December 10, 2019

TO: Board Trustees
Board of Investments

SUBJECT: BOI Meeting on December 11, 2019 – Green Folder Items

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Following you will find the Green Folder items for the above mentioned meeting:

Item XI. A. – Milliman Actuarial Assumption Review Slides
(Revised Page 11 and New Page 12)

Item XIV. B. – Closed Session/Chief Counsel Performance Evaluation
(Privileged and Confidential)

2019 Experience and Assumption Study
Economic Assumptions Follow-Up

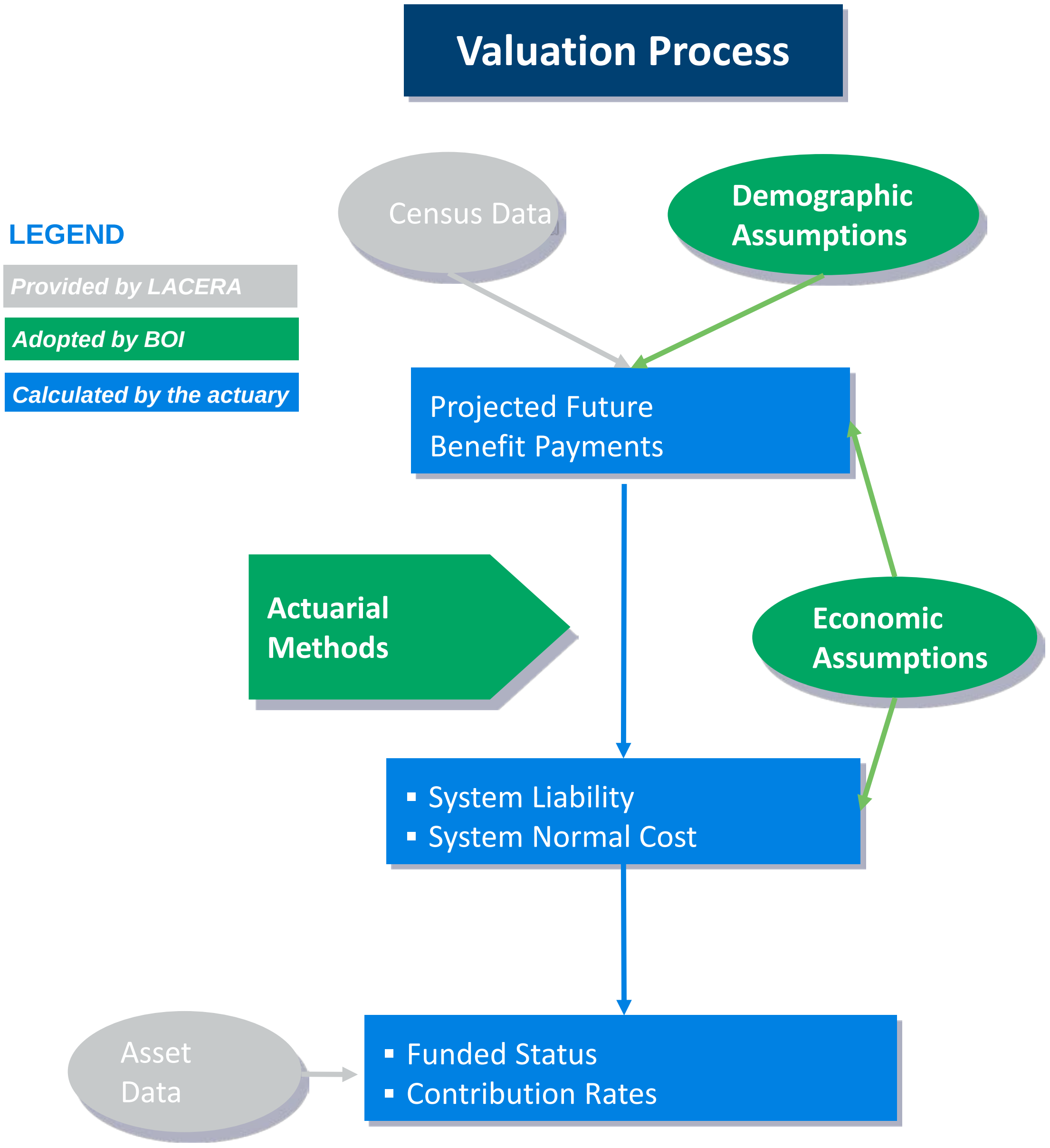
Mark Olleman
Nick Collier

DECEMBER 11, 2019

Milliman

Schedule

- October 2019 meeting:
  - Background on economic assumptions
- November & December 2019 meetings:
  - Follow-up discussion on economic assumptions
  - Reach general consensus on economic assumptions
- January 2020 meeting
  - Present results of demographic assumption study
  - Adopt assumptions to be used in 2019 valuation
- March 2020 meeting
  - Valuation results
  - Adopt member and employer contribution rates for fiscal year beginning July 1, 2020



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Recommended Economic Assumptions

- Price inflation (2.75% or 2.50%)
  - Projections are for lower price inflation, although recent local inflation has been higher
- Wage growth assumption (price inflation plus 0.50%)
  - Consistent with historical experience for both LA County and the U.S.
- Investment return assumption (6.75%)
  - Reflects current economic environment
  - 6.50% or 7.00% would also be reasonable

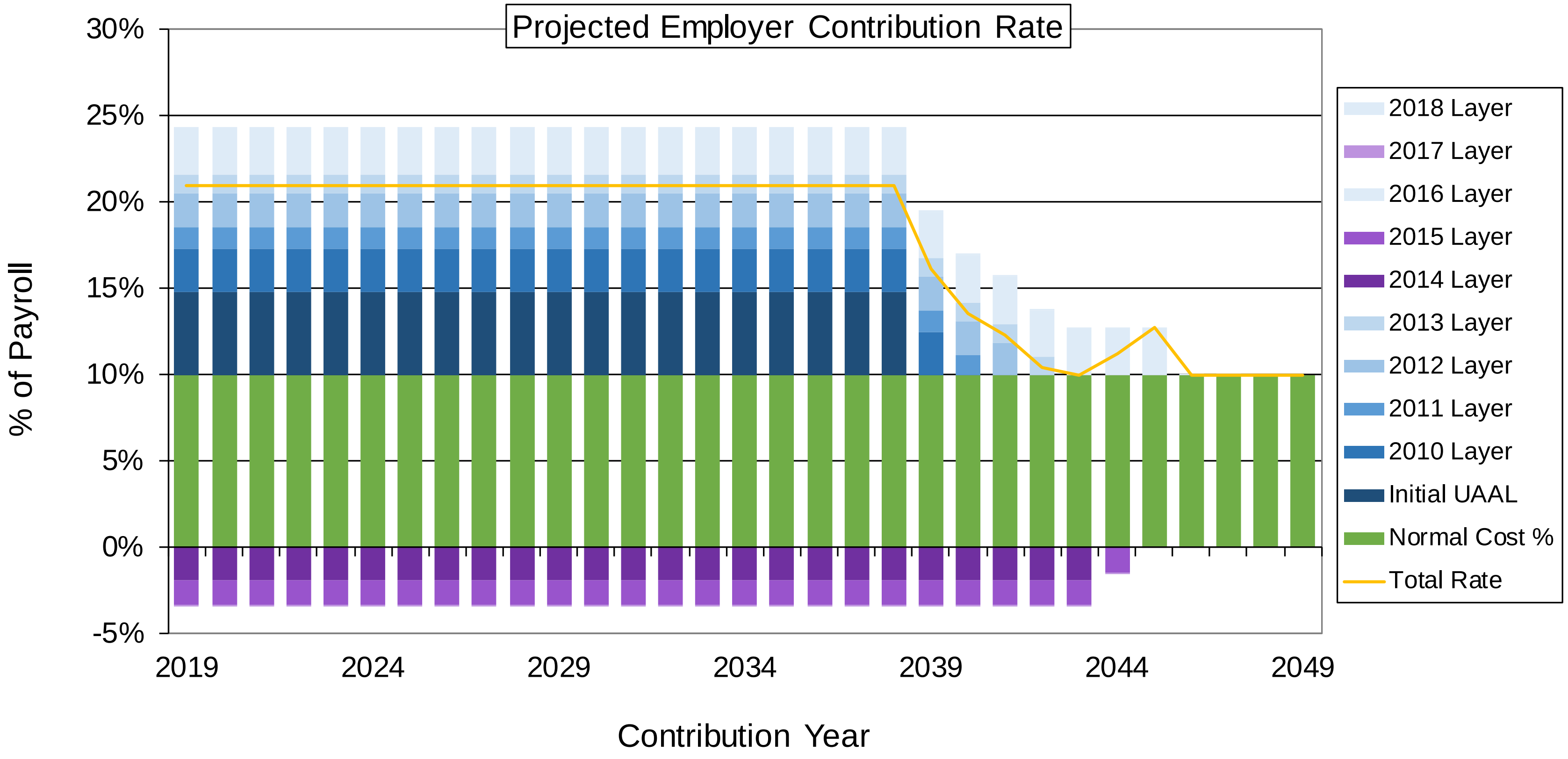
Investment Return Assumption	Wage Growth Assumption: 3.25%	Wage Growth Assumption: 3.00%
7.00%	Acceptable **Alternative #1**	Not Recommended
6.75%	**Recommended**	**Recommended** **Alternative #2**

1. *Milliman recommends against any set of assumptions with a 30-year amortization period, but do not believe by itself this would violate the Actuarial Standards of Practice.*

Transition to 20-Year Amortization

Layered Amortization – Current Schedule

- Initial 2009 Unfunded Actuarial Accrued Liability (UAAL) is paid over 30 years as a level % of pay
  - Additional payment (or credit) schedules are set up each future year to pay for new changes in UAAL



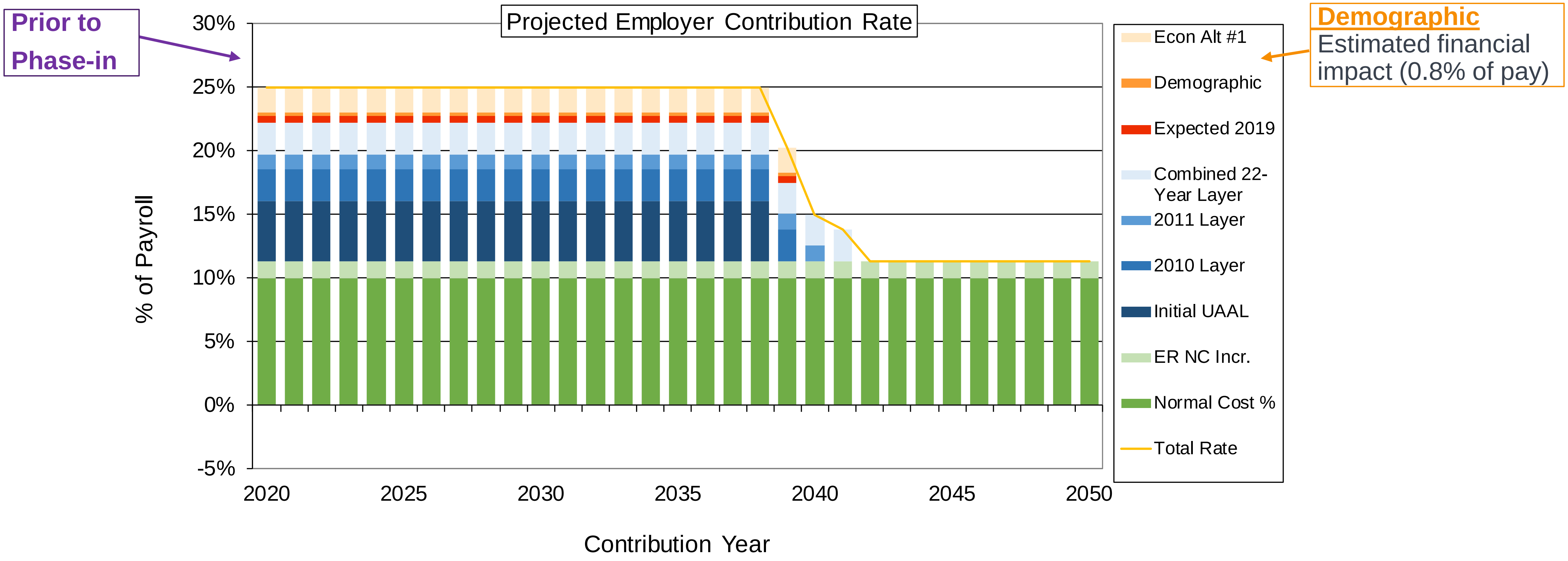
Financial Impact – Transition to 20-Year Amortization

- All future changes in the UAAL will be amortized over 20 years.
- Options for existing layers
  - Alternative #1a: No change to existing layers. UAAL is projected to have positive amortization and begin to start declining with 2021 valuation. Some existing layers will be greater than 20 years for next decade.
  - Alternative #1b: Combine all existing layers greater than 22 years and re-amortize over 22 years in the 2019 valuation. The increase in the employer contribution rate is estimated to be about 0.1% of pay. Under this approach, LACERA would be fully transitioned to 20-year amortization with the 2021 valuation.
  - Alternative #2a: Combine and amortize all existing layers over 25 years (including those created in the 2019 valuation).
    - This weakens the funding of the existing UAAL by reducing the contribution rate for existing layers. However, Milliman would view this as acceptable if the change was combined with a reduction in the investment return assumption to 6.75%. Overall, Milliman would view this as strengthening funding, and it would result in each component of the assumptions and methods being acceptable.
  - Alternative #2b: Same as Alternative #1b except using Alternative #2a investment return (6.75%) and wage growth (3.00%) assumptions. The increase in the employer contribution rate is estimated to be about 1.6% of pay over Alternative #2a.

Alternative #1b: Accelerated Amortization of Existing Layers

Investment Return = 7.00%
Wage Growth = 3.25%

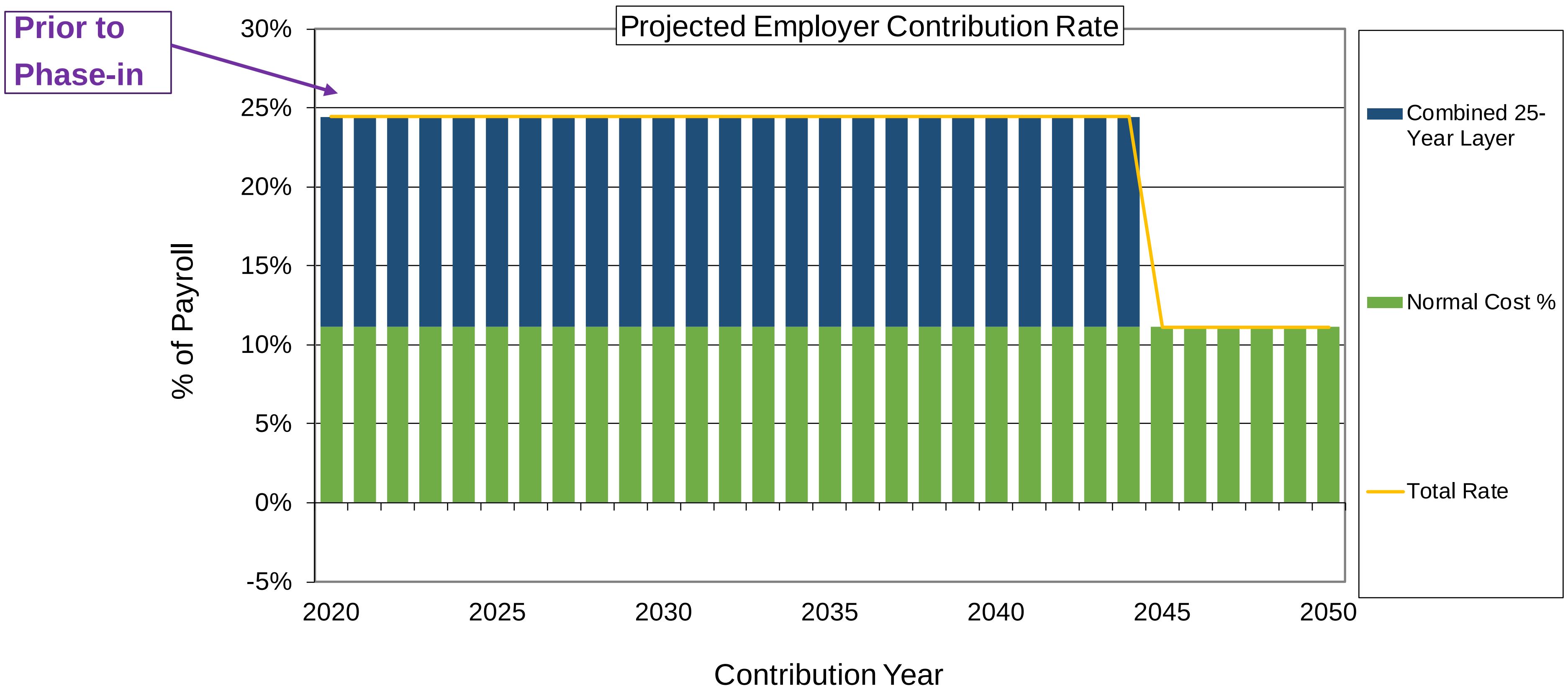
- All existing layers with a remaining period over 22 years are re-amortized at 22 years
  - Payments and credits approximately offset each other, so total rate is close to Alternative #1a (up 0.1%)



Alternative #2a: 25-Year Amortization of All Layers

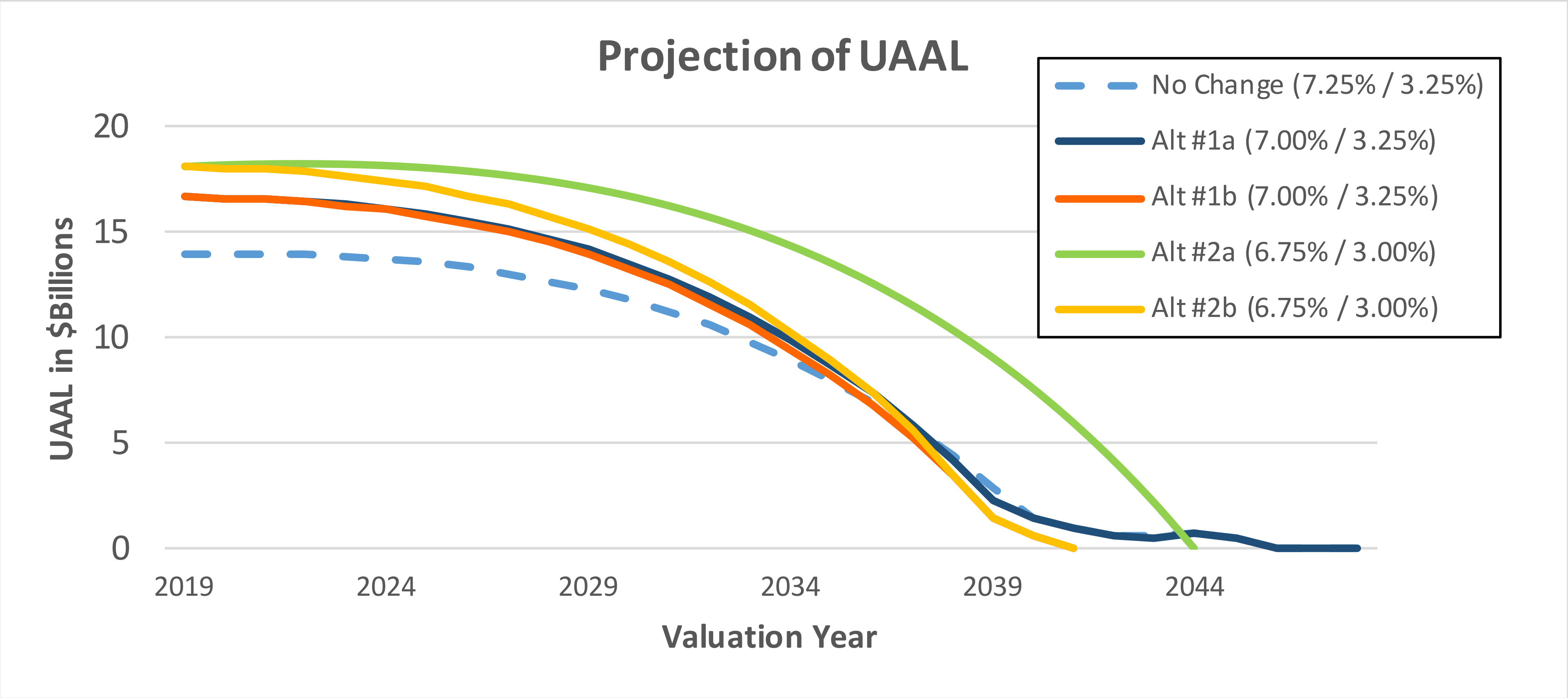
Investment Return = 6.75%
Wage Growth = 3.00%

- All existing layers are amortized over 25 years. 2019 valuation changes, including assumption changes, are also amortized over 25 years



Comparison of Projected UAAL Payoff

- Alternative #1b has the earliest projected payoff of the UAAL
  - But less likely than Alternative #2a to meet projected schedule due to higher target for assumed return



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Estimated Financial Impact

The following slides present the estimated financial impact of alternative assumptions, as requested by the Board of Investments. Sound actuarial funding dictates the assumptions be based on the best estimate of future experience, not based on the expected financial impact.

Financial Impact – Estimated Contribution Rates

	Year	Current Total		Alternative 1a Total	Alternative 1a Increase		Alternative 1b Total	Alternative 1b Increase		Alternative 2a Total	Alternative 2a Increase	
Assump /	2019 & Later	7.25% / 3.25%		7.00% / 3.25%			7.00% / 3.25%			6.75% / 3.00%		
Current Layers	2020 & Later	No Change		No Change			Maximum 22 Years			25 Years		
Projected Employer Contrib. %	FYB 2019	20.9%		20.9%	0.0%		20.9%	0.0%		20.9%	0.0%	
	FYB 2020	21.3%		22.5%	1.2%		22.5%	1.2%		22.5%	1.2%	
	FYB 2021	21.3%		23.7%	2.4%		23.8%	2.5%		23.7%	2.4%	
	FYB 2022	20.8%		24.5%	3.7%		24.6%	3.8%		24.5%	3.7%	
Projected Employer Contrib. in $Millions	FYB 2019	$ 1,771		$ 1,771	$ -		$ 1,771	$ -		$ 1,771	$ -	
	FYB 2020	1,864		1,969	105		1,972	108		1,969	105	
	FYB 2021	1,925		2,141	216		2,147	222		2,141	216	
	FYB 2022	1,940		2,286	346		2,295	355		2,286	346	
Est. Funded Ratio	June 30, 2019	80.7%		77.8%	-2.9%		77.8%	-2.9%		76.4%	-4.3%	
			$ Total			$ Inc.			$ Inc.			$ Inc.
Average Member Rate (Monthly)	General D	7.4%	$ 548	8.1%	0.7%	$ 52	8.1%	0.7%	$ 52	8.2%	0.8%	$ 59
	General G	8.4%	441	9.2%	0.8%	42	9.2%	0.8%	42	9.5%	1.1%	58
	Safety B	10.1%	1,051	11.5%	1.4%	146	11.5%	1.4%	146	11.9%	1.8%	187
	Safety C	13.7%	986	14.9%	1.2%	86	14.9%	1.2%	86	15.3%	1.6%	115

1) All alternatives include 3-year phase-in of employer increases due to assumptions and estimate of demographic changes.

2) Estimates only. Final results will be determined upon completion of the June 30, 2019 actuarial valuation.

Financial Impact – Estimated Contribution Rates (Alt #2b)

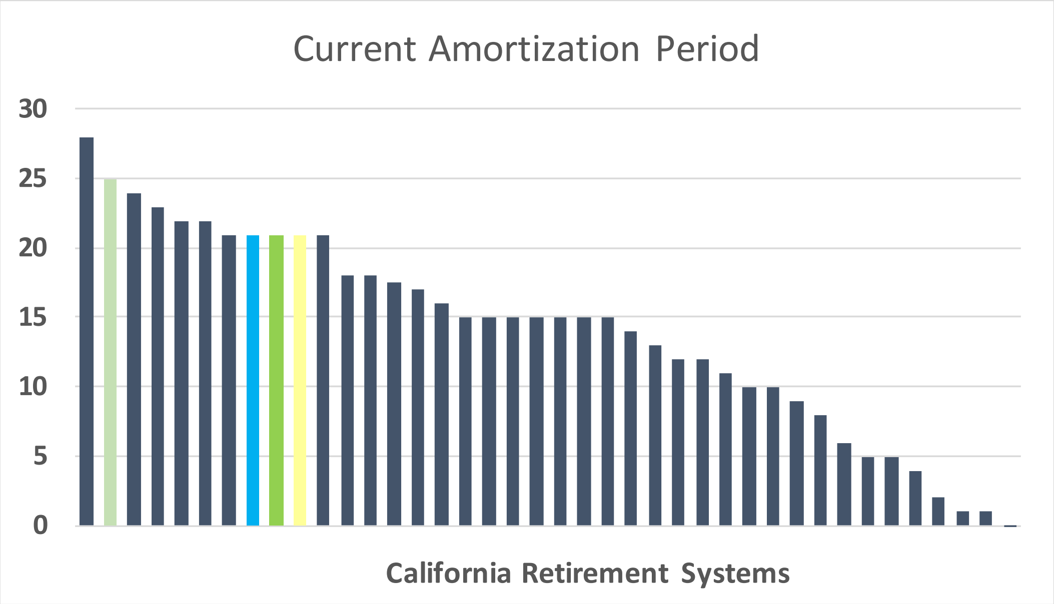
	Year	Current Total		Alternative 1a Total	Alternative 1a Increase		Alternative 2b Total	Alternative 2b Increase	
Assump / Current Layers	2019 & Later	7.25% / 3.25%		7.00% / 3.25%			6.75% / 3.00%		
	2020 & Later	No Change		No Change			Maximum 22 Years		
Projected Employer Contrib. %	FYB 2019	20.9%		20.9%	0.0%		20.9%	0.0%	
	FYB 2020	21.3%		22.5%	1.2%		22.9%	1.6%	
	FYB 2021	21.3%		23.7%	2.4%		23.0%	1.7%	
	FYB 2022	20.8%		24.5%	3.7%		26.1%	5.3%	
Projected Employer Contrib. in $Millions	FYB 2019	$ 1,771		$ 1,771	$ -		$ 1,771	$ -	
	FYB 2020	1,864		1,969	105		2,004	140	
	FYB 2021	1,925		2,141	216		2,078	153	
	FYB 2022	1,940		2,286	346		2,435	495	
Est. Funded Ratio	June 30, 2019	80.7%		77.8%	-2.9%		76.4%	-4.3%	
			$ Total			$ Inc.			$ Inc.
Average Member Rate (Monthly)	General D	7.4%	$ 548	8.1%	0.7%	$ 52	8.2%	0.8%	$ 59
	General G	8.4%	441	9.2%	0.8%	42	9.5%	1.1%	58
	Safety B	10.1%	1,051	11.5%	1.4%	146	11.9%	1.8%	187
	Safety C	13.7%	986	14.9%	1.2%	86	15.3%	1.6%	115

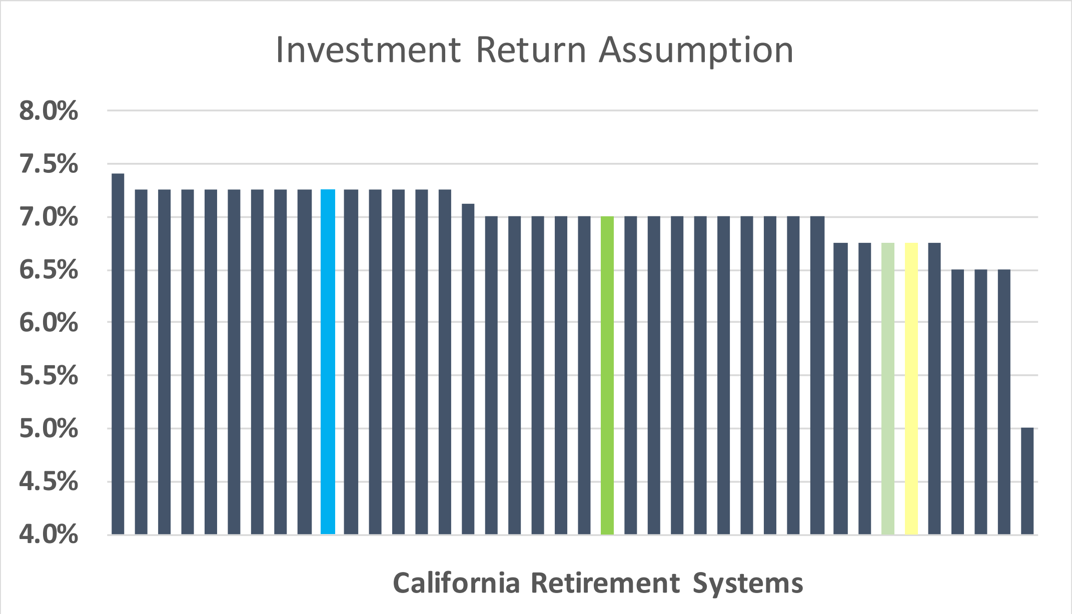
1) All alternatives include 3-year phase-in of employer increases due to assumptions and estimate of demographic changes.

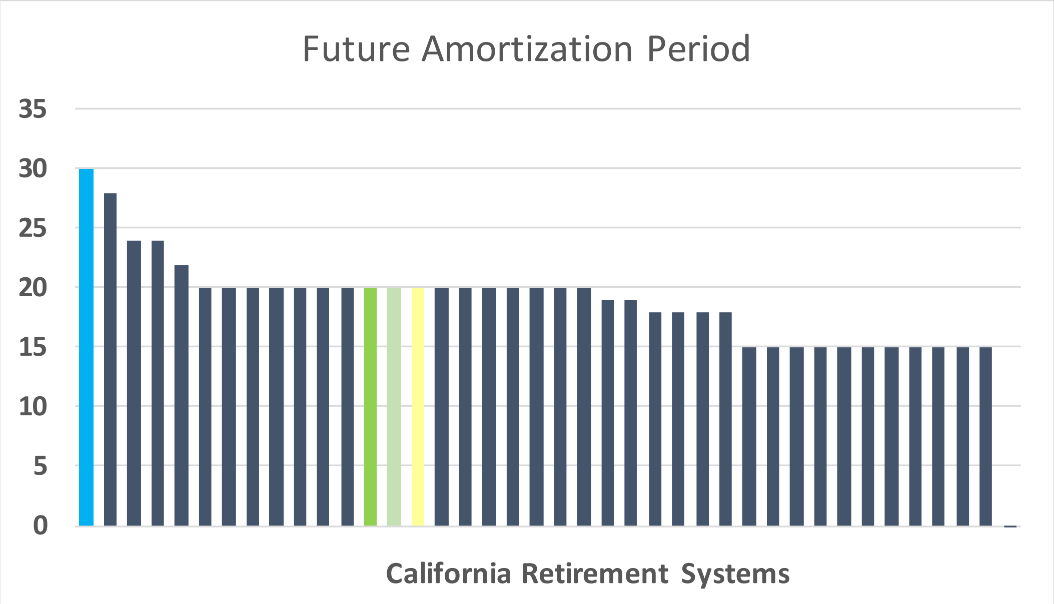
2) Estimates only. Final results will be determined upon completion of the June 30, 2019 actuarial valuation.

California Funding Survey

- LACERA currently is ranked 37th out of 37 California retirement systems in survey published by Roeder Financial Services
  - Blue = Current assumptions
  - Bright Green = Alt #1a & #1b (7.00% / 3.25%)
  - Pale Green = Alt #2a (6.75% / 3.00% / 25-yr Reset)
  - Pale Yellow = Alt #2b (6.75% / 3.00%)







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Summary

- Comparison of alternatives requested for further study

	Alternative #1a	Alternative #1b	Alternative #2a	Alternative #2b
Assumptions and Amortization of Current Layers	7.00% / 3.25% No changes to current layers	7.00% / 3.25% Current layers with periods longer than 22 years are combined and amortized over 22 years	6.75% / 3.00% All current layers, including those created in the 2019 valuation, are combined and amortized over 25 years	6.75% / 3.00% Current layers with periods longer than 22 years are combined and amortized over 22 years
Payoff of UAAL	Longest period. Negative amortization ends in 2021.	Shortest period. Negative amortization ends in 2021.	Payoff quicker than Alternative #1a, but negative amortization occurs for the first five years.	Shortest period. Negative amortization ends in 2021.
Ability to achieve return assumption	Lower probability than Alternative #2	Lower probability than Alternative #2	Highest probability of the alternatives (same as Alt #2b)	Highest probability of the alternatives (same as Alt #2a)
Employer contribution rate	Estimated 3.8% of pay increase over prior year with out phase-in. With 3-year phase-in, FYB 2020 rate is 1.6% increase over FYB 2019.	Approximately 0.1% higher than Alternative #1a. Only 1/3rd of that in first year with phase-in.	Approximately the same as Alternative #1a.	Approximately 1.6% higher than Alternative #1a. Only 1/3rd of that in first year with phase-in.
Member contribution rates	Material increases, but less than Alternative #2	Same as Alternative #1a	Greatest increase in the member rates of the alternatives (same as Alt #2b)	Greatest increase in the member rates of the alternatives (same as Alt #2a)

Notes: 1) All alternatives assumed to have 20-year amortization of future layers and reflect demographic changes
2) All options include STAR reserve but not associated liabilities (no change from current method)

Questions

Caveats and Disclaimers

This presentation is based on the data, methods, assumptions and plan provisions described in our actuarial valuation report dated November 29, 2018. The statements of reliance and limitations on the use of this material is reflected in the actuarial report and still apply to this presentation.

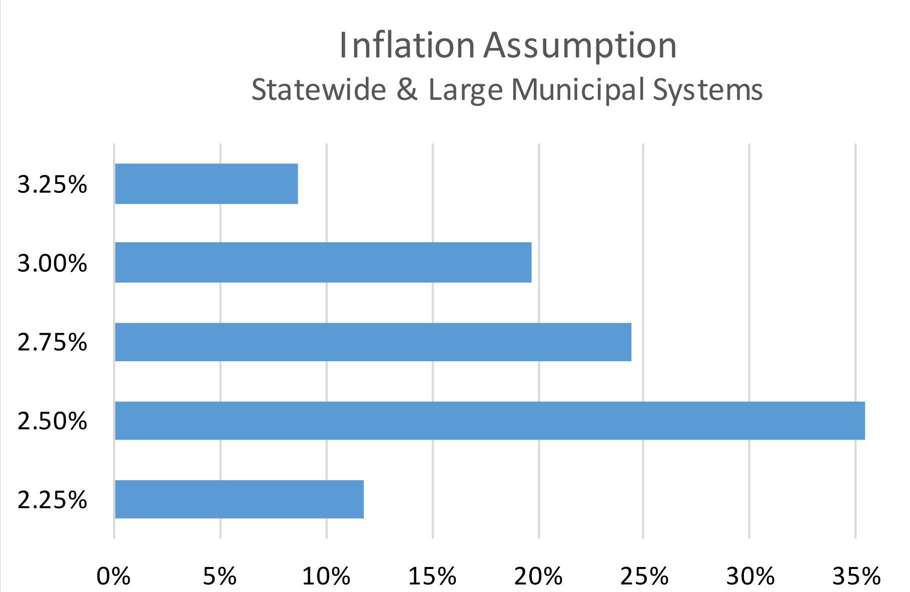
These statements include reliance on data provided, on actuarial certification, and the purpose of the report.

Milliman's work product was prepared exclusively for LACERA for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning LACERA's operations, and uses LACERA's data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.

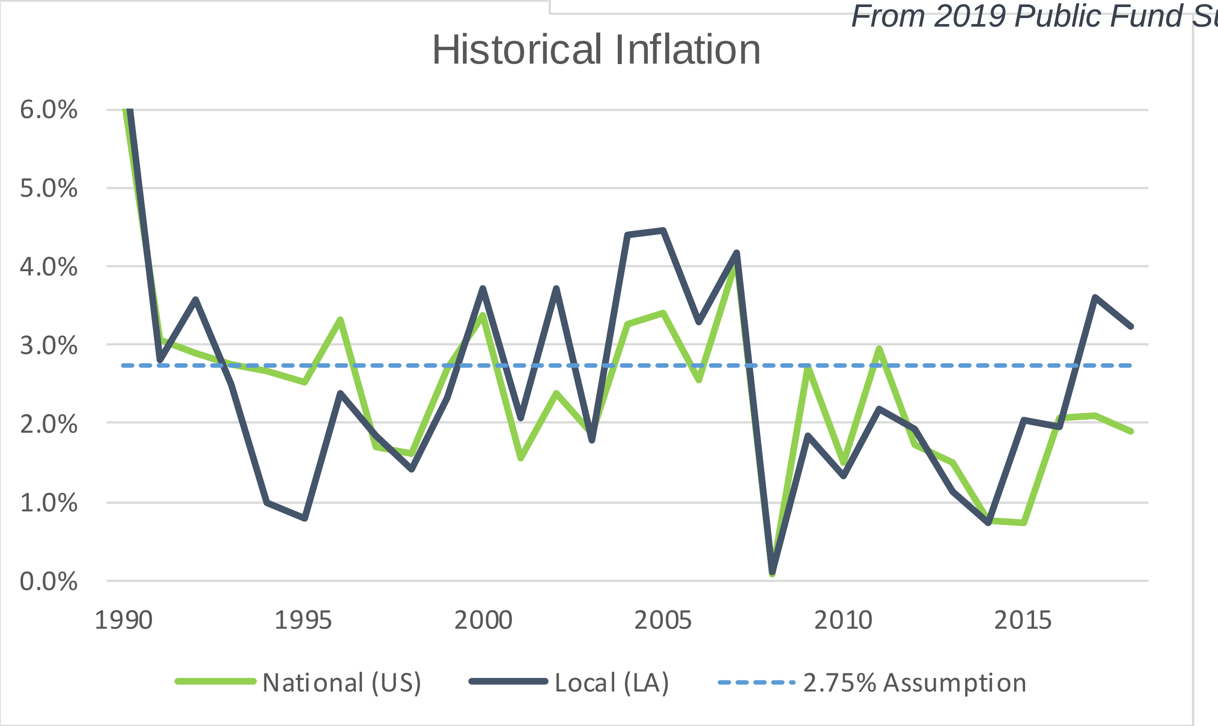
Supplemental Exhibits

Price Inflation

- Current inflation assumption is 2.75%
  - CalPERS and CalSTRS also at 2.75%
  - 2.75% is median assumption for large systems
- Long-range Social Security projection is 2.6%
- Other forecasts are lower
  - Implied inflation from TIPS
  - Most investment consultants
- Current assumption is reasonable
  - Milliman would also view 2.50% as reasonable

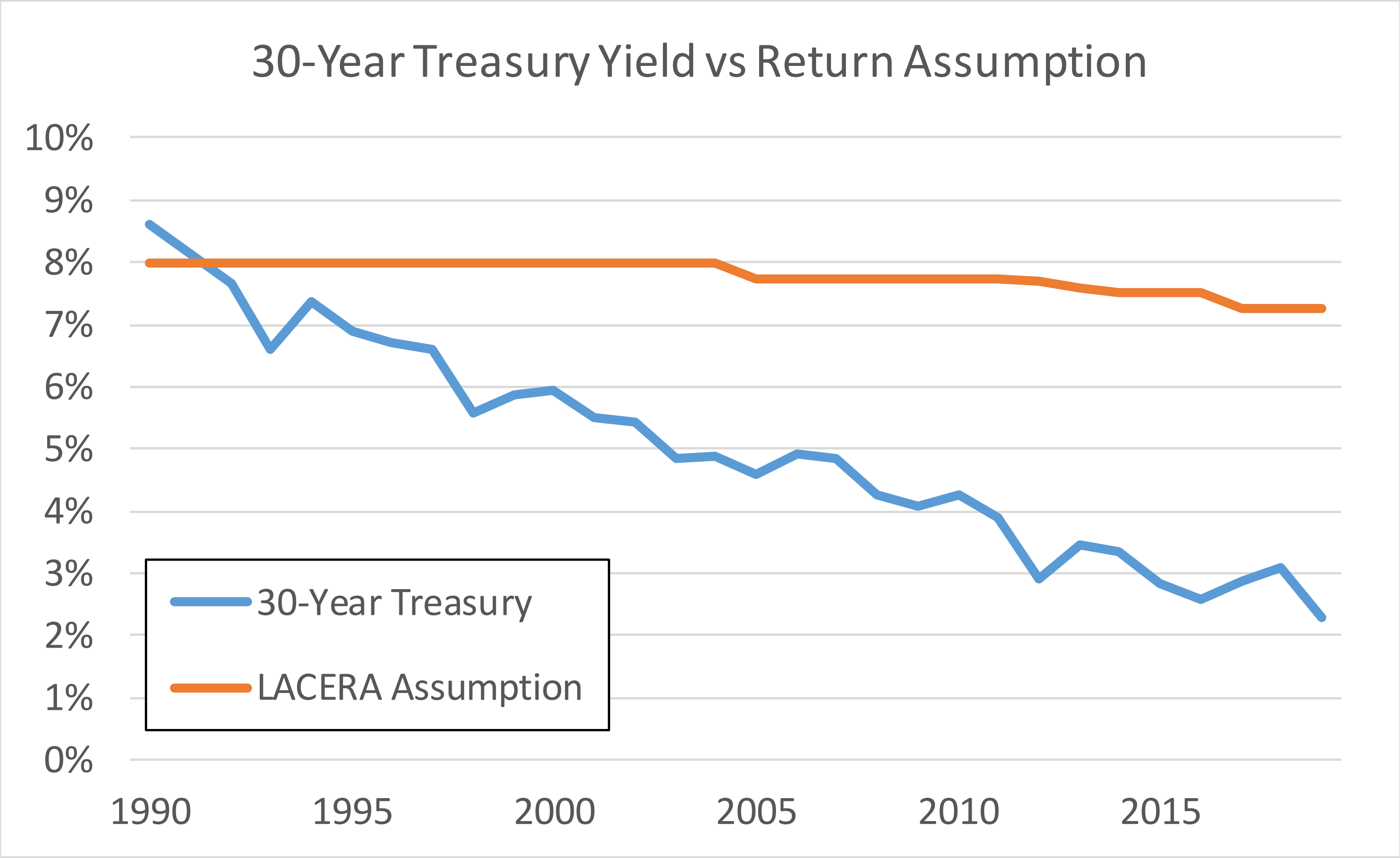


From 2019 Public Fund Survey



Change in Investment Environment

- Significant increase in investment risk needed to achieve return assumption



Expected Return

- Milliman calculated the median expected return for LACERA's target portfolio using the January, 2019 capital market outlook assumptions from three sources
  - Meketa
  - Milliman
  - 2019 Horizon survey of capital market assumptions (survey of 34 advisors)
- Estimates do not reflect any possible "alpha" due to selected managers potentially outperforming market benchmarks over the long term
- Milliman believes future expectations of returns have decreased materially since January, 2019

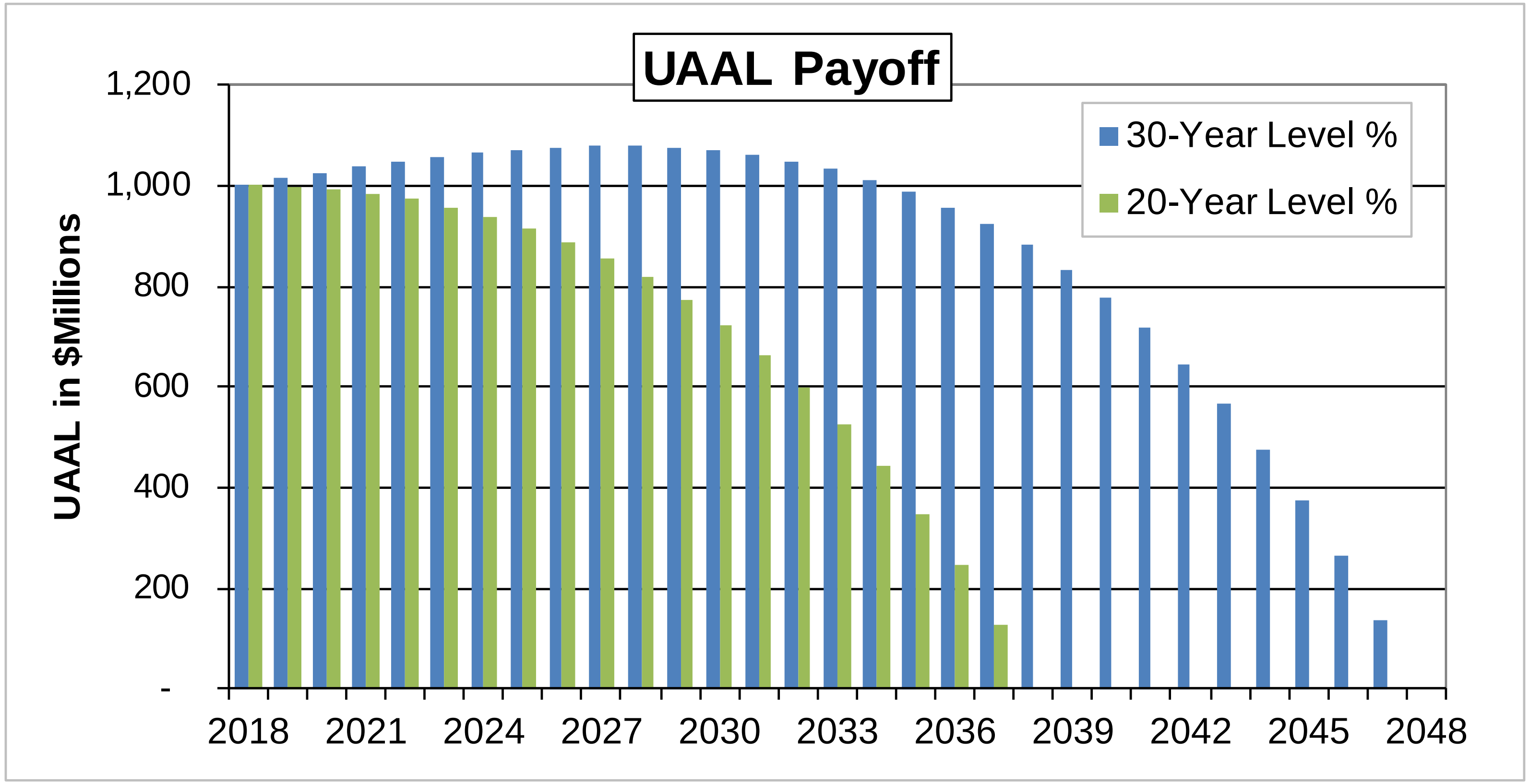
	Meketa	Milliman	Horizon
Based on 10-Year Assumptions			
Median Annualized Return	**6.8%**	**6.3%**	**6.6%**
Assumed Inflation	2.1%	2.3%	2.2%
Based on 20-Year Assumptions			
Median Annualized Return	**7.5%**	**6.4%**	**7.3%**
Assumed Inflation	2.6%	2.3%	2.3%

Notes:

1. *Returns are net of assumed expenses of 0.18% of assets.*
2. *The Horizon Survey reports a limited number of asset classes. In cases where there was not a corresponding asset class in the survey, Meketa's assumptions for the corresponding time horizon were used.*
3. *Horizon 10-year assumptions include some consultants with less than 10 years. Horizon 20-year assumptions include some consultants with more than 20 years and are based on a subgroup of less than half of the full group.*

Comparison of UAAL Amortization Periods

- LACERA's current funding policy has negative amortization (increasing UAAL) for a number of years for new payment layers
  - Example of one layer with a $1 billion actuarial loss in 2018



Documents not attached are exempt from disclosure under the California Public Records Act and other legal authority.

For further information, contact:
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