



San Joaquin County Employees' Retirement Association

**Actuarial Valuation
as of January 1, 2016**

Produced by Cheiron

November 2016

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November 7, 2016

Retirement Board of San Joaquin
County Employees' Retirement Association
6 South El Dorado Street, Suite 400
Stockton, CA 95202

Dear Members of the Board:

At your request, we have conducted an actuarial valuation of the San Joaquin County Employees' Retirement Association (SJCERA, the System, the Fund, the Plan) as of January 1, 2016. This report contains information on the System's assets and liabilities and discloses employer and employee contribution levels. It also contains schedules for inclusion in the Actuarial Section of the Comprehensive Annual Financial Report (CAFR). Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report.

The purpose of this report is to present the results of the annual actuarial valuation of SJCERA. This report is for the use of the Retirement Board of SJCERA and its auditors in preparing financial reports in accordance with applicable law and accounting requirements.

Cheiron's report was prepared solely for the Retirement Board of SJCERA for the purposes described herein, except that the plan auditor may rely on this report solely for the purpose of 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.

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 which 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.

Sincerely,
Cheiron



Graham Schmidt, ASA, FCA, MAAA, EA
Consulting Actuary



Anne Harper, FSA, MAAA, EA
Consulting Actuary

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

FOREWORD

Cheiron has performed the actuarial valuation of the San Joaquin County Employees' Retirement Association as of January 1, 2016. The valuation is organized as follows:

- In Section I, the **Executive Summary**, we describe the purpose of an actuarial valuation, summarize the key results found in this valuation and disclose important trends;
- The **Main Body** of the report presents details on the System's
 - Section II - Assets
 - Section III - Liabilities
 - Section IV- Contributions
 - Section V- Additional CAFR Schedules
- In the **Appendices** we conclude our report with detailed information describing plan membership (Appendix A), actuarial assumptions and methods employed in the valuation (Appendix B), a summary of pertinent plan provisions (Appendix C), a 401(h) repayment schedule (Appendix D), a glossary of key actuarial terms (Appendix E), a summary of General and Safety Employer contribution rates (Appendix F), and tables containing member contribution rates (Appendix G).

The results of this report rely on future plan experience conforming to the actuarial assumptions. To the extent that actual plan experience deviates from these assumptions, the results would vary accordingly.

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

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION I – EXECUTIVE SUMMARY

The primary purpose of the actuarial valuation and this report is to measure, describe, and identify the following as of the valuation date:

- The financial condition of the System,
- Past and expected trends in the financial progress of the System, and
- Employer and employee contribution rates for Plan Year 2017.

In previous years, the valuation report included information required by the Government Accounting Standards Board (GASB). The information required under the new GASB standards (Nos. 67 and 68) is now included in a separate report, with the report for the Plan's Fiscal Year Ending December 31, 2015 provided to SJCERA in May 2016.

In the balance of this Executive Summary, we present (A) the basis upon which this year's valuation was completed, (B) the key findings of this valuation including a summary of all key financial results, (C) an examination of the historical trends, and (D) the projected financial outlook for the System.

A. Valuation Basis

This valuation determines the employer contributions for the Plan Year 2017.

The System's funding policy is to contribute an amount equal to the sum of:

- The normal cost under the Entry Age Normal Cost Method,
- Amortization of the unfunded actuarial liability (UAL), and
- A portion of the Fund's expected administrative expenses.

At the July 24, 2015 board meeting, the SJCERA Board of Retirement made a change to the funding policy, choosing to amortize any new unexpected changes in the UAL over a period of 15 years as a level percent of pay, with new amortization layers each year. The single equivalent amortization period for these streams of payments is 19 years. The amortization period for each layer of the remaining UAL will decrease each year. Prior to this change, all UAL, other than the extraordinary loss from 2008, was being amortized over a closed period of 19 years as a level percentage of member payroll.

This valuation was prepared based on the plan provisions shown in Appendix C. There have been no changes in plan provisions since the prior valuation.

An Actuarial Experience Study was performed since the last valuation, covering experience from January 1, 2013 through December 31, 2015, leading to changes in demographic and economic assumptions. A summary of the assumptions and methods used in the current valuation is shown in Appendix B.

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SECTION I – EXECUTIVE SUMMARY

B. Key Findings of this Valuation

The key results of the January 1, 2016 actuarial valuation are as follows:

- The actuarially determined employer contribution rate increased from 41.35% of payroll last year to 41.71% of payroll for 2016 before assumption changes. Assumption changes further increased the employer contribution rate from 41.71% to 42.99%.
- The System's funded ratio, the ratio of assets over actuarial liability, decreased from 66.2% last year to 65.0% as of January 1, 2016 on an Actuarial Value of Assets (AVA) basis, and from 65.6% to 60.1% on a Market Value of Assets (MVA) basis.
- The unfunded actuarial liability (UAL) is the excess of the System's actuarial liability over the Actuarial Value of Assets. The System experienced an increase in the UAL from \$1,260,343,325 to \$1,401,917,266 as of January 1, 2016.
- During the year ending December 31, 2015, the return on Plan assets was -1.92% on a market value basis, as compared to the 7.50% assumption. This resulted in a market value loss on investments of \$232,118,073. The Actuarial Value of Assets recognizes 20% of the difference between the expected actuarial value of assets and the Market Value of Assets. This method of smoothing the asset gains and losses returned 5.63% on the smoothed value of assets, an actuarial asset loss of \$46,199,967 for the year.
- The Actuarial Value of Assets is currently 108% of market value. Since actuarial assets are above market assets, there are unrecognized investment losses (approximately \$195 million) that will be reflected in the smoothed value in future years.
- The System experienced a loss on the actuarial liability of \$3,690,955. Combining the liability and asset losses, the System experienced a total loss of \$49,890,922.
- Changes in assumptions following an Actuarial Experience Study increased the Plan's liabilities by \$91,855,247.

On the following page, we present Table I-1, which summarizes all the key results of the valuation with respect to membership, assets and liabilities, and contributions. The results are presented and compared for both the current and prior plan year.

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SECTION I – EXECUTIVE SUMMARY

**TABLE I-1
Summary of Principal Plan Results**

| | January 1, 2015 | January 1, 2016 | % Change |
|--|----------------------|----------------------|--------------|
| <u>Participant Counts</u> | | | |
| Active Participants | 5,706 | 5,924 | 3.82% |
| Participants Receiving a Benefit | 5,249 | 5,435 | 3.54% |
| Terminated Vested Participants | 899 | 899 | 0.00% |
| Terminated Non-Vested Participants | <u>536</u> | <u>557</u> | 3.92% |
| Total | 12,390 | 12,815 | 3.43% |
| Annual Pay of Active Members | \$ 382,525,098 | \$ 391,328,162 | 2.30% |
| Calendar Year Projected Pay | \$ 397,636,401 | \$ 413,551,615 | 4.00% |
| <u>Assets and Liabilities</u> | | | |
| Actuarial Liability (AL) | \$ 3,731,634,372 | \$ 4,006,390,050 | 7.36% |
| Actuarial Value of Assets (AVA) | <u>2,471,291,047</u> | <u>2,604,472,784</u> | 5.39% |
| Unfunded Actuarial Liability (UAL) | \$ 1,260,343,325 | \$ 1,401,917,266 | 11.23% |
| Funded Ratio (AVA) | 66.2% | 65.0% | -1.84% |
| Funded Ratio (MVA) | 65.6% | 60.1% | -8.26% |
| Inactive Funded Ratio | 59.4% | 61.7% | 3.87% |
| <u>Contributions as a Percentage of Payroll</u> | | | |
| Normal Cost Rate | 16.86% | 15.52% | -1.34% |
| Unfunded Actuarial Liability Rate | 23.58% | 26.56% | 2.98% |
| Administrative Expense | <u>0.91%</u> | <u>0.91%</u> | 0.00% |
| Total Contribution Rate | 41.35% | 42.99% | 1.64% |

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Changes in Cost

Table I-2 below summarizes the impact of actuarial experience and changes in assumptions on Plan cost, for the Plan as a whole and for the General and Safety classes.

| TABLE I-2 Summary of Changes in Plan Cost from Prior Review | | | | | | |
|--|-----------------------|------------------|----------------------|-------------------------------|-----------------------|------------------|
| | General | | Safety | | Total | Employer |
| | General | Employer | Employer | Safety Employer | Employer | Contribution |
| | Cost | Rate (% Payroll) | Cost | Contribution Rate (% Payroll) | Cost | Rate (% Payroll) |
| January 1, 2015 | \$ 113,421,902 | 35.66% | \$ 46,080,014 | 68.06% | \$ 159,501,916 | 41.35% |
| Change in Cost Due to: | | | | | | |
| Demographic Experience | 1,380,451 | 0.32% | 1,220,437 | 1.30% | 2,600,888 | 0.52% |
| Salary Experience | (2,171,455) | (0.51%) | (910,520) | (0.97%) | (3,081,975) | (0.59%) |
| Payroll Amortization | 0 | (0.45%) | 0 | 2.51% | 0 | (0.18%) |
| New Entrants to the Plan | 4,125,637 | (0.21%) | 247,455 | (0.16%) | 4,373,092 | (0.39%) |
| Asset Experience | 3,056,970 | 0.87% | 1,089,089 | 1.68% | 4,146,059 | 1.00% |
| Assumption Changes | 5,156,191 | 1.47% | 248,565 | 0.32% | 5,404,756 | 1.28% |
| Total Cost as of January 1, 2016 | \$ 124,969,696 | 37.15% | \$ 47,975,040 | 72.74% | \$ 172,944,736 | 42.99% |

An analysis of the cost changes from the prior valuation reveals the following:

- Demographic experience was somewhat unfavorable.

The demographic experience of the Plan – rates of retirement, death, disability, and termination – was slightly worse overall than predicted by the actuarial assumptions in aggregate, causing a 0.52% increase in employer cost. Most of this increase was due to COLA increases for retirees and other members in pay status of 3.00%, higher than the expectation of 2.60%, and some new retirees having higher benefits than expected. Safety members also had more retirements than expected, while there were more pre-retirement General terminations than expected, both of which contributed to a relatively larger demographic loss for Safety versus General.

- Pay increases for returning members were below expectations.

Increases in pay among active General and Safety members during 2015 were below those anticipated by the actuarial assumptions. As a result, actuarial liabilities increased less than expected, resulting in an actuarial gain, decreasing the overall employer contribution rate by 0.59% of payroll.

- The unfunded liability is being amortized over a larger-than-expected payroll base for the General members, but over a smaller-than-expected base for Safety members.

The payroll used to amortize the unfunded liability for General members was higher than expected due to an expansion in the General member workforce, which decreased the General employer contribution rate by an additional 0.45% of pay. However, the Safety

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SECTION I – EXECUTIVE SUMMARY

workforce actually shrank – dropping from 827 to 793 active members – which reduced overall Safety projected payroll, resulting in an increase in the contribution rate by over 2.5% of pay.

The aggregate impact from the change in total projected payroll was a reduction in the contribution rate of 0.18% of pay. Note that the change in the payroll base used to amortize the unfunded liability does not change the dollar amount of the contribution – only the contribution rate calculated as a percentage of pay.

- New members entered the Plan.

During 2015, there were 763 newly hired or rehired members entering the Plan to replace departing members. New Tier 2 hires have a smaller Plan normal cost as a percentage of payroll when compared to the legacy (Tier 1) members, but they also increase the payroll on which normal cost contributions are based.

Due to the shift in both populations towards more Tier 2 members, the employer contribution rate decreased by 0.22% of payroll for General members and by 0.16% of pay for Safety members. The overall contribution rate dropped by a larger amount (0.39% of pay), because there were significantly more General new hires than Safety new hires, and the new General members have a lower expected cost.

The new members do earn additional benefits and therefore add to the normal cost of the Plan. The new members increased member payroll by \$38 million, and increased the Plan cost by about \$4.4 million.

Overall, the combined demographic and salary experience resulted in gains, for a net decrease in cost of about 0.64% of pay.

- Asset experience produced an investment loss on a market basis.

The assets of the Plan returned -1.92% on a market basis, lower than the assumed rate of 7.50%, resulting in a loss of approximately \$232 million for 2015. Under the actuarial asset smoothing policy, 20% of this loss is recognized in the current year, in addition to 20% of the gains and losses from each of the prior three years. The overall return on the smoothed assets was 5.63%, increasing the overall contribution rate by 1.00% of pay.

The contribution rate increased more for Safety members (by 1.68% of pay) than for General members (0.87% of pay) as a result of the asset loss; this is due to the fact that the Safety members have a higher ratio of assets to payroll than the General members, and is discussed further in the section on cost sensitivity below.

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- Assumption changes increased the contribution rate.

An Actuarial Experience Study covering experience between January 1, 2013 and December 31, 2015 was performed. Economic and demographic assumptions were changed, increasing the contribution rates by about 1.28% of pay. A full description of the assumption changes and the impact of each assumption change on the cost for each group and for the Plan as a whole can be found in the Experience Study Report.

Contribution Volatility

Table I-3 below shows the ratio of assets to active member payroll for SJCERA.

| TABLE I-3 Asset to Payroll Ratio as of December 31, 2015 | |
|---|---------------|
| Projected Active Member Payroll | 413,551,615 |
| Assets (Market Value Net of Non-Valuation Reserves) | 2,409,598,040 |
| Ratio of Assets to Payroll | 5.83 |
| Ratio with 100% Funding | 9.69 |

The table above shows SJCERA's assets as a percentage of projected active member payroll. This ratio indicates the sensitivity of the Plan to the returns earned on plan assets. We note in the table that plan assets currently are almost six times covered payroll for the Plan; as funding improves and the Plan reaches 100% funding, the ratio of asset to payroll will increase to over nine times payroll, perhaps higher depending on the Plan's future demographic makeup.

To appreciate the impact of the ratio of assets to payroll on plan cost, consider the situation for a new plan with almost no assets. Even if the assets suffer a bad year of investment returns, the impact on the plan cost is nil, because the assets are so small.

On the other hand, consider the situation for SJCERA. Suppose SJCERA's assets lose 10% of their value in a year. Since they are assumed to earn 7.40%, there is an actuarial loss of 17.40% of plan assets. Based on the current ratio of assets to payroll (583%), that means the loss in assets is about 101% of active payroll (583% of the 17.40% loss). There is only one source of funding to make up for this loss: additional contributions. Consequently, barring future offsetting investment gains or additional contributions by the members, the employer has to make up the asset loss in future contributions. In this example of a one-year loss of 10%, this shortfall will eventually require an additional amortization payment in the vicinity of 9.2% of payroll if amortized over 15 years.

Furthermore, consider the impact of a one-year asset loss of 10% if the Plan is 100% funded. Based on the ratio of asset to payroll at 100% funding (969%), the asset loss would be about

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION I – EXECUTIVE SUMMARY

169% of active payroll (969% of the 17.40% loss). Again, there is only one source of funding to make up for this loss: the employers. In this example, the shortfall could require an additional amortization payment of approximately 15.2% of payroll, amortized over 15 years.

Finally, we note that the ratio of both assets and liabilities to payroll, and therefore the sensitivity to investment returns, is higher for the Safety membership compared to the General members, because of the higher benefit amounts and the earlier average retirement ages for Safety. The current ratio of assets to payroll is 506% for the General members and 977% for Safety members. The 10% loss described above would translate to a loss of 88% of General pay and 170% of Safety pay, which would require amortization payment increases of 7.9% and 15.3% of General and Safety pay, respectively. Therefore the contribution rates (expressed as a percentage of payroll) for the Safety members will generally be about twice as volatile as those of the General members.

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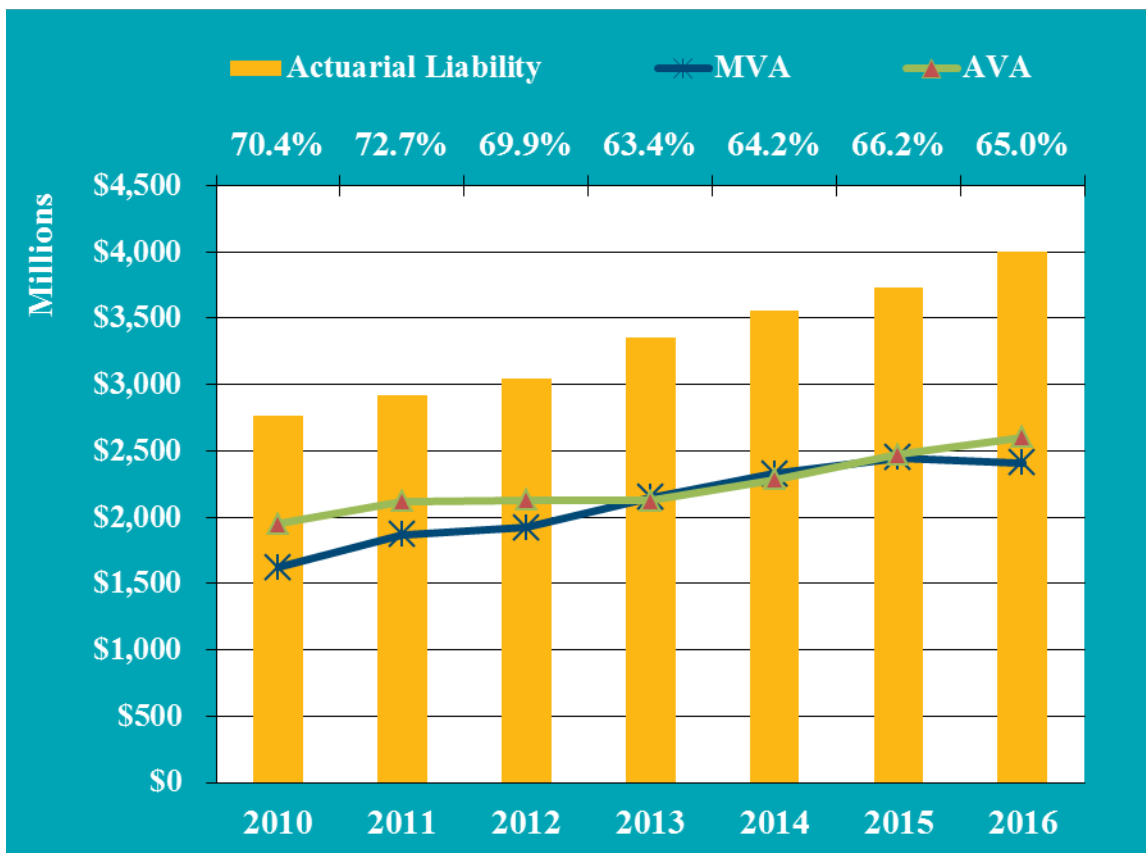
SECTION I – EXECUTIVE SUMMARY

C. Historical Trends

Despite the fact that for most retirement plans the greatest attention is given to the current valuation results and in particular, the size of the current unfunded actuarial liability and the employer contribution, it is important to remember that each valuation is merely a snapshot in the long-term progress of a pension fund. It is more important to judge a current year's valuation result relative to historical trends, as well as trends expected into the future.

Assets and Liabilities

The chart on this page compares the Market Value of Assets (MVA) and Actuarial Value of Assets (AVA) to the Actuarial Liabilities. The percentage shown at the top of each bar is the ratio of the Actuarial Value of Assets to the Actuarial Liability (the funded ratio).

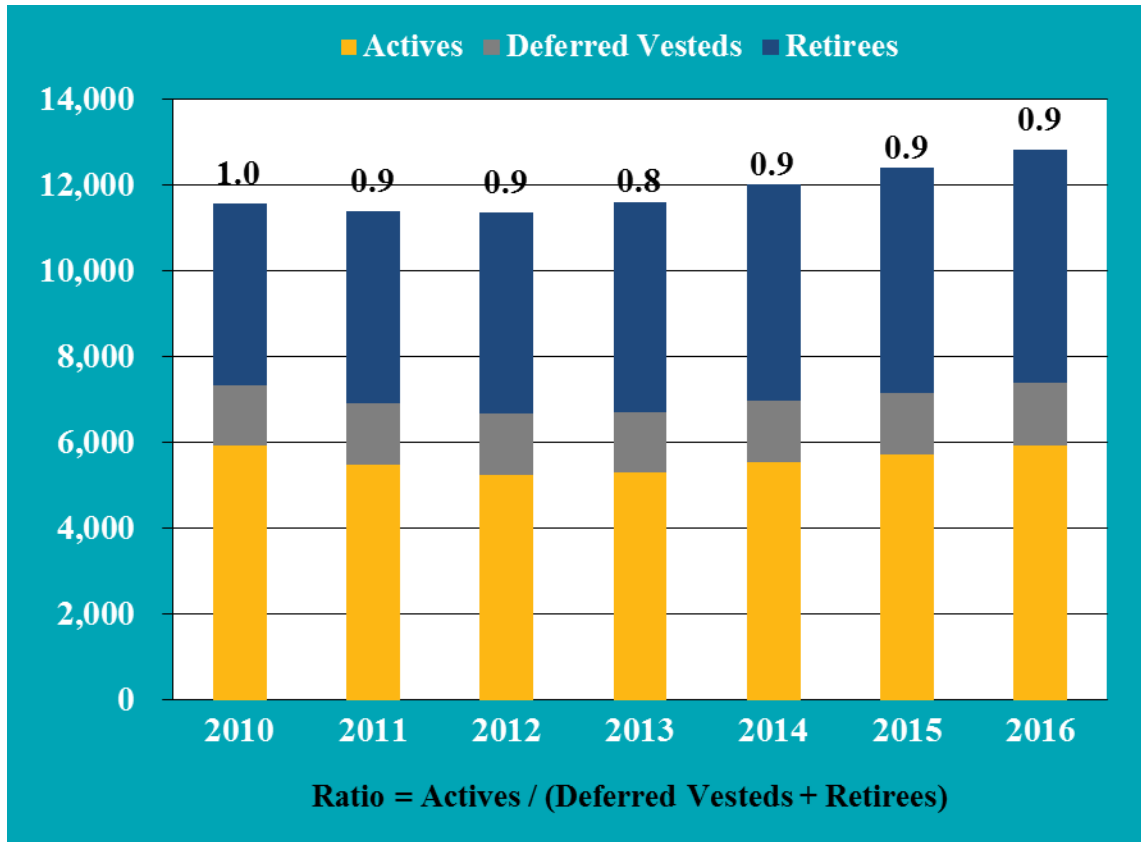


The funded ratio has declined from 70.4% in 2010 to 65.0% in 2016. The extraordinary asset loss of 2008 adversely affected the funded ratio from 2010 to 2013. In addition, for the January 1, 2013 and January 1, 2016 valuations assumption changes were made that reflected lower expected future returns on assets and improved mortality, increasing the actuarial liability, and therefore decreasing the funded ratio.

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SECTION I – EXECUTIVE SUMMARY

Participant Trends



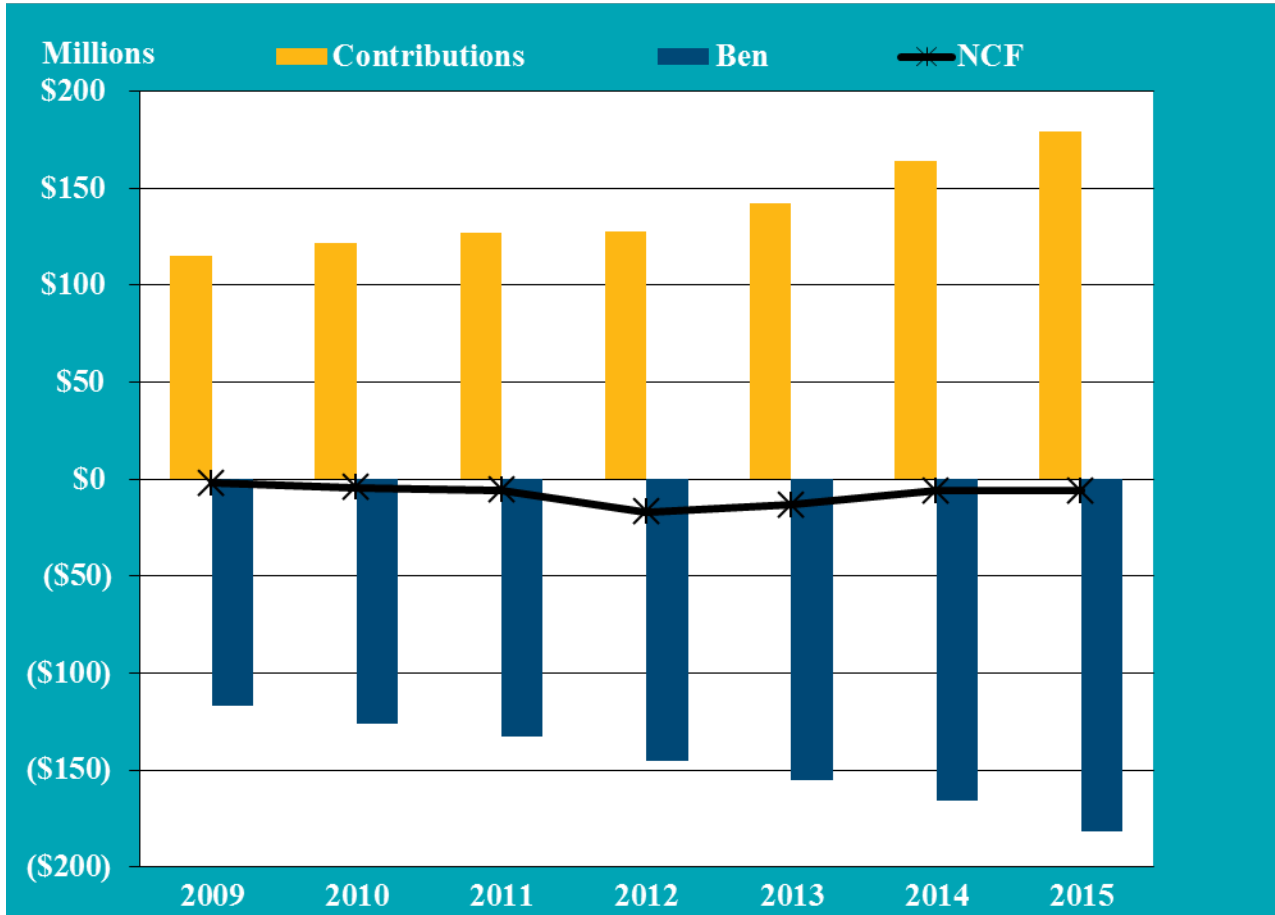
The chart above provides a measure for the maturity in the Plan by comparing the ratio of active members to inactive members (retirees and deferred vested participants). These ratios are given at the top of each bar. As the Plan matures, this ratio is expected to decrease as more employees leave the active workforce and receive benefits. The increase in inactive liabilities relative to active liabilities may result in a larger burden on the employers should assets perform poorly. The active-to-inactive ratio has decreased significantly from 2008 to 2013, but increased slightly in 2014, indicating an influx of new members to the Plan.

Cash Flows

The chart on the next page shows the Plan's cash flow (contributions less benefit payments and administrative expenses). This is a critical measure, as it reflects the ability to have funds available to meet benefit payments without having to make difficult investment decisions, especially during volatile markets.

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The contributions, benefit payments and the Plan’s net cash flow (NCF) are represented by the chart above. The NCF - shown as the black line in the chart - has slowly decreased during the period shown, but shows a slight increase the past two years, with a -\$6.1 million net cash flow this year (less than 0.3% of total plan assets). A negative net cash flow could magnify the losses during a market decline hindering the Plan in its ability to absorb market fluctuations. The implications of a plan in negative net cash flow are that the impact of market fluctuations can be more severe: As assets are being depleted to pay benefits in down markets, there is less principal available to be reinvested during favorable return periods.

D. Future Expected Financial Trends

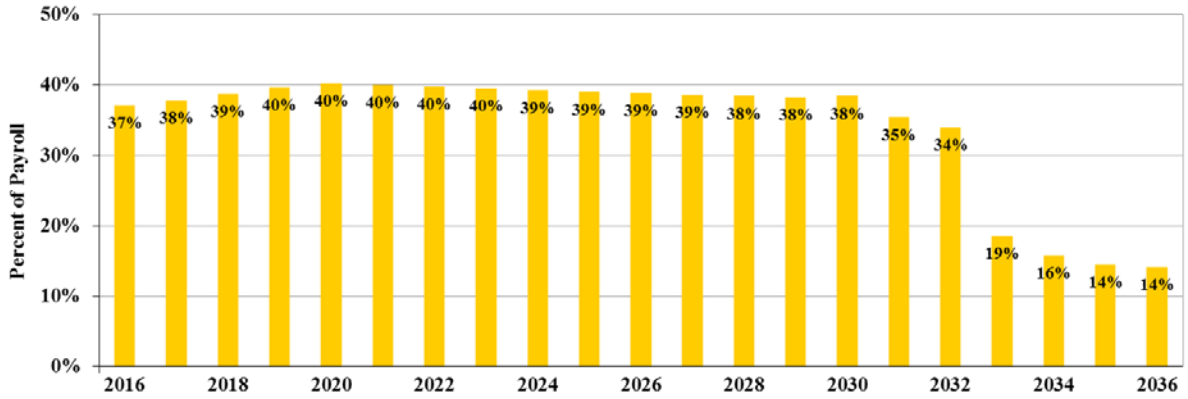
The analysis of projected financial trends is perhaps the most important component of this valuation. In this Section, we present our assessment of the implications of the January 1, 2016 valuation results in terms of benefit security (assets over liabilities). All the projections in this section are based on the current interest rate assumption of 7.40%. We have assumed future salary increases of 3.15% per year.

The following graphs show the expected employer contribution rates for General and Safety members based on actually achieving the 7.40% assumption each year for the next 20 years.

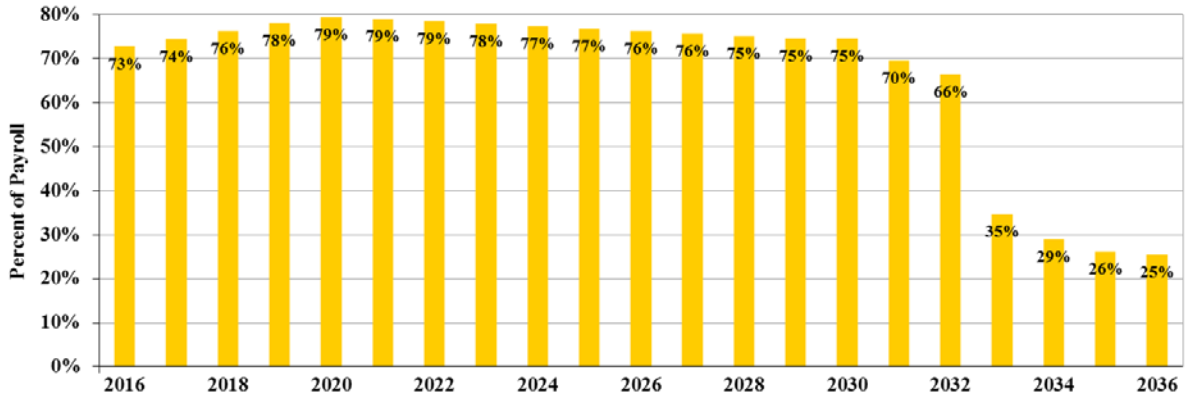
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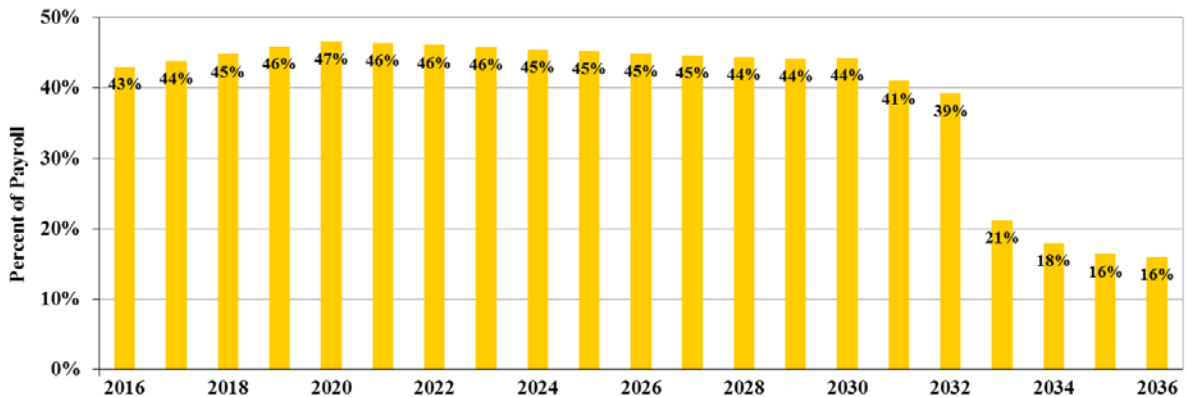
Projection of General Employer Contributions, 7.40% return each year



Projection of Safety Employer Contributions, 7.40% return each year



Projection of Total Employer Contributions, 7.40% return each year



The contribution rate graphs on the previous page show that General, Safety and Total County contributions are expected to increase over the next few years, as the deferred investment losses from the last two years are recognized. The contribution rates are then expected to decline slowly, as the existing Tier 1 membership is gradually expected to be replaced by Tier 2 new

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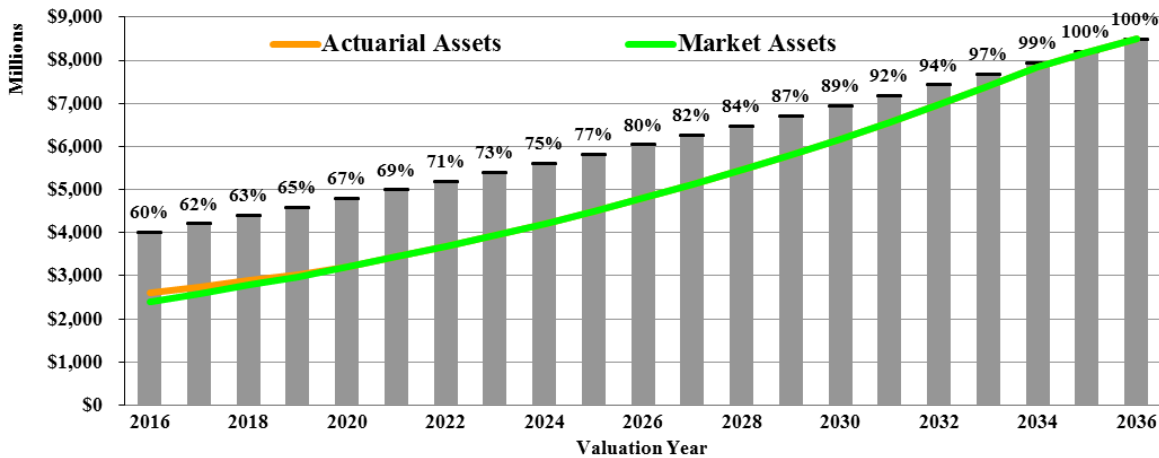
hires. The dollar contribution will be approximately \$123 million for General and \$46 million for Safety in 2016, growing to around \$163 million for General and \$63 million for Safety in five years.

Note that the graphs above do not forecast any actuarial gains or losses. Even relatively modest losses relative to the 7.4% assumed return could push the employer contribution rates even higher in the next few years.

Asset and Liability Projections:

The graph below shows the projection of SJCERA's assets and liabilities assuming that assets will earn the 7.40% assumption each year during the projection period.

Projection of Assets and Liabilities, 7.40% return each year



The graph shows that the projected funded status increases over the next 19 years to 100%, assuming the actuarial assumption is achieved. However, as above, it is the actual return on System assets that will determine the future funding status and contribution rate to the Fund.

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SECTION II – ASSETS

Pension Plan assets play a key role in the financial operation of the System and in the decisions the Board may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, employer contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on System assets including:

- **Disclosure** of System assets as of December 31, 2014 and December 31, 2015,
- Statement of the **changes** in market values during the year,
- Development of the **Actuarial Value of Assets**,
- An assessment of **investment performance**, and
- Determination of **reserve balances** as of January 1, 2016.

Disclosure

There are two types of asset values disclosed in the valuation, the market value of assets and the actuarial value of assets. The market value represents the fair value of assets that provide the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace. As a result, market values are usually not as suitable for long-range planning as are the actuarial value of assets, which reflect smoothing of annual investment returns.

Table II-1 on the next page discloses and compares the market values as of December 31, 2014 and December 31, 2015.

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SECTION II – ASSETS

| TABLE II-1 | | |
|---|-------------------------|-------------------------|
| Statement of Assets at Market Value | | |
| December 31, | | |
| Assets | 2014 | 2015 |
| Cash and Cash Equivalents | \$ 86,304,586 | \$ 79,806,039 |
| Cash Collateral-Securities Lending | <u>164,195,271</u> | <u>147,105,961</u> |
| Total Cash and Cash Equivalents | 250,499,857 | 226,912,000 |
| Receivables: | | |
| Investment Income Receivables | 2,664,983 | 3,103,370 |
| Contributions Receivable | 8,960,303 | 3,041,118 |
| Securities Sold, Not Received - Domestic | 420,303 | 2,720,987 |
| Other Investment Income Receivable | 637 | 1,142 |
| Miscellaneous Receivables | <u>34,606</u> | <u>63,074</u> |
| Total Receivables | 12,080,832 | 8,929,691 |
| Investments, at Market Value: | | |
| Fixed Income | 527,386,250 | 534,574,588 |
| U.S. and Non U.S. Equities | 891,844,719 | 825,704,397 |
| Global Equity | 57,668,488 | 0 |
| Real Estate | 253,709,478 | 265,514,852 |
| Real Asset | 108,824,107 | 702,471,159 |
| Global Opportunistic Strategy | 278,197,288 | 0 |
| Risk Parity | <u>253,749,953</u> | <u>0</u> |
| Total Investments | 2,371,380,283 | 2,328,264,996 |
| Other Assets: | | |
| Prepaid Expenses | 86,318 | 112,136 |
| Equipment and Fixtures, Net | <u>314,644</u> | <u>192,519</u> |
| Total Assets | 2,634,361,934 | 2,564,411,342 |
| Liabilities: | | |
| Securities Lending-Cash Collateral | 164,195,271 | 147,105,961 |
| Securities Purchased, Not Paid | 1,671,227 | 2,739,348 |
| Accrued Expenses and Other Payables | 2,137,604 | 1,306,553 |
| Security Lending Interest and Other Expense | 8,303 | 16,933 |
| Total Liabilities | <u>168,012,405</u> | <u>151,168,795</u> |
| Market Value of Assets | \$ 2,466,349,529 | \$ 2,413,242,547 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

SECTION II – ASSETS

Changes in Market Value

The components of asset change are:

- Contributions (employer and employee)
- Benefit payments
- Expenses (investment and administrative)
- Investment income (realized and unrealized)

Table II-2 below shows the components of change in the market value of assets during 2014 and 2015.

| TABLE II-2 | | |
|--|--------------------|---------------------|
| Changes in Market Values | | |
| <u>Additions</u> | <u>2014</u> | <u>2015</u> |
| Contributions | | |
| Employer's Contribution | 136,686,133 | 150,371,556 |
| Members' Contributions | 27,367,908 | 29,026,901 |
| Total Contributions | <u>164,054,041</u> | <u>179,398,457</u> |
| Net Investment Income | | |
| Net Appreciation/(Depreciation) in | | |
| Fair Value of Investments | 94,797,841 | (81,873,013) |
| Interest | 20,784,139 | 41,500,345 |
| Dividends | 2,680,448 | 4,613,426 |
| Real Estate Income, net | 10,112,793 | 8,039,770 |
| Investment Expenses | (18,209,091) | (20,220,393) |
| Miscellaneous Investment Income | 7,293 | 6,835 |
| Net Investment Income, Before Securities Lending Income | <u>110,173,423</u> | <u>(47,933,030)</u> |
| Securities Lending Income | | |
| Earnings | 450,412 | 527,763 |
| Rebates | 184,507 | 116,314 |
| Fees | (157,231) | (160,288) |
| Net Securities Lending Income | <u>477,688</u> | <u>483,789</u> |
| Net Investment Income | <u>110,651,111</u> | <u>(47,449,241)</u> |
| Miscellaneous Income | <u>77,192</u> | <u>109,490</u> |
| Total Additions | <u>274,782,344</u> | <u>132,058,706</u> |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION II – ASSETS

| TABLE II-2 | | |
|--|-----------------------------|-----------------------------|
| Changes in Market Values (Continued) | | |
| <u>Deductions</u> | | |
| Benefit payments | 163,711,716 | 179,023,164 |
| Death Benefits | 623,557 | 561,971 |
| Refunds of Members' Contributions | <u>1,535,698</u> | <u>1,883,777</u> |
| Total Benefit Payments | 165,870,971 | 181,468,912 |
| Administrative & Other Expenses | | |
| General Administrative Expenses | 3,636,863 | 3,710,047 |
| Actuary Fees | 161,342 | 151,893 |
| Fund Legal Fees | <u>244,781</u> | <u>213,805</u> |
| Total Administrative & Other Expenses | 4,042,986 | 4,075,745 |
| Transfer Between Plans | <u>(19,968,779)</u> | <u>(378,969)</u> |
| Total Deductions | 149,945,178 | 185,165,688 |
| Net increase (Decrease) | 124,837,166 | (53,106,982) |
| Net Assets Held in Trust for Pension Benefits: | | |
| Beginning of Year | <u>2,341,512,363</u> | <u>2,466,349,529</u> |
| End of Year | <u><u>2,466,349,529</u></u> | <u><u>2,413,242,547</u></u> |
| Approximate Return | 4.69% | -1.92% |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

SECTION II – ASSETS

Actuarial Value of Assets (AVA)

The actuarial value of assets represents a “smoothed” value developed by the actuary to reduce the volatile results, which could develop due to short-term fluctuations in the market value of assets. For this System, the actuarial value of assets is calculated by recognizing the deviation of actual investment returns compared to the expected return over a five-year period.

The dollar amount of the expected return on the market value of assets is determined using the actual contributions, administrative expense (beginning in 2013), and benefit payments during the year. Any difference between this amount and the actual investment earnings is considered a gain or loss. However, in no event will the actuarial value of assets be less than 80% or more than 120% of market value on the valuation date. The following table shows the development of the actuarial asset value.

| TABLE II-3 Development of Actuarial Value of Assets as of January 1, 2016 | | | | | | | | | |
|--|---------------|-------------|------------------------|--------------------------|-----------------|---------------|---------------------|----------------|------------------------|
| | (a) | (b) | (c) | (d) | (e) | (f) | (g) = (f) – (e) | (h) | (i) = (g) x (h) |
| Year | Contributions | Benefits | Administrative Expense | Healthcare Fund Transfer | Expected Return | Actual Return | Additional Earnings | Not Recognized | Unrecognized Earnings |
| 2012 | 127,962,598 | 144,978,040 | 0 | 0 | 150,473,721 | 227,485,527 | 77,011,806 | 20% | 15,402,361 |
| 2013 | 142,184,201 | 155,401,819 | 4,134,716 | 0 | 161,392,211 | 198,449,237 | 37,057,026 | 40% | 14,822,811 |
| 2014 | 164,054,041 | 165,870,971 | 4,042,986 | 19,968,779 | 176,895,311 | 110,728,303 | (66,167,008) | 60% | (39,700,205) |
| 2015 | 179,398,457 | 181,468,912 | 4,075,745 | 378,969 | 184,778,322 | (47,339,751) | (232,118,073) | 80% | (185,694,458) |
| 1. Total Unrecognized Dollars | | | | | | | | | (195,169,491) |
| 2. Market Value of Assets as of December 31, 2015 | | | | | | | | | 2,413,242,547 |
| 3. Preliminary Actuarial Value of Assets as of December 31, 2015: [(2) - (1)] | | | | | | | | | 2,608,412,038 |
| 4. Corridor Limits | | | | | | | | | |
| a. 80% of Net Market Value | | | | | | | | | 1,930,594,038 |
| b. 120% of Net Market Value | | | | | | | | | 2,895,891,056 |
| 5. Actuarial Value of Assets after Corridor | | | | | | | | | 2,608,412,038 |
| 6. Ratio of Actuarial Value to Market Value | | | | | | | | | 108.09% |
| [(5) ÷ (2)] | | | | | | | | | |
| 7. Market Stabilization Designation | | | | | | | | | (195,169,491) |
| [(2) – (5)] | | | | | | | | | |
| 8. Special (Non Valuation) Reserves: | | | | | | | | | |
| Class Action Settlement – Post 4/1/1982 | | | | | | | | | 3,644,507 |
| Contingency | | | | | | | | | 0 |
| Undistributed Earnings Reserve | | | | | | | | | 0 |
| Total Special Reserves | | | | | | | | | 3,644,507 |
| 9. Pension Reserves at Actuarial Value (Valuation Assets): [(5) - (8)*(6)] | | | | | | | | | \$2,604,472,784 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

SECTION II – ASSETS

Investment Performance

The following table calculates the investment related gain/loss for the plan year on both a Market Value and an Actuarial Value basis. The Market Value gain/loss is a useful measure for comparing the actual asset performance to the previous valuations.

| TABLE II-4 Asset Gain/(Loss) | | |
|---|-------------------------|-------------------------|
| | Market Value | Actuarial Value |
| January 1, 2015 value | \$ 2,466,349,529 | \$ 2,471,291,047 |
| County Contributions | 150,371,556 | 150,371,556 |
| Employee Contributions | 29,026,901 | 29,026,901 |
| Healthcare Transfer | 378,969 | 378,969 |
| Benefit Payments | (181,468,912) | (181,468,912) |
| Administrative Expenses | (4,075,745) | (4,075,745) |
| Expected Investment Earnings (7.50%) | <u>184,778,322</u> | <u>185,148,935</u> |
| Expected Value December 31, 2015 | \$ 2,645,360,620 | \$ 2,650,672,751 |
| Investment Gain / (Loss) | <u>(232,118,073)</u> | <u>(46,199,967)</u> |
| January 1, 2016 value | 2,413,242,547 | \$ 2,604,472,784 |
| Return | -1.92% | 5.63% |

Note that the return on market value shown above is not the dollar-weighted return on assets required for purposes of GASB Statements 67 and 68.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

SECTION II – ASSETS

The following table shows the historical annual asset returns on a market value and actuarial value basis, as well in the increase in the Consumer Price Index (CPI) since 1997.

| TABLE II-5 Historical Asset Returns | | | |
|--|-----------------------------------|--------------------------------------|------------------------------------|
| Year Ended December 31 | Return on Market Value | Return on Actuarial Value | Increase in CPI¹ |
| 1997 | 17.3% | 13.9% | 1.7% |
| 1998 | 9.9% | 13.3% | 1.6% |
| 1999 | 13.7% | 15.1% | 2.7% |
| 2000 | 3.2% | 11.5% | 3.4% |
| 2001 | (0.1%) | 8.8% | 1.6% |
| 2002 | (5.5%) | 4.7% | 2.4% |
| 2003 | 25.5% | 6.8% | 1.9% |
| 2004 | 11.8% | 6.6% | 3.3% |
| 2005 | 6.9% | 7.2% | 3.4% |
| 2006 | 12.7% | 9.6% | 2.5% |
| 2007 | 6.9% | 11.2% | 4.1% |
| 2008 | (30.1%) | (14.3%) | (0.5%) |
| 2009 | 11.4% | 11.6% | 2.5% |
| 2010 | 12.4% | 6.4% | 1.5% |
| 2011 | 1.3% | (1.8%) | 3.0% |
| 2012 | 11.7% | (0.2%) | 1.7% |
| 2013 | 9.2% | 8.5% | 1.5% |
| 2014 | 4.7% | 7.5% | 0.8% |
| 2015 | (1.9%) | 5.6% | 0.7% |
| Compounded 15 Year Average | 4.4% | 5.0% | 2.0% |
| Compounded 10 Year Average | 3.0% | 4.1% | 1.8% |
| Compounded 5 Year Average | 4.9% | 3.8% | 1.5% |

¹ Based on All Urban Consumers - U.S. City Average, December Indices.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

SECTION II – ASSETS

Reserve Balances

The following table shows the Post-1982 Settlement Reserve balances as of January 1, 2016.

| TABLE II-6 | | | | |
|-------------------------------------|-------------------|-------------------------|----------------|------------------------|
| Post-1982 Settlement Reserve | | | | |
| Valuation Date | Number of | Benefits Payable | Reserve | Estimated Years |
| January 1 | Recipients | | | of Payments |
| 2008 | 1,896 | 3,683,939 | 25,872,222 | 13 |
| 2009 | 1,856 | 3,602,904 | 22,015,055 | 10 |
| 2010 | 1,800 | 3,484,762 | 20,090,654 | 9 |
| 2011 | 1,738 | 3,370,636 | 18,108,660 | 6 |
| 2012 | 1,679 | 3,243,068 | 14,556,866 | 5 |
| 2013 | 1,709 | 3,244,009 | 11,063,855 | 4 |
| 2014 | 1,662 | 3,197,416 | 8,765,004 | 3 |
| 2015 | 1,617 | 3,046,233 | 6,338,007 | 2 |
| 2016 | 1,560 | 2,939,133 | 3,644,507 | 1 |

As of January 1, 2016, the total projected liability associated with paying the Post-82 Settlement allowances for the lifetime of the members and beneficiaries is estimated to be \$23,323,465.

SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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SECTION III – LIABILITIES

In this section, we present detailed information on System liabilities including:

- **Disclosure** of System liabilities at January 1, 2015 and January 1, 2016;
- Statement of **changes** in these liabilities during the year.

Disclosure

Several types of liabilities are calculated and presented in this report. We note that the liabilities described below are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations, in the case of a plan termination or other similar action.

- **Present Value of Future Benefits:** Used for measuring all future System obligations, represents the amount of money needed today to fully fund all benefits of the System both earned as of the valuation date and those to be earned in the future by current plan participants, under the current System provisions.
- **Actuarial Liability:** Used for funding calculations, this liability is calculated taking the Present Value of Future Benefits and subtracting the present value of future Member Contributions and future Employer Normal Costs under an acceptable actuarial funding method. The method used for this System is called the **Entry Age Normal** (EAN) funding method.
- **Unfunded Actuarial Liability:** The excess of the Actuarial Liability over the Actuarial Value of Assets.

Table III-1 on the following page discloses each of these liabilities for the current and prior valuations. With respect to each disclosure, a subtraction of the appropriate value of Plan assets yields, for each respective type, a **net surplus**, or an **unfunded actuarial liability**.

| TABLE III-1 | | |
|--|-------------------------|-------------------------|
| Liabilities/Net (Surplus)/Unfunded | | |
| | January 1, 2015 | January 1, 2016 |
| <u>Present Value of Future Benefits</u> | | |
| Active Participant Benefits | \$ 2,269,045,331 | \$ 2,251,826,857 |
| Retiree and Inactive Benefits | <u>2,215,349,763</u> | <u>2,470,481,038</u> |
| Present Value of Future Benefits (PVB) | \$ 4,484,395,094 | \$ 4,722,307,895 |
| <u>Actuarial Liability</u> | | |
| Present Value of Future Benefits (PVB) | \$ 4,484,395,094 | \$ 4,722,307,895 |
| Present Value of Future Normal Costs (PVFNC) | <u>752,760,722</u> | <u>715,917,845</u> |
| Actuarial Liability (AL = PVB – PVFNC) | \$ 3,731,634,372 | \$ 4,006,390,050 |
| Actuarial Value of Assets (AVA) | <u>2,471,291,047</u> | <u>2,604,472,784</u> |
| Net (Surplus)/Unfunded (AL – AVA) | \$ 1,260,343,325 | \$ 1,401,917,266 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

SECTION III – LIABILITIES

Changes in Liabilities

Each of the Liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation
- Benefits accrued since the last valuation
- Plan amendments
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above, and due to changes in System assets resulting from:

- Employer contributions different than expected
- Investment earnings different than expected
- A change in the method used to measure plan assets

| TABLE III-2 Changes in Actuarial Liability | |
|---|------------------|
| Actuarial Liability at January 1, 2015 | \$ 3,731,634,372 |
| Actuarial Liability at January 1, 2016 | \$ 4,006,390,050 |
| Liability Increase (Decrease) | 274,755,678 |
| Change due to: | |
| Accrual of Benefits | \$ 84,380,795 |
| Actual Benefit Payments | (181,468,912) |
| Interest | 276,297,593 |
| Assumption Changes | 91,855,247 |
| Actuarial Liability (Gain)/Loss | 3,690,955 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

SECTION III – LIABILITIES

**TABLE III-3
Development of Actuarial Gain / (Loss)**

| | |
|--|------------------|
| 1. Unfunded Actuarial Liability at Start of Year (not less than zero) | \$ 1,260,343,325 |
| 2. Employer Normal Cost at Middle of Year | 84,380,795 |
| 3. Administrative Expense | 4,075,745 |
| 4. Interest on 1. 2. and 3. to End of Year | 97,782,903 |
| 5. Contributions for Prior Year | 179,398,457 |
| 6. Healthcare Fund Transfer | 378,969 |
| 7. Interest on 5. and 6. to End of Year | 6,634,245 |
| 8. Assumption Changes | 91,855,247 |
| 9. Expected Unfunded Actuarial Liability at End of Year [1. + 2. + 3. + 4. – 5. – 6. + 7. + 8.] | \$ 1,352,026,344 |
| 10. Actual Unfunded Actuarial Liability at End of Year (not less than zero) | 1,401,917,266 |
| 11. Unfunded Actuarial Liability Gain / (Loss) [9. – 10.] | \$ (49,890,922) |
| 12. Actuarial Liability Gain / (Loss) | \$ (3,690,955) |
| 13. Actuarial Asset Gain / (Loss) [11. – 12.] | \$ (46,199,967) |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

SECTION IV – CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the System. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

For this System, the actuarial funding method used to determine the normal cost and the unfunded actuarial liability is the **Entry Age Normal (EAN)** cost method. There are three primary components to the total contribution: the **normal cost rate** (employee and employer), the **unfunded actuarial liability rate** (UAL rate), and the **administrative expense** contribution.

The normal cost rate is determined in the following steps. First, an individual normal cost rate is determined by taking the value, as of entry age into the System, of each member's projected future benefits. This value is then divided by the value, also at entry age, of the member's expected future salary producing a normal cost rate that should remain relatively constant over a member's career. The total normal cost is adjusted with interest to the middle of the year, to reflect the fact that the normal cost contributions are paid throughout the year as member payroll payments are made. Finally, the total normal cost rate is reduced by the member contribution rate to produce the employer normal cost rate.

The unfunded actuarial liability is the difference between the EAN actuarial liability and the actuarial value of assets. At the July 24, 2015 board meeting, the SJCERA Board of Retirement chose to make a change to their funding policy, opting to amortize any unexpected changes in the UAL over a period of 15 years as a level percent of pay, with new amortization layers each year. The result was a set of three amortization bases as of January 1, 2015: The 2008 loss being amortized over 24 years, the remaining UAL as of December 31, 2014 being amortized over 18 years, and new additions to the UAL on and after January 1, 2015 amortized over 15 years. The single equivalent amortization period for these streams of payments is 19 years as of January 1, 2016. The amortization period for each unfunded actuarial liability layer will decrease each year.

The administrative expenses are assumed to be \$4,370,908 per year, increasing with the CPI assumption each valuation.

The tables on the following pages present the employer contributions for the System for this valuation.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

SECTION IV – CONTRIBUTIONS

| TABLE IV-1 | | | | | | |
|--|------------------------|----------------------|--------|------------------------|----------------------|--------|
| Development of Employer Contribution Amount | | | | | | |
| | Old Assumptions | | | New Assumptions | | |
| | January 1, 2016 | | | January 1, 2016 | | |
| | | % of pay | | | % of pay | |
| 1. Normal Cost at Middle of Year | \$ | \$62,252,888 | 16.26% | \$ | 59,355,786 | 15.52% |
| 2. Amortization of Unfunded Liability | | | | | | |
| a. Actuarial Liability | \$ | 3,914,534,803 | | \$ | 4,006,390,050 | |
| b. Actuarial Value of Assets | \$ | <u>2,604,472,784</u> | | \$ | <u>2,604,472,784</u> | |
| c. Unfunded Liability (a) – (b) | \$ | 1,310,062,019 | | \$ | 1,401,917,266 | |
| d. Amortization of Unfunded Liability | \$ | 101,561,381 | 24.55% | \$ | 109,836,358 | 26.56% |
| 3. Administrative Expense | \$ | 3,725,711 | 0.90% | \$ | 3,752,592 | 0.91% |
| 4. Annual Required Contribution (1c) + (2d) + (3) | \$ | 167,539,980 | 41.71% | \$ | 172,944,736 | 42.99% |

| TABLE IV-2 | | | | |
|---|----|------------------------|------------------------|------------------------|
| Employer Contribution Rate | | | | |
| | | Old Assumptions | | New Assumptions |
| | | January 1, 2015 | January 1, 2016 | January 1, 2016 |
| Contributions as a Percentage of Payroll | | | | |
| Gross Entry Age Normal Cost Rate | | 23.76% | 23.32% | 22.45% |
| Employee Contribution Rate | | <u>6.90%</u> | <u>7.06%</u> | <u>6.93%</u> |
| Employer Entry Age Normal Cost Rate | | 16.86% | 16.26% | 15.52% |
| Employer Normal Cost Rate | | 16.86% | 16.26% | 15.52% |
| Administrative Expense | | 0.91% | 0.90% | 0.91% |
| Amortization Payment | | <u>23.58%</u> | <u>24.55%</u> | <u>26.56%</u> |
| Employer Contribution Rate | | 41.35% | 41.71% | 42.99% |
| Annual Required Contribution (Employer) | \$ | 159,501,915 | \$ | 167,539,980 |
| | | | \$ | 172,944,736 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

SECTION IV – CONTRIBUTIONS

| TABLE IV-3 | | | | |
|---|------------------------|------------------------|------------------------|------------------------|
| Employer Contribution Rate | | | | |
| | General Tier I | General Tier II | Safety Tier I | Safety Tier II |
| | January 1, 2016 | January 1, 2016 | January 1, 2016 | January 1, 2016 |
| Contributions as a Percentage of Payroll before Assumption Changes | | | | |
| Gross Entry Age Normal Cost Rate | 21.72% | 17.68% | 36.67% | 29.25% |
| Employee Contribution Rate | <u>6.32%</u> | <u>8.84%</u> | <u>7.30%</u> | <u>14.62%</u> |
| Employer Entry Age Normal Cost Rate | 15.40% | 8.84% | 29.37% | 14.63% |
| Employer Normal Cost Rate | 15.40% | 8.84% | 29.37% | 14.63% |
| Administrative Expense | 0.90% | 0.90% | 0.90% | 0.90% |
| Amortization Payment | <u>20.84%</u> | <u>20.84%</u> | <u>43.54%</u> | <u>43.54%</u> |
| Employer Contribution Rate | 37.14% | 30.58% | 73.81% | 59.07% |
| Annual Required Contribution (Employer) | \$ 96,753,034 | \$ 23,060,471 | \$ 44,077,851 | \$ 3,648,624 |
| Contributions as a Percentage of Payroll after Assumption Changes | | | | |
| Gross Entry Age Normal Cost Rate | 20.94% | 17.55% | 34.46% | 28.43% |
| Employee Contribution Rate | <u>6.19%</u> | <u>8.77%</u> | <u>7.08%</u> | <u>14.22%</u> |
| Employer Entry Age Normal Cost Rate | 14.75% | 8.78% | 27.38% | 14.21% |
| Employer Normal Cost Rate | 14.75% | 8.78% | 27.38% | 14.21% |
| Administrative Expense | 0.91% | 0.91% | 0.91% | 0.91% |
| Amortization Payment | <u>22.83%</u> | <u>22.83%</u> | <u>45.69%</u> | <u>45.69%</u> |
| Employer Contribution Rate | 38.49% | 32.52% | 73.98% | 60.81% |
| Annual Required Contribution (Employer) | \$ 100,448,688 | \$ 24,521,008 | \$ 44,216,125 | \$ 3,758,915 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

SECTION IV – CONTRIBUTIONS

**TABLE IV-4
Development of Amortization Payment
For Fiscal Year 2016**

| Type of Base | Date Established | Initial Amount | Initial Amortization Years | 1/1/2016 Outstanding Balance | Remaining Amortization Years | Amortization Amount |
|--------------------------------------|---------------------|-------------------|----------------------------------|------------------------------------|------------------------------------|------------------------|
| Charges/(Credits) | | | | | | |
| 1. 2008 Extraordinary Actuarial Loss | 1/1/2009 | \$ 424,264,899 | 30 | \$ 462,862,439 | 23 | \$ 31,379,538 |
| 2. Remaining 1/1/2014 UAL | 1/1/2014 | 820,499,756 | 19 | 810,906,535 | 17 | 66,964,049 |
| 3. 1/1/2015 Gain | 1/1/2015 | (16,438,883) | 15 | (16,132,782) | 14 | (1,532,231) |
| 4. 1/1/2016 Loss ¹ | 1/1/2016 | 52,425,827 | 15 | 52,425,827 | 15 | 4,732,751 |
| 5. 1/1/2016 Assumption Changes | 1/1/2016 | 91,855,247 | 15 | 91,855,247 | 15 | 8,292,251 |
| | | | | \$ 1,401,917,266 | | \$ 109,836,358 |

¹ The January 1, 2016 loss shown in Table IV-4 does not match the UAL loss shown in table III-3, as the loss in Table IV-4 includes the impact of contributions being less than expected during 2015.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

SECTION V – ADDITIONAL CAFR SCHEDULES

This section of the report provides a schedule for the Actuarial Section of the CAFR for SJCERA that is not provided in the GASB 67 and 68 reports.

We have prepared the following schedule:

Solvency Test

The solvency test shows the portion of actuarial liabilities for active member contributions, inactive members, and the employer financed portion of the active members that are covered by the Actuarial Value of Assets.

The Actuarial Liability is determined assuming that the System is ongoing and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions. Liabilities for 2013 through 2015 are discounted at the assumed valuation interest rate of 7.5%.

| Table V-1 Solvency Test Aggregate Actuarial Liabilities for | | | | | | | |
|--|--|---|---------------------------------------|--------------------------------------|--|------------|------------|
| Valuation Date January 1, | Active Member Contributions | Retirees & Beneficiaries | Active Members¹ | Actuarial Value of Assets | Portion of Actuarial Liabilities Covered by | | |
| | (1) | (2) | (3) | | (1) | (2) | (3) |
| 2016 | \$ 297,179,041 | \$ 2,347,908,211 | \$ 1,361,302,798 | \$ 2,604,472,784 | 100% | 98% | 0% |
| 2015 | 276,818,405 | 2,117,009,658 | 1,337,806,309 | 2,471,291,047 | 100% | 100% | 6% |
| 2014 | 258,198,240 | 1,956,930,619 | 1,346,730,197 | 2,285,165,972 | 100% | 100% | 5% |
| 2013 | 209,987,230 | 1,810,775,897 | 1,332,531,085 | 2,125,700,227 | 100% | 100% | 8% |
| 2012 | 202,924,928 | 1,627,338,404 | 1,218,058,024 | 2,130,052,649 | 100% | 100% | 25% |
| 2011 | 193,612,757 | 1,495,665,075 | 1,228,410,127 | 2,120,384,183 | 100% | 100% | 35% |
| 2010 | 187,986,706 | 1,373,256,766 | 1,208,368,072 | 1,949,011,498 | 100% | 100% | 32% |
| 2009 | 176,235,961 | 1,231,647,623 | 1,103,041,755 | 1,821,357,079 | 100% | 100% | 37% |
| 2008 | 166,804,000 | 1,119,690,000 | 1,048,027,000 | 2,029,949,000 | 100% | 100% | 71% |
| 2007 | 159,100,000 | 1,023,296,000 | 967,542,000 | 1,869,717,000 | 100% | 100% | 71% |
| 2006 | 147,953,000 | 904,208,000 | 883,657,000 | 1,727,033,000 | 100% | 100% | 76% |
| 2005 | 140,800,000 | 805,878,000 | 822,829,000 | 1,614,979,000 | 100% | 100% | 81% |
| 2004 | 129,606,000 | 726,382,000 | 739,749,000 | 1,531,288,000 | 100% | 100% | 91% |

¹ Includes terminated vested members.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

The data for this valuation was provided by the San Joaquin County staff as of January 1, 2016.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

| Summary of Participant Data as of January 1, 2016 | | | |
|--|----------------|---------------|--------------|
| | General | Safety | Total |
| Tier I Active Participants | | | |
| Number | 3,710 | 699 | 4,409 |
| Average Age | 49.39 | 42.75 | 48.34 |
| Average Benefit Service | 14.04 | 13.74 | 13.99 |
| Average Vesting Service | 14.31 | 14.20 | 14.30 |
| Average Pay | \$71,407 | \$86,275 | \$73,764 |
| Tier II Active Participants | | | |
| Number | 1,421 | 94 | 1,515 |
| Average Age | 39.04 | 32.29 | 38.62 |
| Average Benefit Service | 1.31 | 1.63 | 1.33 |
| Average Vesting Service | 1.34 | 1.63 | 1.36 |
| Average Pay | \$53,350 | \$65,426 | \$54,100 |
| All Active Participants | | | |
| Number | 5,131 | 793 | 5,924 |
| Average Age | 46.53 | 41.51 | 45.85 |
| Average Benefit Service | 10.51 | 12.31 | 10.75 |
| Average Vesting Service | 10.72 | 12.71 | 10.99 |
| Average Pay | \$66,407 | \$83,804 | \$68,735 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

| Summary of Participant Data as of January 1, 2016 | | | |
|--|----------------|---------------|--------------|
| | General | Safety | Total |
| Service Retired | | | |
| Number | 3,506 | 554 | 4,060 |
| Average Age | 70.30 | 65.40 | 69.63 |
| Average Annual Base Benefit | \$18,692 | \$39,560 | \$21,539 |
| Average Annual Total Benefit | \$31,655 | \$63,054 | \$35,940 |
| Beneficiaries | | | |
| Number | 598 | 177 | 775 |
| Average Age | 72.78 | 67.84 | 71.65 |
| Average Annual Base Benefit | \$8,038 | \$14,380 | \$9,486 |
| Average Annual Total Benefit | \$18,190 | \$32,720 | \$21,508 |
| Duty Disabled | | | |
| Number | 234 | 196 | 430 |
| Average Age | 63.52 | 60.41 | 62.10 |
| Average Annual Base Benefit | \$15,177 | \$32,553 | \$23,097 |
| Average Annual Total Benefit | \$23,854 | \$49,674 | \$35,623 |
| Non-Duty Disabled | | | |
| Number | 156 | 14 | 170 |
| Average Age | 63.47 | 66.07 | 63.69 |
| Average Annual Base Benefit | \$10,084 | \$13,992 | \$10,406 |
| Average Annual Total Benefit | \$15,941 | \$25,306 | \$16,712 |
| Total Receiving Benefits | | | |
| Number | 4,494 | 941 | 5,435 |
| Average Age | 70.04 | 64.83 | 69.14 |
| Average Annual Base Benefit | \$16,792 | \$32,984 | \$19,596 |
| Average Annual Total Benefit | \$28,912 | \$54,000 | \$33,255 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

| Summary of Participant Data as of January 1, 2016 | | | |
|--|----------------|---------------|--------------|
| | General | Safety | Total |
| Deferred Vested | | | |
| Number | 410 | 34 | 444 |
| Average Age | 48.69 | 46.09 | 48.49 |
| Average Service | 9.09 | 7.97 | 9.01 |
| Transfers and DROs | | | |
| Number | 357 | 98 | 455 |
| Average Age | 49.82 | 44.65 | 48.71 |
| Average Service | 5.48 | 4.35 | 5.23 |
| Funds on Account | | | |
| Number | 527 | 30 | 557 |
| Average Age | 45.44 | 38.20 | 45.05 |
| Average Service | 1.32 | 1.19 | 1.32 |
| Total Inactive | | | |
| Number | 1,294 | 162 | 1,456 |
| Average Age | 47.68 | 43.76 | 47.24 |
| Average Service | 4.93 | 4.52 | 4.88 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

Changes in Plan Membership: General

| | Actives | Transfers/ DROS | Non-Vested Terminations | Vested Terminations | Non-Duty Disabled | Duty Disabled | Retired | Beneficiaries | Total |
|--|--------------|--------------------|----------------------------|------------------------|----------------------|------------------|--------------|---------------|---------------|
| January 1, 2015 | 4,879 | 387 | 507 | 381 | 161 | 232 | 3,385 | 580 | 10,512 |
| New Entrants | 692 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 692 |
| Rehires | 46 | (4) | (6) | (9) | 0 | 0 | (5) | 0 | 22 |
| Duty Disabilities | (3) | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Non-Duty Disabilities | (3) | 0 | 0 | (1) | 4 | 0 | 0 | 0 | 0 |
| Retirements | (171) | (20) | 0 | (26) | 0 | 0 | 214 | 3 | 0 |
| Vested Terminations | (73) | 0 | 0 | 73 | 0 | 0 | 0 | 0 | 0 |
| Retirements from Safety with General Service | 0 | 0 | 0 | 1 | 1 | 1 | 5 | 0 | 8 |
| Died, With Beneficiaries' Benefit Payable | (4) | 0 | 0 | 0 | (5) | (2) | (26) | 37 | 0 |
| Died, Without Beneficiary, and Other Terminations | (53) | 0 | 52 | (1) | (7) | (3) | (60) | (1) | (73) |
| Transfers | (9) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | (8) |
| Redeposits – AB 2766 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Withdrawals Paid | (170) | (12) | (26) | (8) | 0 | 0 | 0 | 0 | (216) |
| Beneficiary Deaths | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (26) | (26) |
| Domestic Relations Orders | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 3 | 8 |
| Data Corrections | 0 | 0 | 0 | 0 | 2 | 3 | (7) | 2 | 0 |
| January 1, 2016 | 5,131 | 357 | 527 | 410 | 156 | 234 | 3,506 | 598 | 10,919 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

Changes in Plan Membership: Safety

| | Actives | Transfers/ DROS | Non-Vested Terminations | Vested Terminations | Non-Duty Disabled | Duty Disabled | Retired | Beneficiaries | Total |
|--|------------|--------------------|----------------------------|------------------------|----------------------|------------------|------------|---------------|--------------|
| January 1, 2015 | 827 | 103 | 29 | 28 | 13 | 192 | 524 | 162 | 1,878 |
| New Entrants | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| Rehires | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Duty Disabilities | (3) | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Non-Duty Disabilities | (1) | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Retirements | (45) | (4) | 0 | (2) | 0 | 0 | 50 | 1 | 0 |
| Vested Terminations | (8) | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| Retirements from Safety with General Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Died, With Beneficiaries' Benefit Payable | 0 | 0 | 0 | 0 | 0 | 0 | (12) | 12 | 0 |
| Died, Without Beneficiary, and Other Terminations | (4) | 0 | 2 | 0 | 0 | (1) | (3) | 0 | (6) |
| Transfers | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Redeposits – AB 2766 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Withdrawals Paid | (5) | (2) | 0 | (1) | 0 | 0 | 0 | 0 | (8) |
| Beneficiary Deaths | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (3) | (3) |
| Domestic Relations Orders | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 4 |
| Data Corrections | 0 | (1) | (1) | 1 | 0 | 2 | (5) | 3 | (1) |
| January 1, 2016 | 793 | 98 | 30 | 34 | 14 | 196 | 554 | 177 | 1,896 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

Changes in Plan Membership: All Groups

| | Actives | Transfers/ DROS | Non-Vested Terminations | Vested Terminations | Non-Duty Disabled | Duty Disabled | Retired | Beneficiaries | Total |
|--|--------------|--------------------|----------------------------|------------------------|----------------------|------------------|--------------|---------------|---------------|
| January 1, 2015 | 5,706 | 490 | 536 | 409 | 174 | 424 | 3,909 | 742 | 12,390 |
| New Entrants | 717 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 717 |
| Rehires | 46 | (4) | (6) | (9) | 0 | 0 | (5) | 0 | 22 |
| Duty Disabilities | (6) | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 |
| Non-Duty Disabilities | (4) | 0 | 0 | (1) | 5 | 0 | 0 | 0 | 0 |
| Retirements | (217) | (24) | 0 | (28) | 0 | 0 | 264 | 4 | (1) |
| Vested Terminations | (81) | 0 | 0 | 81 | 0 | 0 | 0 | 0 | 0 |
| Retirements from Safety with General Service | 0 | 0 | 0 | 1 | 1 | 1 | 5 | 0 | 8 |
| Died, With Beneficiaries' Benefit Payable | (4) | 0 | 0 | 0 | (5) | (2) | (38) | 49 | 0 |
| Died, Without Beneficiary, and Other Terminations | (57) | 0 | 54 | (1) | (7) | (4) | (63) | (1) | (79) |
| Transfers | (1) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Redeposits – AB 2766 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Withdrawals Paid | (175) | (14) | (26) | (9) | 0 | 0 | 0 | 0 | (224) |
| Beneficiary Deaths | 0 | 0 | 0 | 0 | 0 | 0 | 0 | (29) | (29) |
| Domestic Relations Orders | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 5 | 12 |
| Data Corrections | 0 | (1) | (1) | 1 | 2 | 5 | (12) | 5 | (1) |
| January 1, 2016 | 5,924 | 455 | 557 | 444 | 170 | 430 | 4,060 | 775 | 12,815 |

SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016

APPENDIX A – MEMBERSHIP INFORMATION

Active Member Data by Plan

| Valuation at Year End | Plan Type | Member Count | Annual Payroll | Average Annual Salary | Average Salary Increase |
|-----------------------|--------------|--------------|----------------------|-----------------------|-------------------------|
| 2006 | General | 5,234 | \$288,178,806 | \$55,059 | 18.22% |
| | Safety | 820 | \$56,293,820 | \$68,651 | 15.52% |
| | Total | 6,054 | \$344,472,626 | \$56,900 | 17.68% |
| 2007 | General | 5,353 | \$308,773,122 | \$57,682 | 4.76% |
| | Safety | 871 | \$62,988,014 | \$72,317 | 5.34% |
| | Total | 6,224 | \$371,761,136 | \$59,730 | 4.97% |
| 2008 | General | 5,180 | \$315,202,954 | \$60,850 | 5.49% |
| | Safety | 900 | \$67,127,759 | \$74,586 | 3.14% |
| | Total | 6,080 | \$382,330,713 | \$62,883 | 5.28% |
| 2009 | General | 4,990 | \$320,526,792 | \$64,234 | 5.56% |
| | Safety | 925 | \$70,801,157 | \$76,542 | 2.62% |
| | Total | 5,915 | \$391,327,949 | \$66,159 | 5.21% |
| 2010 | General | 4,643 | \$308,183,424 | \$66,376 | 3.33% |
| | Safety | 830 | \$64,817,396 | \$78,093 | 2.03% |
| | Total | 5,473 | \$373,000,820 | \$68,153 | 3.01% |
| 2011 | General | 4,441 | \$298,308,687 | \$67,172 | 1.20% |
| | Safety | 813 | \$64,041,814 | \$78,772 | 0.87% |
| | Total | 5,254 | \$362,350,501 | \$68,967 | 1.19% |
| 2012 | General | 4,492 | \$301,505,122 | \$67,120 | -0.08% |
| | Safety | 803 | \$64,386,900 | \$80,183 | 1.79% |
| | Total | 5,295 | \$365,892,023 | \$69,101 | 0.19% |
| 2013 | General | 4,748 | \$316,885,044 | \$66,741 | -0.57% |
| | Safety | 805 | \$65,640,055 | \$81,540 | 1.69% |
| | Total | 5,553 | \$382,525,098 | \$68,886 | -0.31% |
| 2014 | General | 4,879 | \$322,836,680 | \$66,169 | -0.86% |
| | Safety | 827 | \$68,491,483 | \$82,819 | 1.57% |
| | Total | 5,706 | \$391,328,162 | \$68,582 | -0.44% |
| 2015 | General | 5,131 | \$340,731,847 | \$66,407 | 0.36% |
| | Safety | 793 | \$66,456,278 | \$83,804 | 1.19% |
| | Total | 5,924 | \$407,188,125 | \$68,735 | 0.22% |

Payroll figures represent active member's annualized pay rates on December 31.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

Schedule of Retirees and Beneficiaries Valuation Data

| Valuation at Year End | Plan Type | Member Retirements | Beneficiary Continuance | Members and Beneficiaries Removed | Total Retirees on Payroll | Annual Retirement Payroll | Average Annual Allowance | Average Allowance Increase |
|-----------------------|--------------|--------------------|-------------------------|-----------------------------------|---------------------------|---------------------------|--------------------------|----------------------------|
| 2006 | General | 190 | 41 | 102 | 3,107 | \$58,634,478 | \$18,872 | 3.96% |
| | Safety | 31 | 8 | 11 | 632 | \$25,003,422 | \$39,562 | 2.14% |
| | Total | 221 | 49 | 113 | 3,739 | \$83,637,900 | \$22,369 | 3.45% |
| 2007 | General | 199 | 31 | 99 | 3,238 | \$65,213,731 | \$20,140 | 6.72% |
| | Safety | 38 | 6 | 8 | 668 | \$27,396,329 | \$41,012 | 3.67% |
| | Total | 237 | 37 | 107 | 3,906 | \$92,610,060 | \$23,710 | 5.99% |
| 2008 | General | 203 | 30 | 83 | 3,388 | \$71,488,335 | \$21,100 | 4.77% |
| | Safety | 50 | 10 | 18 | 710 | \$30,575,540 | \$43,064 | 5.00% |
| | Total | 253 | 40 | 101 | 4,098 | \$102,063,875 | \$24,906 | 5.04% |
| 2009 | General | 207 | 31 | 104 | 3,522 | \$78,988,070 | \$22,427 | 6.29% |
| | Safety | 24 | 7 | 11 | 730 | \$32,575,964 | \$44,625 | 3.62% |
| | Total | 231 | 38 | 115 | 4,252 | \$111,564,034 | \$26,238 | 5.35% |
| 2010 | General | 242 | 35 | 102 | 3,697 | \$85,931,078 | \$23,243 | 3.64% |
| | Safety | 65 | 5 | 8 | 792 | \$36,354,738 | \$45,902 | 2.86% |
| | Total | 307 | 40 | 110 | 4,489 | \$122,285,816 | \$27,241 | 3.82% |
| 2011 | General | 240 | 42 | 108 | 3,871 | \$92,938,361 | \$24,009 | 3.30% |
| | Safety | 32 | 4 | 14 | 814 | \$38,098,866 | \$46,805 | 1.97% |
| | Total | 272 | 46 | 122 | 4,685 | \$131,037,227 | \$27,970 | 2.68% |
| 2012 | General | 278 | 27 | 135 | 4,041 | \$102,025,575 | \$25,248 | 5.16% |
| | Safety | 52 | 12 | 20 | 856 | \$42,008,598 | \$49,075 | 4.85% |
| | Total | 330 | 39 | 155 | 4,897 | \$144,034,172 | \$29,413 | 5.16% |
| 2013 | General | 213 | 52 | 134 | 4,172 | \$109,869,721 | \$26,335 | 4.31% |
| | Safety | 22 | 11 | 20 | 869 | \$43,548,028 | \$50,113 | 2.11% |
| | Total | 235 | 63 | 154 | 5,041 | \$153,411,632 | \$30,433 | 3.47% |
| 2014 | General | 247 | 51 | 112 | 4,358 | \$120,722,240 | \$27,701 | 5.19% |
| | Safety | 29 | 14 | 21 | 891 | \$45,889,472 | \$51,503 | 2.77% |
| | Total | 276 | 65 | 133 | 5,249 | \$166,611,711 | \$31,742 | 4.30% |
| 2015 | General | 228 | 45 | 136 | 4,494 | \$129,928,957 | \$28,912 | 4.37% |
| | Safety | 54 | 15 | 19 | 941 | \$50,813,875 | \$54,000 | 4.85% |
| | Total | 282 | 60 | 155 | 5,435 | \$180,742,832 | \$33,255 | 4.77% |

Payroll figures represent year end monthly retirement benefits annualized and exclude Post-Employment Healthcare benefit and benefits under the Class Action Settlement.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

Retirees and Beneficiaries Added to and Removed from Retiree Payroll

| Fiscal Year | Beginning of Year | Added During Year | Allowances Added (in 000s)¹ | Removed During Year | Allowances Removed | End of Year | Annual Retirement Payroll (in 000s) | Average Allowance Percentage Increase | Average Annual Allowance |
|--------------------|--------------------------|--------------------------|---|----------------------------|---------------------------|--------------------|--|--|---------------------------------|
| 2010 | 4,252 | 353 | \$12,918 | 116 | \$2,196 | 4,489 | \$122,286 | 3.82% | \$27,241 |
| 2011 | 4,489 | 318 | \$11,544 | 122 | \$2,793 | 4,685 | \$131,037 | 2.67% | \$27,969 |
| 2012 | 4,685 | 361 | \$16,400 | 149 | \$3,403 | 4,897 | \$144,034 | 5.16% | \$29,413 |
| 2013 | 4,897 | 297 | \$12,908 | 153 | \$3,530 | 5,041 | \$153,412 | 3.47% | \$30,433 |
| 2014 | 5,041 | 340 | \$12,522 | 132 | \$3,030 | 5,249 | \$166,612 | 4.30% | \$31,742 |
| 2015 | 5,249 | 341 | \$13,207 | 155 | \$3,651 | 5,435 | \$180,737 | 4.77% | \$33,255 |

¹ Includes COLA amounts not included in previous year's Annual Allowance totals.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

Schedule of Average Monthly Benefit Payments

| Retirement Effective Date | Number of Years of Service Credit | | | | | | |
|----------------------------------|--|------------|--------------|--------------|--------------|--------------|----------------------|
| | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 & Over |
| 1/2/11 to 1/1/12 | | | | | | | |
| Retirees | | | | | | | |
| General Members | | | | | | | |
| Average Benefits | \$470 | \$1,205 | \$1,464 | \$2,615 | \$3,302 | \$3,968 | \$4,670 |
| Average Final Compensation | \$5,518 | \$5,903 | \$4,928 | \$6,463 | \$6,110 | \$5,541 | \$5,570 |
| Count | 12 | 26 | 56 | 27 | 41 | 16 | 39 |
| Safety Members | | | | | | | |
| Average Benefits | \$922 | \$1,112 | \$2,551 | \$3,970 | \$7,499 | \$7,790 | \$10,586 |
| Average Final Compensation | \$9,746 | \$4,483 | \$5,290 | \$7,767 | \$10,430 | \$9,162 | \$10,797 |
| Count | 2 | 6 | 3 | 3 | 4 | 5 | 3 |
| Survivors/QDROs | | | | | | | |
| General Members | | | | | | | |
| Average Benefits | \$622 | \$890 | \$773 | \$1,367 | \$1,838 | \$2,039 | \$3,281 |
| Average Final Compensation | \$9,807 | \$4,816 | \$3,578 | \$4,371 | \$4,108 | \$3,364 | \$5,366 |
| Count | 5 | 9 | 11 | 10 | 5 | 5 | 5 |
| Safety Members | | | | | | | |
| Average Benefits | \$825 | \$859 | \$1,591 | \$3,334 | \$0 | \$0 | \$3,829 |
| Average Final Compensation | \$9,779 | \$4,960 | \$2,795 | \$9,010 | \$0 | \$0 | \$5,257 |
| Count | 1 | 1 | 2 | 1 | 0 | 0 | 1 |
| 1/2/12 to 1/1/13 | | | | | | | |
| Retirees | | | | | | | |
| General Members | | | | | | | |
| Average Benefits | \$517 | \$1,077 | \$1,481 | \$2,129 | \$2,729 | \$4,198 | \$6,317 |
| Average Final Compensation | \$7,532 | \$5,925 | \$5,233 | \$4,900 | \$5,338 | \$6,449 | \$7,295 |
| Count | 19 | 31 | 56 | 36 | 42 | 30 | 44 |
| Safety Members | | | | | | | |
| Average Benefits | \$429 | \$2,194 | \$3,026 | \$4,186 | \$5,302 | \$9,183 | \$13,206 |
| Average Final Compensation | \$6,793 | \$5,812 | \$6,636 | \$8,124 | \$7,306 | \$13,360 | \$13,606 |
| Count | 4 | 5 | 7 | 3 | 14 | 11 | 5 |
| Survivors/QDROs | | | | | | | |
| General Members | | | | | | | |
| Average Benefits | \$331 | \$1,189 | \$1,017 | \$1,525 | \$1,274 | \$3,105 | \$2,783 |
| Average Final Compensation | \$4,482 | \$3,558 | \$2,664 | \$2,604 | \$3,639 | \$4,794 | \$3,940 |
| Count | 4 | 4 | 8 | 3 | 1 | 2 | 4 |
| Safety Members | | | | | | | |
| Average Benefits | \$0 | \$1,039 | \$2,423 | \$3,450 | \$3,573 | \$3,206 | \$4,887 |
| Average Final Compensation | \$0 | \$6,972 | \$7,561 | \$1,358 | \$1,776 | \$3,836 | \$6,169 |
| Count | 0 | 2 | 2 | 2 | 1 | 3 | 2 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

Schedule of Average Monthly Benefit Payments

| Retirement Effective Date | Number of Years of Service Credit | | | | | | |
|----------------------------------|--|------------|--------------|--------------|--------------|--------------|----------------------|
| | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 & Over |
| 1/2/13 to 1/1/14 | | | | | | | |
| Retirees | | | | | | | |
| General Members | | | | | | | |
| Average Benefits | \$433 | \$1,410 | \$1,589 | \$2,556 | \$3,149 | \$4,241 | \$5,837 |
| Average Final Compensation | \$7,695 | \$7,279 | \$5,787 | \$6,125 | \$6,132 | \$6,467 | \$6,718 |
| Count | 10 | 25 | 40 | 35 | 35 | 26 | 29 |
| Safety Members | | | | | | | |
| Average Benefits | \$1,165 | \$1,435 | \$2,621 | \$3,501 | \$4,260 | \$11,134 | \$9,279 |
| Average Final Compensation | \$9,478 | \$7,434 | \$6,316 | \$7,044 | \$5,599 | \$13,945 | \$9,670 |
| Count | 3 | 2 | 7 | 4 | 1 | 2 | 2 |
| Survivors/QDROs | | | | | | | |
| General Members | | | | | | | |
| Average Benefits | \$687 | \$1,000 | \$883 | \$1,182 | \$2,063 | \$1,572 | \$2,985 |
| Average Final Compensation | \$3,804 | \$4,531 | \$3,953 | \$3,163 | \$3,722 | \$1,821 | \$3,681 |
| Count | 6 | 9 | 15 | 7 | 5 | 2 | 5 |
| Safety Members | | | | | | | |
| Average Benefits | \$650 | \$3,101 | \$1,385 | \$2,012 | \$1,918 | \$3,745 | \$4,936 |
| Average Final Compensation | \$4,955 | \$10,868 | \$2,506 | \$3,966 | \$2,525 | \$6,184 | \$5,381 |
| Count | 3 | 1 | 2 | 1 | 2 | 1 | 1 |
| 1/2/14 to 1/1/15 | | | | | | | |
| Retirees | | | | | | | |
| General Members | | | | | | | |
| Average Benefits | \$618 | \$1,120 | \$1,601 | \$2,635 | \$4,409 | \$4,672 | \$6,283 |
| Average Final Compensation | \$9,300 | \$6,612 | \$5,529 | \$6,454 | \$8,122 | \$6,944 | \$7,635 |
| Count | 9 | 25 | 49 | 46 | 23 | 45 | 41 |
| Safety Members | | | | | | | |
| Average Benefits | \$380 | \$1,190 | \$3,433 | \$4,546 | \$3,993 | \$7,412 | \$11,302 |
| Average Final Compensation | \$8,910 | \$6,591 | \$7,642 | \$8,863 | \$6,031 | \$9,013 | \$11,761 |
| Count | 1 | 1 | 3 | 5 | 4 | 6 | 1 |
| Survivors/QDROs | | | | | | | |
| General Members | | | | | | | |
| Average Benefits | \$475 | \$654 | \$1,087 | \$814 | \$2,160 | \$1,680 | \$2,941 |
| Average Final Compensation | \$5,928 | \$4,152 | \$2,879 | \$2,457 | \$4,998 | \$3,887 | \$8,068 |
| Count | 11 | 6 | 11 | 6 | 5 | 3 | 5 |
| Safety Members | | | | | | | |
| Average Benefits | \$2,030 | \$2,464 | \$2,890 | \$3,326 | \$2,002 | \$3,569 | \$3,499 |
| Average Final Compensation | \$9,251 | \$8,581 | \$5,515 | \$4,817 | \$4,850 | \$5,955 | \$2,018 |
| Count | 2 | 3 | 4 | 1 | 1 | 1 | 2 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

Schedule of Average Monthly Benefit Payments

| Retirement Effective Date | Number of Years of Service Credit | | | | | | |
|----------------------------------|--|------------|--------------|--------------|--------------|--------------|----------------------|
| | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30 & Over |
| 1/2/15 to 1/1/16 | | | | | | | |
| Retirees | | | | | | | |
| General Members | | | | | | | |
| Average Benefits | \$330 | \$988 | \$1,661 | \$2,449 | \$3,277 | \$4,342 | \$5,770 |
| Average Final Compensation | \$5,778 | \$5,953 | \$5,826 | \$5,723 | \$5,918 | \$6,501 | \$6,781 |
| Count | 12 | 27 | 36 | 43 | 26 | 29 | 37 |
| Safety Members | | | | | | | |
| Average Benefits | \$585 | \$1,352 | \$2,452 | \$3,959 | \$5,597 | \$8,061 | \$10,770 |
| Average Final Compensation | \$7,403 | \$5,334 | \$6,269 | \$6,943 | \$8,120 | \$9,621 | \$11,481 |
| Count | 2 | 2 | 4 | 3 | 10 | 21 | 6 |
| Survivors/QDROs | | | | | | | |
| General Members | | | | | | | |
| Average Benefits | \$376 | \$987 | \$999 | \$1,612 | \$3,184 | \$2,709 | \$5,276 |
| Average Final Compensation | \$3,328 | \$5,939 | \$3,359 | \$4,532 | \$8,017 | \$5,312 | \$5,850 |
| Count | 4 | 10 | 9 | 4 | 4 | 3 | 5 |
| Safety Members | | | | | | | |
| Average Benefits | \$530 | \$2,019 | \$2,184 | \$1,970 | \$2,902 | \$4,784 | \$5,026 |
| Average Final Compensation | \$6,052 | \$11,395 | \$9,909 | \$3,887 | \$4,783 | \$6,788 | \$5,405 |
| Count | 2 | 1 | 2 | 1 | 2 | 4 | 3 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

| DISTRIBUTION OF GENERAL ACTIVE MEMBERS BY AGE AND SERVICE AS OF JANUARY 1, 2016 | | | | | | | | | | | | |
|--|----------------|---------------|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------------------|--------------|--------------|
| COUNTS BY AGE/SERVICE | | | | | | | | | | | | |
| Age | Service | | | | | | | | | | Total | |
| | Under 1 | 1 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 & up | | |
| Under 25 | 9 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 25 to 29 | 74 | 224 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 306 |
| 30 to 34 | 78 | 302 | 118 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 533 |
| 35 to 39 | 47 | 274 | 151 | 163 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 672 |
| 40 to 44 | 41 | 184 | 150 | 185 | 123 | 15 | 1 | 0 | 0 | 0 | 0 | 699 |
| 45 to 49 | 34 | 150 | 122 | 177 | 132 | 53 | 34 | 0 | 0 | 0 | 0 | 702 |
| 50 to 54 | 33 | 129 | 110 | 139 | 132 | 90 | 88 | 24 | 1 | 0 | 0 | 746 |
| 55 to 59 | 20 | 108 | 85 | 129 | 131 | 76 | 104 | 47 | 29 | 0 | 0 | 729 |
| 60 to 64 | 7 | 58 | 66 | 94 | 91 | 52 | 67 | 38 | 25 | 9 | 0 | 507 |
| 65 to 69 | 5 | 19 | 34 | 39 | 36 | 9 | 16 | 5 | 6 | 0 | 0 | 169 |
| 70 & up | 1 | 2 | 6 | 10 | 6 | 5 | 1 | 1 | 0 | 1 | 0 | 33 |
| Total | 349 | 1,476 | 850 | 971 | 688 | 300 | 311 | 115 | 61 | 10 | 0 | 5,131 |

Average Age = 46.53

Average Service = 10.51

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

| DISTRIBUTION OF SAFETY ACTIVE MEMBERS BY AGE AND SERVICE AS OF JANUARY 1, 2016 | | | | | | | | | | | | |
|---|----------------|---------------|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------------------|--------------|------------|
| COUNTS BY AGE/SERVICE | | | | | | | | | | | | |
| Age | Service | | | | | | | | | | Total | |
| | Under 1 | 1 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 & up | | |
| Under 25 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 25 to 29 | 4 | 45 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 |
| 30 to 34 | 4 | 25 | 85 | 27 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 142 |
| 35 to 39 | 0 | 16 | 38 | 59 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 131 |
| 40 to 44 | 0 | 9 | 29 | 54 | 62 | 6 | 0 | 0 | 0 | 0 | 0 | 160 |
| 45 to 49 | 0 | 2 | 13 | 31 | 46 | 21 | 16 | 1 | 0 | 0 | 0 | 130 |
| 50 to 54 | 3 | 5 | 10 | 8 | 18 | 11 | 23 | 8 | 0 | 0 | 0 | 86 |
| 55 to 59 | 0 | 3 | 2 | 7 | 10 | 3 | 15 | 2 | 0 | 0 | 0 | 42 |
| 60 to 64 | 0 | 1 | 2 | 3 | 3 | 5 | 6 | 2 | 1 | 0 | 0 | 23 |
| 65 to 69 | 0 | 0 | 1 | 3 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 9 |
| 70 & up | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 11 | 117 | 190 | 192 | 161 | 47 | 61 | 13 | 1 | 0 | 0 | 793 |

Average Age = 41.51

Average Service = 12.31

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

| PAYROLL DISTRIBUTION OF GENERAL ACTIVE PARTICIPANTS BY AGE AND SERVICE AS OF JANUARY 1, 2016 | | | | | | | | | | | | |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------------------|--------------|-----------------|
| AVERAGE SALARY BY AGE/SERVICE | | | | | | | | | | | | |
| Age | Service | | | | | | | | | | Total | |
| | Under 1 | 1 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 & up | | |
| Under 25 | \$41,352 | \$48,721 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$46,826 |
| 25 to 29 | \$49,677 | \$57,960 | \$56,365 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$55,915 |
| 30 to 34 | \$48,800 | \$56,784 | \$59,837 | \$60,155 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$56,513 |
| 35 to 39 | \$48,156 | \$58,174 | \$62,829 | \$68,158 | \$62,488 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$61,178 |
| 40 to 44 | \$49,226 | \$58,524 | \$78,372 | \$71,177 | \$64,727 | \$79,755 | \$66,811 | \$0 | \$0 | \$0 | \$0 | \$67,146 |
| 45 to 49 | \$50,347 | \$54,697 | \$74,048 | \$73,955 | \$71,453 | \$68,432 | \$72,259 | \$0 | \$0 | \$0 | \$0 | \$67,743 |
| 50 to 54 | \$58,027 | \$64,482 | \$72,679 | \$64,769 | \$71,241 | \$73,959 | \$79,276 | \$83,510 | \$104,059 | \$0 | \$0 | \$70,208 |
| 55 to 59 | \$47,526 | \$63,898 | \$71,544 | \$69,065 | \$65,861 | \$70,752 | \$85,095 | \$82,678 | \$77,989 | \$0 | \$0 | \$71,117 |
| 60 to 64 | \$55,017 | \$68,297 | \$81,389 | \$69,511 | \$65,075 | \$71,263 | \$74,806 | \$85,195 | \$85,377 | \$75,293 | \$0 | \$72,862 |
| 65 to 69 | \$55,910 | \$99,362 | \$72,835 | \$72,396 | \$64,364 | \$65,046 | \$70,876 | \$86,253 | \$117,297 | \$0 | \$0 | \$74,786 |
| 70 & up | \$55,120 | \$68,392 | \$136,137 | \$60,420 | \$56,428 | \$74,513 | \$40,925 | \$40,352 | \$0 | \$54,138 | \$0 | \$74,530 |
| Total | \$49,952 | \$59,293 | \$71,211 | \$69,358 | \$67,317 | \$71,734 | \$78,896 | \$83,471 | \$85,311 | \$73,178 | \$0 | \$66,407 |

Average Salary = \$66,407

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

| PAYROLL DISTRIBUTION OF SAFETY ACTIVE PARTICIPANTS BY AGE AND SERVICE AS OF JANUARY 1, 2016 | | | | | | | | | | | | |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|--------------------|--------------|------------------|
| AVERAGE SALARY BY AGE/SERVICE | | | | | | | | | | | | |
| Age | Service | | | | | | | | | | Total | |
| | Under 1 | 1 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 & up | | |
| Under 25 | \$0 | \$65,932 | \$88,002 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$67,771 |
| 25 to 29 | \$58,054 | \$65,408 | \$93,457 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$69,253 |
| 30 to 34 | \$53,050 | \$64,706 | \$81,433 | \$80,748 | \$69,760 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$77,476 |
| 35 to 39 | \$0 | \$65,498 | \$81,987 | \$77,434 | \$94,093 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$79,586 |
| 40 to 44 | \$0 | \$66,445 | \$78,879 | \$83,711 | \$83,808 | \$97,309 | \$0 | \$0 | \$0 | \$0 | \$0 | \$82,412 |
| 45 to 49 | \$0 | \$55,849 | \$73,063 | \$78,847 | \$84,257 | \$92,326 | \$124,972 | \$173,685 | \$0 | \$0 | \$0 | \$88,413 |
| 50 to 54 | \$78,062 | \$92,373 | \$76,785 | \$69,710 | \$85,205 | \$96,947 | \$119,862 | \$131,614 | \$0 | \$0 | \$0 | \$98,040 |
| 55 to 59 | \$0 | \$98,672 | \$68,723 | \$75,393 | \$76,234 | \$69,951 | \$130,001 | \$97,417 | \$0 | \$0 | \$0 | \$97,101 |
| 60 to 64 | \$0 | \$93,882 | \$107,379 | \$67,215 | \$94,268 | \$85,185 | \$103,473 | \$94,029 | \$296,024 | \$0 | \$0 | \$101,041 |
| 65 to 69 | \$0 | \$0 | \$107,371 | \$65,043 | \$80,157 | \$70,347 | \$72,460 | \$0 | \$0 | \$0 | \$0 | \$76,197 |
| 70 & up | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Total | \$61,691 | \$67,484 | \$81,217 | \$79,144 | \$84,812 | \$91,388 | \$121,306 | \$123,807 | \$296,024 | \$0 | \$0 | \$83,804 |

Average Salary = \$83,804

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

Service Retired Benefits

| Current Age | General | | Safety | | Total | |
|-----------------|--------------|------------------------|------------|------------------------|--------------|------------------------|
| | Number | Annual Average Benefit | Number | Annual Average Benefit | Number | Annual Average Benefit |
| 0-24 | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| 25-29 | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| 30-34 | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| 35-39 | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| 40-44 | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| 45-49 | 0 | \$0 | 1 | \$49,124 | 1 | \$49,124 |
| 50-54 | 80 | \$14,623 | 55 | \$60,822 | 135 | \$33,445 |
| 55-59 | 264 | \$23,569 | 106 | \$67,264 | 370 | \$36,087 |
| 60-64 | 598 | \$36,771 | 92 | \$72,685 | 690 | \$41,559 |
| 65-69 | 934 | \$36,688 | 136 | \$69,224 | 1,070 | \$40,823 |
| 70-74 | 645 | \$32,957 | 87 | \$54,088 | 732 | \$35,468 |
| 75-79 | 414 | \$29,004 | 45 | \$40,434 | 459 | \$30,124 |
| 80-84 | 275 | \$25,502 | 19 | \$43,129 | 294 | \$26,641 |
| 85-89 | 162 | \$26,640 | 11 | \$72,784 | 173 | \$29,574 |
| 90-94 | 100 | \$20,406 | 2 | \$80,590 | 102 | \$21,586 |
| 95+ | 34 | \$20,637 | 0 | \$0 | 34 | \$20,637 |
| All Ages | 3,506 | \$31,655 | 554 | \$63,054 | 4,060 | \$35,940 |

Non-Duty Disabled Benefits

| Current Age | General | | Safety | | Total | |
|-----------------|------------|------------------------|-----------|------------------------|------------|------------------------|
| | Number | Annual Average Benefit | Number | Annual Average Benefit | Number | Annual Average Benefit |
| 0-24 | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| 25-29 | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| 30-34 | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| 35-39 | 1 | \$13,140 | 0 | \$0 | 1 | \$13,140 |
| 40-44 | 5 | \$14,785 | 1 | \$24,030 | 6 | \$16,326 |
| 45-49 | 3 | \$19,932 | 0 | \$0 | 3 | \$19,932 |
| 50-54 | 16 | \$19,138 | 0 | \$0 | 16 | \$19,138 |
| 55-59 | 29 | \$16,472 | 2 | \$25,099 | 31 | \$17,029 |
| 60-64 | 30 | \$16,347 | 3 | \$21,504 | 33 | \$16,816 |
| 65-69 | 34 | \$14,759 | 3 | \$18,561 | 37 | \$15,068 |
| 70-74 | 22 | \$14,108 | 2 | \$50,006 | 24 | \$17,099 |
| 75-79 | 10 | \$17,596 | 2 | \$19,703 | 12 | \$17,947 |
| 80-84 | 3 | \$15,937 | 1 | \$20,438 | 4 | \$17,062 |
| 85-89 | 1 | \$8,538 | 0 | \$0 | 1 | \$8,538 |
| 90-94 | 2 | \$10,561 | 0 | \$0 | 2 | \$10,561 |
| 95+ | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| All Ages | 156 | \$15,941 | 14 | \$25,306 | 170 | \$16,712 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

Duty Disabled Benefits

| Current Age | General | | Safety | | Total | |
|-----------------|------------|------------------------|------------|------------------------|------------|------------------------|
| | Number | Annual Average Benefit | Number | Annual Average Benefit | Number | Annual Average Benefit |
| 0-24 | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| 25-29 | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| 30-34 | 0 | \$0 | 2 | \$37,875 | 2 | \$37,875 |
| 35-39 | 0 | \$0 | 3 | \$32,894 | 3 | \$32,894 |
| 40-44 | 7 | \$11,450 | 10 | \$35,083 | 17 | \$25,352 |
| 45-49 | 11 | \$9,831 | 13 | \$39,739 | 24 | \$26,031 |
| 50-54 | 13 | \$19,231 | 33 | \$44,684 | 46 | \$37,491 |
| 55-59 | 41 | \$21,547 | 33 | \$51,228 | 74 | \$34,783 |
| 60-64 | 50 | \$23,833 | 32 | \$51,618 | 82 | \$34,676 |
| 65-69 | 61 | \$28,477 | 35 | \$57,044 | 96 | \$38,892 |
| 70-74 | 30 | \$24,362 | 18 | \$50,960 | 48 | \$34,336 |
| 75-79 | 9 | \$30,323 | 9 | \$53,090 | 18 | \$41,707 |
| 80-84 | 8 | \$27,289 | 2 | \$52,055 | 10 | \$32,242 |
| 85-89 | 2 | \$22,294 | 6 | \$63,596 | 8 | \$53,271 |
| 90-94 | 2 | \$32,394 | 0 | \$0 | 2 | \$32,394 |
| 95+ | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| All Ages | 234 | \$23,854 | 196 | \$49,674 | 430 | \$35,623 |

Surviving Beneficiary Benefits (all benefit types)

| Current Age | General | | Safety | | Total | |
|-----------------|------------|------------------------|------------|------------------------|------------|------------------------|
| | Number | Annual Average Benefit | Number | Annual Average Benefit | Number | Annual Average Benefit |
| 0-24 | 9 | \$13,477 | 0 | \$0 | 9 | \$13,477 |
| 25-29 | 2 | \$18,767 | 0 | \$0 | 2 | \$18,767 |
| 30-34 | 1 | \$8,910 | 0 | \$0 | 1 | \$8,910 |
| 35-39 | 1 | \$11,482 | 0 | \$0 | 1 | \$11,482 |
| 40-44 | 4 | \$11,442 | 2 | \$60,793 | 6 | \$27,892 |
| 45-49 | 8 | \$14,428 | 5 | \$26,265 | 13 | \$18,981 |
| 50-54 | 20 | \$10,203 | 18 | \$16,584 | 38 | \$13,226 |
| 55-59 | 37 | \$16,097 | 23 | \$24,643 | 60 | \$19,373 |
| 60-64 | 64 | \$14,236 | 24 | \$36,387 | 88 | \$20,277 |
| 65-69 | 100 | \$21,709 | 27 | \$36,373 | 127 | \$24,827 |
| 70-74 | 82 | \$19,783 | 27 | \$30,971 | 109 | \$22,554 |
| 75-79 | 69 | \$17,324 | 18 | \$43,436 | 87 | \$22,726 |
| 80-84 | 67 | \$18,043 | 17 | \$35,520 | 84 | \$21,580 |
| 85-89 | 62 | \$17,954 | 11 | \$38,893 | 73 | \$21,109 |
| 90-94 | 44 | \$21,396 | 5 | \$33,612 | 49 | \$22,642 |
| 95+ | 28 | \$20,513 | 0 | \$0 | 28 | \$20,513 |
| All Ages | 598 | \$18,190 | 177 | \$32,720 | 775 | \$21,508 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

Assumed Probabilities of Separation from Active Membership

| Age | Non-Duty Death | Ordinary Disability | Service Retirement ¹ | Duty Death | Duty Disability |
|---------------------------------|-------------------|------------------------|------------------------------------|------------|--------------------|
| General Members – Male | | | | | |
| 20 | 0.0002 | 0.000 | 0.000 | 0.000 | 0.001 |
| 25 | 0.0003 | 0.001 | 0.000 | 0.000 | 0.001 |
| 30 | 0.0005 | 0.001 | 0.000 | 0.000 | 0.001 |
| 35 | 0.0005 | 0.001 | 0.000 | 0.000 | 0.001 |
| 40 | 0.0007 | 0.001 | 0.000 | 0.000 | 0.004 |
| 45 | 0.0009 | 0.002 | 0.000 | 0.000 | 0.004 |
| 50 | 0.0014 | 0.002 | 0.040 | 0.000 | 0.002 |
| 55 | 0.0022 | 0.003 | 0.085 | 0.000 | 0.002 |
| 60 | 0.0034 | 0.003 | 0.150 | 0.000 | 0.002 |
| 65 | 0.0046 | 0.004 | 0.250 | 0.000 | 0.002 |
| General Members – Female | | | | | |
| 20 | 0.0002 | 0.000 | 0.000 | 0.000 | 0.000 |
| 25 | 0.0002 | 0.001 | 0.000 | 0.000 | 0.000 |
| 30 | 0.0003 | 0.001 | 0.000 | 0.000 | 0.000 |
| 35 | 0.0004 | 0.001 | 0.000 | 0.000 | 0.001 |
| 40 | 0.0005 | 0.001 | 0.000 | 0.000 | 0.001 |
| 45 | 0.0006 | 0.002 | 0.000 | 0.000 | 0.001 |
| 50 | 0.0010 | 0.002 | 0.035 | 0.000 | 0.001 |
| 55 | 0.0015 | 0.003 | 0.035 | 0.000 | 0.002 |
| 60 | 0.0021 | 0.004 | 0.125 | 0.000 | 0.002 |
| 65 | 0.0029 | 0.005 | 0.250 | 0.000 | 0.003 |

¹ Lower rates assumed for members with less than 10 years of service, and higher rates assumed for members with at least 30 years of service.

The probabilities for each cause of separation represent the likelihood that a given member will separate at a particular age for the indicated reason. As an example, if the probability of separation of a male general member at age 20 is 0.036, that indicates that 3.6% of active general members are expected to separate from service during the year. Rates of Duty and Non-Duty Death are for active members who reach the given age during 2016.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX A – MEMBERSHIP INFORMATION

Assumed Probabilities of Separation from Active Membership

| Age | Non-Duty Death | Ordinary Disability | Service Retirement¹ | Duty Death | Duty Disability |
|--------------------------------|---------------------------|--------------------------------|---|-------------------|----------------------------|
| Safety Members – Male | | | | | |
| 20 | 0.0002 | 0.000 | 0.000 | 0.0000 | 0.000 |
| 25 | 0.0003 | 0.000 | 0.000 | 0.0001 | 0.001 |
| 30 | 0.0005 | 0.000 | 0.000 | 0.0001 | 0.001 |
| 35 | 0.0005 | 0.000 | 0.000 | 0.0001 | 0.002 |
| 40 | 0.0007 | 0.000 | 0.000 | 0.0001 | 0.004 |
| 45 | 0.0009 | 0.000 | 0.050 | 0.0001 | 0.008 |
| 50 | 0.0014 | 0.001 | 0.150 | 0.0001 | 0.014 |
| 55 | 0.0022 | 0.001 | 0.300 | 0.0001 | 0.014 |
| Safety Members – Female | | | | | |
| 20 | 0.0002 | 0.000 | 0.000 | 0.0000 | 0.000 |
| 25 | 0.0002 | 0.000 | 0.000 | 0.0001 | 0.001 |
| 30 | 0.0003 | 0.000 | 0.000 | 0.0001 | 0.001 |
| 35 | 0.0004 | 0.000 | 0.000 | 0.0001 | 0.002 |
| 40 | 0.0005 | 0.000 | 0.000 | 0.0001 | 0.004 |
| 45 | 0.0006 | 0.000 | 0.050 | 0.0001 | 0.009 |
| 50 | 0.0010 | 0.001 | 0.150 | 0.0001 | 0.014 |
| 55 | 0.0015 | 0.001 | 0.300 | 0.0002 | 0.014 |

¹ Lower rates assumed for members with less than 20 years of service.

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APPENDIX A – MEMBERSHIP INFORMATION

Salary Increase, Termination and Withdrawal Assumptions

| Years of Service | Salary Increase: General | Salary Increase: Safety | Withdrawal: General | Withdrawal: Safety | Termination: General¹ | Termination: Safety² |
|-------------------------|---------------------------------|--------------------------------|----------------------------|---------------------------|---|--|
| 0 | 0.0934 | 0.1037 | 0.105 | 0.060 | 0.070 | 0.040 |
| 1 | 0.0831 | 0.0934 | 0.066 | 0.047 | 0.044 | 0.031 |
| 2 | 0.0728 | 0.0831 | 0.060 | 0.035 | 0.040 | 0.023 |
| 3 | 0.0624 | 0.0728 | 0.047 | 0.030 | 0.031 | 0.020 |
| 4 | 0.0521 | 0.0624 | 0.041 | 0.027 | 0.027 | 0.018 |
| 5 | 0.0470 | 0.0547 | 0.019 | 0.002 | 0.044 | 0.018 |
| 6 | 0.0418 | 0.0444 | 0.018 | 0.002 | 0.042 | 0.016 |
| 7 | 0.0392 | 0.0444 | 0.014 | 0.002 | 0.032 | 0.014 |
| 8 | 0.0367 | 0.0444 | 0.014 | 0.002 | 0.032 | 0.014 |
| 9 | 0.0367 | 0.0444 | 0.011 | 0.002 | 0.026 | 0.014 |
| 10 | 0.0367 | 0.0444 | 0.011 | 0.001 | 0.026 | 0.007 |
| 11 | 0.0367 | 0.0444 | 0.008 | 0.001 | 0.019 | 0.007 |
| 12 | 0.0367 | 0.0444 | 0.008 | 0.001 | 0.019 | 0.007 |
| 13 | 0.0367 | 0.0444 | 0.008 | 0.001 | 0.018 | 0.007 |
| 14 | 0.0367 | 0.0444 | 0.008 | 0.001 | 0.018 | 0.007 |
| 15 | 0.0367 | 0.0444 | 0.003 | 0.000 | 0.023 | 0.008 |
| 16 | 0.0367 | 0.0444 | 0.003 | 0.000 | 0.023 | 0.008 |
| 17 | 0.0367 | 0.0444 | 0.003 | 0.000 | 0.023 | 0.008 |
| 18 | 0.0367 | 0.0444 | 0.003 | 0.000 | 0.023 | 0.008 |
| 19 | 0.0367 | 0.0444 | 0.003 | 0.000 | 0.023 | 0.008 |
| 20 | 0.0367 | 0.0444 | 0.001 | 0.000 | 0.009 | 0.000 |
| 21 | 0.0367 | 0.0444 | 0.001 | 0.000 | 0.009 | 0.000 |
| 22 | 0.0367 | 0.0444 | 0.001 | 0.000 | 0.009 | 0.000 |
| 23 | 0.0367 | 0.0444 | 0.001 | 0.000 | 0.009 | 0.000 |
| 24 | 0.0367 | 0.0444 | 0.001 | 0.000 | 0.009 | 0.000 |
| 25 | 0.0367 | 0.0444 | 0.001 | 0.000 | 0.009 | 0.000 |
| 26 | 0.0367 | 0.0444 | 0.001 | 0.000 | 0.009 | 0.000 |
| 27 | 0.0367 | 0.0444 | 0.001 | 0.000 | 0.009 | 0.000 |
| 28 | 0.0367 | 0.0444 | 0.001 | 0.000 | 0.009 | 0.000 |
| 29 | 0.0367 | 0.0444 | 0.001 | 0.000 | 0.009 | 0.000 |
| 30+ | 0.0315 | 0.0444 | 0.000 | 0.000 | 0.000 | 0.000 |

¹ 25% of General Terminations are assumed to be reciprocal.

² 50% of Safety Terminations are assumed to be reciprocal.

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The assumptions and methods used in the actuarial valuation as of January 1, 2016 are:

Actuarial Methods

1. Actuarial Cost Method

The actuarial valuation is prepared using the entry age actuarial cost method (CERL 31453.5). Under the principles of this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and assumed exit (until maximum retirement age). For members who transferred from outside of SJCERA, entry age (for the Actuarial Cost calculation only) is based on entry into the system. The normal cost for the Plan is based on the sum of the individual normal costs for each member (Individual Entry Age Method).

The UAL (or Surplus Funding) is amortized as a percentage of the projected salaries of present and future members of SJCERA. Effective with the January 1, 2015 valuation, the UAL as of January 1, 2014 is amortized over a closed 19-year period (17 years remaining as of January 1, 2016), except for the additional UAL attributable to the extraordinary loss from 2008, which is being amortized over a separate closed period (23 years as of January 1, 2016).

Any subsequent unexpected change in the unfunded actuarial liability after January 1, 2014 is amortized over 15 years.

2. Valuation of Assets

The assets are valued using a five-year smoothed method based on the difference between the expected market value and the actual market value of the assets as of the valuation date. The expected market value is the prior year's market value increased with the net increase in the cash flow of funds, all increased with interest during the past fiscal year at the expected investment return rate assumption.

An asset corridor limit is applied such that the smoothed market value of assets stays within 20% of the market value of assets.

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Actuarial Assumptions

The actuarial assumptions have been adopted by the Board for this valuation based on recommendations included in an Experience Study performed by Cheiron, which analyzed the Plan's experience from 2013-2016 (and in some cases from 2010-2016). Many of the assumptions changed as a result of the Experience Study; the Experience Study report contains a full description of the old and new assumptions, as well as the basis for our recommendations.

These assumptions will be used for the 2016 through 2018 actuarial valuations, unless modified by the Board.

3. Rate of Return

Assets are assumed to earn 7.40% net of investment expenses.

4. Administrative Expenses

Administrative expenses are assumed to be \$4,370,908 for the next year, to be split between employees and employers based on their share of the overall contributions. Expenses are expected to grow with the cost of living (by 2.90% per year.)

5. Cost of Living

The cost of living as measured by the Consumer Price Index (CPI) will increase at the rate of 2.90% per year.

6. Post Retirement COLA

Benefits are assumed to increase after retirement at the rate of 2.6% per year.

7. Increases in Pay

Assumed pay increases for active Members consist of increases due to base salary adjustments plus service-based increase due to longevity and promotion, as shown below:

| | Pay Increases | | | | | | | | | |
|----------------------------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Years of Service | | | | | | | | | |
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8-29 | 30+ |
| Base Increase | 3.15% | 3.15% | 3.15% | 3.15% | 3.15% | 3.15% | 3.15% | 3.15% | 3.15% | 3.15% |
| Longevity & Promotion | | | | | | | | | | |
| General | 6.00% | 5.00% | 4.00% | 3.00% | 2.00% | 1.50% | 1.00% | 0.75% | 0.50% | 0.00% |
| Safety | 7.00% | 6.00% | 5.00% | 4.00% | 3.00% | 2.25% | 1.25% | 1.25% | 1.25% | 1.25% |
| Total (Compound) | | | | | | | | | | |
| General | 9.34% | 8.31% | 7.28% | 6.24% | 5.21% | 4.70% | 4.18% | 3.92% | 3.67% | 3.15% |
| Safety | 10.37% | 9.34% | 8.31% | 7.28% | 6.24% | 5.47% | 4.44% | 4.44% | 4.44% | 4.44% |

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8. Family Composition

Percentage married for all active members who retire, become disabled, or die during active service is shown in the following table. Male members are assumed to be four years older than their spouses, and female members are assumed to be two years younger than their spouses.

| Percentage Married | |
|---------------------------|-------------------|
| Gender | Percentage |
| Males | 75% |
| Females | 55% |

9. Rates of Termination

Sample rates of termination are show in the following table.

| Rates of Termination* | | |
|------------------------------|----------------|---------------|
| Years of Service | General | Safety |
| 0 | 17.50% | 10.00% |
| 1 | 11.00% | 7.75% |
| 2 | 10.00% | 5.75% |
| 3 | 7.75% | 5.00% |
| 4 | 6.75% | 4.50% |
| 5 | 6.25% | 2.00% |
| 6 | 6.00% | 1.75% |
| 7 | 4.50% | 1.50% |
| 8 | 4.50% | 1.50% |
| 9 | 3.75% | 1.50% |
| 10 | 3.75% | 0.75% |
| 11-12 | 2.75% | 0.75% |
| 13-19 | 2.50% | 0.75% |
| 20-29 | 1.00% | 0.00% |
| 30+ | 0.00% | 0.00% |

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

10. Withdrawal

Rates of withdrawal apply to active Members who terminate their employment and withdraw their member contributions, forfeiting entitlement to future Plan benefits.

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60% of all General Member terminations with less than five years of service, 30% of those with five to fourteen years of service, and 10% of those with more than fifteen years of service, are assumed to take a refund of contributions.

60% of all Safety Member terminations with less than five years of service, 10% of those with five to fourteen years of service, and none of those with more than fifteen years of service, are assumed to take a refund of contributions.

11. Vested Termination and Reciprocal Transfers

Rates of vested termination apply to active Members who terminate their employment and leave their member contributions on deposit with the Plan.

40% of all General Member terminations with less than five years of service, 70% of those with five to fourteen years of service, and 90% of those with more than fifteen years of service, are assumed to leave their contributions on deposit.

40% of all Safety Member terminations with less than five years of service, 90% of those with five to fourteen years of service, and 100% of those with more than fifteen years of service, are assumed to leave their contributions on deposit.

Vested terminated General Members are assumed to begin receiving benefits at age 58; vested terminated Safety Members are assumed to begin receiving benefits at age 50.

25% of vested terminated General Members and 50% of vested terminated Safety Members are assumed to be reciprocal.

Final average pay for General Members who terminate with reciprocity is assumed to increase by 3.67% per year until their assumed retirement date. Final average pay for Safety Members who terminate with reciprocity is assumed to increase by 4.44% per year until their assumed retirement date.

12. Rates of Service-Connected Disability

Sample service-connected disability rates of active participants are provided in the table below.

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| Rates of Svc Disability | | | | |
|--------------------------------|----------------|----------------|---------------|---------------|
| | General | General | Safety | Safety |
| Age | Male | Female | Male | Female |
| 22 | 0.066% | 0.022% | 0.048% | 0.048% |
| 27 | 0.066% | 0.030% | 0.086% | 0.089% |
| 32 | 0.066% | 0.051% | 0.161% | 0.166% |
| 37 | 0.066% | 0.073% | 0.296% | 0.305% |
| 42 | 0.380% | 0.094% | 0.565% | 0.592% |
| 47 | 0.380% | 0.123% | 1.023% | 1.101% |
| 52 | 0.226% | 0.159% | 1.425% | 1.425% |
| 57 | 0.226% | 0.204% | 1.425% | 1.425% |
| 62 | 0.226% | 0.249% | 1.425% | 1.425% |

13. Rates of Nonservice-Connected Disability

Sample nonservice-connected disability rates of active participants are provided in the table below.

| Rates of Non-Svc Disability | | | | |
|------------------------------------|----------------|----------------|---------------|---------------|
| | General | General | Safety | Safety |
| Age | Male | Female | Male | Female |
| 22 | 0.051% | 0.053% | 0.003% | 0.003% |
| 27 | 0.068% | 0.067% | 0.005% | 0.005% |
| 32 | 0.086% | 0.081% | 0.008% | 0.009% |
| 37 | 0.108% | 0.102% | 0.016% | 0.016% |
| 42 | 0.138% | 0.138% | 0.030% | 0.031% |
| 47 | 0.178% | 0.197% | 0.054% | 0.058% |
| 52 | 0.225% | 0.267% | 0.075% | 0.075% |
| 57 | 0.286% | 0.337% | 0.075% | 0.075% |
| 62 | 0.362% | 0.408% | 0.075% | 0.075% |

14. Rates of Mortality for Healthy Lives

Mortality rates for active members are based on the sex distinct CALPERS Preretirement Non-Industrial Mortality Table, with generational mortality improvements projected from 2009 using Projection Scale MP-2015, published by the Society of Actuaries.

Mortality rates for healthy annuitants are based on the sex distinct CALPERS Healthy Annuitant Mortality Table, with a partial credibility adjustment of 1.10 for Safety

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members, with generational mortality improvements projected from 2009 using Projection Scale MP-2015, published by the Society of Actuaries.

Mortality rates for active members who die in the line-of-duty are based on the sex distinct CALPERS Preretirement Industrial Mortality Table, with generational mortality improvements projected from 2009 using Projection Scale MP-2015, published by the Society of Actuaries.

15. Rates of Mortality for Disabled Retirees

Mortality rates for Safety disabled annuitants are based on the sex distinct CALPERS Industrially Disabled Annuitant Mortality Table, with generational mortality improvements projected from 2009 using Projection Scale MP-2015, published by the Society of Actuaries.

Mortality rates for General disabled annuitants are based on the sex distinct CALPERS Non-Industrially Disabled Annuitant Mortality Table, with a partial credibility adjustment of 1.05, with generational mortality improvements projected from 2009 using Projection Scale MP-2015, published by the Society of Actuaries.

16. Mortality Improvement

The mortality assumptions employ a fully generational mortality improvement projection from the base year of the CalPERS mortality tables (2009) using Scale MP-2015.

17. Adjustment for Service Purchases

SJCERA provides Cheiron with the amount of service that active employees are eligible to purchase. We include this service when calculating the employees' benefit eligibility. Half of eligible service purchases which have not been purchased by the members are included in the employees' Credited Service, as employees will pay approximately half of the normal cost for these benefits when purchasing this service.

18. Assumptions for Employee Contribution Rates

Mortality rates are the base mortality tables described above, projected using Scale MP-2015 from 2009 to 2038 for General Members and to 2040 for Safety Members. The projection periods are based on the duration of active liabilities for the respective groups, and the period during which the associated employee contribution rates will be in use. The employee contribution rates are also blended using a male/female weighting of 29%/71% for General Members and 75%/25% for Safety members.

We anticipate that these mortality assumptions will be used to determine the employee contribution rates in effect for the period of January 1, 2017 through December 31, 2019. Therefore, mortality rates at the member's current age will reflect mortality improvements to 2018, the midpoint of that period.

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19. Rates of Retirement

Rates of retirement are based on age according to the following table.

| Rates of Retirement | | | | | | | | |
|---------------------|----------------------------------|---------|---------|------------------------------------|---------|---------|----------------------------|---------|
| Age | General Male Years of Service | | | General Female Years of Service | | | Safety Years of Service | |
| | 5-9 | 10-29 | 30+ | 5-9 | 10-29 | 30+ | 10-19 | 20+ |
| 45 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.00% |
| 46 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.00% |
| 47 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.00% |
| 48 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.00% |
| 49 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 5.00% |
| 50 | 3.25% | 4.00% | 5.00% | 3.50% | 3.50% | 4.50% | 10.00% | 15.00% |
| 51 | 3.25% | 4.00% | 5.00% | 3.50% | 3.50% | 4.50% | 5.00% | 10.00% |
| 52 | 3.25% | 4.00% | 5.00% | 3.50% | 3.50% | 4.50% | 5.00% | 10.00% |
| 53 | 3.25% | 4.00% | 5.00% | 3.50% | 3.50% | 4.50% | 5.00% | 20.00% |
| 54 | 3.25% | 4.00% | 5.00% | 3.50% | 3.50% | 4.50% | 5.00% | 20.00% |
| 55 | 4.00% | 8.50% | 15.00% | 3.50% | 3.50% | 4.50% | 5.00% | 30.00% |
| 56 | 4.00% | 4.00% | 15.00% | 3.50% | 7.00% | 15.00% | 5.00% | 20.00% |
| 57 | 4.00% | 4.00% | 15.00% | 3.50% | 7.00% | 15.00% | 5.00% | 20.00% |
| 58 | 4.00% | 4.00% | 20.00% | 3.50% | 7.00% | 15.00% | 5.00% | 20.00% |
| 59 | 4.00% | 15.00% | 25.00% | 3.50% | 7.00% | 15.00% | 5.00% | 20.00% |
| 60 | 4.00% | 15.00% | 25.00% | 7.50% | 12.50% | 15.00% | 5.00% | 20.00% |
| 61 | 7.50% | 17.50% | 35.00% | 7.50% | 12.50% | 25.00% | 25.00% | 25.00% |
| 62 | 7.50% | 30.00% | 40.00% | 7.50% | 25.00% | 30.00% | 25.00% | 50.00% |
| 63 | 7.50% | 25.00% | 35.00% | 7.50% | 25.00% | 35.00% | 25.00% | 50.00% |
| 64 | 7.50% | 25.00% | 35.00% | 7.50% | 25.00% | 40.00% | 25.00% | 50.00% |
| 65 | 15.00% | 25.00% | 50.00% | 15.00% | 25.00% | 40.00% | 100.00% | 100.00% |
| 66 | 15.00% | 35.00% | 50.00% | 15.00% | 25.00% | 40.00% | 100.00% | 100.00% |
| 67 | 15.00% | 30.00% | 40.00% | 15.00% | 25.00% | 40.00% | 100.00% | 100.00% |
| 68 | 15.00% | 30.00% | 30.00% | 15.00% | 25.00% | 40.00% | 100.00% | 100.00% |
| 69 | 15.00% | 30.00% | 30.00% | 15.00% | 25.00% | 40.00% | 100.00% | 100.00% |
| 70 | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

20. Changes in Assumptions

Details of all assumption changes can be found in the Actuarial Experience Study Report for the period covering January 1, 2013 to December 31, 2015.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

A. Definitions

Compensation: Compensation means the cash remuneration for services paid by the employer. It includes base pay and certain differential, incentive, and special pay allowances defined by the Board of Retirement. Overtime is excluded, with the exception of overtime paid under the Fair Labor Standards Act that is regular and recurring.

For members joining the Plan on and after January 1, 2013 (Tier II Members), only pensionable compensation up to the Social Security Taxable Wage Base (\$117,020 for 2016) will count for computing Plan benefits and employee contributions and employer contributions for those participating in Social Security. For those not participating in Social Security, the compensation cap is 120% of the Taxable Wage Base (\$140,424 for 2016.) In addition, it is possible that some sources of compensation, such as any payments deemed to be terminal or special pays, may be excluded from benefit and contribution computations for Tier II Members.

Credited Service: In general, Credited Service is earned for the period during which Member Contributions are paid.

Temporary service for which the Member was not credited, or service for which the Member withdrew his or her Member Contributions, may be purchased by paying or repaying the Member Contributions with interest. Credit for up to 12 months of a medical leave of absence and all military leaves of absence may also be purchased.

Public Service (see below) is part of Credited Service for the computation of benefits only, not for eligibility for benefits or for vesting.

Final

Compensation: For Tier I Members, Final Compensation means the highest average Compensation earned during any 12 consecutive months of the Member's employment.

For Tier II Members, highest average Compensation will be based on the highest 36 consecutive months, rather than 12 months.

General Member: Any Member who is not a Safety Member is a General Member.

Public Service: The Member may elect to purchase Public Service for time spent while employed in another recognized public agency. The public agency must have a reciprocal agreement with the Plan or be one of several specified municipalities, counties, special districts, or State or Federal agencies.

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Public Service cannot be purchased if it is used for eligibility for another pension.

The cost to purchase Public Service is twice the Member Contributions and interest applicable for the period of time purchased. Public Service is used to compute benefits, but does not count toward eligibility for benefits or vesting.

Safety Member: Any sworn Member engaged in law enforcement, probation, or fire suppression is a Safety Member.

B. Membership

Eligibility: All full-time, permanent employees of San Joaquin County and other participating special districts become Members on their date of appointment. Membership is mandatory; only elected officials and members who are age 60 or older at the time of employment in a position requiring membership in SJCERA may choose not to participate.

A Tier II Member is any Member joining the Plan for the first time on or after January 1, 2013. Employees who transfer from and are eligible for reciprocity with another public employer will not be Tier II Members if their service in the reciprocal system was under a previous tier. Employees who were Members of SJCERA prior to January 1, 2013 and experienced a break in service of more than six months and then were reemployed by a *different* SJCERA-participating employer on or after January 1, 2013 will be considered Tier II Members for all subsequent service.

Member

Contributions: Each Member contributes a percentage of Compensation to the Plan through payroll deduction. For Tier I members, the percentage contributed depends on the Member's age upon joining the Plan. Representative rates are shown in Table 1 on the next page.

Tier I members covered by Social Security have their contributions reduced by one-third on the first \$161.54 of biweekly Compensation. General Members who joined the Plan prior to March 7, 1973 and who have earned 30 years of Credited Service do not contribute; Safety Members do not contribute after earning 30 years of Credited Service.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

Table 1: Tier I Member Contribution Rates (Basic Rates)

| Entry Age | General Member Rate | | Safety Member Rate | |
|-----------|-----------------------------|------------|-----------------------------|------------|
| | 1 st \$350/month | Over \$350 | 1 st \$350/month | Over \$350 |
| 20 | 1.71% | 2.57% | 2.68% | 4.02% |
| 25 | 1.94% | 2.91% | 2.91% | 4.36% |
| 30 | 2.16% | 3.24% | 3.15% | 4.73% |
| 35 | 2.39% | 3.59% | 3.43% | 5.14% |
| 40 | 2.66% | 3.99% | 3.75% | 5.62% |
| 45 | 2.97% | 4.46% | 4.11% | 6.16% |
| 50 | 3.31% | 4.96% | 4.04% | 6.06% |

Some Tier I members also contribute half of the normal cost associated with the post-retirement COLA benefits, also based on entry age. Many bargaining groups have also agreed to have their Tier I members pay additional basic rate contributions (14% of the current basic rates for General members, 33% for Safety). Complete rate tables for all groups are in the Appendix.

Tier II Members contribute half of the normal cost of the Plan. Contributions for these Members are based on the Normal Cost associated with their benefits; General and Safety members pay different rates.

Tier II Members pay a single contribution rate, not a rate based on entry age. All Tier II Members continue contributing after earning 30 years of service.

Table 2: Tier II Member Contribution Rates

| General Member Rate | Safety Member Rate |
|---------------------|--------------------|
| 8.97% | 14.53% |

Interest is credited semiannually to each Member's accumulated contributions. The crediting rate is set by the Board; the semi-annual rate for 2015 was 3.68%, for an effective annual rate of 7.50%.

C. Service Retirement:

Eligibility: Tier I General Members are eligible to retire at age 50 if they have earned five years of Credited Service and have passed the tenth anniversary of their membership in the Plan. Alternatively, General Members are eligible to retire at any age after having earned 30 years of Credited Service, or upon reaching age 70 with no service requirement.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

Tier I Safety Members are eligible to retire at age 50 if they have earned five years of Credited Service and have passed the tenth anniversary of their membership in the Plan. Alternatively, Safety Members are eligible to retire at any age after having earned 20 years of Credited Service.

Tier II General Members are eligible to retire upon attaining age 52 and completing five or more years of service. Tier II Safety Members are eligible to retire upon attaining age 50 and completing five or more years of service. Tier II Members are eligible to retire, regardless of service, after attaining age 70.

Benefit Amount: The Service Retirement Benefit payable to Tier I General Members is equal to the percentage in Table 3 on the next page multiplied by the Member's Final Compensation. The Service Retirement Benefit payable to Tier I Safety Members is equal to the percentage in Table 4 on page 63 multiplied by the Member's Final Compensation. The percentage of Final Compensation may not exceed 100%.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

Table 3: Tier I General Members (CERL Section 31676.14)

| Service | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 10 | | | | | 14.75 | 15.67 | 16.67 | 17.41 | 18.41 | 19.48 | 20.61 | 21.82 | 22.68 | 23.54 | 24.40 | 25.26 | 26.11 | 26.11 | 26.11 | 26.11 |
| 11 | | | | | 16.23 | 17.23 | 18.33 | 19.15 | 20.25 | 21.42 | 22.67 | 24.00 | 24.95 | 25.89 | 26.84 | 27.78 | 28.72 | 28.72 | 28.72 | 28.72 |
| 12 | | | | | 17.70 | 18.80 | 20.00 | 20.89 | 22.10 | 23.37 | 24.73 | 26.19 | 27.22 | 28.25 | 29.28 | 30.31 | 31.34 | 31.34 | 31.34 | 31.34 |
| 13 | | | | | 19.18 | 20.36 | 21.67 | 22.64 | 23.94 | 25.32 | 26.79 | 28.37 | 29.48 | 30.60 | 31.72 | 32.83 | 33.95 | 33.95 | 33.95 | 33.95 |
| 14 | | | | | 20.65 | 21.93 | 23.33 | 24.38 | 25.78 | 27.27 | 28.85 | 30.55 | 31.75 | 32.95 | 34.16 | 35.36 | 36.56 | 36.56 | 36.56 | 36.56 |
| 15 | | | | | 22.13 | 23.50 | 25.00 | 26.12 | 27.62 | 29.22 | 30.91 | 32.73 | 34.02 | 35.31 | 36.60 | 37.88 | 39.17 | 39.17 | 39.17 | 39.17 |
| 16 | | | | | 23.60 | 25.06 | 26.67 | 27.86 | 29.46 | 31.16 | 32.97 | 34.92 | 36.29 | 37.66 | 39.04 | 40.41 | 41.78 | 41.78 | 41.78 | 41.78 |
| 17 | | | | | 25.08 | 26.63 | 28.33 | 29.60 | 31.30 | 33.11 | 35.03 | 37.10 | 38.56 | 40.01 | 41.47 | 42.93 | 44.39 | 44.39 | 44.39 | 44.39 |
| 18 | | | | | 26.55 | 28.20 | 30.00 | 31.34 | 33.14 | 35.06 | 37.09 | 39.28 | 40.82 | 42.37 | 43.91 | 45.46 | 47.00 | 47.00 | 47.00 | 47.00 |
| 19 | | | | | 28.03 | 29.76 | 31.67 | 33.08 | 34.98 | 37.01 | 39.16 | 41.46 | 43.09 | 44.72 | 46.35 | 47.98 | 49.61 | 49.61 | 49.61 | 49.61 |
| 20 | | | | | 29.50 | 31.33 | 33.33 | 34.82 | 36.83 | 38.95 | 41.22 | 43.64 | 45.36 | 47.08 | 48.79 | 50.51 | 52.23 | 52.23 | 52.23 | 52.23 |
| 21 | | | | | 30.98 | 32.90 | 35.00 | 36.57 | 38.67 | 40.90 | 43.28 | 45.83 | 47.63 | 49.43 | 51.23 | 53.04 | 54.84 | 54.84 | 54.84 | 54.84 |
| 22 | | | | | 32.45 | 34.46 | 36.67 | 38.31 | 40.51 | 42.85 | 45.34 | 48.01 | 49.90 | 51.78 | 53.67 | 55.56 | 57.45 | 57.45 | 57.45 | 57.45 |
| 23 | | | | | 33.93 | 36.03 | 38.33 | 40.05 | 42.35 | 44.80 | 47.40 | 50.19 | 52.16 | 54.14 | 56.11 | 58.09 | 60.06 | 60.06 | 60.06 | 60.06 |
| 24 | | | | | 35.40 | 37.60 | 40.00 | 41.79 | 44.19 | 46.74 | 49.46 | 52.37 | 54.43 | 56.49 | 58.55 | 60.61 | 62.67 | 62.67 | 62.67 | 62.67 |
| 25 | | | | | 36.88 | 39.16 | 41.67 | 43.53 | 46.03 | 48.69 | 51.52 | 54.56 | 56.70 | 58.85 | 60.99 | 63.14 | 65.28 | 65.28 | 65.28 | 65.28 |
| 26 | | | | | 38.35 | 40.73 | 43.33 | 45.27 | 47.87 | 50.64 | 53.58 | 56.74 | 58.97 | 61.20 | 63.43 | 65.66 | 67.89 | 67.89 | 67.89 | 67.89 |
| 27 | | | | | 39.83 | 42.30 | 45.00 | 47.01 | 49.72 | 52.59 | 55.64 | 58.92 | 61.24 | 63.55 | 65.87 | 68.19 | 70.51 | 70.51 | 70.51 | 70.51 |
| 28 | | | | | 41.30 | 43.86 | 46.67 | 48.75 | 51.56 | 54.54 | 57.70 | 61.10 | 63.50 | 65.91 | 68.31 | 70.71 | 73.12 | 73.12 | 73.12 | 73.12 |
| 29 | | | | | 42.78 | 45.43 | 48.33 | 50.49 | 53.40 | 56.48 | 59.76 | 63.28 | 65.77 | 68.26 | 70.75 | 73.24 | 75.73 | 75.73 | 75.73 | 75.73 |
| 30 | 35.28 | 37.27 | 39.41 | 41.73 | 44.25 | 47.00 | 50.00 | 52.24 | 55.24 | 58.43 | 61.82 | 65.47 | 68.04 | 70.61 | 73.19 | 75.77 | 78.34 | 78.34 | 78.34 | 78.34 |
| 31 | | 38.51 | 40.72 | 43.12 | 45.73 | 48.56 | 51.67 | 53.98 | 57.08 | 60.38 | 63.88 | 67.65 | 70.31 | 72.97 | 75.63 | 78.29 | 80.95 | 80.95 | 80.95 | 80.95 |
| 32 | | | 42.04 | 44.51 | 47.20 | 50.13 | 53.33 | 55.72 | 58.92 | 62.33 | 65.95 | 69.83 | 72.58 | 75.32 | 78.07 | 80.82 | 83.56 | 83.56 | 83.56 | 83.56 |
| 33 | | | | 45.90 | 48.68 | 51.69 | 55.00 | 57.46 | 60.76 | 64.27 | 68.01 | 72.01 | 74.84 | 77.68 | 80.51 | 83.34 | 86.17 | 86.17 | 86.17 | 86.17 |
| 34 | | | | | 50.15 | 53.26 | 56.67 | 59.20 | 62.60 | 66.22 | 70.07 | 74.19 | 77.11 | 80.03 | 82.95 | 85.87 | 88.78 | 88.78 | 88.78 | 88.78 |
| 35 | | | | | | 54.83 | 58.33 | 60.94 | 64.45 | 68.17 | 72.13 | 76.38 | 79.38 | 82.38 | 85.39 | 88.39 | 91.40 | 91.40 | 91.40 | 91.40 |
| 36 | | | | | | | 60.00 | 62.68 | 66.29 | 70.12 | 74.19 | 78.56 | 81.65 | 84.74 | 87.83 | 90.92 | 94.01 | 94.01 | 94.01 | 94.01 |
| 37 | | | | | | | | 64.42 | 68.13 | 72.06 | 76.25 | 80.74 | 83.92 | 87.09 | 90.27 | 93.44 | 96.62 | 96.62 | 96.62 | 96.62 |
| 38 | | | | | | | | | 69.97 | 74.01 | 78.31 | 82.92 | 86.18 | 89.44 | 92.71 | 95.97 | 99.23 | 99.23 | 99.23 | 99.23 |
| 39 | | | | | | | | | | 75.96 | 80.37 | 85.11 | 88.45 | 91.80 | 95.15 | 98.49 | 100 | 100 | 100 | 100 |
| 40 | | | | | | | | | | | 82.43 | 87.29 | 90.72 | 94.15 | 97.59 | 100 | | | | |
| 41 | | | | | | | | | | | | 89.47 | 92.99 | 96.51 | 100 | | | | | |
| 42 | | | | | | | | | | | | | 95.26 | 98.86 | | | | | | |
| 43 | | | | | | | | | | | | | | | 100 | | | | | |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Table 4: Tier I Safety Members (CERL Section 31664.1)

| Service | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| 10 | | | | | | | | | | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| 11 | | | | | | | | | | 33.00 | 33.00 | 33.00 | 33.00 | 33.00 | 33.00 |
| 12 | | | | | | | | | | 36.00 | 36.00 | 36.00 | 36.00 | 36.00 | 36.00 |
| 13 | | | | | | | | | | 39.00 | 39.00 | 39.00 | 39.00 | 39.00 | 39.00 |
| 14 | | | | | | | | | | 42.00 | 42.00 | 42.00 | 42.00 | 42.00 | 42.00 |
| 15 | | | | | | | | | | 45.00 | 45.00 | 45.00 | 45.00 | 45.00 | 45.00 |
| 16 | | | | | | | | | | 48.00 | 48.00 | 48.00 | 48.00 | 48.00 | 48.00 |
| 17 | | | | | | | | | | 51.00 | 51.00 | 51.00 | 51.00 | 51.00 | 51.00 |
| 18 | | | | | | | | | | 54.00 | 54.00 | 54.00 | 54.00 | 54.00 | 54.00 |
| 19 | | | | | | | | | | 57.00 | 57.00 | 57.00 | 57.00 | 57.00 | 57.00 |
| 20 | 37.55 | 39.75 | 42.02 | 44.38 | 46.83 | 49.36 | 52.07 | 54.51 | 57.13 | 60.00 | 60.00 | 60.00 | 60.00 | 60.00 | 60.00 |
| 21 | | 41.74 | 44.13 | 46.6 | 49.17 | 51.82 | 54.67 | 57.24 | 59.99 | 63.00 | 63.00 | 63.00 | 63.00 | 63.00 | 63.00 |
| 22 | | | 46.23 | 48.82 | 51.51 | 54.29 | 57.27 | 59.96 | 62.85 | 66.00 | 66.00 | 66.00 | 66.00 | 66.00 | 66.00 |
| 23 | | | | 51.04 | 53.85 | 56.76 | 59.88 | 62.69 | 65.7 | 69.00 | 69.00 | 69.00 | 69.00 | 69.00 | 69.00 |
| 24 | | | | | 56.2 | 59.23 | 62.48 | 65.41 | 68.56 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 | 72.00 |
| 25 | | | | | | 61.7 | 65.09 | 68.14 | 71.42 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 |
| 26 | | | | | | | 67.69 | 70.86 | 74.27 | 78.00 | 78.00 | 78.00 | 78.00 | 78.00 | 78.00 |
| 27 | | | | | | | | 73.59 | 77.13 | 81.00 | 81.00 | 81.00 | 81.00 | 81.00 | 81.00 |
| 28 | | | | | | | | | 79.98 | 84.00 | 84.00 | 84.00 | 84.00 | 84.00 | 84.00 |
| 29 | | | | | | | | | | 87.00 | 87.00 | 87.00 | 87.00 | 87.00 | 87.00 |
| 30 | | | | | | | | | | 90.00 | 90.00 | 90.00 | 90.00 | 90.00 | 90.00 |
| 31 | | | | | | | | | | 93.00 | 93.00 | 93.00 | 93.00 | 93.00 | 93.00 |
| 32 | | | | | | | | | | 96.00 | 96.00 | 96.00 | 96.00 | 96.00 | 96.00 |
| 33 | | | | | | | | | | 99.00 | 99.00 | 99.00 | 99.00 | 99.00 | 99.00 |
| 34 | | | | | | | | | | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 35 | | | | | | | | | | | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 36 | | | | | | | | | | | | 100.00 | 100.00 | 100.00 | 100.00 |
| 37 | | | | | | | | | | | | | 100.00 | 100.00 | 100.00 |
| 38 | | | | | | | | | | | | | | 100.00 | 100.00 |
| 39 | | | | | | | | | | | | | | | 100.00 |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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APPENDIX C – SUMMARY OF PLAN PROVISIONS

Table 5: Tier I Social Security Adjustment

| Age at Retirement | General Member Reduction | Safety Member Reduction |
|--------------------------|---------------------------------|--------------------------------|
| 46 | \$1.372 | \$2.879 |
| 47 | \$1.449 | \$3.037 |
| 48 | \$1.533 | \$3.180 |
| 49 | \$1.623 | \$3.333 |
| 50 | \$1.721 | \$3.500 |
| 51 | \$1.828 | \$3.500 |
| 52 | \$1.944 | \$3.500 |
| 53 | \$2.031 | \$3.500 |
| 54 | \$2.148 | \$3.500 |
| 55 | \$2.272 | \$3.500 |
| 56 | \$2.404 | \$3.500 |
| 57 | \$2.546 | \$3.500 |
| 58 | \$2.646 | \$3.500 |
| 59 | \$2.746 | \$3.500 |
| 60 | \$2.846 | \$3.500 |
| 61 | \$2.946 | \$3.500 |
| 62 | \$3.046 | \$3.500 |
| 63 | \$3.046 | \$3.500 |
| 64 | \$3.046 | \$3.500 |
| 65 | \$3.046 | \$3.500 |

For Tier II General Members, the benefit multiplier is 1% at age 52, increasing by 0.1% for each year of age to 2.5% at 67. For Tier II Safety Members, the benefit multiplier is 2% at age 50, increasing by 0.1% for each year of age to 2.7% at age 57. In between exact ages, the multiplier increases by 0.025% for each quarter year increase in age.

Form of Benefit: The Service Retirement Benefit will be paid monthly beginning at retirement and for the life of the Member. If the member selects the unmodified benefit form, in the event of the Member's death, 60% of the benefit will continue for the life of the Member's spouse, or to the age of majority of dependent minor children if there is no spouse. In the event there is no surviving spouse or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms are also available.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Annually on April 1, benefits are adjusted to reflect changes in the CPI for the San Francisco Bay Area. Annual adjustments may not exceed 3%, but changes in CPI in excess of 3% are “banked” and used for future adjustments when changes in CPI are less than 3%.

In addition, ad hoc cost of living adjustments have been granted in the past and may be granted in the future.

A lump sum benefit of \$5,000 will be payable upon the death of a retired member.

D. Service-Connected Disability

Eligibility: Members are eligible for Service-Connected Disability Retirement benefits at any age if they are permanently disabled as a result of injuries or illness sustained in the line of duty.

Benefit Amount: The Service-Connected Disability Retirement Benefit payable to Members is equal to the greater of 50% of their Final Compensation or – if the Member is eligible at disability for a Service Retirement Benefit – the Service Retirement Benefit accrued on the date of disability.

Members who return to work at a different position with lower pay may receive a Supplemental Disability Allowance that, when added to their new pay, may bring the Member's total income up to the current pay for his or her position at the time of disability. The Supplemental Disability Allowance may not exceed the Service-Connected Disability Retirement benefit.

Form of Benefit: The Service-Connected Disability Retirement Benefit will be paid monthly beginning at the effective date of disability retirement and for the life of the Member; in the event of the Member's death, 100% of the benefit will continue for the life of the Member's spouse, or to the age of majority of dependent minor children if there is no spouse. In the event there is no surviving spouse or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms are also available.

Annually on April 1, benefits are adjusted to reflect changes in the CPI for the San Francisco Bay Area. Annual adjustments may not exceed 3%, but changes in CPI in excess of 3% are “banked” and used for future adjustments when changes in CPI are less than 3%.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
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APPENDIX C – SUMMARY OF PLAN PROVISIONS

In addition, ad hoc cost of living adjustments have been granted in the past and may be granted in the future.

A lump sum benefit of \$5,000 will be payable upon the death of a retired member.

E. Nonservice-Connected Disability

Eligibility: Members are eligible for Nonservice-Connected Disability Retirement benefits if they are permanently disabled at any age after earning five years of Credited Service or after becoming eligible for a deferred vested benefit.

Benefit Amount: The Nonservice-Connected Disability Retirement Benefit payable to General Members is equal to the greatest of:

- 1.5% of Final Compensation at disability multiplied by years of Credited Service at disability;
- 1.5% of Final Compensation at disability multiplied by years of Credited Service projected to age 65, but not to exceed one-third of Final Compensation; or
- If the Member is eligible at disability for a Service Retirement Benefit, the Service Retirement Benefit accrued on the date of disability.

The Nonservice-Connected Disability Retirement Benefit payable to Safety Members is equal to the greatest of:

- 1.8% of Final Compensation at disability multiplied by years of Credited Service at disability;
- 1.8% of Final Compensation at disability multiplied by years of Credited Service projected to age 55, but not to exceed one-third of Final Compensation; or
- If the Member is eligible at disability for a Service Retirement Benefit, the Service Retirement Benefit accrued on the date of disability.

Members who return to work at a different position with lower pay may receive a Supplemental Disability Allowance that, when added to their new pay, may bring the Member's total income up to the current pay for his or her position at the time of disability. The Supplemental Disability Allowance may not exceed the Nonservice-Connected Disability Retirement benefit.

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Form of Benefit: The Nonservice-Connected Disability Retirement Benefit will be paid monthly beginning at the effective date of disability retirement, and for the life of the Member; in the event of the Member's death, 60% of the benefit will continue for the life of the Member's spouse or to the age of majority of dependent minor children if there is no spouse. In the event there is no surviving spouse or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms are also available.

Annually on April 1, benefits are adjusted to reflect changes in the CPI for the San Francisco Bay Area. Annual adjustments may not exceed 3%, but changes in CPI in excess of 3% are "banked" and used for future adjustments when changes in CPI are less than 3%.

In addition, ad hoc cost of living adjustments have been granted in the past and may be granted in the future.

A lump sum benefit of \$5,000 will be payable upon the death of a retired member.

F. Service-Connected Death

Eligibility: A Member's survivors are eligible to receive Service-Connected Death benefits if the Member's death resulted from injury or illness sustained in connection with the Member's duties.

Benefit Amount: The Service-Connected Death benefit payable to a surviving spouse or minor children will be 50% of the Member's Final Compensation.

In the event the Member's death was caused by external violence or physical force, an additional benefit of 25% of the above basic benefit will be paid for the first minor child, 15% for the second, and 10% for the third.

Furthermore, for Safety Members only, there will be an additional lump sum benefit of 12 months of pay at the time of death.

Form of Benefit: The Service-Connected Death Benefit will be paid monthly beginning at the Member's death and for the life of the surviving spouse or to the age of majority of dependent minor children if there is no spouse.

Annually on April 1, benefits are adjusted to reflect changes in the CPI for the San Francisco Bay Area. Annual adjustments may not exceed 3%, but

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

changes in CPI in excess of 3% are “banked” and used for future adjustments when changes in CPI are less than 3%.

In addition, ad hoc cost of living adjustments have been granted in the past and may be granted in the future.

G. Nonservice-Connected Death

Eligibility: A Member’s survivors are eligible to receive Nonservice-Connected Death benefits if the Member’s death arose from causes unrelated to the Member’s duties.

Benefit Amount: In the event the Member had earned fewer than five years of Credited Service and has no or insufficient reciprocity service from another system, the Nonservice-Connected Death benefit will be a refund of the Member’s accumulated contributions with interest plus a payment of one month of Final Compensation for each year of Credited Service, not to exceed six months.

In the event the Member had earned five or more years of Credited Service, the Nonservice-Connected Death benefit payable to a surviving spouse or minor children will be 60% of the amount the Member would have received as a Nonservice-Connected Disability Retirement Benefit on the date of death.

Form of Benefit: For Members who had earned fewer than five years of Credited Service at death, the benefit will be paid as a lump sum.

For Members with five or more years of Credited Service, the Nonservice-Connected Death Benefit will be paid monthly beginning at the Member’s death and for the life of the surviving spouse or to the age of majority of dependent minor children if there is no spouse.

Annually on April 1, benefits are adjusted to reflect changes in the CPI for the San Francisco Bay Area. Annual adjustments may not exceed 3%, but changes in CPI in excess of 3% are “banked” and used for future adjustments when changes in CPI are less than 3%.

In addition, ad hoc cost of living adjustments have been granted in the past and may be granted in the future.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

H. Withdrawal Benefit:

Eligibility: A Member is eligible for a Withdrawal Benefit upon termination of employment.

Benefit Amount: The Withdrawal Benefit is a refund of the Member's accumulated contributions with interest. Upon receipt of the Withdrawal Benefit, the Member forfeits all Credited Service.

Form of Benefit: The Withdrawal Benefit is paid in a lump sum upon election by the Member.

I. Deferred Vested Benefit:

Eligibility: A Member is eligible for a Deferred Vested Benefit upon termination of employment after earning five years of Credited Service, including reciprocity service from another system. The Member must leave his or her Member Contributions with interest on deposit with the Plan.

Benefit Amount: The Deferred Vested Benefit is computed in the same manner as the Service Retirement Benefit, but it is based on Credited Service and Final Compensation on the date of termination.

For Tier I Members, Tables 2 and 3 are extended for service under ten years using benefit multipliers of one-sixtieth per year of Credited Service at age 52 (General) or 3% per year of Credited Service at age 50 (Safety), with adjustments for earlier or later retirement under Sections 31676.14 and 31664.1, respectively, of the County Employees Retirement Law of 1937.

Form of Benefit: The Deferred Vested Benefit will be paid monthly beginning at retirement and for the life of the Member; in the event of the Member's death, 60% of the benefit will continue for the life of the Member's spouse or to the age of majority of dependent minor children if there is no spouse. In the event there is no surviving spouse or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms are also available.

Annually on April 1, benefits are adjusted to reflect changes in the CPI for the San Francisco Bay Area. Annual adjustments may not exceed 3%, but changes in CPI in excess of 3% are "banked" and used for future adjustments when changes in CPI are less than 3%.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

In addition, ad hoc cost of living adjustments have been granted in the past and may be granted in the future.

A lump sum benefit of \$5,000 will be payable upon the death of a retired member.

J. Reciprocal Benefit:

Eligibility: A Member is eligible for a Reciprocal Benefit upon termination of employment and entry, within a specified period of time, into another retirement system recognized as a reciprocal system by the Plan. In addition, the Member must leave his or her Member Contributions with interest on deposit with the Plan.

Benefit Amount: The Reciprocal Benefit is computed in the same manner as the Service Retirement Benefit, but it is based on Credited Service on the date of termination and Final Compensation on the date of retirement; Final Compensation is based on the highest of the Compensation earned under this Plan or the reciprocal plan.

Form of Benefit: The Reciprocal Benefit will be paid monthly beginning at retirement and for the life of the Member; in the event of the Member's death, 60% of the benefit will continue for the life of the Member's spouse or to the age of majority of dependent minor children if there is no spouse. In the event there is no surviving spouse or minor children, any unpaid remainder of the Member's accumulated contributions will be paid to the Member's designated beneficiary.

Actuarially equivalent optional benefit forms are also available.

Annually on April 1, benefits are adjusted to reflect changes in the CPI for the San Francisco Bay Area. Annual adjustments may not exceed 3%, but changes in CPI in excess of 3% are "banked" and used for future adjustments when changes in CPI are less than 3%.

In addition, ad hoc cost of living adjustments have been granted in the past and may be granted in the future.

A lump sum benefit may be payable upon the death of a retired Member by the last system under which the Member's service was covered.

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APPENDIX D – 401(H) REPAYMENT SCHEDULE

As of January 1, 2014, a separate amortization layer was established for the repayment of funds originally transferred to a retiree health reserve. This schedule was prepared in compliance with an approved Voluntary Correction Program that SJCERA submitted to the IRS. The original balance of the amortization layer (\$48.0 million) is being amortized using the same methodology and assumptions as the UAL - as a level percentage of payroll over a 19-year period - after an initial payment of \$19.8 million.

| Date | Outstanding Balance | Years Remaining | End of Year Payment |
|----------|---------------------|-----------------|---------------------|
| 1/1/2015 | \$28,076,169 | 18 | \$2,311,593 |
| 1/1/2016 | \$27,870,288 | 17 | \$2,385,143 |
| 1/1/2017 | \$27,547,546 | 16 | \$2,460,275 |
| 1/1/2018 | \$27,125,789 | 15 | \$2,537,774 |
| 1/1/2019 | \$26,595,323 | 14 | \$2,617,714 |
| 1/1/2020 | \$25,945,663 | 13 | \$2,700,172 |
| 1/1/2021 | \$25,165,470 | 12 | \$2,785,227 |
| 1/1/2022 | \$24,242,487 | 11 | \$2,872,962 |
| 1/1/2023 | \$23,163,469 | 10 | \$2,963,460 |
| 1/1/2024 | \$21,914,105 | 9 | \$3,056,809 |
| 1/1/2025 | \$20,478,940 | 8 | \$3,153,099 |
| 1/1/2026 | \$18,841,282 | 7 | \$3,252,421 |
| 1/1/2027 | \$16,983,116 | 6 | \$3,354,873 |
| 1/1/2028 | \$14,884,994 | 5 | \$3,460,551 |
| 1/1/2029 | \$12,525,932 | 4 | \$3,569,559 |
| 1/1/2030 | \$9,883,292 | 3 | \$3,682,000 |
| 1/1/2031 | \$6,932,656 | 2 | \$3,797,983 |
| 1/1/2032 | \$3,647,690 | 1 | \$3,917,619 |
| 1/1/2033 | \$0 | 0 | \$4,041,024 |

APPENDIX E – GLOSSARY

1. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs such as mortality, withdrawal, disability, retirement, changes in compensation, and rates of investment return.

2. Actuarial Cost Method

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an allocation of such value to each year of service, usually in the form of a Normal Cost and an Actuarial Liability.

3. Actuarial Gain (Loss)

The difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

4. Actuarial Liability

The portion of the Actuarial Present Value of Projected Benefits that will not be paid by future Normal Costs. It represents the value of the past Normal Costs with interest to the valuation date.

5. Actuarial Present Value (Present Value)

The value as of a given date of a future amount or series of payments. The Actuarial Present Value discounts the payments to the given date at the assumed investment return and includes the probability of the payment being made.

6. Actuarial Valuation

The determination, as of a specified date, of the Normal Cost, Actuarial Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

7. Actuarial Value of Assets

The value of cash, investments, and other property belonging to a pension plan as used by the actuary for the purpose of an Actuarial Valuation. The purpose of an Actuarial Value of Assets is to smooth out fluctuations in market values.

8. Actuarially Equivalent

Of equal Actuarial Present Value, determined as of a given date, with each value based on the same set of actuarial assumptions.

APPENDIX E – GLOSSARY

9. Amortization Payment

The portion of the pension plan contribution that is designed to pay interest and principal on the Unfunded Actuarial Liability in order to pay for that liability in a given number of years.

10. Entry Age Normal Actuarial Cost Method

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages.

11. Funded Ratio

The ratio of the Actuarial Value of Assets to the Actuarial Liabilities. The Funded Ratio shown in this report is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations, in the case of a plan termination or other similar action. However, it is an appropriate measure for assessing the need for or the amount of future contributions.

12. Inactive Funded Ratio

The ratio of the Inactive Actuarial Liabilities to the total Actuarial Liabilities. The Inactive Funded Ratio is a measure that shows the minimum funded status needed to pay benefits for all inactive members.

13. Normal Cost

That portion of the Actuarial Present Value of pension plan benefits and expenses, which is allocated to a valuation year by the Actuarial Cost Method.

14. Projected Benefits

Those pension plan benefit amounts which are expected to be paid in the future under a particular set of Actuarial Assumptions, taking into account such items as increases in future compensation and service credits.

15. Unfunded Actuarial Liability

The excess of the Actuarial Liability over the Actuarial Value of Assets.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX F – GENERAL AND SAFETY EMPLOYER CONTRIBUTION RATES

Tier I Contribution Rates for General and Safety (no COLA Cost-Sharing)

Separate rates for General and Safety members are shown below. These rates are applicable for employment groups that have not implemented equal sharing of the contributions required for post-retirement cost-of-living adjustments (COLA) in accordance with Government Code Section 31873.

| | As of January 1, 2015 | | | As of January 1, 2016 | | |
|------------------------------|-----------------------|--------|--------|------------------------------|--------|--------|
| | General | Safety | Total | General | Safety | Total |
| Employer Normal Cost | | | | Employer Normal Cost | | |
| Basic | 13.23% | 23.18% | 15.13% | Basic | 12.56% | 21.19% |
| COL | 5.21% | 9.52% | 6.04% | COL | 5.25% | 9.63% |
| Total | 18.44% | 32.70% | 21.17% | Total | 17.81% | 30.82% |
| UAL Amortization Cost | | | | UAL Amortization Cost | | |
| Basic | 16.07% | 29.97% | 18.71% | Basic | 17.63% | 34.95% |
| COL | 4.79% | 9.61% | 5.70% | COL | 5.70% | 11.75% |
| Total | 20.86% | 39.58% | 24.41% | Total | 23.33% | 46.70% |
| Total Cost | | | | Total Cost | | |
| Basic | 29.30% | 53.15% | 33.84% | Basic | 30.19% | 56.14% |
| COL | 10.00% | 19.13% | 11.74% | COL | 10.95% | 21.38% |
| Total | 39.30% | 72.28% | 45.58% | Total | 41.14% | 77.52% |

SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016

APPENDIX F – GENERAL AND SAFETY EMPLOYER CONTRIBUTION RATES

Tier I Contribution Rates for General and Safety (Employer Cost with additional 14% / 33% Normal Rates by members without COLA Cost-sharing)

Separate rates for General and Safety members contributing an additional 14% / 33% of Normal Rates are shown below.

| | As of January 1, 2015 | | | As of January 1, 2016 | | |
|------------------------------|-----------------------|--------|--------|------------------------------|--------|--------|
| | General | Safety | Total | General | Safety | Total |
| Employer Normal Cost | | | | Employer Normal Cost | | |
| Basic | 12.71% | 21.61% | 14.41% | Basic | 12.06% | 19.74% |
| COL | 5.21% | 9.52% | 6.04% | COL | 5.25% | 9.63% |
| Total | 17.92% | 31.13% | 20.45% | Total | 17.31% | 29.37% |
| UAL Amortization Cost | | | | UAL Amortization Cost | | |
| Basic | 16.07% | 29.97% | 18.71% | Basic | 17.63% | 34.95% |
| COL | 4.79% | 9.61% | 5.70% | COL | 5.70% | 11.75% |
| Total | 20.86% | 39.58% | 24.41% | Total | 23.33% | 46.70% |
| Total Cost | | | | Total Cost | | |
| Basic | 28.78% | 51.58% | 33.12% | Basic | 29.69% | 54.69% |
| COL | 10.00% | 19.13% | 11.74% | COL | 10.95% | 21.38% |
| Total | 38.78% | 70.71% | 44.86% | Total | 40.64% | 76.07% |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX F – GENERAL AND SAFETY EMPLOYER CONTRIBUTION RATES

Tier I Contribution Rates for General and Safety (with COLA Cost-sharing)

Separate rates for General and Safety members contributing Normal Rates plus COLA Cost-sharing are shown below.

| | As of January 1, 2015 | | | As of January 1, 2016 | | |
|------------------------------|-----------------------|--------|--------|------------------------------|--------|--------|
| | General | Safety | Total | General | Safety | Total |
| Employer Normal Cost | | | | Employer Normal Cost | | |
| Basic | 13.23% | 23.18% | 15.13% | Basic | 12.56% | 21.19% |
| COL | 2.80% | 5.06% | 3.24% | COL | 2.72% | 5.04% |
| Total | 16.03% | 28.24% | 18.37% | Total | 15.28% | 26.23% |
| UAL Amortization Cost | | | | UAL Amortization Cost | | |
| Basic | 16.07% | 29.97% | 18.71% | Basic | 17.63% | 34.95% |
| COL | 4.79% | 9.61% | 5.70% | COL | 5.70% | 11.75% |
| Total | 20.86% | 39.58% | 24.41% | Total | 23.33% | 46.70% |
| Total Cost | | | | Total Cost | | |
| Basic | 29.30% | 53.15% | 33.84% | Basic | 30.19% | 56.14% |
| COL | 7.59% | 14.67% | 8.94% | COL | 8.42% | 16.79% |
| Total | 36.89% | 67.82% | 42.78% | Total | 38.61% | 72.93% |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX F – GENERAL AND SAFETY EMPLOYER CONTRIBUTION RATES

Tier I Contribution Rates for General and Safety (Employer Cost with additional 14% / 33% Normal Rates by members and COLA Cost-sharing)

Separate rates for General and Safety members contributing an additional 14% / 33% of Normal Rates and COLA Cost-sharing are shown below.

| | As of January 1, 2015 | | | As of January 1, 2016 | | |
|------------------------------|-----------------------|--------|--------|------------------------------|--------|--------|
| | General | Safety | Total | General | Safety | Total |
| Employer Normal Cost | | | | Employer Normal Cost | | |
| Basic | 12.71% | 21.61% | 14.41% | Basic | 12.06% | 19.74% |
| COL | 2.80% | 5.06% | 3.24% | COL | 2.72% | 5.04% |
| Total | 15.51% | 26.67% | 17.65% | Total | 14.78% | 24.78% |
| UAL Amortization Cost | | | | UAL Amortization Cost | | |
| Basic | 16.07% | 29.97% | 18.71% | Basic | 17.63% | 34.95% |
| COL | 4.79% | 9.61% | 5.70% | COL | 5.70% | 11.75% |
| Total | 20.86% | 39.58% | 24.41% | Total | 23.33% | 46.70% |
| Total Cost | | | | Total Cost | | |
| Basic | 28.78% | 51.58% | 33.12% | Basic | 29.69% | 54.69% |
| COL | 7.59% | 14.67% | 8.94% | COL | 8.42% | 16.79% |
| Total | 36.37% | 66.25% | 42.06% | Total | 38.11% | 71.48% |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX F – GENERAL AND SAFETY EMPLOYER CONTRIBUTION RATES

Tier II Contribution Rates for General and Safety (PEPRA Members)

Separate rates for General and Safety members are shown below. These rates are applicable for employment groups that are subject to Government Code Section 7522.30.

| | As of January 1, 2015 | | | As of January 1, 2016 | | |
|------------------------------|-----------------------|--------|--------|------------------------------|--------|--------|
| | General | Safety | Total | General | Safety | Total |
| Employer Normal Cost | | | | Employer Normal Cost | | |
| Basic | 7.08% | 11.33% | 7.42% | Basic | 6.85% | 10.67% |
| COL | 2.07% | 3.89% | 2.21% | COL | 2.12% | 3.86% |
| Total | 9.15% | 15.22% | 9.63% | Total | 8.97% | 14.53% |
| UAL Amortization Cost | | | | UAL Amortization Cost | | |
| Basic | 16.07% | 29.97% | 17.15% | Basic | 17.63% | 34.95% |
| COL | 4.79% | 9.61% | 5.17% | COL | 5.70% | 11.75% |
| Total | 20.86% | 39.58% | 22.32% | Total | 23.33% | 46.70% |
| Total Cost | | | | Total Cost | | |
| Basic | 23.15% | 41.30% | 24.57% | Basic | 24.48% | 45.62% |
| COL | 6.86% | 13.50% | 7.38% | COL | 7.82% | 15.61% |
| Total | 30.01% | 54.80% | 31.95% | Total | 32.30% | 61.23% |

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX G – MEMBER CONTRIBUTION RATES

General Member Contribution Rates

Basic Half Rate (Government Code Section 31621.3)

| Entry Age | <u>Basic Rate</u> | | <u>COLA Cost-Sharing Rate¹</u> | |
|-----------|-------------------|------------|---|------------|
| | 1st \$350/month | Over \$350 | 1st \$350/month | Over \$350 |
| 16 | 1.71% | 2.57% | 1.10% | 1.65% |
| 17 | 1.71% | 2.57% | 1.10% | 1.65% |
| 18 | 1.71% | 2.57% | 1.10% | 1.65% |
| 19 | 1.71% | 2.57% | 1.10% | 1.65% |
| 20 | 1.71% | 2.57% | 1.10% | 1.65% |
| 21 | 1.75% | 2.63% | 1.14% | 1.71% |
| 22 | 1.80% | 2.70% | 1.18% | 1.77% |
| 23 | 1.85% | 2.78% | 1.21% | 1.82% |
| 24 | 1.90% | 2.85% | 1.26% | 1.89% |
| 25 | 1.94% | 2.91% | 1.30% | 1.95% |
| 26 | 1.98% | 2.97% | 1.33% | 2.00% |
| 27 | 2.03% | 3.04% | 1.37% | 2.06% |
| 28 | 2.07% | 3.10% | 1.41% | 2.11% |
| 29 | 2.11% | 3.17% | 1.43% | 2.15% |
| 30 | 2.16% | 3.24% | 1.47% | 2.20% |
| 31 | 2.20% | 3.30% | 1.51% | 2.27% |
| 32 | 2.25% | 3.37% | 1.55% | 2.32% |
| 33 | 2.30% | 3.45% | 1.59% | 2.38% |
| 34 | 2.35% | 3.52% | 1.63% | 2.44% |
| 35 | 2.39% | 3.59% | 1.67% | 2.50% |
| 36 | 2.45% | 3.67% | 1.71% | 2.57% |
| 37 | 2.50% | 3.75% | 1.76% | 2.64% |
| 38 | 2.55% | 3.83% | 1.82% | 2.73% |
| 39 | 2.61% | 3.91% | 1.87% | 2.81% |
| 40 | 2.66% | 3.99% | 1.94% | 2.91% |
| 41 | 2.72% | 4.08% | 1.99% | 2.99% |
| 42 | 2.78% | 4.17% | 2.05% | 3.08% |
| 43 | 2.84% | 4.26% | 2.11% | 3.16% |
| 44 | 2.91% | 4.36% | 2.17% | 3.26% |
| 45 | 2.97% | 4.46% | 2.23% | 3.35% |
| 46 | 3.05% | 4.57% | 2.31% | 3.46% |
| 47 | 3.12% | 4.68% | 2.33% | 3.50% |
| 48 | 3.19% | 4.78% | 2.36% | 3.54% |
| 49 | 3.25% | 4.87% | 2.38% | 3.57% |
| 50 | 3.31% | 4.96% | 2.39% | 3.58% |
| 51 | 3.34% | 5.01% | 2.40% | 3.60% |
| 52 | 3.35% | 5.02% | 2.41% | 3.61% |
| 53 | 3.34% | 5.01% | 2.36% | 3.54% |
| 54+ | 3.31% | 4.97% | 2.33% | 3.50% |

¹ Some members and employers share equally the contributions required for post-retirement cost-of-living adjustments (COLA) in accordance with Government Code Section 31873. For other members, the employers pay all of the contributions required for post-retirement COLA.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX G – MEMBER CONTRIBUTION RATES

General Member Contribution Rates

Basic Half Rate (Government Code Section 31621.3) + 14%, not greater than 1/2 Normal Cost

| Entry Age | Basic Rate | | COLA Cost-Sharing Rate ¹ | |
|-----------|-----------------|------------|-------------------------------------|------------|
| | 1st \$350/month | Over \$350 | 1st \$350/month | Over \$350 |
| 16 | 1.95% | 2.93% | 1.10% | 1.65% |
| 17 | 1.95% | 2.93% | 1.10% | 1.65% |
| 18 | 1.95% | 2.93% | 1.10% | 1.65% |
| 19 | 1.95% | 2.93% | 1.10% | 1.65% |
| 20 | 1.95% | 2.93% | 1.10% | 1.65% |
| 21 | 2.00% | 3.00% | 1.14% | 1.71% |
| 22 | 2.05% | 3.08% | 1.18% | 1.77% |
| 23 | 2.11% | 3.17% | 1.21% | 1.82% |
| 24 | 2.17% | 3.25% | 1.26% | 1.89% |
| 25 | 2.21% | 3.32% | 1.30% | 1.95% |
| 26 | 2.26% | 3.39% | 1.34% | 2.01% |
| 27 | 2.31% | 3.47% | 1.37% | 2.06% |
| 28 | 2.35% | 3.53% | 1.41% | 2.11% |
| 29 | 2.41% | 3.61% | 1.44% | 2.16% |
| 30 | 2.46% | 3.69% | 1.47% | 2.20% |
| 31 | 2.51% | 3.76% | 1.51% | 2.27% |
| 32 | 2.56% | 3.84% | 1.55% | 2.32% |
| 33 | 2.62% | 3.93% | 1.59% | 2.38% |
| 34 | 2.67% | 4.01% | 1.63% | 2.45% |
| 35 | 2.73% | 4.09% | 1.67% | 2.50% |
| 36 | 2.79% | 4.18% | 1.71% | 2.57% |
| 37 | 2.85% | 4.28% | 1.76% | 2.64% |
| 38 | 2.91% | 4.37% | 1.82% | 2.73% |
| 39 | 2.97% | 4.46% | 1.87% | 2.81% |
| 40 | 3.03% | 4.55% | 1.94% | 2.91% |
| 41 | 3.10% | 4.65% | 1.99% | 2.99% |
| 42 | 3.17% | 4.75% | 2.05% | 3.08% |
| 43 | 3.24% | 4.86% | 2.11% | 3.17% |
| 44 | 3.31% | 4.97% | 2.17% | 3.26% |
| 45 | 3.39% | 5.08% | 2.24% | 3.36% |
| 46 | 3.47% | 5.21% | 2.31% | 3.46% |
| 47 | 3.56% | 5.34% | 2.33% | 3.50% |
| 48 | 3.63% | 5.45% | 2.36% | 3.54% |
| 49 | 3.70% | 5.55% | 2.38% | 3.57% |
| 50 | 3.77% | 5.65% | 2.39% | 3.58% |
| 51 | 3.81% | 5.71% | 2.40% | 3.60% |
| 52 | 3.81% | 5.72% | 2.41% | 3.61% |
| 53 | 3.81% | 5.71% | 2.37% | 3.55% |
| 54+ | 3.78% | 5.67% | 2.33% | 3.50% |

¹ Some members and employers share equally the contributions required for post-retirement cost-of-living adjustments (COLA) in accordance with Government Code Section 31873. For other members, the employers pay all of the contributions required for post-retirement COLA.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX G – MEMBER CONTRIBUTION RATES

Safety Member Contribution Rates

Basic Half Rate (Government Code Section 31639.5)

| Entry Age | <u>Basic Rate</u> | | <u>COLA Cost-Sharing Rate¹</u> | |
|-----------|-------------------|------------|---|------------|
| | 1st \$350/month | Over \$350 | 1st \$350/month | Over \$350 |
| 16 | 2.68% | 4.02% | 2.85% | 4.28% |
| 17 | 2.68% | 4.02% | 2.85% | 4.28% |
| 18 | 2.68% | 4.02% | 2.85% | 4.28% |
| 19 | 2.68% | 4.02% | 2.85% | 4.28% |
| 20 | 2.68% | 4.02% | 2.85% | 4.28% |
| 21 | 2.72% | 4.08% | 2.90% | 4.35% |
| 22 | 2.77% | 4.15% | 2.95% | 4.42% |
| 23 | 2.81% | 4.22% | 2.99% | 4.49% |
| 24 | 2.86% | 4.29% | 3.04% | 4.56% |
| 25 | 2.91% | 4.36% | 3.09% | 4.64% |
| 26 | 2.95% | 4.43% | 3.13% | 4.70% |
| 27 | 3.00% | 4.50% | 3.18% | 4.77% |
| 28 | 3.05% | 4.58% | 3.23% | 4.84% |
| 29 | 3.10% | 4.65% | 3.27% | 4.90% |
| 30 | 3.15% | 4.73% | 3.31% | 4.96% |
| 31 | 3.21% | 4.81% | 3.34% | 5.01% |
| 32 | 3.26% | 4.89% | 3.39% | 5.08% |
| 33 | 3.31% | 4.97% | 3.43% | 5.15% |
| 34 | 3.37% | 5.05% | 3.45% | 5.18% |
| 35 | 3.43% | 5.14% | 3.47% | 5.21% |
| 36 | 3.49% | 5.23% | 3.47% | 5.20% |
| 37 | 3.55% | 5.32% | 3.49% | 5.24% |
| 38 | 3.61% | 5.41% | 3.53% | 5.29% |
| 39 | 3.67% | 5.51% | 3.57% | 5.35% |
| 40 | 3.75% | 5.62% | 3.61% | 5.42% |
| 41 | 3.82% | 5.73% | 3.57% | 5.35% |
| 42 | 3.91% | 5.86% | 3.61% | 5.41% |
| 43 | 3.99% | 5.99% | 3.61% | 5.41% |
| 44 | 4.06% | 6.09% | 3.62% | 5.43% |
| 45 | 4.11% | 6.16% | 3.65% | 5.47% |
| 46 | 4.13% | 6.20% | 3.70% | 5.55% |
| 47 | 4.13% | 6.19% | 3.75% | 5.62% |
| 48 | 4.09% | 6.14% | 3.79% | 5.68% |
| 49+ | 4.04% | 6.06% | 3.82% | 5.73% |

¹ Some members and employers share equally the contributions required for post-retirement cost-of-living adjustments (COLA) in accordance with Government Code Section 31873. For other members, the employers pay all of the contributions required for post-retirement COLA.

**SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
ACTUARIAL VALUATION REPORT AS OF JANUARY 1, 2016**

APPENDIX G – MEMBER CONTRIBUTION RATES

Safety Member Contribution Rates

Basic Half Rate (Government Code Section 31639.5) + 33% , not greater than 1/2 Normal Cost

| Entry Age | <u>Basic Rate</u> | | <u>COLA Cost-Sharing Rate¹</u> | |
|-----------|-------------------|------------|---|------------|
| | 1st \$350/month | Over \$350 | 1st \$350/month | Over \$350 |
| 16 | 3.57% | 5.35% | 2.86% | 4.29% |
| 17 | 3.57% | 5.35% | 2.86% | 4.29% |
| 18 | 3.57% | 5.35% | 2.86% | 4.29% |
| 19 | 3.57% | 5.35% | 2.86% | 4.29% |
| 20 | 3.57% | 5.35% | 2.86% | 4.29% |
| 21 | 3.62% | 5.43% | 2.91% | 4.36% |
| 22 | 3.68% | 5.52% | 2.95% | 4.42% |
| 23 | 3.74% | 5.61% | 2.99% | 4.49% |
| 24 | 3.81% | 5.71% | 3.04% | 4.56% |
| 25 | 3.87% | 5.80% | 3.09% | 4.64% |
| 26 | 3.93% | 5.89% | 3.14% | 4.71% |
| 27 | 3.99% | 5.99% | 3.18% | 4.77% |
| 28 | 4.06% | 6.09% | 3.23% | 4.84% |
| 29 | 4.12% | 6.18% | 3.27% | 4.90% |
| 30 | 4.19% | 6.29% | 3.31% | 4.96% |
| 31 | 4.27% | 6.40% | 3.34% | 5.01% |
| 32 | 4.33% | 6.50% | 3.39% | 5.08% |
| 33 | 4.41% | 6.61% | 3.43% | 5.15% |
| 34 | 4.48% | 6.72% | 3.45% | 5.18% |
| 35 | 4.56% | 6.84% | 3.47% | 5.21% |
| 36 | 4.64% | 6.96% | 3.47% | 5.20% |
| 37 | 4.72% | 7.08% | 3.49% | 5.24% |
| 38 | 4.80% | 7.20% | 3.53% | 5.29% |
| 39 | 4.89% | 7.33% | 3.57% | 5.35% |
| 40 | 4.98% | 7.47% | 3.61% | 5.42% |
| 41 | 5.08% | 7.62% | 3.57% | 5.36% |
| 42 | 5.19% | 7.79% | 3.61% | 5.41% |
| 43 | 5.31% | 7.97% | 3.61% | 5.42% |
| 44 | 5.40% | 8.10% | 3.62% | 5.43% |
| 45 | 5.46% | 8.19% | 3.65% | 5.47% |
| 46 | 5.50% | 8.25% | 3.71% | 5.56% |
| 47 | 5.49% | 8.23% | 3.75% | 5.62% |
| 48 | 5.45% | 8.17% | 3.79% | 5.68% |
| 49+ | 5.37% | 8.06% | 3.83% | 5.74% |

¹ Some members and employers share equally the contributions required for post-retirement cost-of-living adjustments (COLA) in accordance with Government Code Section 31873. For other members, the employers pay all of the contributions required for post-retirement COLA.



Classic Values, Innovative Advice