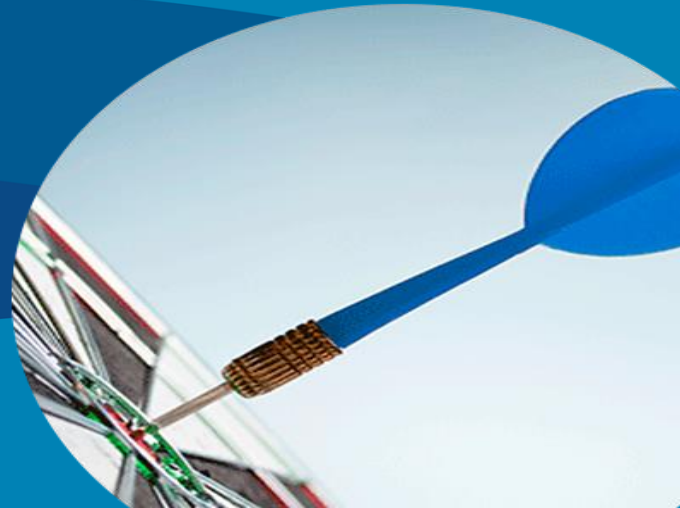




Employees' Retirement System of the State of Hawaii

2019 Valuation Results
January 13, 2019



Agenda

- Purpose of Valuation
- Revisit 2019 Experience Study
- Valuation Results
- Details on Funding Period
- Comparison of Projections to Previous Years
- Projections Under Alternative Scenarios
- Closing Remarks

Purpose of the Actuarial Valuation

- The ***primary*** purpose of the annual actuarial valuation is to either (1) set or (2) assess the adequacy of the contribution policy
 - “Funding” or “contribution allocation procedure”
- The funding policy is the pattern of contributions, not necessarily the contribution in a given year
- For ERS, the funding policy has mostly a fixed contribution rate from members and employers
 - Maximum Funding Period of 30 Years
- Thus, for ERS, the primary purpose of the annual actuarial valuation is to assess whether the current funding policy is expected to fully amortize the UAAL over a period of 30 years or less

2019 Experience Study

- The valuation results are heavily based on a series of assumptions about future behavior and events
- These assumptions are not static; they should occasionally change to reflect new information or techniques
- While we monitor the appropriateness of the assumptions annually, ERS Statute requires a formal process occur every three years
- The 2019 Experience study was rather uneventful, mainly supporting previous decisions
 - Material Recommendations:
 - Increase individual salary scale assumption for Police and Fire Employees
 - Other recommendations:
 - Update mortality assumptions through 2018
 - Minor adjustments in disability and retirement patterns

Salary Increase Assumption

- Average individual salary increases during career

	Assumed	Actual	Proposed	Change
General Employees	4.43%	4.06%	4.43%	-
Teachers	4.38%	3.60%	4.38%	-
Police and Fire	5.16%	6.59%	5.57%	0.41%

Actual price inflation was approximately 1.4% over the observation period, compared to a 2.5% price inflation assumption.

Impact from 2019 Experience Study

- The changes to assumptions had a minor impact on the valuation results
- Increased the UAAL by \$0.1B
- Decreased the funded ratio by 0.1%
- Added 3 months on the funding period

2019 Actuarial Valuation Results

Valuation Year	2017	2018	Expected 2019	Actual 2019
Based on Smoothed Asset Value				
UAAL (\$ Billions)	\$12.93	\$13.41	\$13.77	\$14.07
Actuarial Funded Ratio	54.9%	55.2%	55.5%	55.2%
Funding Period in years*	26	25	24	26
Based on Market Value				
Actuarial Funded Ratio	54.8%	55.5%	55.8%	54.9%
Funding Period in years*	26	25	24	26

Expected 2019 based on old assumptions. Actual 2019 incorporates new assumptions.

*Based on open group projection, recognizing new benefits for members hired after June 30, 2012

Employee Groups

Valuation Year	2017	2018	Expected 2019	Actual 2019
Police and Fire Employees (11% of Payroll)				
UAAL (\$ Billions)	\$2.23	\$2.31	\$2.38	\$2.50
Actuarial Funded Ratio	58.2%	59.0%	59.8%	58.7%
Funding Period in years*	26	26	25	28
All Other Employees (89% of Payroll)				
UAAL (\$ Billions)	\$10.70	\$11.09	\$11.37	\$11.57
Actuarial Funded Ratio	54.1%	54.3%	54.7%	54.3%
Funding Period in years*	26	25	24	25

Expected 2019 based on old assumptions. Actual 2019 incorporates new assumptions.

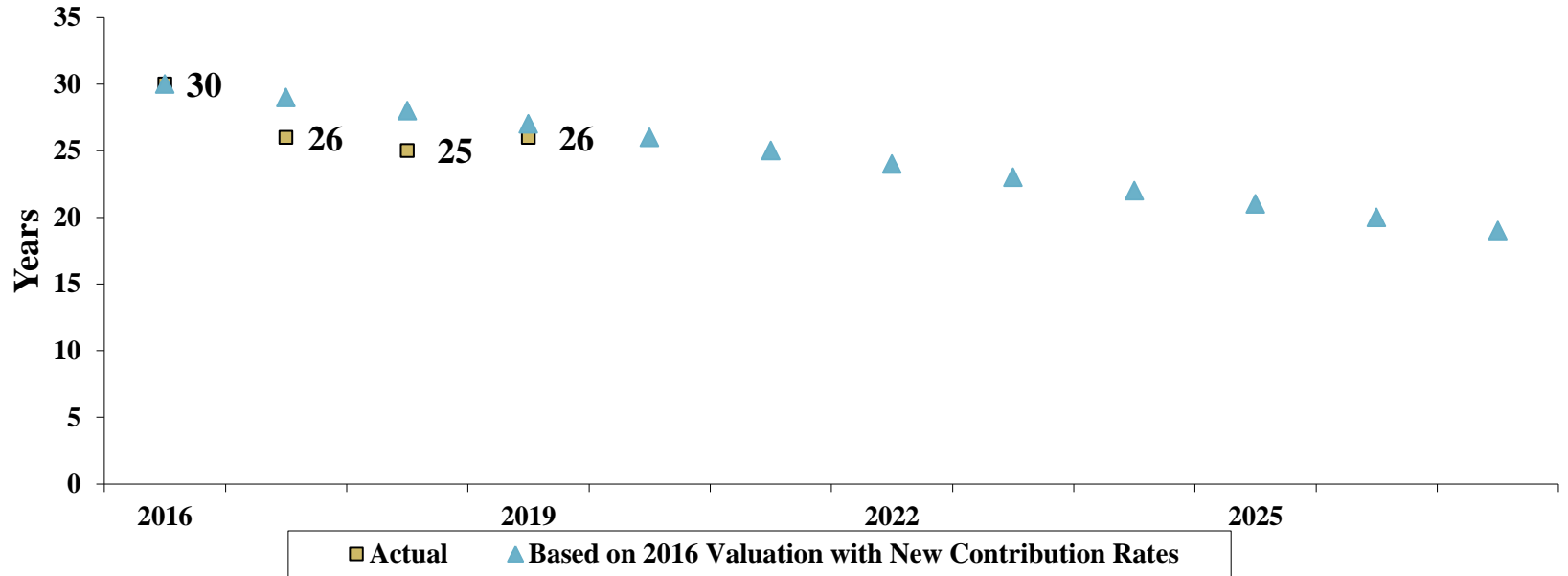
*Based on open group projection, recognizing new benefits for members hired after June 30, 2012

Funding Period in Months

- The official funding period is expressed in whole years as valuation cycles are not performed monthly
- However, the change from year to year can be much more nuanced than that

As of	Police and Fire	All Others	Total ERS	Official Funding Period
2016	27 Years 4 Months	29 Years 4 Months	29 Years 2 Months	30 Years
2017	25 Years 10 Months	25 Years 5 Months	25 Years 6 Months	26 Years
2018	25 Years 6 Months	24 Years 6 Months	24 Years 11 Months	25 Years
2019	27 Years 8 Months	24 Years 8 Months	25 Years 2 Months	26 Years

Projection of Funding Period from 2016 Valuation vs Actual Valuation Outcomes

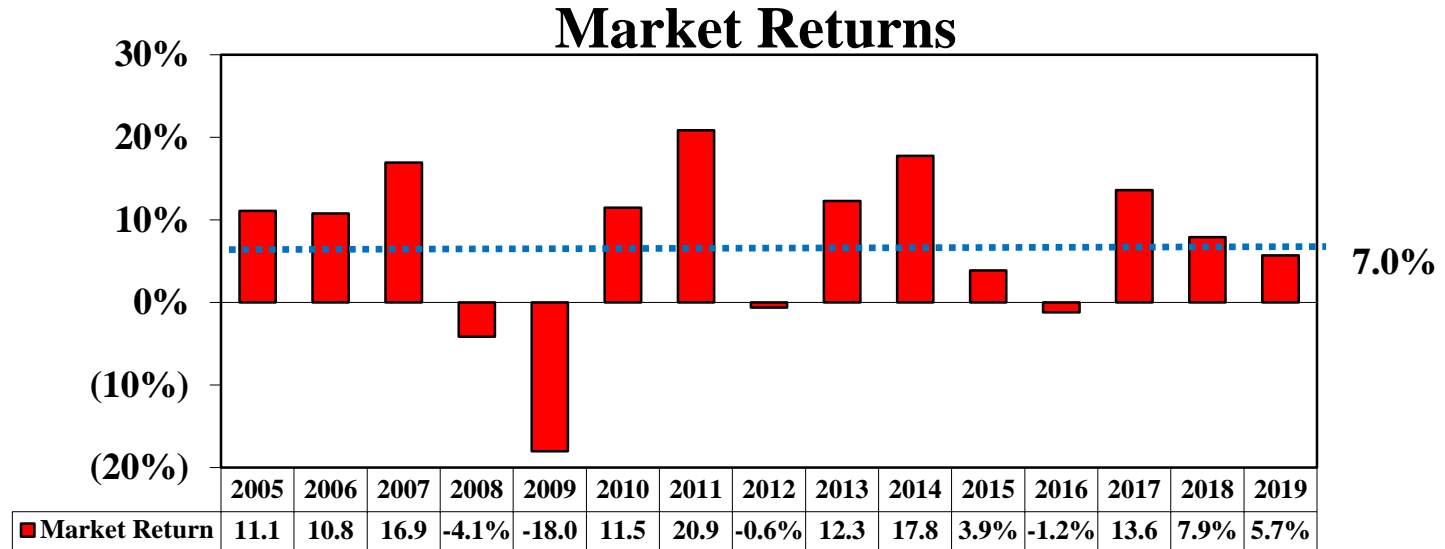


Assumes all assumptions met, including a 7.00% return each year on the current *smoothed* value of assets

Sources of Impact

- **Investments** underperformed 7.00% assumption on market basis
 - Smoothing technique will defer some of underperformance into future years
 - (Approximately \$100m)
- **Liabilities** grew faster than expected due to salary increases larger than current expectations
 - All Other Employees had average increase of 4.9% (0.5% higher than assumed)
 - Produced a loss of \$64m
 - Police/Fire Employees had average increase of 8.6% (3.2% higher than assumed)
 - Produced a loss of \$96m
 - The increase for Police and Fire appears to be possibly driven by increases in overtime. If true and overtime returns to normal levels, there could be a gain in a future valuation
 - Also reflects new assumptions
- **Contributions** in dollars are expected to be modestly higher due to salary increases and head count increases for All Other Employees, but head count for Police and Fire Employees declined for third straight year

Estimated Yields on Market Value of Assets



5.9% average return for 5 year period ending June 30, 2019

9.0% average return for 10 year period ending June 30, 2019

6.8% average return for 15 year period ending June 30, 2019

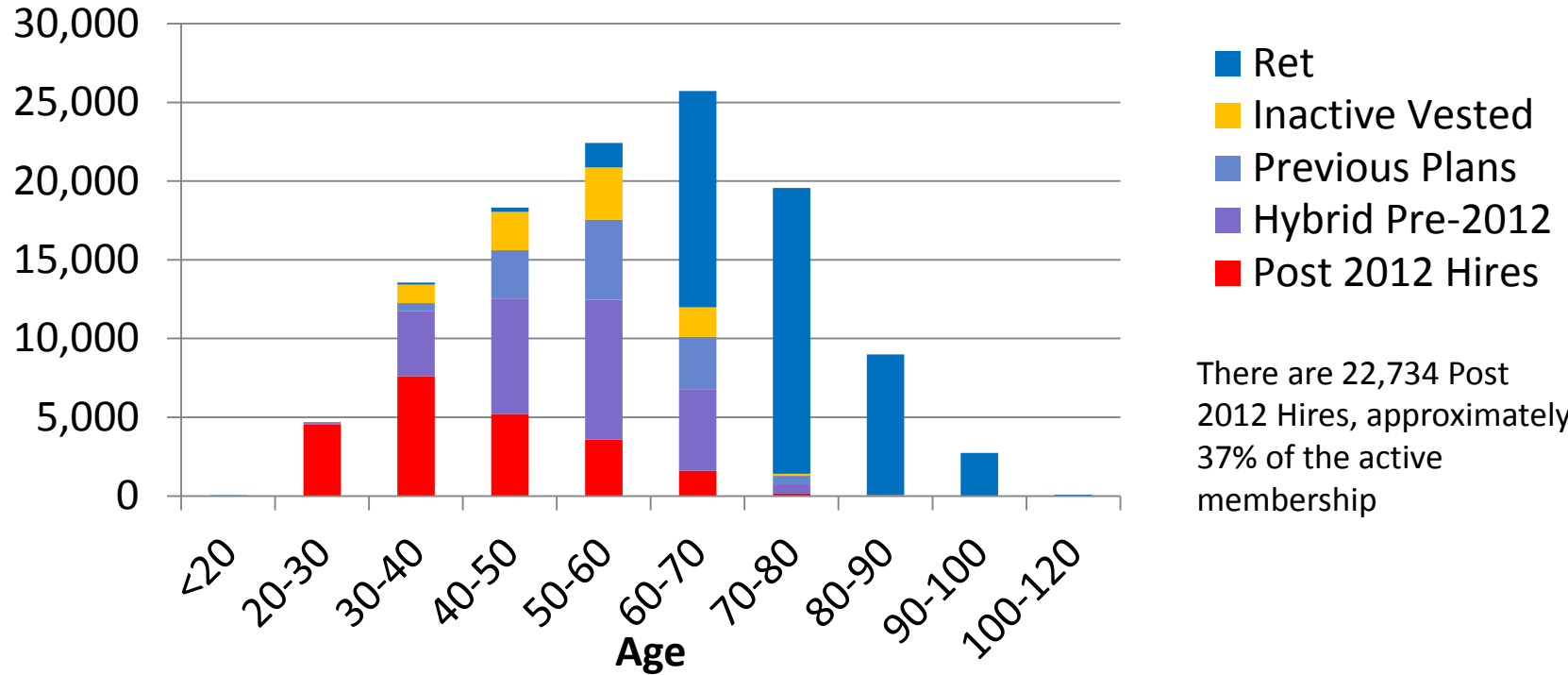
Act 17 (SB 936) Contribution Rates

	Employer Contribution Rates by Fiscal Years	General Employees	Special Categories (Police Officers, Firefighters and Corrections Officers)
	7/1/2016 – 6/30/2017	17.00%	25.00%
	7/1/2017 – 6/30/2018	18.00%	28.00%
Current Valuation Date →	7/1/2018 – 6/30/2019	19.00%	31.00%
	7/1/2019 – 6/30/2020	22.00%	36.00%
	7/1/2020 – 6/30/2021	24.00%	41.00%

It is vital the last step in the funding strategy occur. The 26 year estimated funding period already recognizes these increases occurring. If they do not occur, the funding period is 31 years (37 for Police and Fire) and it will ultimately cost \$5B more to finance the UAAL.

Impact of New Benefit Tiers:

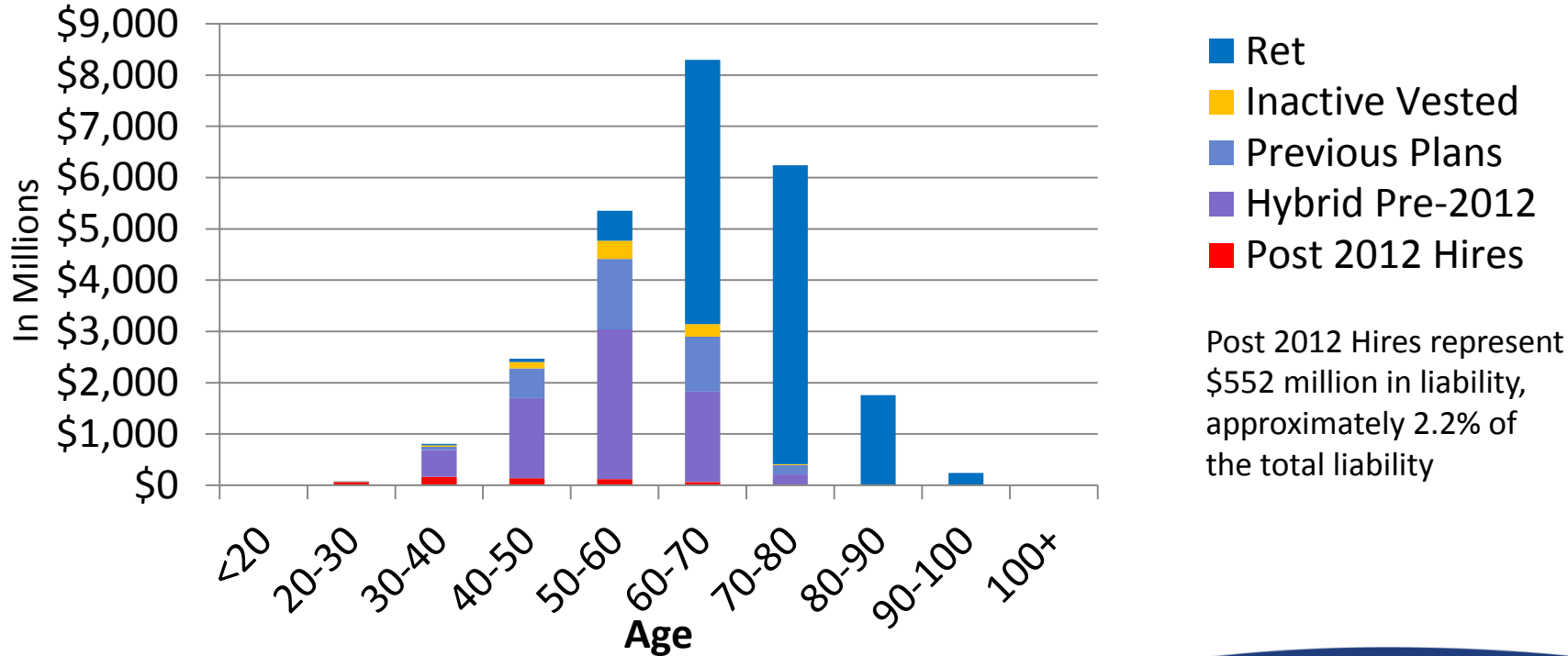
All Other Employees: Counts by group and by age



There are 22,734 Post 2012 Hires, approximately 37% of the active membership

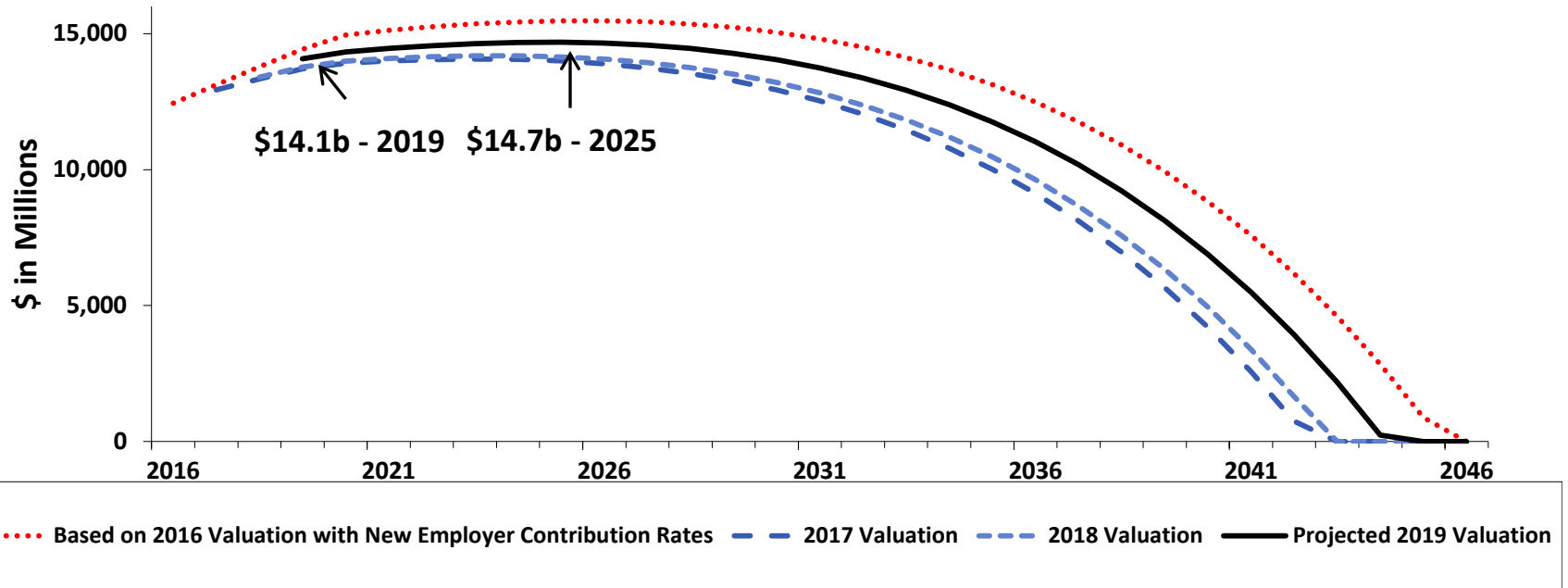
Impact of New Benefit Tiers:

All Other Employees: Liability by group and by age



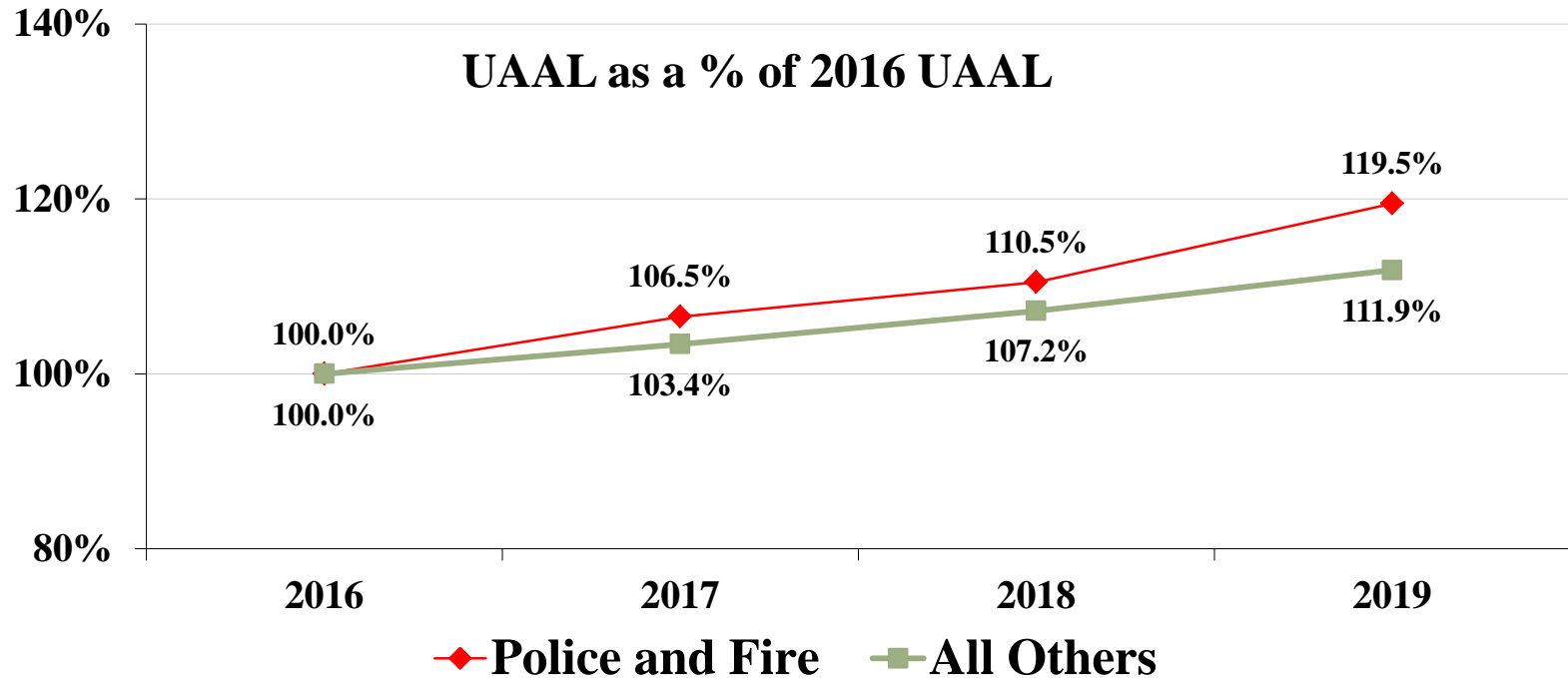
Post 2012 Hires represent \$552 million in liability, approximately 2.2% of the total liability

Projection of UAAL (June 30, 2019)

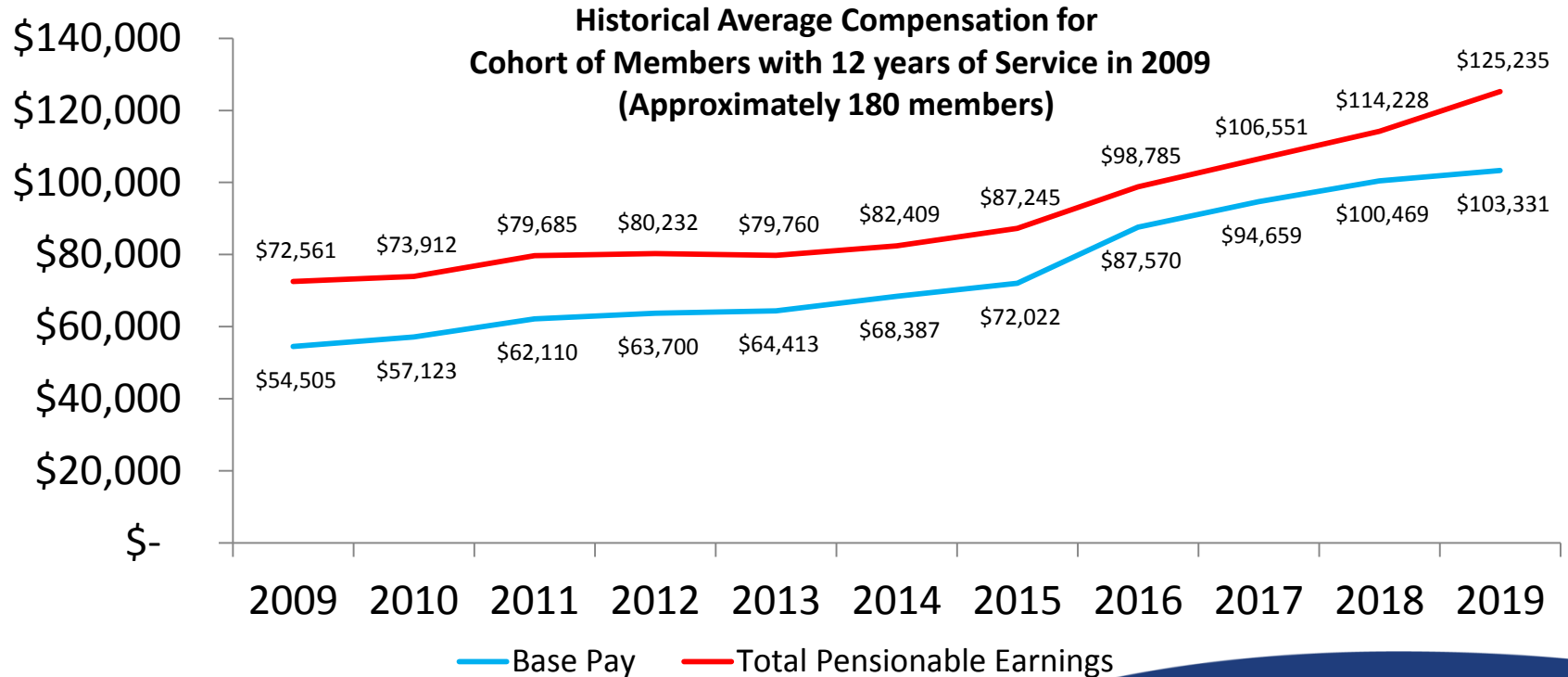


Projections are based on smoothed value of assets as of the valuation date and assumed 7% return on assets in all future years

Growth in UAAL



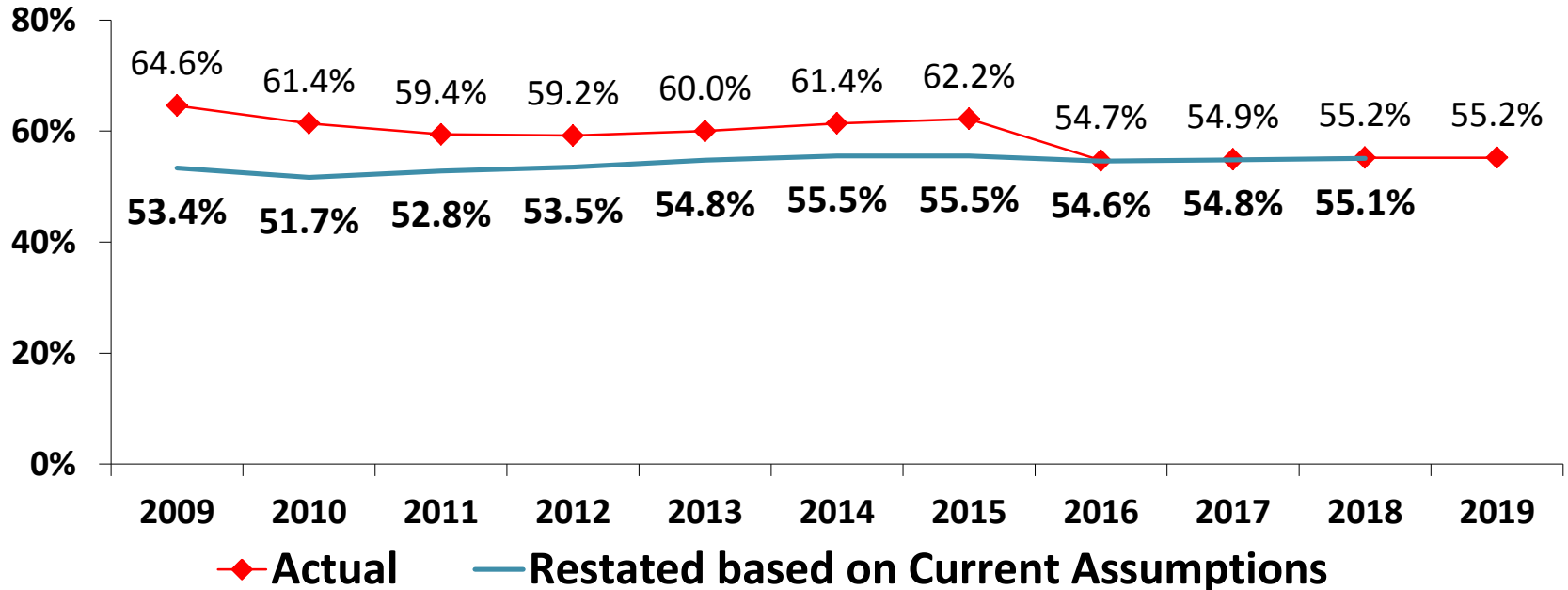
Police and Fire Salary History



Recent Experience

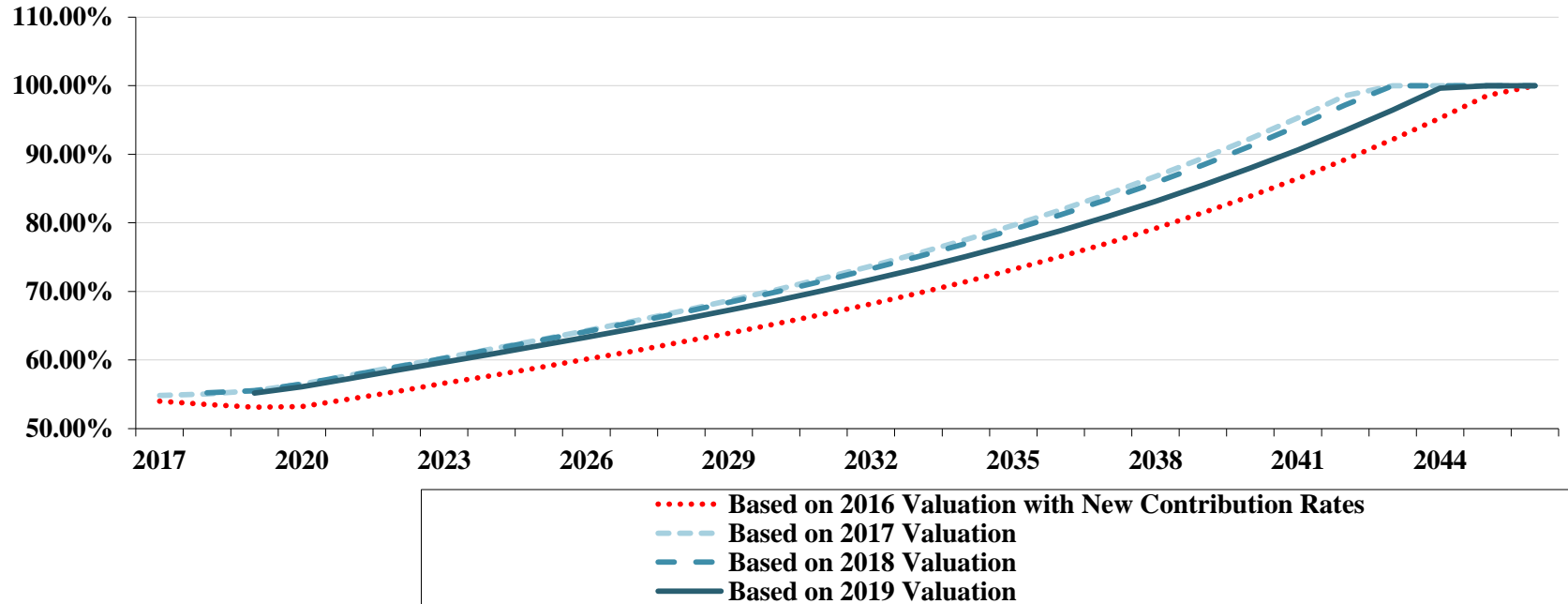
- Salaries for Police and Fire have grown by 1% more than the assumption for the last decade
 - 3.5% per year more over the last 5 years
- If the current salary scale assumption was raised by the 1%, the funding period would exceed 30 years and the total projected employer contributions to amortize the UAAL would increase by \$2.3B (just for Police and Fire)
- Total compensation for this group is projected to be \$520m in FY20

History of Funded Ratio



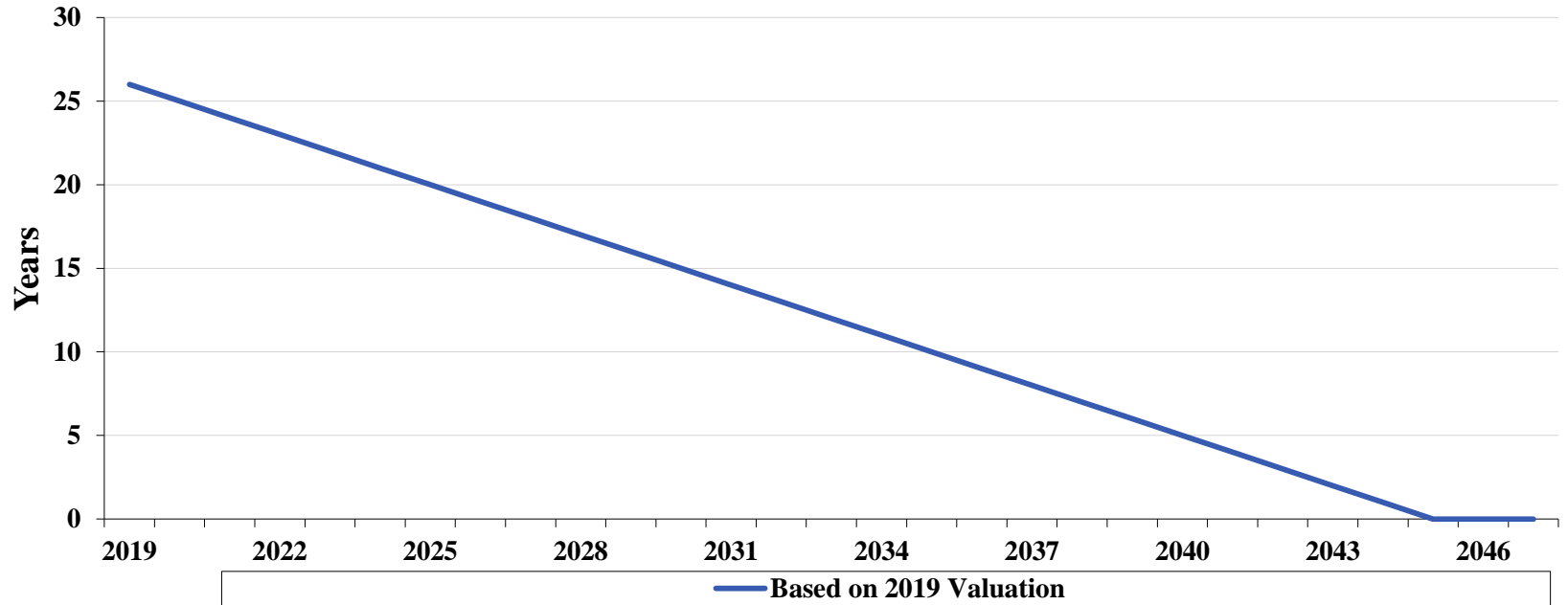
Funded Ratio is Actuarial Value of Assets divided by Actuarial Accrued Liabilities

Projection of Funded Ratio from 2019 Valuation



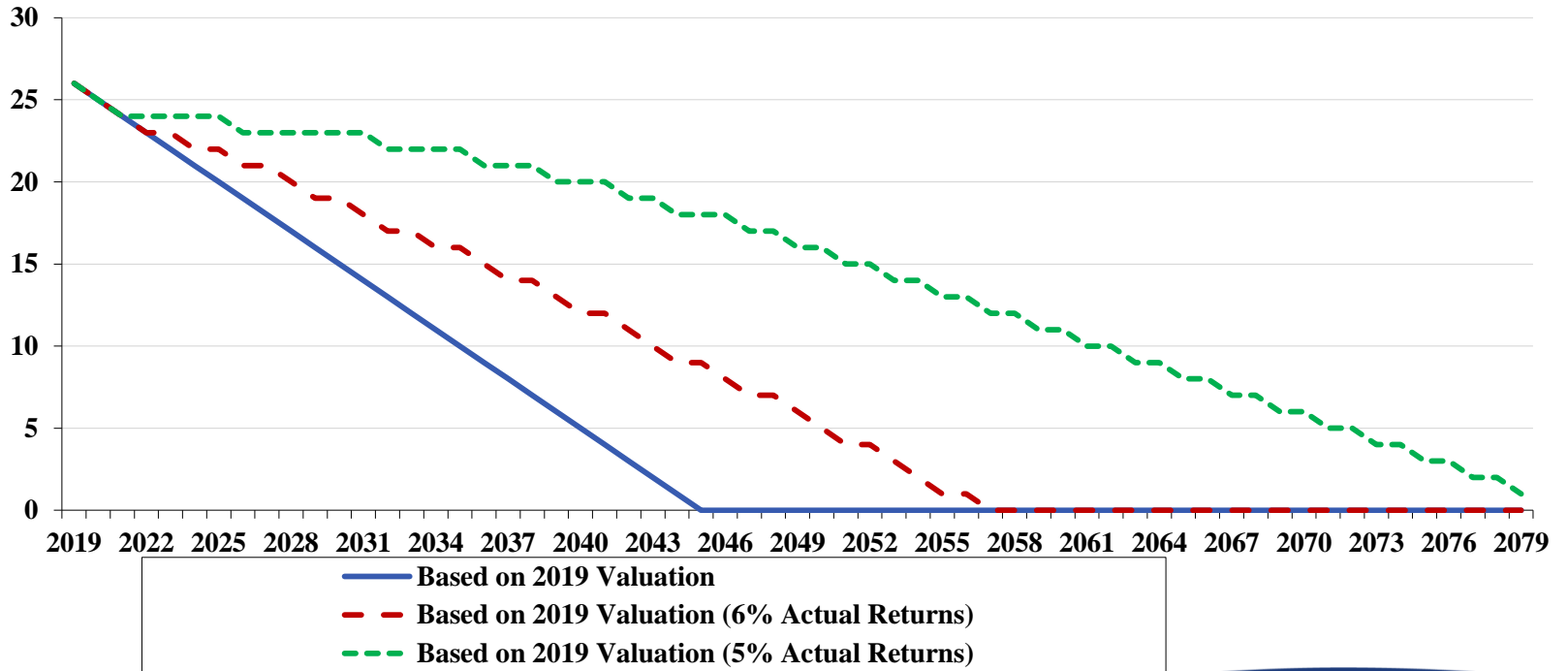
Assumes all assumptions met, including a 7.00% return each year on the current *smoothed* value of assets

Projection of Funding Period from 2019 Valuation



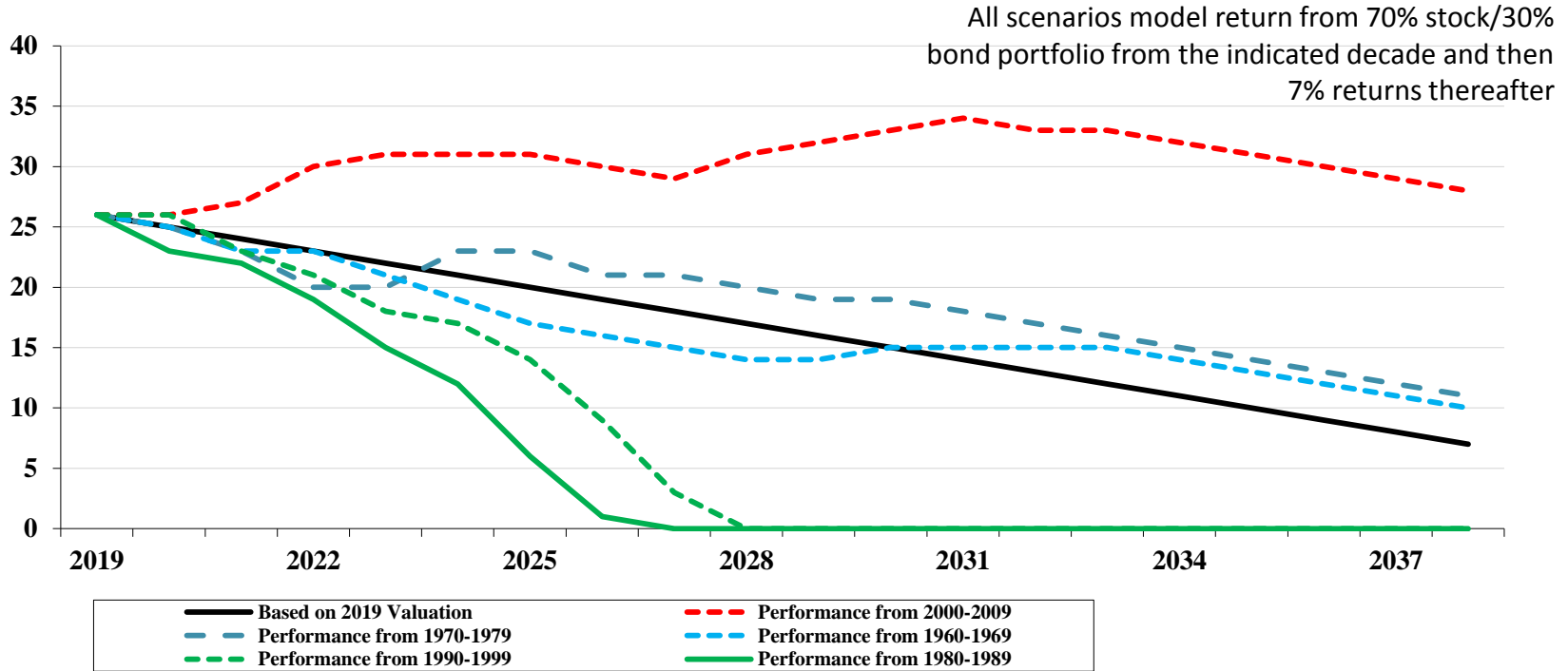
Assumes all assumptions met, including a 7.00% return each year on the current *smoothed* value of assets

Projection of Funding Period Sensitivity from Investment Returns



Projection of Funding Period

Historical Scenarios



Stress Test Summary

- Actuarial valuation results show System is on target to be fully funded in less than 30 years
 - Primarily due to legislated employer contribution increases
- Stress test shows that System is sustainable in a low return environment
 - Although date of achieving full funded status would be extended

Valuation Summary

- While it does not show in the current UAAL and funded ratio, the current actuarial assumptions and the contribution commitment from Act 17 (SB 936) have materially strengthened the outlook for ERS
- The scheduled employer contribution rates are expected to be adequate to satisfy Hawaii Revised Statutes §88-122(e)(1), even with substantial adverse experience
- However, all of the positive outlook assumes the scheduled increases in contribution rates occur and investment income objectives are achieved. It is imperative that the currently scheduled funding strategies are implemented and sustained.
- UAAL is anticipated to grow until contribution rates are fully phased-in and funding period reaches 20 years (approximately 2025).