Item No. 5
Town of Atherton

FINANCE COMMITTEE STAFF REPORT

TO: FINANCE COMMITTEE

FROM: ROBERT BARRON III, FINANCE DIRECTOR

DATE: SEPTEMBER 12, 2017

SUBJECT: BRIEF REVIEW AND DISCUSSION OF CALPERS ACTUARIAL REPORTS AS OF JUNE 30, 2016 TO PROVIDE FUTURE ANALYSIS FOR CITY COUNCIL REVIEW

RECOMMENDATION

Brief review and discussion of CalPERS actuarial reports as of June 30, 2016. More in depth discussions to be held at future Finance Committee meeting. .

BACKGROUND

During our July Finance Committee meeting, staff presented for review and discussion the CalPERS actuarial reports as of June 30, 2015. This was done to illustrate the projected employer contribution rates through FY 2022/23 and begin discussions on new discount rate assumptions. Provided for Finance Committee review are the recently released actuarial reports as of July 30, 2016. These reports begin to illustrate the changes in the discount rate from 7.5% to 7% in phases. This will help the Town develop analysis with respect to changes in the discount rate and have a forecasting ability on how to reduce the Town's CalPERS unfunded liability. We will further review these reports in detail at a later meeting of the Finance Committee and hope to develop an analysis for City Council consideration with respect to reducing the Town's CalPERS unfunded liability.

FINDINGS

The projected investment returns used for the 2016/17 actuarial was 7.375%. The actual investment return for CalPERS for FY 2016/17 was 11.2%. Newly provided in these reports are projected required contributions for two years out. Previously, the reports only projected out one year. Provided in these reports are the first changes in the discount rate that begins in FY 2018/19.

The discount rate is reduced to 7.375%. The projected unfunded liability payment for FY 2018/19 increased $185,064 from FY 2017/18. Below is the FY 2018/19 unfunded liability payments due and future estimates.

CalPERS Employer Payment of Unfunded Liability	**Unfunded Liability Payment FY 2018/19**	**Unfunded Liability Est. Payment FY 2019/20**	**Unfunded Liability Est. Payment FY 2020/21**
Miscellaneous Employees	$237,450	$300,000	$346,000
Public Safety Employees	$627,361	$777,000	$888,000
Total Contribution	**$864,762**	**$1,077,000**	**$1,234,000**

Each agency has an employer normal cost rate that it will pay as a percentage of payroll. The current normal cost for FY 2015/16, FY 2016/17, FY 2017/18 and 2018/19 are listed below.

CalPERS Contribution Rates	Employer Required Contribution FY 2015/16	Employer Required Contribution FY 2016/17	Employer Required Contribution FY 2017/18	Employer Required Contribution FY 2018/19
Miscellaneous Employees	8.844%	9.055%	9.096%	9.635%
Public Safety Employees	20.230%	21.230%	21.418%	22.346%

We will review these actuarial reports at a later date and consider the continued effort to pay down long term liabilities. These actuarial reports provide tools that can help us create a plan to set aside funds to pay down unfunded liabilities and mitigate increase in discount rate costs. The Govinvest pension calculation tool will also be utilized to assist us in providing pension liability projections and analysis.

Within the actuarial reports are projected employer contribution rates through FY 2022/23 so agencies can see changes in the contribution rates over the years. These rates could change as each valuation period CalPERS reassess investment returns in rate calculations. Each year these reports are updated with most recent information CalPERS has available.

FISCAL IMPACT

None

PUBLIC NOTICE

Public notification was achieved by posting the agenda, with this agenda item being listed, at least 72 hours prior to the meeting in print and electronically. Information about the project is also disseminated via the Town's electronic News Flash and Atherton Online. There are approximately 1,200 subscribers to the Town's electronic News Flash publications. Subscribers include residents as well as stakeholders – to include, but be not limited to, media outlets, school districts, Menlo Park Fire District, service provides (water, power, and sewer), and regional elected officials.

ATTACHMENTS

CalPERS Miscellaneous Employees Valuation Report as of June 30, 2016
CalPERS Public Safety Employees Valuation Report as of June 30, 2016

California Public Employees' Retirement System
Actuarial Office
P.O. Box 942709
Sacramento, CA 94229-2709
TTY: (916) 795-3240
(888) 225-7377 phone – (916) 795-2744 fax
www.calpers.ca.gov

August 2017

MISCELLANEOUS PLAN OF THE TOWN OF ATHERTON
(CalPERS ID: 1382390535)
Annual Valuation Report as of June 30, 2016

Dear Employer,

As an attachment to this letter, you will find a copy of the June 30, 2016 actuarial valuation report of the pension plan.

Because this plan is in a risk pool, the following valuation report has been separated into two sections:

- Section 1 contains specific information for the plan including the development of the current and projected employer contributions, and
- Section 2 contains the Risk Pool Actuarial Valuation appropriate to the plan as of June 30, 2016.

Section 2 can be found on the CalPERS website at (www.calpers.ca.gov). From the home page, go to "*Forms & Publications*" and select "*View All*". In the search box, enter "*Risk Pool Report*" and from the results list download the Miscellaneous or Safety Risk Pool Actuarial Valuation Report as appropriate.

Your June 30, 2016 actuarial valuation report contains important actuarial information about your pension plan at CalPERS. Your assigned CalPERS staff actuary, whose signature appears in the Actuarial Certification section on page 1, is available to discuss the report with you after August 31, 2017.

The exhibit below displays the minimum employer contributions, before any cost sharing, for Fiscal Year 2018-19 along with estimates of the required contributions for Fiscal Years 2019-20 and 2020-21. Member contributions other than cost sharing (whether paid by the employer or the employee) are in addition to the results shown below. **The employer contributions in this report do not reflect any cost sharing arrangements you may have with your employees**.

Required Contribution

Fiscal Year	Employer Normal Cost Rate	Employer Payment of Unfunded Liability
2018-19	9.635%	$237,450
Projected Results		
2019-20	*10.1%*	*$300,000*
2020-21	*11.0%*	*$346,000*

The actual investment return for Fiscal Year 2016-17 was not known at the time this report was prepared. The projections above assume the investment return for that year would be 7.375 percent. ***If the actual investment return for Fiscal Year 2016-17 differs from 7.375 percent, the actual contribution requirements for the projected years will differ from those shown above.***

Moreover, the projected results for Fiscal Years 2019-20 and 2020-21 also assume that there are no future plan changes, no further changes in assumptions other than those recently approved, and no liability gains or losses. Such changes can have a significant impact on required contributions. Since they cannot be predicted in advance, the projected employer results shown above are estimates. The actual required employer contributions for Fiscal Year 2019-20 will be provided in next year's report.

For additional details regarding the assumptions and methods used for these projections please refer to the "Projected Employer Contributions" in the "Highlights and Executive Summary" section.

The "Risk Analysis" section of the valuation report also contains estimated employer contributions in future years under a variety of investment return scenarios.

Changes since the Prior Year's Valuation

On December 21, 2016, the CalPERS Board of Administration lowered the discount rate from 7.50 percent to 7.00 percent using a three year phase-in beginning with the June 30, 2016 actuarial valuations. The minimum employer contributions for Fiscal Year 2018-19 determined in this valuation were calculated using a discount rate of 7.375 percent. The projected employer contributions on Page 5 are calculated assuming that the discount rate will be lowered to 7.25 percent next year and to 7.00 percent the following year as adopted by the Board.

The CalPERS Board of Administration adopted a Risk Mitigation Policy which is designed to reduce funding risk over time. This Policy has been temporarily suspended during the period over which the discount rate is being lowered. More details on the Risk Mitigation Policy can be found on our website.

Besides the above noted changes, there may also be changes specific to the plan such as contract amendments and funding changes.

Further descriptions of general changes are included in the "Highlights and Executive Summary" section and in Appendix A, "Statement of Actuarial Data, Methods and Assumptions" of the Section 2 report.

We understand that you might have a number of questions about these results. While we are very interested in discussing these results with your agency, in the interest of allowing us to give every public agency their results, we ask that you wait until after August 31 to contact us with actuarial related questions.

If you have other questions, please call our customer contact center at (888) CalPERS or (**888-225-7377**).

Sincerely,

SCOTT TERANDO
Chief Actuary

ACTUARIAL VALUATION
as of June 30, 2016

for the
MISCELLANEOUS PLAN
of the
TOWN OF ATHERTON

(CalPERS ID: 1382390535)

REQUIRED CONTRIBUTIONS
FOR FISCAL YEAR
July 1, 2018 - June 30, 2019

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Section 1

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Plan Specific Information for the MISCELLANEOUS PLAN of the TOWN OF ATHERTON

(CalPERS ID: 1382390535)
(Rate Plan: 64)

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ACTUARIAL CERTIFICATION

Section 1 of this report is based on the member and financial data contained in our records as of June 30, 2016 which was provided by your agency and the benefit provisions under your contract with CalPERS. Section 2 of this report is based on the member and financial data as of June 30, 2016 provided by employers participating in the Miscellaneous Risk Pool to which the plan belongs and benefit provisions under the CalPERS contracts for those agencies.

As set forth in Section 2 of this report, the pool actuary has certified that, in their opinion, the valuation of the risk pool containing your MISCELLANEOUS PLAN has been performed in accordance with generally accepted actuarial principles consistent with standards of practice prescribed by the Actuarial Standards Board, and that the assumptions and methods are internally consistent and reasonable for the risk pool as of the date of this valuation and as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employees' Retirement Law.

Having relied upon the information set forth in Section 2 of this report and based on the census and benefit provision information for the plan, it is my opinion as the plan actuary that Unfunded Accrued Liability amortization bases as of June 30, 2016 and employer contribution as of July 1, 2018, have been properly and accurately determined in accordance with the principles and standards stated above.

The undersigned is an actuary for CalPERS, a member of both the American Academy of Actuaries and Society of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

JULIAN ROBINSON, FSA, EA, MAAA
Senior Pension Actuary, CalPERS
Plan Actuary

HIGHLIGHTS AND EXECUTIVE SUMMARY

- INTRODUCTION
- PURPOSE OF SECTION 1
- REQUIRED EMPLOYER CONTRIBUTION
- PLAN'S FUNDED STATUS
- PROJECTED EMPLOYER CONTRIBUTIONS
- CHANGES SINCE THE PRIOR YEAR'S VALUATION
- SUBSEQUENT EVENTS

Introduction

This report presents the results of the June 30, 2016 actuarial valuation of the MISCELLANEOUS PLAN of the TOWN OF ATHERTON of the California Public Employees' Retirement System (CalPERS). This actuarial valuation sets the required employer contributions for Fiscal Year 2018-19.

Purpose of Section 1

This Section 1 report for the MISCELLANEOUS PLAN of the TOWN OF ATHERTON of the California Public Employees' Retirement System (CalPERS) was prepared by the plan actuary in order to:

- Set forth the assets and accrued liabilities of this plan as of June 30, 2016;
- Determine the required employer contribution for this plan for the fiscal year July 1, 2018 through June 30, 2019; and
- Provide actuarial information as of June 30, 2016 to the CalPERS Board of Administration and other interested parties.

The pension funding information presented in this report should not be used in financial reports subject to GASB Statement No. 68 for a Cost Sharing Employer Defined Benefit Pension Plan. A separate accounting valuation report for such purposes is available from CalPERS and details for ordering are available on our website.

The measurements shown in this actuarial valuation may not be applicable for other purposes. The employer should contact their actuary before disseminating any portion of this report for any reason that is not explicitly described above.

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

California Actuarial Advisory Panel Recommendations

This report includes all the basic disclosure elements as described in the *Model Disclosure Elements for Actuarial Valuation Reports* recommended in 2011 by the California Actuarial Advisory Panel (CAAP), with the exception of including the original base amounts of the various components of the unfunded liability in the Schedule of Amortization Bases shown on page 9.

Additionally, this report includes the following "Enhanced Risk Disclosures" also recommended by the CAAP in the Model Disclosure Elements document:

- A "Deterministic Stress Test," projecting future results under different investment income scenarios
- A "Sensitivity Analysis," showing the impact on current valuation results using alternative discount rates of 6.0 percent, 7.0 percent and 8.0 percent.

Required Employer Contribution

		Fiscal Year
Required Employer Contribution		**2018-19**
Employer Normal Cost Rate		**9.635%**
Plus Either		
1) Monthly Employer Dollar UAL Payment	**$**	**19,787.52**
Or		
2) Annual Lump Sum Prepayment Option	**$**	**229,151**

The total minimum required employer contribution is the ***sum*** *of the Plan's Employer Normal Cost Rate (expressed as a percentage of payroll)* ***plus*** *the Employer Unfunded Accrued Liability (UAL) Contribution Amount (billed monthly in dollars).*

Only the UAL portion of the employer contribution can be prepaid ***(which must be received in full no later than July 31)****. Plan Normal Cost contributions will be made as part of the payroll reporting process. If there is contractual cost sharing or other change, this amount will change.*

§ 20572 of the Public Employees' Retirement Law assesses interest at an annual rate of 10 percent if a contracting agency fails to remit the required contributions when due.

		Fiscal Year 2017-18		Fiscal Year 2018-19
Development of Normal Cost as a Percentage of Payroll[1]				
Base Total Normal Cost for Formula		15.314%		15.794%
Surcharge for Class 1 Benefits[2]				
a) PRSA		0.678%		0.743%
Phase out of Normal Cost Difference[3]		0.000%		0.000%
Plan's Total Normal Cost		15.992%		16.537%
Formula's Expected Employee Contribution Rate		6.896%		6.902%
Employer Normal Cost Rate		9.096%		9.635%
Projected Payroll for the Contribution Fiscal Year	$	1,587,020	$	1,529,115
Estimated Employer Contributions Based on Projected Payroll				
Plan's Estimated Employer Normal Cost	$	144,355	$	147,330
Plan's Payment on Amortization Bases[4]		183,236		237,450
% of Projected Payroll (illustrative only)		11.546%		15.529%
Estimated Total Employer Contribution	$	327,591	$	384,780
% of Projected Payroll (illustrative only)		20.642%		25.164%

[1] The results shown for Fiscal Year 2017-18 reflect the prior year valuation and may not take into account any lump sum payment, side fund payoff, or rate adjustment made after June 30, 2016.

[2] Section 2 of this report contains a list of Class 1 benefits and corresponding surcharges for each benefit.

[3] The normal cost difference is phased out over a five year period. The phase out of normal cost difference is 100 percent for the first year of pooling, and is incrementally reduced by 20 percent of the original normal cost difference for each subsequent year. This is non-zero only for plans that joined a pool within the past 5 years. Most plans joined a pool June 30, 2003, when risk pooling was implemented.

[4] See page 9 for a breakdown of the Amortization Bases.

Plan's Funded Status

		June 30, 2015		June 30, 2016
1. Present Value of Projected Benefits (PVB)	$	17,924,145	$	18,618,599
2. Entry Age Normal Accrued Liability (AL)		15,806,251		16,506,054
3. Plan's Market Value of Assets (MVA)		12,571,337		12,141,574
4. Unfunded Accrued Liability (UAL) [(2) - (3)]		3,234,914		4,364,480
5. Funded Ratio [(3) / (2)]		79.5%		73.6%

This measure of funded status is an assessment of the need for future employer contributions based on the selected actuarial cost method used to fund the plan. The UAL is the present value of future employer contributions for service that has already been earned and is in addition to future normal cost contributions for active members. For a measure of funded status that is appropriate for assessing the sufficiency of plan assets to cover estimated termination liabilities, please see "Hypothetical Termination Liability" in the "Risk Analysis" section.

Projected Employer Contributions

The table below shows projected employer contributions (before cost sharing) for the next six fiscal years. Projected results reflect the adopted changes to the discount rate described in Appendix A, "Statement of Actuarial Data, Methods and Assumptions" of the Section 2 report. The projections also assume that all actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur during the projection period.

	Required Contribution	Projected Future Employer Contributions (Assumes 7.375% Return for Fiscal Year 2016-17)					
Fiscal Year	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**
Normal Cost %	9.635%	10.1%	11.0%	11.0%	11.0%	11.0%	11.0%
UAL Payment	$237,450	$300,000	$346,000	$405,000	$456,000	$490,000	$518,000

Changes in the UAL due to actuarial gains or losses as well as changes in actuarial assumptions or methods are amortized using a 5-year ramp up. For more information, please see "Amortization of the Unfunded Actuarial Accrued Liability" under "Actuarial Methods" in Appendix A of Section 2. This method phases in the impact of unanticipated changes in UAL over a 5-year period and attempts to minimize employer cost volatility from year to year. As a result of this methodology, dramatic changes in the required employer contributions in any one year are less likely. However, required contributions can change gradually and significantly over the next five years. In years where there is a large increase in UAL the relatively small amortization payments during the ramp up period could result in a funded ratio that is projected to decrease initially while the contribution impact of the increase in the UAL is phased in.

Due to the adopted changes in the discount rate for the next two valuations in combination with the 5-year phase-in ramp, the increases in the required contributions are expected to continue for seven years from Fiscal Year 2018-19 through Fiscal Year 2024-25.

For projected contributions under alternate investment return scenarios, please see the "Analysis of Future Investment Return Scenarios" in the "Risk Analysis" section.

Changes since the Prior Year's Valuation

Benefits

None. This valuation generally reflects plan changes by amendments effective before the date of the report. Please refer to the "Plan's Major Benefit Options" and Appendix B of Section 2 for a summary of the plan provisions used in this valuation.

Actuarial Methods and Assumptions

On December 21, 2016, the CalPERS Board of Administration lowered the discount rate from 7.50 percent to 7.00 percent using a three year phase-in beginning with the June 30, 2016 actuarial valuations. The minimum employer contributions for Fiscal Year 2018-19 determined in this valuation were calculated using a discount rate of 7.375 percent. The projected employer contributions on Page 5 are calculated assuming that the discount rate will be lowered to 7.25 percent next year and 7.00 percent the following year as adopted by the Board. The decision to reduce the discount rate was primarily based on reduced capital market assumptions provided by external investment consultants and CalPERS investment staff. The specific decision adopted by the Board reflected recommendations from CalPERS staff and additional input from employer and employee stakeholder groups. Based on the investment allocation adopted by the Board and capital market assumptions, the reduced discount rate assumption provides a more realistic assumption for the long term investment return of the fund.

Notwithstanding the Board's decision to phase into a 7.0 percent discount rate, subsequent analysis of the expected investment return of CalPERS assets or changes to the investment allocation may result in a change to this three year discount rate schedule. A comprehensive analysis of all actuarial assumptions and methods including the discount rate will be conducted in 2017.

Subsequent Events

The contribution requirements determined in this actuarial valuation report are based on demographic and financial information as of June 30, 2016. Changes in the value of assets subsequent to that date are not reflected. Declines in asset values will increase the required contribution, while investment returns above the assumed rate of return will decrease the actuarial cost of the plan.

This actuarial valuation report reflects statutory changes, regulatory changes and CalPERS Board actions through January 2017. Any subsequent changes or actions are not reflected.

ASSETS AND LIABILITIES

- **BREAKDOWN OF ENTRY AGE NORMAL ACCRUED LIABILITY**
- **ALLOCATION OF PLAN’S SHARE OF POOL’S EXPERIENCE/ASSUMPTION CHANGE**
- **DEVELOPMENT OF PLAN’S SHARE OF POOL’S MVA**
- **SCHEDULE OF PLAN’S AMORTIZATION BASES**
- **30-YEAR AMORTIZATION SCHEDULE AND ALTERNATIVES**
- **EMPLOYER CONTRIBUTION HISTORY**
- **FUNDING HISTORY**

Breakdown of Entry Age Normal Accrued Liability

1.	Active Members	$	2,656,408
2.	Transferred Members		1,137,294
3.	Terminated Members		1,059,409
4.	Members and Beneficiaries Receiving Payments		11,652,943
5.	Total	$	16,506,054

Allocation of Plan's Share of Pool's Experience/Assumption Change

It is the policy of CalPERS to ensure equity within the risk pools by allocating the pool's experience gains/losses and assumption changes in a manner that treats each employer equitably and maintains benefit security for the members of the System while minimizing substantial variations in employer contributions. The Pool's experience gains/losses and impact of assumption/method changes is allocated to the plan as follows:

1.	Plan's Accrued Liability	$	16,506,054
2.	Projected UAL balance at 6/30/16		3,359,818
3.	Pool's Accrued Liability	$	14,775,287,594
4.	Sum of Pool's Individual Plan UAL Balances at 6/30/16		2,987,498,021
5.	Pool's 2015/16 Investment & Asset (Gain)/Loss		771,070,186
6.	Pool's 2015/16 Other (Gain)/Loss		(95,296,686)
7.	Plan's Share of Pool's Asset (Gain)/Loss [(1)-(2)]/[(3)-(4)] * (5)		859,930
8.	Plan's Share of Pool's Other (Gain)/Loss [(1)]/[(3)] * (6)		(106,460)
9.	Plan's New (Gain)/Loss as of 6/30/2016 [(7)+(8)]	$	753,470
10.	Increase in Pool's Accrued Liability due to Change in Assumptions		224,853,121
11.	Plan's Share of Pool's Change in Assumptions [(1)]/[(3)] * (10)	$	251,192

Development of the Plan's Share of Pool's Market Value of Assets

1.	Plan's Accrued Liability	$	16,506,054
2.	Plan's UAL	$	4,364,480
3.	Plan's Share of Pool's MVA [(1)-(2)]	$	**12,141,574**

Schedule of Plan's Side Fund and Other Amortization Bases

There is a two-year lag between the valuation date and the start of the contribution fiscal year.

- The assets, liabilities, and funded status of the plan are measured as of the valuation date: June 30, 2016.
- The employer contribution determined by the valuation is for the fiscal year beginning two years after the valuation date: Fiscal Year 2018-19.

This two-year lag is necessary due to the amount of time needed to extract and test the membership and financial data, and the need to provide public agencies with their employer contribution well in advance of the start of the fiscal year.

The Unfunded Accrued Liability (UAL) is used to determine the employer contribution and therefore must be rolled forward two years from the valuation date to the first day of the fiscal year for which the contribution is being determined. The UAL is rolled forward each year by subtracting the payment on the UAL for the fiscal year and adjusting for interest.

							Amounts for Fiscal 2018-19	
Reason for Base	**Date Established**	**Amortization Period**	**Balance 6/30/16**	**Payment 2016-17**	**Balance 6/30/17**	**Payment 2017-18**	**Balance 6/30/18**	**Scheduled Payment for 2018-19**
ASSET (GAIN)/LOSS	06/30/13	27	$1,823,885	$49,834	$1,906,758	$76,994	$1,967,599	$104,205
SHARE OF PRE-2013 POOL UAL	06/30/13	19	$1,359,244	$99,548	$1,356,335	$102,534	$1,350,117	$104,339
NON-ASSET (GAIN)/LOSS	06/30/13	27	$(17,532)	$(479)	$(18,329)	$(740)	$(18,914)	$(1,002)
NON-ASSET (GAIN)/LOSS	06/30/14	28	$1,394	$20	$1,476	$40	$1,543	$61
ASSET (GAIN)/LOSS	06/30/14	28	$(1,285,763)	$(18,084)	$(1,361,849)	$(37,254)	$(1,423,682)	$(56,686)
ASSUMPTION CHANGE	06/30/14	18	$800,432	$15,246	$843,666	$31,408	$873,341	$47,989
ASSET (GAIN)/LOSS	06/30/15	29	$738,137	$0	$792,575	$11,161	$839,462	$22,625
NON-ASSET (GAIN)/LOSS	06/30/15	29	$(59,979)	$0	$(64,402)	$(907)	$(68,212)	$(1,838)
ASSET (GAIN)/LOSS	06/30/16	30	$859,930	$0	$923,350	$0	$991,447	$13,742
NON-ASSET (GAIN)/LOSS	06/30/16	30	$(106,460)	$0	$(114,311)	$0	$(122,742)	$(1,701)
ASSUMPTION CHANGE	06/30/16	20	$251,192	$(6,241)	$276,185	$(6,428)	$303,214	$5,715
TOTAL			**$4,364,480**	**$139,844**	**$4,541,454**	**$176,808**	**$4,693,173**	**$237,449**

The (gain)/loss bases are the plan's allocated share of the risk pool's (gain)/loss for the fiscal year as disclosed on the previous page. These (gain)/loss bases will be amortized according to Board policy over 30 years with a 5-year ramp-up.

If the total Unfunded Liability is negative (i.e., plan has a surplus), the scheduled payment is $0, because the minimum required contribution under PEPRA must be at least equal to the normal cost.

30-Year Amortization Schedule and Alternatives

The amortization schedule on the previous page shows the minimum contributions required according to CalPERS amortization policy. There has been considerable interest from many agencies in paying off these unfunded accrued liabilities sooner and the possible savings in doing so. As a result, we have provided alternate amortization schedules to help analyze the current amortization schedule and illustrate the advantages of accelerating unfunded liability payments.

Shown on the following page are future year amortization payments based on: 1) the current amortization schedule reflecting the individual bases and remaining periods shown on the previous page, and 2) alternate "fresh start" amortization schedules using two sample periods that would both result in interest savings relative to the current amortization schedule. Note that the payments under each alternate scenario increase by 3 percent for each year into the future. **The schedules do not attempt to reflect any experience after June 30, 2016 that may deviate from the actuarial assumptions. Therefore, future amortization payments displayed in the Current Amortization Schedule may not match projected amortization payments shown in connection with Projected Employer Contributions provided elsewhere in this report.**

The Current Amortization Schedule typically contains individual bases that are both positive and negative. Positive bases result from plan changes, assumption changes or plan experience that result in increases to unfunded liability. Negative bases result from plan changes, assumption changes or plan experience that result in decreases to unfunded liability. The combination of positive and negative bases within an amortization schedule can result in unusual or problematic circumstances in future years such as:

- A positive total unfunded liability with a negative total payment,
- A negative total unfunded liability with a positive total payment, or
- Total payments that completely amortize the unfunded liability over a very short period of time

In any year where one of the above scenarios occurs, the actuary will consider corrective action such as replacing the existing unfunded liability bases with a single "fresh start" base and amortizing it over a reasonable period.

The Current Amortization Schedule on the following page may appear to show that, based on the current amortization bases, one of the above scenarios will occur at some point in the future. It is impossible to know today whether such a scenario will in fact arise since there will be additional bases added to the amortization schedule in each future year. Should such a scenario arise in any future year, the actuary will take appropriate action based on guidelines in the CalPERS amortization policy. For purposes of this display, total payments include any negative payments. Therefore, the amount of estimated savings may be understated to the extent that negative payments appear in the current schedule.

30-Year Amortization Schedule and Alternatives

	Current Amortization Schedule		Alternate Schedules: 20 Year Amortization		Alternate Schedules: 15 Year Amortization	
Date	**Balance**	**Payment**	**Balance**	**Payment**	**Balance**	**Payment**
6/30/2018	4,693,174	237,450	4,693,174	350,826	4,693,174	426,872
6/30/2019	4,793,246	297,178	4,675,763	361,351	4,596,964	439,678
6/30/2020	4,838,806	332,903	4,646,161	372,192	4,480,387	452,868
6/30/2021	4,850,708	373,650	4,603,143	383,358	4,341,545	466,454
6/30/2022	4,821,265	404,843	4,545,383	394,858	4,178,385	480,448
6/30/2023	4,757,326	416,989	4,471,445	406,704	3,988,692	494,861
6/30/2024	4,676,088	429,498	4,379,780	418,905	3,770,074	509,707
6/30/2025	4,575,895	442,383	4,268,711	431,472	3,519,948	524,998
6/30/2026	4,454,961	455,655	4,136,429	444,416	3,235,531	540,748
6/30/2027	4,311,356	469,325	3,980,977	457,749	2,913,818	556,971
6/30/2028	4,142,995	483,404	3,800,246	471,481	2,551,569	573,680
6/30/2029	3,947,629	497,906	3,591,956	485,626	2,145,289	590,890
6/30/2030	3,722,826	512,844	3,353,648	500,195	1,691,212	608,617
6/30/2031	3,465,966	528,229	3,082,669	515,201	1,185,279	626,875
6/30/2032	3,174,220	519,880	2,776,155	530,657	623,113	645,682
6/30/2033	2,869,610	510,554	2,431,020	546,576		
6/30/2034	2,552,198	491,030	2,043,935	562,974		
6/30/2035	2,231,608	469,875	1,611,311	579,863		
6/30/2036	1,909,296	447,008	1,129,280	597,259		
6/30/2037	1,586,908	267,437	593,674	615,176		
6/30/2038	1,426,818	265,138				
6/30/2039	1,257,305	273,092				
6/30/2040	1,067,048	281,285				
6/30/2041	854,270	238,803				
6/30/2042	669,820	231,888				
6/30/2043	478,932	202,582				
6/30/2044	304,334	145,342				
6/30/2045	176,173	84,485				
6/30/2046	101,621	78,876				
6/30/2047	27,383	28,375				
Totals		**10,417,906**		**9,426,839**		**7,939,348**
Interest Paid		**5,724,732**		**4,733,664**		**3,246,173**
Estimated Savings				**991,067**		**2,478,557**

* This schedule does not reflect the impact of adopted discount rate changes that will become effective beyond June 30, 2016. For Projected Employer Contributions, please see Page 5.

Employer Contribution History

The table below provides a recent history of the required employer contributions for the plan, as determined by the annual actuarial valuation. It does not account for prepayments or benefit changes made during a fiscal year.

Fiscal Year	Employer Normal Cost	Unfunded Liability Payment ($)
2016 - 17	9.055%	$146,085
2017 - 18	9.096%	$183,236
2018 - 19	9.635%	$237,450

Funding History

The funding history below shows the plan's actuarial accrued liability, share of the pool's market value of assets, share of the pool's unfunded liability, funded ratio, and annual covered payroll.

Valuation Date	Accrued Liability (AL)	Share of Pool's Market Value of Assets (MVA)	Plan's Share of Pool's Unfunded Liability	Funded Ratio	Annual Covered Payroll
06/30/2011	$ 14,126,030	$ 10,943,760	$ 3,182,270	77.5%	$ 2,098,024
06/30/2012	14,084,104	10,326,106	3,757,998	73.3%	1,062,063
06/30/2013	14,539,412	11,816,121	2,723,291	81.3%	1,369,806
06/30/2014	15,466,674	13,003,838	2,462,836	84.1%	1,395,887
06/30/2015	15,806,251	12,571,337	3,234,914	79.5%	1,452,348
06/30/2016	16,506,054	12,141,574	4,364,480	73.6%	1,399,357

RISK ANALYSIS

- ANALYSIS OF FUTURE INVESTMENT RETURN SCENARIOS
- ANALYSIS OF DISCOUNT RATE SENSITIVITY
- VOLATILITY RATIOS
- HYPOTHETICAL TERMINATION LIABILITY

Analysis of Future Investment Return Scenarios

Analysis was performed to determine the effects of various future investment returns on required employer contributions. The projections below provide a range of results based on five investment return scenarios assumed to occur during the next four fiscal years (2016-17, 2017-18, 2018-19 and 2019-20). The projections also assume that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur.

Each of the five investment return scenarios assumes a return of 7.375 percent for fiscal year 2016-17. For fiscal years 2017-18, 2018-19, and 2019-20 each scenario assumes an alternate fixed annual return. The fixed return assumptions for the five scenarios are -3.0 percent, 3.0 percent, 7.0 percent (7.25 percent for 2017-18), 11.0 percent and 17.0 percent.

Alternate investment returns were chosen based on stochastic analysis of possible future investment returns over the four year period ending June 30, 2020. Using the expected returns and volatility of the asset classes in which the funds are invested, we produced ten thousand stochastic outcomes for this period. We then selected annual returns that approximate the 5th, 25th, 50th, 75th, and 95th percentiles for these outcomes. For example, of all of the 4-year outcomes generated in the stochastic analysis, approximately 25 percent of them had an average annual return of 3.0 percent or less.

Required contributions outside of this range are also possible. In particular, while it is unlikely that investment returns will average less than -3.0 percent or greater than 17.0 percent over this four year period, the possibility of a single investment return less than -3.0 percent or greater than 17.0 percent in any given year is much greater.

Assumed Annual Return From 2017-18 through 2019-20	**Projected Employer Contributions**			
	2019-20	**2020-21**	**2021-22**	**2022-23**
(3.0%)				
Normal Cost	10.1%	11.0%	11.0%	11.0%
UAL Contribution	$300,000	$366,000	$465,000	$577,000
3.0%				
Normal Cost	10.1%	11.0%	11.0%	11.0%
UAL Contribution	$300,000	$354,000	$430,000	$507,000
Assumed Discount Rate				
Normal Cost	10.1%	11.0%	11.0%	11.0%
UAL Contribution	$300,000	$346,000	$405,000	$456,000
11.0%				
Normal Cost	10.1%	11.0%	11.2%	11.4%
UAL Contribution	$300,000	$338,000	$381,000	$407,000
17.0%				
Normal Cost	10.1%	11.0%	11.7%	12.3%
UAL Contribution	$300,000	$326,000	$344,000	$331,000

Given the temporary suspension of the Risk Mitigation Policy during the period over which the discount rate assumption is being phased down to 7.0 percent, the projections above were performed without reflection of any possible impact of this Policy for Fiscal Years 2019-20 and 2020-21.

Analysis of Discount Rate Sensitivity

Shown below are various valuation results as of June 30, 2016 assuming alternate discount rates. Results are shown using the current discount rate of 7.375 percent as well as alternate discount rates of 6.0 percent, 7.0 percent, and 8.0 percent. The alternate rate of 7.0 percent was selected since the Board has adopted this rate as the final discount rate at the end of the three year phase-in of the reduction in this assumption. The rates of 6.0 percent and 8.0 percent were selected since they illustrate the impact of a 1 percent increase or decrease to the 7.0 percent assumption. This analysis shows the potential plan impacts if the PERF were to realize investment returns of 6.0 percent, 7.0 percent, or 8.0 percent over the long-term.

This type of analysis gives the reader a sense of the long-term risk to required contributions. For a measure of funded status that is appropriate for assessing the sufficiency of plan assets to cover estimated termination liabilities, please see "Hypothetical Termination Liability" in the "Risk Analysis" section.

Sensitivity Analysis				
As of June 30, 2016	**Plan's Total Normal Cost**	**Accrued Liability**	**Unfunded Accrued Liability**	**Funded Status**
7.375% (current discount rate)	16.537%	$16,506,054	$4,364,480	73.6%
6.0%	22.323%	$19,468,843	$7,327,269	62.4%
7.0%	17.908%	$17,236,148	$5,094,574	70.4%
8.0%	14.534%	$15,400,883	$3,259,309	78.8%

Volatility Ratios

Actuarial calculations are based on a number of assumptions about long-term demographic and economic behavior. Unless these assumptions (terminations, deaths, disabilities, retirements, salary growth, and investment return) are exactly realized each year, there will be differences on a year-to-year basis. The year-to-year differences between actual experience and the assumptions are called actuarial gains and losses and serve to lower or raise required employer contributions from one year to the next. Therefore, employer contributions will inevitably fluctuate, especially due to the ups and downs of investment returns.

Asset Volatility Ratio (AVR)

Plans that have higher asset-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with an asset-to-payroll ratio of 8 may experience twice the contribution volatility due to investment return volatility, than a plan with an asset-to-payroll ratio of 4. Shown below is the asset volatility ratio, a measure of the plan's current contribution volatility. It should be noted that this ratio is a measure of the current situation. It increases over time but generally tends to stabilize as the plan matures.

Liability Volatility Ratio (LVR)

Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return and changes in liability. For example, a plan with a liability-to-payroll ratio of 8 is expected to have twice the contribution volatility of a plan with a liability-to-payroll ratio of 4. The liability volatility ratio is also shown in the table below. It should be noted that this ratio indicates a longer-term potential for contribution volatility. The asset volatility ratio, described above, will tend to move closer to the liability volatility ratio as the plan matures. Since the liability volatility ratio is a long-term measure, it is shown below at the current discount rate (7.375 percent) as well as the discount rate the Board has adopted to determine the contribution requirement in the June 30, 2018 actuarial valuation (7.00 percent).

Rate Volatility		**As of June 30, 2016**
1. Market Value of Assets	$	12,141,574
2. Payroll		1,399,357
3. Asset Volatility Ratio (AVR) [(1) / (2)]		8.7
4. Accrued Liability	$	16,506,054
5. Liability Volatility Ratio (LVR) [(4) / (2)]		11.8
6. Accrued Liability (7.00% discount rate)		17,236,148
7. Projected Liability Volatility Ratio [(6) / (2)]		12.3

Hypothetical Termination Liability

The hypothetical termination liability is an estimate of the financial position of the plan had the contract with CalPERS been terminated as of June 30, 2016. The plan liability on a termination basis is calculated differently compared to the plan's ongoing funding liability. For the hypothetical termination liability calculation, both compensation and service are frozen as of the valuation date and no future pay increases or service accruals are assumed. This measure of funded status is not appropriate for assessing the need for future employer contributions in the case of an ongoing plan, that is, for an employer that continues to provide CalPERS retirement benefits to active employees.

A more conservative investment policy and asset allocation strategy was adopted by the CalPERS Board for the Terminated Agency Pool. The Terminated Agency Pool has limited funding sources since no future employer contributions will be made. Therefore, expected benefit payments are secured by risk-free assets and benefit security for members is increased while funding risk is limited. However, this asset allocation has a lower expected rate of return than the PERF and consequently, a lower discount rate is assumed. The lower discount rate for the Terminated Agency Pool results in higher liabilities for terminated plans.

The effective termination discount rate will depend on actual market rates of return for risk-free securities on the date of termination. As market discount rates are variable, the table below shows a range for the hypothetical termination liability based on the lowest and highest interest rates observed during an approximate 2-year period centered around the valuation date.

Market Value of Assets (MVA)	Hypothetical Termination Liability[1,2] @ 1.75%	Funded Status	Unfunded Termination Liability @ 1.75%	Hypothetical Termination Liability[1,2] @ 3.00%	Funded Status	Unfunded Termination Liability @ 3.00%
$12,141,574	$33,019,087	36.8%	$20,877,514	$28,523,268	42.6%	$16,381,695

[1] The hypothetical liabilities calculated above include a 7 percent mortality contingency load in accordance with Board policy. Other actuarial assumptions can be found in Appendix A.

[2] The current discount rate assumption used for termination valuations is a weighted average of the 10-year and 30-year U.S. Treasury yields where the weights are based on matching asset and liability durations as of the termination date. The discount rates used in the table are based on 20-year Treasury bonds, rounded to the nearest quarter percentage point, which is a good proxy for most plans. The 20-year Treasury yield was 1.75 percent on June 30, 2016, and was 2.75 percent on January 31, 2017.

In order to terminate the plan, you must first contact our Retirement Services Contract Unit to initiate a Resolution of Intent to terminate. The completed Resolution will allow the plan actuary to give you a preliminary termination valuation with a more up-to-date estimate of the plan liabilities. CalPERS advises you to consult with the plan actuary before beginning this process.

Participant Data

The table below shows a summary of your plan's member data upon which this valuation is based:

	June 30, 2015	June 30, 2016
Reported Payroll	$ 1,452,348	$ 1,399,357
Projected Payroll for Contribution Purposes	$ 1,587,020	$ 1,529,115
Number of Members		
Active	16	15
Transferred	13	14
Separated	26	27
Retired	54	57

List of Class 1 Benefit Provisions

This plan has the additional Class 1 Benefit Provisions:

- Post-Retirement Survivor Allowance (PRSA)

PLAN’S MAJOR BENEFIT OPTIONS

Plan's Major Benefit Options

Shown below is a summary of the major optional benefits for which your agency has contracted. A description of principal standard and optional plan provisions is in Appendix B within Section 2 of this report.

	Contract package		
Benefit Provision	Active Misc	Receiving Misc	
Benefit Formula	2.0% @ 55		
Social Security Coverage	No		
Full/Modified	Full		
Employee Contribution Rate	7.00%		
Final Average Compensation Period	Three Year		
Sick Leave Credit	Yes		
Non-Industrial Disability	Standard		
Industrial Disability	No		
Pre-Retirement Death Benefits			
Optional Settlement 2W	Yes		
1959 Survivor Benefit Level	level 3		
Special	No		
Alternate (firefighters)	No	No	
Post-Retirement Death Benefits			
Lump Sum	$500	$500	
Survivor Allowance (PRSA)	Yes	Yes	
COLA	2%	2%	

Section 2

Section 2 may be found on the CalPERS website (www.calpers.ca.gov) in the Forms and Publications section

California Public Employees' Retirement System
Actuarial Office
P.O. Box 942709
Sacramento, CA 94229-2709
TTY: (916) 795-3240
(888) 225-7377 phone – (916) 795-2744 fax
www.calpers.ca.gov

August 2017

SAFETY PLAN OF THE TOWN OF ATHERTON
(CalPERS ID: 1382390535)
Annual Valuation Report as of June 30, 2016

Dear Employer,

As an attachment to this letter, you will find a copy of the June 30, 2016 actuarial valuation report of the pension plan.

Because this plan is in a risk pool, the following valuation report has been separated into two sections:

- Section 1 contains specific information for the plan including the development of the current and projected employer contributions, and
- Section 2 contains the Risk Pool Actuarial Valuation appropriate to the plan as of June 30, 2016.

Section 2 can be found on the CalPERS website at (www.calpers.ca.gov). From the home page, go to "*Forms & Publications*" and select "*View All*". In the search box, enter "*Risk Pool Report*" and from the results list download the Miscellaneous or Safety Risk Pool Actuarial Valuation Report as appropriate.

Your June 30, 2016 actuarial valuation report contains important actuarial information about your pension plan at CalPERS. Your assigned CalPERS staff actuary, whose signature appears in the Actuarial Certification section on page 1, is available to discuss the report with you after August 31, 2017.

The exhibit below displays the minimum employer contributions, before any cost sharing, for Fiscal Year 2018-19 along with estimates of the required contributions for Fiscal Years 2019-20 and 2020-21. Member contributions other than cost sharing (whether paid by the employer or the employee) are in addition to the results shown below. **The employer contributions in this report do not reflect any cost sharing arrangements you may have with your employees**.

Required Contribution

Fiscal Year	Employer Normal Cost Rate	Employer Payment of Unfunded Liability
2018-19	22.346%	$627,361
Projected Results		
2019-20	*23.3%*	*$777,000*
2020-21	*25.1%*	*$888,000*

The actual investment return for Fiscal Year 2016-17 was not known at the time this report was prepared. The projections above assume the investment return for that year would be 7.375 percent. ***If the actual investment return for Fiscal Year 2016-17 differs from 7.375 percent, the actual contribution requirements for the projected years will differ from those shown above.***

Moreover, the projected results for Fiscal Years 2019-20 and 2020-21 also assume that there are no future plan changes, no further changes in assumptions other than those recently approved, and no liability gains or losses. Such changes can have a significant impact on required contributions. Since they cannot be predicted in advance, the projected employer results shown above are estimates. The actual required employer contributions for Fiscal Year 2019-20 will be provided in next year's report.

For additional details regarding the assumptions and methods used for these projections please refer to the "Projected Employer Contributions" in the "Highlights and Executive Summary" section.

The "Risk Analysis" section of the valuation report also contains estimated employer contributions in future years under a variety of investment return scenarios.

Changes since the Prior Year's Valuation

On December 21, 2016, the CalPERS Board of Administration lowered the discount rate from 7.50 percent to 7.00 percent using a three year phase-in beginning with the June 30, 2016 actuarial valuations. The minimum employer contributions for Fiscal Year 2018-19 determined in this valuation were calculated using a discount rate of 7.375 percent. The projected employer contributions on Page 5 are calculated assuming that the discount rate will be lowered to 7.25 percent next year and to 7.00 percent the following year as adopted by the Board.

The CalPERS Board of Administration adopted a Risk Mitigation Policy which is designed to reduce funding risk over time. This Policy has been temporarily suspended during the period over which the discount rate is being lowered. More details on the Risk Mitigation Policy can be found on our website.

Besides the above noted changes, there may also be changes specific to the plan such as contract amendments and funding changes.

Further descriptions of general changes are included in the "Highlights and Executive Summary" section and in Appendix A, "Statement of Actuarial Data, Methods and Assumptions" of the Section 2 report.

We understand that you might have a number of questions about these results. While we are very interested in discussing these results with your agency, in the interest of allowing us to give every public agency their results, we ask that you wait until after August 31 to contact us with actuarial related questions.

If you have other questions, please call our customer contact center at (888) CalPERS or (**888-225-7377**).

Sincerely,

SCOTT TERANDO
Chief Actuary

ACTUARIAL VALUATION
as of June 30, 2016

for the
SAFETY PLAN
of the
TOWN OF ATHERTON
(CalPERS ID: 1382390535)

REQUIRED CONTRIBUTIONS
FOR FISCAL YEAR
July 1, 2018 - June 30, 2019

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Section 1

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Plan Specific Information
for the
SAFETY PLAN
of the
TOWN OF ATHERTON

(CalPERS ID: 1382390535)
(Rate Plan: 65)

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ACTUARIAL CERTIFICATION

Section 1 of this report is based on the member and financial data contained in our records as of June 30, 2016 which was provided by your agency and the benefit provisions under your contract with CalPERS. Section 2 of this report is based on the member and financial data as of June 30, 2016 provided by employers participating in the Safety Risk Pool to which the plan belongs and benefit provisions under the CalPERS contracts for those agencies.

As set forth in Section 2 of this report, the pool actuary has certified that, in their opinion, the valuation of the risk pool containing your SAFETY PLAN has been performed in accordance with generally accepted actuarial principles consistent with standards of practice prescribed by the Actuarial Standards Board, and that the assumptions and methods are internally consistent and reasonable for the risk pool as of the date of this valuation and as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employees' Retirement Law.

Having relied upon the information set forth in Section 2 of this report and based on the census and benefit provision information for the plan, it is my opinion as the plan actuary that Unfunded Accrued Liability amortization bases as of June 30, 2016 and employer contribution as of July 1, 2018, have been properly and accurately determined in accordance with the principles and standards stated above.

The undersigned is an actuary for CalPERS, a member of both the American Academy of Actuaries and Society of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

JULIAN ROBINSON, FSA, EA, MAAA
Senior Pension Actuary, CalPERS
Plan Actuary

HIGHLIGHTS AND EXECUTIVE SUMMARY

- **INTRODUCTION**
- **PURPOSE OF SECTION 1**
- **REQUIRED EMPLOYER CONTRIBUTION**
- **PLAN'S FUNDED STATUS**
- **PROJECTED EMPLOYER CONTRIBUTIONS**
- **CHANGES SINCE THE PRIOR YEAR'S VALUATION**
- **SUBSEQUENT EVENTS**

Introduction

This report presents the results of the June 30, 2016 actuarial valuation of the SAFETY PLAN of the TOWN OF ATHERTON of the California Public Employees' Retirement System (CalPERS). This actuarial valuation sets the required employer contributions for Fiscal Year 2018-19.

Purpose of Section 1

This Section 1 report for the SAFETY PLAN of the TOWN OF ATHERTON of the California Public Employees' Retirement System (CalPERS) was prepared by the plan actuary in order to:

- Set forth the assets and accrued liabilities of this plan as of June 30, 2016;
- Determine the required employer contribution for this plan for the fiscal year July 1, 2018 through June 30, 2019; and
- Provide actuarial information as of June 30, 2016 to the CalPERS Board of Administration and other interested parties.

The pension funding information presented in this report should not be used in financial reports subject to GASB Statement No. 68 for a Cost Sharing Employer Defined Benefit Pension Plan. A separate accounting valuation report for such purposes is available from CalPERS and details for ordering are available on our website.

The measurements shown in this actuarial valuation may not be applicable for other purposes. The employer should contact their actuary before disseminating any portion of this report for any reason that is not explicitly described above.

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

California Actuarial Advisory Panel Recommendations

This report includes all the basic disclosure elements as described in the *Model Disclosure Elements for Actuarial Valuation Reports* recommended in 2011 by the California Actuarial Advisory Panel (CAAP), with the exception of including the original base amounts of the various components of the unfunded liability in the Schedule of Amortization Bases shown on page 9.

Additionally, this report includes the following "Enhanced Risk Disclosures" also recommended by the CAAP in the Model Disclosure Elements document:

- A "Deterministic Stress Test," projecting future results under different investment income scenarios
- A "Sensitivity Analysis," showing the impact on current valuation results using alternative discount rates of 6.0 percent, 7.0 percent and 8.0 percent.

Required Employer Contribution

		Fiscal Year
Required Employer Contribution		**2018-19**
Employer Normal Cost Rate		**22.346%**
Plus Either		
1) Monthly Employer Dollar UAL Payment	**$**	**52,280.11**
Or		
2) Annual Lump Sum Prepayment Option	**$**	**605,433**

The total minimum required employer contribution is the ***sum*** *of the Plan's Employer Normal Cost Rate (expressed as a percentage of payroll)* ***plus*** *the Employer Unfunded Accrued Liability (UAL) Contribution Amount (billed monthly in dollars).*

Only the UAL portion of the employer contribution can be prepaid ***(which must be received in full no later than July 31)****. Plan Normal Cost contributions will be made as part of the payroll reporting process. If there is contractual cost sharing or other change, this amount will change.*

§ 20572 of the Public Employees' Retirement Law assesses interest at an annual rate of 10 percent if a contracting agency fails to remit the required contributions when due.

		Fiscal Year 2017-18		Fiscal Year 2018-19
Development of Normal Cost as a Percentage of Payroll[1]				
Base Total Normal Cost for Formula		27.603%		28.405%
Surcharge for Class 1 Benefits[2]				
a) FAC 1		1.108%		1.140%
b) PRSA		1.695%		1.790%
Phase out of Normal Cost Difference[3]		0.000%		0.000%
Plan's Total Normal Cost		30.406%		31.335%
Formula's Expected Employee Contribution Rate		8.988%		8.989%
Employer Normal Cost Rate		21.418%		22.346%
Projected Payroll for the Contribution Fiscal Year	$	2,236,138	$	2,196,490
Estimated Employer Contributions Based on Projected Payroll				
Plan's Estimated Employer Normal Cost	$	478,936	$	490,828
Plan's Payment on Amortization Bases[4]		496,462		627,361
% of Projected Payroll (illustrative only)		22.202%		28.562%
Estimated Total Employer Contribution	$	975,398	$	1,118,189
% of Projected Payroll (illustrative only)		43.620%		50.908%

[1] The results shown for Fiscal Year 2017-18 reflect the prior year valuation and may not take into account any lump sum payment, side fund payoff, or rate adjustment made after June 30, 2016.

[2] Section 2 of this report contains a list of Class 1 benefits and corresponding surcharges for each benefit.

[3] The normal cost difference is phased out over a five year period. The phase out of normal cost difference is 100 percent for the first year of pooling, and is incrementally reduced by 20 percent of the original normal cost difference for each subsequent year. This is non-zero only for plans that joined a pool within the past 5 years. Most plans joined a pool June 30, 2003, when risk pooling was implemented.

[4] See page 9 for a breakdown of the Amortization Bases.

Plan's Funded Status

		June 30, 2015		June 30, 2016
1. Present Value of Projected Benefits (PVB)	$	42,461,709	$	43,567,323
2. Entry Age Normal Accrued Liability (AL)		36,891,116		38,454,832
3. Plan's Market Value of Assets (MVA)		28,263,430		27,292,457
4. Unfunded Accrued Liability (UAL) [(2) - (3)]		8,627,686		11,162,375
5. Funded Ratio [(3) / (2)]		76.6%		71.0%

This measure of funded status is an assessment of the need for future employer contributions based on the selected actuarial cost method used to fund the plan. The UAL is the present value of future employer contributions for service that has already been earned and is in addition to future normal cost contributions for active members. For a measure of funded status that is appropriate for assessing the sufficiency of plan assets to cover estimated termination liabilities, please see "Hypothetical Termination Liability" in the "Risk Analysis" section.

Projected Employer Contributions

The table below shows projected employer contributions (before cost sharing) for the next six fiscal years. Projected results reflect the adopted changes to the discount rate described in Appendix A, "Statement of Actuarial Data, Methods and Assumptions" of the Section 2 report. The projections also assume that all actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur during the projection period.

	Required Contribution	**Projected Future Employer Contributions (Assumes 7.375% Return for Fiscal Year 2016-17)**					
Fiscal Year	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**
Normal Cost %	22.346%	23.3%	25.1%	25.1%	25.1%	25.1%	25.1%
UAL Payment	$627,361	$777,000	$888,000	$1,028,000	$1,147,000	$1,229,000	$1,299,000

Changes in the UAL due to actuarial gains or losses as well as changes in actuarial assumptions or methods are amortized using a 5-year ramp up. For more information, please see "Amortization of the Unfunded Actuarial Accrued Liability" under "Actuarial Methods" in Appendix A of Section 2. This method phases in the impact of unanticipated changes in UAL over a 5-year period and attempts to minimize employer cost volatility from year to year. As a result of this methodology, dramatic changes in the required employer contributions in any one year are less likely. However, required contributions can change gradually and significantly over the next five years. In years where there is a large increase in UAL the relatively small amortization payments during the ramp up period could result in a funded ratio that is projected to decrease initially while the contribution impact of the increase in the UAL is phased in.

Due to the adopted changes in the discount rate for the next two valuations in combination with the 5-year phase-in ramp, the increases in the required contributions are expected to continue for seven years from Fiscal Year 2018-19 through Fiscal Year 2024-25.

For projected contributions under alternate investment return scenarios, please see the "Analysis of Future Investment Return Scenarios" in the "Risk Analysis" section.

Changes since the Prior Year's Valuation

Benefits

None. This valuation generally reflects plan changes by amendments effective before the date of the report. Please refer to the "Plan's Major Benefit Options" and Appendix B of Section 2 for a summary of the plan provisions used in this valuation.

Actuarial Methods and Assumptions

On December 21, 2016, the CalPERS Board of Administration lowered the discount rate from 7.50 percent to 7.00 percent using a three year phase-in beginning with the June 30, 2016 actuarial valuations. The minimum employer contributions for Fiscal Year 2018-19 determined in this valuation were calculated using a discount rate of 7.375 percent. The projected employer contributions on Page 5 are calculated assuming that the discount rate will be lowered to 7.25 percent next year and 7.00 percent the following year as adopted by the Board. The decision to reduce the discount rate was primarily based on reduced capital market assumptions provided by external investment consultants and CalPERS investment staff. The specific decision adopted by the Board reflected recommendations from CalPERS staff and additional input from employer and employee stakeholder groups. Based on the investment allocation adopted by the Board and capital market assumptions, the reduced discount rate assumption provides a more realistic assumption for the long term investment return of the fund.

Notwithstanding the Board's decision to phase into a 7.0 percent discount rate, subsequent analysis of the expected investment return of CalPERS assets or changes to the investment allocation may result in a change to this three year discount rate schedule. A comprehensive analysis of all actuarial assumptions and methods including the discount rate will be conducted in 2017.

Subsequent Events

The contribution requirements determined in this actuarial valuation report are based on demographic and financial information as of June 30, 2016. Changes in the value of assets subsequent to that date are not reflected. Declines in asset values will increase the required contribution, while investment returns above the assumed rate of return will decrease the actuarial cost of the plan.

This actuarial valuation report reflects statutory changes, regulatory changes and CalPERS Board actions through January 2017. Any subsequent changes or actions are not reflected.

ASSETS AND LIABILITIES

- BREAKDOWN OF ENTRY AGE NORMAL ACCRUED LIABILITY
- ALLOCATION OF PLAN’S SHARE OF POOL’S EXPERIENCE/ASSUMPTION CHANGE
- DEVELOPMENT OF PLAN’S SHARE OF POOL’S MVA
- SCHEDULE OF PLAN’S AMORTIZATION BASES
- 30-YEAR AMORTIZATION SCHEDULE AND ALTERNATIVES
- EMPLOYER CONTRIBUTION HISTORY
- FUNDING HISTORY

Breakdown of Entry Age Normal Accrued Liability

1.	Active Members	$	7,894,976
2.	Transferred Members		2,923,162
3.	Terminated Members		764,944
4.	Members and Beneficiaries Receiving Payments		26,871,750
5.	Total	$	38,454,832

Allocation of Plan's Share of Pool's Experience/Assumption Change

It is the policy of CalPERS to ensure equity within the risk pools by allocating the pool's experience gains/losses and assumption changes in a manner that treats each employer equitably and maintains benefit security for the members of the System while minimizing substantial variations in employer contributions. The Pool's experience gains/losses and impact of assumption/method changes is allocated to the plan as follows:

1.	Plan's Accrued Liability	$	38,454,832
2.	Projected UAL balance at 6/30/16		8,944,313
3.	Pool's Accrued Liability	$	19,698,755,513
4.	Sum of Pool's Individual Plan UAL Balances at 6/30/16		4,661,724,814
5.	Pool's 2015/16 Investment & Asset (Gain)/Loss		996,431,536
6.	Pool's 2015/16 Other (Gain)/Loss		(166,972,696)
7.	Plan's Share of Pool's Asset (Gain)/Loss [(1)-(2)]/[(3)-(4)] * (5)		1,955,520
8.	Plan's Share of Pool's Other (Gain)/Loss [(1)]/[(3)] * (6)		(325,955)
9.	Plan's New (Gain)/Loss as of 6/30/2016 [(7)+(8)]	$	1,629,565
10.	Increase in Pool's Accrued Liability due to Change in Assumptions		301,461,845
11.	Plan's Share of Pool's Change in Assumptions [(1)]/[(3)] * (10)	$	588,497

Development of the Plan's Share of Pool's Market Value of Assets

1.	Plan's Accrued Liability	$	38,454,832
2.	Plan's UAL	$	11,162,375
3.	Plan's Share of Pool's MVA [(1)-(2)]	$	**27,292,457**

Schedule of Plan's Side Fund and Other Amortization Bases

There is a two-year lag between the valuation date and the start of the contribution fiscal year.

- The assets, liabilities, and funded status of the plan are measured as of the valuation date: June 30, 2016.
- The employer contribution determined by the valuation is for the fiscal year beginning two years after the valuation date: Fiscal Year 2018-19.

This two-year lag is necessary due to the amount of time needed to extract and test the membership and financial data, and the need to provide public agencies with their employer contribution well in advance of the start of the fiscal year.

The Unfunded Accrued Liability (UAL) is used to determine the employer contribution and therefore must be rolled forward two years from the valuation date to the first day of the fiscal year for which the contribution is being determined. The UAL is rolled forward each year by subtracting the payment on the UAL for the fiscal year and adjusting for interest.

							Amounts for Fiscal 2018-19	
Reason for Base	**Date Established**	**Amortization Period**	**Balance 6/30/16**	**Payment 2016-17**	**Balance 6/30/17**	**Payment 2017-18**	**Balance 6/30/18**	**Scheduled Payment for 2018-19**
ASSET (GAIN)/LOSS	06/30/13	27	$4,261,567	$116,440	$4,455,200	$179,899	$4,597,356	$243,478
SHARE OF PRE-2013 POOL UAL	06/30/13	19	$3,966,347	$290,486	$3,957,858	$299,201	$3,939,712	$304,468
NON-ASSET (GAIN)/LOSS	06/30/13	27	$(48,378)	$(1,322)	$(50,576)	$(2,042)	$(52,190)	$(2,764)
NON-ASSET (GAIN)/LOSS	06/30/14	28	$36,143	$508	$38,282	$1,047	$40,020	$1,593
ASSET (GAIN)/LOSS	06/30/14	28	$(2,895,577)	$(40,726)	$(3,066,925)	$(83,896)	$(3,206,176)	$(127,659)
ASSUMPTION CHANGE	06/30/14	18	$1,967,629	$37,479	$2,073,905	$77,206	$2,146,853	$117,968
ASSET (GAIN)/LOSS	06/30/15	29	$1,662,739	$0	$1,785,366	$25,140	$1,890,986	$50,966
NON-ASSET (GAIN)/LOSS	06/30/15	29	$(6,157)	$0	$(6,611)	$(93)	$(7,002)	$(189)
ASSET (GAIN)/LOSS	06/30/16	30	$1,955,520	$0	$2,099,739	$0	$2,254,595	$31,250
NON-ASSET (GAIN)/LOSS	06/30/16	30	$(325,955)	$0	$(349,994)	$0	$(375,806)	$(5,209)
ASSUMPTION CHANGE	06/30/16	20	$588,497	$(16,288)	$648,777	$(16,777)	$714,008	$13,458
TOTAL			**$11,162,375**	**$386,577**	**$11,585,021**	**$479,685**	**$11,942,356**	**$627,360**

The (gain)/loss bases are the plan's allocated share of the risk pool's (gain)/loss for the fiscal year as disclosed on the previous page. These (gain)/loss bases will be amortized according to Board policy over 30 years with a 5-year ramp-up.

If the total Unfunded Liability is negative (i.e., plan has a surplus), the scheduled payment is $0, because the minimum required contribution under PEPRA must be at least equal to the normal cost.

30-Year Amortization Schedule and Alternatives

The amortization schedule on the previous page shows the minimum contributions required according to CalPERS amortization policy. There has been considerable interest from many agencies in paying off these unfunded accrued liabilities sooner and the possible savings in doing so. As a result, we have provided alternate amortization schedules to help analyze the current amortization schedule and illustrate the advantages of accelerating unfunded liability payments.

Shown on the following page are future year amortization payments based on: 1) the current amortization schedule reflecting the individual bases and remaining periods shown on the previous page, and 2) alternate "fresh start" amortization schedules using two sample periods that would both result in interest savings relative to the current amortization schedule. Note that the payments under each alternate scenario increase by 3 percent for each year into the future. **The schedules do not attempt to reflect any experience after June 30, 2016 that may deviate from the actuarial assumptions. Therefore, future amortization payments displayed in the Current Amortization Schedule may not match projected amortization payments shown in connection with Projected Employer Contributions provided elsewhere in this report.**

The Current Amortization Schedule typically contains individual bases that are both positive and negative. Positive bases result from plan changes, assumption changes or plan experience that result in increases to unfunded liability. Negative bases result from plan changes, assumption changes or plan experience that result in decreases to unfunded liability. The combination of positive and negative bases within an amortization schedule can result in unusual or problematic circumstances in future years such as:

- A positive total unfunded liability with a negative total payment,
- A negative total unfunded liability with a positive total payment, or
- Total payments that completely amortize the unfunded liability over a very short period of time

In any year where one of the above scenarios occurs, the actuary will consider corrective action such as replacing the existing unfunded liability bases with a single "fresh start" base and amortizing it over a reasonable period.

The Current Amortization Schedule on the following page may appear to show that, based on the current amortization bases, one of the above scenarios will occur at some point in the future. It is impossible to know today whether such a scenario will in fact arise since there will be additional bases added to the amortization schedule in each future year. Should such a scenario arise in any future year, the actuary will take appropriate action based on guidelines in the CalPERS amortization policy. For purposes of this display, total payments include any negative payments. Therefore, the amount of estimated savings may be understated to the extent that negative payments appear in the current schedule.

30-Year Amortization Schedule and Alternatives

	Current Amortization Schedule		Alternate Schedules: 20 Year Amortization		Alternate Schedules: 15 Year Amortization	
Date	**Balance**	**Payment**	**Balance**	**Payment**	**Balance**	**Payment**
6/30/2018	11,942,358	627,361	11,942,358	892,721	11,942,358	1,086,227
6/30/2019	12,173,023	772,220	11,898,052	919,503	11,697,537	1,118,814
6/30/2020	12,270,594	861,363	11,822,727	947,088	11,400,894	1,152,378
6/30/2021	12,282,989	958,108	11,713,263	975,500	11,047,594	1,186,950
6/30/2022	12,196,049	1,031,308	11,566,284	1,004,765	10,632,414	1,222,558
6/30/2023	12,026,847	1,062,248	11,378,140	1,034,908	10,149,716	1,259,235
6/30/2024	11,813,106	1,094,115	11,144,887	1,065,956	9,593,414	1,297,012
6/30/2025	11,550,579	1,126,938	10,862,258	1,097,934	8,956,940	1,335,922
6/30/2026	11,234,679	1,160,747	10,525,650	1,130,872	8,233,206	1,376,000
6/30/2027	10,860,449	1,195,569	10,130,085	1,164,798	7,414,568	1,417,280
6/30/2028	10,422,536	1,231,436	9,670,192	1,199,742	6,492,779	1,459,798
6/30/2029	9,915,161	1,268,379	9,140,173	1,235,735	5,458,951	1,503,592
6/30/2030	9,332,085	1,306,430	8,533,769	1,272,807	4,303,497	1,548,700
6/30/2031	8,666,578	1,345,623	7,844,228	1,310,991	3,016,087	1,595,161
6/30/2032	7,911,378	1,326,513	7,064,266	1,350,321	1,585,587	1,643,016
6/30/2033	7,120,284	1,305,045	6,186,028	1,390,830		
6/30/2034	6,293,092	1,259,499	5,201,042	1,432,555		
6/30/2035	5,452,090	1,210,046	4,100,178	1,475,532		
6/30/2036	4,600,310	1,156,491	2,873,592	1,519,798		
6/30/2037	3,741,204	633,701	1,510,676	1,565,392		
6/30/2038	3,360,465	628,405				
6/30/2039	2,957,135	647,257				
6/30/2040	2,504,523	666,675				
6/30/2041	1,998,411	567,907				
6/30/2042	1,557,317	548,035				
6/30/2043	1,104,285	473,302				
6/30/2044	695,282	337,431				
6/30/2045	396,907	192,982				
6/30/2046	226,206	177,247				
6/30/2047	59,222	61,367				
Totals		**26,233,749**		**23,987,747**		**20,202,645**
Interest Paid		**14,291,392**		**12,045,389**		**8,260,287**
Estimated Savings				**2,246,003**		**6,031,105**

* This schedule does not reflect the impact of adopted discount rate changes that will become effective beyond June 30, 2016. For Projected Employer Contributions, please see Page 5.

Employer Contribution History

The table below provides a recent history of the required employer contributions for the plan, as determined by the annual actuarial valuation. It does not account for prepayments or benefit changes made during a fiscal year.

Fiscal Year	Employer Normal Cost	Unfunded Liability Payment ($)
2016 - 17	21.230%	$402,865
2017 - 18	21.418%	$496,462
2018 - 19	22.346%	$627,361

Funding History

The funding history below shows the plan's actuarial accrued liability, share of the pool's market value of assets, share of the pool's unfunded liability, funded ratio, and annual covered payroll.

Valuation Date	Accrued Liability (AL)	Share of Pool's Market Value of Assets (MVA)	Plan's Share of Pool's Unfunded Liability	Funded Ratio	Annual Covered Payroll
06/30/2011	$ 28,919,573	$ 21,722,502	$ 7,197,071	75.1%	$ 1,942,071
06/30/2012	30,999,471	22,860,016	8,139,455	73.7%	1,824,609
06/30/2013	32,050,359	24,846,630	7,203,729	77.5%	1,971,765
06/30/2014	35,213,417	28,436,146	6,777,271	80.8%	1,840,375
06/30/2015	36,891,116	28,263,430	8,627,686	76.6%	2,046,383
06/30/2016	38,454,832	27,292,457	11,162,375	71.0%	2,010,099

RISK ANALYSIS

- **ANALYSIS OF FUTURE INVESTMENT RETURN SCENARIOS**
- **ANALYSIS OF DISCOUNT RATE SENSITIVITY**
- **VOLATILITY RATIOS**
- **HYPOTHETICAL TERMINATION LIABILITY**

Analysis of Future Investment Return Scenarios

Analysis was performed to determine the effects of various future investment returns on required employer contributions. The projections below provide a range of results based on five investment return scenarios assumed to occur during the next four fiscal years (2016-17, 2017-18, 2018-19 and 2019-20). The projections also assume that all other actuarial assumptions will be realized and that no further changes to assumptions, contributions, benefits, or funding will occur.

Each of the five investment return scenarios assumes a return of 7.375 percent for fiscal year 2016-17. For fiscal years 2017-18, 2018-19, and 2019-20 each scenario assumes an alternate fixed annual return. The fixed return assumptions for the five scenarios are -3.0 percent, 3.0 percent, 7.0 percent (7.25 percent for 2017-18), 11.0 percent and 17.0 percent.

Alternate investment returns were chosen based on stochastic analysis of possible future investment returns over the four year period ending June 30, 2020. Using the expected returns and volatility of the asset classes in which the funds are invested, we produced ten thousand stochastic outcomes for this period. We then selected annual returns that approximate the 5th, 25th, 50th, 75th, and 95th percentiles for these outcomes. For example, of all of the 4-year outcomes generated in the stochastic analysis, approximately 25 percent of them had an average annual return of 3.0 percent or less.

Required contributions outside of this range are also possible. In particular, while it is unlikely that investment returns will average less than -3.0 percent or greater than 17.0 percent over this four year period, the possibility of a single investment return less than -3.0 percent or greater than 17.0 percent in any given year is much greater.

Assumed Annual Return From 2017-18 through 2019-20	**Projected Employer Contributions**			
	2019-20	**2020-21**	**2021-22**	**2022-23**
(3.0%)				
Normal Cost	23.3%	25.1%	25.1%	25.1%
UAL Contribution	$777,000	$933,000	$1,160,000	$1,412,000
3.0%				
Normal Cost	23.3%	25.1%	25.1%	25.1%
UAL Contribution	$777,000	$907,000	$1,083,000	$1,260,000
Assumed Discount Rate				
Normal Cost	23.3%	25.1%	25.1%	25.1%
UAL Contribution	$777,000	$888,000	$1,028,000	$1,147,000
11.0%				
Normal Cost	23.3%	25.1%	25.6%	26.1%
UAL Contribution	$777,000	$872,000	$976,000	$1,041,000
17.0%				
Normal Cost	23.3%	25.1%	26.5%	27.9%
UAL Contribution	$777,000	$846,000	$894,000	$874,000

Given the temporary suspension of the Risk Mitigation Policy during the period over which the discount rate assumption is being phased down to 7.0 percent, the projections above were performed without reflection of any possible impact of this Policy for Fiscal Years 2019-20 and 2020-21.

Analysis of Discount Rate Sensitivity

Shown below are various valuation results as of June 30, 2016 assuming alternate discount rates. Results are shown using the current discount rate of 7.375 percent as well as alternate discount rates of 6.0 percent, 7.0 percent, and 8.0 percent. The alternate rate of 7.0 percent was selected since the Board has adopted this rate as the final discount rate at the end of the three year phase-in of the reduction in this assumption. The rates of 6.0 percent and 8.0 percent were selected since they illustrate the impact of a 1 percent increase or decrease to the 7.0 percent assumption. This analysis shows the potential plan impacts if the PERF were to realize investment returns of 6.0 percent, 7.0 percent, or 8.0 percent over the long-term.

This type of analysis gives the reader a sense of the long-term risk to required contributions. For a measure of funded status that is appropriate for assessing the sufficiency of plan assets to cover estimated termination liabilities, please see "Hypothetical Termination Liability" in the "Risk Analysis" section.

Sensitivity Analysis				
As of June 30, 2016	**Plan's Total Normal Cost**	**Accrued Liability**	**Unfunded Accrued Liability**	**Funded Status**
7.375% (current discount rate)	31.335%	$38,454,832	$11,162,375	71.0%
6.0%	43.211%	$46,278,233	$18,985,776	59.0%
7.0%	34.135%	$40,360,515	$13,068,058	67.6%
8.0%	27.260%	$35,593,316	$8,300,859	76.7%

Volatility Ratios

Actuarial calculations are based on a number of assumptions about long-term demographic and economic behavior. Unless these assumptions (terminations, deaths, disabilities, retirements, salary growth, and investment return) are exactly realized each year, there will be differences on a year-to-year basis. The year-to-year differences between actual experience and the assumptions are called actuarial gains and losses and serve to lower or raise required employer contributions from one year to the next. Therefore, employer contributions will inevitably fluctuate, especially due to the ups and downs of investment returns.

Asset Volatility Ratio (AVR)

Plans that have higher asset-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with an asset-to-payroll ratio of 8 may experience twice the contribution volatility due to investment return volatility, than a plan with an asset-to-payroll ratio of 4. Shown below is the asset volatility ratio, a measure of the plan's current contribution volatility. It should be noted that this ratio is a measure of the current situation. It increases over time but generally tends to stabilize as the plan matures.

Liability Volatility Ratio (LVR)

Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return and changes in liability. For example, a plan with a liability-to-payroll ratio of 8 is expected to have twice the contribution volatility of a plan with a liability-to-payroll ratio of 4. The liability volatility ratio is also shown in the table below. It should be noted that this ratio indicates a longer-term potential for contribution volatility. The asset volatility ratio, described above, will tend to move closer to the liability volatility ratio as the plan matures. Since the liability volatility ratio is a long-term measure, it is shown below at the current discount rate (7.375 percent) as well as the discount rate the Board has adopted to determine the contribution requirement in the June 30, 2018 actuarial valuation (7.00 percent).

Rate Volatility		**As of June 30, 2016**
1. Market Value of Assets	$	27,292,457
2. Payroll		2,010,099
3. Asset Volatility Ratio (AVR) [(1) / (2)]		13.6
4. Accrued Liability	$	38,454,832
5. Liability Volatility Ratio (LVR) [(4) / (2)]		19.1
6. Accrued Liability (7.00% discount rate)		40,360,515
7. Projected Liability Volatility Ratio [(6) / (2)]		20.1

Hypothetical Termination Liability

The hypothetical termination liability is an estimate of the financial position of the plan had the contract with CalPERS been terminated as of June 30, 2016. The plan liability on a termination basis is calculated differently compared to the plan's ongoing funding liability. For the hypothetical termination liability calculation, both compensation and service are frozen as of the valuation date and no future pay increases or service accruals are assumed. This measure of funded status is not appropriate for assessing the need for future employer contributions in the case of an ongoing plan, that is, for an employer that continues to provide CalPERS retirement benefits to active employees.

A more conservative investment policy and asset allocation strategy was adopted by the CalPERS Board for the Terminated Agency Pool. The Terminated Agency Pool has limited funding sources since no future employer contributions will be made. Therefore, expected benefit payments are secured by risk-free assets and benefit security for members is increased while funding risk is limited. However, this asset allocation has a lower expected rate of return than the PERF and consequently, a lower discount rate is assumed. The lower discount rate for the Terminated Agency Pool results in higher liabilities for terminated plans.

The effective termination discount rate will depend on actual market rates of return for risk-free securities on the date of termination. As market discount rates are variable, the table below shows a range for the hypothetical termination liability based on the lowest and highest interest rates observed during an approximate 2-year period centered around the valuation date.

Market Value of Assets (MVA)	Hypothetical Termination Liability[1,2] @ 1.75%	Funded Status	Unfunded Termination Liability @ 1.75%	Hypothetical Termination Liability[1,2] @ 3.00%	Funded Status	Unfunded Termination Liability @ 3.00%
$27,292,457	$82,335,563	33.2%	$55,043,106	$69,987,921	39.0%	$42,695,464

[1] The hypothetical liabilities calculated above include a 7 percent mortality contingency load in accordance with Board policy. Other actuarial assumptions can be found in Appendix A.

[2] The current discount rate assumption used for termination valuations is a weighted average of the 10-year and 30-year U.S. Treasury yields where the weights are based on matching asset and liability durations as of the termination date. The discount rates used in the table are based on 20-year Treasury bonds, rounded to the nearest quarter percentage point, which is a good proxy for most plans. The 20-year Treasury yield was 1.75 percent on June 30, 2016, and was 2.75 percent on January 31, 2017.

In order to terminate the plan, you must first contact our Retirement Services Contract Unit to initiate a Resolution of Intent to terminate. The completed Resolution will allow the plan actuary to give you a preliminary termination valuation with a more up-to-date estimate of the plan liabilities. CalPERS advises you to consult with the plan actuary before beginning this process.

Participant Data

The table below shows a summary of your plan's member data upon which this valuation is based:

	June 30, 2015	June 30, 2016
Reported Payroll	$ 2,046,383	$ 2,010,099
Projected Payroll for Contribution Purposes	$ 2,236,138	$ 2,196,490
Number of Members		
Active	16	15
Transferred	20	20
Separated	10	9
Retired	53	53

List of Class 1 Benefit Provisions

This plan has the additional Class 1 Benefit Provisions:

- One Year Final Compensation (FAC 1)
- Post-Retirement Survivor Allowance (PRSA)

PLAN’S MAJOR BENEFIT OPTIONS

Plan's Major Benefit Options

Shown below is a summary of the major optional benefits for which your agency has contracted. A description of principal standard and optional plan provisions is in Appendix B within Section 2 of this report.

	Contract package		
Benefit Provision	Active Police	Receiving Police	
Benefit Formula	3.0% @ 50		
Social Security Coverage	No		
Full/Modified	Full		
Employee Contribution Rate	9.00%		
Final Average Compensation Period	One Year		
Sick Leave Credit	Yes		
Non-Industrial Disability	Standard		
Industrial Disability	Yes		
Pre-Retirement Death Benefits			
Optional Settlement 2W	Yes		
1959 Survivor Benefit Level	level 3		
Special	Yes		
Alternate (firefighters)	No	No	
Post-Retirement Death Benefits			
Lump Sum	$500	$500	
Survivor Allowance (PRSA)	Yes	Yes	
COLA	2%	2%	

Section 2

Section 2 may be found on the CalPERS website (www.calpers.ca.gov) in the Forms and Publications section