

Mendocino County Employees' Retirement Association

Results of the June 30, 2017 Actuarial Valuation Presentation to the Board of Supervisors

January 23, 2018

*Andy Yeung, ASA, MAAA, FCA, EA
Vice President & Actuary
Segal Consulting*

Purpose of the Actuarial Valuation

- Summarizes the actuarial data used in the valuation
- Analyzes the preceding year's experience
- Determines the funded status as of June 30, 2017
- Establishes funding requirements for fiscal 2018 – 2019

What goes into an Actuarial Valuation?

Member Data



Financial Data



Plan Provisions

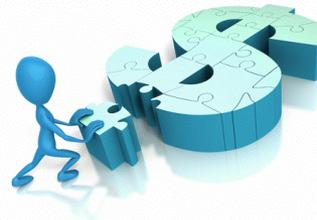


Actuarial Valuation

Actuarial Assumptions

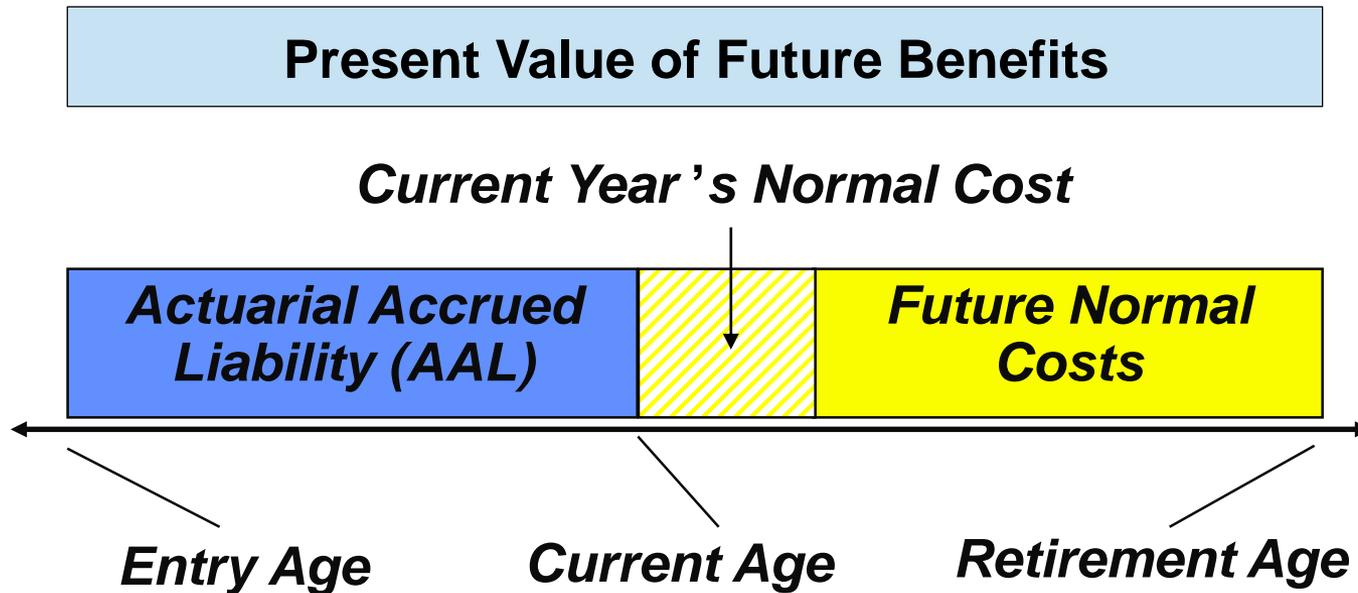
$$\begin{aligned}
 & \frac{d}{dx} (x^2+1)^3 = 3(x^2+1)^2 \cdot 2x = 6x(x^2+1)^2 \\
 & \frac{d}{dx} (2x^3 + 2 + \frac{2}{\sqrt{x^2-1}})^4 = 4(2x^3 + 2 + \frac{2}{\sqrt{x^2-1}})^3 \cdot (6x^2 - \frac{2}{x^2}) \\
 & (1 + \frac{2}{x})^{x+5} = ((1 + \frac{2}{x})^{\frac{x}{2}})^2 \cdot (1 + \frac{2}{x})^5 \\
 & \lim_{x \rightarrow \infty} \sqrt[n]{f(x)} = \sqrt[n]{\lim_{x \rightarrow \infty} f(x)} \\
 & b^{f(x)} = b^A, \quad b = \text{const}; \quad \lim_{x \rightarrow \infty} f(x) = A \\
 & \lim_{x \rightarrow \infty} \ln(f(x)) = \ln(A)
 \end{aligned}$$

Funding Policies



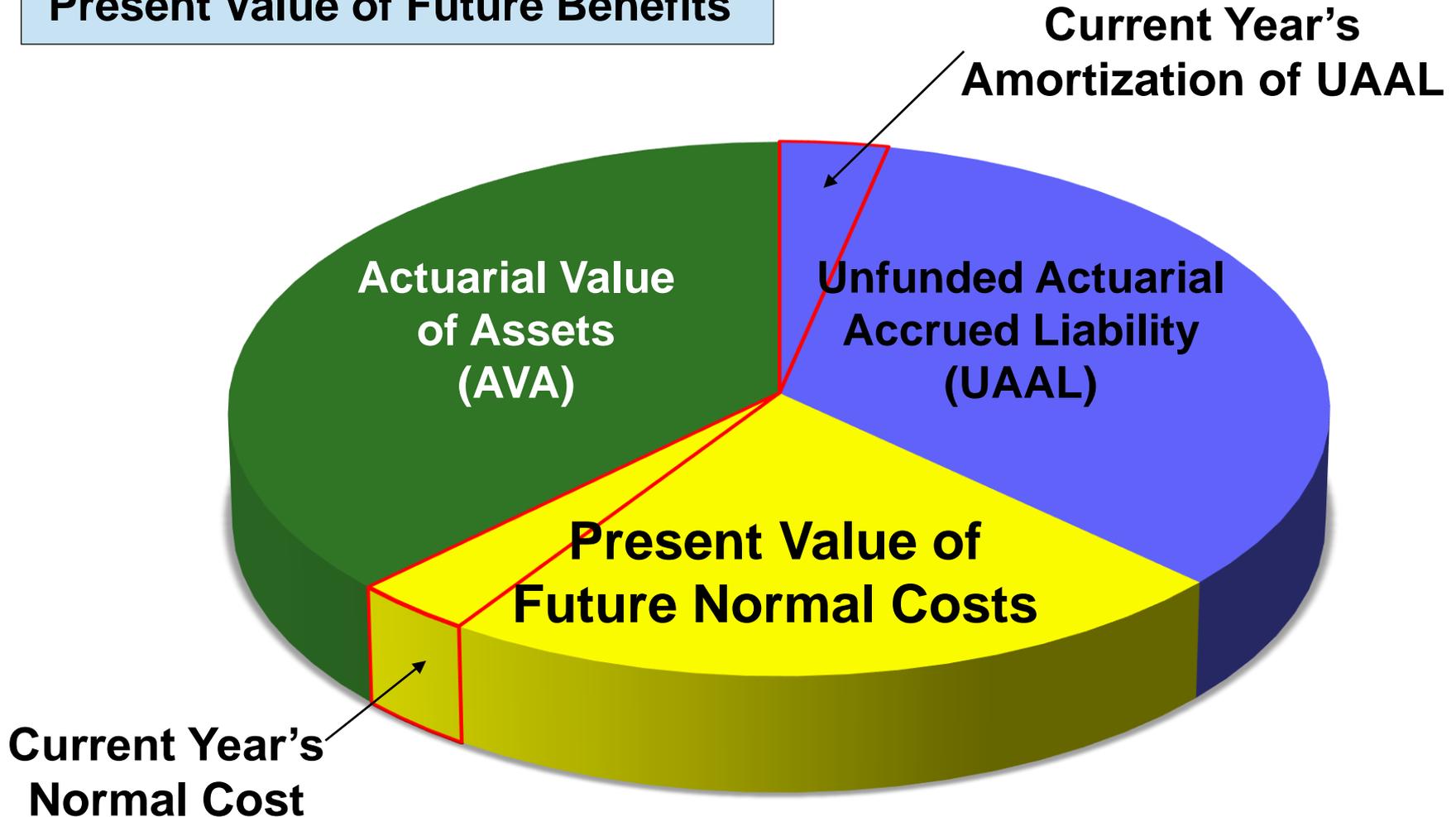
Funding Retirement Benefits—Cost Elements

- **The Normal Cost is the portion of the long term cost allocated to a year of service**—only active members have a current Normal Cost
- **The Actuarial Accrued Liability (AAL) measures the Normal Costs from past years**—for retired members, the AAL is the entire value of their benefit



Funding Retirement Benefits—Cost Elements

Present Value of Future Benefits



Current Funding Policy

➤ Last review in 2013

➤ **Actuarial cost method:** Allocates costs to time periods, past vs. future

- Entry Age method
 - Most stable contribution rate as a percent of payroll

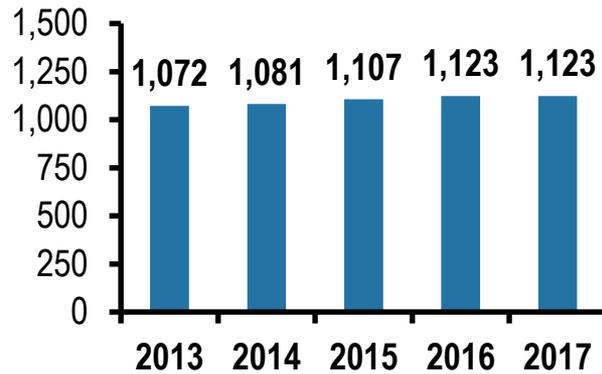
➤ **Asset smoothing method:** Assigns a value to assets for determining contribution requirements

- Market value gains and losses recognized over 5 years with a 25% “market value corridor”
- Association is currently deferring a net \$3.9M gain
 - Versus a \$24.7M loss last year
 - Will be recognized over next four years in the asset smoothing method

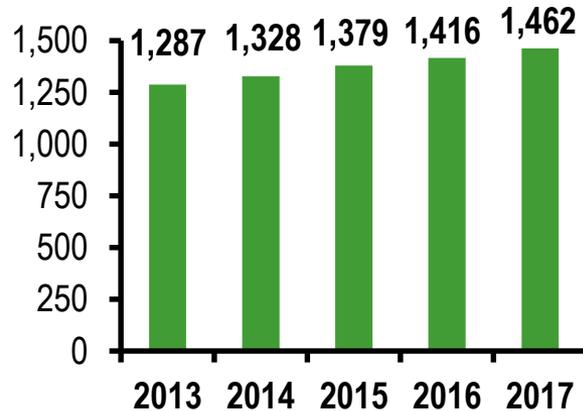
Current Funding Policy (continued)

- **UAAL amortization policy:** How, and how long to fund difference between liabilities and assets
 - UAAL from June 30, 2012 valuation is being funded over a fixed, declining period
 - 22 years remaining as of June 30, 2017
 - Changes in UAAL after June 30, 2012 due to actuarial gains/losses or changes in assumptions/methods are amortized over separate, fixed 18-year periods
 - 18-year period was chosen by the Board in order to avoid “negative” amortization

Membership Demographics (as of June 30)



	2017	2016
Active Members	1,123	1,123
• Average Age	46.7	47.0
• Average Service	9.1	9.1
• Average Compensation	\$55,508	\$54,510



	2017	2016
Retired Members and Beneficiaries	1,462	1,416
• Average Age	69.1	68.8
• Average Annual Benefit	\$22,152	\$21,864

Terminated Vested Members	479	428
----------------------------------	-----	-----

Valuation Results (\$ in thousands)

	<u>06/30/2017</u>	<u>06/30/2016</u>
Actuarial Accrued Liability (AAL) ⁽¹⁾	\$679,565	\$632,058
Valuation Value of Assets (VVA) ⁽²⁾	\$475,225	\$446,773
Market Value of Assets (MVA)	\$484,027	\$426,338
Funded Percentage on VVA Basis	69.9%	70.7%
Funded Percentage with Recognition of Deferred Gains (i.e., on MVA Basis)	71.2%	67.5%
Unfunded AAL on VVA Basis	\$204,340	\$185,284
Unfunded AAL on MVA Basis	\$195,539	\$205,720

(1) Excludes liabilities held for non-valuation reserves.

(2) Excludes Contingency Reserve.

Note: Dollar amounts herein may not total exactly, due to rounding.

Valuation Results (\$ in thousands)

	<u>06/30/2017</u>	<u>06/30/2016</u>
Employer Contributions:		
Aggregate General Contribution Rate (% of payroll)	30.26%	27.59%
General Estimated Annual Contribution*	<u>\$15,140</u>	<u>\$13,801</u>
Aggregate Safety Contribution Rate (% of payroll)	60.10%	54.61%
Safety Estimated Annual Contribution*	<u>\$5,649</u>	<u>\$5,133</u>
Aggregate Probation Contribution Rate (% of payroll)	33.72%	29.89%
Probation Estimated Annual Contribution*	<u>\$980</u>	<u>\$868</u>
Aggregate Total Contribution Rate (% of payroll)	34.92%	31.77%
Total Estimated Annual Contribution*	<u>\$21,769</u>	<u>\$19,802</u>

* Based on June 30, 2017 projected annual compensation.

Changes in Actuarial Assumptions

- New actuarial assumptions were adopted for the June 30, 2017 valuation
 - Investment return assumption decreased from 7.25% to 7.00%
 - Inflation assumption decreased from 3.25% to 3.00%
 - Projected mortality changed to a more conservative assumption to anticipate longer life expectancy
 - RP-2014 family of mortality tables
 - MP-2016 life expectancy improvement scale
 - Assumption changes caused the increase in the UAAL & the employer and employee contribution rates
 - UAAL increased by \$28.2 million due to new assumptions
 - Employer contribution rate increased by 4.15% of payroll
 - Average employee contribution rate increased by 0.40% of payroll

Changes in Actuarial Assumptions (continued)

➤ Comparing the net investment return assumption with other public retirement systems at the time of MCERA's 7/1/2013 – 6/30/2016 experience study:

- National Association of State Retirement Administrators (NASRA) 2016 Public Fund Survey:

Assumption	MCERA (recommended)	NASRA – 2016 Public Fund Survey ⁽¹⁾		
		Low	Medium	High
Net Investment Return	7.00%	4.29%	7.50%	8.50%

⁽¹⁾ Survey for 142 large public retirement funds in their 2015 fiscal year valuations.

- California public sector retirement systems:

California Public Sector Retirement Systems	
System	Net Investment Return Assumption
CalPERS	7.50% to 7.00% over the next three years
CalSTRS	7.00% (for the 2017 valuation; 7.25% for the 2016 valuation, down from 7.50%) ⁽²⁾
Three County ERS ⁽¹⁾	7.00%
SamCERA	6.75% (for the 2017 valuation) ⁽²⁾

⁽¹⁾ Contra Costa, Fresno, Santa Barbara.
⁽²⁾ 2017 valuation assumptions adopted after MCERA's experience study was issued.

Experience During the Year

- Investment Experience for year ending June 30, 2017
 - Market Value of Assets earned 15.80%
 - Greater than the assumed rate of return of 7.25% for fiscal 2016 – 2017
 - Valuation (smoothed) Value of Assets earned 8.46%
 - Greater than 7.25%
 - Continued recognition of prior gains/losses
 - Association is currently deferring a net \$3.9M gain
 - Versus a \$24.7M loss last year
 - Will be recognized over next four years in the asset smoothing method
- Plan funded ratio on Valuation Value of Assets (VVA) basis decreased from 70.7% to 69.9%
 - On a market value of assets basis, ratio increased from 67.5% to 71.2%
- Aggregate employer contribution rate increased from 31.77% to 34.92% of payroll

Experience During the Year (continued)

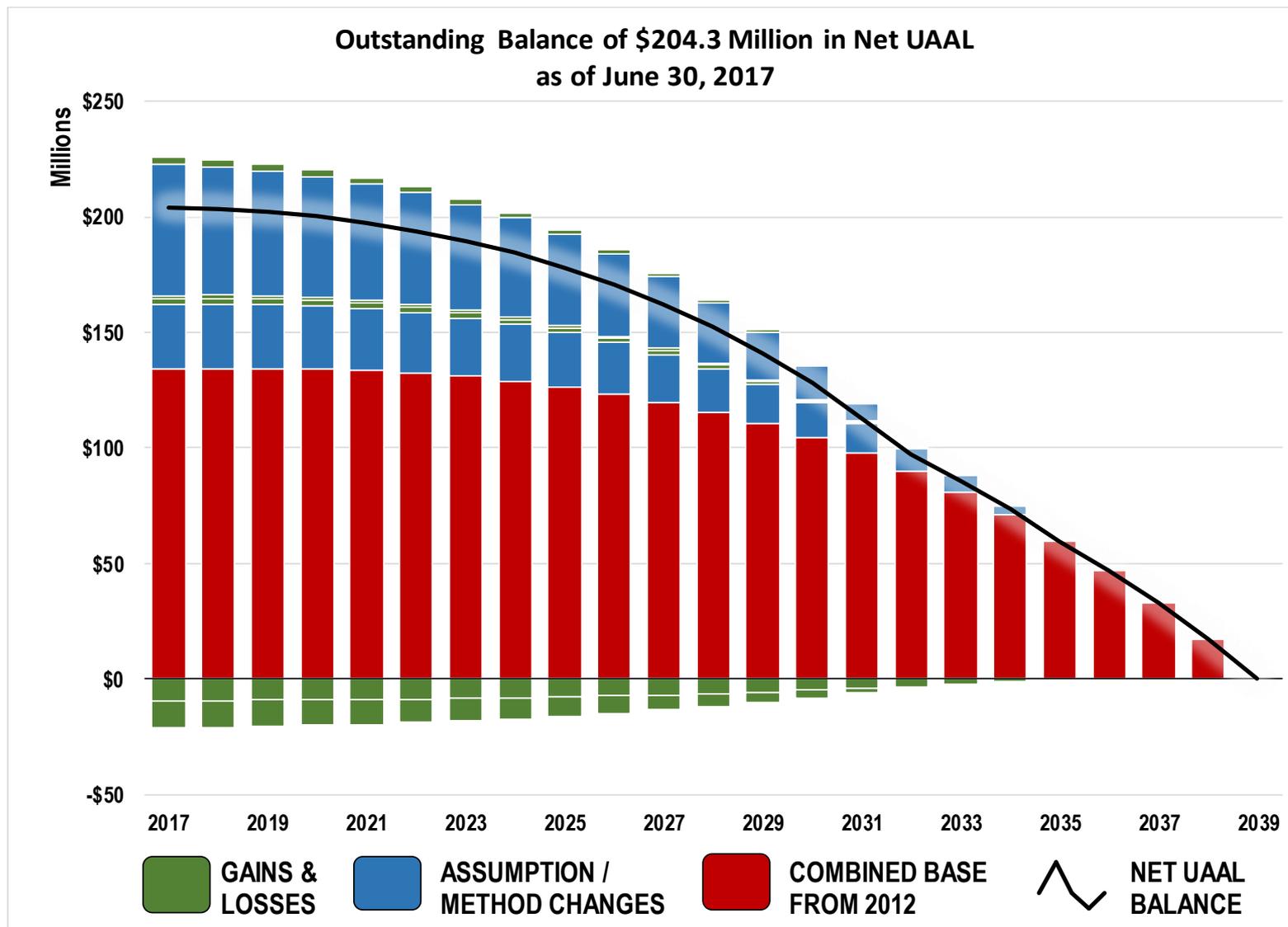
- If the \$3.9M in deferred gains were recognized immediately:
 - Funded ratio would increase from 69.9% to 71.2%
 - Aggregate employer contribution rate would decrease from 34.92% to about 33.8% of payroll
 - About \$0.7M based on projected payroll of \$62.3M as of June 30, 2017

Development of Unfunded Actuarial Accrued Liability

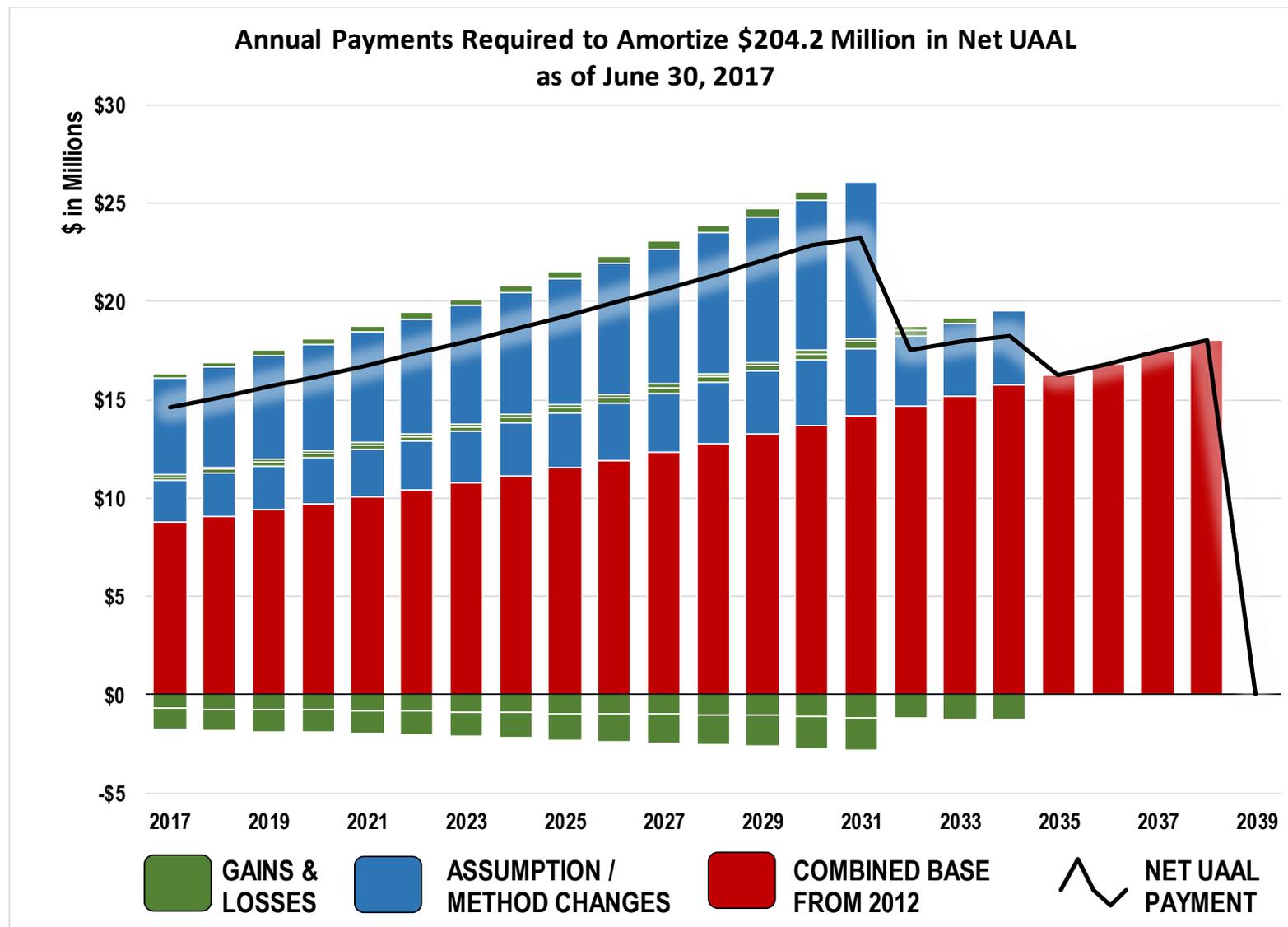
	(Amounts in Thousands)
1. Unfunded actuarial accrued liability at beginning of year	\$185,284
2. Total normal cost at middle of year	12,797
3. Expected employer and member contributions	-25,533
4. Interest	13,017
5. Expected unfunded actuarial accrued liability at end of year	<u>\$185,566</u>
6. Actuarial (gain)/loss due to all changes:	
a. Investment return more than expected	-\$5,367
b. Lower than expected individual salary increases	-3,164
c. Lower than expected COLAs granted	-2,246
d. Other experience	1,331
e. Change in actuarial assumptions	<u>28,221</u>
f. Total changes	<u>\$18,775</u>
7. Unfunded actuarial accrued liability at end of year	<u>\$204,340</u>

Note: There is an increase in the expected unfunded actuarial accrued liability in item 5 due to a net negative amortization. Such net negative amortization is expected to be eliminated after this valuation as of June 30, 2017.

Development of Unfunded Actuarial Accrued Liability (continued)



Development of Unfunded Actuarial Accrued Liability (continued)



Change in Aggregate Employer Contribution Rates

	<u>Contribution Rate (% of pay)</u>	<u>Estimated Annual Dollar Cost⁽¹⁾ (\$000)</u>
1. Aggregate Employer Contribution Rate as of June 30, 2016	31.77%	\$19,802
2. Effect of change in membership demographics	-0.14%	-87
3. Effect of anticipated one-year delay in the future from implementing contribution rates in the June 30, 2017 valuation ⁽²⁾	-0.07%	-44
4. Effect of investment gain	-0.65%	-405
5. Effect of lower than expected salary increases for actives	-0.38%	-237
6. Effect of amortizing prior year's UAAL over a smaller than expected projected total payroll	0.35%	218
7. Effect of lower than expected COLAs granted to retirees/beneficiaries	-0.27%	-168
8. Effect of other experience losses	0.16%	103
9. Effect of changes in actuarial assumptions	<u>4.15%</u>	<u>2,587</u>
10. Total Change	3.15%	\$1,967
11. Aggregate Employer Contribution Rate as of June 30, 2017	34.92%	\$21,769

(1) Based on June 30, 2017 projected compensation.

(2) Determined based on prior actuarial assumptions. For effect of changes in actuarial assumptions, see line item 9.

