Callan

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City of El Paso Employees Retirement Trust

2023 Asset-Liability Study

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CEPERT 2023 Asset-Liability Agenda

- Summary of Results
- Overview of Callan's Asset-Liability Process
- Key Asset-Liability Study Results
- Appendix

Summary of Results

Background

- Last asset-liability study was completed in Q4 2019 and the Board approved increasing the target private equity allocation from 10% to 13%

Key Assumptions

- Callan’s liability model is based on Buck’s September 1, 2022 actuarial valuation and mirrors that report
- No workforce growth – future hires replace exits due to retirement, death, disability, and withdrawal
- CEPERT maintains the current statutory contribution rates (14.05% employer and 8.95% employee)

Conclusions

- CEPERT’s target asset allocation is expected (median case) to generate a compound annual growth rate over the next decade that is sufficient to meet the actuarial discount rate of 7.25%
- Assets are projected to outgrow liabilities, leading to a gradual improvement in market funded status from ~78% to ~80% by 2032

Recommendation

- Approve the asset-liability study in confirming the strategic asset allocation is appropriate

Overview of Callan's Asset-Liability Process

Goals of the Asset-Liability Study

- The goal of this asset-liability project is to establish a long-term strategic asset allocation target
- An appropriate asset allocation will depend on CEPERT's investment objectives
  - Minimize costs over the long run (long-term goal)
    - *How much return generation is necessary to lower contributions and/or improve funded status?*
  - Minimize funded status volatility (short-term goal)
    - *How much risk reduction to reduce contribution/funded status volatility?*
- Asset allocation will vary by the unique circumstances
  - *No "one-size-fits-all" solution exists*
- The asset-liability study will help CEPERT quantify the impact that different strategies might have on relevant metrics

Factors to consider:

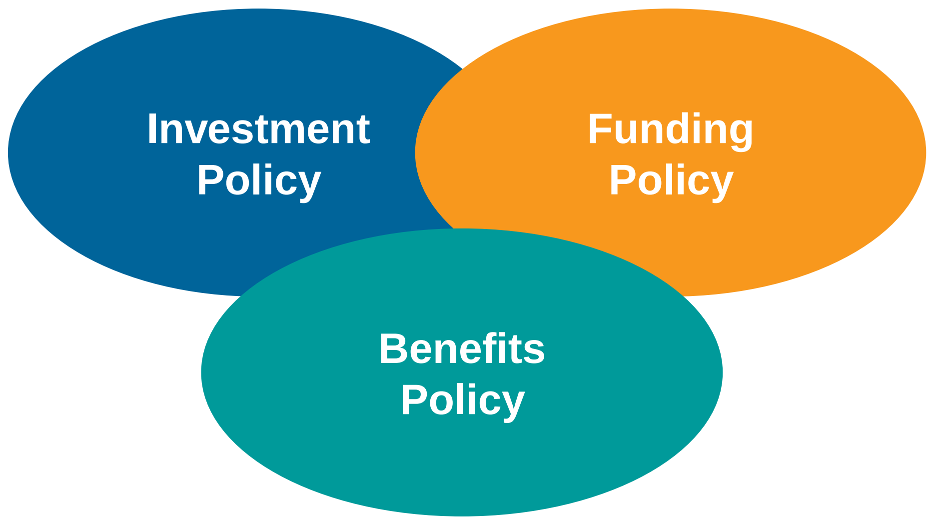
- Liability characteristics
- Funded status
- Contribution policy
- Time horizon
- Liquidity needs
- Risk Tolerance

Today's goal is to establish the long-term asset allocation policy

Three Key Strategic Policies

Evaluate the interaction of three key policies to identify an appropriate investment policy

Investment Policy
- How will the assets supporting the benefits be invested?
- What are the risk and return objectives?
- How to manage cash flows?



Funding Policy
- How will the benefits/deficits be paid for (funded)?
- What is the assumed investment return?
- What are the actuarial assumptions?

Benefits Policy
- What type/kind of benefits?
- What level of benefit?
- When and to whom are they payable?

Contributions + Investment Earnings = Benefits Paid + Expenses

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Key Asset-Liability Study Results

Callan's 2023 Capital Market Assumptions

Asset Class	Benchmark	Expected Return [1]	Standard Deviation
Equities			
Broad US Equity	Russell 3000	7.35%	18.05%
Large Cap US Equity	S&P 500	7.25%	17.75%
Small/Mid Cap US Equity	Russell 2500	7.45%	22.15%
Global ex-US Equity	MSCI ACWI ex USA	7.45%	21.25%
Developed ex-US Equity	MSCI World ex USA	7.25%	20.15%
Emerging Market Equity	MSCI Emerging Markets	7.45%	25.70%
Fixed Income			
Short Duration Gov't/Credit	Bloomberg Barclays 1-3 Yr G/C	3.80%	2.30%
Core US Fixed	Bloomberg Barclays Aggregate	4.25%	4.10%
High Yield	Bloomberg Barclays High Yield	6.25%	11.75%
Bank Loans	S&P/LSTA Leveraged Loan Index	6.10%	9.70%
EMD	EMBI Global Diversified	5.85%	10.65%
Alternatives			
Core Real Estate	NCREIF ODCE	5.75%	14.20%
Private Equity	Cambridge Private Equity	8.50%	27.60%
Private Credit	N/A	7.00%	15.50%
Hedge Funds	Callan Hedge FoF Database	5.55%	8.45%
Cash Equivalents	90-Day T-Bill	2.75%	0.90%
Inflation	CPI-U	2.50%	1.60%

[1] *10-year annualized return*

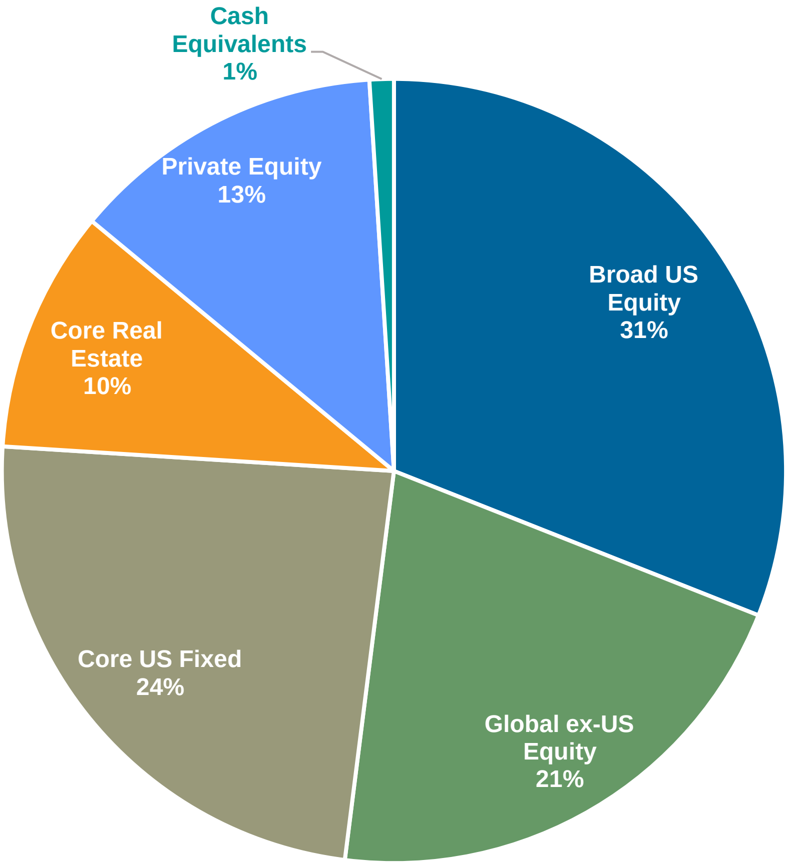
Asset classes shaded in green are part of the Plan's target investment allocation

Asset class shaded in orange are potential new asset classes for inclusion

Most capital market expectations represent passive exposure (beta only); however, return expectations for private asset classes represent active management net of fees because no effective market proxies exist

CEPERT Asset Allocation

Target Policy



Expected Return = 7.3%

Expected Risk = 13.5%

The current target asset allocation is a diversified structure, with alternatives investments in real estate and private equity

In broad terms:

- **52% Public Equity**
- **25% Fixed Income + Cash**
- **23% Alternatives**

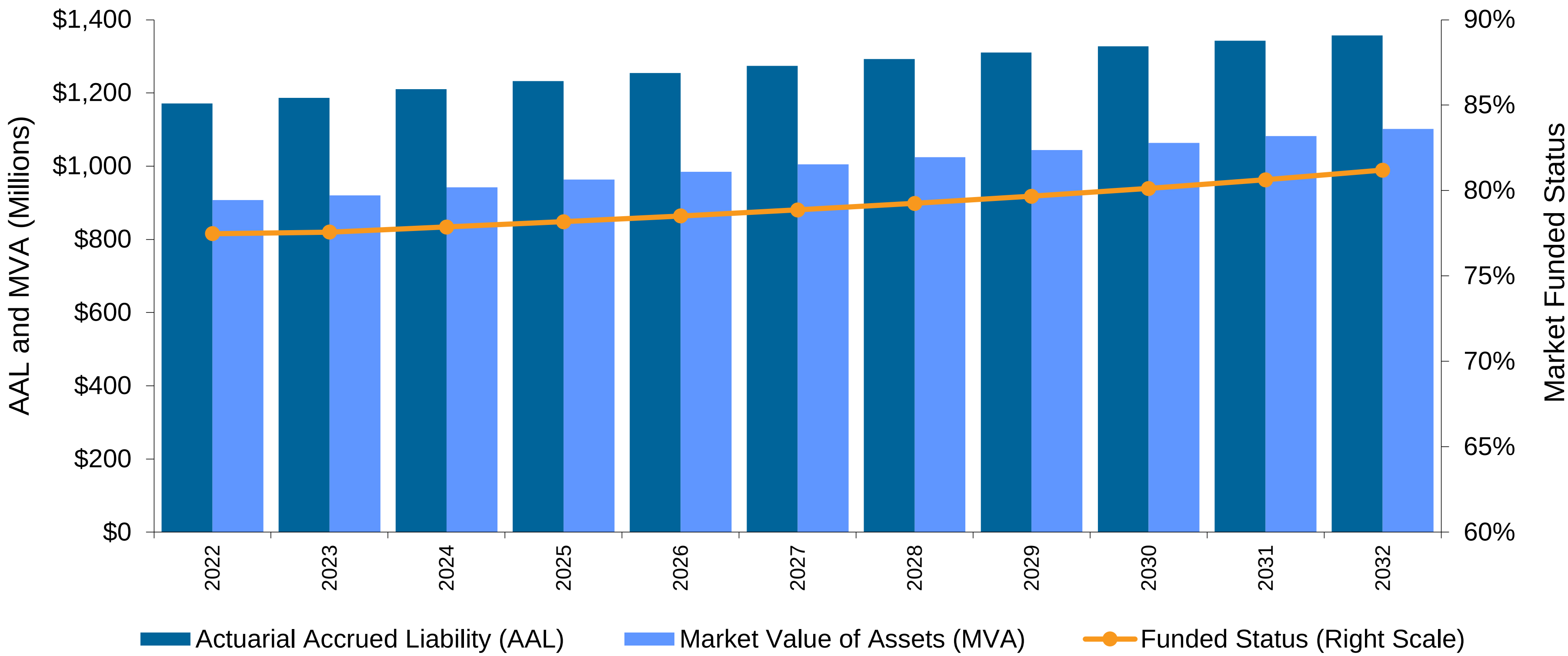
Financial Position as of September 1, 2022

	Market	Actuarial
Value of Assets	$908 Million	$947 Million
Accrued Liability	$1,171 Million	$1,171 Million
Funded Status	77.5%	80.9%

Expected return and risk are based on Callan 2023 Capital Market Assumptions. Expected return represents the 10-year annualized return.

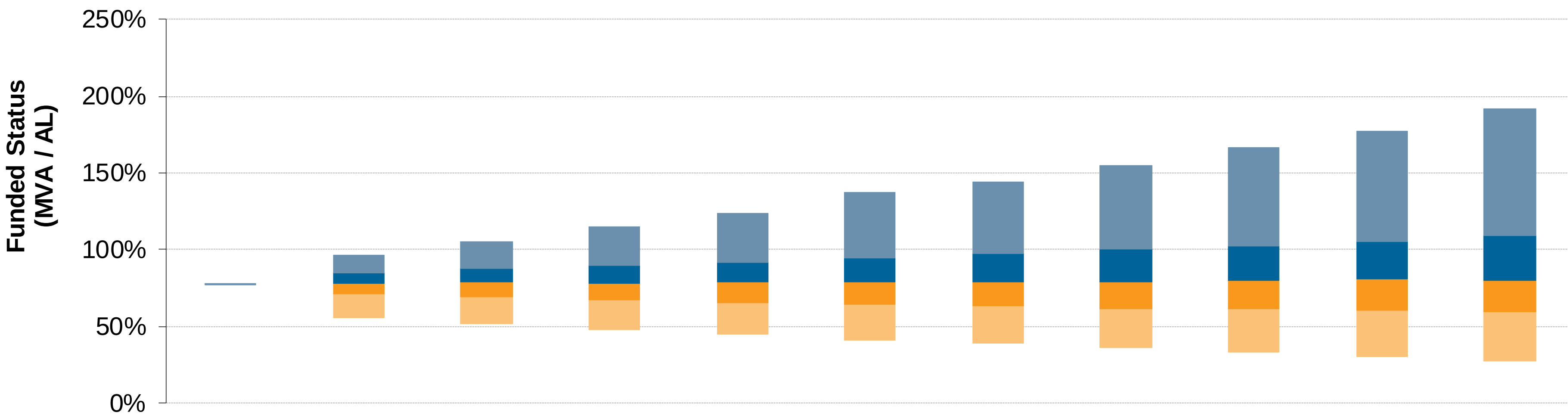
Market Assets, Liabilities, and Funded Status

Baseline Projection: 7.27% Return and 2.5% Inflation



- Growth in assets outpaces liability growth leading to a gradual improvement in the funded status
  - Change in assets considers both investment returns (7.27%) and net cash outflows (contributions net of benefit payments and expenses)
- Projected funding level depends on adherence to the statutory contribution policy

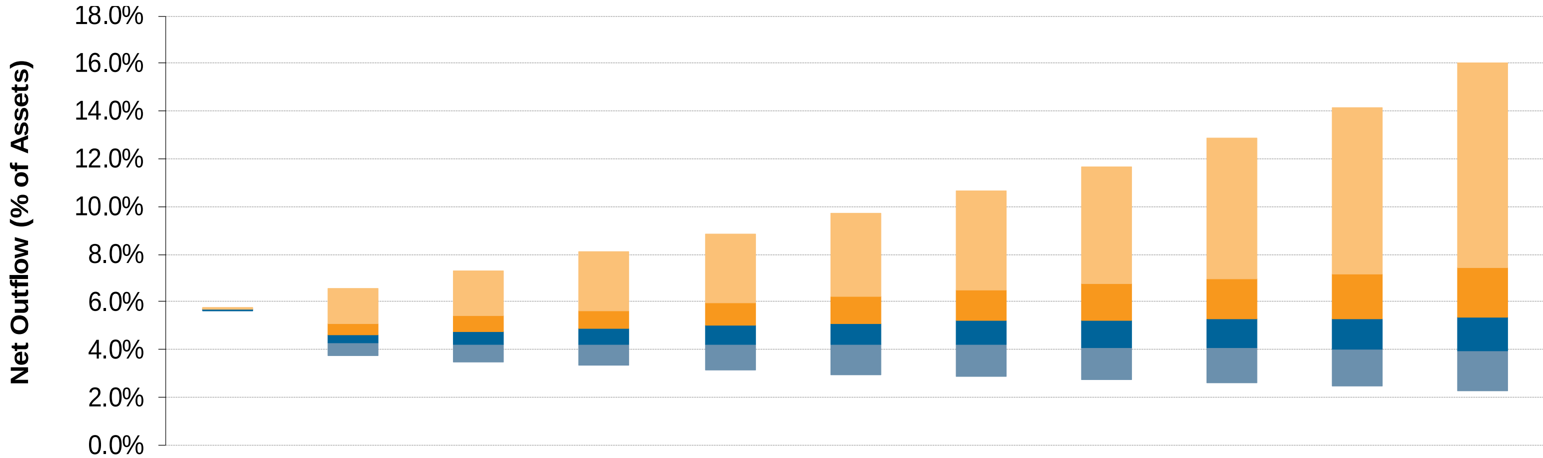
Market Funded Status – Target Mix



Percentile	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
2.5th	77%	97%	106%	115%	124%	138%	144%	155%	167%	177%	192%
25th	77%	85%	88%	90%	92%	95%	97%	100%	102%	105%	109%
50th	77%	78%	79%	78%	79%	79%	79%	79%	80%	81%	80%
75th	77%	71%	69%	67%	65%	64%	63%	62%	62%	60%	59%
97.5th	77%	56%	51%	48%	45%	41%	39%	36%	33%	31%	27%
Range	0%	41%	54%	68%	78%	96%	105%	119%	134%	147%	165%
Prob. Full Funding	0%	1%	7%	12%	16%	19%	23%	25%	27%	29%	32%

- As plan liabilities are relatively stable and the contribution rate is fixed – contributions do not change based on the performance of the assets – there is a wide range in potential funded status outcomes.
- There is a ~32% probability of full funding by 2032 for the current target allocation.

Net Outflow (NOF) as a Percentage of Assets – Target Mix



Percentile	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
97.5th	5.7%	6.5%	7.3%	8.1%	8.8%	9.7%	10.6%	11.7%	12.9%	14.2%	16.0%
75th	5.7%	5.1%	5.4%	5.7%	6.0%	6.2%	6.5%	6.8%	7.0%	7.2%	7.4%
50th	5.7%	4.6%	4.7%	4.9%	5.0%	5.1%	5.2%	5.3%	5.3%	5.3%	5.4%
25th	5.7%	4.3%	4.2%	4.2%	4.2%	4.2%	4.2%	4.1%	4.1%	4.0%	3.9%
2.5th	5.7%	3.7%	3.5%	3.3%	3.1%	2.9%	2.9%	2.7%	2.6%	2.4%	2.3%

0% - 7%
7% - 10%
> 10%

- NOF/Assets < 7% typically manageable liquidity needs
- 7% < NOF/Assets < 10% warrants monitoring and could impact asset allocation
- NOF/Assets > 10% has high liquidity needs and may preclude investment in illiquid assets

- **Net Outflow = Benefit Payments + Expenses – Employer Contributions – Employee Contributions**
  - NOF/assets is fairly stable in the median case, but can reach up to 16% per year in a worse-case (97.5th percentile) outcome when market assets are severely impaired
- Plan has manageable liquidity needs assuming the contribution policy is maintained

Alternative Asset Mixes

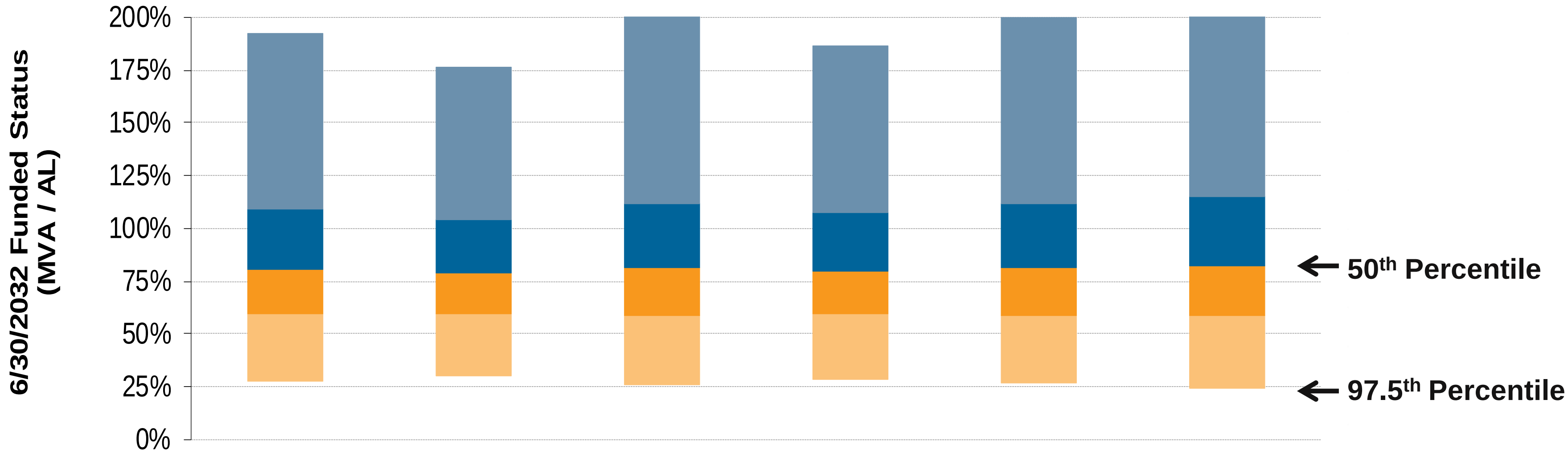
Asset Class	Current Target	Alternative Mixes				
		Mixes with Current Asset Classes (CA)		Mixes with Private Credit (PC)		
		CA-30% FI	CA-20% FI	PC-25% FI	PC-20% FI	PC-15% FI
Broad US Equity	31%	28%	32%	28%	30%	32%
Global ex-US Equity	21%	19%	24%	19%	21%	24%
Core US Fixed	24%	30%	20%	25%	20%	15%
Core Real Estate	10%	10%	10%	10%	10%	10%
Private Equity	13%	12%	13%	12%	13%	13%
Private Credit	0%	0%	0%	5%	5%	5%
Cash Equivalents	1%	1%	1%	1%	1%	1%
	100%	100%	100%	100%	100%	100%
Expected Return*	7.27%	7.09%	7.38%	7.22%	7.36%	7.49%
Expected Standard Deviation	13.50%	12.42%	14.24%	12.97%	13.86%	14.79%
Sharpe Ratio	0.32	0.34	0.32	0.33	0.32	0.31
Public Equity	52%	47%	56%	47%	51%	56%
Core Fixed + Cash	25%	31%	21%	26%	21%	16%
Illiquid Investments	23%	22%	23%	27%	28%	28%

We evaluate the current target along with 5 alternative mixes to see how different asset allocation policies impact expected funded status and cumulative contributions

- There are two mixes with current asset classes – one more aggressive and one less aggressive than the current target
- There are three mixes that consider adding a 5% allocation to Private Credit with a range from less aggressive to more aggressive than the current target

*10-year annualized return

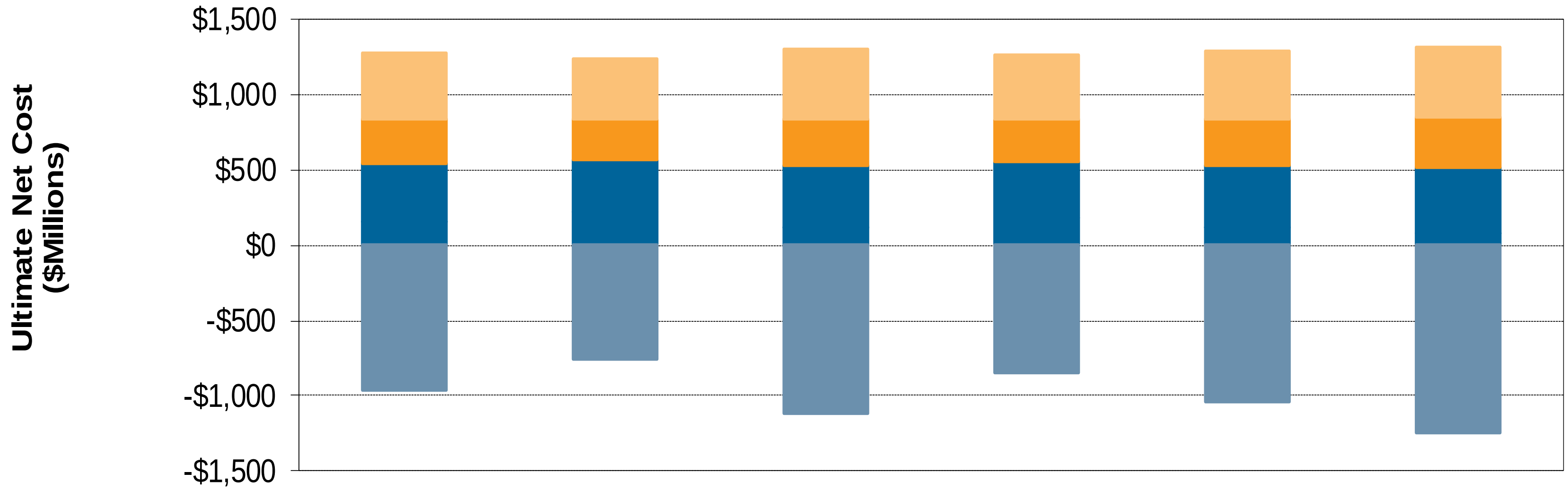
Market Funded Ratio in 2032 (10 Years)



Percentile	Target	CA-30% FI	CA-20% FI	PC-25% FI	PC-20% FI	PC-15% FI
2.5th	192%	177%	204%	186%	200%	214%
25th	109%	104%	112%	107%	111%	115%
50th	80%	79%	81%	80%	81%	82%
75th	59%	60%	59%	59%	59%	58%
97.5th	27%	30%	26%	29%	26%	24%
Expected Return	7.3%	7.1%	7.4%	7.2%	7.4%	7.5%
Standard Deviation	13.5%	12.4%	14.2%	13.0%	13.9%	14.8%
Prob. Full Funding	32%	28%	34%	31%	33%	35%

- Funded status is expected to improve over the next 10 years under all mixes
  - 9/1/2022 starting funded status of 77.5%
  - Between 28% and 35% probability of full funding in 10 years across mixes
- More aggressive mixes are expected (50th percentile) to have a higher funded ratio but will have a lower funded status in a worse-case scenario (97.5th percentile)

Ultimate Net Cost (UNC)



Percentile	Target	CA-30% FI	CA-20% FI	PC-25% FI	PC-20% FI	PC-15% FI
97.5th	$1,279	$1,247	$1,302	$1,270	$1,292	$1,314
75th	842	837	845	840	846	850
50th	546	568	537	553	533	522
25th	161	228	122	190	126	79
2.5th	-961	-751	-1,117	-846	-1,037	-1,244
Expected Return	7.3%	7.1%	7.4%	7.2%	7.4%	7.5%
Standard Deviation	13.5%	12.4%	14.2%	13.0%	13.9%	14.8%

- UNC = 10-Year Cumulative Contributions + 9/1/2032 Unfunded Actuarial Liability
  - UNC captures what is expected to be paid over 10 years plus what is owed at the end of the 10 year period
  - Negative numbers indicate the plan is in a surplus position at 9/1/2032
- More aggressive mixes lower UNC in the expected case but result in a greater UNC in a worse-case scenario

Summary of Results

Background

- Last asset-liability study was completed in Q4 2019 and the Board approved increasing the target private equity allocation from 10% to 13%

Key Assumptions

- Callan’s liability model is based on Buck’s September 1, 2022 actuarial valuation and mirrors that report
- No workforce growth – future hires replace exits due to retirement, death, disability, and withdrawal
- CEPERT maintains the current statutory contribution rates (14.05% employer and 8.95% employee)

Conclusions

- CEPERT’s target asset allocation is expected (median case) to generate a compound annual growth rate over the next decade that is sufficient to meet the actuarial discount rate of 7.25%
- Assets are projected to outgrow liabilities, leading to a gradual improvement in market funded status from ~78% to ~80% by 2032

Recommendation

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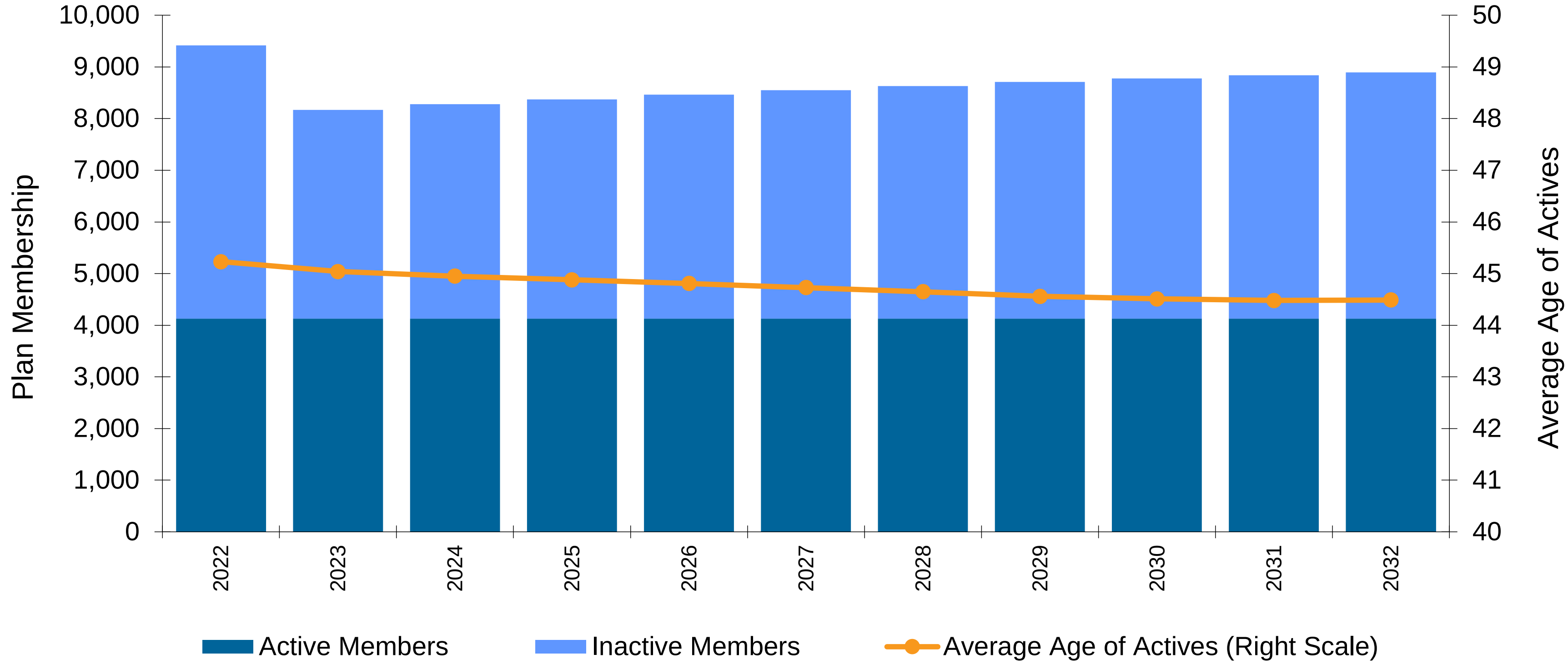
Appendix

Plan Population

Baseline Projection

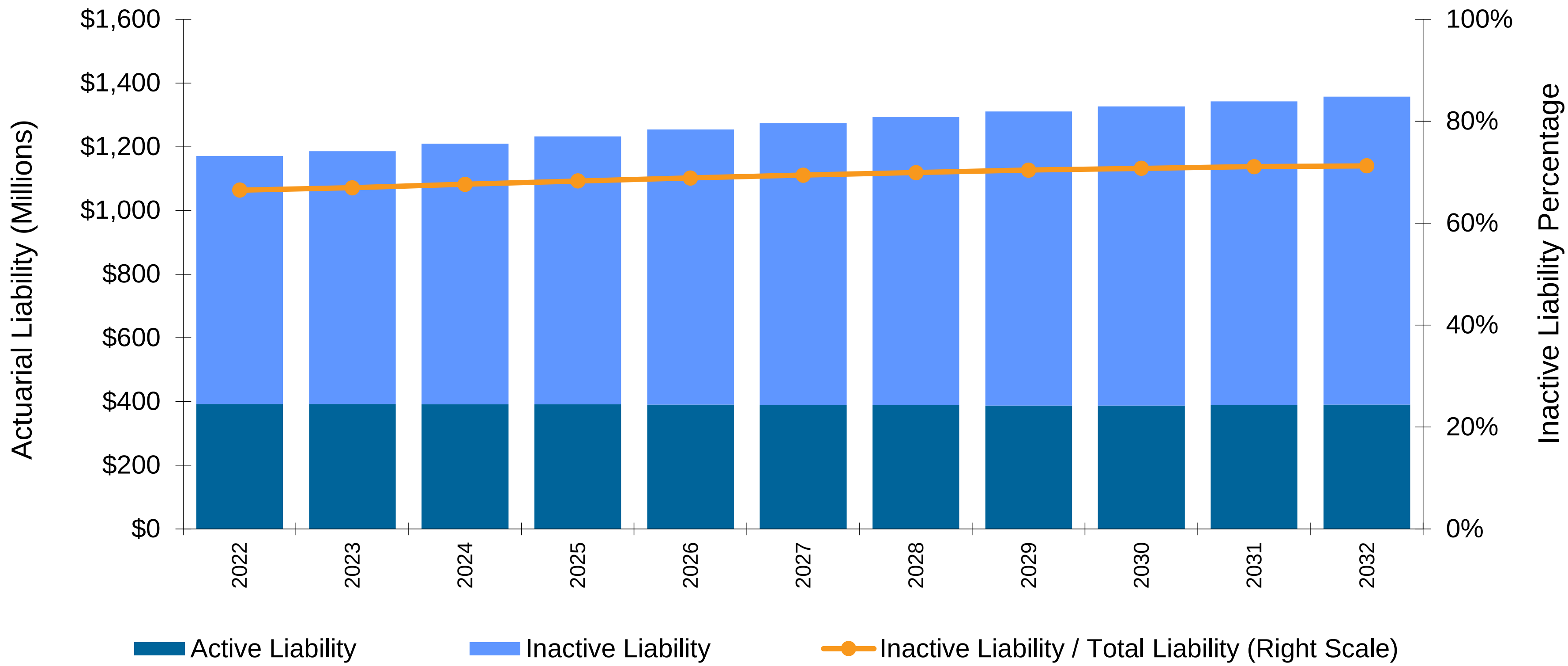


- Number of active members assumed to remain constant (0% workforce growth)
  – Future new hires replace exits due to retirement, death, disability, and withdrawal
  – Average age of active population declines only slightly over the projection period

Drop in inactive members from 2022 to 2023 reflects the exclusion of retirees for whom annuities were purchased from Prudential but whose cost-of-living increases are paid by the Plan, and terminated members entitled to refunds of contributions paid after July 1.

Plan Liabilities

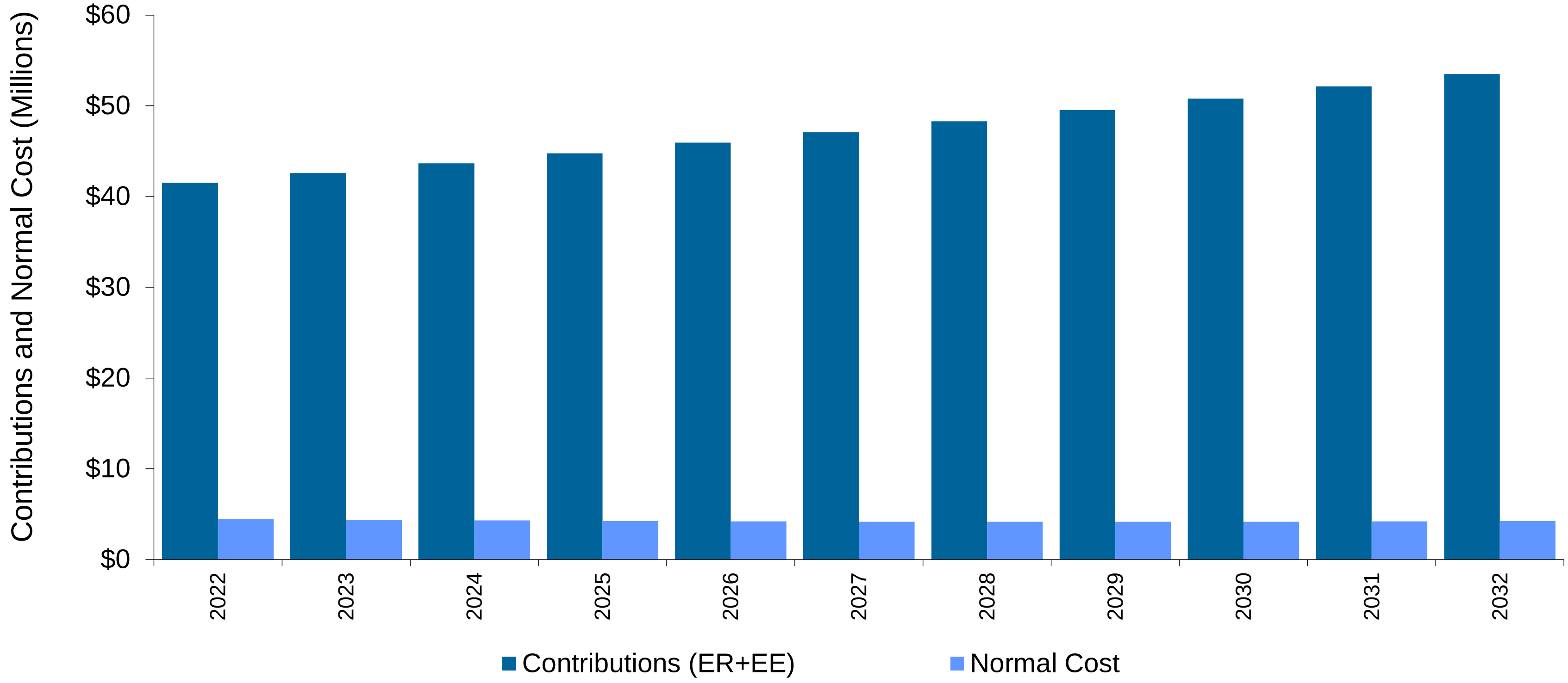
Baseline Projection



- The inactive liability grows at a faster rate compared to the active liability and represents ~70% of the total liability over the projection period
- The overall liability is expected to grow between 1-2% annually
  - Liability grows annually with normal cost (~2-3%) and interest (7.25%)
  - Liability decreases annually as benefits are paid (~7-8%)

Contributions and Normal Cost

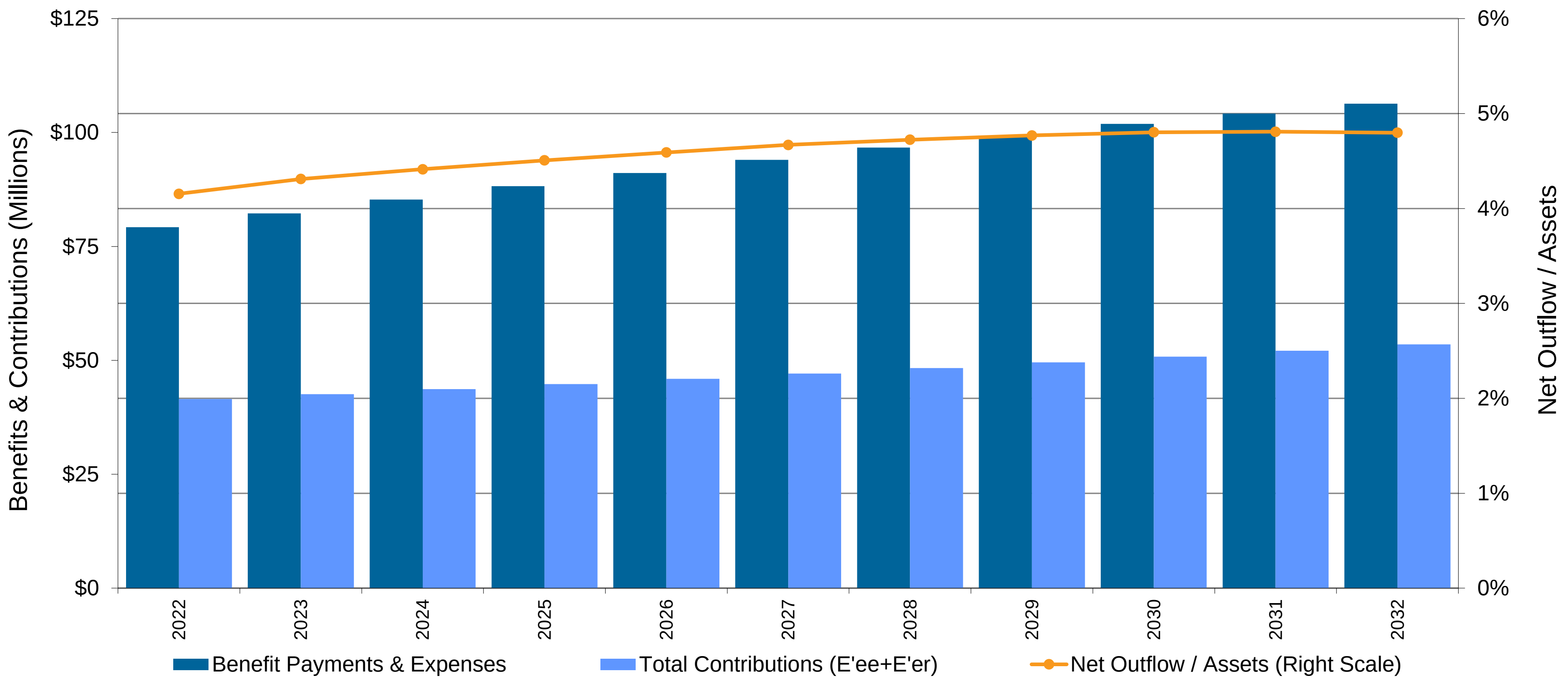
Baseline Projection



- Contributions are projected to exceed normal cost over the ten-year projection period
- Since the contribution rates are statutory, growth in contributions is due to payroll inflation

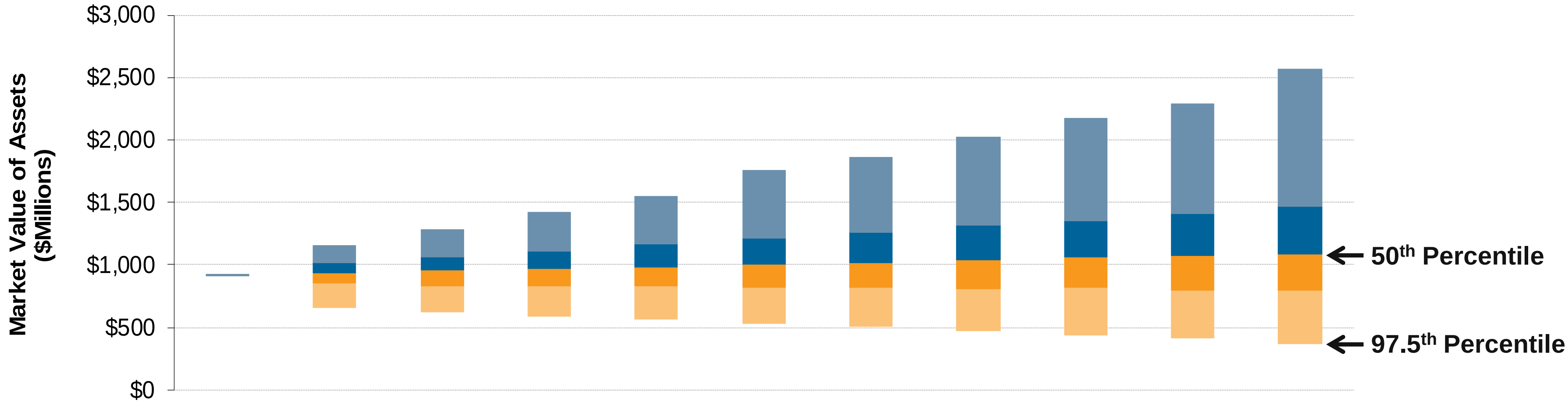
Cash Flows and Liquidity

Baseline Projection



- Net Outflow = Benefit Payments + Expenses – Employer Contributions – Employee Contributions
- Net outflow as a percentage of assets ranges between 4-5%
- The projection assumes the current contribution policy is maintained
- The cash flow profile suggests the current allocation to illiquid investments is appropriate but this should be continually monitored

Market Value of Assets – Target Mix



Percentile	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Ann. Growth
2.5th	$908	$1,152	$1,283	$1,420	$1,549	$1,755	$1,858	$2,026	$2,176	$2,292	$2,567	11.0%
25th	908	1,014	1,067	1,109	1,162	1,213	1,256	1,318	1,350	1,405	1,463	4.9%
50th	908	933	956	968	985	1,006	1,017	1,035	1,061	1,077	1,081	1.8%
75th	908	849	835	835	826	822	817	812	815	799	791	-1.4%
97.5th	908	659	627	590	567	532	506	476	443	409	366	-8.7%
Range	0	493	656	830	982	1,223	1,352	1,549	1,733	1,884	2,201	

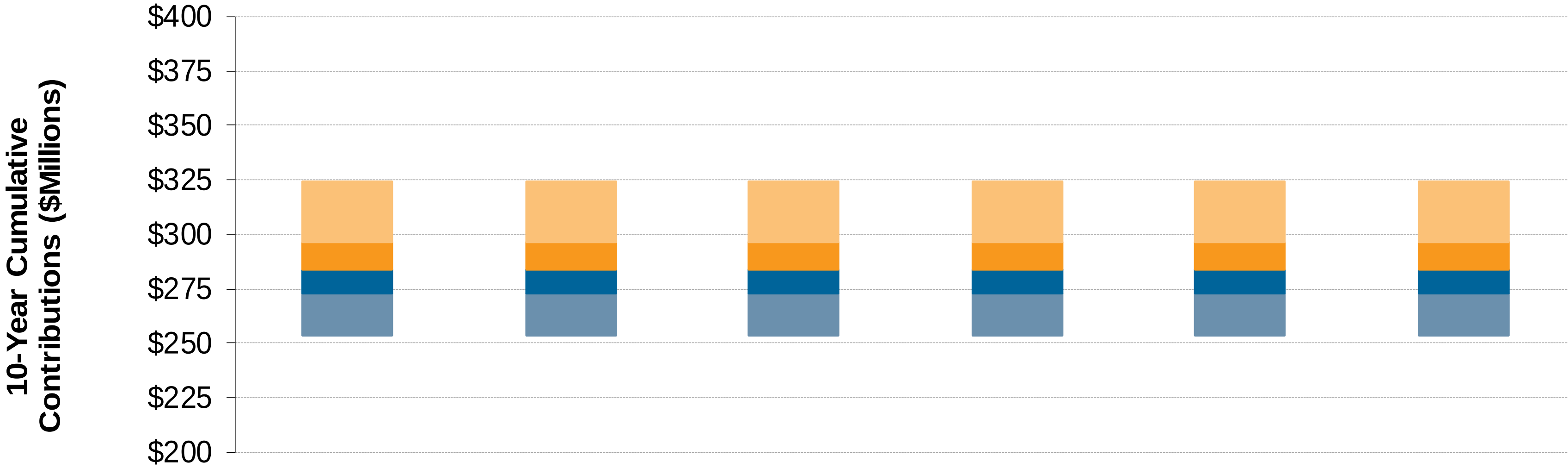
- Plan assets are expected to grow to over $1 billion in the median outcome (1.8% annualized growth)
- The expected (median) outcome is the 50th percentile
  - There is a 50% chance that asset values will be above the value shown and a 50% chance they will be below the value shown
- The worse-case scenario is the 97.5th percentile
  - There is a 1-in-40 chance (2.5% probability) that the 9/1/2032 market value of assets will be $366 million or less

Actuarial Accrued Liability

Percentile	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Ann. Growth
97.5th	$1,172	$1,210	$1,252	$1,291	$1,325	$1,361	$1,395	$1,424	$1,455	$1,480	$1,509	2.6%
75th	1,172	1,195	1,225	1,253	1,278	1,301	1,322	1,343	1,362	1,380	1,395	1.8%
50th	1,172	1,189	1,213	1,236	1,255	1,273	1,291	1,305	1,321	1,334	1,346	1.4%
25th	1,172	1,183	1,202	1,219	1,235	1,249	1,262	1,274	1,284	1,292	1,299	1.0%
2.5th	1,172	1,174	1,184	1,194	1,203	1,210	1,214	1,218	1,225	1,227	1,228	0.5%
Range	0	37	68	97	123	151	180	207	230	254	281	

- Plan liabilities are much less volatile than Plan assets
  - Volatility in the liability is due to volatility in inflation which flows through to member compensation
- Liabilities are expected (50th percentile) to increase over the next 10 years to ~$1.3B (1.4% annualized growth)
- Liabilities increase with ongoing benefit accrual and interest cost and are reduced by benefit payments

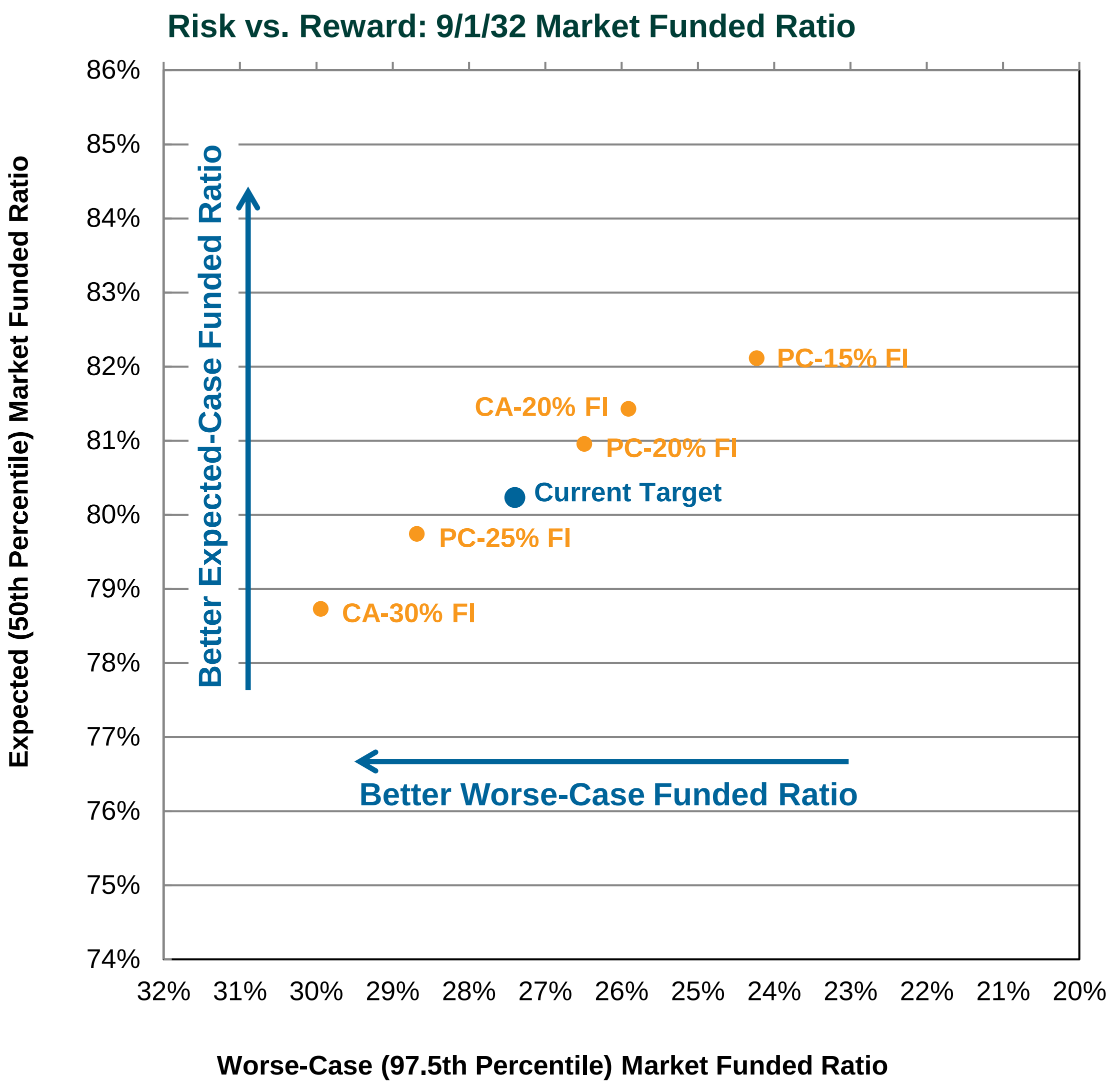
Cumulative Employer Contributions (9/1/22 – 9/1/32)



Percentile	Target	CA-30% FI	CA-20% FI	PC-25% FI	PC-20% FI	PC-15% FI
97.5th	$324	$324	$324	$324	$324	$324
75th	$296	$296	$296	$296	$296	$296
50th	$284	$284	$284	$284	$284	$284
25th	$273	$273	$273	$273	$273	$273
2.5th	$254	$254	$254	$254	$254	$254
Expected Return	7.3%	7.1%	7.4%	7.2%	7.4%	7.5%
Standard Deviation	13.5%	12.4%	14.2%	13.0%	13.9%	14.8%

- The chart illustrates total employer contributions over the next 10 years
  - Expected contributions are approximately $284M
- Contributions are a fixed percentage of payroll so the asset mix has no impact on contributions
  - The variation in contributions stems from the impact of realized inflation on payroll growth

Risk vs. Reward in Market Funded Status at September 1, 2032

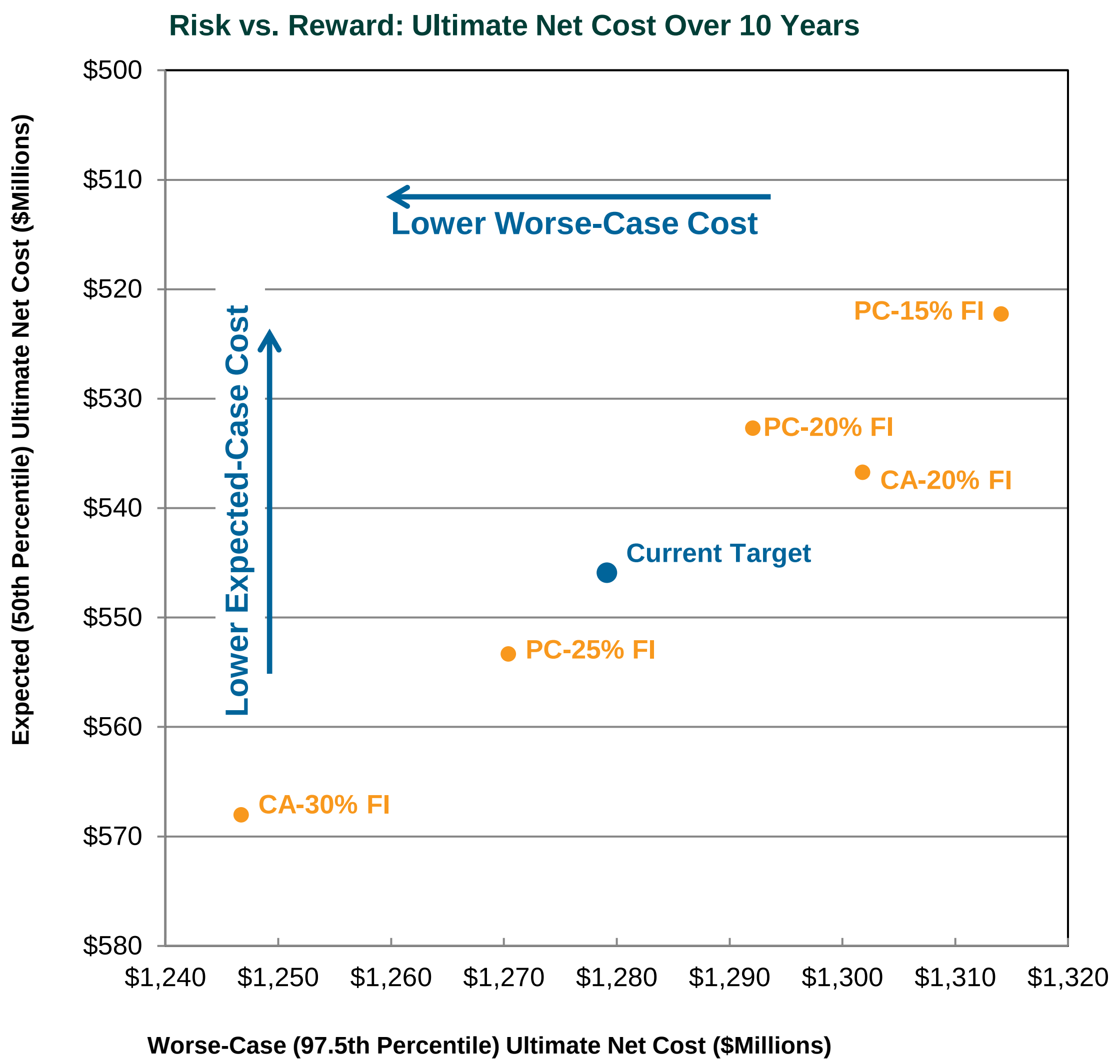


Upper left is the desired location

- Would mean higher funded ratio in both the expected and worse-case scenarios

The results of the mixes represent a tradeoff between expected case funded ratio and worse-case funded ratio

Risk vs. Reward in Ultimate Net Cost

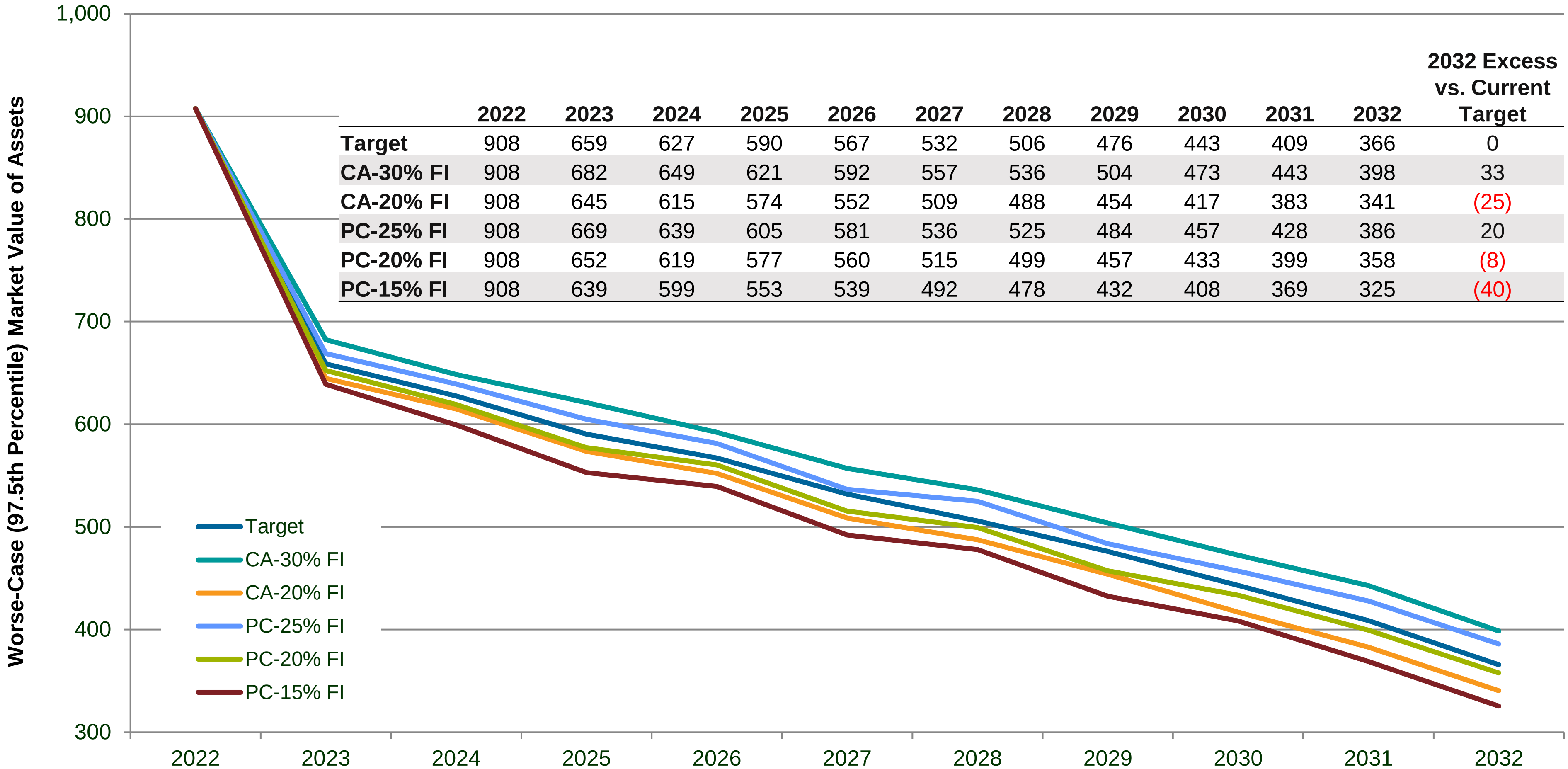


Upper left is the desired location

- Would mean lower cost in both the expected and worse-case scenarios

As with funded status, the results of the mixes represent a tradeoff between expected case UNC and worse-case UNC

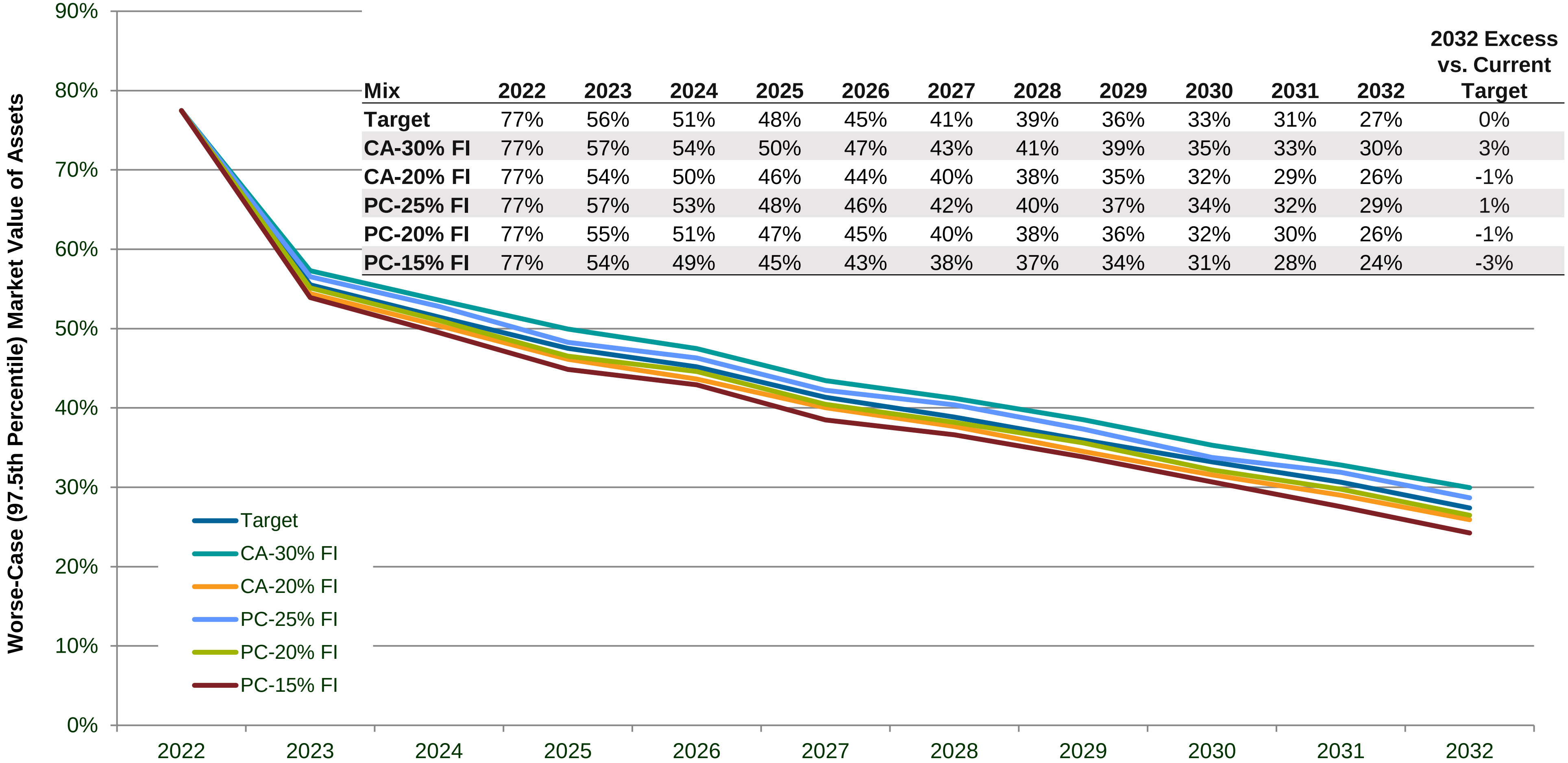
Worse-Case (97.5th Percentile) Assets Through Time



	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2032 Excess vs. Current Target
Target	908	659	627	590	567	532	506	476	443	409	366	0
CA-30% FI	908	682	649	621	592	557	536	504	473	443	398	33
CA-20% FI	908	645	615	574	552	509	488	454	417	383	341	(25)
PC-25% FI	908	669	639	605	581	536	525	484	457	428	386	20
PC-20% FI	908	652	619	577	560	515	499	457	433	399	358	(8)
PC-15% FI	908	639	599	553	539	492	478	432	408	369	325	(40)

- Under the current target allocation there is a 1-in-40 chance (2.5% probability) that the 9/1/2032 market value of assets will be $366 million or less
- Two of the alternative asset mixes (CA-30% FI and PC-25% FI) are projected to hold up better than the current target in poor market environments, while three of the alternative asset mixes have more downside risk

Worse-Case (97.5th Percentile) Funded Ratio Through Time



Mix	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2032 Excess vs. Current Target
Target	77%	56%	51%	48%	45%	41%	39%	36%	33%	31%	27%	0%
CA-30% FI	77%	57%	54%	50%	47%	43%	41%	39%	35%	33%	30%	3%
CA-20% FI	77%	54%	50%	46%	44%	40%	38%	35%	32%	29%	26%	-1%
PC-25% FI	77%	57%	53%	48%	46%	42%	40%	37%	34%	32%	29%	1%
PC-20% FI	77%	55%	51%	47%	45%	40%	38%	36%	32%	30%	26%	-1%
PC-15% FI	77%	54%	49%	45%	43%	38%	37%	34%	31%	28%	24%	-3%

- Funded ratios through time are shown under a hypothetical worse-case market environment
- Two of the alternative asset mixes (CA-30% FI and PC-25% FI) are projected to provide modestly higher funded ratios than the current target in poor market environments, while three of the alternative asset mixes have more downside risk and lower projected funded ratios

2023–2032 Callan Capital Markets Assumptions Correlations

	Large Cap	Smid Cap	Dev	Em Mkts	Short Dur	Core Fixed	Long Gov	Long Credit	TIPS	High Yield	Global ex-US Fixed	EM	Core Real Estate	Private Infra	Private Equity	Private Credit	Hedge Funds	Comm	Cash Equiv	Inflation
Large Cap U.S. Equity	1.00																			
Smid Cap U.S. Equity	0.88	1.00																		
Dev ex-U.S. Equity	0.73	0.79	1.00																	
Em Market Equity	0.79	0.83	0.89	1.00																
Short Dur Gov/Credit	0.05	0.01	0.04	-0.01	1.00															
Core U.S. Fixed	0.02	-0.02	0.00	-0.04	0.80	1.00														
Long Government	-0.05	-0.06	-0.03	-0.06	0.67	0.83	1.00													
Long Credit	0.45	0.40	0.40	0.40	0.64	0.80	0.65	1.00												
TIPS	-0.07	-0.08	-0.09	-0.11	0.56	0.70	0.50	0.52	1.00											
High Yield	0.75	0.74	0.73	0.75	0.10	0.09	0.00	0.45	0.02	1.00										
Global ex-U.S. Fixed	0.10	0.07	0.13	0.12	0.50	0.60	0.50	0.55	0.45	0.18	1.00									
EM Sovereign Debt	0.65	0.65	0.65	0.69	0.16	0.19	0.10	0.47	0.08	0.62	0.21	1.00								
Core Real Estate	0.44	0.42	0.42	0.41	0.16	0.14	0.05	0.30	0.09	0.31	0.16	0.29	1.00							
Private Infrastructure	0.48	0.47	0.46	0.46	0.14	0.15	0.10	0.33	0.08	0.34	0.18	0.32	0.76	1.00						
Private Equity	0.79	0.77	0.76	0.75	-0.01	-0.09	-0.13	0.30	-0.11	0.61	0.08	0.51	0.55	0.60	1.00					
Private Credit	0.69	0.68	0.65	0.68	0.11	0.00	-0.05	0.33	-0.12	0.63	0.12	0.50	0.25	0.27	0.67	1.00				
Hedge Funds	0.67	0.63	0.63	0.63	0.23	0.29	0.20	0.55	0.20	0.60	0.25	0.54	0.28	0.30	0.48	0.51	1.00			
Commodities	0.20	0.20	0.20	0.20	-0.05	-0.04	-0.10	0.05	0.00	0.20	0.10	0.15	0.18	0.15	0.20	0.17	0.23	1.00		
Cash Equivalents	-0.06	-0.08	-0.10	-0.10	0.30	0.15	0.12	0.00	0.12	-0.09	0.05	-0.06	0.00	-0.04	0.00	-0.04	-0.04	-0.02	1.00	
Inflation	-0.02	0.02	0.00	0.03	-0.21	-0.23	-0.30	-0.20	0.25	0.00	-0.15	-0.04	0.20	0.10	0.06	-0.05	0.05	0.35	0.05	1.00

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