**VERMONT STATE TEACHERS' RETIREMENT SYSTEM**
Meeting of the Board of Trustees – Conference Call, Treasurer's Conference Room
**October 19, 2023 – 2:00 p.m.**

Please note all members participated via telephone, video, or teleconference:

**Members present**:
JON HARRIS, Chairperson, VREA representative, term expiring July 1, 2024
ERIN CARTER, Vice-Chairperson, Active Member Representative, term expiring July 1, 2027
MIKE PIECIAK, VT State Treasurer
GENEVIEVE HAMBY, Active Member Alternate Representative, term expiring July 1, 2025
PERRY LESSING, VREA Alternate Representative, term expiring July 1, 2024
DANIEL RADDOCK, Financial Regulation Representative
EMILY SIMMONS, representing Secretary of Agency of Education
SANDRA MINGS-LAMAR, Active Member Representative, term expiring July 1, 2025

**Also attending**:
Tim Duggan, Director of Retirement, Office of the State Treasurer
Nicole Weidman, Director of Retirement Operations and Policy, Retirement Division
Justin St. James, General Counsel, Office of the State Treasurer
Stephen Barry, Administrative Services Manager, Retirement Division
Colin Robinson, Political Director, Vermont NEA
Jeramiah Breer, Chief Financial Officer, Vermont State Treasurer's Office
Scott Baker, Director of Financial Reporting, Vermont State Treasurer's Office
Kathleen Riley, Segal Consulting
Matthew Strom, Segal Consulting
Austin Miller, Segal Consulting
Patryk Tabernacki, Segal Consulting

The Chair, Jon Harris, called the Thursday, October 19, 2023, Board meeting to order at 2:01 p.m. which was held by conference call.

**ITEM 1: Agenda approval and announcements**

**On a motion made by Ms. Mings-Lamar, seconded by Mr. Pieciak, the Board voted unanimously to approve the agenda.**

**ITEM 2: Approve the Minutes of:**

- October 12, 2023

**On a motion made by Ms. Simmons, seconded by Mr. Pieciak, the Board voted unanimously to approve the minutes of October 12, 2023 as presented.**

**ITEM 3: VSTRS 2023 Actuarial Valuation**

Segal Consulting presented the 2023 Actuarial Valuation for the Vermont State Teachers'

Retirement System. The slide deck used is appended to these minutes and the link to the valuation can be found below.

Discussion centered on the effect of investment returns on the Market Value of Assets and the Actuarial Value of Assets in the plan. Mr. Lessing raised questions about the smoothing method and its effect on how gains and losses are recorded year to year. Ms. Riley and Mr. Strom explained that there are different methods of smoothing with various levels of complexity and that Segal could research how these different methods would affect experience if the Board desired.

**On a motion made by Mr. Pieciak, seconded by Ms. Mings-Lamar, the Board voted unanimously to accept the 2023 VSTRS Actuarial Report as presented by Segal Consulting.**

**On a motion made by Mr. Pieciak, seconded by Ms. Simmons, pursuant to 16 V.S.A. § 1944(c)(13), the Board voted unanimously to certify the FY25 actuarially determined employer contribution (ADEC) of $201,182,703, and the additional required FY25 payment of $12,000,000.**

**On a motion made by Mr. Pieciak, seconded by Mr. Simmons, pursuant to 16 V.S.A. § 1942(r), the Board voted unanimously to recommend to the Governor and General Assembly that a the ADEC of $201,182,703 be fully funded and appropriated in the next fiscal year in order to achieve and preserve the financial integrity of the fund, and that the additional required FY25 payment of $12,000,000 also be fully funded and appropriated.**

Link: 2023 VSTRS Actuarial Valuation

**ITEM 4:** **Any other business and adjournment**

**On a motion made by Mr. Pieciak, seconded by Ms. Carter, the Board voted unanimously to adjourn at 3:15 p.m.**

**Next Meeting Date:**

The next VSTRS Board meeting is on November 8, 2023 at 9:00 a.m.

Respectfully submitted,

Stephen Barry
Secretary to the Board

Vermont State Teachers' Retirement System

# Actuarial Valuation as of June 30, 2023

**October 19, 2023**

Kathy Riley / Matt Strom / Patryk Tabernacki / Austin Miller

*This document has been prepared by Segal for the benefit of the Board of Trustees of the Vermont State Teachers' Retirement System and is not complete without the presentation provided at the October 19, 2023, meeting of the Board of Trustees.*

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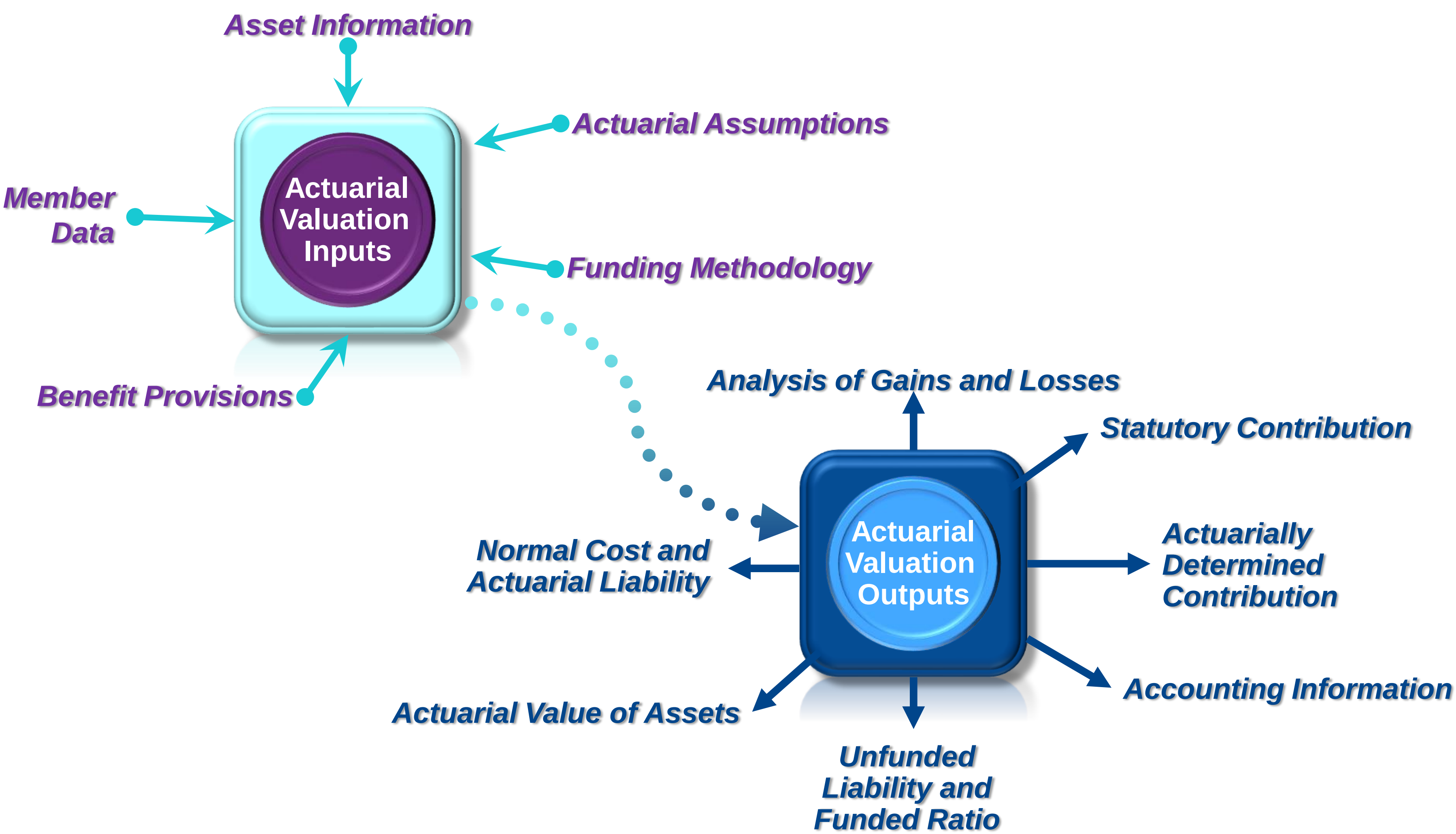
Segal

# Agenda

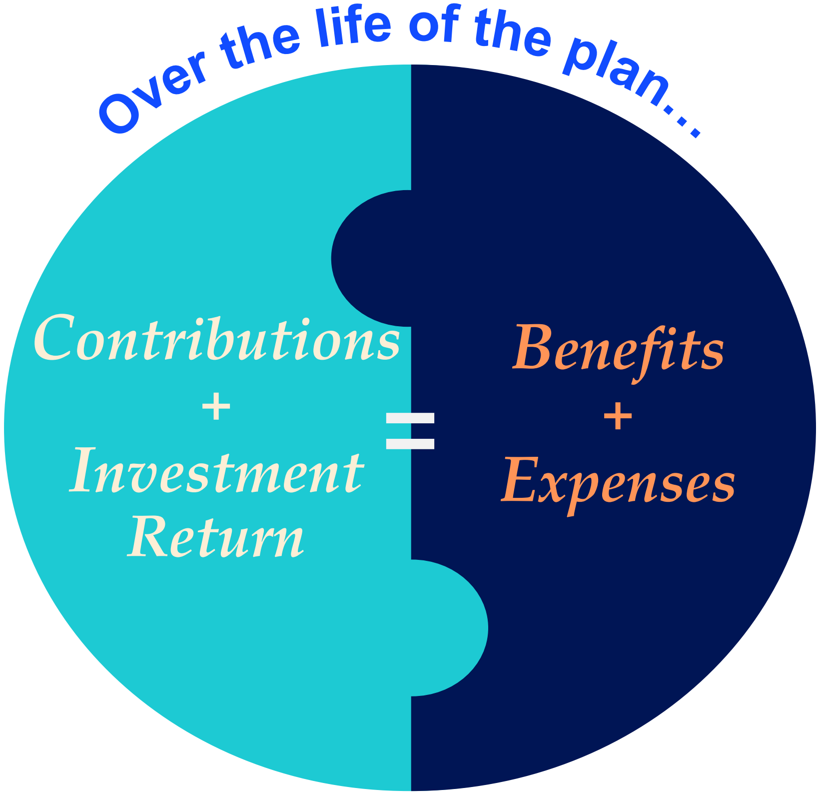
**Overview of Valuation Process**

**Valuation Results and Projections**

# The Valuation Process



# Actuarial Balance




Or: *Contributions* = *Benefits* + *Expenses* – *Investment Return*

# Actuarial Assumptions

## Demographic

- Retirement
- Disability
- Death in active service
- Withdrawal
- Death after retirement

## Economic

- Inflation – 2.30%
- Investment return – 7.00%
- Salary increases – 8.5% for new members to 3.0% for members age 67+
- COLA* – 2.30% for Group A members; 1.20% for Group B and Group C members

Actuaries make assumptions as to when and why a member will leave active service and estimate the amount and duration of the pension benefits paid.

*The January 1, 2024, COLA is expected to be 2.20% for Group A members and 1.10% for Group B and Group C members.

# Actuarial Methods

### Asset Valuation Method

- Investment gains and losses recognized over a number of years
- VSTRS recognizes 20% of the difference between expected and actual returns in the current year
- A 20% market value corridor is applied – actuarial value of assets must fall within 80% to 120% of market value

### Actuarial Cost Method

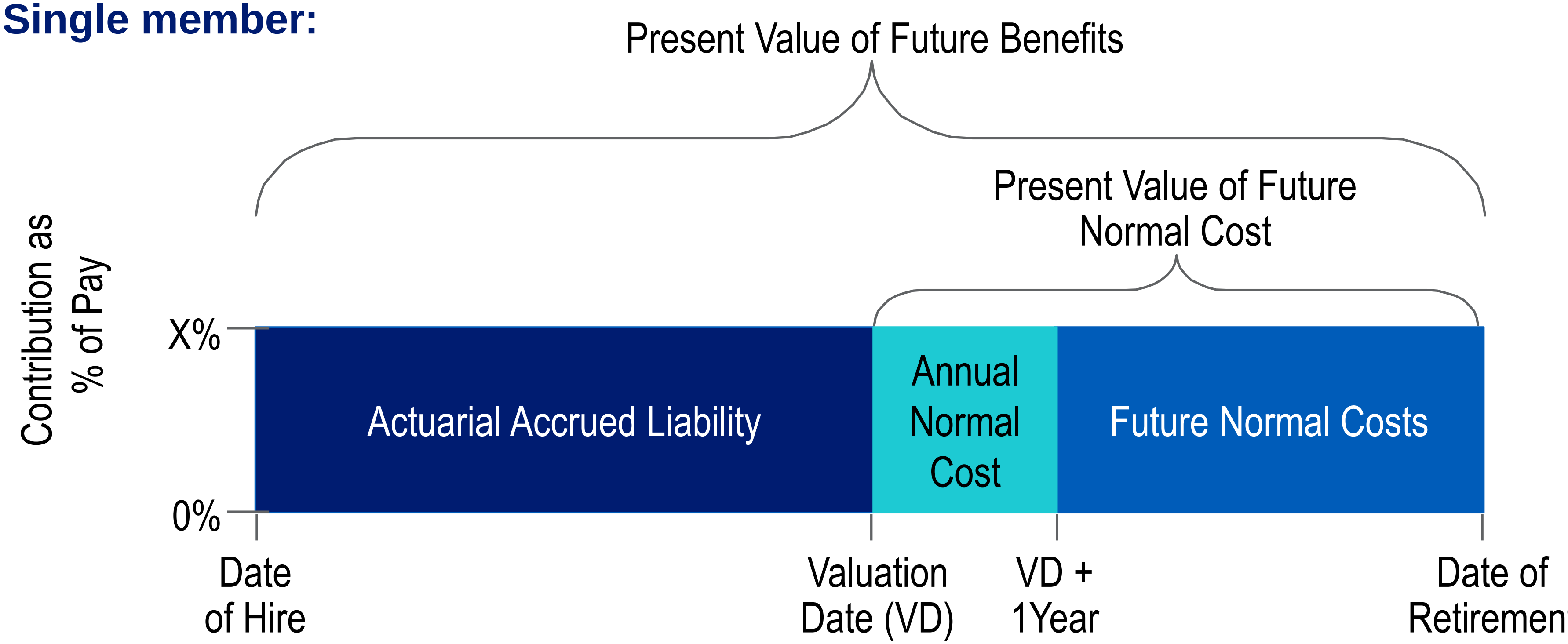
- Allocation of liability to past and future service
- VSTRS uses the entry age normal cost method
  - Allocates cost of member's retirement benefit over expected career as a level % of salary
  - Most common cost method among public sector retirement systems
  - Required by GASB for financial statement reporting purposes

### Amortization Method

- Relies on two inputs:
  - Number of years to amortize the UAL
  - Level dollar or level percentage of payroll approach
- VSTRS' amortization method:
  - Closed period ending on June 30, 2038
  - 15 years remaining
  - Payments calculated to increase by 3% per year

# Funding Process

**Single member:**

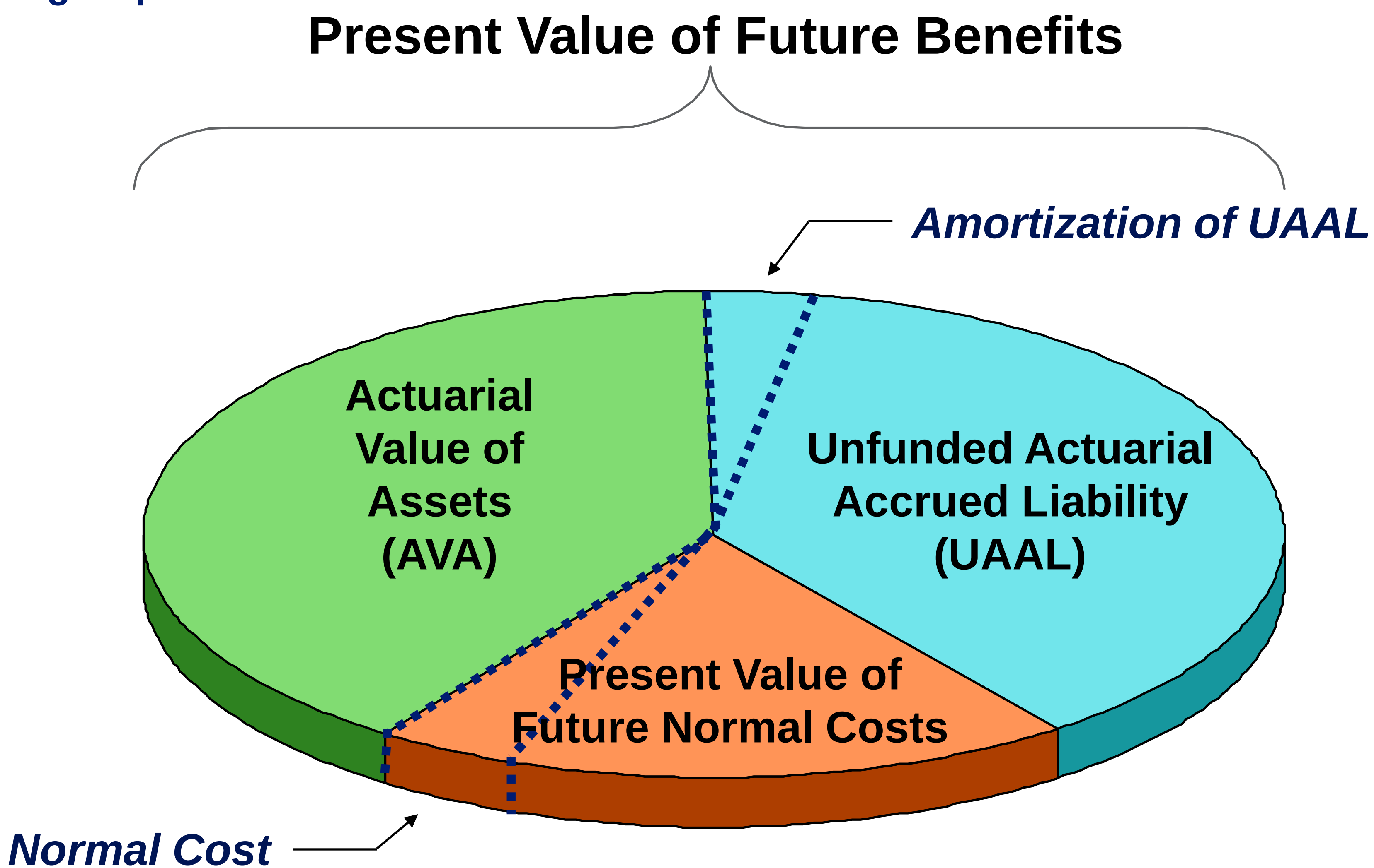



## Entry Age cost method: Allocates cost between past and future service

- **Normal Cost:** Cost of annual benefit accrual as a level percent of salary
- **Actuarial Accrued Liability:** Represents accumulated value of past normal costs (or difference between total cost and present value of future normal costs)
- **Unfunded Actuarial Accrued Liability:** Actuarial accrued liability minus actuarial value of assets

# Actuarially Determined Contribution

**Entire group:**




Segal

# Summary of Valuation Highlights

## June 30, 2023, Actuarial Valuation

- The return on the market value of assets for the year ending June 30, 2023, was **7.76%***
  - Gradual recognition of deferred losses resulted in **6.12%** return on the actuarial value of assets
- Act 114 included changes that impacted member contributions beginning in FY23
  - Contribution rates that vary between 6.00% and 6.65% based on salary
- The Board approved changes to actuarial assumptions effective June 30, 2023
  - Changes resulted in a net decrease in actuarial liability of **$22.4 million**
- Funded ratio (actuarial basis) increased from 57.28% (as of 6/30/2022) to **59.30%**
- Net impact on the preliminary contribution requirement was a decrease from 26.05% of payroll to **25.41%** of payroll
  - In terms of dollars, the preliminary contribution requirement increased from $191.6 million for fiscal 2023 to $197.8 million for fiscal 2024
- The estimated fiscal 2025 contribution for budget purposes is **$201.2 million**

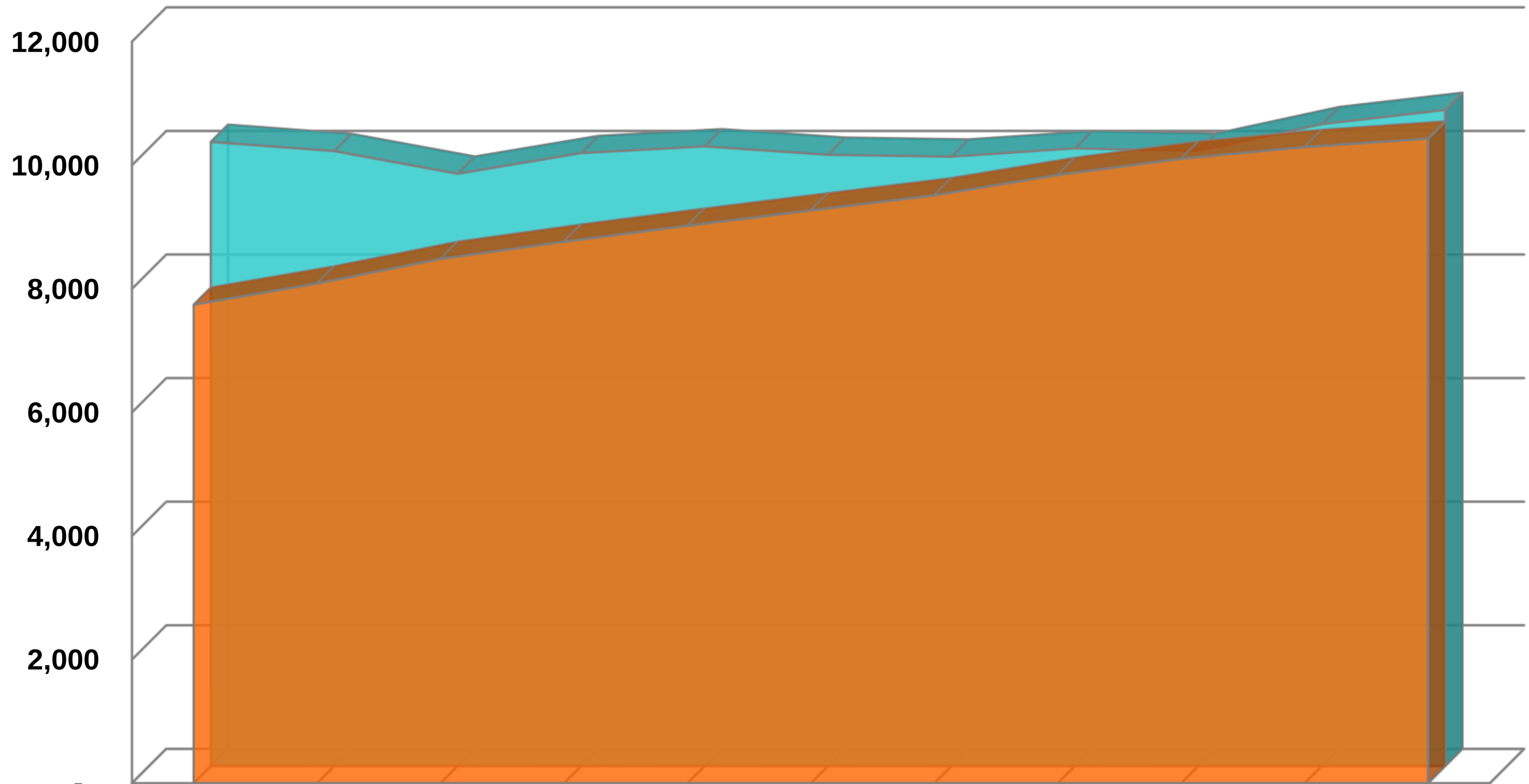
* Based on Segal calculation, which may differ slightly from the rate determined by the VPIC Investment Advisor for various reasons (e.g., cash flow timing)

# Membership

## Membership information as of June 30

| | 2023 | 2022 | Change |
|---|---|---|---|
| **Actives** | | | |
| • Number | 10,618 | 10,387 | +2.2% |
| • Payroll (annualized) | $743.0 mil | $701.6 mil | +5.9% |
| • Average Age | 45.4 years | 45.2 years | +0.2 years |
| • Average Service | 12.0 years | 12.1 years | −0.1 years |
| **Retirees and Beneficiaries** | | | |
| • Number | 10,431 | 10,295 | +1.3% |
| • Total Annual Benefits | $246.9 mil | $235.4 mil | +4.9% |
| • Average Monthly Benefit | $1,973 | $1,906 | +3.5% |

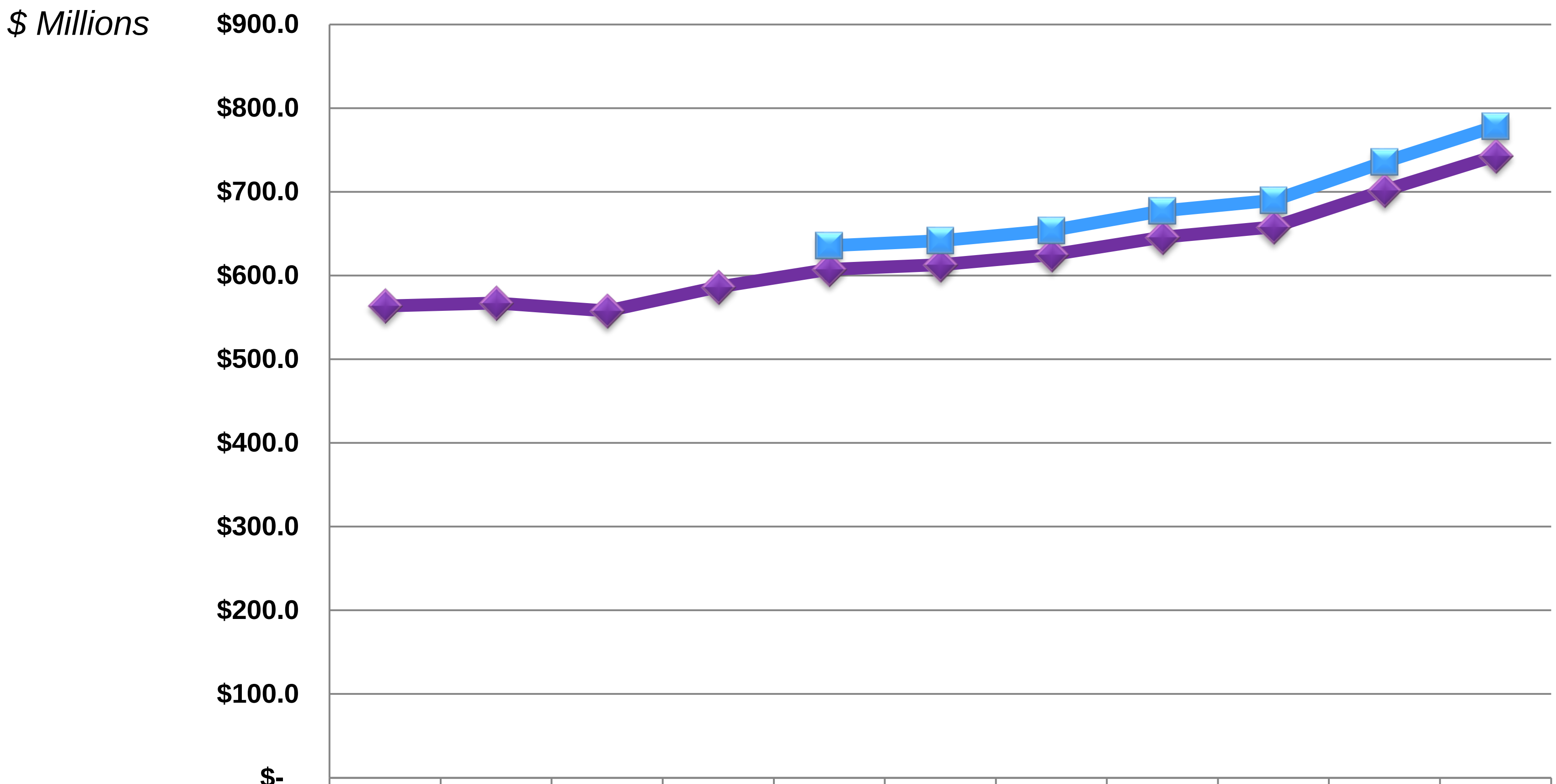
# Active and Retired Membership




| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Retired Members | 7,743 | 8,086 | 8,484 | 8,763 | 9,021 | 9,269 | 9,514 | 9,843 | 10,106 | 10,295 | 10,431 |
| Active Members | 10,101 | 9,952 | 9,585 | 9,919 | 10,028 | 9,892 | 9,862 | 9,996 | 9,955 | 10,387 | 10,618 |

Active membership increased to a peak of 10,799 in 2009.
The active count in 2023 is close to reaching that level again.

# Active Payroll

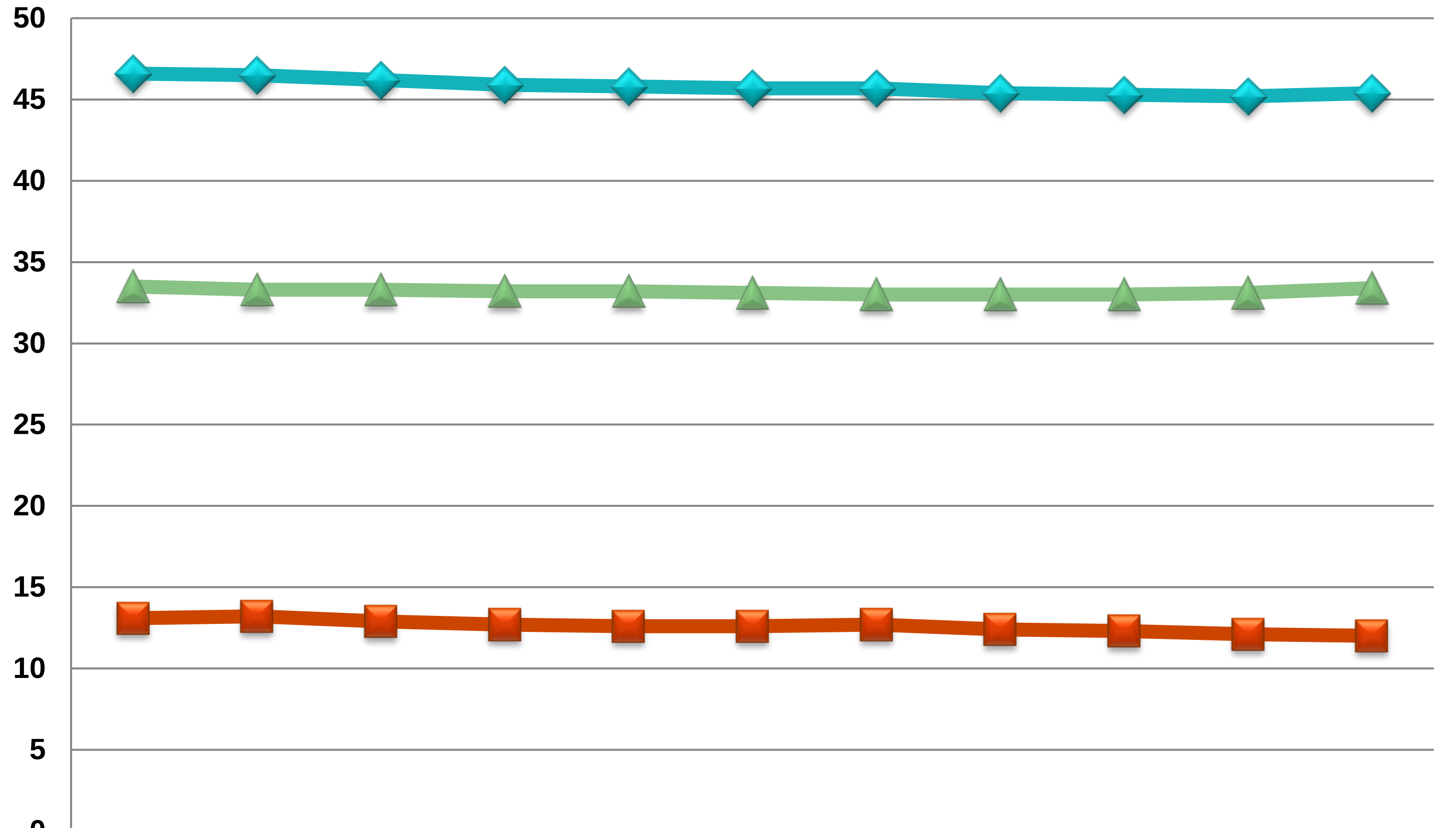



| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Covered Payroll*** | **$563.6** | **$567.1** | **$557.7** | **$586.4** | **$607.4** | **$612.9** | **$624.9** | **$645.9** | **$657.9** | **$701.6** | **$743.0** |
| **Projected Payroll**** | | | | | **$635.8** | **$641.5** | **$654.0** | **$677.3** | **$689.9** | **$735.7** | **$778.4** |

*Prior year
**Upcoming year

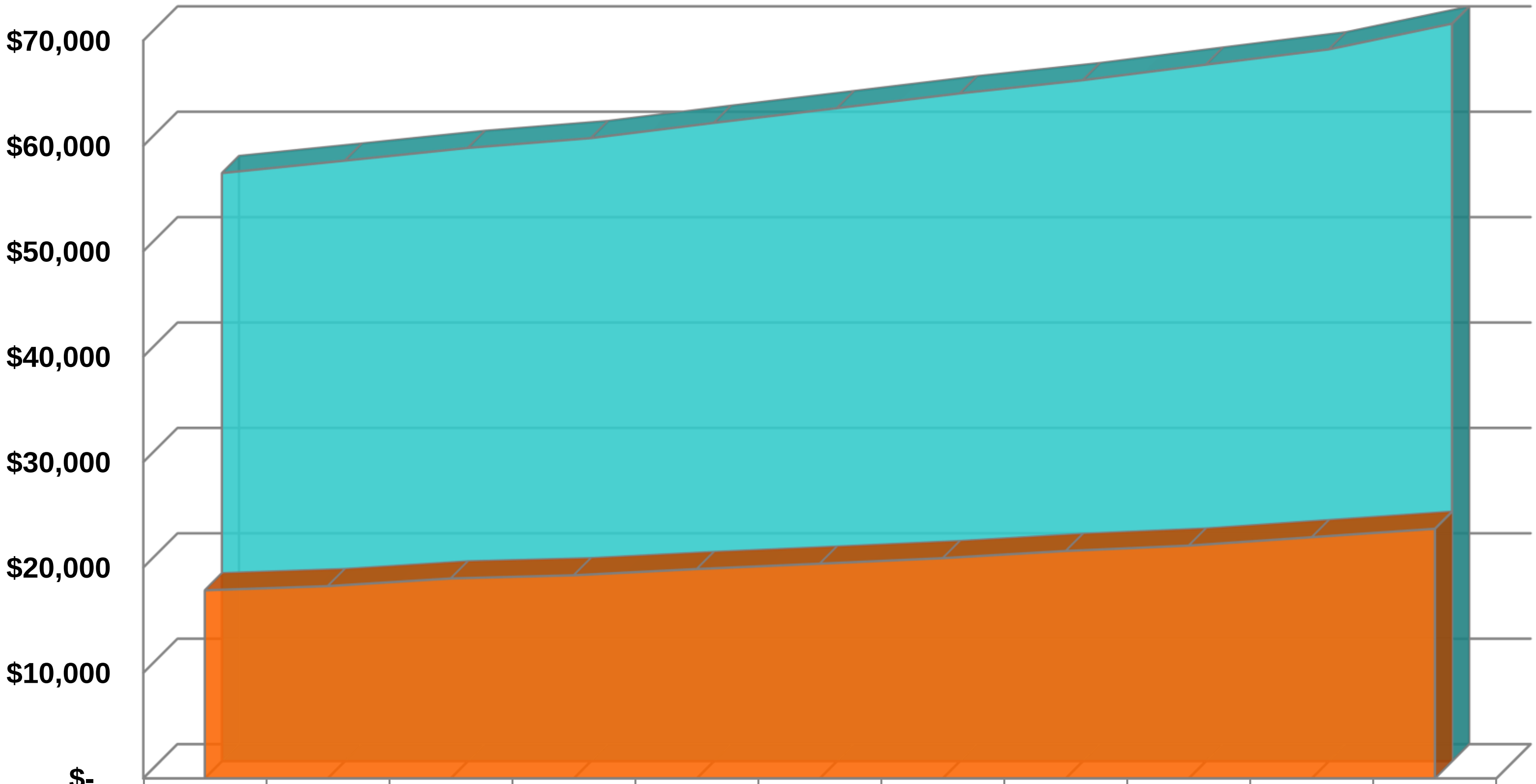
Since 2013, active payroll has increased, on average, 2.8% per year.

# Average Age and Service of Active Members




| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Age | 46.6 | 46.5 | 46.2 | 45.9 | 45.8 | 45.7 | 45.7 | 45.4 | 45.3 | 45.2 | 45.4 |
| Average Service | 13.1 | 13.2 | 12.9 | 12.7 | 12.6 | 12.6 | 12.7 | 12.4 | 12.3 | 12.1 | 12.0 |
| Average Hire Age | 33.5 | 33.3 | 33.3 | 33.2 | 33.2 | 33.1 | 33.0 | 33.0 | 33.0 | 33.1 | 33.4 |

# Average Salary and Average Benefit (Annual Amounts)




| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Benefit | $17,833 | $18,230 | $18,959 | $19,259 | $19,852 | $20,360 | $20,885 | $21,567 | $22,075 | $22,868 | $23,672 |
| Average Salary | $55,799 | $56,981 | $58,186 | $59,119 | $60,566 | $61,959 | $63,365 | $64,616 | $66,091 | $67,543 | $69,976 |

Since 2013, average salary has increased, on average, 2.3% per year, and the average annual benefit has increased, on average, 2.9% per year.

# Assets

- The market value of assets increased from $2.34 billion (as of 6/30/2022) to $2.53 billion (as of 6/30/2023)
  - Segal estimated the investment return at 7.76%, net of investment expenses
- The actuarial value of assets, which smooths investment gains and losses over a period of five years, increased from $2.46 billion (as of 6/30/2022) to $2.62 billion (as of 6/30/2023)
  - Return of 6.12%, net of investment expenses
  - Compared to the assumption of 7.00%
  - Actuarial value is 103.4% of market
  - There is a total of $87 million of deferred net investment losses that will be recognized in future years
- Average annual returns are:

| | Actuarial Value | Market Value |
|---|---|---|
| 5-year average | 6.9% | 6.5% |
| 10-year average | 7.0% | 6.6% |
| 15-year average | 6.0% | 6.2% |
| 20-year average | 6.5% | 6.7% |

# Market Value of Assets ($ in millions)

## For Fiscal Year Ending June 30

| | 2023 | 2022 |
|---|---|---|
| Beginning of Year | $2,339 | $2,423 |
| Contributions: | | |
| • Employer* | 200 | 323 |
| • Member | 52 | 45 |
| • Total | $252 | $368 |
| Benefits and Refunds | −242 | −228 |
| Investment Income (net) | 179 | −224 |
| End of Year | $2,528 | $2,339 |
| Rate of Return | 7.76% | −8.85% |

* Net of administrative expenses, but including net other income

Note: numbers may not add due to rounding

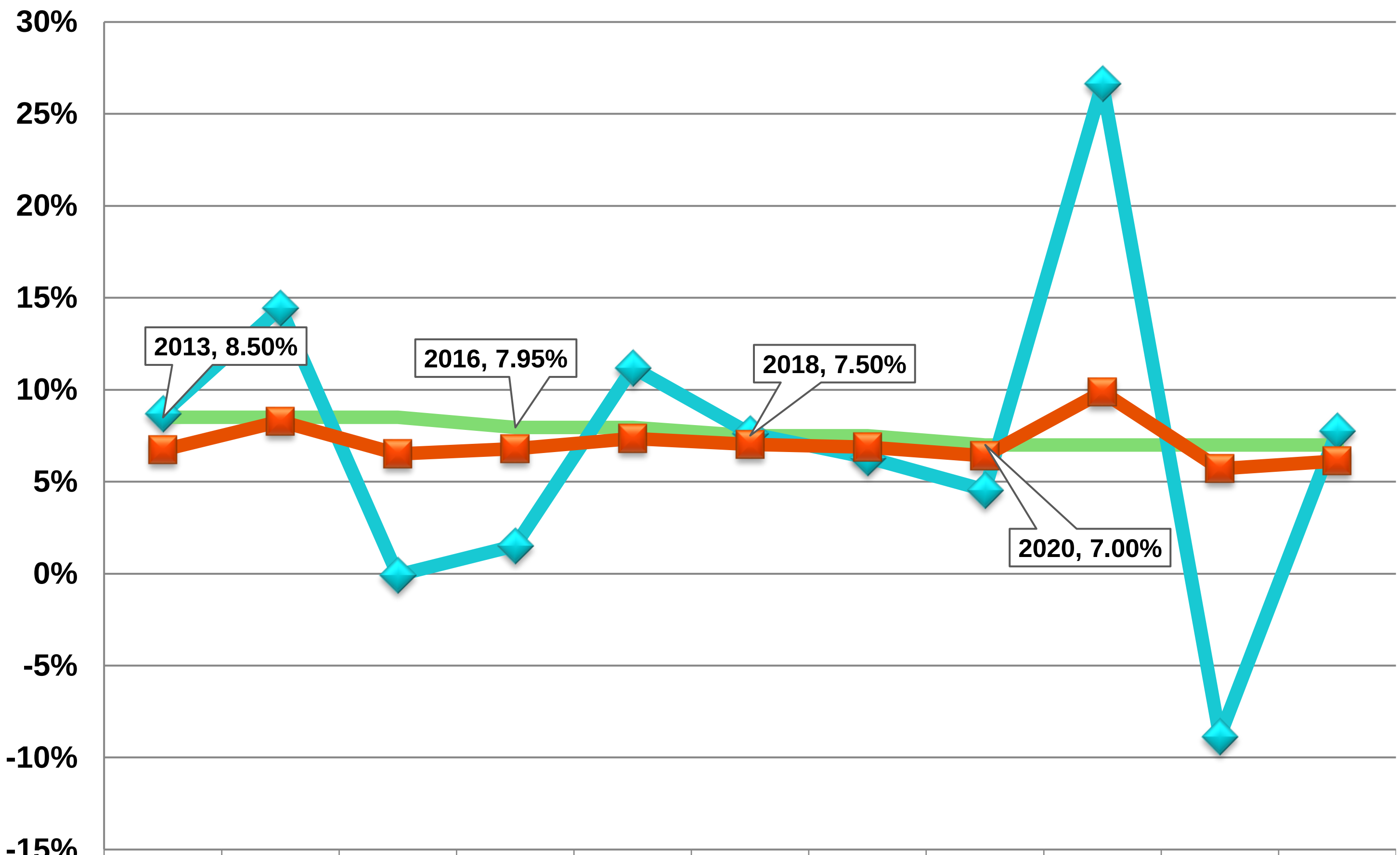
# Actuarial Value of Assets ($ in millions)

## For Fiscal Year Ending June 30

| | 2023 | |
|---|---|---|
| **1.** Prior Year Actuarial Value | | $2,457 |
| **2.** Net New Money, Including Expected Investment Income | | 180 |
| **3.** Preliminary Asset Value: **1 + 2** | | $2,637 |
| **4.** Smoothing Adjustment: | | |
| **a.** Market Value of Assets | $2,528 | |
| **b.** Preliminary Asset Value | 2,637 | |
| **c.** Unrecognized Appreciation: **a − b** | −$109 | |
| **d.** Adjustment | 20% | −22 |
| **5.** Actuarial Value of Assets: **3 + 4d** | | $2,615 |
| **6.** Actuarial Value as a Percentage of Market Value: **5 ÷ 4a** | | 103.4% |

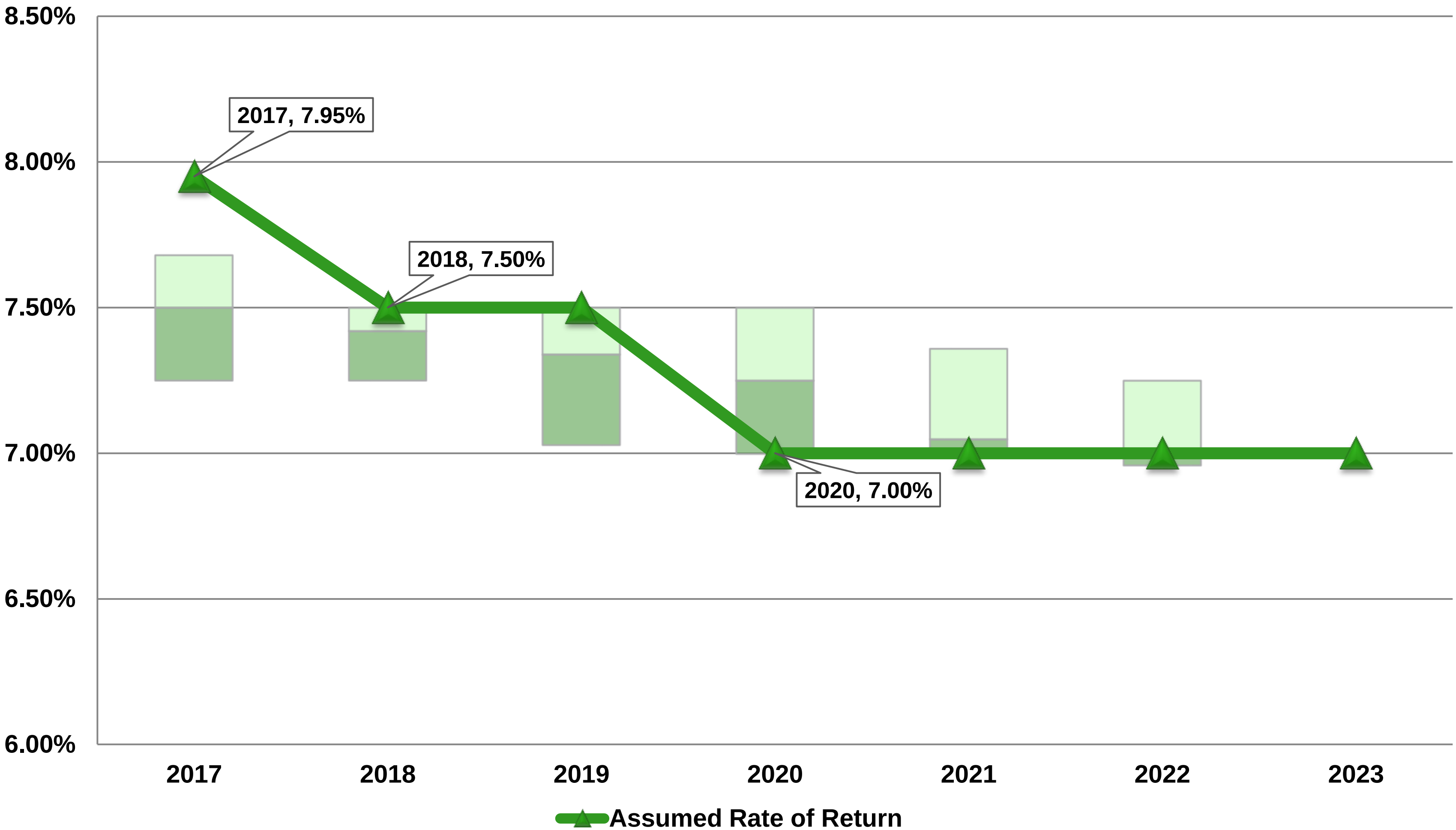
Note: numbers may not add due to rounding

# Asset Returns




| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Assumed Rate of Return | 8.50% | 8.50% | 8.50% | 7.95% | 7.95% | 7.50% | 7.50% | 7.00% | 7.00% | 7.00% | 7.00% |
| Market Value of Assets | 8.7% | 14.4% | -0.1% | 1.5% | 11.2% | 7.6% | 6.3% | 4.6% | 26.6% | -8.9% | 7.8% |
| Actuarial Value of Assets | 6.7% | 8.3% | 6.5% | 6.8% | 7.3% | 7.0% | 6.9% | 6.4% | 9.9% | 5.7% | 6.1% |

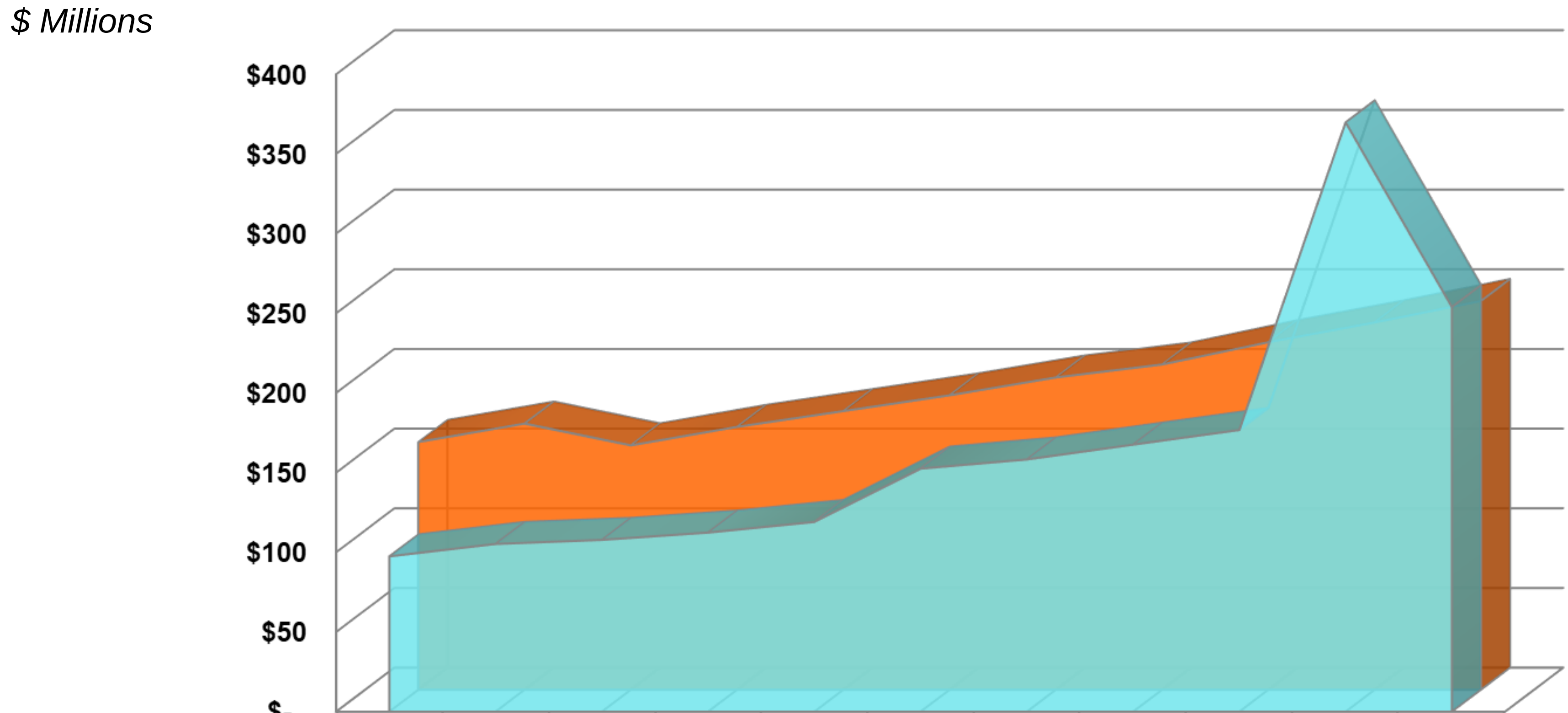
# Investment Return Assumption, Comparison With Other Public Systems




For context, historical data is compared to 43 systems in the Public Plans Data* that primarily cover teachers. The top marker represents the 2nd quartile (50th to 75th percentile) and the lower marker represents the 3rd quartile (25th to 50th percentile), where the middle line indicates the median.

* Public Plans Data. 2017-2023. Center for Retirement Research at Boston College, Mission Square Research Institute, and National Association of State Retirement Administrators.

# Contributions vs. Benefits and Refunds

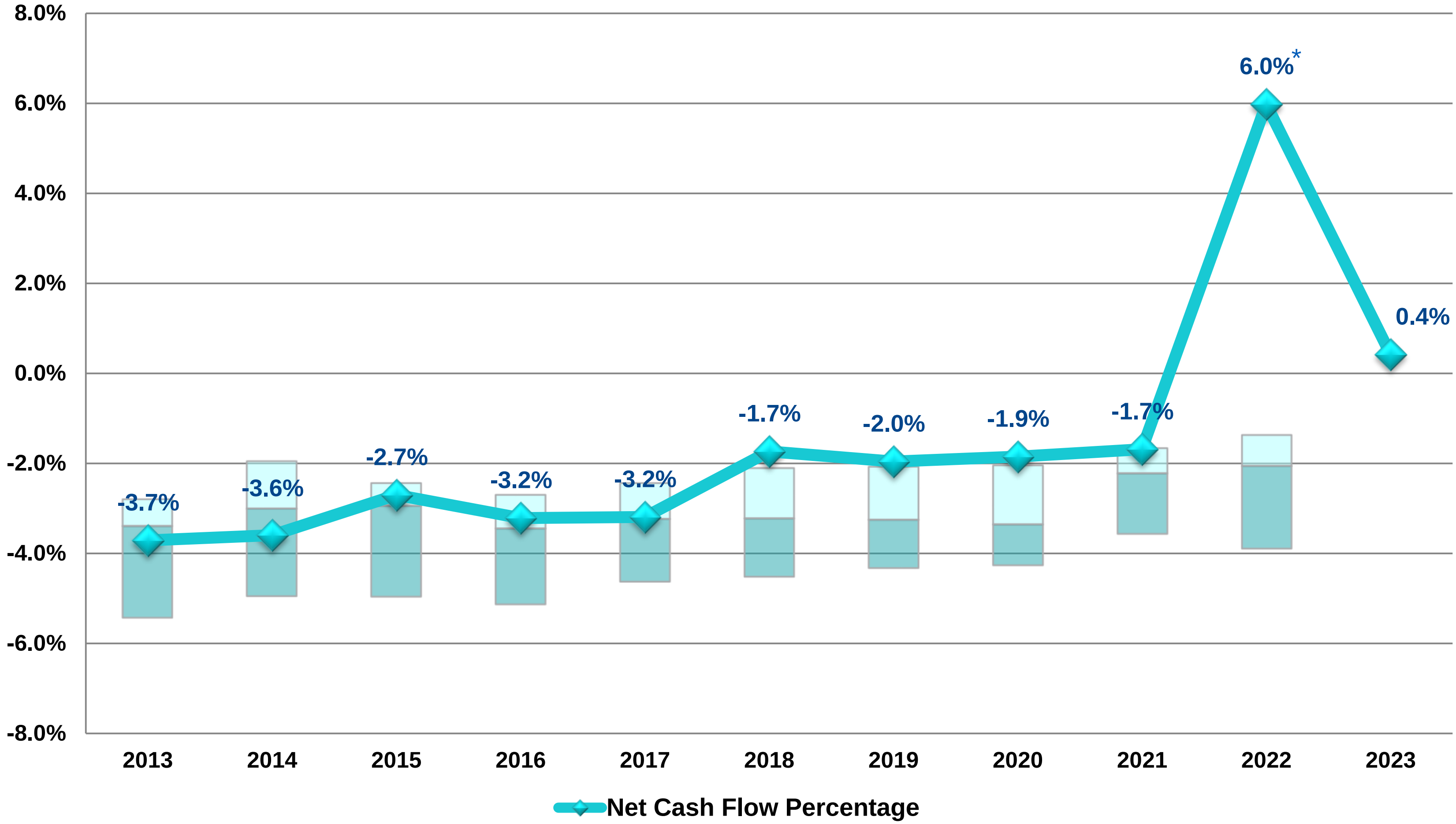



| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Contributions* | $97.4 | $105.2 | $107.8 | $112.4 | $119.0 | $152.5 | $158.3 | $167.5 | $176.7 | $369.8 | $253.9 |
| Benefits & Refunds** | $155.4 | $167.0 | $153.3 | $164.9 | $174.8 | $184.7 | $195.9 | $204.1 | $218.0 | $230.4 | $243.9 |

* Includes member and employer contributions along with additional State contributions from Act 114 in 2022 and beyond.

** Includes administrative expenses, and depreciation and health/life insurance expenses (2014 and prior).

# Net Cash Flow as a % of Market Value, Comparison With Other Public Systems




***2022 net cash flow includes additional State contributions from Act 114.**

For context, historical data is compared to 43 systems in the Public Plans Data* that primarily cover teachers. The top marker represents the 2nd quartile (50th to 75th percentile) and the lower marker represents the 3rd quartile (25th to 50th percentile), where the middle line indicates the median.

* Public Plans Data. 2013-2023. Center for Retirement Research at Boston College, Mission Square Research Institute, and National Association of State Retirement Administrators.

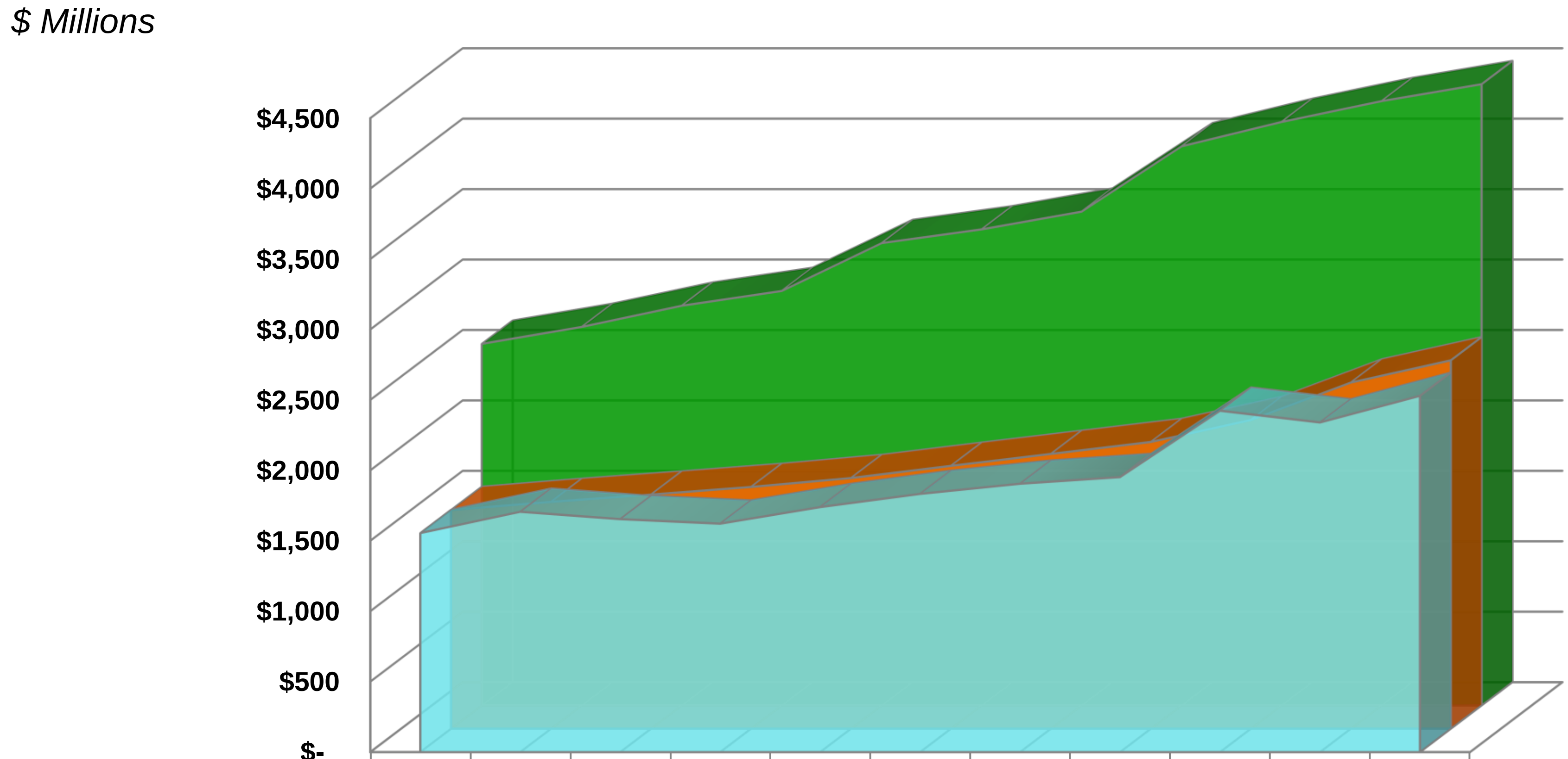
# Valuation Results ($ in millions)

## Valuation Results as of June 30

| | 2023 | 2022 |
|---|---|---|
| Actuarial Accrued Liability: | | |
| • Active Members | $1,562 | $1,496 |
| • Inactive Members | 138 | 128 |
| • Retirees and Beneficiaries | 2,710 | 2,666 |
| Total | $4,410 | $4,290 |
| Actuarial Value of Assets | 2,615 | 2,457 |
| Unfunded Accrued Liability | $1,795 | $1,832 |
| Funded Ratio | 59.3% | 57.3% |
| | | |
| Market Value of Assets | $2,528 | $2,339 |
| Unfunded Liability, Market Basis | 1,882 | 1,950 |
| Funded Ratio, Market Basis | 57.3% | 54.5% |

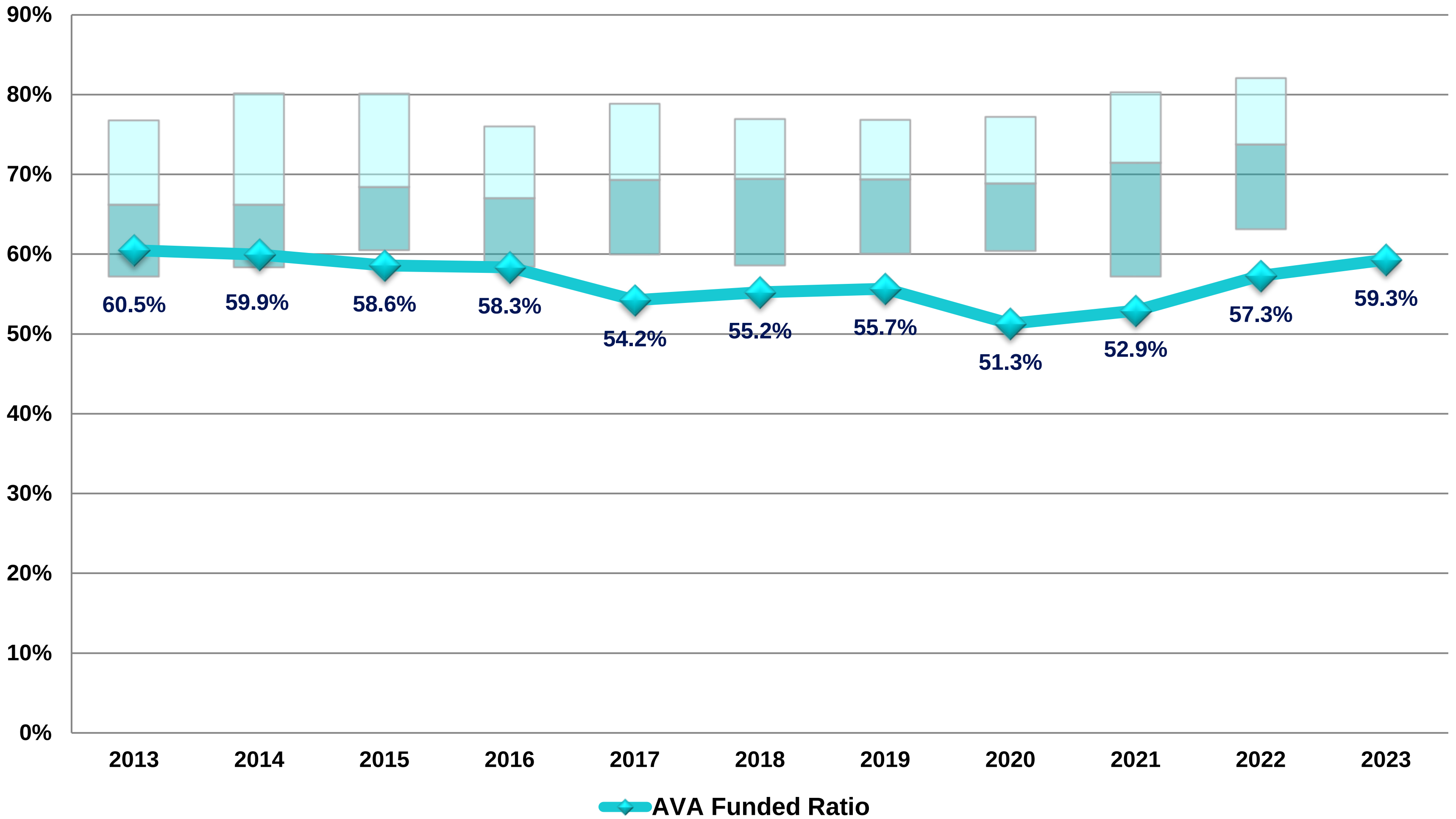
Note: numbers may not add due to rounding

# Market and Actuarial Values of Assets Compared to Actuarial Accrued Liability




| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Market Value of Assets | $1,554 | $1,705 | $1,653 | $1,621 | $1,739 | $1,832 | $1,904 | $1,951 | $2,423 | $2,339 | $2,528 |
| Actuarial Value of Assets | $1,553 | $1,610 | $1,662 | $1,716 | $1,780 | $1,866 | $1,951 | $2,036 | $2,192 | $2,457 | $2,615 |
| Actuarial Accrued Liability | $2,567 | $2,687 | $2,837 | $2,942 | $3,282 | $3,380 | $3,505 | $3,969 | $4,142 | $4,290 | $4,410 |

# Funded Ratio, AVA Basis, Comparison With Other Public Systems




For context, historical data is compared to 43 systems in the Public Plans Data* that primarily cover teachers. The top marker represents the 2nd quartile (50th to 75th percentile) and the lower marker represents the 3rd quartile (25th to 50th percentile), where the middle line indicates the median.

* Public Plans Data. 2013-2023. Center for Retirement Research at Boston College, Mission Square Research Institute, and National Association of State Retirement Administrators.

# Preliminary Contribution Requirement

| | For the Year Beginning | |
|---|---|---|
| | July 1, 2023 | July 1, 2022 |
| Normal Cost Rate* | 11.56% | 11.24% |
| Member Rate | −6.63% | −6.29% |
| Employer Normal Cost Rate | 4.93% | 4.95% |
| Amortization of UAAL | 20.48% | 21.10% |
| Preliminary Contribution Requirement | 25.41% | 26.05% |

* Includes 0.45% in 2023 and 0.40% in 2022 for administrative expenses

| Reconciliation of Preliminary Contribution Requirement from July 1, 2022, to July 1, 2023 | |
|---|---|
| Expected change in amortization (payroll growth) | 0.63% |
| Contribution (more)/less than ADC** | −0.21% |
| Effect of investment (gain)/loss | 0.26% |
| Effect of other (gain)/loss on accrued liability | 0.15% |
| Effect of change in actuarial assumptions | −0.08% |
| Net effect of other changes, including payroll | −1.39% |
| Total change | −0.64% |

** The contribution actually paid during fiscal 2023 was based on the June 30, 2021, actuarial valuation, and was not adjusted for timing lag used for budgeting purposes.

# Amortization Schedule and Projected Employer Contribution Amounts

| As of July 1 | Balance | Additional Contribution[1] | Amortization Payment | Funded Percentage |
|---|---|---|---|---|
| 2023 | $1,794,791,795 | $9,000,000 | $159,455,378 | 59.30% |
| 2024 | 1,746,175,622 | 12,000,000 | 163,340,676 | 61.41% |
| 2025 | 1,687,034,110 | 15,000,000 | 167,012,051 | 63.85% |
| 2026 | 1,616,851,768 | 15,000,000 | 170,387,291 | 66.01% |
| 2027 | 1,538,265,287 | 15,000,000 | 173,746,371 | 68.28% |
| 2028 | 1,450,703,093 | 15,000,000 | 177,064,948 | 70.67% |
| 2029 | 1,353,578,783 | 15,000,000 | 180,309,997 | 73.16% |
| 2030 | 1,246,299,065 | 15,000,000 | 183,435,569 | 75.78% |
| 2031 | 1,128,276,652 | 15,000,000 | 186,375,589 | 78.51% |
| 2032 | 998,951,489 | 15,000,000 | 189,030,754 | 81.35% |
| 2033 | 857,827,040 | 15,000,000 | 191,242,538 | 84.31% |
| 2034 | 704,535,992 | 15,000,000 | 192,735,174 | 87.38% |
| 2035 | 538,970,577 | 0 | 192,962,150 | 90.55% |
| 2036 | 377,096,918 | 0 | 198,751,015 | 93.53% |
| 2037 | 197,904,054 | 0 | 204,713,545 | 96.68% |
| 2038 | 0 | 0 | 0 | 100.00% |

| | Year Ending June 30, 2025 | Year Ending June 30, 2026 |
|---|---|---|
| Projected Payroll | $801,709,667 | $825,760,957 |
| Employer Normal Cost Rate[2] | 4.72% | 4.72% |
| **Projected Contributions** | | |
| Employer Normal Cost | $37,842,027 | $38,977,288 |
| Unfunded Liability Payment | 163,340,676 | 167,012,051 |
| **Total** | **$201,182,703** | **$205,989,339** |

[1] Under Act 114, beginning in FY24, the State is contributing an additional payment that grows to $15 million in FY26 and remains at that level until the funded percentage reaches 90%.

[2] Reflects an estimated 0.21% increase in member contribution rate effective FY25 under Act 114.

# Five-Year History of Gain/(Loss)

## Experience for the Year Ended June 30

| *$ Thousands* | 2023 | 2022 | 2021 | 2020 | 2019 |
|---|---|---|---|---|---|
| Investments | −$21,692 | −$29,490 | $57,786 | −$21,307 | −$11,593 |
| Admin expenses | $797 | $144 | N/A | N/A | N/A |
| Demographics | | | | | |
| • Turnover | $10,356 | −$8,154 | −$10,519 | −$21,771 | −$21,031 |
| • Retirement | −13,111 | −13,883 | −16,872 | −24,972 | −20,019 |
| • Mortality | 1,282 | 5,596 | 1,761 | −3,335 | −2,744 |
| • Disability retirement | −418 | 45 | −561 | −54 | −128 |
| • Salary/service | −1,962 | 7,257 | 9,493 | 10,408 | 10,407 |
| • COLA experience | 5,467 | −28,712 | −22,594 | 8,838 | 7,683 |
| • Miscellaneous | −15,111 | −11,032 | −6,408 | −6,226 | −11,508 |
| • Subtotal | −$13,498 | −$48,883 | −$45,699 | −$37,112 | −$37,340 |
| **Total** | **−$34,393** | **−$78,229** | **$12,087** | **−$58,419** | **−$48,933** |

Note: numbers may not add due to rounding

# Additional Disclosure

## Low-Default-Risk Obligation Measure

- Recent revision to ASOP 4 requires the disclosure of a Low-Default-Risk Obligation Measure (LDROM) when performing a funding valuation
  - LDROM is required to be calculated using "*a discount rate…derived from low-default-risk fixed income securities whose cash flows are reasonably consistent with the pattern of benefits expected to be paid in the future*."
- As of June 30, 2023, the LDROM for VSTRS is **$6.71 billion**, based on a discount rate of 3.65%*
  - This compares to the plan's actuarial accrued liability of $4.41 billion
  - The difference of $2.30 billion can be viewed as representing the expected savings from investing in the plan's diversified portfolio compared to investing only in low-default-risk securities
- In general, if plan assets were invested exclusively in low-default-risk securities, the funded status would be lower and the Actuarially Determined Contribution would be higher
  - While investing in a portfolio with low-default-risk securities may be more likely to reduce investment volatility and the volatility of employer contributions, it also may be more likely to result in higher employer contributions or lower benefits

* Based on the Bond Buyer General Obligation 20-year Municipal Bond Index Rate as published by The Bond Buyer on the closing date nearest June 30, 2023

# Caveats

*This presentation is based on the results of the June 30, 2023, actuarial valuation performed for the Board of Trustees of the Vermont State Teachers' Retirement System. The actuarial valuation report has information on the plan provisions, data, methods and assumptions used in the valuation. Use of the information in this presentation is subject to the caveats described in that document. The measurements in this presentation may not be appropriate for purposes other than those described in the actuarial valuation report.*

*Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Deterministic cost projections are based on our proprietary forecasting model. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the models and reviews test lives and results, under the supervision of the responsible actuary.*

*The actuarial calculations were directed under the supervision of Matthew A. Strom, FSA, MAAA, EA. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of my knowledge, the information supplied in this actuarial valuation is complete and accurate. The investment return and inflation assumptions were selected by the Vermont Pension Investment Commission and the remaining actuarial assumptions were selected by the Board based on our analysis and recommendations. In my opinion, the assumptions are reasonable and take into account the experience of the Plan and reasonable expectations.*