CITY OF PERRIS
MISCELLANEOUS & SAFETY PLANS

BARTEL ASSOCIATES, LLC

CalPERS Actuarial Issues – 6/30/17 Valuation
Preliminary Results

Mary Elizabeth Redding, Vice President
Bianca Lin, Assistant Vice President
Matthew Childs, Actuarial Analyst
Bartel Associates, LLC

June 25, 2019

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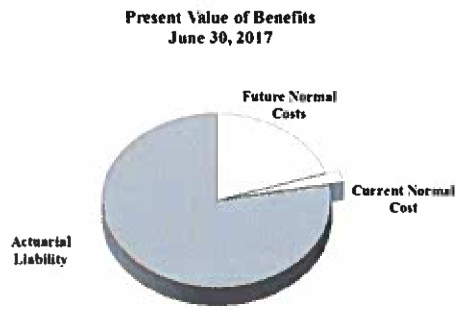
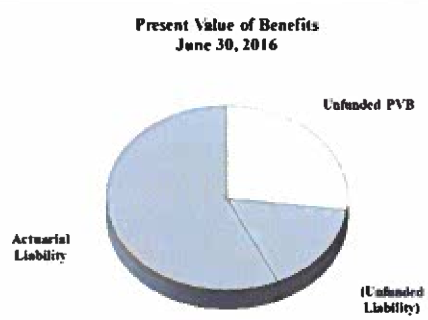
DEFINITIONS

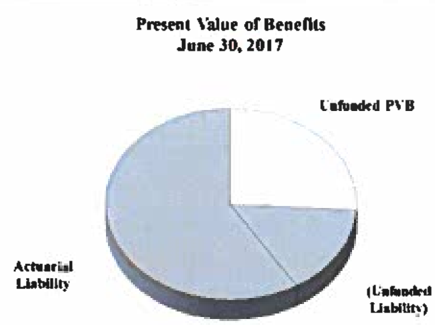


- **PVB - Present Value of all Projected Benefits:**
  - The value now of amounts due to be paid in the future
  - Discounted value (at valuation date - 6/30/17), of all future expected benefit payments based on various (actuarial) assumptions

- **Current Normal Cost:**
  - Portion of PVB allocated to (or "earned" during) current year
  - Value of employee and employer current service benefit
- **Actuarial Liability:**
  - Discounted value (at valuation date) of benefits earned through valuation date [value of past service benefit]
  - Portion of PVB "earned" at measurement

DEFINITIONS



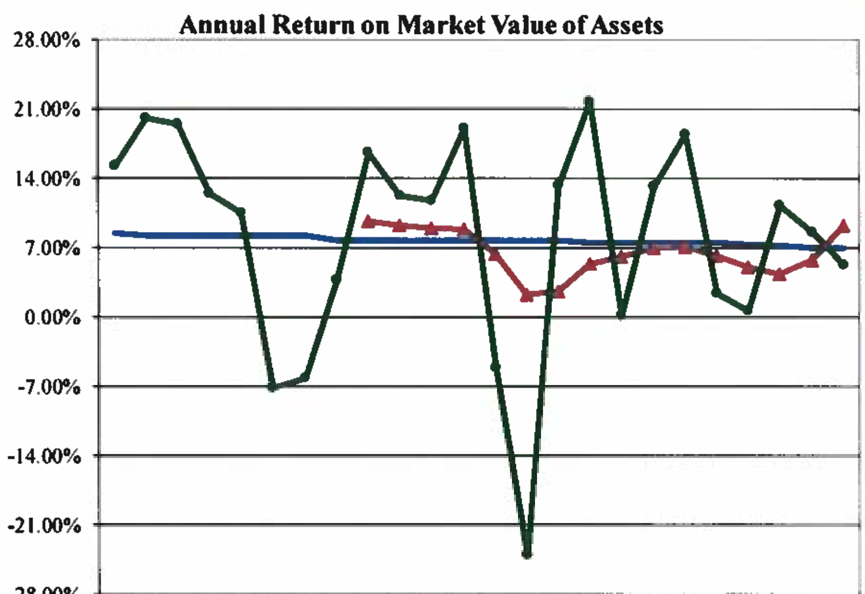


- **Target-** Have money in the bank to cover Actuarial Liability (past service)
- **Unfunded Liability -** Money short of target at valuation date
  - If all actuarial assumptions were always exactly met, then the plan assets would always equal AAL
  - Any difference is the unfunded (or overfunded) AAL
  - Every year, the actuary calculates the difference between the expected UAAL and Actual UAAL. This is a new layer or amortization base
  - Each new layer gets amortized (paid off) over a period of time as part of the contribution [rate].

How We Got Here

- Investment Losses
- CalPERS Contribution Policy
- Enhanced Benefits
- Demographics

How We Got Here – Investment Return



	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	Est 19
MVA	15.3%	20.1%	19.5%	12.5%	10.5%	-7.2%	-6.1%	3.7%	16.6%	12.3%	11.8%	19.1%	-5.1%	-24.0%	13.3%	21.7%	0.1%	13.2%	18.4%	2.4%	0.6%	11.2%	8.6%	5.3%
Discount Rate	8.50%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	7.75%	7.75%	7.75%	7.75%	7.75%	7.75%	7.75%	7.75%	7.50%	7.50%	7.50%	7.50%	7.50%	7.375%	7.25%	7.00%	7.00%
10-Year Rolling Average									9.7%	9.3%	9.0%	8.9%	6.4%	2.3%	2.6%	5.4%	6.1%	7.0%	7.2%	6.2%	5.1%	4.3%	5.8%	9.3%

How We Got Here – Old Contribution Policy

- Effective with 2003 valuations:
  - Slow (15 year) recognition of investment losses into funded status
  - Rolling 30 year amortization of all (primarily investment) losses
- Designed to:
  - First smooth rates and
  - Second pay off UAL
- Mitigated contribution volatility but did not improve funded status
  - Average public agency Miscellaneous plan 72.7% funded (City 75.3%)
  - Average public agency Safety plan 69.4% funded (City 69.3%)
-

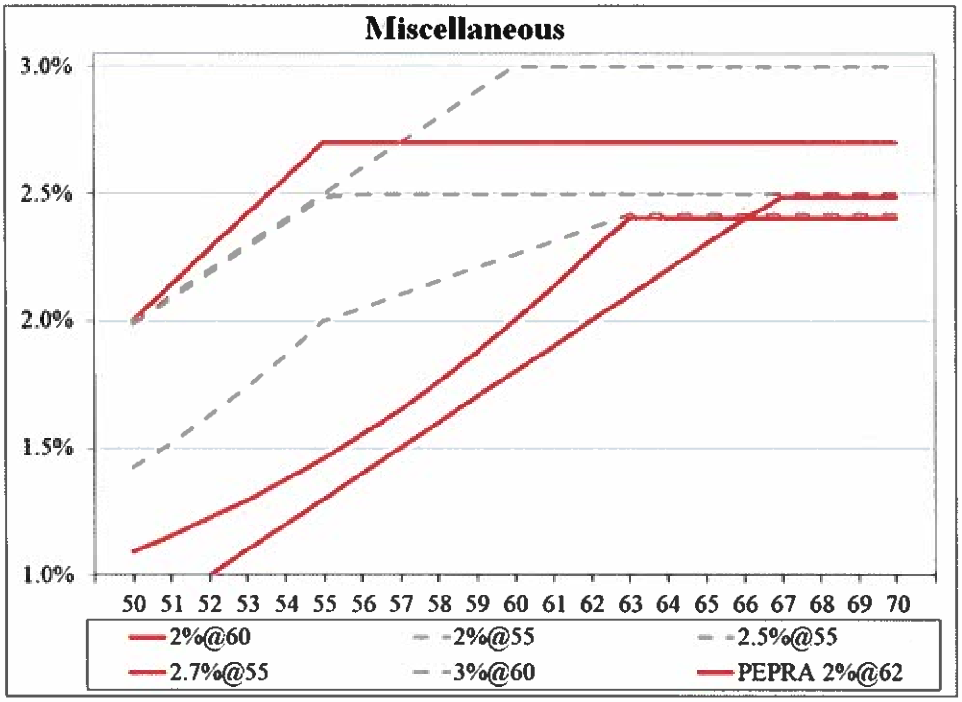
How We Got Here – Enhanced Benefits

- At CalPERS, Enhanced Benefits implemented using all (future & prior) service
- Typically not negotiated with cost sharing
- City of Perris

	Tier 1	Tier 2	PEPRA
• Miscellaneous	2.7%@55 FAE1	2%@60 FAE3	2%@62 FAE3
• Police Safety	1/2%@55 FAE1 (Inactive)	N/A	N/A

- Note:
  - ☐ FAE1 is highest one year (typically final) average earnings
  - ☐ FAE3 is highest three years (typically final three) average earnings

How We Got Here – Enhanced Benefits



How We Got Here – Demographic

- Around the State
  - Large retiree liability compared to actives
    - State average: 55% for Miscellaneous, 65% for Safety
  - Declining active population and increasing number of retirees
  - Higher percentage of retiree liability increases contribution volatility

- City of Perris percentage of liability belonging to retirees:
  - Miscellaneous 49%
  - Police Safety 86%

CalPERS Changes

- Contribution policy changes:
  - No asset smoothing
  - No rolling amortization
  - 5-year ramp up
  - Included in 6/30/13 valuation (first impact 15/16 rates; full impact 19/20)
- Assumption changes:
  - Anticipate future mortality improvement
  - Other, less significant, changes
  - Included in 6/30/14 valuation (first impact 16/17 rates; full impact 20/21)
- CalPERS Board changed their discount rate:

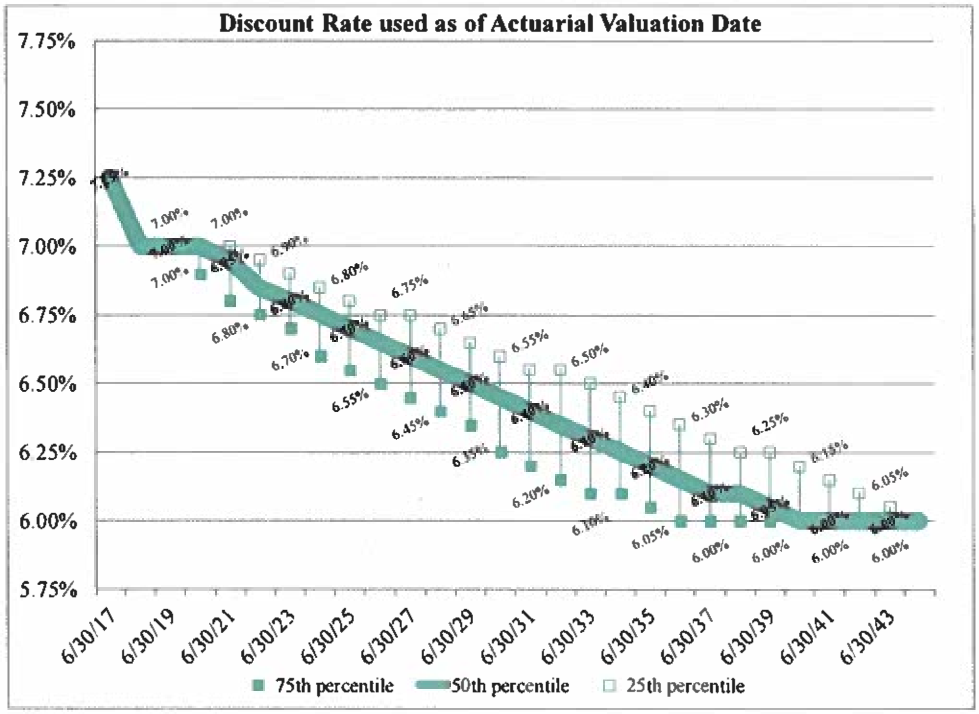
	Valuation	Rate	Initial Impact	Full Impact
	6/30/16 valuation	7.375%	18/19	22/23
NOW	6/30/17 valuation	7.25%	19/20	23/24
	6/30/18 valuation	7.00%	20/21	24/25

- December 2017: CalPERS Board selected asset allocation similar to current portfolio. No change to the discount rate

CalPERS Changes

- Risk Mitigation Strategy
  - Move to more conservative investments over time to reduce volatility
  - Only when investment return is better than expected
  - Lower discount rate in concert
  - Essentially use ≈50% of investment gains to pay for cost increases
  - Likely get to 6.0% over 20+ years
  - Risk mitigation suspended until 6/30/18 valuation
- February 2018 CalPERS adopted new amortization policy
  - Applies only to newly established amortization bases
    - Fixed dollar amortization rather than % pay
    - Amortize gains/losses over 20 rather than 30 years
    - 5-year ramp up (not down) for investment gains and losses
    - No ramp up/down for other amortization bases
  - Minimizes total interest paid over time and pays off UAL faster
  - Effective June 30, 2019 valuation for 2021/22 contributions
  - Included in this study

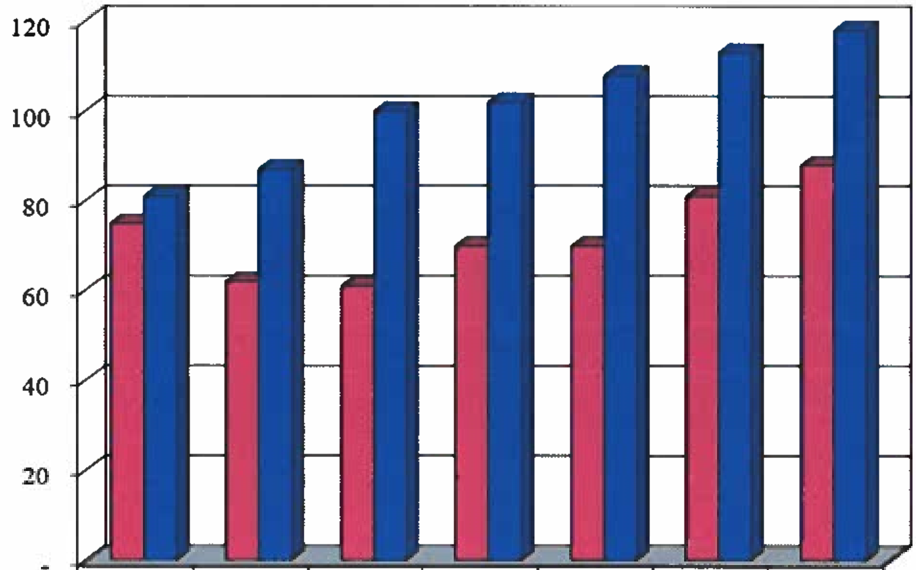
CalPERS Changes



Summary of Demographic Information - Miscellaneous

	2011	2014	2016	2017
Actives				
■ Counts	75	70	81	88
■ Average PERSable Wages	$ 57,600	$ 70,500	$ 73,700	$ 70,200
■ Total PERSable Wages	4,300,000	4,900,000	6,000,000	6,200,000
Inactive Members				
■ Counts				
• Transferred	45	38	38	38
• Separated	27	29	33	35
• Retired	81	102	113	118

Summary of Demographic Information - Miscellaneous

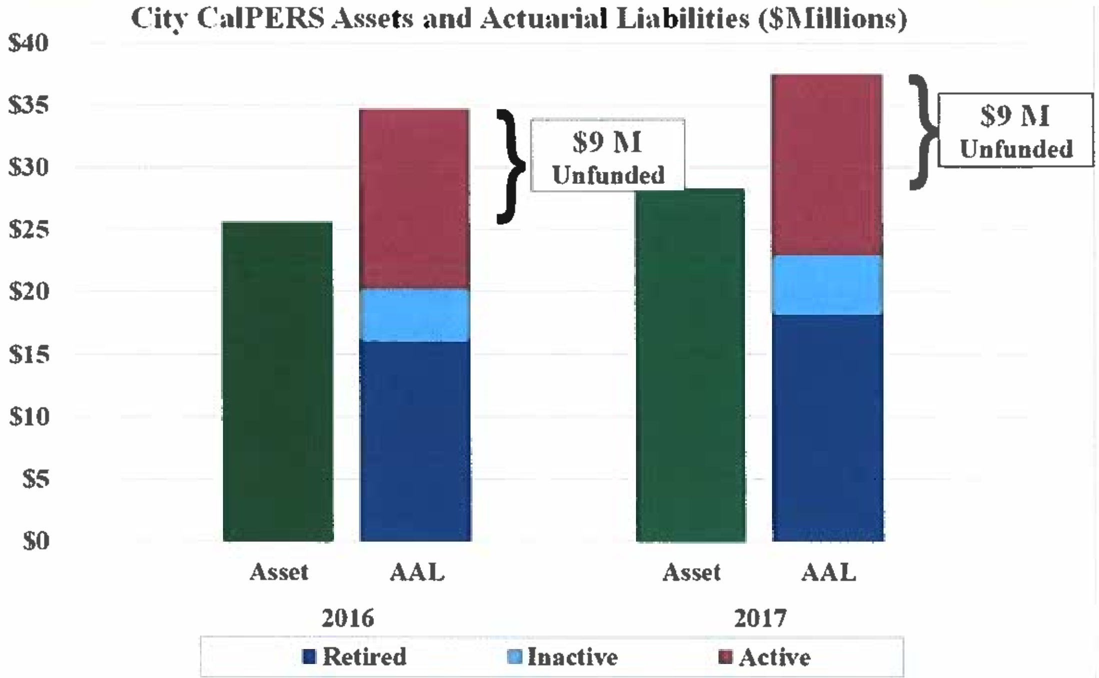


	'11	'12	'13	'14	'15	'16	'17
Active	75	62	61	70	70	81	88
Receiving Payments	81	87	100	102	108	113	118

Plan Funded Status - Miscellaneous

	June 30, 2016	June 30, 2017
Active AAL	$14,500,000	$14,500,000
Retiree AAL	16,000,000	18,200,000
Inactive AAL	4,200,000	4,800,000
Total AAL	34,700,000	37,500,000
Assets	25,600,000	28,200,000
Unfunded Liability	9,100,000	9,300,000
Funded Ratio	73.6%	75.3%

PLAN FUNDED STATUS - MISCELLANEOUS



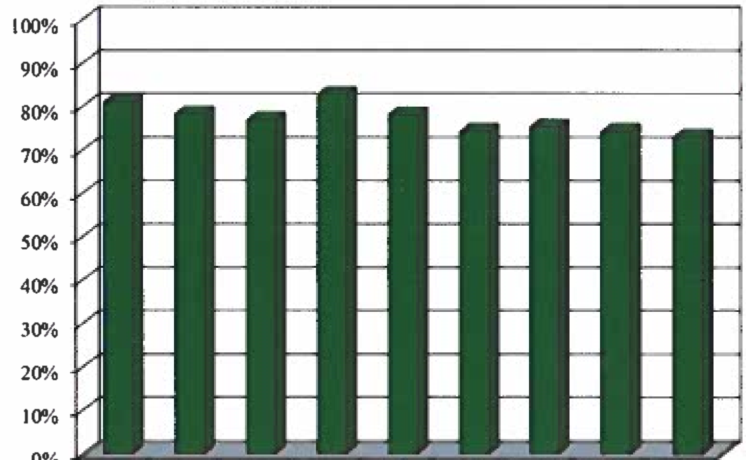
PLAN FUNDED STATUS - MISCELLANEOUS

Discount Rate Sensitivity

June 30, 2017

	Discount Rate		
	7.25%	**7.00%**	**6.00%**
AAL	$37,500,000	$38,600,000	$44,400,000
Assets	28,200,000	28,200,000	28,200,000
Unfunded Liability	9,300,000	10,400,000	16,200,000
Funded Ratio	75.3%	73.1%	63.5%

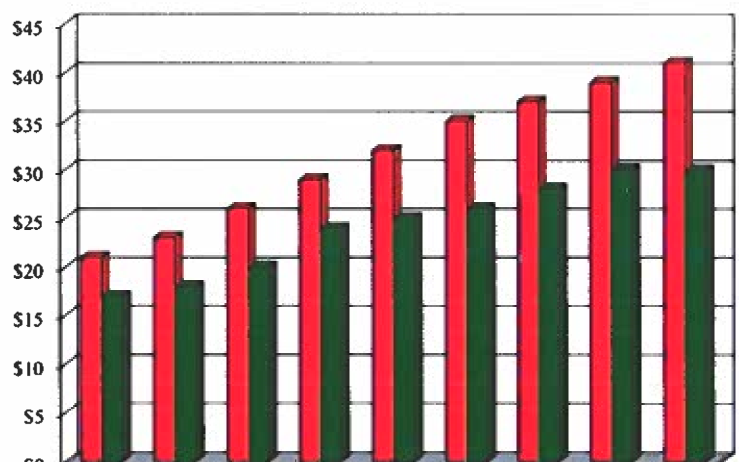
FUNDED RATIO - MISCELLANEOUS



	'11	'12	'13	'14	'15	'16	'17	'18	'19
■ Funded Ratio - MVA	81%	78%	77%	83%	78%	74%	75%	74%	73%

6/30/18 & 6/30/19 funded status estimated

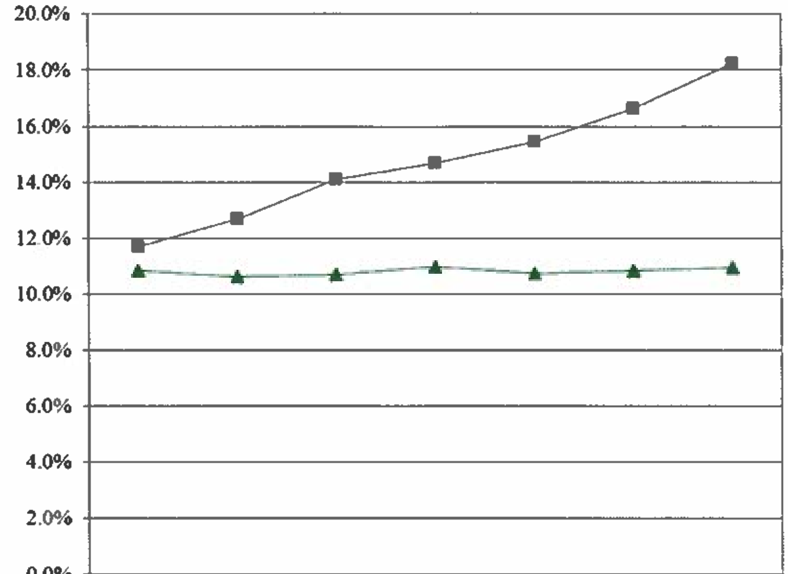
FUNDED STATUS (MILLIONS) - MISCELLANEOUS



	'11	'12	'13	'14	'15	'16	'17	'18	'19
■ Actuarial Liability	21	23	26	29	32	35	37	39	41
■ Market Asset Value	17	18	20	24	25	26	28	30	30

6/30/18 & 6/30/19 funded status estimated

CONTRIBUTION RATES - MISCELLANEOUS



	13/14	14/15	15/16	16/17	17/18	18/19	19/20
ER Normal Cost	10.8%	10.6%	10.7%	11.0%	10.7%	10.8%	10.9%
Total ER Cont Rate	11.7%	12.7%	14.1%	14.7%	15.4%	16.6%	18.2%

CONTRIBUTION RATES - MISCELLANEOUS

6/30/17 Valuation
2019/2020 Contribution Rates

	Total[1]	Tier 1 2.7%@55	Tier 2 2.0%@60	PEPRA 2%@62
■ Base EE + ER Normal Cost	18.0%	20.5%	15.0%	13.7%
■ Class 1 Benefits				
● Final Average Comp (1-Year)	0.4%	0.7%	0.0%	0.0%
■ Total Normal Cost	18.5%	21.1%	15.0%	13.7%
■ Formula's Expected EE Contr. Rate	7.5%	8.0%	6.9%	6.8%
■ Net ER Normal Cost	10.9%	13.2%	8.1%	7.0%
■ Payment on Amortization Bases	10.5%	16.4%	0.6%	0.6%
■ Amortization of Side Fund	(3.2%)	(5.1%)	0.0%	0.0%
■ **Total ER Contribution**	**18.2%**	**24.5%**	**8.7%**	**7.6%**
■ Employee counts	88	42	9	37
■ Employee payroll	6,723,000	4,182,000	673,000	1,868,000
■ **Total ER Contribution $**	**$1,225,000**			

[1] Weighting of total contribution based on projected classic and PEPRA payrolls

Contribution Rates - Miscellaneous

	6/30/16 2018/2019	6/30/17 2019/2020
Total Normal Cost	18.4%	18.5%
Employee Normal Cost	7.5%	7.5%
Employer Normal Cost	10.8%	10.9%
Amortization Payments	5.8%	7.3%
Total Employer Contribution Rate	16.6%	18.2%

2018/19 Employer Contribution Rate	16.6%
• Asset Method Change (5th Year)	0.7%
• 6/30/14 Assumption Change (4th Year)	0.5%
• 6/30/16 Discount Rate Change (2nd Year)	0.2%
• 6/30/17 Discount Rate & Inflation (1st Year)	0.3%
• Other (Gains)/Losses	(0.1%)
2019/20 Employer Contribution Rate	18.2%

Contribution Projections - Miscellaneous

- Market Value Investment Return:
  - June 30, 2018 8.6%[2]
  - June 30, 2019 5.3%[3]
  - Future returns based on stochastic analysis using 1,000 trials

Single Year Returns at[4]	25th Percentile	50th Percentile	75th Percentile
Current Investment Mix	**0.1%**	**7.0%**	**14.8%**
Ultimate Investment Mix	**0.8%**	**6.0%**	**11.4%**

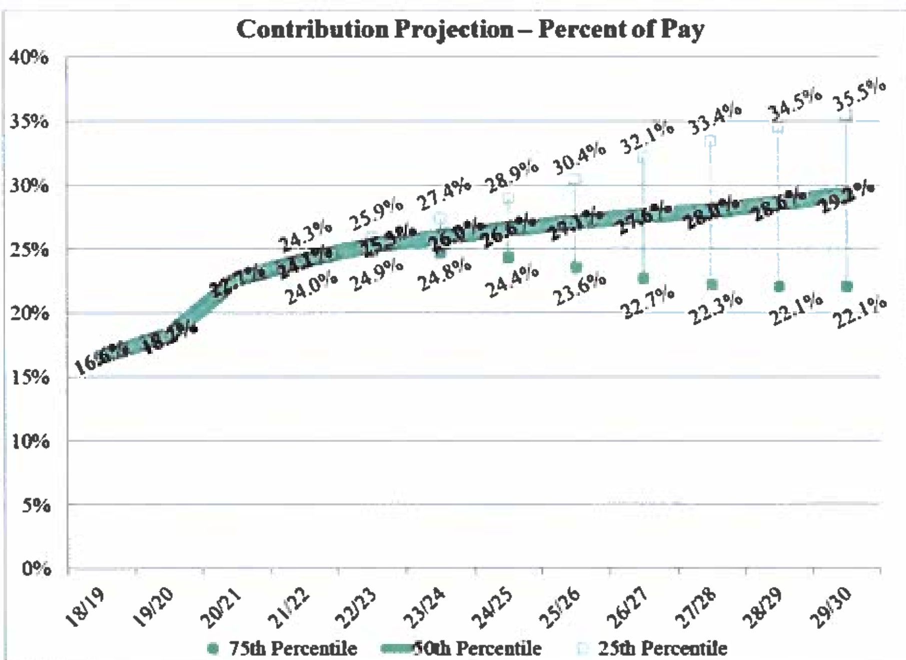
  - Assumes investment returns will, generally be 6.5% (as compared to 7.0%) over the next 10 years and higher beyond that.
- Assumption Changes – Discount Rate
  - Decrease to 7.0% in June 30, 2018 valuation
  - Additional Discount Rate decreases due to Risk Mitigation policy.
- No Other: Gains/Losses, Method/Assumption Changes, Benefit Improvements
- Different from CalPERS projection

[2] based July 2018 CalPERS press release
[3] June 30, 2019 return based on actual CalPERS return of 4.2% through 4/30/19 and assumed returns for 2 months.
[4] Nth percentile means N percentage of our trials result in returns lower than the indicated rates.

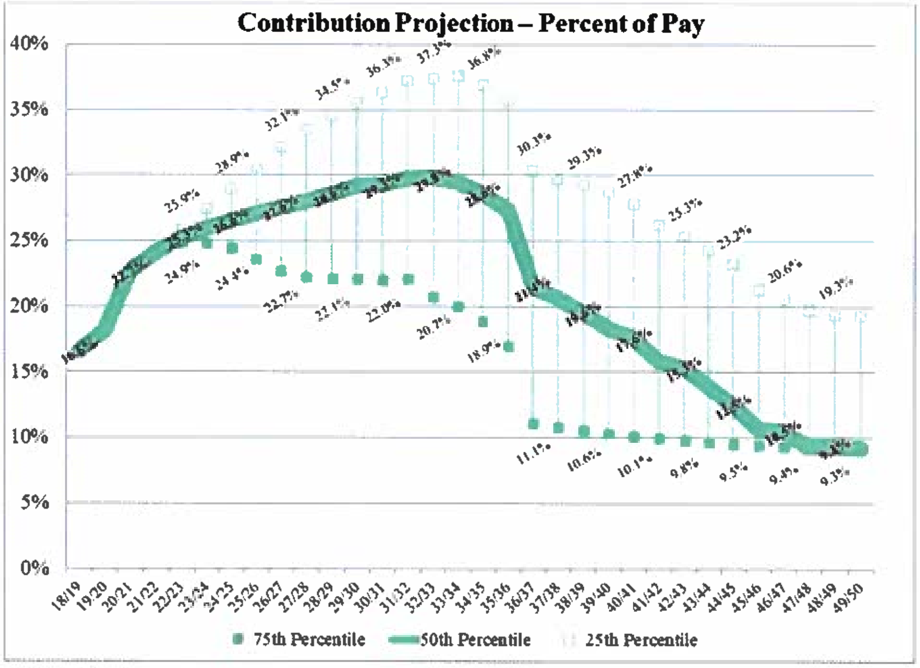
Contribution Projections - Miscellaneous

- New hire assumptions:
  - 62.5% of 2018/19 new hires are PEPRA members and 37.5% are Classic Tier 2 members
  - Percentage of PEPRA member future hires to increase from 62.5% to 100% over 15 years

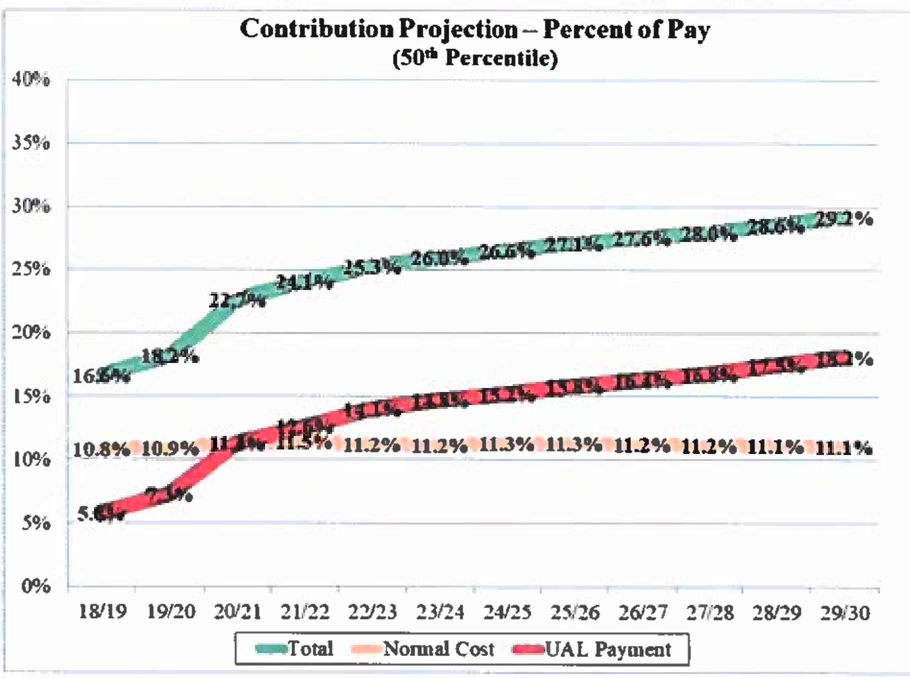
Contribution Projections - Miscellaneous



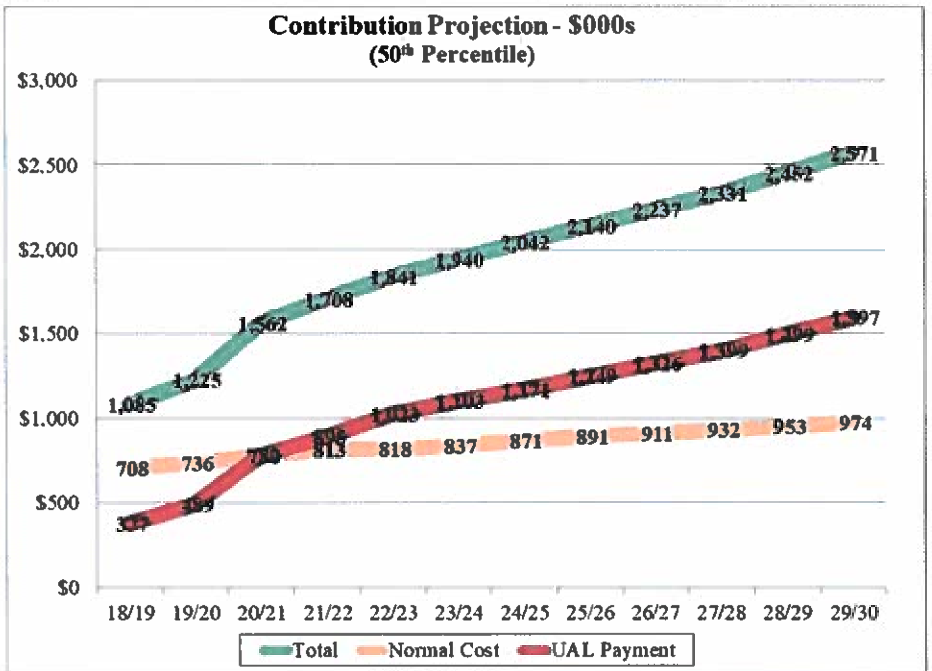
Contribution Projections - Miscellaneous



Contribution Projections - Miscellaneous



Contribution Projections - Miscellaneous



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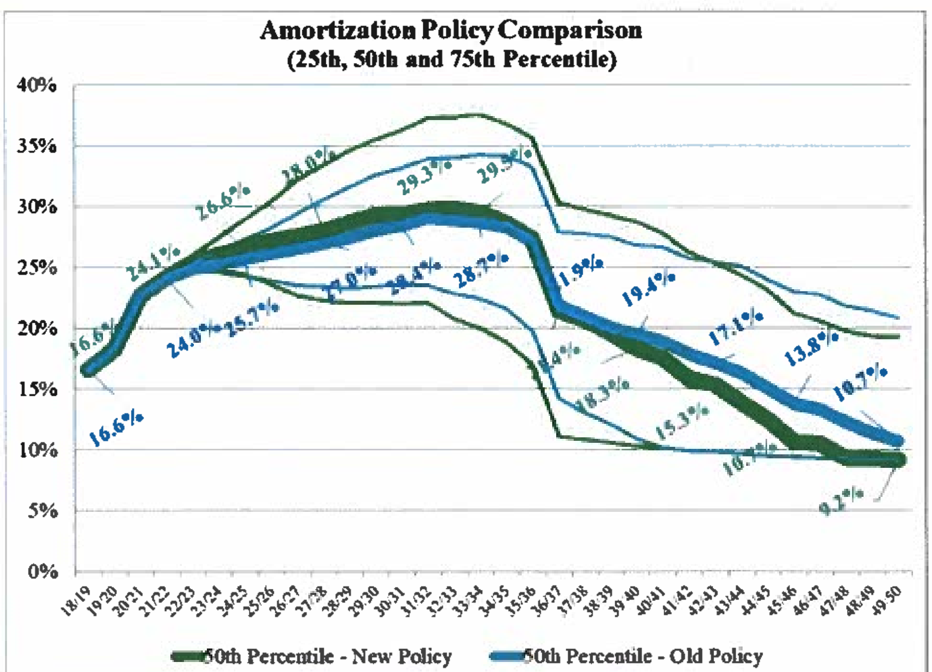
Contribution Projections - Miscellaneous



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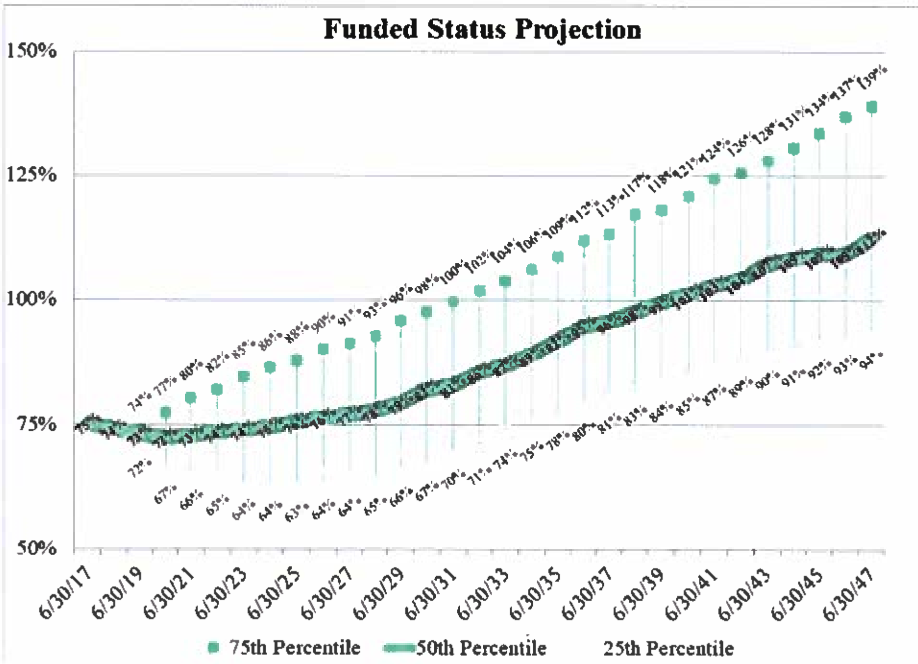
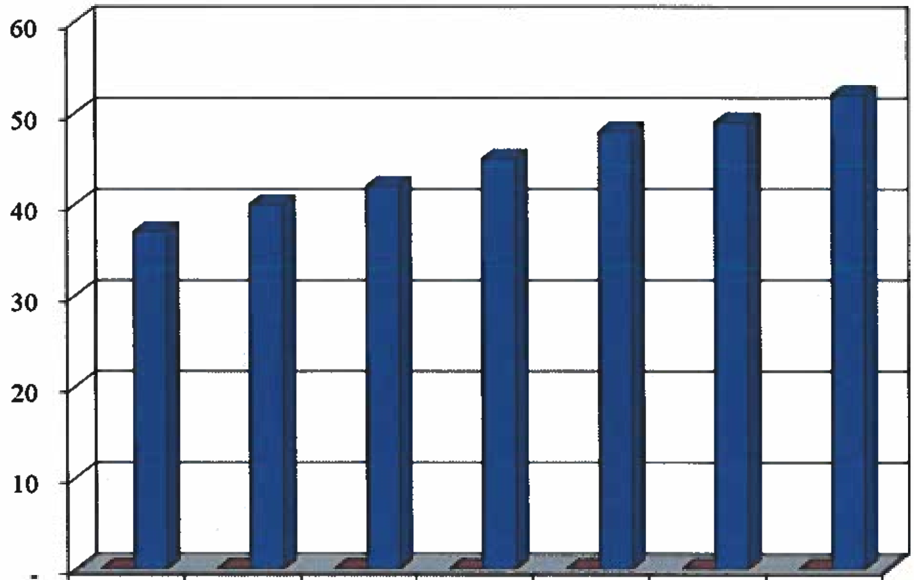
Funded Status - Miscellaneous



Summary of Demographic Information – Police Safety

	2011	2014	2016	2017
Actives				
■ Counts	-	-	-	-
■ Average PERSable Wages	$ -	$ -	$ -	$ -
■ Total PERSable Wages	-	-	-	-
Inactive Members				
■ Counts				
• Transferred	28	22	18	14
• Separated	5	4	3	3
• Retired	37	45	49	52

Summary of Demographic Information – Police Safety

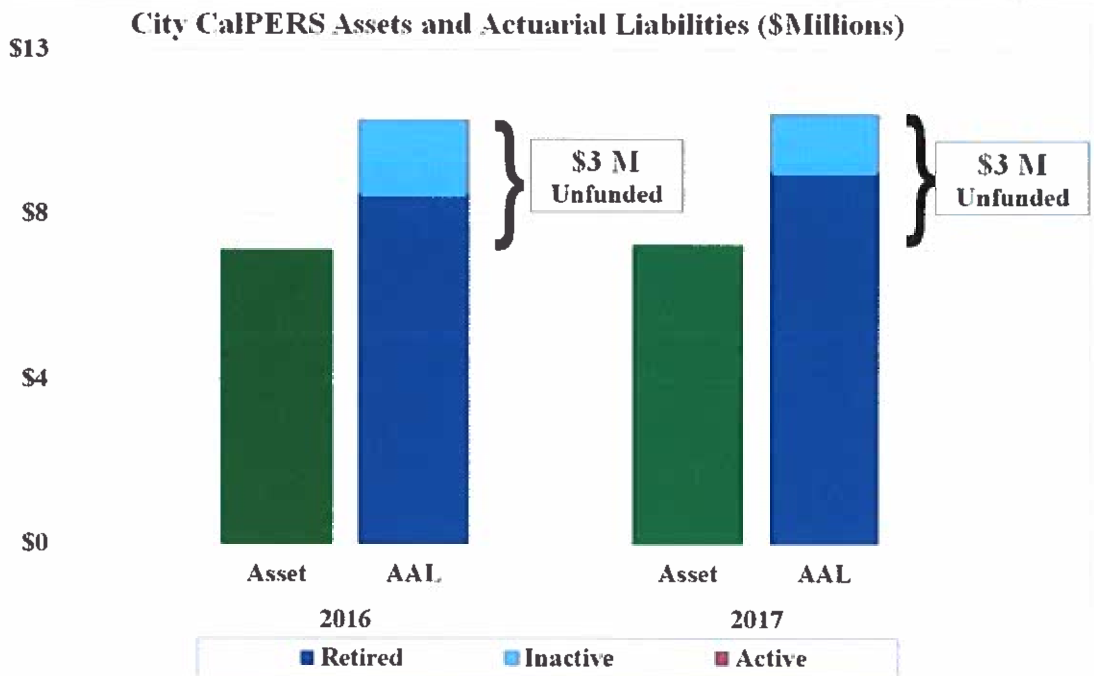


	'11	'12	'13	'14	'15	'16	'17
Active	-	-	-	-	-	-	-
Receiving Payments	37	40	42	45	48	49	52

Plan Funded Status – Police Safety

	June 30, 2016	June 30, 2017
Active AAL	$ -	$ -
Retiree AAL	8,800,000	9,500,000
Inactive AAL	2,000,000	1,500,000
Total AAL	10,800,000	11,000,000
Assets	7,500,000	7,600,000
Unfunded Liability	3,300,000	3,400,000
Funded Ratio	69.3%	69.3%

PLAN FUNDED STATUS – POLICE SAFETY

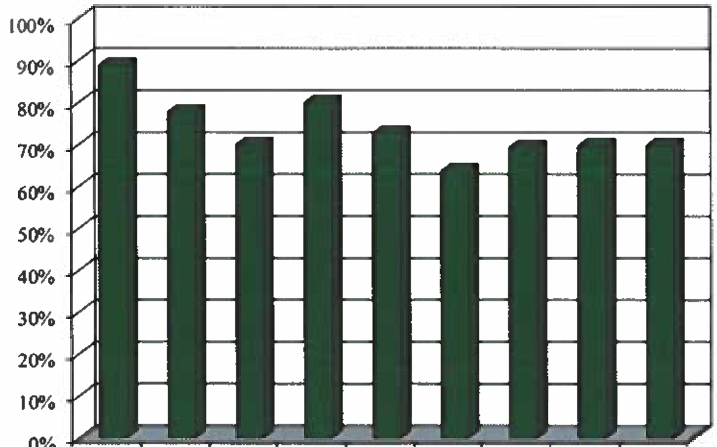


PLAN FUNDED STATUS – POLICE SAFETY

Discount Rate Sensitivity
June 30, 2017

	Discount Rate		
	7.25%	7.00%	6.00%
AAL	$11,000,000	$11,200,000	$12,500,000
Assets	7,600,000	7,600,000	7,600,000
Unfunded Liability	3,400,000	3,600,000	4,900,000
Funded Ratio	69.3%	67.9%	60.8%

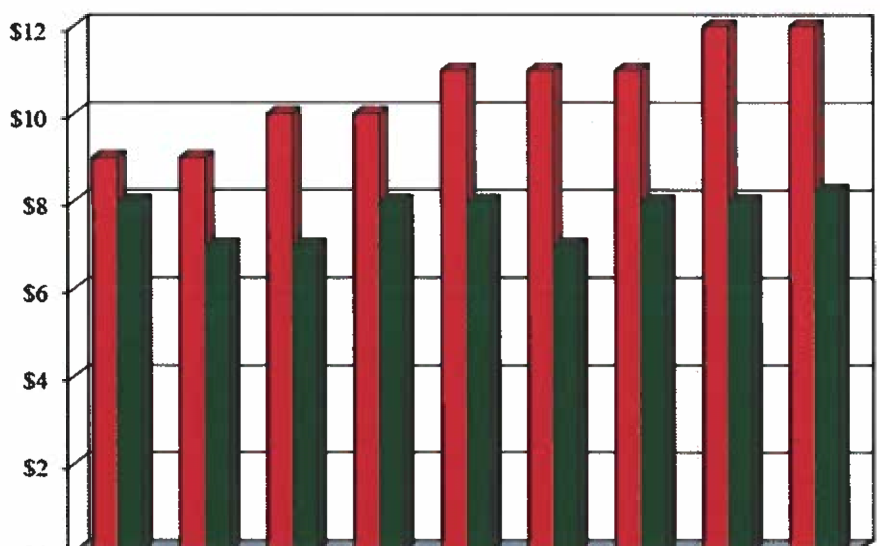
FUNDED RATIO – POLICE SAFETY



	'11	'12	'13	'14	'15	'16	'17	'18	'19
Funded Ratio - MVA	89%	78%	70%	80%	73%	64%	69%	70%	70%

6/30/18 & 6/30/19 funded status estimated

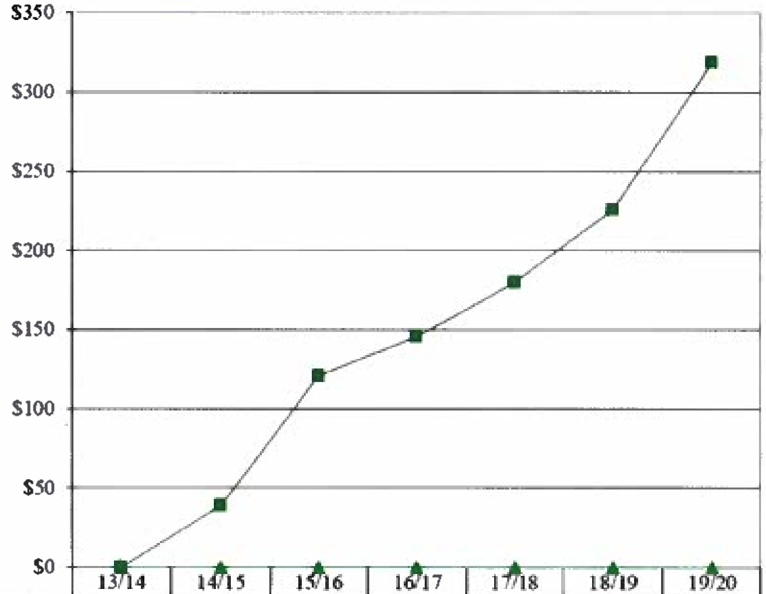
FUNDED STATUS (MILLIONS) – POLICE SAFETY



	'11	'12	'13	'14	'15	'16	'17	'18	'19
Actuarial Liability	9	9	10	10	11	11	11	12	12
Market Asset Value	8	7	7	8	8	7	8	8	8

6/30/18 & 6/30/19 funded status estimated

Contributions ($Thousands) – Police Safety



	13/14	14/15	15/16	16/17	17/18	18/19	19/20
ER Normal Cost	-	-	-	-	-	-	-
Total ER Cont	-	39	121	146	180	226	319

Contributions – Police Safety

	6/30/17 Valuation 2019/2020 Contribution Rates 1/2%@55
■ Base Total Normal Cost	N/A
■ Class 1 Benefits	
● Final Average Comp (1-Year)	N/A
● Pre-Retirement Survivor Allowance	N/A
■ Total Normal Cost	N/A
■ Formula's Expected EE Contr. Rate	N/A
■ ER Normal Cost	N/A
■ Amortization Bases $ (in 000's)	$319
■ Amortization of Side Fund	-
■ **Total ER Contribution $ (in 000's)**	**319**
■ Employee counts	-
■ Employee payroll (in 000's)	N/A
■ **Total ER Contribution $ (in 000's)**	**$ 319**

Contribution Projections - Police Safety

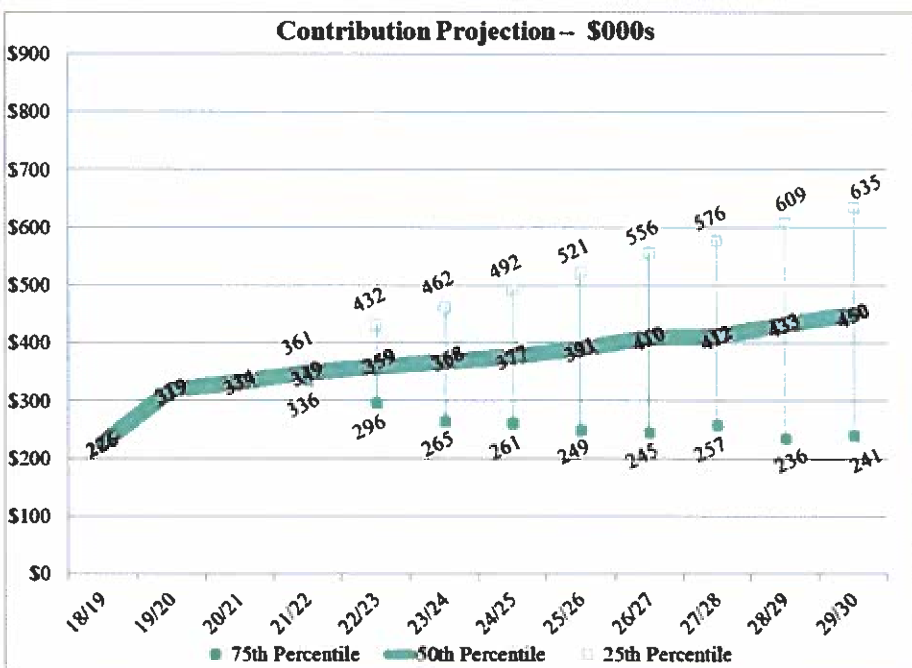
- Market Value Investment Return:
  - June 30, 2018 — 8.6%[5]
  - June 30, 2019 — 5.3%[6]
  - Future returns based on stochastic analysis using 1,000 trials

Single Year Returns at[7]	25th Percentile	50th Percentile	75th Percentile
Current Investment Mix	**0.1%**	**7.0%**	**14.8%**
Ultimate Investment Mix	**0.8%**	**6.0%**	**11.4%**

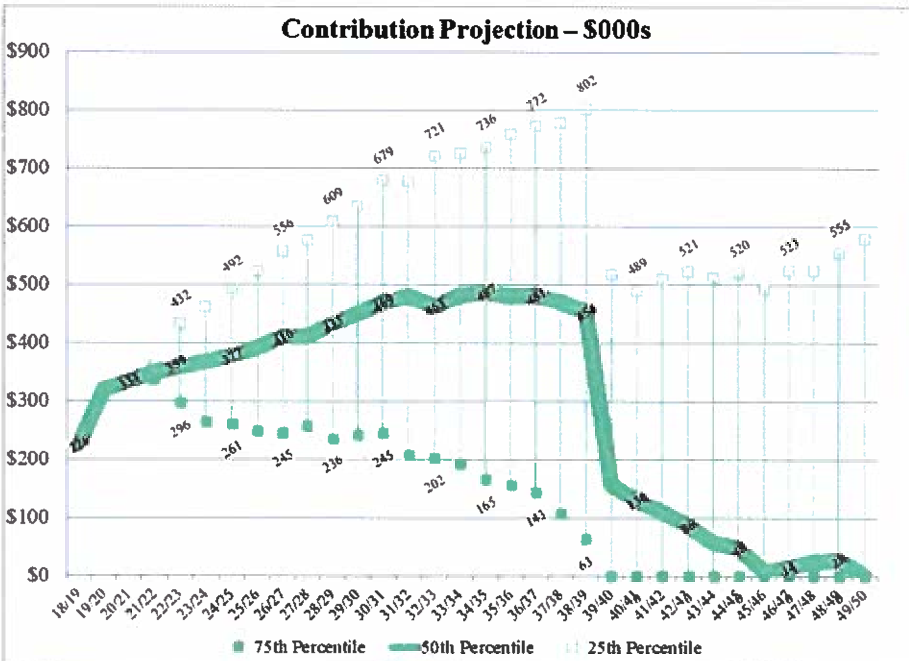
  - Assumes investment returns will, generally be 6.5% (as compared to 7.0%) over the next 10 years and higher beyond that.
- Assumption Changes – Discount Rate
  - Decrease to 7.0% by June 30, 2018 valuation
  - Additional Discount Rate decreases due to Risk Mitigation policy.
- No Other: Gains/Losses, Method/Assumption Changes, Benefit Improvements
- Different from CalPERS projection

5 based July 2018 CalPERS press release
6 June 30, 2019 return based on actual CalPERS return of 4.2% through 4/30/19 and assumed returns for 2 months.
7 Nth percentile means N percentage of our trials result in returns lower than the indicated rates.

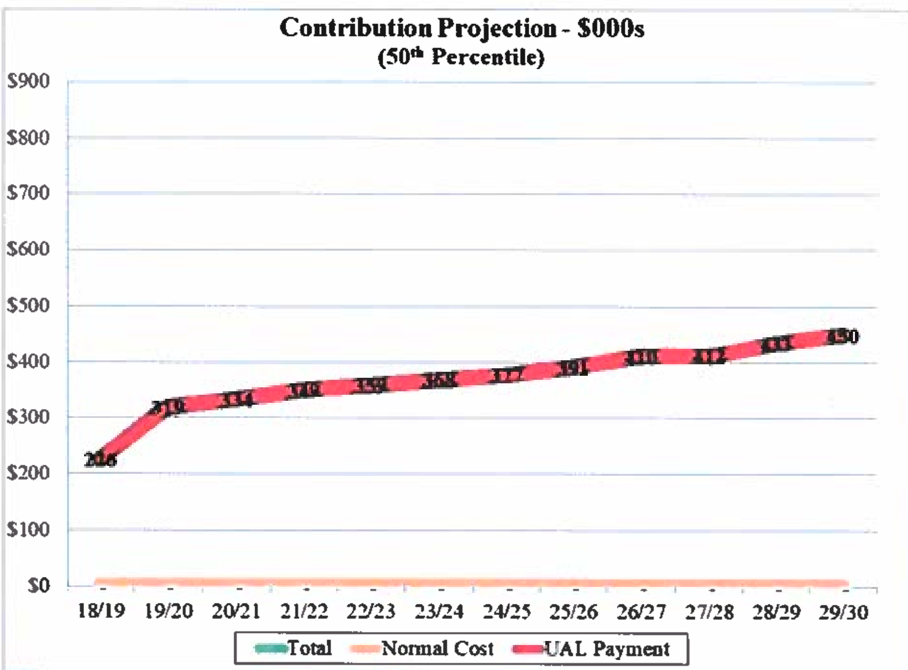
Contribution Projections - Police Safety



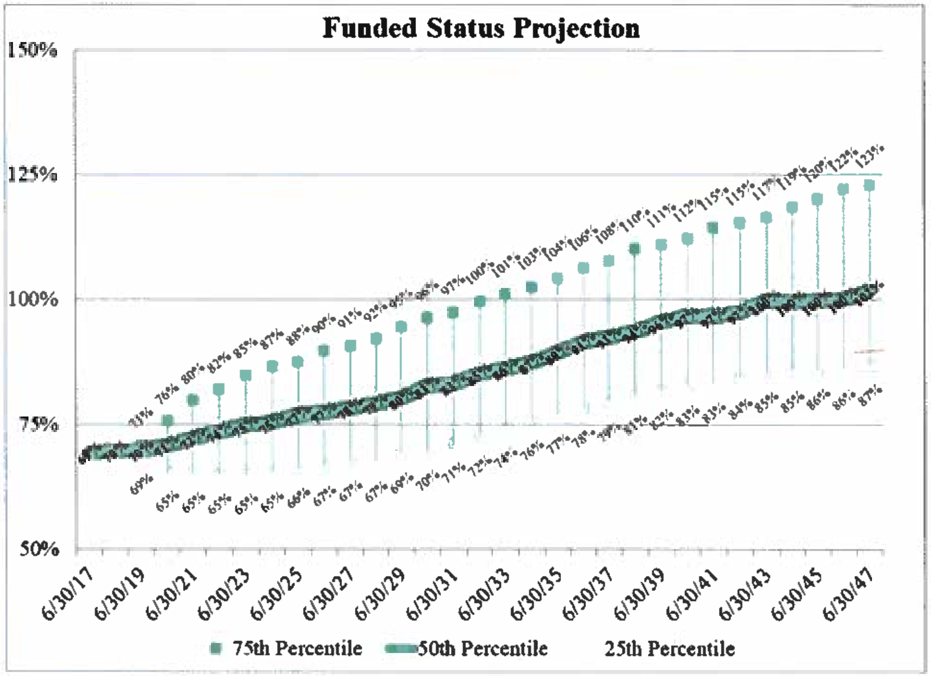
Contribution Projections - Police Safety



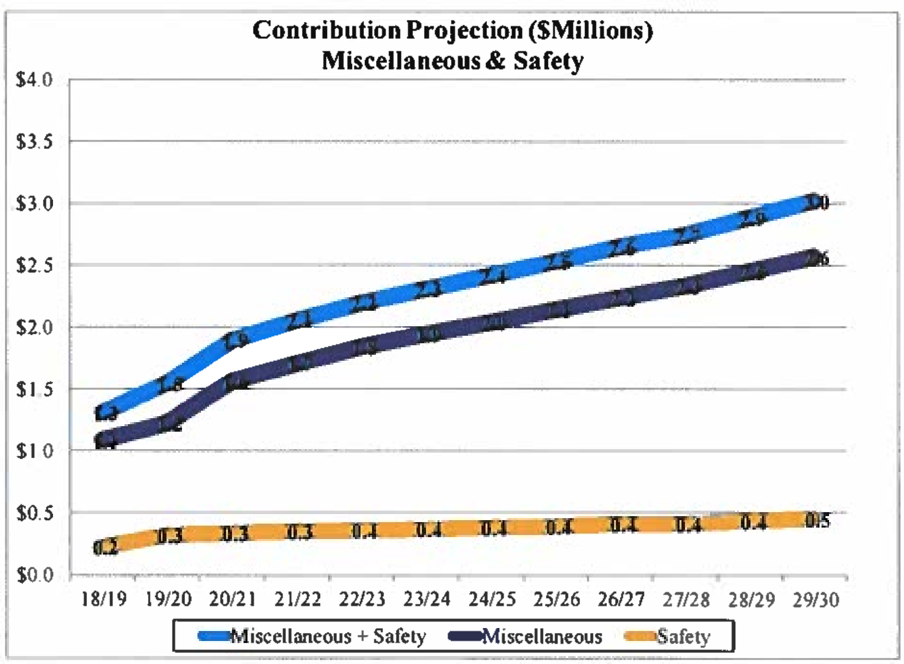
Contribution Projections - Police Safety



Funded Status – Police Safety



Combined Miscellaneous and Safety



COMBINED MISCELLANEOUS AND SAFETY

Funded Status Summary on June 30, 2017
(Amounts in $Millions)

	Miscellaneous	Police Safety	Total
■ Actuarial Accrued Liability (AAL)	$ 37	$ 11	$ 48
■ Assets	28	8	36
■ Unfunded AAL (UAAL)	9	3	12
■ Funded Ratio	75.3%	69.3%	74.0%

LEAVING CALPERS

- Participation in CalPERS is governed by State law and CalPERS rules
- The following are considered "withdrawing" from CalPERS:
  - Exclude new hires from CalPERS & giving them a different pension
  - Stop accruing benefits for current employees
- "Withdrawal" from CalPERS:
  - Treated as plan termination
  - Liability increased for conservative investments
  - Liability increased for future demographic fluctuations
  - Liability must be funded immediately by withdrawing agency
  - Otherwise, retiree benefits are cut

LEAVING CALPERS

CalPERS Termination Estimates on June 30, 2017 (Amounts in Millions)

Discount Rate	Ongoing Plan 7.25%	Termination Basis 1.75%	3.00%
Miscellaneous			
Actuarial Accrued Liability	37	$ 74	$ 64
Assets	28	28	28
Unfunded AAL (UAAL)	9	46	36
Police Safety			
Actuarial Accrued Liability	$ 11	$ 21	$ 19
Assets	8	8	8
Unfunded AAL (UAAL)	3	13	11
Total			
Unfunded AAL (UAAL)	$ 12	$ 59	$ 47
Funded Ratio	74.0%	37.8%	42.9%

PEPRA COST SHARING

- Target of 50% of total normal cost for everyone
- *New members* must pay greater of 50% of total normal cost or bargained amount if higher
- Employer cannot pay any part of *new member* required employee contributions
- Employer may impose current employees pay 50% of total normal cost (limited to 8% of pay for Miscellaneous and 12% for Safety) if not agreed through collective bargaining by 1/1/18
- Miscellaneous Plan:

	Classic Members Tier 1 2.7%@55 FAE1	Classic Members Tier 2 2%@60 FAE3	New Members PEPRA 2%@62 FAE3
• Employer Normal Cost	13.2%	8.1%	6.99%
• Member Normal Cost	8.0%	6.9%	6.75%
• Total Normal Cost	21.2%	15.0%	13.74%
• 50% Target	10.6%	7.5%	6.87%

Paying Down the UAAL

- Internal Service Fund
  - Typically used for rate stabilization
  - Restricted investments:
    - ☐ Likely low (0.5%-1.0%) investment returns
    - ☐ Short term/high quality, designed for preservation of principal
  - Assets can be used by Council for other purposes
  - Does not reduce Unfunded Liability

Paying Down the UAAL

- Make payments directly to CalPERS:
  - Likely best long-term investment return
  - Must be considered an irrevocable decision
    - ☐ Extra payments cannot be used as future "credit"
    - ☐ PEPRA prevents contributions from dropping below normal cost

  - Option #1: Request shorter amortization period (Fresh Start):
    - ☐ Higher short term payments
    - ☐ Less interest and lower long term payments
    - ☐ Likely cannot revert to old amortization schedule
      - ○ Savings offset when investment return is good (PEPRA)

Paying Down the UAAL

- Make payments directly to CalPERS (continued):
  - Option #2: Target specific amortization bases:
    - Extra contribution's impact muted by reduced future contributions
      - CalPERS can't track the "would have been" contribution
    - No guaranteed savings
      - Larger asset pool means larger loss (or gain) opportunity
    - Paying off shorter amortization bases: larger contribution savings over shorter period:
      - e.g. 10 year base reduces contribution 12.3¢ for $1
      - Less interest savings vs paying off longer amortization bases
    - Paying off longer amortization bases: smaller contribution savings over longer period:
      - e.g. 25 year base reduces contribution 6.5¢ for $1
      - More interest savings vs paying off shorter amortization bases

Paying Down the UAAL

- Section 115 (Rate Stabilization) Trust
  - Can only be used to:
    - Reimburse City for CalPERS contributions
    - Make payments directly to CalPERS
  - Investments significantly less restricted than City investment funds
    - Fiduciary rules govern Trust investments
    - Usually, designed for long term returns
  - Assets don't count for GASB accounting
    - Are considered Employer assets
  - Over 180 trusts established, mostly since 2015
    - Trust providers: PARS, PFM, Keenan
    - California Employers' Pension Prefunding Trust (CEPPT) is coming

PAYING DOWN THE UAAL

- Section 115 (Rate Stabilization) Trust
  - More flexibility than paying CalPERS directly
    - ☐ City decides if and when and how much money to put into Trust
    - ☐ City decides if and when and how much to withdraw to pay CalPERS or reimburse Agency
  - Funding strategies typically focus on
    - ☐ Reducing the unfunded liability
      - ○ Fund enough to make total CalPERS UAL = 0
      - ○ Make PEPRA required payments from Trust when overfunded
    - ☐ Stabilizing contribution rates
      - ○ Mitigate expected contribution rates to better manage budget
    - ☐ Combination
      - ○ Use funds for rate stabilization/budget predictability
      - ○ Target increasing fund balance to pay off UAL sooner

ONE-TIME PAYMENT ANALYSIS

- Capital Market Assumptions:

Asset Class	PERF Policy Target Allocation	Geometric Real Average Return	Standard Deviation of Return	Geometric Nominal Average Return
• Global Equity	50%	4.82%	17.84%	7.44%
• Private Equity	8	6.19	25.50	8.85
• Fixed Income	28	1.47	4.24	4.00
• Liquidity	1	0.06	0.97	2.57
• Real Assets	13	4.81	12.55	7.43
	100%			

  - Equity, fixed income and liquidity based on study of investment consultant and investment bank 2017 short and long-term capital market assumptions adjusted in some cases for long-term trends in investment returns. Private equity and real assets based on CalPERS assumptions in 2017.
- Inflation 2.5%

ONE-TIME PAYMENT ANALYSIS

- Before CalPERS Risk Mitigation
  - 30 Year Compound Annualized returns[8]:

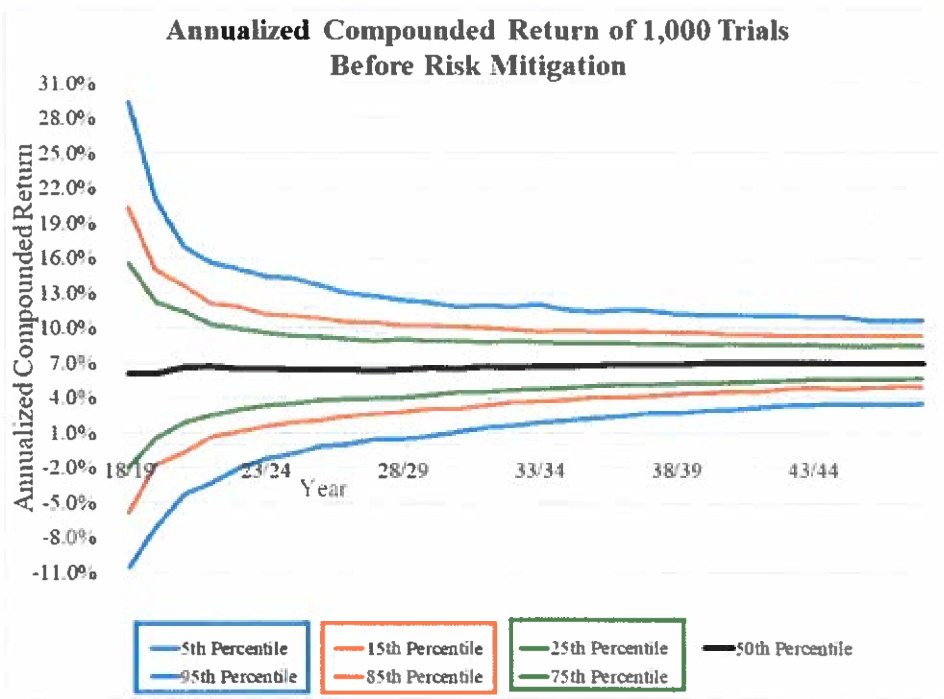
☐ 50th Percentile[9]	6.98%
☐ 33th Percentile	6.11
☐ 30th Percentile	5.94
☐ 25th Percentile	5.63
☐ 20th Percentile	5.29
☐ 15th Percentile	4.95

- After CalPERS Risk Mitigation
  - 30 Year Compound Annualized returns[10]:

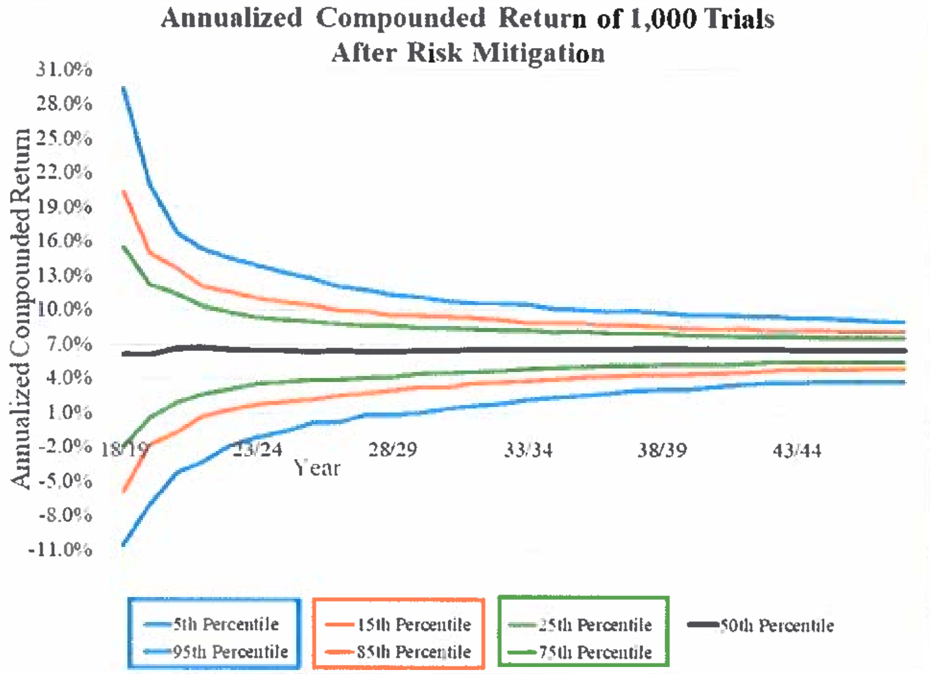
☐ 50th Percentile[11]	6.54%
☐ 33th Percentile	5.85
☐ 30th Percentile	5.72
☐ 25th Percentile	5.51
☐ 20th Percentile	5.23
☐ 15th Percentile	4.93

[8] Based on capital market assumptions shown previously.
[9] Nth percentile means N percentage of our trials result in returns lower than the indicated rates.
[10] Based on capital market assumptions shown previously.
[11] Nth percentile means N percentage of our trials result in returns lower than the indicated rates.

ONE-TIME PAYMENT ANALYSIS



One-Time Payment Analysis



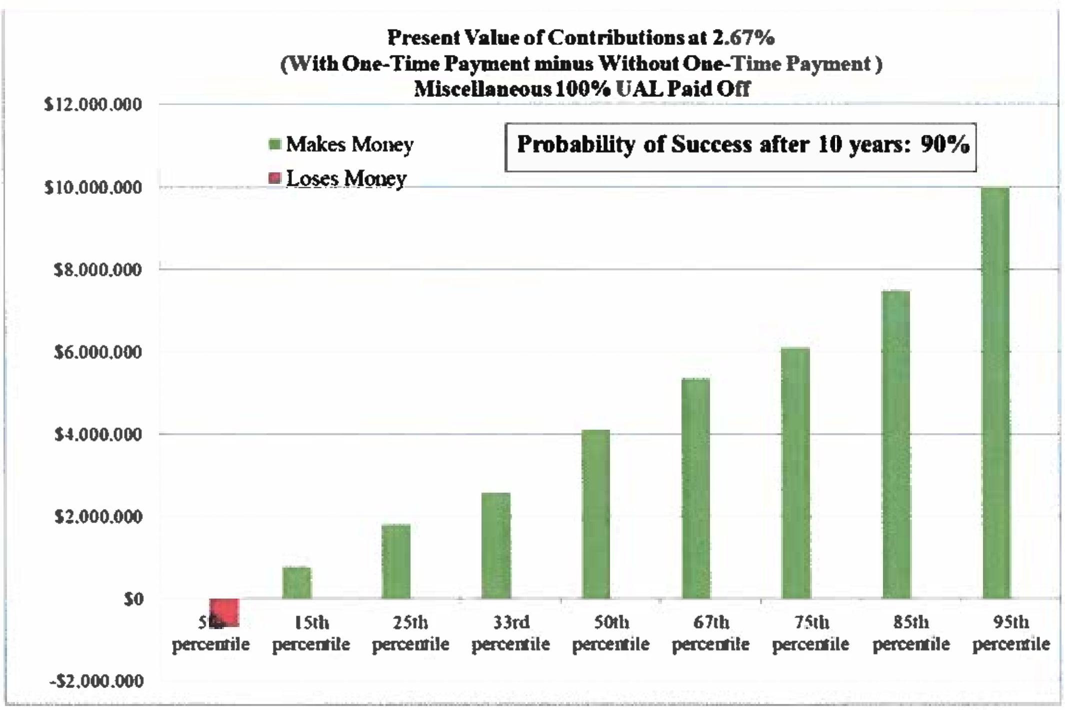
Proposed 2019 One-Time Payment Analysis

- One-time Payment cost reduction (success) or cost increase calculated as the present value of:
  - Employer CalPERS contributions without one-time payment for 30 years, minus
  - Employer CalPERS contributions with one-time payment & debt service over 30 years, plus
  - CalPERS assets with one-time payment less assets without POB after 30 years
- Discount rate for cash flow differences 2.67%
- Discount rate for asset difference at 10/30 years 2.67%
  - PEPRA requires employer contributions not be less than Normal Cost
  - Lower (than expected) returns for next 10 years followed by higher (than expected) returns
  - Risk Mitigation Strategy
    - ☐ Shift to less risky assets, lower returns

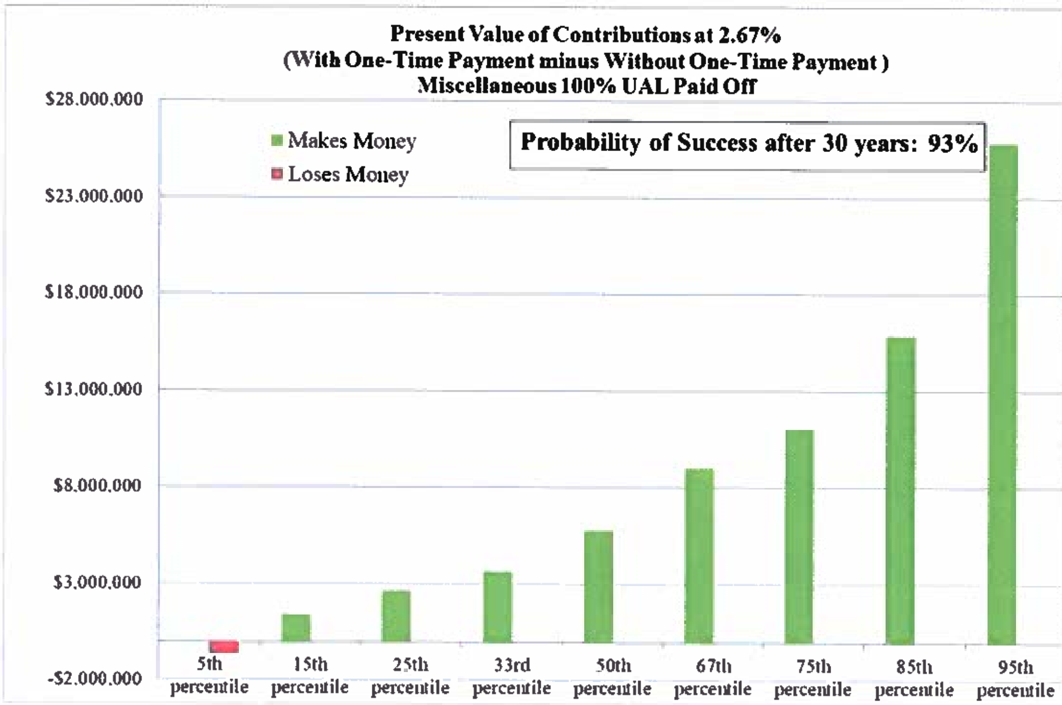
Proposed 2019 One-Time Payment Analysis

- Proposed 2019 One-Time Payment
  - One-Time Payment amount: $13,518,000
  - Proposed Payment date: August 15, 2019
  - Pay off all existing unfunded liabilities for both Miscellaneous and Safety @ 6/30/19

Proposed 2019 One-Time Payment Analysis



PROPOSED 2019 ONE-TIME PAYMENT ANALYSIS



PROPOSED 2019 ONE-TIME PAYMENT ANALYSIS