



BARTEL
ASSOCIATES, LLC

**CITY OF MANHATTAN BEACH
MISCELLANEOUS AND SAFETY PLANS**

**CalPERS Actuarial Issues – 6/30/15 Valuation
Preliminary Results**

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May 4, 2017

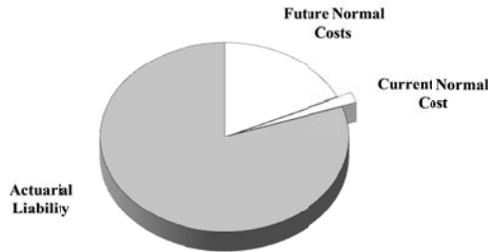
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DEFINITIONS

**Present Value of Benefits
June 30, 2015**



- **PVB - Present Value of all Projected Benefits:**
 - Discounted value (at valuation date - 6/30/15), of all future expected benefit payments based on various (actuarial) assumptions
- **Actuarial Liability:**
 - Discounted value (at valuation date) of benefits earned through valuation date [value of past service benefit]
 - Portion of PVB “earned” at measurement
- **Current Normal Cost:**
 - Portion of PVB allocated to (or “earned” during) current year
 - Value of employee and employer current service benefit



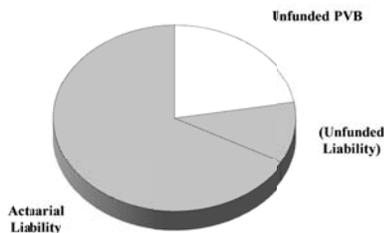
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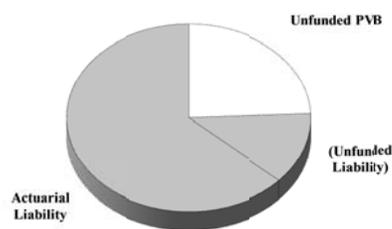


DEFINITIONS

**Present Value of Benefits
June 30, 2014**



**Present Value of Benefits
June 30, 2015**



- **Target-** Have money in the bank to cover Actuarial Liability (past service)
- **Unfunded Liability** - Money short of target at valuation date
- **Excess Assets / Surplus:**
 - Money over and above target at that point in time
 - Doesn't mean you're done contributing
- **Super Funded:**
 - Assets cover whole pie (PVB)
 - If everything goes exactly like PERS calculated, you'll never have to put another (employer or employee) dime in



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HOW WE GOT HERE

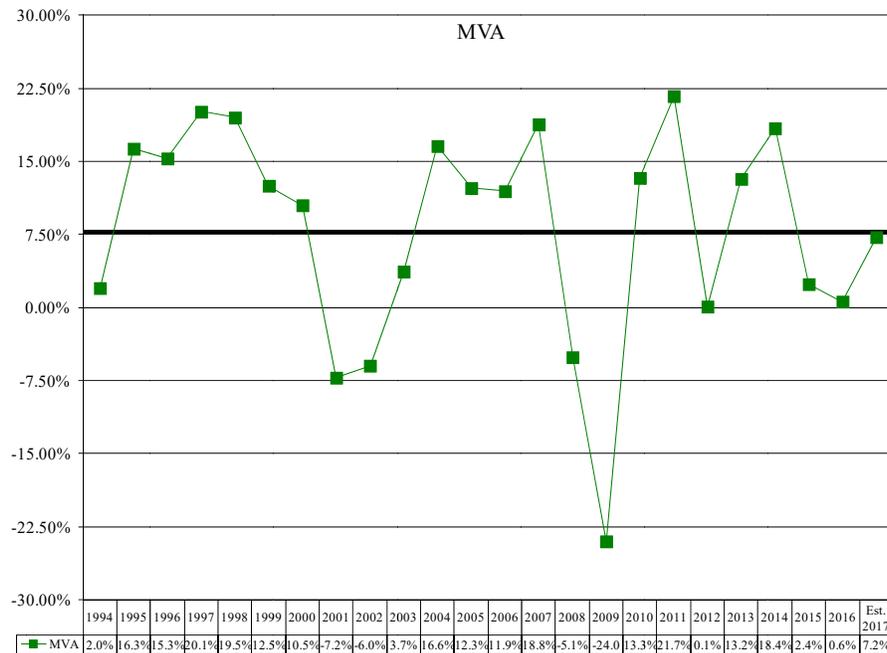
- Investment Losses
- Enhanced Benefits
- CalPERS Contribution Policy
- Demographics



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HOW WE GOT HERE – INVESTMENT RETURN



Above assumes contributions, payments, etc. received evenly throughout year.
 Estimated June 30, 2017 based on CalPERS actual return through 12/31/16 and
 assumed returns for 6 months



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HOW WE GOT HERE – ENHANCED BENEFITS

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

■ City	Tier 1	PEPRA
● Miscellaneous	2%@55	2.5%@67
● Police Safety	3%@50	2.7%@57
● Fire Safety	3%@55	2.7%@57



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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



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HOW WE GOT HERE –DEMOGRAPHICS

- Around the State
 - Large retiree liability compared to actives
 - Declining active population
- Common to have 60%-75% of liability for retirees
- City percentage of liability belonging to retirees:
 - Miscellaneous 47%
 - Police Safety 63%
 - Fire Safety 52%



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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)
- Risk Pool changes
 - All Risk Pools combined into one Miscellaneous & one Safety
 - Collect payment on UAL as dollar amount, not as % of pay
 - Payments allocated to agencies based on liability & assets rather than payroll
 - Included in 6/30/13 valuation (impacts 15/16 rates)



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CALPERS CHANGES

■ CalPERS Board will change their discount rate:

	<u>Rate</u>	<u>Initial</u>	<u>Full</u>
● 6/30/16 valuation	7.375%	18/19	22/23
● 6/30/17 valuation	7.25%	19/20	23/24
● 6/30/18 valuation	7.00%	20/21	24/25
● Risk mitigation suspended until 6/30/18 valuation			

■ CalPERS Board reviewing their Capital Market Assumptions next summer/fall, Likely no further changes to discount rate

■ Risk Mitigation Strategy

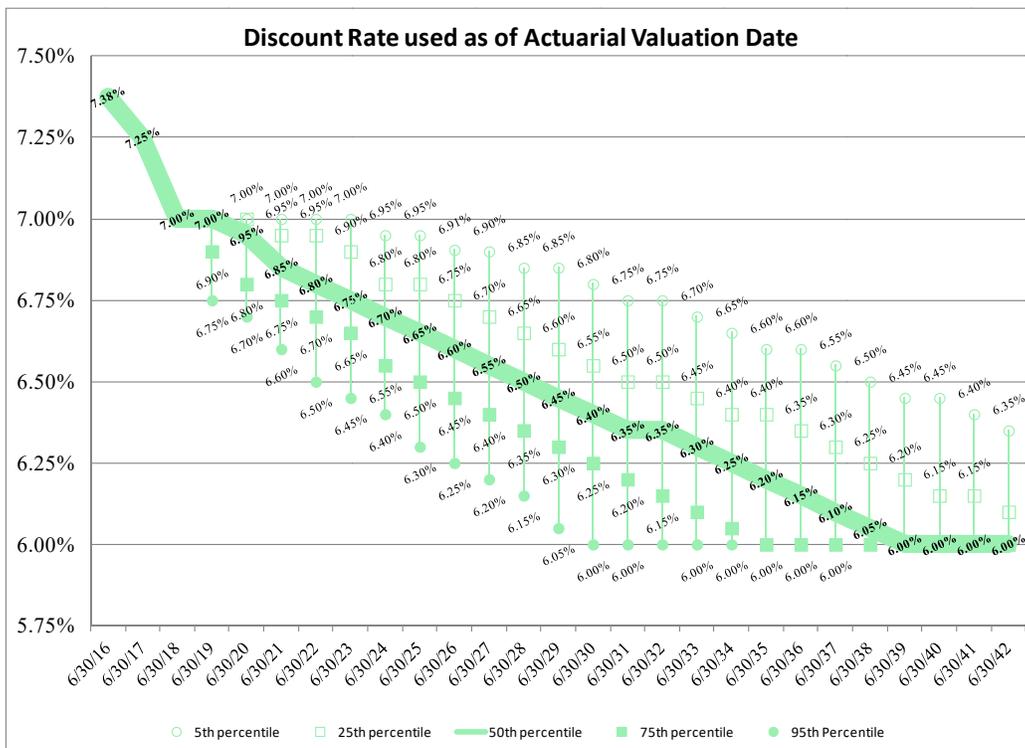
- Move to more conservative investments over time
- Only when investment return is better than expected
- Lower discount rate in concert
- Essentially use ~50% of investment gains to pay for cost increases
- Likely get to 6.0% over 20+ years



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CALPERS CHANGES



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SUMMARY OF DEMOGRAPHIC INFORMATION - MISCELLANEOUS

	1996	2005	2014	2015
Actives				
■ Counts	150	179	193	213
■ Average				
• Age	43	45	46	45
• City Service	7	10	11	10
• PERSable Wages	\$39,100	\$53,000	\$67,100	\$68,300
■ Total PERSable Wages (millions)	5.9	9.5	13.0	14.5
Receiving Payments				
■ Counts				
• Service		113	158	163
• Disability		20	17	18
• Beneficiaries		21	28	29
• Total	107	154	203	210
■ Average Annual City Provided Benefit ¹				
• Service		\$10,700	\$18,300	\$19,500
• Disability		4,500	4,200	4,400
• Service Retirements in last 5 years		11,800	26,200	26,000

¹ Average City provided pensions are based on City service & City benefit formula, and are not representative of benefits for long service employees.

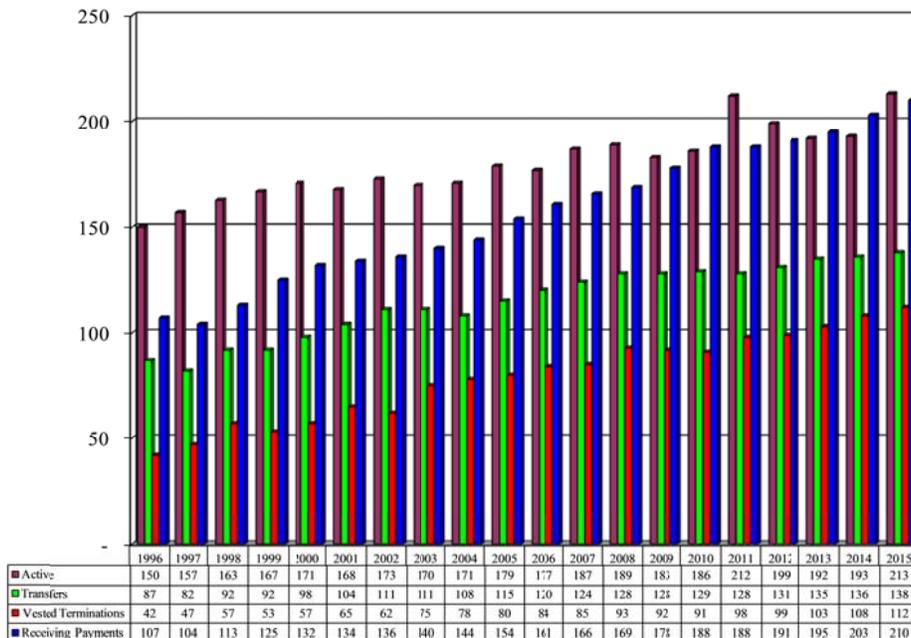


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MEMBERS INCLUDED IN VALUATION - MISCELLANEOUS



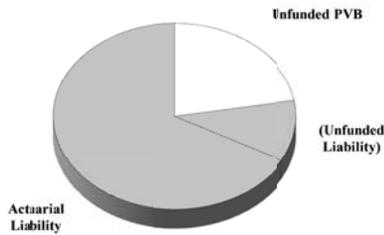
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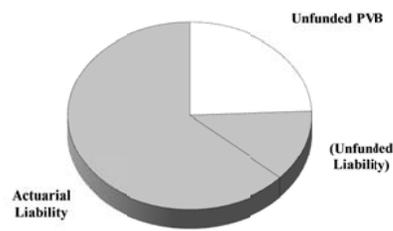


PLAN FUNDED STATUS - MISCELLANEOUS

**Present Value of Benefits
June 30, 2014**



**Present Value of Benefits
June 30, 2015**



<u>June 30, 2014</u>		<u>June 30, 2015</u>
\$ 37,600,000	Active AAL	\$ 37,800,000
38,300,000	Retiree AAL	42,200,000
<u>9,700,000</u>	Inactive AAL	<u>10,400,000</u>
85,600,000	Total AAL	90,400,000
<u>72,000,000</u>	Market Asset Value	<u>72,800,000</u>
(13,600,000)	(Unfunded Liability)	(17,600,000)



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PLAN FUNDED STATUS - MISCELLANEOUS

- What happened between 6/30/14 and 6/30/15?
 - Unfunded Liability (Increase)/Decrease ≈ \$(4.0) million
- Reasons for Unfunded Liability decrease
 - Asset gain/(loss): ≈ \$(3.8) million
 - Actuarial gain/(loss): ≈ \$ 0.1 million
 - Average Salary \$67,100 → \$68,300
 - Number of Actives 193 → 213
 - Number of Inactives 244 → 250
 - Number of Retirees 203 → 210
 - Other gain/(loss): ≈ \$ (0.3) million
 - Contributions
 - Other (expected)

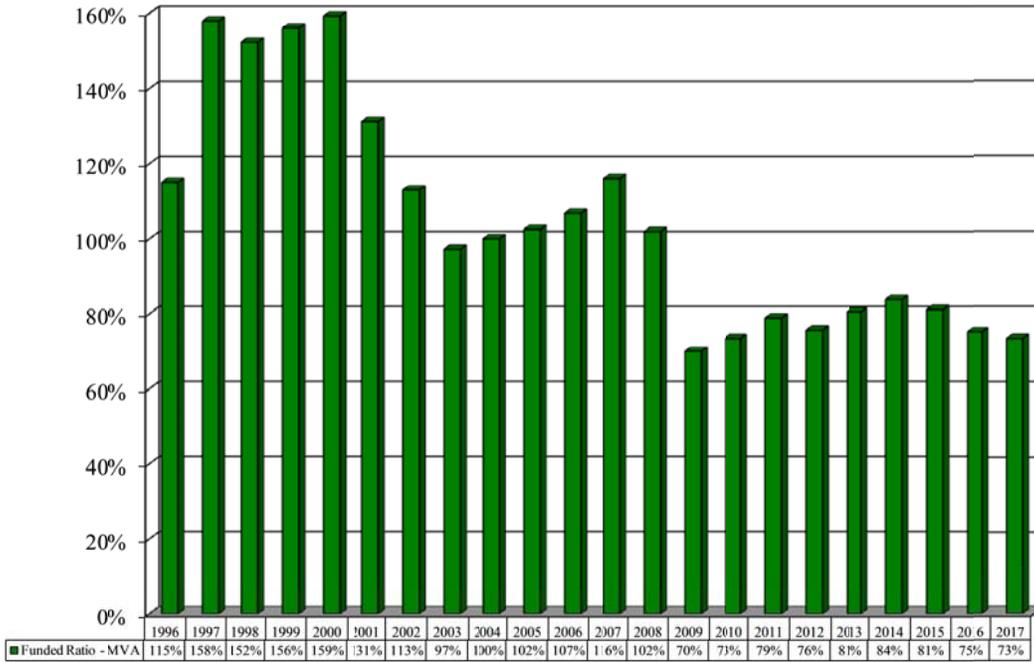


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FUNDED RATIO - MISCELLANEOUS



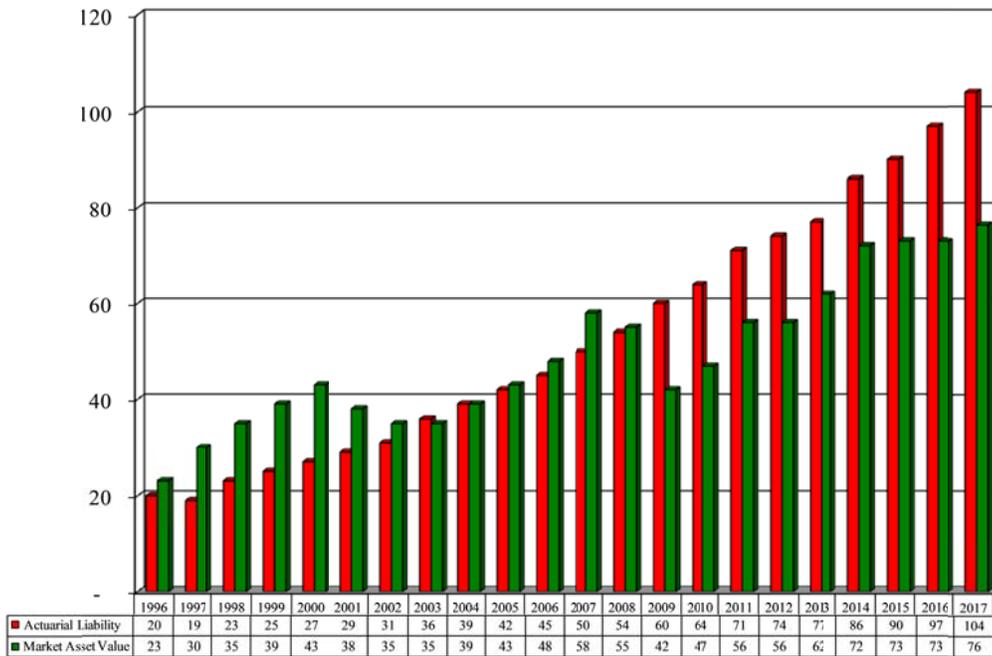
6/30/16 & 6/30/17 funded status estimated.



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FUNDED STATUS (MILLIONS) - MISCELLANEOUS



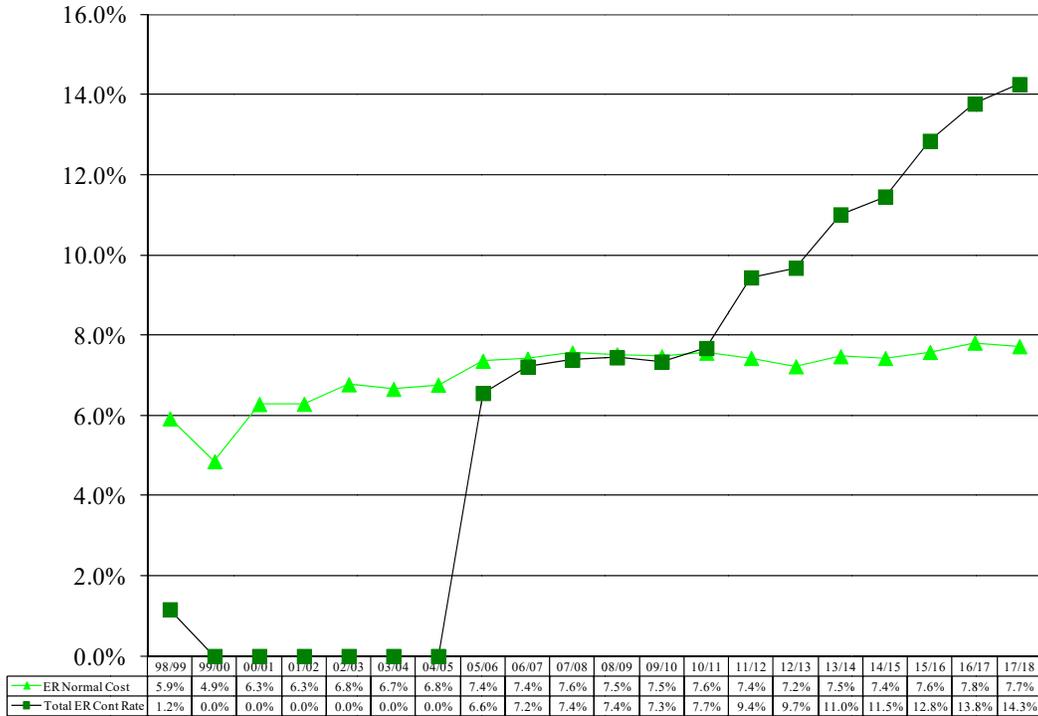
6/30/16 & 6/30/17 funded status estimated.



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CONTRIBUTION RATES - MISCELLANEOUS



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CONTRIBUTION RATES - MISCELLANEOUS

	<u>6/30/14</u>	<u>6/30/15</u>
	<u>2016/2017</u>	<u>2017/2018</u>
■ Total Normal Cost	14.8%	14.6%
■ Employee Normal Cost	6.9%	6.9%
■ Employer Normal Cost	7.8%	7.7%
■ Amortization Bases	<u>6.0%</u>	<u>6.5%</u>
■ Total Employer Contribution Rate	13.8%	14.3%
■ Amortization Period	Multiple	Multiple
■ What Happened from 6/30/14 to 6/30/15:		
● 2016/17 Rate	13.8%	
● Asset Method Change (3 rd Year)	0.9%	
● Assumption Change (2 nd Year)	0.9%	
● 6/30/14 (Gains)/Losses (2 nd Year)	(0.8)%	
● Payroll Increased More Than Expected	(0.7)%	
● 6/30/15 (Gains)/Losses (1 st Year)	<u>0.2%</u>	
● 2017/18 Rate	14.3%	



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CONTRIBUTION PROJECTIONS - MISCELLANEOUS

- Market Value Investment Return:
 - June 30, 2016 0.6%²
 - June 30, 2017 7.2%³
 - Future returns based on stochastic analysis using 1,000 trials
- | <u>Single Year Returns at</u> ⁴ | <u>25th Percentile</u> | <u>50th Percentile</u> | <u>75th Percentile</u> |
|--|-----------------------------------|-----------------------------------|-----------------------------------|
| ● 7.0% Investment Mix | 0.1% | 7.0% | 14.8% |
| ● 6.0% 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.
- No Other: Gains/Losses, Method/Assumption Changes, Benefit Improvements
 - Excludes Employer Paid Member Contributions (EPMC)
 - Includes CalPERS Board adopted assumption changes, first impact 2016/17

² Based on CalPERS press release on 7/18/16, preliminary investment return of 0.61%.

³ June 30, 2017 return based on CalPERS return of 3.9% through 12/31/16 and assumed returns for 6 months.

⁴ Nth percentile means N percentage of our trials result in returns lower than the indicated rates.



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CONTRIBUTION PROJECTIONS - MISCELLANEOUS

- New hire assumptions:
 - Assumes 35% of 2013 new hires will be Classic Members (2%@55) and 65% will be New Members with PEPRAs benefits.
 - Assumes Classic Members will decrease from 35% to 0% of new hires over 20 years.



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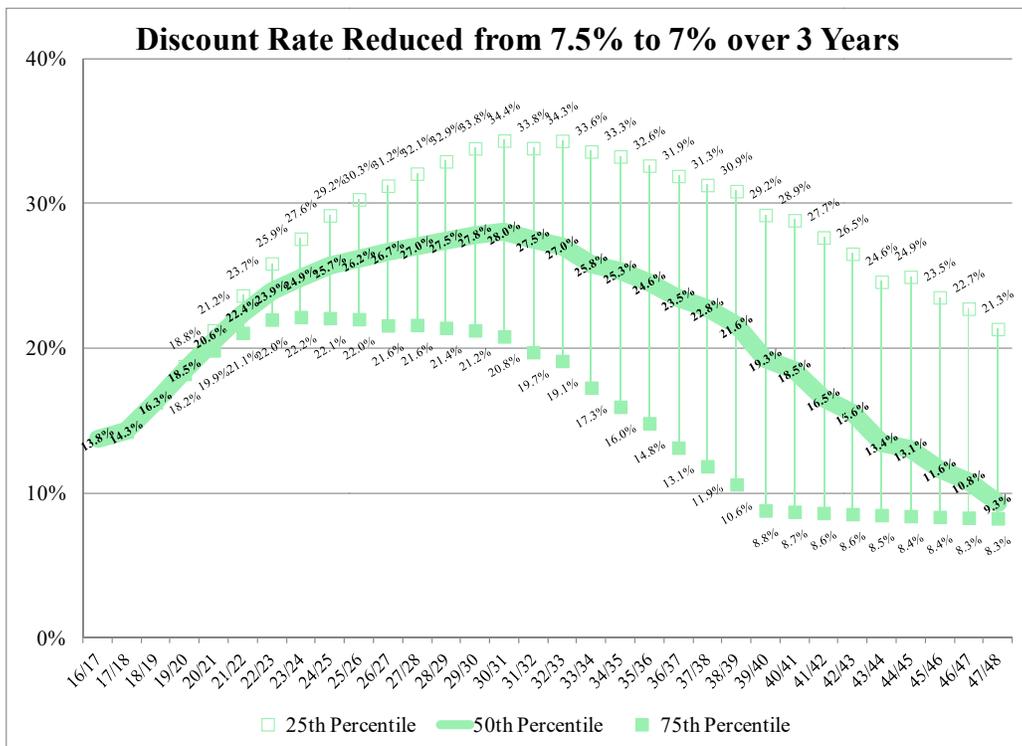
CONTRIBUTION PROJECTIONS - MISCELLANEOUS



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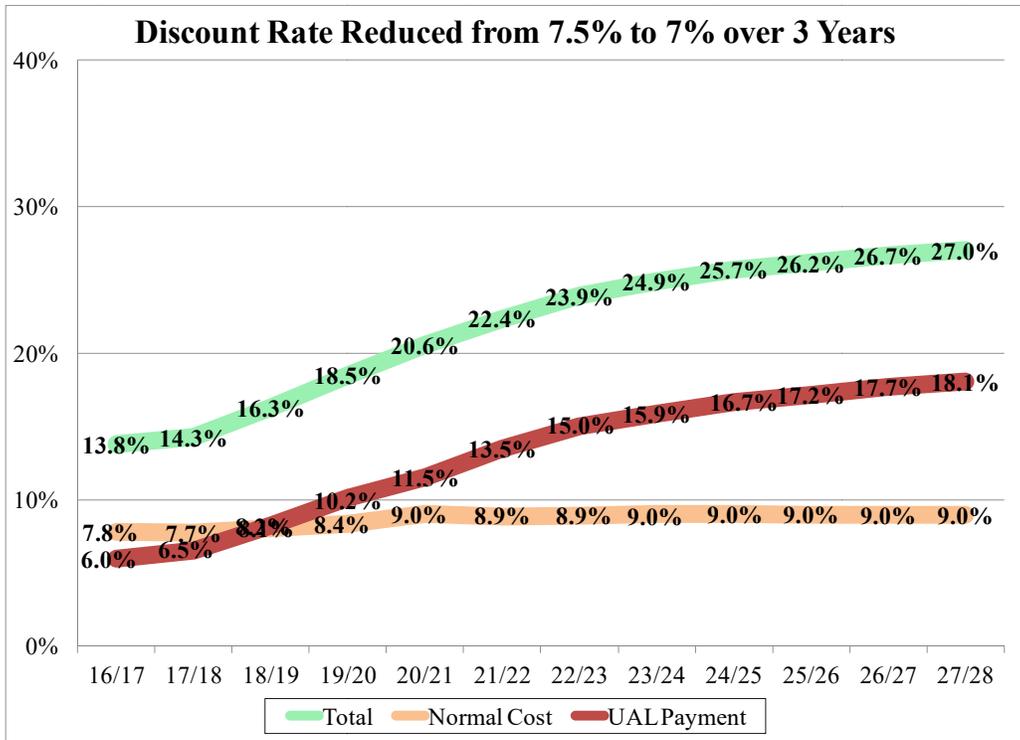
CONTRIBUTION PROJECTIONS - MISCELLANEOUS



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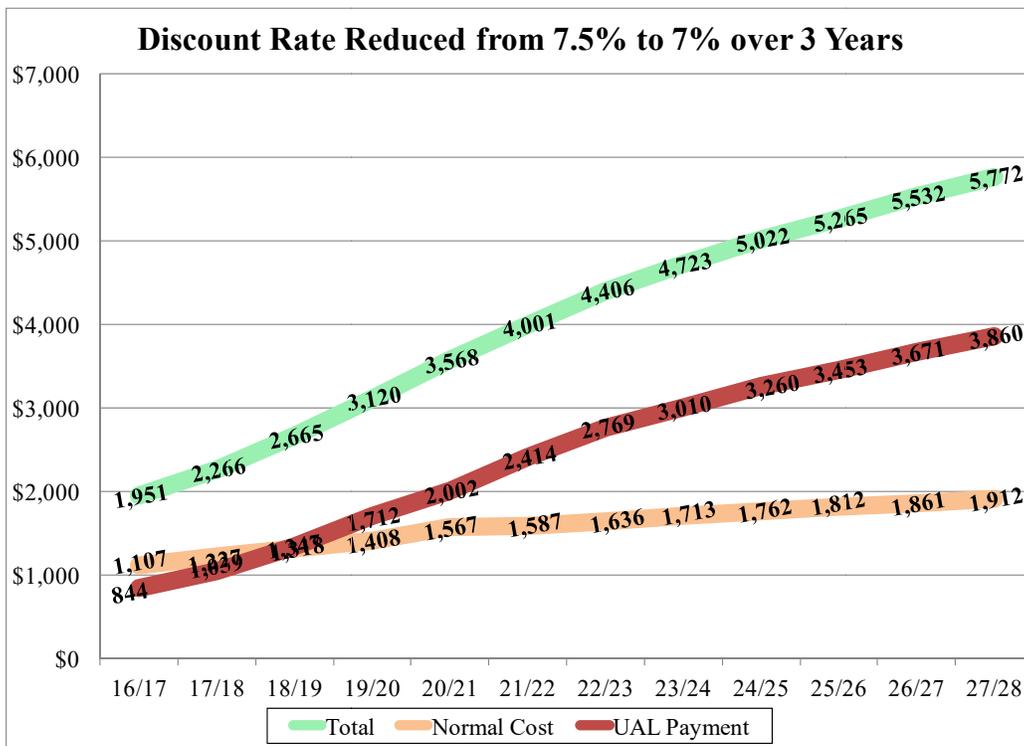
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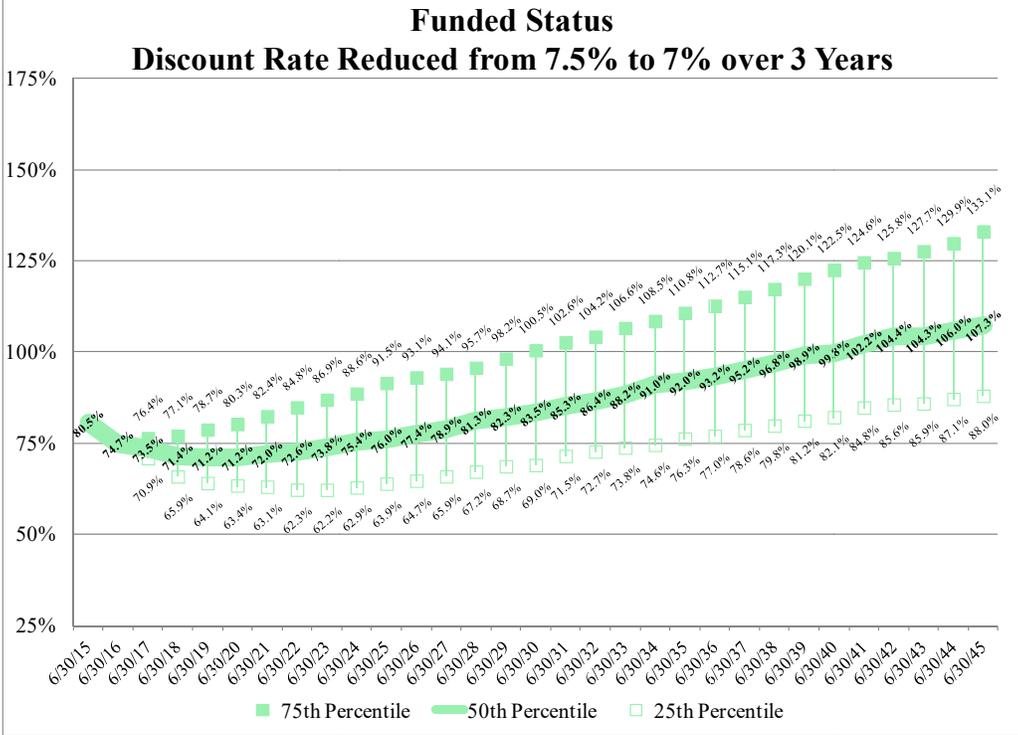
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FUNDED STATUS - MISCELLANEOUS



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FUNDED STATUS - MISCELLANEOUS

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SUMMARY OF DEMOGRAPHIC INFORMATION – POLICE SAFETY

	2009	2013	2014	2015
Actives				
■ Counts	63	58	62	63
■ Average PERSable Wages	\$71,600	\$120,500	\$121,300	\$127,000
■ Total PERSable Wages (millions)	4.5	7.0	7.5	8.0
Inactive Counts				
■ Transferred	23	15	15	15
■ Separated	3	10	13	13
■ Retired	63	110	107	108



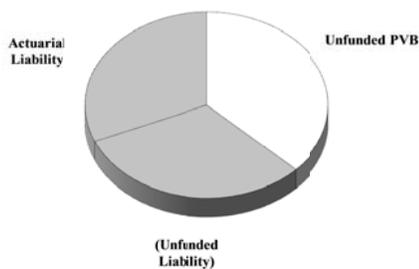
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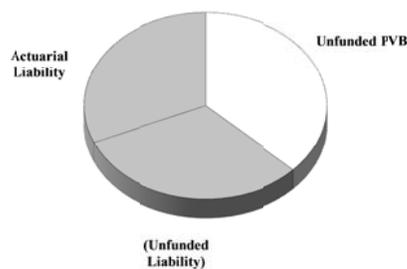


PLAN FUNDED STATUS - POLICE SAFETY

Present Value of Benefits
June 30, 2014



Present Value of Benefits
June 30, 2015



<u>June 30, 2014</u>		<u>June 30, 2015</u>
35,100,000	Active AAL	39,900,000
69,100,000	Retiree AAL	70,200,000
1,600,000	Inactive AAL	1,600,000
105,800,000	Total AAL	111,700,000
85,200,000	Market Asset Value	85,600,000
(20,600,000)	(Unfunded Liability)	(26,100,000)



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CONTRIBUTION RATES - POLICE SAFETY

	6/30/15 Valuation		
	2017/2018 Contribution Rates		
	<u>Total</u>⁵	<u>Tier 1</u> 3% <u>@50</u>	<u>PEPRA</u> 2.7% <u>@57</u>
■ Required Employer Contribution			
● Risk Pool's Base Employer Normal Cost	18.4%	18.6%	12.0%
● Class 1 Benefits			
<input type="checkbox"/> FAC1	1.1%	1.1%	0.0%
<input type="checkbox"/> PRSA	1.7%	1.7%	1.5%
● Pool's Expected EE Contribution	9.1%	9.0%	11.5%
● Plan's Employee Contribution Rate	(9.1%)	(9.0%)	(12.3%)
● Risk Pool's Payment on Amort Bases	17.1%	17.6%	0.0%
● Amortization of Side Fund	0.0%	0.0%	0.0%
● EE Cost Sharing	<u>(3.0%)</u>	<u>(3.0%)</u>	<u>0.0%</u>
● Total ER Contribution	35.3%	36.0%	12.8%
● Total ER Contribution \$ (in 000's)	\$3,092		

⁵ Weighting of total contribution projection based on estimated projected classic and PEPRA payrolls



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CONTRIBUTION RATES - POLICE SAFETY

■ Valuation	<u>6/30/14</u>	<u>6/30/15</u>
■ Contribution Year	<u>2016/17</u>	<u>2017/18</u>
■ Required Employer Contribution		
● Risk Pool's Net Employer Normal Cost	18.4%	18.4%
● Final Average Compensation (1-Year)	1.1%	1.1%
● Post-Retirement Survivor Allowance	<u>1.7%</u>	<u>1.7%</u>
● Total Normal Cost	21.2%	21.2%
● Risk Pool's Payment on Amortization Bases	<u>14.7%</u>	<u>17.1%</u>
● Total Employer Contribution	36.0%	38.3%
● Employee Cost Sharing ⁶	<u>(3.0%)</u>	<u>(3.0%)</u>
● Net Employer Contributions	33.0%	35.3%
● Net Employer Contribution \$	\$2,709	\$3,092
■ What Happened from 6/30/14 to 6/30/15:		
● 2016/17 Rate		33.0%
● Asset Method Change (3 rd Year)		2.0%
● Assumption Change (2 nd Year)		1.4%
● 6/30/14 (Gains)/Losses (2 nd Year)		(1.5%)
● 6/30/15 (Gains)/Losses (1 st Year)		<u>0.4%</u>
● 2017/18 Rate		35.3%

⁶ 3% for Tier 1 employees.



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CONTRIBUTION PROJECTIONS - POLICE SAFETY

- Market Value Investment Return:
 - June 30, 2016 0.6%⁷
 - June 30, 2017 7.2%⁸
 - Future returns based on stochastic analysis using 1,000 trials

<u>Single Year Returns at</u> ⁹	<u>25th Percentile</u>	<u>50th Percentile</u>	<u>75th Percentile</u>
● 7.0% Investment Mix	0.1%	7.0%	14.8%
● 6.0% 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.

- No Other: Gains/Losses, Method/Assumption Changes, Benefit Improvements
- Excludes Employer Paid Member Contributions (EPMC)
- Includes CalPERS Board adopted assumption changes, first impact 2016/17

⁷ Based on CalPERS press release on 7/18/16, preliminary investment return of 0.61%.

⁸ June 30, 2017 return based on CalPERS return of 3.9% through 12/31/16 and assumed returns for 6 months.

⁹ Nth percentile means N percentage of our trials result in returns lower than the indicated rates.



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CONTRIBUTION PROJECTIONS - POLICE SAFETY

- New hire assumptions:
 - Assumes 60% of 2013 new hires will be Classic Members (3%@50) and 40% will be New Members with PEPRAs benefits.
 - Assumes Classic Members will decrease from 60% to 0% of new hires over 10 years.

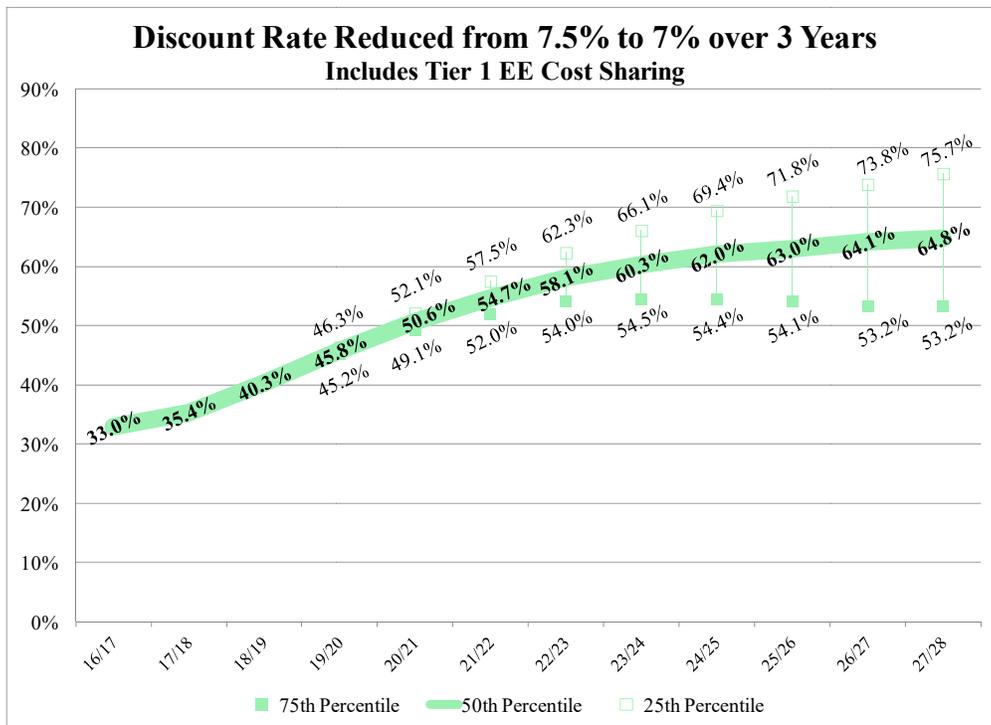


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CONTRIBUTION PROJECTIONS - POLICE SAFETY



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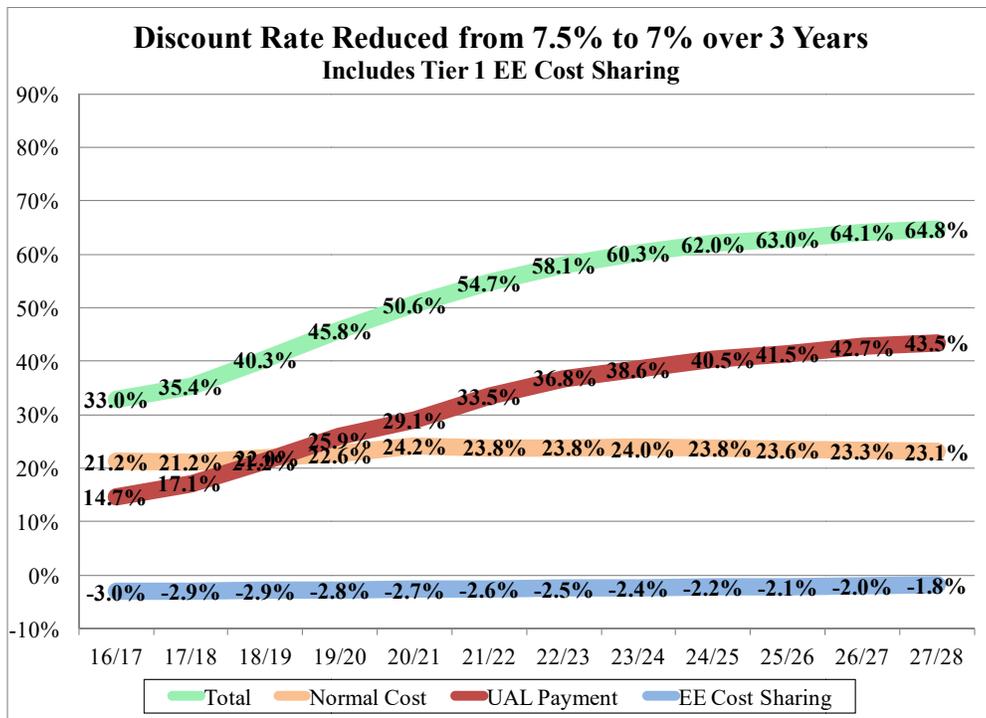
CONTRIBUTION PROJECTIONS - POLICE SAFETY



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CONTRIBUTION PROJECTIONS - POLICE SAFETY

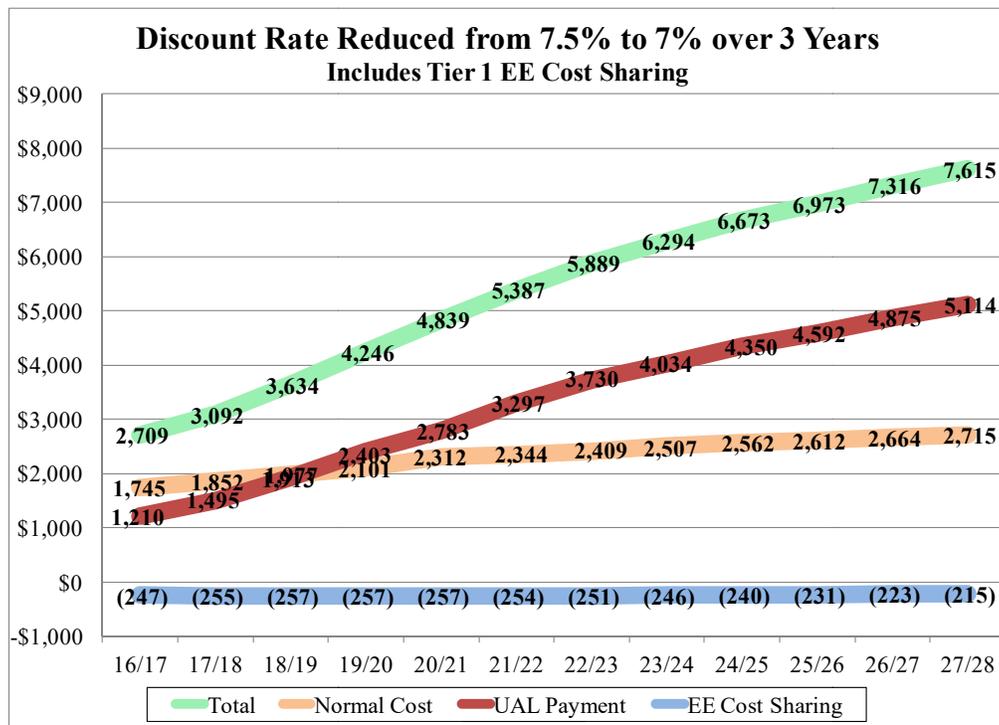


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CONTRIBUTION PROJECTIONS - POLICE SAFETY

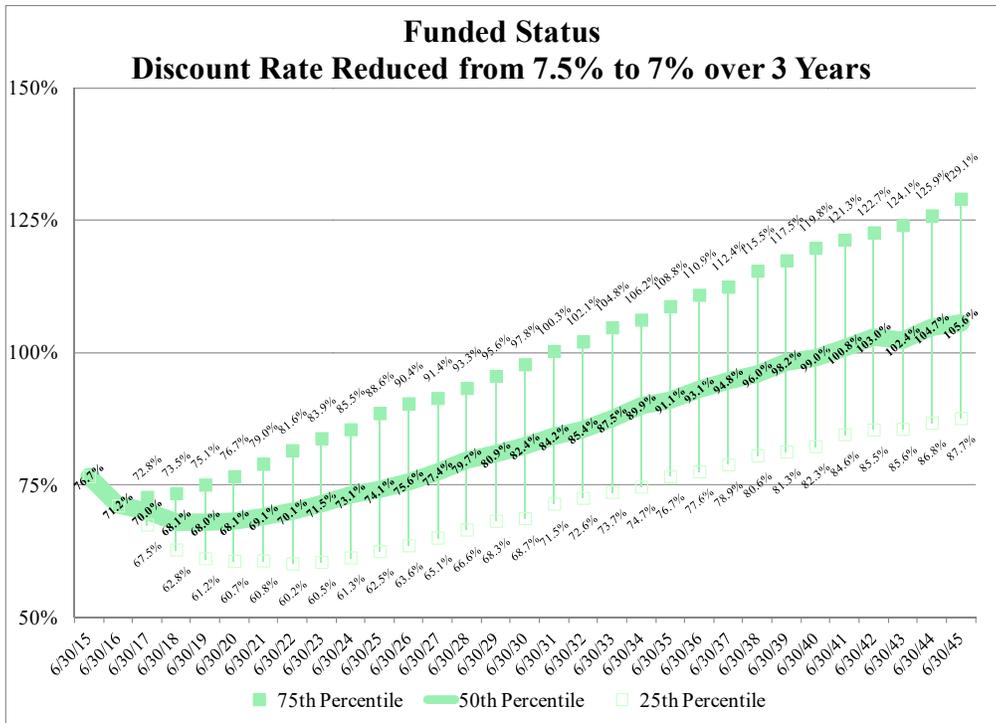


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FUNDED STATUS - POLICE SAFETY



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FUNDED STATUS - POLICE SAFETY

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SUMMARY OF DEMOGRAPHIC INFORMATION – FIRE SAFETY

	2001	2009	2014	2015
Actives				
■ Counts	30	30	30	29
■ Average PERSable Wages	\$82,300	\$141,500	\$152,400	\$159,100
■ Total PERSable Wages (millions)	2.5	4.2	4.6	4.6
Inactive Counts				
■ Transferred	11	7	4	4
■ Separated	1	3	3	5
■ Retired	41	50	50	49



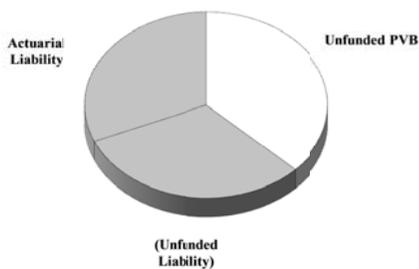
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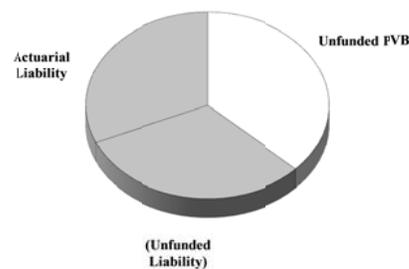


FUNDED RATIO - FIRE SAFETY

Present Value of Benefits
June 30, 2014



Present Value of Benefits
June 30, 2015



<u>June 30, 2014</u>		<u>June 30, 2015</u>	
\$ 25,000,000	Active AAL	\$ 25,200,000	
27,100,000	Retiree AAL	29,500,000	
1,400,000	Inactive AAL	2,000,000	
53,500,000	Total AAL	56,700,000	
44,900,000	Market Asset Value	45,300,000	
(8,600,000)	(Unfunded Liability)	(11,400,000)	



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CONTRIBUTION RATES - FIRE SAFETY

	6/30/15 Valuation		
	2017/2018 Contribution Rates		
	<u>Total</u>¹⁰	<u>Tier 1</u> 3% <u>@55</u>	<u>PEPRA</u> 2.7% <u>@57</u>
■ Required Employer Contribution			
● Risk Pool's Base Employer Normal Cost	16.9%	16.9%	12.25%
● Class 1 Benefits			
<input type="checkbox"/> FAC1	1.0%	1.0%	0.0%
<input type="checkbox"/> PRSA	1.6%	1.6%	0.0%
● Pool's Expected EE Contribution	9.0%	9.0%	12.25%
● Plan's Employee Contribution Rate	(9.0%)	(9.0%)	(12.25%)
● Risk Pool's Payment on Amort Bases	12.8%	12.8%	0.0%
● Amortization of Side Fund	0.0%	0.0%	0.0%
● EE Cost Sharing	<u>(3.0%)</u>	<u>(3.0%)</u>	<u>0.0%</u>
● Total ER Contribution	29.3%	29.3%	12.25%
● Total ER Contribution \$ (in 000's)	\$ 1,475		

¹⁰ Weighting of total contribution projection based on estimated projected classic and PEPRA payrolls



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CONTRIBUTION RATES - FIRE SAFETY

	<u>6/30/14</u>	<u>6/30/15</u>
	<u>2016/17</u>	<u>2017/18</u>
■ Valuation		
■ Contribution Year		
■ Required Employer Contribution		
● Risk Pool's Net Employer Normal Cost	16.7%	16.9%
● Final Average Compensation (1-Year)	1.0%	1.0%
● Post-Retirement Survivor Allowance	<u>1.6%</u>	<u>1.6%</u>
● Total Normal Cost	19.3%	19.5%
● Risk Pool's Payment on Amortization Bases	<u>10.2%</u>	<u>12.8%</u>
● Total Employer Contribution	29.5%	32.3%
● Employee Cost Sharing ¹¹	<u>(3.0%)</u>	<u>(3.0%)</u>
● Net Employer Contributions	26.5%	29.3%
● Net Employer Contribution \$	\$1,325	\$1,475
■ What Happened from 6/30/14 to 6/30/15:		
● 2016/17 Rate	26.5%	
● Asset Method Change (3 rd Year)	1.6%	
● Assumption Change (2 nd Year)	2.2%	
● 6/30/14 (Gains)/Losses (2 nd Year)	(1.3%)	
● 6/30/15 (Gains)/Losses (1 st Year)	<u>0.3%</u>	
● 2017/18 Rate	29.3%	

¹¹ 3% for Tier 1 employees.



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CONTRIBUTION PROJECTIONS - FIRE SAFETY

- Market Value Investment Return:
 - June 30, 2016 0.6%¹²
 - June 30, 2017 7.2%¹³
 - Future returns based on stochastic analysis using 1,000 trials

<u>Single Year Returns at</u> ¹⁴	<u>25th Percentile</u>	<u>50th Percentile</u>	<u>75th Percentile</u>
● 7.0% Investment Mix	0.1%	7.0%	14.8%
● 6.0% 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.
- No Other: Gains/Losses, Method/Assumption Changes, Benefit Improvements
- Excludes Employer Paid Member Contributions (EPMC)
- Includes CalPERS Board adopted assumption changes, first impact 2016/17

¹² Based on CalPERS press release on 7/18/16, preliminary investment return of 0.61%.

¹³ June 30, 2017 return based on CalPERS return of 3.9% through 12/31/16 and assumed returns for 6 months.

¹⁴ Nth percentile means N percentage of our trials result in returns lower than the indicated rates.

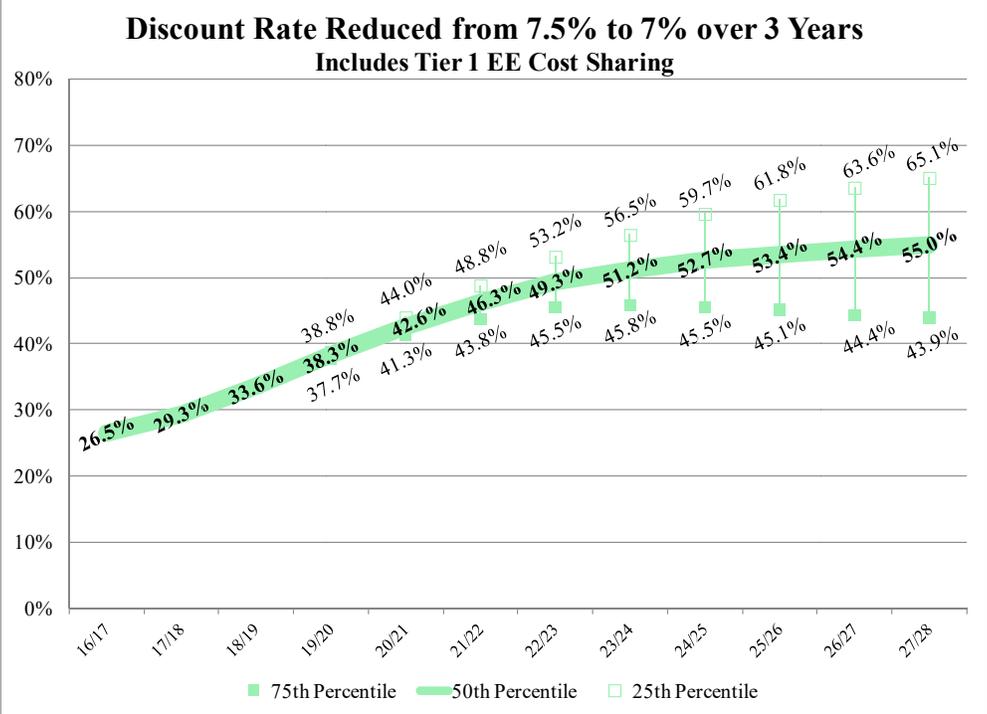


CONTRIBUTION PROJECTIONS - FIRE SAFETY

- New hire assumptions:
 - Assumes 50% of 2013 new hires will be Classic Members (3%@55) and 50% will be New Members with PEPRAs benefits.
 - Assumes Classic Members will decrease from 50% to 0% of new hires over 10 years.



CONTRIBUTION PROJECTIONS - FIRE SAFETY



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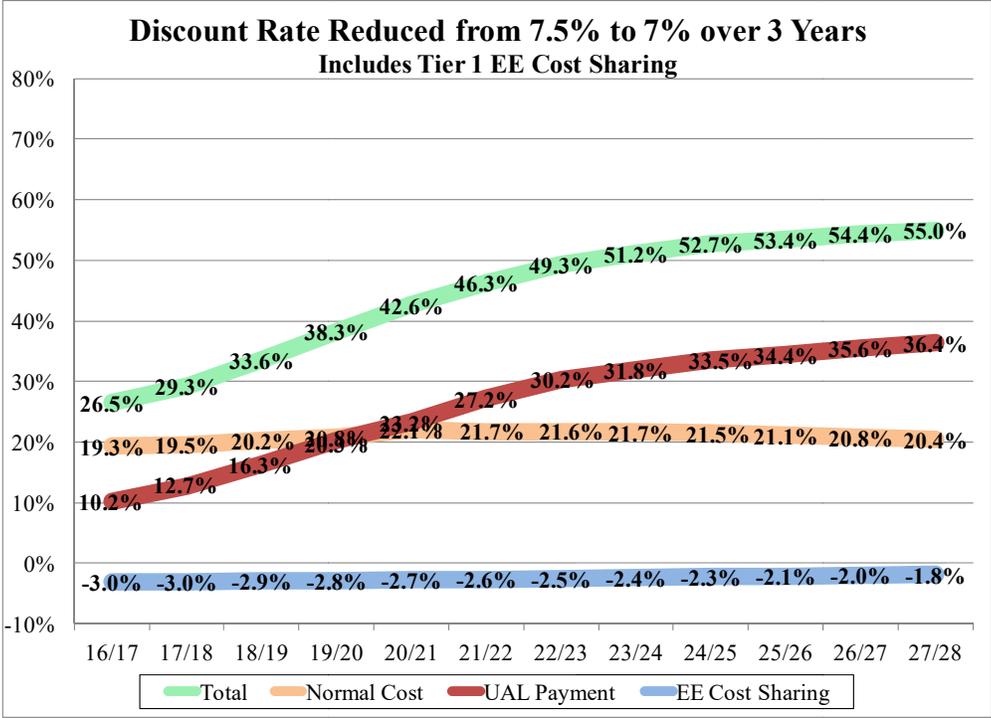
CONTRIBUTION PROJECTIONS - FIRE SAFETY



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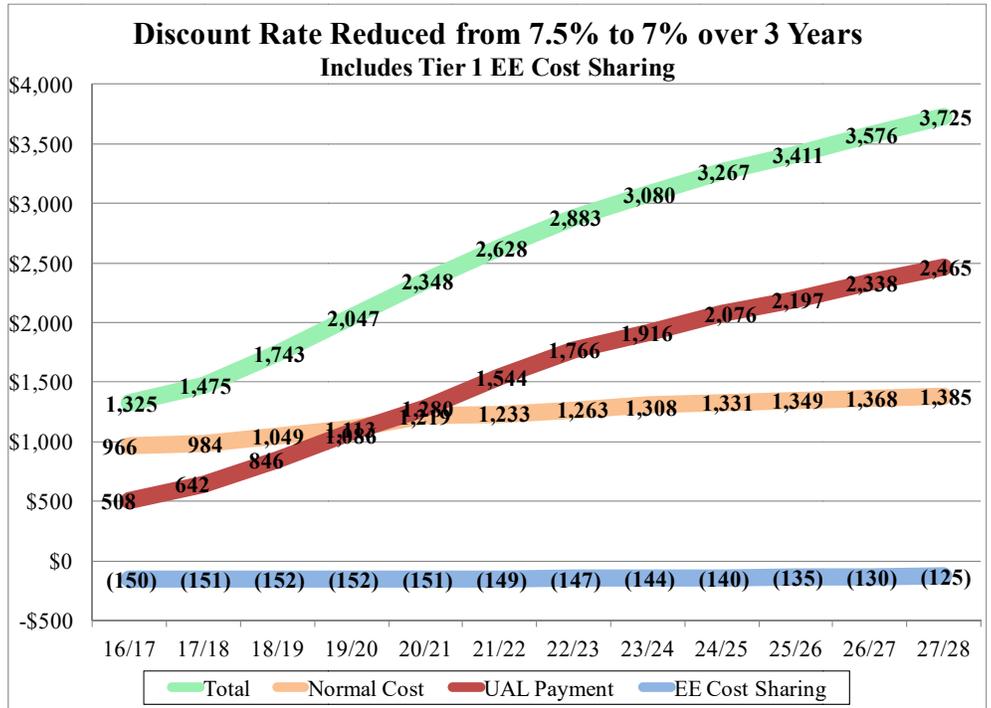
CONTRIBUTION PROJECTIONS - FIRE SAFETY



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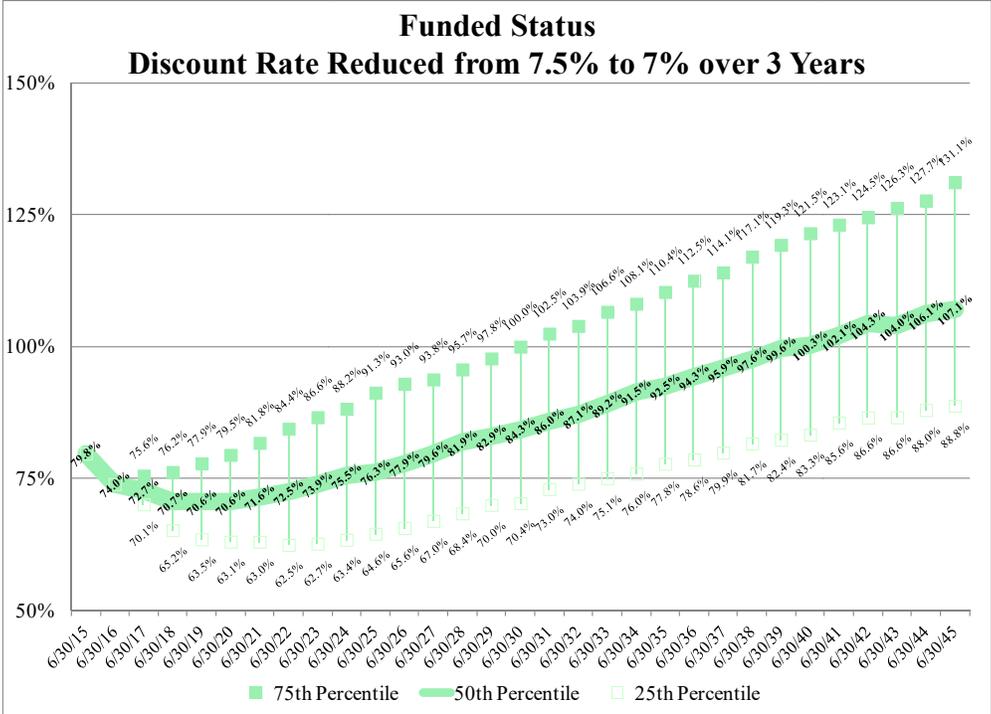
CONTRIBUTION PROJECTIONS - FIRE SAFETY



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FUNDED STATUS - FIRE SAFETY



FUNDED STATUS - FIRE SAFETY

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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 Classic employees pay 50% of total normal cost (limited to 8% Miscellaneous, 12% Safety) if not agreed through collective bargaining by 1/1/18
- Miscellaneous Plan:

	Classic Members	New Members
	Tier 1	PEPRA
	<u>2% @ 55 FAE1</u>	<u>2.5% @ 67 FAE3</u>
● Employer Normal Cost	8.0%	5.79%
● Member Normal Cost	<u>7.0%</u>	<u>6.25%</u>
● Total Normal Cost	15.0%	12.04%
● 50% Target	7.5%	6.02%



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PEPRA COST SHARING

- Police Safety Plan

	Classic Members	New Members
	Tier 1	PEPRA
	<u>3% @ 50 FAE1¹⁵</u>	<u>2.7% @ 57 FAE3</u>
● Employer Normal Cost	18.4%	12.73%
● Member Normal Cost	<u>12.0%</u>	<u>12.25%</u>
● Total Normal Cost	30.4%	24.98%
● 50% Target	15.2%	12.49%

- Fire Safety Plan

	Classic Members	New Members
	Tier 1	PEPRA
	<u>3% @ 55 FAE1¹⁵</u>	<u>2.7% @ 57 FAE3</u>
● Employer Normal Cost	16.5%	12.25%
● Member Normal Cost	<u>12.0%</u>	<u>12.25%</u>
● Total Normal Cost	28.5%	24.50%
● 50% Target	14.25%	12.25%

¹⁵ Includes 3% employee cost sharing.



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PAYING DOWN THE UNFUNDED LIABILITY

- Pension Obligation Bond (POB)
 - Interest arbitrage between expected CalPERS earnings and rate paid on POB
 - Not guaranteed
- Borrow from General Fund
 - Pay GF back like a loan
 - Payments come from all funds
- One time payments
 - City resolution to use portion of one time money
- Internal Service Fund
 - Restricted investments
 - Likely low (0.5% - 1.0%) investment returns
 - Short term/high quality
 - Designed for preservation of principal
 - Assets could be used by Council for other purposes



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PAYING DOWN THE UNFUNDED LIABILITY

	Approximate Years to Attain Funded Percent		
	80%	90%	100%
■ Miscellaneous	12	18	25
■ Police Safety	13	19	25
■ Fire Safety	12	18	24
■ Ad-hoc payments applied to all amortization bases will not shorten amortization period but will reduce contribution			
■ Only ways to shorten period are:			
● Request shorter amortization period of CalPERS			
<input type="checkbox"/> Higher short term payments			
<input type="checkbox"/> Less interest and lower long term payments			
● Make ad-hoc payment that targets specific bases with longer amortization periods			
<input type="checkbox"/> Modestly lower (short & long term) payments			
<input type="checkbox"/> Less interest			



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IRREVOCABLE SUPPLEMENTAL (§115) PENSION TRUST

- > 60 trusts established
- PARS, PFM and Keenan
- Investments significantly less restricted than City investment funds
 - Designed for long term returns
 - Likely much higher (4% - 6%) investment return
- Assets could not be used by the Council for other purposes
- Can only be used to
 - Reimburse City for CalPERS contributions
 - Make payments directly to CalPERS
- GASB will almost certainly weigh in on certain accounting issues
 - Can Supplemental Pension Trust assets be included in Fiduciary Net Position?
 - If assets can be included would inclusion impact discount rate?



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IRREVOCABLE SUPPLEMENTAL (§115) PENSION TRUST

- Parameters:
 - Initial seed money?
 - Additional amount contributed in future years?
 - Target budget rate?
 - Year target budget rate kicks in?
 - Before or after CalPERS rate exceeds budgeted rate?

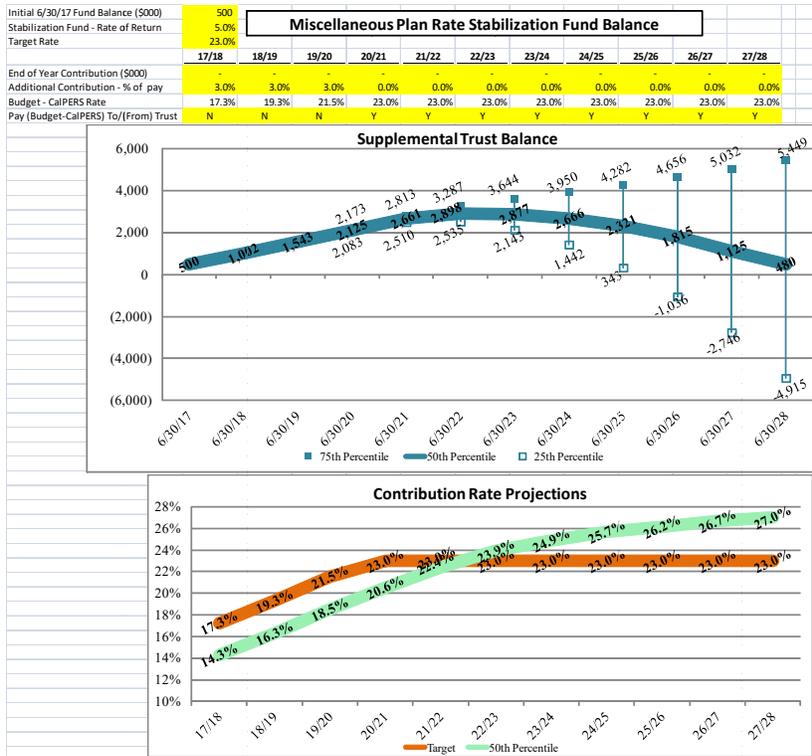


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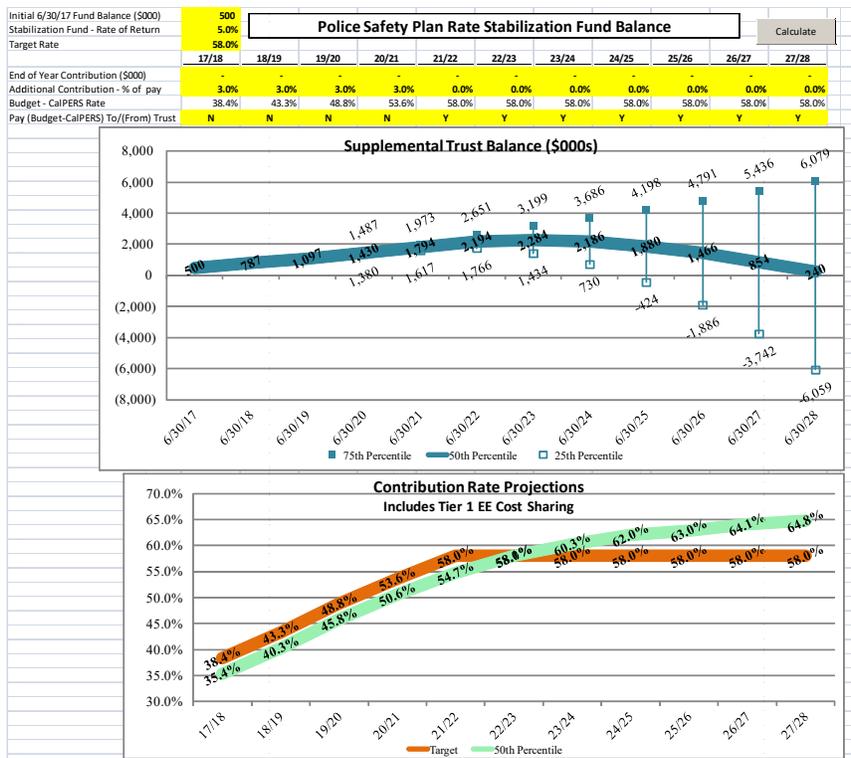
IRREVOCABLE SUPPLEMENTAL (\$115) PENSION TRUST



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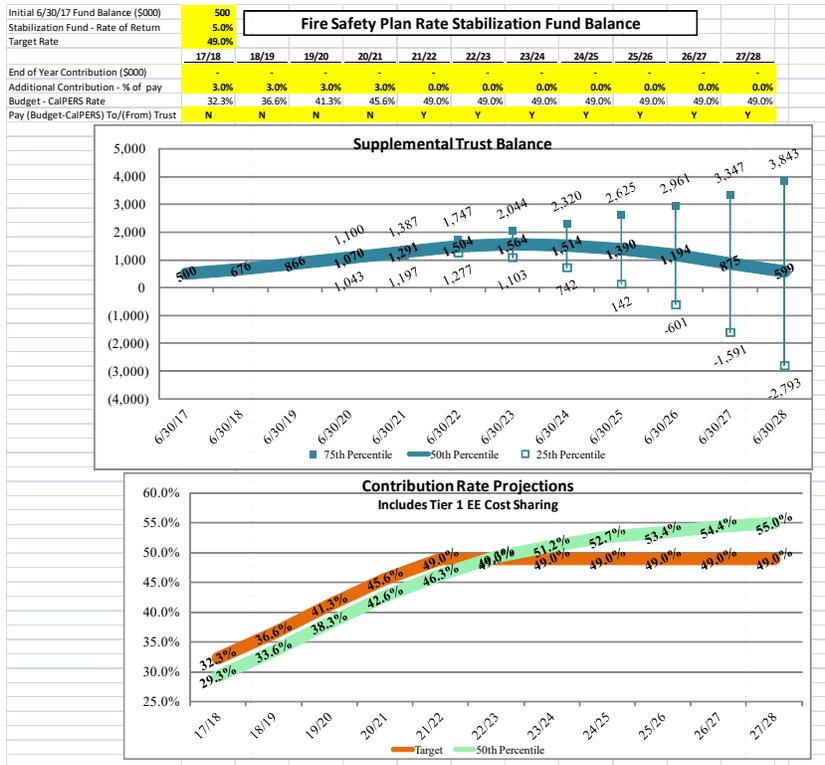
IRREVOCABLE SUPPLEMENTAL (\$115) PENSION TRUST



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IRREVOCABLE SUPPLEMENTAL (§115) PENSION TRUST



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IRREVOCABLE SUPPLEMENTAL (§115) PENSION TRUST

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APPENDICES – CONTRIBUTION PROJECTION TABLE

Miscellaneous (\$000s)

Confidence Level	Normal Cost											
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
75%	1,107	1,227	1,318	1,408	1,567	1,587	1,609	1,659	1,681	1,732	1,808	1,832
50%	1,107	1,227	1,318	1,408	1,567	1,587	1,636	1,713	1,762	1,812	1,861	1,912
25%	1,107	1,227	1,318	1,408	1,567	1,641	1,718	1,767	1,815	1,866	1,941	1,992

Confidence Level	Unfunded Liability Payment											
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
75%	844	1,039	1,347	1,664	1,881	2,180	2,440	2,545	2,635	2,700	2,667	2,783
50%	844	1,039	1,347	1,712	2,002	2,414	2,769	3,010	3,260	3,453	3,671	3,860
25%	844	1,039	1,347	1,754	2,121	2,588	3,046	3,464	3,887	4,231	4,534	4,855

Confidence Level	Total Contributions											
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
75%	1,951	2,266	2,665	3,072	3,447	3,767	4,049	4,204	4,316	4,431	4,475	4,615
50%	1,951	2,266	2,665	3,120	3,568	4,001	4,406	4,723	5,022	5,265	5,532	5,772
25%	1,951	2,266	2,665	3,163	3,688	4,229	4,763	5,230	5,702	6,096	6,474	6,847



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APPENDICES – CONTRIBUTION PROJECTION TABLE

Police Safety (\$000s)

Confidence Level	Normal Cost											
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
75%	1,745	1,852	1,977	2,101	2,312	2,344	2,374	2,435	2,455	2,506	2,593	2,610
50%	1,745	1,852	1,977	2,101	2,312	2,344	2,409	2,507	2,562	2,612	2,664	2,715
25%	1,745	1,852	1,977	2,101	2,312	2,415	2,517	2,578	2,634	2,683	2,770	2,821

Confidence Level	Unfunded Liability Payment											
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
75%	1,210	1,495	1,913	2,346	2,641	3,027	3,356	3,498	3,638	3,715	3,698	3,854
50%	1,210	1,495	1,913	2,403	2,783	3,297	3,730	4,034	4,350	4,592	4,875	5,114
25%	1,210	1,495	1,913	2,453	2,924	3,496	4,049	4,567	5,074	5,506	5,877	6,284

Confidence Level	Employee Cost Sharing											
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
All	247	255	257	257	257	254	251	246	240	231	223	215

Confidence Level	Total Contributions											
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
75%	2,709	3,092	3,634	4,190	4,696	5,117	5,479	5,687	5,853	5,990	6,068	6,249
50%	2,709	3,092	3,634	4,246	4,839	5,387	5,889	6,294	6,673	6,973	7,316	7,615
25%	2,709	3,092	3,634	4,296	4,979	5,656	6,315	6,898	7,468	7,959	8,424	8,890



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APPENDICES – CONTRIBUTION PROJECTION TABLE

Fire Safety (\$000s)

Confidence Level	Normal Cost											
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
75%	966	984	1,049	1,113	1,219	1,233	1,246	1,274	1,281	1,301	1,337	1,341
50%	966	984	1,049	1,113	1,219	1,233	1,263	1,308	1,331	1,349	1,368	1,385
25%	966	984	1,049	1,113	1,219	1,268	1,315	1,342	1,364	1,381	1,414	1,430

Confidence Level	Unfunded Liability Payment											
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
75%	508	642	846	1,056	1,204	1,399	1,558	1,624	1,683	1,713	1,712	1,762
50%	508	642	846	1,086	1,280	1,544	1,766	1,916	2,076	2,197	2,338	2,465
25%	508	642	846	1,113	1,355	1,652	1,938	2,201	2,475	2,697	2,899	3,104

Confidence Level	Employee Cost Sharing											
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
All	150	151	152	152	151	149	147	144	140	135	130	125

Confidence Level	Total Contributions											
	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28
75%	1,325	1,475	1,743	2,017	2,272	2,482	2,657	2,754	2,824	2,880	2,919	2,977
50%	1,325	1,475	1,743	2,047	2,348	2,628	2,883	3,080	3,267	3,411	3,576	3,725
25%	1,325	1,475	1,743	2,074	2,423	2,771	3,107	3,399	3,698	3,944	4,183	4,409

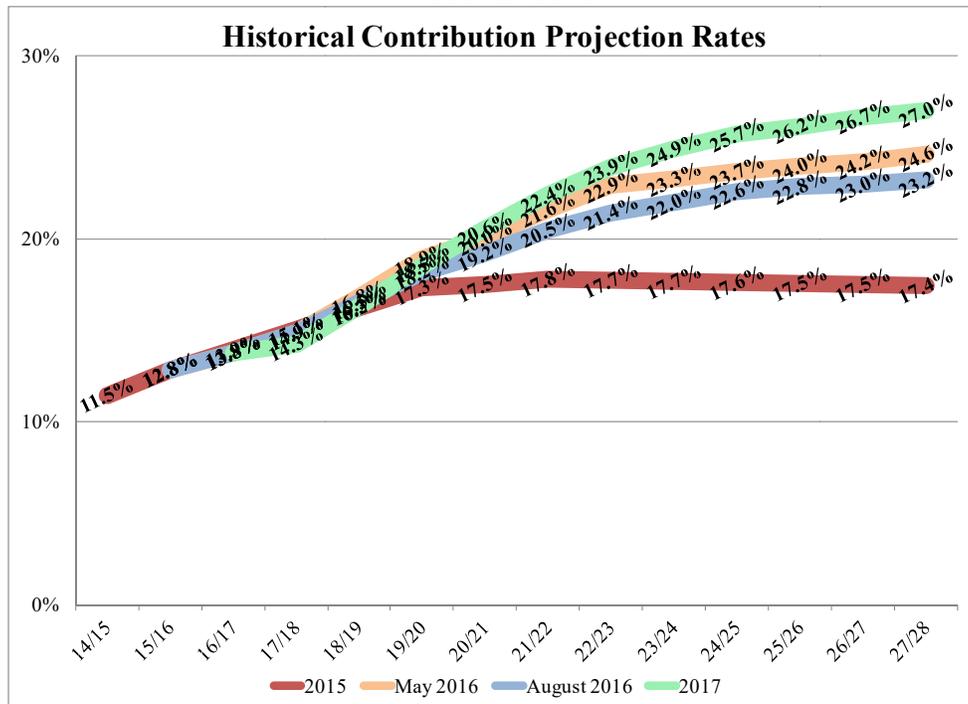


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APPENDICES – CONTRIBUTION PROJECTION TABLE

Miscellaneous

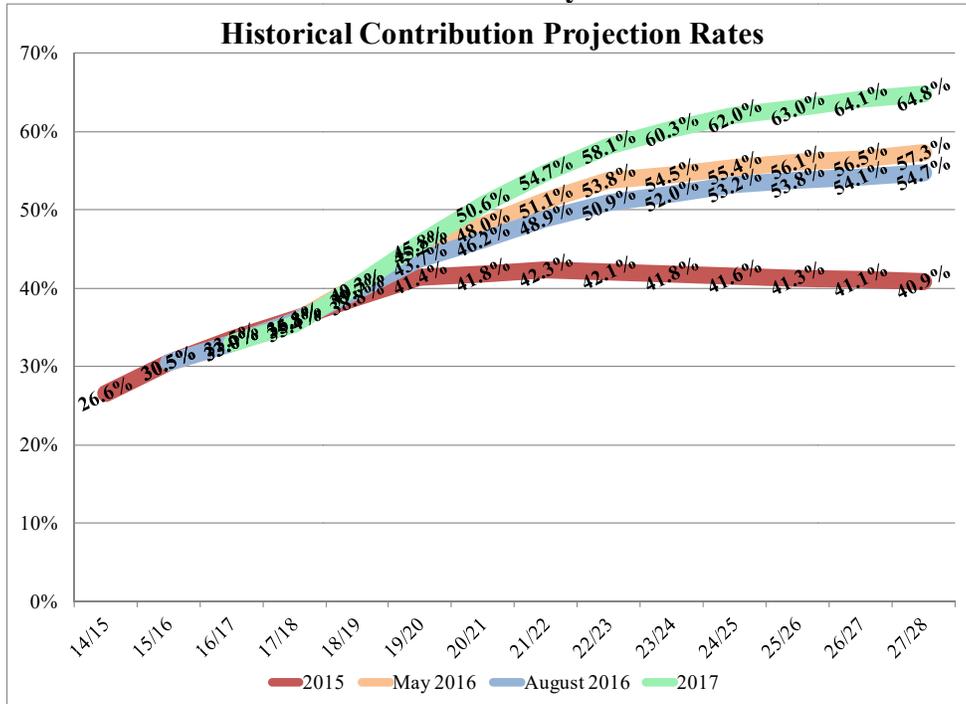


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APPENDICES – CONTRIBUTION PROJECTION TABLE

Police Safety

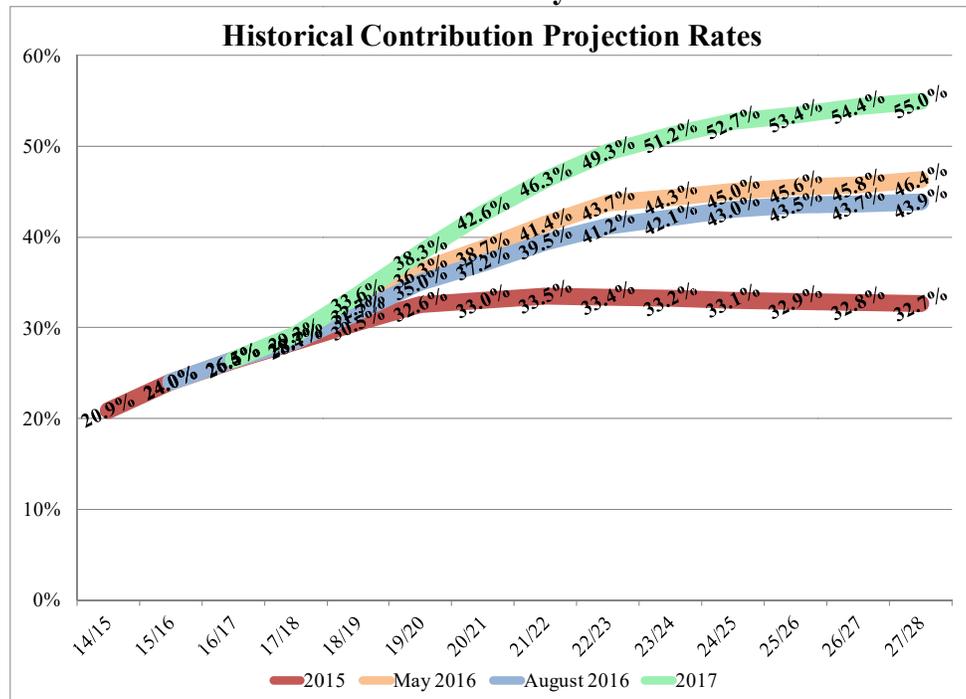


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APPENDICES – CONTRIBUTION PROJECTION TABLE

Fire Safety



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APPENDICES – CONTRIBUTION PROJECTION TABLE

**Projected Unfunded Liability at 50% Confidence Level
in Millions \$**

Study Date	Miscellaneous Plan											
	6/30/14	6/30/15	6/30/16	6/30/17	6/30/18	6/30/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25
May 2016	14	18	26	28	29	31	31	32	32	32	32	31
August 2016	14	18	23	25	26	28	28	29	29	28	28	29
2017	14	18	24	27	32	35	36	37	39	39	38	39

Study Date	Police Safety Plan											
	6/30/14	6/30/15	6/30/16	6/30/17	6/30/18	6/30/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25
May 2016	21	26	36	38	40	42	43	45	45	45	45	45
August 2016	21	26	33	35	37	39	40	41	41	40	41	41
2017	21	26	34	38	44	48	50	52	53	53	53	54

Study Date	Fire Safety Plan											
	6/30/14	6/30/15	6/30/16	6/30/17	6/30/18	6/30/19	6/30/20	6/30/21	6/30/22	6/30/23	6/30/24	6/30/25
May 2016	9	11	17	18	19	20	21	22	22	22	22	22
August 2016	9	11	15	16	17	18	19	19	19	19	19	19
2017	9	11	16	18	21	23	24	25	25	26	26	26



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