

City and County of San Francisco Employees' Retirement System

**July 1, 2021
Actuarial Valuation Report**

Produced by Cheiron

January 2022

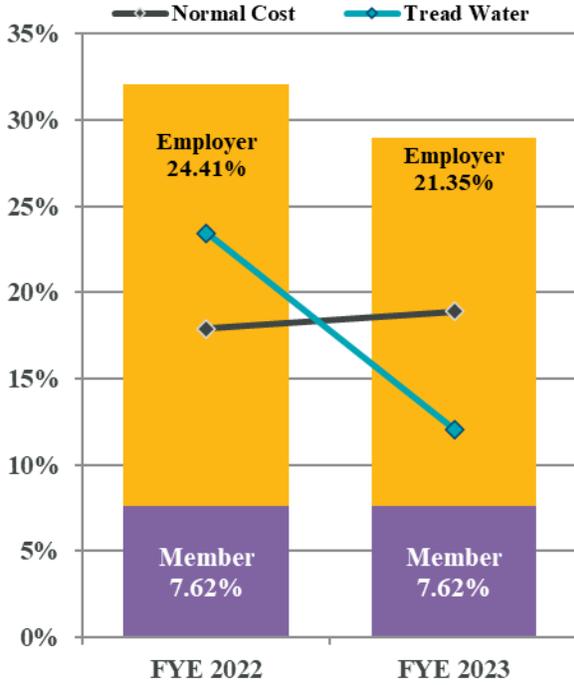
TABLE OF CONTENTS

<i>Section</i>		<i>Page</i>
Section I	Board Summary	1
Section II	Assessment and Disclosure of Risk	11
Section III	Certification	32
Section IV	Assets	34
Section V	Measures of Liability	36
Section VI	Contributions.....	40
Section VII	Actuarial Section of the Annual Report.....	45
 <i>Appendices</i>		
Appendix A	Membership Information	48
Appendix B	Actuarial Assumptions and Methods	67
Appendix C	Summary of Plan Provisions.....	82
Appendix D	Projection Details.....	104
Appendix E	Glossary of Terms.....	107

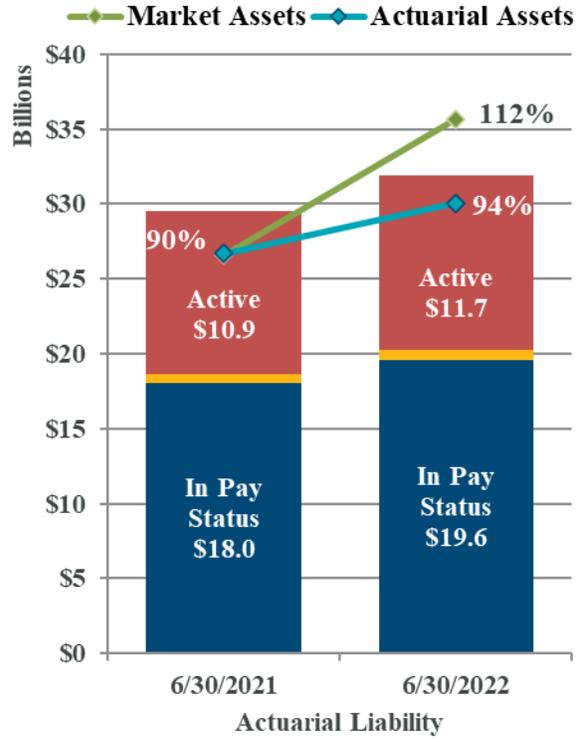
**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION I – BOARD SUMMARY

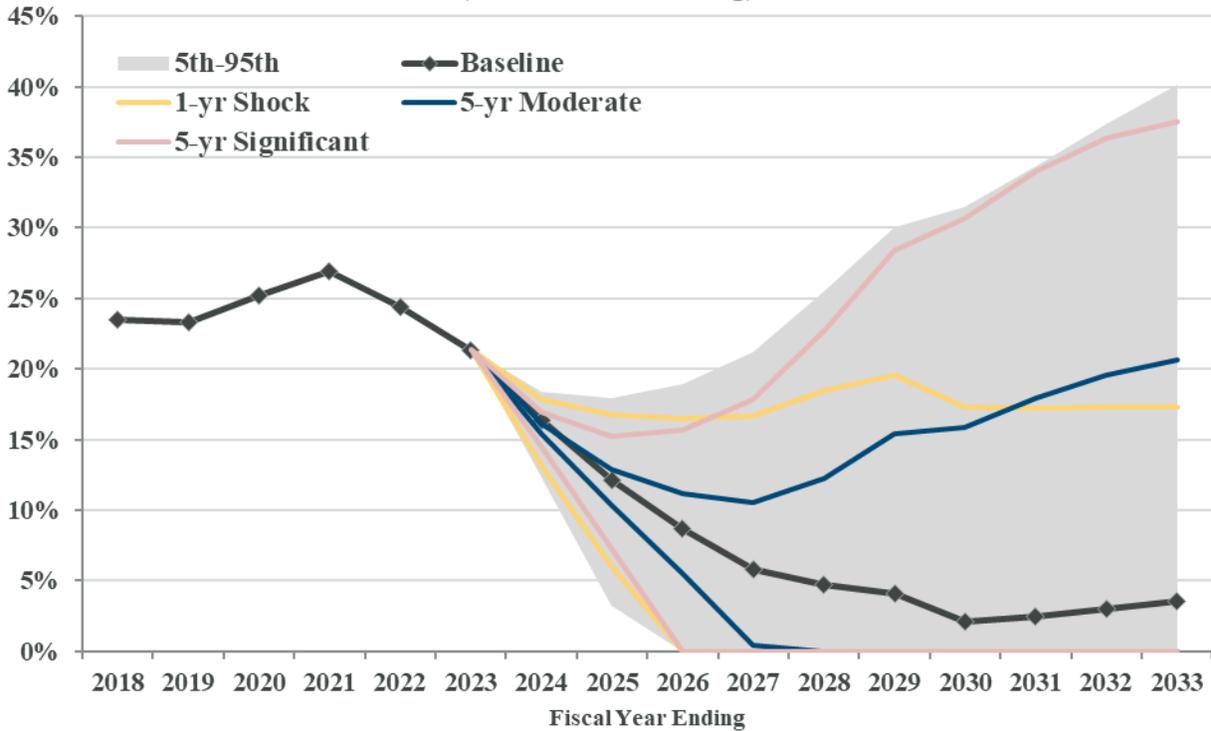
**Contribution Rates
(Before Cost-Sharing)**



Funded Status



**Historical and Projected Employer Contribution Rates
(Before Cost-Sharing)**



**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION I – BOARD SUMMARY

Key Findings of the July 1, 2021 Valuation

The key results of the July 1, 2021 actuarial valuation are as follows:

- The employer contribution rate decreased from 24.41% for FYE 2022 to 21.35% for FYE 2023 before any cost-sharing adjustments¹. After the cost-sharing adjustments, the estimated employer contribution rate decreased from 20.88% to 18.76%. The actual aggregate employer contribution rates after cost-sharing adjustments will depend upon the proportion of the actual payroll for each employee group defined in the Charter. See Table VI-2 for more details.
- The cost-sharing adjustment for employee contribution rates will decrease by 1.00% of pay in FYE 2023. The average employee contribution rate after cost-sharing adjustments is estimated to be 10.21% of pay in FYE 2023 compared to 11.15% in FYE 2022.
- On a Market Value of Assets basis (MVA), the funded ratio increased from 90.2% to 111.8%, and the Unfunded Actuarial Liability (UAL) decreased from \$2.88 billion to a surplus of \$3.77 billion. On an actuarial value basis (AVA), the funded ratio increased from 90.5% to 94.2%, and the Unfunded Actuarial Liability decreased from \$2.80 billion to \$1.86 billion.
- The return on the Market Value of Assets for the year ended June 30, 2021 was approximately 35.8% resulting in an actuarial gain of about \$7.46 billion that will be recognized over the next five years. The return on the Actuarial Value of Assets was 13.9%, which recognizes 20% of the FYE 2021 gain as well as deferred investment gains and losses from previous years, and results in an actuarial gain of about \$1.75 billion.
- Because actual investment returns were greater than expected and the System is fully funded based on the Market Value of Assets as of June 30, 2021, a Supplemental COLA was payable to all retirees whose Basic COLA was less than 3.5%. increasing the Actuarial Liability by approximately \$264 million. This increase is amortized over a period of five years, increasing the contribution rate by 1.61% of pay.
- At the November 10, 2021 Board meeting, the Board elected to reduce the discount rate from 7.4% to 7.2%. The assumption change increased the employer contribution rate by about 2.14% of pay, including both an increase to the normal cost rate and to the UAL rate. The Actuarial Liability increased by approximately \$702 million. The Board also elected to amortize all prior assumption changes and actuarial gains and losses (including the FYE 2021 actuarial gain) over five years. This change reduced the contribution rate by 2.20%.

¹The cost-sharing adjustments are dependent on the employer contribution rate, the employee group, and the level of pay based on the applicable table in the Charter. The FYE 2023 average cost-sharing adjustment is 2.59%, details of the calculation can be found in Table VI-2 of this report.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION I – BOARD SUMMARY

Funded Status

This report measures assets and liabilities for funding purposes. Table I-1 below summarizes the Actuarial Liability, assets, and related ratios as of July 1, 2021 compared to July 1, 2020.

Table I-1				
Summary of Key Valuation Results				
(Amounts in millions)				
Valuation Date	July 1, 2021	July 1, 2020	% Change	
Actuarial Liability	\$ 31,905.3	\$ 29,499.9	8.2%	
Actuarial Value of Assets	\$ 30,043.2	\$ 26,695.8	12.5%	
Unfunded Actuarial Liability (actuarial value)	1,862.1	2,804.1	-33.6%	
Funding Ratio (actuarial value)	94.2%	90.5%	3.7%	
Market Value of Assets	\$ 35,673.8	\$ 26,620.2	34.0%	
Unfunded Liability (market value)	(3,768.5)	2,879.7	-230.9%	
Funding Ratio (market value)	111.8%	90.2%	21.6%	
Expected Payroll	\$ 3,828.8	\$ 3,703.1	3.4%	
Interest on UAL (MVA basis)	\$ (262.1)	\$ 205.6	-227.4%	
Interest Cost as Percent of Payroll	-6.8%	5.6%	-12.4%	

The Actuarial Liability increased by approximately \$2.4 billion. The Actuarial Value of Assets, which is used as the basis to set contribution rates, increased by approximately \$3.3 billion reflecting smoothed investment returns and contributions offset by benefits and expenses paid during the year. SFERS' Unfunded Actuarial Liability decreased by approximately \$0.9 billion based on the Actuarial Value of Assets.

The Market Value of Assets increased approximately \$9.1 billion, and the UAL based on the Market Value of Assets decreased approximately \$6.6 billion. Assets now exceed the Actuarial Liability by \$3.8 billion.

The interest cost on the UAL – based on the Market Value of Assets – decreased by \$468 million. As a result, there is an expected interest credit of approximately 6.8% of payroll that acts as a buffer against the cost of future assumption changes, benefit changes, and actuarial losses.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION I – BOARD SUMMARY

Contributions

The City and County of San Francisco Employees' Retirement System (SFERS) funding policy sets employer contributions equal to the sum of:

- The employer normal cost under the Entry Age Normal Cost Method,
- The expected administrative expenses, and
- An amortization payment on the Unfunded Actuarial Liability.

The Charter (as amended by Proposition C effective July 1, 2012) requires employees to pay a portion of the employer contribution rate, depending on the employer contribution rate, the employee group, and the level of pay received by the employee. Unless explicitly identified, the figures shown in this report are before applying the cost-sharing adjustments. Table I-2 summarizes the employer and member contribution rates both before and after the cost-sharing adjustments.

Table I-2				
Summary Of Contributions				
(Amounts in millions)				
	FYE 2023	FYE 2022	Change	
<u>Contribution Rates Before Adjustments</u>				
Net Employer Contribution Rate	21.35%	24.41%	-3.06%	
Est. Aggregate Employee Contribution Rate	<u>7.62%</u>	<u>7.62%</u>	<u>0.00%</u>	
Total Contribution Rate	28.97%	32.03%	-3.06%	
Estimated Payroll	\$ 3,953.2	\$ 3,823.5	\$ 129.7	
Estimated Net Employer Contributions	843.9	933.5	(89.6)	
<u>Contribution Rates After Adjustments</u>				
Net Employer Contribution Rate	18.76%	20.88%	-2.12%	
Est. Aggregate Employee Contribution Rate	<u>10.21%</u>	<u>11.15%</u>	<u>-0.94%</u>	
Total Contribution Rate	28.97%	32.03%	-3.06%	
Estimated Payroll	\$ 3,953.2	\$ 3,823.5	\$ 129.7	
Estimated Net Employer Contributions	741.6	798.3	(56.7)	
<u>Total Contribution Rate</u>				
Normal Cost Rate	18.31%	17.29%	1.02%	
Administrative Expense Rate	0.60%	0.60%	0.00%	
UAL Rate				
Interest on Market Value UAL	-6.84%	5.55%	-12.39%	
Principal on UAL	<u>16.90%</u>	<u>8.59%</u>	<u>8.31%</u>	
Total UAL Rate	10.06%	14.14%	-4.08%	
Total Contribution Rate	28.97%	32.03%	-3.06%	

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION I – BOARD SUMMARY

The net employer contribution rate before applying the cost-sharing adjustments decreased 3.06% of payroll from 24.41% to 21.35% for the fiscal year ending June 30, 2023. The cost-sharing adjustment is estimated to decrease the employer contribution and increase the aggregate employee contributions by about 2.59% of payroll. Thus, the estimated employer contribution rate after cost sharing is 18.76% for FYE 2023. The cost-sharing adjustments will remain at this level as long as the employer contribution rate before adjustment is between 20.01% and 22.50%.

SFERS Membership

As shown in Table I-3 below, membership in SFERS increased in total by 0.6%. Active membership decreased 2.5%, terminated vested membership increased 5.5%, and members receiving benefits increased by 2.4%. Total payroll increased by 3.4%. The average pay per active member increased 6.1%.

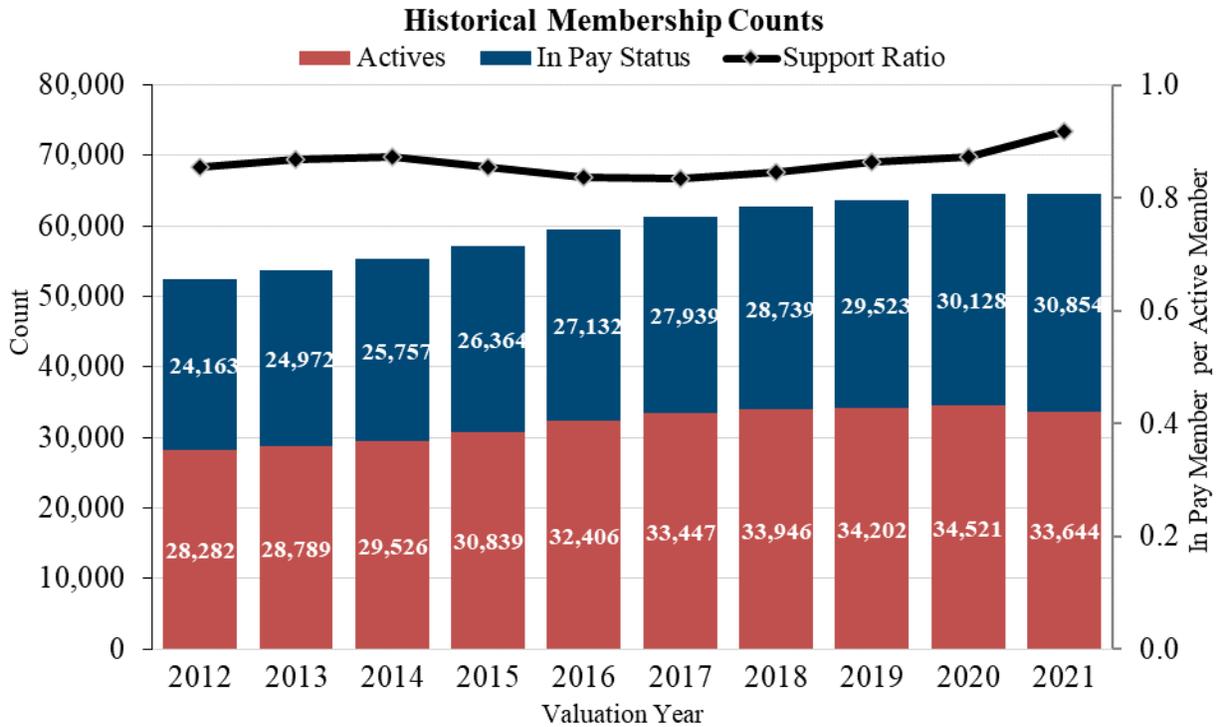
Table I-3 Membership Total			
	July 1, 2021	July 1, 2020	% Change
Actives	33,644	34,521	-2.5%
Terminated Vested	11,126	10,549	5.5%
Members Receiving Benefits	30,854	30,128	2.4%
Total SFERS Members	75,624	75,198	0.6%
Active Member Payroll (thousands) ¹	\$ 3,828,800	\$ 3,703,100	3.4%
Average Pay per Active	\$ 113,800	\$ 107,300	6.1%

¹ Active member payroll is projected for the fiscal year beginning on the valuation date.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION I – BOARD SUMMARY

The chart below shows the historical trend in membership counts over the last 10 years. This trend can be an important indicator of growing plan maturity and sensitivity to investment returns, assumption changes, and other changes to the System. In particular, if the ratio of retirees to active members grows, it indicates that any losses on retiree liabilities or assets are likely to place a relatively greater burden on employers and active members. For SFERS, there was a moderate increase in this ratio immediately following the Great Recession when active membership declined while the number of retirees grew. The ratio has remained relatively stable over the last decade, however it increased in 2021 due to the first decline in active membership since 2011. Over the last decade, growth in the number of retirees has slightly outpaced the growth in active membership and as a result the support ratio has increased from 0.85 to 0.92 over this period demonstrating a relatively stable but maturing population of members.



**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION I – BOARD SUMMARY

Contribution Reconciliation

The SFERS contribution rate for FYE 2023 before cost-sharing adjustments decreased from 24.41% to 21.35% of payroll. Table I-4 shows sources for the change in the net employer contribution rate. The investment gain was the largest contributing factor to the decrease and reduced the contribution rate by 3.49%. The change to the amortization periods for prior assumption changes and actuarial gains and losses decreased the contribution rate by 2.20%. The amortization payments for the 2014 Supplemental COLA were completed resulting in a 1.63% decrease in the employer contribution rate.

The July 1, 2021 Supplemental COLA and the reduction in the discount rate offset the decrease in the employer contribution rate, increasing the contribution rate by 3.75%. Liability experience further increased the contribution rate.

Table I-4			
Net Employer Contribution Rate Reconciliation			
(Before Cost-Sharing Adjustment)			
	Normal Cost ¹	UAL Payment	Total
FYE 2022 Net Employer Contribution Rate	10.27%	14.14%	24.41%
Investment gain on actuarial value of assets	0.00%	-3.49%	-3.49%
Amortization policy changes	0.00%	-2.20%	-2.20%
Decrease in the discount rate from 7.4% to 7.2%	0.81%	1.33%	2.14%
July 1, 2021 Supplemental COLA	0.00%	1.61%	1.61%
Fully paid 2014 Supplemental COLA	0.00%	-1.63%	-1.63%
Liability experience and other changes	0.21%	0.32%	0.53%
Payroll increase more than assumed	<u>0.00%</u>	<u>-0.02%</u>	<u>-0.02%</u>
Total Change	1.02%	-4.08%	-3.06%
FYE 2023 Net Employer Contribution Rate	11.29%	10.06%	21.35%

¹ Includes administrative expenses and is net of employee contributions.

SECTION I – BOARD SUMMARY

Historical and Projected Trends

Each valuation is a snapshot of the long-term progress of a pension fund. It is important to judge a current year's valuation result in the context of historical and projected future trends. **The baseline projections on the next page include the cost and liability for assumed future Supplemental COLAs.**

Supplemental COLAs are granted if there are excess returns (the actual return on the Market Value of Assets minus the expected return on Actuarial Value of Assets). For members who retired prior to November 6, 1996 (Pre-97 Retirees) or were hired after Proposition C (Prop C) passed in 2012, the Supplemental COLA is only payable if the System was 100% funded based on the Market Value of Assets. For the Post '96 Retirees, the projections assume 50% of a full Supplemental COLA each year (0.75% for most members). For the Pre-97 and Prop C Retirees, the probability is near 50% in the short term since the System is now 112% funded based on the Market Value of Assets.

The top chart on page 10 compares the Market Value of Assets to the Actuarial Liability for the historical period from 2011 to 2021 and the projected period from 2022 to 2031 assuming all assumptions are met. The light gray bars represent the historical Actuarial Liability in years when no Supplemental COLA was paid, while the black bars represent the historical Actuarial Liability in years when a Supplemental COLA was paid. The medium gray bars represent the projected Actuarial Liability. The black bar with a light gray outline is the current valuation year.

At the top of the bars, the funding ratios based on the Market Value of Assets are shown. The System was 84% funded as of July 1, 2011. Since then, investment returns and contribution increases offset by some assumption changes and the impact of actual Supplemental COLAs have increased funding ratios, reaching 90% as of July 1, 2020 and jumping to 112% as of July 1, 2021.

The bottom chart on page 10 shows historical and projected contribution rates for the fiscal years ending 2013 through 2033. The dark and light gray bars represent historical member and employer contribution rates while the purple and gold bars represent member and employer contribution rates currently in effect and projected for the future. The rates determined by the current valuation are a darker shade. The blue line represents the baseline projection from the 2020 actuarial valuation.

The employer contribution rate increased significantly from fiscal year ending 2013 through 2015. The increases were primarily due to the recognition of investment losses and assumption changes. Employer contribution rates declined for 2016 and 2017, but then increased again reaching a peak in 2021 at 26.9%. This increase has been driven primarily by Supplemental COLAs. The contribution rate decreased for FYE 2022 primarily due to assumption changes and the completion of the amortization payments for a charter amendment. The contribution rate decreased for FYE 2023 primarily due to the exceptional investment returns in FYE 2021 and the change in amortization policy offset by the increase due to the change in discount rate. After FYE 2023, employer contributions are expected to continue to decline sharply over the next four years as the \$5.6 billion in deferred asset gains are recognized. SFERS is expected to be over

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

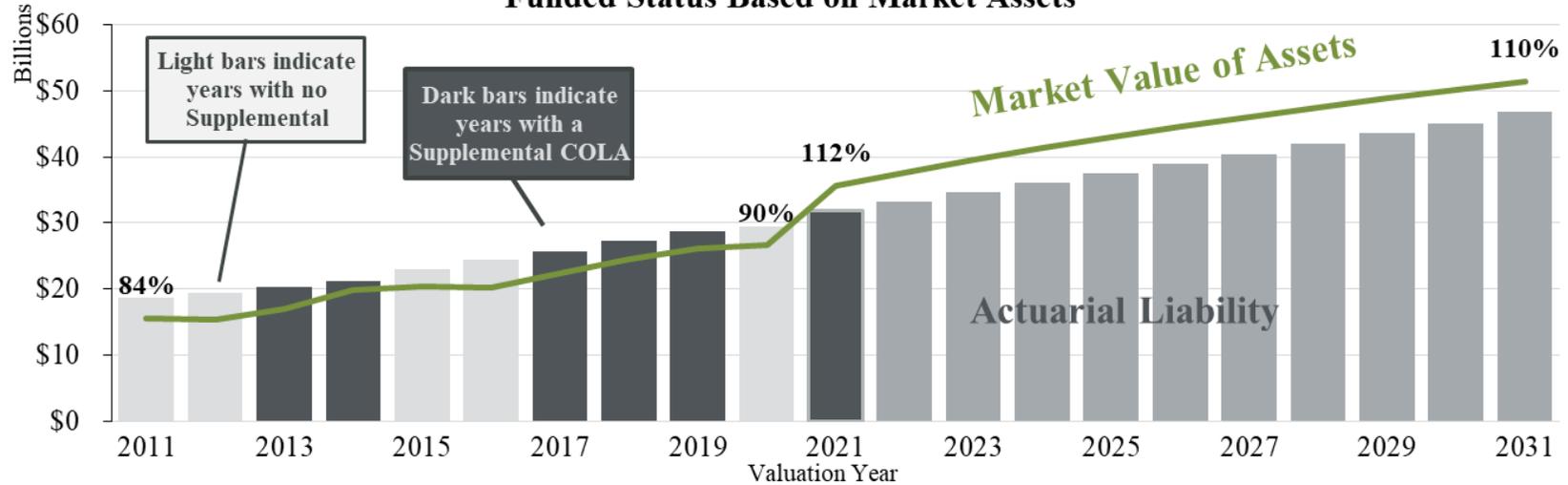
SECTION I – BOARD SUMMARY

100% funded based on the Actuarial Value of Assets beginning July 1, 2023. While there was no change to the amortization of future layers while a UAL remains, when the Plan becomes 100% funded based on the Actuarial Value of Assets, the revised amortization policy states that any new amortization layers (including Supplemental COLAs) will be amortized over a rolling 20-year period.

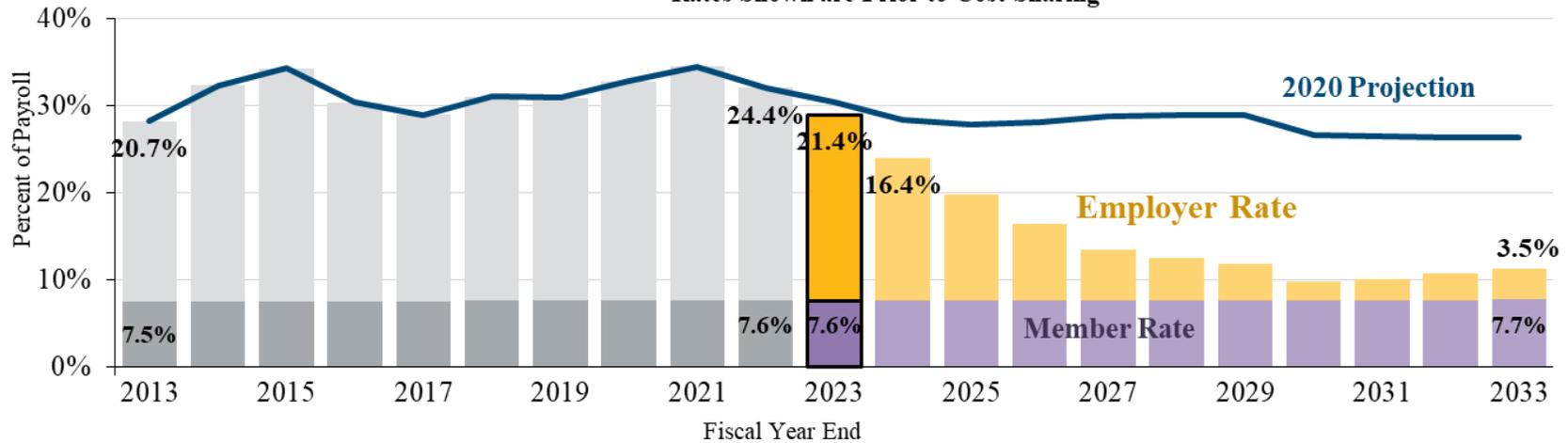
**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION I – BOARD SUMMARY

Funded Status Based on Market Assets



Employer Contribution Rates are Projected to Decline
Rates Shown are Prior to Cost-Sharing



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

The fundamental risk to the System is that the contributions needed to pay the benefits become unaffordable. While SFERS cannot determine on its own what contribution level is unaffordable, we can project expected contribution rates and illustrate the potential impact of key sources of risk on those contribution rates so the employers can assess affordability. While there are several factors that could lead to contribution amounts becoming unaffordable, we believe the primary risks for this System are:

- Investment risk,
- Interest rate risk, and
- Supplemental COLA risk.

Investment risk is the potential for investment returns to be different than expected. 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, but longer-term trends can have a powerful effect on economic assumptions, particularly the discount rate. Supplemental COLA risk is the potential for the cost of future Supplemental COLAs to increase contribution rates.

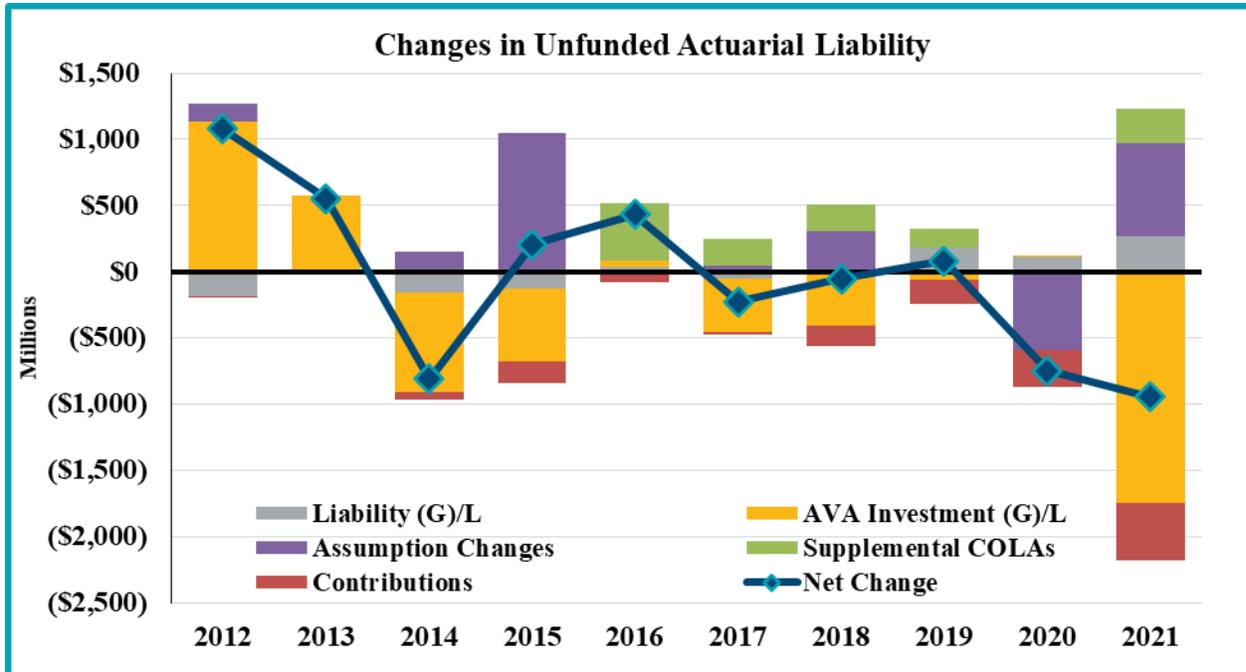
Other risks that we have not identified may also turn out to be important.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

The chart below shows the components of changes in the Unfunded Actuarial Liability for the last 10 years, including investment gains and losses on the Actuarial Value of Assets, liability gains and losses, assumption changes, benefit changes, and contributions compared to the tread water level of contributions (normal cost plus interest on the UAL, explained in more detail below). The net UAL change is shown by the dark blue line.

SFERS Historical Changes in UAL 2012-2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Discount Rate	7.58%	7.58%	7.50%	7.50%	7.50%	7.50%	7.40%	7.40%	7.40%	7.20%	
Source											
AVA (G)/L	\$ 1,135.0	\$ 579.6	\$ (749.2)	\$ (545.5)	\$ 51.5	\$ (405.7)	\$ (408.9)	\$ (58.6)	\$ 6.4	\$ (1,750.0)	\$ (2,145.4)
Liability (G)/L	(187.1)	(9.9)	(157.9)	(127.6)	34.5	(45.5)	6.5	185.4	112.3	270.0	80.7
Assumptions/Methods	135.5	0.0	153.1	1,048.4	0.0	50.2	297.7	0.0	(591.4)	701.6	1,795.1
Supplemental COLAs	0.0	0.0	0.0	0.0	429.3	200.1	200.8	141.0	0.0	264.1	1,235.3
Contributions ¹	(2.8)	(14.5)	(56.9)	(168.2)	(83.7)	(27.4)	(147.5)	(186.2)	(274.2)	(427.7)	(1,389.1)
Total UAL Change	\$1,080.6	\$ 555.2	\$ (810.9)	\$ 207.1	\$ 431.6	\$ (228.3)	\$ (51.4)	\$ 81.6	\$ (746.9)	\$ (942.0)	\$ (423.4)

¹ Actual contributions (greater)/less than normal cost, administrative expenses and interest on the UAL; also includes rate implementation delay, payroll growth not as anticipated.

The totals above support the identification of investment returns, Supplemental COLAs, and interest rates that drive assumption changes as the primary risks to the System.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

On a smoothed asset basis, the investment gains and losses (gold bars) from 2012 and 2013 reflect material investment losses driven by the market decline in FYE 2009, which was spread over the five successive years. Recent market experience has primarily produced gains with a \$1.75 billion gain in 2021. Over the 10-year period, investment gains reduced the UAL by approximately \$2.1 billion.

On the liability side (gray bars), gains early in the period have been offset by more recent losses with a net experience loss increasing the UAL by approximately \$81 million over the 10-year period.

Assumption and method changes (purple bars) over the last 10 years have increased the UAL by about \$1.8 billion. The significant changes increasing the UAL have included reductions in the discount rate as interest rates have declined, decreases in mortality rates, and increases in retirement rates. The assumption changes lowering the UAL in 2020 were primarily due to reductions in wage inflation and assumed Old Safety COLAs. In 2021, the discount rate was reduced to 7.2% which increased the UAL by \$702 million.

Benefit changes (green bars) are all Supplemental COLAs. While our projections include an assumed level of Supplemental COLAs, the Actuarial Liability for determining contribution rates in each valuation does not. In 2016, the benefit increase is a result of the 2013 and 2014 retroactive Supplemental COLAs. Over the 10-year period, Supplemental COLAs increased the UAL by about \$1.2 billion.

Each year, the UAL is expected to increase for active member benefits attributable to the current year of service (the normal cost), administrative expenses, and interest on the UAL. This expected increase is referred to as the tread water level. If contributions are greater than the tread water level, the UAL is expected to decrease. Conversely, if contributions are less than the tread water level, the UAL is expected to increase. Over the 10-year period, contributions have decreased the UAL by about \$1.4 billion, and during 2021, contributions decreased the UAL by about \$428 million.

In general, the amortization methods used to determine contributions to the System are designed to collect more than the tread water level. However, the System may temporarily pay less than this threshold due to asset smoothing, the one-year delay between the valuation date and when contribution rates become effective or due to unexpected reductions in payroll.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

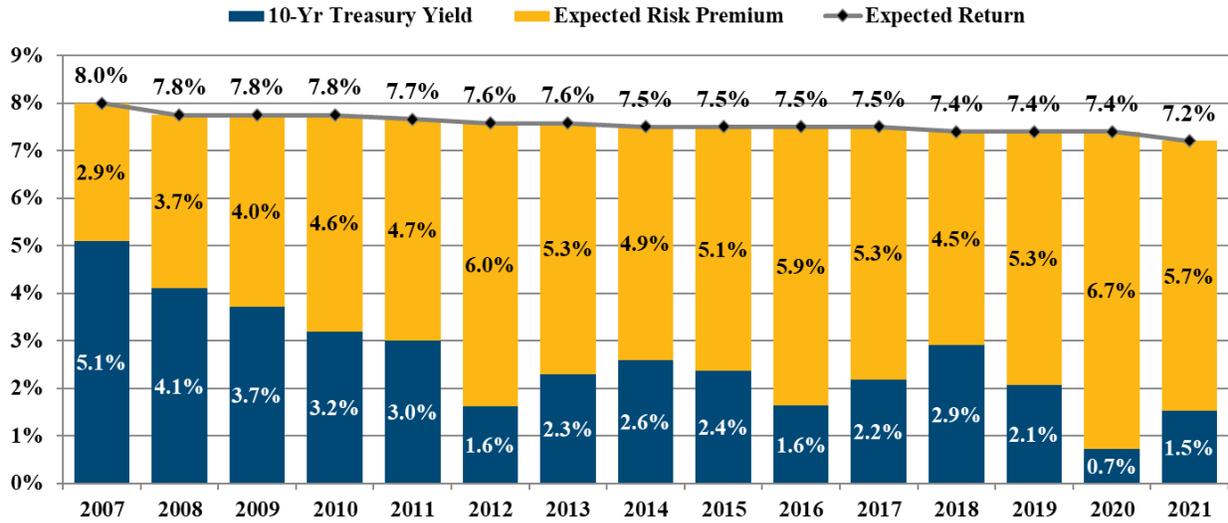
SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

The chart below 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 investment risk premium. From 2007 to 2021, the yield on the 10-year Treasury declined from about 5.1% to 1.5%. As interest rates declined, the System faced a choice:

- maintain the same risk premium and reduce the expected rate of return;
- maintain the same expected rate of return and increase the risk premium; or
- some combination of the two strategies.

During this period, the System reduced its expected rate of return 80 basis points from 8.0% to 7.2% and increased its expected risk premium 280 basis points from 2.9% to 5.7%. If interest rates remain this low, there will be continued pressure to reduce the discount rate.

San Francisco City and County Expected Risk Premium



SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

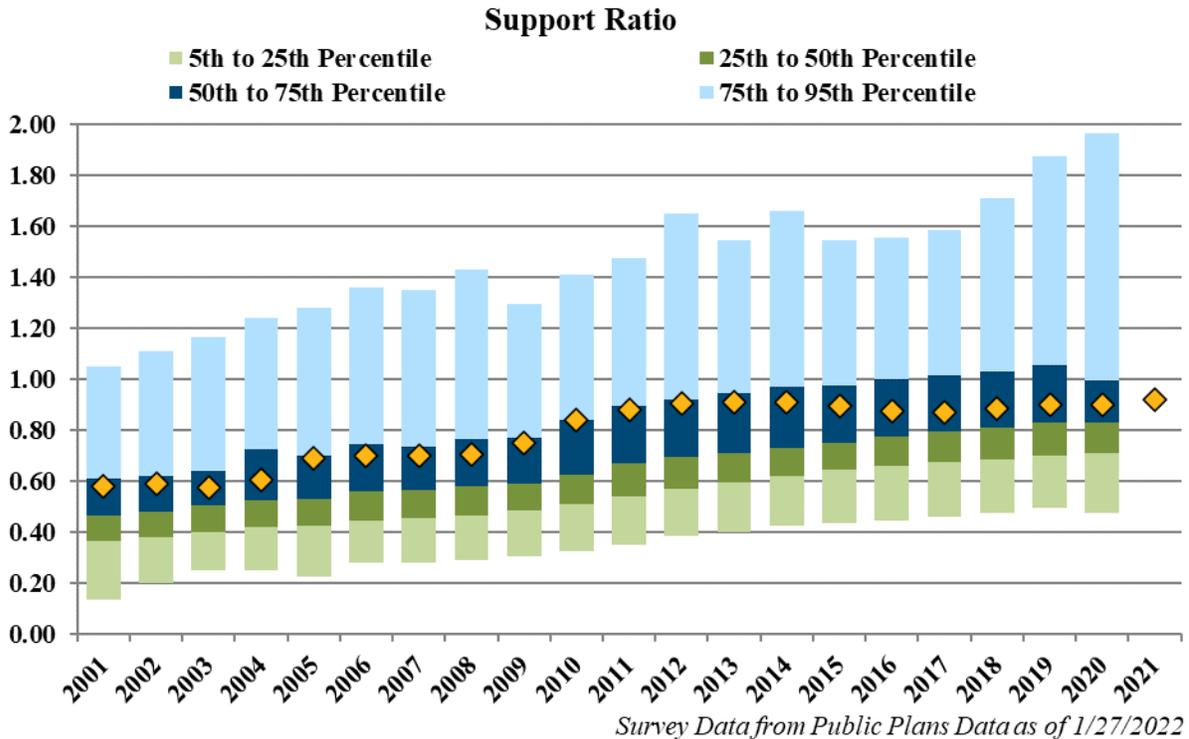
Plan Maturity Measures

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 SFERS compared to other public plans and how the maturity has changed over time.

Plan maturity can be measured in a variety of ways, but all of the measures 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 measures below have been selected as the most important in understanding the primary risks identified for SFERS.

Support Ratio (Inactives per Active)

One simple measure of plan maturity is the ratio of the number of members receiving benefits 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 indicate a larger plan relative to its revenue base as well.



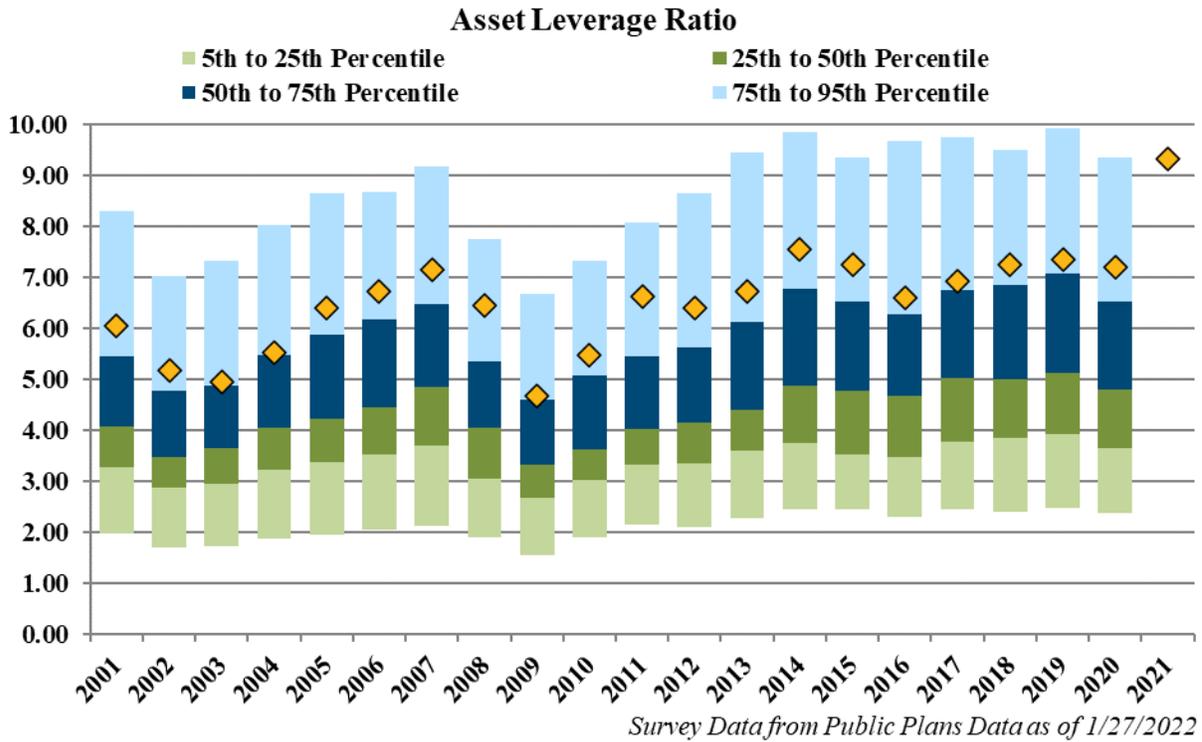
The chart above compares the distribution from the 5th to 95th percentile of support ratios for the plans in Public Plans Data to SFERS (yellow diamonds). Like many other plans, SFERS support ratio increased during the Great Recession, but SFERS has stabilized in recent years while other plans have continued to increase. The support ratio for SFERS increased slightly in 2021 due to a decline in the active membership.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Leverage Ratios

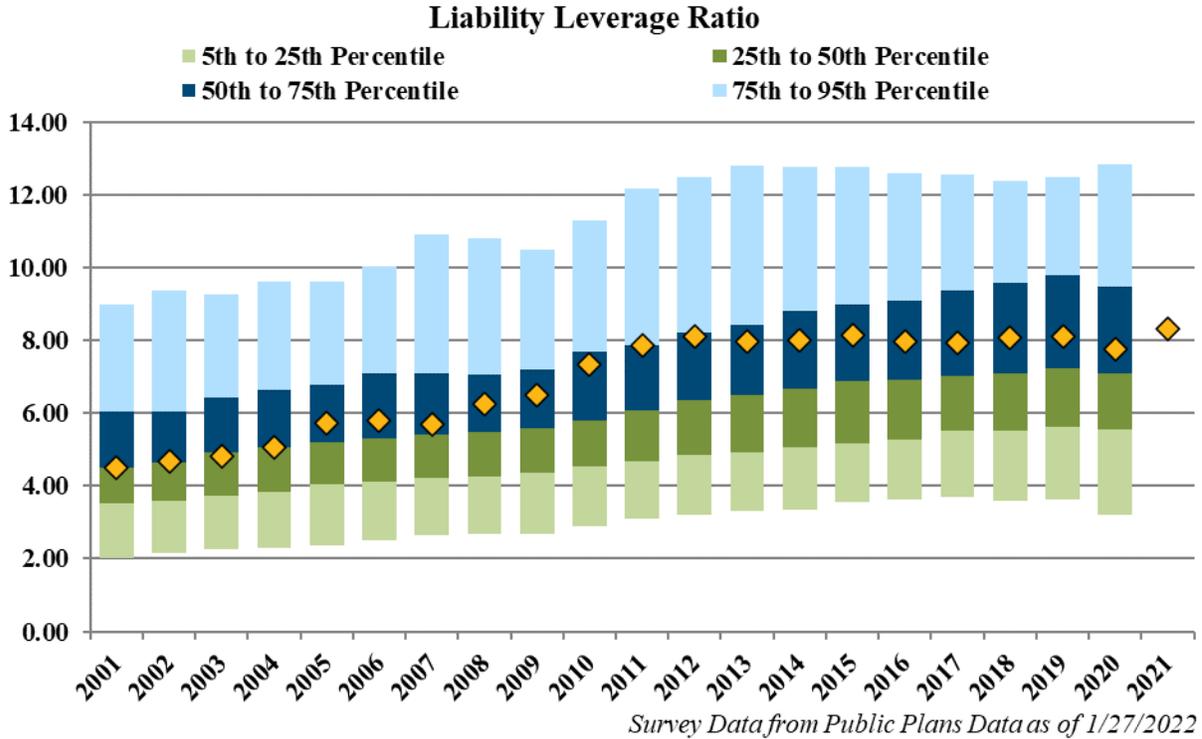
Leverage or volatility ratios measure the size of the plan compared to its revenue base more directly. An asset leverage ratio of 5.0, for example, means that if the system experiences a 10% loss on assets compared to the expected return, the loss would be equivalent to 50% of payroll. The same investment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



SFERS' asset leverage ratio increased significantly in 2021 primarily due to the exceptional investment returns. The asset leverage ratio is greater than the liability leverage ratio because the Plan's Market Value of Assets exceeds the Actuarial Liability. The liability leverage ratio indicates how sensitive the system is to experience gains and losses or assumption changes. For example, an assumption change that increases the Actuarial Liability by 5% would add a liability equivalent to about 50% of payroll if the liability leverage ratio is 10.0.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK



The chart above and on the previous page compare the distribution from the 5th to 95th percentile of asset and liability leverage ratios for the plans in the Public Plans Database to SFERS (yellow diamonds).

SFERS’ asset leverage ratio has consistently been at the 75th percentile or above compared to other plans while its absolute level has fluctuated with investment returns and the growth of the system. It reached a low during this period of 4.7 in 2009 and a peak of 9.3 in 2021. This level indicates that SFERS is more sensitive to investment returns than 75% of public plans.

SFERS’ Actuarial Liability leverage ratio has consistently been between the 50th-75th percentiles since 2001 and has recently been holding relatively constant around 8.0 while other plans have been increasing. SFERS remains in the 50th to 75th percentile which means that it is more sensitive to the impact of assumption changes than most public plans.

Assessment of 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.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Investment Risk – Stress Testing

To assess the potential impact of investment risk, we developed six hypothetical scenarios. The scenarios are balanced between positive and negative scenarios and are based on a lognormal distribution of one and five year expected returns as shown in the table below using the 10-year capital market assumptions from SFERS' investment consultant NEPC (Geometric return = 6.9%, standard deviation = 11.9% (1 year), 15.1% - (5 year)).

Distribution of Expected Average Annual Returns		
Percentile	1 Year	5 Year
5th	-10.9%	-3.6%
25th	-0.8%	2.4%
50th	6.9%	6.9%
75th	15.2%	11.4%
95th	28.3%	18.4%

The scenarios include a one-year shock using the 5th and 95th percentile returns for one year, a 5-year moderate scenario using the 25th and 75th percentile returns for five years and a 5-year significant scenario using the 5th and 95th percentile returns for five years. The table below summarizes the theoretical scenarios.

Theoretical Scenarios						
FYE	1-Yr Shock		5-Yr Moderate		5-Yr Significant	
	Neg	Pos	Neg	Pos	Neg	Pos
2022	-10.9%	28.3%	2.4%	11.4%	-3.6%	18.4%
2023	7.2%	7.2%	2.4%	11.4%	-3.6%	18.4%
2024	7.2%	7.2%	2.4%	11.4%	-3.6%	18.4%
2025	7.2%	7.2%	2.4%	11.4%	-3.6%	18.4%
2026	7.2%	7.2%	2.4%	11.4%	-3.6%	18.4%
2027+	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

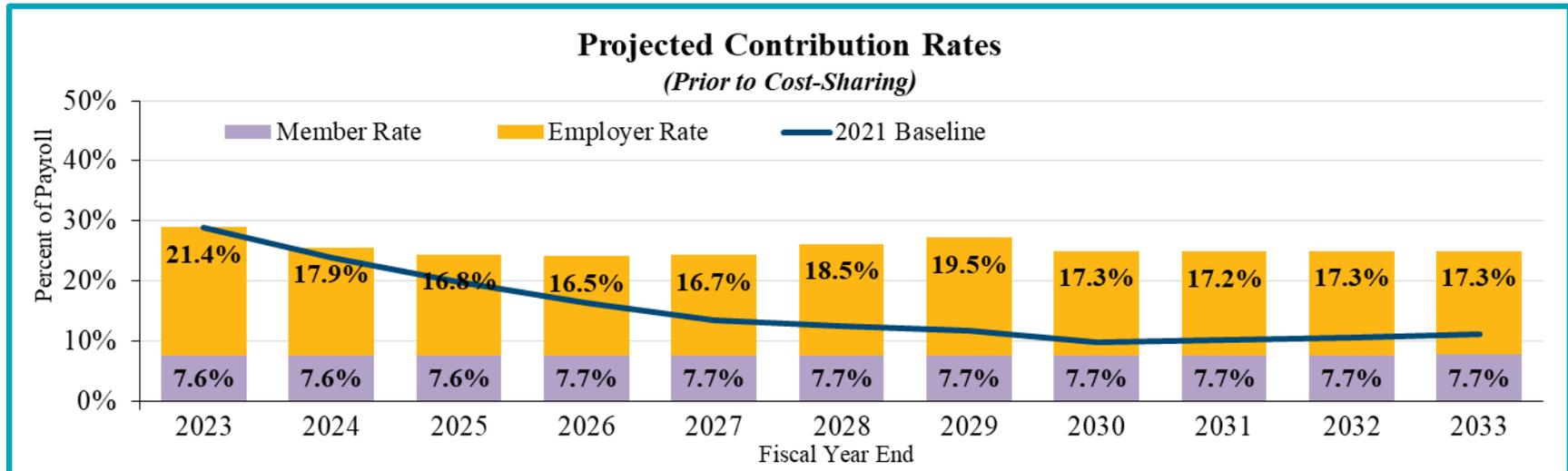
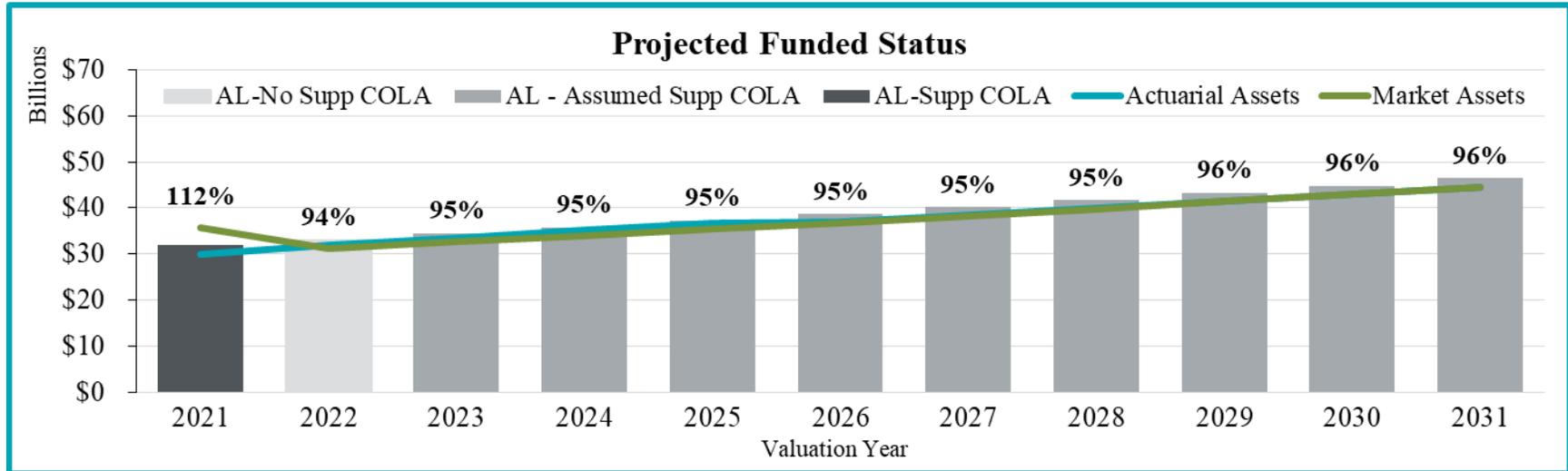
SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

The charts on the following pages show the projections under each of these theoretical scenarios. The contribution charts include a blue line representing the 2021 baseline projections shown in the Board Summary (on page 10) to facilitate the comparison between the scenario and the projections assuming all assumptions are met. Supplemental COLAs for future years where the return differs from the assumption are calculated based on actual returns in excess of the expected return on the Actuarial Value of Assets. In years where the return equals the assumed return, a partial Supplemental COLA is assumed based on the probability of the return exceeding the amount necessary to generate a Supplemental COLA. The liability projections are shown as black bars in years a Supplemental COLA is payable, medium gray bars in years when a Supplemental COLA is assumed to be payable, and light gray bars in years when no Supplemental COLA is payable. The contribution rates are shown before any cost-sharing adjustments.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

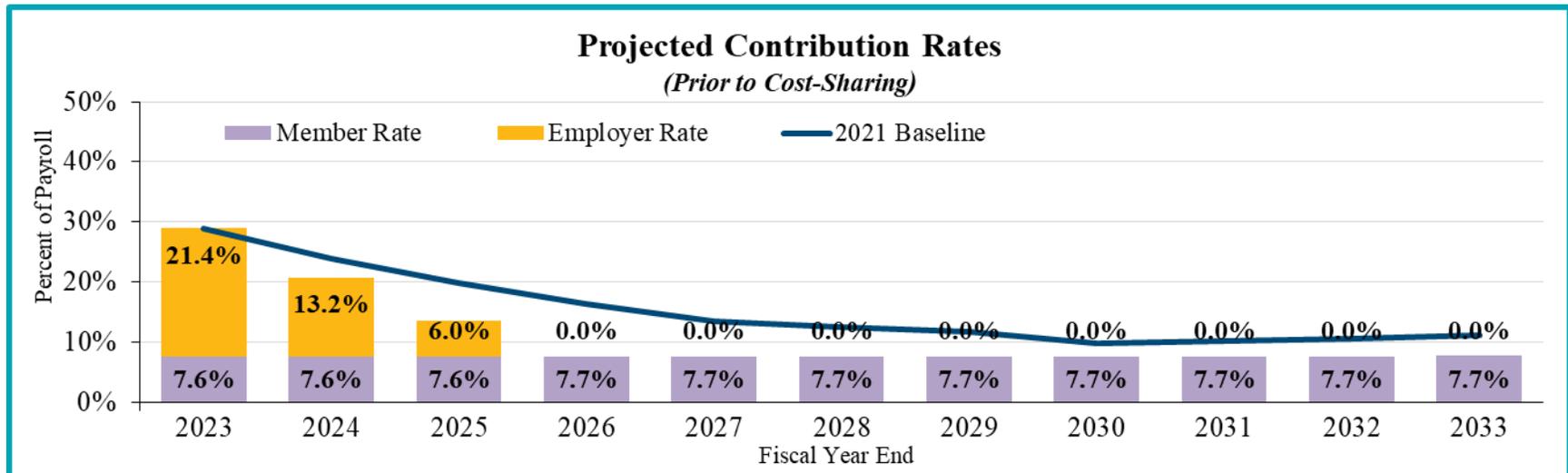
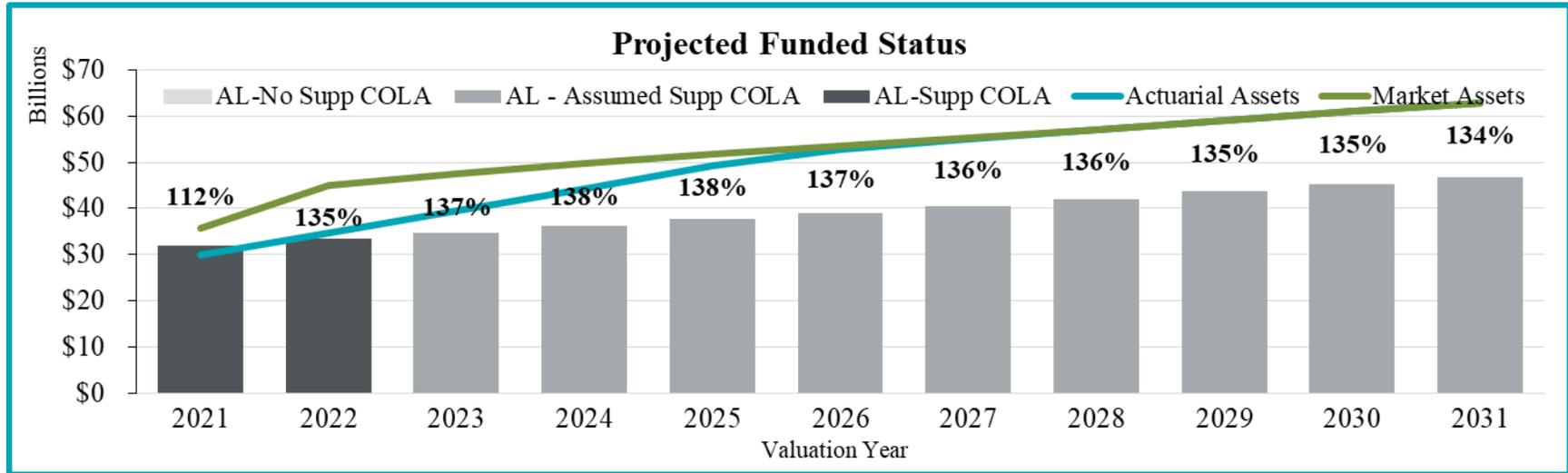
One-Year Negative Shock Scenario: -10.9% return FYE 2022, 7.2% after



**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

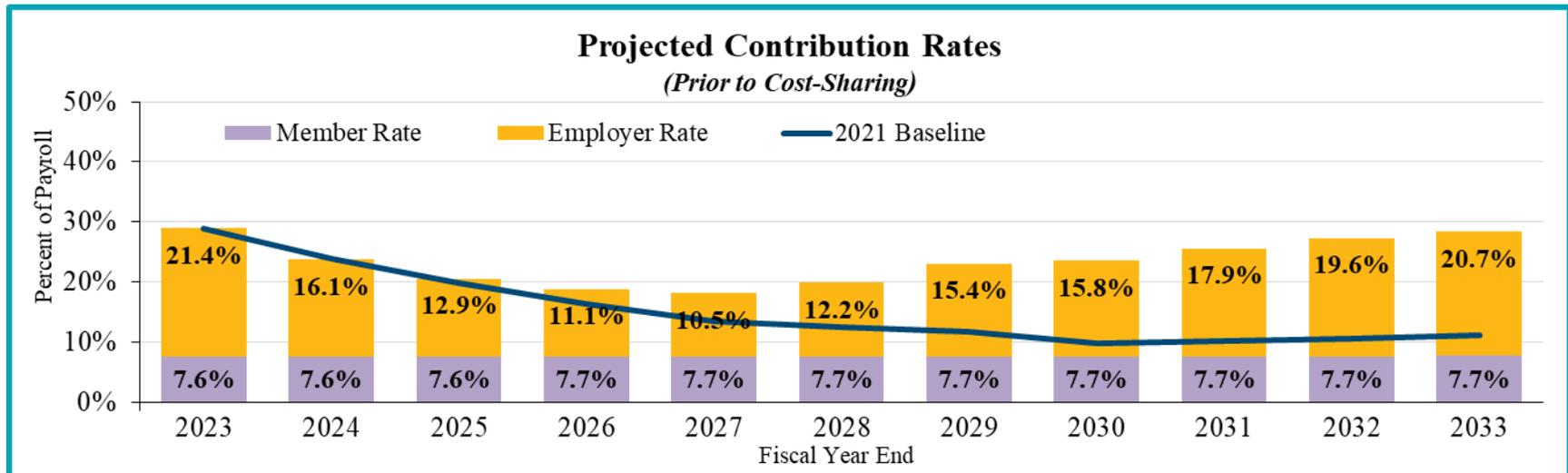
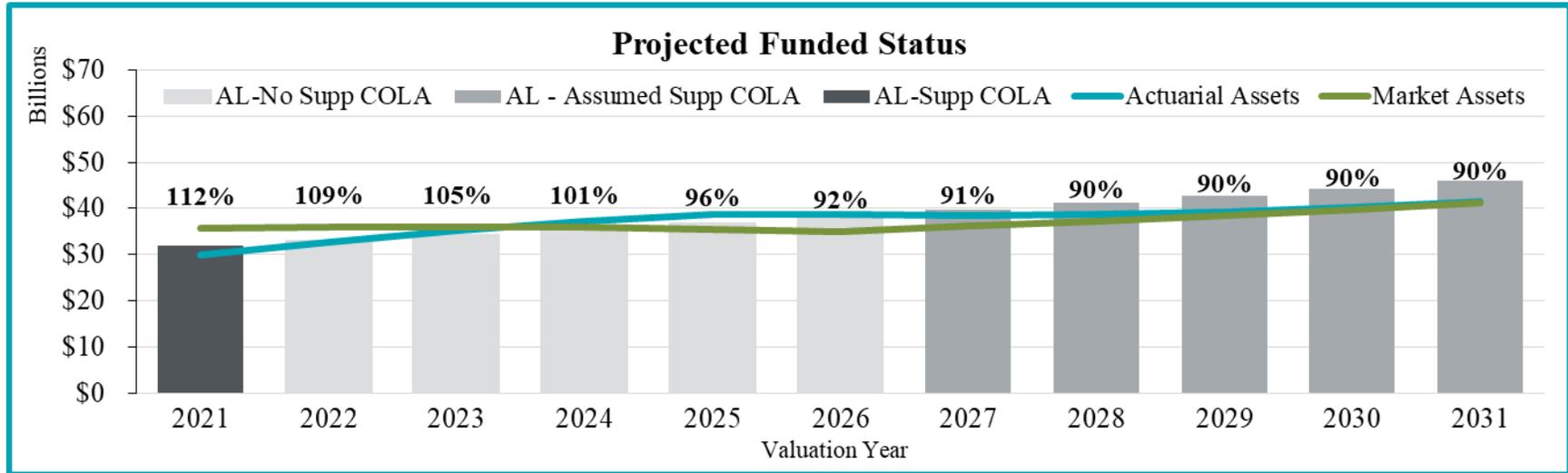
One-Year Positive Shock Scenario: 28.3% return FYE 2022, 7.2% after



**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

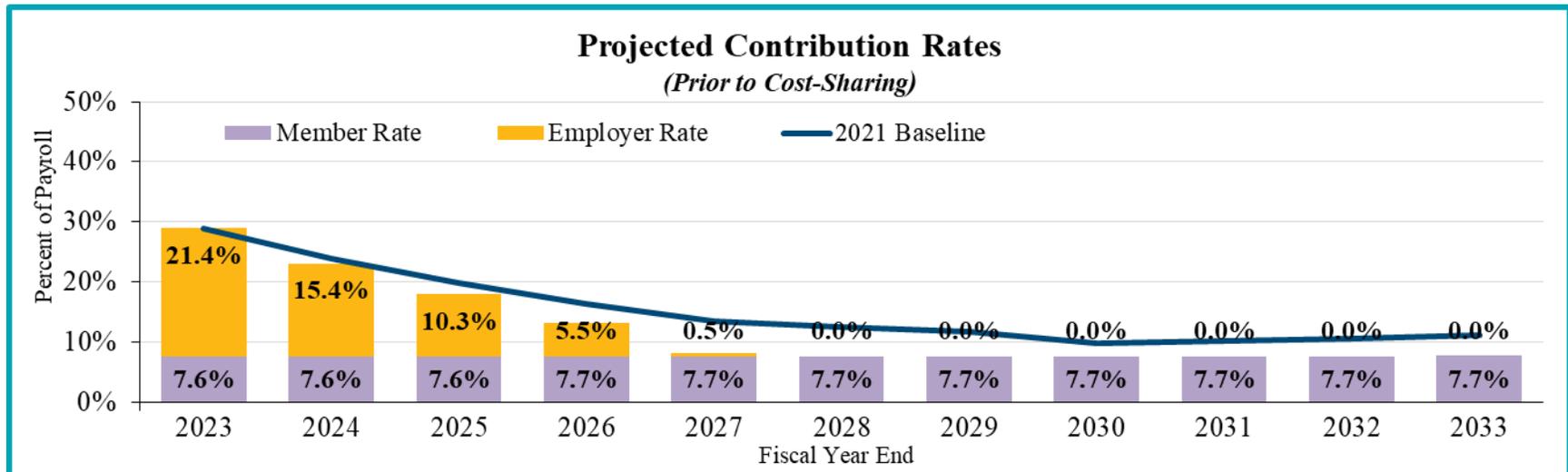
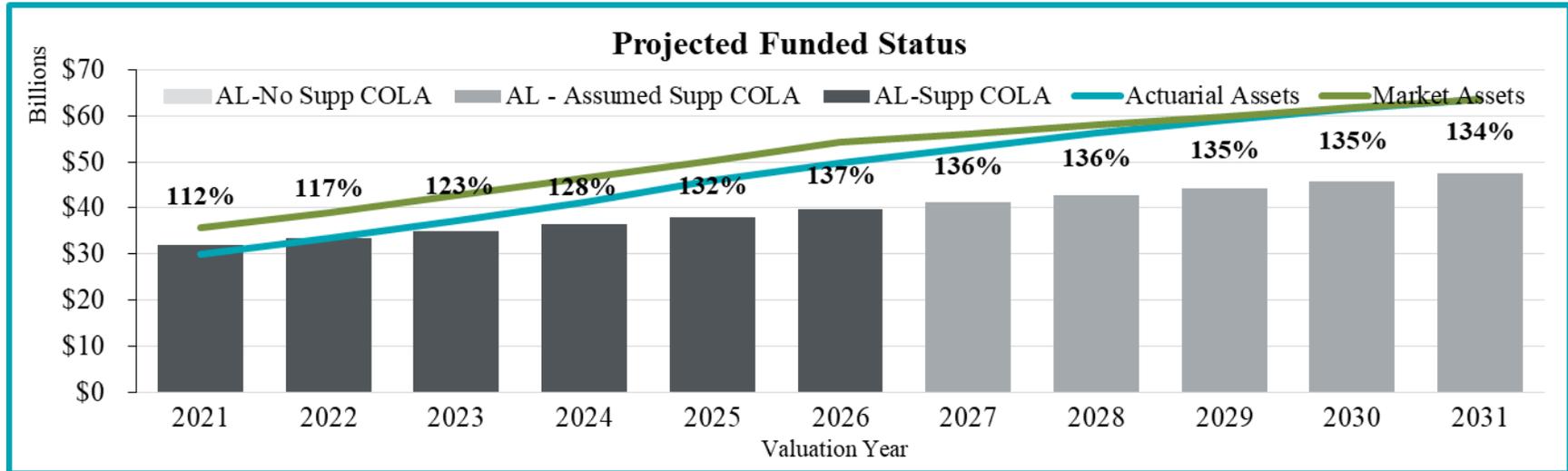
Five-Year Moderate Negative Scenario: 2.4% return FYE 2022-2026, 7.2% after



**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

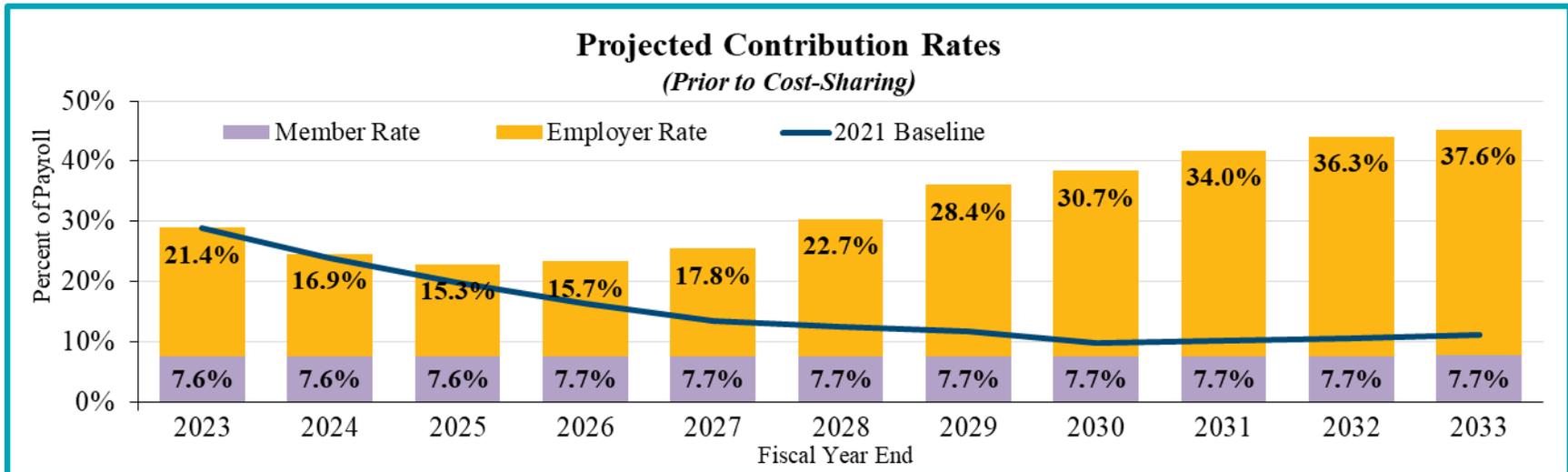
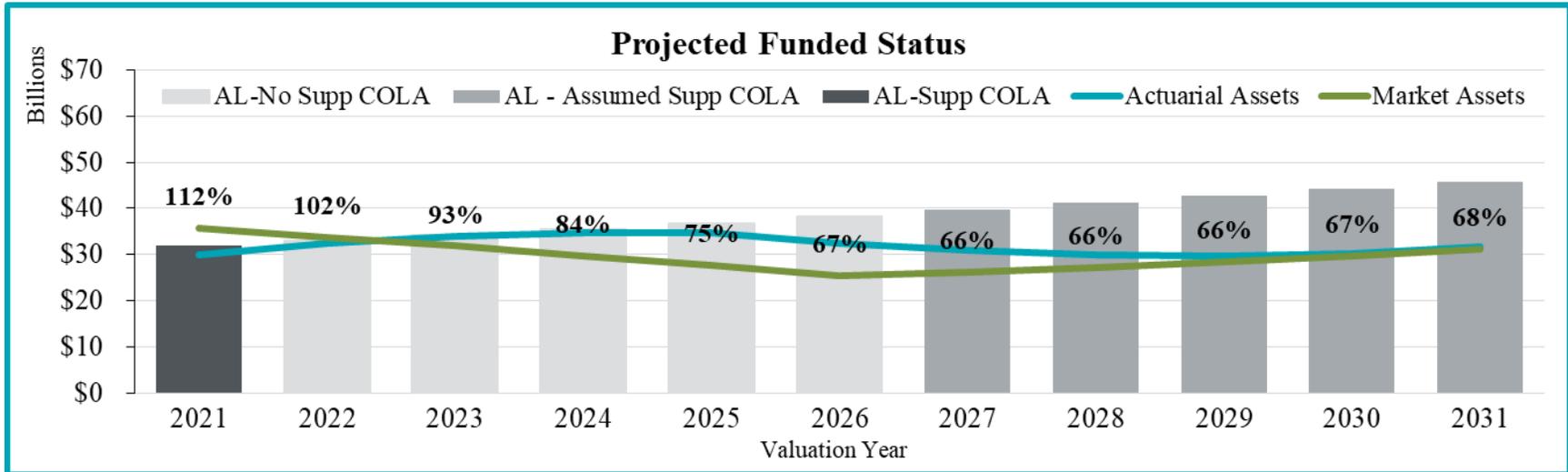
Five-Year Moderate Positive Scenario: 11.4% return FYE 2022-2026, 7.2% after



**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

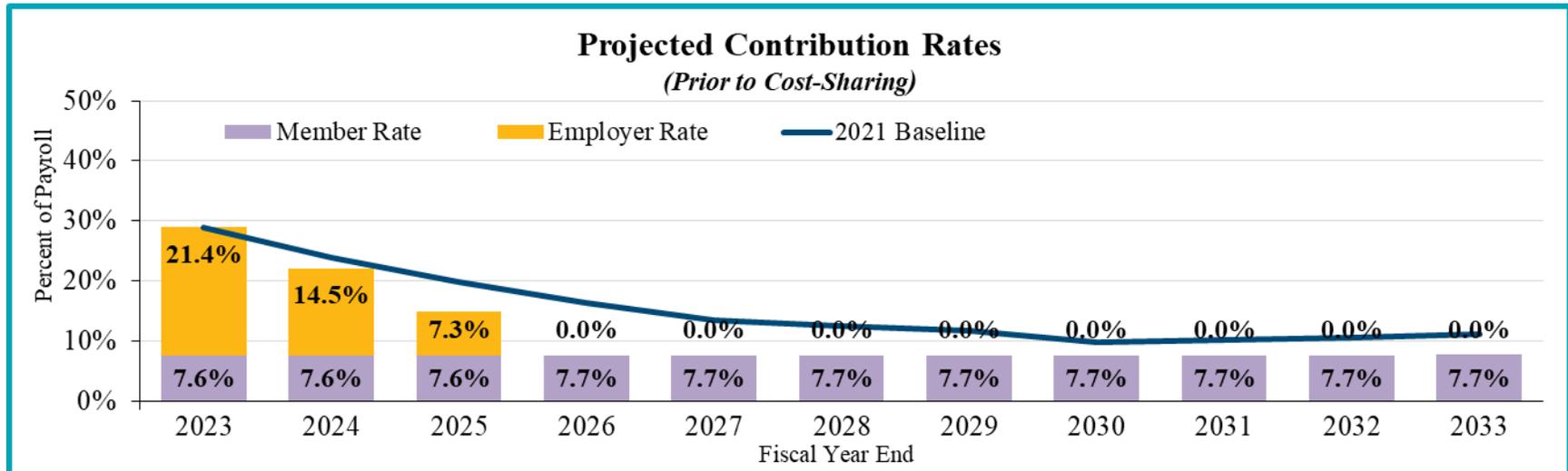
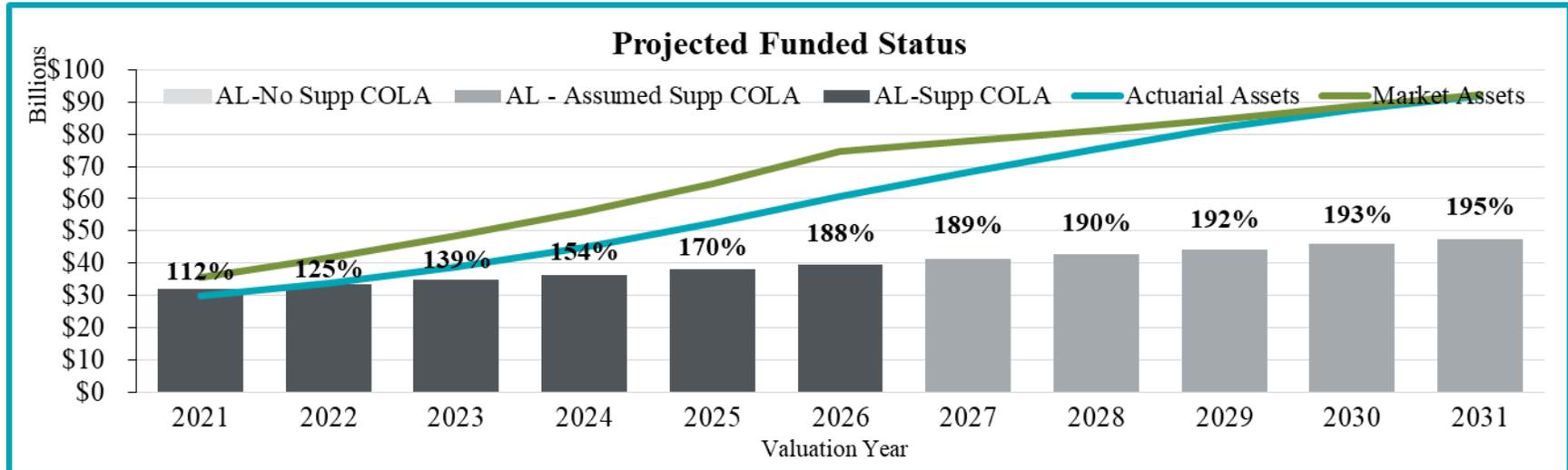
Five-Year Significant Negative Scenario: -3.6% return FYE 2022–2026, 7.2% after



**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Five-Year Significant Positive Scenario: 18.4% return FYE 2022-2026, 7.2% after



SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

The scenarios show that actual future investment returns have a significant impact on future contribution rates. The 5-year positive economic scenarios all result in the payment of Supplemental COLAs to all retirees. The employer contribution rates decrease in FYE 2024 and continue to decline quickly and steadily reaching 0.0% in FYE 2026 or 2028.

Even the negative economic scenarios show decreases in the employer contribution rates over the next few years before contributions rise again. The recognition of the deferred investment gains from FYE 2021 and the completion of payments on several amortization layers in each of the next two years creates significant downward pressure on contribution rates.

- The one-year negative shock (-10.9%) still shows a substantial rate decrease for FYE 2024 after which the employer rate remains relatively level with a peak in FYE 2029 of 19.5%. The funded status declines, but stays at or above 94% throughout the 10-year period.
- The five-year moderate negative scenario (2.4%) produces rate decreases over the next four years, decreasing to 10.5% in FYE 2027 before it increases to 20.7% in FYE 2033. The funded status remains above 100% until July 1, 2025, but stays at or above 90% thereafter.
- The five-year significant negative scenario (-3.6%) produces gradually decreasing rates over the next two years to 15.3% before the employer rate escalates to 37.9% in FYE 2033. The funded status is above 100% in the next year, but declines significantly each year, dropping to 68% funded in the last year of the projection period.

The investment returns used in the projections above were selected solely to illustrate the impact of investment volatility on the pattern of funded status and employer contribution rates. They are not intended to be predictive of actual future contribution rates or funded status or even to represent a realistic pattern of investment returns.

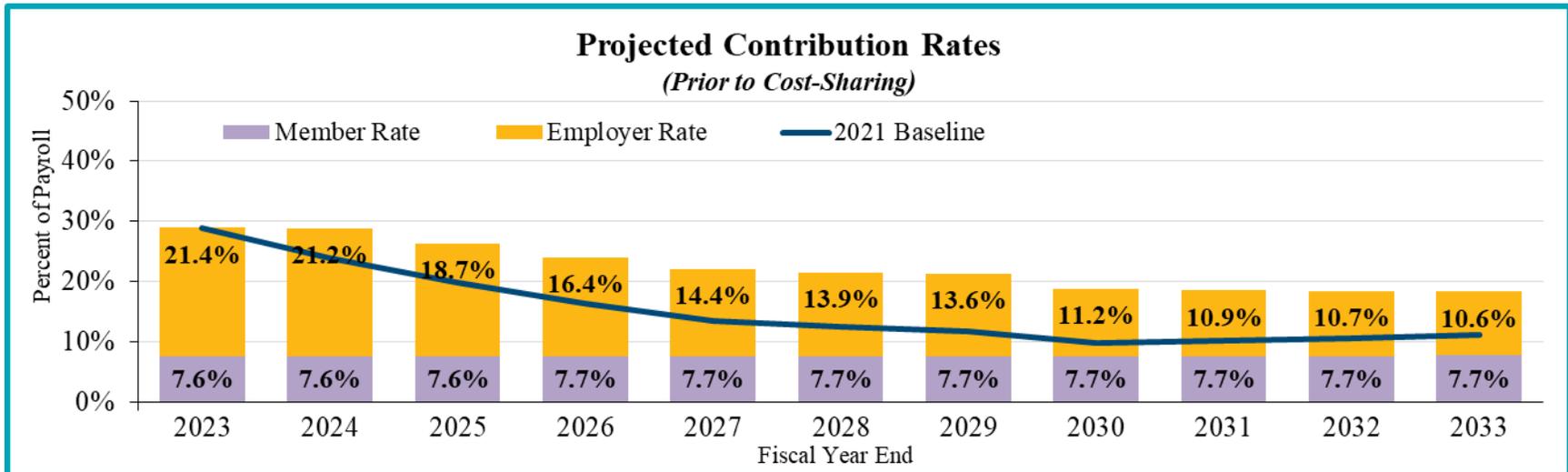
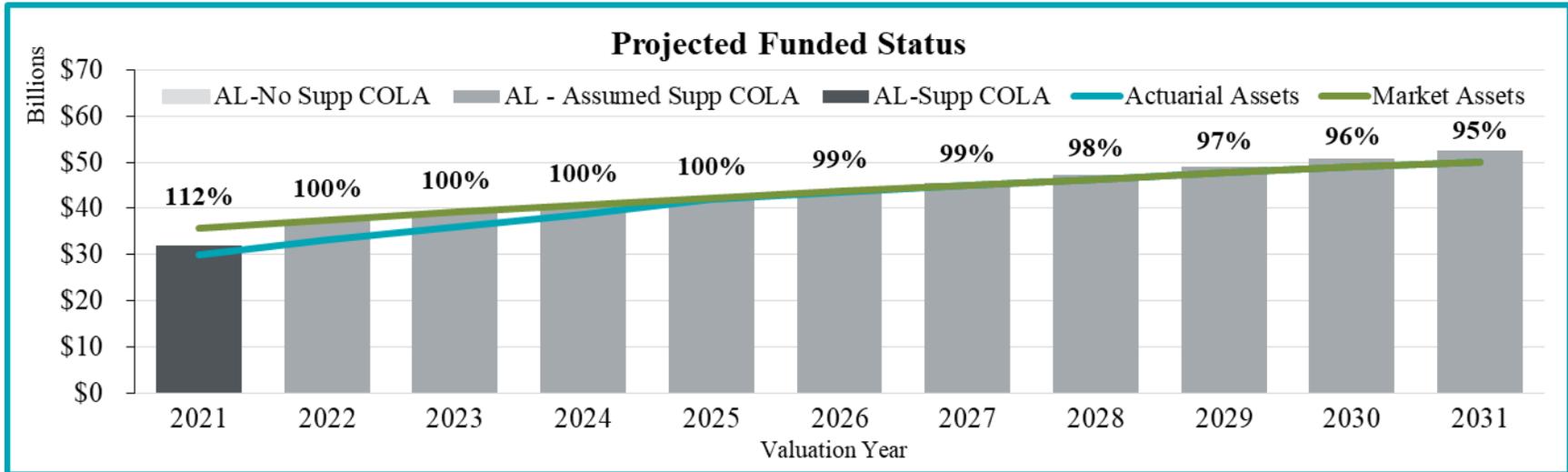
Interest Rate and Discount Rate Change Risk – Sensitivity Testing

As shown above, assumption changes over the last decade have increased the UAL by approximately \$1.8 billion, with decreases in the discount rate from 7.66% to 7.20% accounting for approximately \$1.3 billion of the increase. The reductions in discount rates have been largely driven by declines in interest rates that affect expectations of future investment returns. If interest rates remain at the low levels reached during the pandemic or if there is a desire or need to reduce investment risk that reduces expected returns, the discount rate and expected returns may need to be reduced further. Conversely, if interest rates rise, expectations of future investment returns would also increase and the discount rate could be increased or investment risk could be reduced without affecting the discount rate. The charts on the following pages show the impact on projected funded status and projected contributions if the discount rate and expected returns were reduced or increased by 100 basis points.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

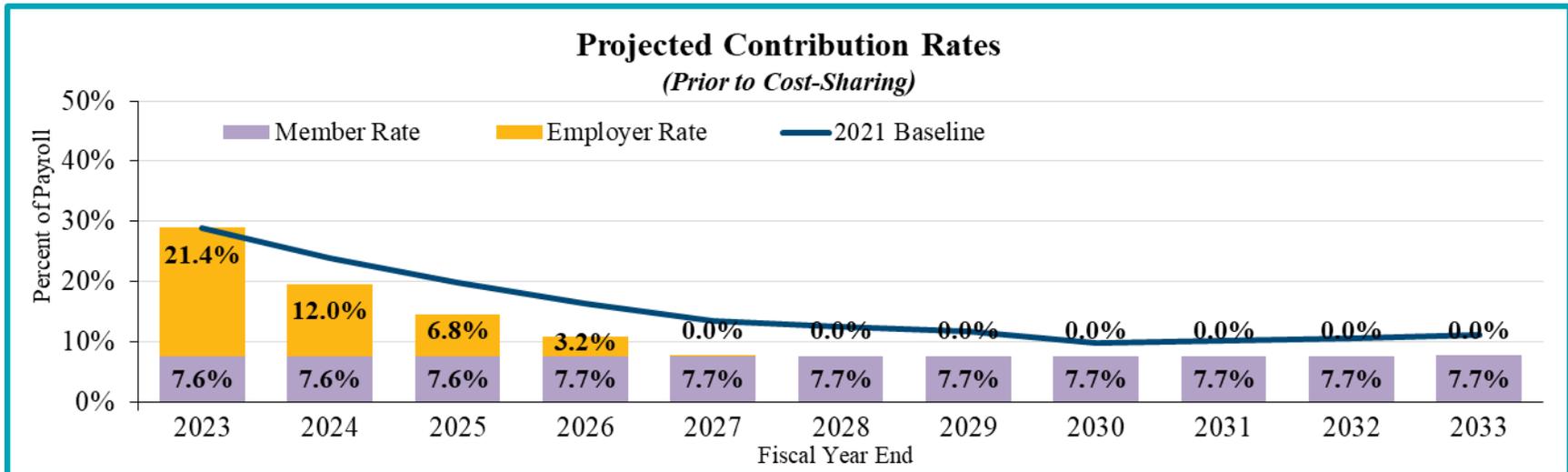
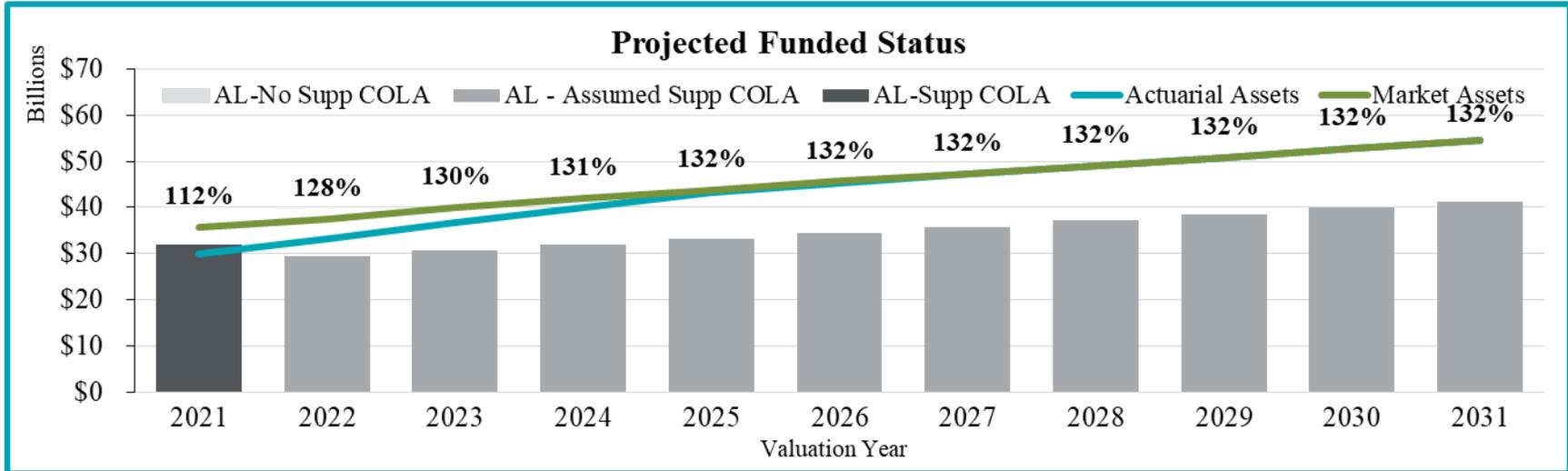
Discount Rate Sensitivity Testing – 100 Basis Point Reduction – 6.20%



**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Discount Rate Sensitivity Testing – 100 Basis Point Increase – 8.20%



**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Supplemental COLA Risk – Stress Testing

Supplemental COLA risk is the potential for the cost of future Supplemental COLAs to increase contribution rates. Supplemental COLAs are granted if there are excess returns (the actual return on the Market Value of Assets minus the expected return on Actuarial Value of Assets). For members who retired prior to November 6, 1996 or were hired after Proposition C passed in 2012, the Supplemental COLA is only payable if the System is also 100% funded.

In determining the Actuarial Liability in the funding valuation and whether or not the System is 100% funded, there are no future Supplemental COLAs assumed. In the projections, however, Supplemental COLAs are assumed to be granted each year in the future with 50% probability (multiplied by the probability of being 100% funded for members with that requirement). If the Actuarial Liability were determined with the same assumption, it would affect the funded status as shown in the table below.

Table II-2				
Impact of Anticipating Future Supplemental COLAs				
(Amounts in millions)				
	Future Supplemental COLAs			
	None	Assumed	% Difference	
Actuarial Liability	\$ 31,905.3	\$ 34,066.5	6.8%	
Actuarial Value of Assets	\$ 30,043.2	\$ 30,043.2	0.0%	
Unfunded Actuarial Liability (actuarial value)	1,862.1	4,023.3	116.1%	
Funding Ratio (actuarial value)	94.2%	88.2%	-6.0%	
Market Value of Assets	\$ 35,673.8	\$ 35,673.8	0.0%	
Unfunded Liability (market value)	(3,768.5)	(1,607.3)	-57.3%	
Funding Ratio (market value)	111.8%	104.7%	-7.1%	

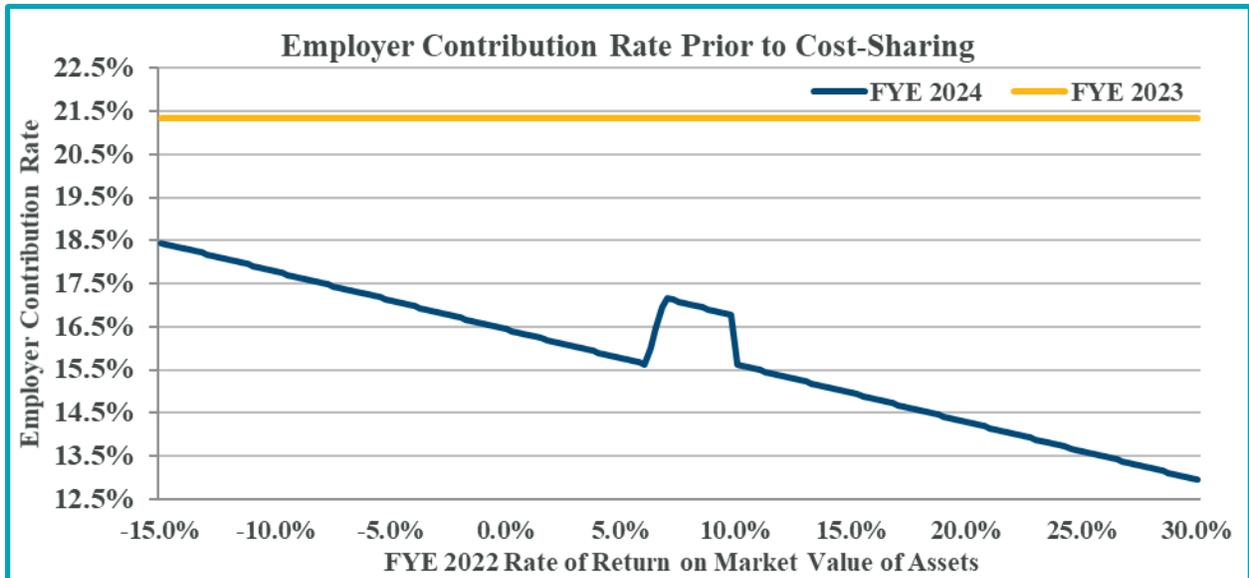
While current contributions rates do not anticipate any future Supplemental COLAs, when a Supplemental COLA is granted, the increase in Actuarial Liability is amortized over five years, increasing contribution rates. The higher-than-expected investment returns that generate a Supplemental COLA are smoothed into the Actuarial Value of Assets over five years and then amortized over 20 years providing a reduction in contribution rates. In most cases, the gain from the investment returns is sufficient to offset the loss due to the Supplemental COLA in contribution rates. However, the worst situation for near-term contribution rates is for investment returns to be just large enough to generate a Supplemental COLA. Then, the five-year amortization of the Supplemental COLA creates an increase in contribution rates that is not entirely offset by the investment gains until after the five-year period.

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

To illustrate the impact of the Supplemental COLA on the employer contribution rate, the chart on the following page shows the estimated FYE 2024 contribution rate assuming actual rates of investment return vary from -15% to 30% with all other actuarial assumptions being met. The expected employer contribution rate for FYE 2024 ranges from 13.0% to 18.5%, a relatively narrow range compared to the extremely wide range of investment returns.

There is downward pressure on the FYE 2024 employer contribution rate due to the 20% recognition of the FYE 2021 investment gains. As shown in the chart, a return of approximately 6.1% starts to generate a Supplemental COLA, and a return of approximately 6.9% or greater generates a full Supplemental COLA. A return of 9.8% reaches 100% funding based on the Actuarial Value of Assets, which extends the amortization of the Supplemental COLA from 5 years to 20 years.



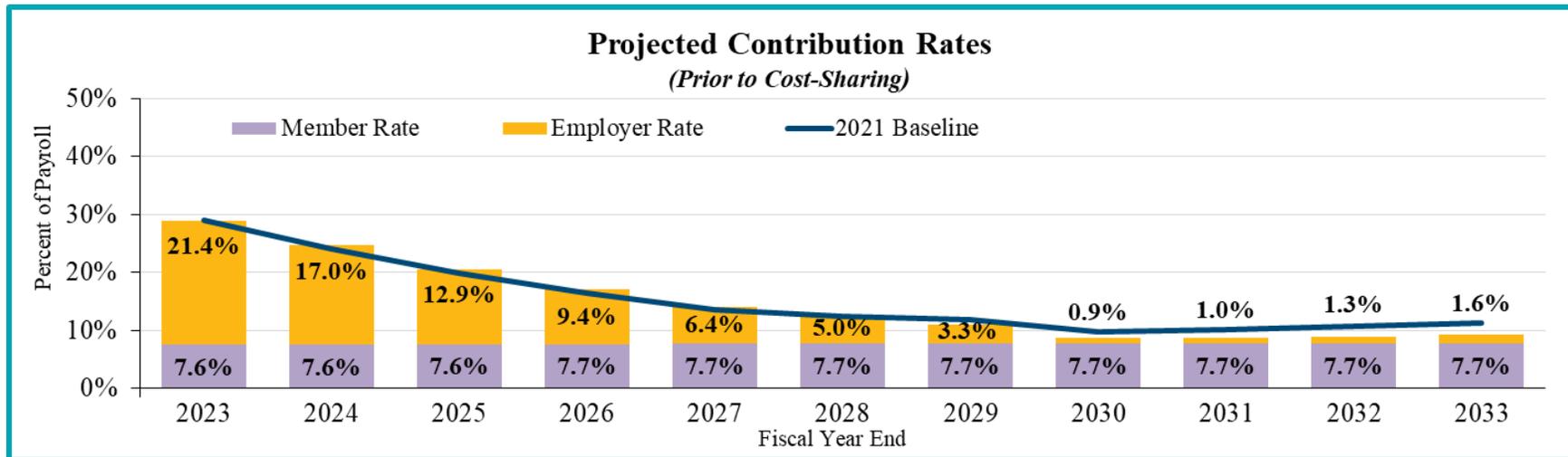
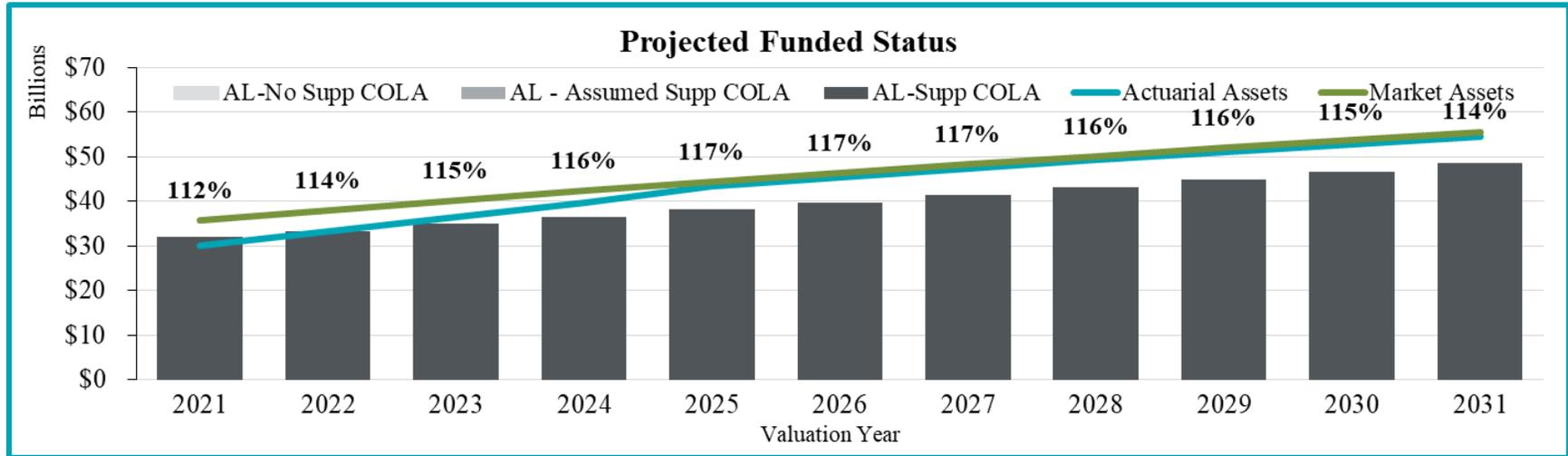
The impact of future Supplemental COLAs on contribution rates and funded status is the worst when the investment returns are just large enough to generate a Supplemental COLA. To illustrate this potential risk and how the amortization method manages it, the projections on the following page assume 8.00% returns each year, which produces a full Supplemental COLA in each year.

These projections illustrate that the 5-year amortization while less than 100% funded manages the risk of future Supplemental COLAs relatively well. The contributions remain very close to the baseline level, and the funded status also remains relatively stable.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Supplemental COLA Risk Stress Test: 8.00% return FYE 2022-2031



**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION III – CERTIFICATION

The purpose of this report is to present the July 1, 2021 Actuarial Valuation of the City and County of San Francisco Employees' Retirement System (SFERS or the System). This report is for the use of the System and its auditors in setting contribution levels and preparing financial reports in accordance with applicable law and annual report requirements.

In preparing our report, we relied on information, some oral and some written, supplied by the System. 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 the Actuarial Standard of Practice No. 23.

All demographic assumptions and the price and wage inflation assumptions were adopted at the December 9, 2020 Board meeting based on our recommendations. Please refer to the demographic experience study report dated August 2020 for the rationale for the demographic assumptions and the December 9, 2020 Board presentation for the rationale for the economic assumptions. The discount rate and amortization policy changes were adopted at the November 10, 2021 Board meeting. We believe all the assumptions are reasonable for the purposes of the measurement.

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

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

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 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. Assumed Supplemental COLAs are included in these projections.

Stochastic projections in this presentation were developed using R-scan, our proprietary tool for assessing the probability of different outcomes based on the 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

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION III – CERTIFICATION

standard deviation used in the stochastic projection of investment returns was provided by the System's investment consultant.

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 System for the purposes described herein and for the use by the plan auditor in completing an audit related to the matters 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, FCA, MAAA
Consulting Actuary



Anne D. Harper, FSA, EA, MAAA
Principal Consulting Actuary

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION IV – ASSETS

SFERS uses and discloses two different asset measurements which are presented in this section of the report: Market value and Actuarial Value of Assets. The market value represents the value of the assets if they were liquidated on the valuation date. The Actuarial Value of Assets is a value that attempts to smooth annual investment return performance over multiple years to reduce the impact of investment volatility on SFERS contribution rates.

This section includes the following information on SFERS assets:

- Statement of changes in the Market Value of Assets during the year,
- Development of the Actuarial Value of Assets, and
- Discussion of investment performance for the year.

Changes in the Market Value of Assets

Table IV-1			
Change in Market Value of Assets			
(Amounts in thousands)			
		FYE 2021	FYE 2020
1.	Market Value, Beginning of Year	\$ 26,620,218	\$ 26,078,649
2.	Additions		
	a. Employer Contributions	836,559	742,985
	b. Member Contributions	<u>409,398</u>	<u>400,649</u>
	c. Total Additions: (2a. + 2b.)	\$ 1,245,957	\$ 1,143,634
3.	Net Investment Income	9,447,669	966,282
4.	Benefits and Administrative Expenses	<u>(1,640,010)</u>	<u>(1,568,347)</u>
5.	Net Increase/(Decrease): (2c.+3.+4.)	\$ 9,053,616	\$ 541,569
6.	Market Value, End of Year	\$ 35,673,834	\$ 26,620,218
7.	Estimated Rate of Return on Market Value	35.8%	3.7%

Actuarial Value of Assets

To determine on-going contribution requirements, most pension funds utilize an Actuarial Value of Assets that differs from the Market Value of Assets. The Actuarial Value of Assets is intended to smooth year-to-year investment returns to reduce the volatility of contribution rates.

The actuarial value is calculated by recognizing 20% of the variance of each of the prior five years of actual investment returns compared to the expected return on the Actuarial Value of Assets. The expected return on the Actuarial Value of Assets is determined using SFERS actual cash flows and the assumed rate of return. See Appendix B for further explanation of the asset valuation method.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION IV – ASSETS

Table IV-2		
Development of Actuarial Value of Assets for 7/1/2021		
(Amounts in thousands)		
		Total
1. Actuarial Value of Assets (AVA) as of 7/1/2020	\$	26,695,844
2. Non-Investment Cash Flow for FYE 2021		(394,053)
3. Expected Return on AVA for FYE 2021		<u>1,991,288</u>
4. Expected Actuarial Value as of 7/1/2021: (1+2+3)	\$	28,293,079
5. Actual Return on Market Value of Assets in FYE 2021		9,447,669
6. Actual Return Above Expected in 2020-2021: (5 - 3)		7,456,381
7. Recognition of Returns Above / (Below) Expected		
a. 2020-2021 (20% of 6.)		1,491,276
b. 2019-2020		(182,627)
c. 2018-2019		39,545
d. 2017-2018		175,751
e. 2016-2017		<u>226,198</u>
f. Total: (7a. + 7b. + 7c. + 7d. + 7e.)	\$	1,750,143
8. Actuarial Value as of 7/1/2021: (4 + 7f.)	\$	30,043,222
9. Market Value as of 7/1/2021	\$	35,673,834
10. Ratio of Actuarial Value to Market Value: (8 / 9)		84.2%
11. Estimated Rate of Return on Actuarial Value		13.9%

Investment Performance

The internal rate of return on the Market Value of Assets, net of investment expenses, was 35.8% for the plan year ending June 30, 2021. This return compares to an assumed rate of return of 7.40% and resulted in actual returns that are approximately \$7.5 billion more than the expected return on the Actuarial Value of Assets.

On an Actuarial Value of Assets basis, the return for the plan year ending June 30, 2021 was 13.9% compared to the assumed return of 7.40%. This return produced an investment gain on the Actuarial Value of Assets of \$1.75 billion for the plan year ending June 30, 2021.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION V – MEASURES OF LIABILITY

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

- Present value of all future benefits,
- Normal cost,
- Actuarial Liability, and
- Analysis of changes in the Unfunded Actuarial Liability during the year.

These measures are developed for the purpose of establishing contribution rates and are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

Present Value of Future Benefits

The present value of future benefits represents the amount of money today that is expected to be needed to pay all benefits of SFERS both earned as of the valuation date and those to be earned in the future by current plan members under the current plan provisions if all assumptions are met. Table V-1 below shows the present value of future benefits as of July 1, 2021 and July 1, 2020.

Table V-1			
Present Value of Future Benefits			
(Amounts in thousands)			
	July 1, 2021	July 1, 2020	% Change
Present Value of Future Benefits			
Actives	\$ 17,993,081	\$ 16,536,203	8.8%
Terminated Vested	669,126	606,081	10.4%
Members Receiving Benefits	<u>19,558,857</u>	<u>18,014,526</u>	8.6%
Total	\$ 38,221,064	\$ 35,156,810	8.7%

Normal Cost

Under the Entry Age Actuarial Cost Method, the present value of future benefits for each individual is spread over the individual's expected working career as a level percentage of the individual's expected pay. The normal cost is the amount attributed to the next year of service. Table V-2 on the next page shows the normal cost as of the valuation date separately for each tier of benefits for Police, Fire, and Miscellaneous employees.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION V – MEASURES OF LIABILITY

Table V-2				
Normal Cost by Group as of July 1, 2021				
<i>(Amounts in thousands)</i>				
	Police	Fire	Miscellaneous	Total
Normal Cost by Benefit Tier				
Old	\$ 0	\$ 0	\$ 70	\$ 70
New	55,218	40,362	249,654	345,234
Prop D	1,012	2,748	27,862	31,622
Prop C	46,355	29,678	249,589	325,622
Total	\$ 102,585	\$ 72,788	\$ 527,175	\$ 702,548

Actuarial Liability

The Actuarial Liability is calculated by taking the present value of all future benefits and subtracting the present value of future normal costs as determined under the Entry Age Actuarial Cost Method. The Actuarial Liability represents the amount of money today that is expected to be needed to pay for benefits attributed to service prior to the valuation date if all assumptions are met. Table V-3 below shows the Actuarial Liability as of the valuation date separately for Police, Fire, and Miscellaneous employees.

Table V-3				
Actuarial Liability by Group as of July 1, 2021				
<i>(Amounts in thousands)</i>				
	Police	Fire	Miscellaneous	Total
Actuarial Liability				
Actives	\$ 1,713,393	\$ 1,303,407	\$ 8,660,491	\$ 11,677,291
Terminated Vested	30,671	18,659	619,796	669,126
Members Receiving Benefits				
Retirees	2,530,582	1,772,125	11,516,772	15,819,479
Disabled	817,693	1,038,196	474,249	2,330,138
Beneficiaries	369,389	307,080	732,772	1,409,241
Total Members Receiving Benefits	3,717,664	3,117,401	12,723,793	19,558,858
Total Actuarial Liability	\$ 5,461,728	\$ 4,439,467	\$ 22,004,080	\$ 31,905,275

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION V – MEASURES OF LIABILITY

Changes in Unfunded Actuarial Liability

The Unfunded Actuarial Liability (UAL) is the difference between the Actuarial Liability and the Actuarial Value of Assets. The UAL of any retirement plan is expected to change at each subsequent valuation for a variety of reasons. Table V-4 below presents key changes in the UAL since the last valuation.

Table V-4	
Development of 2021 Experience Gain/(Loss)	
(Amounts in millions)	
Item	Cost
1. Unfunded Actuarial Liability (UAL) at July 1, 2020	\$ 2,804.1
2. Middle of year expected actuarial liability payment	(503.6)
3. Interest to end of year on 1. and 2.	189.2
4. UAL increase due to July 1, 2021 Supplemental COLA	264.1
5. UAL increase due to changes in the discount rate	<u>701.6</u>
6. Expected UAL at July 1, 2021 (1+2+3+4+5)	\$ 3,455.4
7. Actual Unfunded Liability at July 1, 2021	<u>1,862.1</u>
8. Experience Gain: (6-7)	\$ 1,593.3
9. Portion of difference due to:	
a. Investment experience on actuarial value	\$ 1,750.1
b. Salaries more than expected	(169.8)
c. Old Safety Basic COLA less than expected	19.8
d. Retirements	(39.8)
e. Terminations	(29.1)
f. New entrants	(24.1)
g. Contributions (rate delay, payroll changes, and expense gain)	113.2
h. Mortality and disability experience	(14.9)
i. Other experience	<u>(12.1)</u>
j. Total gain	\$ 1,593.3

Table V-5 on the next page shows a five-year history of sources of liability gain and loss. Higher salary increases than expected, new entrants, terminations, and retirements have been the primary sources of losses while COLAs for the old safety groups have been the primary sources of gains.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION V – MEASURES OF LIABILITY

**Table V-5
Historical Sources of Liability (Gain) or Loss
(Amounts in Thousands)**

Source	Year Ending June 30,					Total
	2017	2018	2019	2020	2021	
Salary Increases	\$ (80,610)	\$ (53,729)	\$ 45,993	\$ 114,500	\$ 169,789	\$ 195,943
Retirement	27,735	20,226	32,398	3,918	39,765	124,042
Termination	20,742	22,919	47,547	19,838	29,126	140,172
Mortality	(6,205)	10,721	1,112	4,590	(1,492)	8,726
Disability	(912)	5,585	10,387	10,327	16,369	41,756
New Entrants	19,793	39,173	41,251	45,006	24,142	169,365
Old Safety COLAs	(64,299)	(29,632)	(22,131)	(86,577)	(19,826)	(222,465)
Other	38,260	(8,717)	28,851	691	12,171	71,256
Total	\$ (45,496)	\$ 6,546	\$ 185,408	\$ 112,293	\$ 270,044	\$ 528,795

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION VI – CONTRIBUTIONS

The contribution allocation procedure employed by SFERS has three components to the total contribution: the normal cost determined under the Entry Age Actuarial Cost Method, administrative expenses, and the contribution toward the Unfunded Actuarial Liability.

The normal cost shown in the prior section is divided by the projected payroll for the year for each benefit tier to determine the normal cost rate for that tier. The aggregate normal cost rate is the weighted average of the normal cost rate for each tier based on the expected payroll for that tier for the fiscal year to which the contribution rate applies. Finally, the normal cost rate is reduced by the member contribution rate to produce the employer normal cost rate.

Assumed administrative expenses of 0.60% of payroll are added to the contribution rate.

The difference between the Actuarial Liability determined under the Entry Age Actuarial Cost Method and the Actuarial Value of Assets is the Unfunded Actuarial Liability (UAL). The UAL is made up of unamortized portion of prior Charter amendments, plus the impact of accumulated experience, assumption changes, and method changes.

Table VI-1 below develops the employer's contribution rate for FYE 2023 prior to any cost-sharing adjustments. The employer pays the composite contribution rate on the payroll for all employees. The contribution rates shown for Police, Fire, and Miscellaneous are for illustrative purposes only.

Table VI-1					
Development of the Net Employer Contribution Rate as of July 1, 2021 for FYE 2023					
(Amounts in millions)					
	FYE 2023			FYE 2022	
	Police	Fire	Miscellaneous	TOTAL	TOTAL
1. Total Normal Cost Rate	29.32%	30.40%	16.22%	18.31%	17.29%
2. Member Contribution Rate	<u>8.29%</u>	<u>8.27%</u>	<u>7.50%</u>	<u>7.62%</u>	<u>7.62%</u>
3. Employer Normal Cost Rate (1 - 2)	21.03%	22.13%	8.72%	10.69%	9.67%
4. a. UAL - Proposition balance	\$ 50.0	\$ 47.4	\$ 478.6	\$ 576.0	\$ 658.7
b. Other UAL	<u>117.4</u>	<u>80.7</u>	<u>1,088.0</u>	<u>1,286.1</u>	<u>2,145.4</u>
c. Total UAL (4a+4b)	\$ 167.4	\$ 128.1	\$ 1,566.6	\$ 1,862.1	\$ 2,804.1
5. a. Amortization of Proposition UAL	7.62%	11.43%	2.51%	3.54%	3.56%
b. Amortization of Other UAL	<u>6.52%</u>	<u>6.52%</u>	<u>6.52%</u>	<u>6.52%</u>	<u>10.58%</u>
c. Total Amortization (5a+5b)	14.14%	17.95%	9.03%	10.06%	14.14%
6. Administrative Expenses	<u>0.60%</u>	<u>0.60%</u>	<u>0.60%</u>	<u>0.60%</u>	<u>0.60%</u>
7. Net Employer Contribution Rate (3+ 5c+6)	35.77%	40.68%	18.35%	21.35%	24.41%

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION VI – CONTRIBUTIONS

Table VI-2 shows the estimated member and employer contributions adjusted for the cost-sharing provisions under Proposition C. The adjustments are based on the applicable table in the Charter for an employer contribution rate of 21.35% and the hourly pay rates shown in the table below.

Table VI-2							
Employee and Employer Contribution Rates By Employee Group for FYE 2023							
(Amounts in thousands)							
Hire Date	Hourly Pay	Estimated Payroll FYE 2023	Base Rates		Adjusted Rates		Cost Sharing Adjustment
			Employee	Employer	Employee	Employer	
Police and Fire							
< 11/2/1976	All	\$ 0	7.00%	21.35%	10.50%	17.85%	3.50%
11/2/1976 - 6/30/2010	All	291,398	7.50%	21.35%	11.00%	17.85%	3.50%
> 6/30/2010	< \$65	295,862	9.00%	21.35%	11.50%	18.85%	2.50%
> 6/30/2010	>= \$65	21,759	9.00%	21.35%	12.00%	18.35%	3.00%
Miscellaneous							
< 11/2/1976	< \$32	\$ 0	8.00%	21.35%	8.00%	21.35%	0.00%
< 11/2/1976	\$32 - \$65	257	8.00%	21.35%	10.50%	18.85%	2.50%
< 11/2/1976	>= \$65	109	8.00%	21.35%	11.00%	18.35%	3.00%
>= 11/2/1976	< \$32	204,313	7.50%	21.35%	7.50%	21.35%	0.00%
>= 11/2/1976	\$32 - \$65	1,999,406	7.50%	21.35%	10.00%	18.85%	2.50%
>= 11/2/1976	>= \$65	1,140,130	7.50%	21.35%	10.50%	18.35%	3.00%
Estimated Total Plan		\$ 3,953,233	7.62%	21.35%	10.21%	18.76%	2.59%
Estimated Contribution Amounts			\$ 301,236	\$ 844,015	\$ 403,625	\$ 741,627	\$ 102,389

Dollar Amounts in Thousands

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION VI – CONTRIBUTIONS

Table VI-3 below provides the amortization schedules for the changes to the Actuarial Liability due to changes to the Charter. Each Charter change is amortized over 20 years from the date it is first recognized in the valuation. Effective with the July 1, 2014 valuation, any new changes to active member benefits are amortized over a closed 15-year period, and any new changes to inactive or retired member benefits, including Supplemental COLAs which are shown in Table VI-4, are amortized over a closed 5-year period. All amortization payments increase each year at the ultimate assumed wage inflation rate.

Table VI-3
Development of the Proposition Amortization Rate as of July 1, 2021 for FYE 2023
(dollars in thousands)

Propositions	Remaining Period	Police		Fire		Miscellaneous		Total	
		Outstanding Balance	Amortization Payment	Outstanding Balance	Amortization Payment	Outstanding Balance	Amortization Payment	Outstanding Balance	Amortization Payment
6.25% Credited Interest on EE ctrbs	1	11	12	3	3	1,547	1,718	1,561	1,733
2002 Prop H - Safety Ret Bfts	1	19,684	21,847	20,925	23,226	0	0	40,609	45,073
5.0% Credited Interest on EE ctrbs	3	(194)	(75)	(92)	(35)	(17,796)	(6,833)	(18,082)	(6,943)
2004 Prop E - New Safety LOD Bfts	4	2,842	833	3,991	1,171	0	0	6,833	2,004
2003 Prop F - Misc 3+3 Early Ret Bfts	4	0	0	0	0	8,596	2,521	8,596	2,521
Liability of 2003 Prop F (extended) - Misc 3+3 Early Ret Bfts	5	0	0	0	0	5,866	1,402	5,866	1,402
Liability of 2003 Prop F (extended) - Misc 3+3 Early Ret Bfts	6	0	0	0	0	2,989	606	2,989	606
2008 Prop B - New Misc Ret Bfts and Compound COLA	7	<u>27,630</u>	<u>4,891</u>	<u>22,547</u>	<u>3,989</u>	<u>477,448</u>	<u>84,491</u>	<u>527,625</u>	<u>93,371</u>
Proposition Total		\$ 49,973	\$ 27,508	\$ 47,374	\$ 28,354	\$ 478,650	\$ 83,905	\$ 575,997	\$ 139,767
Expected FYE 2023 Payroll Amortization Rate			\$ 360,915 7.62%		\$ 248,104 11.43%		\$ 3,344,214 2.51%		\$ 3,953,233 3.54%

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION VI – CONTRIBUTIONS

Effective July 1, 2014, any new sources of UAL due to actuarial gains and losses, assumption changes, or method changes are amortized over a closed, layered 20-year period. In addition, the UAL as of July 1, 2013 not attributable to Propositions was re-amortized over a closed 19-year period as of July 1, 2014. Table VI-4 on the next page shows all the Non-Proposition amortizations under the new amortization policy. All amortization schedules are determined on a level percent of pay basis which means that for the duration of the amortization schedule, the payment amount increases each year at the assumed wage inflation rate.

Effective with the July 1, 2021 valuation, the remaining amortization periods for assumption changes prior to July 1, 2021 and all prior actuarial gains and losses (including the gain for 2021) are reduced to 5 years. If the System becomes fully funded based on the Actuarial Value of Assets, any unexpected changes in the UAL is amortized over a rolling 20-year period.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION VI – CONTRIBUTIONS

Table VI-4			
Development of the Non-Proposition Amortization Rate as of July 1, 2021 for FYE 2023			
(dollars in thousands)			
Amortization Bases	Remaining Period	Outstanding Balance	Amortization Payment
2013 Non-Proposition UAL	5	\$ 2,396,711	\$ 572,712
2014 Actuarial Gain	5	(807,663)	(192,997)
2014 Assumption Change	5	142,873	34,141
2015 Actuarial Gain	5	(734,271)	(175,459)
2015 Assumption Change	5	1,161,704	277,597
2013 Supplemental COLA	12	185,355	20,900
2016 Actuarial Loss	5	26,629	6,363
2017 Actuarial Gain	5	(387,982)	(92,711)
2017 Supplemental COLA	1	49,335	54,758
2017 Assumption and Method Change	5	49,183	11,753
2018 Actuarial Gain	5	(387,653)	(92,632)
2018 Supplemental COLA	2	93,908	53,093
2018 Assumption Change	5	294,314	70,328
2019 Actuarial Loss	5	172,145	41,135
2019 Supplemental COLA	3	93,835	36,028
2020 Actuarial (Gain)/Loss	5	155,398	37,133
2020 Assumption Changes	5	(590,111)	(141,011)
2021 Actuarial (Gain)/Loss	5	(1,593,348)	(380,742)
2021 Supplemental COLA	5	264,091	63,106
2021 Assumption Change	20	701,603	54,340
Total Non-Proposition UAL		\$ 1,286,056	\$ 257,835
Expected FYE 2023 Payroll			\$ 3,953,233
Amortization Rate			6.52%

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION VII – ACTUARIAL SECTION OF THE ANNUAL REPORT

The Government Finance Officers Association (GFOA) maintains a checklist of items to be included in a System's Annual Comprehensive Financial Report in order to receive recognition for excellence in financial reporting. We understand that SFERS' includes these exhibits in their Annual Report. The following Tables VII-1 through VII-3 are exhibits listed by the GFOA, and they recommend showing 10 years of experience in each of these exhibits. Table VII-1 presents an Analysis of Financial Experience for the valuation year, Table VII-2 presents the Schedule of Funded Liabilities by Type, Table VII-3 shows the Schedule of Funding Progress and Table VII-4 shows the Retirees added and removed from the Rolls.

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

Table VII-1						
Analysis of Financial Experience						
(Amounts in thousands)						
	(A)	(B)	(C)	(D)	(E)	(F)
				(A)+(B)+(C)		(D)+(E)
Gain or (Loss) for Year Ending	Investment Income	Contribution Income¹	Combined Liability Experience	Gain or (Loss) From Experience	Non-Recurring Items²	Composite Gain or (Loss) During Year
July 1, 2021	\$ 1,750,143	\$ 113,249	\$ (270,044)	\$ 1,593,348	\$ (965,694)	\$ 627,654
July 1, 2020	(6,409)	(37,023)	(112,293)	(155,725)	591,355	435,630
July 1, 2019	58,561	(46,222)	(185,408)	(173,069)	(140,998)	(314,067)
July 1, 2018	408,925	19,028	(35,783)	392,170	(498,554)	(106,384)
July 1, 2017	405,685	(55,038)	45,496	396,143	(250,285)	145,858
July 1, 2016	(51,452)	58,461	(34,514)	(27,505)	(429,336)	(456,841)
July 1, 2015	545,506	97,444	127,610	770,560	(1,048,350)	(277,790)
July 1, 2014	749,173	(41,626)	157,931	865,478	(153,100)	712,378
July 1, 2013	(579,555)	(65,637)	9,873	(635,319)	0	(635,319)
July 1, 2012	(1,135,013)	(55,440)	187,116	(1,003,337)	(135,527)	(1,138,864)

¹ Due to Payroll Changes, One-Year Lag, and Expenses.

² Includes Assumption, Method, and Benefit Changes as well as Supplemental COLAs.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION VII – ACTUARIAL SECTION OF THE ANNUAL REPORT

Valuation Date July 1,	(A)	(B)	(C)	Actuarial Value of Assets	Portion of Actuarial Liabilities Covered by Reported Assets		
	Active Member Contributions	Retirees, Beneficiaries, and Inactives	Remaining Active Members' Liabilities		(A)	(B)	(C)
2021 ¹	\$ 4,104	\$ 20,228	\$ 7,573	\$ 30,043	100%	100%	75%
2020 ²	3,916	18,621	6,963	26,696	100%	100%	60%
2019	3,675	18,074	7,050	25,248	100%	100%	50%
2018 ¹	3,496	17,024	6,816	23,866	100%	100%	49%
2017 ³	3,325	15,847	6,535	22,185	100%	100%	46%
2016 ⁴	3,175	14,941	6,288	20,655	100%	100%	40%
2015 ⁵	2,995	13,931	6,045	19,653	100%	100%	45%
2014 ⁶	2,825	12,901	5,397	18,012	100%	100%	42%
2013	2,633	12,257	5,335	16,303	100%	100%	26%
2012 ⁶	2,451	11,658	5,285	16,028	100%	100%	36%

¹ Reflects revised discount rate.

² Reflects revised demographic and wage inflation assumptions.

³ Reflects revised wage inflation assumption.

⁴ Reflects 2013 and 2014 Retroactive Supplemental COLA benefits for Post96 Retirees.

⁵ Reflects revised demographic assumptions.

⁶ Reflects revised discount rate and wage inflation.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

SECTION VII – ACTUARIAL SECTION OF THE ANNUAL REPORT

**Table VII-3
Schedule of Funding Progress
(in thousands)**

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Liability (AL)	Unfunded AL	Funded Ratio	Covered Payroll	Unfunded AL as a % of Covered Payroll
July 1, 2021	\$ 30,043,222	\$ 31,905,275	\$ 1,862,053	94%	\$ 3,828,797	49%
July 1, 2020	26,695,844	29,499,918	2,804,074	90%	3,703,103	76%
July 1, 2019	25,247,549	28,798,581	3,551,032	88%	3,549,936	100%
July 1, 2018	23,866,027	27,335,417	3,469,390	87%	3,385,517	102%
July 1, 2017	22,185,244	25,706,090	3,520,846	86%	3,242,468	109%
July 1, 2016	20,654,703	24,403,882	3,749,179	85%	3,062,422	122%
July 1, 2015	19,653,338	22,907,892	3,254,554	86%	2,820,968	115%
July 1, 2014	18,012,088	21,122,567	3,110,479	85%	2,640,153	118%
July 1, 2013	16,303,397	20,224,776	3,921,379	81%	2,535,963	155%
July 1, 2012	16,027,683	19,393,854	3,366,171	83%	2,393,842	141%

**Table VII-4
Schedule of Retirees and Beneficiaries Added to and Removed from Retirement Payroll**

FYE	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Member Count*	Annual Allowance	Member Count*	Annual Allowance	Member Count*	Annual Allowance		
2012	1,769	\$70,868,367	871	\$26,958,609	25,190	\$ 982,250,287	8.5%	\$38,994
2013	1,577	66,437,220	733	22,406,077	26,034	1,045,547,799	6.4%	40,161
2014	1,588	65,923,470	770	25,170,856	26,852	1,103,959,803	5.6%	41,113
2015	1,564	63,136,134	931	29,314,643	27,485	1,157,081,680	4.8%	42,099
2016	1,657	72,049,646	856	30,384,191	28,286	1,247,230,245	7.8%	44,094
2017	1,769	80,214,008	928	35,082,179	29,127	1,332,430,263	6.8%	45,746
2018	1,797	84,574,963	959	36,284,323	29,965	1,424,324,641	6.9%	47,533
2019	1,770	83,661,179	957	36,959,870	30,778	1,513,436,081	6.3%	49,173
2020	1,470	74,777,425	816	34,764,875	30,128	1,587,981,080	4.9%	52,708
2021	1,722	97,495,262	996	43,909,238	30,854	1,691,633,291	6.5%	54,827

* Member count as of FYE 2020 reflects combining records for members who have both a Safety and Miscellaneous benefit.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-1			
Active Member Data - By Group			
	July 1, 2021	July 1, 2020	% Change
Total			
Count	33,644	34,521	-2.5%
Average Current Age	47.2	46.7	0.5
Average Service	11.0	10.6	0.4
Annual Pensionable Earnings	\$ 3,586,532,188	\$ 3,583,266,358	0.1%
Average Pensionable Earnings	\$ 106,602	\$ 103,800	2.7%
Police			
Count	2,475	2,534	-2.3%
Average Current Age	40.9	40.8	0.1
Average Service	12.4	12.3	0.1
Annual Pensionable Earnings	\$ 332,503,625	\$ 336,710,528	-1.2%
Average Pensionable Earnings	\$ 134,345	\$ 132,877	1.1%
Fire			
Count	1,599	1,660	-3.7%
Average Current Age	43.9	43.9	0.0
Average Service	13.3	13.4	-0.1
Annual Pensionable Earnings	\$ 228,221,528	\$ 230,760,703	-1.1%
Average Pensionable Earnings	\$ 142,728	\$ 139,012	2.7%
Miscellaneous			
Count	29,570	30,327	-2.5%
Average Current Age	47.9	47.4	0.5
Average Service	10.7	10.4	0.3
Annual Pensionable Earnings	\$ 3,025,807,035	\$ 3,015,795,127	0.3%
Average Pensionable Earnings	\$ 102,327	\$ 99,443	2.9%

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-2				
Active Member Data - By Charter				
July 1, 2021				
	Member Counts			
	Police	Fire	Miscellaneous	Total
Old	0	2	8	10
New	1,162	772	12,961	14,895
Prop D	20	52	1,468	1,540
Prop C*	1,293	773	15,133	17,199
Total	2,475	1,599	29,570	33,644
Annual Pensionable Earnings				
Old	\$ 0	\$ 405,492	\$ 780,561	\$ 1,186,053
New	180,072,573	130,551,348	1,410,846,374	1,721,470,295
Prop D	2,939,709	7,622,650	148,068,857	158,631,216
Prop C*	149,491,343	89,642,038	1,466,111,243	1,705,244,624
Total	\$ 332,503,625	\$ 228,221,528	\$ 3,025,807,035	\$ 3,586,532,188

* Police includes 282 members in the Sheriffs Plan (Charter A8.608) and 107 members in the Miscellaneous Safety Plan (Charter A8.610)

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-3					
Non-Active Member Data - Total System					
	July 1, 2021		July 1, 2020		Change
Retired					
Count	24,147		23,519		2.7%
Average Age	71.5		71.3		0.2
Average Annual Benefit*	\$	56,052	\$	53,537	4.7%
Disabled					
Count	2,507		2,523		-0.6%
Average Age	69.6		69.5		0.1
Average Annual Benefit*	\$	72,329	\$	68,942	4.9%
Beneficiaries					
Count	4,200		4,086		2.8%
Average Age	77.8		77.8		0.0
Average Annual Benefit*	\$	37,299	\$	35,911	3.9%
Payee Average					
Count	30,854		30,128		2.4%
Average Age	72.2		72.1		0.1
Average Annual Benefit*	\$	54,822	\$	52,436	4.5%
Inactives					
Count	11,126		10,549		5.5%
Average Age	47.6		47.3		0.3
Total Contribution Balance with Interest	\$	346,437,842	\$	315,944,777	9.7%
Average Contribution Balance with Interest	\$	31,138	\$	29,950	4.0%

* Benefits provided in June 30 valuation data, plus estimated Basic and Supplemental COLA effective July 1, 2021.
If applicable, limited by Section 415(b) of the Internal Revenue Code.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-4								
Non-Active Member Data - Old Safety								
July 1, 2021								
Charter Section	Prop H	8.559	8.585	8.595	8.596	Total	July 1, 2020	Change
Retired								
Count	3	575		324		902	935	-3.5%
Average Age	88.7	80.8		73.2		78.1	77.3	0.8
Average Annual Benefit*	\$ 26,125	\$ 95,598		\$ 143,699		\$ 112,645	\$ 108,196	4.1%
Disabled								
Count	36	367		144		547	586	-6.7%
Average Age	85.6	80.3		73.8		78.9	78.4	0.5
Average Annual Benefit*	\$ 43,209	\$ 100,898		\$ 151,256		\$ 110,359	\$ 104,880	5.2%
Beneficiaries								
Count	93	618		49		760	771	-1.4%
Average Age	84.0	82.2		70.0		81.6	81.4	0.2
Average Annual Benefit*	\$ 35,186	\$ 86,478		\$ 117,286		\$ 82,188	\$ 78,409	4.8%
Payee Average								
Count	132	1,560		517		2,209	2,292	-3.6%
Average Age	84.5	81.2		73.1		79.5	79.0	0.5
Average Annual Benefit*	\$ 37,168	\$ 93,232		\$ 143,301		\$ 101,600	\$ 97,328	4.4%
Inactives								
Count	0	0		2		2	2	0.0%
Average Age	N/A	N/A		75.5		75.5	74.5	1.0
Total Contribution	N/A	N/A		\$ 2,914		\$ 2,914	\$ 2,802	4.0%
Balance with Interest	N/A	N/A		\$ 1,457		\$ 1,457	\$ 1,401	4.0%

* Benefits provided in June 30 valuation data, plus estimated Basic and Supplemental COLA effective July 1, 2021.
If applicable, limited by Section 415(b) of the Internal Revenue Code.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-5					
Non-Active Member Data - New Safety (includes Prop D and C)					
	July 1, 2021		July 1, 2020		Change
Retired					
Count	1,989		1,830		8.7%
Average Age	64.1		63.9		0.2
Average Annual Benefit*	\$ 117,391		\$ 113,068		3.8%
Disabled					
Count	671		628		6.8%
Average Age	64.0		63.9		0.1
Average Annual Benefit*	\$ 115,396		\$ 111,630		3.4%
Beneficiaries					
Count	155		144		7.6%
Average Age	63.0		62.3		0.7
Average Annual Benefit*	\$ 74,800		\$ 71,680		4.4%
Payee Average					
Count	2,815		2,602		8.2%
Average Age	64.0		63.8		0.2
Average Annual Benefit*	\$ 114,570		\$ 110,430		3.7%
Inactives					
Count	376		356		5.6%
Average Age	42.4		42.2		0.2
Total Contribution Balance with Interest	\$ 21,523,590		\$ 19,504,067		10.4%
Average Contribution Balance with Interest	\$ 57,244		\$ 54,787		4.5%

* Benefits provided in June 30 valuation data, plus estimated Supplemental COLA effective July 1, 2021
If applicable, limited by Section 415(b) of the Internal Revenue Code.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-6			
Non-Active Member Data - Miscellaneous			
	July 1, 2021	July 1, 2020	Change
Retired			
Count	21,256	20,754	2.4%
Average Age	71.9	71.7	0.2
Average Annual Benefit*	\$ 47,911	\$ 45,825	4.6%
Disabled			
Count	1,289	1,309	-1.5%
Average Age	68.6	68.2	0.4
Average Annual Benefit*	\$ 33,771	\$ 32,373	4.3%
Beneficiaries			
Count	3,285	3,171	3.6%
Average Age	77.7	77.6	0.1
Average Annual Benefit*	\$ 25,144	\$ 23,954	5.0%
Payee Average			
Count	25,830	25,234	2.4%
Average Age	72.5	72.3	0.2
Average Annual Benefit*	\$ 44,310	\$ 42,379	4.6%
Inactives			
Count	10,748	10,191	5.5%
Average Age	47.7	47.4	0.3
Total Contribution Balance with Interest	\$ 324,911,338	\$ 296,437,908	9.6%
Average Contribution Balance with Interest	\$ 30,230	\$ 29,088	3.9%

* Benefits provided in June 30 valuation data, plus estimated Supplemental COLA effective July 1, 2021.
If applicable, limited by Section 415(b) of the Internal Revenue Code.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-7												
Distribution of Active Members as of July 1, 2021												
Count By Age/Service - Total System												
Age	Years of Service										Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up		
Under 25	73	97	1	0	0	0	0	0	0	0	0	171
25 to 29	180	1,043	192	0	0	0	0	0	0	0	0	1,415
30 to 34	223	1,777	1,296	93	0	0	0	0	0	0	0	3,389
35 to 39	196	1,770	1,903	642	84	1	0	0	0	0	0	4,596
40 to 44	178	1,327	1,551	934	516	109	0	0	0	0	0	4,615
45 to 49	123	986	1,187	880	687	587	87	1	0	0	0	4,538
50 to 54	127	892	1,001	785	792	1,003	467	74	0	0	0	5,141
55 to 59	95	621	849	706	702	961	552	289	69	3	3	4,847
60 to 64	50	378	600	517	451	637	333	250	124	11	11	3,351
65 to 69	15	110	226	213	164	236	89	78	56	19	19	1,206
70 and up	4	37	51	64	51	65	37	26	22	18	18	375
Total Count	1,264	9,038	8,857	4,834	3,447	3,599	1,565	718	271	51	51	33,644

Table A-8												
Distribution of Active Members as of July 1, 2021												
Average Salary By Age/Service - Total System												
Age	Years of Service										Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up		
Under 25	\$ 59,695	\$ 66,337	\$ 98,811	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 63,691
25 to 29	79,558	84,192	101,498	0	0	0	0	0	0	0	0	85,950
30 to 34	95,555	91,241	105,858	109,051	0	0	0	0	0	0	0	97,603
35 to 39	100,044	95,406	108,888	121,359	133,935	68,175	0	0	0	0	0	105,510
40 to 44	97,912	95,019	108,230	118,870	128,586	124,213	0	0	0	0	0	108,840
45 to 49	93,658	93,547	106,185	116,420	125,905	128,845	144,872	107,963	0	0	0	111,743
50 to 54	91,941	91,782	102,185	108,057	119,085	128,958	147,859	145,457	0	0	0	113,622
55 to 59	93,390	91,262	98,166	104,614	112,333	118,081	132,343	129,915	113,613	84,551	84,551	110,124
60 to 64	95,139	95,193	98,970	105,200	104,125	105,503	112,205	127,080	106,340	95,442	95,442	105,057
65 to 69	71,166	91,019	91,846	94,204	102,469	101,045	123,763	120,824	104,367	105,025	105,025	100,193
70 and up	97,973	71,499	95,507	90,356	92,914	116,781	115,196	114,057	110,830	136,910	136,910	101,735
Avg. Salary	\$ 91,225	\$ 91,919	\$ 104,837	\$ 111,801	\$ 117,718	\$ 119,673	\$ 132,491	\$ 128,937	\$ 108,149	\$ 113,007	\$ 113,007	\$ 106,602

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-9												
Distribution of Active Members as of July 1, 2021												
Count By Age/Service - Police												
Age	Years of Service										Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up		
Under 25	0	13	1	0	0	0	0	0	0	0	0	14
25 to 29	0	197	81	0	0	0	0	0	0	0	0	278
30 to 34	0	140	306	15	0	0	0	0	0	0	0	461
35 to 39	0	75	217	156	24	0	0	0	0	0	0	472
40 to 44	0	33	86	114	101	29	0	0	0	0	0	363
45 to 49	0	10	37	52	73	106	36	0	0	0	0	314
50 to 54	1	10	15	26	42	107	140	12	0	0	0	353
55 to 59	1	9	14	11	25	40	57	14	2	0	0	173
60 to 64	0	2	4	3	2	9	12	1	2	0	0	35
65 to 69	0	1	0	0	0	1	6	2	0	0	0	10
70 and up	0	0	0	1	0	0	1	0	0	0	0	2
Total Count	2	490	761	378	267	292	252	29	4	0	0	2,475

Table A-10												
Distribution of Active Members as of July 1, 2021												
Average Salary By Age/Service - Police												
Age	Years of Service										Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up		
Under 25	\$ 0	\$ 91,929	\$ 98,811	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 92,421
25 to 29	0	97,531	115,496	0	0	0	0	0	0	0	0	102,766
30 to 34	0	99,273	121,831	129,860	0	0	0	0	0	0	0	115,242
35 to 39	0	99,513	125,819	145,984	154,492	0	0	0	0	0	0	129,762
40 to 44	0	104,089	127,547	143,524	149,549	152,426	0	0	0	0	0	138,542
45 to 49	0	108,389	132,557	145,739	147,423	153,780	157,100	0	0	0	0	147,405
50 to 54	142,350	133,083	127,185	149,265	152,105	154,687	175,760	196,409	0	0	0	161,940
55 to 59	142,350	159,057	146,389	148,421	150,029	147,874	166,030	184,754	177,561	0	0	157,960
60 to 64	0	155,291	132,981	163,928	154,422	153,548	151,420	192,510	171,066	0	0	153,621
65 to 69	0	83,397	0	0	0	143,460	148,004	195,423	0	0	0	150,573
70 and up	0	0	0	162,245	0	0	154,510	0	0	0	0	158,378
Avg. Salary	\$ 142,350	\$ 100,909	\$ 124,047	\$ 145,051	\$ 149,896	\$ 153,127	\$ 168,989	\$ 190,580	\$ 174,314	\$ 0	\$ 0	\$ 134,345

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-11
Distribution of Active Members as of July 1, 2021
Count By Age/Service - Fire**

Age	Years of Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up	
Under 25	4	2	0	0	0	0	0	0	0	0	6
25 to 29	8	57	8	0	0	0	0	0	0	0	73
30 to 34	19	122	72	2	0	0	0	0	0	0	215
35 to 39	9	90	160	34	7	0	0	0	0	0	300
40 to 44	6	30	97	38	49	12	0	0	0	0	232
45 to 49	1	14	42	26	61	76	8	0	0	0	228
50 to 54	0	5	15	15	55	148	71	20	0	0	329
55 to 59	0	2	4	7	19	71	48	15	0	0	166
60 to 64	0	0	1	3	6	17	7	7	2	0	43
65 to 69	0	0	0	0	1	1	0	2	0	0	4
70 and up	0	1	0	0	0	0	0	0	0	2	3
Total Count	47	323	399	125	198	325	134	44	2	2	1,599

**Table A-12
Distribution of Active Members as of July 1, 2021
Average Salary By Age/Service - Fire**

Age	Years of Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up	
Under 25	\$ 66,820	\$ 85,008	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 72,883
25 to 29	75,692	93,693	131,079	0	0	0	0	0	0	0	95,817
30 to 34	73,582	97,037	130,855	117,694	0	0	0	0	0	0	106,481
35 to 39	75,286	99,937	134,482	142,035	167,185	0	0	0	0	0	123,962
40 to 44	59,771	100,532	137,701	148,494	171,980	153,390	0	0	0	0	140,699
45 to 49	45,000	94,244	134,991	152,022	157,051	162,476	189,698	0	0	0	151,020
50 to 54	0	92,386	150,599	157,354	157,274	170,250	187,638	196,339	0	0	170,752
55 to 59	0	86,892	131,842	147,558	158,013	166,748	197,958	197,790	0	0	174,965
60 to 64	0	0	182,547	183,627	165,075	162,790	165,184	180,832	214,607	0	170,759
65 to 69	0	0	0	0	149,895	134,484	0	166,249	0	0	154,219
70 and up	0	46,350	0	0	0	0	0	0	0	202,746	150,614
Avg. Salary	\$ 71,321	\$ 97,092	\$ 135,295	\$ 148,832	\$ 161,465	\$ 166,544	\$ 190,285	\$ 192,999	\$ 214,607	\$ 202,746	\$ 142,728

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-13
Distribution of Active Members as of July 1, 2021
Count By Age/Service - Miscellaneous**

Age	Years of Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up	
Under 25	69	82	0	0	0	0	0	0	0	0	151
25 to 29	172	789	103	0	0	0	0	0	0	0	1,064
30 to 34	204	1,515	918	76	0	0	0	0	0	0	2,713
35 to 39	187	1,605	1,526	452	53	1	0	0	0	0	3,824
40 to 44	172	1,264	1,368	782	366	68	0	0	0	0	4,020
45 to 49	122	962	1,108	802	553	405	43	1	0	0	3,996
50 to 54	126	877	971	744	695	748	256	42	0	0	4,459
55 to 59	94	610	831	688	658	850	447	260	67	3	4,508
60 to 64	50	376	595	511	443	611	314	242	120	11	3,273
65 to 69	15	109	226	213	163	234	83	74	56	19	1,192
70 and up	4	36	51	63	51	65	36	26	22	16	370
Total Count	1,215	8,225	7,697	4,331	2,982	2,982	1,179	645	265	49	29,570

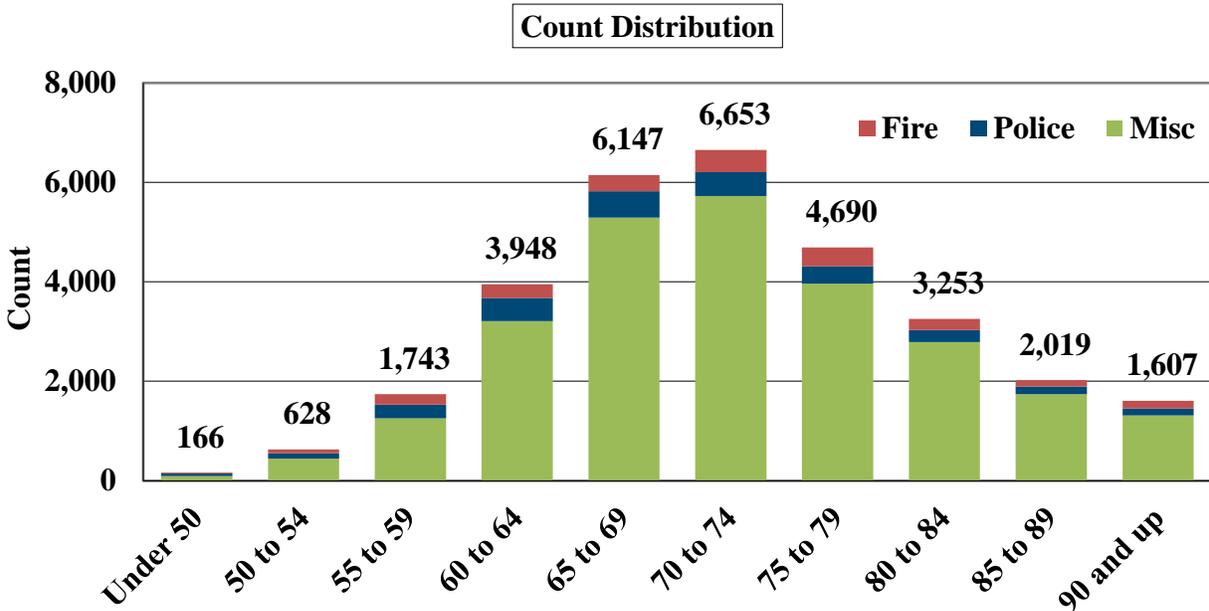
**Table A-14
Distribution of Active Members as of July 1, 2021
Average Salary By Age/Service - Miscellaneous**

Age	Years of Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up	
Under 25	\$ 59,282	\$ 61,824	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 60,662
25 to 29	79,738	80,174	88,192	0	0	0	0	0	0	0	80,880
30 to 34	97,601	90,033	98,573	104,716	0	0	0	0	0	0	93,903
35 to 39	101,235	94,960	103,797	111,305	120,234	68,175	0	0	0	0	101,069
40 to 44	99,242	94,651	104,926	113,837	116,992	107,032	0	0	0	0	104,320
45 to 49	94,057	93,383	104,212	113,365	119,628	116,008	126,294	107,963	0	0	106,700
50 to 54	91,541	91,308	101,051	105,623	114,067	117,108	121,569	106,670	0	0	105,582
55 to 59	92,870	90,276	97,191	103,477	109,582	112,613	121,002	123,047	111,704	84,551	105,901
60 to 64	95,139	94,874	98,601	104,395	103,072	103,201	109,525	125,255	103,457	95,442	103,675
65 to 69	71,166	91,089	91,846	94,204	102,178	100,721	122,011	117,580	104,367	105,025	99,589
70 and up	97,973	72,197	95,507	89,215	92,914	116,781	114,104	114,057	110,830	128,680	101,033
Avg. Salary	\$ 91,911	\$ 91,180	\$ 101,358	\$ 107,831	\$ 111,932	\$ 111,289	\$ 118,122	\$ 121,796	\$ 106,347	\$ 109,344	\$ 102,327

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-15				
Distribution of Retirees, Disabled Members, and Beneficiaries as of July 1, 2021				
Age	Count			Total
	Police	Fire	Misc	
Under 50	51	21	94	166
50 to 54	108	73	447	628
55 to 59	270	214	1,259	1,743
60 to 64	470	270	3,208	3,948
65 to 69	531	325	5,291	6,147
70 to 74	474	450	5,729	6,653
75 to 79	353	374	3,963	4,690
80 to 84	244	222	2,787	3,253
85 to 89	158	123	1,738	2,019
90 and up	142	151	1,314	1,607
Total	2,801	2,223	25,830	30,854

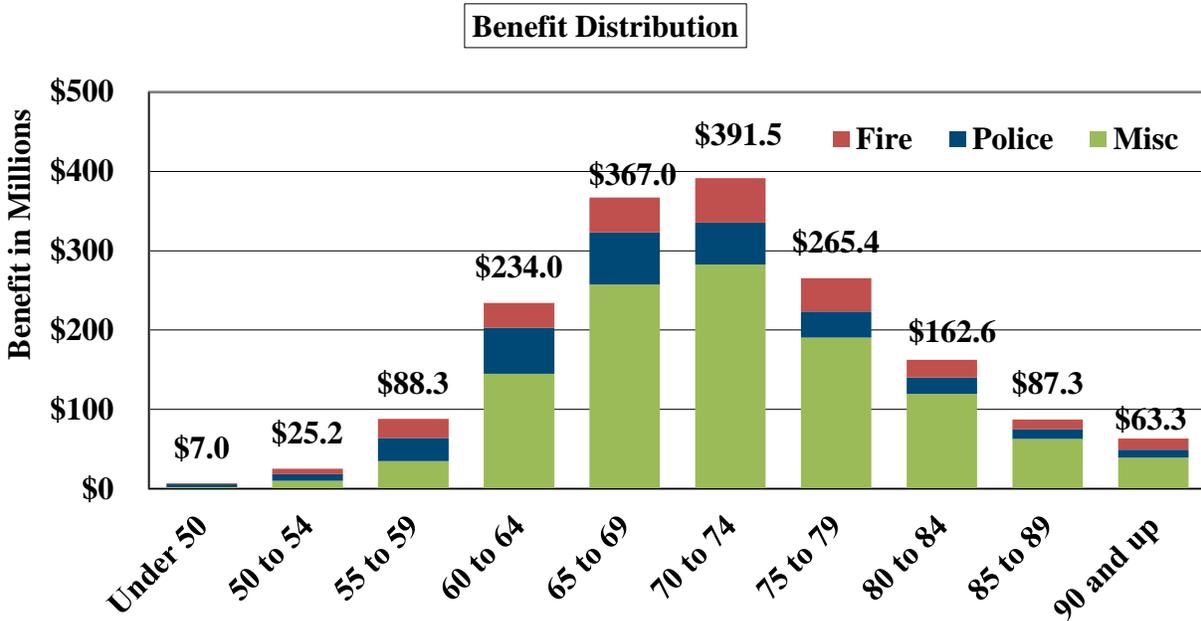


**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-16				
Distribution of Retirees, Disabled Members, and Beneficiaries as of July 1, 2021				
Annual Benefit *				
Age	Police	Fire	Misc	Total
Under 50	\$ 3,360,169	\$ 1,366,739	\$ 2,270,620	\$ 6,997,527
50 to 54	8,596,134	6,636,627	9,964,929	25,197,690
55 to 59	29,428,516	24,142,571	34,743,216	88,314,302
60 to 64	57,815,415	31,213,556	145,019,767	234,048,737
65 to 69	65,768,349	43,906,767	257,345,085	367,020,200
70 to 74	52,484,729	56,212,236	282,761,705	391,458,670
75 to 79	32,903,008	41,875,790	190,589,443	265,368,241
80 to 84	20,454,036	22,468,228	119,712,047	162,634,311
85 to 89	12,331,753	12,029,219	62,970,264	87,331,236
90 and up	10,165,345	13,956,450	39,140,581	63,262,376
Total	\$ 293,307,452	\$ 253,808,181	\$ 1,144,517,657	\$ 1,691,633,290

* Benefits used in the July 1, 2021 actuarial valuation



**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-17
Summary and Reconciliation of Participant Data
Total System**

	Active	Vested Terminated	Reciprocal	Non-Vested Terminated	Disabled	Retired	Beneficiaries	Totals
Participants as of 7/1/2020	34,521	2,461	1,071	7,017	2,523	23,519	4,086	75,198
New Entrants	1,585	0	1	0	0	0	0	1,586
Returned to Work	163	(50)	(1)	(107)	0	(5)	0	0
Vested Terminations	(336)	336	0	0	0	0	0	0
Reciprocal	(10)	0	10	0	0	0	0	0
Non Vested Terminations	(797)	0	0	797	0	0	0	0
Refund/Withdrawal	(296)	(33)	(1)	(196)	0	0	0	(526)
Changes in Inactive Status	0	(4)	22	(18)	0	0	0	0
Retirements	(1,132)	(123)	(38)	(2)	0	1,295	0	0
Disabilities	(13)	(8)	(2)	0	92	(69)	0	0
Benefit Ceased*	(41)	(4)	(2)	0	(108)	(665)	(218)	(1,038)
New Continuants & Dissolutions	0	0	0	0	0	46	332	378
New Split Benefits	0	0	0	0	0	26	0	26
Other Adjustments	0	0	0	0	0	0	0	0
Participants as of 7/1/2021	33,644	2,575	1,060	7,491	2,507	24,147	4,200	75,624

* Includes deaths and benefits that were terminated or suspended

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-18
Summary and Reconciliation of Participant Data
Police**

	Active	Vested Terminated	Reciprocal	Non-Vested Terminated	Disabled	Retired	Beneficiaries	Totals
Participants as of 7/1/2020	2,534	82	20	173	545	1,658	527	5,539
New Entrants	97	0	0	0	0	0	0	97
Returned to Work	2	(2)	0	0	0	0	0	0
Vested Terminations	(18)	18	0	0	0	0	0	0
Reciprocals	(1)	0	1	0	0	0	0	0
Non Vested Terminations	(23)	0	0	23	0	0	0	0
Refund/Withdrawal	(11)	(1)	0	(9)	0	0	0	(21)
Changes in Inactive Status	0	(4)	4	0	0	0	0	0
Retirements	(98)	(4)	(2)	0	0	104	0	0
Disabilities	(6)	(4)	0	0	34	(24)	0	0
Benefit Ceased*	(1)	0	0	0	(15)	(31)	(29)	(76)
New Continuants & Dissolutions	0	0	0	0	0	6	24	30
New Split Benefits	0	0	0	0	0	1	0	1
Transferred In (From Fire)	0	0	0	0	0	0	0	0
Transferred In (From Misc)	0	0	0	0	0	1	0	1
Transferred Out (To Fire)	0	0	0	0	0	0	0	0
Transferred Out (To Misc)	0	(1)	0	0	0	0	0	(1)
Other Adjustments	0	0	0	0	0	0	0	0
Participants as of 7/1/2021	2,475	84	23	187	564	1,715	522	5,570

* Includes deaths and benefits that were terminated or suspended

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-19 Summary and Reconciliation of Participant Data Fire								
	Active	Vested Terminated	Reciprocal	Non-Vested Terminated	Disabled	Retired	Beneficiaries	Totals
Participants as of 7/1/2020	1,660	34	21	28	669	1,107	388	3,907
New Entrants	45	0	0	0	0	0	0	45
Returned to Work	0	0	0	0	0	0	0	0
Vested Terminations	(6)	6	0	0	0	0	0	0
Reciprocals	0	0	0	0	0	0	0	0
Non Vested Terminations	(5)	0	0	5	0	0	0	0
Refund/Withdrawal	0	0	0	(4)	0	0	0	(4)
Changes in Inactive Status	0	0	0	0	0	0	0	0
Retirements	(90)	(4)	(1)	0	0	95	0	0
Disabilities	(3)	(1)	0	0	19	(15)	0	0
Benefit Ceased*	(2)	0	0	0	(34)	(17)	(28)	(81)
New Continuants & Dissolutions	0	0	0	0	0	6	33	39
New Split Benefits	0	0	0	0	0	0	0	0
Transferred In (From Misc)	0	0	0	0	0	0	0	0
Transferred In (From Police)	0	0	0	0	0	0	0	0
Transferred Out (To Misc)	0	0	0	0	0	0	0	0
Transferred Out (To Police)	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0
Participants as of 7/1/2021	1,599	35	20	29	654	1,176	393	3,906

* Includes deaths and benefits that were terminated or suspended

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-20								
Summary and Reconciliation of Participant Data								
Miscellaneous								
	Active	Vested Terminated	Reciprocal	Non-Vested Terminated	Disabled	Retired	Beneficiaries	Totals
Participants as of 7/1/2020	30,327	2,345	1,030	6,816	1,309	20,754	3,171	65,752
New Entrants	1,443	0	1	0	0	0	0	1,444
Returned to Work	161	(48)	(1)	(107)	0	(5)	0	0
Vested Terminations	(312)	312	0	0	0	0	0	0
Reciprocals	(9)	0	9	0	0	0	0	0
Non Vested Terminations	(769)	0	0	769	0	0	0	0
Refund/Withdrawal	(285)	(32)	(1)	(183)	0	0	0	(501)
Changes in Inactive Status	0	0	18	(18)	0	0	0	0
Retirements	(944)	(115)	(34)	(2)	0	1,095	0	0
Disabilities	(4)	(3)	(2)	0	39	(30)	0	0
Benefit Ceased*	(38)	(4)	(2)	0	(59)	(617)	(161)	(881)
New Continuants & Dissolutions	0	0	0	0	0	34	275	309
New Split Benefits	0	0	0	0	0	25	0	25
Transferred In (From Fire)	0	0	0	0	0	0	0	0
Transferred In (From Police)	0	1	0	0	0	0	0	1
Transferred Out (To Fire)	0	0	0	0	0	0	0	0
Transferred Out (To Police)	0	0	(1)	0	0	0	0	(1)
Other Adjustments	0	0	0	0	0	0	0	0
Participants as of 7/1/2021	29,570	2,456	1,017	7,275	1,289	21,256	3,285	66,148

* Includes deaths and benefits that were terminated or suspended

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Data Assumptions and Methods

In preparing our valuation results, we relied on information supplied by the SFERS staff. 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:

- Service for members on the “Active” data file was calculated using the field “Yrs Svc.” Service buyback that has been paid for is added to the “Yrs Svc” field. Service buyback that is under contract, but not paid in full, as of the valuation date is assumed to be paid in full per the contract and this service is reflected in the projected benefit. An adjusted date of hire is retroactively calculated from the valuation date.
- Valuation Salary for the fiscal year ending 6/30/2021 is equal to “Cvd Pay” reported for full-time members hired before the beginning of the previous plan year, and the maximum of “Cvd Pay” and “Calc Pay,” which is an annualized pay rate, reported for new hires. A minimum of \$45,000 annual pay is used for all active members. Valuation Salary projected forward is the Valuation Salary for the prior fiscal year increased for merit according to our assumptions and for wage inflation in accordance with the latest Memorandum Of Understanding (MOUs):
 - Miscellaneous active members
 - 0.5% as of June 30, 2021
 - 3.0% as of July 1, 2021
 - 0.5% as of January 8, 2022
 - Police active members
 - 3.0% as of July 1, 2021
 - 5.0% as of July 1, 2022 (2.0% effective on June 30, 2022, deferred from December 26, 2020, and 3.0% effective July 1, 2022)
 - Fire active members
 - 3.0% as of July 1, 2021
 - 4.0% as of July 1, 2022 (1.0% effective on June 30, 2022, deferred from December 26, 2020, and 3.0% effective July 1, 2022)
- Salary used to determine benefit amounts for active part-time members (“Sch” = “P”) is calculated as the greater of “Cvd Pay” and “Calc Pay.” The annual projected service for part-time members is the same as the service accrual in the previous year. For all other members, Valuation Salary is used to determine benefit amounts.
- Benefits in the valuation data for members in pay status for the Miscellaneous and New Safety Charters include the Basic COLAs effective July 1, 2021.
- The Basic COLAs effective July 1, 2021 for the Old Safety Charter retirees were estimated based on data provided by SFERS and included in the July 1, 2021 benefit.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

- Supplemental COLA benefits were granted as of July 1, 2021, to all retired members, and their beneficiaries, who were retired as of July 1, 2021. There was an adjustment made to the benefits provided in the valuation data for a Supplemental COLA of 1.5% for Miscellaneous and New Safety Charters and varying amounts for the Old Safety Charter so that the total benefit increase was 3.5%, unless the Basic COLA was greater than 3.5%.
- Records on the “Active” data file are considered to be Active if they have a status of “AM” or “RT” which mean active, no “Job End Date” or the “Job End Date” is after 6/30/2021, and do not have a retiree record and their “Cvd Pay” is greater than \$0.
- For accounts having duplicate records based on Social Security Number in the “Active” data file, the records are added together for fields “Cvd Pay,” “Contribs,” “Interest,” “Shortage,” “Short Int,” and “Yrs Svc.” The other data in the record is determined by the record which is considered open (“Plan Stat” = “O”) with the most recent “Membership Date.”
- Records on the “Active” data file are considered to be Inactive if they have a status of “VM,” which means vested or they have a status of “AM” but their “Job End Date” is prior to 6/30/2021, or their “Cvd Pay” is \$0. If these inactive members have less than 5 years of service (non-vested), they are assumed to receive a lump sum distribution on the valuation date. If these inactive members have 5 or more years of service (vested), they are assumed to have elected a deferred benefit and to retire at age 55 for non-reciprocal Miscellaneous and Safety Prop C members. The assumed retirement age for reciprocal Miscellaneous members is 60. The assumed retirement age for Safety non-Prop C members is 51.
- For Safety members, the deferred benefit is estimated using Final Average Compensation multiplied by years of service (including service purchased) multiplied by the appropriate age factor. For Miscellaneous members, the deferred benefit at retirement is 200% of the member’s contribution account balance with interest as of the valuation date projected with the assumed interest crediting rate to the assumed retirement age and then divided by the appropriate annuity factor from Table 12 of the Operating Tables. When there are deferred vested Miscellaneous Prop C members, their deferred benefit will be calculated the same except 200% will be replaced by 150%.
- Members on the “Inactive” data file are assumed to have elected a refund and receive a lump sum distribution on the valuation date if their “Withdrawal Date” is on or after the valuation date. If their “Withdrawal Date” is before the valuation date, they are assumed to have taken a full refund prior to the valuation date.
- Records on the “Retiree” file are considered in pay status if their benefit is not suspended or terminated.
- Members may retire and receive benefits under multiple Charter sections (e.g., a police officer can have two benefits, one for the service during the academy training which is considered Miscellaneous service and a second benefit for all other service as a police

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

officer). For active members who are reported with a Safety benefit and a Miscellaneous benefit with less than two years of service, their benefits are added together and valued as a single record under the Safety Charter section. For all other members who are reported with multiple benefits, we value each component of the member's benefit separately under the applicable Charter section. Consequently, the active member counts reported in this valuation are slightly higher than the actual number of members due to some individual members being reported under multiple groups.

- We assume any member reported in last year's "Retiree" file and not in this year's file is deceased without a beneficiary and is removed from the valuation data.
- We assume all deceased members with payments continuing to a beneficiary have been reported in the "Retiree" file.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

All demographic assumptions and the price and wage inflation assumptions were adopted at the December 9, 2020 Board meeting based on our recommendations. Please refer to the demographic experience study report dated August 2020 for the rationale for the demographic assumptions and the presentation dated December 9, 2020 for the rationale for the price and wage inflation assumptions. The discount rate was adopted at the November 10, 2021 Board meeting. Please refer to the October 13, 2021 Board presentation for the rationale for the discount rate. We believe all assumptions are reasonable for the purpose of the measurement.

1. Discount Rate

SFERS assets are assumed to earn 7.20% net of investment expenses.

2. Price Inflation

Consumer Price Inflation: 2.50% compounded annually

3. Wage Inflation

Bargained increases through July 1, 2022 followed by 3.25% compounded annually thereafter.

4. Amortization Payment Increase Rate

Amortization payments increase at the rate of 3.25% compounded annually

5. Administrative Expenses

Administrative expenses are assumed to equal 0.60% of payroll.

6. Interest Credited to Member Contributions

4.50%, compounded annually.

7. 401(a)(17) Maximum Compensation Limit

The compensation limit in Section 401(a)(17) of the Internal Revenue Code is assumed to increase with price inflation. In the valuation, compensation limits are only applied to members of new plans created by Proposition C for whom compensation is limited to a percentage of the 401(a)(17) compensation limit.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

8. 415(b) Maximum Benefit Limit

The 415(b) limits have been applied to active members' current and future benefits. The 415(b) limit is assumed to increase with price inflation. The 415(b) limit has also been applied to the retiree members who were in excess of the 415(b) limit in 2020. The projected increase in the 415(b) limit for retirees is the same increase as their Basic COLA which depends on their Charter.

9. Salary Increase Rate

Wage inflation component: Bargained increases through July 1, 2022 followed by 3.25% compounded annually thereafter.

Table B-1 Current Bargained Wage Increases			
Date of Increase	Police	Fire	Misc
6/30/2021	0.0%	0.0%	0.5%
7/1/2021	3.0%	3.0%	3.0%
1/8/2022	0.0%	0.0%	0.5%
6/30/2022	2.0%	1.0%	N/A
7/1/2022	3.0%	3.0%	N/A

The additional merit component:

Table B-2 Salary Merit Increases - Sample Rates					
Years of Service	Police	Fire	Muni Drivers	Craft	Misc
0	7.50%	14.00%	16.00%	3.75%	5.50%
1	6.75	10.00	11.00	3.00	4.50
2	6.00	8.00	6.50	2.40	3.75
3	5.25	6.00	3.50	1.80	3.25
4	4.50	5.00	1.75	1.50	2.75
5	3.75	4.00	1.25	1.20	2.25
10	1.50	1.50	0.30	0.50	1.10
15	0.50	0.50	0.00	0.50	0.55
20 & over	0.50	0.50	0.00	0.50	0.30

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Extra covered wages in the last year before service retirement are assumed to be as follows:

Table B-3	
Safety	3.0%
Muni Drivers	4.5%
Craft Workers	3.0%
Miscellaneous	2.0%

10. Cost-of-Living Increase in Benefits

Basic COLA

Old Plans – Miscellaneous	2.0% per year
New Plans – Police, Fire, and Miscellaneous	2.0% per year
Old Plans – Police and Fire, Charters 8.559 and 8.585	3.6% per year
Old Plans – Police and Fire, Charters 8.595 and 8.596	2.5% per year
Old Plans – Police and Fire, pre-7/1/75 dates of retirement	1.9% per year

Old Safety COLA assumptions are based on the following formula rounded up to one decimal place:

$$(\text{Wage Inflation} + \text{Ultimate Merit}) \div 2 \times \text{Factor}$$

For retirements after 6/30/75, the Factor represents the ratio of the average salary for the last position held to the average pension benefit.

For Charters 8.559 and 8.585, the factor is 1.9
 For Charters 8.595 and 8.596, the factor is 1.3
 For pre-7/1/75 dates of retirement, the factor is 1.0

Supplemental COLA

For purposes of the actuarial valuation and the determination of contribution rates for FYE 2023, future Supplemental COLAs are assumed to be 0%.

For purposes of the projections, in years when the return equals the assumption, future Supplemental COLAs are assumed to be granted approximately:

- 50% of the time for members who are eligible for a Supplemental COLA regardless of the System’s funded status, and
- 50% for FYE 2023 gradually decreasing to 35% for FYE 2036 and later for members who are eligible for a Supplemental COLA only if the System is also 100% funded.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

In years when the return differs from the assumption, Supplemental COLAs are estimated based on the investment return.

11. Rates of Termination of Employment

Sample rates of termination by age and service for Miscellaneous members are shown below.

Table B-4			
Misc. Rates of Termination by Age and Service Years			
Service	Age		
	Under 30	30 to 39	40 & over
0	38.00%	24.00%	20.00%
1	20.00	12.00	9.00
2	14.00	9.00	6.00
3	10.00	7.00	4.80
4	7.50	6.50	4.60
5	6.75	6.00	4.40
10	3.75	3.75	3.75
15	2.25	2.25	2.25
20+	1.00	1.00	1.00

Sample rates of termination by service for Police, Fire, Muni Drivers, and Craft members are shown below.

Table B-5				
Rates of Termination				
Service	Police	Fire	Muni	
			Drivers	Craft
0	8.00%	2.50%	12.00%	9.50%
1	5.00	1.00	5.00	6.50
2	2.00	1.00	4.00	5.75
3	1.50	1.00	3.50	4.50
4	1.00	1.00	3.25	3.50
5	1.00	1.00	3.00	3.25
10	0.75	0.50	2.50	1.75
15	0.50	0.25	2.50	1.75
20+	0.50	0.25	2.50	1.75

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

When members are eligible to retire, it is assumed that their termination rates are zero. 20% of Miscellaneous and 40% of Safety terminating employees are assumed to subsequently work for a reciprocal employer and receive pay increases equal to the wage inflation assumption.

In estimating termination benefits for Miscellaneous members, it is assumed that employee contribution rates are, on average, not changed by the floating contribution rate provisions of Proposition C.

12. Member Refunds

Non-vested terminated members are assumed to receive a refund of their contributions with interest. Sample rates of refund for terminated vested members are shown below.

Table B-6 Vested Terminated Rates of Refund		
Service	Police & Fire	Miscellaneous
5	24.0%	20.0%
6	20.0	15.0
7	16.0	12.0
8	12.0	10.0
9	8.0	9.0
10	4.0	8.5
15	0.0	6.0
20	0.0	0.0

In estimating refund amounts, it is assumed that future employee contribution rates are, on average, not changed by the floating contribution rate provisions of Proposition C.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

13. Rates of Disability

Sample disability rates of active participants are provided below. 100% of safety and 0% of Miscellaneous disabilities are assumed to be duty related.

Table B-7 Rates of Disability at Selected Ages						
Age	Police	Fire	Muni Drivers	Craft	Misc Females	Misc Males
30	0.05%	0.04%	0.01%	0.01%	0.01%	0.01%
35	0.14	0.09	0.06	0.06	0.04	0.04
40	0.35	0.24	0.11	0.11	0.07	0.08
45	0.44	0.42	0.17	0.20	0.15	0.11
50	0.90	0.84	0.45	0.40	0.40	0.28
55	3.30	3.50	1.35	0.75	0.55	0.45
60	5.75	7.30	0.00	0.00	0.00	0.00
65	0.00	0.00	0.00	0.00	0.00	0.00

Table B-8 Level of duty disability benefits (if projected to be disabled before service retirement eligibility)	
Police	55% of pay
Fire	55% of pay

14. Base Rates of Mortality for Healthy Lives

The mortality rates used in the valuation are developed from a base table that is projected generationally from the base year of that table using the mortality projection scale described below. Base mortality tables are developed by multiplying a published table by an adjustment factor that was developed in the experience study for the period ending June 30, 2019. The base mortality tables for healthy lives are described on the following page.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Table B-9			
	Published Table	Adjustment Factor	
		Male	Female
Non-Annuitants			
Miscellaneous	PubG-2010 Employee	0.834	0.866
Safety	PubS-2010 Employee	1.011	0.979
Retirees			
Miscellaneous	PubG-2010 Retiree	1.031	0.977
Safety	PubS-2010 Retiree	0.947	1.044
Beneficiaries			
Miscellaneous	PubG-2010 Retiree	1.031	0.977
Safety	PubG-2010 Retiree	1.031	0.977

For active members, 25% of Safety deaths and 0% of Miscellaneous deaths are assumed to be duty related.

15. Base Rates of Mortality for Retired Disabled Lives

For disabled annuitant mortality, separate base tables are developed for males and females and for Miscellaneous and Safety members by multiplying a published table by an adjustment factor that was developed in the experience study for the period ending June 30, 2019. The base mortality tables for disabled annuitant lives are described below.

Table B-10			
	Published Table	Adjustment Factor	
		Male	Female
Disabled Annuitants			
Miscellaneous	PubG-2010 Disabled	1.045	1.003
Safety	PubS-2010 Disabled	0.916	0.995

16. Mortality Projection Scale

The mortality rates shown in the base tables above are projected generationally from the base year using the MP-2019 projection scale.

17. Rates of Retirement

Rates of retirement are based on age and service according to the tables on the following pages. Separate rates are used for members hired on or after January 7, 2012 under Charter Sections A8.603 and above (Prop C).

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Table B-11						
Police Rates of Retirement						
Age	Other than Prop C			Prop C		
	Years of Service			Years of Service		
	< 25	25 - 29	30 +	< 25	25 - 29	30 +
50	1.50%	5.00%	5.00%	1.50%	5.00%	5.00%
51	1.50	5.00	15.00	1.50	5.00	10.00
52	2.00	7.50	20.00	2.00	7.50	20.00
53	5.00	20.00	40.00	5.00	15.00	25.00
54	7.50	22.00	50.00	7.50	17.50	30.00
55	7.50	35.00	50.00	7.50	20.00	35.00
56	7.50	26.00	40.00	7.50	24.00	35.00
57	10.00	28.00	45.00	10.00	26.00	40.00
58	10.00	30.00	45.00	10.00	35.00	60.00
59	15.00	25.00	45.00	15.00	25.00	45.00
60	20.00	34.00	45.00	20.00	34.00	45.00
61	10.00	36.00	40.00	10.00	36.00	40.00
62	15.00	36.00	40.00	15.00	36.00	40.00
63	12.50	36.00	40.00	12.50	36.00	40.00
64	12.50	36.00	40.00	12.50	36.00	40.00
65 & over	100.00	100.00	100.00	100.00	100.00	100.00

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Table B-12						
Fire Rates of Retirement						
Age	Other than Prop C			Prop C		
	Years of Service			Years of Service		
	< 25	25 - 29	30 +	< 25	25 - 29	30 +
50	2.00%	5.00%	5.00%	2.00%	2.00%	2.00%
51	1.00	5.00	5.00	1.00	2.00	2.00
52	2.00	5.00	5.00	2.00	5.00	5.00
53	3.00	5.00	15.00	3.00	5.00	12.50
54	7.50	20.00	35.00	7.50	12.50	20.00
55	7.50	25.00	35.00	7.50	15.00	25.00
56	7.50	20.00	35.00	7.50	15.00	30.00
57	12.50	20.00	35.00	12.50	15.00	30.00
58	12.50	20.00	25.00	12.50	30.00	35.00
59	12.50	25.00	25.00	12.50	25.00	25.00
60	15.00	25.00	35.00	15.00	25.00	35.00
61	15.00	40.00	40.00	15.00	40.00	40.00
62	15.00	40.00	40.00	15.00	40.00	40.00
63	15.00	20.00	25.00	15.00	20.00	25.00
64	20.00	20.00	25.00	20.00	20.00	25.00
65 & over	100.00	100.00	100.00	100.00	100.00	100.00

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Table B-13						
Muni Drivers Rates of Retirement						
Age	Other than Prop C			Prop C		
	Years of Service			Years of Service		
	< 20	20 - 29	30 +	< 20	20 - 29	30 +
50	0.00%	1.00%	1.50%	0.00%	0.00%	0.00%
51	0.00	1.00	1.50	0.00	0.00	0.00
52	0.00	1.00	1.50	0.00	0.00	0.00
53	0.00	1.00	1.50	0.00	1.00	1.50
54	0.00	1.00	1.50	0.00	1.00	1.50
55	0.00	4.00	5.00	0.00	1.00	5.00
56	0.00	4.00	5.00	0.00	1.00	5.00
57	0.00	4.00	5.00	0.00	2.00	5.00
58	0.00	4.00	5.00	0.00	2.00	5.00
59	0.00	4.00	5.00	0.00	2.00	5.00
60	10.00	10.00	20.00	5.00	10.00	15.00
61	12.50	25.00	30.00	7.50	12.50	20.00
62	20.00	32.50	35.00	10.00	15.00	30.00
63	15.00	30.00	30.00	10.00	20.00	25.00
64	15.00	30.00	30.00	10.00	25.00	25.00
65	27.50	30.00	35.00	27.50	30.00	40.00
66	27.50	30.00	35.00	27.50	30.00	35.00
67	27.50	30.00	35.00	27.50	30.00	35.00
68	27.50	30.00	35.00	27.50	30.00	35.00
69	27.50	30.00	35.00	27.50	30.00	35.00
70 & over	100.00	100.00	100.00	100.00	100.00	100.00

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Table B-14						
Craft Rates of Retirement						
Age	Other than Prop C			Prop C		
	Years of Service			Years of Service		
	< 20	20 - 29	30 +	< 20	20 - 29	30 +
50	0.00%	1.50%	1.50%	0.00%	0.00%	0.00%
51	0.00	1.50	1.50	0.00	0.00	0.00
52	0.00	1.50	1.50	0.00	0.00	0.00
53	0.00	2.50	4.00	0.00	1.50	1.50
54	0.00	2.50	4.00	0.00	1.50	1.50
55	0.00	2.50	5.00	0.00	1.50	2.50
56	0.00	3.00	5.00	0.00	1.50	2.50
57	0.00	3.00	5.00	0.00	2.00	2.50
58	0.00	3.00	5.00	0.00	2.00	5.00
59	0.00	8.00	20.00	0.00	2.00	10.00
60	7.50	12.00	32.50	5.00	7.50	15.00
61	10.00	20.00	35.00	7.50	12.50	20.00
62	20.00	30.00	37.50	17.50	25.00	30.00
63	10.00	25.00	30.00	10.00	17.50	25.00
64	17.50	25.00	30.00	10.00	17.50	25.00
65	25.00	27.50	30.00	25.00	30.00	40.00
66	27.50	30.00	32.50	27.50	30.00	32.50
67	27.50	30.00	32.50	27.50	30.00	32.50
68	15.00	25.00	30.00	15.00	25.00	30.00
69	15.00	25.00	30.00	15.00	25.00	30.00
70 & over	100.00	100.00	100.00	100.00	100.00	100.00

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Table B-15						
Miscellaneous Rates of Retirement						
Age	Other than Prop C			Prop C		
	Years of Service			Years of Service		
	< 20	20 - 29	30 +	< 20	20 - 29	30 +
50	0.00%	2.75%	3.50%	0.00%	0.00%	0.00%
51	0.00	2.50	3.50	0.00	0.00	0.00
52	0.00	2.50	3.50	0.00	0.00	0.00
53	0.00	3.25	3.50	0.00	3.25	3.25
54	0.00	4.00	4.00	0.00	4.00	4.00
55	0.00	4.00	5.50	0.00	4.00	4.00
56	0.00	4.25	6.75	0.00	4.25	4.25
57	0.00	4.50	8.75	0.00	4.50	4.50
58	0.00	5.00	10.00	0.00	5.00	7.50
59	0.00	8.75	20.00	0.00	8.75	10.00
60	9.00	11.50	30.00	7.50	10.00	12.50
61	13.25	20.00	35.00	10.00	15.00	15.00
62	20.00	30.00	35.00	17.50	25.00	25.00
63	16.00	22.50	30.00	12.50	17.50	20.00
64	16.00	22.50	30.00	12.50	17.50	20.00
65	20.00	30.00	30.00	25.00	40.00	40.00
66	25.00	30.00	35.00	25.00	30.00	35.00
67	25.00	30.00	35.00	25.00	30.00	35.00
68	20.00	30.00	30.00	20.00	30.00	30.00
69	20.00	30.00	30.00	20.00	30.00	30.00
70	25.00	25.00	30.00	25.00	25.00	30.00
71	25.00	25.00	30.00	25.00	25.00	30.00
72	25.00	25.00	30.00	25.00	25.00	30.00
73	25.00	25.00	30.00	25.00	25.00	30.00
74	25.00	25.00	30.00	25.00	25.00	30.00
75 & over	100.00	100.00	100.00	100.00	100.00	100.00

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

The assumed retirement age for inactive terminated vested members and actives who are expected to terminate is shown below.

Table B-16		
Deferred Retirement Age		
	Non-Prop C	Prop C
Safety	51	55
	Non-Reciprocal	Reciprocal
Miscellaneous	55	60

18. Family Composition

The percentage assumed to be married (including assumption for Domestic Partners, 1994 Proposition H) is shown on the next page. Spouses of male members are assumed to be three years younger than the member and spouses of female members are assumed to be two years older than the member.

Table B-17	
Percentage Married	
Safety Males	80%
Safety Females	60
Miscellaneous Males	75
Miscellaneous Females	55

19. Deferred Member Benefit Amount

The benefit was estimated based on information provided by SFERS staff. The data used to estimate the deferred benefit were date of birth, date of hire, date of termination, and last pay. Based on the data provided, service credit, highest average salary, and deferred retirement age were estimated. The estimates were used to compute the retirement benefit, upon which the liabilities are based. For those members without sufficient data or service, accumulated member contribution balances, with interest, were used as the Actuarial Liability.

20. Timing of Contributions

Employer and employee contributions are made throughout the year.

21. Changes Since Last Valuation

Discount Rate: 7.40% to 7.20%

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

B. Contribution Allocation Procedure

The contribution allocation procedure primarily consists of an actuarial cost method, an asset smoothing method, and an amortization method as described below. All components of the contribution allocation procedure were established prior to the July 1, 2008 actuarial valuation except the amortization method, which was most recently modified by the Board at their November 10, 2021 meeting.

1. Actuarial Cost Method

The Entry Age Actuarial Cost Method was used for active employees, whereby the normal cost is computed as the level annual percentage of pay required to fund the retirement benefits between each member's date of hire and assumed termination of employment. The normal costs calculated relate only to current member payroll. The Actuarial Liability is the difference between the present value of future benefits and the present value of future normal cost.

2. Asset Valuation Method

For the purposes of determining the Employer's contribution to SFERS, we use the Actuarial Value of Assets. The asset adjustment method dampens the volatility in asset values that could occur because of the fluctuations in market conditions. Use of an asset smoothing method is consistent with the long-term nature of the actuarial valuation process.

The actuarial value is calculated by recognizing 20% of each of the past five years of actual investment returns compared to the expected return (7.40% for the years ending 2019-2021 and 7.50% for the years ending 2017-2018 on the actuarial asset value. The expected return on Actuarial Value of Assets is determined using SFERS actual cash flows and the assumed return. The balance of the actual investment experience is recognized in a similar fashion in future years.

This asset smoothing method started with the market value as of July 1, 2004.

3. Amortization Method

Any Charter change prior to July 1, 2014 has been amortized over 20 years from the date it was first recognized in the valuation. After July 1, 2014, any changes to active member benefits are amortized over a closed 15-year period, and any new changes to inactive or retired member benefits, including Supplemental COLAs, are amortized over a closed five-year period.

The UAL not attributable to Charter changes as of July 1, 2013, was amortized over a closed 19-year period as of July 1, 2014. Any sources of UAL due to actuarial gains and

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

losses, assumption changes, or method changes are amortized over closed, layered 20-year periods.

If the System becomes 100% funded based on the Actuarial Value of Assets, any subsequent unexpected changes in the UAL are amortized over a rolling 20-year period until the System is no longer 100% funded.

Effective with the July 1, 2021 valuation, the remaining amortization periods for assumption changes prior to July 1, 2021 and all prior actuarial gains and losses (including the gain for 2021) are reduced to 5 years.

All amortization payment amounts increases each year at the assumed wage inflation rate.

4. Changes Since Last Valuation

Effective with the July 1, 2021 valuation, the remaining amortization periods for assumption changes prior to July 1, 2021 and all prior actuarial gains and losses (including the gain for 2021) are reduced to 5 years. If the System becomes fully funded based on the Actuarial Value of Assets, any subsequent unexpected changes in the UAL are amortized over a rolling 20-year period until the System is no longer fully funded.

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
(OLD POLICE AND FIRE)

I. Old Police and Fire Members – Charter Sections 8.559 and 8.595 (Police) and 8.585 and 8.596 (Fire)

1. Membership Requirement

Charter Sections 8.559 and 8.585

Police Officers and Firefighters who became members before November 2, 1976 and retired on or before December 31, 2002 without electing membership in another Section.

Charter Sections 8.595 and 8.596

Active members on November 5, 2002 in Section 8.559 (Police) or Section 8.585 (Fire) who elected to switch to Section 8.595 (Police) or Section 8.596 (Fire) by December 31, 2002.

2. Final Compensation

Monthly salary earnable at the final rank held at termination date, or monthly salary at next lower rank if final rank held for less than one year.

3. Credited Service

One year of service credit is given for each fiscal year with 10 or more full months worked. A partial year (fraction with the numerator equal to months including partial months, and the denominator equal to 10) is given for each fiscal year with less than 10 full months worked.

4. Member Contributions

a. Member:

7.0% of salary, excluding overtime and most premium pay. These contributions are credited with interest annually as determined by the Board.

Charter Sections 8.585, 8.595, and 8.596

Depending on the employer contribution rate, the member contribution rate can increase or decrease by up to 6% of pay.

b. Employer:

The Employer contributes the remaining amounts necessary to maintain the soundness of the Retirement System. Any decrease in the member contribution rate is paid by the City.

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
(OLD POLICE AND FIRE)

5. Service Retirement

Eligibility

Age 50 with 25 years of Credited Service.

Benefit – Member

Charter Sections 8.559 and 8.585

55% of Final Compensation plus an additional 4% of Final Compensation for each year of credited service in excess of 25 years, subject to a maximum of 75% of Final Compensation.

Charter Sections 8.595 and 8.596

A specified percent of Final Compensation based on the member's age at retirement (factors shown in Table C-1 below) for each year of Credited Service, subject to a maximum of 90% of Final Compensation.

Table C-1 City and County of San Francisco Employees' Retirement System Sections 8.595 (Police) and 8.596 (Fire) – Service Retirement Factors	
Retirement Age	Retirement Factors
50	2.40%
51	2.52%
52	2.64%
53	2.76%
54	2.88%
55 or above	3.00%

Benefit – Survivor

75% of the service retirement benefit paid to a qualified survivor.

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
(OLD POLICE AND FIRE)

6. Non-Industrial Disability

Eligibility

10 years of Credited Service.

Benefit – Member

At least 10 but less than 25 years of Credited Service:

1.5% of Final Compensation for each year of Credited Service between 10 and 25 years, subject to a minimum of 33.3% and a maximum of 75% of Final Compensation for Charter Sections 8.559 and 8.585 or 90% of Final Compensation for Charter Sections 8.595 and 8.596.

At least 25 years of Credited Service:

Service retirement benefit determined at date of disability.

Benefit – Survivor

75% of the disability retirement benefit paid to a qualified survivor.

7. Industrial Disability

Eligibility

No age or service requirement.

Benefit – Member

If Not Eligible for Service Retirement:

Final Compensation times a percentage of disability, subject to a minimum of 50% and a maximum of 90%, as determined by the Workers' Compensation Appeals Board. Once the member becomes eligible for service retirement, assuming that member earned service and salary increases during the period of disability, the benefit is recalculated using the service and salary rate for the current rank held. The recalculated benefit is based on a minimum of 55% of Final Compensation.

If Eligible for Service Retirement:

Service retirement benefit determined at date of disability, but not less than 55% of Final Compensation.

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
(OLD POLICE AND FIRE)

Benefit – Survivor

If Not Eligible for Service Retirement:

100% of the disability retirement benefit paid to a qualified survivor. Once the member would have become eligible for service retirement, assuming that member earned service and salary increases from the date of disability to the eligible service retirement date, the benefit is recalculated at 100% of the service retirement benefit, using the service and salary at the eligible service retirement date, not less than 55% of Final Compensation.

If Eligible for Service Retirement:

100% of the disability retirement benefit paid to a qualified survivor, not less than 55% of Final Compensation.

8. Death while an Active Employee

If Death is due to a Non-Work-Related Cause:

- a. Less than 10 Years of Credited Service, or No Qualified Survivor – Lump sum benefit equal to the accumulated refund of all employee contributions with interest, plus six months' salary to a designated beneficiary.
- b. At least 10 but less than 25 years of Credited Service – Monthly continuation allowance to a qualified survivor equal to the non-industrial disability benefit the member would have been entitled to on the date of death, subject to a minimum of 33.3% of compensation at the time of death.
- c. At Least 25 Years of Credited Service but Less than Age 50 – Monthly continuation allowance to a qualified survivor equal to 75% of the monthly service retirement benefit the member would have received had the member been age 50 and retired on the date of death.
- d. Eligible for Service Retirement – Monthly continuation allowance to a qualified survivor equal to 75% of the monthly service retirement benefit the member would have received had the member been retired on the date of death.

If Death is due to a Work-Related Cause:

- a. No Qualified Survivor – Lump sum benefit equal to the accumulated refund of all employee contributions with interest, plus six months' salary to a designated beneficiary. If the death is of a violent nature, an additional lump sum equivalent benefit equal to 12 months' salary is payable.

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
(OLD POLICE AND FIRE)

- b. Qualified Survivor and Not Eligible for Service Retirement – Monthly continuation allowance to a qualified survivor equal to the salary at the date of death. Once the member would have become eligible for service retirement, assuming that member earned service and salary increases from the date of death to the eligible service retirement date, the benefit is recalculated at 100% of the service retirement benefit, using the service and salary at the eligible service retirement date, such allowance shall not be less than 55% of Final Compensation.
- c. Qualified Survivor and Eligible for Service Retirement – Monthly continuation allowance to a qualified survivor equal to 100% of the monthly service retirement benefit the member would have received had the member been retired on the date of death, but such allowance shall not be less than 55% of Final Compensation.

9. 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 member may choose one of the following:

- a. Lump sum benefit equal to the accumulated employee contributions with interest.
- b. **Charter Sections 8.559 and 8.585:** Retirement benefit first payable at age 50 equal to 55% of Final Compensation at termination, multiplied by a service fraction, the numerator being the Credited Service of the member at termination, and a denominator of 25.

Charter Sections 8.595 and 8.596: A specified percent of Final Compensation based on the member's age at retirement (factors shown in Table C-1) for each year of Credited Service, subject to a maximum of 90% of Final Compensation.

Cost-of-living adjustments are prorated if the member's accrued service is less than 25 years. COLA will be multiplied by a fraction where the denominator is 25 and the numerator is equal to service at date of termination.

10. Additional Post-retirement Death Benefit

A death benefit payable as a lump sum equal to \$100 for each full year of Credited Service, subject to a maximum of \$3,000, will be paid to a qualified survivor upon the member's death.

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
(OLD POLICE AND FIRE)

11. Post-retirement Cost-of-Living Benefit

Basic

Monthly benefits are adjusted by 50% of the actual dollar increase or decrease (50% of the percentage increase or decrease for members under Proposition H) in the salary rank or position the member's Final Compensation used to calculate the monthly benefit was based on. A member's monthly benefit will never decrease below its original amount.

Supplemental

Effective July 1 of each fiscal year, if the Retirement System was fully funded based on the Market Value of Assets for the previous year and there are sufficient "excess" investment earnings on the Retirement fund for the previous fiscal year-end, the adjustment could be increased to 3.5% of that member's current monthly benefit less the amount of the Basic COLA above. If "excess" earnings are insufficient to fund a 3.5% increase, then to the extent of "excess" earnings, benefits are increased in increments of 0.5% up to a maximum of 3.5%. For members who worked after November 6, 1996, and before Proposition C passed in 2012, the Supplemental COLA is payable if there are "excess" investment earnings regardless of whether or not the System was fully funded.

12. Changes in this Valuation

None.

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
(NEW POLICE AND FIRE)

II. New Police and Fire Members – Charter Sections (Police) 8.586, 8.597, 8.602, and 8.605; (Fire) 8.588, 8.598, 8.601, and 8.604; (Sheriff's Department) 8.608; (Miscellaneous Safety) 8.610

1. Membership Requirement

Charter Sections 8.586 and 8.588

Police Officers and Firefighters who became members on or after November 2, 1976.

Charter Sections 8.597 and 8.598

Active members on January 1, 2003 in Section 8.586 (Police) or Section 8.588 (Fire) who had elected to switch to Section 8.597 (Police) or Section 8.598 (Fire) by December 31, 2002; or, new members becoming active on or after January 1, 2003 in Section 8.597 (Police) or Section 8.598 (Fire).

Charter Sections 8.601 and 8.602

Persons who become members of the fire or police department on or after July 1, 2010 and prior to January 7, 2012.

Charter Sections 8.604 and 8.605

Persons who become members of the fire or police department on or after January 7, 2012.

Charter Section 8.608

Sheriff, undersheriffs, and all deputized personnel of the sheriff's department hired on or after January 7, 2012.

Charter Section 8.610

Miscellaneous Safety members hired on or after January 7, 2012.

2. Final Compensation

Charter Sections 8.586, 8.588, 8.597, and 8.598

Average monthly total compensation earnable during any 12 months of Credited Service which average compensation is the highest.

(Pre 1998 – 3 year average of monthly compensation)

Charter Sections 8.601 and 8.602

Average monthly total compensation earnable during the higher of any two consecutive fiscal years of earnings or the twenty-four months of earnings immediately prior to retirement.

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
(NEW POLICE AND FIRE)

Charter Sections 8.604, 8.605, 8.608, and 8.610

Average monthly total compensation earnable during the higher of any three consecutive fiscal years of earnings or the thirty-six months of earnings immediately prior to retirement. Compensation for any fiscal year shall not include remuneration that exceeds 75% of the IRC 401(a)(17) compensation limit.

3. Credited Service

One year of service credit is given for each fiscal year with 10 or more full months worked. A partial year (fraction with the numerator equal to months including partial months, and the denominator equal to 10) is given for each fiscal year with less than 10 full months worked.

4. Member Contributions

a. Member:

Charter Sections 8.586, 8.588, 8.597, and 8.598

7.5% of salary, excluding overtime and most premium pay. These contributions are credited with interest annually as determined by the Board.

Depending on the employer contribution rate, the member contribution rate can increase or decrease by up to 6% of pay.

Charter Sections 8.601, 8.602, 8.604, 8.605, 8.608, and 8.610

9.0% of salary, excluding overtime and most premium pay. These contributions are credited with interest annually as determined by the Board.

Depending on the employer contribution rate, the member contribution rate can increase or decrease by up to 4% of pay if the base pay rate is less than \$48 per hour or up to 5% of pay if the base pay rate is at or greater than \$48 per hour.

b. Employer:

The Employer contributes the remaining amounts necessary to maintain the soundness of the Retirement System. Any decrease in the member contribution rate is paid by the City.

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
(NEW POLICE AND FIRE)

5. Service Retirement

Eligibility

Age 50 with 5 years of Credited Service. (*Pre 1998 – 50 with 25 years of Credited Service*)

Benefit – Member

Charter Sections 8.586 and 8.588

The monthly service retirement benefit is the greater of i) and ii) below, subject to a maximum of 75% of Final Compensation (*Pre 1998 – 70%*)

- i) 2% of Final Compensation for each of the first 25 years of service plus an additional 3% of Average Compensation for each year of Credited Service in excess of 25 years; (*Pre 1998 – benefit is calculated under i) only*);
- ii) A specified percent of Final Compensation based on the member's age at retirement (factors shown in Table C-2 below) for each year of Credited Service.

Table C-2	
City and County of San Francisco Employees' Retirement System Sections 8.586 (Police) and 8.588 (Fire) – Service Retirement Factors	
Retirement Age	Retirement Factors
50	2.00%
51	2.14%
52	2.28%
53	2.42%
54	2.56%
55 or above	2.70%

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

**APPENDIX C – SUMMARY OF PLAN PROVISIONS
(NEW POLICE AND FIRE)**

Charter Sections 8.597, 8.598, 8.601, and 8.602

A specified percent of Final Compensation based on the member's age at retirement (factors shown in Table C-3 below) for each year of Credited Service, subject to a maximum of 90% of Final Compensation.

Table C-3 City and County of San Francisco Employees' Retirement System Sections 8.597 and 8.601 (Police), 8.598 and 8.602 (Fire) Service Retirement Factors	
Retirement Age	Retirement Factors
50	2.40%
51	2.52%
52	2.64%
53	2.76%
54	2.88%
55 or above	3.00%

Charter Sections 8.604, 8.605, and 8.608

A specified percent of Final Compensation based on the member's age at retirement (factors shown in Table C-4 below) for each year of Credited Service, subject to a maximum of 90% of Final Compensation.

Table C-4 City and County of San Francisco Employees' Retirement System Sections 8.605 (Police), 8.604 (Fire) and 8.608 (Sheriff's Department) – Service Retirement Factors	
Retirement Age	Retirement Factors
50	2.20%
51	2.30%
52	2.40%
53	2.50%
54	2.60%
55	2.70%
56	2.80%
57	2.90%
58 and above	3.00%

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

**APPENDIX C – SUMMARY OF PLAN PROVISIONS
(NEW POLICE AND FIRE)**

Charter Sections 8.610

A specified percent of Final Compensation based on the member's age at retirement (factors shown in Table C-5 below) for each year of Credited Service, subject to a maximum of 90% of Final Compensation.

Table C-5	
City and County of San Francisco Employees' Retirement System Section 8.610 (Miscellaneous Safety) – Service Retirement Factors	
Retirement Age	Retirement Factors
50	1.800%
51	1.912%
52	2.020%
53	2.132%
54	2.244%
55	2.356%
56	2.468%
57	2.590%
58 or above	2.700%

Benefit – Survivor

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

6. Non-Industrial Disability

Eligibility

10 years of Credited Service.

Benefit – Member

1.5% of Average Compensation for each year of Credited Service, subject to a minimum of 33.3% of Final Compensation, subject to a maximum of 75% of Final Compensation for Charter Sections 8.586 and 8.588 or 90% of Final Compensation for all other Charter Sections.

Benefit – Survivor

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

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
(NEW POLICE AND FIRE)

7. Industrial Disability

Eligibility

No age or service requirement.

Benefit – Member

Less than age 50 with 25 Years of Service:

Final Compensation times a percentage of disability, subject to a minimum of 50% and a maximum of 90%, as determined by the Workers' Compensation Appeals Board. If the member is age 50 with 5 years of service, the disability benefit is the service retirement allowance, but not less than 50% of Final Compensation. Once the member becomes eligible for qualified service retirement, assuming that member earned service and salary increases during the period of disability, the benefit is recalculated using the service and salary rate for the rank held at retirement. The recalculated benefit is based on a minimum of 50% of Final Compensation (not to exceed 90% of Final Compensation for Charter Sections 8.597, 8.598, 8.601, 8.602, 8.608, and 8.610).

Age 50 with 25 Years of Service:

The service retirement allowance, but not less than 50% of Final Compensation.

Benefit – Survivor

75% of the disability retirement benefit paid to a qualified survivor.

8. Death while an Active Employee

If Death is Due to a Non-Work-Related Cause:

- a. Less than 10 Years of Credited Service, or No Qualified Survivor – Lump sum benefit equal to the accumulated refund of all employee contributions with interest, plus six months' salary to a designated beneficiary.
- b. At least 10 but less than 25 years of Credited Service – Monthly continuation allowance to a qualified survivor equal to the non-industrial disability benefit the member would have been entitled to on the date of death, subject to a minimum of 33.3% of Average Compensation at the time of death.
- c. At Least 25 Years of Credited Service but Less than Age 50 – Monthly continuation allowance to a qualified survivor equal to 50% of the monthly service retirement benefit the member would have received had the member been age 50 and retired on the date of death.

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
(NEW POLICE AND FIRE)

- d. Age 50 with 25 Years of Credited Service – Monthly continuation allowance to a qualified survivor equal to 50% of the monthly service retirement benefit the member would have received had the member been retired on the date of death.

If Death is Due to a Work-Related Cause:

- a. No Qualified Survivor – Lump sum benefit equal to the accumulated refund of all employee contributions with interest, plus six months' salary to a designated beneficiary. For Charter Sections 8.586 and 8.588, if the death is of a violent nature, an additional lump sum equivalent benefit equal to 12 months' salary is payable.
- b. Qualified Survivor and Less than Age 50 with 25 Years of Service – Monthly continuation allowance to a qualified survivor equal to 100% (*Pre 1998 – 75%*) of Final Compensation at the date of death. Once the member would have completed 25 years of service and attained age 50, assuming that member earned service and salary increases from the date of death to the eligible service retirement date, the benefit is recalculated at 100% of the service retirement benefit, using the service and salary at the eligible service retirement date. Such allowance shall not be less than 50% of Final Compensation (For Chapter Sections 8.597, 8.598, 8.601, 8.602, 8.608, and 8.610 not to exceed 90% of Final Compensation).
- c. Qualified Survivor and Age 50 with 25 Years of Service – Monthly continuation allowance to a qualified survivor equal to 100% (*Pre 1998 – 75%*) of the monthly service retirement benefit the member would have received had the member been retired on the date of death, not less than 50% of Final Compensation.

9. **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 member may choose one of the following:

- a. Lump sum benefit equal to the accumulated refund all of employee contributions with interest.
- b. **Charter Sections 8.586 and 8.588:** Retirement benefit first payable at age 50 equal to 2% of Final Compensation at termination for each year of credited service of the member at the date of termination.

Charter Sections 8.597, 8.598, 8.601, 8.602, 8.604, 8.605, 8.608, and 8.610: A specified percent of Final Compensation at termination based on the member's age at retirement (factors shown in Table C-3, C-4, and C-5) for each year of Credited Service, subject to a maximum of 90% of Final Compensation, payable at age 50.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

**APPENDIX C – SUMMARY OF PLAN PROVISIONS
(NEW POLICE AND FIRE)**

10. Additional Post-retirement Death Benefit

A death benefit payable as a lump sum equal to \$100 for each full year of Credited Service, subject to a maximum of \$3,000, will be paid to a qualified survivor upon the member's death.

11. Post-retirement Cost-of-Living Benefit

Basic

Monthly benefits are increased or decreased each July 1 by a maximum of 2% per year of the initial monthly benefit. A member's monthly benefit will never decrease below its original amount. Effective July 1, 2009, monthly benefits are increased or decreased by a maximum of 2% of the prior year's monthly benefit.

Supplemental

Effective July 1 of each fiscal year, if the Retirement System was fully funded based on the Market Value of Assets for the previous year and there are sufficient "excess" investment earnings on the Retirement fund for the previous fiscal year-end, the adjustment could be increased to 3.5% of that member's current monthly benefit less the amount of the Basic COLA above. If "excess" earnings are insufficient to fund a 3.5% increase, then to the extent of "excess" earnings, benefits are increased in increments of 0.5% up to a maximum of 3.5%. For members who worked after November 6, 1996, and before Proposition C passed in 2012, the Supplemental COLA is payable if there are "excess" investment earnings regardless of whether or not the System was fully funded.

12. Changes in this Valuation

None.

CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
(MISCELLANEOUS)

III. Miscellaneous Members – Charter Sections 8.509, 8.587, 8.600, and 8.603

1. Membership Requirement

Charter Section 8.509

Employees and Officers, other than Police Officers or Firefighters, who became members before November 2, 1976 and continued as a member without interruption.

Charter Section 8.587

Active Employees and Officers, other than Police Officers or Firefighters, who were members under Section A8.584, and members under A8.587, whose accumulated contributions were in the retirement fund on November 7, 2000 and were not retired. After November 7, 2000, all full-time employees, certified Civil Service employees, or temporary employees who work more than 1,040 hours in any 12-month period; excluding all Police Officers and Firefighters.

Charter Section 8.600

Employees and Officers, other than Police Officers or Firefighters, who become employed on or after July 1, 2010, and prior to January 7, 2012.

Charter Section 8.603

Employees and Officers, other than Police Officers or Firefighters, who become employed on or after January 7, 2012.

2. Average Final Compensation

Charter Sections 8.509 and 8.587

Average monthly compensation earned during any year of Credited Service which average compensation is the highest.

Charter Section 8.600

Average monthly compensation earned during the higher of any two consecutive fiscal years of earnings or the twenty-four months of earnings immediately prior to retirement.

Charter Section 8.603

Average monthly compensation earned during the higher of any three consecutive fiscal years of earnings or the thirty-six consecutive months of earnings immediately prior to retirement. Compensation for any fiscal year shall not include remuneration that exceeds 85% of the IRC 401(a)(17) compensation limit.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

**APPENDIX C – SUMMARY OF PLAN PROVISIONS
(MISCELLANEOUS)**

3. Credited Service

One year of service credit is given for each fiscal year with 10 or more full months worked. A partial year (fraction with the numerator equal to months including partial months, and the denominator equal to 10) is given for each fiscal year with less than 10 full months worked. (Exception: for Charter 8.509 members, in the year of retirement, the denominator in the fraction is equal to 12).

4. Member Contributions

a. Member:

Charter 8.509
8.0% of salary.

Charter 8.587, 8.600, and 8.603
7.5% of salary, excluding overtime and most premium pay.

Depending on the employer contribution rate and the base rate of pay of the member beginning on July 1, 2012, the member contribution rate can increase or decrease by up to maximum percentage of pay shown in the following table:

Hourly Rate of Pay*	Maximum Increase / Decrease in Contribution Rate
< \$24	0%
\$24 - \$48	4%
>= \$48	5%

**Adjusted each fiscal year by the percentage increase in the cost-of-living during the previous calendar year, based on the San Francisco-Oakland-San José CPI-U Index, but not to exceed 3.5%.*

These contributions are credited with interest annually as determined by the Board.

If the member elects Social Security, the contributions to the System may be reduced by the amount contributed to Social Security (excluding the Medicare portion). Retirement benefits are actuarially reduced by the shortage, which is the difference between contributions paid at the 8%/7.5% rate and contributions actually paid, plus plan interest.

b. Employer:

The Employer contributes the remaining amounts necessary to maintain the soundness of the Retirement System. Any decrease in the member contribution rate is paid by the City.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

**APPENDIX C – SUMMARY OF PLAN PROVISIONS
(MISCELLANEOUS)**

5. Service Retirement

Eligibility

Charter Section 8.509, 8.587, and 8.600

Age 50 with 20 years of Credited Service, or age 60 with 10 years of Credited Service.

Charter Section 8.603

Age 53 with 20 years of Credited Service, age 60 with 10 years of Credited Service, or age 65.

Benefit – Member

Charter Section 8.509, 8.587, and 8.600

The monthly service retirement benefit is the greater of i) and ii) below, subject to a maximum of 75% of Average Final Compensation.

- i) A specified percent of Average Final Compensation based on the member's age at retirement (factors shown in Table C-6 below) for each year of Credited Service, effective January 11, 2009.

Table C-6			
City and County of San Francisco Employees' Retirement System			
Section 8.509, 8.587, and 8.600 Member Service Retirement Factors			
Retirement Age	Retirement Factors	Retirement Age	Retirement Factors
50	1.0%	57	1.7%
51	1.1%	58	1.8%
52	1.2%	59	1.9%
53	1.3%	60	2.1%
54	1.4%	61	2.2%
55	1.5%	62 or above	2.3%
56	1.6%		

- ii) The actuarial equivalent of twice the member's accumulated contributions with interest.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

**APPENDIX C – SUMMARY OF PLAN PROVISIONS
(MISCELLANEOUS)**

Charter Section 8.603

The monthly service retirement benefit is a specified percent of Average Final Compensation based on the member's age at retirement subject to a maximum of 75% of Average Final Compensation (factors shown in Table C-7 below).

Table C-7 City and County of San Francisco Employees' Retirement System Section 8.603 Member Service Retirement Factors			
Retirement Age	Retirement Factors	Retirement Age	Retirement Factors
53	1.000%	60	1.756%
54	1.108%	61	1.864%
55	1.216%	62	1.972%
56	1.324%	63	2.080%
57	1.432%	64	2.188%
58	1.540%	65 or above	2.300%
59	1.648%		

Benefit – Survivor

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

6. Disability

Eligibility

10 years of Credited Service.

Benefit – Member

1.8% of Average Final Compensation for each year of Credited Service, maximum of 75% of Average Final Compensation. If the benefit is less than 40% of Average Final Compensation, additional Credited Service had the member worked to age 60 can be added to the current Credited Service, in order to adjust the benefit to 40% of Average Final Compensation.

Benefit – Survivor

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

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

**APPENDIX C – SUMMARY OF PLAN PROVISIONS
(MISCELLANEOUS)**

7. Death while an Active Employee

If Not Eligible for Service Retirement:

Lump sum benefit equal to the accumulated refund of all employee contributions with interest, plus six months' salary to a designated beneficiary. If the death is of a violent nature and job-related, an additional lump sum equivalent benefit equal to 12 months' salary is payable.

If Eligible for Service Retirement:

A qualified spouse may elect i) or ii) below:

- i) Lump sum benefit equal to the accumulated refund of all employee contributions with interest, plus six months' salary to a designated beneficiary.
- ii) A benefit equal to 50% of the service retirement benefit the member would have received had the member retired for service on the date of death.

8. Withdrawal Benefits

Charter 8.509 members with less than 10 years of Credited Service or less than \$1,000 in accumulated contributions and Charter 8.587, 8.600, and 8.603 members with less than five years of Credited Service:

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

Charter 8.509 members with 10 or more years of Credited Service or accumulated contributions exceeding \$1,000 and Charter 8.587 and 8.600 members with five or more years of Credited Service:

The member may choose one of the following:

- i) Lump sum benefit equal to the accumulated refund all of employee contributions with interest.
- ii) A deferred retirement benefit payable on or after age 50 equal to the actuarial equivalent of twice the member's accumulated contributions with interest as of the retirement date.

Charter 8.603 members with five or more years of Credited Service:

The member may choose one of the following:

- i) Lump sum benefit equal to the accumulated refund all of employee contributions with interest.
- ii) A deferred retirement benefit payable on or after age 53 equal to the actuarial equivalent of 150% of the member's accumulated contributions with interest as of the retirement date.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

**APPENDIX C – SUMMARY OF PLAN PROVISIONS
(MISCELLANEOUS)**

9. Additional Post-retirement Death Benefit

A death benefit payable as a lump sum equal to \$100 for each full year of Credited Service, subject to a maximum of \$3,000, will be paid to a qualified survivor upon the member's death.

10. Post-retirement Cost-of-Living Benefit

Basic

Monthly benefits are adjusted each July 1 by the accumulated change in the Consumer Price Index to the nearest 1%, with a maximum increase or decrease of 2% per year of the prior year's monthly benefit. A member's monthly benefit will never decrease below its original amount.

Supplemental

Effective July 1 of each fiscal year, if the Retirement System was fully funded based on the Market Value of Assets for the previous year and there are sufficient "excess" investment earnings on the Retirement fund for the previous fiscal year-end, the adjustment could be increased to 3.5% of that member's current monthly benefit less the amount of the Basic COLA above. If "excess" earnings are insufficient to fund a 3.5% increase, then to the extent of "excess" earnings, benefits are increased in increments of 0.5% up to a maximum of 3.5%. For members who worked after November 6, 1996, and before Proposition C passed in 2012, the Supplemental COLA is payable if there are "excess" investment earnings regardless of whether or not the System was fully funded.

11. Changes in this Valuation

None.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

**APPENDIX C – SUMMARY OF PLAN PROVISIONS
(COST SHARING PROVISIONS)**

IV. Cost Sharing Provisions – Adjusted Contribution Rates

The table below shows the adjustment to the employee contribution rate based on the calculated net employer contribution rate. There are three different adjustment schedules which apply to different groups of employees.

Net Employer Contribution Rate	Adjustment to Employee Contribution Rate		
	Group 1	Group 2	Group 3
0.00% – 0.00%	-4.00%	-5.00%	-6.00%
0.01% – 1.00%	-4.00%	-4.50%	-5.00%
1.01% – 2.50%	-3.75%	-4.25%	-4.75%
2.51% – 4.00%	-3.50%	-4.00%	-4.50%
4.01% – 5.50%	-2.50%	-3.00%	-3.50%
5.51% – 7.00%	-2.00%	-2.50%	-3.00%
7.01% – 8.50%	-1.50%	-2.00%	-2.00%
8.51% – 10.00%	-1.00%	-1.50%	-1.50%
10.01% – 11.00%	-0.50%	-0.50%	-0.50%
11.01% – 12.00%	0.00%	0.00%	0.00%
12.01% – 13.00%	0.50%	0.50%	0.50%
13.01% – 15.00%	1.00%	1.50%	1.50%
15.01% – 17.50%	1.50%	2.00%	2.00%
17.51% – 20.00%	2.00%	2.50%	3.00%
20.01% – 22.50%	2.50%	3.00%	3.50%
22.51% – 25.00%	3.50%	4.00%	4.50%
25.01% – 27.50%	3.50%	4.00%	4.50%
27.51% – 30.00%	3.75%	4.25%	4.75%
30.01% – 32.50%	3.75%	4.25%	4.75%
32.51% – 35.00%	4.00%	4.50%	5.00%
35.01% +	4.00%	5.00%	6.00%

Group 1: Miscellaneous members earning between \$24 per hour and \$48 per hour, and Police or Fire members hired after June 30, 2010 earning less than \$48 per hour.

Group 2: Miscellaneous members earning \$48 per hour or more, and Police or Fire members hired after June 30, 2010 earning \$48 per hour or more.

There is no adjustment for Miscellaneous members earning less than \$24 per hour.

The hourly rates shown above are for the fiscal year ending 2013. Each fiscal year these hourly rates are adjusted by the percentage increase, not to exceed 3.5%, in the cost-of-living during the previous calendar year determined by the CPI-U for San Francisco-Oakland-Hayward, CA.

Group 3: Police and Fire members hired before July 1, 2010.

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

**APPENDIX C – SUMMARY OF PLAN PROVISIONS
(COST SHARING PROVISIONS)**

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

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX D – PROJECTION DETAILS

Historical and Projected Employer Contribution Rates By Scenario Before Cost-Sharing Adjustments							
FYE	Baseline	1-Year Shock		5-Year Moderate		5-Year Significant	
		Negative	Positive	Negative	Positive	Negative	Positive
2013	20.71%						
2014	24.82%						
2015	26.76%						
2016	22.80%						
2017	21.40%						
2018	23.46%						
2019	23.31%						
2020	25.19%						
2021	26.90%						
2022	24.41%						
2023	21.35%	21.35%	21.35%	21.35%	21.35%	21.35%	21.35%
2024	16.35%	17.90%	13.17%	16.12%	15.44%	16.92%	14.50%
2025	12.11%	16.75%	6.01%	12.86%	10.34%	15.25%	7.31%
2026	8.72%	16.51%	0.00%	11.14%	5.49%	15.73%	0.00%
2027	5.84%	16.68%	0.00%	10.51%	0.47%	17.83%	0.00%
2028	4.76%	18.53%	0.00%	12.22%	0.00%	22.72%	0.00%
2029	4.09%	19.53%	0.00%	15.38%	0.00%	28.41%	0.00%
2030	2.10%	17.34%	0.00%	15.83%	0.00%	30.72%	0.00%
2031	2.43%	17.24%	0.00%	17.92%	0.00%	34.02%	0.00%
2032	2.99%	17.28%	0.00%	19.60%	0.00%	36.34%	0.00%
2033	3.54%	17.29%	0.00%	20.69%	0.00%	37.57%	0.00%

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX D – PROJECTION DETAILS

Historical and Projected Funded Ratio Based on Market Assets By Scenario Before Cost-Sharing Adjustments							
Valuation	Baseline	1-Year Shock		5-Year Moderate		5-Year Significant	
		Negative	Positive	Negative	Positive	Negative	Positive
2011	83.9%						
2012	78.9%						
2013	84.1%						
2014	94.3%						
2015	88.9%						
2016	82.6%						
2017	87.2%						
2018	89.8%						
2019	90.6%						
2020	90.2%						
2021	111.8%	111.8%	111.8%	111.8%	111.8%	111.8%	111.8%
2022	113.2%	94.3%	135.1%	108.6%	117.2%	102.1%	124.6%
2023	114.2%	94.9%	136.8%	105.0%	122.5%	92.8%	138.7%
2024	114.7%	95.1%	137.6%	100.9%	127.5%	83.7%	153.8%
2025	114.8%	95.1%	137.6%	96.4%	132.2%	74.9%	170.2%
2026	114.4%	95.1%	137.0%	91.9%	136.8%	66.9%	187.9%
2027	113.8%	95.1%	136.4%	91.1%	136.3%	66.2%	189.0%
2028	113.0%	95.3%	135.8%	90.5%	135.7%	66.0%	190.2%
2029	112.2%	95.7%	135.3%	90.2%	135.2%	66.5%	191.6%
2030	111.1%	95.8%	134.8%	90.0%	134.7%	67.2%	193.1%
2031	110.0%	95.9%	134.3%	90.0%	134.3%	68.3%	194.7%

**CITY AND COUNTY OF SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM
JULY 1, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX D – PROJECTION DETAILS

Historical and Projected UAL Based on Market Assets By Scenario Before Cost-Sharing Adjustments							
<i>(Amounts in millions)</i>							
FYE	Baseline	1-Year Shock		5-Year Moderate		5-Year Significant	
		Negative	Positive	Negative	Positive	Negative	Positive
2011	3,000						
2012	4,100						
2013	3,213						
2014	1,202						
2015	2,543						
2016	4,249						
2017	3,296						
2018	2,777						
2019	2,720						
2020	2,880						
2021	(3,769)	(3,769)	(3,769)	(3,769)	(3,769)	(3,769)	(3,769)
2022	(4,380)	1,870	(11,714)	(2,832)	(5,734)	(710)	(8,210)
2023	(4,924)	1,757	(12,778)	(1,714)	(7,856)	2,463	(13,500)
2024	(5,305)	1,773	(13,584)	(312)	(10,027)	5,814	(19,624)
2025	(5,533)	1,834	(14,137)	1,311	(12,273)	9,235	(26,706)
2026	(5,624)	1,906	(14,451)	3,103	(14,601)	12,637	(34,899)
2027	(5,580)	1,972	(14,768)	3,532	(14,942)	13,402	(36,671)
2028	(5,468)	1,948	(15,088)	3,915	(15,266)	13,984	(38,554)
2029	(5,301)	1,864	(15,410)	4,172	(15,594)	14,315	(40,556)
2030	(5,005)	1,875	(15,734)	4,421	(15,925)	14,530	(42,682)
2031	(4,686)	1,884	(16,058)	4,572	(16,258)	14,558	(44,941)

APPENDIX E – GLOSSARY OF TERMS

1. Actuarial Liability

The Actuarial Liability is the difference between the present value of all future system benefits and the present value of total future normal costs. This is also referred to by some actuaries as the “accrued liability” or “actuarial accrued liability.”

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 (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

3. Accrued Service

Service credited under the System which was rendered before the date of the actuarial valuation.

4. Actuarial Equivalent

A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.

5. Actuarial Cost Method

A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of a retirement system benefit between future normal cost and actuarial accrued liability. Sometimes referred to as the “actuarial funding method.”

6. Actuarial Gain (Loss)

The difference between actual experience and actuarial assumption anticipated experience during the period between two actuarial valuation dates.

7. 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 predetermined rates of interest, and by probabilities of payment.

APPENDIX E – GLOSSARY OF TERMS

8. Amortization

Paying off an interest-discounted amount with periodic payments of interest and principal – as opposed to paying off with a lump sum payment.

9. Normal Cost

The actuarial present value of retirement system benefits allocated to the current year by the actuarial funding method.

10. Unfunded Actuarial Liability (UAL)

The Unfunded Actuarial Liability represents the difference between Actuarial Liability and valuation assets. This value is sometimes referred to as “unfunded actuarial accrued liability.”

Most retirement systems have Unfunded Actuarial Liabilities. They typically arise each time new benefits are added and each time experience losses are realized.

The existence of unfunded actuarial accrued liability is not in itself an indicator of poor funding. Also, Unfunded Actuarial Liabilities do not represent a debt that is payable today. What is important is the ability of the plan sponsor to amortize the Unfunded Actuarial Liability and the trend in its amount (after due allowance for devaluation of the dollar).



Classic Values, Innovative Advice