

City and County of San Francisco Employees' Retirement System

July 1, 2017 Actuarial Valuation Report

**Produced by Cheiron** 

February 20, 2018

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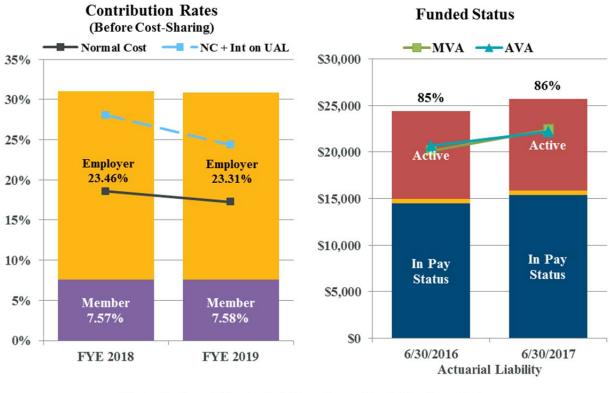
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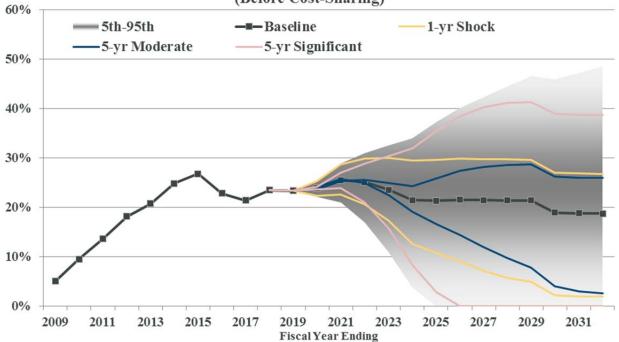
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Historical and Projected Employer Contribution Rates (Before Cost-Sharing)





### **SECTION I – BOARD SUMMARY**

# Key Findings of the July 1, 2017 Valuation

The key results of the July 1, 2017 actuarial valuation are as follows:

- The employer contribution rate decreased from 23.46% in FYE 2018 to 23.31% in FYE 2019 before any cost-sharing adjustments. After the cost-sharing adjustments, the estimated employer contribution rate decreased from 20.07% to 19.81%. 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 V-2 for more details.
- The employee contribution rates in FYE 2019 after the cost-sharing adjustment will remain the same as they were in FYE 2018. That is, there is no change to the cost-sharing adjustments. The average employee contribution rate after cost-sharing adjustments is estimated to be 11.08%.
- The funded ratio based on the Market Value of Assets increased from 82.6% to 87.2%, and the Unfunded Liability decreased from \$4.2 billion to \$3.3 billion. On an actuarial value basis, the funded ratio also increased from 84.6% to 86.3%, and the Unfunded Liability decreased from \$3.7 billion to \$3.5 billion.
- The return on the Market Value of Assets for June 30, 2017 was approximately 13.5%, higher than the assumed 7.5% return, resulting in a gain of about \$1.1 billion that will be recognized over the next five years. Combining this gain with the recognition of some of the deferred investment gains and losses from previous years, the return on the Actuarial Value of Assets was 9.6%, which is still higher than the assumed 7.5% return and resulted in a recognized gain of about \$405.7 million.
- Because investment returns were greater than expected, a Supplemental COLA was triggered, increasing benefits for certain retirees and increasing the Actuarial Liability by approximately \$200 million. This increase is amortized over a period of five years, increasing the contribution rate by 1.42% of pay.
- The full amortization payment for the assumption changes effective with the July 1, 2015 valuation is being phased-in over a five-year period. SFERS is in the third year of the phase-in and the UAL payment increased 0.63% of payroll to 1.74%. The ultimate UAL payment based on assumed payroll is expected to be 3.05% for the July 1, 2019 valuation.



### **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, 2017 compared to July 1, 2016.

Table I-1         City and County of San Francisco Employees' Retirement System         Summary of Key Valuation Results         (Amounts in millions)								
Valuation Date	Ju	ly 1, 2017	Ju	ly 1, 2016	% Change			
Actuarial Liability	\$	25,706.1	\$	24,403.9	5.3%			
Actuarial Value of Assets Unfunded Actuarial Liability (actuarial value) Funding Ratio (actuarial value)	\$	22,185.2 3,520.8 86.3%	\$	20,654.7 3,749.2 84.6%	7.4% -6.1% 1.7%			
Market Value of Assets Unfunded Liability (market value) Funding Ratio (market value)	\$	22,410.4 3,295.7 87.2%	\$	20,154.5 4,249.4 82.6%	11.2% -22.4% 4.6%			
Expected Payroll	\$	3,242.5	\$	3,062.4	5.9%			
Asset Leverage Ratio Actuarial Liability Leverage Ratio		6.9 7.9		6.6 8.0	5.0% -0.5%			
Interest on UAL (MVA basis) Interest Cost as Percent of Payroll	\$	238.4 7.4%	\$	307.4 10.0%	-22.4% -2.7%			

The Actuarial Liability increased by approximately \$1.3 billion including a \$200 million increase as a result of the 2017 Supplemental COLA. The Actuarial Value of Assets, which is used as the basis to set contribution rates, increased by approximately \$1.53 billion reflecting smoothed investment returns and contributions offset by benefits and expenses paid during the year. SFERS' Unfunded Actuarial Liability (UAL) decreased by approximately \$228 million based on the Actuarial Value of Assets.

The Market Value of Assets increased approximately \$2.26 billion. SFERS' UAL based on the Market Value of Assets decreased approximately \$954 million.

The interest cost on the UAL based on the Market Value of Assets decreased by \$69 million to approximately \$238 million. As a result, approximately 7.4% of payroll must be contributed to pay the interest on the UAL, down from 10.0% of payroll in the prior year.

One of the most important measures of a plan's sensitivity to investment risk is the ratio of the Market Value of Assets to payroll, or the asset leverage ratio, which has increased from 6.6 to 6.9. If the System were 100% funded, the ratio would be 7.9, the Actuarial Liability leverage ratio shown above. The higher this ratio, the more sensitive contribution rates are to investment returns.



### **SECTION I – BOARD SUMMARY**

For example, assume SFERS assets earn 10% less than the 7.50% assumption (-2.50%), which has to be made up by contributions unless the System experiences an offsetting investment gain. Based on the current ratio of assets to payroll (6.9), the loss in assets is 69% of active payroll (6.9 times the 10% loss). Ignoring the five-year smoothing of assets, this loss would require a contribution of approximately 5.4% of payroll for 20 years. If the System had an asset to payroll ratio of 4.0 instead, the same 10% investment loss (40% of payroll) would only require a contribution of approximately 3.1% of payroll for 20 years. The Board cannot take action to reduce this ratio, but should be aware of the increased sensitivity of contribution rates to variability in investment returns as the System matures and consider if any changes in the level of investment risk taken by the System are appropriate.

# Contributions

SFERS funding policy sets employer contributions equal to the sum of:

- The normal cost under the Entry Age Normal Cost Method,
- The expected administrative expenses, and
- Amortization of the Unfunded Actuarial Liability.

The Charter (as amended by Proposition C effective July 1, 2012) requires employees to pay a portion of the net employer contribution rate. The portion each employee pays depends on the net 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 on the next page summarizes the employer and member contribution rates both before and after the cost-sharing adjustments.



### **SECTION I – BOARD SUMMARY**

Summary (Amo			
	FYE 2019	FYE 2018	Absolute Change
Contribution Rates Before Adjustments Net Employer Contribution Rate Est. Aggregate Employee Contribution Rate Total Contribution Rate	23.31% <u>7.58%</u> 30.89%	23.46% <u>7.57%</u> 31.03%	-0.15% <u>0.01%</u> -0.14%
Estimated Payroll Estimated Net Employer Contributions	\$ 3,356.0 782.1	\$ 3,177.3 745.4	\$ 178.7 36.7
<u>Contribution Rates After Adjustments</u> Net Employer Contribution Rate Est. Aggregate Employee Contribution Rate Total Contribution Rate Estimated Payroll Estimated Net Employer Contributions	\$ 19.81% <u>11.08%</u> 30.89% 3,356.0 664.8	\$ 20.07% <u>10.96%</u> 31.03% 3,177.3 637.7	\$ -0.26% <u>0.12%</u> -0.14% 178.7 27.1
<u>Total Contribution Rate</u> Normal Cost Rate Administrative Expense Rate UAL Rate	17.25% 0.60%	18.56% 0.60%	-1.31% 0.00%
Interest on Market Value UAL Principal on Market Value UAL Total UAL Rate Total Contribution Rate	7.35% <u>5.69%</u> 13.04% 30.89%	10.04% <u>1.83%</u> 11.87% 31.03%	-2.68% <u>3.85%</u> 1.17% -0.14%

The net employer contribution rate before applying the cost-sharing adjustments decreased 0.15% of payroll from 23.46% to 23.31% for the fiscal year ending June 30, 2019. The cost-sharing adjustment is estimated to decrease the employer contribution and increase the aggregate employee contributions by about 3.50% of payroll. Thus, the estimated employer contribution rate after cost sharing is 19.81% for FYE 2019. The cost-sharing adjustments will remain at this level as long as the employer contribution rate before adjustment is between 22.51% and 27.50%.



### **SECTION I – BOARD SUMMARY**

## SFERS Membership

As shown in Table I-3 below, membership in SFERS increased in total by 3.9%. Active membership increased 3.2%, terminated vested membership increased 10.1%, and members receiving benefits increased by 3.0%. Total payroll increased by 5.9% for active members. The average pay per active member increased 2.5%.

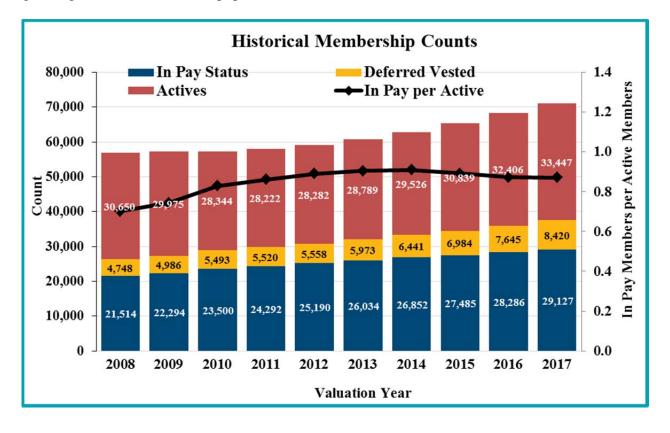
Table I-3 Membership Total July 1, 2017 July 1, 2016 % Change								
Actives	33,447	32,406	3.2%					
Terminated Vested	8,420	7,645	10.1%					
Members Receiving Benefits	29,127	28,286	3.0%					
Total SFERS Members	70,994	68,337	3.9%					
Active Member Payroll (FYE 2018/2017)	\$3,242,470,000	\$3,062,420,000	5.9%					
Average Pay per Active	\$ 96,900	\$ 94,500	2.5%					

Payroll is based on valuation data projected for the next fiscal year using a full year of salary increases.



### **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 members receiving benefits (In Pay Status) to active members grows, it indicates that any losses on retirees are likely to place a relatively greater burden on active members and employers. For SFERS, however, after a moderate increase in this ratio immediately following the recession beginning in 2009, the ratio has been gradually declining. While the number of members in pay status has continued to grow, the number of active members has grown at an even faster pace. With most other systems across the country, the number of members receiving benefits has been growing faster than the active population.





### **SECTION I – BOARD SUMMARY**

# **Contribution Reconciliation**

The SFERS contribution rate for FYE 2019 before cost-sharing adjustments decreased slightly from 23.46% to 23.31% of membership payroll. Table I-4 shows sources for the change in the net employer contribution rate. The third year of the 5-year phase-in of the 2015 assumption changes and the July 1, 2017 Supplemental COLA increased the contribution rate by approximately 2.05% of pay. The gains on the actuarial valuation of assets and the change in the wage inflation assumption to 3.50% offset this increase, decreasing the contribution rate by 1.60% of pay.

Two other items also decreased the contribution rate from FYE 2018 to FYE 2019. Payroll increased more than expected (5.9% instead of 3.75%) which decreased the UAL payments as a percentage of pay by 0.23%. Also, the net liability gain (mostly attributable to Old Safety COLAs and salary experience) decreased the contribution rate by 0.26% of pay.

Finally, there was a technical change made to the application of the Entry Age actuarial cost method that affected the allocation of the cost of total benefits between the Actuarial Liability (past service) and the current and future normal costs (future service). The impact of this change was a reduction in the normal cost rate and an increase in the UAL rate, resulting in a net decrease of 0.23% of pay.

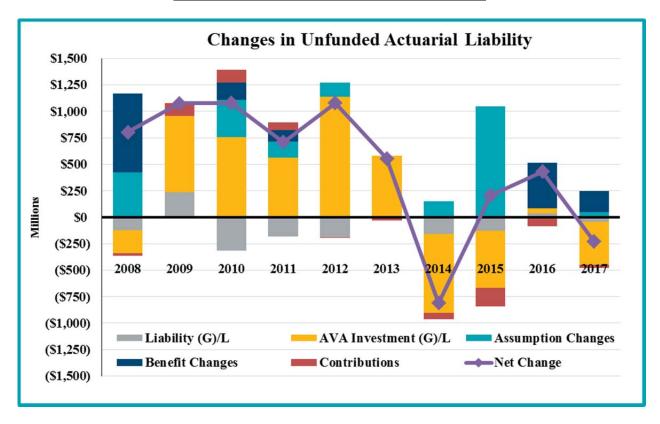
Table I-4 Net Employer Contribution Rate Reconciliation Normal Cost <sup>1</sup> Amortization Total								
FYE 2018 Net Employer Contribution Rate	11.59%	11.87%	23.46%					
Phase-in of the 2015 assumption changes	0.00%	0.63%	0.63%					
Investment gain on actuarial value of assets	0.00%	-0.94%	-0.94%					
Liability increased less than expected	-0.15%	-0.11%	-0.26%					
Payroll increased more than expected	0.00%	-0.23%	-0.23%					
July 1, 2017 Supplemental COLA	0.00%	1.42%	1.42%					
Actuarial method change	-0.68%	0.45%	-0.23%					
Assumed wage inflation reduced to 3.50%	-0.48%	-0.18%	-0.66%					
Other	-0.01%	0.13%	0.12%					
Total Change	-1.32%	1.17%	-0.15%					
FYE 2019 Net Employer Contribution Rate	10.27%	13.04%	23.31%					

<sup>1</sup> Includes administrative expenses and is net of employee contributions.



### **SECTION I – BOARD SUMMARY**

The chart below shows the components of historical changes in the Unfunded Actuarial Liability (UAL), including investment gains and losses on the Actuarial Value of Assets, liability gains and losses, assumption changes, benefit changes, and contributions compared to actual normal cost plus interest on the UAL. The net UAL change is shown by the purple line. For the FYE 2017, the UAL decreased by approximately \$228 million based on the Actuarial Value of Assets.



### SFERS Historical Changes in UAL 2008-2017

On a smoothed asset basis, the investment gains and losses (gold bars) from 2009 to 2013 reflect material net investment losses driven by the market decline of 2008 and 2009, which was spread over the five successive years. Recent market experience has been a mix between gains and losses with the gains outweighing the losses. The investment gain on the Actuarial Value of Assets for 2017 was approximately \$406 million, and there are approximately \$225 million in net deferred gains that have not been recognized in the Actuarial Value of Assets as of July 1, 2017. Over the 10-year period, however, investment losses have added approximately \$1.9 billion to the UAL.

On the liability side (gray bars), SFERS has experienced mostly gains reducing the UAL by approximately \$880 million over the 10-year period. The liability gains are due mostly to lower than expected Old Safety Charter COLAs and individual salary increases being less than assumed. In 2017, net liability gains were approximately \$45 million, about 0.2% of the expected liability. The details of the gain/loss analysis are shown in Table IV-4.



### **SECTION I – BOARD SUMMARY**

Assumption and method changes (teal bars) over the last 10 years have increased the UAL by about \$2.3 billion. The significant changes have included reductions in the discount rate, increases in retirement rates, and decreases in mortality rates. The reduction in the wage inflation assumption this year from 3.75% to 3.50% decreased the UAL by \$150 million. This reduction was offset in the graph by the technical actuarial method change that increased the UAL by about \$200 million, for a net increase of \$50 million.

Benefit changes (dark blue bars) in 2008 were a result of Proposition B. All other benefit increases are due to Supplemental COLAs for members in pay status. In 2016, the benefit increase is a result of the 2013 and 2014 retroactive Supplemental COLAs. Over the 10-year period, benefit changes increased the UAL by about \$1.7 billion, and the 2017 Supplemental COLA increased the UAL by about \$200 million.

Each year, the UAL is expected to increase for benefits attributable to the current year (the normal cost) and interest on the UAL. If contributions are greater than the normal cost plus interest on the UAL, the UAL will decrease. Conversely, if contributions are less than the normal cost plus interest on the UAL, the UAL will increase. Over the 10-year period, contributions have decreased the UAL by about \$90 million, and during 2017, contributions decreased the UAL by about \$27 million. In general, the amortization methods used to determine contributions to the System are designed to collect more than normal cost plus interest on the UAL. However, the System may temporarily pay less than this threshold due to the one-year delay between the valuation date and when contribution rates become effective, due to unexpected reductions in payroll, or due to the amortization of gains over a shorter remaining period than the amortization of losses.

Table I-5 Changes in Unfunded Actuarial Liability											
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Discount Rate	7.75%	7.75%	7.75%	7.66%	7.58%	7.58%	7.50%	7.50%	7.50%	7.50%	
Source											
AVA (G)/L	\$ (216.7)	\$ 722.7	\$ 755.6	\$ 559.6	\$ 1,135.0	\$ 579.6	\$ (749.2)	\$ (545.5)	\$ 51.5	\$ (405.7)	\$1,886.9
Liability (G)/L	(122.6)	235.8	(314.4)	(183.5)	(187.1)	(9.9)	(157.9)	(127.6)	34.5	(45.5)	(878.2
Assumptions/Methods	421.1	0.0	353.4	148.8	135.5	0.0	153.1	1,048.4	0.0	50.2	2,310.5
Benefit Changes <sup>1</sup>	750.2	0.0	164.0	112.6	0.0	0.0	0.0	0.0	429.3	200.1	1,656.2
Contributions <sup>2</sup>	(26.7)	118.0	121.8	73.8	(2.8)	(14.5)	(56.9)	(168.2)	(83.7)	(27.4)	<u>(66.6</u>
Total UAL Change	\$ 805.3	\$1,076.5	\$1,080.4	\$ 711.3	\$1,080.6	\$ 555.2	\$ (810.9)	\$ 207.1	\$ 431.6	\$ (228.3)	\$4,908.8

Table I-5 below summarizes the changes in the UAL over the last 10 years.

<sup>1</sup>2008 benefit changes were a result of Proposition B. All other benefit increases were Supplemental COLAs.

Dollar amounts in millions

<sup>2</sup> Actual contributions less than normal cost, administrative expenses and interest on the UAL result in an increase to the UAL.



### **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 relative to historical trends, as well as trends expected into the future. Assumed Supplemental COLAs are included in the projections on the following page for future years after the current valuation.

The top chart on the following page shows asset measures (both market and actuarial) compared to the Actuarial Liability for the historical period from 2007 to 2017 and the projected period from 2018 to 2027 assuming all assumptions are met. The purple bars represent the historical Actuarial Liability while the black and gray bars represent the projected Actuarial Liability. These bars are black if a Supplemental COLA is projected to be payable. The light purple bar is the current valuation year.

The baseline projections include an assumed level of Supplemental COLA each year. For the Post '96 Retirees, we assume a 50% probability of a full Supplemental COLA (1.50% for most members), so the baseline projections include half of a full Supplemental COLA each year. For the Pre-97 Retirees, the probability is much smaller than 50% in the short term since the System is only 87.2% funded and it needs to be 100% funded to grant this group a Supplemental COLA.

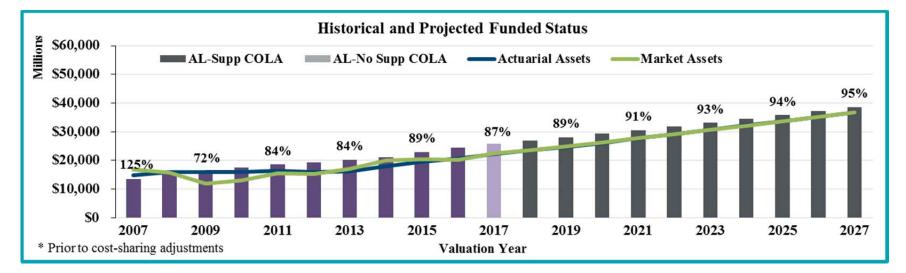
At the top of each bar is the progression of SFERS funding ratios based on the Market Value of Assets. The System had a surplus and was 125% funded as of July 1, 2007. The funding ratio declined significantly over the next two years to 72% primarily due to investment experience as well as Proposition B. Since then, investment returns and contribution increases offset by some assumption changes have led to increased funding ratios reaching 87% as of July 1, 2017.

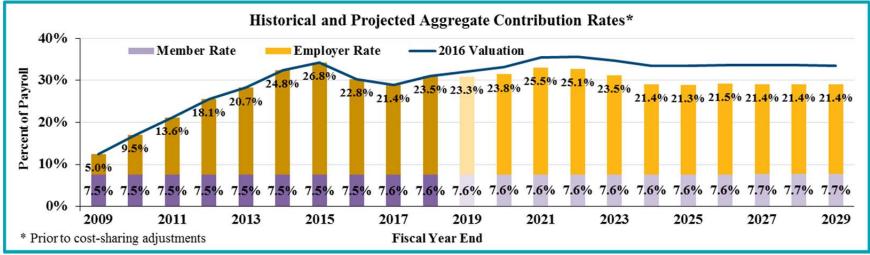
The bottom chart on the following page shows historical and projected contribution rates for the fiscal years ending 2009 through 2029. The purple bars represent member contribution rates, and the gold bars represent employer contribution rates. Historical or calculated rates are shown in a darker shade than projected rates. All rates are shown prior to cost-sharing adjustments. The blue line represents the baseline projection from the 2016 actuarial valuation.

The employer contribution rate increased significantly from fiscal year ending 2009 through 2015. The increases were primarily due to benefit changes under Proposition B, investment losses, and assumption changes. The employer contribution rate is expected to increase slightly over the next two years primarily due to approximately \$186 million in net deferred investment losses that will be recognized in the Actuarial Value of Assets over that period as well as the final two years of the phase-in of the amortization payment for the 2015 assumption changes. Employer contribution rates are expected to decline after FYE 2021 due to the recognition of remaining investment gains and completion of the amortization of the Supplemental COLAs. The projected contribution rates are lower than those projected in 2016, particularly after FYE 2021.



### SECTION I - BOARD SUMMARY







### **SECTION I – BOARD SUMMARY**

# **Stress Testing**

The projections shown on the previous page assume all assumptions are met each and every year in the future including an assumption for future Supplemental COLAs. We know that will not be the case. We developed six hypothetical scenarios to illustrate the impact actual investment returns may have on future funded status and contribution rates. The scenarios are balanced between positive and negative scenarios and are based on a normal distribution of one and five year expected returns as shown in the table below using the 5-7 year capital market assumptions from SFERS' investment consultant NEPC (Geometric return = 7.2%, standard deviation = 13.2%).

Distribution of Expected Average Annual Returns									
Percentile	1 Year	5 Year							
5%	-14.5%	-2.5%							
25%	-1.7%	3.2%							
50%	7.2%	7.2%							
75%	16.1%	11.2%							
95%	28.9%	16.9%							

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

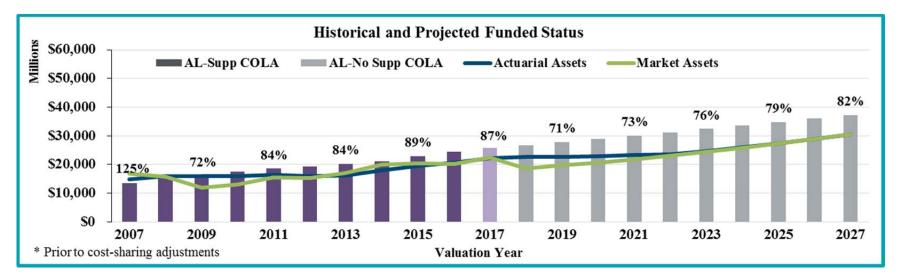
Theoretical Scenarios											
	1-Yr 8	Shock	5-Yr M	oderate	5-Yr Significant						
FYE	Neg	Pos	Neg	Pos	Neg	Pos					
2018	-14.50%	28.90%	3.20%	11.20%	-2.50%	16.90%					
2019	7.50%	7.50%	3.20%	11.20%	-2.50%	16.90%					
2020	7.50%	7.50%	3.20%	11.20%	-2.50%	16.90%					
2021	7.50%	7.50%	3.20%	11.20%	-2.50%	16.90%					
2022	7.50%	7.50%	3.20%	11.20%	-2.50%	16.90%					
2023+	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%					

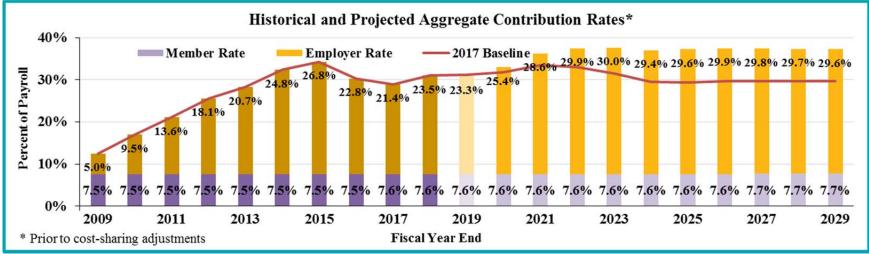
The charts on the following pages show the projections under each of these theoretical scenarios. The contribution charts include a red line representing the baseline projections shown above to facilitate the comparison between the particular scenario and the projections assuming all assumptions are met. Supplemental COLAs for future years are calculated based on returns in excess of the expected rate of return. No Supplemental COLAs are assumed in years where there are no excess returns. The contribution rates are shown before any cost-sharing adjustments.



### **SECTION I – BOARD SUMMARY**

### One-Year Negative Shock Scenario: -14.5% return FYE 2018, 7.5% after

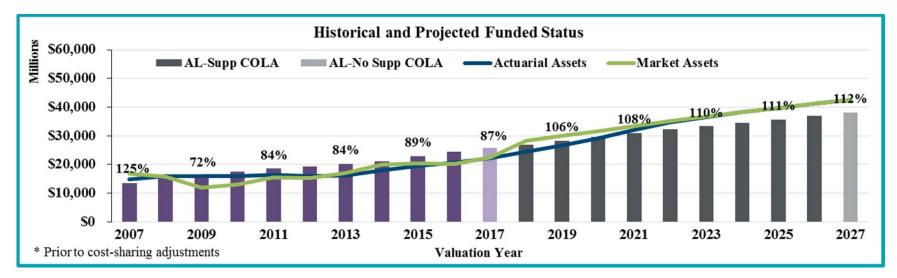


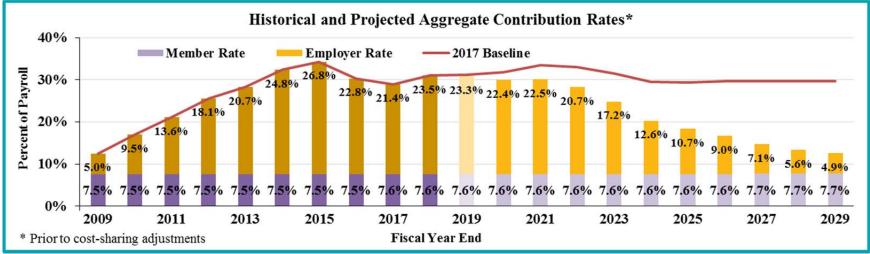




### **SECTION I – BOARD SUMMARY**

#### One-Year Positive Shock Scenario: 28.9% return FYE 2018, 7.5% after

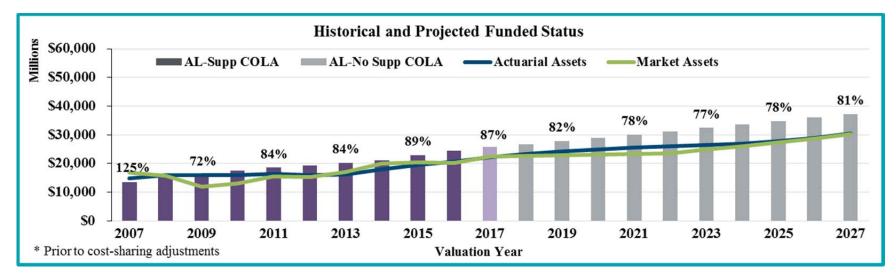






### **SECTION I – BOARD SUMMARY**

### Five-Year Moderate Negative Scenario: 3.2% return FYE 2018-2022, 7.5% after

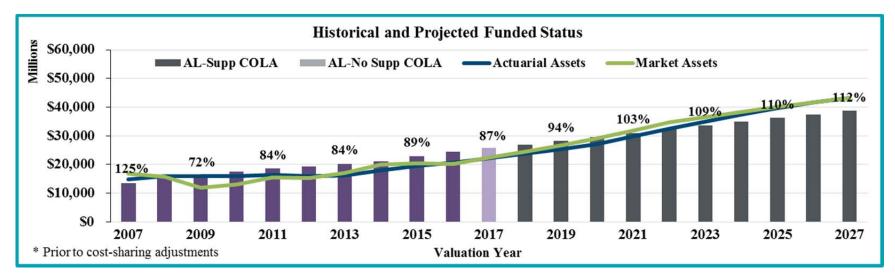


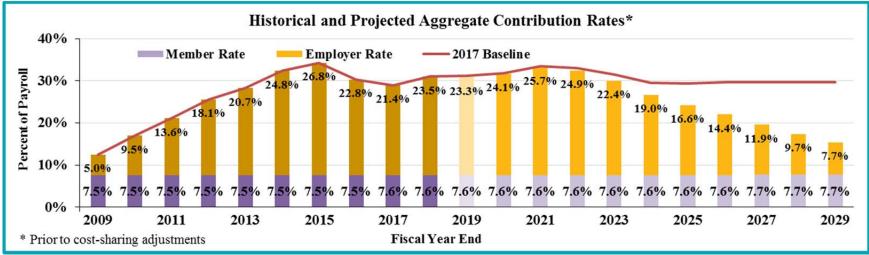




### **SECTION I – BOARD SUMMARY**

### Five-Year Moderate Positive Scenario: 11.2% return FYE 2018-2022, 7.5% after

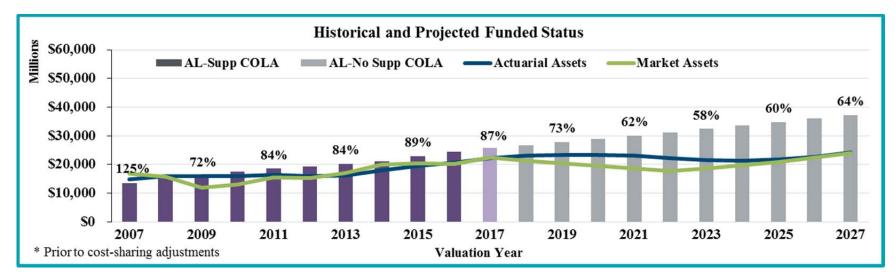


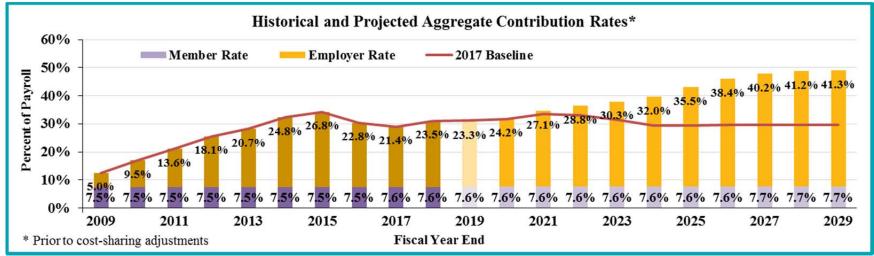




### **SECTION I – BOARD SUMMARY**

### Five-Year Significant Negative Scenario: -2.5% return FYE 2018–2022, 7.5% after

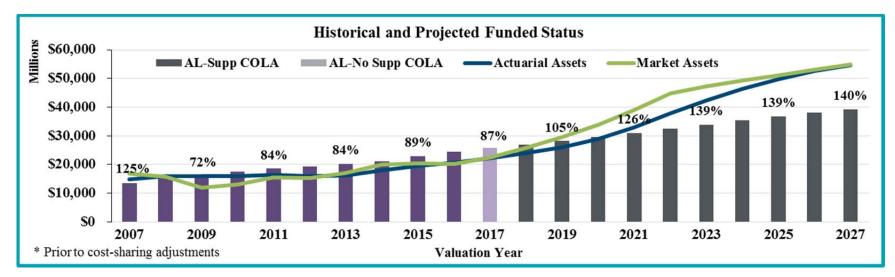


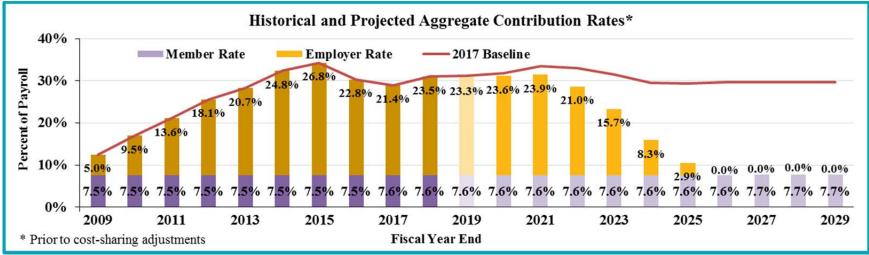




### **SECTION I – BOARD SUMMARY**

### Five-Year Significant Positive Scenario: 16.9% return FYE 2018-2022, 7.5% after







### **SECTION I – BOARD SUMMARY**

The scenarios show that actual future investment returns have a significant impact on future contribution rates. The positive economic scenarios all result in the payment of Supplemental COLAs to both Pre-96 and Post '96 Retirees, and the employer contribution rates decline to 7.7% or lower before the end of the projection period. The five-year significant positive scenario shows a slight increase in the first two years then a steady decline in the employer contribution rate to 0.0% by FYE 2026, while both the five-year positive moderate and one-year positive shock scenarios show more gradual declines to 7.7% and 4.9% respectively by FYE 2029. Conversely, the one-year negative shock and the five-year significant negative scenarios result in relatively rapid increases in the contribution rate to between 30% and 41% of payroll respectively from the current contribution rate of 23.3%. The five-year moderate negative scenario results in a more gradual increase in the contribution rate.

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.



### **SECTION II – CERTIFICATION**

The purpose of this report is to present the July 1, 2017 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 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 were adopted at the November 18, 2015 Board meeting based on recommendations from our experience study covering plan experience during the period from July 1, 2009 through June 30, 2014. The economic assumptions in this report were adopted by the Board with our input at the November 8, 2017 Board meeting.

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.

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

This report was prepared for the 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.

Willie R. Hallack

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

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



## **SECTION III – 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 III-1         Change in Market Value of Assets         (Amounts in thousands)									
		FYE 2017		FYE 2016					
<ol> <li>Market Value, Beginning of Year</li> <li>Additions</li> </ol>	\$	20,154,503	\$	20,428,069					
a. Employer Contributions		551,809		526,805					
b. Member Contributions		316,844		322,764					
c. Total Additions: (2a. + 2b.)	\$	868,653	\$	849,569					
3. Net Investment Income		2,683,468		150,190					
4. Benefits and Administrative Expenses		(1,296,274)		(1,273,325)					
5. Net Increase/(Decrease): (2c.+3.+4.)	\$	2,255,847	\$	(273,566)					
6. Market Value, End of Year	\$	22,410,350	\$	20,154,503					
7. Estimated Rate of Return on Market Value		13.5%		0.7%					

# **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 (7.50% for the years ending 2015 – 2017, and 7.58% for the years ending 2013 and 2014.) See Appendix B for further explanation of the asset valuation method.



## **SECTION III – ASSETS**

	Table III-2         Development of Actuarial Value of Assets for 7/1/2017         (Amounts in thousands)							
			Total					
1.	Actuarial Value as of 7/1/2016	\$	20,654,703					
2.	Non-Investment Cash Flow for FYE 2017		(427,621)					
3.	Expected Return for FYE 2017		1,552,477					
4.	Expected Actuarial Value as of 7/1/2017: (1+2+3)	\$	21,779,559					
5.	Actual Return in FYE 2017		2,683,468					
6.	Actual Return Above Expected in 2016-2017: (5 - 3)		1,130,991					
7.	Recognition of Returns Above / (Below) Expected							
	a. 2016-2017 (20% of 6.)		226,198					
	b. 2015-2016		(265,276)					
	c. 2014-2015		(117,657)					
	d. 2013-2014		389,909					
	e. 2012-2013		172,511					
	f. Total: (7a. + 7b. + 7c. + 7d. + 7e.)	\$	405,685					
8.	Actuarial Value as of 7/1/2017: (4 + 7f.)	\$	22,185,244					
9.	Market Value as of 7/1/2017	\$	22,410,350					
10.	Ratio of Actuarial Value to Market Value: (8 / 9)		99.0%					
11.	Estimated Rate of Return on Actuarial Value		9.6%					

# **Investment Performance**

The internal rate of return on the Market Value of Assets, net of investment expenses, was 13.5% for the year ending June 30, 2017. This return compares to an assumed rate of return of 7.50% and resulted in actual returns that are approximately \$1.1 billion more than the expected return on the Actuarial Value of Assets.

On an Actuarial Value of Assets basis, the return for the year ending June 30, 2017 was 9.6% compared to the assumed return of 7.50%. This return produced an overall SFERS investment gain on the Actuarial Value of Assets of \$406 million for the year ending June 30, 2017.



## SECTION IV – 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 all Future Benefits**

The present value of all 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 IV-1 below shows the present value of all future benefits as of July 1, 2017 and July 1, 2016.

Table IV-1         Present Value of Future Benefits         (Amounts in thousands)										
	J	uly 1, 2016	% Change							
Present Value of Future Benefits										
Actives	\$	14,698,981	\$	14,456,121	1.7%					
Terminated Vested		464,498		435,493	6.7%					
Members Receiving Benefits		15,382,025		14,505,186	6.0%					
Total	\$	30,545,504	\$	29,396,800	3.9%					

# **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 IV-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.



## SECTION IV – MEASURES OF LIABILITY

Table IV-2         Normal Cost by Group as of July 1, 2017         (Amounts in thousands)										
		Police		Fire	M is	cellaneous		Total		
Normal Cost by Benefit Tier										
Old	\$	0	\$	0	\$	150	\$	150		
New		64,211		50,372		251,643		366,220		
Prop D		1,028		2,433		23,377		26,83		
Prop C		24,166		15,274		128,548		167,98		
Total	\$	89,405	\$	68,079	\$	403,718	\$	561,202		

# **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 IV-3 below shows the Actuarial Liability as of the valuation date separately for Police, Fire, and Miscellaneous employees.

Table IV-3         Actuarial Liability by Group as of July 1, 2017         (Amounts in thousands)										
		Police		Fire	Miscellaneous		Total			
Actuarial Liability										
Actives	\$	1,438,146	\$	1,243,598	\$ 7,177,823	\$	9,859,567			
Terminated Vested		22,279		18,542	423,678		464,499			
Members Receiving Benefits										
Retirees		2,167,339		1,305,336	8,711,332		12,184,007			
Disabled		632,844		977,435	430,759		2,041,038			
Beneficiaries		338,404		266,766	551,809		1,156,979			
Total Members Receiving Benefits		3,138,587		2,549,537	9,693,900		15,382,024			
Total Actuarial Liability	\$	4,599,012	\$	3,811,677	\$ 17,295,401	\$	25,706,090			



### SECTION IV – 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 IV-4 below presents key changes in the UAL since the last valuation.

Table IV-4           Development of 2017 Experience Gain/(Loss)           (Amounts in millions)	
Item	Cost
1. Unfunded Actuarial Liability at July 1, 2016	\$ 3,749.2
2. Middle of year actuarial liability payment	(350.8)
3. Interest to end of year on 1. and 2.	268.3
4. Increase in UAL due to July 1, 2017 Supplemental COLA	200.1
5. Increase in UAL due to assumption and method changes	50.2
6. Expected Unfunded Actuarial Liability at July 1, 2017 (1+2+3+4+5)	\$ 3,917.0
7. Actual Unfunded Liability at July 1, 2017	3,520.8
8. Experience Gain: (6 - 7)	\$ 396.2
9. Portion of difference due to:	
a. Investment experience on actuarial value	\$ 405.7
b. Old Safety COLAs less than expected	64.3
c. Salaries less than expected	80.6
d. Contributions (rate delay, payroll changes, and expense gain)	(55.0)
e. Retirements and terminations	(48.5)
f. Mortality	6.2
g. New entrant loss	(19.8)
h. Data corrections	(33.9)
i. Other experience	 (3.4)
j. Total Gain	\$ 396.2



### **SECTION V – 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 Unfunded Actuarial Liability contribution.

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 prior Charter amendments, plus the impact of accumulated experience, assumption changes, and method changes.

Table V-1 below develops the employer's contribution rate for FYE 2019 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 V-1           Development of the Net Employer Contribution Rate as of July 1, 2017 for FYE 2019           (Amounts in millions)										
		FYE 2019								
	Police	Fire	Miscellaneous	COMPOSITE	COMPOSITE					
1. Total Normal Cost Rate	30.84%	31.84%	14.67%	17.25%	18.56%					
2. Member Contribution Rate	8.00%	8.02%	7.50%	7.58%	7.57%					
3. Employer Normal Cost Rate (1 2.)	22.84%	23.82%	7.17%	9.67%	10.99%					
4. a. UAL - Proposition balance as of 7/1/2017	\$124.5	\$121.0	\$714.3	\$959.8	\$1,038.8					
b. Other UAL as of 7/1/2017	228.6	169.4	2,163.0	2,561.0	2,710.4					
c. Net UAL - as of 7/1/2017 (4a.+4b.)	\$353.1	\$290.4	\$2,877.3	\$3,520.8	\$3,749.2					
5. a. Amortization of 4a., Proposition UAL	9.96%	11.74%	4.03%	5.07%	5.12%					
b. Amortization of 4b., Other UAL	7.97%	7.97%	7.97%	<u>7.97%</u>	<u>6.75%</u>					
c. Amortization of Net UAL (5a.+5b.)	17.93%	19.71%	12.00%	13.04%	11.87%					
6. Administrative Expenses	0.60%	0.60%	0.60%	<u>0.60%</u>	<u>0.60%</u>					
7. Net Employer Contribution Rate (3.+5c.+6.)	41.37%	44.13%	19.77%	23.31%	23.46%					



### SECTION V – CONTRIBUTIONS

Table V-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 23.31% and the hourly pay rates shown in the table below.

Empl	oyee and E	nployer Contril	Table V-2oution Rates	By Employee	Group for F	YE 2019	
	Hourly	(A1 Estimated Payroll	nounts in thous <b>Base</b>	ands) Rates	Adjuste	d Rates	Cost Sharing
Hire Date	Pay	FYE 2019	Employee	Employer	Employee	Employer	Adjustment
Police and Fire							
< 11/2/1976	All	\$ 0	7.00%	23.31%	11.50%	18.81%	4.50%
11/2/1976 - 6/30/2010	All	344,597	7.50%	23.31%	12.00%	18.81%	4.50%
> 6/30/2010	< \$57	160,658	9.00%	23.31%	12.50%	19.81%	3.50%
> 6/30/2010	>= \$57	16,219	9.00%	23.31%	13.00%	19.31%	4.00%
Miscellaneous							
< 11/2/1976	< \$28	\$ 0	8.00%	23.31%	8.00%	23.31%	0.00%
< 11/2/1976	\$28 - \$57	437	8.00%	23.31%	11.50%	19.81%	3.50%
< 11/2/1976	>= \$57	321	8.00%	23.31%	12.00%	19.31%	4.00%
>= 11/2/1976	< \$28	239,639	7.50%	23.31%	7.50%	23.31%	0.00%
>= 11/2/1976	\$28 - \$57	1,599,402	7.50%	23.31%	11.00%	19.81%	3.50%
>= 11/2/1976	>= \$57	994,681	7.50%	23.31%	11.50%	19.31%	4.00%
Estimated Total Plan		\$ 3,355,954	7.58%	23.31%	11.08%	19.81%	3.50%
Estimated Contribution	Amounts		\$ 254,381	\$ 782,273	\$ 371,840	\$ 664,815	\$ 117,458

Dollar Amounts in Thousands

Table V-3 on the following page provides the payment schedules to amortize the changes to the Actuarial Liability as a result of 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, are amortized over a closed 5-year period. 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.



# **SECTION V – CONTRIBUTIONS**

	Table V-3         Development of the Proposition Amortization Rate as of July 1, 2017 (FYE 2019)         (dollars in thousands)												
		Police				Fire			iscellaneou	IS	Total		
Propositions	Remaining Period	Outstanding Balance	Amortization Payment	Payment as % of Pay	Outstanding Balance	Amortization Payment	Payment as % of Pay	Outs tanding Balance	Amortization Payment	Payment as % of Pay	Outstanding Balance	Amortization Payment	Payment as % of Pay
1998 Prop A - New Police Ret Bfts	1	5,098	5,682	1.90%	0	0	0.00%	0	0	0.00%	5,098	5,682	0.17%
1998 Prop C - Paramedics Bfts	1	0	0	0.00%	1,057	1,178	0.53%	0	0	0.00%	1,057	1,178	0.04%
2000 Prop C - New Misc Ret Bfts	3	0	0	0.00%	0	0	0.00%	104,851	40,441	1.43%	104,851	40,441	1.21%
6.25% Credited Interest on EE ctrbs	5	45	11	0.00%	11	3	0.00%	6,276	1,507	0.05%	6,332	1,521	0.05%
2002 Prop H - Safety Ret Bfts	5	79,822	19,168	6.40%	84,859	20,378	9.18%	0	0	0.00%	164,681	39,546	1.18%
5.0% Credited Interest on EE ctrbs	7	(368)	(65)	-0.02%	(175)	(31)	-0.01%	(33,710)	(5,997)	-0.21%	(34,252)	(6,093)	-0.18%
2004 Prop E - New Safety LOD Bfts	8	4,616	732	0.24%	6,483	1,028	0.46%	0	0	0.00%	11,099	1,759	0.05%
2003 Prop F - Misc 3+3 Early Ret Bfts	8	0	0	0.00%	0	0	0.00%	13,964	2,213	0.08%	13,964	2,213	0.07%
Liability of 2003 Prop F (extended) - Misc 3+3 Early Ret Bfts	9	0	0	0.00%	0	0	0.00%	8,580	1,231	0.04%	8,580	1,231	0.04%
Liability of 2003 Prop F (extended) - Misc 3+3 Early Ret Bfts	10	0	0	0.00%	0	0	0.00%	4,050	532	0.02%	4,050	532	0.02%
2008 Prop B - New Misc Ret Bfts and Compound COLA	11	35,316	4,295	<u>1.43%</u>	28,819	3,504	<u>1.58%</u>	610,252	74,208	<u>2.62%</u>	674,387	82,007	<u>2.44%</u>
Proposition Total		\$124,530	\$ 29,822	9.96%	\$121,054	\$ 26,059	11.74%	\$714,263	\$114,136	4.03%	\$ 959,846	\$170,016	5.07%



### SECTION V – 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 V-4 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.

The amortization payment on the 2015 assumption changes is being phased in over a five-year period. The phase-in is calculated by multiplying the normal first year amortization payment by 20 percent. For the second year, the amortization schedule is recalculated reflecting the 20 percent payment in the first year and the remaining 19-year period. The recalculated amortization payment is then multiplied by 40 percent. The process is repeated until the full amortization payment is made beginning in the fifth year of the 20-year period.

Table V-4         Development of the Non-Proposition Amortization Rate as of July 1, 2017 (FYE 2019)         (dollars in thousands)										
Amortization Bases	Remaining Period		standing llance	А	mortization Payment	Payment as % of Pay				
2013 Non-Proposition UAL	16	\$	2,605,373	\$	237,552	7.07%				
2014 Actuarial Gain	17		(861,501)		(75,196)	-2.24%				
2014 Assumption Change	17		152,397		13,302	0.40%				
2015 Actuarial Gain	18		(770,415)		(64,591)	-1.92%				
2015 Assumption Change <sup>1</sup>	18		1,160,894		58,397	1.74%				
2013 Supplemental COLA	16		201,493		18,372	0.55%				
2014 Supplemental COLA	4		191,078		56,309	1.68%				
2016 Actuarial Loss	19		27,539		2,224	0.07%				
2017 Actuarial Gain	20		(396,143)		(30,906)	-0.92%				
2017 Supplemental COLA	5		200,067		48,043	1.43%				
2017 Assumption and Method Change	20		50,218		3,918	0.12%				
Total Non-Proposition UAL		\$	2,561,000	\$	267,423	7.98%				

<sup>1</sup> The full amortization payment is being phased in over a five year period (currently in 3rd year). The ultimate rate is 3.05%, based on assumed payroll growth.



### SECTION VI – ACTUARIAL SECTION OF THE CAFR

The Government Finance Officers Association (GFOA) maintains a checklist of items to be included in a System's Comprehensive Annual Financial Report (CAFR) in order to receive recognition for excellence in financial reporting. The following Tables VI-1 through VI-3 are listed by the GFOA for inclusion in the Actuarial Section of the System's CAFR. The GFOA recommends showing 10 years of experience in each of these exhibits. Table VI-1 presents an Analysis of Financial Experience for the valuation year, Table VI-2 presents the Solvency Test, and Table VI-3 shows the Schedule of Funding Progress.

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

	Table VI-1         ANALYSIS OF FINANCIAL EXPERIENCE         (Amounts in thousands)										
	(A)	<b>(B</b> )	(C)	$(\mathbf{D})$	<b>(E</b> )	( <b>F</b> )					
Gain or (Loss) for Year Ending	Investment Income	Contribution Income <sup>1</sup>	Combined Liability Experience	(A)+(B)+(C) Gain or (Loss) From Experience	Non-Recurring Items <sup>2</sup>	(D)+(E) Composite Gain or (Loss) During Year					
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)					
July 1, 2011	(559,587)	) (125,792)	183,528	(501,851)	(261,317)	(763,168)					
July 1, 2010	(755,593)	)	294,571	(461,022)	(517,416)	(978,438)					
July 1, 2009	(722,712)	)	(223,256)	(945,968)	-	(945,968)					
July 1, 2008	216,709		137,924	354,633	(1,171,313)	(816,680)					

<sup>1</sup> Due to Payroll Changes, One-Year Lag, and Expenses (Not determined separately prior to the July 1, 2011 valuation).

<sup>2</sup> Includes Assumption, Method, and Benefit Changes as well as Supplemental COLAs.



### SECTION VI - ACTUARIAL SECTION OF THE CAFR

	Table VI-2         SOLVENCY TEST         (Amounts in millions)										
Valuation Date July 1,		(A) Active Member ntributions	Ben	(B) etirees, eficiaries, Inactives	N	(C) emaining Active I embers' iabilities		Actuarial Value of Assets	Liabili	n of Actu ities Cov ported A (B)	ered
2017 -	\$	3,325	\$	15,847	\$	6,535	\$	22,185	100%	100%	46%
2016 <sup>2</sup>		3,175		14,941		6,288		20,655	100%	100%	40%
2015 <sup>3</sup>		2,995		13,931		6,045		19,653	100%	100%	45%
2014 4		2,825		12,901		5,397		18,012	100%	100%	42%
2013		2,633		12,257		5,335		16,303	100%	100%	26%
2012 4		2,451		11,658		5,285		16,028	100%	100%	36%
2011 4		2,364		10,987		5,248		16,313	100%	100%	56%
2010 5		2,331		10,171		5,141		16,069	100%	100%	69%
2009		2,376		9,028		5,095		16,005	100%	100%	90%
2008 6		2,298		8,013		5,047		15,941	100%	100%	100%

<sup>1</sup> Reflects revised wage inflation assumption.

<sup>2</sup> Reflects 2013 and 2014 Retroactive Supplemental COLA benefits for Post96 Retirees.

<sup>3</sup> Reflects revised demographic assumptions.

<sup>4</sup> Reflects revised discount rate and wage inflation.

<sup>5</sup> Reflects revised economic and demographic assumptions.

<sup>6</sup> Reflects revised economic assumptions and Prop B changes. Inactive liabilities are included in Category C for 2008. The percentages of AAL covereed by assets are unaffected as all three categories are at 100%

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



## SECTION VI - ACTUARIAL SECTION OF THE CAFR

	Table VI-3         SCHEDULE OF FUNDING PROGRESS										
Actuarial Valuation Date	Actuarial Value of Assets	(in Actuarial Liability (AL)	thousands) Unfunded AL	Funde d Ratio	Covered Payroll	Unfunded AL as a % of Covered Payrol					
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%					
July 1, 2011	16,313,120	18,598,728	2,285,608	88%	2,360,413	97%					
July 1, 2010	16,069,058	17,643,394	1,574,336	91%	2,398,823	66%					
July 1, 2008	16,004,730	16,498,649	493,919	97%	2,544,939	19%					
July 1, 2007 <sup>1</sup>	15,941,390	15,358,823	(582,567)	104%	2,457,196	-24%					

<sup>1</sup> Amounts for the July 1, 2007 valuation were calculated by the prior actuary.



		Table A-1			
A	ctive ]	Member Data - B	y G	Froup	
		July 1, 2017		July 1, 2016	% Change
Total					
Count		33,447		32,406	3.2%
Average Current Age		46.7		46.9	-0.2
Average Service		10.8		11.1	-0.3
Annual Pensionable Earnings	\$	3,102,672,358	\$	2,902,722,369	6.9%
Average Pensionable Earnings	\$	92,764	\$	89,574	3.6%
Police					
Count		2,293		2,223	3.1%
Average Current Age		41.0		41.3	-0.3
Average Service		12.4		12.6	-0.2
Annual Pensionable Earnings	\$	276,596,552	\$	267,454,223	3.4%
Average Pensionable Earnings	\$	120,626	\$	120,312	0.3%
Fire					
Count		1,609		1,560	3.1%
Average Current Age		44.3		44.6	-0.3
Average Service		13.8		14.0	-0.2
Annual Pensionable Earnings	\$	204,443,368	\$	195,298,648	4.7%
Average Pensionable Earnings	\$	127,062	\$	125,191	1.5%
M is cellane ous					
Count		29,545		28,623	3.2%
Average Current Age		47.3		47.5	-0.2
Average Service		10.5		10.8	-0.3
Annual Pensionable Earnings	\$	2,621,632,438	\$	2,439,969,498	7.4%
Average Pensionable Earnings	\$	88,734	\$	85,245	4.1%



	Table A-2		
Activ	ve Member Data - By	y Charte	er
	<b>July 1, 2017</b>		
		An	nual Pensionable
	Counts		Earnings*
Total		+	
Old	29	\$	2,962,894
New	19,822		1,979,270,418
Prop D	1,709		149,030,909
Prop C	11,887		971,408,137
Total	33,447	\$	3,102,672,358
Police			
Old	0	\$	0
New	1,488		199,019,020
Prop D	23		2,837,350
Prop C*	782		74,740,182
Total	2,293	\$	276,596,552
Fire			
Old	2	\$	333,372
New	1,067		154,234,765
Prop D	53		6,430,669
Prop C	487		43,444,562
Total	1,609	\$	204,443,368
Miscellaneous			
Old	27	\$	2,629,522
New	17,267		1,626,016,633
Prop D	1,633		139,762,890
Prop C	10,618		853,223,393
Total	29,545	\$	2,621,632,438

\* Includes 57 members in the Sheriffs Plan (Charter A8.608) and 72 members in the Miscellaneous Safety Plan(Charter A8.610)



	Т	able A-3			
Non-Active	Mem	ber Data - Total	Sys	tem	
		July 1, 2016	Change		
Retired					
Count		22,587		21,761	3.8%
Average Age		70.4		70.3	0.1
Total Annual Benefit*	\$	1,045,974,914	\$	969,672,532	7.9%
Average Annual Benefit	\$	46,309	\$	44,560	3.9%
Disabled					
Count		2,572		2,593	-0.8%
Average Age		68.8		68.6	0.2
Total Annual Benefit*	\$	157,954,899	\$	154,169,480	2.5%
Average Annual Benefit	\$	61,413	\$	59,456	3.3%
Beneficiaries					
Count		3,968		3,932	0.9%
Average Age		77.3		77.4	-0.1
Total Annual Benefit*	\$	128,500,450	\$	123,388,233	4.1%
Average Annual Benefit	\$	32,384	\$	31,381	3.2%
Payee Total					
Count		29,127		28,286	3.0%
Average Age		71.2		71.1	0.1
Total Annual Benefit*	\$	1,332,430,263	\$	1,247,230,245	6.8%
Average Annual Benefit	\$	45,746	\$	44,094	3.7%
Inactives					
Count		8,420		7,645	10.1%
Average Age		47.3		47.7	-0.4
Total Contribution Balance with Interest	\$	228,851,427	\$	213,978,231	7.0%
Average Contribution Balance with Interest	\$	27,180	\$	27,989	-2.9%

\* Benefits provided in June 30 valuation data, plus estimated Basic and Supplemental COLA effective July 1, 2017.

If applicable, limited by Section 415(b) of the Internal Revenue Code.



		le A-4			
Non-Active Me			ty -	Prop H	
Pre		5 Retirements			
	J	uly 1, 2017		July 1, 2016	Change
Retired					
Count		6		8	-25.0%
Average Age		89.8		88.6	1.2
Total Annual Benefit*	\$	180,260	\$	210,373	-14.3%
Average Annual Benefit	\$	30,043	\$	26,297	14.2%
Disabled					
Count		63		71	-11.3%
Average Age		83.8		83.6	0.2
Total Annual Benefit*	\$	2,403,963	\$	2,643,511	-9.1%
Average Annual Benefit	\$	38,158	\$	37,233	2.5%
Beneficiaries					
Count		133		150	-11.3%
Average Age		84.6		84.3	0.3
Total Annual Benefit*	\$	4,297,026	\$	4,709,428	-8.8%
Average Annual Benefit	\$	32,308	\$	31,396	2.9%
Payee Total					
Count		202		229	-11.8%
Average Age		84.5		84.2	0.3
Total Annual Benefit*	\$	6,881,249	\$	7,563,312	-9.0%
Average Annual Benefit	\$	34,066	\$	33,028	3.1%
Inactives					
Count		N/A		N/A	
Average Age		N/A		N/A	
Total Contribution Balance with Interest		N/A		N/A	
Average Contribution Balance with Interest		N/A		N/A	

\* Benefits provided in June 30 valuation data, plus estimated Basic and Supplemental COLA effective July 1, 2017. If applicable, limited by Section 415(b) of the Internal Revenue Code.



	Ta	ble A-5			
Non-Active Me				<ul> <li>•</li> </ul>	
Charters A8.5		.585, A8.595, ai	nd A		
	•	July 1, 2017		July 1, 2016	Change
Retired				4	
Count		1,043		1,080	-3.4%
Average Age		75.4		74.7	0.7
Total Annual Benefit*	\$	105,095,392	\$	105,541,174	-0.4%
Average Annual Benefit	\$	100,763	\$	97,723	3.1%
Disabled					
Count		615		644	-4.5%
Average Age		75.7		75.0	0.7
Total Annual Benefit*	\$	62,065,184	\$	62,780,417	-1.1%
Average Annual Benefit	\$	100,919	\$	97,485	3.5%
Beneficiaries					
Count		682		703	-3.0%
Average Age		79.8		79.8	0.0
Total Annual Benefit*	\$	53,783,874	\$	53,656,479	0.2%
Average Annual Benefit	\$	78,862	\$	76,325	3.3%
Payee Total					
Count		2,340		2,427	-3.6%
Average Age		76.8		76.3	0.5
Total Annual Benefit*	\$	220,944,450	\$	221,978,070	-0.5%
Average Annual Benefit	\$	94,421	\$	91,462	3.2%
Inactives					
Count		2		2	0.0%
Average Age		71.5		70.5	1.0
Total Contribution Balance with Interest	\$	2,491	\$	2,395	4.0%
Average Contribution Balance with Interest	\$	1,246	\$	1,198	4.0%

\* Benefits provided in June 30 valuation data, plus estimated Basic and Supplemental COLA effective July 1, 2017.

 $\label{eq:limited} \textit{If applicable, limited by Section 415(b) of the Internal Revenue Code.}$ 



	Ta	ble A-6							
Non-Active	Mem	ber Data - New	Safe	ety					
	July 1, 2017 July 1, 2016								
Retired									
Count		1,539		1,430	7.6%				
Average Age		62.4		62.0	0.4				
Total Annual Benefit*	\$	159,918,518	\$	143,405,488	11.5%				
Average Annual Benefit	\$	103,911	\$	100,284	3.6%				
Disabled									
Count		526		510	3.1%				
Average Age		62.5		61.9	0.6				
Total Annual Benefit*	\$	53,415,037	\$	49,783,015	7.3%				
Average Annual Benefit	\$	101,549	\$	97,614	4.0%				
Beneficiaries									
Count		116		107	8.4%				
Average Age		59.6		59.7	-0.1				
Total Annual Benefit*	\$	7,085,190	\$	6,071,598	16.7%				
Average Annual Benefit	\$	61,079	\$	56,744	7.6%				
Payee Total									
Count		2,181		2,047	6.5%				
Average Age		62.3		61.9	0.4				
Total Annual Benefit*	\$	220,418,745	\$	199,260,102	10.6%				
Average Annual Benefit	\$	101,063	\$	97,343	3.8%				
Inactives									
Count		272		228	19.3%				
Average Age		43.8		44.8	-1.0				
Total Contribution Balance with Interest	\$	13,872,154	\$	12,433,166	11.6%				
Average Contribution Balance with Interest	\$	51,001	\$	54,531	-6.5%				

\* Benefits provided in June 30 valuation data, plus estimated Supplemental COLA effective July 1, 2017.

If applicable, limited by Section 415(b) of the Internal Revenue Code.



	Ta	ble A-7			
Non-Active 1	Membe	er Data - Misce	llan	eous	
		July 1, 2017		July 1, 2016	Change
Retired					
Count		19,999		19,243	3.9%
Average Age		70.7		70.6	0.1
Total Annual Benefit*	\$	780,780,744	\$	720,515,497	8.4%
Average Annual Benefit	\$	39,041	\$	37,443	4.3%
Disabled					
Count		1,368		1,368	0.0%
Average Age		67.3		67.2	0.1
Total Annual Benefit*	\$	40,070,715	\$	38,962,536	2.8%
Average Annual Benefit	\$	29,291	\$	28,481	2.8%
Beneficiaries					
Count		3,037		2,972	2.2%
Average Age		77.1		77.2	-0.1
Total Annual Benefit*	\$	63,334,360	\$	58,950,728	7.4%
Average Annual Benefit	\$	20,854	\$	19,835	5.1%
Payee Total					
Count		24,404		23,583	3.5%
Average Age		71.3		71.2	0.1
Total Annual Benefit*	\$	884,185,819	\$	818,428,761	8.0%
Average Annual Benefit	\$	36,231	\$	34,704	4.4%
Inactives					
Count		8,146		7,415	9.9%
Average Age		47.4		47.8	-0.4
Total Contribution Balance with Interest	\$	214,976,781	\$	201,542,670	6.7%
Average Contribution Balance with Interest	\$	26,390	\$	27,180	-2.9%

\* Benefits provided in June 30 valuation data, plus estimated Supplemental COLA effective July 1, 2017.

If applicable, limited by Section 415(b) of the Internal Revenue Code.



	Table A-8 Distribution of Active Members as of July 1, 2017 Count By Age/Service - Total System													
	Years of Service													
Age	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	Total			
Under 25	211	136	0	0	0	0	0	0	0	0	347			
25 to 29	547	1,307	94	0	0	0	0	0	0	0	1,948			
30 to 34	617	2,060	781	129	0	0	0	0	0	0	3,587			
35 to 39	447	1,723	1,075	685	115	1	0	0	0	0	4,046			
40 to 44	308	1,189	969	818	599	82	0	0	0	0	3,965			
45 to 49	306	1,011	860	909	1,139	536	100	2	0	0	4,863			
50 to 54	240	814	754	801	1,162	747	494	89	5	0	5,106			
55 to 59	172	656	588	691	1,066	632	631	458	85	0	4,979			
60 to 64	87	340	396	473	748	408	371	359	74	10	3,266			
65 to 69	16	95	141	173	242	125	120	99	23	20	1,054			
70 and up	12	23	26	47	64	46	28	17	10	13	286			
Total Count	2,963	9,354	5,684	4,726	5,135	2,577	1,744	1,024	197	43	33,447			

									Table A Active Men y By Age/S	ab	ers as of J						
	Years of Service																
Age	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	Total
Under 25	\$ 62,058	\$	62,637	\$	0	\$	0	\$	0	\$	0	\$	0	\$ 0	\$ 0	\$ 0	\$ 62,285
25 to 29	71,020		73,226		86,036		0		0		0		0	0	0	0	73,225
30 to 34	78,873		80,268		94,421		106,965		0		0		0	0	0	0	84,070
35 to 39	79,152		83,239		95,802		105,285		108,626		83,554		0	0	0	0	90,579
40 to 44	81,060		82,280		96,615		106,661		110,078		112,138		0	0	0	0	95,535
45 to 49	77,731		81,982		89,101		103,860		109,641		122,707		128,795	133,055	0	0	99,013
50 to 54	85,602		82,760		86,439		96,592		102,868		113,952		123,391	116,735	102,651	0	99,289
55 to 59	80,262		80,302		89,511		93,865		93,781		100,701		113,376	104,968	102,420	0	95,584
60 to 64	79,331		80,956		87,475		87,935		88,999		100,115		107,234	105,099	98,812	90,892	93,023
65 to 69	65,144		74,433		85,176		87,821		94,357		94,301		105,013	98,708	114,039	109,977	92,158
70 and up	58,089		84,302		82,696		88,501		97,480		95,902		96,878	97,134	99,852	99,151	91,773
Avg. Salary	\$ 76,858	\$	80,211	\$	91,779	\$	99,609	\$	100,965	\$	108,988	\$	114,950	\$ 105,356	\$ 102,297	\$ 102,265	\$ 92,764



	Table A-10 Distribution of Active Members as of July 1, 2017 Count By Age/Service - Police										
					Years of S	Service					
Age	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	Total
Under 25	0	34	0	0	0	0	0	0	0	0	34
25 to 29	1	251	13	0	0	0	0	0	0	0	265
30 to 34	1	221	126	50	0	0	0	0	0	0	398
35 to 39	1	91	97	145	34	0	0	0	0	0	368
40 to 44	0	33	41	93	116	25	0	0	0	0	308
45 to 49	1	16	24	50	139	136	23	0	0	0	389
50 to 54	8	14	7	28	77	121	86	18	0	0	359
55 to 59	3	7	7	5	27	34	36	17	5	0	141
60 to 64	0	2	2	1	4	9	5	4	0	0	27
65 to 69	0	0	0	1	0	2	1	0	0	0	4
70 and up	0	0	0	0	0	0	0	0	0	0	0
Total Count	15	669	317	373	397	327	151	39	5	0	2,293

			D	istribution of Average	Table A f Active Mer Salary By A	nbers as of .							
		Years of Service											
Age	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	Total		
Under 25	\$ 0	\$ 83,659	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 83,659		
25 to 29	65,302	88,469	103,684	0	0	0	0	0	0	0	89,128		
30 to 34	65,302       93,387       115,809       126,684       0       0       0       0       0       0												
35 to 39	65,354	95,829	122,102	127,684	131,762	0	0	0	0	0	118,543		
40 to 44	0	102,333	120,278	128,015	135,752	132,196	0	0	0	0	127,486		
45 to 49	116,354	99,000	122,517	125,602	130,177	144,958	162,421	0	0	0	134,873		
50 to 54	157,226	131,934	120,524	125,349	126,382	137,106	156,422	145,165	0	0	138,843		
55 to 59	122,470	98,008	126,835	131,000	129,819	130,774	142,233	153,447	172,800	0	135,750		
60 to 64	0	162,482	123,306	123,899	130,023	126,401	140,273	138,889	0	0	133,707		
65 to 69	0	0	0	144,779	0	123,840	159,995	0	0	0	138,113		
70 and up	0	0	0	0	0	0	0	0	0	0	0		
Avg. Salary	\$ 129,169	\$ 93,017	\$ 118,718	\$ 127,258	\$ 131,180	\$ 138,962	\$ 153,442	\$ 148,132	\$ 172,800	\$ 0	\$ 120,626		



	Table A-12 Distribution of Active Members as of July 1, 2017 Count By Age/Service - Fire											
	Years of Service											
Age	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	Total	
Under 25	8	5	0	0	0	0	0	0	0	0	13	
25 to 29	21	62	1	0	0	0	0	0	0	0	84	
30 to 34	20	139	41	5	0	0	0	0	0	0	205	
35 to 39	14	90	47	63	9	0	0	0	0	0	223	
40 to 44	5	35	43	59	64	4	0	0	0	0	210	
45 to 49	1	14	19	53	147	92	23	2	0	0	351	
50 to 54	0	2	9	28	108	88	79	4	0	0	318	
55 to 59	0	2	3	8	43	24	69	9	0	0	158	
60 to 64	0	0	2	2	9	3	14	3	2	0	35	
65 to 69	0	1	0	0	0	2	6	0	1	2	12	
70 and up	0	0	0	0	0	0	0	0	0	0	0	
Total Count	69	350	165	218	380	213	191	18	3	2	1,609	

					Di	istribution of Average	Table A f Active Men Salary By A Years of	mber Age/	Service							
Age		Under 1		1 to 4	5 to 9	10 to 14			0 to 24		25 to 29	30 to 34	35 to 39	40 and up		Total
Under 25	\$	62,632	\$	80,691	\$ 0	\$ 0	\$ 0	\$	0	\$	0	\$ 0	\$ 0	\$ 0	\$	69,578
25 to 29		65,209		83,022	86,528	0	0		0		0	0	0	0		78,610
30 to 34	69,813 88,078 117,780 107,069 0 0 0 0 0 0 0													92,699		
35 to 39		70,724		91,151	118,910	139,263	134,689		0		0	0	0	0		111,069
40 to 44	64,595       88,126       116,385       139,550       141,391       135,263       0       0       0       0													124,931		
45 to 49		68,878		92,325	119,025	134,013	139,746	14	48,868		169,132	133,055	0	0		139,944
50 to 54		0		59,637	125,828	129,954	140,105	1	51,531		162,771	143,331	0	0		147,135
55 to 59		0		103,521	124,432	142,001	138,074	1	42,677		165,584	159,500	0	0		151,510
60 to 64		0		0	93,121	147,425	134,270	14	48,973		164,437	191,375	189,972	0		154,075
65 to 69		0		45,000	0	0	0	1	42,599		146,224	0	147,336	166,686		140,688
70 and up		0		0	0	0	0		0		0	0	0	0		0
Avg. Salary	\$	67,372	\$	87,844	\$ 117,954	\$ 136,306	\$ 139,686	\$ 14	48,958	\$	164,155	\$ 158,281	\$ 175,760	\$ 166,686	\$	127,062

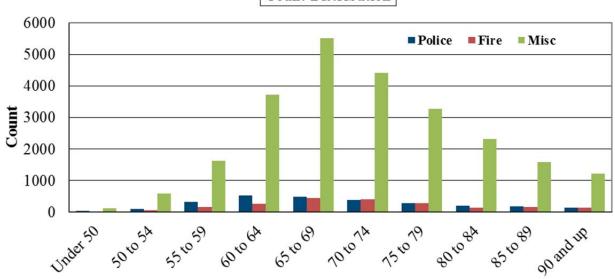


	Table A-14 Distribution of Active Members as of July 1, 2017 Count By Age/Service - Miscellaneous												
					Years of S	Service							
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up	Total		
Under 25	203	97	0	0	0	0	0	0	0	0	300		
25 to 29	525	994	80	0	0	0	0	0	0	0	1,599		
30 to 34	596	1,700	614	74	0	0	0	0	0	0	2,984		
35 to 39	432	1,542	931	477	72	1	0	0	0	0	3,455		
40 to 44	303	1,121	885	666	419	53	0	0	0	0	3,447		
45 to 49	304	981	817	806	853	308	54	0	0	0	4,123		
50 to 54	232	798	738	745	977	538	329	67	5	0	4,429		
55 to 59	169	647	578	678	996	574	526	432	80	0	4,680		
60 to 64	87	338	392	470	735	396	352	352	72	10	3,204		
65 to 69	16	94	141	172	242	121	113	99	22	18	1,038		
70 and up	12	23	26	47	64	46	28	17	10	13	286		
Total Count	2,879	8,335	5,202	4,135	4,358	2,037	1,402	967	189	41	29,545		

	Table A-15 Distribution of Active Members as of July 1, 2017 Average Salary By Age/Service - Miscellaneous																	
Years of Service Age 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										Total								
	¢		¢		¢				¢		¢		¢				-	
Under 25	\$	- ,	\$	54,339	\$	0	\$		\$	0	\$	0	\$			\$	\$ 0	\$ 59,547
25 to 29		71,263		68,766		83,162		0		0		0		0	0	0	0	70,306
30 to 34		79,199		77,924		88,472		93,635		0		0		0	0	0	0	80,739
35 to 39		79,457		82,034		91,895		93,988		94,443		83,554		0	0	0	0	86,278
40 to 44		81,332		81,507		94,558		100,765		98,187		100,931		0	0	0	0	90,890
45 to 49		77,633		81,557		87,423		100,528		101,107		105,068		97,292	0	0	0	92,146
50 to 54		83,133		81,956		85,636		94,257		96,898		102,597		105,301	107,509	102,651	0	92,647
55 to 59		79,513		80,039		88,878		93,023		90,892		97,165		104,553	101,924	98,021	0	92,486
60 to 64		79,331		80,473		87,264		87,605		88,222		99,148		104,490	103,980	96,280	90,892	92,014
65 to 69		65,144		74,747		85,176		87,489		94,357		93,014		102,338	98,708	112,526	103,676	91,419
70 and up		58,089		84,302		82,696		88,501		97,480		95,902		96,878	97,134	99,852	99,151	91,773
Avg. Salary	\$	76,813	\$	78,862	\$	89,307	\$	95,180	\$	94,837	\$	99,996	\$	104,101	\$ 102,646	\$ 99,265	\$ 99,123	\$ 88,734



	Table A-16 Distribution of Retirees, Disabled Members, and Beneficiaries as of July 1, 2017 Count									
Age	Police	Fire	Misc	Total						
Under 50	41	25	122	188						
50 to 54	88	58	582	728						
55 to 59	320	159	1,622	2,101						
60 to 64	534	269	3,732	4,535						
65 to 69	476	439	5,526	6,441						
70 to 74	383	400	4,428	5,211						
75 to 79	282	279	3,278	3,839						
80 to 84	203	139	2,328	2,670						
85 to 89	182	162	1,576	1,920						
90 and up	139	145	1,210	1,494						
Total	2,648	2,075	24,404	29,127						

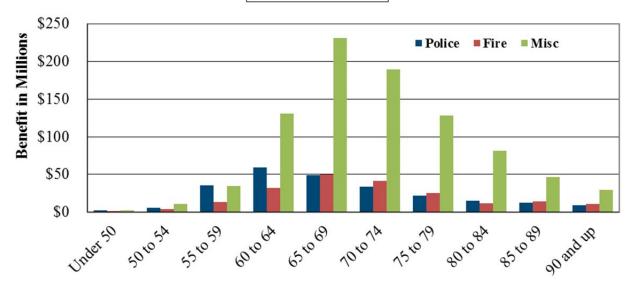


**Count Distribution** 



	Table A-17 Distribution of Retirees, Disabled Members, and Beneficiaries as of July 1, 2017 Annual Benefit *										
Age Police Fire Misc Total											
Under 50	\$	2,535,064	\$	1,519,740	\$	2,494,911	\$	6,549,716			
50 to 54		6,048,165		3,568,718		10,532,310		20,149,193			
55 to 59	35,718,349 13,455,611 34,731,551 83,905,512										
60 to 64		59,375,755		31,622,109		130,768,070		221,765,934			
65 to 69		48,758,285		49,823,998		230,982,551		329,564,834			
70 to 74		33,365,203		41,401,994		189,176,274		263,943,472			
75 to 79		21,878,531		25,639,203		127,858,631		175,376,365			
80 to 84		15,390,126		11,851,065		81,391,106		108,632,296			
85 to 89		12,332,159		14,158,028		46,897,739		73,387,926			
90 and up		8,733,561		11,068,777		29,352,675		49,155,014			
Total	\$	244,135,199	\$	204,109,245	\$	884,185,818	\$	1,332,430,262			

\* Benefits used in the July 1, 2017 actuarial valuation



**Benefit Distribution** 



# **APPENDIX A – MEMBERSHIP INFORMATION**

			Table A					
		Summary	and Reconciliat	ion of Participan	t Data			
			Total Sy	stem				
		Vested		Non-Vested				
	Active	Terminated	Reciprocal	Terminated	Disabled	Retired	Beneficiaries	Totals
Participants as of 7/1/2016	32,406	2,005	1,028	4,612	2,593	21,761	3,932	68,337
New Entrants	3,448	0	1	412	0	0	0	3,861
Returned to Work	194	(52)	(6)	(132)	0	(4)	0	0
Vested Terminations	(295)	295	0	0	0	0	0	0
Reciprocals	(13)	(4)	50	(33)	0	0	0	0
Non Vested Terminations	(638)	0	0	638	0	0	0	0
Refund/Withdrawal	(322)	(37)	(5)	(173)	0	1	0	(536)
Retirements	(1,121)	(136)	(27)	(9)	0	1,292	0	(1)
Disabilities	(13)	(13)	(2)	(1)	79	(50)	0	0
Benefit Ceased*	0	0	0	0	(102)	(553)	(266)	(921)
New Continuants	0	0	0	0	0	33	249	282
New Dissolutions	0	0	0	0	0	6	0	6
Duplicate Adjustments	0	0	0	0	0	104	0	104
Miscellaneous Adjustments	(199)	5	0	4	2	(3)	53	(138)
Participants as of 7/1/2017	33,447	2,063	1,039	5,318	2,572	22,587	3,968	70,994



# **APPENDIX A – MEMBERSHIP INFORMATION**

		a	Table .					
		Summary		tion of Participan	t Data			
		<b>X</b> 7 4 <b>X</b>	Polie					
	A	Vested	Destancel	Non-Vested	D*11-1	De d'an J	Desce Catalana	
$\mathbf{P}_{\mathbf{r}}$	Active	Terminated	Reciprocal	Terminated	Disabled	Retired	Beneficiaries	Totals
Participants as of 7/1/2016	2,223	48	12	96	523	1,561	553	5,016
New Entrants	177	0	0	30	0	0	0	207
Returned to Work	1	(1)	0	0	0	0	0	0
Vested Terminations	(7)	7	0	0	0	0	0	0
Non Vested Terminations	(20)	0	0	20	0	0	0	0
Reciprocals	(1)	0	3	(2)	0	0	0	0
Refund/Withdrawal	(13)	(1)	0	(11)	0	1	0	(24)
Retirements	(67)	(3)	0	(1)	0	70	0	(1)
Disabilities	(3)	0	0	(1)	14	(10)	0	0
Benefit Ceased*	0	0	0	0	(22)	(29)	(49)	(100)
New Continuants	0	0	0	0	0	0	26	26
New Dissolutions	0	0	0	0	0	5	0	5
Transferred In (From Fire)	0	0	0	0	0	0	0	0
Transferred In (From Misc)	0	0	0	0	0	0	0	0
Transferred Out (To Fire)	0	0	0	0	0	0	0	0
Transferred Out (To Misc)	0	0	0	0	0	0	0	0
Duplicate Adjustments	0	0	0	0	0	0	0	0
Miscellaneous Adjustments	3	3	0	0	1	1	3	11
Participants as of 7/1/2017	2,293	53	15	131	516	1,599	533	5,140



# **APPENDIX A – MEMBERSHIP INFORMATION**

		Summary	Table A and Reconciliat	A-20 tion of Participan	t Data			
			Fire					
		Vested		Non-Vested				
	Active	Terminated	Reciprocal	Terminated	Disabled	Retired	Beneficiaries	Totals
Participants as of 7/1/2016	1,560	38	22	14	702	957	407	3,700
New Entrants	111	0	0	0	0	0	0	111
Returned to Work	0	0	0	0	0	0	0	0
Vested Terminations	(6)	6	0	0	0	0	0	0
Reciprocals	0	0	1	(1)	0	0	0	0
Non Vested Terminations	(7)	0	0	7	0	0	0	0
Refund/Withdrawal	0	(1)	0	0	0	0	0	(1)
Retirements	(49)	(5)	(1)	0	0	55	0	0
Disabilities	(1)	(2)	0	0	8	(5)	0	0
Benefit Ceased*	0	0	0	0	(22)	(19)	(34)	(75)
New Continuants	0	0	0	0	0	0	19	19
New Dissolutions	0	0	0	0	0	1	0	1
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
Duplicate Adjustments	0	0	0	0	0	0	0	0
Miscellaneous Adjustments	1	0	0	(3)	0	0	6	4
Participants as of 7/1/2017	1,609	36	22	17	688	989	398	3,759



# **APPENDIX A – MEMBERSHIP INFORMATION**

		Summora	Table A	A-21 ion of Participan	t Doto			
		Summary	Miscella		i Data			
		Vested	in the contra	Non-Vested				
	Active	Terminated	Reciprocal	Terminated	Disabled	Retired	Beneficiaries	Totals
Participants as of 7/1/2016	28,623	1,919	994	4,502	1,368	19,243	2,972	59,621
New Entrants	3,160	0	1	382	0	0	0	3,543
Returned to Work	193	(51)	(6)	(132)	0	(4)	0	0
Vested Terminations	(282)	282	0	0	0	0	0	0
Reciprocals	(12)	(4)	46	(30)	0	0	0	0
Non Vested Terminations	(611)	0	0	611	0	0	0	0
Refund/Withdrawal	(309)	(35)	(5)	(162)	0	0	0	(511)
Retirements	(1,005)	(128)	(26)	(8)	0	1,167	0	0
Disabilities	(9)	(11)	(2)	0	57	(35)	0	0
Benefit Ceased*	0	0	0	0	(58)	(505)	(183)	(746)
New Continuants	0	0	0	0	0	33	204	237
New Dissolutions	0	0	0	0	0	0	0	0
Transferred In (From Fire)	0	0	0	0	0	0	0	0
Transferred In (From Police)	0	0	0	0	0	0	0	0
Transferred Out (To Fire)	0	0	0	0	0	0	0	0
Transferred Out (To Police)	0	0	0	0	0	0	0	0
Duplicate Adjustments	0	0	0	0	0	104	0	104
Miscellaneous Adjustments	(203)	2	0	7	1	(4)	44	(153)
Participants as of 7/1/2017	29,545	1,974	1,002	5,170	1,368	19,999	3,037	62,095



## **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 6/30/2017 is equal to "Covered Pay" reported for members hired before the beginning of the previous plan year, and the maximum of "Covered Pay" and "Calculated 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 for the fiscal year ending 6/30/2018 is equal to 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). The wage inflation by group is:
  - o 2.0% for Fire and Police
  - 3.0% for all Miscellaneous members
- Benefits in the valuation data for members in pay status for the Miscellaneous and New Safety Charters include the Basic COLA effective July 1, 2017.
- Based on the latest MOUs and data provided by SFERS, the Basic COLA effective July 1, 2017 for the Old Safety Charter members in pay status was estimated and included in the benefit.
- Supplemental COLA benefits were granted as of July 1, 2017. 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%.
- 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 Active if they have a status of "AM" or "RT" which mean active, no "Job End Date or the "Job End Date" is after 6/30/2017, and do not have a retiree record and their "Cvd Pay" is greater than \$0.



- 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 6/30/2017, 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 all Miscellaneous and Safety Prop C members. The assumed retirement age for Safety non-Prop C members is 51.
- For Safety members, Final Average Compensation is determined using the greater of data fields "Cvd Pay" or "Calc Pay." If both these fields are \$0, then the pay "Rate" field is used and annualized based on the compensation frequency "Cmp Frq."
- 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 age 55 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 officer). We value each component of a member's benefit separately under the applicable Charter section. Consequently, the 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 were adopted at the November 18, 2015 Board meeting based on our recommendations. Please refer to the demographic experience study report dated June 4, 2015 for the rationale for the demographic assumptions. The economic assumptions were adopted at the November 8, 2017 Board meeting based on our recommendations. Both the inflation and wage inflation assumption were decreased by 0.25%. Please refer to the economic assumption review presentation dated November 8, 2017 for the rationale for the economic assumptions.

## 1. Discount Rate

SFERS assets are assumed to earn 7.50% net of investment expenses.

## 2. Inflation

Wage Inflation: 3.50% compounded annually Consumer Price Inflation: 3.00% compounded annually

## 3. Interest Credited to Member Contributions

4.50%, compounded annually.

## 4. 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.

## 5. 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 2015. The projected increase in the 415(b) limit for retirees is the same increase as their Basic COLA which depends on their Charter.

## 6. Salary Increase Rate

Wage inflation component: 3.50%



### **APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

The additional merit component:

			e B-1 rit Increases		
Years of			Muni		
Service	Police	Fire	Drivers	Craft	Misc
0	8.00%	15.00%	15.00%	3.50%	5.25%
1	7.00	9.00	8.00	2.50	3.75
2	6.00	6.00	2.00	1.75	2.75
3	5.00	4.25	1.00	1.00	2.00
4	4.25	3.00	0.00	0.75	1.50
5	3.50	2.25	0.00	0.55	1.25
6	3.00	1.95	0.00	0.40	1.00
7	2.50	1.80	0.00	0.30	0.85
8	2.25	1.70	0.00	0.25	0.70
9	2.00	1.65	0.00	0.20	0.55
10	1.80	1.60	0.00	0.15	0.50
11	1.60	1.55	0.00	0.10	0.45
12	1.50	1.50	0.00	0.05	0.40
13	1.50	1.50	0.00	0.00	0.35
14	1.50	1.50	0.00	0.00	0.30
15	1.50	1.50	0.00	0.00	0.25
16	1.50	1.50	0.00	0.00	0.20
17	1.50	1.50	0.00	0.00	0.15
18	1.50	1.50	0.00	0.00	0.10
19	1.50	1.50	0.00	0.00	0.05
20 & over	1.50	1.50	0.00	0.00	0.00

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

Safety	3.5%
Muni Drivers	4.5%
Craft Workers	4.5%
Miscellaneous	2.5%

### 7. Administrative Expense Assumption

There is a 0.60% of Payroll assumption included in the normal cost rates for administrative expenses.



### **APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

### 8. Timing of Contributions

Employer and employee contributions are made throughout the year.

#### 9. Cost-of-Living Increase in Benefits

### **Basic COLA**

Old Plans – Miscellaneous	2.00% per year
New Plans – Police, Fire, and Miscellaneous	2.00% per year
Old Plans – Police and Fire, Charters 8.559 and 8.585	4.20% per year
Old Plans – Police and Fire, Charters 8.595 and 8.596	3.10% per year
Old Plans – Police and Fire, pre-7/1/75 dates of retirement	2.50% per year

Old Safety COLA assumptions are based on the following formula:

(Wage Inflation + Ultimate Merit)  $\div 2 x$  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 1.67 For Charters 8.595 and 8.596, the factor is 1.25 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 2019, future Supplemental COLAs are assumed to be 0%.

For purposes of the baseline projections, future Supplemental COLAs are assumed to be:

- 0.75% for members (other than Old Safety) who are eligible for a Supplemental COLA regardless of the System's funded status, and
- 0.00% through FYE 2019 gradually increasing to 0.36% for FYE 2034 and later for members who are eligible for a Supplemental COLA if the System is also 100% funded.

For the economic scenarios, Supplemental COLAs are estimated based on the investment returns of the economic scenario.



## **APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

### **10.** Rates of Termination of Employment

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

	Table B-2         Misc. Rates of Termination by Age and Service Years         Service											
Age012345 or more												
20	37.50%	19.00%	15.00%	12.00%	9.00%	6.50%						
25	27.50	19.00	10.00	9.00	7.00	6.50						
30	24.00	14.00	9.00	9.00	7.00	5.50						
35	20.00	9.00	9.00	7.00	6.50	4.25						
40	17.50	9.00	8.00	6.00	4.50	3.00						
45	15.00	9.00	6.00	4.50	3.50	2.50						
50	15.00	9.00	6.00	4.50	3.50	2.60						
55	15.00	9.00	6.00	4.50	3.50	3.15						
60	15.00	9.00	6.00	4.50	3.50	5.00						
65	15.00	9.00	6.00	4.50	3.50	12.50						

Sample rates of termination by service for Police, Fire, Muni Drivers, and Craft members are shown on the next page. When members are eligible to retire, it is assumed that their termination rates are zero.



<b>APPENDIX B – ACTUARIAL</b>	<b>ASSUMPTIONS AND METHODS</b>
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Table B-3						
	Rates of Termination					
			Muni			
Service	Police	Fire	Drivers	Craft		
0	10.00%	4.00%	12.00%	10.00%		
1	2.50	1.50	6.00	7.00		
2	1.50	1.50	5.00	6.00		
3	1.00	1.50	4.00	5.00		
4	0.75	1.50	3.50	4.00		
5	0.75	1.50	3.25	3.25		
6	0.75	0.75	3.00	2.75		
7	0.75	0.75	3.00	2.50		
8	0.75	0.75	3.00	2.25		
9	0.75	0.75	3.00	2.00		
10	0.75	0.75	3.00	1.75		
11	0.50	0.50	3.00	1.75		
12	0.50	0.50	3.00	1.75		
13	0.50	0.50	3.00	1.75		
14	0.50	0.50	3.00	1.75		
15	0.50	0.50	3.00	1.75		
16	0.50	0.50	3.00	1.75		
17	0.50	0.50	3.00	1.75		
18	0.50	0.50	3.00	1.75		
19	0.50	0.50	3.00	1.75		
20	0.50	0.50	3.00	1.75		
21	0.00	0.00	0.00	1.75		
22	0.00	0.00	0.00	1.75		
23	0.00	0.00	0.00	1.75		
24	0.00	0.00	0.00	1.75		
25	0.00	0.00	0.00	1.75		
26	0.00	0.00	0.00	0.00		

20% of 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.



### APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

### **11. Member Refunds**

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

Table B-4						
Veste	d Terminated Rate	es of Refund				
Age	Police & Fire	Miscellaneous				
Under 25	50.0%	60.0%				
25	40.0	47.5				
30	30.0	37.5				
35	20.0	30.0				
40	15.0	22.5				
45	10.0	15.0				
50	0.0	5.0				
55 & over	0.0	0.0				

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

### **12. 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-5Rates of Disability at Selected Ages						
MuniMiscMiscAgePoliceFireDriversCraftFemalesMales							
30	0.05%	0.06%	0.01%	0.01%	0.01%	0.01%	
35	0.09	0.15	0.06	0.06	0.05	0.04	
40	0.16	0.38	0.11	0.12	0.10	0.08	
45	0.37	0.60	0.17	0.24	0.28	0.11	
50	0.79	1.20	0.75	0.44	0.55	0.30	
55	3.00	5.00	1.20	0.64	0.60	0.42	
60	6.10	12.75	0.00	0.00	0.00	0.00	
65	7.50	15.00	0.00	0.00	0.00	0.00	

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



### **APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

#### **13.** 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, 2014. The base mortality tables for healthy lives are described below.

a. Non-Annuitants - CalPERS employee mortality tables without scale BB projection

Table B-6Adjustment						
Gender	Factor	<b>Base Year</b>				
Female	0.918	2009				
Male	0.948	2009				

b. Healthy Annuitants – CalPERS healthy annuitant mortality table without scale BB projection

Table B-7Adjustment					
Gender	Factor	<b>Base Year</b>			
Female	1.014	2009			
Male	0.909	2009			

The table on the next page provides a sample of the mortality rates prior to any projection for mortality improvements.



Table B-8 Base Rates of Mortality for Healthy Lives at Selected Ages					
	Actives			Annuitants	
Age	Male	Female	Age	Male	Female
25	0.04%	0.02%	50	0.48%	0.50%
30	0.05	0.02	55	0.58	0.47
35	0.06	0.03	60	0.74	0.54
40	0.08	0.05	65	0.96	0.76
45	0.11	0.07	70	1.61	1.28
50	0.16	0.10	75	2.71	2.22
55	0.23	0.14	80	4.80	3.75
60	0.34	0.20	85	8.57	6.77
65	0.48	0.30	90	14.71	12.51
70	0.67	0.43	95	23.01	21.14
			100	31.41	32.32

### **APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

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

### 14. 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, 2014. The base mortality tables for disabled annuitant lives are described below.

a. Miscellaneous Disabled Annuitants – RP-2014 Disabled Retiree Tables without MP-2014 projection

Table B-9 Adjustment						
Gender	Factor	Base Year				
Female	1.066	2006				
Male	0.942	2006				



### **APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

b. Safety Disabled Annuitants – CalPERS industrial disability mortality table without scale BB projection

Table B-10 Adjustment					
Gender	Factor	<b>Base Year</b>			
Female	0.983	2009			
Male	0.909	2009			

The table below provides a sample of the mortality rates for members with disability retirement prior to any projection for mortality improvements.

Table B-11 Rates of Mortality for Disabled Lives at Selected Ages					
	Police a	and Fire	All Misc	ellaneous	
Age	Male	Female	Male	Female	
50	0.48%	0.49%	2.26%	1.33%	
55	0.58	0.45	2.34	1.60	
60	0.79	0.62	2.65	2.07	
65	1.30	1.05	3.42	2.70	
70	2.01	1.75	4.60	3.65	
75	3.49	2.90	6.31	5.24	
80	6.03	4.89	8.88	7.74	
85	9.44	7.82	12.92	11.57	
90	14.71	12.13	19.27	16.91	
95	23.01	20.50	26.34	24.16	
100	31.41	31.33	33.75	33.08	

## **15. Mortality Projection Scale**

The mortality rates shown in the base tables above are projected generationally from the base year using a modified version of the MP-2015 projection scale. The scale was modified using the Society of Actuaries' model implementation tool with rates converging to the ultimate rate in 2017 (instead of 2029) and an ultimate rate of improvement of 0.85% (instead of 1.0%) up to age 85 decreasing to 0.70% (instead of 0.85%) at age 95.



### **APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

Table B-12 Mortality Projection Scales Year							
]	Females     Males						
Age	2009	2013	2017+	2009	2013	2017+	
30	-0.0064	0.0031	0.0085	0.0066	0.0132	0.0085	
50	<b>50</b> 0.0036 0.0101 0.0085 0.0167 0.0170 0.0085						
70	0.0211	0.0146	0.0085	0.0227	0.0140	0.0085	
90	0.0145	0.0113	0.0078	0.0158	0.0120	0.0078	

Sample rates of improvement are shown in the table below.

### **16. Rates of Retirement**

Rates of retirement are based on age and service according to the tables on the following pages. For members hired on or after January 7, 2012 under that Charter Sections A8.603 and above (Prop C), the ultimate retirement age when the highest benefit multiplier is reached is at a later age. Thus, separate retirement rates are used for Prop C members.



Table B-13							
Rates of Retirement by Age and Service							
<b>19</b> Years of Service or less (24 or less for Safety)							
		Other tha	n Prop C				
	Muni						
Age	Police	Fire	Drivers	Craft	Misc		
50	0.0150	0.0200	0.0000	0.0000	0.0000		
51	0.0150	0.0100	0.0000	0.0000	0.0000		
52	0.0150	0.0100	0.0000	0.0000	0.0000		
53	0.0300	0.0100	0.0000	0.0000	0.0000		
54	0.0500	0.0425	0.0000	0.0000	0.0000		
55	0.0700	0.0750	0.0000	0.0000	0.0000		
56	0.0900	0.0750	0.0000	0.0000	0.0000		
57	0.0900	0.1500	0.0000	0.0000	0.0000		
58	0.0900	0.1500	0.0000	0.0000	0.0000		
59	0.0900	0.1500	0.0000	0.0000	0.0000		
60	0.0900	0.2000	0.1000	0.1000	0.1050		
61	0.0900	0.2000	0.1250	0.1000	0.1325		
62	0.0900	0.2000	0.2500	0.2000	0.2000		
63	0.0900	0.2000	0.2000	0.1500	0.1625		
64	0.0900	0.2000	0.2000	0.1500	0.1500		
65	1.0000	1.0000	0.2750	0.1500	0.2375		
66	1.0000	1.0000	0.2750	0.2500	0.2375		
67	1.0000	1.0000	0.2750	0.2500	0.2250		
68	1.0000	1.0000	0.2750	0.1500	0.2250		
69	1.0000	1.0000	0.2750	0.1500	0.2250		
70 & over	1.0000	1.0000	1.0000	1.0000	1.0000		



Table B-14					
Rates of Retirement by Age and Service					
20 - 29 Years of Service (25 to 29 for Safety)					
		Other tha			
			Muni		
Age	Police	Fire	Drivers	Craft	Misc
50	0.0500	0.0200	0.0300	0.0300	0.0275
51	0.0500	0.0200	0.0300	0.0250	0.0250
52	0.1000	0.0200	0.0300	0.0250	0.0250
53	0.2000	0.1000	0.0300	0.0400	0.0325
54	0.2200	0.2000	0.0500	0.0400	0.0400
55	0.2400	0.2250	0.0500	0.0400	0.0400
56	0.2600	0.2250	0.0500	0.0400	0.0425
57	0.2800	0.2250	0.0750	0.0400	0.0450
58	0.3000	0.2500	0.0750	0.0400	0.0500
59	0.3200	0.3000	0.1000	0.0750	0.0875
60	0.3400	0.3500	0.1000	0.1000	0.1150
61	0.3600	0.4000	0.1750	0.1500	0.2000
62	0.3600	0.4000	0.2500	0.3000	0.3250
63	0.3600	0.3000	0.3000	0.2000	0.2500
64	0.3600	0.3000	0.3500	0.2000	0.2500
65	1.0000	1.0000	0.3500	0.2750	0.3000
66	1.0000	1.0000	0.3500	0.2750	0.3000
67	1.0000	1.0000	0.3500	0.2750	0.3000
68	1.0000	1.0000	0.3500	0.2000	0.3000
69	1.0000	1.0000	0.3500	0.2000	0.3000
70 & over	1.0000	1.0000	1.0000	1.0000	1.0000



Table B-15							
Rates of Retirement by Age and Service							
30 Years of Service or more							
	Other than Prop C						
Muni							
Age	Police	Fire	Drivers	Craft	Misc		
50	0.2000	0.0200	0.0300	0.0300	0.0350		
51	0.2000	0.0200	0.0300	0.0250	0.0350		
52	0.2000	0.0200	0.0300	0.0250	0.0350		
53	0.4000	0.1000	0.0300	0.0400	0.0350		
54	0.4000	0.3500	0.0500	0.0400	0.0400		
55	0.4000	0.3500	0.1500	0.0750	0.0550		
56	0.4000	0.3500	0.1500	0.0750	0.0675		
57	0.5000	0.3500	0.1500	0.0750	0.0875		
58	0.5000	0.3500	0.1500	0.1500	0.1250		
59	0.5000	0.3500	0.1500	0.3000	0.2000		
60	0.5000	0.3500	0.2000	0.3750	0.3750		
61	0.5000	0.4000	0.3500	0.3750	0.4500		
62	0.5000	0.4000	0.3500	0.3750	0.4500		
63	0.5000	0.3000	0.3500	0.3000	0.3750		
64	0.5000	0.3000	0.3500	0.3000	0.3500		
65	1.0000	1.0000	0.4500	0.3000	0.3250		
66	1.0000	1.0000	0.4500	0.3000	0.3250		
67	1.0000	1.0000	0.4500	0.3000	0.3250		
68	1.0000	1.0000	0.4500	0.3000	0.3250		
69	1.0000	1.0000	0.4500	0.3000	0.3250		
70 & over	1.0000	1.0000	1.0000	1.0000	1.0000		



Table B-16						
Rates of Retirement by Age and Service						
19 Years	<b>19 Years of Service or less (24 or less for Safety) - Prop C</b>					
			Muni			
Age	Police	Fire	Drivers	Craft	Misc	
50	0.0150	0.0200	0.0000	0.0000	0.0000	
51	0.0150	0.0100	0.0000	0.0000	0.0000	
52	0.0150	0.0100	0.0000	0.0000	0.0000	
53	0.0300	0.0100	0.0000	0.0000	0.0000	
54	0.0500	0.0425	0.0000	0.0000	0.0000	
55	0.0700	0.0750	0.0000	0.0000	0.0000	
56	0.0900	0.0750	0.0000	0.0000	0.0000	
57	0.0900	0.1500	0.0000	0.0000	0.0000	
58	0.0900	0.1500	0.0000	0.0000	0.0000	
59	0.0900	0.1500	0.0000	0.0000	0.0000	
60	0.0900	0.2000	0.0500	0.0500	0.0750	
61	0.0900	0.2000	0.0750	0.0750	0.1000	
62	0.0900	0.2000	0.1000	0.1750	0.1750	
63	0.0900	0.2000	0.1500	0.1250	0.1250	
64	0.0900	0.2000	0.2000	0.1250	0.1250	
65	1.0000	1.0000	0.2500	0.2000	0.3000	
66	1.0000	1.0000	0.2500	0.2500	0.2375	
67	1.0000	1.0000	0.2500	0.2500	0.2250	
68	1.0000	1.0000	0.2500	0.1500	0.2250	
69	1.0000	1.0000	0.2500	0.1500	0.2250	
70 & over	1.0000	1.0000	1.0000	1.0000	1.0000	



Table B-17						
Rates of Retirement by Age and Service						
20 - 29	20 - 29 Years of Service (25 to 29 for Safety) - Prop C					
			Muni			
Age	Police	Fire	Drivers	Craft	Misc	
50	0.0500	0.0200	0.0000	0.0000	0.0000	
51	0.0500	0.0200	0.0000	0.0000	0.0000	
52	0.1000	0.0200	0.0000	0.0000	0.0000	
53	0.1500	0.0500	0.0300	0.0300	0.0325	
54	0.1750	0.1500	0.0300	0.0300	0.0400	
55	0.2000	0.1750	0.0300	0.0300	0.0400	
56	0.2400	0.1750	0.0300	0.0300	0.0425	
57	0.2600	0.1750	0.0300	0.0300	0.0450	
58	0.3000	0.2500	0.0300	0.0300	0.0500	
59	0.3200	0.3000	0.0500	0.0300	0.0875	
60	0.3400	0.3500	0.1000	0.0750	0.1000	
61	0.3600	0.4000	0.1250	0.1250	0.1500	
62	0.3600	0.4000	0.1500	0.2500	0.2500	
63	0.3600	0.3000	0.2000	0.1750	0.2000	
64	0.3600	0.3000	0.2500	0.1750	0.2000	
65	1.0000	1.0000	0.3000	0.3250	0.4000	
66	1.0000	1.0000	0.3000	0.2750	0.3000	
67	1.0000	1.0000	0.3000	0.2750	0.3000	
68	1.0000	1.0000	0.3000	0.2000	0.3000	
69	1.0000	1.0000	0.3000	0.2000	0.3000	
70 & over	1.0000	1.0000	1.0000	1.0000	1.0000	



### **APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

Table B-18						
Rates of Retirement by Age and Service						
	<b>30 Years of Service or more - Prop C</b>					
			Muni			
Age	Police	Fire	Drivers	Craft	Misc	
50	0.1000	0.0200	0.0000	0.0000	0.0000	
51	0.1500	0.0200	0.0000	0.0000	0.0000	
52	0.2000	0.0200	0.0000	0.0000	0.0000	
53	0.2500	0.1000	0.0300	0.0300	0.0325	
54	0.3000	0.2000	0.0500	0.0300	0.0400	
55	0.3500	0.2500	0.1000	0.0500	0.0400	
56	0.3500	0.3000	0.1000	0.0500	0.0425	
57	0.4500	0.3000	0.1000	0.0500	0.0450	
58	0.5000	0.3500	0.1000	0.1000	0.0750	
59	0.5000	0.3500	0.1000	0.1500	0.1000	
60	0.5000	0.3500	0.1500	0.2000	0.1500	
61	0.5000	0.4000	0.2000	0.2000	0.2000	
62	0.5000	0.4000	0.3000	0.3000	0.3000	
63	0.5000	0.3000	0.2500	0.2500	0.2500	
64	0.5000	0.3000	0.2500	0.2500	0.2500	
65	1.0000	1.0000	0.5000	0.4000	0.4000	
66	1.0000	1.0000	0.4500	0.3000	0.3250	
67	1.0000	1.0000	0.4500	0.3000	0.3250	
68	1.0000	1.0000	0.4500	0.3000	0.3250	
69	1.0000	1.0000	0.4500	0.3000	0.3250	
70 & over	1.0000	1.0000	1.0000	1.0000	1.0000	

The assumed retirement age is 55 for Safety Prop C and all Miscellaneous inactive terminated vested members and actives who are expected to terminate; and, age 51 for Non-Prop C Safety inactive terminated vested members and actives who are expected to terminate.

### **17. 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 four years younger than the member and spouses of female members are assumed to be two years older than the member.



Table B-19				
Percentage Married				
Safety Males	85%			
Safety Females	55			
Miscellaneous Males	75			
Miscellaneous Females	52			

### **APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

### **18. Deferred Member Benefit**

The benefit was estimated based on information provided by SFERS staff. The data used to value the estimated 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. For non-Prop C members, vested terminated members for the miscellaneous group are assumed to retire at age 55 and the safety group at age 51. All Prop C terminated vested members are assumed to begin receiving their benefit at age 55. 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.

### 19. Other

The contribution requirements and benefit values of a plan are calculated by applying actuarial assumptions to the benefit provisions and member information, using the actuarial funding methods described in the following section.

Actual experience of SFERS will not coincide exactly with assumed experiences, regardless of the choice of the assumptions, the skill of the actuary or the precision of the many calculations made. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of adjustments to the computed contribution rate. From time to time, it becomes appropriate to modify one or more of the assumptions, to reflect experience trends, but not random year-to-year fluctuations.

### 20. Changes Since Last Valuation

Wage Inflation: 3.75% to 3.50% compounded annually Consumer Price Inflation: 3.25% to 3.00% compounded annually

Old Plans – Police and Fire, Charters 8.559 and 8.585	4.4% to 4.2% per year
Old Plans – Police and Fire, Charters 8.595 and 8.596	3.3% to 3.1% per year
Old Plans – Police and Fire, pre-7/1/75 dates of retirement	2.7% to 2.5% per year



## **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 adopted by the Board at their August 13, 2014 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 (7.50% for the years ending 2015, 2016, and 2017, 7.58% for the years ending 2013 and 2014, and 7.66% for the year ending 2012) 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 7/1/2014 has been amortized over 20 years from the date it was first recognized in the valuation. After 7/1/2014, 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.

Prior to 7/1/2014, the portion of the UAL not attributable to charter changes was amortized over a rolling 15-year period. After 7/1/2014, any sources of UAL due to actuarial gains and losses, assumption changes, or method changes are amortized over a



## **APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

closed, layered 20-year periods. 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.

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.

The amortization payment on the 2015 assumption changes is being phased in over a five-year period. The phase-in is calculated by multiplying the normal first year amortization payment by 20 percent. For the second year, the amortization schedule is recalculated reflecting the 20 percent payment in the first year and the remaining 19-year period. The recalculated amortization payment is then multiplied by 40 percent. The process is repeated until the full amortization payment is made beginning in the fifth year of the 20-year period.

## 4. Changes Since Last Valuation

None.



# 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.



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

## 5. Service Retirement

## <u>Eligibility</u>

Age 50 with 25 years of Credited Service.

# <u>Benefit – Member</u>

## 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-1City and County of San Francisco Employees' Retirement SystemSections 8.595 (Police) and 8.596 (Fire) – Service Retirement Factors		
Retirement Age Retirement Factor		
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.



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

## 6. Non-Industrial Disability

## **Eligibility**

10 years of Credited Service.

# <u>Benefit – Member</u>

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 8.596.

*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.

## <u>Benefit – Member</u>

## 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.



## 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. <u>Less than 10 Years of Credited Service, or No Qualified Survivor</u> Lump sum benefit equal to the accumulated refund of all employee contributions with interest, plus six months' salary to a designated beneficiary.
- b. <u>At least 10 but less than 25 years of Credited Service</u> 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. <u>At Least 25 Years of Credited Service but Less than Age 50</u> 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. <u>Eligible for Service Retirement</u> 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. <u>No Qualified Survivor</u> – 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.



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

- b. <u>Qualified Survivor and Not Eligible for Service Retirement</u> 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. <u>Qualified Survivor and Eligible for Service Retirement</u> 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.



## 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

For members who worked after November 6, 1996, and before Proposition C passed in 2012, the full funding requirement for the Supplemental COLA was eliminated due to a State Appeals Court decision.



# 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.



# 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.



## 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)

# <u>Benefit – Member</u>

#### 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         Detirement Age		
Retirement Age 50	Retirement Factors 2.00%	
50	2.14%	
52	2.28%	
53	2.42%	
54	2.56%	
55 or above	2.70%	



## 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-3City and County of San Francisco Employees' Retirement SystemSections 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-4City and County of San Francisco Employees' Retirement SystemSections 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%		



## 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-5City and County of San Francisco Employees' Retirement SystemSection 8.610 (Miscellaneous Safety) – Service Retirement FactorsRetirement AgeRetirement 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.

## <u>Benefit – Member</u>

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.



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

## 7. Industrial Disability

## **Eligibility**

No age or service requirement.

## <u>Benefit – Member</u>

#### 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. <u>Less than 10 Years of Credited Service, or No Qualified Survivor</u> Lump sum benefit equal to the accumulated refund of all employee contributions with interest, plus six months' salary to a designated beneficiary.
- b. <u>At least 10 but less than 25 years of Credited Service</u> 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. <u>At Least 25 Years of Credited Service but Less than Age 50</u> 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.



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

d. <u>Age 50 with 25 Years of Credited Service</u> – 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. <u>No Qualified Survivor</u> 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. <u>Qualified Survivor and Age 50 with 25 Years of Service</u> 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.



## 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

For members who worked after November 6, 1996, and before Proposition C passed in 2012, the full funding requirement for the Supplemental COLA was eliminated due to a State Appeals Court decision.



#### APPENDIX C – SUMMARY OF PLAN PROVISIONS (DROP PROVISIONS)

# **III.** Deferred Retirement Option Program (DROP) – Charter Section 8.900

## Effective Date – July 1, 2008 through June 30, 2011

Section 8.900 – effective July 1, 2008 through June 30, 2011. DROP sunsets on June 30, 2011. The Board of Supervisors voted not to renew DROP.

## 1. Membership Requirement

Active, full duty sworn officers occupying one of the eligible ranks: Police Officer, Sergeant, Inspector, Lieutenant, or Captain.

# 2. Eligibility

Age 50 with 25 years of Credited Service as a sworn member, including any service as a member of the San Francisco Airport Police. To participate, the member must agree to terminate employment through retirement at the end of their participation in DROP. No member shall be eligible for a promotion during their participation in DROP.

# 3. Length of DROP period

Once a member enters DROP, participation continues until either termination of employment or the maximum DROP participation period has been reached.

Rank	Maximum DROP Period
Police Officer	36 months
Sergeant/Inspector	24 months
Lieutenant/Captain	12 months

## 4. DROP Benefit

## **DROP** Account Balance

The service pension, which is calculated based on age, compensation, and length of service as of their date of entry into the Program, is credited monthly into a DROP Account including any Basic or Supplemental Cost-of-Living Adjustments. The DROP Account is also credited on a monthly basis with interest at an annual effective rate of 4% throughout the member's DROP period.



## APPENDIX C – SUMMARY OF PLAN PROVISIONS (DROP PROVISIONS)

#### **Retirement Benefit**

At the end of the DROP period, a lump sum distribution of the DROP Account Balance will be made and monthly retirement benefits will commence based on the initial DROP benefit calculated based on age, compensation, and service at the date of entry into DROP including any cost-of-living adjustments to which the member would otherwise be entitled.

## 5. Employee Contributions while in DROP

The member still makes employee contributions into the retirement system which are deemed contributions to the general assets of SFERS, and shall not be part of the member's DROP Account.

# 6. Effect of Disability on DROP participation

# Duty Related Disability

The Member will receive an industrial disability benefit as though the participant was never enrolled in DROP. Service, compensation, and age at the time of disability will be used to calculate the disability benefit. The DROP Account will be waived.

## Non-Duty Related Disability

Member will terminate participation in DROP and is paid the balance in their DROP Account. They will begin receiving a monthly payment equal to the service retirement benefit determined as of the DROP entry date including any cost-of-living adjustments to which the member would otherwise be entitled.

# 7. Effect of Member Death on DROP participation

## **Duty Related Death**

The member's qualified surviving spouse, domestic partner, or other qualified dependent will receive a death allowance as though the participant was never enrolled in DROP. Service, compensation, and age at the time of death will be used to calculate the benefit. The DROP Account will be waived. The qualified spouse, domestic partner, or qualified dependent may elect to receive a non-work related death benefit specified below instead.

## Non-Duty Related Death

Participation in DROP is terminated and the balance in the Member's DROP Account is paid to the Member's beneficiary. In addition, any qualified survivor will begin receiving a post-retirement continuation allowance determined on the basis of beneficiary elections made by the member at the time of entry into DROP including any cost-of-living adjustments to which the Member would otherwise be entitled.

## 8. Changes in this Valuation

None.



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

#### IV. 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.



#### 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.



#### 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.

#### <u>Benefit – Member</u>

#### 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-6City and County of San Francisco Employees' Retirement SystemSection 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.



#### 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-7City and County of San Francisco Employees' Retirement SystemSection 8.603 Member Service Retirement Factors			
Retirement Retirement			
Retirement Age	Factors	Retirement Age	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%		

## <u>Benefit – Survivor</u>

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

## 6. Disability

## **Eligibility**

10 years of Credited Service.

## <u>Benefit – Member</u>

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.



## 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 ten 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 ten 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.



#### 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

For members who worked after November 6, 1996, and before Proposition C passed in 2012, the full funding requirement for the Supplemental COLA was eliminated due to a State Appeals Court decision.



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

# V. 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.

	Adjustment to Employee Contribution Rate		
Net Employer 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-San José.

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



#### 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.



# **APPENDIX D – 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 D – 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).





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