



# **Asset-Liability Study: Initial Results**

## **Strategy. Implementation. Execution.**

Town of Wilton, Connecticut  
May 19, 2020

Investment advice and consulting services provided by Aon Investments USA Inc.

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# Asset-Liability Study Schedule

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Meeting	Meeting Outcomes	Target Dates
Planning Meeting	<ul style="list-style-type: none"><li>▪ Pension/OPEB risk management overview</li><li>▪ Current asset-liability profile</li><li>▪ Initial strategy assessment</li><li>▪ Capital market assumptions and methods</li></ul>	April 1, 2020
Results Meeting	<ul style="list-style-type: none"><li>▪ Review stochastic modeling</li><li>▪ Asset-liability projection results</li><li>▪ Identify proposed strategic asset allocation for consideration</li><li>▪ Present Recommended Asset Allocation</li></ul>	May 19, 2020
Implementation and Investment Policy Development (if needed)	<ul style="list-style-type: none"><li>▪ Optimal portfolio structure</li><li>▪ Investment Policy Statement document</li><li>▪ Governance model and procedures</li></ul>	TBD

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# Executive Summary

# Executive Summary

## Summary and Conclusions

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- Current investment policy has an expected return of 6.40% (Pension) / 5.48% (OPEB) - Aon believes this may be enhanced with additional diversification
- Wilton should consider its desired balance between funding, investment returns, and risk tolerance in order to determine the ideal investment portfolio



- Aon generally favors careful diversification into a broad set of asset classes with attractive risk and return properties to improve portfolio efficiency, exhibited by Aon's Model Portfolios as a starting point
- Quantitative benefits of diversification should be weighed against liquidity needs, implementation considerations, and governance objectives/circumstances in determining the optimal portfolio



- Longer time horizons tend to increase risk tolerance
- The funded ratio is projected to trend toward full funding over the course of the projection period for both the Pension & OPEB plans
- Optimistic (or pessimistic) asset performance could lead to better (or worse) outcomes than the central expectation

<sup>1</sup> Expected returns are using Aon Investments Q2 2020 Capital Market Assumptions. Assumptions do not include fees/expenses. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See capital market assumptions disclosure pages in Appendix.

# Executive Summary

## Current State Asset-Liability Overview as of July 1, 2018

	Pension	OPEB
<i>Plan Participation</i>	Closed	Open
<i>Market Value of Assets (MVA) (in \$ millions)</i>	\$117.4	\$7.5
<i>Actuarial Liability (AL) (in \$ millions)</i>	\$118.3	\$6.6
<b><i>Funded Ratio (MVA / AL)</i></b>	<b>99.2%</b>	<b>113.2%</b>
<i>Liability Growth Metrics:</i>		
- Interest/Discount Cost	6.88%	5.75%
- Normal Cost	2.27%	3.64%
- Plan Expense	<u>0.10%</u>	<u>0.00%</u>
<b>- Total Liability Growth Rate (LGR)</b>	<b>9.25%</b>	<b>9.39%</b>
<b>Asset Hurdle Rate (LGR / Funded Ratio)</b>	<b>9.32%</b>	<b>8.29%</b>
<i>Est. Benefit Payments (as a % of MVA)</i>	5.15%	7.22%

### Key Takeaways:

- Both plans are well-funded with similar liability growth rates
- Pension*: due to the closed nature of the plan, normal cost should decrease in the future, lowering its liability growth rate
- OPEB*: a lower asset hurdle rate will point to a lower return-seeking allocation than the pension plan
- Actual asset performance through March 31, 2020 has been incorporated into our analysis

# Executive Summary

## Target Asset Allocations

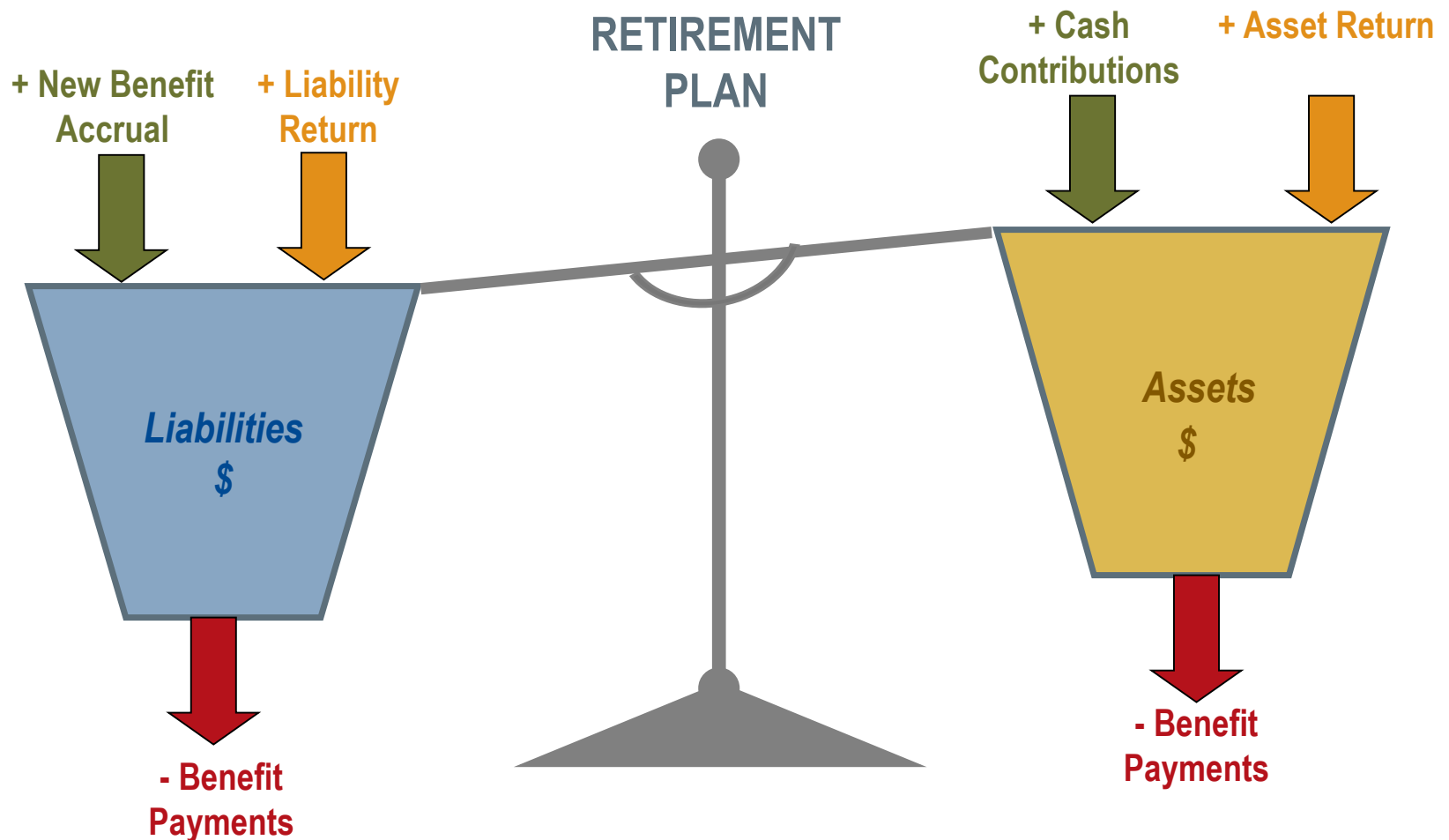
	Pension	OPEB
<b>Target Asset Allocation</b>		
<b>Return-Seeking Assets</b>		
- U.S. Large Cap Equity	22.0%	24.0%
- U.S. Small Cap Equity	8.0%	6.0%
- Developed International Equity	20.0%	16.0%
- Emerging Markets Equity	10.0%	4.0%
- High Yield Bonds	2.5%	5.0%
- Real Estate (Pension: Non-Core; OPEB: REITs)	5.0%	5.0%
- Private Debt	5.0%	
<b>- Total Return-Seeking Assets</b>	<b>72.5%</b>	<b>60.0%</b>
<b>Risk-Reducing Assets</b>		
- Core Fixed Income	21.0%	30.0%
- Global Fixed Income	5.0%	5.0%
- TIPS	1.5%	
- Cash		5.0%
<b>- Total Risk-Reducing Assets</b>	<b>27.5%</b>	<b>40.0%</b>
<b>- Total</b>	<b>100.0%</b>	<b>100.0%</b>

### Key Takeaways:

- **Pension:** Asset allocation is **72.5%** return-seeking assets with 27.5% risk-reducing/safety assets to withstand stressed markets
  - 10% of plan assets (non-core real estate and private debt) are in illiquid investments
- **OPEB:** Asset allocation is **60.0%** return-seeking assets with 40.0% risk-reducing/safety assets to withstand stressed markets
  - All assets are liquid investments
- The purpose of the asset-liability study is to establish an investment strategy which balances the expected asset growth with the liability growth over time

# Executive Summary

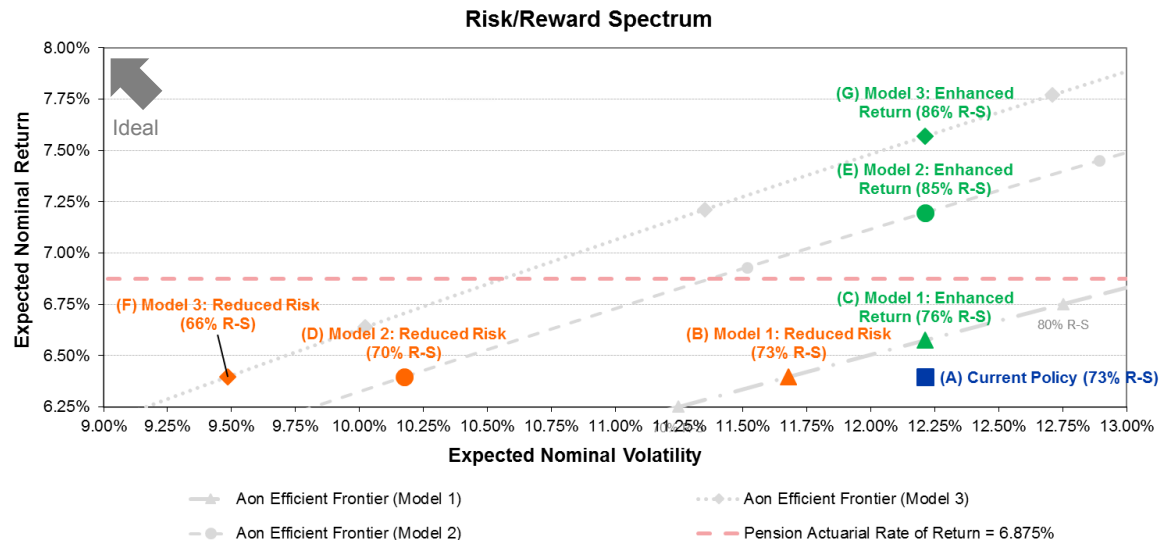
## Asset-Liability Study Process & Methodology | Proper Balance of Liabilities and Assets





# Executive Summary

## Portfolio Analysis (Pension Plan)



### Key Takeaways:

- Aon generally favors careful diversification into a broad set of asset classes with attractive risk and return properties to improve portfolio efficiency, as exhibited by Aon's Model Portfolios
  - **Model 1** includes private equity with increased allocations to real estate
  - **Model 2** adds liquid alternatives with increased private assets
  - **Model 3** further increases private assets

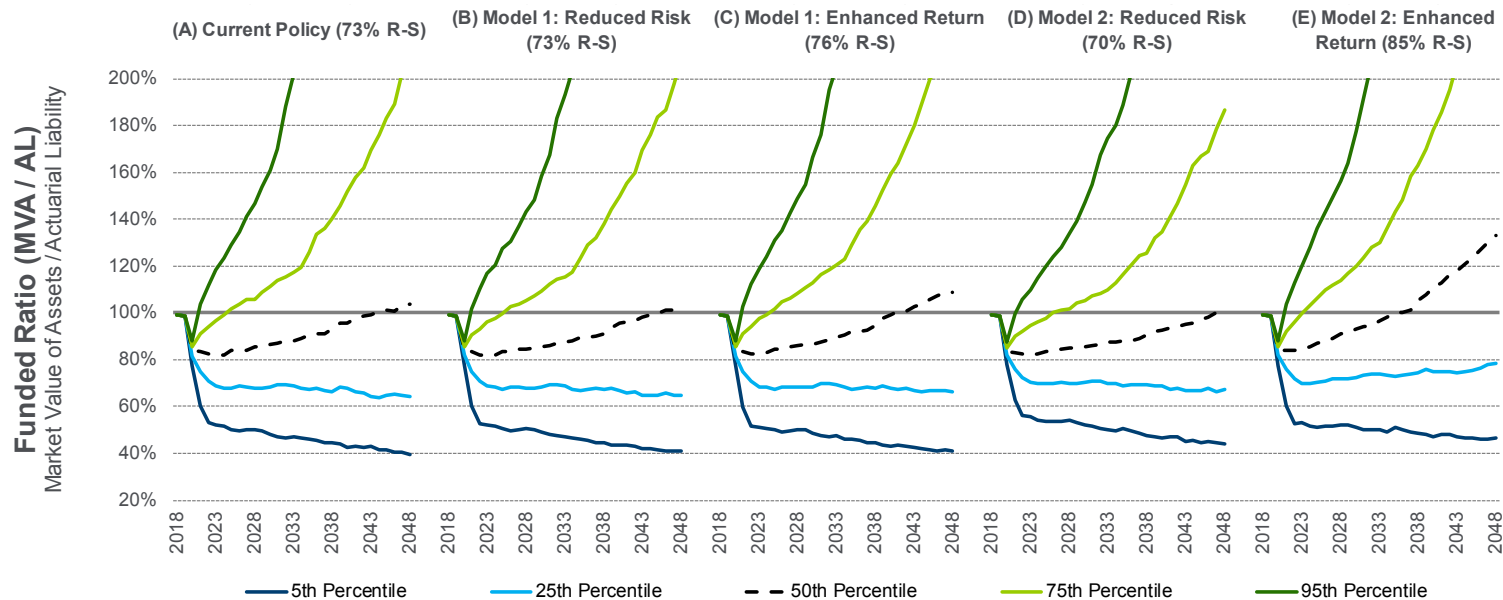
				Return-Seeking Assets						Risk-Reducing / Safety Assets		
	Expected Nominal Return	Expected Nominal Volatility	Sharpe Ratio	Public Equity	Private Equity	Liquid Alts	Multi Asset Credit	Private Debt	Real Estate	TIPS	Core Bonds	Global Bonds
(A) Current Policy (73% R-S)	6.40%	12.21%	0.434	60%	0%	0%	3%	5%	5%	2%	21%	5%
(B) Model 1: Reduced Risk (73% R-S)	6.40%	11.68%	0.454	55%	5%	0%	5%	0%	9%	0%	27%	0%
(C) Model 1: Enhanced Return (76% R-S)	6.57%	12.21%	0.448	57%	5%	0%	5%	0%	10%	0%	24%	0%
(D) Model 2: Reduced Risk (70% R-S)	6.40%	10.17%	0.521	39%	9%	9%	2%	2%	7%	0%	30%	0%
(E) Model 2: Enhanced Return (85% R-S)	7.20%	12.21%	0.499	48%	11%	11%	3%	3%	8%	0%	15%	0%
(F) Model 3: Reduced Risk (66% R-S)	6.40%	9.48%	0.559	29%	12%	8%	0%	4%	8%	0%	34%	0%
(G) Model 3: Enhanced Return (86% R-S)	7.57%	12.21%	0.530	38%	16%	11%	0%	5%	11%	0%	14%	0%

<sup>1</sup>Expected returns are using Aon Investments Q2 2020 Capital Market Assumptions. Assumptions do not include fees/expenses. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See capital market assumptions disclosure pages in Appendix.

Percentages in table may not sum to 100% due to rounding

# Executive Summary

## Market Value of Assets / Actuarial Liability Funded Ratio (Pension Plan)



Strategy	(A) Current Policy (73% R-S)			(B) Model 1: Reduced Risk (73% R-S)			(C) Model 1: Enhanced Return (76% R-S)			(D) Model 2: Reduced Risk (70% R-S)			(E) Model 2: Enhanced Return (85% R-S)		
Year	2028	2038	2048	2028	2038	2048	2028	2038	2048	2028	2038	2048	2028	2038	2048
5th Percentile	50%	45%	40%	51%	44%	41%	50%	44%	41%	54%	48%	44%	52%	49%	46%
25th Percentile	68%	67%	64%	68%	67%	65%	68%	68%	66%	70%	69%	67%	72%	74%	78%
50th Percentile	86%	93%	104%	85%	91%	102%	86%	95%	109%	85%	90%	102%	91%	105%	133%
75th Percentile	106%	140%	>200%	105%	138%	>200%	108%	146%	>200%	102%	126%	187%	114%	163%	>200%
95th Percentile	147%	>200%	>200%	143%	>200%	>200%	149%	>200%	>200%	134%	>200%	>200%	156%	>200%	>200%
Probability > 100%	32%	46%	52%	31%	45%	51%	34%	47%	55%	28%	43%	51%	40%	54%	65%

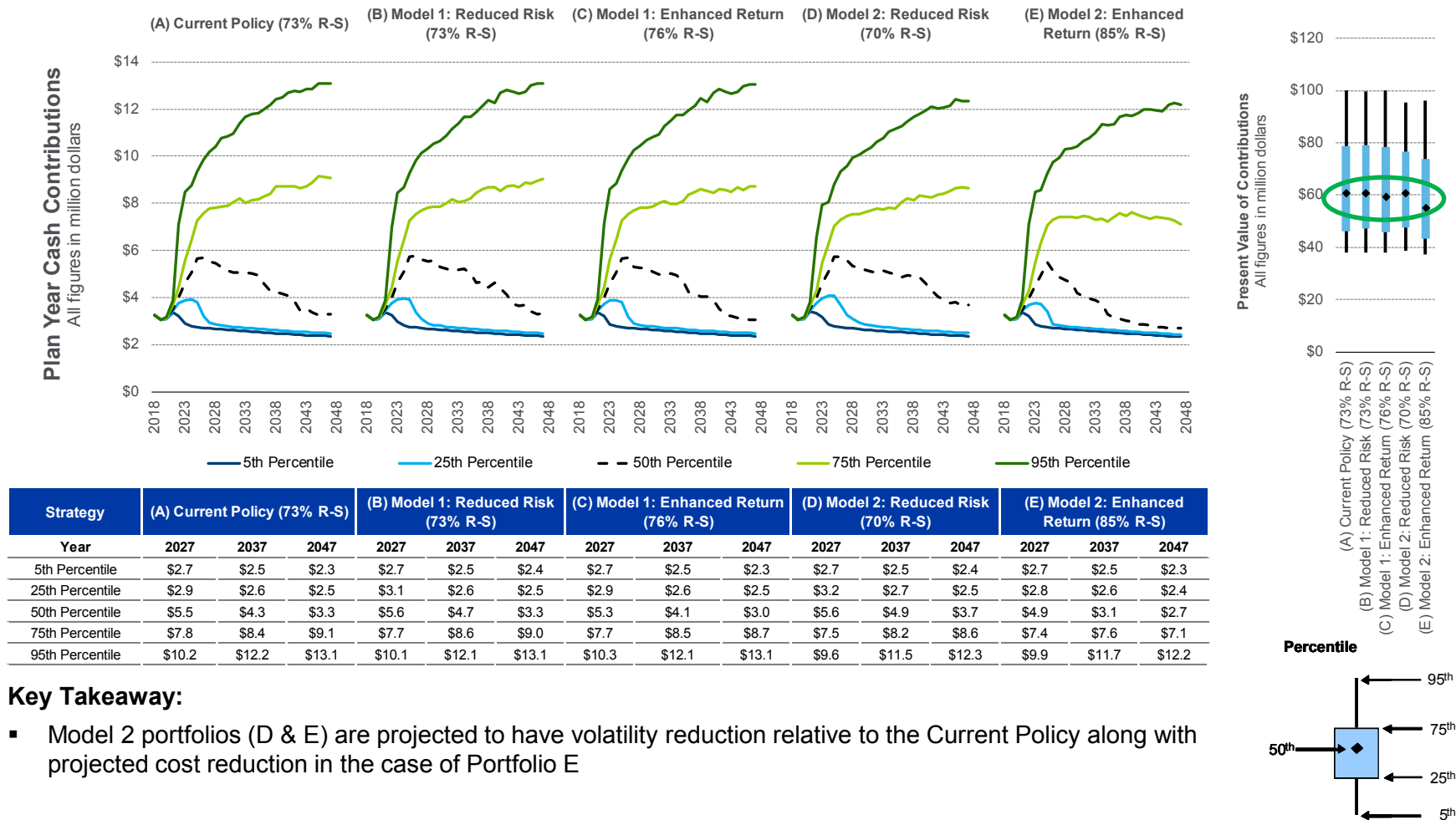
### Key Takeaways:

- Plan is expected to move back towards full funding across all investment strategies in the median case
- Higher (or lower) return-seeking strategies adjust the central trendline accordingly

\* Liability projections assume discount rates of 6.875% for all investment policies studied

# Executive Summary

## Total Contribution Amount (Pension Plan)



### Key Takeaway:

- Model 2 portfolios (D & E) are projected to have volatility reduction relative to the Current Policy along with projected cost reduction in the case of Portfolio E

\* Liability projections assume discount rates of 6.875% for all investment policies studied

# Executive Summary

## Summary and Conclusions (Pension Plan)

All Scenarios \$ millions	30-year Economic Cost		30-year Present Value of Contributions		30-year Ending Funded Ratio (MVA / AL)	
	Expected <sup>1</sup>	Downside <sup>2</sup>	Expected <sup>1</sup>	Downside <sup>2</sup>	Expected <sup>1</sup>	Downside <sup>3</sup>
(A) Current Policy (73% R-S)	\$58.5	\$109.5	\$60.9	\$100.2	104%	40%
(B) Model 1: Reduced Risk (73% R-S)	\$59.1	\$108.9	\$60.9	\$99.8	102%	41%
(C) Model 1: Enhanced Return (76% R-S)	\$56.8	\$108.8	\$59.5	\$99.9	109%	41%
(D) Model 2: Reduced Risk (70% R-S)	\$60.2	\$104.7	\$60.7	\$95.4	102%	44%
(E) Model 2: Enhanced Return (85% R-S)	\$48.6	\$103.5	\$55.4	\$96.0	133%	46%
(F) Model 3: Reduced Risk (66% R-S)	\$59.4	\$103.4	\$60.6	\$94.1	99%	45%
(G) Model 3: Enhanced Return (86% R-S)	\$43.2	\$101.9	\$53.1	\$94.8	153%	48%

### Key Findings:

- Plan is expected to move towards full funding across all investment strategies modeled
- Portfolios C through G are expected to have less costs in the expected and downside cases relative to the Current Policy
- Portfolios E and G likely contain more risk than needed as they are projected to far exceed full funding in the expected case

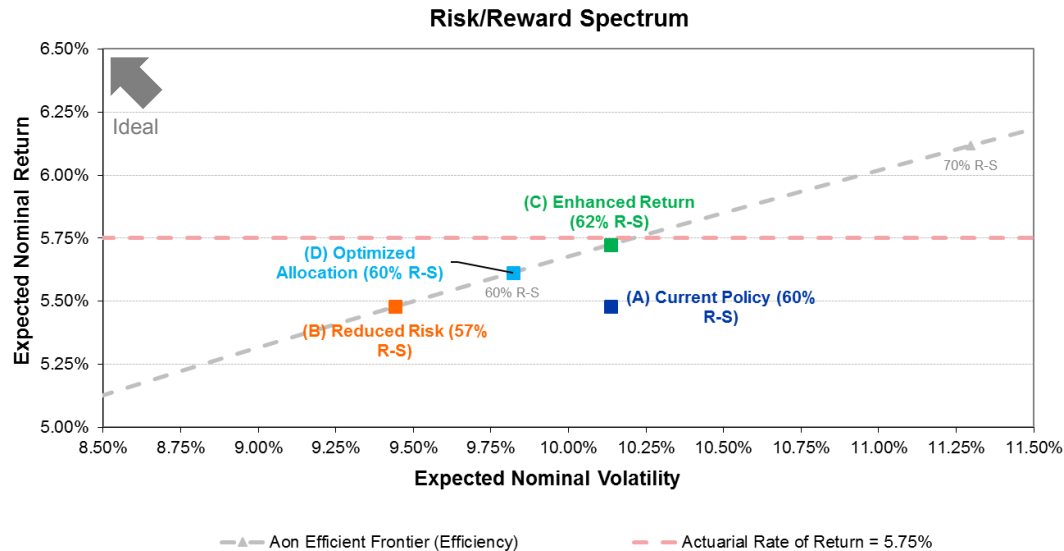
<sup>1</sup> Expected = 50<sup>th</sup> percentile outcome or central expectation across all 1,000 simulations

<sup>2</sup> Downside = 95<sup>th</sup> percentile outcome across all 1,000 simulations

<sup>3</sup> Downside = 5<sup>th</sup> percentile outcome across all 1,000 simulations

# Executive Summary

## Portfolio Analysis (OPEB Plan)



### Key Takeaway:

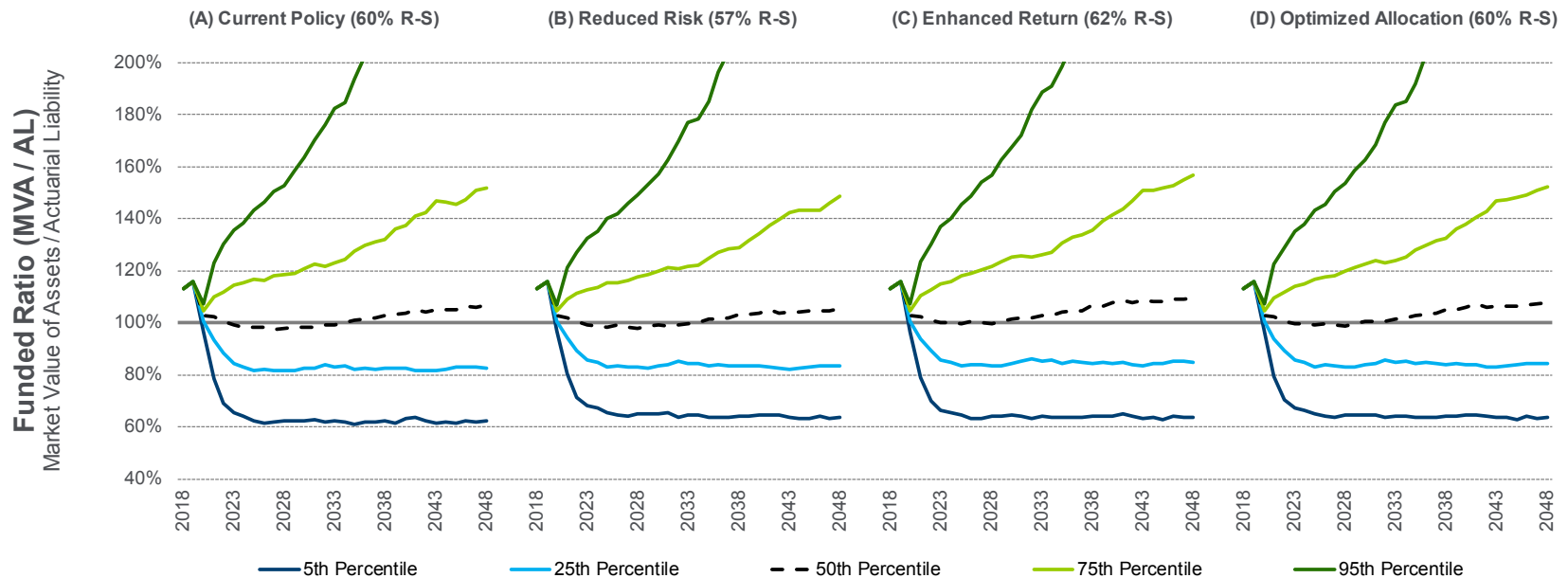
- Aon generally favors careful diversification into a broad set of asset classes with attractive risk and return properties to improve portfolio efficiency, as exhibited by Aon's Model Portfolios
  - **Efficiency** focuses on globally-weighted public equities and increased allocations to real estate (modeled as REITs)

				Return-Seeking Assets						Risk-Reducing / Safety Assets		
	Expected Nominal Return	Expected Nominal Volatility	Sharpe Ratio	U.S. Large Cap Equity	U.S. Small Cap Equity	Dev. Int'l Equity	Emerg. Markets Equity	Multi Asset Credit	Real Estate	Cash & Short Duration Bonds	Core Bonds	Global Bonds
(A) Current Policy (60% R-S)	5.48%	10.14%	0.432	22%	8%	16%	4%	5%	5%	5%	30%	5%
(B) Reduced Risk (57% R-S)	5.48%	9.44%	0.464	17%	4%	16%	5%	6%	9%	0%	43%	0%
(C) Enhanced Return (62% R-S)	5.72%	10.14%	0.456	19%	5%	17%	6%	6%	9%	0%	38%	0%
(D) Optimized Allocation (60% R-S)	5.61%	9.82%	0.460	18%	5%	17%	6%	6%	9%	0%	40%	0%

<sup>1</sup>Expected returns are using Aon Investments Q2 2020 Capital Market Assumptions. Assumptions do not include fees/expenses. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See capital market assumptions disclosure pages in Appendix. Percentages in table may not sum to 100% due to rounding

# Executive Summary

## Market Value of Assets / Actuarial Liability Funded Ratio (OPEB Plan)



Strategy	(A) Current Policy (60% R-S)			(B) Reduced Risk (57% R-S)			(C) Enhanced Return (62% R-S)			(D) Optimized Allocation (60% R-S)		
Year	2028	2038	2048	2028	2038	2048	2028	2038	2048	2028	2038	2048
5th Percentile	62%	62%	62%	65%	64%	63%	64%	64%	64%	65%	64%	64%
25th Percentile	81%	82%	82%	83%	83%	83%	83%	84%	85%	83%	84%	84%
50th Percentile	98%	103%	107%	98%	103%	106%	100%	107%	109%	99%	105%	108%
75th Percentile	118%	132%	152%	118%	129%	149%	122%	136%	157%	120%	132%	152%
95th Percentile	153%	>200%	>200%	149%	>200%	>200%	157%	>200%	>200%	154%	>200%	>200%
Probability > 100%	47%	53%	57%	47%	54%	56%	50%	57%	60%	48%	56%	58%

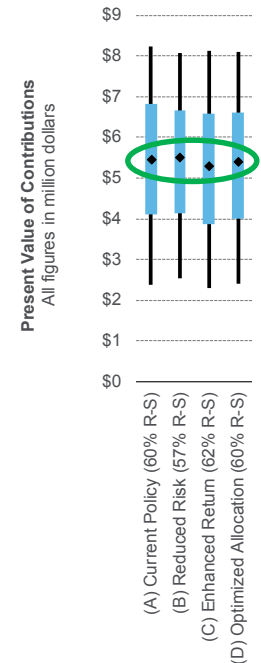
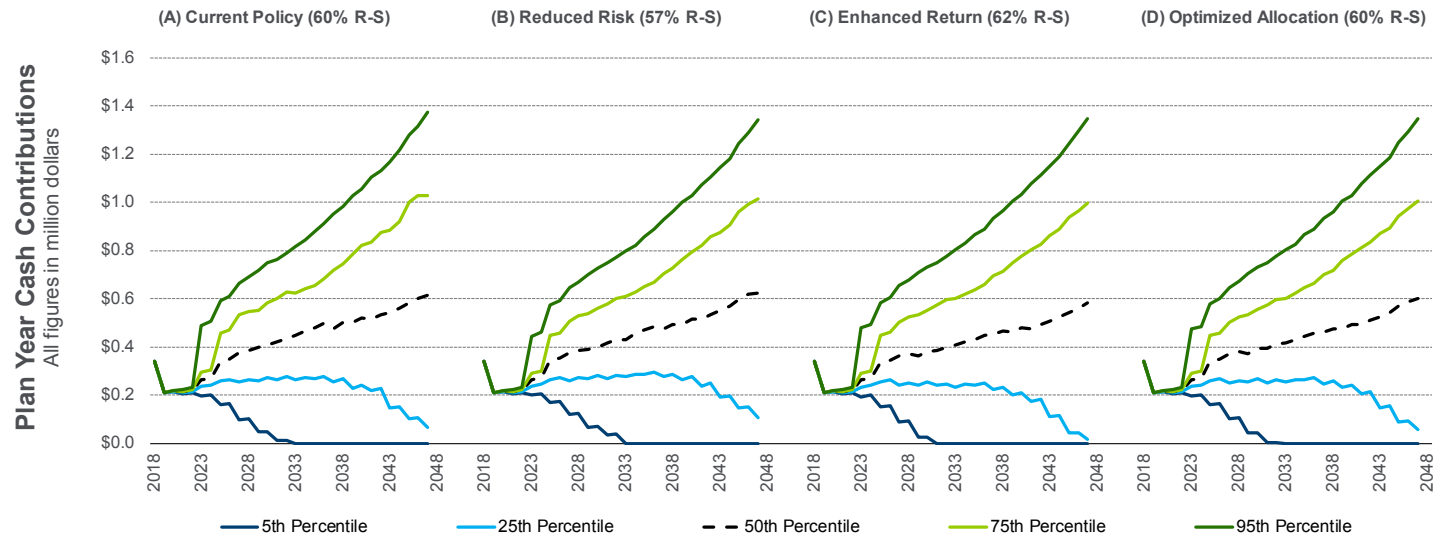
### Key Takeaway:

- Plan is expected to stay around the full funding mark across investment strategies

\* Liability projections assume discount rates of 5.75% for all investment policies studied

# Executive Summary

## Total Contribution Amount (OPEB Plan)

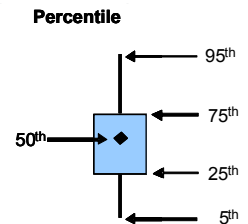


Strategy	(A) Current Policy (60% R-S)			(B) Reduced Risk (57% R-S)			(C) Enhanced Return (62% R-S)			(D) Optimized Allocation (60% R-S)		
Year	2027	2037	2047	2027	2037	2047	2027	2037	2047	2027	2037	2047
5th Percentile	\$0.1	\$0.0	\$0.0	\$0.1	\$0.0	\$0.0	\$0.1	\$0.0	\$0.0	\$0.1	\$0.0	\$0.0
25th Percentile	\$0.3	\$0.3	\$0.1	\$0.3	\$0.3	\$0.1	\$0.2	\$0.2	\$0.0	\$0.2	\$0.2	\$0.1
50th Percentile	\$0.4	\$0.5	\$0.6	\$0.4	\$0.5	\$0.6	\$0.4	\$0.5	\$0.6	\$0.4	\$0.5	\$0.6
75th Percentile	\$0.5	\$0.7	\$1.0	\$0.5	\$0.7	\$1.0	\$0.5	\$0.7	\$1.0	\$0.5	\$0.7	\$1.0
95th Percentile	\$0.7	\$1.0	\$1.4	\$0.6	\$0.9	\$1.3	\$0.7	\$0.9	\$1.3	\$0.6	\$0.9	\$1.3

### Key Takeaways:

- Portfolios C and D are expected to have less costs in the central expectation relative to the Current Policy
- Portfolios B, C, and D are expected to have less contribution volatility than the Current Policy

\* Liability projections assume discount rates of 5.75% for all investment policies studied



# Executive Summary

## Summary and Conclusions (OPEB Plan)

All Scenarios \$ millions	30-year Economic Cost		30-year Present Value of Contributions		30-year Ending Funded Ratio (MVA / AL)	
	Expected <sup>1</sup>	Downside <sup>2</sup>	Expected <sup>1</sup>	Downside <sup>2</sup>	Expected <sup>1</sup>	Downside <sup>3</sup>
(A) Current Policy (60% R-S)	\$5.1	\$8.9	\$5.5	\$8.2	107%	62%
(B) Reduced Risk (57% R-S)	\$5.1	\$8.7	\$5.5	\$8.1	106%	63%
(C) Enhanced Return (62% R-S)	\$4.8	\$8.7	\$5.3	\$8.1	109%	64%
(D) Optimized Allocation (60% R-S)	\$5.0	\$8.7	\$5.4	\$8.1	108%	64%

### Key Findings:

- Plan is expected to stay around the full funding mark across investment strategies
- Portfolios C and D are expected to have less costs in the central expectation relative to the Current Policy
- Portfolios B, C, and D are expected to have less contribution volatility than the Current Policy

<sup>1</sup> Expected = 50<sup>th</sup> percentile outcome or central expectation across all 1,000 simulations

<sup>2</sup> Downside = 95<sup>th</sup> percentile outcome across all 1,000 simulations

<sup>3</sup> Downside = 5<sup>th</sup> percentile outcome across all 1,000 simulations





# Analysis

- Pension Plan

# Current State Asset-Liability Profile – Pension Plan

## As of July 1, 2018

Asset-Liability Snapshot as of 7/1/2018		
Metric (\$, Millions)	Value	Fund %
Market Value of Assets	\$117.4	99.2%
Actuarial Value of Assets	\$117.3	99.2%
<b>Liability Metrics</b>		
Actuarial Liability (AL) - Funding	\$118.3 <sup>1</sup>	

Asset-Liability Growth Metrics			
Metric (\$, Millions)	Value	% Liability	% Assets
AL Discount Cost	\$8.1	6.88%	6.93%
AL Normal Cost	\$2.7	2.27%	2.29%
Plan Expenses	\$0.1	0.10%	0.10%
<b>Total Liability Hurdle Rate</b>	<b>\$10.9</b>	<b>9.25%</b>	<b>9.32%</b>
Expected Return on Assets <sup>2</sup>	\$7.5	6.34%	6.40%
Total Contributions	\$3.2	2.74%	2.77%
<b>Total Exp. Asset Growth</b>	<b>\$10.8</b>	<b>9.08%</b>	<b>9.17%</b>
<b>Hurdle Rate Shortfall/(Surplus)</b>	<b>\$0.2</b>	<b>0.17%</b>	<b>0.15%</b>
Est. Benefit Payments	\$6.0	5.11%	5.15%

### Key Takeaways:

- Pension plan is 99.2% funded on a market value of assets basis as of July 1, 2018
- Asset allocation is 72.5% return-seeking assets with 27.5% risk-reducing/safety assets to withstand stressed markets
- Asset hurdle rate of 9.32%, via cash funding and investment returns, needed to maintain or improve actuarial funded status

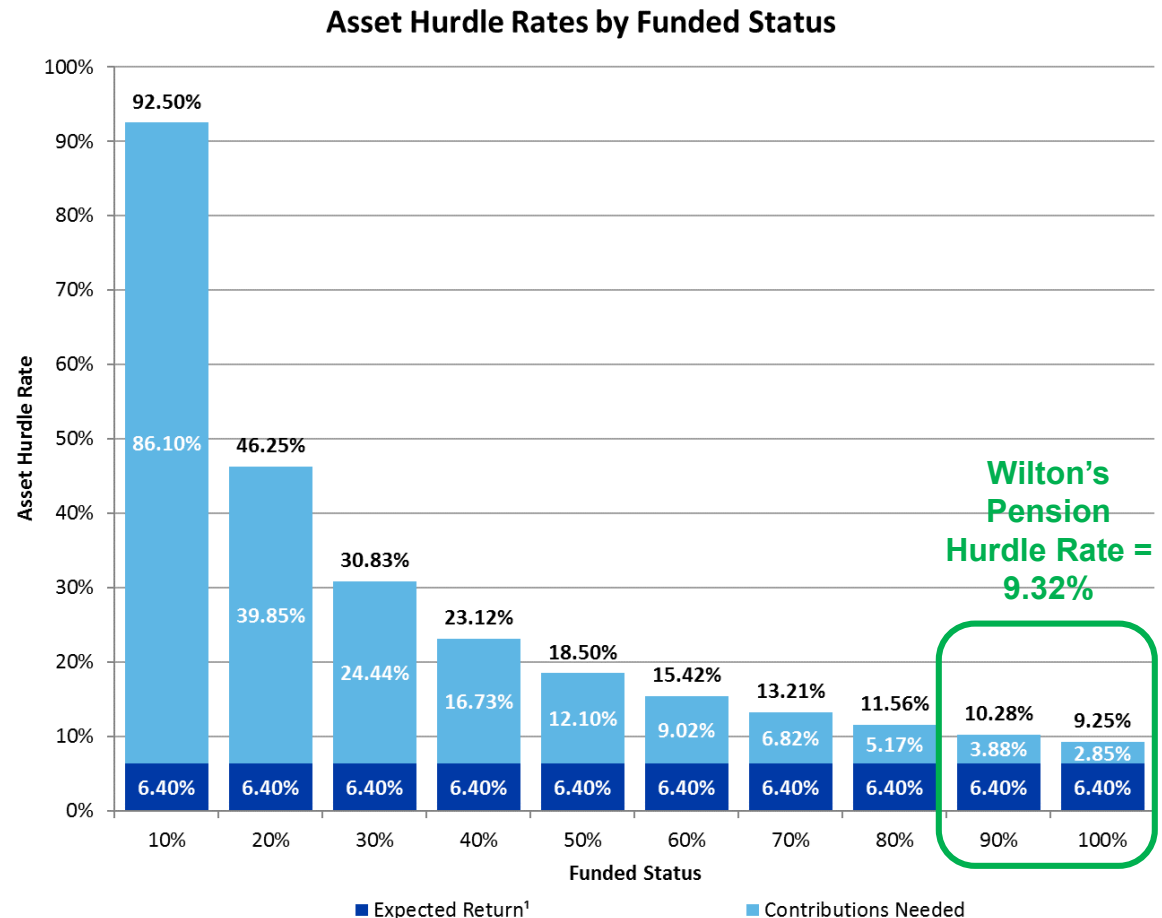
Target Asset Allocation as of 7/1/2018		
Metric (\$, Millions)	Value	Alloc %
<b>Return-Seeking</b>		
- U.S. Equity	\$35.2	30.0%
- International Equity	\$35.2	30.0%
- Real Estate	\$5.9	5.0%
- High Yield Bonds	\$2.9	2.5%
- Private Debt	\$5.9	5.0%
- Total	\$85.1	72.5%
<b>Risk-Reducing</b>		
- Inflation Linked Bonds	\$1.8	1.5%
- Core Bonds	\$24.6	21.0%
- Global Bonds	\$5.9	5.0%
- Total	\$32.3	27.5%
<b>Total</b>	<b>\$117.4</b>	<b>100.0%</b>

<sup>1</sup>Based on a 6.875% discount rate consistent with the July 1, 2018 valuation results.

<sup>2</sup>Expected returns are using Aon Investments Q2 2020 Capital Market Assumptions. Assumptions do not include fees/expenses. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See capital market assumptions disclosure pages in Appendix.

# Asset Hurdle Rate

- **Asset Hurdle Rate** is the level of asset growth needed to keep pace with the growth of the Plan liabilities
  - Assets must grow at this rate or more in order to maintain or reduce the existing funding shortfall
- Assets can grow via:
  - Investment performance, and/or
  - Funding contributions
- Asset hurdle rates increase as funded ratio declines, as shown in the chart to the right



Expected returns are using Aon Investments Q2 2020 Capital Market Assumptions. Assumptions do not include fees/expenses. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See capital market assumptions disclosure pages in Appendix.

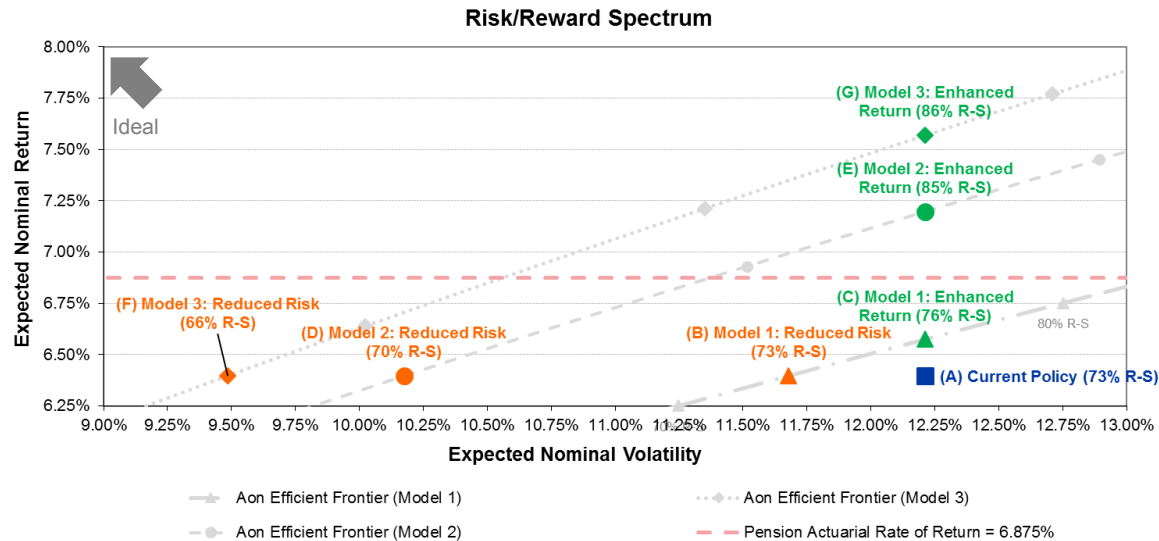
## Spectrum of Aon Model Portfolios

- Aon's Model Portfolios reflect Aon's best ideas for a *typical* U.S. public defined benefit plan across a range of circumstances noted below
  - Intended as a *starting point* for asset allocation analysis and decision-making and to be customized based on client-specific needs and circumstances

	Efficiency	Model 1	Model 2	Model 3 (Opportunity)
Complexity	Simple			Complex
Costs	Low Cost			Higher Cost
Resources	Light Resources			Deep Resources
Governance	Modest Governance			Strong Governance
Liquidity	More Liquid			Less Liquid

# Portfolio Analysis

## Risk/Reward Spectrum



### Key Takeaways:

- Aon generally favors careful diversification into a broad set of asset classes with attractive risk and return properties to improve portfolio efficiency, as exhibited by Aon's Model Portfolios
  - **Model 1** includes private equity with increased allocations to real estate
  - **Model 2** adds liquid alternatives with increased private assets
  - **Model 3** further increases private assets

				Return-Seeking Assets						Risk-Reducing / Safety Assets		
	Expected Nominal Return	Expected Nominal Volatility	Sharpe Ratio	Public Equity	Private Equity	Liquid Alts	Multi Asset Credit	Private Debt	Real Estate	TIPS	Core Bonds	Global Bonds
<b>(A) Current Policy (73% R-S)</b>	6.40%	12.21%	0.434	60%	0%	0%	3%	5%	5%	2%	21%	5%
<b>(B) Model 1: Reduced Risk (73% R-S)</b>	6.40%	11.68%	0.454	55%	5%	0%	5%	0%	9%	0%	27%	0%
<b>(C) Model 1: Enhanced Return (76% R-S)</b>	6.57%	12.21%	0.448	57%	5%	0%	5%	0%	10%	0%	24%	0%
<b>(D) Model 2: Reduced Risk (70% R-S)</b>	6.40%	10.17%	0.521	39%	9%	9%	2%	2%	7%	0%	30%	0%
<b>(E) Model 2: Enhanced Return (85% R-S)</b>	7.20%	12.21%	0.499	48%	11%	11%	3%	3%	8%	0%	15%	0%
<b>(F) Model 3: Reduced Risk (66% R-S)</b>	6.40%	9.48%	0.559	29%	12%	8%	0%	4%	8%	0%	34%	0%
<b>(G) Model 3: Enhanced Return (86% R-S)</b>	7.57%	12.21%	0.530	38%	16%	11%	0%	5%	11%	0%	14%	0%

<sup>1</sup>Expected returns are using Aon Investments Q2 2020 Capital Market Assumptions. Assumptions do not include fees/expenses. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See capital market assumptions disclosure pages in Appendix. Percentages in table may not sum to 100% due to rounding

# Portfolio Analysis

## Detailed Portfolio Construction

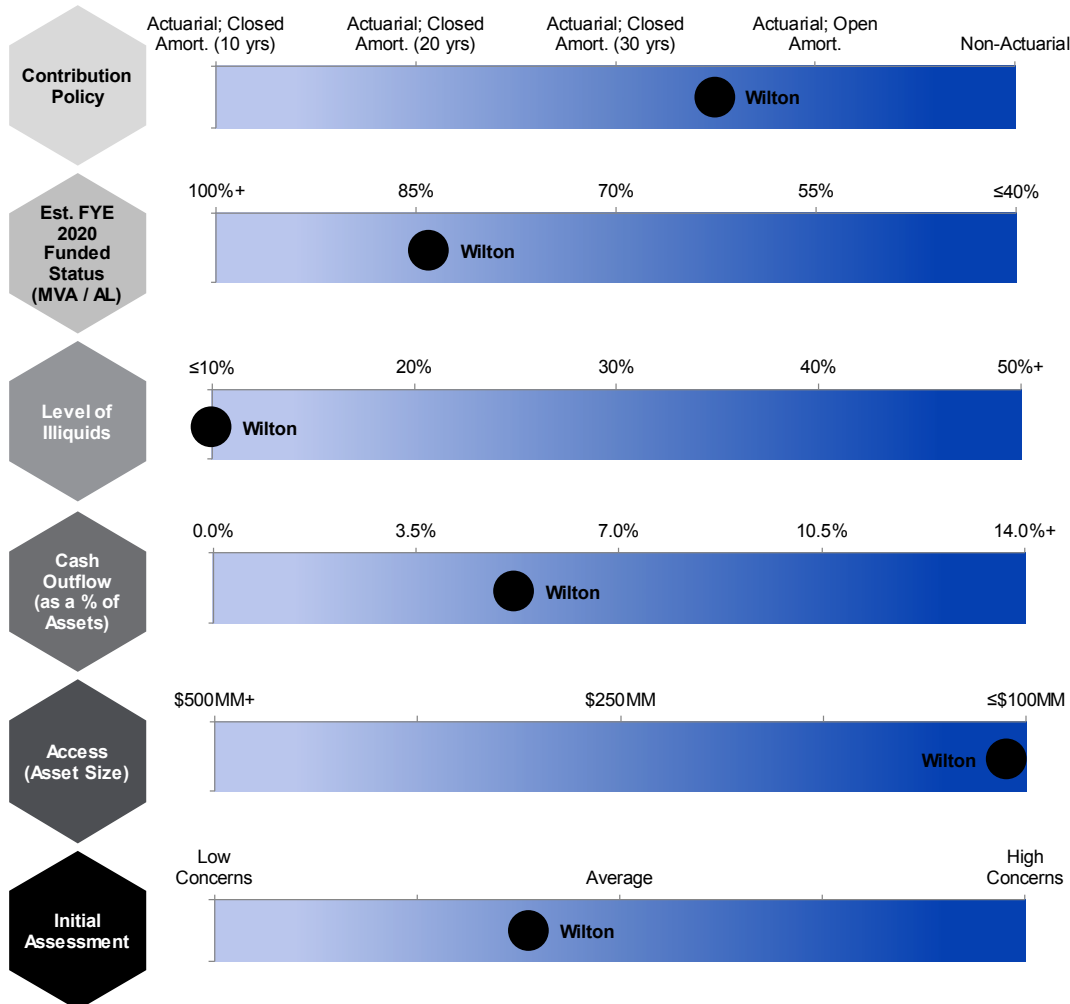
Asset Class	(A) Current Policy (73% R-S)	(B) Model 1: Reduced Risk (73% R-S)	(C) Model 1: Enhanced Return (76% R-S)	(D) Model 2: Reduced Risk (70% R-S)	(E) Model 2: Enhanced Return (85% R-S)	(F) Model 3: Reduced Risk (66% R-S)	(G) Model 3: Enhanced Return (86% R-S)
<b>Equity</b>							
- Public Equity	60%	55%	57%	39%	48%	29%	38%
- Private Equity	0%	5%	5%	9%	11%	12%	16%
- Subtotal	60%	59%	62%	48%	58%	41%	54%
<b>Liquid Alternatives</b>							
- Subtotal	0%	0%	0%	9%	11%	8%	11%
<b>Return-Seeking Fixed Income</b>							
- High Yield Bonds	3%	0%	0%	0%	0%	0%	0%
- Multi-Asset Credit	0%	5%	5%	2%	3%	0%	0%
- Private Debt	5%	0%	0%	2%	3%	4%	5%
- Subtotal	8%	5%	5%	4%	5%	4%	5%
<b>Real Assets</b>							
- Real Estate (Core)	0%	7%	7%	4%	5%	4%	5%
- Real Estate (Non-Core)	5%	2%	2%	2%	3%	4%	5%
- Infrastructure	0%	0%	0%	2%	3%	4%	5%
- Subtotal	5%	9%	10%	9%	11%	12%	16%
<b>Risk-Reducing</b>							
- Interm. Duration Credit	0%	0%	0%	0%	0%	0%	0%
- Interm. Duration Gov't	0%	0%	0%	0%	0%	0%	0%
- Core Fixed Income	21%	27%	24%	30%	15%	34%	14%
- Global Fixed Income	5%	0%	0%	0%	0%	0%	0%
- TIPS	2%	0%	0%	0%	0%	0%	0%
- Subtotal	28%	27%	24%	30%	15%	34%	14%
<b>Expected Return<sup>1</sup></b>	<b>6.40%</b>	<b>6.40%</b>	<b>6.57%</b>	<b>6.40%</b>	<b>7.20%</b>	<b>6.40%</b>	<b>7.57%</b>
<b>Expected Risk<sup>1</sup></b>	<b>12.21%</b>	<b>11.68%</b>	<b>12.21%</b>	<b>10.17%</b>	<b>12.21%</b>	<b>9.48%</b>	<b>12.21%</b>
<b>Sharpe Ratio</b>	<b>0.4337</b>	<b>0.4536</b>	<b>0.4483</b>	<b>0.5206</b>	<b>0.4993</b>	<b>0.5585</b>	<b>0.5298</b>
<b>Increase in Expected Return (%)</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.18%</b>	<b>0.00%</b>	<b>0.80%</b>	<b>0.00%</b>	<b>1.17%</b>
<b>Increase in Expected Return (\$ millions)<sup>2</sup></b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$0.2</b>	<b>\$0.0</b>	<b>\$0.9</b>	<b>\$0.0</b>	<b>\$1.3</b>
<b>Level of Quasi-Liquid Assets (Liquid Alts, CRE)</b>	<b>0%</b>	<b>7%</b>	<b>7%</b>	<b>13%</b>	<b>16%</b>	<b>12%</b>	<b>16%</b>
<b>Level of Illiquid Assets (PE, PD, NCRE)</b>	<b>10%</b>	<b>7%</b>	<b>7%</b>	<b>13%</b>	<b>16%</b>	<b>21%</b>	<b>27%</b>

<sup>1</sup> Expected returns based on Aon Investments Q2 2020 30 year Capital Market Assumptions assuming the detailed portfolios found in the Appendix. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See Appendix for the Capital Market Assumptions.

<sup>2</sup> Increased dollars determined by market value of assets as of March 31, 2020 (\$107.6 million)  
Percentages in table may not sum to 100% due to rounding

# Liquidity Primer

## Desirability to Invest in Illiquid Assets



## Considerations

How quickly contributions respond to funded ratio changes will impact liquidity in adverse market conditions

Higher funded percentages support increased levels of illiquid assets

Higher illiquid allocations increase liquidity risks in adverse market conditions

Higher levels of benefit payments increase the likelihood of liquidity risk

Larger asset bases will make for easier entry into illiquid asset classes

This represents an initial assessment that can be supplemented with a full liquidity analysis

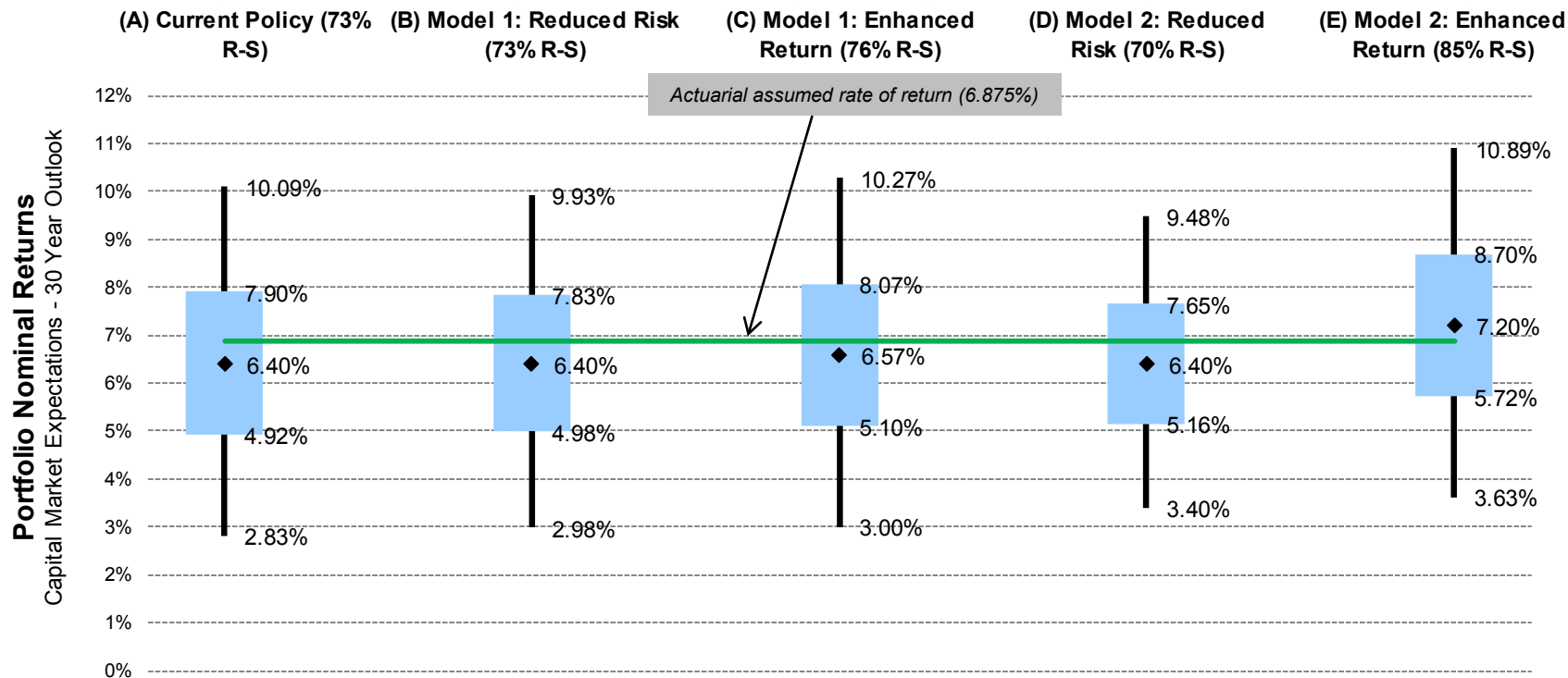
## Illiquid Asset Considerations:

- Contribution Policy
- Funded Status
- Level of Illiquids
- Cash Outflows
- Access

Note: Asset allocations are based on targets with non-core real estate (5%) and private debt (5%) illiquid assets being given full weighting.

# Portfolio Analysis

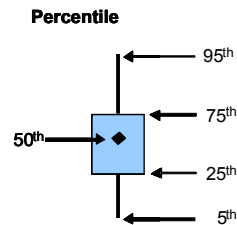
## Range of Nominal Returns



### Key Takeaway:

- Portfolio E (Model 2: Enhanced Return) is projected to exceed the actuarial assumed rate of return (6.875%)

<sup>1</sup> Expected returns are using Aon Investments Q2 2020 Capital Market Assumptions. Assumptions do not include fees/expenses. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See capital market assumptions disclosure pages in Appendix.

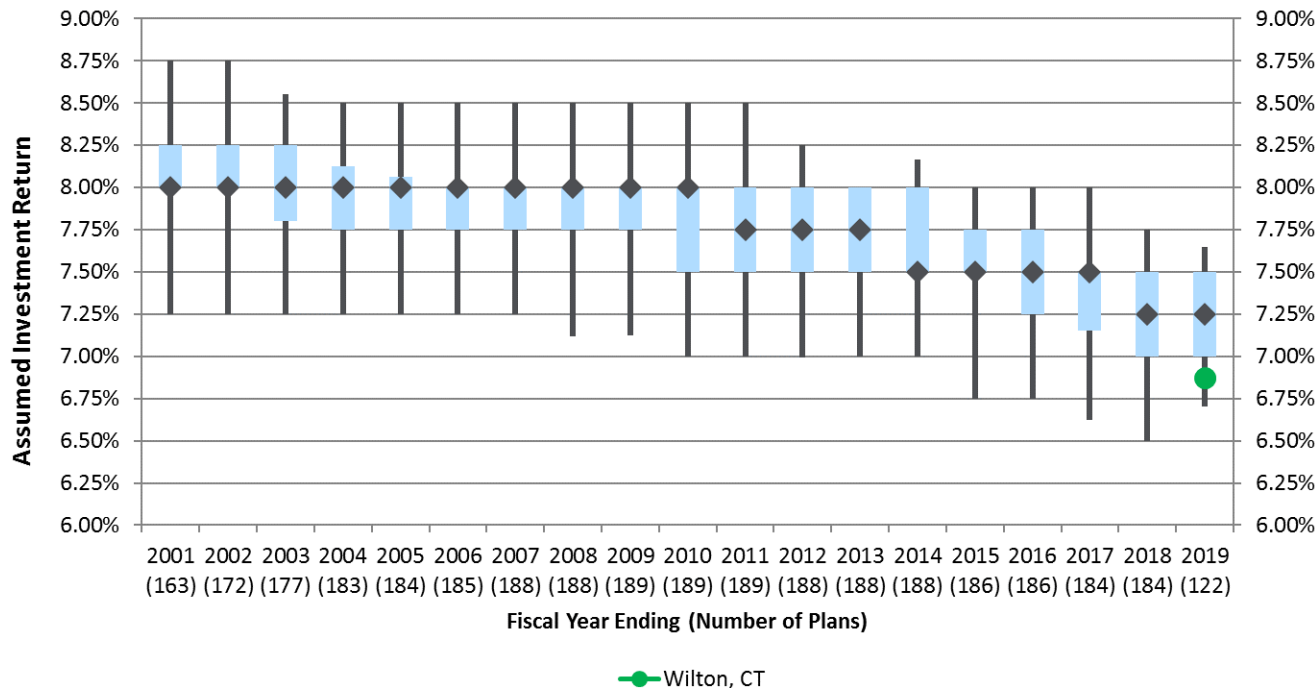




# Portfolio Analysis

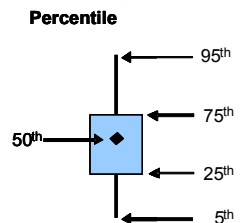
## Expected Return Assumption versus Peers<sup>1</sup>

**Distribution of U.S. Public Pension Investment Return Assumptions**



### Key Takeaways:

- The public pension peer median actuarial assumption for investment return has declined from 8.00% in 2001-2010 to 7.25% based on the latest survey data
- Wilton's assumption for FYE 2019 (6.875%) lied between the 5<sup>th</sup> and 25<sup>th</sup> percentile relative to its peers
- If Wilton exceeds (or falls short of) the actuarial return assumption, lower (or higher) funding will be needed in future years



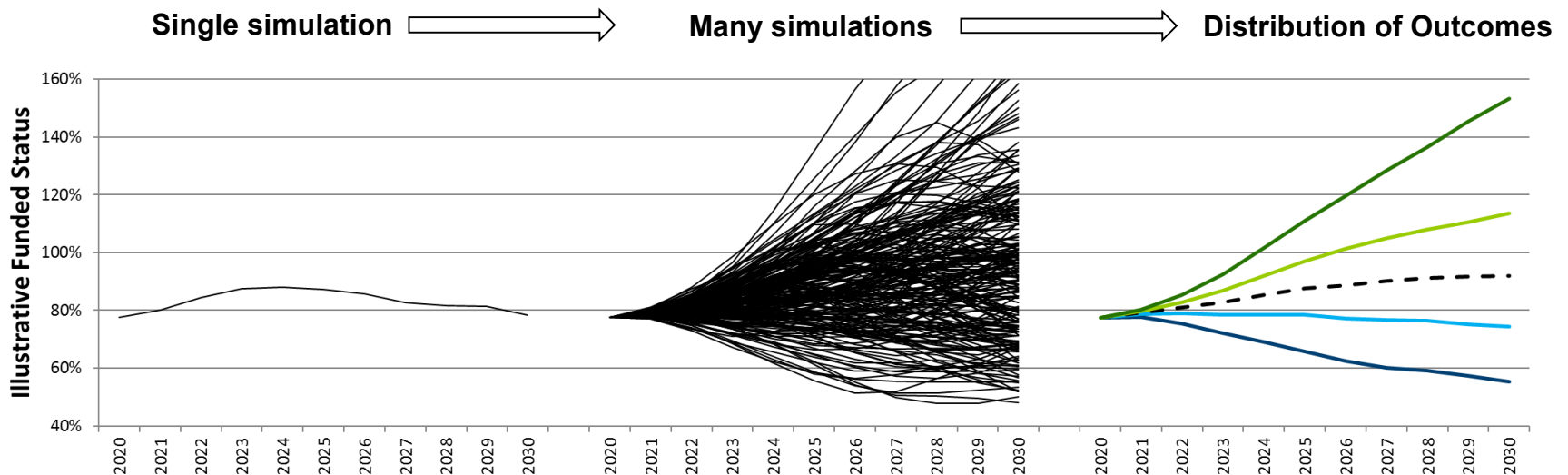
Sources: Public Plans Data (publicplansdata.org) as of April 2020; Expected Returns are the assumptions made by the plans included in the data set.

<sup>1</sup> Peers defined as public funds published within publicplansdata.org as of April 2020; Number of plans per year are shown in parentheses

# Asset-Liability Study Process & Methodology

## Asset-Liability Simulation Overview

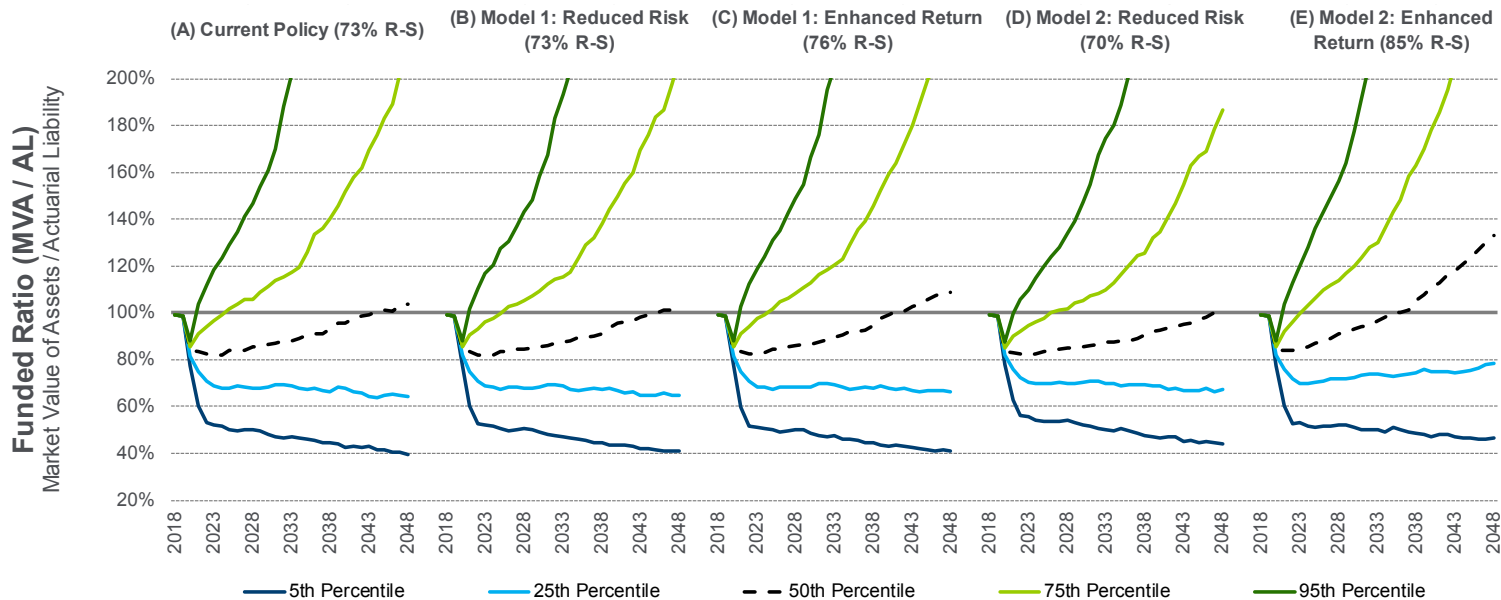
- Thousands of simulations plotted in one graph would be impossible to interpret
- Instead, we rank the simulations at each point over the future
- This produces a distribution of outcomes illustrating the degree of uncertainty of a plan's financial position over the projection period
- Different investment strategies will produce different distributions of outcomes



\* The path of a given scenario will follow a much less smooth pattern than the distribution suggests, as illustrated above

# Asset-Liability Projection Results

## Market Value of Assets / Actuarial Liability Funded Ratio



Strategy	(A) Current Policy (73% R-S)			(B) Model 1: Reduced Risk (73% R-S)			(C) Model 1: Enhanced Return (76% R-S)			(D) Model 2: Reduced Risk (70% R-S)			(E) Model 2: Enhanced Return (85% R-S)		
Year	2028	2038	2048	2028	2038	2048	2028	2038	2048	2028	2038	2048	2028	2038	2048
5th Percentile	50%	45%	40%	51%	44%	41%	50%	44%	41%	54%	48%	44%	52%	49%	46%
25th Percentile	68%	67%	64%	68%	67%	65%	68%	68%	66%	70%	69%	67%	72%	74%	78%
50th Percentile	86%	93%	104%	85%	91%	102%	86%	95%	109%	85%	90%	102%	91%	105%	133%
75th Percentile	106%	140%	>200%	105%	138%	>200%	108%	146%	>200%	102%	126%	187%	114%	163%	>200%
95th Percentile	147%	>200%	>200%	143%	>200%	>200%	149%	>200%	>200%	134%	>200%	>200%	156%	>200%	>200%
Probability > 100%	32%	46%	52%	31%	45%	51%	34%	47%	55%	28%	43%	51%	40%	54%	65%

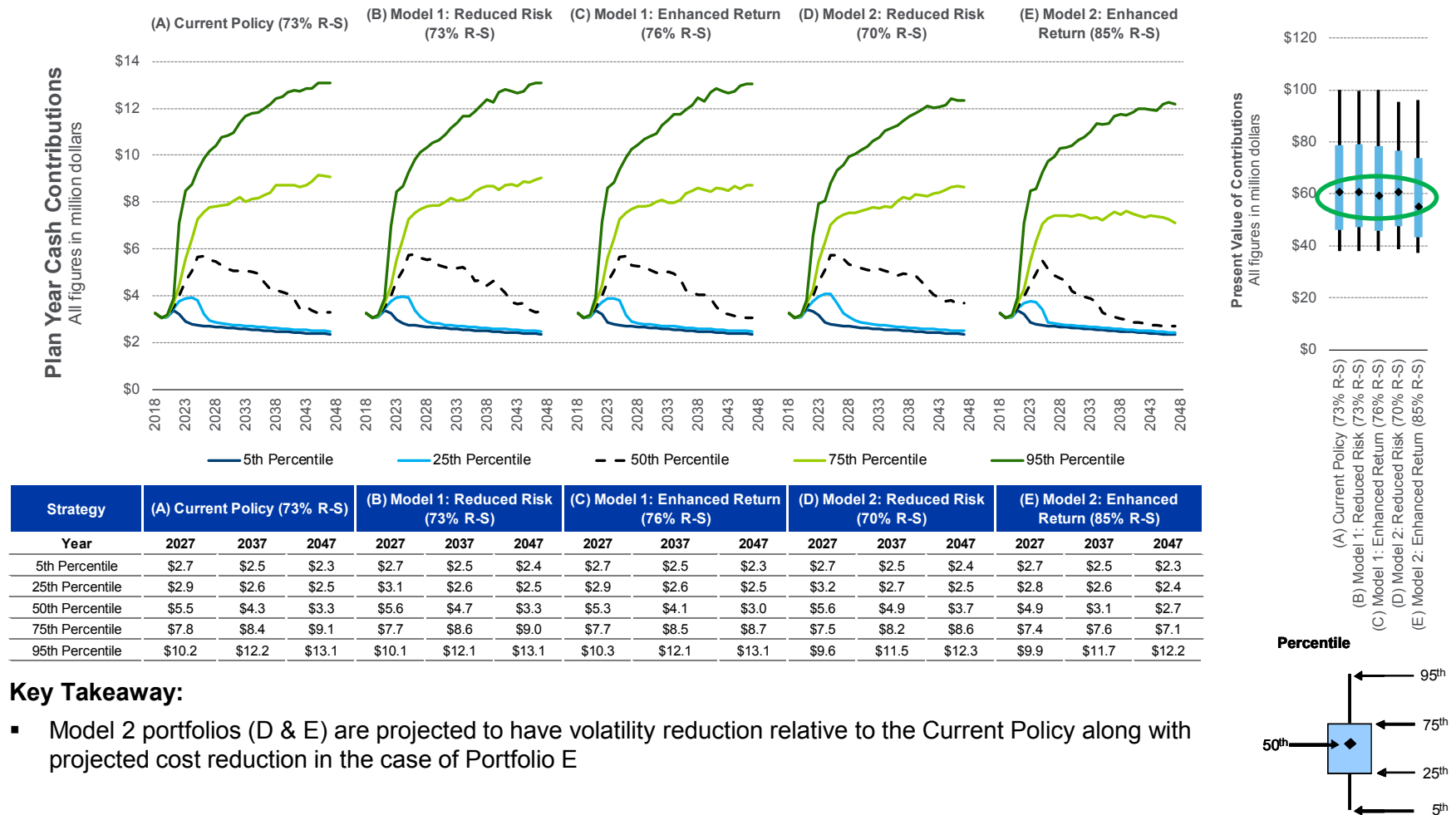
### Key Takeaways:

- Plan is expected to move back towards full funding across all investment strategies in the median case
- Higher (or lower) return-seeking strategies adjust the central trendline accordingly

\* Liability projections assume discount rates of 6.875% for all investment policies studied

# Asset-Liability Projection Results

## Total Contribution Amount



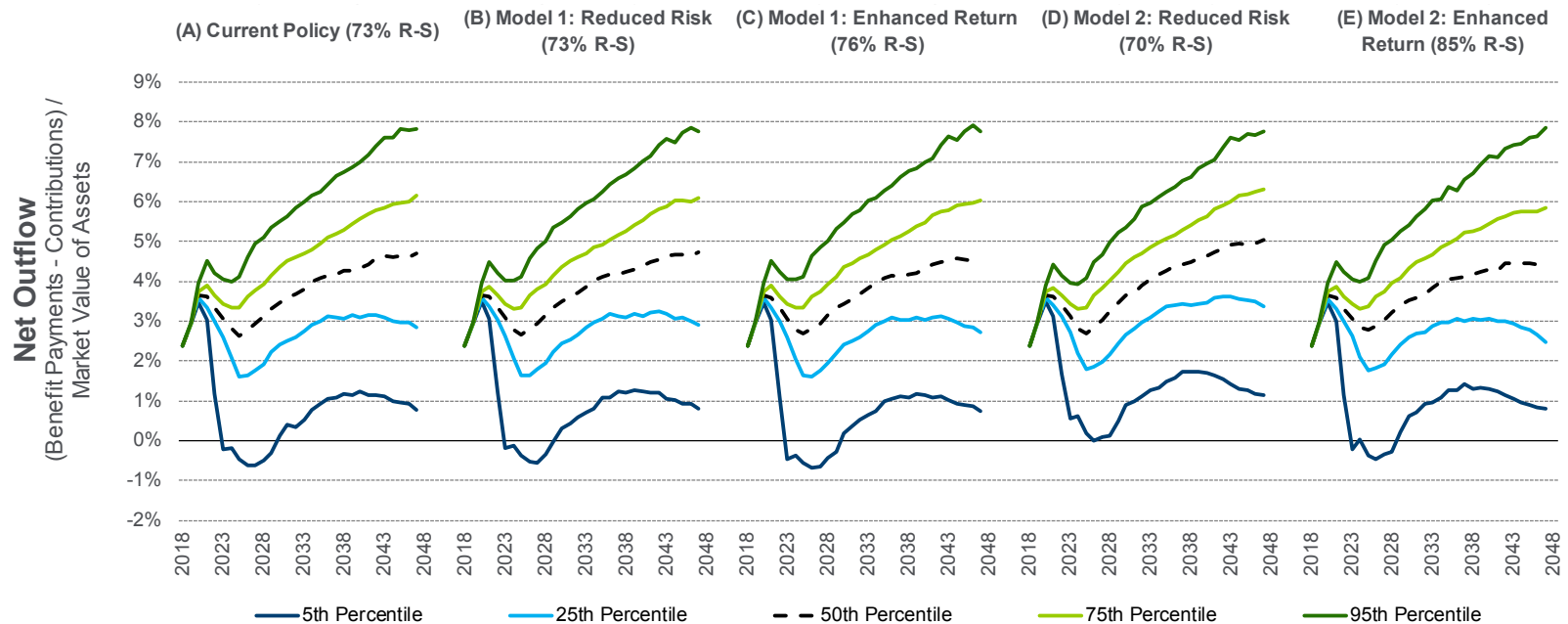
### Key Takeaway:

- Model 2 portfolios (D & E) are projected to have volatility reduction relative to the Current Policy along with projected cost reduction in the case of Portfolio E

\* Liability projections assume discount rates of 6.875% for all investment policies studied

# Asset-Liability Projection Results

## Net Outflow Analysis: (Benefit Payments less Contributions) / Market Value of Assets



Strategy	(A) Current Policy (73% R-S)			(B) Model 1: Reduced Risk (73% R-S)			(C) Model 1: Enhanced Return (76% R-S)			(D) Model 2: Reduced Risk (70% R-S)			(E) Model 2: Enhanced Return (85% R-S)		
Year	2027	2037	2047	2027	2037	2047	2027	2037	2047	2027	2037	2047	2027	2037	2047
5th Percentile	-0.6%	1.1%	0.8%	-0.6%	1.2%	0.8%	-0.7%	1.1%	0.7%	0.1%	1.7%	1.1%	-0.3%	1.4%	0.8%
25th Percentile	1.8%	3.1%	2.9%	1.8%	3.1%	2.9%	1.8%	3.0%	2.7%	2.0%	3.4%	3.4%	1.9%	3.0%	2.5%
50th Percentile	2.9%	4.2%	4.7%	2.9%	4.2%	4.7%	2.9%	4.1%	4.6%	3.0%	4.4%	5.0%	3.0%	4.1%	4.4%
75th Percentile	3.8%	5.2%	6.2%	3.8%	5.2%	6.1%	3.7%	5.1%	6.0%	3.8%	5.3%	6.3%	3.8%	5.2%	5.8%
95th Percentile	4.9%	6.6%	7.8%	4.8%	6.6%	7.8%	4.9%	6.6%	7.8%	4.7%	6.5%	7.8%	4.9%	6.6%	7.8%

### Key Takeaway:

- Net outflow is consistent across the policies modeled with central expectations (50<sup>th</sup> percentile outcome) in the 3-5% range

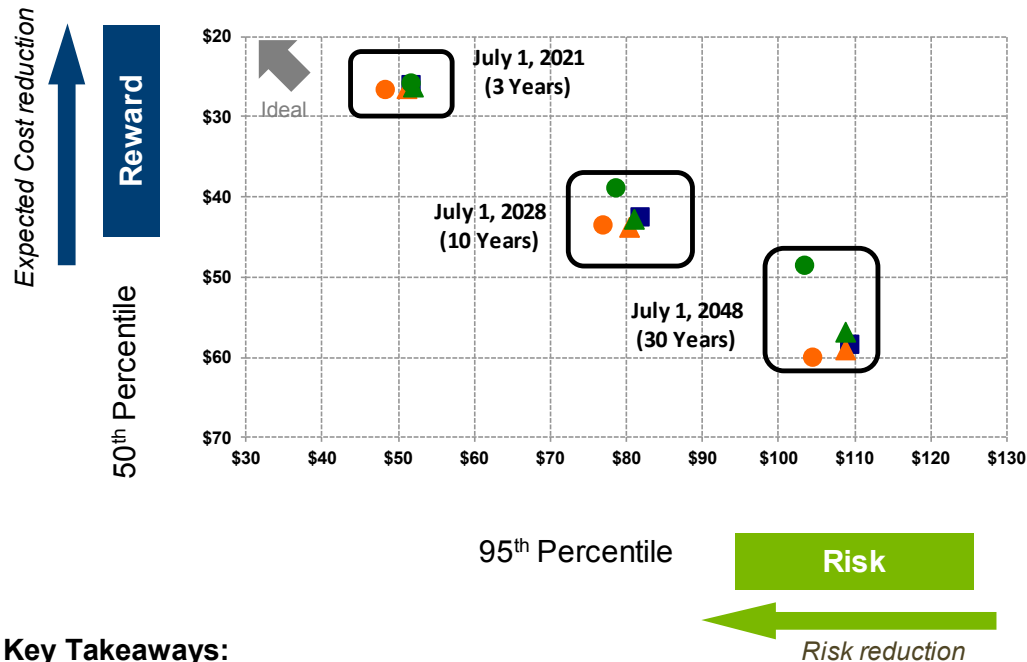
\* Liability projections assume discount rates of 6.875% for all investment policies studied

# Asset-Liability Projection Results

## Economic Cost Analysis—3-Year, 10-Year, and 30-Year Horizons

### Economic Cost

Present Value of Contributions plus AL Funding Shortfall/(Surplus)\* at 6.875%, \$millions



### Key Takeaways:

- The magnitude of the risk/reward trade-off changes over a longer-term projection
- Under the Current Policy asset allocation over a 30-year time horizon, the expected Economic Cost is \$58.5MM and the potential risk is \$109.5MM
- Adjustments to the portfolio composition may have desirable risk/reward characteristics relative to the Current Policy

\* Liability projections assume discount rates of 6.875% for all investment policies studied; Reflects a *utility function*: Excludes 50% of surplus in excess of 120% of Actuarial liability, and includes twice the shortfall below 30% of Actuarial liability, on a market value basis

Economic Cost		
July 1, 2021		
Strategy (\$Millions)	Cost	Risk
(A) Current Policy (73% R-S)	\$26.2	\$51.7
(B) Model 1: Reduced Risk (73% R-S)	\$26.5	\$51.2
(C) Model 1: Enhanced Return (76% R-S)	\$26.3	\$52.0
(D) Model 2: Reduced Risk (70% R-S)	\$26.8	\$48.5
(E) Model 2: Enhanced Return (85% R-S)	\$25.8	\$51.7
July 1, 2028		
Strategy (\$Millions)	Cost	Risk
(A) Current Policy (73% R-S)	\$42.6	\$82.0
(B) Model 1: Reduced Risk (73% R-S)	\$43.8	\$80.4
(C) Model 1: Enhanced Return (76% R-S)	\$42.8	\$81.0
(D) Model 2: Reduced Risk (70% R-S)	\$43.6	\$77.0
(E) Model 2: Enhanced Return (85% R-S)	\$38.9	\$78.7
July 1, 2048		
Strategy (\$Millions)	Cost	Risk
(A) Current Policy (73% R-S)	\$58.5	\$109.5
(B) Model 1: Reduced Risk (73% R-S)	\$59.1	\$108.9
(C) Model 1: Enhanced Return (76% R-S)	\$56.8	\$108.8
(D) Model 2: Reduced Risk (70% R-S)	\$60.2	\$104.7
(E) Model 2: Enhanced Return (85% R-S)	\$48.6	\$103.5

# Asset-Liability Projection Results

## Summary and Conclusions

All Scenarios \$ millions	30-year Economic Cost		30-year Present Value of Contributions		30-year Ending Funded Ratio (MVA / AL)	
	Expected <sup>1</sup>	Downside <sup>2</sup>	Expected <sup>1</sup>	Downside <sup>2</sup>	Expected <sup>1</sup>	Downside <sup>3</sup>
(A) Current Policy (73% R-S)	\$58.5	\$109.5	\$60.9	\$100.2	104%	40%
(B) Model 1: Reduced Risk (73% R-S)	\$59.1	\$108.9	\$60.9	\$99.8	102%	41%
(C) Model 1: Enhanced Return (76% R-S)	\$56.8	\$108.8	\$59.5	\$99.9	109%	41%
(D) Model 2: Reduced Risk (70% R-S)	\$60.2	\$104.7	\$60.7	\$95.4	102%	44%
(E) Model 2: Enhanced Return (85% R-S)	\$48.6	\$103.5	\$55.4	\$96.0	133%	46%
(F) Model 3: Reduced Risk (66% R-S)	\$59.4	\$103.4	\$60.6	\$94.1	99%	45%
(G) Model 3: Enhanced Return (86% R-S)	\$43.2	\$101.9	\$53.1	\$94.8	153%	48%

### Key Findings:

- Plan is expected to move towards full funding across all investment strategies modeled
- Portfolios C through G are expected to have less costs in the expected and downside cases relative to the Current Policy
- Portfolios E and G likely contain more risk than needed as they are projected to far exceed full funding in the expected case

<sup>1</sup> Expected = 50<sup>th</sup> percentile outcome or central expectation across all 1,000 simulations

<sup>2</sup> Downside = 95<sup>th</sup> percentile outcome across all 1,000 simulations

<sup>3</sup> Downside = 5<sup>th</sup> percentile outcome across all 1,000 simulations



# Analysis

- OPEB Plan



# Current State Asset-Liability Profile – OPEB Plan

## As of July 1, 2018

Asset-Liability Snapshot as of 7/1/2018		
Metric (\$, Millions)	Value	Fund %
Market Value of Assets	\$7.5	113.2%
Actuarial Value of Assets	\$7.2	109.0%
<b>Liability Metrics</b>		
Actuarial Liability (AL) - Funding	\$6.6 <sup>1</sup>	

Asset-Liability Growth Metrics			
Metric (\$, Millions)	Value	% Liability	% Assets
AL Discount Cost	\$0.4	5.75%	5.08%
AL Normal Cost	\$0.2	3.64%	3.21%
Plan Expenses	\$0.0	0.00%	0.00%
<b>Total Liability Hurdle Rate</b>	<b>\$0.6</b>	<b>9.39%</b>	<b>8.29%</b>
Expected Return on Assets <sup>2</sup>	\$0.4	6.20%	5.48%
Total Contributions	\$0.3	5.12%	4.52%
<b>Total Exp. Asset Growth</b>	<b>\$0.7</b>	<b>11.32%</b>	<b>10.00%</b>
<b>Hurdle Rate Shortfall/(Surplus)</b>	<b>-\$0.1</b>	<b>-1.93%</b>	<b>-1.71%</b>
Est. Benefit Payments	\$0.5	8.18%	7.22%

### Key Takeaways:

- Pension plan is 113.2% funded on a market value of assets basis as of July 1, 2018
- Asset allocation is 60.0% return-seeking assets with 40.0% risk-reducing/safety assets to withstand stressed markets
- Asset hurdle rate of 8.29%, via cash funding and investment returns, needed to maintain or improve actuarial funded status

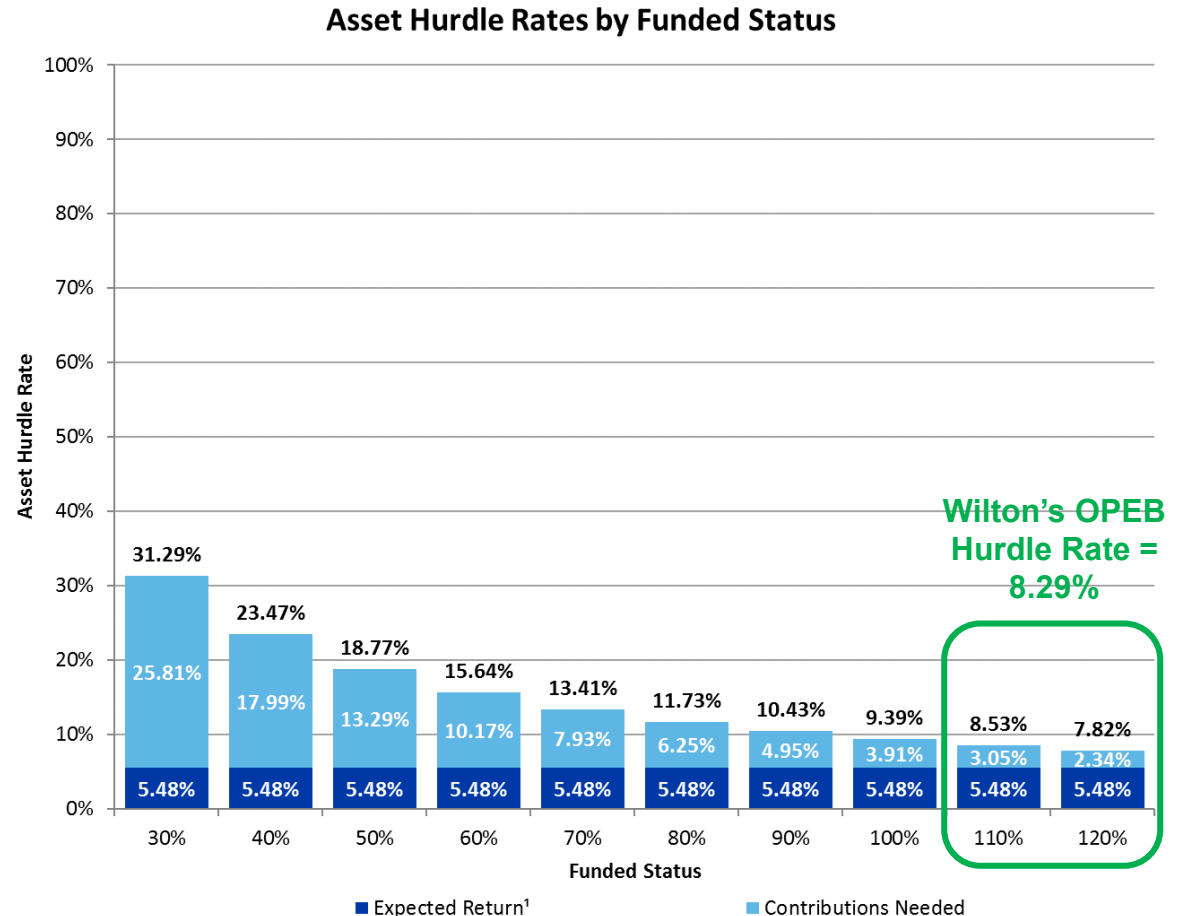
Target Asset Allocation as of 7/1/2018		
Metric (\$, Millions)	Value	Alloc %
<b>Return-Seeking</b>		
- U.S. Equity	\$2.2	30.0%
- International Equity	\$1.5	20.0%
- Real Estate	\$0.4	5.0%
- High Yield Bonds	\$0.4	5.0%
- Total	\$4.5	60.0%
<b>Risk-Reducing</b>		
- Cash & Short Duration Fixed Income	\$0.4	5.0%
- Core Bonds	\$2.2	30.0%
- Global Bonds	\$0.4	5.0%
- Total	\$3.0	40.0%
<b>Total</b>	<b>\$7.5</b>	<b>100.0%</b>

<sup>1</sup>Based on a 5.75% discount rate consistent with the July 1, 2018 valuation results.

<sup>2</sup>Expected returns are using Aon Investments Q2 2020 Capital Market Assumptions. Assumptions do not include fees/expenses. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See capital market assumptions disclosure pages in Appendix.

# Asset Hurdle Rate

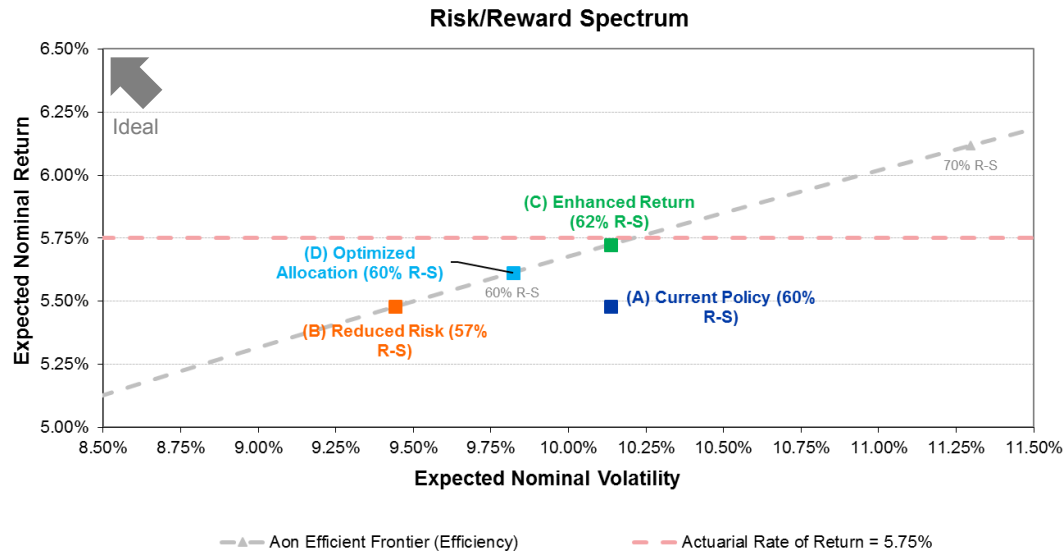
- **Asset Hurdle Rate** is the level of asset growth needed to keep pace with the growth of the Plan liabilities
  - Assets must grow at this rate or more in order to maintain or reduce the existing funding shortfall
- Assets can grow via:
  - Investment performance, and/or
  - Funding contributions
- Asset hurdle rates increase as funded ratio declines, as shown in the chart to the right



Expected returns are using Aon Investments Q2 2020 Capital Market Assumptions. Assumptions do not include fees/expenses. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See capital market assumptions disclosure pages in Appendix.

# Portfolio Analysis

## Risk/Reward Spectrum



### Key Takeaway:

- Aon generally favors careful diversification into a broad set of asset classes with attractive risk and return properties to improve portfolio efficiency, as exhibited by Aon's Model Portfolios
  - **Efficiency** focuses on globally-weighted public equities and increased allocations to real estate (modeled as REITs)

				Return-Seeking Assets						Risk-Reducing / Safety Assets		
	Expected Nominal Return	Expected Nominal Volatility	Sharpe Ratio	U.S. Large Cap Equity	U.S. Small Cap Equity	Dev. Int'l Equity	Emerg. Markets Equity	Multi Asset Credit	Real Estate	Cash & Short Duration Bonds	Core Bonds	Global Bonds
(A) Current Policy (60% R-S)	5.48%	10.14%	0.432	22%	8%	16%	4%	5%	5%	5%	30%	5%
(B) Reduced Risk (57% R-S)	5.48%	9.44%	0.464	17%	4%	16%	5%	6%	9%	0%	43%	0%
(C) Enhanced Return (62% R-S)	5.72%	10.14%	0.456	19%	5%	17%	6%	6%	9%	0%	38%	0%
(D) Optimized Allocation (60% R-S)	5.61%	9.82%	0.460	18%	5%	17%	6%	6%	9%	0%	40%	0%

<sup>1</sup>Expected returns are using Aon Investments Q2 2020 Capital Market Assumptions. Assumptions do not include fees/expenses. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See capital market assumptions disclosure pages in Appendix. Percentages in table may not sum to 100% due to rounding

# Portfolio Analysis

## Detailed Portfolio Construction

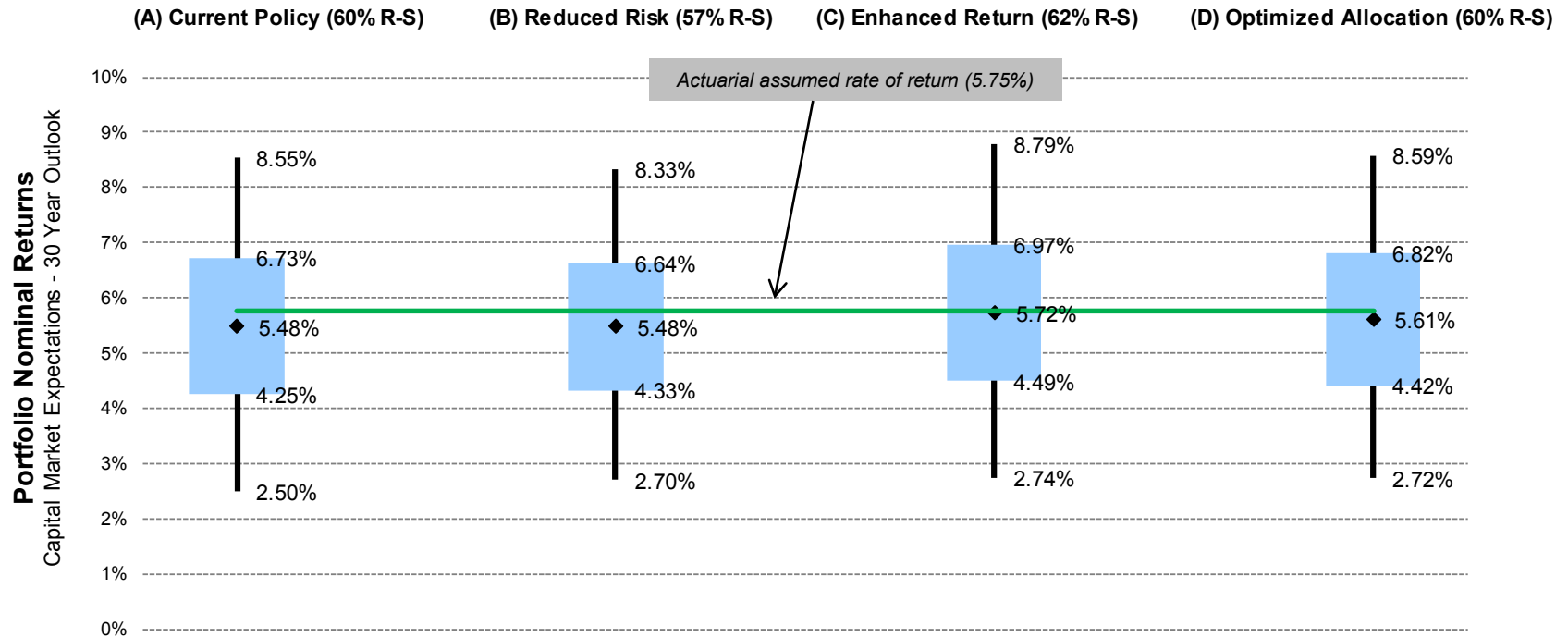
Asset Class	(A) Current Policy (60% R-S)	(B) Reduced Risk (57% R-S)	(C) Enhanced Return (62% R-S)	(D) Optimized Allocation (60% R-S)
<b>Equity</b>				
- Public Equity	50%	43%	47%	45%
- Private Equity	0%	0%	0%	0%
- Subtotal	50%	43%	47%	45%
<b>Return-Seeking Fixed Income</b>				
- High Yield Bonds	5%	0%	0%	0%
- Multi-Asset Credit	0%	6%	6%	6%
- Subtotal	5%	6%	6%	6%
<b>Real Assets</b>				
- Real Estate (Core)	0%	0%	0%	0%
- Real Estate (Non-Core)	0%	0%	0%	0%
- REITs	5%	9%	9%	9%
- Subtotal	5%	9%	9%	9%
<b>Risk-Reducing</b>				
- Cash	5%	0%	0%	0%
- Core Fixed Income	30%	43%	38%	40%
- Global Fixed Income	5%	0%	0%	0%
- Subtotal	40%	43%	38%	40%
<b>Expected Return<sup>1</sup></b>	<b>5.48%</b>	<b>5.48%</b>	<b>5.72%</b>	<b>5.61%</b>
<b>Expected Risk<sup>1</sup></b>	<b>10.14%</b>	<b>9.44%</b>	<b>10.14%</b>	<b>9.82%</b>
<b>Sharpe Ratio</b>	<b>0.4320</b>	<b>0.4638</b>	<b>0.4563</b>	<b>0.4597</b>
<b>Increase in Expected Return (%)</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.25%</b>	<b>0.14%</b>
<b>Increase in Expected Return (\$ thousands)<sup>2</sup></b>	<b>\$0.0</b>	<b>\$0.0</b>	<b>\$19.4</b>	<b>\$10.7</b>
<b>Level of Quasi-Liquid Assets (Liquid Alts, CRE)</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>
<b>Level of Illiquid Assets (PE, PD, NCRE)</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>

<sup>1</sup> Expected returns based on Aon Investments Q2 2020 30 year Capital Market Assumptions assuming the detailed portfolios found in the Appendix. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See Appendix for the Capital Market Assumptions.

<sup>2</sup> Increased dollars determined by market value of assets as of March 31, 2020 (\$7.9 million)  
Percentages in table may not sum to 100% due to rounding

# Portfolio Analysis

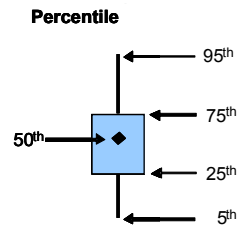
## Range of Nominal Returns



### Key Takeaway:

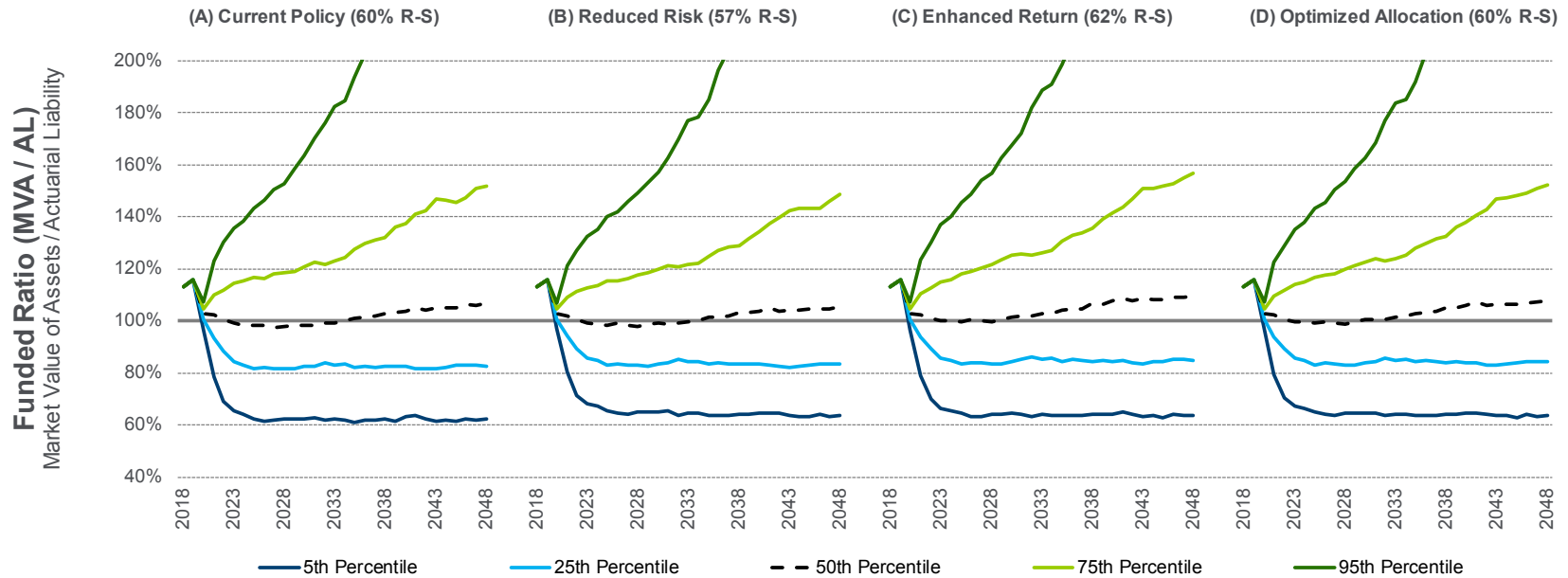
- Portfolio C (Enhanced Return) is projected to track closest to the actuarial assumed rate of return (5.75%)

<sup>1</sup> Expected returns are using Aon Investments Q2 2020 Capital Market Assumptions. Assumptions do not include fees/expenses. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See capital market assumptions disclosure pages in Appendix.



# Asset-Liability Projection Results

## Market Value of Assets / Actuarial Liability Funded Ratio



Strategy	(A) Current Policy (60% R-S)			(B) Reduced Risk (57% R-S)			(C) Enhanced Return (62% R-S)			(D) Optimized Allocation (60% R-S)		
Year	2028	2038	2048	2028	2038	2048	2028	2038	2048	2028	2038	2048
5th Percentile	62%	62%	62%	65%	64%	63%	64%	64%	64%	65%	64%	64%
25th Percentile	81%	82%	82%	83%	83%	83%	83%	84%	85%	83%	84%	84%
50th Percentile	98%	103%	107%	98%	103%	106%	100%	107%	109%	99%	105%	108%
75th Percentile	118%	132%	152%	118%	129%	149%	122%	136%	157%	120%	132%	152%
95th Percentile	153%	>200%	>200%	149%	>200%	>200%	157%	>200%	>200%	154%	>200%	>200%
Probability > 100%	47%	53%	57%	47%	54%	56%	50%	57%	60%	48%	56%	58%

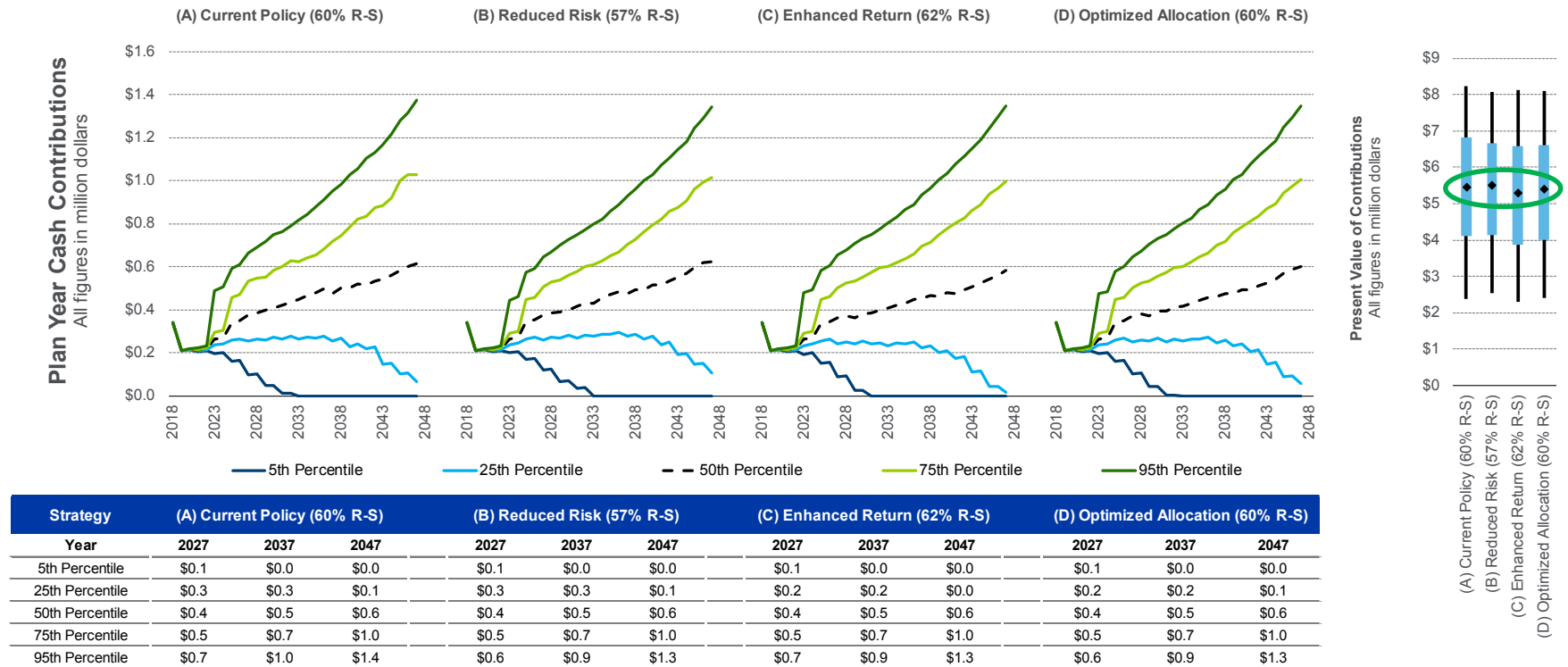
### Key Takeaway:

- Plan is expected to stay around the full funding mark across investment strategies

\* Liability projections assume discount rates of 5.75% for all investment policies studied

# Asset-Liability Projection Results

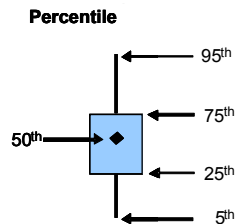
## Total Contribution Amount



### Key Takeaways:

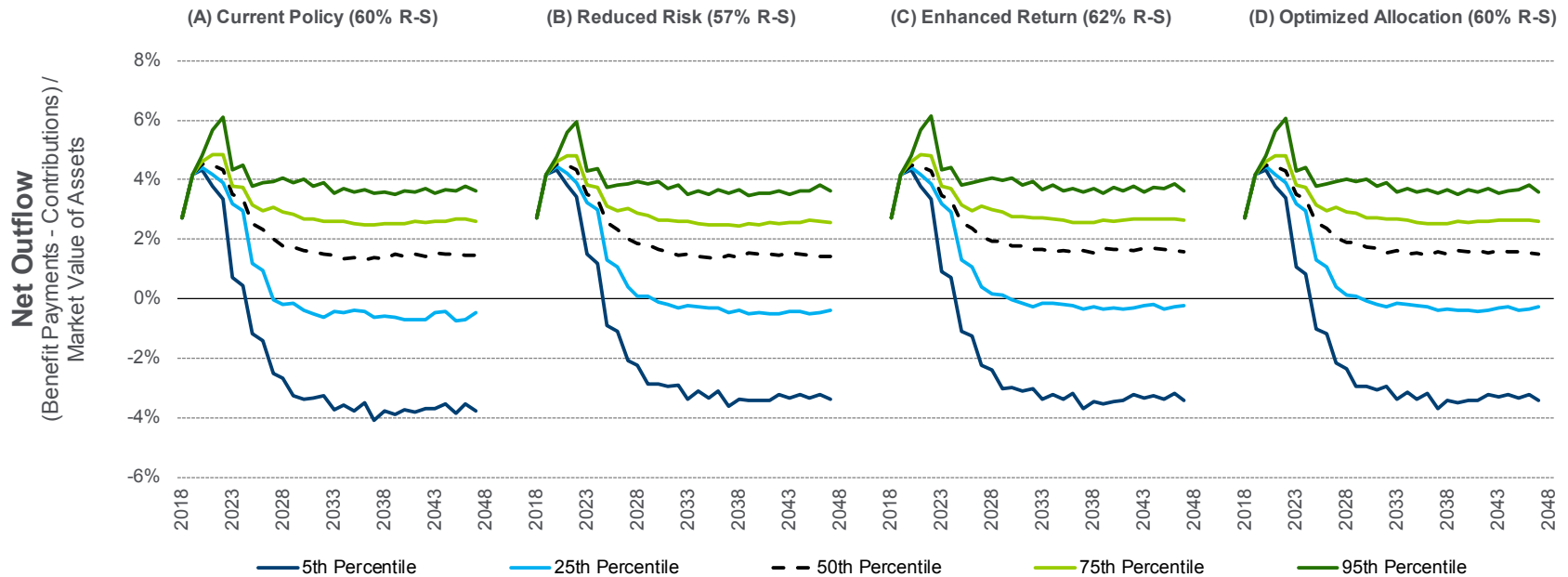
- Portfolios C and D are expected to have less costs in the central expectation relative to the Current Policy
- Portfolios B, C, and D are expected to have less contribution volatility than the Current Policy

\* Liability projections assume discount rates of 5.75% for all investment policies studied



# Asset-Liability Projection Results

## Net Outflow Analysis: (Benefit Payments less Contributions) / Market Value of Assets



Strategy	(A) Current Policy (60% R-S)			(B) Reduced Risk (57% R-S)			(C) Enhanced Return (62% R-S)			(D) Optimized Allocation (60% R-S)		
Year	2027	2037	2047	2027	2037	2047	2027	2037	2047	2027	2037	2047
5th Percentile	-2.5%	-4.1%	-3.8%	-2.1%	-3.6%	-3.4%	-2.2%	-3.7%	-3.4%	-2.2%	-3.7%	-3.4%
25th Percentile	0.0%	-0.6%	-0.5%	0.4%	-0.4%	-0.4%	0.4%	-0.4%	-0.2%	0.4%	-0.4%	-0.3%
50th Percentile	2.0%	1.4%	1.4%	2.0%	1.5%	1.4%	2.1%	1.6%	1.6%	2.1%	1.6%	1.5%
75th Percentile	3.1%	2.5%	2.6%	3.0%	2.5%	2.6%	3.1%	2.6%	2.6%	3.1%	2.5%	2.6%
95th Percentile	4.0%	3.6%	3.6%	3.9%	3.5%	3.6%	4.0%	3.6%	3.6%	4.0%	3.6%	3.6%

### Key Takeaway:

- Net outflow is consistent across the policies modeled with central expectations (50<sup>th</sup> percentile outcome) predominantly in the 1-4% range

\* Liability projections assume discount rates of 5.75% for all investment policies studied

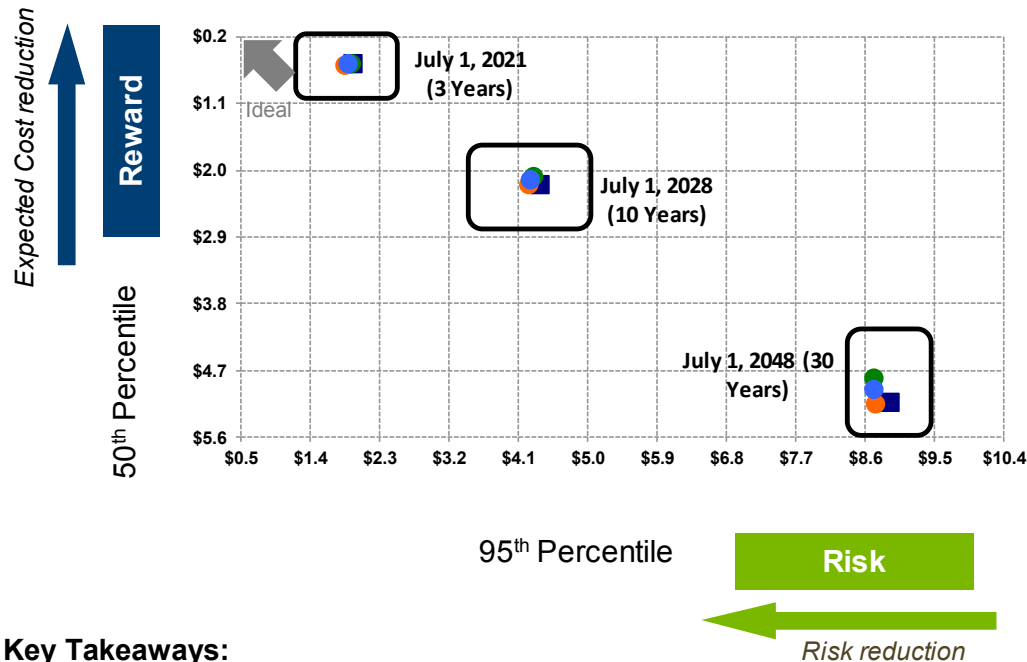


# Asset-Liability Projection Results

## Economic Cost Analysis—3-Year, 10-Year, and 30-Year Horizons

### Economic Cost

Present Value of Contributions plus AL Funding Shortfall/(Surplus)\* at 5.75%, \$millions



### Key Takeaways:

- The magnitude of the risk/reward trade-off changes over a longer-term projection
- Under the Current Policy asset allocation over a 30-year time horizon, the expected Economic Cost is \$5.1MM and the potential risk is \$8.9MM
- Over a similar time horizon, all alternate portfolios have favorable risk/reward characteristics relative to the Current Policy

\* Liability projections assume discount rates of 5.75% for all investment policies studied; Reflects a *utility function*: Excludes 50% of surplus in excess of 150% of Actuarial liability, and includes twice the shortfall below 50% of Actuarial liability, on a market value basis

Economic Cost July 1, 2021		
Strategy (\$Millions)	Cost	Risk
(A) Current Policy (60% R-S)	\$0.6	\$2.0
(B) Reduced Risk (57% R-S)	\$0.6	\$1.9
(C) Enhanced Return (62% R-S)	\$0.6	\$1.9
(D) Optimized Allocation (60% R-S)	\$0.6	\$1.9

Economic Cost July 1, 2028		
Strategy (\$Millions)	Cost	Risk
(A) Current Policy (60% R-S)	\$2.2	\$4.4
(B) Reduced Risk (57% R-S)	\$2.2	\$4.2
(C) Enhanced Return (62% R-S)	\$2.1	\$4.3
(D) Optimized Allocation (60% R-S)	\$2.1	\$4.3

Economic Cost July 1, 2048		
Strategy (\$Millions)	Cost	Risk
(A) Current Policy (60% R-S)	\$5.1	\$8.9
(B) Reduced Risk (57% R-S)	\$5.1	\$8.7
(C) Enhanced Return (62% R-S)	\$4.8	\$8.7
(D) Optimized Allocation (60% R-S)	\$5.0	\$8.7

# Asset-Liability Projection Results

## Summary and Conclusions

All Scenarios \$ millions	30-year Economic Cost		30-year Present Value of Contributions		30-year Ending Funded Ratio (MVA / AL)	
	Expected <sup>1</sup>	Downside <sup>2</sup>	Expected <sup>1</sup>	Downside <sup>2</sup>	Expected <sup>1</sup>	Downside <sup>3</sup>
(A) Current Policy (60% R-S)	\$5.1	\$8.9	\$5.5	\$8.2	107%	62%
(B) Reduced Risk (57% R-S)	\$5.1	\$8.7	\$5.5	\$8.1	106%	63%
(C) Enhanced Return (62% R-S)	\$4.8	\$8.7	\$5.3	\$8.1	109%	64%
(D) Optimized Allocation (60% R-S)	\$5.0	\$8.7	\$5.4	\$8.1	108%	64%

### Key Findings:

- Plan is expected to stay around the full funding mark across investment strategies
- Portfolios C and D are expected to have less costs in the central expectation relative to the Current Policy
- Portfolios B, C, and D are expected to have less contribution volatility than the Current Policy

<sup>1</sup> Expected = 50<sup>th</sup> percentile outcome or central expectation across all 1,000 simulations

<sup>2</sup> Downside = 95<sup>th</sup> percentile outcome across all 1,000 simulations

<sup>3</sup> Downside = 5<sup>th</sup> percentile outcome across all 1,000 simulations



# Analysis

- Summary and Conclusions

# Summary and Conclusions

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- Current investment policy has an expected return of 6.40% (Pension) / 5.48% (OPEB)<sup>1</sup> - Aon believes this may be enhanced with additional diversification
- Wilton should consider its desired balance between funding, investment returns, and risk tolerance in order to determine the ideal investment portfolio



- Aon generally favors careful diversification into a broad set of asset classes with attractive risk and return properties to improve portfolio efficiency, exhibited by Aon's Model Portfolios as a starting point
- Quantitative benefits of diversification should be weighed against liquidity needs, implementation considerations, and governance objectives/circumstances in determining the optimal portfolio



- Longer time horizons tend to increase risk tolerance
- The funded ratio is projected to trend toward full funding over the course of the projection period for both the Pension & OPEB plans
- Optimistic (or pessimistic) asset performance could lead to better (or worse) outcomes than the central expectation

<sup>1</sup> Expected returns are using Aon Investments Q2 2020 Capital Market Assumptions. Assumptions do not include fees/expenses. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See capital market assumptions disclosure pages in Appendix.



## Next Steps

# Asset-Liability Study Schedule

Meeting	Meeting Outcomes	Target Dates
Planning Meeting	<ul style="list-style-type: none"> <li>▪ Pension/OPEB risk management overview</li> <li>▪ Current asset-liability profile</li> <li>▪ Initial strategy assessment</li> <li>▪ Capital market assumptions and methods</li> </ul>	April 1, 2020
Results Meeting	<ul style="list-style-type: none"> <li>▪ Review stochastic modeling</li> <li>▪ Asset-liability projection results</li> <li>▪ Identify proposed strategic asset allocation for consideration</li> <li>▪ Present Recommended Asset Allocation</li> </ul>	May 19, 2020
Implementation and Investment Policy Development (if needed)	<ul style="list-style-type: none"> <li>▪ Optimal portfolio structure</li> <li>▪ Investment Policy Statement document</li> <li>▪ Governance model and procedures</li> </ul>	TBD



# Appendix

- Assumptions and Methods



# Actuarial Assumptions and Methods

- Actuarial assumptions:
  - Valuation Rate of Interest = 6.875% (Pension); 5.75% (OPEB)
  - Inflation = 2.60%
  - Actuarial Value of Assets: Equal to a 5-year smoothed value of Plan assets
    - Without details from the actuarial valuation report, the actuarial value of assets was set equal to the market value of assets
  - Actuarially Determined Contribution Calculation = Normal Cost plus a level dollar amortization of the unfunded actuarial liability
    - Amortization of Unfunded Actuarial Liability uses an open, 20-year amortization period
  - The Town's contribution policy makes additional contribution to the Pension/OPEB Plans, depending on the Plan's funded ratio:

Funded Ratio	Employer's Contribution
≤ 85%	120% of actuary's recommendation
85% to < 90%	115% of actuary's recommendation
90% to < 95%	110% of actuary's recommendation
95% to < 100%	105% of actuary's recommendation
100%+	100% of actuary's recommendation

- Due to the closed nature of the pension plan, future benefit accruals were assumed to decrease over the projection period
- OPEB benefit payments will be assumed to run entirely through the assets
- Actuarial asset returns through March 31, 2020 have been included in the analysis
- All other assumptions will be taken from the July 1, 2018 actuarial valuation report



# Aon Investments Capital Market Assumptions

## As of March 31, 2020 (30 Years)

	Expected Real Return <sup>1</sup>	Expected Nominal Return <sup>1</sup>	Expected Nominal Volatility
<b>Equity</b>			
<b>1</b> Large Cap U.S. Equity	4.5%	6.7%	16.5%
<b>2</b> Small Cap U.S. Equity	5.0%	7.2%	22.5%
<b>3</b> International Equity (Developed)	5.3%	7.5%	19.5%
<b>4</b> Emerging Markets Equity	5.9%	8.1%	26.5%
<b>Fixed Income</b>			
<b>5</b> TIPS	0.2%	2.3%	4.5%
<b>6</b> Core Fixed Income	0.0%	2.1%	4.5%
<b>7</b> High Yield Bonds	2.3%	4.4%	12.0%
<b>8</b> Non-US Developed Bond (0% Hedged)	0.0%	2.1%	11.0%
<b>9</b> Multi-Asset Credit <sup>2</sup>	3.2%	5.4%	9.5%
<b>Alternatives</b>			
<b>10</b> Direct Hedge Funds <sup>2,3</sup>	4.0%	6.2%	9.0%
<b>11</b> Non Core Real Estate	5.4%	7.6%	25.0%
<b>12</b> Core Real Estate	3.7%	5.9%	14.5%
<b>13</b> US REITs	5.2%	7.4%	18.5%
<b>14</b> Private Equity	7.5%	9.8%	24.5%
<b>15</b> Infrastructure	6.1%	8.3%	14.0%
<b>16</b> Private Debt	4.4%	6.6%	17.0%
<b>Inflation</b>			
<b>17</b> Inflation	0.0%	2.1%	1.5%

### Notes:

<sup>1</sup> All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees.

<sup>2</sup> Alpha incorporated in Expected Nominal Return.

<sup>3</sup> Represents diversified portfolio of direct hedge fund investments.

# Aon Investments Capital Market Assumptions

## As of March 31, 2020

Nominal Correlations		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Large Cap U.S. Equity	1.00	0.92	0.78	0.72	-0.05	0.05	0.62	-0.04	0.59	0.53	0.47	0.37	0.67	0.69	0.38	0.39	0.06
2	Small Cap U.S. Equity	0.92	1.00	0.72	0.67	-0.05	0.04	0.57	-0.03	0.54	0.48	0.44	0.34	0.61	0.65	0.36	0.36	0.05
3	International Equity (Developed)	0.78	0.72	1.00	0.75	-0.04	0.04	0.59	0.40	0.60	0.44	0.44	0.34	0.54	0.56	0.31	0.36	0.08
4	Emerging Markets Equity	0.72	0.67	0.75	1.00	-0.04	0.05	0.65	0.17	0.63	0.37	0.41	0.31	0.50	0.53	0.29	0.39	0.07
5	TIPS	-0.05	-0.05	-0.04	-0.04	1.00	0.49	0.11	0.07	0.05	-0.11	0.00	0.02	-0.03	-0.04	0.01	-0.08	0.36
6	Core Fixed Income	0.05	0.04	0.04	0.05	0.49	1.00	0.31	0.19	0.24	0.01	0.06	0.06	0.04	0.04	0.05	-0.03	0.13
7	High Yield Bonds	0.62	0.57	0.59	0.65	0.11	0.31	1.00	0.17	0.92	0.49	0.33	0.26	0.42	0.46	0.26	0.67	0.19
8	Non-US Developed Bond (0% Hedged)	-0.04	-0.03	0.40	0.17	0.07	0.19	0.17	1.00	0.25	0.01	0.03	0.00	-0.02	-0.01	0.00	0.03	0.10
9	Multi-Asset Credit	0.59	0.54	0.60	0.63	0.05	0.24	0.92	0.25	1.00	0.52	0.30	0.23	0.40	0.40	0.23	0.66	0.16
10	Direct Hedge Funds	0.53	0.48	0.44	0.37	-0.11	0.01	0.49	0.01	0.52	1.00	0.25	0.19	0.35	0.36	0.20	0.41	0.02
11	Non Core Real Estate	0.47	0.44	0.44	0.41	0.00	0.06	0.33	0.03	0.30	0.25	1.00	0.96	0.48	0.38	0.21	0.21	0.08
12	Core Real Estate	0.37	0.34	0.34	0.31	0.02	0.06	0.26	0.00	0.23	0.19	0.96	1.00	0.45	0.31	0.18	0.16	0.08
13	US REITs	0.67	0.61	0.54	0.50	-0.03	0.04	0.42	-0.02	0.40	0.35	0.48	0.45	1.00	0.48	0.27	0.26	0.05
14	Private Equity	0.69	0.65	0.56	0.53	-0.04	0.04	0.46	-0.01	0.40	0.36	0.38	0.31	0.48	1.00	0.32	0.30	0.06
15	Infrastructure	0.38	0.36	0.31	0.29	0.01	0.05	0.26	0.00	0.23	0.20	0.21	0.18	0.27	0.32	1.00	0.17	0.07
16	Private Debt	0.39	0.36	0.36	0.39	-0.08	-0.03	0.67	0.03	0.66	0.41	0.21	0.16	0.26	0.30	0.17	1.00	0.11
17	Inflation	0.06	0.05	0.08	0.07	0.36	0.13	0.19	0.10	0.16	0.02	0.08	0.08	0.05	0.06	0.07	0.11	1.00

# Aon Investments Capital Market Assumptions

## Explanation of Capital Market Assumptions—Q2 2020

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The following capital market assumptions were developed by Aon's Global Asset Allocation Team and represent the long-term capital market outlook (i.e., 30 years) based on data at the end of the first quarter of 2020. The assumptions were developed using a building block approach, reflecting observable inflation and interest rate information available in the fixed income markets as well as Consensus Economics forecasts. Our long-term assumptions for other asset classes are based on historical results, current market characteristics, and our professional judgment.

### **Inflation – Expected Level (2.1%)**

Based on Consensus Economics long-term estimates and our near-term economic outlook, we expect U.S. consumer price inflation to be approximately 2.1% during the next 30 years.

### **Real Returns for Asset Classes**

#### ***Fixed Income***

- **Cash (-1.0%)** – Over the long run, we expect the real yield on cash and money market instruments to produce a real return of -1.0% in a moderate to low-inflationary environment.
- **TIPS (0.2%)** – We expect intermediate duration Treasury Inflation-Protected Securities to produce a real return of about 0.2%.
- **Core Fixed Income (i.e., Market Duration) (0.0%)** – We expect intermediate duration Treasuries to produce a real return of about -0.8%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults and downgrades) to be 0.8%, resulting in a long-term real return of 0.0%.
- **Long Duration Bonds – Government and Credit (0.2%)** – We expect Treasuries with a duration comparable to the Long Government Credit Index to produce a real return of -0.5%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults and downgrades) to be 0.7%, resulting in an expected real return of 0.2%.

# Aon Investments Capital Market Assumptions

## Explanation of Capital Market Assumptions—Q2 2020

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- **Long Duration Bonds – Credit (0.9%)** – We expect Treasuries with a duration comparable to the Long Credit Index to produce a real return of -0.5%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults and downgrades) to be 1.4%, resulting in an expected real return of 0.9%.
- **Long Duration Bonds – Government (-0.5%)** – We expect Treasuries with a duration of ~12 years to produce a real return of -0.5% during the next 30 years.
- **High Yield Bonds (2.3%)** – We expect intermediate duration Treasuries to produce a real return of about -0.8%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults and downgrades) to be 3.5%, resulting in an expected real return of 2.3%.
- **Bank Loans (2.6%)** – We expect LIBOR to produce a real return of about -0.5%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults) to be 3.1%, resulting in an expected real return of 2.6%.
- **Non-US Developed Bonds: 50% Hedged (-0.3%)** – We forecast real returns for non-US developed market bonds to be -0.3% over a 30-year period after adjusting for a 50% currency hedge. We assume a blend of one-third investment grade corporate bonds and two-thirds government bonds. We also produce assumptions for 0% hedged and 100% hedged non-US developed bonds.
- **Emerging Market Bonds (Sovereign; USD) (2.3%)** – We forecast real returns for emerging market sovereign bonds denominated in US dollars to be 2.3% over a 30-year period.
- **Emerging Market Bonds (Corporate; USD) (1.8%)** – We forecast real returns for emerging market corporate bonds denominated in US dollars to be 1.8% over a 30-year period.
- **Emerging Market Bonds (Sovereign; Local) (2.4%)** – We forecast real returns for emerging market sovereign bonds denominated in local currency to be 2.4% over a 30-year period.
- **Multi Asset Credit (MAC) (3.2%)** – We assume real returns from beta exposure to high yield, bank loans and emerging market debt to add 2.5% plus 0.8% from alpha (net of fees) over a 30-year period.
- **Private Debt-Direct Lending (4.4%)** – The base building block is bank loans 2.6% + spread 1.8% (net of management fees and performance incentives). There is 100% leverage included in the assumption with the cost of financing at LIBOR + 2.5%.

# Aon Investments Capital Market Assumptions

## Explanation of Capital Market Assumptions—Q2 2020

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### *Equities*

- **Large Cap U.S. Equity (4.5%)** – This assumption is based on our 30-year outlook for large cap U.S. company dividends and real earnings growth. Adjustments are made for valuations as needed.
- **Small Cap U.S. Equity (5.0%)** – Adding a 0.5% return premium for small cap U.S. equity over large cap U.S. equity results in an expected real return of 5.0%. This return premium is theoretically justified by the higher risk inherent in small cap U.S. equity versus large cap U.S. equity, and is also justified by historical data. In recent years, higher small cap valuations relative large cap equity has reduced the small cap premium.
- **Global Equity (Developed & Emerging Markets) (5.3%)** – We employ a building block process similar to the U.S. equity model using the developed and emerging markets that comprise the MSCI All-Country World Index. Our roll-up model produces an expected real return of 5.3% for global equity.
- **International (Non-U.S.) Equity, Developed Markets (5.3%)** – We employ a building block process similar to the U.S. equity model using the non-U.S. developed equity markets that comprise the MSCI EAFE Index.
- **Emerging Market Stocks (5.9%)** – We employ a building block process similar to the U.S. equity model using the non-U.S. emerging equity markets that comprise the MSCI Emerging Markets Index.
- **Equity Risk Insurance Premium Strategies-High Beta (4.3%)** – We expect real returns from 50% equity + 50% cash beta of 2.1% plus 2.2% insurance risk premium over the next 30 years.

### *Alternative Asset Classes*

- **Hedge Fund-of-Funds Universe (1.3%)** – The generic category “hedge funds” encompasses a wide range of strategies accessed through “fund-of-funds” vehicles. We also assume the **median** manager is selected and also allow for the additional costs associated with Fund-of-Funds management. A top-tier portfolio of funds (hedge fund-of-funds buy-list) could add an additional 1.2% in return at similar volatility based on alpha, lower fees and better risk management.

# Aon Investments Capital Market Assumptions

## Explanation of Capital Market Assumptions—Q2 2020

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- **Hedge Fund-of-Funds Buy List (2.5%)** – The generic category of top-tier “hedge funds” encompasses a wide range of strategies accessed through “fund-of-funds” vehicles. We assume additional costs associated with Funds-of-Funds management. To use this category the funds must be buy rated or we advise on manager selection.
- **Broad Hedge Funds Universe (2.6%)** – Represents a diversified portfolio of direct hedge fund investments. This investment will tend to be less diversified than a typical “fund-of-funds” strategy as there will be fewer underlying managers and will not include the extra layer of fees found in a Fund-of-Funds structure.
- **Broad Hedge Funds Buy List (4.0%)** – Represents a diversified portfolio of top-tier direct hedge fund investments. This investment will tend to be less diversified than a typical “fund-of-funds” strategy as there will be fewer underlying managers and will not include the extra layer of fees found in a Fund-of-Funds structure. To use this category the funds must be buy rated or we advise on manager selection.
- **Core Real Estate (3.7%)** – Our real return assumption for core real estate is based a gross income of about 3.7%, management fees of roughly 1%, and future capital appreciation near the rate of inflation during the next 30 years. We assume a portfolio of equity real estate holdings that is diversified by property and by geographic region.
- **Non-Core Real Estate (5.4%)** – Core real estate is levered approximately 100% as the base building block for this assumption. We subtract financing costs for the leverage and 2% management costs. We also assume nominal alpha of 3%. We assume a 50/50 mix of value-add and opportunistic investments.
- **U.S. REITs (5.2%)** – Our real return assumption for U.S. REITs is based on income of about 4.8% and future capital appreciation near the rate of inflation during the next 30 years. REITs are a sub-set of U.S. small/mid cap equity universe.
- **Commodities (1.5%)** – Our commodity assumption is for a diversified portfolio of commodity futures contracts. Commodity futures returns are composed of three parts: spot price appreciation, collateral return, and roll return (positive or negative change implied by the shape of the future curve). We believe that spot prices will converge with CPI over the long run (i.e., 2.1%). Collateral is assumed to be LIBOR cash (-0.5%). Also, we believe the roll effect will be near zero, resulting in a real return of about 1.5% for commodities.

# Aon Investments Capital Market Assumptions

## Explanation of Capital Market Assumptions—Q2 2020

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- **Private Equity (7.5%)** – Our private equity assumption reflects a diversified fund of funds with exposure to buyouts, venture capital, distressed debt, and mezzanine debt.
- **Infrastructure (6.1%)** – Our infrastructure assumption is formulated using a cash flow based approach that projects cash flows (on a diversified portfolio of assets) over a 30-year period. Income and capital growth as well as gearing levels, debt costs and terms, relevant tax and management expenses are all taken into consideration. Our approach produces an expected real return of 6.1% for infrastructure.
- **Equity Risk Insurance Premium Strategies-Low Beta (2.4%)** – We assume real returns from cash of  $-1.0\% + 3.4\%$  from alpha.
- **Alternative Risk Premia (ARP) (3.4%)** – Real return target LIBOR  $-0.5\%$  plus  $3.9\%$  alpha (net of fees)

### Volatility / Correlation Assumptions

Assumed volatilities are formulated with reference to implied volatilities priced into option contracts of various terms, as well as with regard to historical volatility levels. For asset classes which are not marked to market (for example real estate), we “de-smooth” historical returns before calculating volatilities. Importantly, we consider expected volatility trends in the future – in recent years we assumed the re-emergence of an economic cycle and a loss of confidence in central bankers would lead to an increase in volatility. Correlation assumptions are generally similar to actual historical results; however, we do make adjustments to reflect our forward-looking views as well as current market fundamentals.



# Appendix

- Horizon Survey of Capital Market Assumptions



# 2019 Horizon Survey Results

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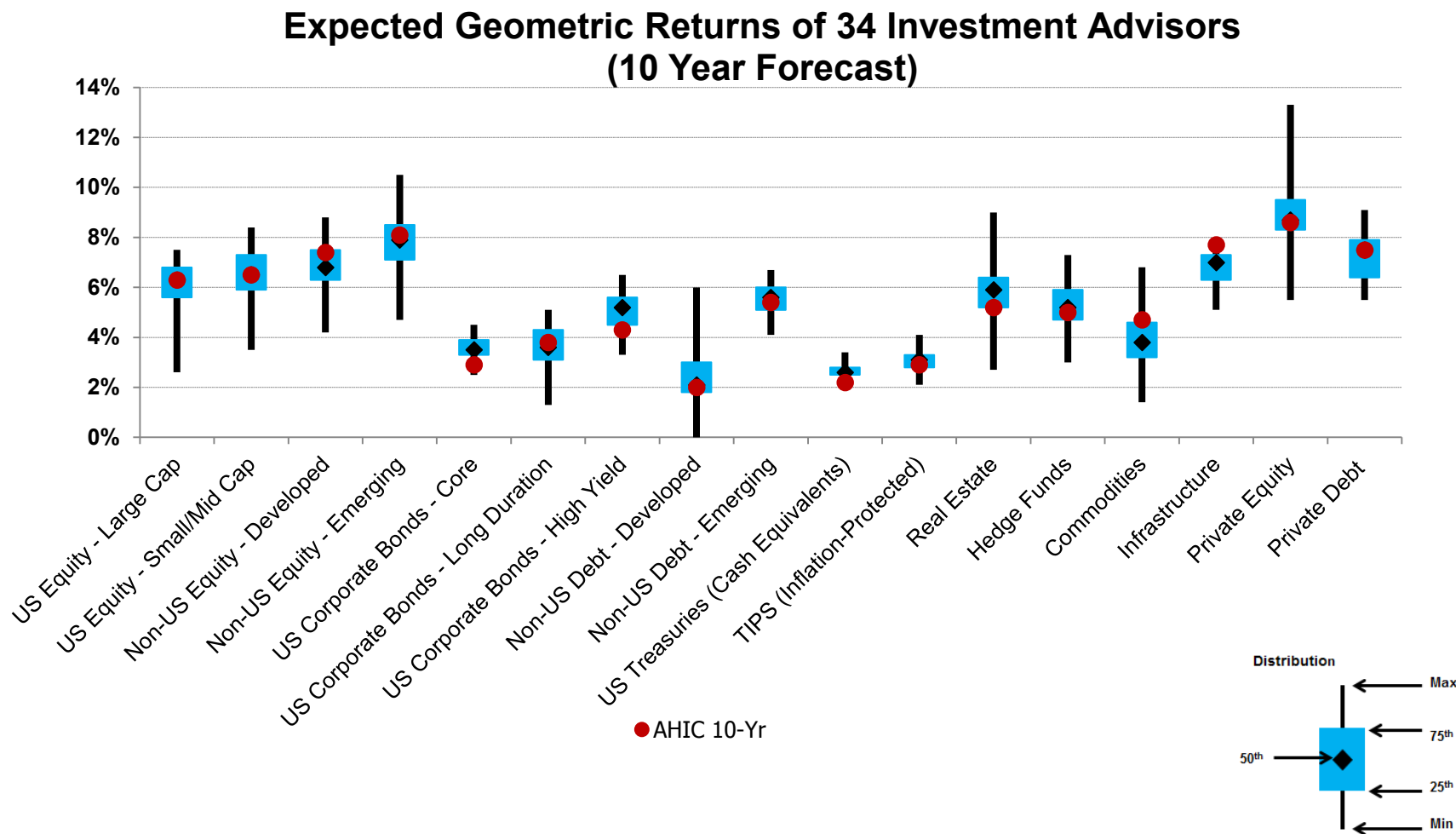
- **What is the Horizon Survey?**

- Since 2010, Horizon Actuarial Services, LLC has conducted a capital market assumption survey of investment firms to aid in determining reasonable assumptions for a pension plan's expected return on assets
  - While Aon does not seek to change our approach based on how we stack up to peers, it is a helpful double-check to make sure we are not too far off from others in the industry

- **How does Aon compare to the 2019 survey results?**

- 2019 AHIC 10-year forecast assumptions of non-US equities tend to be **higher** compared to the survey median level, fixed income assets are generally **lower** and alternative assets are **mixed** relative to the survey's median level

# Aon Investments Capital Market Assumptions vs. Horizon Survey



**SOURCE:** Horizon Actuarial survey of 2019 capital market assumptions from 34 independent investment advisors  
 Expected returns of the survey are annualized over 10-years (geometric).  
 Aon Investments expected returns are annualized over 10-years as of 2Q 2019

# Aon Investments Versus Peers (2019 Horizon Survey)—10-Year Forecast

Asset Class	Horizon Survey		AHIC		Difference (AHIC - Horizon)
	10 Year Horizon		10 Year Forecasts		
	Expected Return	Expected Risk	Expected Return	Expected Risk	
US Equity - Large Cap	6.3%	16.2%	6.3%	17.0%	0.0%
US Equity - Small/Mid Cap	6.5%	20.2%	6.5%	23.0%	0.0%
Non-US Equity - Developed	6.8%	18.2%	7.4%	20.0%	0.6%
Non-US Equity - Emerging	7.9%	24.7%	8.1%	27.0%	0.2%
US Fixed Income - Core	3.5%	5.5%	2.9%	4.0%	-0.6%
US Fixed Income - Long Duration Corp	3.6%	10.5%	3.8%	11.0%	0.2%
US Fixed Income - High Yield	5.2%	10.1%	4.3%	12.0%	-0.9%
Non-US Fixed Income - Developed	2.1%	7.6%	2.0%	5.5%	-0.1%
Non-US Fixed Income - Emerging	5.6%	11.3%	5.4%	14.0%	-0.2%
Treasuries (Cash Equivalents)	2.6%	2.3%	2.2%	1.0%	-0.4%
TIPS (Inflation-Protected)	3.1%	6.1%	2.9%	4.5%	-0.2%
Real Estate	5.9%	15.0%	5.2%	11.5%	-0.7%
Hedge Funds	5.2%	8.4%	5.0%	9.0%	-0.2%
Commodities	3.8%	17.7%	4.7%	17.0%	0.9%
Infrastructure	7.0%	14.4%	7.7%	14.5%	0.7%
Private Equity	8.7%	22.1%	8.6%	24.0%	-0.1%
Private Debt	7.5%	11.6%	7.5%	16.5%	0.0%
Inflation	2.2%	1.7%	2.2%	1.0%	0.0%

## Notes (Horizon Survey):

Source: Horizon Actuarial survey of 2019 capital market assumptions from 34 independent investment advisors  
Expected returns are median annualized (geometric).

## Notes (AHIC Forecasts):

AHIC Forecasts are for Q2 2019

US Equity - Small/Mid Cap forecasts represents AHIC forecasts for US Small Cap

US Fixed Income - Long Duration forecasts represents AHIC forecasts for Long Duration Credit

Non-US Fixed Income - Developed forecasts represents AHIC forecasts for Non-US Fixed Income - Developed (50% Hedged)

Non-US Fixed Income- Emerging forecasts represents AHIC forecasts for Sovereign Local Currency

Real Estate forecasts represents AHIC forecasts for Core Private Real Estate

Hedge Funds forecasts represents AHIC forecasts for Hedge Fund-of-Funds (Buy List)

# Leading Methodologies & Reasons for Differences

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## Leading Methodologies

- Building Block
- Global Capital Asset Pricing Model (Global CAPM)
- Surveys
- Historical data (as a guide to future)
- Black-Litterman (combination of building block and CAPM)

## Reasons for Differences

- Methodology
- Time Horizon
- Arithmetic vs. Geometric forecasts\*
- Alpha (active management)\*
- Inflation
- Investment Fees
- Asset class definition

\* While some firms in Horizon survey responded with Arithmetic forecasts, the results have been converted to Geometric forecasts for comparison purposes. Additionally, the return expectations included in the Horizon survey are based on indexed returns (no "alpha"). However, Aon Investments return assumptions for certain asset classes include "alpha" or active management premium (e.g., Hedge Funds)



# Appendix

- Opportunity Allocation

# Opportunity Allocation - Flexibility within Investment Policy

## What is it?

- An “unconstrained” bucket that creates flexibility in the investment policy and portfolio

## Why Include it?

- Enhance returns / alternative alpha
- Designed to improve diversification of overall investment program

## Current Favored strategies (as of May 2020)

- Opportunistic Credit
- Distressed Debt
- Insurance-linked securities (ILS)

## Considerations and Issues

- Policy design
  - Target allocation of 0% and a **max** (e.g., 10% of total portfolio)
  - Need to widen rebalancing ranges for other asset classes
- Responsibility for investment selection can be delegated to Aon or the client can retain some responsibility for execution
- Can be challenging to reallocate during periods of market stress
- Often includes increased **complexity, governance, fees**
- Liquidity and transaction costs

## Rationale

- Allocation intended to create flexibility within the IPS
- Strategies should offer a compelling return enhancement and/or diversification benefit
- Not all opportunities fit neatly within given asset classes
- Speed of execution



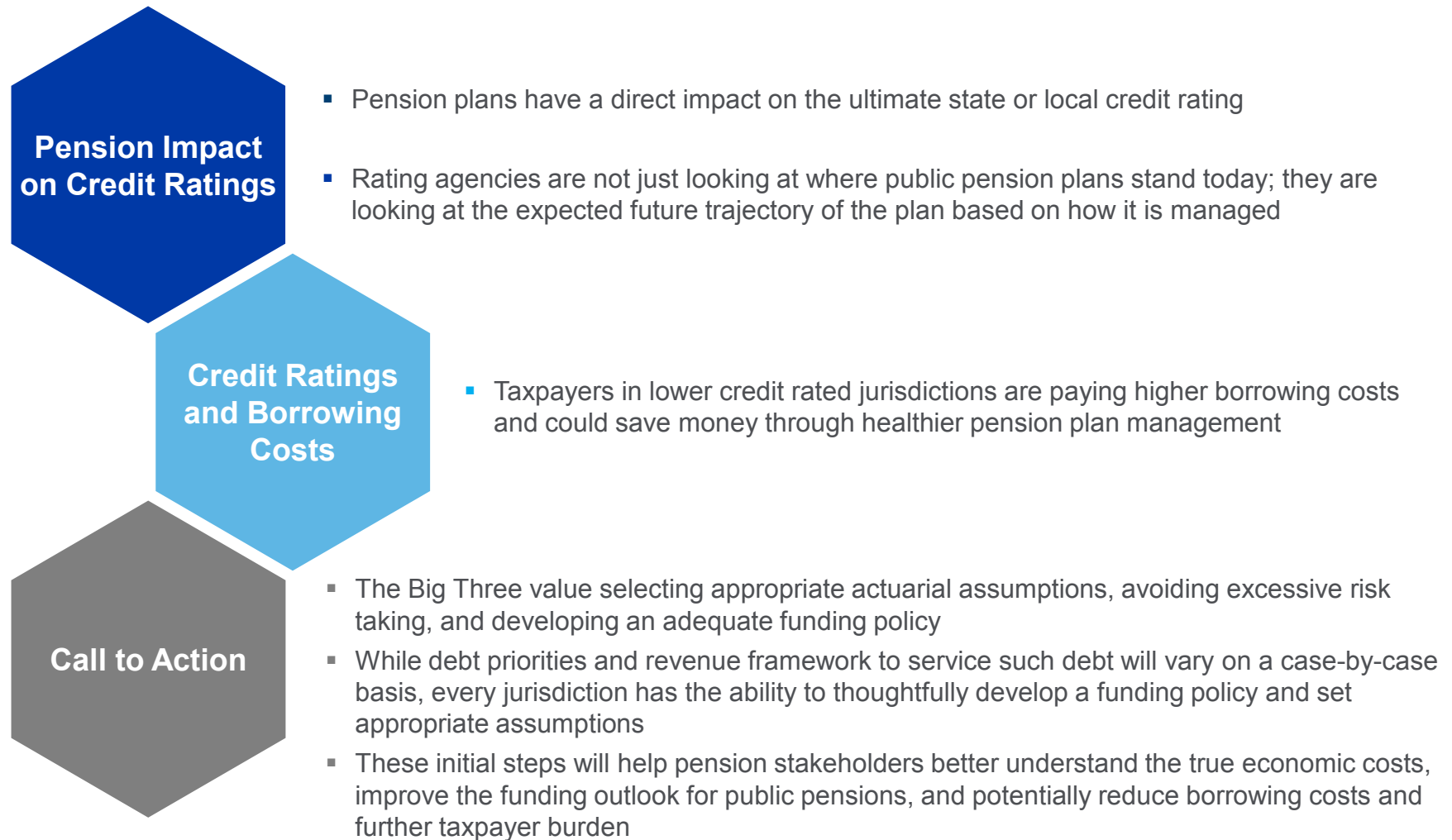
# Appendix

- How Do Public Pensions Impact Credit Ratings?

# How Do Public Pensions Impact Credit Ratings?

## Summary and Conclusions

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# How Do Public Pensions Impact Credit Ratings?

## Call to Action: Plan Sponsors Have Ability to Impact Credit Rating

Below are three specific actions plan sponsors can take today to directly improve the impact a pension plan will have on the credit rating of its locality:

	Action	Considerations
	<b>1. Conduct an actuarial assumption audit</b> <ul style="list-style-type: none"><li>Review reasonability of key assumptions:<ul style="list-style-type: none"><li>Salary scale, Mortality, Retirement rates, Turnover rates</li></ul></li></ul>	<ul style="list-style-type: none"><li>Assumptions set to plan-specific expectations will lead to lower contribution volatility</li><li>Aggressive assumptions may provide short-term relief but may have long-term consequences</li></ul>
	<b>2. Consider adjustments to expected return assumption</b> <ul style="list-style-type: none"><li>Adjustments should be in line with forward-looking expectations for asset returns</li></ul>	<ul style="list-style-type: none"><li>Contributing an actuarial amount?<ul style="list-style-type: none"><li><b>Yes:</b> Failing to achieve target returns will necessitate increases in future contributions and make what was intended to be a smooth, budget-friendly progression of contribution increases far more volatile</li><li><b>No:</b> The funding gap will widen and become highly volatile as contribution policy will not add enough dollars to replenish losses</li></ul></li></ul>
	<b>3. Review the plan's funding policy</b> <ul style="list-style-type: none"><li>Look far enough into the future to identify potential pain points</li></ul>	<ul style="list-style-type: none"><li>Conduct "tread water"/hurdle rate analysis to ensure short-term contributions are sufficient to keep pace with growth of plan liabilities</li><li>Consider asset-liability study to understand range of potential future outcomes rather than a single deterministic scenario</li></ul>



# Appendix

- About This Material

# About This Material

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This material includes a summary of calculations and consulting related to the finances of Town of Wilton, CT (Wilton). The following variables have been addressed:

- Contributions
- Economic Cost
- Funded Ratio
- Hurdle Rate
- Liquidity
- Net Outflow

This analysis is intended to assist the Investment Committee with a review of the associated issues and options, and its use may not be appropriate for other purposes. This analysis has been prepared solely for the benefit of the Investment Committee. Any further dissemination of this report is not allowed without the written consent of Aon Investments USA Inc.

Our calculations were generally based on the methodologies identified in the actuary's valuation report for Wilton. We believe the methodology used in these calculations conforms to the applicable standards identified in the report.

Experience different than anticipated could have a material impact on the ultimate costs of the benefits. In addition, changes in plan provisions or applicable laws could have a significant impact on cost. Actual experience may differ from our modeling assumptions.

Our calculations were based on data provided by the plan actuary. The actuarial assumptions and methods and plan provisions reflected in these projections are the same as those used for the 2018 actuarial valuation for Wilton as noted in the actuarial reports, except where noted in this report. Unless specifically noted, our calculations do not reflect any other changes or events after July 1, 2018.

In conducting these projections, we have relied on plan design, demographic and financial information provided by other parties, including the plan's actuary and plan sponsor. While we cannot verify the accuracy of all of the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it has produced appropriate results.

These projections have been conducted in accordance with generally accepted actuarial principles and practices, including applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board. The undersigned actuary is familiar with the near-term and long-term aspects of pension valuations and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All sections of this report are considered an integral part of the actuarial opinions.

To our knowledge, no colleague of Aon Investments USA Inc. providing services to Wilton has any direct financial interest or indirect material interest in Wilton. Thus, we believe there is no relationship existing that might affect our capacity to prepare and certify this report for Wilton.

Aon Investments USA Inc.

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Aon Investments USA Inc.  
200 E. Randolph Street  
Suite 700  
Chicago, IL 60601  
ATTN: Aon Investments Compliance Officer

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