

### BARTEL SSOCIATES, LLC

### City of Carpinteria

Executive Summary
CalPERS Actuarial Issues
June 30, 2016 Valuation

February 2018

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### CITY OF CARPINTERIA CALPERS ACTUARIAL ISSUES – JUNE 30, 2016 VALUATION OVERVIEW

The City of Carpinteria retained Bartel Associates to provide CalPERS-related actuarial consulting services. This Executive Summary analyzes the City's CalPERS Miscellaneous and Safety pension plans to assist the City in evaluating the current funding situation. Note the Safety plan consists of only former City Police employees.

We believe there are 2 primary issues the City should evaluate and address with respect to the CalPERS pension plan, the Unfunded Actuarial Accrued Liability (unfunded liability) and future contributions. The unfunded liability provides an estimated value at a single point in time of additional contributions needed to pay off past accrued liabilities. Projected future contributions provide the agency future cash outlay required to defease the unfunded liability. Therefore, both need to be considered:

### ■ Unfunded Liability

The City's June 30, 2016 Unfunded Actuarial Liability (UAL) is \$4.3 million for the Miscellaneous plan and \$2.9 million for the Safety plan. This is measured by CalPERS based on a 7.375% discount rate. As described in more detail later in this summary, due to expected further discount rate changes, we think a better measurement of the unfunded liability would use a 7.00% discount rate, resulting in unfunded liabilities of \$5.1 million for the Miscellaneous plan and \$3.3 million for the Safety plan.

#### ■ Future Contributions

Due primarily to CalPERS actuarial assumption and methods changes over the last 5 years, City contributions are expected to gradually increase from \$474 thousand in 2017/18 to \$1.052 million in fiscal year 2028/29 for the Miscellaneous plan and from \$164 thousand to \$354 thousand for the Safety plan. For both plans, significantly higher contributions should be expected for many years to come.

Of course, future unfunded liabilities and contributions will vary significantly depending on investment returns. Our analysis provides measurements of this variability to help the City understand the impact of investment volatility. Our projections show that under most investment return scenarios, contributions are expected to remain significantly above current levels for 15 years or more.

We believe agencies should strongly consider funding amounts above the contributions CalPERS currently requires, with the level of funding being an individual agency budgetary decision. Additional funding could be paid directly to CalPERS, or to a supplemental pension trust.

We understand the City's primary objectives are to control long term costs and volatility. We believe these objectives are better achieved through additional contributions to a supplemental trust. The supplemental trust provides more flexibility for the City to both level out contributions and mitigate year-to-year contribution volatility.

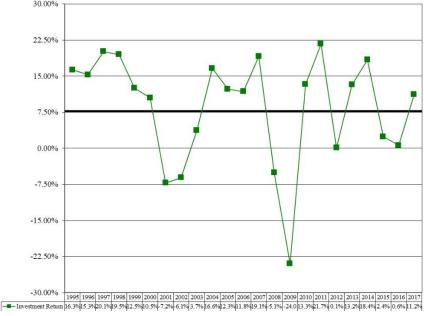




### CITY OF CARPINTERIA CALPERS ACTUARIAL ISSUES – JUNE 30, 2016 VALUATION CALPERS INVESTMENT RETURNS

#### **Historical Returns**

Following are CalPERS investment returns over the past several years:



The 2017 investment return was 11.2%, based on CalPERS July 14, 2017 CalPERS press release. Average annual returns were 4.3% for the last 10 years (July 1, 2007 through June 30, 2017) and 6.6% for the last 20 years (July 1, 1997 through June 30, 2017)<sup>1</sup>. Returns averaged over longer terms tend to be higher.

<sup>&</sup>lt;sup>1</sup> Averages are geometric averages, which represent a better measurement of returns when compared to the discount rate



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### CITY OF CARPINTERIA CALPERS ACTUARIAL ISSUES – JUNE 30, 2016 VALUATION CALPERS RECENT CHANGES

### New Contribution Policy (Adopted April 17, 2013)

CalPERS Board adopted the new direct rate smoothing contribution policy to:

- Mitigate volatility generated by the asset corridor (under the old smoothing policy) when extreme events happen
- Improve progress toward increased funded status
- Enhance transparency over the current method
- Recognize GASBS 68 encourages more rapid funding by requiring a lower discount rate when funding progress is too slow.

### The new contribution policy:

- Smoothes employer contribution rates directly, rather than smoothing asset values and hoping that will produce smooth contribution rates
- Uses market assets values to determine the unfunded liability and set contribution rates, rather than using a smoother (actuarial) asset value
- Sets fixed amortization periods for future gains and losses 5-year ramp up plus 20 years full payment plus 5-year ramp down (including the difference between market and actuarial asset values at June 30, 2013)
- Sets fixed amortization periods for future assumption changes 5-year ramp up plus 10 years full payment plus 5-year ramp down
- Converts all existing contribution rate amortization bases that use rolling amortization periods to fixed periods.

### Under the new contribution policy:

- Year-to-year rate changes will be somewhat higher in most years, but lower in years with extreme market events
- Funded status will improve faster all gains/losses will be fully amortized and paid for 30 years after they occur
- Employer rates will go up, beginning in 2015/16.

### New Actuarial Assumptions (Adopted February 19, 2014)

CalPERS Board adopted the new assumptions based on their asset liability management study and new experience study.

- No change to the discount rate assumption of 7.5%
- The most significant change for demographic assumptions is anticipated future mortality improvement; for example, a person age 70 today having a shorter life expectancy than someone age 70 in 30 years.

#### Under the new actuarial assumptions:

- Since retirees will be projected to live longer and collect their pensions longer, employer contribution rates increase
- The new assumptions first impact 2016/17 rates, with the resulting liability increase calculated in the 2014 valuation and amortized over 20 years (5-year ramp up and ramp down).





### CITY OF CARPINTERIA CALPERS ACTUARIAL ISSUES – JUNE 30, 2016 VALUATION CALPERS RECENT CHANGES

### New Risk Mitigation Policy (Adopted November 18, 2015)

CalPERS Board adopted the new risk mitigation policy to:

- Reduce expected volatility of investment returns to 8% (as measured by the standard deviation of expected returns) in 21 years
- Improve progress toward increased funded status
- Minimize increases above projected employer contribution rates.

### The new risk mitigation policy:

- Lowers the discount rate by 0.05% 0.25% in years when investment returns exceed the discount rate by 4% or more
- Uses investment gains to pay for future cost increases.

### Under the new risk mitigation policy:

- The 4% threshold would offset increases to employer rates that would otherwise increase when the discount rate is lowered
- Funded status will improve faster investment gains will be used to reduce future investment volatility.

Because of the reduction in discount rate (see the next paragraph), on February 14, 2017 CalPERS Board suspended the implementation of the risk mitigation policy until 2020/2021 and revised the threshold investment return in order to trigger a discount rate reduction from 4% to 2%.

### **New Discount Rate Assumption (Adopted December 21, 2016)**

CalPERS Board approved lowering the discount rate assumption based on the mid cycle review of their asset liability management study and changing market conditions to:

- Strengthen the long-term sustainability of the fund
- Increase the likelihood CalPERS investments earn the assumed rate of return
- Reduce negative cash flows caused by more retirees
- Reduce the probability of funded ratios falling below undesirable levels
- Reduce the risk of employer rate increases due to the volatility of investment markets.

#### Under the new discount rate assumption:

- The lowered discount rate of 7.375% was used in the June 30, 2016 valuation, 7.25% will be used in the June 30, 2017 valuation, and 7.00% will be used in the June 30, 2018 valuation and onward
- Employer rates will increase, beginning in 2018/19 fiscal year
- Risk mitigation suspended until the June 30, 2018 valuation.



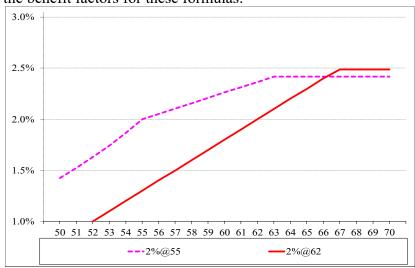


#### **Benefits**

Current Miscellaneous employees have one of 2 formulas:

- 2% @ 55 for those hired before January 1, 2013
- 2% @ 62 PEPRA for new members hired on or after January 1, 2013.

Following are the benefit factors for these formulas:



#### **Funded Status**

Following is the plan funded status. CalPERS used a 7.375% discount rate in the June 30, 2016 actuarial valuation, but is scheduled to lower the rate, reaching 7% in the June 30, 2018 valuation. We believe 7% represents a better measure of the liability because it provides a better estimate of the long term return on plan assets.

(in \$ millions)

	Discount Rate	
	7.375%	7.0%
■ June 30, 2016		
<ul> <li>Actuarial Accrued Liability</li> </ul>	\$ 17.2	\$18.0
●Assets	<u>12.9</u>	<u>12.9</u>
<ul><li>●Unfunded Liability</li></ul>	4.3	5.1

### **Projected Contributions and Funded Status**

Our projections<sup>2</sup> incorporate the following:

- Discount rate reduction to 7% by June 30, 2018 and further reductions due to risk mitigation,
- The 11.2% investment return reported by CalPERS for 16/17, and subsequent lower (6.5%) investment returns over the next 10 years

<sup>&</sup>lt;sup>2</sup> Our projections are on a combined basis; CalPERS provides separate actuarial reports for each benefit tier.

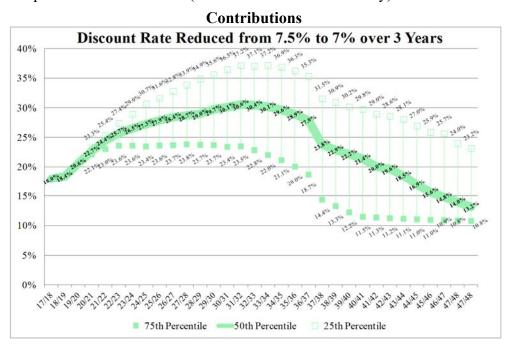


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- The impact of new hires coming in with PEPRA benefits assuming:
  - 50% of 2013 new hires will be classic members (laterals).
  - 50% of 2013 new hires will be new members with PEPRA benefits.
  - Classic members will decrease from 50% to 0% of new hires over 20 years.

CalPERS actual investment return will significantly affect City contribution rates. The following graphs show the City's projected contribution rates, assuming future (beyond June 30, 2017 and for the first 10 years) investment returns, will average 0.8%, 6.0%, and 11.4% for the 25<sup>th</sup>, 50<sup>th</sup> and 75<sup>th</sup> confidence levels<sup>3</sup> respectively, with CalPERS' current investment allocation, and 1.3%, 7.0%, and 14.8% (25<sup>th</sup>, 50<sup>th</sup>, and 75<sup>th</sup> percentiles, respectively) after the first 10 years.

Below are contribution rate projections and the Plan's projected funded status. In each chart, the thick line in the middle represents the expectation (50<sup>th</sup> percentile), with the width of the lines above and below each data point representing a range over which the result is expected to vary to capture ½ of all outcomes (based on investment volatility).

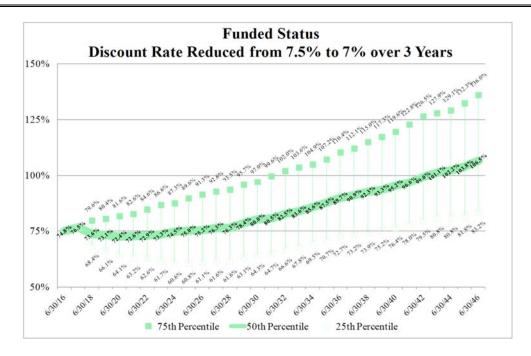


<sup>&</sup>lt;sup>3</sup> Reflects the likelihood actual investment return will exceed confidence level.

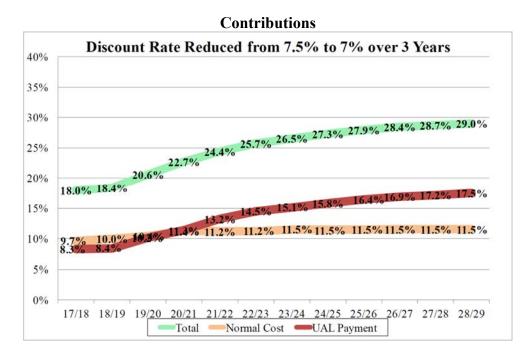


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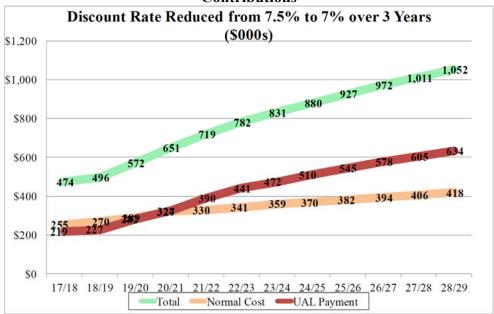
Projected contributions (using the "expected" 50<sup>th</sup> percentile results above) as a percentage of projected payroll, and as dollar amounts, are provided below. The contribution is provided for both the Normal Cost and Unfunded Actuarial Liability (UAL) components.







### **Contributions**







#### **Benefits**

The Safety plan does not have any active employees and City benefits for this plan are for the 2%@50 formula (no PEPRA benefits under this plan).

#### **Funded Status**

Following is the plan funded status. CalPERS used a 7.375% discount rate in the June 30, 2016 actuarial valuation, but is scheduled to lower the rate, reaching 7% in the June 30, 2018 valuation. We believe 7% represents a better measure of the liability because it provides a better estimate of the long term return on plan assets.

(in \$ millions)

	Discount Rate	
	7.375%	7.0%
■ June 30, 2016		
<ul> <li>Actuarial Accrued Liability</li> </ul>	\$ 9.3	\$ 9.7
●Assets	<u>6.4</u>	<u>6.4</u>
■Unfunded Liability	2.9	3.3

### **Projected Contribution Rates**

Our projections incorporate:

- Discount rate reduction to 7% by June 30, 2018 and further reductions due to risk mitigation,
- The 11.2% investment return reported by CalPERS for 16/17, and subsequent lower (6.5%) investment returns over the next 10 years

CalPERS actual investment return will significantly affect City contribution rates. The following graphs show the City's projected contribution rates, assuming future (beyond June 30, 2017 and for the first 10 years) investment returns, will average 0.8%, 6.0%, and 11.4% for the 25<sup>th</sup>, 50<sup>th</sup> and 75<sup>th</sup> confidence levels<sup>4</sup> respectively, with CalPERS' current investment allocation, and 1.3%, 7.0%, and 14.8% (25<sup>th</sup>, 50<sup>th</sup>, and 75<sup>th</sup> percentiles, respectively) after the first 10 years.

Since there are no actives, unfunded liabilities are amortized as a level dollar amounts.

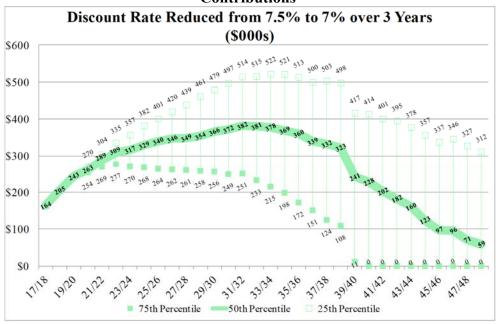
<sup>&</sup>lt;sup>4</sup> Reflects the likelihood actual investment return will exceed confidence level.

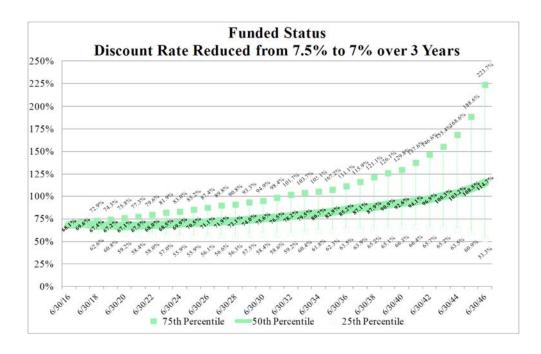


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The graphs below show contribution rate projections and the Plan's projected funded status.

### **Contributions**









The City has many options available to facilitate reducing the CalPERS unfunded liability and/or to mitigate expected volatility of future CalPERS contribution rates.

We recommend the City consider establishing a Supplemental Pension Trust, qualified under Section 115 of the Internal Revenue Code.

The Trust has the following characteristics:

- Funds deposited into the trust are irrevocable
- Trust funds can be used only to pay CalPERS directly or to reimburse the City for CalPERS contributions
- Assets are not restricted in the same way as the City's funds. Prudent investments could be expected to earn 5% to 6% or more in the long run.
- Funds can be deposited into the trust at the City's option; contributions are not required or mandated in any year
- We do not believe trust assets will be able to offset the net pension liability in the City's financial statements. However, the funds will be a City asset and can be disclosed in the financial statement notes.

We modeled a Supplemental Pension Trust for the Miscellaneous and Safety plan under 2 scenarios:

#### ■ Scenario 1

City budgets a \$1 million contribution on 6/30/18 with \$0.6 million to the Miscellaneous Plan and \$0.4 million to the Safety Plan.

For the Miscellaneous Plan, the City would contribute 2% of pay for each of 18/19 and 19/20 in addition to the amount billed by CalPERS. Then, the City would pay the total budgeted amount of 23% of pay starting in 20/21, with any excess over the actual amount billed by CalPERS being deposited to the supplemental trust, and any shortfall (if the required CalPERS contribution is higher than the budgeted amount) being paid from the trust.

For Safety Plan, the City would contribute \$20,000 for 18/19 in addition to the amount billed by CalPERS. Then, the City would pay the total budgeted amount of \$264,000 starting in 19/20, with any excess over the actual amount billed by CalPERS being deposited to the supplemental trust, and any shortfall (if the required CalPERS contribution is higher than the budgeted amount) being paid from the trust.

#### ■ Scenario 2

Under the second scenarios modeled, the City would budget a \$2 million contribution on 6/30/18, with \$1.2 million to the Miscellaneous Plan and \$0.8 million to the Safety Plan. For the Miscellaneous Plan, the City would contribute 2% of pay for 18/19 in addition to the amount billed by CalPERS. Then, the City would pay the total budgeted amount of 21% starting from 19/20, with any excess over the actual amount billed by CalPERS being deposited to the supplemental trust, and any shortfall (if the required CalPERS contribution is higher than the budgeted amount) being paid from the trust.





For Safety Plan, City would pay the total budgeted amount of \$200,000 starting in 18/19, with any excess over the actual amount billed by CalPERS being deposited to the supplemental trust, and any shortfall (if the required CalPERS contribution is higher than the budgeted amount) being paid from the trust.





The top chart shows the projected balance in the supplemental trust, assuming assets earn 5% per year. The 25<sup>th</sup> and 75<sup>th</sup> percentile markers indicate the potential variation in fund balance caused by CalPERS required contributions being higher or lower than the estimated amounts.

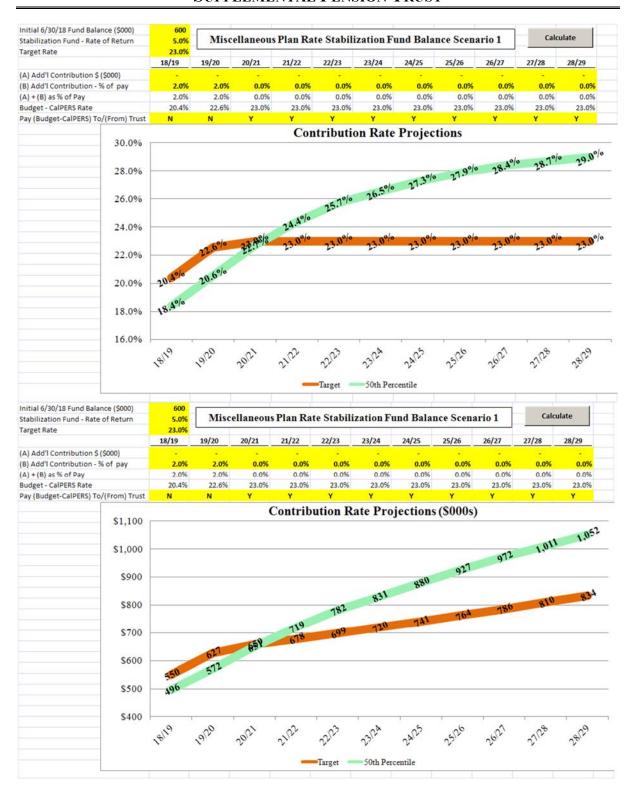
Since the supplemental trust balance is expected to remain positive at the 50<sup>th</sup> percentile, this indicates that the City is likely to keep total contributions at the budgeted level and in addition, to set aside funds that reduce the City's total pension liability.

### Scenario 1:

#### Miscellaneous: Initial 6/30/18 Fund Balance (\$000) Calculate 5.0% Miscellaneous Plan Rate Stabilization Fund Balance Scenario 1 Stabilization Fund - Rate of Return Target Rate 23.0% 26/27 28/29 18/19 20/21 (A) Add'l Contribution \$ (\$000) (B) Add'l Contribution - % of pay 2.0% 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 2.0% 0.0% (A) + (B) as % of Pay 2.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% Budget - CalPERS Rate 23.0% 23.0% 20.4% 22.6% 23.0% 23.0% 23.0% 23.0% 23.0% 23.0% 23.0% Pay (Budget-CalPERS) To/(From) Trust Supplemental Trust Balance (\$000s) 1,500 040,1 1,015 1,005 981 956 933 906 1,000 805 500 Ь 537 318 0 (500)(1,000)(1,500)75th Percentile ■50th Percentile 25th Percentile

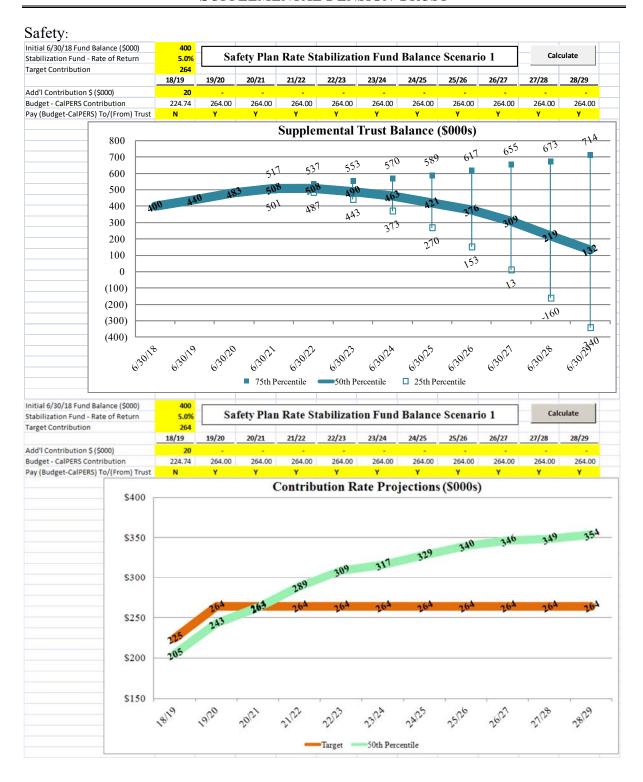








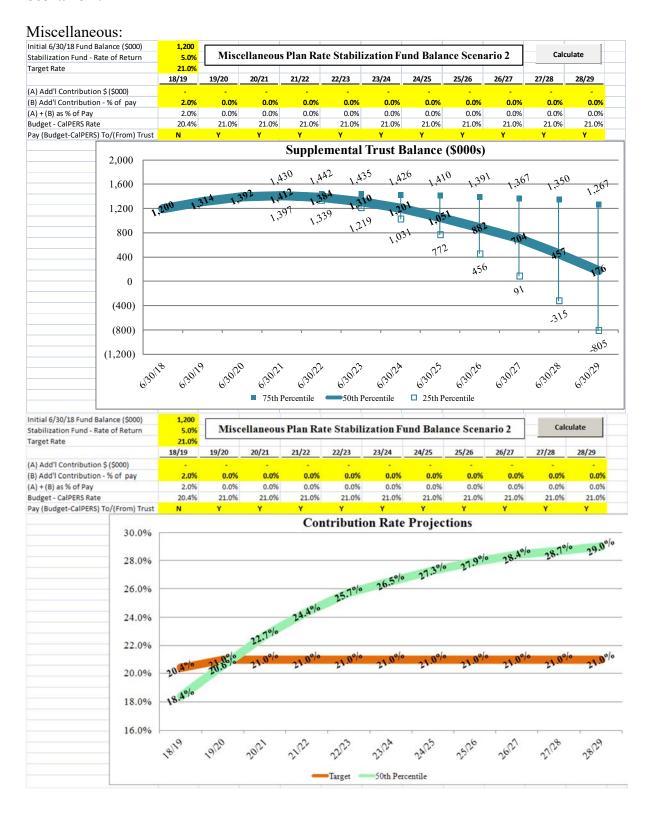






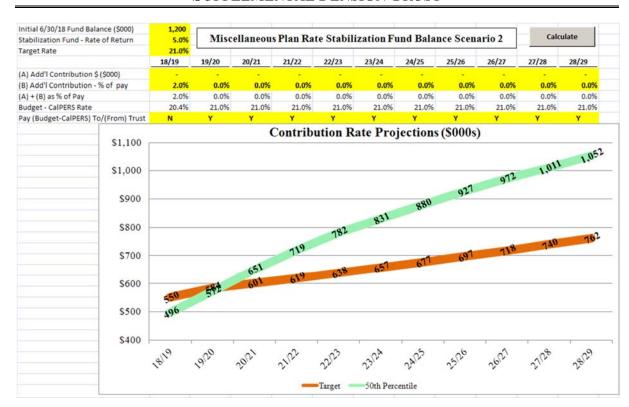


#### Scenario 2:



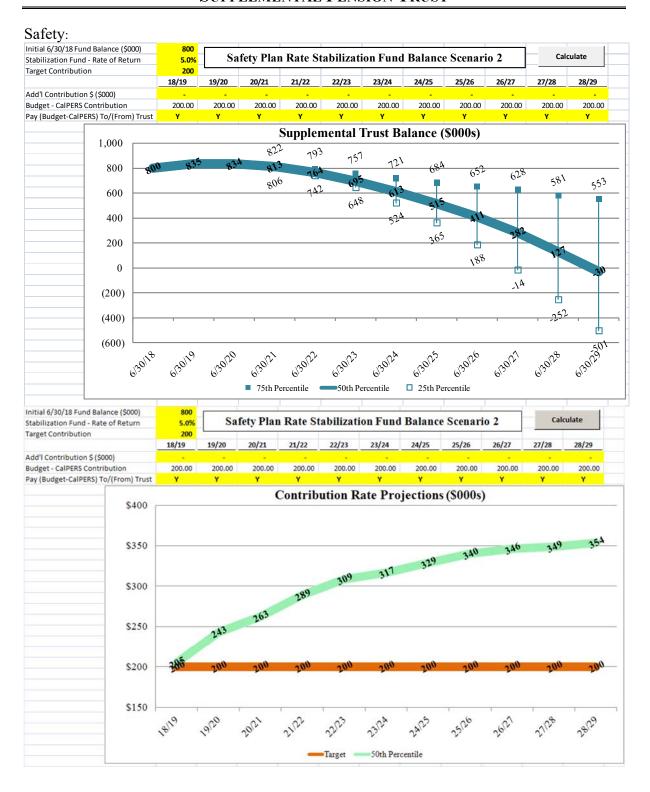
















### CITY OF CARPINTERIA CALPERS ACTUARIAL ISSUES – JUNE 30, 2016 VALUATION PEPRA SUMMARY

The California Legislature passed and the Governor signed AB 340 in 2012 – commonly called the California Public Employees' Pension Reform Act of 2013. Highlights of PEPRA follow:

■ New Members – Generally, employees hired after January 1, 2013 who did not previously participate in a reciprocal retirement system.

#### **■** Pension Formulas for New Members

- Miscellaneous 2% @ 62; earliest service retirement age 52
- Safety -2% @ 57, 2.5% @ 57 and 2.7% @ 57; earliest service retirement age 50.

### ■ Plan Compensation Limit for New Members

- \$113,700 (100% of 2013 Social Security Wage Base, \$118,775 for 2017)
- \$136,440 (120% for members not in Social Security for 2013, \$142,530 for 2017)
- Increasing annually with CPI
- Employers can provide a defined contribution plan for pay above the limit.

### **■** Final Compensation for New Members

- Highest average plan compensation over 36 consecutive months
- Plan compensation is the normal monthly rate of pay or base pay.

#### **■** Benefit Enhancements

- Benefit enhancements after January 1, 2013 apply only to future service
- No limits on COLAs.

### ■ Safety Industrial Disability

- Increase in benefit for those under 50 with long service
- Trial period ending January 1, 2018.

### ■ Supplemental Defined Benefit Pension Plans

- Employer cannot adopt a supplemental defined benefit pension plan after January 1, 2013
- New employees cannot participate in existing plan.

#### **■** Pension Holidays

• Total employer and employee contributions cannot be less than the normal cost.

### **■** Air Time Service Purchase

• Eliminated for all members January 1, 2013.

#### **■** Other Postemployment Employee Benefits

- An employer cannot provide better vesting schedule to unrepresented employees than to represented employees
- Law is unclear whether it applies:
  - □ Only to vesting schedule or also to the amount of benefit provided
  - □ To new members, existing members, and/or current retirees.





# CITY OF CARPINTERIA CALPERS ACTUARIAL ISSUES – JUNE 30, 2016 VALUATION PEPRA SUMMARY

### **■** Cost Sharing

- Target of 50% of total normal cost sharing for all employees
- New members must pay greatest of 50% of total normal cost, amount paid by similar current members or bargained amount if higher
- Employers cannot pay any part of new member required employee contributions
- Employer may impose Classic employees pay 50% of total normal cost (limited to 8% Miscellaneous, 12% Safety) if not agreed through collective bargaining by January 1, 2018.

### ■ Miscellaneous Plan Total Normal Cost:

		<b>Classic Members</b>	New Members
		Tier 1 2%@55 FAE1	PEPRA 2%@62 FAE3
•	<b>Employer Normal Cost</b>	10.41%	7.38%
•	Member Normal Cost	7.00%	6.50%
•	Total Normal Cost	17.41%	13.88%
•	50% Target	8.71%	6.94%



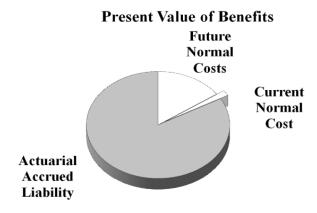


### CITY OF CARPINTERIA CALPERS ACTUARIAL ISSUES – JUNE 30, 2016 VALUATION DEFINITIONS

Present Value of Benefits (PVB): When CalPERS (or any actuary) prepares a pension valuation, they first gather participant data (active employees, former employees not in payment status, participants and beneficiaries in payment status) at the valuation date (for example June 30, 2016). Using this data and actuarial assumptions, they project benefit payments. (The assumptions predict, among other things, when people will retire, terminate, die or become disabled, as well as what salary increases, inflation and investment return might be.) Those future benefit payments are discounted, using expected investment return, back to the valuation date. This discounted present value is the plan's PVB. It represents the amount the plan needs as of the valuation date to pay all future benefits – if all assumptions are met and no future contributions (employee or employer) are made.

**Actuarial Accrued Liability (AAL):** This represents the portion of the PVB that participants have earned (on an actuarial, not actual, basis) through the valuation date.

**Current Employer Normal Cost:** The total normal cost represents the portion of the PVB expected to be earned (on an actuarial, not actual, basis) in the coming year. Current Employer Normal Cost represents the employer's portion of total normal cost – that is, the total normal cost offset by employee contributions.



The above graph shows PVB as the sum of AAL, Current Employer Normal Cost, and future normal costs. Once these amounts are calculated, the actuary compares actuarial assets to the AAL. When assets equal liabilities, a plan is considered on track for funding. When assets are greater than liabilities, the plan has excess assets; when assets are less than liabilities, the plan has an unfunded liability.

Contribution Rate: CalPERS does not require a city to make up any shortfall (unfunded liability) immediately, nor do they allow an immediate credit for any excess assets. Instead, the difference is amortized over time. A city's contribution rate is the Current Employer Normal Cost, plus the amortized unfunded liability or less the amortized excess assets. In other words, it's the value of employer benefits earned during the year plus something to move the plan toward being on track for funding. There is a 2-year delay from the valuation date to contribution effective date. For example, the June 30, 2016 valuation generates a





### CITY OF CARPINTERIA CALPERS ACTUARIAL ISSUES – JUNE 30, 2016 VALUATION DEFINITIONS

city's fiscal year 2018/19 contribution. CalPERS instituted this delay a few years ago to ensure public agencies would have contribution rates as they begin their budgeting process for each fiscal year.

Market Value of Assets (MVA): The actual value of plan assets based on their price if sold.

**Unfunded Actuarial Liability (UAL):** The difference between the AAL and the MVA. This difference is the portion of the AAL that has not yet been funded.



