, while the average member contribution decreased from 7.9% to 7.8%. The purple bars represent the normal cost (including administrative expenses), the benefits attributable to the next year of service, with the light purple paid by members<sup>1</sup> and the dark purple paid by the City. The light and dark gold bars represent the City contributions that pay for the UAL. The dark gold bars represent the expected interest on the Market Value UAL for the fiscal year, and the light gold bars represent the portion of the payment that actually reduces the UAL. With the investment losses in FYE 2022, the UAL principal payment decreases from 16.2% of pay to 10.5% of pay for FYE 2024. However, the UAL is still expected to be reduced by contributions if all assumptions are met.

<sup>1</sup> A small portion of the member contributions also pays a portion of the UAL.

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Table I-5 and the chart on the following page summarize the member and City contribution rates and amounts for the fiscal years ending in 2023 and 2024. The Tier 1 UAL payment increased \$6.2 million from 2023 to 2024, primarily reflecting the scheduled increase in UAL payments. The Tier 1 normal cost rate decreased slightly, and the Tier 1 normal cost dollar amount decreased due to the decline in Tier 1 active members offset by the higher than expected salary increases. The Tier 2 contribution amount increased due to the growing Tier 2 population combined with the higher than expected salary increases. In aggregate, The City's contribution amount increased about \$7.2 million while its contribution rate decreased 1.86% of payroll.

**Table I-5**

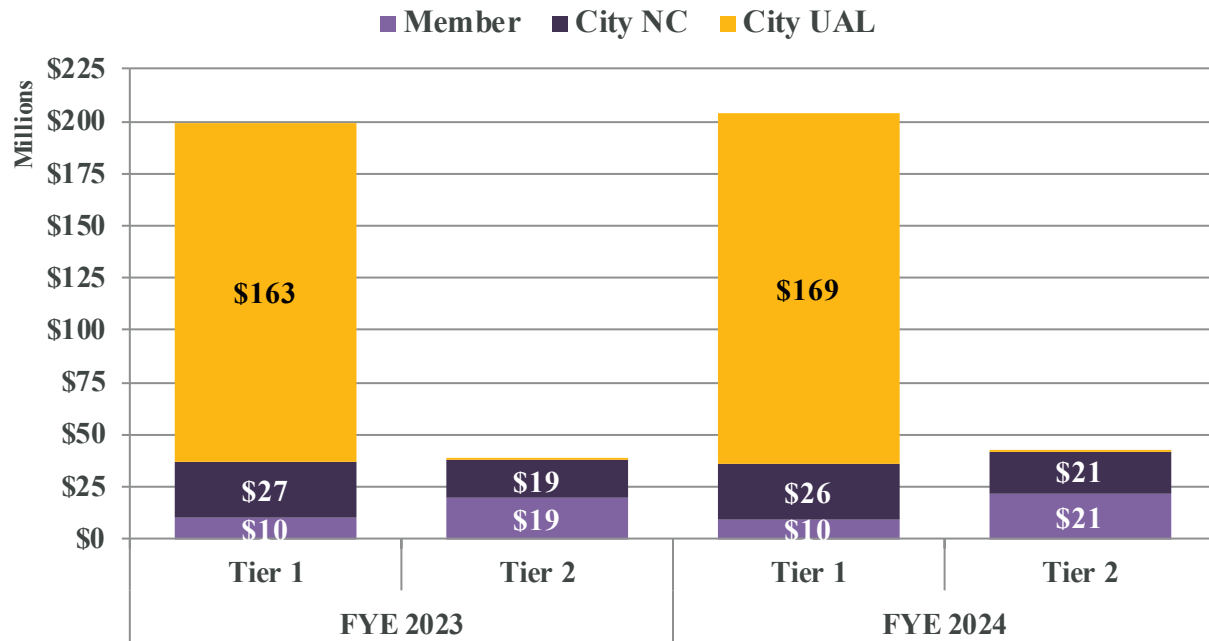
Contribution Rates and Amounts Throughout the Year				
	FYE 2023	FYE 2024	Change	
<u>Member Rates (Excluding Reclassification Payments)</u>				
Tier 1	7.41%	7.34%	-0.07%	
Tier 2	8.13%	8.01%	-0.12%	
<u>City Contributions</u>				
Tier 1 UAL Payment	\$ 162,602	\$ 168,762	\$ 6,160	
Tier 1 Normal Cost (Including Administrative Expenses)	\$ 26,942 20.32%	\$ 25,982 20.16%	\$ (960) -0.16%	
Tier 2 Contribution	\$ 19,288 8.13%	\$ 21,374 8.01%	\$ 2,086 -0.12%	
Aggregate Contribution	\$ 208,832 56.47%	\$ 216,118 54.61%	\$ 7,286 -1.86%	

*Dollar amounts in thousands*

*FYE 2023 amounts were adjusted since the prior report to reflect the City's payment of member contributions for certain bargaining groups for members with more than 30 years of service.*

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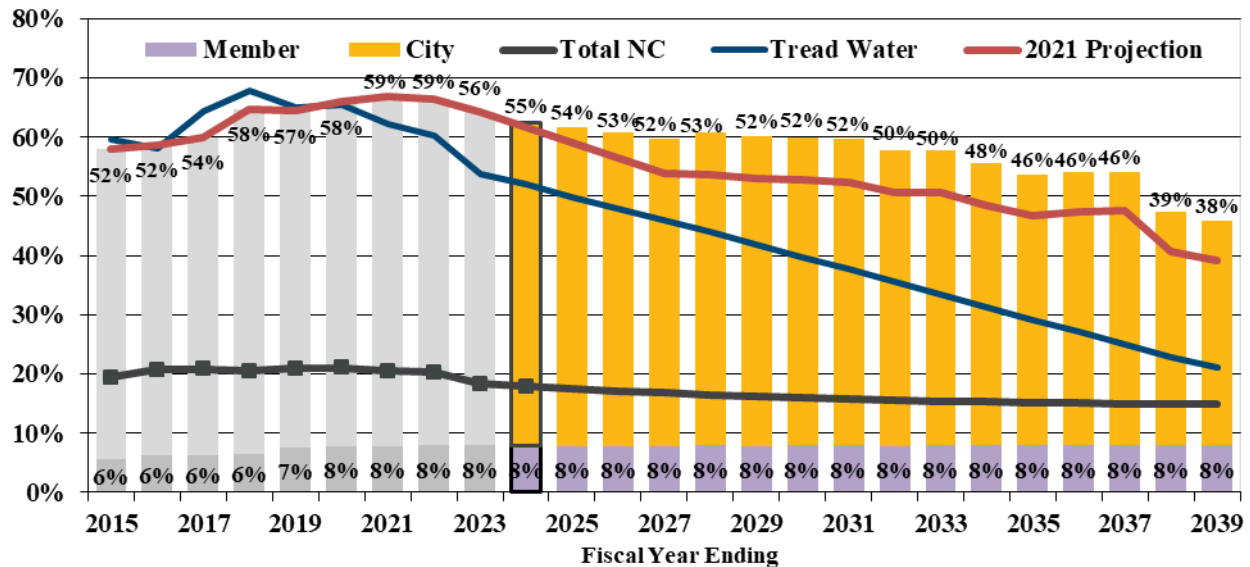
By far, the most significant portion of the City's contribution is the Tier 1 UAL payment which is substantially attributable to members who no longer work for the City.

The following chart 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. The blue line represents the historical and projected tread water rate. Historical rates are shown in shades of gray.

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**Historical and Projected Aggregate Contribution Rates**



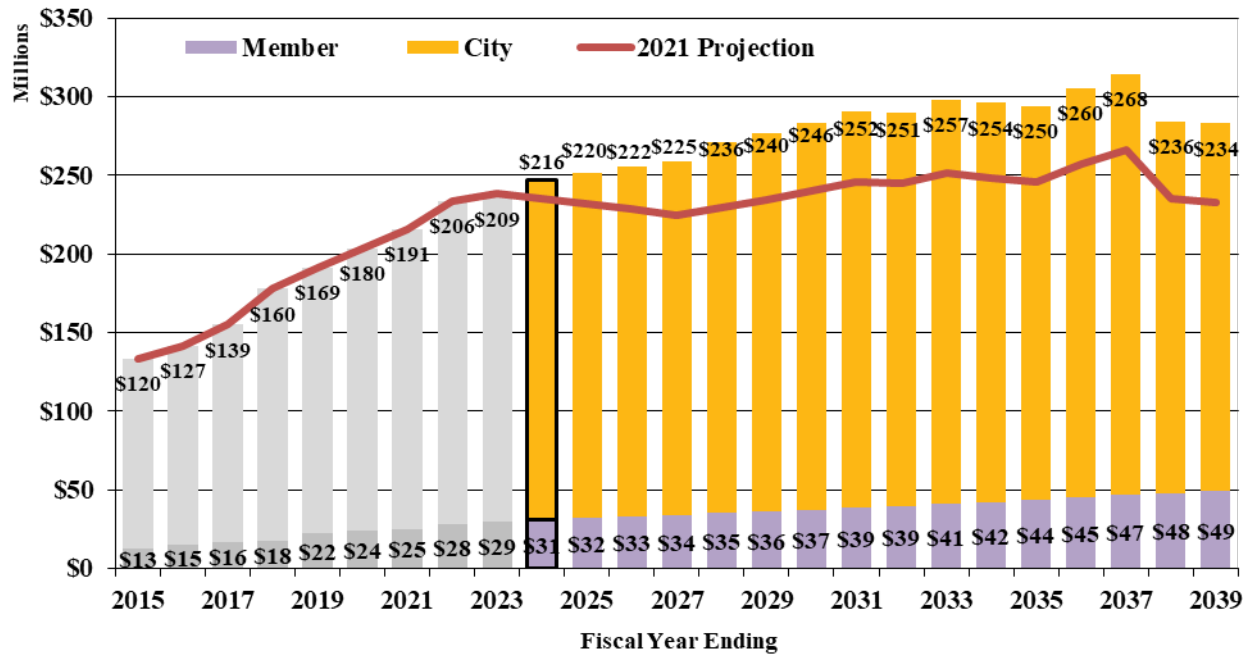
The aggregate City contribution rate increased from FYE 2015 through FYE 2022 primarily due to investment losses and assumption changes that increased the UAL rate, including reductions in the discount rate over this period from 7.25% to 6.625%. Future aggregate City contribution rates are expected to be fairly level in the next few years due to the recognition of recent investment gains and losses offsetting each other, 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 and the gradual decrease in UAL rate as payroll is expected to grow slightly faster than amortization payments (3.00% vs. 2.75%). After 2037, contribution rates are expected to drop more rapidly as some amortization layers are fully paid off.

The following chart 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 from \$216 million in FYE 2024 to approximately \$268 million in FYE 2037, before declining in FYE 2038 and onwards as portions of the UAL are paid off.

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**Historical and Deterministic Projection of Contribution Amounts**



Section VI of this report provides additional detail on the contribution rates and the amortization schedules separately by Tier.

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**SECTION II – ASSESSMENT AND DISCLOSURE OF RISK**

Actuarial valuations are based on a set of assumptions about future economic and demographic experience. These assumptions represent a reasonable estimate of future experience, but actual future experience will undoubtedly be different and may be significantly different. This section of the report is intended to identify the primary risks to the plan, provide some background information about those risks, and provide an assessment of those risks.

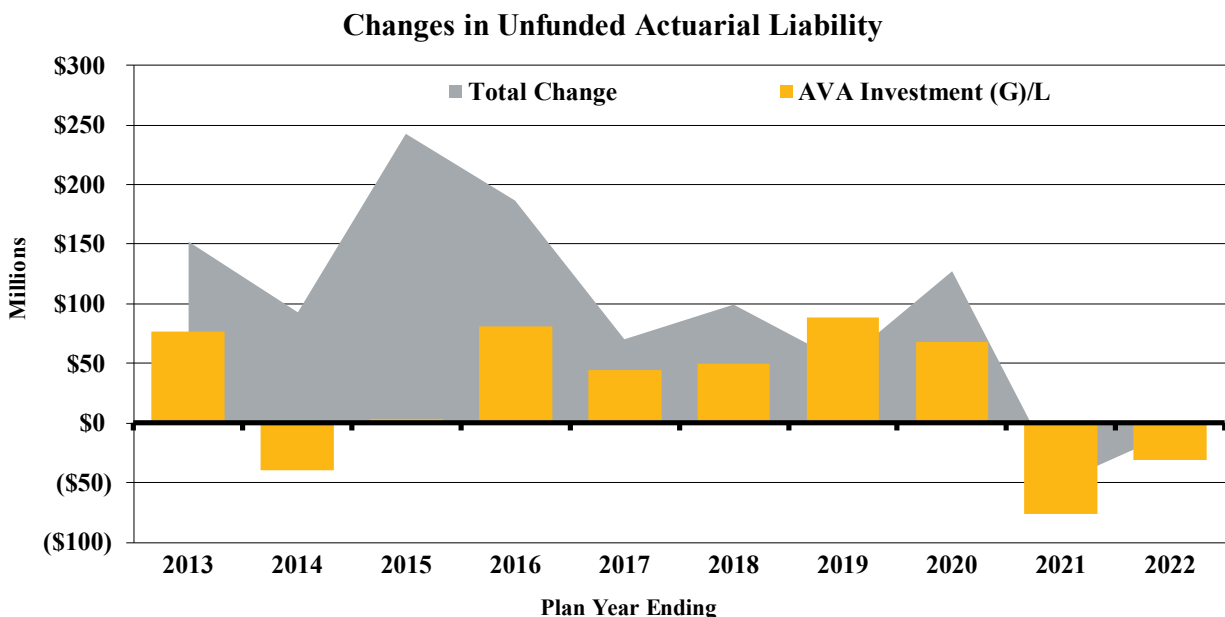
### Identification of Risks

As we have discussed with the Board, the fundamental risk to the System is that the contributions needed to pay the benefits become unaffordable. While there are a number of factors that could lead to contribution amounts becoming unaffordable, we believe the primary risks for this System are:

- Investment risk,
- Interest rate risk, and
- Assumption change risk.

Other risks that we have not identified may also turn out to be important.

*Investment Risk* is the potential for investment returns to be different than expected. Lower investment returns than anticipated will increase the Unfunded Actuarial Liability (UAL), necessitating higher contributions in the future unless there are other gains that offset these investment losses. The potential volatility of future investment returns is determined by the System's asset allocation and the affordability of the investment risk is determined by the amount of assets invested relative to the size of the City.

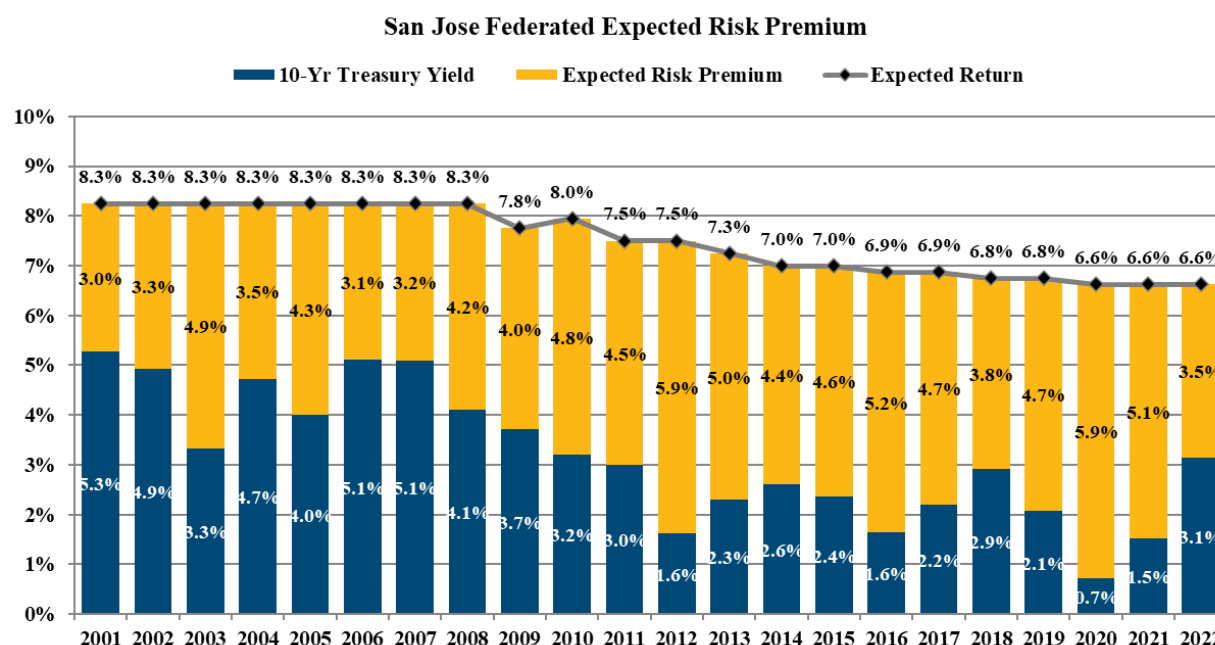


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**SECTION II – ASSESSMENT AND DISCLOSURE OF RISK**

The chart on the previous page shows the impact of investment gains and losses on the smoothed Actuarial Value of Assets over the last 10 years compared to the System's total change in UAL. Investment losses have been a significant contributor to the growth in the UAL.

*Interest rate risk* is the potential for interest rates to be different than expected. For public plans, short-term fluctuations in interest rates have little or no effect as the plan's liability is usually measured based on the expected return on assets. Longer-term trends in interest rates, however, can have a powerful effect to the extent they affect future expected investment earnings. The chart on the following page shows the yield on a 10-year Treasury security compared to the System's assumed rate of return. The difference is a simple measure of the amount of investment risk taken. As interest rates have declined, plans faced a choice: maintain the same level of risk and reduce the expected rate of return; maintain the same expected rate of return and take on more investment risk; or some combination of the two strategies. If the recent rise in interest rates persists, it may ease some of the pressure on plans to reduce discount rates and require less risk to achieve expected returns.



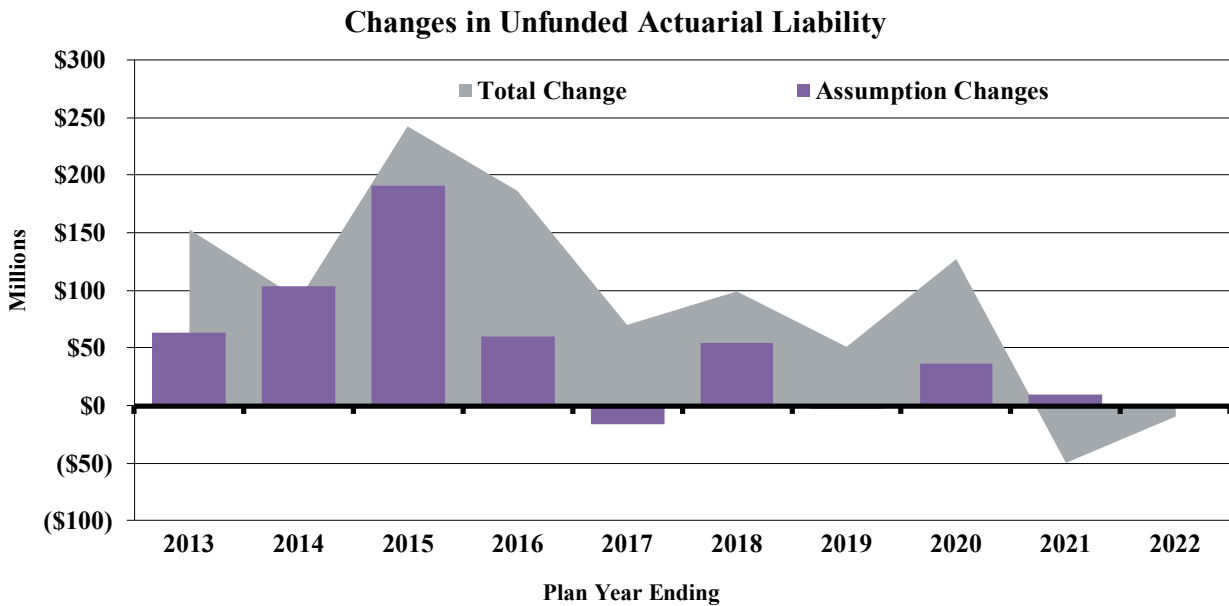
*Assumption change risk* is the potential for the environment to change such that future valuation assumptions are different than the current assumptions. For example, declines in interest rates over the last three decades resulted in higher investment returns for fixed-income investments, but lower expected future returns necessitating either a change in investment policy, a reduction in discount rate, or some combination of the two. Assumption change risk is an extension of the other risks identified, but rather than capturing the risk as it is experienced, it captures the cost of recognizing a change in environment when the current assumption is no longer reasonable.



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**SECTION II – ASSESSMENT AND DISCLOSURE OF RISK**

As shown in the chart on the following page, there have been substantial changes in assumptions increasing the UAL. Most of these changes are due to reducing the discount rate from 7.25% to 6.625% over this period, but it also includes changes to demographic assumptions such as mortality and retirement rates. The reductions in the discount rate largely reflected the impact of declining interest rates on future expected investment returns.



### Plan Maturity Measures

The future financial condition of a mature pension plan is more sensitive to each of the risks identified above than a less mature plan. Before assessing each of these risks, it is important to understand the maturity of the plan compared to other plans and how the maturity has changed over time.

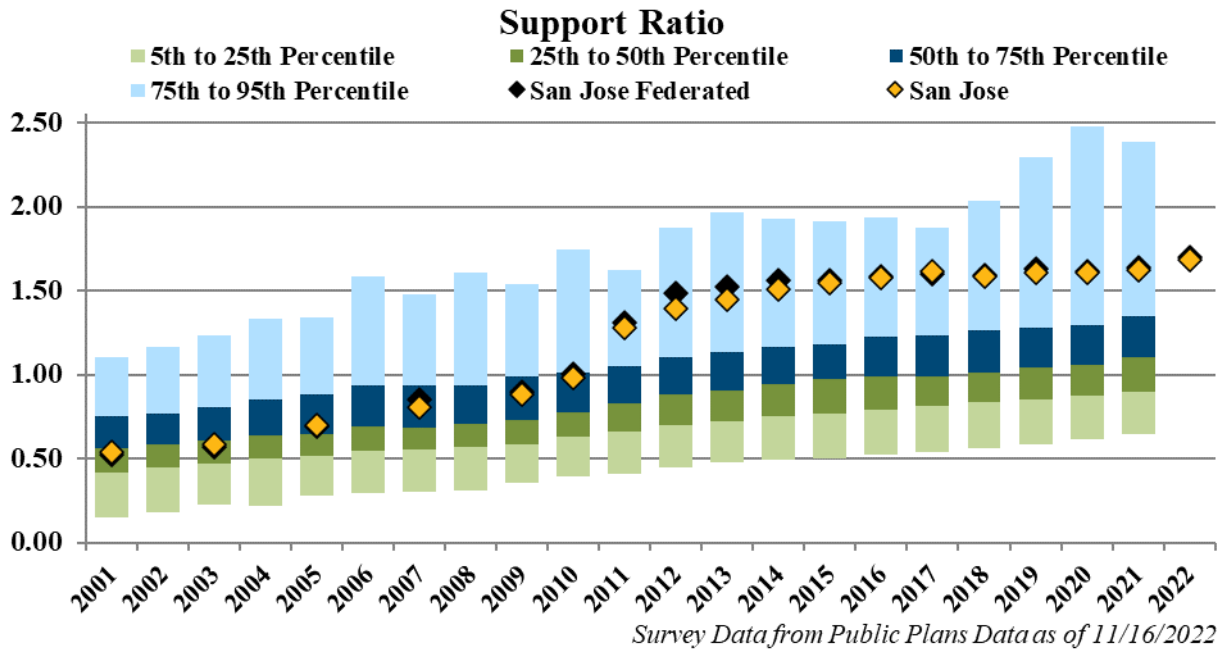
Plan maturity can be measured in a variety of ways, but they all get at one basic dynamic – the larger the plan is compared to the contribution or revenue base that supports it; the more sensitive the plan will be to risk. The following measures have been selected as the most important in understanding the primary risks identified for the plan.

#### Support Ratio (Inactives per Active)

One simple measure of plan maturity is the ratio of the number of inactive members (those receiving benefits or entitled to a deferred benefit) to the number of active members. The revenue base supporting the plan is usually proportional to the number of active members, so a relatively high number of inactives compared to actives indicates a larger plan relative to its revenue base as well.

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**SECTION II – ASSESSMENT AND DISCLOSURE OF RISK**



The chart above shows the distribution from the 5<sup>th</sup> to 95<sup>th</sup> percentile of support ratios for the plans in the Public Plans Database. The black diamond shows how San José Federated compares, and the gold diamond shows how the combined Federated and Police and Fire plans compare. Through 2009, the System was in the middle of the distribution even as the support ratio increased. However, after the Great Recession, the Plan's support ratio increased dramatically and is now in the upper quartile of the plans in the database.

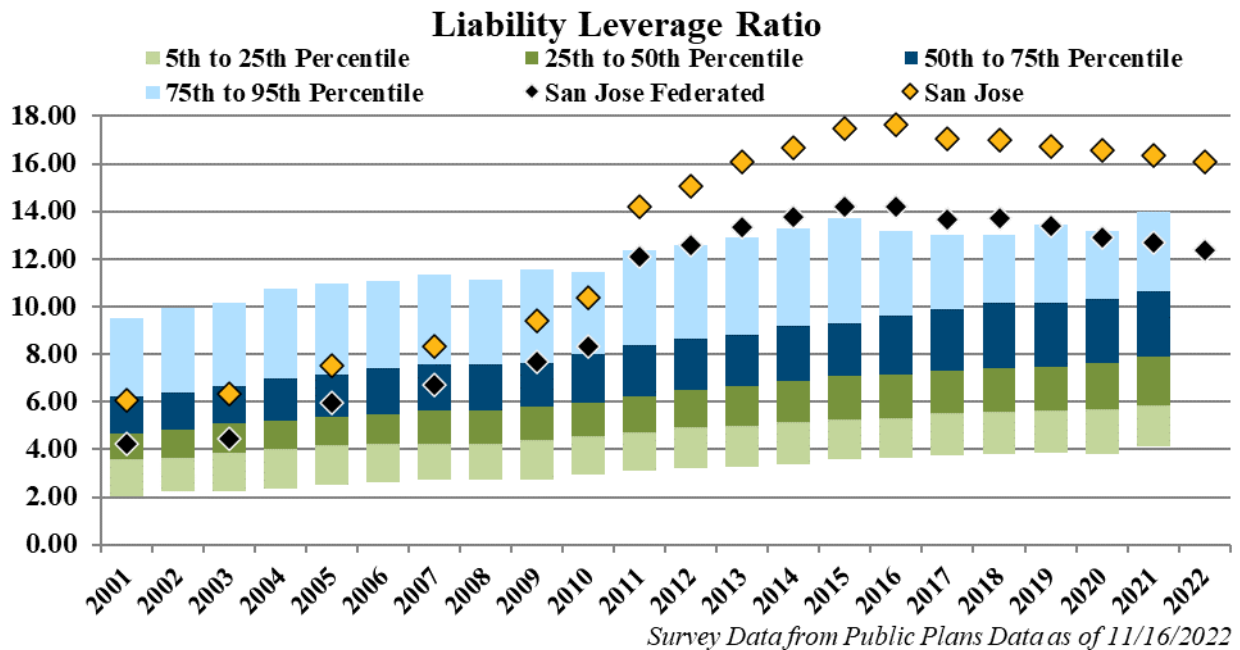
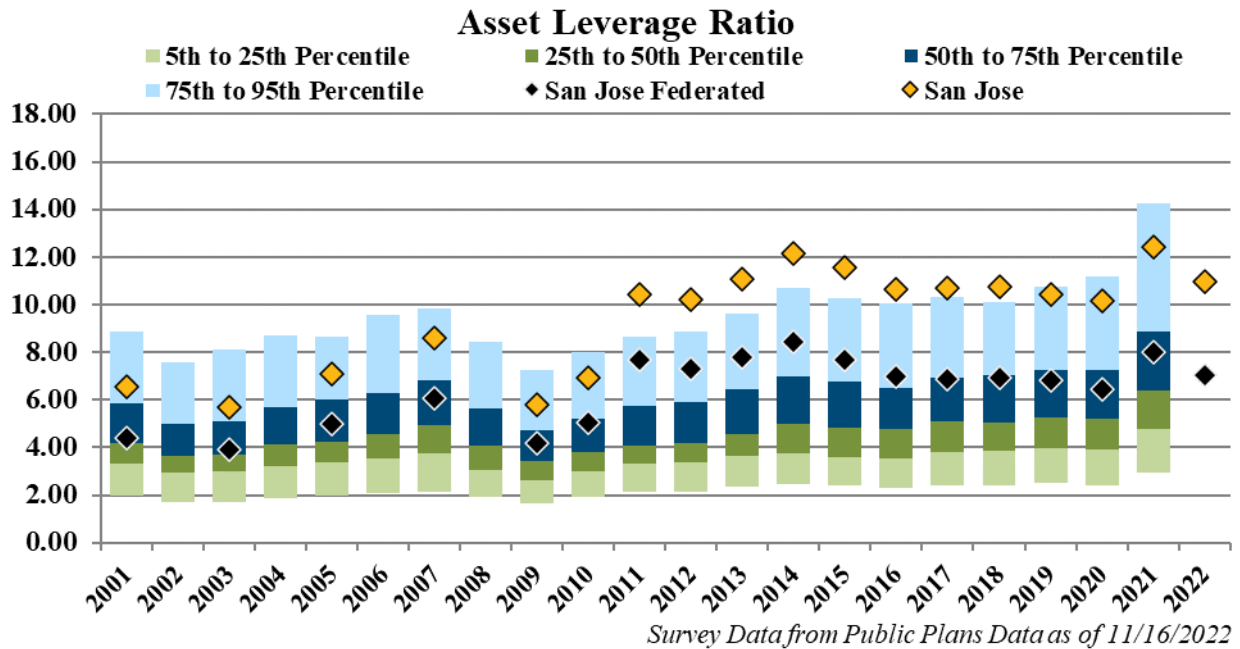
### Leverage Ratios

Leverage or volatility ratios measure the size of the plan compared to its revenue base more directly. An asset leverage ratio of 5.0, for example, means that if the System experiences a 10% loss on assets compared to the expected return, the loss would be equivalent to 50% of payroll. The same investment loss for a plan with an asset leverage ratio of 10.0 would be equivalent to 100% of payroll.

As the System becomes better funded, the asset leverage ratio will increase, and if it was 100% funded, the leverage ratio would equal the Actuarial Liability (AL) leverage ratio. The AL leverage ratio also indicates how sensitive the System is to experience gains and losses or assumption changes. For example, an assumption change that increases the AL by 5% would add a liability equivalent to about 50% of payroll if the AL leverage ratio is 10.0.

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**SECTION II – ASSESSMENT AND DISCLOSURE OF RISK**



The charts above show the distribution from the 5<sup>th</sup> to 95<sup>th</sup> percentile of asset and liability leverage ratios for the plans in the Public Plans Database. The black diamond shows how San José Federated compares, and the gold diamond shows how the combined Federated and Police and Fire plans compare. As we have discussed with the Board for several years and as is shown in the charts above, the leverage ratios for the Federated System are higher than most plans and are significantly higher when combined with Police and Fire, indicating that San José is much more sensitive to risk than most plan sponsors.

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**SECTION II – ASSESSMENT AND DISCLOSURE OF RISK**

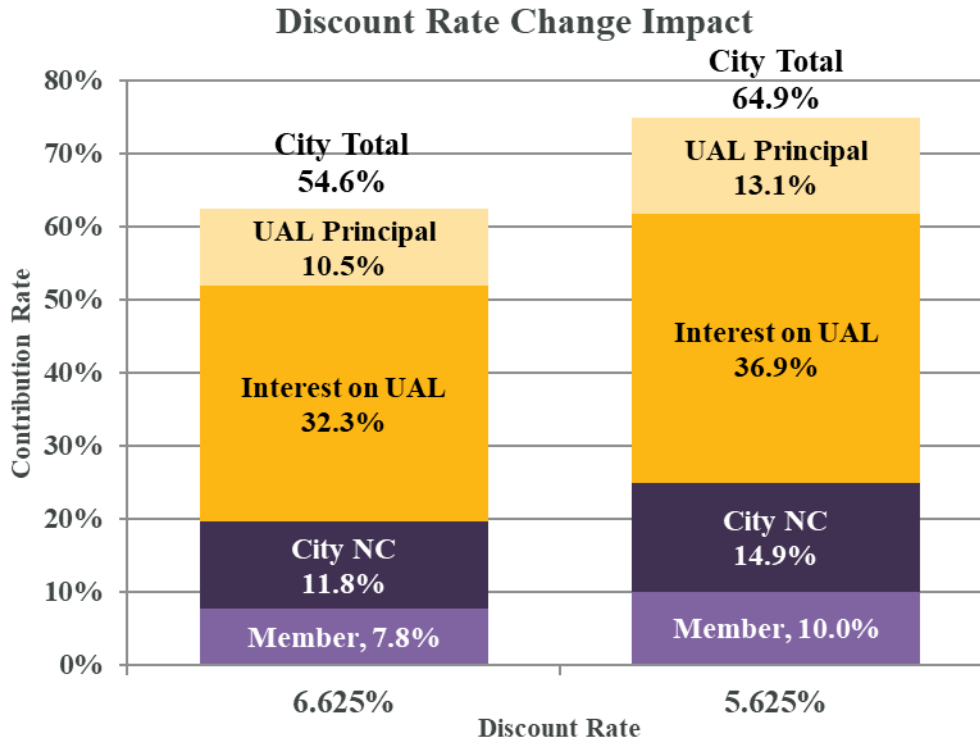
**Assessing Costs and Risks**

The fundamental risk to the System is that the contributions needed to fund the benefits become unaffordable. Assessing this risk, however, is complex because there is no bright line of what is unaffordable and the contribution amounts themselves are affected not just by the experience of the System, but also by the interaction of that experience and decisions by the Board related to assumptions, asset smoothing methods, and amortization periods.

**Point in Time Assessments**

To assess the risks of the System independent of the contribution strategy, there are two measures on which to focus: normal cost and interest cost. The normal cost represents the expected cost of the benefits attributable to the next year of service. The interest cost represents the interest on the UAL calculated using the discount rate. Combined, the normal cost plus the interest cost are referred to as the Tread Water Cost. If actual contributions are less than the Tread Water Cost, the UAL would be expected to grow; and, if actual contributions are greater than the Tread Water Cost, the UAL would be expected to shrink.

The stacked bars in the following chart show the Member and City contributions at the current discount rate compared to a discount rate 100 basis points lower.



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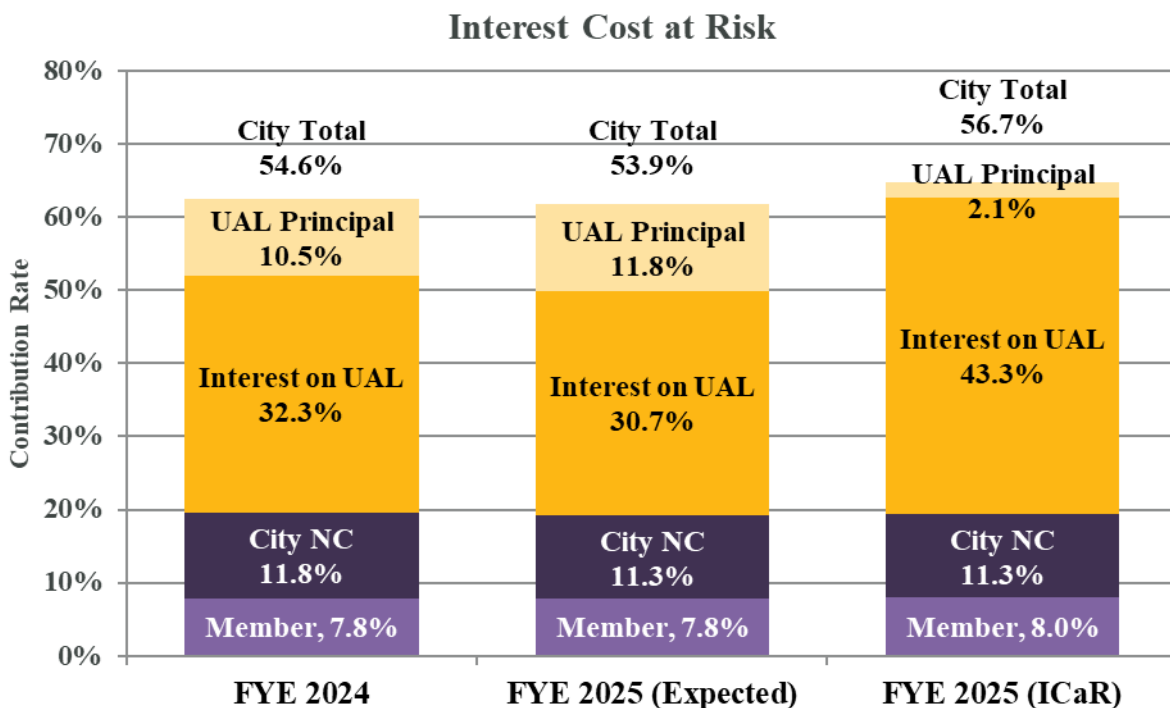
**SECTION II – ASSESSMENT AND DISCLOSURE OF RISK**

Decreasing the discount rate by 100 basis points would increase the normal cost by over 5% of payroll (3% for the City and 2% for members) and the interest on the UAL by about 4.6% of payroll. Using the current amortization methods, the City contribution rate would increase by 10% of payroll to almost 65% of pay.

The declines in discount rates over the last decade or more have been largely driven by declines in interest rates that affect expectations of future investment returns. If the recent increases in interest rates persist, the pressure to continue to reduce the discount rate may ease. But if the increases in interest rates trigger a recession, discount rates may need to be reduced further and the normal cost and interest cost will increase.

Actual investment returns do not affect the normal cost, but they directly affect the interest cost. One simple measure of the risk inherent in the investment policy is the Interest Cost at Risk (ICaR), which is the amount that the interest cost would increase if the investment returns for one year were two standard deviations below the expected return. Based on the capital market assumptions of Meketa over a 10-year horizon, the standard deviation for the current portfolio is 14.12%, making the investment return used to determine ICaR -21.615% ( $6.625\% - 2 \times 14.12\%$ ).

The following chart shows the contribution rates for the FYE 2024, determined in this valuation report in the far left bar graph and the expected FYE 2025 contribution rates based on a 6.625% investment rate of return for FYE 2022, in the middle of the chart. The FYE 2025 bar graph on the right shows the impact of a -21.615% return for FYE 2023. The City contribution rate for FYE 2025 in this scenario would be 56.7% of pay and expected to increase in future years as the investment loss is recognized over the 5-year smoothing period.



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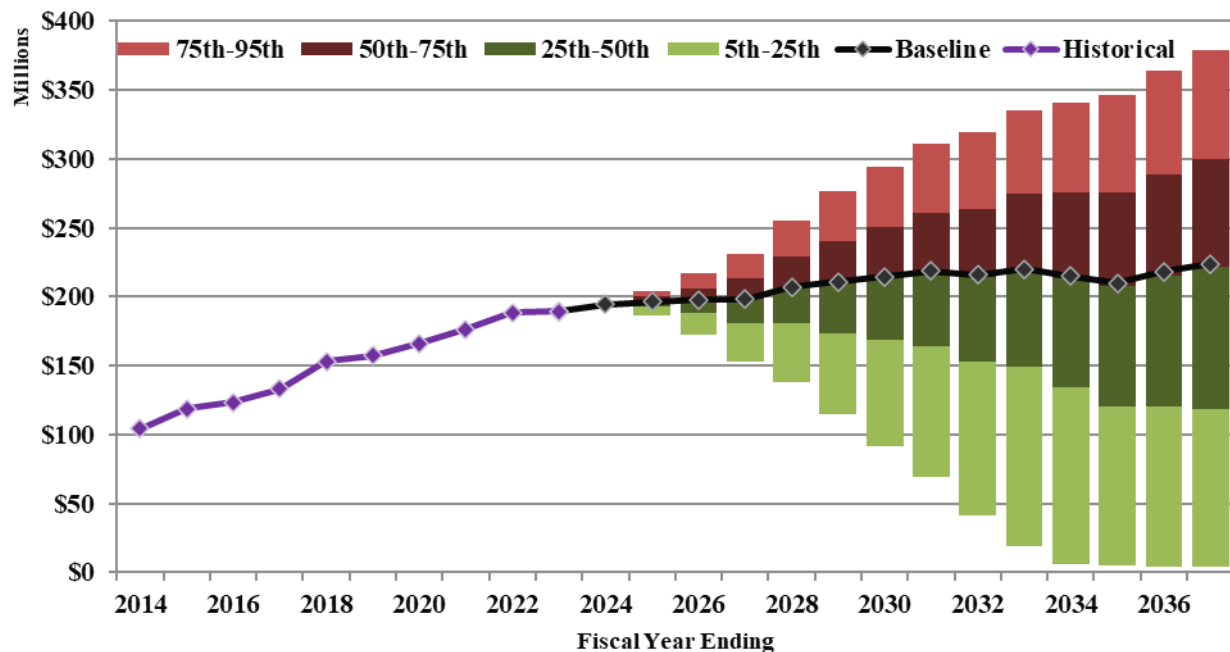
**SECTION II – ASSESSMENT AND DISCLOSURE OF RISK**

**Stochastic Projections**

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 some stochastic projections in the dashboard and in this section of the report. The stochastic projections assume a geometric return of 6.625% and a standard deviation of 14.12% (based on Meketa's capital market assumptions for the System's investment portfolio). Each projection contains 10,000 trials that are 15 years in length.

The chart below 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, 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. This range is intended to convey the degree of uncertainty in the projections based on future investment returns.

**Historical and Stochastically Projected Tier 1 City Contribution Amounts**



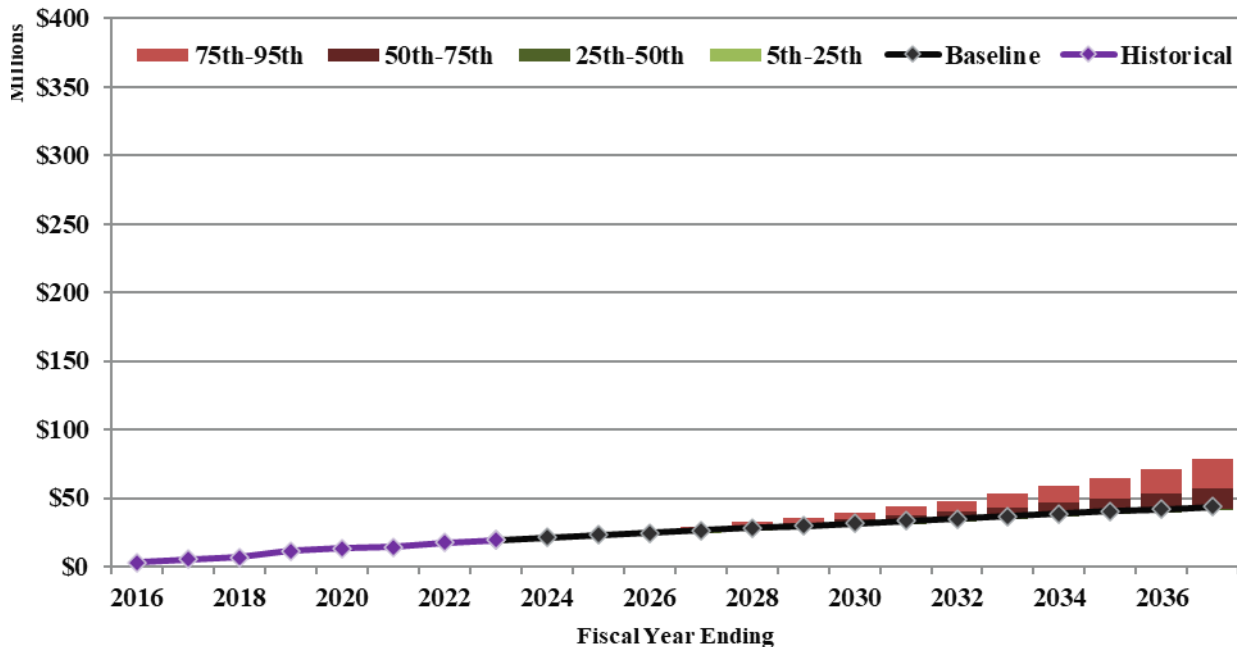
The chart shows a wide range of potential Tier 1 City contribution amounts depending on actual investment returns. For example, the range between the 5<sup>th</sup> and 95<sup>th</sup> percentile for FYE 2037 (based on the 2035 actuarial valuation) is from a contribution of \$4 million to a contribution of \$379 million. This range is largely driven by the standard deviation of the investment portfolio.

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
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**SECTION II – ASSESSMENT AND DISCLOSURE OF RISK**

The following chart shows the historical and stochastically projected City contribution amounts for Tier 2. The range of contribution amounts is significantly narrower for Tier 2 than Tier 1. Tier 2 is projected to grow quickly, but 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.

**Historical and Stochastically Projected Tier 2 City Contribution Amounts**



**More Detailed Assessment**

A more detailed assessment is always valuable to enhance the understanding of the risks identified above. While more detail would provide some additional value, we don't believe it is necessary to perform an in-depth analysis every year. Consequently, we recommend the Board review the less detailed analysis provided above annually and consider a more detailed analysis periodically and when there is a substantial change in the financial position or maturity of the plan.

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
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**SECTION III – CERTIFICATION**

The purpose of this report is to present the June 30, 2022 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 price inflation, wage inflation, amortization payment growth rate, and discount rate were adopted by the Board of Administration with our input at the October 20, 2022 Board meeting. All other assumptions were adopted at the November 21, 2019 Board meeting based on recommendations from our Experience Study covering plan experience during the period from July 1, 2015 through June 30, 2019. Please refer to the full experience study report for details, including the rationale for each assumption. We believe these assumptions are reasonable for the purpose of the valuation.

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.

Cheiron utilizes ProVal actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have a basic understanding of ProVal and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this valuation.

Deterministic projections in this valuation report were developed using P-scan, a proprietary tool used to illustrate the impact of changes in assumptions, methods, plan provisions, or actual experience (particularly investment experience) on the future financial status of the System. P-scan uses standard roll-forward techniques that implicitly assume a stable active population. Because P-scan does not automatically capture how changes in one variable affect all other variables, some scenarios may not be consistent.

Stochastic projections in this valuation report were developed using R-scan, our proprietary tool for assessing the probability of different outcomes based on a range of potential investment returns. We relied on Cheiron colleagues for the development of the model. The stochastic projections of investment returns assume that each future year's investment return is independent from all other years and is identically distributed according to a lognormal distribution. The standard deviation used in the stochastic projection of investment returns was provided by the System's investment consultant.

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.



**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**SECTION III – CERTIFICATION**

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. 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.

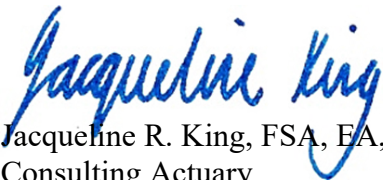
This report was prepared for the City of San José Federated City Employees' Retirement System for the purposes described herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.



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



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**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
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**SECTION IV – ASSETS**

The System uses 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 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 IV-1 shows the changes in the Market Value of Assets for the current and prior fiscal years for each tier.

**Table IV-1**

<b>Change in Market Value of Assets</b>						
	<b>Fiscal Year Ending 2021</b>			<b>Fiscal Year Ending 2022</b>		
	<b>Tier 1</b>	<b>Tier 2</b>	<b>Total</b>	<b>Tier 1</b>	<b>Tier 2</b>	<b>Total</b>
Beginning Market Value	\$ 2,108,520	\$ 99,496	\$ 2,208,016	\$ 2,720,512	\$ 163,832	\$ 2,884,344
Contributions						
Member	11,036	14,689	25,725	10,815	16,648	27,463
City	169,275	14,689	183,964	190,949	16,648	207,597
Total	\$ 180,311	\$ 29,378	\$ 209,689	\$ 201,764	\$ 33,296	\$ 235,060
Net Investment Earnings	662,481	36,125	698,606	(158,582)	(10,546)	(169,128)
Benefit Payments	(226,270)	(935)	(227,205)	(235,880)	(1,391)	(237,271)
Administrative Expenses	(4,530)	(232)	(4,762)	(4,701)	(278)	(4,979)
Market Value, End of Year	\$ 2,720,512	\$ 163,832	\$ 2,884,344	\$ 2,523,113	\$ 184,913	\$ 2,708,026
Estimated Rate of Return	30.6%	31.8%	30.5%	-5.7%	-5.9%	-5.7%

*Dollar amounts in thousands*

The net investment earnings for the year ended June 30, 2022 represent approximately a -5.7% return on the Market Value of Assets compared to an assumed return of 6.625%. This return produced an investment loss of \$366.4 million for the year ending June 30, 2022. For the year ended June 30, 2021, the net investment return was approximately 30.5% (6.625% was assumed), which produced an investment gain of \$547.4 million.

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
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**SECTION IV – ASSETS**

**Actuarial Value of Assets**

To determine on-going contributions, most pension systems utilize an Actuarial Value of Assets that smooths year-to-year market value returns 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 (6.625% for FYE 2022 and FYE 2021, 6.75% for FYE 2020 and FYE 2019, and 6.875% for FYE 2018) 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 IV-2 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 IV – ASSETS**

**Table IV-2**

<b>Development of Actuarial Value of Assets</b>						
	<b>Tier 1</b>			<b>Tier 2</b>		
	<b>Basic</b>	<b>COLA</b>	<b>Total</b>	<b>Basic</b>	<b>COLA</b>	<b>Total</b>
Market Value of Assets	\$ 1,546,206	\$ 976,907	\$ 2,523,113	\$ 158,382	\$ 26,531	\$ 184,913
<b><u>FYE 2022</u></b>						
Actual Earnings	\$ (98,171)	\$ (60,412)	\$ (158,583)	\$ (9,044)	\$ (1,503)	\$ (10,547)
Expected Earnings	<u>114,341</u>	<u>71,054</u>	<u>185,395</u>	<u>10,192</u>	<u>1,693</u>	<u>11,885</u>
Investment Gain/(Loss)	(212,512)	(131,466)	(343,978)	(19,236)	(3,196)	(22,432)
Deferred (80%)	\$ (170,010)	\$ (105,173)	\$ (275,183)	\$ (15,389)	\$ (2,556)	\$ (17,945)
<b><u>FYE 2021</u></b>						
Actual Earnings	\$ 417,535	\$ 244,947	\$ 662,482	\$ 31,044	\$ 5,081	\$ 36,125
Expected Earnings	<u>90,200</u>	<u>53,541</u>	<u>143,741</u>	<u>6,455</u>	<u>1,056</u>	<u>7,511</u>
Investment Gain/(Loss)	327,335	191,406	518,741	24,589	4,025	28,614
Deferred (60%)	\$ 196,401	\$ 114,844	\$ 311,245	\$ 14,754	\$ 2,414	\$ 17,168
<b><u>FYE 2020</u></b>						
Actual Earnings	\$ 56,333	\$ 31,041	\$ 87,374	\$ 3,047	\$ 488	\$ 3,535
Expected Earnings	<u>92,047</u>	<u>51,558</u>	<u>143,605</u>	<u>4,794</u>	<u>768</u>	<u>5,562</u>
Investment Gain/(Loss)	(35,714)	(20,517)	(56,231)	(1,747)	(280)	(2,027)
Deferred (40%)	\$ (14,285)	\$ (8,208)	\$ (22,493)	\$ (699)	\$ (112)	\$ (811)
<b><u>FYE 2019</u></b>						
Actual Earnings	\$ 49,326	\$ 25,431	\$ 74,757	\$ 1,822	\$ 276	\$ 2,098
Expected Earnings	<u>92,402</u>	<u>48,569</u>	<u>140,971</u>	<u>3,290</u>	<u>499</u>	<u>3,789</u>
Investment Gain/(Loss)	(43,076)	(23,138)	(66,214)	(1,468)	(223)	(1,691)
Deferred (20%)	\$ (8,616)	\$ (4,626)	\$ (13,242)	\$ (294)	\$ (44)	\$ (338)
Total Deferred Gain/(Loss)	\$ 3,490	\$ (3,163)	\$ 327	\$ (1,628)	\$ (298)	\$ (1,926)
<b>Actuarial Value of Assets</b>	<b>\$ 1,542,715</b>	<b>\$ 980,071</b>	<b>\$ 2,522,786</b>	<b>\$ 160,010</b>	<b>\$ 26,829</b>	<b>\$ 186,839</b>
Actuarial to Market Ratio	99.8%	100.3%	100.0%	101.0%	101.1%	101.0%
Estimated Rate of Return	7.9%	7.7%	7.8%	7.8%	7.7%	7.8%

*Dollar amounts in thousands*

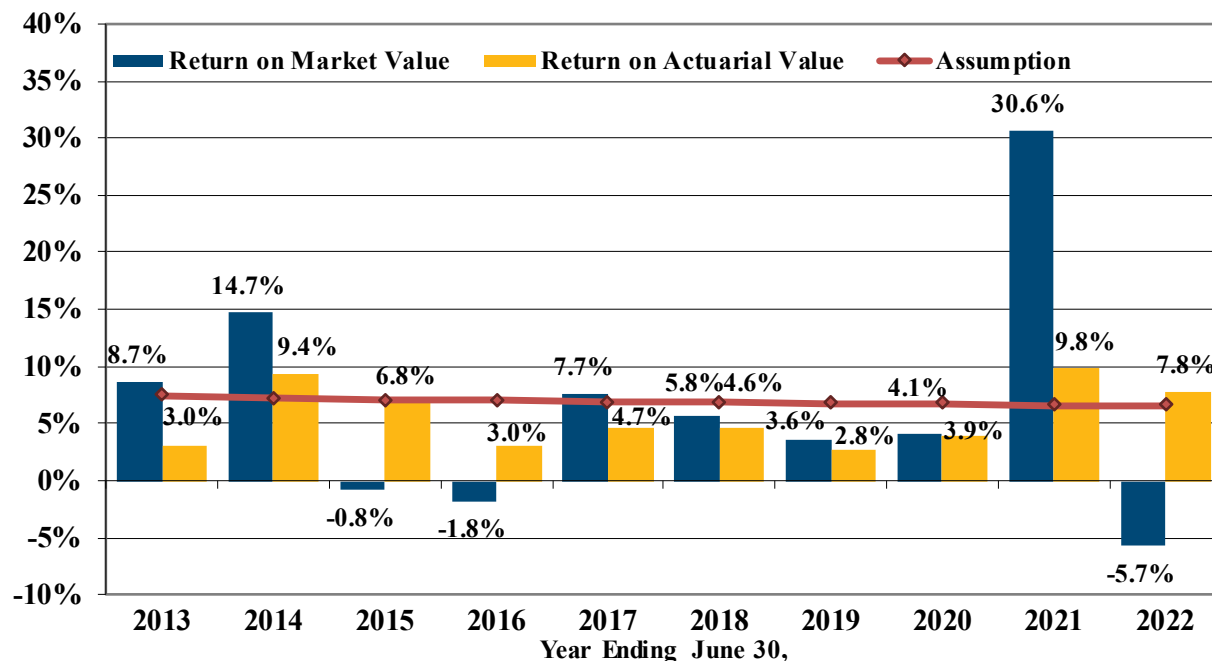
On an Actuarial Value of Assets basis, the aggregate return for the year ending June 30, 2022 was 7.8% for both Tier 1 and Tier 2, more than the assumed return of 6.625%. The return for both Tiers was greater than the return on the Market Value of Assets. This return on the Actuarial Value of Assets produced an investment gain of \$31.0 million for the year ending June 30, 2022.

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**SECTION IV – ASSETS**

As shown in the following chart, over the last 10 years the investment return on the Market Value of Assets has varied significantly from a high of 30.6% in 2021 to a low of -5.7% in 2022. The geometric average return was 7.0% and 6.3% over the last 5 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 5.8% and 5.6% over the last 5 and 10 years, respectively.

**Historical Rates of Return**



**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
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**SECTION V – 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
- An 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 V-1 below shows the present value of future benefits as of June 30, 2021 and June 30, 2022 separately by Tier.

**Table V-1**

	Present Value of Future Benefits				
	June 30, 2021	June 30, 2022			% Change
	Total	Basic	COLA	Total	
<b>Tier 1</b>					
Actives	\$ 1,194,074	\$ 851,682	\$ 350,001	\$ 1,201,683	0.6%
Deferred Vested	242,788	176,894	76,048	252,942	4.2%
In Pay Status					
Retirees	\$ 2,905,994	\$ 1,668,978	\$ 1,340,649	\$ 3,009,627	3.6%
Beneficiaries	194,247	96,283	106,126	202,409	4.2%
Disabled	86,318	41,536	44,708	86,244	-0.1%
Total In Pay Status	\$ 3,186,559	\$ 1,806,797	\$ 1,491,483	\$ 3,298,280	3.5%
<b>Total Tier 1</b>	<b>\$ 4,623,421</b>	<b>\$ 2,835,373</b>	<b>\$ 1,917,532</b>	<b>\$ 4,752,905</b>	<b>2.8%</b>
<b>Tier 2</b>					
Actives	\$ 410,394	\$ 402,864	\$ 73,737	\$ 476,601	16.1%
Deferred Vested	12,576	18,682	2,259	20,941	66.5%
In Pay Status					
Retirees	\$ 2,045	\$ 3,159	\$ 557	\$ 3,716	81.7%
Disabled	0	0	0	0	
Total In Pay Status	\$ 2,045	\$ 3,159	\$ 557	\$ 3,716	81.7%
<b>Total Tier 2</b>	<b>\$ 425,015</b>	<b>\$ 424,705</b>	<b>\$ 76,553</b>	<b>\$ 501,258</b>	<b>17.9%</b>
<b>Total System</b>	<b>\$ 5,048,436</b>	<b>\$ 3,260,078</b>	<b>\$ 1,994,085</b>	<b>\$ 5,254,163</b>	<b>4.1%</b>

*Dollar amounts in thousands*

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
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**SECTION V – 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 as 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 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. Table V-2 below shows the Total normal cost rates as of June 30, 2021 and June 30, 2022 separately by Tier. The increase in normal cost rate for each Tier is primarily attributable to the assumption changes for this valuation.

**Table V-2**

	Normal Cost					
	June 30, 2021	June 30, 2022				
	Total	Basic	COLA	Total	% Change	
Tier 1						
Retirement	\$ 22,732	\$ 15,636	\$ 6,487	\$ 22,123	-2.7%	
Termination	8,873	6,249	2,119	8,368	-5.7%	
Death	637	429	183	612	-3.9%	
Disability	1,476	965	431	1,396	-5.4%	
Reciprocity	749	500	218	718	-4.1%	
Total Tier 1	\$ 34,467	\$ 23,779	\$ 9,438	\$ 33,217	-3.6%	
Expected Payroll	\$ 138,524	\$ 135,593	\$ 135,593	\$ 135,593	-2.1%	
Tier 1 NC Rate	24.88%	17.54%	6.96%	24.50%	-1.5%	
Tier 2						
Retirement	\$ 19,270	\$ 18,421	\$ 3,395	\$ 21,816	13.2%	
Termination	6,858	6,827	900	7,727	12.7%	
Death	844	511	67	578	-31.5%	
Disability	1,399	1,337	238	1,575	12.6%	
Total Tier 2	\$ 28,371	\$ 27,096	\$ 4,600	\$ 31,696	11.7%	
Expected Payroll	\$ 189,424	\$ 215,268	\$ 215,268	\$ 215,268	13.6%	
Tier 2 NC Rate	14.98%	12.59%	2.13%	14.72%	-1.7%	

*Dollar amounts in thousands*

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM**  
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**SECTION V – 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 V-3 below shows the Actuarial Liability as of June 30, 2021 and June 30, 2022 separately by Tier.

**Table V-3**

Actuarial Liability					
	June 30, 2021	June 30, 2022			% Change
	Total	Basic	COLA	Total	
<b>Tier 1</b>					
Actives					
Retirement	\$ 904,828	\$ 659,175	\$ 267,750	\$ 926,925	2.4%
Termination	54,300	35,066	19,051	54,117	-0.3%
Death	9,042	6,519	2,460	8,979	-0.7%
Disability	13,891	9,960	3,963	13,923	0.2%
Total Actives	\$ 982,061	\$ 710,720	\$ 293,224	\$ 1,003,944	2.2%
Deferred Vested	\$ 242,788	\$ 176,894	\$ 76,048	\$ 252,942	4.2%
In Pay Status	3,186,559	1,806,797	1,491,483	3,298,280	3.5%
<b>Total Tier 1</b>	<b>\$ 4,411,408</b>	<b>\$ 2,694,411</b>	<b>\$ 1,860,755</b>	<b>\$ 4,555,166</b>	<b>3.3%</b>
<b>Tier 2</b>					
Actives					
Retirement	\$ 111,171	\$ 119,819	\$ 21,986	\$ 141,805	27.6%
Termination	17,116	15,226	4,778	20,004	16.9%
Death	4,175	2,957	419	3,376	-19.1%
Disability	4,490	4,743	895	5,638	25.6%
Total Actives	\$ 136,952	\$ 142,745	\$ 28,078	\$ 170,823	24.7%
Deferred Vested	12,576	18,682	2,259	20,941	66.5%
In Pay Status	2,045	3,159	557	3,716	81.7%
<b>Total Tier 2</b>	<b>\$ 151,573</b>	<b>\$ 164,586</b>	<b>\$ 30,894</b>	<b>\$ 195,480</b>	<b>29.0%</b>
<b>Total System</b>	<b>\$ 4,562,981</b>	<b>\$ 2,858,997</b>	<b>\$ 1,891,649</b>	<b>\$ 4,750,646</b>	<b>4.1%</b>

*Dollar amounts in thousands*



**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**SECTION V – MEASURES OF LIABILITY**

**Liability (Gains) and Losses**

Each year the Actuarial Liability increases with normal cost and interest and decreases due to benefit payments. In addition, any deviation in experience from the actuarial assumptions creates a gain or loss. Table V-4 below summarizes the sources of liability gains and losses for the last five years. The other category includes gains and losses on administrative expenses as well as minor demographic assumptions and data corrections. The large gain in 2019 due to other sources is largely attributable to a significant one-time data correction.

**Table V-4**

Historical Sources of Liability (Gain) or Loss						
Source	Year Ending June 30th					Total
	2018	2019	2020	2021	2022	
Salary increases	(9,844)	9,573	25,889	21,085	47,333	94,036
Retirement	6,454	5,626	7,873	3,392	13,217	36,562
Termination	(2,519)	3,285	7,077	4,986	(1,589)	11,240
Mortality	(2,274)	2,847	(1,330)	2,613	(4,036)	(2,180)
Disability	(249)	(945)	49	(946)	(1,032)	(3,123)
Other	(3,035)	(43,618)	4,129	(393)	9,258	(33,659)
Total	\$ (11,467)	\$ (23,232)	\$ 43,687	\$ 30,737	\$ 63,151	\$ 102,876

*Dollar amounts in thousands*

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**SECTION VI – CONTRIBUTIONS**

**Amortization of the Unfunded Actuarial Liability**

Under the contribution allocation procedure employed by the System, there are three components to the contribution: the normal cost, administrative expenses, and an amortization payment on the Unfunded Actuarial Liability (UAL). The normal cost rate was developed in Section V. This section develops the administrative expense and UAL contribution rates.

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, 2021 plus the impact of the 2022 experience and assumption changes, and the 2021 UAL payment that is made by the City on July 1, 2022.

For members who were reclassified under Measure F from Tier 2 to Tier 1, a portion of the increase in liability for the reclassification is to be paid by members. Table VI-1 below shows the outstanding amount owed by members and the expected amortization payment amount. Rehires pay a fixed percentage of pay until the amount they owe has been paid. Classic members pay their portion of the UAL over 20 years (16 years remaining).

**Table VI-1**

<b>Tier 1 Member UAL Amortization</b>			
	<b>Outstanding Balance</b>	<b>Remaining Period</b>	<b>Amortization Payment</b>
Employee Rehire UAL	\$ 618	N/A	\$ 93
Classic Employee UAL	888	16	77
<b>Total Members</b>	<b>\$ 1,506</b>		<b>\$ 170</b>
Basic	875		99
COLA	631		71

*Dollar amounts in thousands*

Table VI-2 on the following page provides the payment schedule to amortize the Tier 1 UAL. The entire UAL as of June 30, 2009 was amortized over 30 years. Subsequent actuarial gains or (losses) or method changes were amortized over 20 years and assumption changes over 25 years from the valuation in which they are first recognized.

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**SECTION VI – CONTRIBUTIONS**

**Table VI-2**

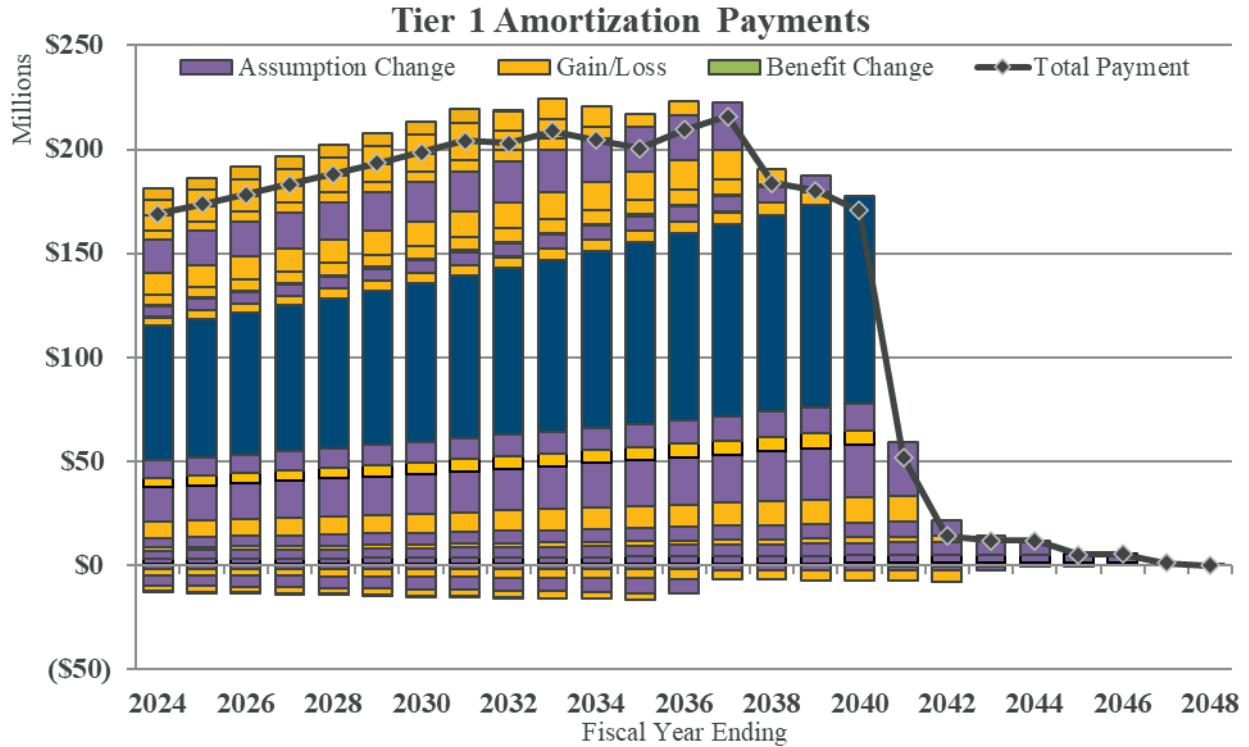
<b>Tier 1 City UAL Amortization</b>			
	<b>Outstanding Balance</b>	<b>Remaining Period</b>	<b>Amortization Payment</b>
Golden Handshake	\$ 20,479	17	\$ 1,699
2009 UAL	734,795	17	60,967
2010 (Gain) or Loss	35,813	8	5,414
2010 Assumption Change	(48,802)	13	(4,951)
2011 (Gain) or Loss	(2,242)	9	(307)
2011 Assumption Changes	160,115	14	15,340
2012 (Gain) or Loss	92,537	10	11,590
SRBR Elimination	(34,006)	10	(4,259)
2013 (Gain) or Loss	60,671	11	7,028
2013 Assumption Changes	58,039	16	5,032
2014 (Gain) or Loss	(21,901)	12	(2,366)
2014 Assumption Changes	97,042	17	8,051
2015 (Gain) or Loss	43,396	13	4,402
2015 Assumption Changes	198,286	18	15,796
2016 (Gain) or Loss	102,651	14	9,835
2016 Assumption Changes	58,627	19	4,498
2017 (Gain) or Loss	55,520	15	5,049
Measure F	6,629	15	603
2017 Assumption Changes	(17,234)	20	(1,277)
2018 (Gain) or Loss	46,311	16	4,015
2018 Assumption Change	52,979	21	3,799
2019 (Gain) or Loss	54,328	17	4,507
2019 Assumption Change	(1,698)	22	(118)
2020 (Gain) or Loss	95,597	18	7,616
2020 Assumption Change	34,551	23	2,336
2021 (Gain) or Loss	(40,705)	19	(3,123)
2021 Assumption Change	9,488	24	624
2022 (Gain) or Loss	21,642	20	1,603
2022 Assumption Change	495	25	32
7/1/2022 Payment	157,470		
<b>Total City</b>	<b>\$ 2,030,873</b>		<b>\$ 163,435</b>
Basic	1,150,821		85,790
COLA	880,052		77,645

*Dollar amounts in thousands*

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
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**SECTION VI – CONTRIBUTIONS**

The chart below shows the future payment schedule for the Tier 1 amortization bases in Table VI-2. The original 2009 UAL is shown in blue, assumption changes are shown in purple; experience gain or loss bases are shown in gold, and benefit changes are shown in green. The black line shows the net scheduled payment for each year.



**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM**  
**JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**SECTION VI – CONTRIBUTIONS**

Table VI-3 below provides the payment schedule to amortize the Tier 2 UAL as of June 30, 2022. As of June 30, 2017, all amortization layers were reset to 10 years. Subsequent layers are amortized over 10 years from the valuation in which they are first recognized. The amortization payments increase 2.75% each year while payroll is expected to increase 3.00% each year. As a result, payments are expected to become a slightly smaller percentage of combined Tier 1 and Tier 2 payroll each year.

**Table VI-3**

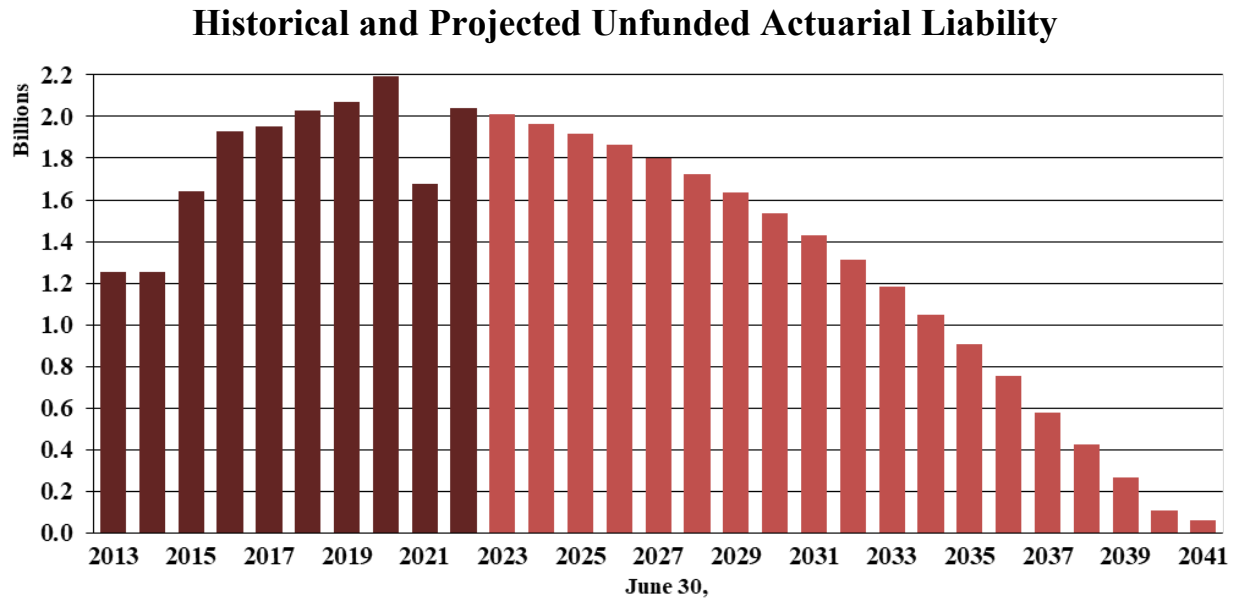
<b>Tier 2 UAL Amortization</b>			
	<b>Outstanding Balance</b>	<b>Remaining Period</b>	<b>Amortization Payment</b>
2013 (Gain) or Loss	\$ 31	5	\$ 7
2013 Assumption Changes	0	5	0
2014 (Gain) or Loss	(384)	5	(88)
2014 Assumption Changes	70	5	16
2015 (Gain) or Loss	555	5	127
2015 Assumption Changes	269	5	62
2016 (Gain) or Loss	(363)	5	(83)
2016 Assumption Changes	295	5	68
2017 (Gain) or Loss	(476)	5	(109)
Measure F	3,631	5	833
2017 Assumption Changes	1,069	5	245
2018 (Gain) or Loss	(1,679)	6	(327)
2018 Assumption Changes	1,029	6	200
2019 (Gain) or Loss	778	7	132
2019 Assumption Changes	(993)	7	(169)
2020 (G)/L	2,948	8	446
2020 Assumption Change	2,200	8	333
2021 (G)/L	(2,923)	9	(400)
2021 Assumption Change	206	9	28
2022 (G)/L	1,071	10	134
2022 Assumption Change	23	10	3
7/1/2022 Payment	1,285		
<b>Total Tier 2</b>	<b>\$ 8,642</b>		<b>\$ 1,458</b>
Basic	4,575		820
COLA	4,067		638

*Dollar amounts in thousands*

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**SECTION VI – CONTRIBUTIONS**

The chart below shows the historical UAL based on the Market Value of Assets and its projected decline over the next 20 years if all assumptions are met and as scheduled amortization payments are made.



This amortization structure results in a total UAL rate of 42.8% of payroll for FYE 2024, which is more than the amount needed to pay the projected interest on the UAL based on the Market Value of Assets (32.3% of payroll). As a result, the dollar amount of the UAL based on the Market Value of Assets is expected to decrease during FYE 2024.

**Contributions for Administrative Expenses**

Beginning with FYE 2020, contributions for administrative expenses were set equal to \$500 per member (increasing 3.0% each year). For FYE 2023, the current assumption is \$546 per member. Table VI-4 on the next page shows the number of members for each tier, the contributions for administrative expenses by tier, and the administrative expense contribution rates by tier for FYE 2023 and 2024. Tier 1 members pay 3/11<sup>th</sup> of the administrative expenses expected for Tier 1, and Tier 2 members pay half of the administrative expenses expected for Tier 2.

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
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**SECTION VI – CONTRIBUTIONS**

**Table VI-4**

<b>Administrative Expense By Group</b>				
	<b>Fiscal Year Ending 2023</b>		<b>Fiscal Year Ending 2024</b>	
	<b>Tier 1</b>	<b>Tier 2</b>	<b>Tier 1</b>	<b>Tier 2</b>
Members	6,840	3,109	6,750	3,489
Administrative Expense	\$ 3,737	\$ 1,699	\$ 3,799	\$ 1,963
<b>Member Admin Expense Rate</b>	<b>0.77%</b>	<b>0.36%</b>	<b>0.80%</b>	<b>0.37%</b>
Basic	0.48%	0.31%	0.49%	0.32%
COLA	0.29%	0.05%	0.31%	0.05%
<b>City Admin Expense Rate</b>	<b>2.05%</b>	<b>0.36%</b>	<b>2.15%</b>	<b>0.37%</b>
Basic	1.28%	0.31%	1.32%	0.32%
COLA	0.77%	0.05%	0.83%	0.05%

*Dollar amounts in thousands*

### Contribution Rates and Amounts

Tier 1 members pay 3/11ths of the total normal cost (excluding reciprocity normal cost) and administrative expenses while the City pays 8/11ths of the total normal cost (excluding reciprocity normal cost), all of the reciprocity normal cost, 8/11ths of administrative expenses, and the UAL payments shown above. The total contribution cannot be less than the normal cost.

For Tier 2, members and the City each pay half of the total normal cost, half of administrative expenses, and half of the UAL payments. However, the member's UAL contribution rate cannot increase by more than 0.33% of pay each year. The City contributes any amounts in excess of this cap that would otherwise be contributed by the member. The member and City contribution rates each cannot be less than 50% of the normal cost rate.

Tier 1 members who were rehired into Tier 2 and subsequently reclassified back into Tier 1 under Measure F pay half of the increased cost attributable to their Tier 2 service. The Board set a contribution rate of 3.0 percent of pay that applies to each individual member until they have paid off their individual UAL amount for reclassification. In addition, Tier 2 members who were defined as classic members due to reciprocal service were reclassified as Tier 1 members under Measure F. All classic members pay an additional contribution rate to pay half of the additional liability attributable to reclassifying these members. This contribution rate is recalculated with each valuation. Table VI-5 shows the reclassification contribution rates applicable to classic members for FYE 2023 and 2024.

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**SECTION VI – CONTRIBUTIONS**

**Table VI-5**

<b>Classic Member Contribution Rate</b>						
	<b>Fiscal Year Ending 2023</b>			<b>Fiscal Year Ending 2024</b>		
	<b>Basic</b>	<b>COLA</b>	<b>Total</b>	<b>Basic</b>	<b>COLA</b>	<b>Total</b>
Classic UAL Payment	\$ 44	\$ 31	\$ 75	\$ 45	\$ 32	\$ 77
Expected Classic Payroll			\$ 6,850			\$ 7,557
<b>Classic Member Rate</b>	<b>0.64%</b>	<b>0.45%</b>	<b>1.09%</b>	<b>0.60%</b>	<b>0.42%</b>	<b>1.02%</b>

*Dollar amounts in thousands*

Table VI-6 shows the components of the member contribution rates for FYE 2023 and 2024, including the average of the reclassification rates under Measure F over all Tier 1 payroll.

**Table VI-6**

<b>Member Contribution Rates</b>						
	<b>Fiscal Year Ending 2023</b>			<b>Fiscal Year Ending 2024</b>		
	<b>Basic</b>	<b>COLA</b>	<b>Total</b>	<b>Basic</b>	<b>COLA</b>	<b>Total</b>
<b><u>Tier 1</u></b>						
Normal Cost Rate	4.76%	1.88%	6.64%	4.68%	1.86%	6.54%
Admin Expense Rate	<u>0.48%</u>	<u>0.29%</u>	<u>0.77%</u>	<u>0.49%</u>	<u>0.31%</u>	<u>0.80%</u>
<b>Regular Member Rate</b>	<b>5.24%</b>	<b>2.17%</b>	<b>7.41%</b>	<b>5.17%</b>	<b>2.17%</b>	<b>7.34%</b>
Average Reclassification Rate	<u>0.08%</u>	<u>0.05%</u>	<u>0.13%</u>	<u>0.08%</u>	<u>0.06%</u>	<u>0.14%</u>
<b>Average Member Rate</b>	<b>5.32%</b>	<b>2.22%</b>	<b>7.54%</b>	<b>5.25%</b>	<b>2.23%</b>	<b>7.48%</b>
<b><u>Tier 2</u></b>						
Normal Cost Rate	6.41%	1.08%	7.49%	6.30%	1.06%	7.36%
Admin Expense Rate	0.31%	0.05%	0.36%	0.32%	0.05%	0.37%
UAL Rate	<u>0.16%</u>	<u>0.12%</u>	<u>0.28%</u>	<u>0.16%</u>	<u>0.12%</u>	<u>0.28%</u>
<b>Member Rate</b>	<b>6.88%</b>	<b>1.25%</b>	<b>8.13%</b>	<b>6.78%</b>	<b>1.23%</b>	<b>8.01%</b>

Table VI-7 shows the City's contribution rates and dollar amounts for FYE 2023 and 2024 assuming contributions are made throughout the fiscal year. The UAL rate is calculated as the payment shown in Tables VI-1 and VI-2 increased with one-half year of interest and divided by the projected payroll for the fiscal year. For FYE 2024, the projected payroll is \$128.9 million for Tier 1 and \$266.8 million for Tier 2. For FYE 2023, the amounts in this report have been updated since the prior valuation report to reflect the City's payment of member contributions for certain bargaining groups for members with more than 30 years of service.



**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
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**SECTION VI – CONTRIBUTIONS**

**Table VI-7**

<b>City Contribution Rates and Amounts Throughout the Year</b>						
	<b>Fiscal Year Ending 2023</b>			<b>Fiscal Year Ending 2024</b>		
	<b>Basic</b>	<b>COLA</b>	<b>Total</b>	<b>Basic</b>	<b>COLA</b>	<b>Total</b>
Tier 1 UAL Payment	\$ 85,400	\$ 77,202	\$ 162,602	\$ 88,586	\$ 80,176	\$ 168,762
Tier 1 Normal Cost	\$ 17,356 13.09%	\$ 6,868 5.18%	\$ 24,224 18.27%	\$ 16,612 12.89%	\$ 6,599 5.12%	\$ 23,211 18.01%
Tier 1 Admin Expenses	\$ 1,697 1.28%	\$ 1,021 0.77%	\$ 2,718 2.05%	\$ 1,701 1.32%	\$ 1,070 0.83%	\$ 2,771 2.15%
Tier 2 Contribution	\$ 16,322 6.88%	\$ 2,966 1.25%	\$ 19,288 8.13%	\$ 18,092 6.78%	\$ 3,282 1.23%	\$ 21,374 8.01%
<b>Aggregate Contribution</b>	<b>\$ 120,776 32.66%</b>	<b>\$ 88,056 23.81%</b>	<b>\$ 208,832 56.47%</b>	<b>\$ 124,992 31.59%</b>	<b>\$ 91,126 23.02%</b>	<b>\$ 216,118 54.61%</b>

*Dollar amounts in thousands*

The City retains an option to make its Tier 1 contribution as a lump sum at the beginning of the fiscal year. Table VI-8 below shows the City contribution amounts for Tier 1 as of the beginning of the fiscal year assuming the Board elects to discount the amounts for one half year of interest at the valuation discount rate. Any amounts contributed after the beginning of the year should be adjusted for interest at the valuation discount rate.

**Table VI-8**

<b>Estimated Tier 1 City Contribution Amounts - Beginning of Year</b>						
	<b>Fiscal Year Ending 2023</b>			<b>Fiscal Year Ending 2024</b>		
	<b>Basic</b>	<b>COLA</b>	<b>Total</b>	<b>Basic</b>	<b>COLA</b>	<b>Total</b>
<b>Tier 1</b>						
Normal Cost/Admin	\$ 18,538	\$ 7,676	\$ 26,214	\$ 17,736	\$ 7,426	\$ 25,162
UAL	<u>83,093</u>	<u>75,116</u>	<u>158,209</u>	<u>85,790</u>	<u>77,645</u>	<u>163,435</u>
<b>Total</b>	<b>\$ 101,631</b>	<b>\$ 82,792</b>	<b>\$ 184,423</b>	<b>\$ 103,526</b>	<b>\$ 85,071</b>	<b>\$ 188,597</b>

*Dollar amounts in thousands*

Table VI-9 reconciles the change in the Tier 1 and Tier 2 member and City contributions from the contribution rates and amounts calculated in the prior valuation. The asset experience shown in the table includes investment returns, contributions, and administrative expense experience. Investment losses in 2022 resulted in a higher contribution rate than was expected, and higher

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**SECTION VI – CONTRIBUTIONS**

salaries and other demographic experience also increased the contribution rate. However, higher-than-expected payroll growth caused a net reduction in the contribution rate because the UAL payment is spread over a larger payroll, but it also caused an increase in the dollar amount of the contribution because the normal cost rate is charged on a larger payroll.

**Table VI-9**

Reconciliation of Changes in Contribution Rates and Amounts							
	Member Rate		Normal Cost	UAL Rate	City Aggregate		City Amount
	Tier 1	Tier 2			Total Rate	Projected Payroll	
FYE 2022 Contribution	7.54%	8.13%	12.32%	44.15%	56.47%	\$ 369,833	\$ 208,832
Expected FYE 2023	7.53%	7.92%	11.78%	42.06%	53.84%	380,928	205,099
Changes Due to:							
Asset experience	0.00%	-0.01%	0.00%	1.28%	1.28%	380,928	4,876
Demographic experience	-0.06%	0.11%	0.00%	1.15%	1.15%	380,928	4,390
Payroll Change	0.00%	-0.01%	0.00%	-1.66%	-1.66%	395,722	1,754
Assumption Change	<u>0.01%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>395,722</u>	<u>0</u>
Subtotal	-0.05%	0.09%	0.00%	0.77%	0.77%	\$ 395,722	\$ 11,020
<b>FYE 2024 Contribution</b>	<b>7.48%</b>	<b>8.01%</b>	<b>11.78%</b>	<b>42.83%</b>	<b>54.61%</b>	<b>\$ 395,722</b>	<b>\$ 216,118</b>

*Dollar amounts in thousands*

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**SECTION VII – ACTUARIAL SECTION OF THE ACFR**

The Government Finance Officers Association (GFOA) maintains a checklist of items to be included in the System's Annual Comprehensive Financial Report (ACFR) 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 ACFR.

**Table VII-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
06/30/2022 <sup>10</sup>	\$ 2,709,625	\$ 4,750,646	\$ 2,041,021	57%	\$ 384,197	531%
06/30/2021 <sup>9</sup>	2,513,095	4,562,981	2,049,886	55%	359,061	571%
06/30/2020 <sup>8</sup>	2,301,469	4,401,083	2,099,614	52%	341,552	615%
06/30/2019 <sup>7</sup>	2,228,802	4,200,708	1,971,906	53%	313,310	629%
06/30/2018 <sup>6</sup>	2,179,488	4,100,821	1,921,333	53%	298,985	643%
06/30/2017 <sup>5</sup>	2,101,435	3,923,966	1,822,531	54%	287,339	634%
06/30/2016 <sup>4</sup>	2,034,741	3,786,730	1,751,989	54%	266,823	657%
06/30/2015 <sup>3</sup>	2,004,481	3,569,898	1,565,417	56%	251,430	623%
06/30/2014 <sup>2</sup>	1,911,773	3,235,065	1,323,292	59%	234,677	564%
06/30/2013 <sup>1</sup>	1,783,270	3,013,763	1,230,493	59%	225,779	545%

*Dollar amounts in thousands*

- <sup>1</sup> Reducing the discount rate from 7.50% to 7.25% and reducing wage inflation increased the AL by \$64 million
- <sup>2</sup> Reducing the discount rate to 7.00% and eliminating the temporary 2% wage inflation increased the AL by \$103 million
- <sup>3</sup> Demographic assumption changes increased the AL by \$192 million.
- <sup>4</sup> Reducing the discount rate from 7.00% to 6.875% increased the AL by \$60 million.
- <sup>5</sup> Measure F implementation increased the AL by \$14 million and assumption changes decreased the AL by \$16 million
- <sup>6</sup> Assumption changes, including reducing the discount rate from 6.875% to 6.75%, increased the AL by \$54 million
- <sup>7</sup> Assumption changes decreased the AL by \$3 million
- <sup>8</sup> Assumption changes, including reducing the discount rate from 6.75% to 6.625%, increased the AL by \$37 million
- <sup>9</sup> Assumption changes increased the AL by \$10 million
- <sup>10</sup> Assumption changes increased the AL by \$0.5 million

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
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**SECTION VII – ACTUARIAL SECTION OF THE ACFR**

**Table VII-2**

Schedule of Funded Liabilities by Type								
Valuation Date	Actuarial Liability For			Reported Assets*	Portion of Actuarial Liability Covered by Reported Assets			
	(A)	(B)	(C)					
	Active Member Contributions	Retirees, Beneficiaries and Other Inactives	Remaining Active Members' Liabilities		(A)	(B)	(C)	
	6/30/2022	\$ 246,803	\$ 3,575,879		\$ 927,964	\$ 2,709,625	100%	69%
6/30/2021	241,016	3,443,968	877,997	2,513,095	100%	66%	0%	
6/30/2020	234,385	3,308,069	858,629	2,301,469	100%	62%	0%	
6/30/2019	228,905	3,150,673	821,130	2,228,802	100%	63%	0%	
6/30/2018	230,282	3,002,012	868,527	2,179,488	100%	65%	0%	
6/30/2017	236,819	2,830,143	857,004	2,101,435	100%	66%	0%	
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%	

\* Actuarial Value of Assets

Dollar amounts in thousands

**Table VII-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	
6/30/2022	\$ 31,034	\$ (53,747)	\$ (22,713)	\$ (518)	\$ (23,231)	
6/30/2021	76,461	(32,329)	44,132	(9,687)	34,446	
6/30/2020	(67,979)	(32,761)	(100,741)	(36,981)	(137,722)	
6/30/2019	(88,845)	(4,283)	(93,129)	39,030	(54,099)	
6/30/2018	(49,921)	4,702	(45,219)	(56,306)	(101,525)	
6/30/2017	(44,650)	(13,819)	(58,468)	1,813	(56,655)	
6/30/2016	(81,539)	(29,989)	(111,528)	(60,233)	(171,761)	
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)	

Dollar amounts in thousands

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 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.
- All active employees are assumed to accrue a full year of service in all future years.
- Service for inactives that have no service amount is calculated to be the time from date of hire to date of termination.
- The expected annual salary for Tier 1 full-time active employees is calculated to be “compensation rate 2 earnable” multiplied by the expected pay periods for the year and increased by any expected pay increases.
- The expected annual salary for Tier 1 part-time active employees and all Tier 2 active employees is calculated to be 80 hours multiplied by their hourly rate of pay in the pay period immediately preceding the valuation date, multiplied by the expected pay periods for the year and increased by any expected pay increase.
- 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 70% 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, 2022 ACTUARIAL VALUATION REPORT**

**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-1**

Active Member Data			
	June 30, 2021	June 30, 2022	% Change
<b><u>Tier 1</u></b>			
Count	1,413	1,292	-8.6%
Average Current Age	51.2	51.7	1.0%
Average Eligibility Service	18.2	18.9	3.8%
Average Benefit Service	17.6	18.2	3.4%
Annual Expected Pensionable Earnings	\$ 152,079,775	\$ 149,444,664	-1.7%
Average Expected Pensionable Earnings	\$ 107,629	\$ 115,669	7.5%
<b><u>Tier 2</u></b>			
Count	2,362	2,500	5.8%
Average Current Age	39.0	39.2	0.5%
Average Eligibility Service	3.7	4.0	8.1%
Average Benefit Service	3.6	3.9	8.3%
Average Expected Pensionable Earnings	\$ 87,630	\$ 93,901	7.2%
<b><u>Total</u></b>			
Count	3,775	3,792	0.5%
Average Current Age	43.5	43.4	-0.2%
Average Eligibility Service	9.1	9.1	0.0%
Average Benefit Service	8.8	8.8	0.0%
Average Expected Pensionable Earnings	\$ 95,116	\$ 101,318	6.5%

**Table A-2**

<b>Schedule of Active Member Data</b>				
<b>Valuation Date</b>	<b>Active Count</b>	<b>Annual Payroll</b>	<b>Average Annual Pay</b>	<b>Percent Change in Average Pay</b>
2022	3,792	\$ 384,197,000	\$ 101,318	6.5%
2021	3,775	359,061,000	95,115	4.2%
2020	3,742	341,552,000	91,275	5.4%
2019	3,617	313,310,000	86,622	3.0%
2018	3,554	298,985,000	84,126	-0.2%
2017	3,410	287,339,000	84,264	4.1%
2016	3,297	266,823,000	80,929	4.2%
2015	3,236	251,430,000	77,698	3.3%
2014	3,121	234,677,000	75,193	3.0%
2013	3,094	225,779,000	72,973	-0.6%

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-3**

Payee Member Data					
	June 30, 2021		June 30, 2022		%Change
Retired					
Count		3,783		3,829	1.2%
Average Age		70.0		70.4	0.6%
Average Annual Benefit	\$	54,995	\$	56,826	3.3%
Service Disability					
Count		116		114	- 1.7%
Average Age		67.9		68.6	1.0%
Average Annual Benefit	\$	40,109	\$	41,536	3.6%
Non-Service Disability					
Count		68		68	0.0%
Average Age		67.7		68.7	1.5%
Average Annual Benefit	\$	35,070	\$	36,052	2.8%
Beneficiaries & SADROs					
Count		544		546	0.4%
Average Age		75.2		75.3	0.1%
Average Annual Benefit	\$	31,177	\$	32,573	4.5%
Total					
Count		4,511		4,557	1.0%
Average Age		70.6		70.9	0.4%
Average Annual Benefit	\$	51,439	\$	53,228	3.5%

**Table A-4**

Schedule Of Retirees And Beneficiaries Added To And Removed From Rolls										
Period	Beginning of Period		Added to Rolls		Removed from Rolls		End of Period		% Increase in Annual Allowances	Average Annual Allowances
	Count	Annual Allowances	Count	Annual Allowances	Count	Annual Allowances	Count	Annual Allowances		
2021-2022	4,511	\$ 232,043	173	\$ 8,440	127	\$ 5,463	4,557	\$ 241,253	4.0%	\$ 53
2020-2021	4,441	221,575	188	9,246	118	5,090	4,511	232,043	4.7%	51
2019-2020	4,359	210,350	208	9,499	126	4,596	4,441	221,575	5.3%	50
2018-2019	4,225	198,157	230	10,394	96	3,634	4,359	210,350	6.2%	48
2017-2018	4,115	187,714	223	9,133	113	3,994	4,225	198,157	5.6%	47
2016-2017	4,003	177,751	225	8,843	113	3,894	4,115	187,714	5.6%	46
2015-2016	3,901	168,917	212	7,907	110	3,904	4,003	177,751	5.2%	44
2014-2015	3,800	159,124	200	8,266	99	3,122	3,901	168,917	6.2%	43
2013-2014	3,711	150,934	194	7,274	105	3,405	3,800	159,124	5.4%	42
2012-2013	3,602	142,063	198	7,036	89	2,360	3,711	150,934	6.2%	41

*Dollar amounts in thousands*

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-5**

<b>Inactive Member Data</b>				
		<b>June 30, 2021</b>	<b>June 30, 2022</b>	<b>%Change</b>
<b>Tier 1</b>				
<b>Terminated Vested / Reciprocal</b>				
Count		868	861	-0.8%
Average Age		48.7	49.3	1.2%
Average Annual Benefit	\$	19,009	\$ 19,575	3.0%
Average Contribution Balance with Interest	\$	70,616	\$ 73,017	3.4%
<b>Non-Vested Terminated</b>				
Count		66	67	1.5%
Average Age		46.8	48.0	2.6%
Average Annual Benefit	\$	2,632	\$ 2,630	-0.1%
Average Contribution Balance with Interest	\$	14,174	\$ 14,561	2.7%
<b>Total</b>				
Count		934	928	-0.6%
Average Age		48.6	49.2	1.2%
Average Annual Benefit	\$	17,851	\$ 18,351	2.8%
Average Contribution Balance with Interest	\$	66,627	\$ 68,797	3.3%
<b>Tier 2</b>				
<b>Terminated Vested / Reciprocal</b>				
Count		266	378	42.1%
Average Age		39.8	40.2	1.0%
Average Annual Benefit	\$	4,907	\$ 6,457	31.6%
Average Contribution Balance with Interest	\$	18,529	\$ 24,710	33.4%
<b>Non-Vested Terminated</b>				
Count		463	584	26.1%
Average Age		38.1	38.2	0.3%
Average Annual Benefit	\$	1,979	\$ 2,092	5.7%
Average Contribution Balance with Interest	\$	8,095	\$ 8,893	9.9%
<b>Total</b>				
Count		729	962	32.0%
Average Age		38.8	39.0	0.5%
Average Annual Benefit	\$	3,047	\$ 3,807	24.9%
Average Contribution Balance with Interest	\$	11,902	\$ 15,108	26.9%
<b>Total</b>				
Count		1,663	1,890	13.7%
Average Age		44.3	44.0	-0.7%
Average Annual Benefit	\$	11,362	\$ 10,948	-3.6%
Average Contribution Balance with Interest	\$	42,638	\$ 41,469	-2.7%

*data assumptions outlined in Appendix A.*



**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-6**

**Distribution of Active Member Counts as of June 30, 2022**

Age	Years of Benefit 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	44	24	0	0	0	0	0	0	0	0	68
25 to 29	151	244	21	0	0	0	0	0	0	0	416
30 to 34	111	288	174	2	0	0	0	0	0	0	575
35 to 39	65	199	196	38	13	0	0	0	0	0	511
40 to 44	33	131	171	80	50	41	0	0	0	0	506
45 to 49	26	98	105	54	65	121	7	0	0	0	476
50 to 54	25	71	82	44	70	147	48	5	0	0	492
55 to 59	12	80	72	39	33	103	22	7	0	0	368
60 to 64	9	48	58	45	27	40	6	7	0	1	241
65 to 69	5	16	27	11	19	24	5	4	0	1	112
70 and up	0	2	5	3	6	5	3	2	0	1	27
<b>Total Count</b>	481	1,201	911	316	283	481	91	25	-	3	3,792

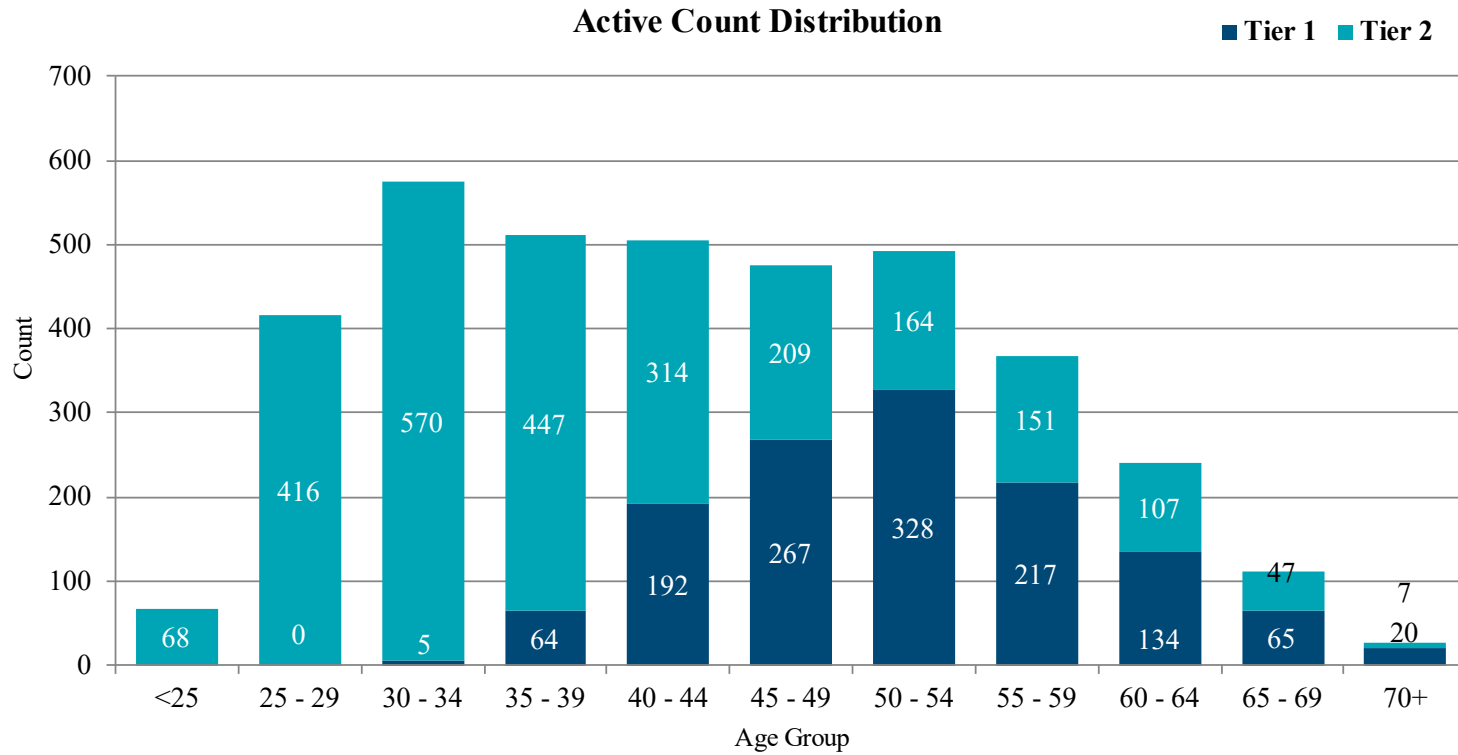
**Distribution of Average Expected Salaries as of June 30, 2022**

Age	Years of Benefit 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	\$ 67,927	\$ 77,862	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 71,433
25 to 29	75,166	83,075	85,606	0	0	0	0	0	0	0	80,332
30 to 34	80,044	88,152	97,002	96,521	0	0	0	0	0	0	89,294
35 to 39	80,867	89,251	104,133	116,522	111,725	0	0	0	0	0	96,493
40 to 44	94,533	97,882	104,365	115,205	114,639	106,250	0	0	0	0	104,927
45 to 49	106,920	102,338	109,076	121,171	113,170	116,355	127,858	0	0	0	111,629
50 to 54	85,149	106,534	109,800	122,379	112,388	112,711	119,460	126,555	0	0	111,552
55 to 59	123,202	109,759	107,609	111,426	125,751	113,781	110,867	126,381	0	0	112,896
60 to 64	82,491	103,198	111,574	114,596	121,005	121,269	88,876	105,758	0	235,621	111,830
65 to 69	128,671	104,087	107,713	146,233	109,677	115,958	84,412	135,396	0	85,002	113,759
70 and up	0	186,509	97,918	114,119	104,297	99,075	89,135	131,087	0	63,937	108,135
<b>Avg. Salary</b>	\$ 81,856	\$ 92,819	\$ 104,288	\$ 117,780	\$ 114,962	\$ 114,038	\$ 113,086	\$ 122,460	\$ -	\$ 128,187	\$ 101,318

FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT

APPENDIX A – MEMBERSHIP INFORMATION

Chart A-1



**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-7**

**Retirees and Disabled by Attained Age and Benefit Effective Date as of June 30, 2022**

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	0	1	2	6	7	12	80	92	99	299
1996	0	0	2	0	1	1	1	13	5	2	25
1997	0	0	1	0	0	1	5	29	8	1	45
1998	0	0	0	1	2	0	11	16	10	2	42
1999	0	0	0	0	2	4	27	20	3	5	61
2000	0	0	0	0	1	5	44	14	4	0	68
2001	0	0	0	1	2	2	38	22	2	2	69
2002	0	0	0	1	1	11	70	22	9	1	115
2003	0	0	1	0	4	35	39	22	3	1	105
2004	1	0	1	3	7	54	35	14	4	0	119
2005	0	0	0	1	10	67	39	22	7	1	147
2006	1	1	2	3	12	65	37	19	1	0	141
2007	0	0	1	1	17	72	29	11	2	2	135
2008	0	1	0	3	28	69	35	11	3	0	150
2009	0	1	3	3	62	35	28	4	0	0	136
2010	0	0	0	12	93	55	34	3	3	0	200
2011	0	2	0	23	145	100	44	11	1	1	327
2012	0	0	1	18	106	47	28	9	0	0	209
2013	0	1	1	39	61	29	8	1	0	0	140
2014	1	1	5	86	24	19	8	0	0	0	144
2015	0	0	10	94	29	20	7	1	1	0	162
2016	0	0	18	96	17	30	6	0	0	1	168
2017	0	1	14	102	42	15	5	1	0	0	180
2018	0	2	32	87	30	18	9	2	0	0	180
2019	0	7	89	52	26	17	1	1	0	0	193
2020	0	7	82	45	19	5	1	1	0	0	160
2021	0	8	92	24	21	8	2	0	0	0	155
2022	0	9	71	22	25	8	0	1	0	0	136
Total	3	41	427	719	793	799	603	350	158	118	4,011

Average Age at Retirement/Disability 57.6  
Average Current Age 70.3  
Average Annual Pension \$ 56,039

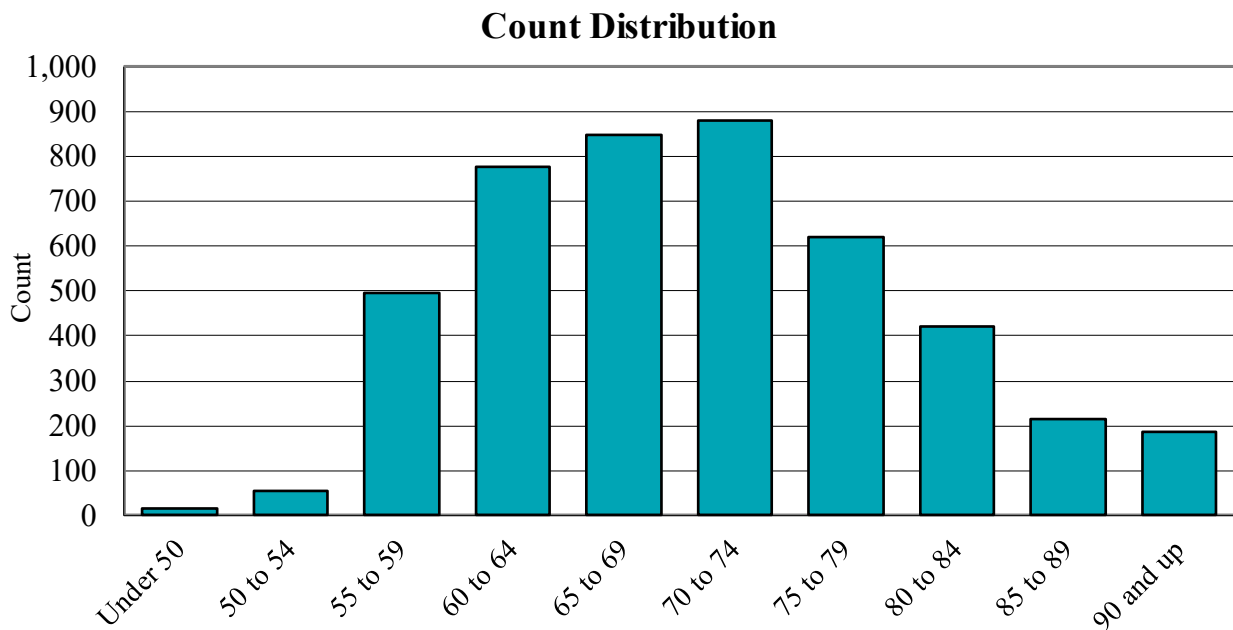
**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-8**

<b>Distribution of Retirees, Disabled Members, and Beneficiaries as of June 30, 2022</b>		
<b>Age</b>	<b>Count</b>	<b>Annual Benefit</b>
Under 50	18	\$ 474,544
50 to 54	50	3,253,032
55 to 59	444	23,744,780
60 to 64	767	41,743,493
65 to 69	868	47,948,349
70 to 74	884	50,890,296
75 to 79	698	37,739,532
80 to 84	427	20,968,953
85 to 89	219	9,200,289
90 and up	182	6,594,529
<b>Total</b>	<b>4,557</b>	<b>\$ 242,557,798</b>

**Chart A-2**

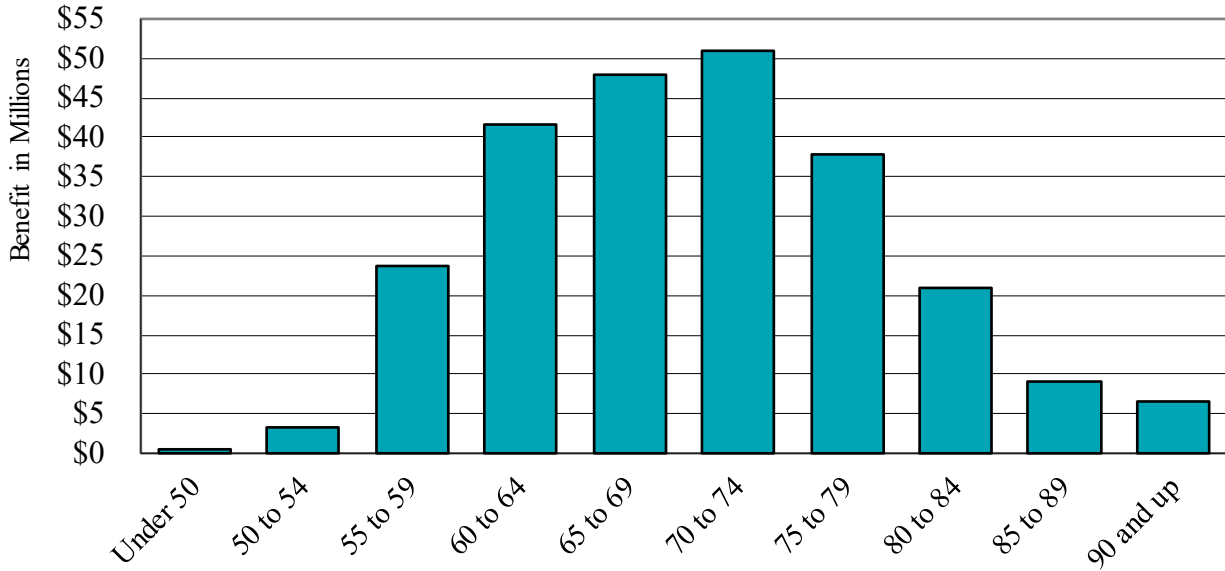


**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
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**APPENDIX A – MEMBERSHIP INFORMATION**

**Chart A-3**

**Benefit Distribution**



**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**APPENDIX A – MEMBERSHIP INFORMATION**

**Table A-9**

<b>Change in Plan Membership</b>							
<b>TIER 1</b>							
	<b>Actives</b>	<b>Vested Terminated</b>	<b>Non-Vested Terminated</b>	<b>Retirees</b>	<b>Disabilities</b>	<b>Beneficiary/ SADRO</b>	<b>Total</b>
<b>June 30, 2021</b>	<b>1,413</b>	<b>868</b>	<b>66</b>	<b>3,765</b>	<b>184</b>	<b>544</b>	<b>6,840</b>
New Entrants	0	0	0	0	0	0	0
Rehires	3	(3)	0	0	0	0	0
Non-Vested Terminated	0	0	0	0	0	0	0
Vested Terminated / Reciprocals	(35)	35	0	0	0	0	0
Return of Contributions	(1)	(2)	0	0	0	0	(3)
Disabilities	0	0	0	(1)	1	0	0
Retirements	(90)	(37)	0	127	0	0	0
Deaths	(3)	(1)	0	(93)	(3)	33	(67)
Beneficiary Deaths	0	0	0	0	0	(31)	(31)
Tier Adjustment	1	0	0	0	0	0	1
Miscellaneous Adjustments	4	1	1	4	0	0	10
<b>June 30, 2022</b>	<b>1,292</b>	<b>861</b>	<b>67</b>	<b>3,802</b>	<b>182</b>	<b>546</b>	<b>6,750</b>
<b>TIER 2</b>							
<b>June 30, 2021</b>	<b>2,362</b>	<b>266</b>	<b>463</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>3,109</b>
New Entrants	433	3	24	0	0	0	460
Rehires	11	(5)	(6)	0	0	0	0
Non-Vested Terminated	(121)	0	121	0	0	0	0
Vested Terminated / Reciprocals	(112)	112	0	0	0	0	0
Return of Contributions	(62)	(2)	(14)	0	0	0	(78)
Disabilities	0	0	0	0	0	0	0
Retirements	(9)	0	0	9	0	0	0
Deaths	(1)	0	0	0	0	0	(1)
Beneficiary Deaths	0	0	0	0	0	0	0
Tier Adjustment	(1)	0	0	0	0	0	(1)
Miscellaneous Adjustments	0	4	(4)	0	0	0	0
<b>June 30, 2022</b>	<b>2,500</b>	<b>378</b>	<b>584</b>	<b>27</b>	<b>0</b>	<b>0</b>	<b>3,489</b>
<b>TOTAL</b>							
<b>June 30, 2021</b>	<b>3,775</b>	<b>1,134</b>	<b>529</b>	<b>3,783</b>	<b>184</b>	<b>544</b>	<b>9,949</b>
New Entrants	433	3	24	0	0	0	460
Rehires	14	(8)	(6)	0	0	0	0
Non-Vested Terminated	(121)	0	121	0	0	0	0
Vested Terminated / Reciprocals	(147)	147	0	0	0	0	0
Return of Contributions	(63)	(4)	(14)	0	0	0	(81)
Disabilities	0	0	0	(1)	1	0	0
Retirements	(99)	(37)	0	136	0	0	0
Deaths	(4)	(1)	0	(93)	(3)	33	(68)
Beneficiary Deaths	0	0	0	0	0	(31)	(31)
Miscellaneous Adjustments	4	5	(3)	4	0	0	10
<b>June 30, 2022</b>	<b>3,792</b>	<b>1,239</b>	<b>651</b>	<b>3,829</b>	<b>182</b>	<b>546</b>	<b>10,239</b>

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

**Actuarial Assumptions**

The price inflation, wage inflation, amortization payment growth, and discount rates were adopted by the Board of Administration with our input at the November 17, 2022 Board meeting. All other assumptions were adopted at the November 21, 2019 Board meeting based on recommendations from our experience study covering plan experience through June 30, 2019. Please refer to the full experience study report and the November 17, 2022 Board presentation for details, including the rationale for each assumption.

**1. Discount Rate**

6.625%. The Board expects a long-term rate of return of 7.2% based on Meketa's 2022 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**

3.00%, compounded annually.

**3. Amortization Payment Growth**

2.75%, compounded annually.

**4. Price Inflation**

2.50%, compounded annually.

**5. Administrative Expenses**

\$546 per member for FYE 2023, increasing at the wage inflation assumption of 3.00% per annum.

**FEDERATED CITY EMPLOYEES' RETIREMENT SYSTEM  
JUNE 30, 2022 ACTUARIAL VALUATION REPORT**

**APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

**6. Salary Increase Rate**

In addition to the wage inflation component of 3.00% 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	Years of Service	Merit/ Longevity
0	3.75%	8	1.00
1	3.00	9	0.85
2	2.50	10	0.70
3	2.15	11	0.55
4	1.85	12	0.45
5	1.60	13	0.30
6	1.40	14	0.20
7	1.20	15+	0.10

**7. Rates of Termination**

Rates of termination are shown in the following Table B-2.

Table B-2 Rates of Termination			
Years of Service	Termination Rate	Years of Service	Termination Rate
0	15.00%	8	5.50
1	12.75	9	4.75
2	11.75	10	4.25
3	10.75	11	4.00
4	9.75	12	3.75
5	8.75	13	3.50
6	7.75	14	3.25
7	6.50	15+	3.25

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



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**8. Rates of Refund**

*Applied before Rates of Reciprocity assumption*

Tier 1:

Rates of vested terminated and reciprocal employees electing a refund of contributions are shown in the following Table B-3.

Table B-3 Rates of Refund			
Years of Service	Under Age 35	Ages 35 - 44	Ages 45 and Older
0-4	100.00%	100.00%	100.00%
5	25.00	15.00	18.00
6	20.00	12.50	15.00
7	20.00	10.00	12.00
8	20.00	10.00	9.00
9	20.00	10.00	6.00
10	20.00	10.00	3.00
11	17.50	10.00	0.00
12	15.00	10.00	0.00
13	10.00	10.00	0.00
14	10.00	7.50	0.00
15	10.00	5.00	0.00
16	10.00	2.50	0.00
17+	10.00	0.00	0.00

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

Tier 2:

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

**9. Rate of Reciprocity**

*Applied after Rates of Refund assumption*

30% of terminating employees who do not take a refund are assumed to subsequently work for a reciprocal employer and receive 3.00% pay increases per year.

**10. Deferred Vested Member Retirement Age**

Tier 1 terminated vested members are assumed to retire from age 57 and Tier 2 terminated vested members are assumed to retire at age 62.

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**APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

**11. Rates of Retirement for Tier 1 Members**

Rates of retirement for Tier 1 members are based on age according to the following Table B-4 – Tier 1.

Table B-4 – 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	10.0	35.0	50.0
56	10.0	20.0	45.0
57	10.0	20.0	40.0
58	5.0	15.0	35.0
59	5.0	15.0	30.0
60	5.0	15.0	30.0
61	10.0	20.0	30.0
62	15.0	20.0	30.0
63	20.0	20.0	30.0
64	20.0	20.0	30.0
65	20.0	20.0	30.0
66	25.0	30.0	30.0
67	25.0	35.0	30.0
68	25.0	35.0	30.0
69	25.0	35.0	30.0
70 & over	100.0	100.0	100.0

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**APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

**12. Rates of Retirement for Tier 2 Members**

Rates of retirement for Tier 2 members are based on age and service as shown in the following Table B-4 – Tier 2. These rates are based on CalPERS retirement rates for its 2.0% at age 62 formula with adjustments based on professional judgment for differences between the CalPERS benefits and the benefits provided to Tier 2 members.

<b>Table B-4 – Tier 2 Tier 2 Rates of Retirement by Age and Service Years of Service</b>					
<b>Age</b>	<b>5 – 10</b>	<b>11 – 20</b>	<b>21 – 25</b>	<b>26 – 34</b>	<b>35 +</b>
55	3.0%	5.0%	7.0%	10.0%	15.0%
56	2.0%	3.5%	4.0%	7.0%	10.5%
57	2.5%	4.5%	5.0%	8.5%	12.75%
58	3.0%	5.5%	7.0%	11.0%	16.5%
59	3.5%	7.0%	9.0%	13.5%	20.25%
60 – 61	4.0%	8.5%	10.0%	14.5%	21.75%
62	7.5%	12.5%	17.5%	25.0%	100.0%
63 – 69	5.0%	10.0%	15.0%	25.0%	100.0%
70 & over	100.0%	100.0%	100.0%	100.0%	100.0%

**13. Rates of Disability**

Disability rates are equal to the 0.973 times the CalPERS 2017 non-industrial disability incidence rates for miscellaneous state agencies, blended 55% male and 45% female. Sample disability rates of active members are provided in Table B-5.

<b>Table B-5 Rates of Disability at Selected Ages</b>	
<b>Age</b>	<b>Disability</b>
25	0.0272
30	0.0303
35	0.0613
40	0.1366
45	0.2519
50	0.3240
55	0.2631
60+	0.2191

45% of disabilities are assumed to be duty related, and 55% are assumed to be non-duty related.

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**14. Base Rates of Mortality**

Base mortality rates are based on the sex-distinct employee and retiree mortality tables shown below.

<b>Table B-6 Base Mortality Tables</b>		
<b>Category</b>	<b>Male</b>	<b>Female</b>
<b>Healthy Annuitant</b>	0.995 times the 2010 Public General Mortality Table (PubG-2010) for Healthy Retirees	0.960 times the 2010 Public General Mortality Table (PubG-2010) for Healthy Retirees
<b>Healthy Non-Annuitant</b>	0.992 times the 2010 Public General Mortality Table (PubG-2010) for Healthy Employees	1.084 times the 2010 Public General Mortality Table (PubG-2010) for Healthy Employees
<b>Disabled Annuitant</b>	1.051 times the CalPERS 2009 Ordinary Disability Mortality Table	0.991 times the CalPERS 2009 Ordinary Disability Mortality Table

**15. Rates of Mortality Improvement**

Future mortality improvements are reflected by applying the most recent projection scale issued by the Society of Actuaries on a generational basis from the base year of 2010 for the Pub2010 tables and 2009 for the CalPERS tables. The projection scale used for the June 30, 2022 valuation is MP-2021.

**16. Family Composition**

Percentage married is shown in the following Table B-7. 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.

<b>Table B-7 Percentage Married</b>	
<b>Gender</b>	<b>Percentage</b>
Males	80%
Females	60%

**17. Changes Since the Last Valuation**

The price inflation was increased from 2.25% to 2.50%.

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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 Tier 1 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. Tier 1 actuarial gains and losses and plan changes are amortized over 20-year periods and Tier 1 assumption changes are amortized over 25-year periods beginning with the valuation date in which they first arise. Effective June 30, 2017, all prior assumption amortization base periods were increased by 5 years so they have the same remaining period as if they had originally been amortized over 25 years. Amortization payments are scheduled to increase 2.75% each year.

The Tier 2 Unfunded Actuarial Liability as of June 30, 2017 is amortized over a closed 10-year period. Future Tier 2 actuarial gains and losses, assumption changes, and plan changes will be amortized over 10-year periods beginning with the valuation date in which they first arise. Amortization payments are scheduled to increase 2.75% each year.

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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. Contributions are generally made on a payroll-by-payroll basis although the City retains an option to make its contribution as of the beginning of the year.

The total contribution rate is the sum of the normal cost rate, assumed administrative expenses, and the UAL rate. Under Measure F, the total contribution rate cannot be less than the normal cost 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. Tier 1 members who were rehired into Tier 2 and then returned to Tier 1 under Measure F also pay half of the increased cost attributable to their Tier 2 service.

For Tier 2, the members and the City each pay half of the total contribution rate. However, the member's UAL contribution rate cannot increase by more than 0.33% of pay each year. The City contributes any amounts in excess of this cap that would otherwise be contributed by the member.

**5. Changes Since the Last Valuation**

None.

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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, including members that are rehired after September 30, 2012 and had prior service under Tier 1 and did not take a return of contributions. In addition, any person accepting employment on or after September 30, 2012 who is otherwise eligible for this plan and who was a “classic” member in another California public retirement system with which this plan has reciprocity, and who has a break in service of less than six months from that covered employment and employment with the City, shall be a Tier 1 member of this plan.

**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.

For bargaining units that have agreed to the provision, member contributions cease once a member has 30 years of City service (excluding reciprocal service).

Employer

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

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**APPENDIX C – SUMMARY OF PLAN PROVISIONS  
TIER 1**

**5. Service Retirement**

Eligibility

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

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.



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**APPENDIX C – SUMMARY OF PLAN PROVISIONS  
TIER 1**

*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.

Benefit – Survivor

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

**8. Death Before Retirement**

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 maximum of 75% of Final Compensation. Benefit is subject to a minimum of 40% of Final Compensation if member dies while an active employee. 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.

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**APPENDIX C – SUMMARY OF PLAN PROVISIONS  
TIER 1**

**12. Changes Since the Last Valuation**

For bargaining units that have agreed to the provision, member contributions cease once a member has 30 years of City service (excluding reciprocal service).

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**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 except those who elect to participate in a defined contribution plan, had prior service under Tier 1 and did not take a return of contributions, or had prior service as a “classic” member in a reciprocal system with less than a six month break in service.

**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. However, the member's UAL contribution rate cannot increase by more than 0.33% of pay each year. The City contributes any amounts in excess of this cap that would otherwise be contributed by the member.

The member contribution rate cannot be less than 50% of the normal cost rate.

**5. City Contributions**

50% of total Tier 2 contributions to the pension plan, including, but not limited to administrative expenses, normal cost, and Unfunded Actuarial Liability. In addition, the City contributes any UAL amounts in excess of the member UAL cap until the member rate covers 50% of the UAL rate.

The City contribution rate cannot be less than 50% of the normal cost rate.

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**APPENDIX C – SUMMARY OF PLAN PROVISIONS  
TIER 2**

**6. Unreduced Service Retirement**

Eligibility

Age 62 with five years of service.

Benefit – Member

2.0% of Final Compensation for each year of credited service attributable to Tier 2, subject to a maximum of 70% of Final Compensation.

Benefit – Survivor

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

**7. Early Service Retirement**

Eligibility

Age 55 with five years of service.

Benefit – Member

Benefit reduced by a factor of 5% for each year the member retires before age 62.

The early retirement reduction is applied to the benefit after the application of the maximum of 70% of final compensation.

**8. Service-Connected Disability Retirement**

Eligibility

No age or service requirement.

Benefit – Member

2.0% of Final Compensation for each year of credited service, subject to a minimum of 40% of Final Compensation and a maximum of 70% of Final compensation, less the amounts specified in Section 3.28.1330 and Section 3.28.1340.

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**APPENDIX C – SUMMARY OF PLAN PROVISIONS  
TIER 2**

**9. 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, subject to a minimum of 20% of Final Compensation and a maximum of 70% of Final Compensation less the amounts specified in Section 3.28.1330 and Section 3.28.1340.

**10. Death Before Retirement**

Not yet eligible for Retirement, 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.

Eligible for Retirement

2.5% of Final Compensation for each year of credited service, subject to a maximum of 70% of Final Compensation. Benefit is subject to a minimum of 40% of Final Compensation if member dies while an active employee. 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.

**11. Withdrawal Benefits**

Less than five years of credited 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 reduced for early retirement, and payable when retirement eligibility is reached.

**12. Benefit Forms**

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

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**APPENDIX C – SUMMARY OF PLAN PROVISIONS  
TIER 2**

**13. 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 based on years of service as shown in the table below.

<b>Years of Service</b>	<b>Maximum COLA</b>
At least 1, but less than 11	1.25%*
At least 11, but less than 21	1.50%
At least 21, but less than 26	1.75%
At least 26	2.00%

\*1.5% for members hired before Measure F effective date

The first COLA after retirement shall be prorated based on the number of months retired.

**14. Changes Since the Last Valuation**

None.

**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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