

Andover Contributory Retirement System

Preliminary Results of the January 1, 2023 Actuarial Valuation

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Purpose of Valuation

- Periodic review of system experience
 - Updated Census Data
 - Develop Liabilities
 - Updated Assets
- Review assumptions and methods
 - Appropriate
 - Consistent
 - Reasonable
 - Conform to Actuarial Standards of Practice (ASOPs)
- Develop annual appropriations
- Adopt new funding schedule
- Determine cost for various benefit options



Key Findings

- **Funded Status** changed from 46.9% as of January 1, 2021 to
 - 94.9% before assumption changes – primarily due to Pension Obligation Bond (POB) issue
 - 95.6% after recommended assumption changes - increased
- **Market Value of Assets (MVA)**
 - Return for 2021 (19.22%) exceeded expectations (5.75%)
 - Return for 2022 (-8.71%) did not meet expectations (5.75%)
 - \$34m asset loss on MVA during 2-year period
- **Actuarial Value of Assets (AVA)**
 - AVA is an asset smoothing method
 - 5.75% expected
 - 2021 and 2022 gains phased-in at 20% per year
 - \$6.1m asset gain on AVA during 2-year period
- **Demographic experience gain of \$2.6m**
 - **Losses**
 - New entrants with past service
 - Inactive ASF not paid
 - One-time additional 2% COLA effective July 1, 2022
 - **Gains**
 - Pre-retirement decrements
 - Salary increases
 - More retiree deaths than expected



System Assets and Returns

(in millions)

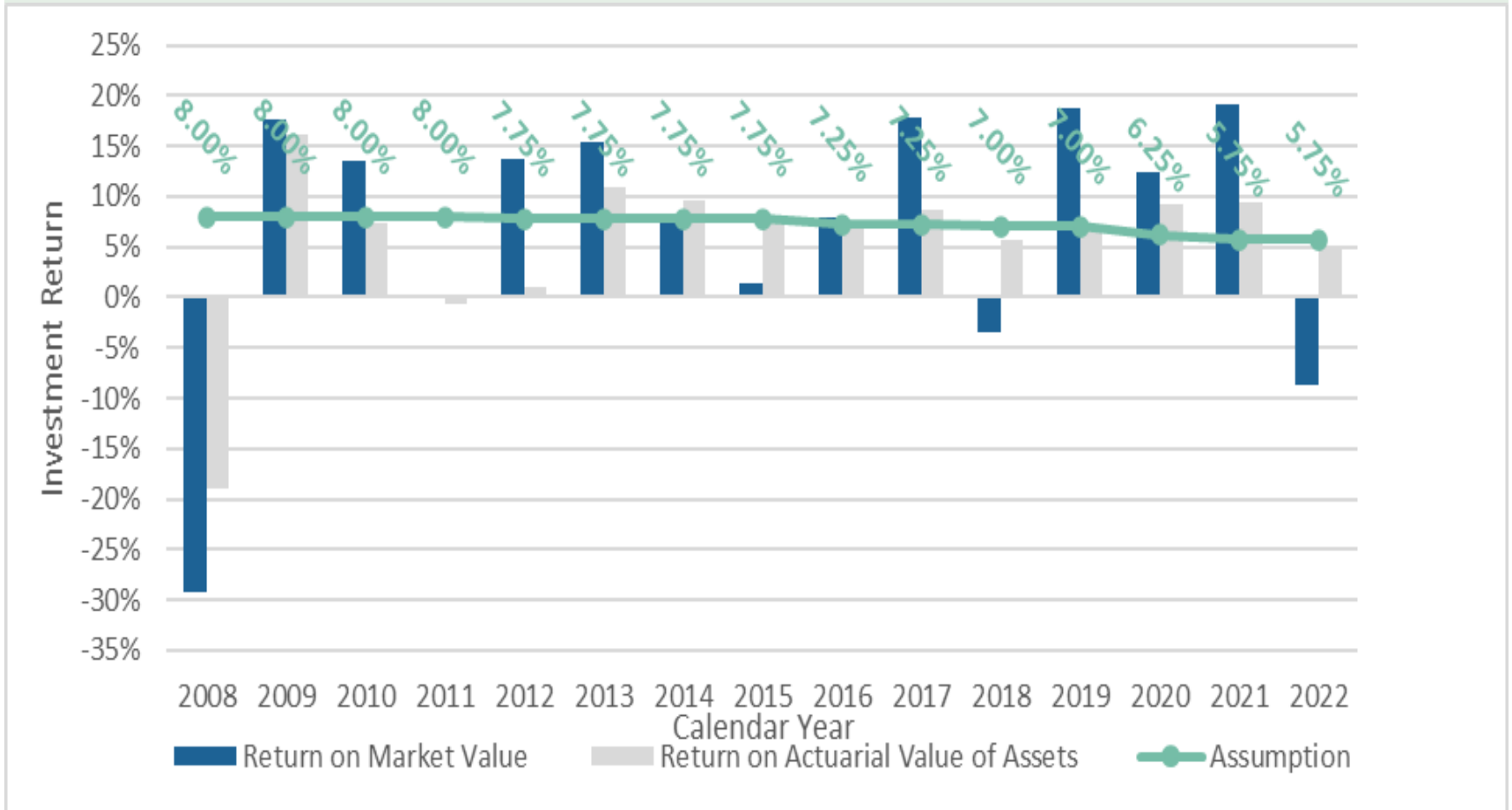
Calendar Year	2022	2021	2020	2019
Market Value of Assets (MVA)	\$343.5	\$384.3	\$183.6	\$162.2
Market Value of Assets Return	-8.71%	19.22%	12.42%	18.72%
Gain/(Loss) – recognized over five years	-\$55.0	\$21.0	\$9.2	\$15.3
Actuarial Value of Assets (AVA)	\$368.2	\$359.0	\$170.8	\$154.5
Actuarial Value of Assets Return	4.75%	9.37%	9.28%	7.22%
AVA as Percentage of MVA	107.2%	93.4%	93.1%	95.2%

AVA is the MVA adjusted to phase-in investment gains and losses over a 5-year period, further constrained to be within 15% of the MVA. Investment gains and losses are the excess or deficiency of the expected returns over the actual returns.



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Historical Rates of Return



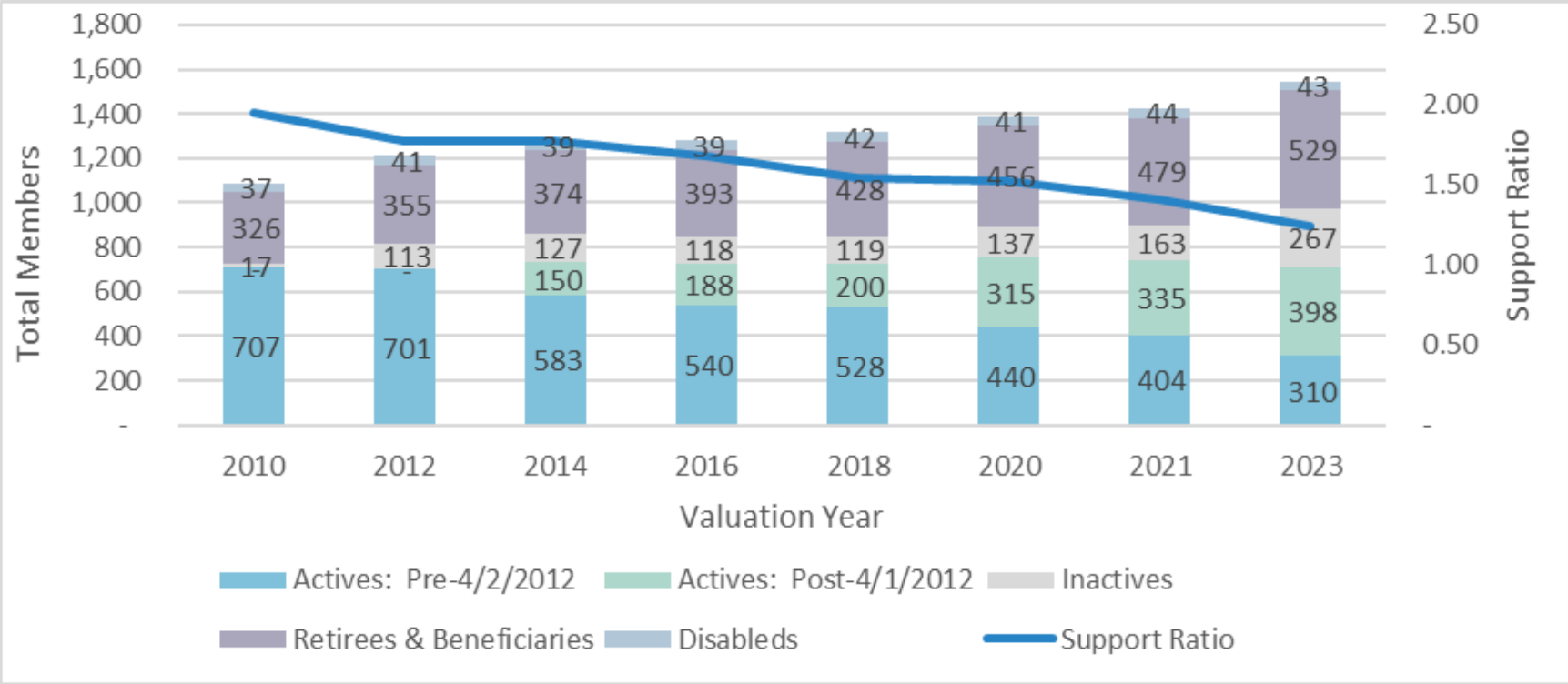
Membership

Valuation Date	January 1, 2023	January 1, 2021	Change
Active Members	708	739	(4.2%)
Retired Members & Beneficiaries	529	479	10.4%
Disabled Members	43	44	(2.3)%
Inactive Members	267	163	63.8%
Total Annual Salary	\$48,569,864	\$45,838,583	6.0%
Annual Pensions*	\$18,796,258	\$16,571,794	13.4%
Average Pensions	\$32,861	\$31,686	3.7%

* Includes State reimbursed COLAs and 5% COLA adjustment effective July 1, 2022.



Historical Membership Counts



- Tier 1 average service is 21.18 years
- Tier 2 average service is 4.12 years



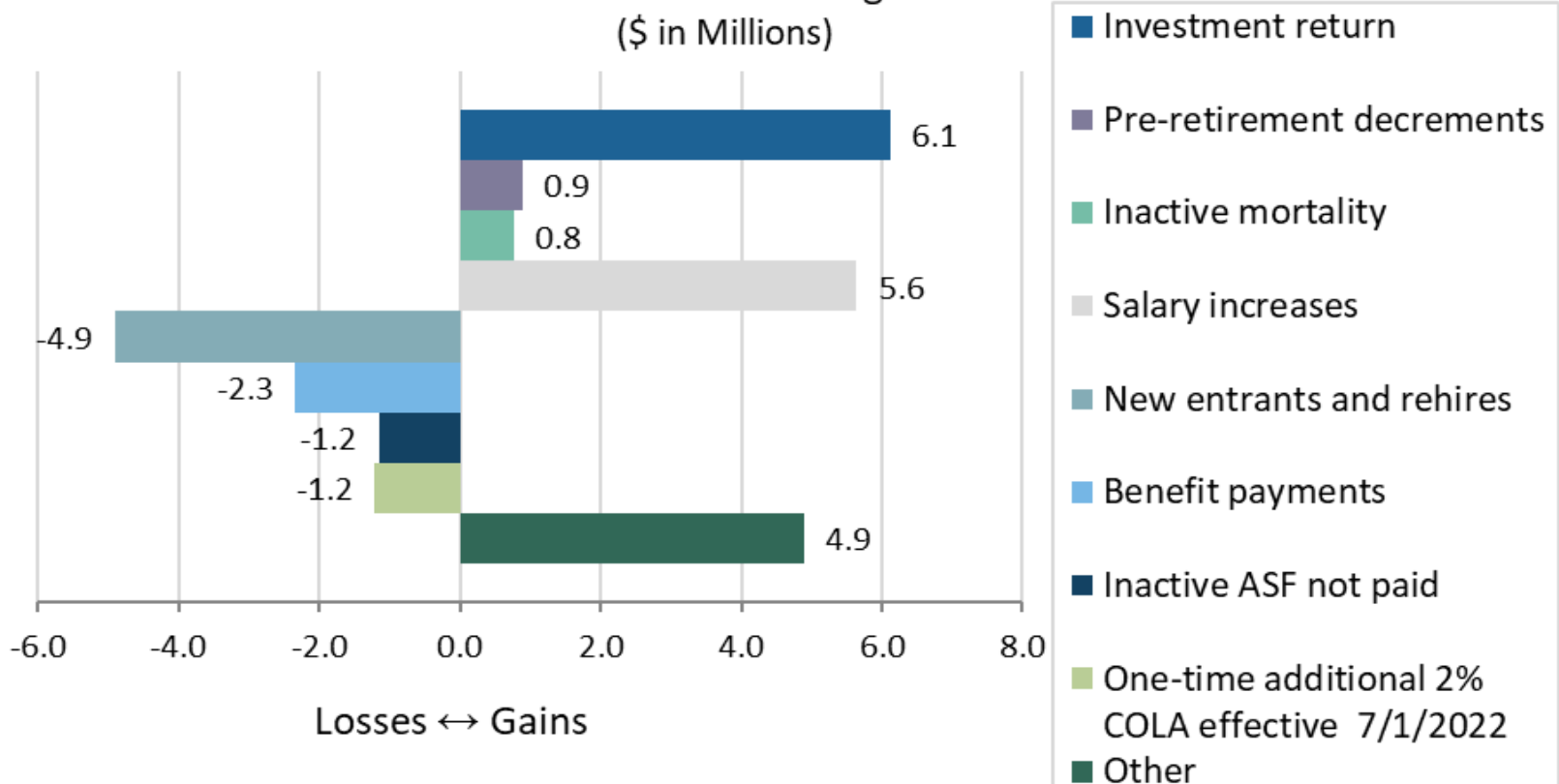
Plan Provisions

- Same as 2021 valuation, except for COLA Base
 - July 1, 2022 - \$12,000 to \$13,000
 - July 1, 2022 - one-time COLA of 5%
 - approved under the recently enacted Chapter 269 of the Acts of 2022
 - Up to the COLA base of \$13,000
 - July 1, 2023 - \$13,000 to \$14,000
 - Chapter 176 of the Acts of 2011 continues to be reflected
 - Changes eligibility and benefit provisions for members hired after April 1, 2012
 - Impacts benefits for 398 current members
 - Normal Cost is lower for these members



Sources of Gains and Losses

Sources of Gains and Losses During Two-Year Period
(\$ in Millions)



Prior Assumptions

- Investment Return
 - 5.75%
- Salary Scale
 - 6%-4.25%, varies by service – Groups 1 and 2
 - 7%-4.75%, varies by service – Group 4
- Payroll Growth
 - 3.50% per year
- Expenses
 - \$310,000 (FY2022) added to normal cost
 - Increases 3.50% per year
- Net 3(8)(c) Transfers
 - \$0 per year
- Mortality
 - RP-2014 Blue Collar Healthy Annuitant Mortality Table and projected generationally with Scale MP-2018
 - For disabled members, RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year and projected generationally with Scale MP-2018



Mortality Rates Assumption

- Current Assumptions
 - Healthy Lives: RP-2014 Blue Collar Healthy Annuitant Mortality Table projected generationally using Scale MP-2018
 - Disabled Lives: RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year projected generationally using Scale MP-2018

- Results

Status	Expected Deaths	Actual Deaths	Ratio Expected to Actual
Healthy lives	27.11	30	0.90
Survivors	10.25	10	1.03
Disabled	2.37	6	0.40
Total	39.73	46	0.86

- Recommendation
 - Healthy Lives: RP-2014 Blue Collar Healthy Annuitant Mortality Table projected generationally using **Scale MP-2021**
 - Disabled Lives: RP-2014 Blue Collar Healthy Annuitant Mortality Table set forward one year projected generationally using **Scale MP-2021**



Salary Scale and Pay Growth Assumptions

- Current Salary Scale Assumption
 - Groups 1 and 2: 6% increase in year 1 of service grading down to 4.25% increase for 9+ years of service
 - Group 4: 7% increase in year 1 of service grading down to 4.75% increase for 6+ years of service
- Current Pay Growth Assumption – 3.50%
- Salaries were lower than expected this valuation

Valuation Year	Expected Salary	Actual Salary	Ratio Expected to Actual
2023	\$37.78m	\$36.89m	1.02
2021	\$41.81m	\$42.52m	0.98

- Recommendation
 - No change to salary scale assumption and revisit next valuation when more data is available
 - No change to pay grown assumption



Administrative Expense Assumption

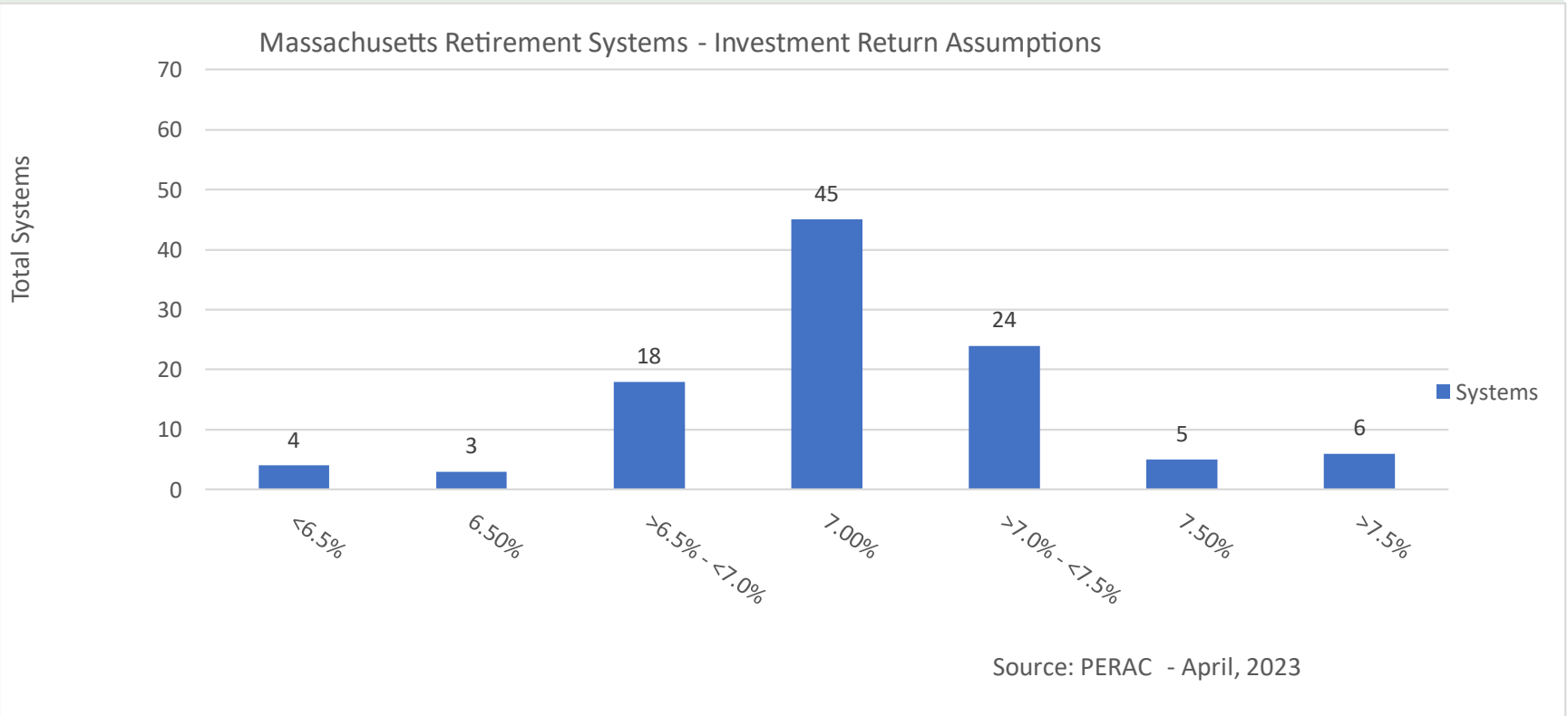
- Current Assumption
 - Administrative expenses, excluding management and investment consultant fees
 - \$310,000 for FY2022, increasing at 3.5% per year
- Results
 - Administrative Expenses have consistently increased by more than 3.5% over the last three years
 - Annual increases averaged about 5.5% per year since 2017

Year	Expenses	Increase
2022	349,610	9.7%
2021	318,808	7.3%
2020	297,035	3.6%
2019	286,738	-3.0%
2018	295,608	10.6%
2017	267,297	--

- Recommendation
 - Increase administrative expenses to \$400,000 for calendar year 2023
 - No change to annual increases at 3.5% per year



Distribution of Investment Return Assumption



73 valuations as of January 1, 2022
 31 valuations as of January 1, 2021
 1 valuation as of January 1, 2019

105 total Retirement Systems



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Investment Return Assumption

Sources of Expected Returns	2022-23	2021-22	2020-21
NEPC 30-Year PRIT Fund Expected Return	7.70%	6.90%	6.80%
NEPC 10-Year PRIT Fund Expected Return	7.00%	5.70%	5.80%
Commonwealth Assumption (PERAC)	7.00%	7.00%	7.00%
PERAC Recommended Range	6.75%-7.15%	6.75%-7.15%	6.75%-7.15%
PERAC Reasonable Range	6.00%-7.35%	6.00%-7.35%	6.00%-7.45%
Horizon Actuarial Survey	2022	2021	2020
10-Year horizon	5.63%	5.38%	5.84%
20-Year horizon	6.29%	6.25%	6.66%
NASRA Survey – National State, Teacher and City Plans	March 2023	March 2022	March 2021
Average return assumption	6.93%	7.19%	7.18%
Recommendation: Keep investment return assumption at 5.75%			



Terminated Vested Assumption

- Current Assumption
 - 50% of Terminated employees with 10 or more years of service assumed to commence benefits at age 55 (Group 1 and 2) and age 45 (Group 4)
 - 50% of Terminated employees with 10 or more years of service assumed eligible for refund
 - Terminated employees with fewer than 10 years of service assumed eligible for refund
- Recommendation
 - No change to current assumption

Recommended Assumptions

- Mortality Improvement Scale updated to PERAC standard
- Salary Scale
 - No change - PERAC standard
 - 6%-4.25%, varies by service – Groups 1 and 2
 - 7%-4.75%, varies by service – Group 4
- Payroll Growth – no change - 3.5%
- Administrative Expenses
 - Increase to \$400,000 for calendar year 2023, increasing at 3.5%
- 3(8)(c) Transfers
 - No change - \$0
- Investment Return
 - No change - 5.75%



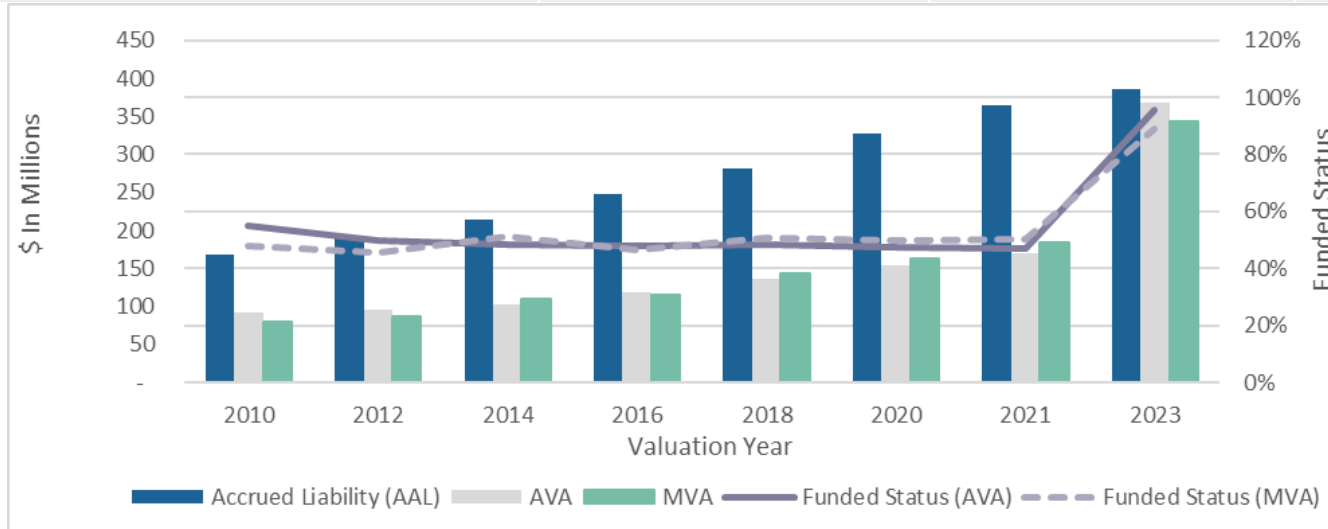
Impact of Benefit and Assumption Changes Since Last Valuation

- Administrative expenses increased to \$400,000 (calendar 2023)
 - Increases normal cost by approximately \$70,000
- \$13,000 (July 1, 2022) and \$14,000 (July 1, 2023) COLA base
 - Increases accrued liability by \$3.8m
 - Increases normal cost by \$77,200
- 5% COLA applied to retiree benefits (July 1, 2022)
 - Increases accrued liability by \$1.2m
- Demographic assumption changes
 - Update mortality improvement scale from MP-2018 to MP-2021
 - Decreases accrued liability by \$2.6m
 - Decreases normal cost by \$31,000



Funding Progress

Valuation Date	January 1, 2023	January 1, 2021	Change
Actuarial Accrued Liability (AL)	\$385.2	\$364.3	5.7%
Actuarial Value of Assets (AVA)	368.2	170.8	115.5%
Unfunded Actuarial Liability (UAL)	\$17.0	\$193.5	-91.2%
Funded Status = AVA/AL	95.6%	46.9%	103.9%



Historical Appropriations

Fiscal Year	Appropriation	Increase over Prior Year
2024	7,297,628	13.78%
2023	6,414,037	-50.77%
2022*	13,029,857	8.35%
2021*	12,025,710	7.20%
2020*	11,218,013	7.20%
2019	10,464,565	10.00%
2018	9,513,240	10.00%
2017	8,648,400	8.00%
2016	8,007,778	23.41%
2015	6,488,683	

*amounts shown above do not include additional contributions made by the Town or the 2022 Pension Obligation Bond \$165 million issue



Pension Obligation Bond

- In 2021, the Town began exploring the possibility of issuing Pension Obligation Bonds (POB)
 - Projected contributions estimated to increase over 18 years from \$13m to \$47m
 - POB payments replace Retirement System appropriations needed to fully fund UAAL by 2040
- Town issued \$165m of POB debt
 - 2.75% true interest cost (TIC)
 - Appropriations expected to decrease due to issuance of POB
 - \$7.6m reduction in FY2023 appropriation (from \$14.0m to \$6.4m)
 - With the issuance of the POB, a revised funding schedule was prepared
 - FY2024 appropriation is \$7.3m
 - Based on January 1, 2021 valuation

Andover Housing Authority

- The Andover Housing Authority (AHA) did not receive any proceeds from the POB
 - Funded status for AHA is approximately 50% versus 95% for all other units that benefitted from the POB
- Developed market value of assets (MVA) for AHA from cash flows provided by the Retirement System
 - Additional contributions made in FY2021 separately accounted for
 - Remaining assets (including POB proceeds) allocated between all other units based on AAL at January 1, 2023
 - Actuarial value of assets (AVA) for each unit calculated based on MVA allocation and used to determine funding status
- Funding schedules broken out between AHA and all other units
 - Longer full funding periods needed for AHA to avoid large year over year increases than for all others due to large discrepancy in funded status
 - Funding schedules cap AHA increase at 7.37% (same cap as prior valuation), but high funded status of other units allows for smaller cap for them



FY2025 Appropriation

- Funding Schedule B-2
- Annual Appropriations Equal the sum of:
 - Employer Normal Cost (includes expenses)
 - Amortization Payment to fully fund UAL by 2040
- Total Normal Cost increases annually by assumed payroll growth of 3.5%
 - Employer Normal Cost is Total Normal Cost offset by Expected Employee Contributions
- UAL payments increase by 4% per year
- Annual appropriations capped at 7.37%
- B-2 includes mortality assumption change

Employer Normal Cost	\$5,684,984
Amortization Payment	\$2,150,482
Total FY2023 Appropriation	\$7,835,466
FY2022 Appropriation	\$7,297,628

Funding Schedule Scenarios

Schedule	UAAL (\$m)	LTRR	Full Funded AHA/All Others	FY2025 Increase AHA/All Others	Comments
A-1	\$19.60m	5.75%	2040	9.12%/-3.18%	Includes \$13,000 COLA Base effective July 1, 2022 Includes \$14,000 COLA Base effective July 1, 2023 Includes 5% COLA effective July 1, 2022
B-1	\$16.98m	5.75%	2040	7.72%/-6.49%	Mortality Improvement Scale updated
B-2	\$16.98m	5.75%	2037/2030	7.37%/7.37%	Shorten FF Date for Housing Authority and All Others, 7.37% Annual Increase for Housing Authority and All Others
B-3	\$16.98m	5.75%	2037/2032	7.37%/5%	Housing Authority 7.37% Increase, Housing Authority FF Date 2037, All Others FF Date 2032, All Others 5% Increase
B-4	\$16.98m	5.75%	2037/2033	7.37%/3.5%	Housing Authority 7.37% Increase, Housing Authority FF Date 2037, All Others FF Date 2033, All Others 3.5% Increase



Changes to Assumptions and Methods for Consideration

- Maintain current schedule
- Shorten or lengthen period UAL is fully funded
 - If on or before 2030, payments can increase up to 4.5%
 - If after 2030, payments can not increase more than 4%
 - PERAC recommends 2035 and earlier
- Limit annual increases for specified period of time



Action Plan

- Discuss alternative assumptions
- Develop appropriation for FY2025
- Select Funding Schedule
- Finalize January 1, 2023 Valuation Report
- Prepare December 31, 2022 GASB 67/68 reports – based on January 1, 2023 valuation
- Other considerations?

