



**CITY OF MILPITAS**  
**MISCELLANEOUS AND SAFETY PLANS**

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**CalPERS Actuarial Analysis – 6/30/18 Valuation**

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**B**ARTEL  
ASSOCIATES, LLC

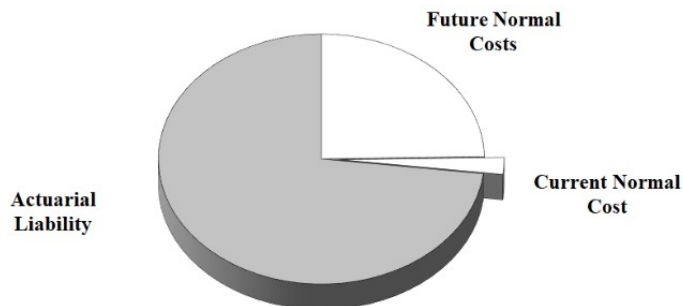
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# DEFINITIONS

Present Value of Benefits  
June 30, 2018



## ■ PVB - Present Value of all Projected Benefits:

- The value now of amounts due to be paid in the future
- Discounted value (at valuation date - 6/30/18), of all future expected benefit payments based on various (actuarial) assumptions

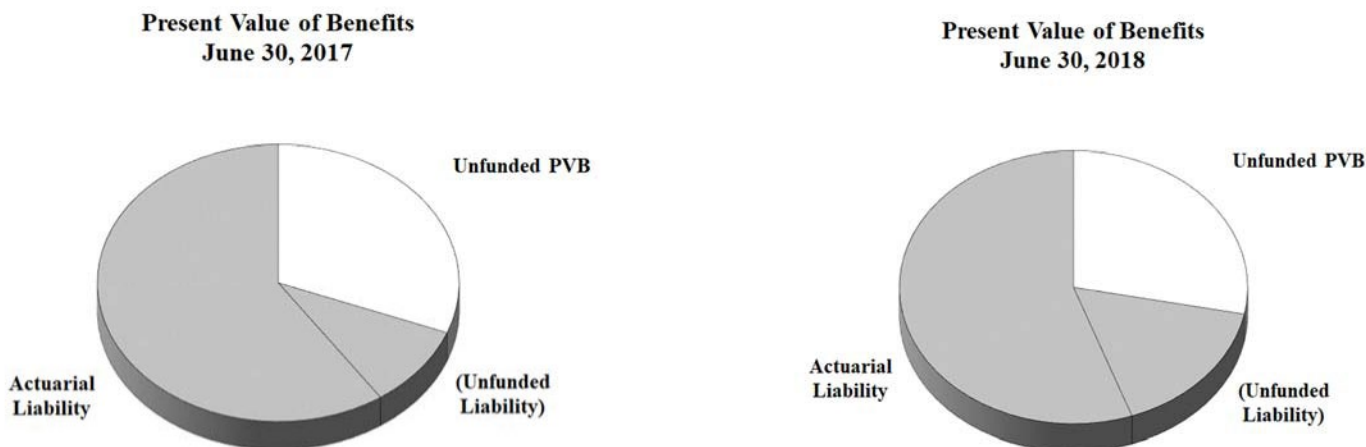
## ■ Current Normal Cost (NC):

- Portion of PVB allocated to (or “earned” during) current year
- Value of employee and employer current service benefit

## ■ Actuarial Liability (AAL):

- 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 (UAAL or UAL) - 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].

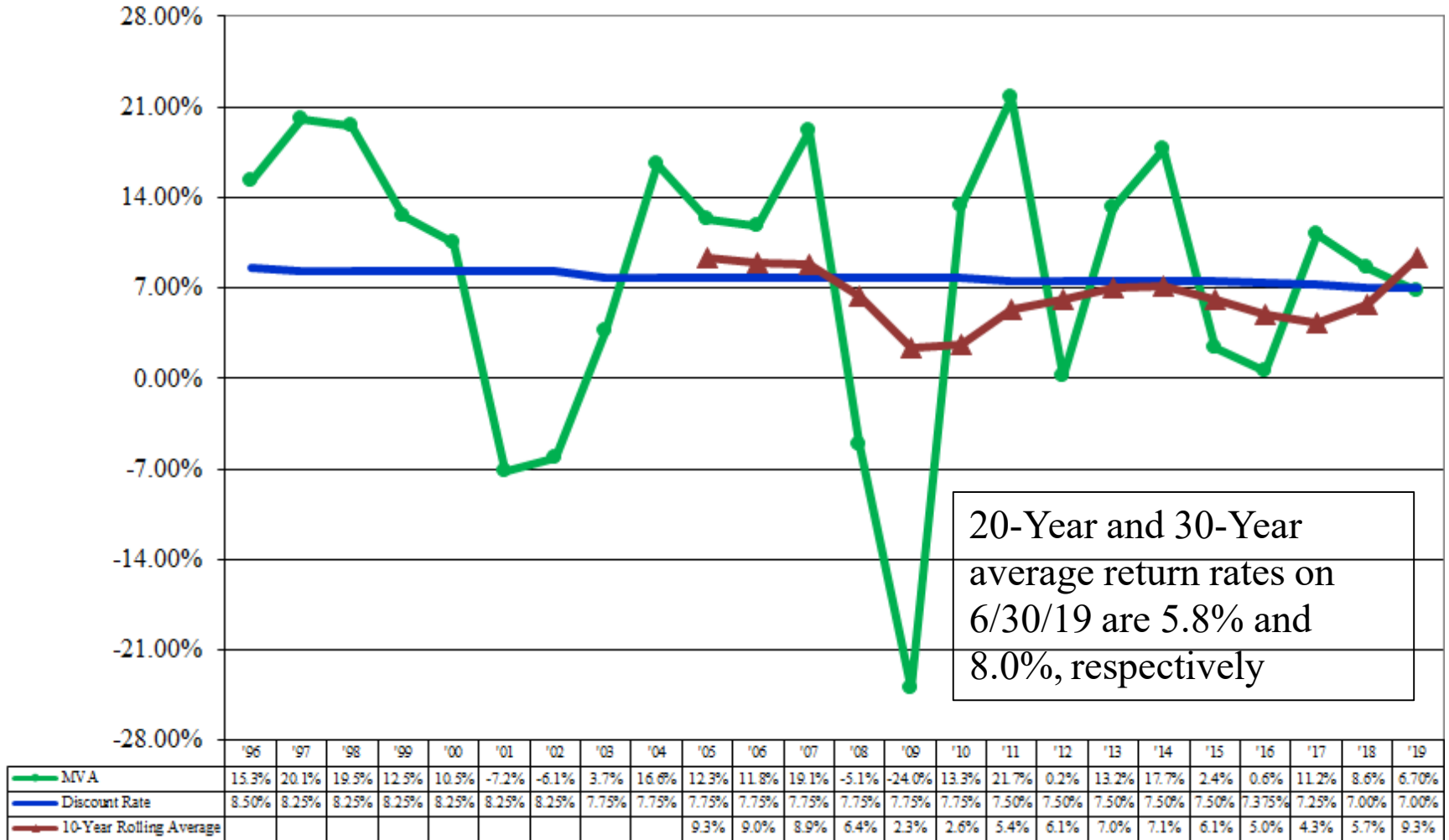
## HOW WE GOT HERE

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



# HOW WE GOT HERE – INVESTMENT RETURN

## Annual Return on Market Value of Assets



Returns (after 2001) shown are gross returns, unreduced for administrative expenses. The discount rate is based on expected returns net of administrative expenses.



## 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



## HOW WE GOT HERE – ENHANCED BENEFITS

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

	<b>Tier 1</b>	<b>Tier 2<sup>1</sup></b>	<b>PEPRA</b>
● Miscellaneous	2.7%@55 FAE1	2%@60 FAE3	2%@62 FAE3
● Safety <sup>2</sup>	3%@50 FAE1	3%@55 FAE1	2.7%@57 FAE3

- Note:
  - FAE1 is highest one year (typically final) average earnings
  - FAE3 is highest three years (typically final three) average earnings
- PEPRA tier implemented for new employees hired after 1/1/13
  - Employee pays half of total normal cost
  - 2019 Compensation limit
    - Social Security participants: \$124,180
    - Non-Social Security participants: \$149,016

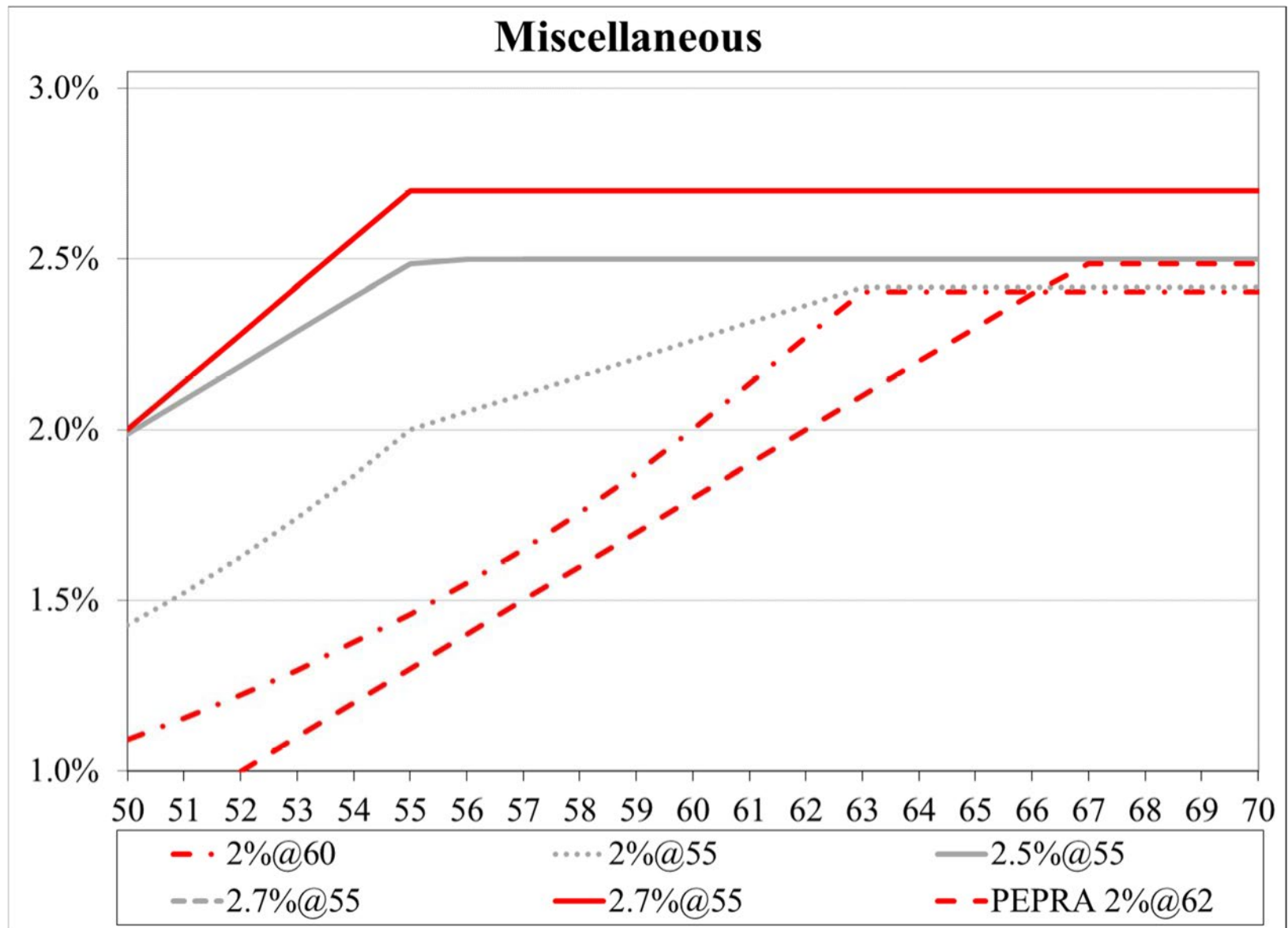
<sup>1</sup> Hired after October 9, 2011 for Miscellaneous and after April 8, 2012 for Safety

<sup>2</sup> Fire and Police members are combined in this group

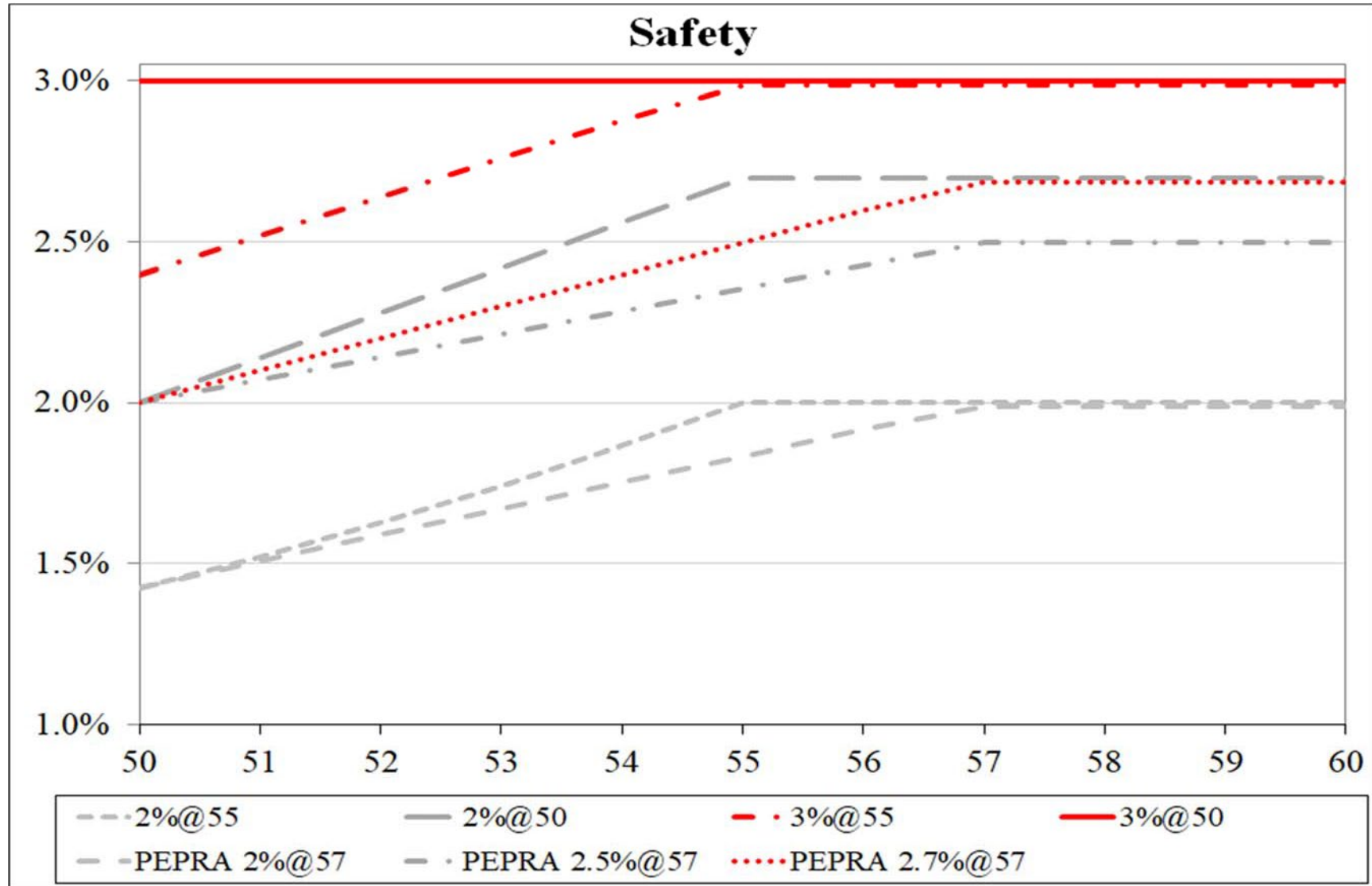




# HOW WE GOT HERE – ENHANCED BENEFITS



# HOW WE GOT HERE – ENHANCED BENEFITS



## HOW WE GOT HERE – DEMOGRAPHIC

- Around the State
  - Large retiree liability compared to actives
    - State average: 59% for Miscellaneous, 62% for Safety
  - Declining active population and increasing number of retirees
  - Higher percentage of retiree liability increases contribution volatility
  
- City of Milpitas percentage of liability belonging to retirees:
  - Miscellaneous                      61%
  - Safety                                      70%



## CALPERS CHANGES

- Recent contribution policy changes:
  - No asset smoothing
  - No rolling amortization
  - 5-year ramp up
- 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
- CalPERS Board changed the discount rate:

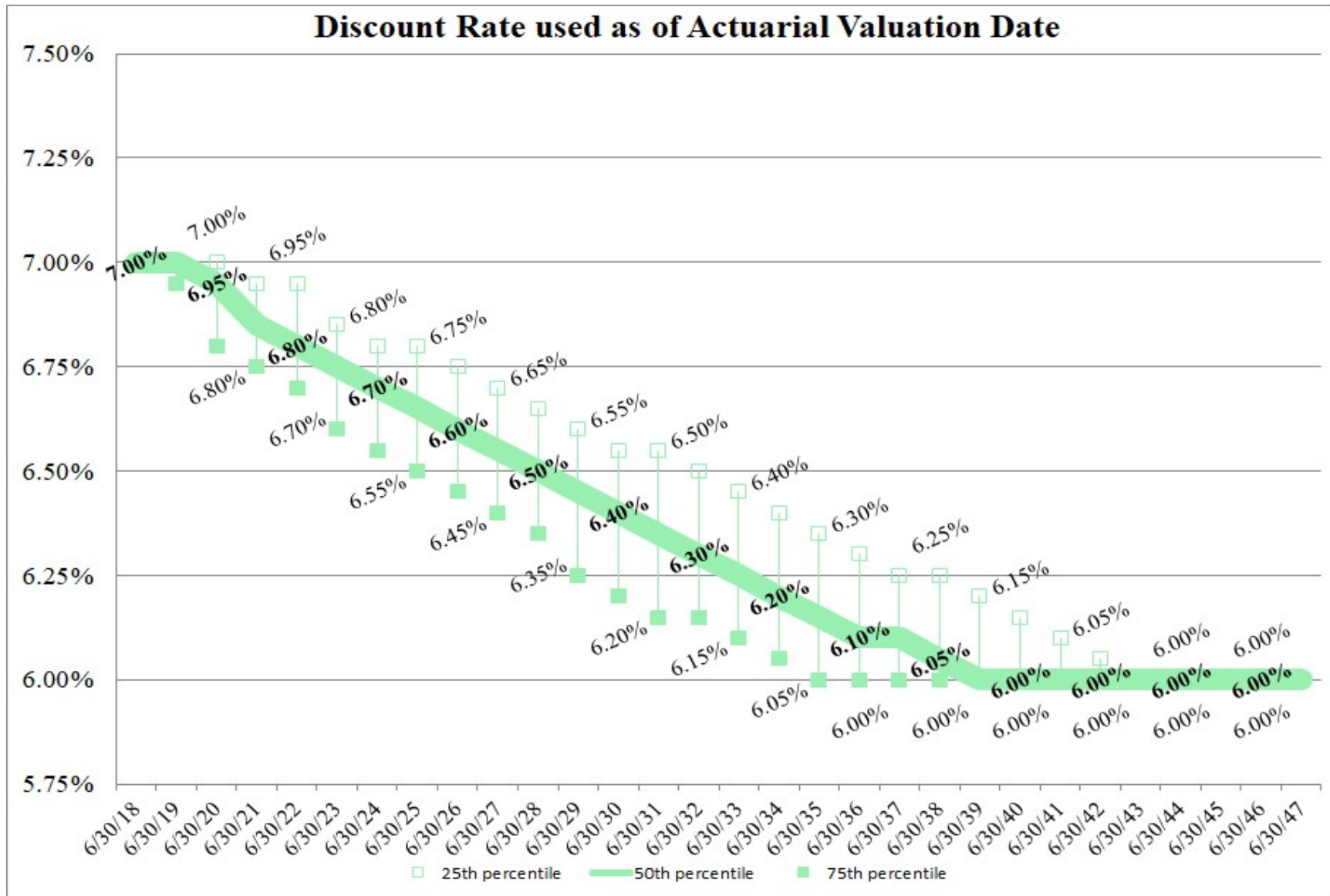
	<u>Rate</u>	<u>Initial Impact</u>	<u>Full Impact</u>
● 6/30/16 valuation	7.375%	18/19	22/23
● 6/30/17 valuation	7.25%	19/20	23/24
● 6/30/18 valuation	7.00%	20/21	24/25

## 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  $\approx 50\%$  of investment gains to pay for cost increases
  - Likely get to 6.0% discount rate over 20+ years
  - Risk mitigation suspended from 6/30/16 to 6/30/18 valuation
  - Did not trigger for 6/30/19 valuation



# CALPERS CHANGES

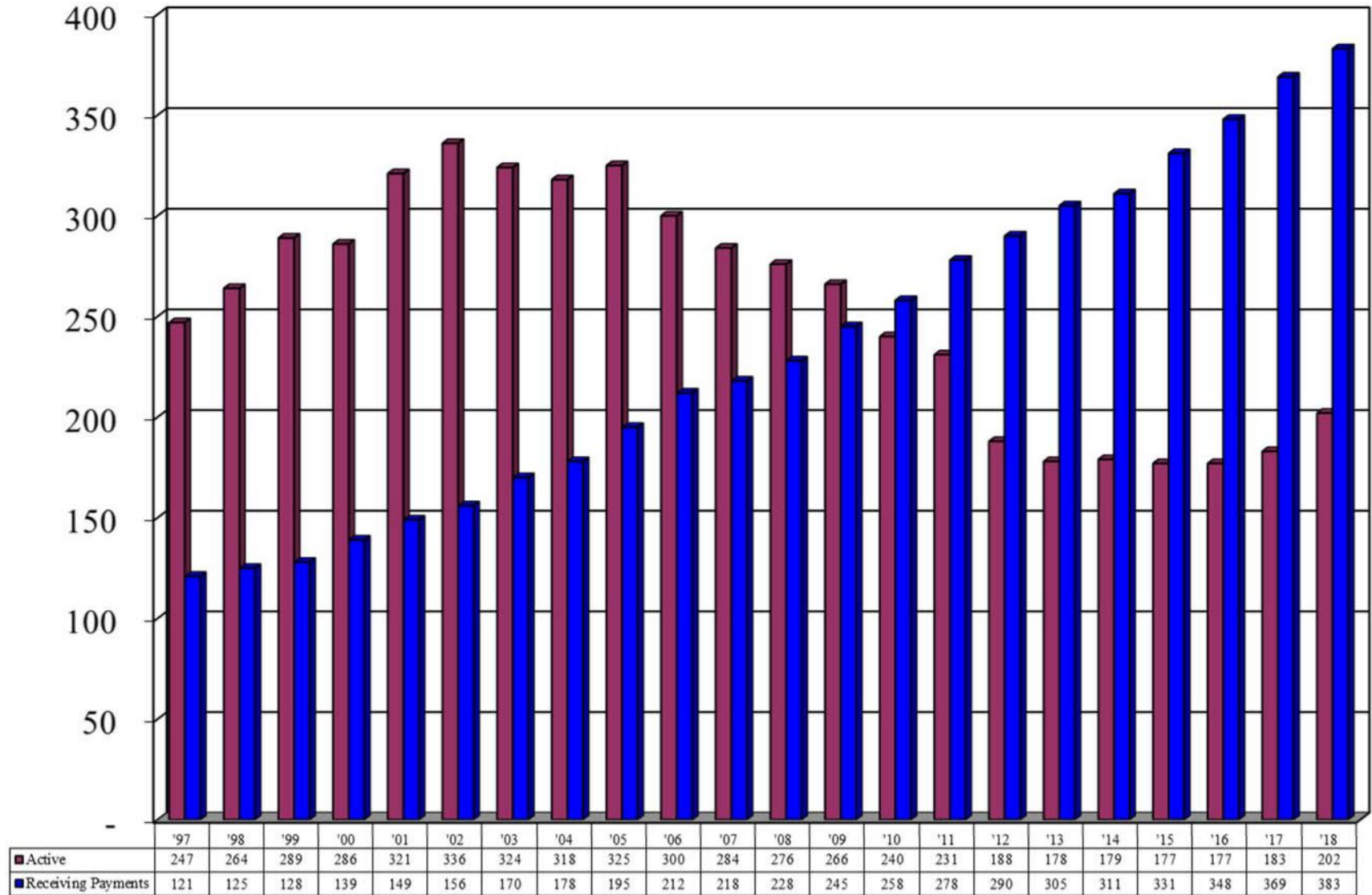


## SUMMARY OF DEMOGRAPHIC INFORMATION - MISCELLANEOUS

	1998	2008	2017	2018
<b>Actives</b>				
■ Counts	264	276	183	202
■ Average				
• Age	42	45	46	45
• City Service	8	11	12	11
• PERSable Wages	\$ 55,200	\$ 81,400	\$ 92,700	\$ 96,100
■ Total PERSable Wages	14,600,000	22,500,000	17,000,000	19,400,000
<b>Inactive Members</b>				
■ Counts				
• Transferred	82	158	182	185
• Separated	66	113	133	135
• Retired				
□ Service	105	194	322	331
□ Disability	10	16	23	24
□ Beneficiaries	10	18	24	28
□ Total	125	228	369	383
■ Average Annual City Provided Benefit for Service Retirees <sup>3</sup>	9,200	20,300	30,500	31,200

<sup>3</sup> Average City-provided pensions are based on City service & City benefit formula, and are not representative of benefits for long-service employees.

# SUMMARY OF DEMOGRAPHIC INFORMATION - MISCELLANEOUS





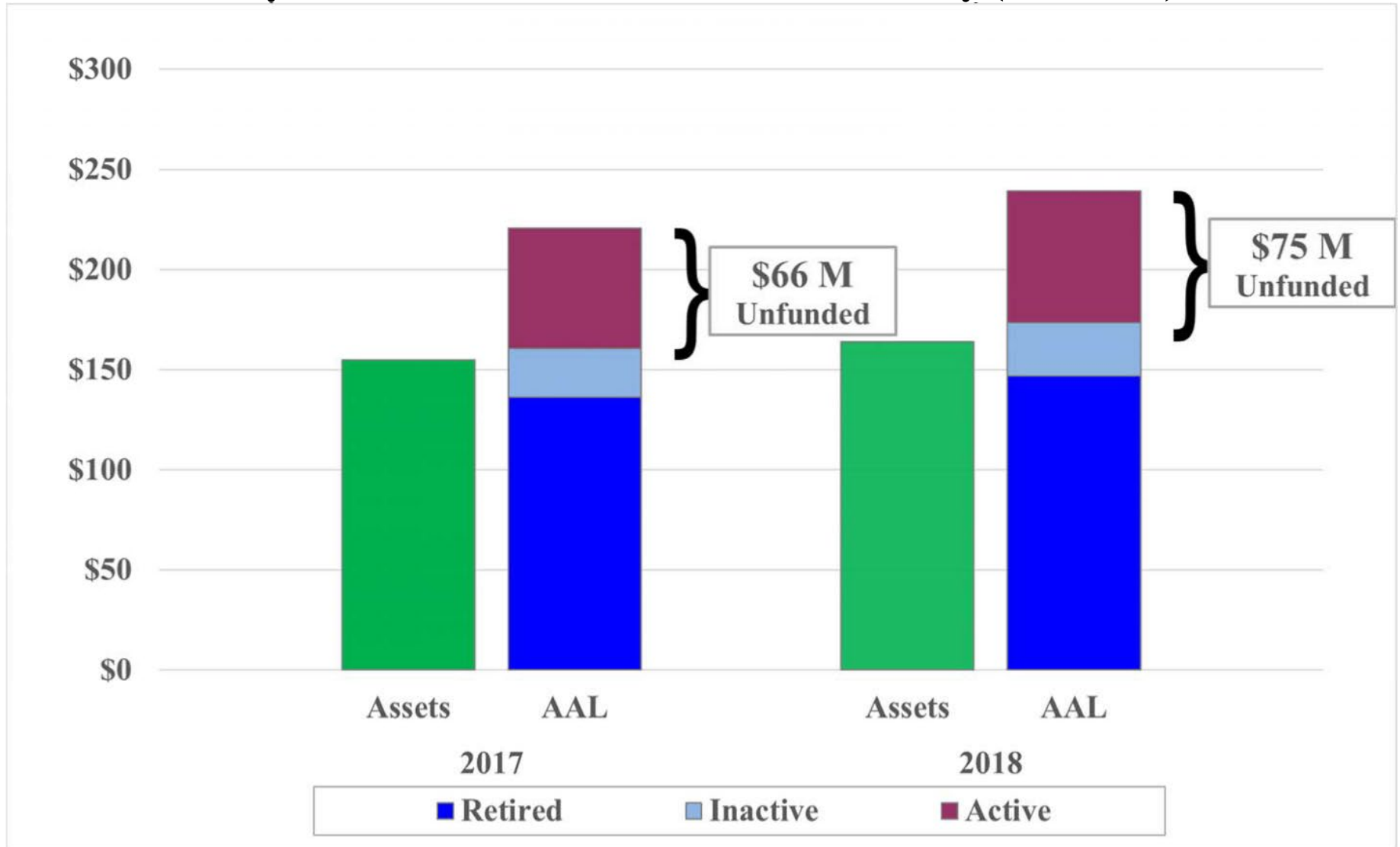
## PLAN FUNDED STATUS - MISCELLANEOUS

	<u>June 30, 2017</u>	<u>June 30, 2018</u>
■ <b>Actuarial Accrued Liability</b>		
● Active	\$ 60,300,000	\$ 66,000,000
● Retiree	136,200,000	147,000,000
● Inactive	<u>24,200,000</u>	<u>26,400,000</u>
● Total	220,700,000	239,400,000
■ <b>Assets</b>	<u>154,800,000</u>	<u>164,100,000</u>
■ <b>Unfunded Liability</b>	65,900,000	75,300,000
■ <b>Funded Ratio</b>	70.1%	68.5%



# PLAN FUNDED STATUS - MISCELLANEOUS

## City CalPERS Assets and Actuarial Liability (\$Millions)



# PLAN FUNDED STATUS - MISCELLANEOUS

## Discount Rate Sensitivity

June 30, 2018

	<u>Discount Rate</u>		
	<u>7.00%</u>	<u>6.50%</u>	<u>6.00%</u>
<b>AAL</b>	\$ 239,400,000	\$ 255,300,000	\$ 271,100,000
<b>Assets</b>	164,100,000	164,100,000	164,100,000
<b>Unfunded Liability</b>	75,300,000	91,200,000	107,000,000
<b>Funded Ratio</b>	68.5%	64.3%	60.5%



## PLAN FUNDED STATUS - MISCELLANEOUS

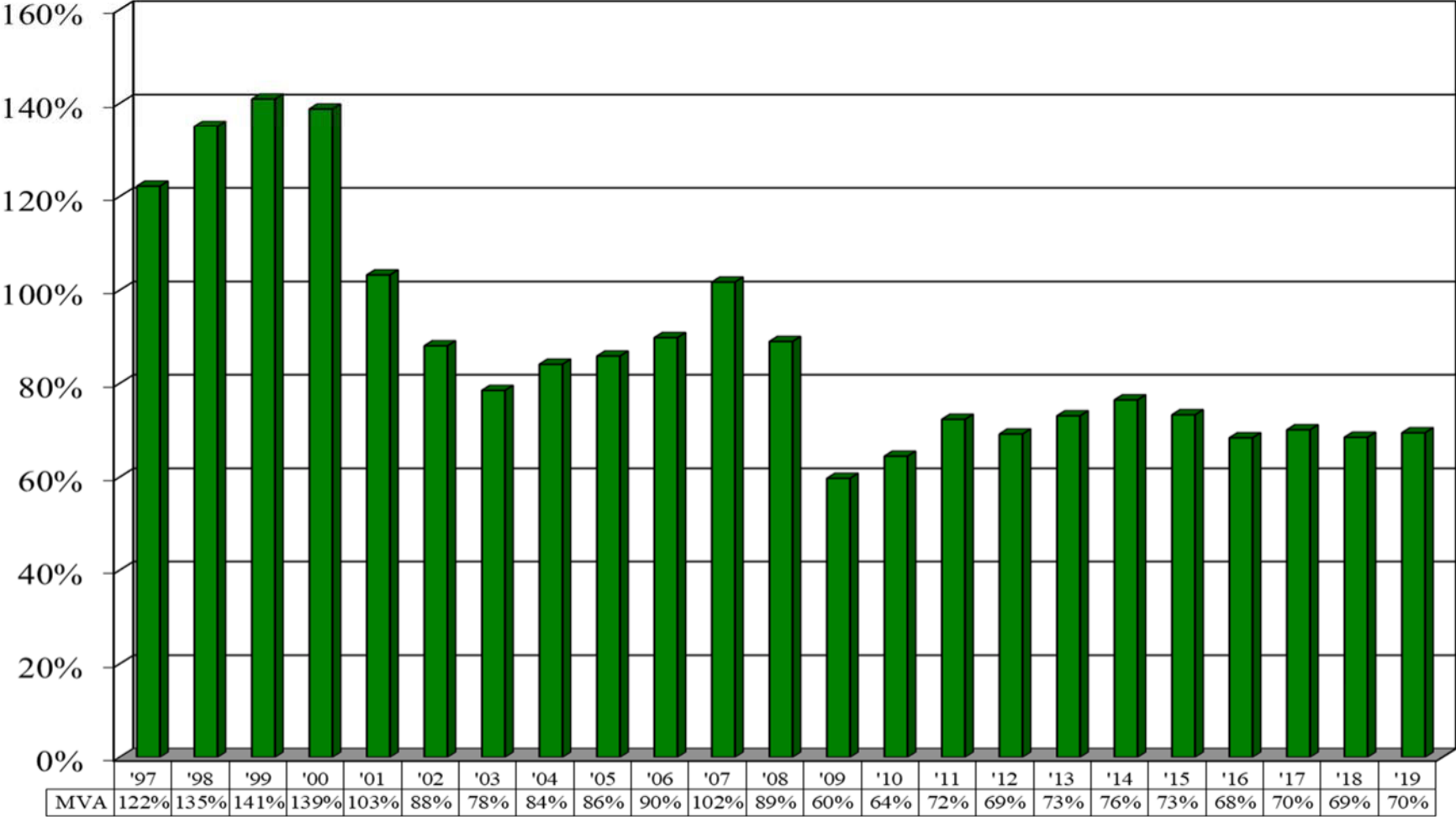
### Unfunded Accrued Liability Changes

■ Unfunded Accrued Liability on 6/30/17		\$ 65,900,000
■ Expected 6/30/18 Unfunded Accrued Liability		66,600,000
■ Other Changes		
• Asset Loss (Gain) (8.6% return for FY 2018)	(1,800,000)	
• Assumption Change (DR 7.25% → 7%)	6,400,000	
• Method Change (Software system)	1,600,000	
• Contribution & Experience Loss (Gain)	2,500,000	
• Total		<u>8,700,000</u>
■ Unfunded Accrued Liability on 6/30/18		75,300,000
■ Projected Unfunded Accrued Liability on 6/30/19		75,600,000



# FUNDED RATIO - MISCELLANEOUS

## Historical Funded Ratio

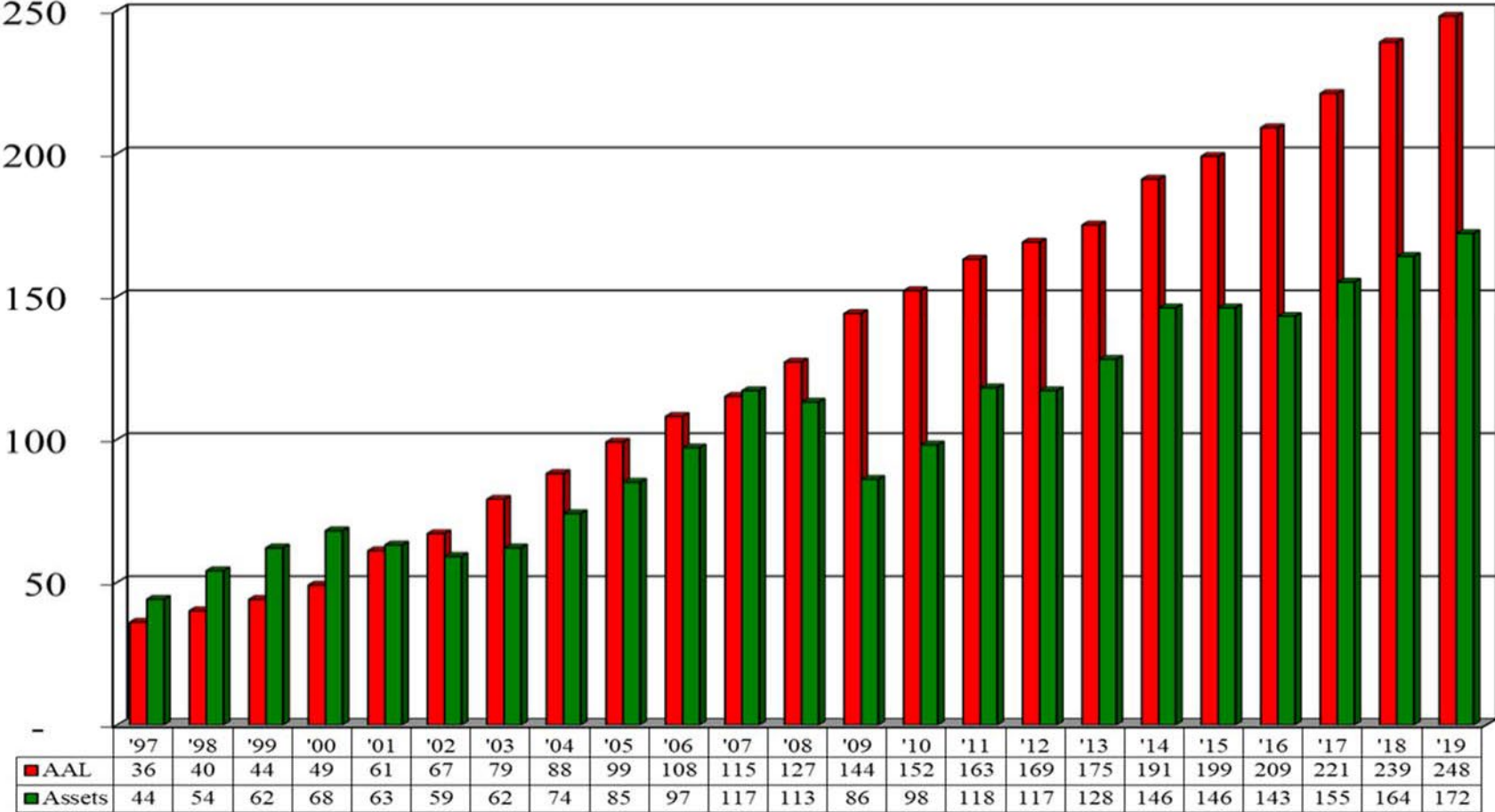


6/30/19 funded status estimated



# FUNDED STATUS (MILLIONS) - MISCELLANEOUS

**Historical AAL vs. MVA**

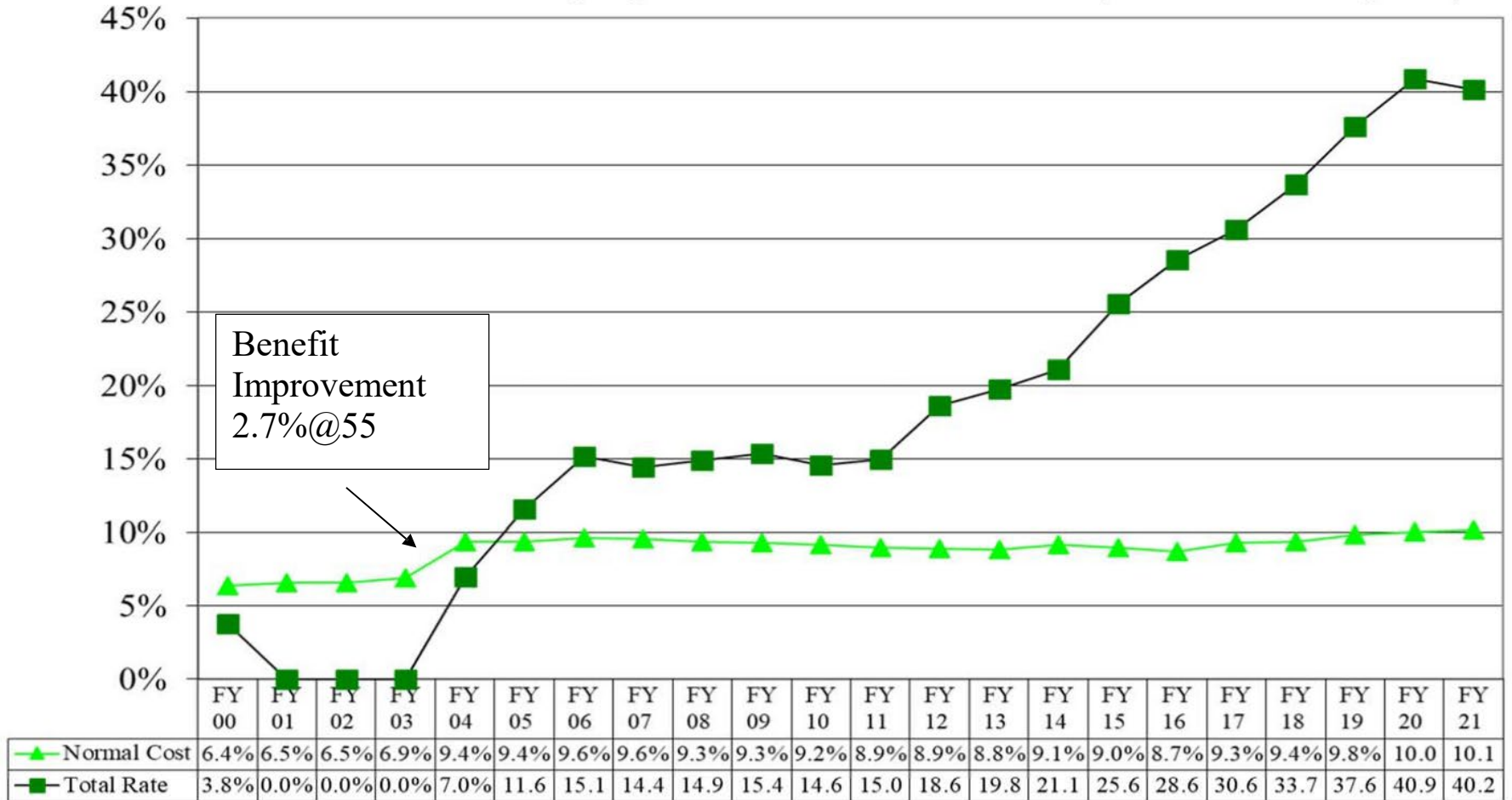


6/30/19 funded status estimated



# CONTRIBUTION RATES - MISCELLANEOUS

## Historical Employer Contribution Rates (Percent of Payroll)



## CONTRIBUTION RATES - MISCELLANEOUS

	<b>6/30/17</b>	<b>6/30/18</b>
	<b><u>2019/2020</u></b>	<b><u>2020/2021</u></b>
■ Total Normal Cost	17.3%	17.4%
■ Employee Normal Cost	<u>7.3%</u>	<u>7.3%</u>
■ Employer Normal Cost	10.0%	10.1%
■ Amortization Payments	<u>30.9%</u>	<u>30.1%</u> <sup>4</sup>
■ Total Employer Contribution Rate	40.9%	40.2%
■ 2019/20 Employer Contribution Rate		40.9%
● Payroll > Expected		-3.4%
● 6/30/14 Assumption Change (5 <sup>th</sup> Year)		1.2%
● 6/30/16 Discount Rate Change (3 <sup>rd</sup> Year)		0.4%
● 6/30/17 Discount Rate & Inflation (2 <sup>nd</sup> Year)		0.4%
● 6/30/18 Discount Rate change (1 <sup>st</sup> Year)		1.4%
● Other (Gains)/Losses		<u>-0.7%</u>
■ 2020/21 Employer Contribution Rate		40.2%

<sup>4</sup> Equivalent to 8.4% of UAL. One year, 7% interest on the UAL is 25.1% of payroll.





## CONTRIBUTION PROJECTIONS - MISCELLANEOUS

■ Market Value Investment Return:

● June 30, 2019 6.7%<sup>5</sup>

● Future returns based on stochastic analysis using 1,000 trials

<u>Single Year Returns at<sup>6</sup></u>	<u>25<sup>th</sup> Percentile</u>	<u>50<sup>th</sup> Percentile</u>	<u>75<sup>th</sup> Percentile</u>
Current Investment Mix	<b>0.1%</b>	<b>7.0%</b>	<b>14.8%</b>
Ultimate Investment Mix	<b>0.8%</b>	<b>6.0%</b>	<b>11.4%</b>

● Assumes investment returns will, generally be 6.5% (as compared to 7.0%) over the next 9 years and higher beyond that.

■ Discount Rate decreases due to Risk Mitigation policy

■ No Other: Gains/Losses, Method/Assumption Changes, Benefit Improvements

■ Different from CalPERS projection

<sup>5</sup> Gross return based on July 2019 CalPERS press release

<sup>6</sup> N<sup>th</sup> percentile means N percentage of our trials result in returns lower than the indicated rates.

## CONTRIBUTION PROJECTIONS - MISCELLANEOUS

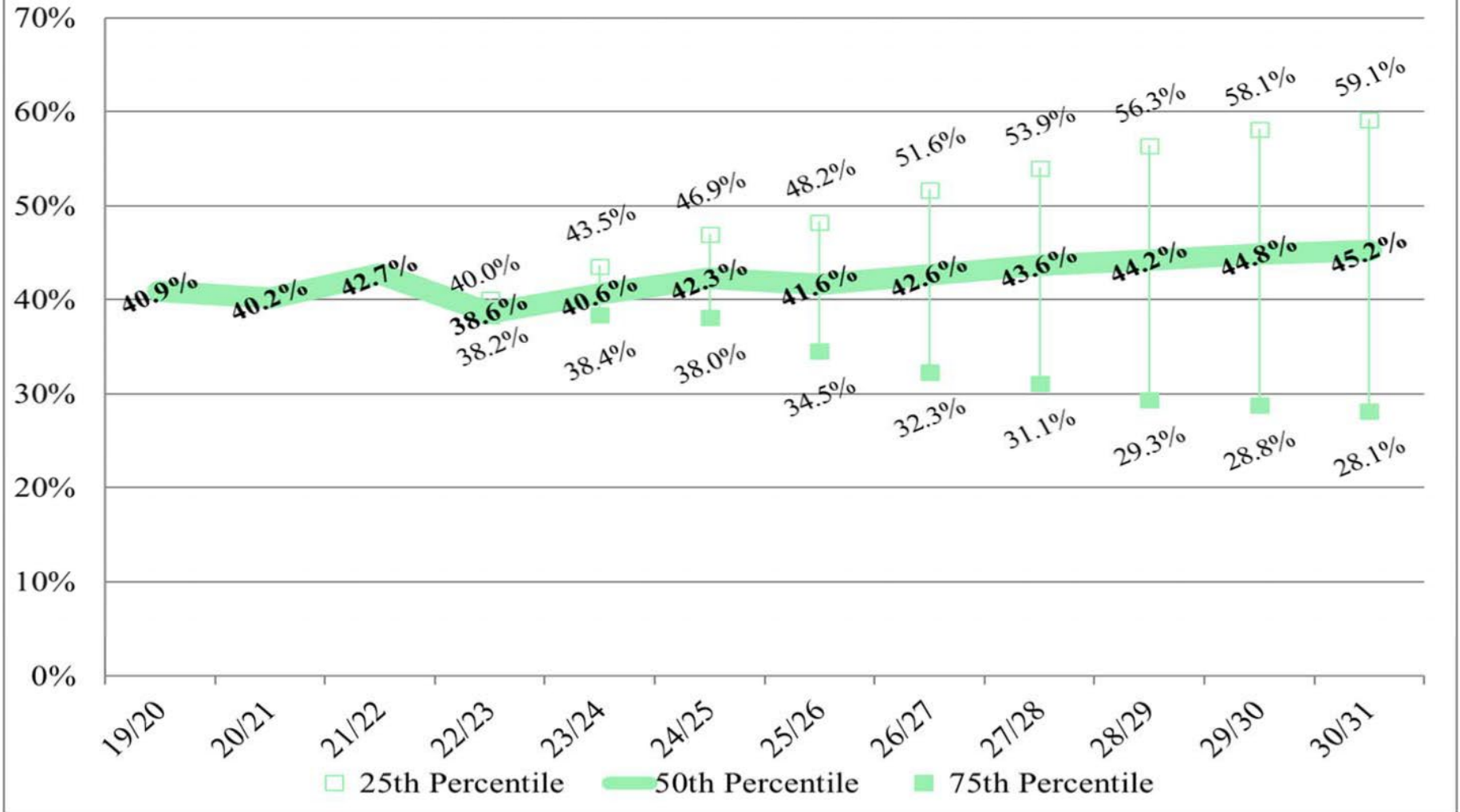
- New hire assumptions:
  - 92.5% of 2019/20 new hires are PEPRAs members and 7.5% are Classic members
  - Percentage of PEPRAs member future hires to increase from 92.5% to 100% over 3 years
- 6/30/18 employee distribution:

Benefit Tier	Count	6/30/18 Payroll
● 2.7%@55 FAE1	104	\$ 10,234,138
● 2%@60 FAE3	23	3,062,422
● 2%@62 FAE3 (PEPRA)	75	6,243,845

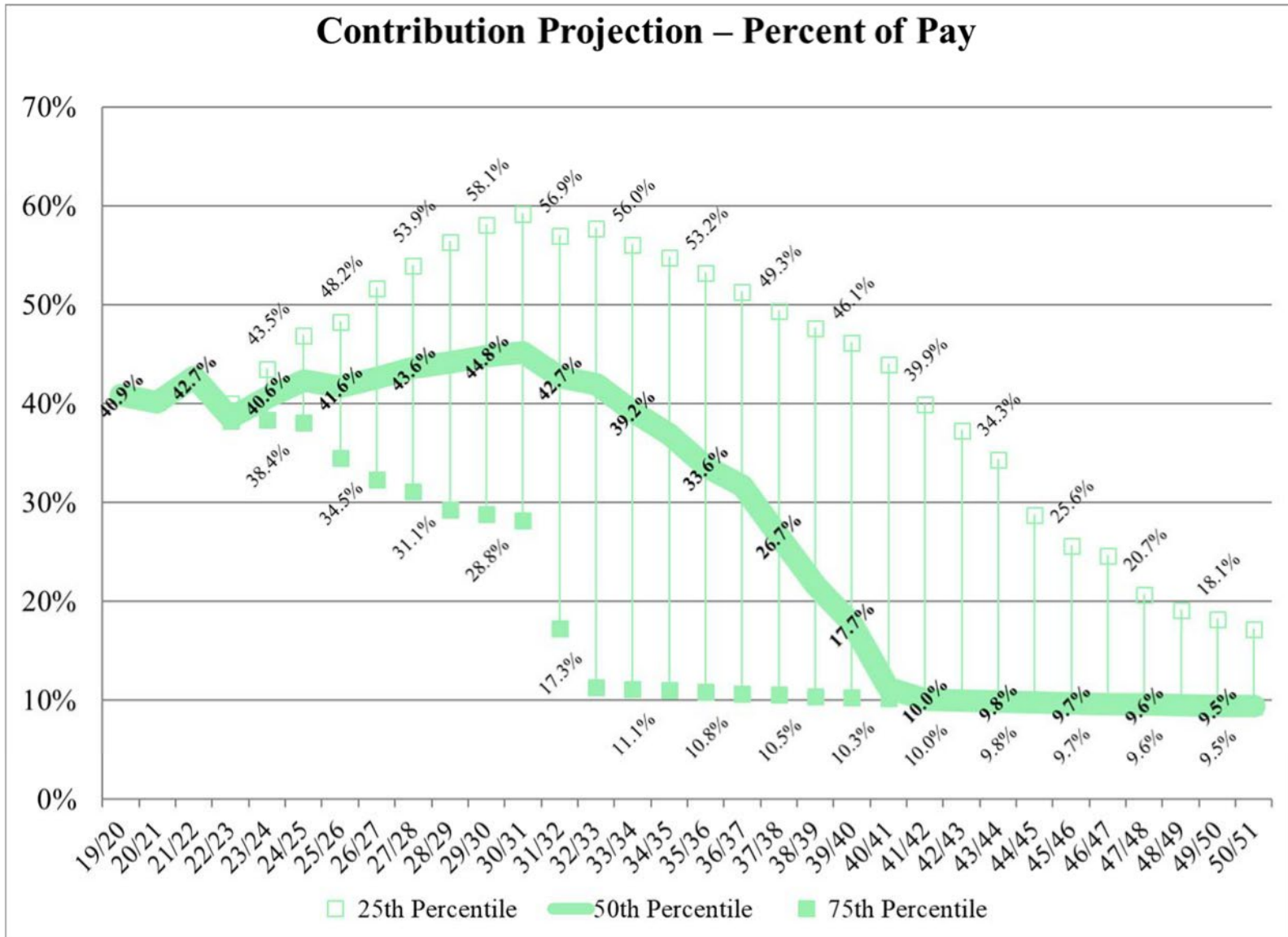


# CONTRIBUTION PROJECTIONS - MISCELLANEOUS

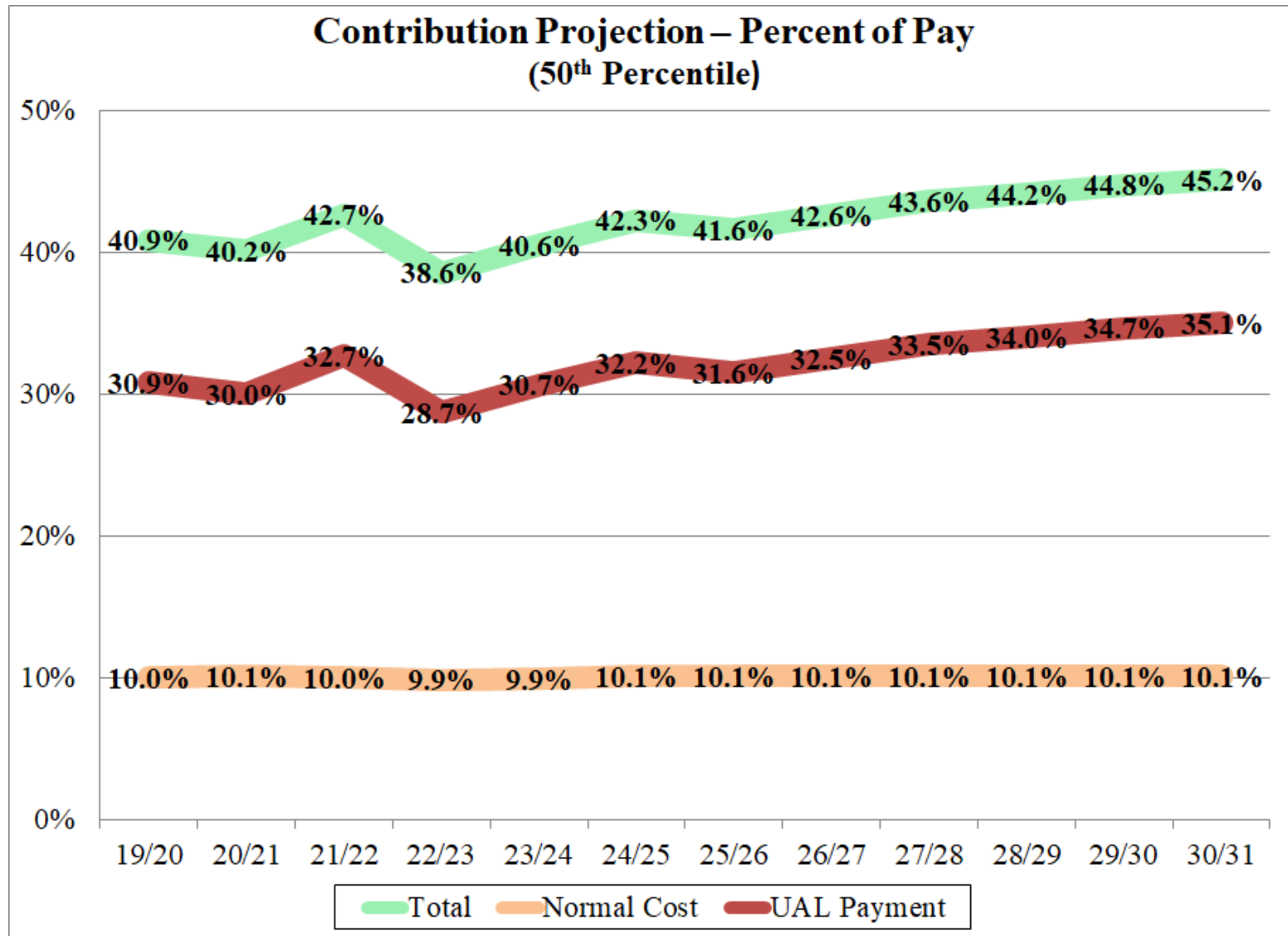
## Contribution Projection – Percent of Pay



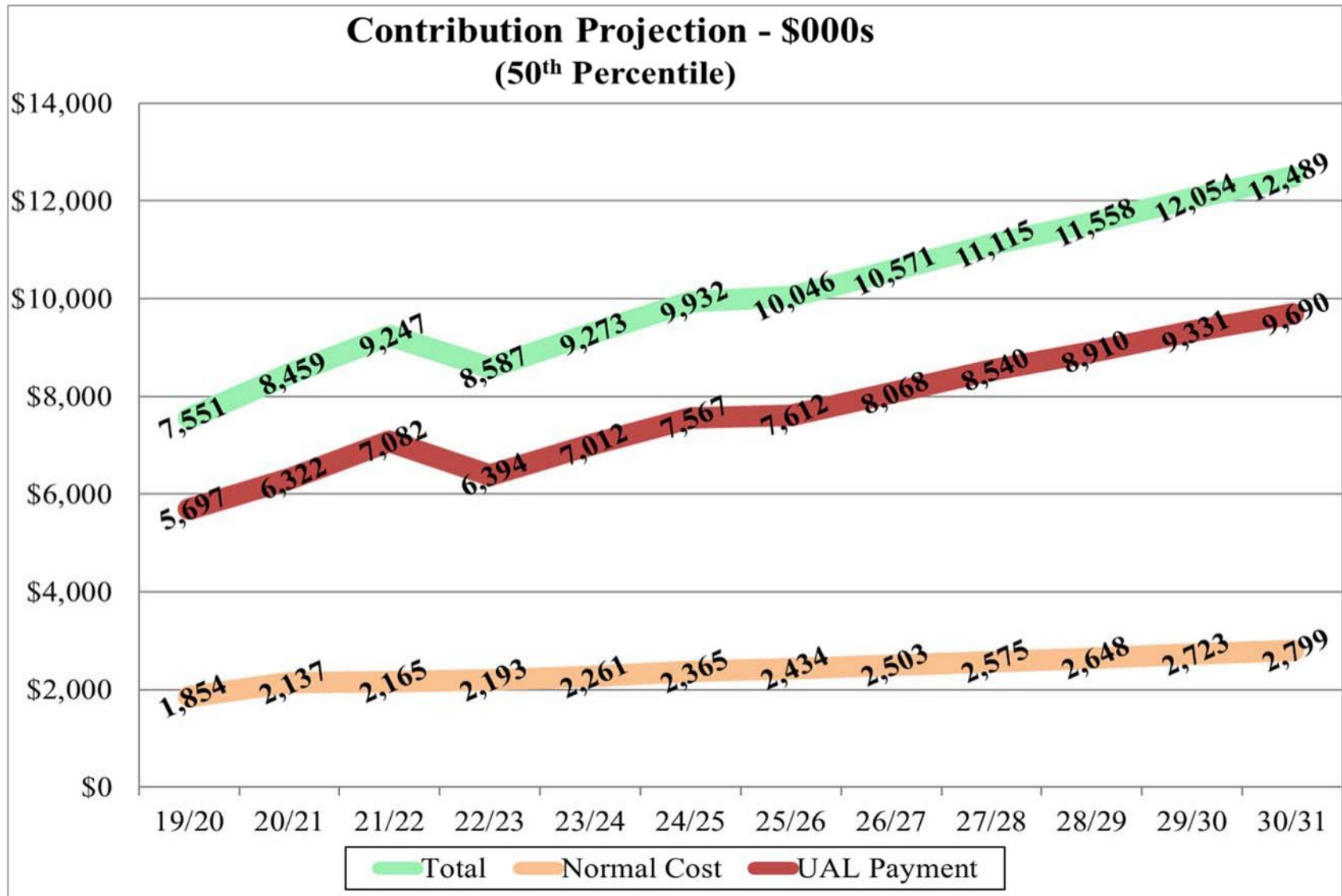
# CONTRIBUTION PROJECTIONS - MISCELLANEOUS



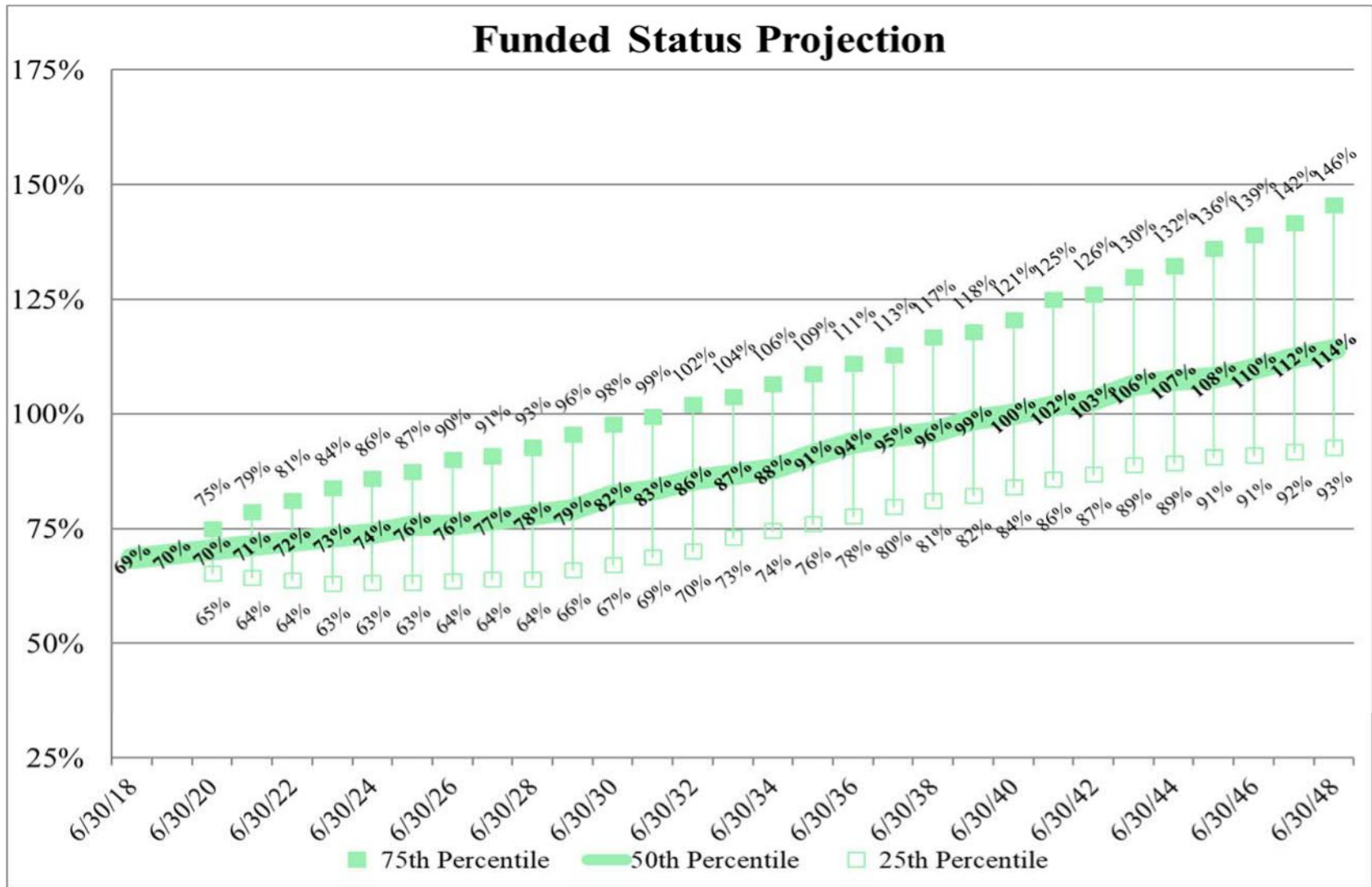
# CONTRIBUTION PROJECTIONS - MISCELLANEOUS



# CONTRIBUTION PROJECTIONS - MISCELLANEOUS



# FUNDED STATUS - MISCELLANEOUS



**FUNDED STATUS - MISCELLANEOUS**

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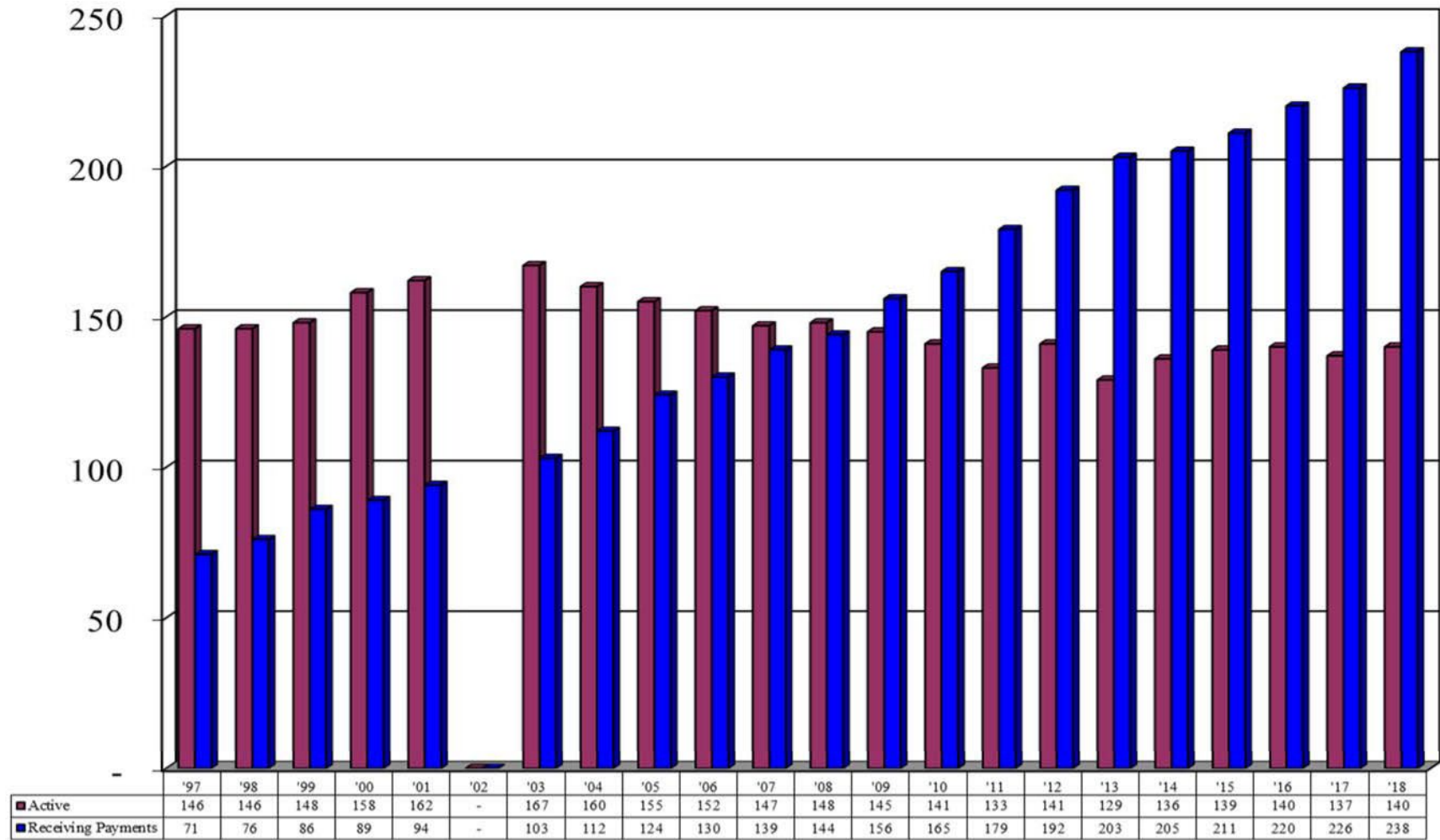


## SUMMARY OF DEMOGRAPHIC INFORMATION - SAFETY

	1998	2008	2017	2018
<b>Actives</b>				
■ Counts	146	148	137	140
■ Average				
• Age	39	41	42	41
• City Service	12	14	13	12
• PERSable Wages	\$ 85,700	\$ 127,500	\$ 148,000	\$ 150,700
■ Total PERSable Wages	12,500,000	18,900,000	20,300,000	21,100,000
<b>Inactive Members</b>				
■ Counts				
• Transferred	26	37	17	16
• Separated	18	18	14	14
• Retired				
□ Service	25	66	129	134
□ Disability	46	64	73	75
□ Beneficiaries	5	14	24	29
□ Total	76	144	226	238
■ Average Annual City Provided Benefit for Service Retirees <sup>7</sup>	31,000	62,600	80,200	84,100

<sup>7</sup> Average City-provided pensions are based on City service & City benefit formula, and are not representative of benefits for long-service employees.

# SUMMARY OF DEMOGRAPHIC INFORMATION -SAFETY



6/30/2002 data are not available.



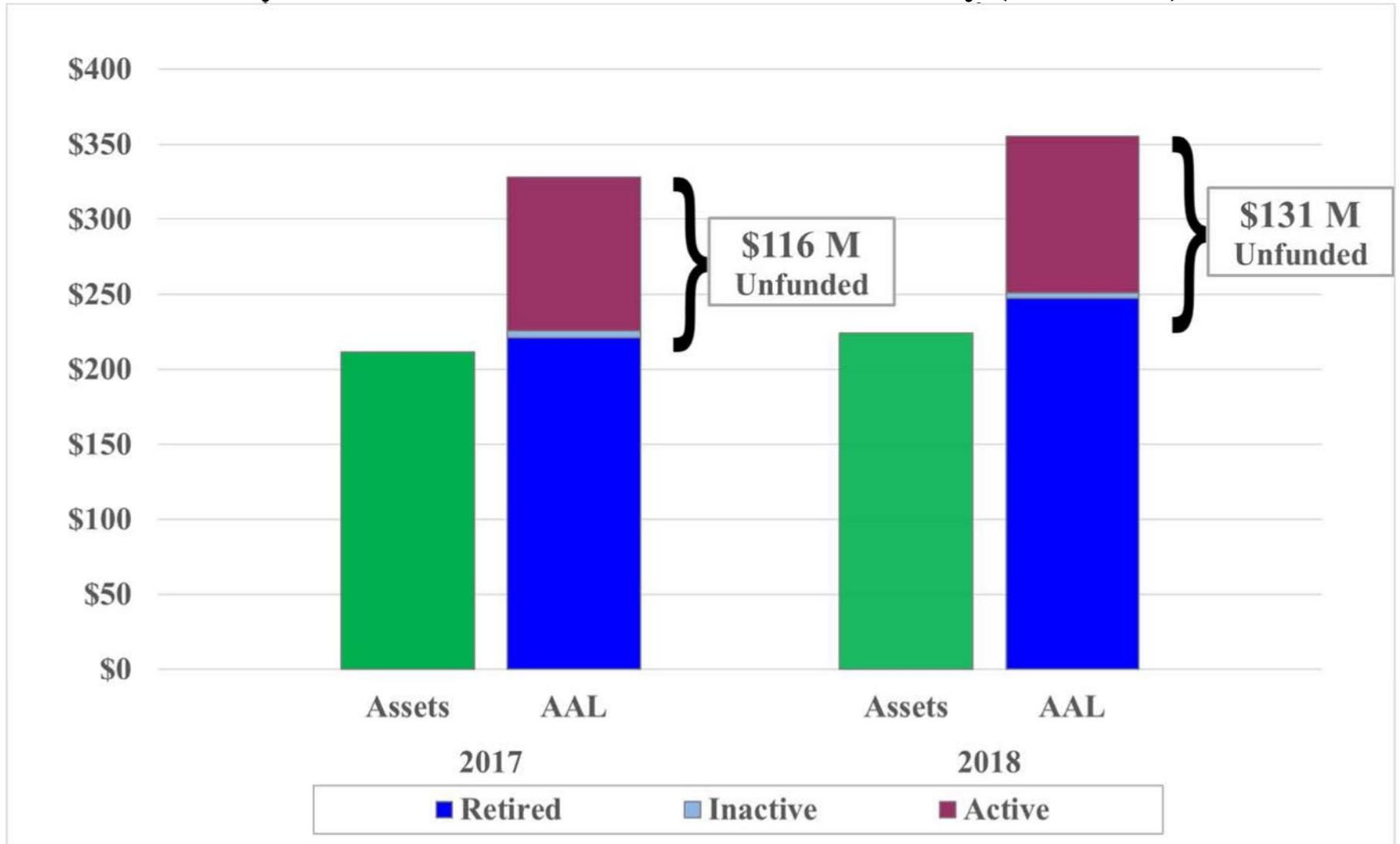
## PLAN FUNDED STATUS -SAFETY

	<u>June 30, 2017</u>	<u>June 30, 2018</u>
■ <b>Actuarial Accrued Liability</b>		
● Active	\$ 102,500,000	\$ 104,700,000
● Retiree	221,300,000	247,300,000
● Inactive	4,300,000	3,600,000
● Total	328,100,000	355,600,000
■ <b>Assets</b>	211,700,000	224,300,000
■ <b>Unfunded Liability</b>	116,400,000	131,300,000
■ <b>Funded Ratio</b>	64.5%	63.1%



# PLAN FUNDED STATUS -SAFETY

## City CalPERS Assets and Actuarial Liability (\$Millions)



# PLAN FUNDED STATUS -SAFETY

## Discount Rate Sensitivity

June 30, 2018

	<u>Discount Rate</u>		
	<u>7.00%</u>	<u>6.50%</u>	<u>6.00%</u>
<b>AAL</b>	\$ 355,600,000	\$ 379,500,000	\$ 403,400,000
<b>Assets</b>	224,300,000	224,300,000	224,300,000
<b>Unfunded Liability</b>	131,300,000	155,200,000	179,100,000
<b>Funded Ratio</b>	63.1%	59.1%	55.6%



## PLAN FUNDED STATUS -SAFETY

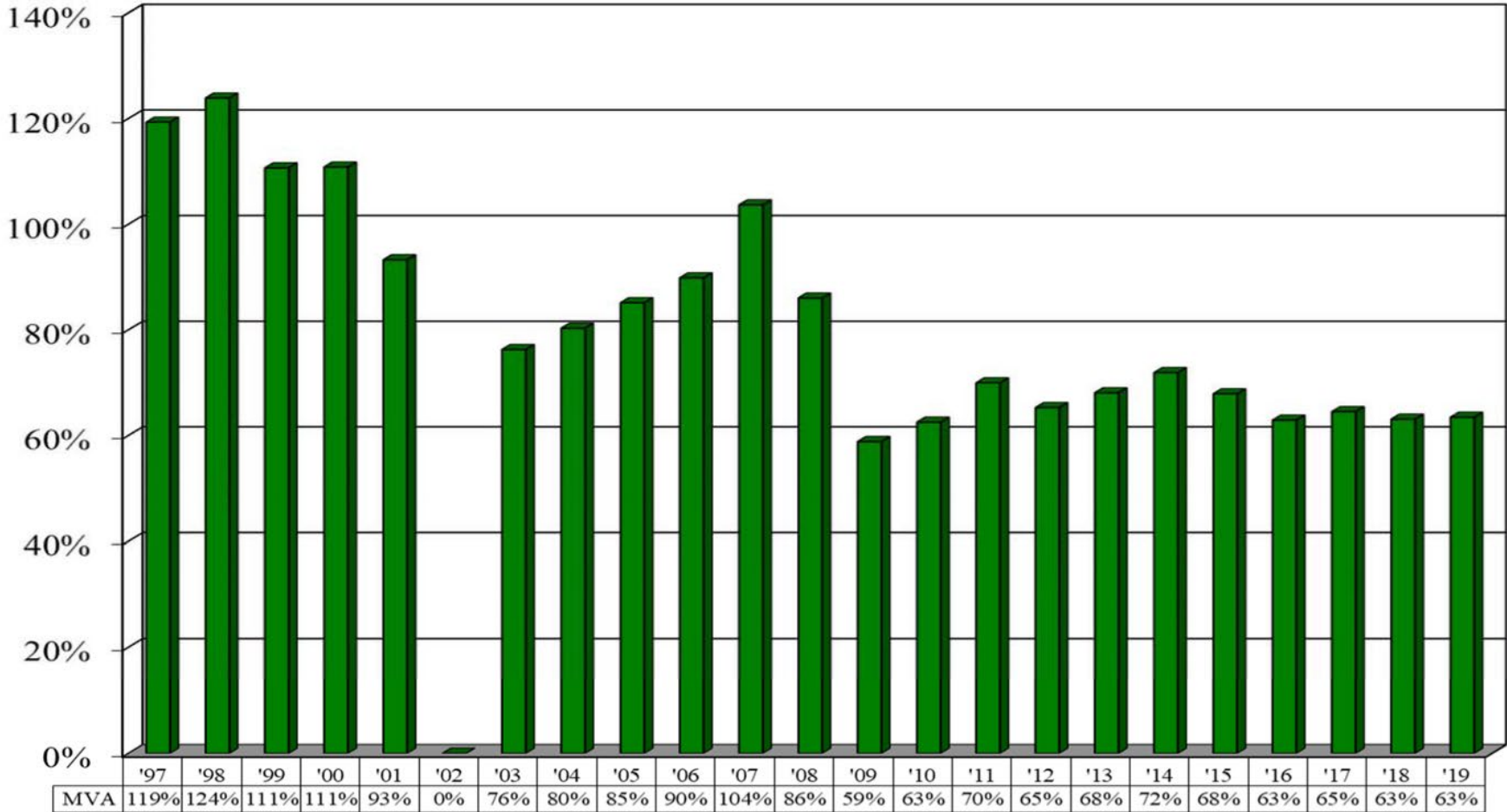
### Unfunded Accrued Liability Changes

■ <b>Unfunded Accrued Liability on 6/30/17</b>		\$ 116,400,000
■ <b>Expected 6/30/18 Unfunded Accrued Liability</b>		119,700,000
■ <b>Other Changes</b>		
• Asset Loss (Gain) (8.6% return for FY 2018)	(2,500,000)	
• Assumption Change (DR 7.25% → 7%)	9,900,000	
• Method Change (Software system)	1,800,000	
• Contribution & Experience Loss (Gain)	2,400,000	
• Total		<u>11,600,000</u>
■ <b>Unfunded Accrued Liability on 6/30/18</b>		131,300,000
■ <b>Projected Unfunded Accrued Liability on 6/30/19</b>		135,100,000



# FUNDED RATIO - SAFETY

## Historical Funded Ratio

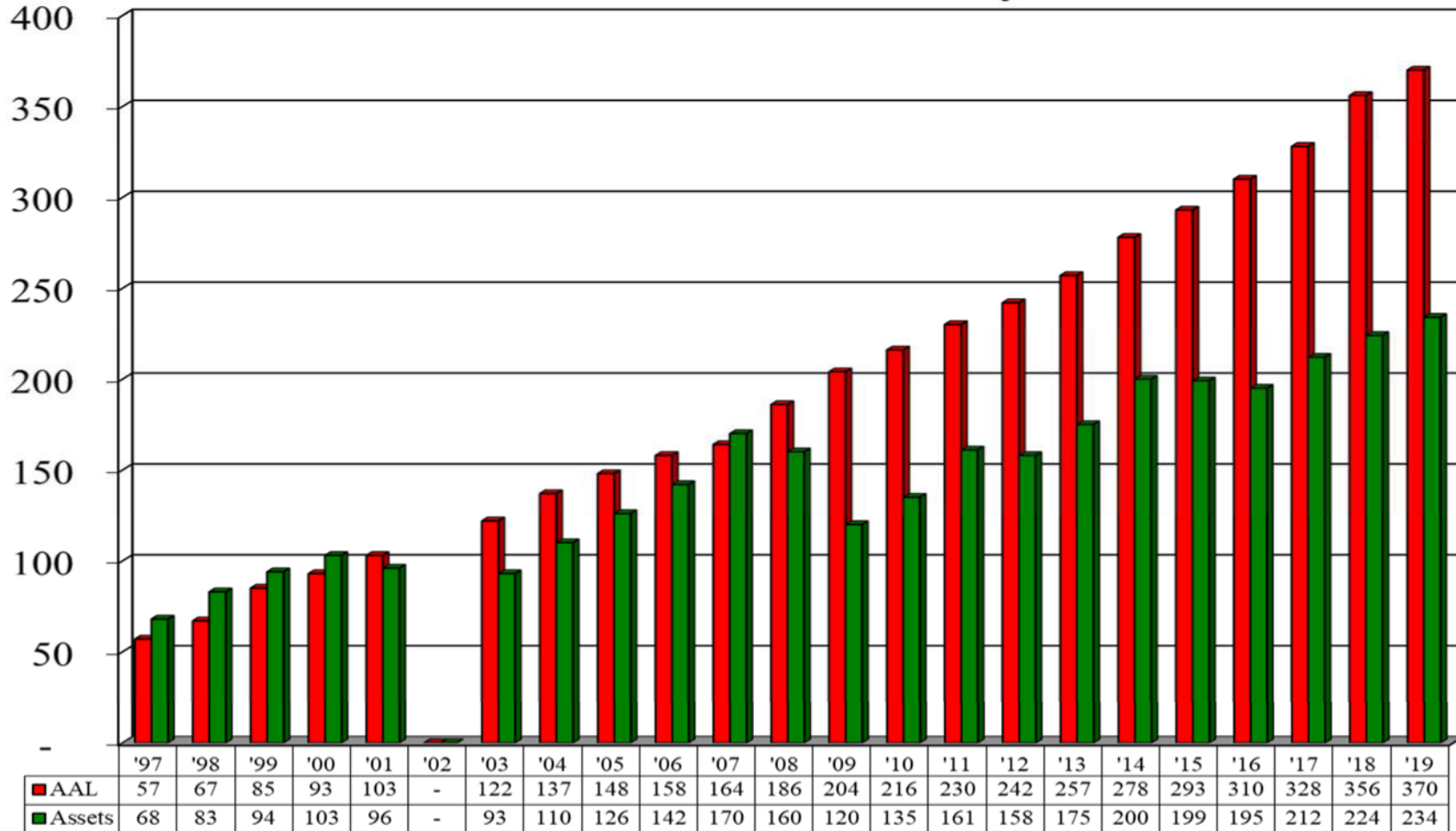


Funded status for 6/30/02 is not available. 6/30/19 funded status is estimated.



# FUNDED STATUS (MILLIONS) - SAFETY

## Historical Actuarial Accrued Liability vs. Assets



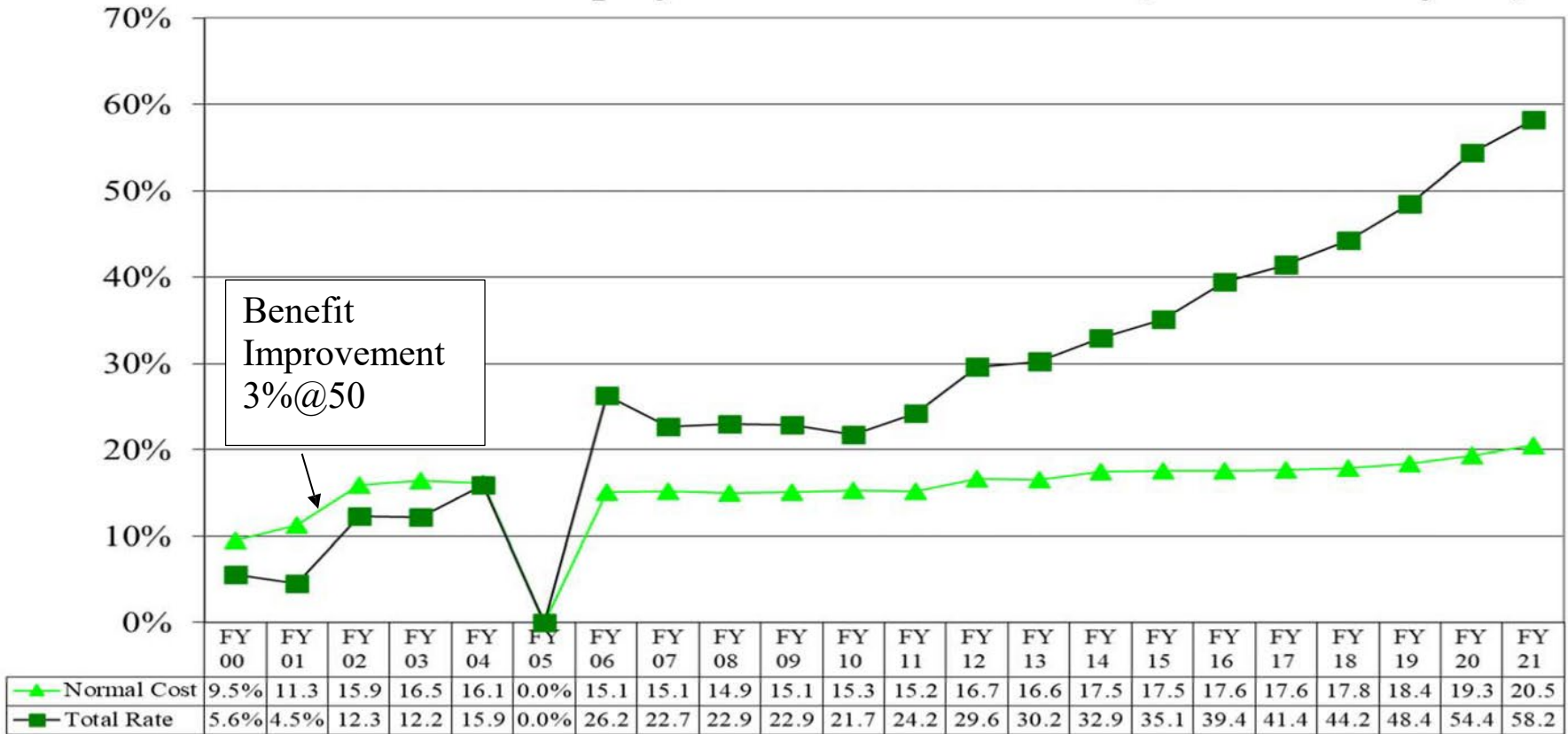
Funded status for 6/30/02 is not available. 6/30/19 funded status is estimated.





# CONTRIBUTION RATES - SAFETY

## Historical Employer Contribution Rates (Percent of Payroll)



Rates for FY05 are not available



## CONTRIBUTION RATES - SAFETY

	<b>6/30/17</b>	<b>6/30/18</b>
	<b><u>2019/2020</u></b>	<b><u>2020/2021</u></b>
■ Total Normal Cost	28.4%	29.6%
■ Employee Normal Cost	<u>9.1%</u>	<u>9.1%</u>
■ Employer Normal Cost	19.3%	20.5%
■ Amortization Payments	<u>35.1%</u>	<u>37.7%</u> <sup>8</sup>
■ Total Employer Contribution Rate	54.4%	58.2%
■ 2019/20 Employer Contribution Rate		54.4%
● Payroll > Expected		-0.3%
● 6/30/14 Assumption Change (5 <sup>th</sup> Year)		1.3%
● 6/30/16 Discount Rate Change (3 <sup>rd</sup> Year)		0.5%
● 6/30/17 Discount Rate & Inflation (2 <sup>nd</sup> Year)		0.6%
● 6/30/18 Discount Rate change (1 <sup>st</sup> Year)		2.2%
● Other (Gains)/Losses		<u>-0.5%</u>
■ 2020/21 Employer Contribution Rate		58.2%

<sup>8</sup> Equivalent to 6.3% of UAL. One year, 7% interest on the UAL is 41.6% of payroll.



## CONTRIBUTION PROJECTIONS - SAFETY

■ Market Value Investment Return:

● June 30, 2019 6.7%<sup>9</sup>

● Future returns based on stochastic analysis using 1,000 trials

<u>Single Year Returns at<sup>10</sup></u>	<u>25<sup>th</sup> Percentile</u>	<u>50<sup>th</sup> Percentile</u>	<u>75<sup>th</sup> Percentile</u>
Current Investment Mix	<b>0.1%</b>	<b>7.0%</b>	<b>14.8%</b>
Ultimate Investment Mix	<b>0.8%</b>	<b>6.0%</b>	<b>11.4%</b>

● Assumes investment returns will, generally be 6.5% (as compared to 7.0%) over the next 9 years and higher beyond that.

■ Discount Rate decreases due to Risk Mitigation policy

■ No Other: Gains/Losses, Method/Assumption Changes, Benefit Improvements

■ Different from CalPERS projection

<sup>9</sup> Gross return based on July 2019 CalPERS press release.

<sup>10</sup> N<sup>th</sup> percentile means N percentage of our trials result in returns lower than the indicated rates.



## CONTRIBUTION PROJECTIONS - SAFETY

■ **New hire assumptions:**

- 92.5% of 2019/20 new hires are PEPRA members and 7.5% are Classic members
- Percentage of PEPRA member future hires to increase from 92.5% to 100% over 3 years

■ **6/30/18 employee distribution:**

Benefit Tier	Count	6/30/18 Payroll
● 3%@50 FAE1	92	\$ 15,210,753
● 3%@55 FAE1	20	2,500,260
● 2.7%@57 FAE3 (PEPRA)	28	3,455,032

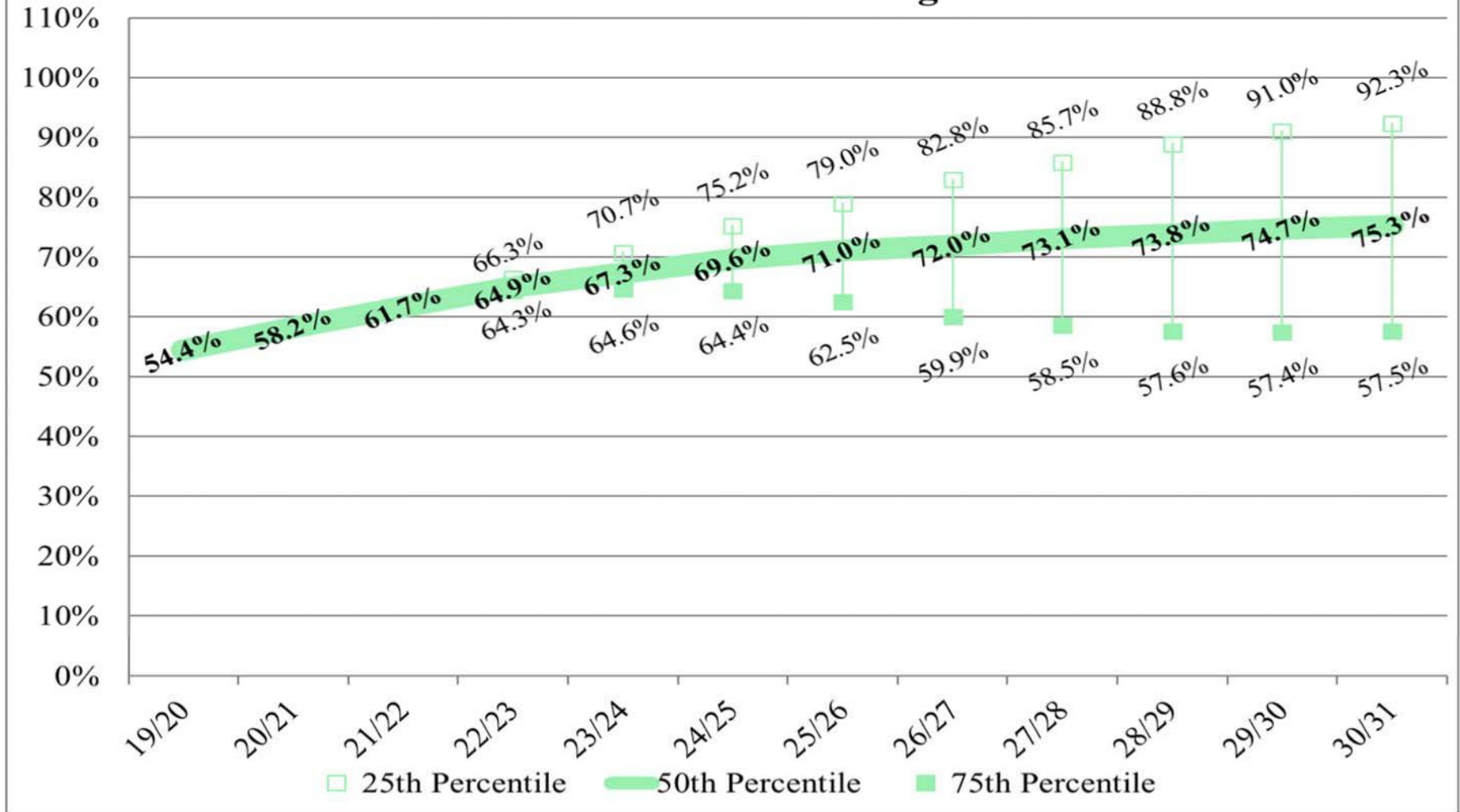
■ **Employee Cost Sharing:**

- All Fire employees (Classic and PEPRA) pay 3% toward employer rates
- City provided: 45% of 2018/19 total Safety payroll belongs to Fire employees

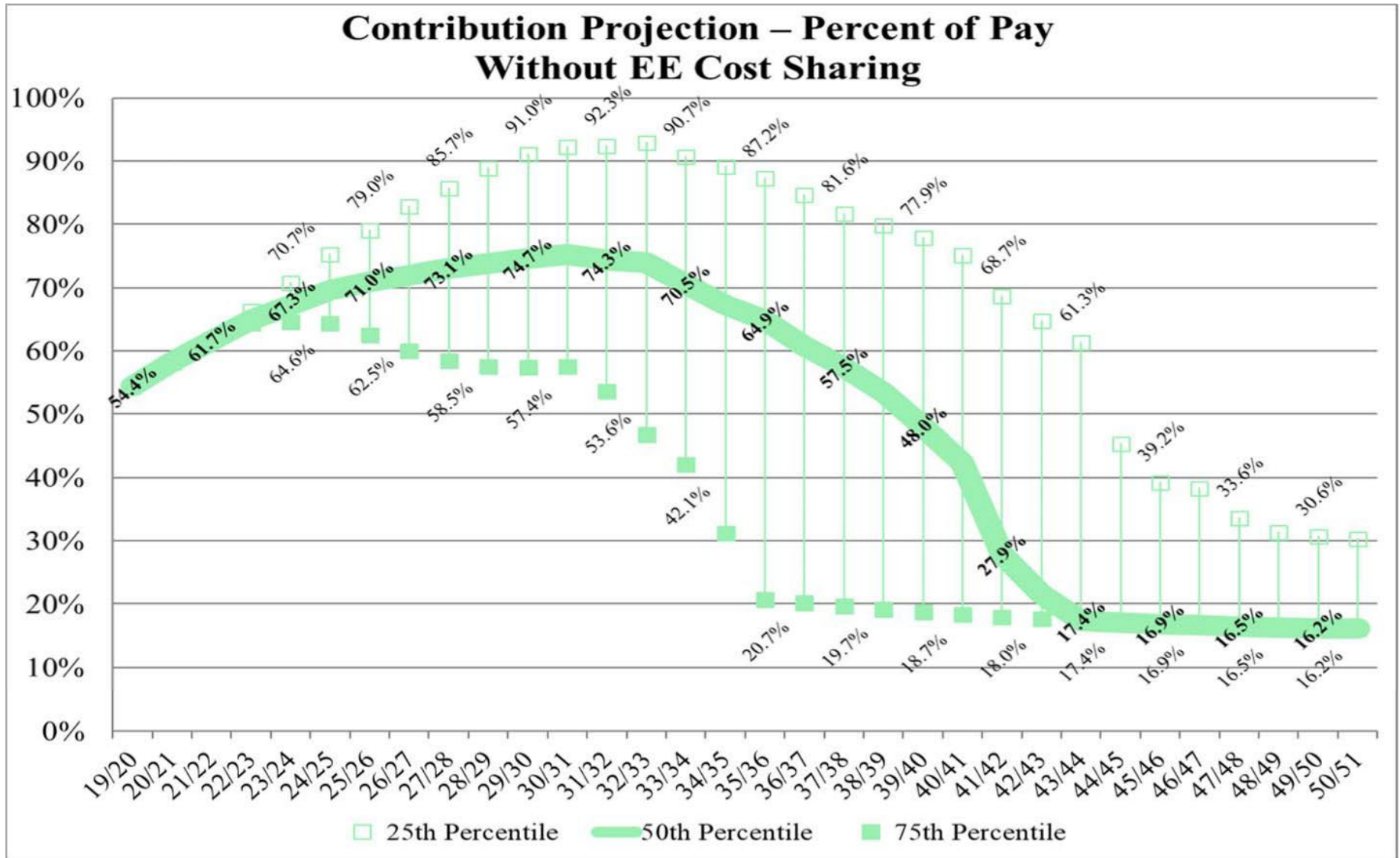


# CONTRIBUTION PROJECTIONS - SAFETY

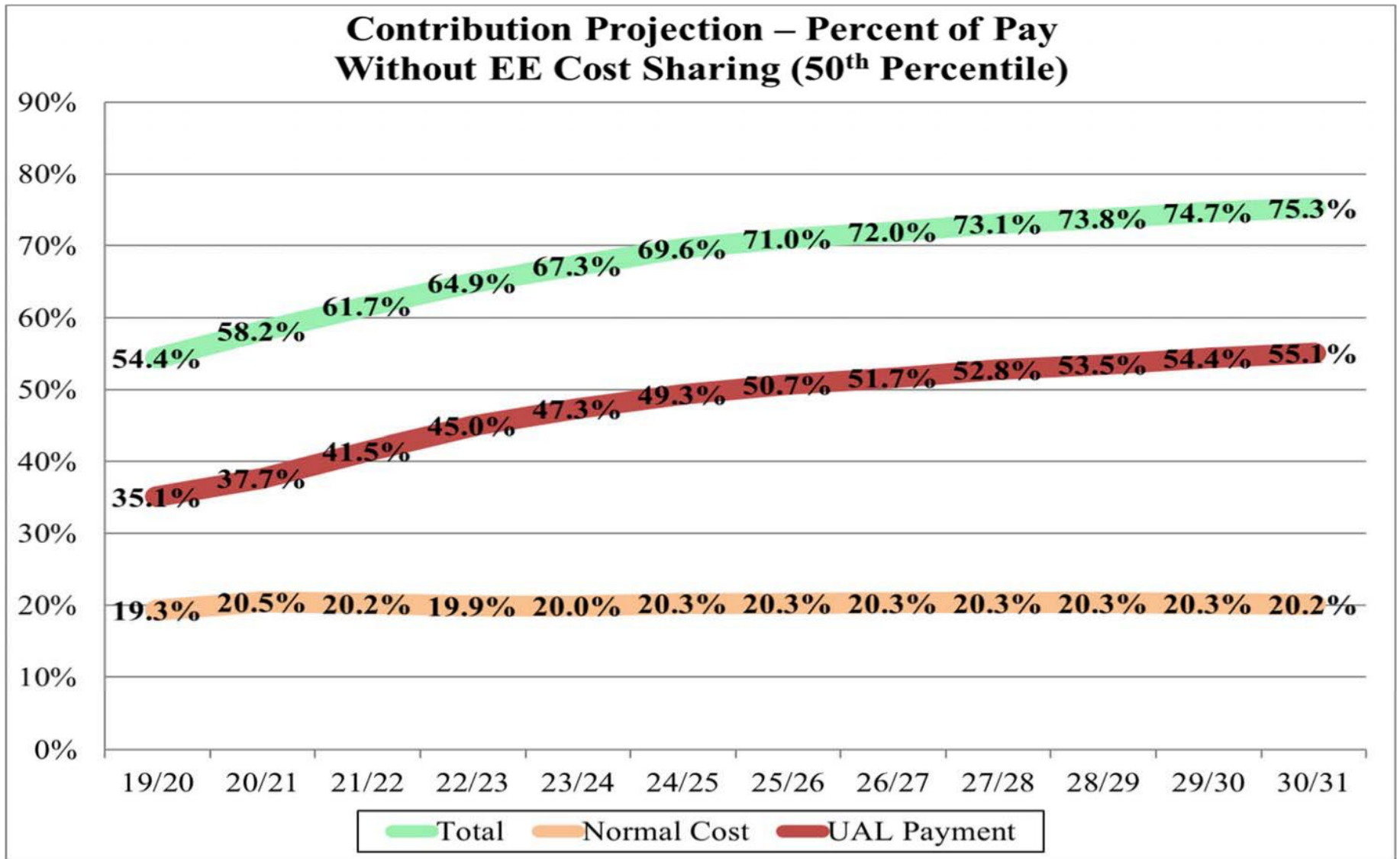
## Contribution Projection – Percent of Pay Without EE Cost Sharing



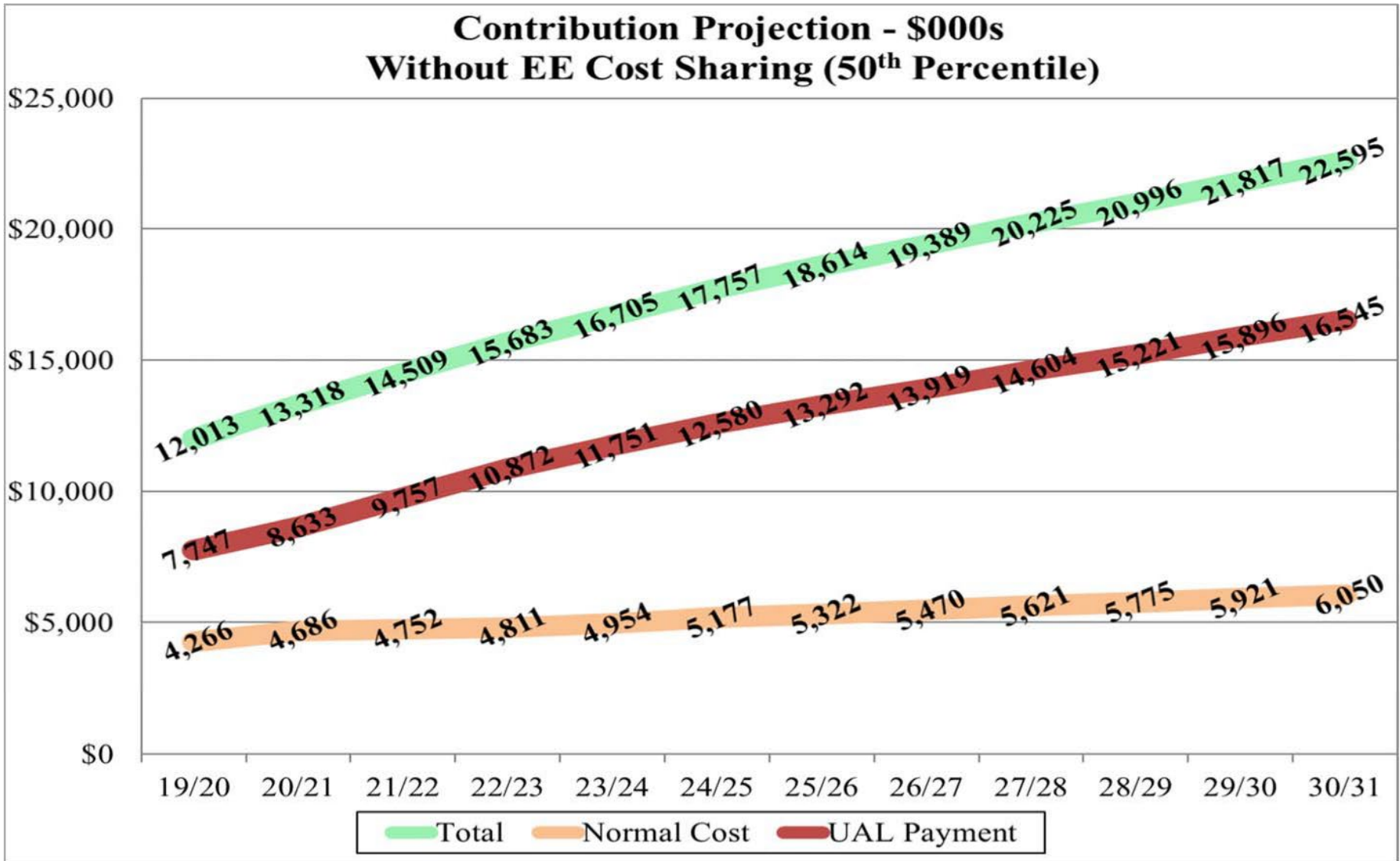
# CONTRIBUTION PROJECTIONS - SAFETY



# CONTRIBUTION PROJECTIONS - SAFETY



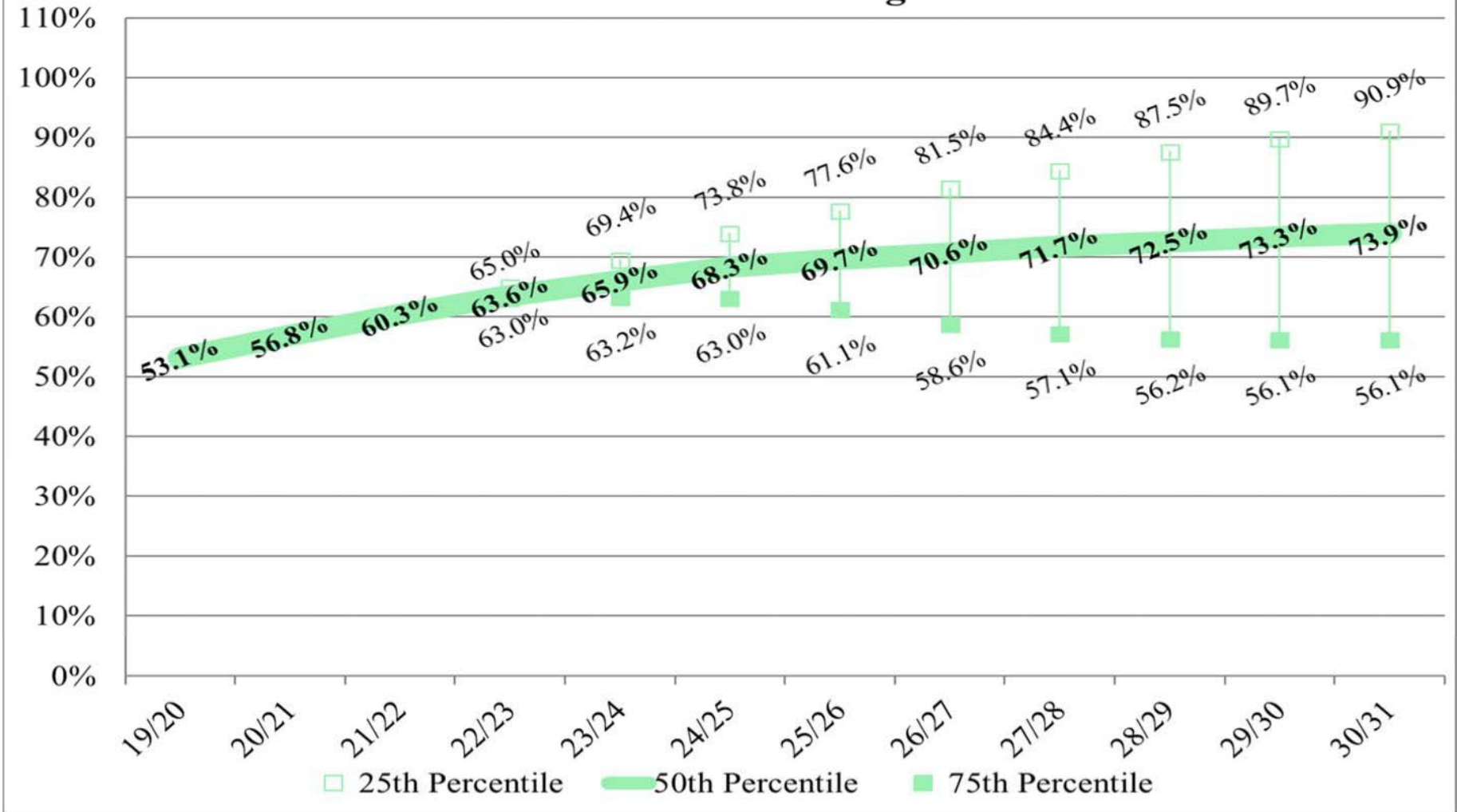
# CONTRIBUTION PROJECTIONS - SAFETY



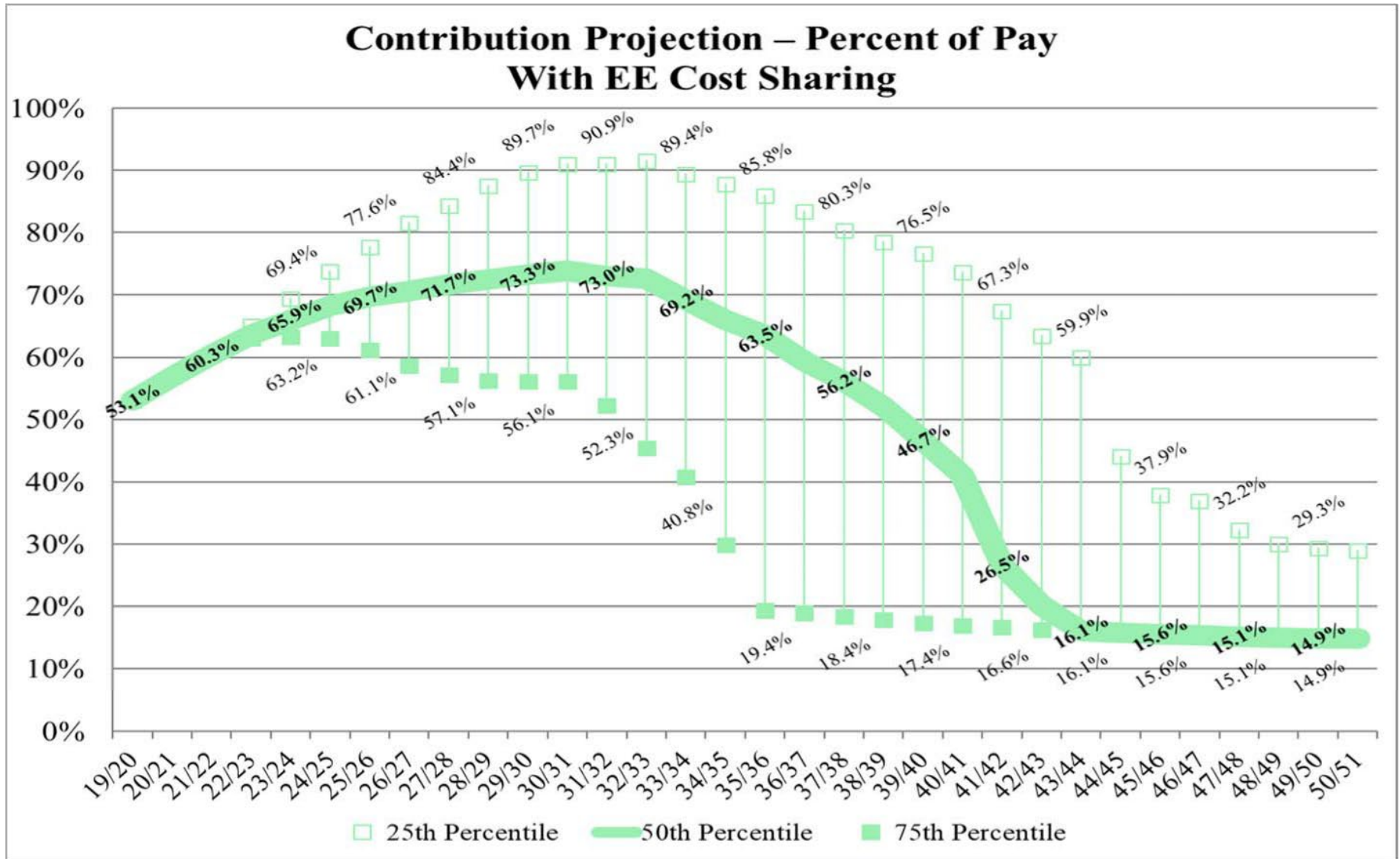


# CONTRIBUTION PROJECTIONS - SAFETY

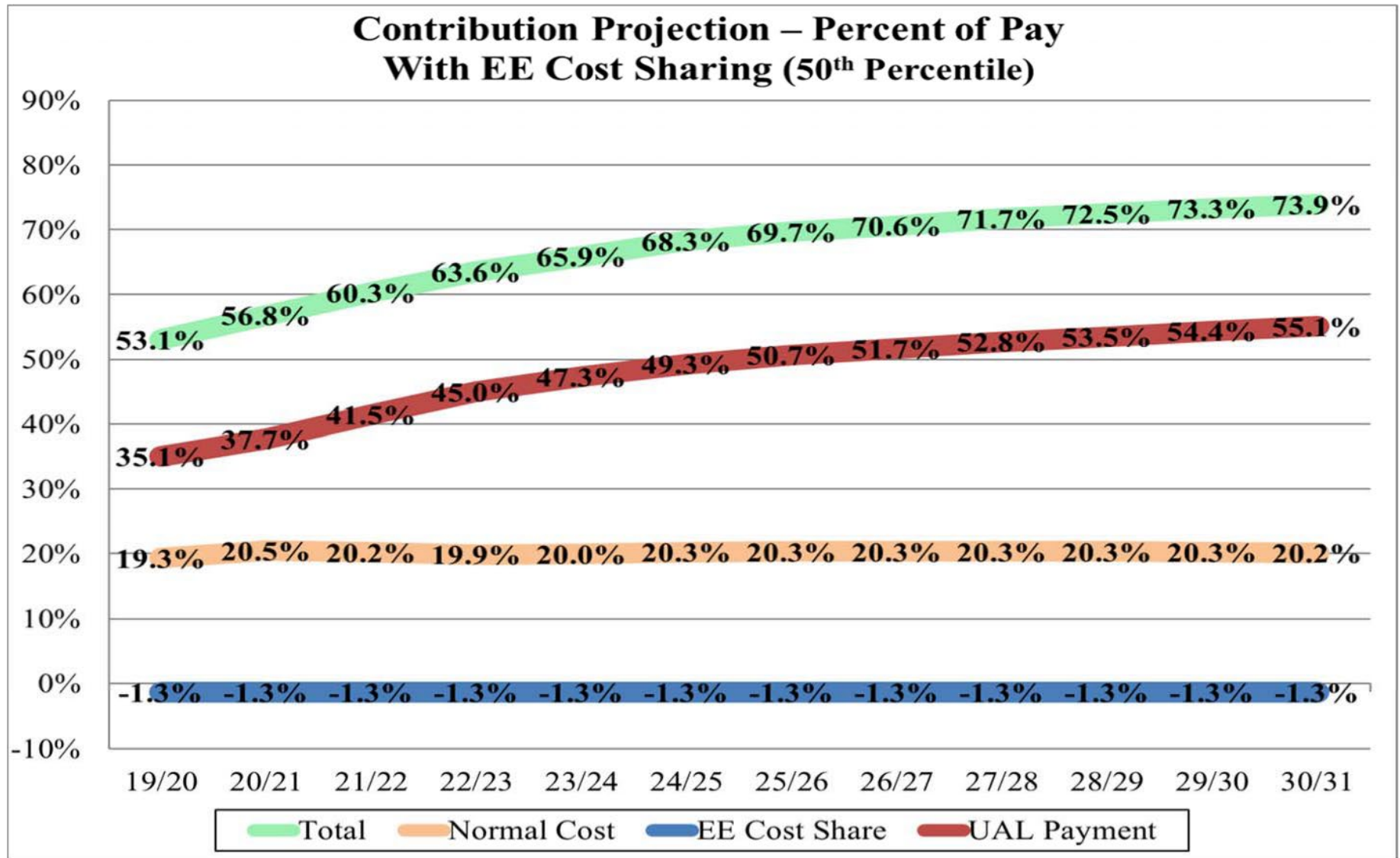
## Contribution Projection – Percent of Pay With EE Cost Sharing



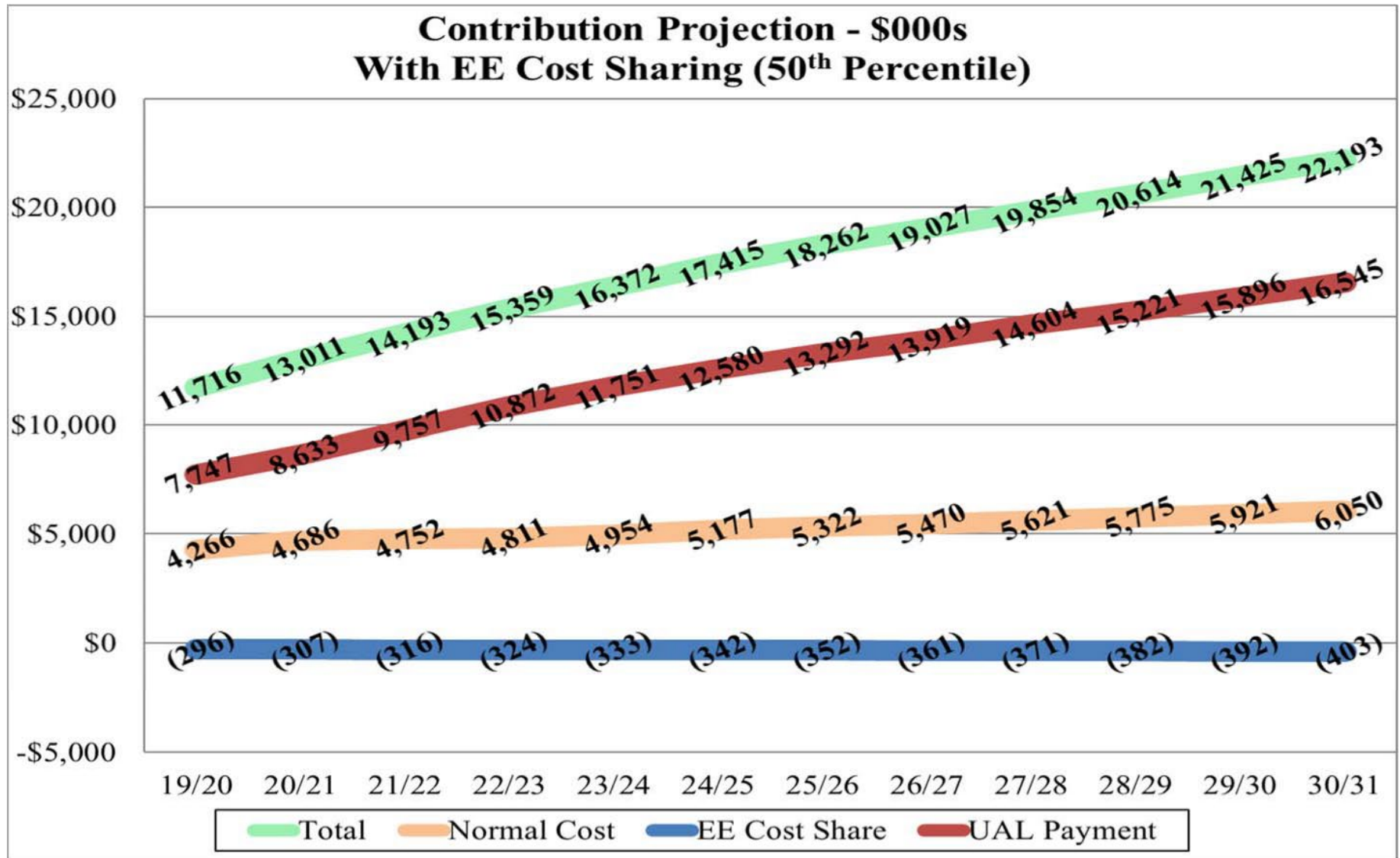
# CONTRIBUTION PROJECTIONS - SAFETY



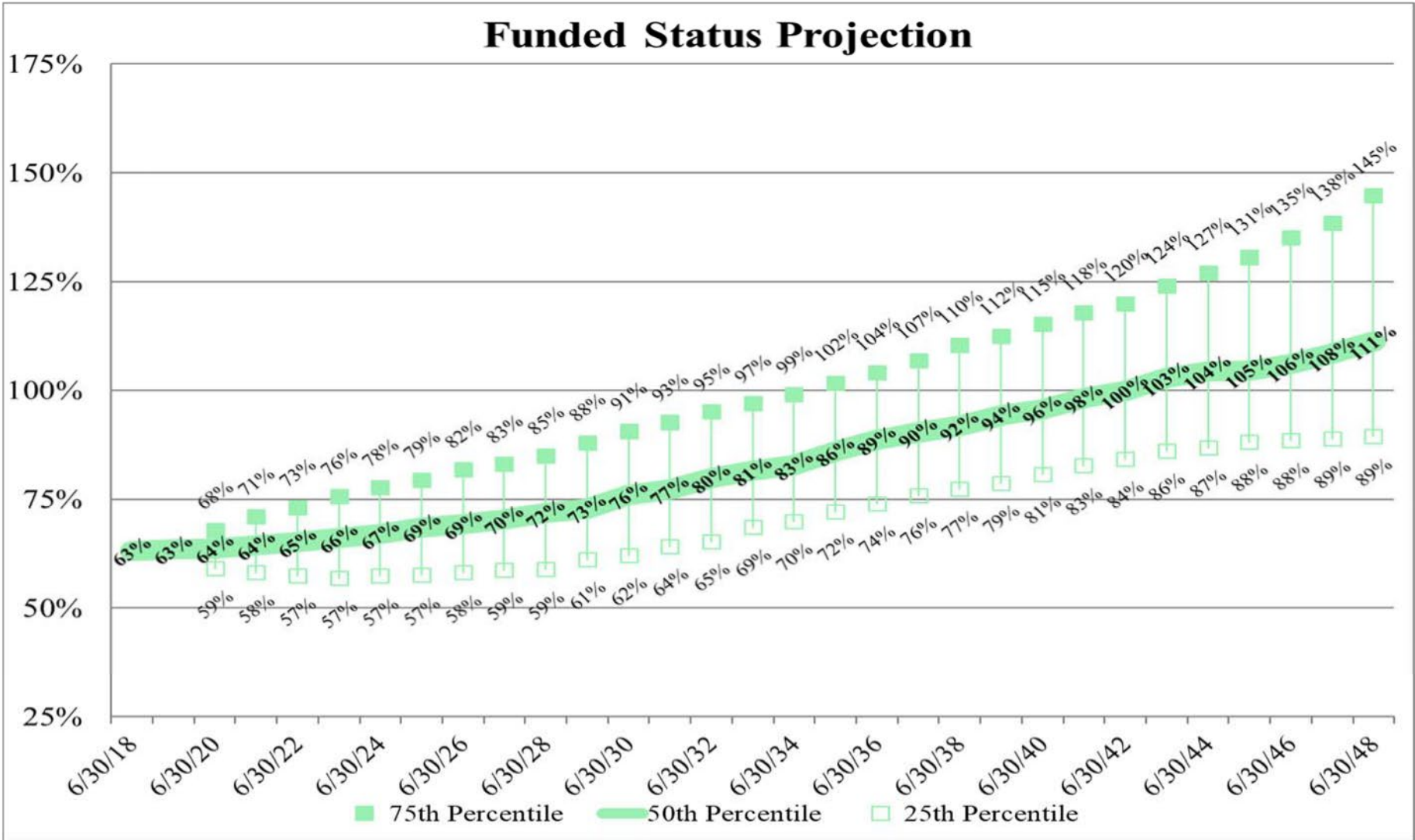
# CONTRIBUTION PROJECTIONS - SAFETY



# CONTRIBUTION PROJECTIONS - SAFETY



# FUNDED STATUS - SAFETY



## COMBINED MISCELLANEOUS AND SAFETY

### Funded Status Summary on June 30, 2018

(Amounts in \$Millions)

	Miscellaneous	Safety	Total
■ <b>AAL</b>	\$ 239	\$ 356	\$ 595
■ <b>Assets</b>	<u>164</u>	<u>224</u>	<u>388</u>
■ <b>Unfunded AAL</b>	75	132	207
■ <b>Funded Ratio</b>	68.5%	63.1%	65.2%



## PEPRA COST SHARING

- Target of 50% of total normal cost paid by all employees
- *PEPRA members* must pay greater of 50% of total normal cost or bargained amount if higher
- Employer cannot pay any part of *PEPRA 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 2020/21:

	<u><b>Classic Members</b></u>		<u><b>New Members</b></u>
	<b>Tier 1</b>	<b>Tier 2</b>	<b>PEPRA</b>
	<u><b>2.7% @ 55 FAE1</b></u>	<u><b>2% @ 60 FAE3</b></u>	<u><b>2% @ 62 FAE3</b></u>
● Employer Normal Cost	11.6%	10.6%	7.57%
● Member Normal Cost	<u>8.0%</u>	<u>7.0%</u>	<u>6.25%</u>
● Total Normal Cost	19.6%	17.6%	13.82%
● 50% Target	9.8%	8.8%	6.91%



## PEPRA COST SHARING

■ Safety Plan 2020/21:

	<u>Classic Members</u>		<u>New Members</u>
	Tier 1	Tier 2	PEPRA
	<u>3% @ 50 FAE1</u>	<u>3% @ 55 FAE3</u>	<u>2.7% @ 57 FAE3</u>
● Employer Normal Cost	21.9%	21.8%	13.50%
● Member Normal Cost	<u>9.0%</u>	<u>9.0%</u>	<u>10.00%</u>
● Total Normal Cost	30.9%	30.8%	23.50%
● 50% Target	15.5%	15.4%	11.75%

■ PEPRA Member Contributions:

Group	2019/20		2020/21			
	Total NC (Basis)	Member Rate	Total Normal Cost	Change	Member Rate	Method
Miscellaneous	12.63%	6.25%	13.19%	0.55%	6.25%	Pool Basis
Safety	20.17%	10.00%	22.33%	2.16%	11.25%	Pool Basis





# ACTUARIAL CERTIFICATION

This report presents analysis of the City of Milpitas's CalPERS pension plans. The purpose of this report is to provide the City:

- Historical perspective on the plan investment returns, assets, funded status and contributions.
- Projections of likely future contributions and the impact of investment volatility

The calculations and projections in this report are based on information contained in the City's June 30, 2018 and earlier CalPERS actuarial valuation reports. We reviewed this information for reasonableness, but do not make any representation on the accuracy of the CalPERS reports.

Future investment returns and volatility are based on Bartel Associates Capital Market model which results in long term returns summarized on pages 23 and 41.

Future results may differ from our projections due to differences in actual experience as well as changes in plan provisions, CalPERS actuarial assumptions or methodology. Other than variations in investment return, this study does not analyze these.

To the best of our knowledge, this report is complete and accurate and has been conducted using generally accepted actuarial principles and practices. As members of the American Academy of Actuaries meeting the Academy Qualification Standards, we certify the actuarial results and opinions herein.

Respectfully submitted,



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Doug Pryor, ASA, EA, MAAA  
Vice President  
Bartel Associates, LLC  
January 21, 2020



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Bianca Lin, FSA, EA, FSA, MAAA  
Assistant Vice President  
Bartel Associates, LLC  
January 21, 2020



January 21, 2020

