



Prelim. Pension Funding Recommendations

June 30, 2018 Actuarial Valuation Setting FY 2021-22 Contribution Rates

Plan Balance & Funded Status

Discount Rate Phase-In

Fiscal Year			Change	
2016	2017	2018	Dollars	Percent
7.375%	7.25%	7.00%		



Accrued Liability (AL)
 Less: Market Value of Assets (MVA)
 Unfunded Accrued Liability (UAL)
 Funded Ratio

887,481,877	939,503,861	1,006,978,316	67,474,455	7.18%
566,016,065	619,834,899	673,876,069	54,041,170	8.72%
321,465,812	319,668,962	333,102,247	13,433,285	4.20%
63.8%	66.0%	66.9%		



Plan Maturity Measures

Ratio of Retiree Accrued Liability to Total Accrued Liability*	June 30, 2018		
	MISC	SAFETY	TOTAL
1. Retiree Accrued Liability	240,086,226	419,250,009	659,336,235
2. Total Accrued Liability	425,538,434	581,439,882	1,006,978,316
3. Ratio of Retiree AL to Total AL [(1) / (2)]	56%	72%	65%

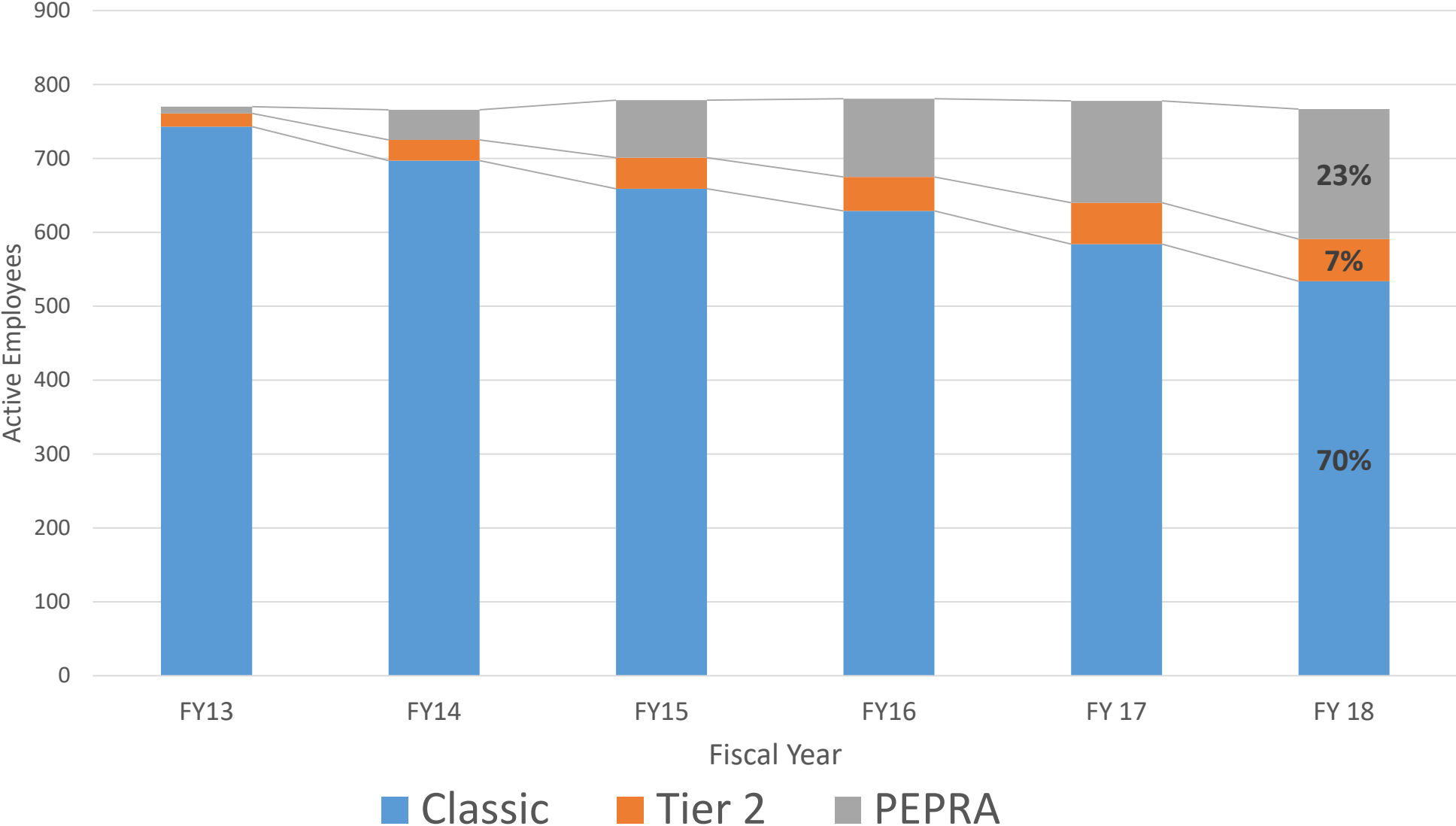
* A mature plan will have a ratio above 60-65%

Support Ratio	June 30, 2018		
	MISC	SAFETY	TOTAL
1. Number of Actives	505	262	767
2. Number of Retirees	664	437	1101
3. Support Ratio [(1) / (2)]	76%	60%	70%

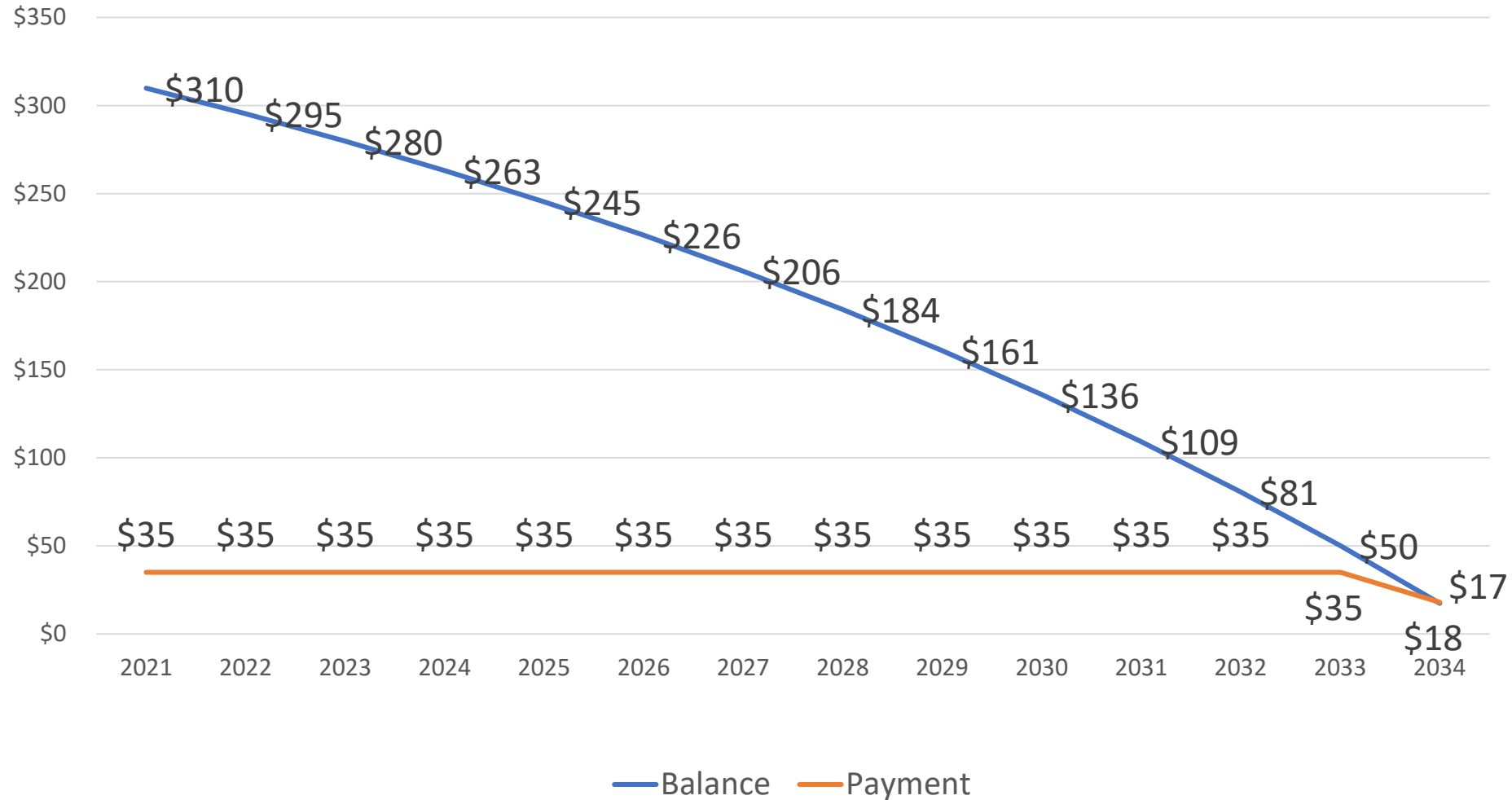
* A mature plan will often have a ratio near or below one.

The average support ratio for CalPERS public agency plans is 1.25.

Pension Tiers Over Time



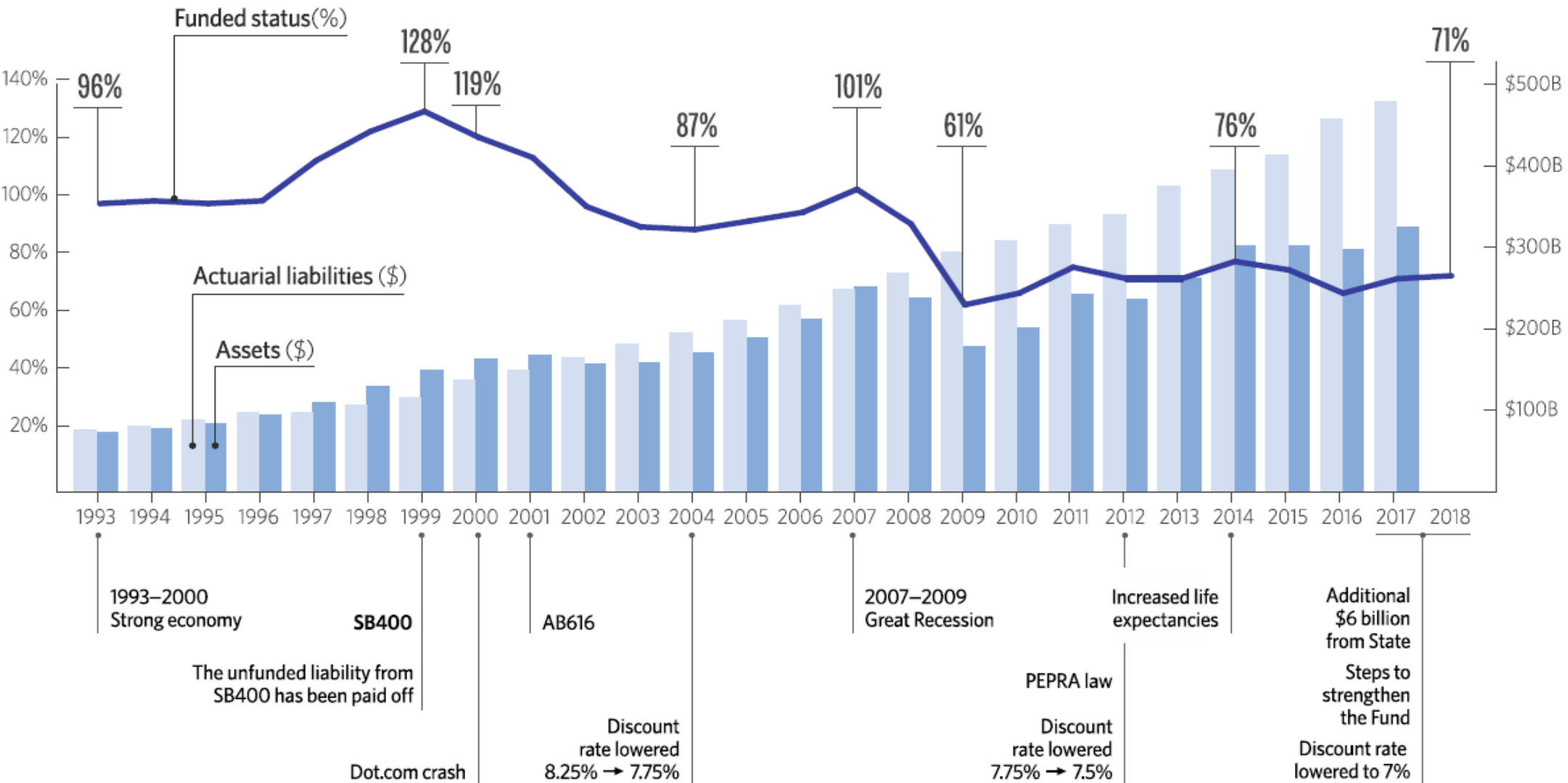
Pension Unfunded Liability (In Millions) Based on Past Losses



Pensions Costs are Sensitive to Investment Earnings



Historical Factors Impact Funded Status (1993-2018)

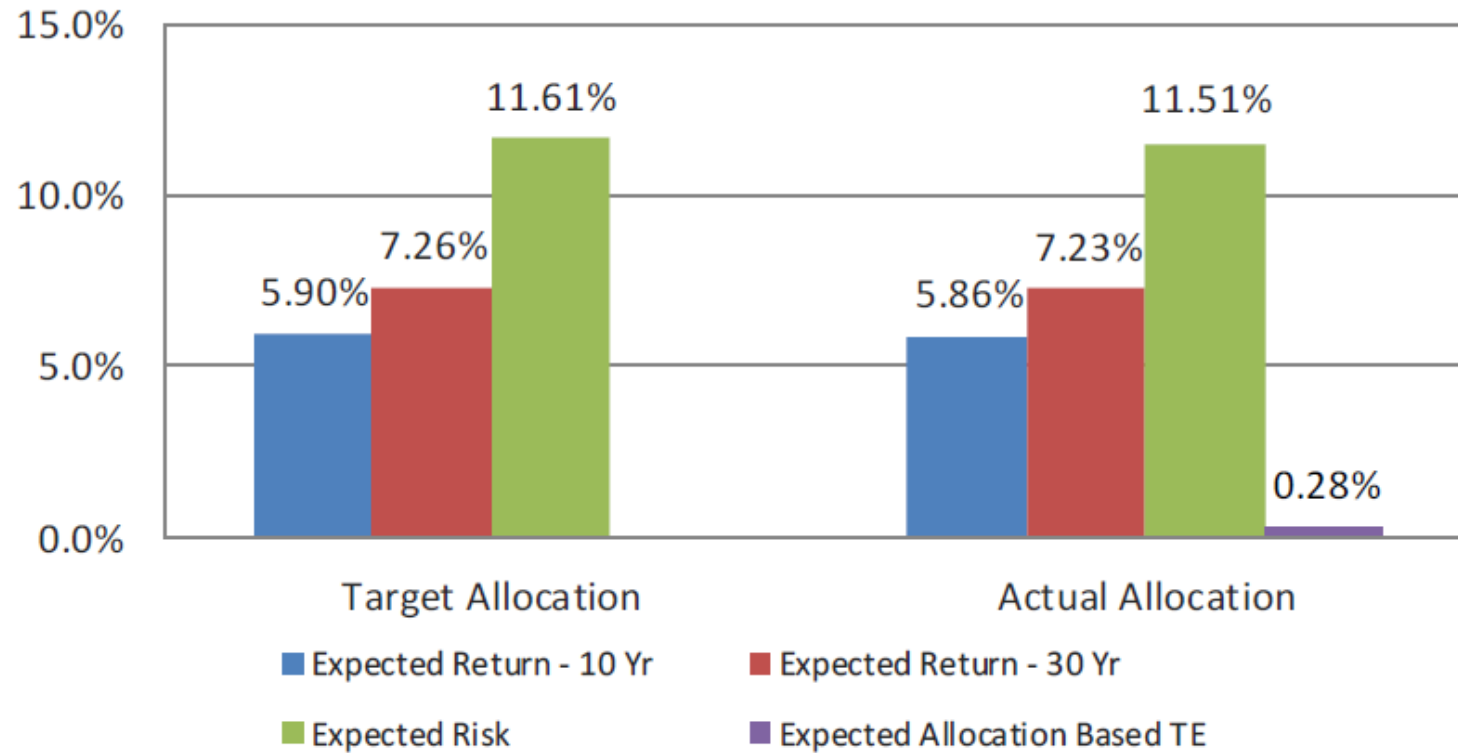


Hasn't the Market Already Recovered?

S&P 500 Total Returns versus Liabilities from 2007 - 2012

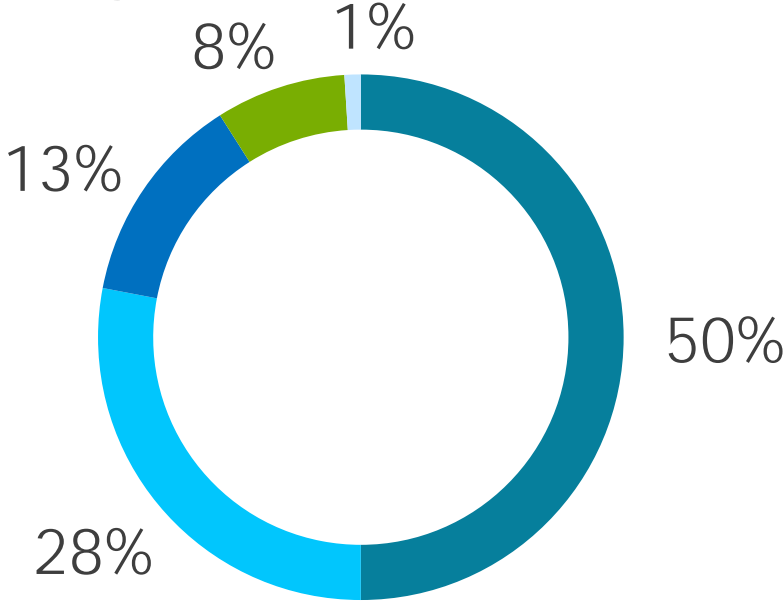


CalPERS Expected Return and Risk Estimates



IS THERE A PATH TO 7% ?

Target Asset Allocation



- Global Equity
- Real Assets
- Liquidity
- Fixed Income
- Private Equity

Allocation	Expected Return*	Return Contribution
Global Equity	7.00%	3.50%
Fixed Income	3.50%	0.98%
Real Assets	5.50%	0.72%
Private Equity	8.50%	0.68%
Liquidity	2.00%	0.02%
100%		5.90%

* Estimated

Anticipatory Investment Shortfall Worksheet

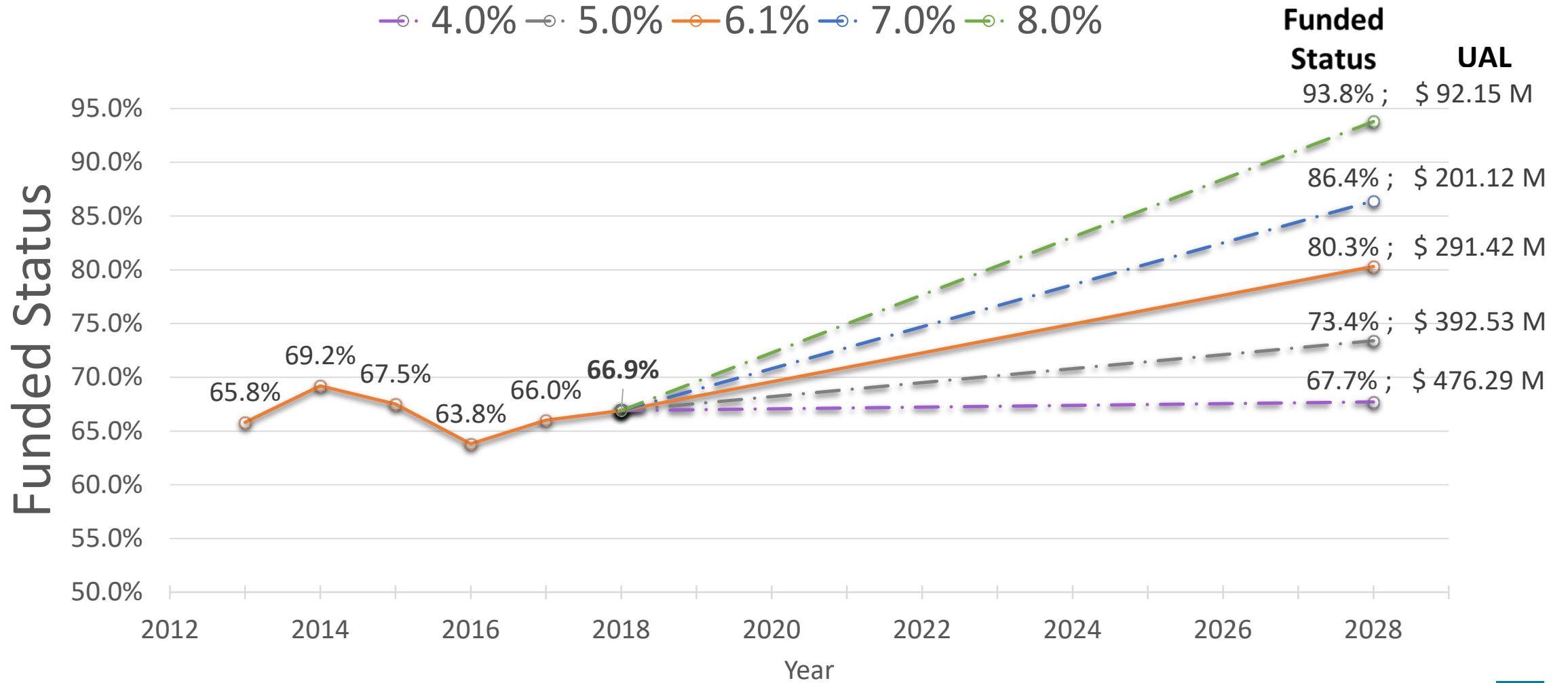
Expected Shortfall

Yrs	Projected Plan Assets	1.0%	Cumulative Shortfall + Interest
	1	718,990,555	7,189,906
2	762,129,988	7,621,300	15,314,499
3	807,857,787	8,078,578	24,465,092
4	856,329,254	8,563,293	34,740,941
5	907,709,010	9,077,090	46,249,896
6	962,171,550	9,621,716	59,109,105
7	1,019,901,843	10,199,018	73,445,761
8	1,081,095,954	10,810,960	89,397,923
9	1,145,961,711	11,459,617	107,115,395
10	1,214,719,414	12,147,194	126,760,667

Repayment Term		
Aggressive	Less Aggressive	Min
10	15	20
545,483	308,898	195,454
1,161,880	657,953	416,318
1,856,117	1,051,088	665,073
2,635,724	1,492,567	944,417
3,508,885	1,987,023	1,257,283
4,484,487	2,539,491	1,606,855
5,572,180	3,155,433	1,996,590
6,782,438	3,840,782	2,430,243
8,126,626	4,601,973	2,911,885
9,617,073	5,445,989	3,445,933

Funded Status Projection through 2028

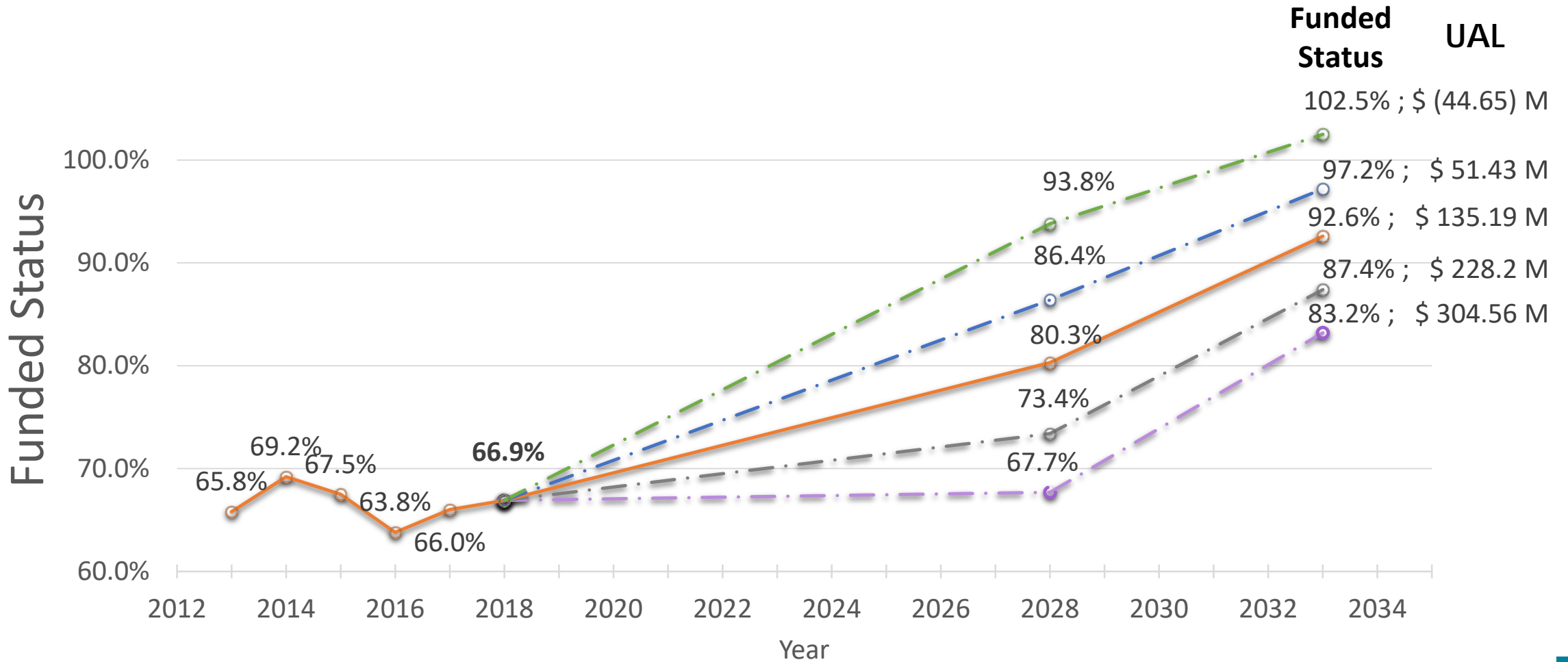
Assumed Investment Return:



Funded Status Projection through 2033

Assumed Investment Returns through 2028 and 7% thereafter:

4.0% 5.0% 6.1% 7.0% 8.0%



Standard Funding Options (SFO)

			SFO 1	SFO 2	SFO 3
Year	Val Year	Pmt Yr	Default	Current	\$5 Mill One-time Surplus
1	2018	2021	\$ 29,190,322	\$ 35,000,000	\$ 40,000,000
2	2019	2022	\$ 29,993,056	\$ 35,000,000	\$ 35,000,000
3	2020	2023	\$ 30,817,865	\$ 35,000,000	\$ 35,000,000
4	2021	2024	\$ 31,665,356	\$ 35,000,000	\$ 35,000,000
5	2022	2025	\$ 32,536,153	\$ 35,000,000	\$ 35,000,000
6	2023	2026	\$ 33,430,898	\$ 35,000,000	\$ 35,000,000
7	2024	2027	\$ 34,350,247	\$ 35,000,000	\$ 35,000,000
8	2025	2028	\$ 35,294,879	\$ 35,000,000	\$ 35,000,000
9	2026	2029	\$ 36,265,488	\$ 35,000,000	\$ 35,000,000
10	2027	2030	\$ 37,262,789	\$ 35,000,000	\$ 35,000,000
11	2028	2031	\$ 38,287,516	\$ 35,000,000	\$ 35,000,000
12	2029	2032	\$ 39,340,423	\$ 35,000,000	\$ 35,000,000
13	2030	2033	\$ 40,422,284	\$ 35,000,000	\$ 35,000,000
14	2031	2034	\$ 41,533,897	\$ 20,194,897	\$ 8,145,672
15	2032	2035	\$ 1,493,823	\$ -	\$ -
16	2033	2036	\$ 1,534,903	\$ -	\$ -
17	2034	2037	\$ 1,577,113	\$ -	\$ -
18	2035	2038	\$ 1,620,484	\$ -	\$ -
19	2036	2039	\$ 1,665,047	\$ -	\$ -
20	2037	2040	\$ 1,710,836	\$ -	\$ -
Totals			\$ 499,993,381	\$ 475,194,897	\$ 468,145,672
Savings over default				\$ 24,798,485	\$ 31,847,710

Current Funding Strategy

	Normal Cost Rate		Expected Normal Cost		Change	
	2019-20	2020-21	2019-20	2020-21	Dollars	Percent
Misc	16.9%	17.7%	7,712,921	7,747,118	34,197	0.4%
Safety	28.1%	29.2%	9,694,973	10,160,422	465,449	4.8%
Total Normal Expected Cost			17,407,894	17,907,540	499,646	2.9%

	Amortization of UAL		Change			
	2019-20	2020-21	Dollars	Percent		
Minimum Unfunded Liability Contribution	26,196,003	29,753,088	3,557,085	13.6%		
Additional Discretionary Payment (ADP)	8,803,997	5,246,912	(3,557,085)	-40.4%		
Total Planned UAL Payment			35,000,000	35,000,000	-	0.0%

	Total Expected Pension Cost		Change	
	2019-20	2020-21	Dollars	Percent
Total Expected PERS Contribution	52,407,894	52,907,540	499,646	1.0%
Less: Expected Employee Contributions	10,632,010	11,258,628	626,618	5.9%
Net Employer Cost "Projected"	\$ 41,775,884	\$ 41,648,912	\$ (126,972)	-0.3%

Anticipatory Prefunding Options (APO)

Additional Investment Loss Risk Mitigation Pmts.			
Yr.	APO 1	APO 2	APO 3
1	2,000,000	5,000,000	5,000,000
2	2,000,000	5,000,000	5,000,000
3	2,000,000	5,000,000	5,000,000
4	2,000,000	5,000,000	5,000,000
5	2,000,000	5,000,000	5,000,000
6	2,000,000	2,000,000	5,000,000
7	2,000,000	2,000,000	5,000,000
8	2,000,000	2,000,000	5,000,000
9	2,000,000	2,000,000	5,000,000
10	2,000,000	2,000,000	5,000,000
11	2,000,000	2,000,000	5,000,000
12	2,000,000	2,000,000	5,000,000
13	2,000,000	2,000,000	5,000,000
14	2,000,000	2,000,000	5,000,000
15	2,000,000	2,000,000	5,000,000
Total	30,000,000	45,000,000	75,000,000
FV@6%	(46,551,940)	(76,837,465)	(116,379,849)

ANTICIPATORY PREFUNDING OPTIONS (APO)							
		APO 1		APO 2		APO 3	
Yr.	Val Year	Pmt Yr.	\$2 Mill Extra/Yr	\$5 Mill for 5 Yrs, \$2 Mill Extra Thereafter	\$5 Mill Extra/Yr Ongoing		
1	2018	2021	\$ 37,000,000	\$ 40,000,000	\$ 40,000,000		
2	2019	2022	\$ 37,000,000	\$ 40,000,000	\$ 40,000,000		
3	2020	2023	\$ 37,000,000	\$ 40,000,000	\$ 40,000,000		
4	2021	2024	\$ 37,000,000	\$ 40,000,000	\$ 40,000,000		
5	2022	2025	\$ 37,000,000	\$ 40,000,000	\$ 40,000,000		
6	2023	2026	\$ 37,000,000	\$ 37,000,000	\$ 40,000,000		
7	2024	2027	\$ 37,000,000	\$ 37,000,000	\$ 40,000,000		
8	2025	2028	\$ 37,000,000	\$ 37,000,000	\$ 40,000,000		
9	2026	2029	\$ 37,000,000	\$ 37,000,000	\$ 40,000,000		
10	2027	2030	\$ 37,000,000	\$ 37,000,000	\$ 40,000,000		
11	2028	2031	\$ 37,000,000	\$ 37,000,000	\$ 40,000,000		
12	2029	2032	\$ 37,000,000	\$ 8,280,924	\$ 314,676		
13	2030	2033	\$ 7,954,194	\$ 8,508,650	\$ 323,330		
14	2031	2034	\$ 8,172,934	\$ 8,742,638	\$ 332,221		
		Totals	\$ 460,127,127	\$ 447,532,212	\$ 440,970,228		

Preliminary FY 2020-21 Funding Recommendation

	Normal Cost Rate		Expected Normal Cost		Change	
	2019-20	2020-21	2019-20	2020-21	Dollars	Percent
Misc	16.9%	17.7%	7,712,921	7,747,118	34,197	0.4%
Safety	28.1%	29.2%	9,694,973	10,160,422	465,449	4.8%
Total Normal Expected Cost			17,407,894	17,907,540	499,646	2.9%

	Amortization of UAL		Change	
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Minimum Unfunded Liability Contribution	26,196,003	29,753,088	3,557,085	13.6%
Additional Discretionary Payment (ADP)	8,803,997	10,246,912	1,442,915	16.4%
Total Planned UAL Payment	35,000,000	40,000,000	5,000,000	14.3%

	Total Expected Pension Cost		Change	
	2019-20	2020-21	Dollars	Percent
Total Expected PERS Contribution	52,407,894	57,907,540	5,499,646	10.5%
Less: Expected Employee Contributions	10,632,010	11,258,628	626,618	5.9%
Net Employer Cost "Projected"	\$ 41,775,884	\$ 46,648,912	\$ 4,873,028	11.7%

Questions

