School Employees Retirement System

Memo

To: Retirement Board

From: Farouki Majeed

cc: Richard Stensrud, Karen Roggenkamp

Date: February 7, 2020

Re: **Asset Allocation Recommendation**

RECOMMENDATION

Staff recommends that the Board adopt the new strategic Asset Allocation Policy (Recommended Policy) as shown in Attachment A, effective July 1, 2020. Significant changes from the current policy are:

1) introduction of a new allocation to Private Credit at 5%;
2) increase in Private Equity by 2%;
3) increase in Real Assets by 2%;
4) increase in cash by 1%; and
5) reduction of MAS from the current allocation of 10% to 0%

The rationale for these proposed changes are outlined below.

ANALYSIS

Asset Modeling Process/Asset Classes

The Asset/Liability review process began in September 2019 with the presentation on expected returns for the various asset classes and other inputs for the modeling. In subsequent months, Staff and Wilshire presented various asset allocation scenarios including the consideration of Private Credit as a new Asset Class and reducing the allocation to MAS (Hedge Funds) in view of its lower than expected returns assumed in prior asset allocation reviews conducted in 2013 and 2017.

Following discussions with the Board at the October 2019 meeting, staff and Wilshire believe including Private Credit as a separate Asset Class is beneficial due to its higher historical return than Public Fixed Income and MAS, with an attractive distribution yield around 6%. Private Credit has proven to earn a return premium (illiquidity and credit) over Public Fixed Income, similar to the premium of Private Equity over Public Equity in the SERS portfolio.

Private Credit investments already exist within the Opportunistic portfolio. Currently, the Opportunistic portfolio is invested in twelve funds with six managers that are classified as direct lending or structured/distressed credit with a market value of about 2% of the Total Fund. Additionally there are three new commitments to direct lending funds totaling $225 million. These funds can be transferred to the new Private Credit asset class. Therefore, staff believes the 5% target to Private Credit can be achieved within a two-year period.

Additionally, the MAS portfolio's return has underperformed Fixed Income returns for the same periods, with both portfolios exhibiting similar volatility (standard deviation) as shown in the table below:

	5 Years		**10 Years**	
	Return	**S.D.**	**Return**	**S.D.**
MAS	3.12%	3.95%	4.42%	4.32%
Fixed Income	3.55%	3.23%	4.76%	3.12%

Staff is of the view that while MAS has played a role as a risk diversifier in the Total Fund, having a policy allocation to MAS is no longer warranted since Fixed Income has performed a similar role with higher returns. However, some of the managers in the MAS portfolio could be retained to play a useful role in other asset classes based upon their underlying holdings and risk/return characteristics. Of the 20 managers in the MAS portfolio, four could be retained in Fixed Income, four in Opportunistic and two in Private Credit. These retained managers would constitute 4% of the Total Fund at current market value while the total MAS allocation is currently 7%.

The proposed changes in the recommended Asset Allocation increase the expected return by 14 basis points and the expected risk by 51 basis points, while the Sharpe Ratio (return/risk) remains unchanged at 0.36.

Staff believes the new targets for Private Credit, Private Equity and Real Assets can be achieved over a period of two years. Should the Board approve the recommended Asset Allocation, staff will present the amended Statement of Investment Policy, with a benchmark for Private Credit, which is likely to be the average return of all Private Credit portfolios in the Burgiss database (see table below), similar to the current benchmark for Private Equity. All other asset class benchmarks will remain unchanged.

09/30/2019	**3 Years**	**5 Years**	**10 Years**
Burgiss Private Debt – Weighted Average	7.83%	6.45%	9.68%
LIBOR (1M) plus 5%	6.78%	6.2%	5.71%

The Wilshire presentation on Asset Liability Analysis including the Efficient Frontier Output (slide 12) is attached.

ATTACHMENT A

Asset Class	Current Policy	Recommended Policy
U.S. Equity	22.5%	22.5%
Non-U.S. Equity	22.5%	22.5%
Global Private Equity	10.0%	12.0%
Private Credit	0.0%	5.0%
Total Growth Assets	**55.0%**	**62.0%**
Global Fixed Income	19.0%	19.0%
Cash	1.0%	2.0%
Total Safety-Oriented Assets	**20.0%**	**21.0%**
Global Real Assets	15.0%	17.0%
Total Inflation Oriented Assets	**15.0%**	**17.0%**
Multi-Asset Strategies	10.0%	0.0%
Total MAS	**10.0%**	**0.0%**
Total Assets	**100.0%**	**100.0%**
Expected Return - 10 Years (%)	**6.10**	**6.24**
Expected Return - 20 Years (%)	**7.18**	**7.27**
Expected Return - 30 Years (%)	**7.53**	**7.62**
Standard Deviation of Return (%)	**11.68**	**12.19**
+/(-) in Expected Return - 10 Years (bps)		**14**
+/(-) in Expected Return - 20 Years (bps)		**9**
+/(-) in Expected Return - 30 Years (bps)		**9**
+/(-) in SD of Return (bps)		**51**
Sharpe Ratio	**0.36**	**0.36**

Source: Wilshire Associates

Prepared for

WILSHIRE ASSOCIATES

Wilshire Consulting

Asset Liability Analysis

February 2020

BACKGROUND & OVERVIEW

- The asset allocation decision is the most important decision an investor can make
  - The asset allocation decision drives 90% of return variability among portfolios
- Wilshire recommends revisiting the asset allocation decision every three to five years, or sooner, as market conditions warrant
  - Ohio School Employees Retirement System ("SERS") last reviewed asset allocation in March 2017
- The 2019 / 2020 review of asset allocation occurred over several phases
  - September 2019 – Reviewed asset class expected return and risk assumptions
  - October 2019 – Education on Private Credit and Total Fund leverage
  - November 2019 – Review asset-only optimization
    - » Asset-only optimization serves as a useful tool in comparing risk/return trade-off among various alternative policy portfolios
  - February 2020 – Introduce SERS' actual liability information to the modeling process and finalize a recommendation

CONSIDERATIONS

- Board has allowed the asset allocation decision to be very long-term focused
  - Diversification and illiquidity premium are expected to benefit the portfolio over the long-term
  - Changes to asset allocation have been modest – implementation is key
- Focus of the 2019 / 2020 asset allocation review
  - Continue to remain long-term focused
  - Consider reducing allocations to asset classes that have not served their purpose
    - Multi-asset strategies
  - Consider a dedicated allocation to Private Credit strategies

RECOMMENDATION

- Wilshire recommends that The Board adopt the Policy highlighted as Recommended Policy in the analysis
- Overview of Recommended Policy
  - Increases expected return and expected risk, but improves efficiency of the Policy
    - Expected return increases by 0.14% to 6.24%
    - Expected risk increases modestly by 0.51% to 12.19%
  - Reduces allocation to private asset classes by 1% (34% vs. 35%, today)
    - Eliminates dedicated 10% allocation to Multi-Asset Strategies
      - However, continue using high conviction strategies opportunistically or within other asset classes
    - Introduces a 5% allocation to Private Credit strategies
    - Increases Global Private Equity and Global Real Assets by 2% each
      - Global Private Equity target increases from 10% to 12%
      - Global Real Assets target increases from 15% to 17%

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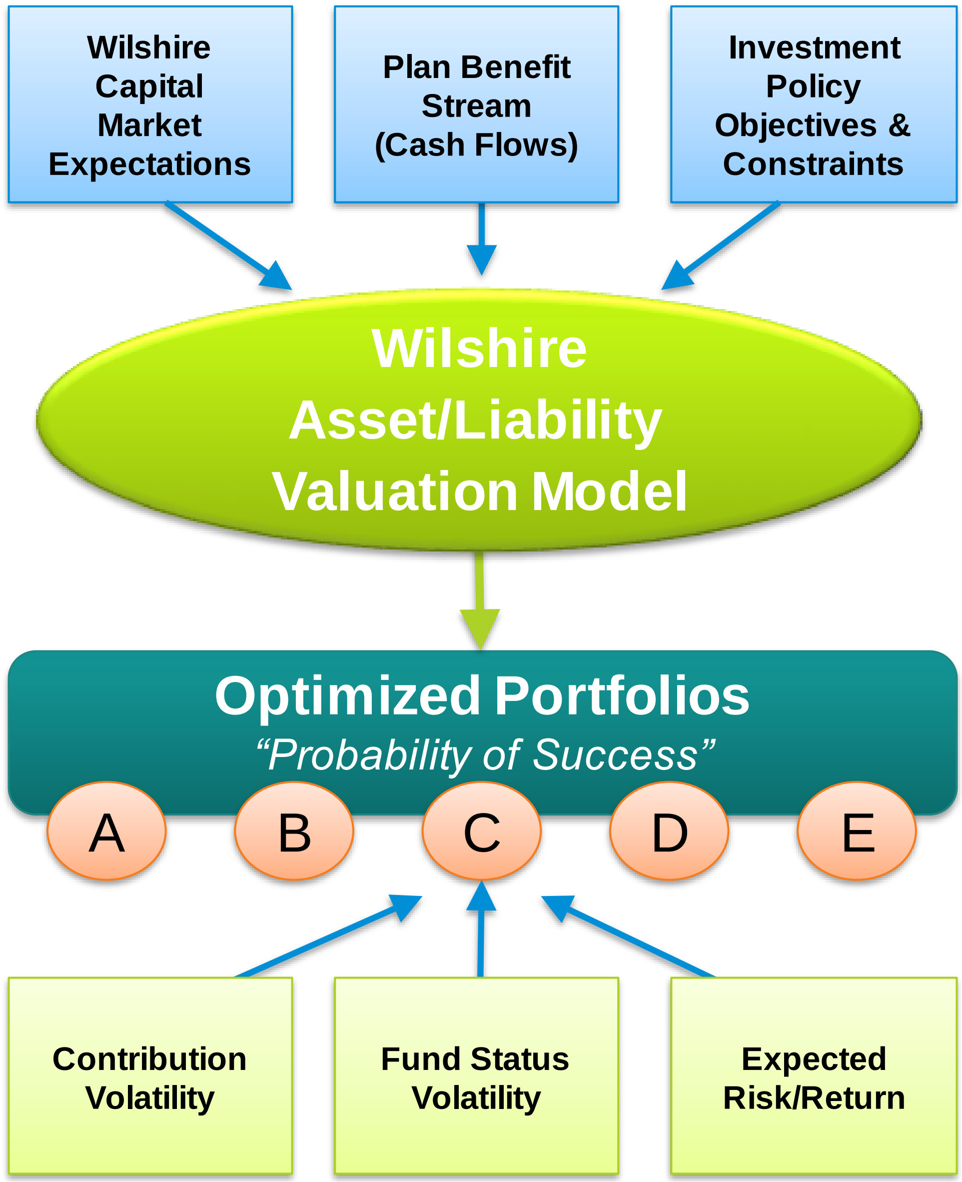
ASSET ALLOCATION PROCESS



ASSET CLASS ASSUMPTIONS

As of December 2019

- Wilshire's asset class return, risk and correlation assumptions are developed on multi-year forward looking expected rates of return and historical risk and correlation, adjusted to incorporate recent trends.
- Return expectations for public market assets represent a passive investment in the asset class (**beta**). They do not reflect value added from active management (**alpha**).

	U.S. Equity	Non-U.S. Equity	Global Private Equity	Private Credit	Global Fixed Income	Cash	Global Real Assets	Multi-Asset Strategies
Return - 10-Year (%)	5.75	6.50	7.60	6.65	2.85	1.85	6.60	5.30
Return - 20-Year (%)	6.90	7.40	9.25	7.20	4.10	2.55	7.20	6.55
Return - 30-Year (%)	7.30	7.65	9.80	7.40	4.50	2.80	7.45	6.95
Risk (%)	17.00	18.95	28.00	12.15	5.15	1.25	11.25	6.60
Correlations								
U.S. Equity	1.00							
Non-U.S. Equity	0.83	1.00						
Global Private Equity	0.74	0.67	1.00					
Private Credit	0.50	0.46	0.22	1.00				
Global Fixed Income	0.28	0.09	0.31	0.03	1.00			
Cash	-0.05	-0.08	0.00	-0.17	0.19	1.00		
Global Real Assets	0.52	0.49	0.49	0.56	0.17	-0.06	1.00	
Multi-Asset Strategies	0.56	0.62	0.54	0.49	0.01	0.04	0.38	1.00

- *Global Real Assets is a custom basket for SERS that includes 20% Timber/Infrastructure, and 80% Real Estate.*
- *Real Estate assumption is a mix of 75% Core Real Estate, 25% Value-Add and Opportunistic Real Estate*

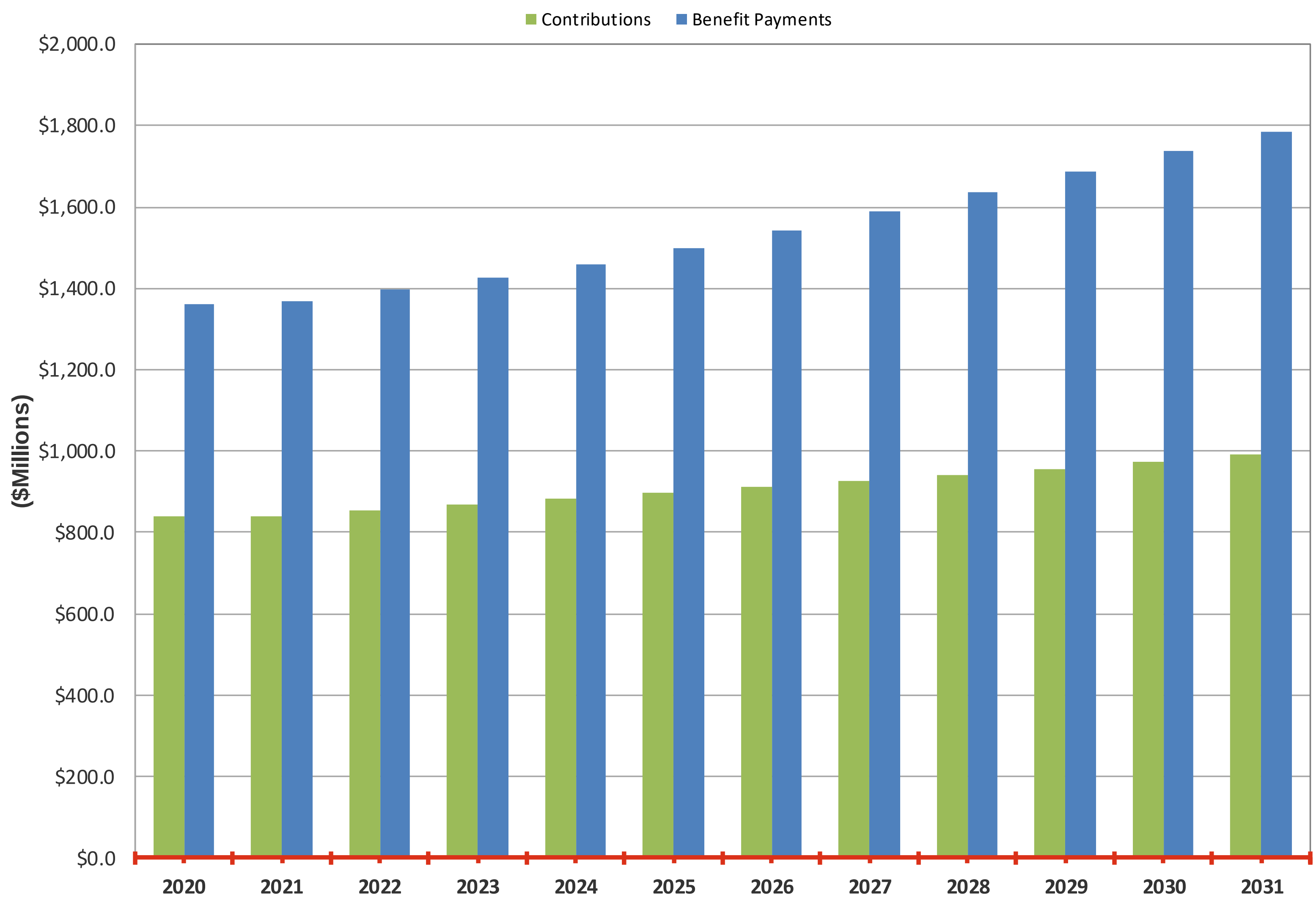
PLAN STATUS

	June 30, 2018	June 30, 2019
Asset and Liability Data ($ - Millions)		
1. Market Value of Assets	14,270.5	14,544.1
2. Actuarial Accrued Liability	19,997.7	20,527.3
3. Unfunded Actuarial Accrued Liability (2. - 1.)	5,727.2	5,983.2
4. Funded Status (1. / 2.)	71.4%	70.9%
Economic Assumptions		
Discount Rate	7.50%	7.50%
Inflation Rate	3.00%	3.00%

June 30, 2018 and June 30, 2019 data was taken from the Comprehensive Annual Financial Reports (CAFR) available online.

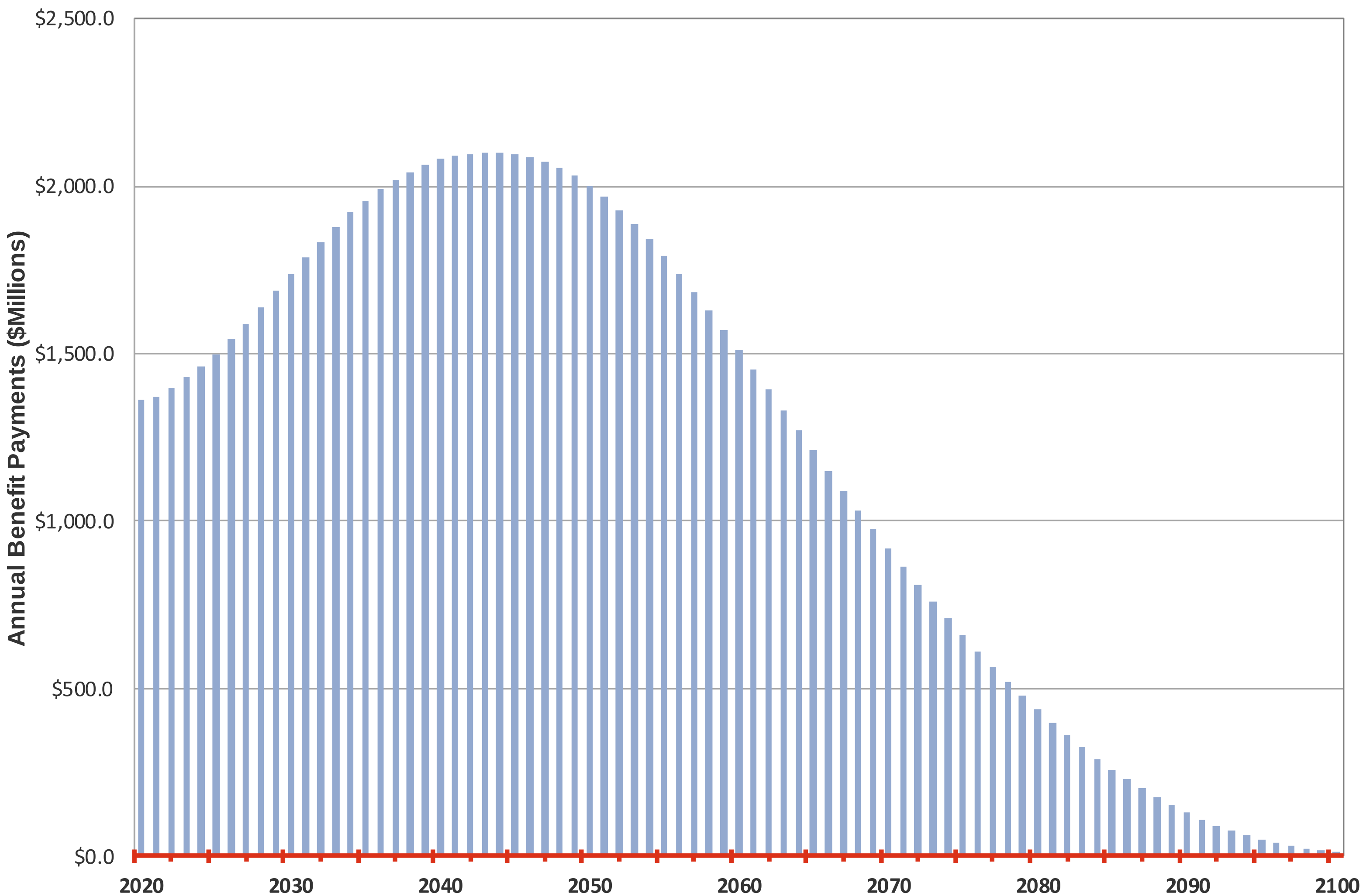
BENEFIT PAYMENTS & CONTRIBUTIONS STREAM

- The below chart displays the plan's projected benefit payment and contribution stream.



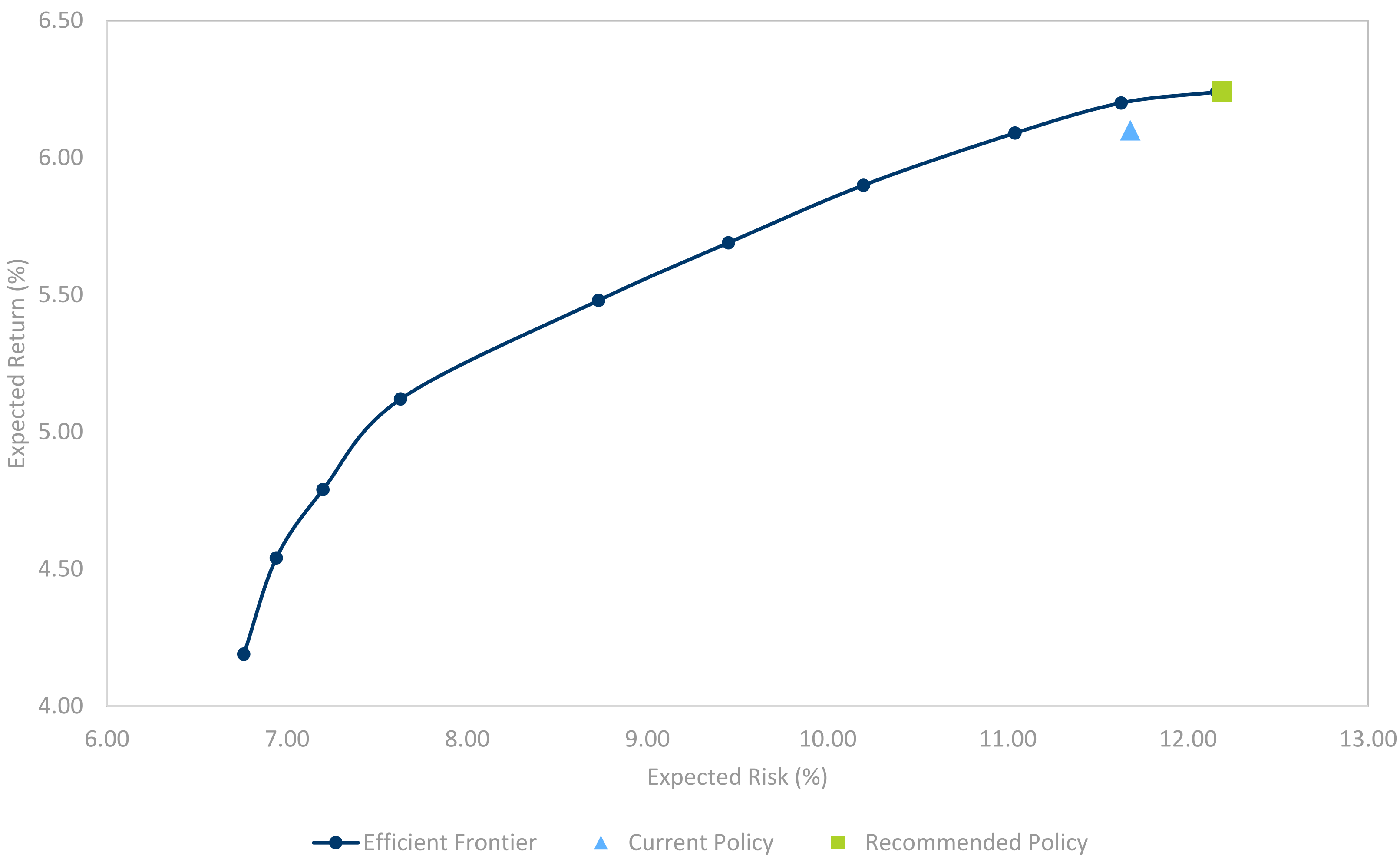
BENEFIT PAYMENTS STREAM

- The below chart displays the plan's projected benefit payment stream.



OPTIMIZATION

EFFICIENT FRONTIER



EFFICIENT FRONTIER OUTPUT

Asset Class	Constraints	Allocations in Percent (%)										Current Policy	Recom-mended
		Portfolio 1	Portfolio 2	Portfolio 3	Portfolio 4	Portfolio 5	Portfolio 6	Portfolio 7	Portfolio 8	Portfolio 9	Portfolio 10		
U.S. Equity	15-100	15.0	15.0	15.0	15.0	15.0	15.0	15.2	18.2	20.2	22.4	22.5	22.5
Non-U.S. Equity	15-100	15.0	15.0	15.0	15.0	15.0	15.0	15.2	18.2	20.2	22.4	22.5	22.5
Global Private Equity	0-12	0.0	0.0	0.0	0.0	5.5	8.9	12.0	12.0	12.0	12.0	10.0	12.0
Private Credit	0-5	0.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	0.0	5.0
Total Growth Assets		***30.0***	***35.0***	***35.0***	***35.0***	***40.5***	***43.9***	***47.5***	***53.3***	***57.4***	***61.7***	***55.0***	***62.0***
Global Fixed Income	19-100	65.5	56.1	49.7	41.2	35.5	32.1	28.5	22.7	19.0	19.0	19.0	19.0
Cash	2-2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0
Total Safety-Oriented Assets		***67.5***	***58.1***	***51.7***	***43.2***	***37.5***	***34.1***	***30.5***	***24.7***	***21.0***	***21.0***	***20.0***	***21.0***
Global Real Assets	0-17	0.0	1.9	8.3	16.8	17.0	17.0	17.0	17.0	17.0	17.0	15.0	17.0
Total Inflation-Oriented Assets		***0.0***	***1.9***	***8.3***	***16.8***	***17.0***	***17.0***	***17.0***	***17.0***	***17.0***	***17.0***	***15.0***	***17.0***
Multi-Asset Strategies	***0-5***	***2.5***	***5.0***	***5.0***	***5.0***	***5.0***	***5.0***	***5.0***	***5.0***	***4.6***	***0.3***	***10.0***	***0.0***
Expected Return (%)		4.19	4.54	4.79	5.12	5.48	5.69	5.90	6.09	6.20	6.24	6.10	6.24
Expected Risk (%)		6.76	6.94	7.20	7.63	8.73	9.45	10.20	11.04	11.63	12.16	11.68	12.19
Sharpe Ratio		0.35	0.39	0.41	0.43	0.42	0.41	0.40	0.38	0.37	0.36	0.36	0.36

- Most portfolios along the efficient frontier are lower risk, and lower expected return
  - Lower return portfolios are not feasible given the funded status of the Plan
  - Analysis has focused on similar risk/return portfolios – Portfolios 8 – 10 on efficient frontier
    - » Recommended Portfolio considers implementation of Portfolio 10
      - For example, 0.3% allocation to MAS is not feasible and is eliminated

* U.S. and Non-U.S. Equity constrained to be equal

RECOMMENDED POLICY

Asset Class	Current Policy	Recommended Policy
U.S. Equity	22.5%	22.5%
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Total Inflation Oriented Assets	**15.0%**	**17.0%**
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Total MAS	**10.0%**	**0.0%**
Total Assets	**100.0%**	**100.0%**
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+/(-) in Expected Return - 20 Years (bps)		**9**
+/(-) in Expected Return - 30 Years (bps)		**9**
+/(-) in SD of Return (bps)		**51**
Sharpe Ratio	**0.36**	**0.36**

	Current Policy	Recommended Policy
Contribution to Asset Volatility		
Growth Assets	**84.4**	**87.1**
Safety-Oriented Assets	**2.6**	**2.5**
Inflation Oriented Assets	**9.3**	**10.4**
Multi-Asset Strategies	**3.7**	**0.0**
Factor Exposure		
Growth Factor	**5.9**	**6.4**
Inflation Factor	**1.3**	**1.2**
Liquidity Metric		
Total Illiquid Assets	**35.0**	**34.0**
Market Liquidity	**65.8**	**63.8**
Stressed Liquidity	**21.7**	**22.7**

SIMULATION

FUNDED RATIO

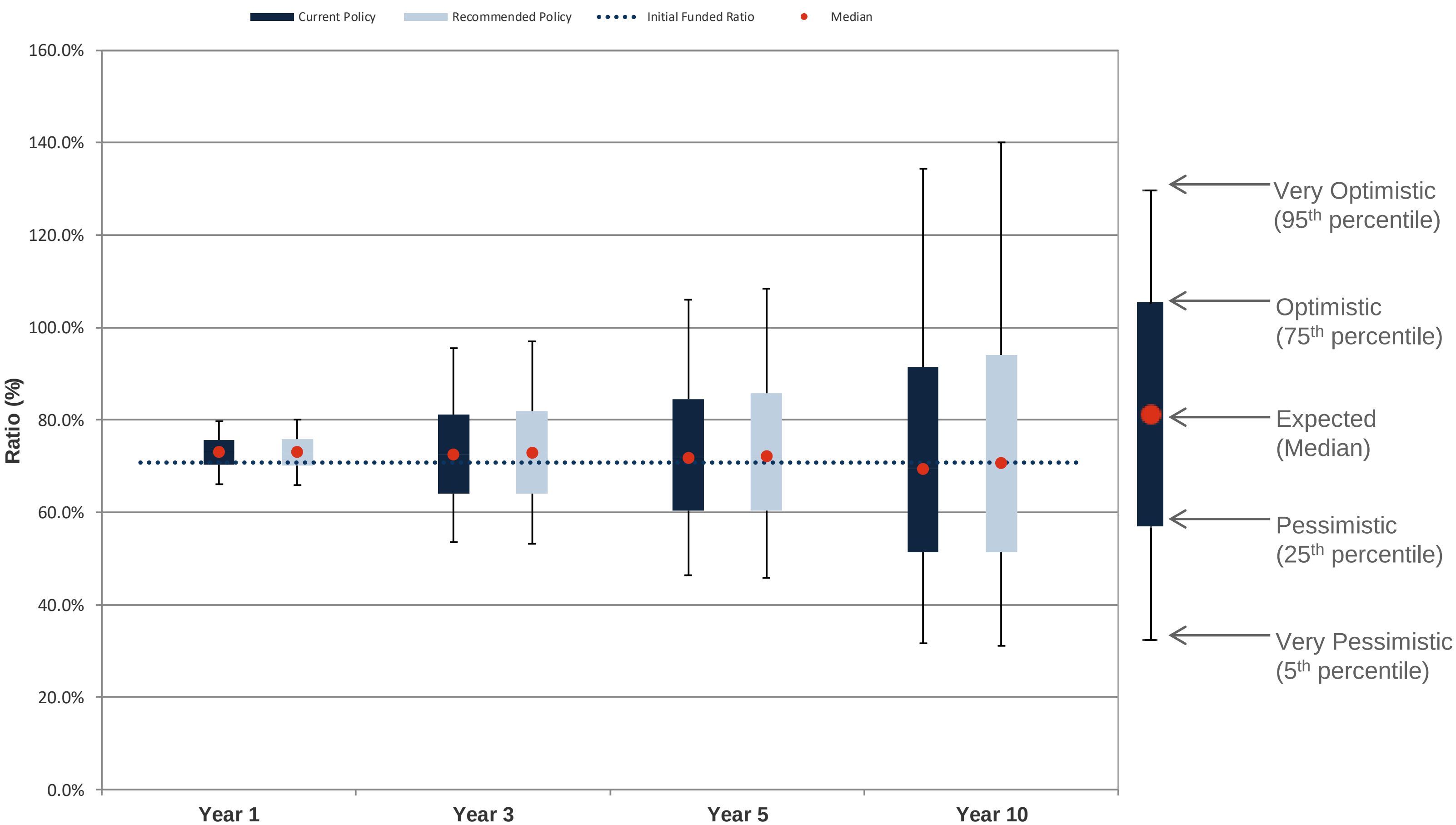
Shortfall Risk:

The potential for the alternative to have a lower median funded ratio than the current policy.

Drawdown Risk:

The potential for the alternative to have a lower “very pessimistic” funded ratio than the current policy.

Initial Funded Ratio = 70.9%



(%)	Year 1		Year 3		Year 5		Year 10	
	Current Policy	Recommended Policy	Current Policy	Recommended Policy	Current Policy	Recommended Policy	Current Policy	Recommended Policy
Very Optimistic	79.67	80.00	95.46	97.05	105.99	108.36	134.30	140.11
Optimistic	75.68	75.83	81.15	81.86	84.54	85.77	91.44	94.12
Median (Expected)	73.05	73.07	72.54	72.83	71.79	72.24	69.46	70.67
Pessimistic	70.25	70.17	64.11	64.03	60.32	60.34	51.39	51.44
Very Pessimistic	66.14	65.91	53.65	53.13	46.45	45.80	31.71	31.08

UNFUNDED AAL

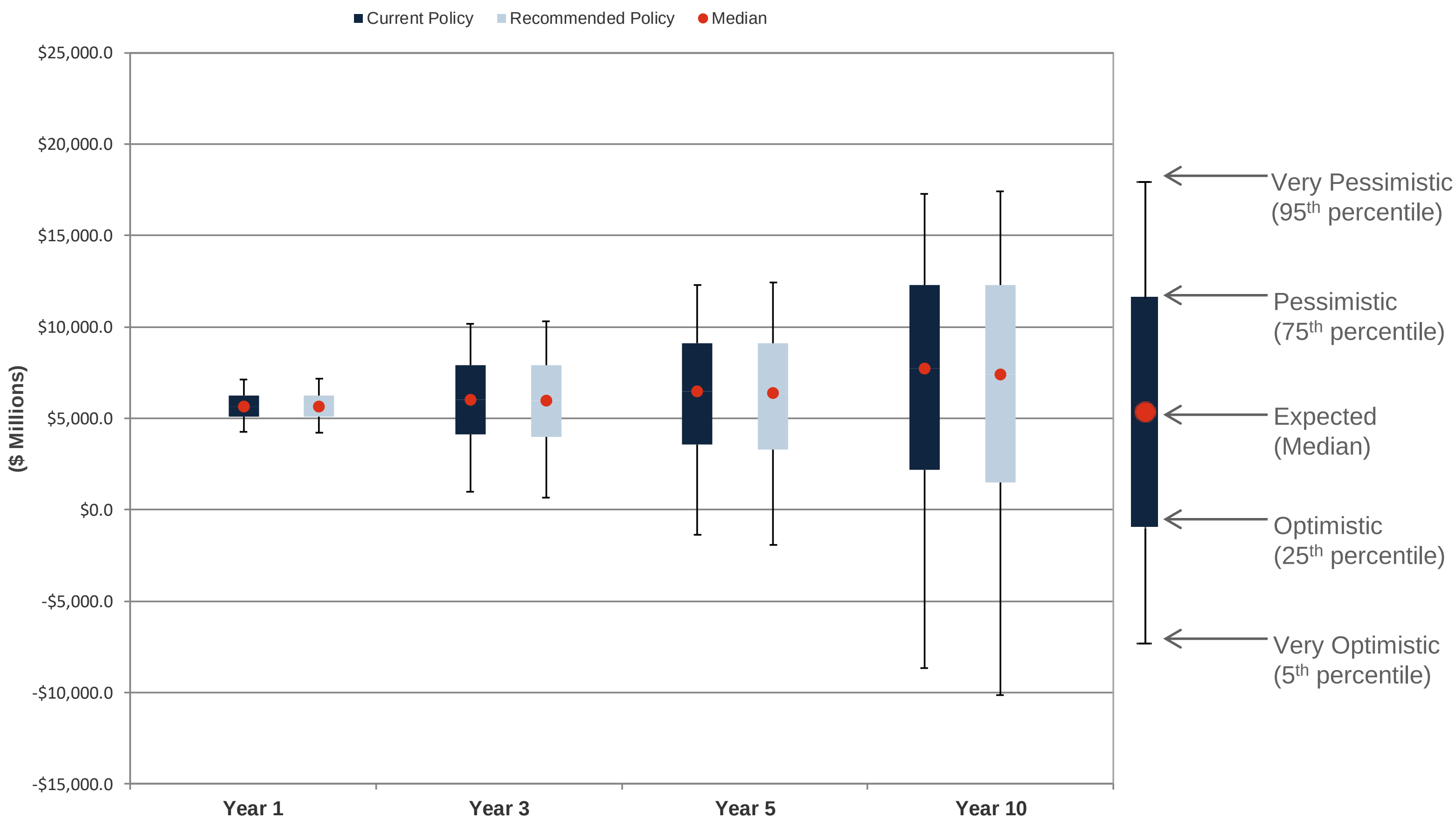
Shortfall Risk:

The potential for the alternative to have a higher median unfunded actuarial accrued liability than the current policy.

Drawdown Risk:

The potential for the alternative to have a higher “very pessimistic” unfunded actuarial accrued liability than the current policy.

Initial Unfunded Actuarial Accrued Liability = $ 5,983.2 M



($ Millions)	Year 1		Year 3		Year 5		Year 10	
	Current Policy	Recommended Policy	Current Policy	Recommended Policy	Current Policy	Recommended Policy	Current Policy	Recommended Policy
Very Pessimistic	7,107.6	7,157.4	10,183.5	10,297.8	12,295.7	12,445.0	17,270.7	17,430.3
Pessimistic	6,244.7	6,263.1	7,886.5	7,903.7	9,111.3	9,106.8	12,292.3	12,280.2
Median (Expected)	**5,657.8**	**5,653.9**	**6,034.0**	**5,969.4**	**6,478.0**	**6,373.6**	**7,723.6**	**7,417.0**
Optimistic	5,105.5	5,073.8	4,143.0	3,985.0	3,550.9	3,268.0	2,165.1	1,487.8
Very Optimistic	4,268.4	4,198.8	996.5	648.1	-1,375.3	-1,920.4	-8,674.0	-10,144.6

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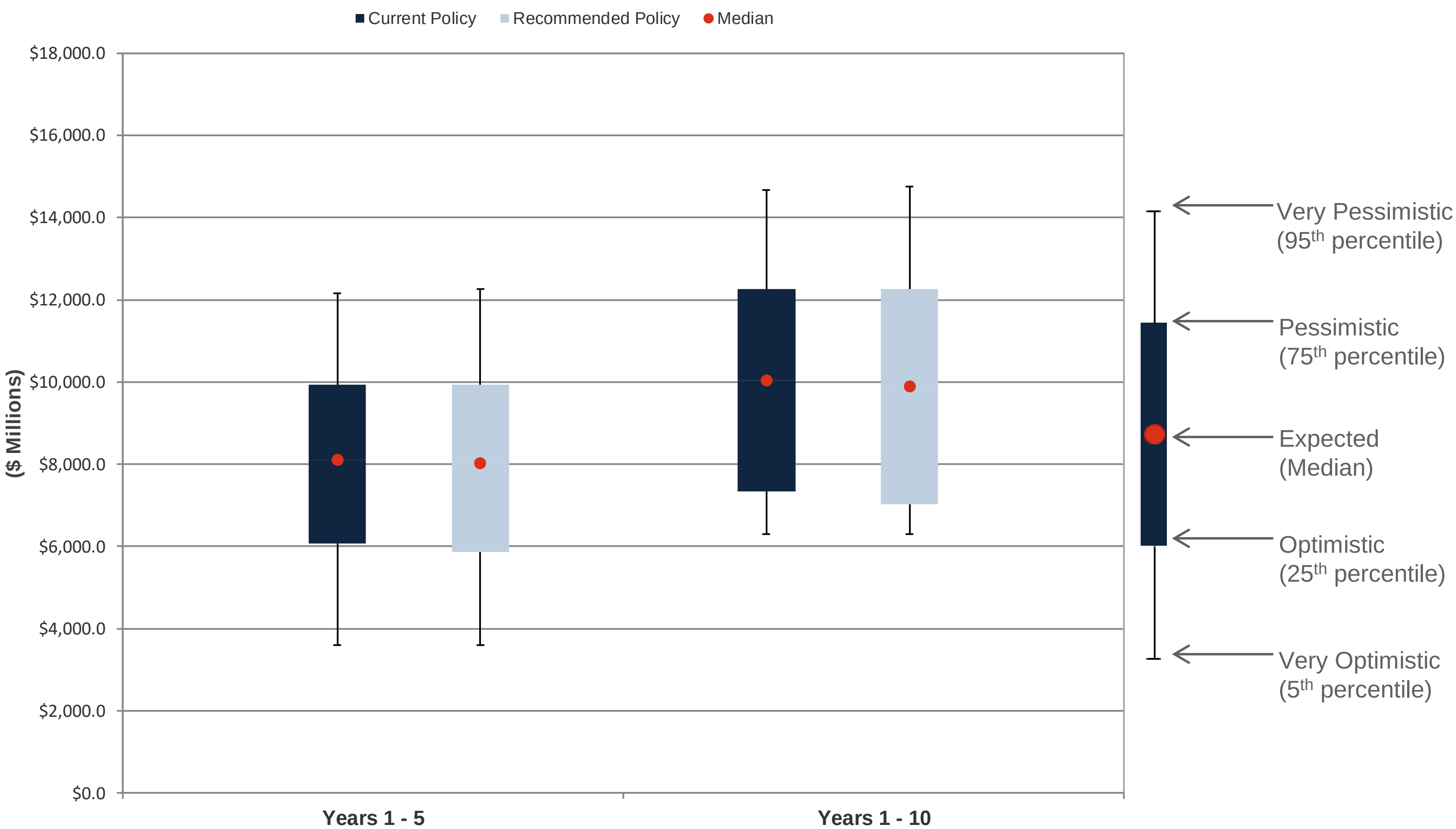
ECONOMIC COST

Shortfall Risk:

The potential for the alternative to have a higher median economic cost than the current policy.

Drawdown Risk:

The potential for the alternatives to have a higher “very pessimistic” economic cost than the current policy.



- *The Present Value of Contributions over 5 years is $3,592.9 M.*
- *The Present Value of Contributions over 10 years is $6,295.3 M.*

($ Millions)	Years 1 - 5		Years 1 - 10	
	Current Policy	Recommended Policy	Current Policy	Recommended Policy
Very Pessimistic	12,157.6	12,261.5	14,674.9	14,752.3
Pessimistic	9,939.4	9,936.3	12,259.4	12,253.5
Median (Expected)	**8,105.2**	**8,032.5**	**10,042.7**	**9,894.0**
Optimistic	6,066.3	5,869.2	7,345.8	7,017.2
Very Optimistic	3,592.9	3,592.9	6,295.3	6,295.3

Economic Cost is defined as the present value of contributions plus contributions necessary to fully fund the plan at the end of the projection period.

PROBABILITIES

	Current Policy	Recommended Policy
Probability of Negative Return in 1-Year (%)	29.4	29.7
Probability of Reaching Actuarial Return 7.50% (%)		
Year 1	45.2	45.9
Year 5	39.4	40.8
Year 10	35.2	37.1
Year 20	45.0	46.7
Year 30	50.6	52.1

APPENDIX

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ASSET CLASS ASSUMPTIONS

As of December 2019 - Expanded

- Wilshire's asset class return, risk and correlation assumptions are developed on multi-year forward looking expected rates of return and historical risk and correlation, adjusted to incorporate recent trends.
- Return expectations for public market assets represent a passive investment in the asset class (**beta**). They do not reflect value added from active management (**alpha**).

Asset Classes	Expected Return 10 Years	Expected Return 20 Years	Expected Return 30 Years	Risk	Cash Yield	Factor Exposure Growth	Factor Exposure Inflation	Liquidity Market	Liquidity Stressed
U.S. Equity	5.75	6.90	7.30	17.00	1.75	8.00	0.00	100%	15%
Non-U.S. Equity	6.50	7.40	7.65	18.95	3.05	8.60	5.45	90%	5%
Global Private Equity	7.60	9.25	9.80	28.00	0.00	14.00	1.00	0%	0%
Private Credit	6.65	7.20	7.40	12.15	10.00	6.00	4.00	0%	0%
Global Fixed Income	2.85	4.10	4.50	5.15	3.10	-0.90	-2.50	100%	85%
Cash	1.85	2.55	2.80	1.25	1.85	0.00	0.00	100%	100%
Global Real Assets	6.60	7.20	7.45	11.25	2.25	4.75	1.00	0%	0%
Multi-Asset Strategies	5.30	6.55	6.95	6.60	0.00	2.65	2.55	30%	0%

- *Global Real Assets is a custom basket for SERS that includes 20% Timber/Infrastructure, and 80% Real Estate.*
- *Real Estate assumption is a mix of 75% Core Real Estate, 25% Value-Add and Opportunistic Real Estate*

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