

**NEW HAMPSHIRE RETIREMENT SYSTEM
BOARD MEETING**

Tuesday, December 12, 2023

Agenda

| | | | |
|------------|--|----------------|----------|
| 10:30 a.m. | 1. Ascertain Quorum and Call to Order | | T. Lesko |
| 10:35 a.m. | 2. Approval of Minutes | (Tab 1) | T. Lesko |
| | <ul style="list-style-type: none"> ○ November 14, 2023 (Action Expected) | | |
| 10:55 a.m. | 3. Standing Committee Reports | | |
| | <ul style="list-style-type: none"> • Audit (Tab 2) M. Mezzapelle <ul style="list-style-type: none"> ○ Annual Ethics Report (Action Expected) ○ ACFR Recommendation (Action Expected) • Governance (Tab 3) D. Roy • Investments (Tab 4) M. Kelliher <ul style="list-style-type: none"> ○ IIC Monthly Report ○ Callan Monthly Review (10/31/23) R. Leveque ○ CAIR Recommendation R. Leveque (Action Expected) ○ Strategic Asset Allocation R. Leveque (Action Expected) ○ 2024 IIC Meeting Schedule R. Leveque • Legislative (Tab 5) K. Merrifield • Benefits (Tab 6) G. Martins • PPCC (Tab 7) S. Hannan | | |
| 11:15 a.m. | 4. Operating Reports | | |
| | <ul style="list-style-type: none"> • Executive (Tab 8) J. Goodwin <ul style="list-style-type: none"> ○ Space needs ○ Contracts (Action Expected) • Legal (Tab 9) T. Crutchfield • PIO (Tab 10) M. Karlon • IT (Tab 11) J. Laferriere • Investments (Tab 12) R. Leveque | | |

| | | | |
|------------|--|-----------------|------------|
| | • Human Resources | (Tab 13) | R. Cain |
| 11:25 a.m. | 6. Consent Agenda <i>(Action Expected)</i> | (Tab 14) | T. Lesko |
| 11:30 a.m. | 8. Trustee Travel | (Tab 15) | T. Lesko |
| 11:35 a.m. | 9. Action Items – November 14, 2023 | (Tab 16) | J. Goodwin |
| 11:40 a.m. | 10. Board Checkpoint Discussion | (Tab 17) | T. Lesko |
| 11:45 a.m. | 11. Adjournment | | T. Lesko |
| | 12. Informational Materials | (Tab 20) | |
| | Draft Quarterly Report to the General Court | | |
| | Draft Executive Summary of Board Actions | | |
| | 2023 Board Action Calendar | | |
| | 2024 Board Action Calendar | | |
| | Committee Membership | | |
| | Trustee Confidential Contact Information | | |
| | Trustee Appointments and Terms | | |
| | NHRS Conference Resource List | | |
| | NHRS Acronyms | | |

Remote access information will be provided in advance of the meeting at:

<https://www.nhrs.org/meetings-events/event/2023/12/12/default-calendar/board-of-trustees-meeting>

The following email will be monitored throughout the meeting by someone who can assist with and alert the Board to any technical issues:

publicrelations@nhrs.org (or call 603-410-3578)

NHRS Board of Trustees

DRAFT Minutes – November 14, 2023

Note: These **draft** minutes from the November 14, 2023 Public Session are subject to approval at a subsequent Board of Trustees meeting.

Board of Trustees

November 14, 2023

DRAFT Public Minutes

**New Hampshire Retirement System
54 Regional Drive
Concord, New Hampshire 03301**

Participating: *Tim Lesko, Chair; Trustees Jon Frederick, Sue Hannan, Jason Henry, Maureen Kelliher, Robert Maloney, Andrew Martineau, Germano Martins, Ken Merrifield, Monica Mezzapelle, Paul Provost, Joshua Quigley, and Don Roy.*

Staff: *Jan Goodwin, Executive Director; Timothy Crutchfield, Deputy Director and Chief Legal Counsel; Rosamond Cain, Director of Human Resources; John Laferriere, Director of IT; Raynald Leveque, Chief Investment Officer; Mark F. Cavanaugh, Associate Counsel and Compliance Officer; Heather Hoffacker, Internal Auditor; Nina Calkins, Administrative and Contact Center Manager; Deanna Higgins, Contact Center Supervisor; Greg Richard, Senior Investment Officer; Shana Bilech, Investment Officer; Diana Crichton, Hearings Examiner; and Christine McKenney, Communications Specialist.*

Guests: Heidi Barry and Jeffrey Tebeau of Gabriel, Roeder, Smith & Co. (GRS), and Attorney David Levine of Groom Law Group.

Chair Tim Lesko called the November 14, 2023, regular meeting of the NHRS Board of Trustees to order at 9:30 a.m. and after establishing a quorum, he called for a vote to approve the October 10, 2023, Board meeting minutes. On a motion by Trustee Roy, seconded by Trustee Mezzapelle, the Board voted to approve the meeting minutes, with Trustee Frederick abstaining.

Trustee Quigley arrived at 9:31 a.m.

Trustee Mezzapelle gave the report of the Audit Committee, which met this morning prior to the Board meeting. The Committee heard an update on the Benefit Administration Audit. The NHRS external audit is under way, and the system's external auditor, Plante Moran, is expected to attend next month's Audit Committee meeting to present the results. The Committee reviewed the Annual Ethics Survey Report and will bring the report before the Board at its December meeting. Lastly, Trustee Mezzapelle presented the amended Fraud Policy, with minor edits that the Committee voted to approve and recommend to the Board last month.

During the Audit Committee report, at approximately 9:34 a.m. and 9:40 a.m., Trustees Martins, and Hannan, respectively, joined the meeting.

On a motion by Trustee Frederick, seconded by Trustee Roy, the Board voted unanimously to accept the recommendation of the Audit Committee to approve the revisions to the Fraud Policy, as presented.

Trustee Roy provided an update on the Governance Committee, which met on October 31, 2023. In response to the Board's recommendation at its October meeting on the initial delegation of the disability retirement applications to the Benefits Committee, the Committee reviewed the Benefits Committee Charter. Following that review, the Committee unanimously voted to recommend to the Board that it approve the Benefits Committee Charter revisions relative to this delegation.

On a motion by Trustee Provost, seconded by Trustee Roy, the Board voted to accept the recommendation of the Governance Committee to approve the revisions to the Benefits Committee Charter authorizing the delegation of initial disability applications to the Benefits Committee, as presented, with Trustee Merrifield opposing.

Trustee Roy continued his Committee report, which reviewed the delegation of the annual renewal of the fiduciary and cyber insurance policies. Because of the anticipated timing to receive quotes for these policy renewals in light of the Board's 2024 bi-monthly meeting schedule, the Committee voted to recommend that the Board delegate the Governance Committee to authorize the annual fiduciary and cyber security insurance policy renewals and approve the relative revisions to the Committee charter.

A brief discussion followed regarding the Board's ability to call for a special meeting outside the 2024 meeting calendar to address single issues.

On a motion by Trustee Henry, seconded by Trustee Mezzapelle, the Board voted to accept the recommendation of the Governance Committee to approve the revisions to the Governance Committee Charter authorizing the delegation of the annual renewals of fiduciary and cyber insurance to the Governance Committee, as presented. Trustee Merrifield opposed.

Trustee Kelliher reported on the October 10, 2023, Independent Investment Committee (IIC, Committee) meeting, noting Chief Investment Officer Raynald Leveque gave an update on investment returns through recent time periods, referring to Callan's August 31, 2023, report. He provided updates on holdings within the NHRS portfolio and confirmed asset allocations are within range. Mr. Leveque also reviewed plan liquidity, Russian holdings, and the Work Plan, and the Committee voted unanimously to approve the Work Plan, as presented. Mr. Leveque presented the 2024 IIC meeting schedule, proposing a reduced number of annual meetings from 12 to eight, coinciding primarily with the Board's bi-monthly meetings. The Committee heard an overview from private debt manager Strategic Value Partners (SVP) on its Capital Solutions Fund II, to which the IIC voted unanimously to commit \$50 million, subject to contract and legal review.

In closing, Trustee Kelliher mentioned that Mr. Leveque presented the Draft NHRS Transmittal Letter; Draft Callan Letter; and the Draft GRS Letter for the FY 2023 Comprehensive Annual Investment Report (CAIR) and requested the IIC review the report and provide feedback at its November meeting.

Mr. Leveque reported on performance for NHRS as of September 30, 2023 for various time periods. In closing, he referred to Callan's annual review, noting the June 30, 2023 returns, the total Plan value of \$11.1 billion, and an overview of various asset classes.

Trustee Merrifield opened his update of the Legislative Committee by commending Director of Communications and Legislative Affairs Marty Karlon for his dedication to updating him on legislative activity for reporting to the Board each month. The Legislative Committee did not meet in the past month but plans to meet in January. The Retirement Benefits Commission (RBC) met last

week, and reviewed the actuarial analysis that GRS provided. On an 8-6 vote, the RBC recommended that the Legislature pass a bill that increases the multiplier for Group II Tier B and C members (and future hires) to 2.5% for all years worked in excess of 10 years. The House and Senate LSR filing periods are over and there are 13 titles that are NHRS-related. The House ED&A Committee met November 8, and acted on three 2023 bills held in committee and these bills will be on the consent calendar when the House meets in January. The House deadline to report retained bills is Friday, November 17.

Trustee Martins reported on the Benefits Committee, which had not met since the October Board meeting, and recounted his report to the Board about the Committee's non-public session at its September 27 meeting on a disability matter and its vote to recommend to the Board that it rescind its prior decision to award an Ordinary Disability Retirement (ODR). He referred the Trustees to the Board book materials and requested a non-public session to discuss the matter.

At 9:55 a.m., on a motion by Trustee Hannan, seconded by Trustee Henry, the Board voted unanimously on a roll call vote to enter into non-public session under RSA 91-A:3, II (c) to discuss a disability matter.

At 10:10 a.m., on a motion by Trustee Maloney, seconded by Trustee Frederick, the Board voted unanimously to conclude the non-public session.

Upon return to its public session, on a motion by Trustee Hannan, seconded by Trustee Roy, the Board voted unanimously to accept the recommendation of the Benefits Committee to rescind the Board's prior decision to award ODR to member S.D., with the consequence that the member must reapply if he seeks disability benefits in the future.

Trustee Hannan gave a brief report on the PPCC, noting it met last month and heard a staffing update from Human Resources Director Rosamond Cain regarding open positions. The Committee held a non-public session to discuss personnel matters and ended its meeting after returning to public session.

Next, Chair Lesko welcomed Heidi Barry and Jeffrey Tebeau of Gabriel, Roeder, Smith & Co. (GRS), NHRS's actuary, for an actuarial presentation. They presented a comprehensive overview of GRS, its actuarial process specific to the NHRS benefit plan, a new reporting requirement under the Actuarial Standards of Practice, layered amortization, and the total accrued liability.

Next, Attorney David Levine of Groom Law Group, the retirement system's external fiduciary counsel, presented an overview of Trustees' fiduciary duties. Attorney Levine explained the retirement system's legal requirements, the fiduciary framework, and discussed current events.

At 11:37 a.m., Trustee Roy left the meeting.

Chair Lesko turned to Executive Director Goodwin for her operating report. She began with NHRS's effort to maintain a safe and healthy environment relative to COVID-19, noting the seasonal spike in illnesses. She provided the KPM score for the month of 98.5%, noting there was one KPM missed. NHRS is in its second month of the PGV3 parallel processing and LRS is on site for support. As of December 1, PGV3 will be the system of record. Ms. Goodwin informed the Trustees of a \$14,200 contract that she approved, under the Procurement Policy, for climate control in the data center.

Next, Ms. Goodwin reviewed the 12-month KPM average, which is 98%, well above the 95% benchmark. The Contact Center continues to achieve its monthly goal of answering calls within five minutes, with less than a 2% abandon rate. She commented on the useful process of obtaining

feedback from her monthly calls to employers, members, retirees, and beneficiaries on NHRS' customer service. Next, she gave a synopsis of the quarterly results from the FY24 Member Satisfaction Survey. Lastly, she referred to her action plan, which is progressing, and closed by presenting the NHRS Dashboard on behalf of the Director of Finance Marie Mullen.

Ms. Cain presented the Human Resources operating report, commenting on recent hires and her KPMs, noting one missed hiring deadline. HR is using ADP for the Affordable Care Act forms and planning is under way for the NHRS staff holiday party.

Mr. Crutchfield presented the Legal report, beginning with a status update on the NH Supreme Court (Court) case relative to retired Keene school teachers, noting the Court's request for the certified record of proceedings and related transcripts. Following the submission of the certified record and transcripts, the Court will provide a schedule for submitting briefs and oral arguments. Legal met seven of its applicable KPMs. Mr. Crutchfield mentioned that the 2024 Board Action Calendar would be presented at the Board's December meeting. Lastly, he cited an example letter regarding the right to appeal a disability denial in the Board materials.

On behalf of Mr. Karlon, Ms. Goodwin gave the PIO report, beginning with the Finance Insurance Training, which has been completed. Staff are working on a soft launch of the new member account portal, My Account 2.0. Lastly, PIO continues to monitor the potential 2024 legislation relative to the retirement system.

Mr. Laferriere opened his IT report with cyber security awareness, noting an uptick of phishing attacks in general and the vigilance of IT staff to protect the system. The Managed Security Service Provider (MSSP) is fully onboarded with NHRS. IT achieved 100% customer service satisfaction and met all of its KPMs. He provided a status update on several projects and an overview of upcoming plans. In closing, he referred to his action plan, which is on schedule.

Mr. Leveque gave his report on Investments, noting his team achieved eight of the 10 KPMs, two of which were not applicable for the month. He then summarized the agenda for today's IIC meeting, which immediately follows the Board meeting.

Chair Lesko presented the Consent Agenda and on a motion by Trustee Henry, seconded by Trustee Quigley, the Board voted to approve the Consent Agenda as presented, with Trustee Merrifield abstaining from Item 7.

There were no travel reports or requests.

Ms. Goodwin gave the status of the Action Items from the October 12 Board meeting, noting everything will be completed after today's meeting except for Item 1.

During the Board Checkpoint Discussion, Chair Lesko discussed the pacing of the 2024 Board meetings and the delegated matters, and a robust discussion ensued on the new schedule and fiduciary responsibilities.

With no further business to discuss, on a motion by Trustee Maloney, seconded by Trustee Frederick, the Board voted unanimously to adjourn the meeting at 11:54 a.m.

Respectfully submitted,

Christine McKenney
Communications Specialist

NHRS Board of Trustees
DRAFT minutes – November 14, 2023

Note: These draft minutes from the November 14, 2023 Non-Public Session are subject to approval at a subsequent meeting of the Board of Trustees.

**Board of Trustees
November 14, 2023
Draft Non-Public Minutes**

**New Hampshire Retirement System
54 Regional Drive
Concord, New Hampshire 03301**

Participating: Trustees Tim Lesko, Chair; Jon Frederick, Sue Hannan, Jason Henry, Maureen Kelliher, Robert Maloney, Andrew Martineau, Germano Martins, Ken Merrifield, Monica Mezzapelle, Paul Provost, Joshua Quigley, and Don Roy.

Staff: Jan Goodwin, Executive Director; Tim Crutchfield, Deputy Director and Chief Legal Counsel; and Mark F. Cavanaugh, Associate Counsel and Compliance Officer.

Chair Lesko asked for a motion that the Board enter non-public session, under RSA 91-A:3 II(c) to discuss a disability matter.

On a motion by Trustee Hannan, seconded by Trustee Henry, the Board voted unanimously on a roll call vote to enter into a non-public session.

On a motion by Trustee Maloney, seconded by Trustee Frederick, the Board voted unanimously to conclude the non-public session. No action was taken in the non-public session.

Respectfully submitted,

Christine McKenney,
Communications Specialist

AUDIT COMMITTEE



Annual Code of Ethics Report Card

FY 2023

Scorecard of Responses Received as of 11/29/2023

| <u>RESPONDENTS</u> | <u>TOTAL REQUESTS</u> | <u>TOTAL RESPONSES</u> | <u>PERCENT RESPONDING</u> |
|---------------------------------|------------------------------|-------------------------------|----------------------------------|
| Public Mkt.Mgrs.\Svc. Providers | 107 | 98 | 92% |
| Trustees\IIC\Management | 34 | 34 | 100% |
| Former Trustees\IIC\Management | 7 | 3 | 43% |
| Employees | 53 | 53 | 100% |
| Former Employees | 13 | 7 | 54% |
| Totals | 214 | 195 | 91% |

RESPONSE SUMMARY

Staff has reviewed the responses regarding compliance with the NHRS Code of Conduct. In the responses received, there are no comments that would necessitate further review by the Audit Committee or the Board of Trustees.

GOVERNANCE COMMITTEE

Oral Presentation Only

Independent Investment Committee's Monthly Report to the Board

NHRS Investment Team
Board of Trustees Meeting
December 12, 2023

Total Plan Performance as of October 31, 2023



The table below details the rates of return for the fund's asset classes over various time periods ended October 31, 2023. Negative manager excess returns are shown in red, positive excess returns in green. Returns for one year or greater are annualized.

| Net of Fees Returns for Periods Ended October 31, 2023 | | | | | | | | | |
|--|---------------------------------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Composite | Total Fund Weighting As of 10/31/2023 | Last Month | Last 3 Months | FYTD | CYTD | LTM | 3-YR | 5-YR | 10-YR |
| Total Domestic Equity | 29.71% | -3.56% | -10.23% | -6.88% | 5.27% | 4.59% | 9.07% | 8.72% | 9.26% |
| Domestic Equity Benchmark(1) | | -2.65% | -9.08% | -5.82% | 9.41% | 8.38% | 8.61% | 9.95% | 10.61% |
| Excess Return | | -0.91% | -1.16% | -1.07% | -4.14% | -3.79% | 0.46% | -1.24% | -1.35% |
| Total Non US Equity | 17.61% | -3.43% | -10.06% | -7.80% | 4.80% | 14.60% | 3.87% | 3.87% | 3.03% |
| Non US Equity Benchmark(2) | | -4.13% | -11.35% | -7.74% | 0.99% | 12.07% | 3.03% | 3.46% | 2.54% |
| Excess Return | | 0.69% | 1.29% | -0.06% | 3.80% | 2.53% | 0.84% | 0.41% | 0.48% |
| Total Fixed Income | 19.86% | -1.53% | -4.79% | -4.34% | -1.65% | 1.76% | -3.67% | 0.93% | 1.59% |
| Bloomberg Capital Universe Bond Index | | -1.50% | -4.43% | -4.34% | -2.11% | 1.19% | -5.04% | 0.21% | 1.17% |
| Excess Return | | -0.03% | -0.36% | -0.01% | 0.46% | 0.57% | 1.37% | 0.72% | 0.41% |
| Total Cash | 0.81% | 0.46% | 1.36% | 1.81% | 4.24% | 4.93% | 1.95% | 1.86% | 1.24% |
| 3-Month Treasury Bill | | 0.45% | 1.36% | 1.77% | 4.06% | 4.77% | 1.85% | 1.77% | 1.16% |
| Excess Return | | 0.01% | 0.00% | 0.04% | 0.18% | 0.15% | 0.10% | 0.08% | 0.08% |
| Total Real Estate (Q2)* | 11.66% | -0.10% | -1.18% | -0.27% | -8.43% | -7.14% | 11.47% | 8.97% | 10.66% |
| Real Estate Benchmark(3) | | -0.71% | -2.62% | -3.57% | -11.64% | -11.46% | 6.76% | 5.28% | 7.64% |
| Excess Return | | 0.61% | 1.44% | 3.30% | 3.21% | 4.32% | 4.71% | 3.69% | 3.03% |
| Total Private Equity (Q2)* | 15.18% | 0.00% | 0.13% | -0.03% | 5.24% | 3.15% | 19.63% | 13.71% | 12.24% |
| Private Equity Benchmark(4) | | 3.70% | 11.47% | 12.82% | 30.78% | 15.12% | 16.39% | 15.37% | 16.24% |
| Excess Return | | -3.70% | -11.34% | -12.85% | -25.55% | -11.97% | 3.24% | -1.66% | -4.00% |
| Total Private Debt (Q2)* | 5.17% | 0.00% | -0.11% | -0.03% | 3.54% | 4.96% | 8.49% | 5.39% | 6.71% |
| Private Debt Benchmark(5) | | 1.30% | 2.91% | 4.11% | 12.34% | 8.08% | 4.28% | 3.57% | 6.31% |
| Excess Return | | -1.30% | -3.02% | -4.14% | -8.80% | -3.11% | 4.21% | 1.82% | 0.40% |
| Total Fund Composite | 100.00% | -2.00% | -6.06% | -4.40% | 1.88% | 3.79% | 6.88% | 6.61% | 6.59% |
| Total Fund Benchmark(6) | | -1.63% | -5.20% | -3.31% | 4.80% | 6.20% | 4.77% | 6.45% | 6.72% |
| Excess Return | | -0.37% | -0.86% | -1.09% | -2.92% | -2.41% | 2.11% | 0.16% | -0.12% |

(1) The Domestic Equity Benchmark is the Russell 3000 Index as of 7/1/2021.

(2) The Non US Equity Index is the MSCI ACWI ex US Index as of 7/1/2003. Prior to 7/1/2003 it was the MSCI EAFE Index.

(3) The Real Estate Benchmark is the NCREIF NFI-ODCE Value Weight Net Index lagged 1 quarter as of 7/1/2015.

(4) The Private Equity Benchmark is the Russell 3000 Index + 2% lagged 1 quarter as of 7/1/2022.

(5) The Private Debt Benchmark is (50% MStar LSTA Leveraged Loan 100 ldx + 50% Bloomberg High Yield Index) + 1% lagged 1 quarter as of 7/1/2022.

(6) Current Month Target = 30.0% Russell 3000 Index, 25.0% Bloomberg Universal, 20.0% MSCI ACWI ex-US, 10.0% NCREIF NFI-ODCE Value Weight Net lagged 3 months+2.0%, 2.5% Bloomberg High Yield Corp lagged 3 months+1.0% and 2.5% MStar LSTA Lev Loan 100 lagged 3 months +1.0%.

(7) For the trailing 25 year period ended 10/31/23, the Total Fund has returned 6.64% versus the Total Fund Custom Benchmark return of 6.46%.

*Real Estate and Alternatives market values reflect current custodian valuations, which are typically lagged approximately 1 quarter.

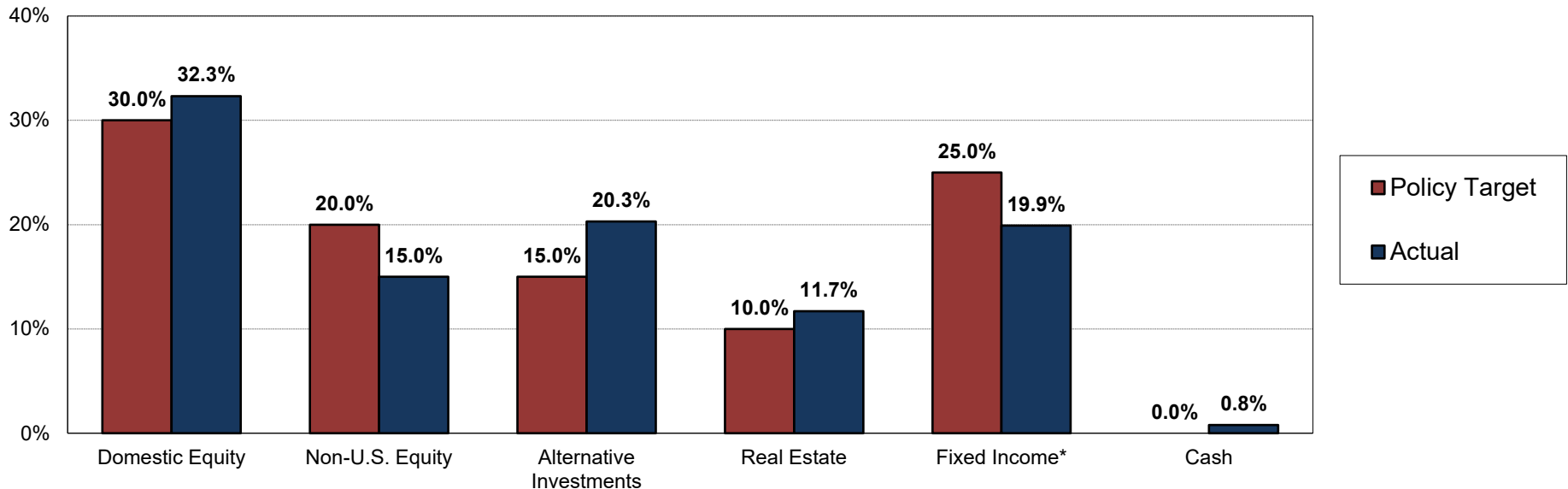
FYTD Fiscal Year to Date
CYTD Calendar Year to Date
LTM Last Twelve Months

Source: Callan

Asset Class Policy Targets vs. Actual Allocation



Asset Class Targets vs. Actual Allocation



| Asset Class | Target | Actual | Range |
|-------------------------|--------|--------|----------|
| Domestic Equity | 30.0% | 32.3% | 20 - 40% |
| Non-U.S. Equity | 20.0% | 15.0% | 15 - 25% |
| Alternative Investments | 15.0% | 20.3% | 5 - 25% |
| Real Estate | 10.0% | 11.7% | 5 - 20% |
| Fixed Income* | 25.0% | 19.9% | 20 - 30% |
| Cash | 0.0% | 0.8% | NA |
| | 100.0% | 100.0% | |

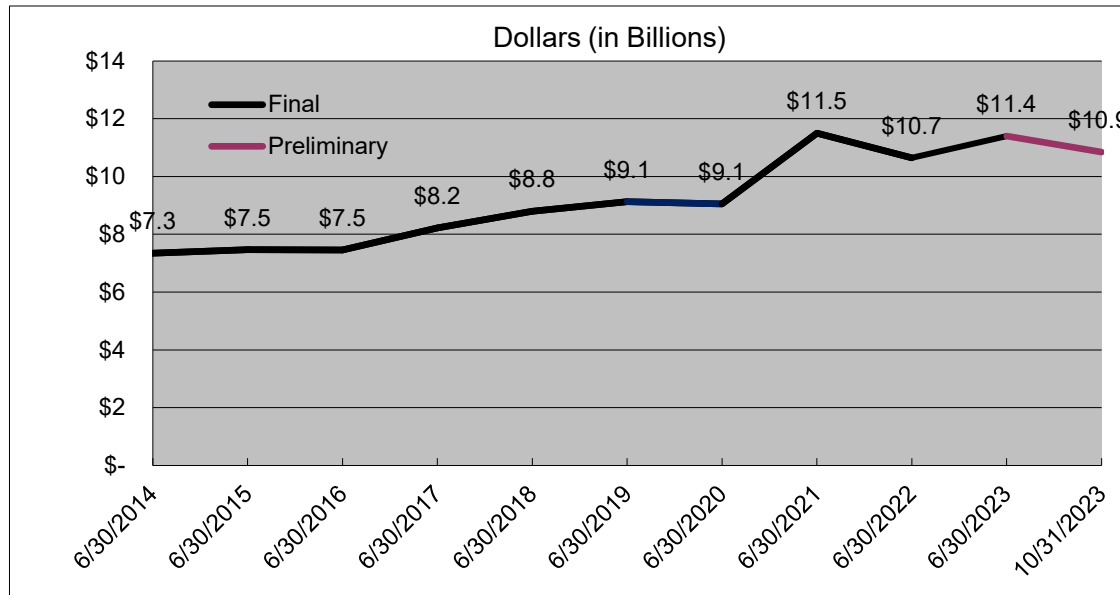
Source: NHRS

*Fixed income is within range when cash is included

Total Fund Market Value



| Fiscal Year | Dollars (in Billions) |
|-----------------|-----------------------|
| June 30,2014 | \$7.3 |
| June 30,2015 | \$7.5 |
| June 30,2016 | \$7.5 |
| June 30,2017 | \$8.2 |
| June 30,2018 | \$8.8 |
| June 30,2019 | \$9.1 |
| June 30,2020 | \$9.1 |
| June 30,2021 | \$11.5 |
| June 30,2022 | \$10.7 |
| June 30,2023 | \$11.4 |
| October 31,2023 | \$10.9 |



Source: NHRS

October 31, 2023



New Hampshire Retirement System

**Investment Measurement Service
Monthly Review**

The table below details the rates of return for the fund's asset classes over various time periods ended October 31, 2023. Negative manager excess returns are shown in red, positive excess returns in green. Returns for one year or greater are annualized.

| Net of Fees Returns for Periods Ended October 31, 2023 | | | | | | | | | |
|--|---------------------------------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Composite | Total Fund Weighting As of 10/31/2023 | Last Month | Last 3 Months | FYTD | CYTD | LTM | 3-YR | 5-YR | 10-YR |
| Total Domestic Equity | 29.71% | -3.56% | -10.23% | -6.88% | 5.27% | 4.59% | 9.07% | 8.72% | 9.26% |
| <i>Domestic Equity Benchmark(1)</i> | | -2.65% | -9.08% | -5.82% | 9.41% | 8.38% | 8.61% | 9.95% | 10.61% |
| <i>Excess Return</i> | | -0.91% | -1.16% | -1.07% | -4.14% | -3.79% | 0.46% | -1.24% | -1.35% |
| Total Non US Equity | 17.61% | -3.43% | -10.06% | -7.80% | 4.80% | 14.60% | 3.87% | 3.87% | 3.03% |
| <i>Non US Equity Benchmark(2)</i> | | -4.13% | -11.35% | -7.74% | 0.99% | 12.07% | 3.03% | 3.46% | 2.54% |
| <i>Excess Return</i> | | 0.69% | 1.29% | -0.06% | 3.80% | 2.53% | 0.84% | 0.41% | 0.48% |
| Total Fixed Income | 19.86% | -1.53% | -4.79% | -4.34% | -1.65% | 1.76% | -3.67% | 0.93% | 1.59% |
| <i>Bloomberg Capital Universe Bond Index</i> | | -1.50% | -4.43% | -4.34% | -2.11% | 1.19% | -5.04% | 0.21% | 1.17% |
| <i>Excess Return</i> | | -0.03% | -0.36% | -0.01% | 0.46% | 0.57% | 1.37% | 0.72% | 0.41% |
| Total Cash | 0.81% | 0.46% | 1.36% | 1.81% | 4.24% | 4.93% | 1.95% | 1.86% | 1.24% |
| <i>3-Month Treasury Bill</i> | | 0.45% | 1.36% | 1.77% | 4.06% | 4.77% | 1.85% | 1.77% | 1.16% |
| <i>Excess Return</i> | | 0.01% | 0.00% | 0.04% | 0.18% | 0.15% | 0.10% | 0.08% | 0.08% |
| Total Real Estate (Q2)* | 11.66% | -0.10% | -1.18% | -0.27% | -8.43% | -7.14% | 11.47% | 8.97% | 10.66% |
| <i>Real Estate Benchmark(3)</i> | | -0.71% | -2.62% | -3.57% | -11.64% | -11.46% | 6.76% | 5.28% | 7.64% |
| <i>Excess Return</i> | | 0.61% | 1.44% | 3.30% | 3.21% | 4.32% | 4.71% | 3.69% | 3.03% |
| Total Private Equity (Q2)* | 15.18% | 0.00% | 0.13% | -0.03% | 5.24% | 3.15% | 19.63% | 13.71% | 12.24% |
| <i>Private Equity Benchmark(4)</i> | | 3.70% | 11.47% | 12.82% | 30.78% | 15.12% | 16.39% | 15.37% | 16.24% |
| <i>Excess Return</i> | | -3.70% | -11.34% | -12.85% | -25.55% | -11.97% | 3.24% | -1.66% | -4.00% |
| Total Private Debt (Q2)* | 5.17% | 0.00% | -0.11% | -0.03% | 3.54% | 4.96% | 8.49% | 5.39% | 6.71% |
| <i>Private Debt Benchmark(5)</i> | | 1.30% | 2.91% | 4.11% | 12.34% | 8.08% | 4.28% | 3.57% | 6.31% |
| <i>Excess Return</i> | | -1.30% | -3.02% | -4.14% | -8.80% | -3.11% | 4.21% | 1.82% | 0.40% |
| Total Fund Composite | 100.00% | -2.00% | -6.06% | -4.40% | 1.88% | 3.79% | 6.88% | 6.61% | 6.59% |
| <i>Total Fund Benchmark(6)</i> | | -1.63% | -5.20% | -3.31% | 4.80% | 6.20% | 4.77% | 6.45% | 6.72% |
| <i>Excess Return</i> | | -0.37% | -0.86% | -1.09% | -2.92% | -2.41% | 2.11% | 0.16% | -0.12% |

(1) The Domestic Equity Benchmark is the Russell 3000 Index as of 7/1/2021.

(2) The Non US Equity Index is the MSCI ACWI ex US Index as of 7/1/2003. Prior to 7/1/2003 it was the MSCI EAFE Index.

(3) The Real Estate Benchmark is the NCREIF NFI-ODCE Value Weight Net Index lagged 1 quarter as of 7/1/2015.

(4) The Private Equity Benchmark is the Russell 3000 Index + 2% lagged 1 quarter as of 7/1/2022.

(5) The Private Debt Benchmark is (50% MStar LSTA Leveraged Loan 100 Idx + 50% Bloomberg High Yield Index) + 1% lagged 1 quarter as of 7/1/2022.

(6) Current Month Target = 30.0% Russell 3000 Index, 25.0% Bloomberg Universal, 20.0% MSCI ACWI ex-US, 10.0% NCREIF NFI-ODCE Value Weight Net lagged 3 months, 10.0% Russell 3000 Index lagged 3 months+2.0%, 2.5% Bloomberg High Yield Corp lagged 3 months+1.0% and 2.5% MStar LSTA Lev Loan 100 lagged 3 months +1.0%.

(7) For the trailing 25 year period ended 10/31/23, the Total Fund has returned 6.64% versus the Total Fund Custom Benchmark return of 6.46%.

*Real Estate and Alternatives market values reflect current custodian valuations, which are typically lagged approximately 1 quarter.

FYTD Fiscal Year to Date
 CYTD Calendar Year to Date
 LTM Last Twelve Months

The table below details the rates of return for the fund's investment managers over various time periods ended October 31, 2023. Negative manager excess returns are shown in red, positive excess returns in green. Returns for one year or greater are annualized.

| Net of Fees Returns for Periods Ended October 31, 2023 | | | | | | | | | |
|--|---------------------------------------|---------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|
| Composite | Total Fund Weighting As of 10/31/2023 | Last Month | Last 3 Months | FYTD | CYTD | LTM | 3-YR | 5-YR | 10-YR |
| Total Domestic Equity | 29.71% | -3.56% | -10.23% | -6.88% | 5.27% | 4.59% | 9.07% | 8.72% | 9.26% |
| Domestic Equity Benchmark(1) | | -2.65% | -9.08% | -5.82% | 9.41% | 8.38% | 8.61% | 9.95% | 10.61% |
| Excess Return | | -0.91% | -1.16% | -1.07% | -4.14% | -3.79% | 0.46% | -1.24% | -1.35% |
| Large Cap Domestic Equity | 17.46% | -2.10% | -8.24% | -5.30% | 10.53% | 9.98% | 10.28% | 10.04% | 10.28% |
| S&P 500 Index | | -2.10% | -8.25% | -5.31% | 10.69% | 10.14% | 10.36% | 11.01% | 11.18% |
| Excess Return | | 0.00% | 0.01% | 0.01% | -0.16% | -0.16% | -0.08% | -0.97% | -0.89% |
| BlackRock S&P 500 | 17.46% | -2.10% | -8.24% | -5.30% | 10.53% | 9.98% | 10.28% | 10.95% | 11.14% |
| S&P 500 Index | | -2.10% | -8.25% | -5.31% | 10.69% | 10.14% | 10.36% | 11.01% | 11.18% |
| Excess Return | | 0.00% | 0.01% | 0.01% | -0.16% | -0.16% | -0.08% | -0.06% | -0.03% |
| Smid Cap Domestic Equity | 5.31% | -5.89% | -13.42% | -9.62% | -1.99% | -2.95% | 7.14% | 5.56% | 6.69% |
| Russell 2500 Index | | -6.07% | -14.80% | -10.57% | -2.70% | -4.63% | 5.51% | 5.48% | 6.89% |
| Excess Return | | 0.18% | 1.39% | 0.95% | 0.72% | 1.68% | 1.63% | 0.09% | -0.20% |
| AllianceBernstein | 3.23% | -6.22% | -14.69% | -11.22% | -2.65% | -4.03% | 4.30% | 5.64% | 7.23% |
| Russell 2500 Index | | -6.07% | -14.80% | -10.57% | -2.70% | -4.63% | 5.51% | 5.48% | 6.89% |
| Excess Return | | -0.15% | 0.11% | -0.66% | 0.05% | 0.60% | -1.22% | 0.16% | 0.34% |
| TSW | 2.08% | -5.38% | -11.36% | -7.01% | -0.94% | -1.22% | 12.27% | 5.45% | 5.90% |
| TSW Blended Benchmark (2) | | -5.61% | -14.10% | -9.07% | -3.77% | -4.94% | 10.33% | 5.39% | 6.84% |
| Excess Return | | 0.23% | 2.75% | 2.05% | 2.83% | 3.72% | 1.93% | 0.06% | -0.94% |
| Small Cap Domestic Equity | 6.94% | -5.30% | -12.55% | -8.62% | -1.65% | -2.39% | 7.89% | 7.98% | 8.22% |
| Russell 2000 Index | | -6.82% | -16.69% | -11.60% | -4.45% | -8.56% | 3.95% | 3.31% | 5.63% |
| Excess Return | | 1.52% | 4.14% | 2.98% | 2.80% | 6.18% | 3.94% | 4.68% | 2.59% |
| Boston Trust | 1.87% | -3.45% | -11.22% | -7.33% | -3.24% | -4.46% | 11.21% | 8.77% | 8.11% |
| Russell 2000 Index | | -6.82% | -16.69% | -11.60% | -4.45% | -8.56% | 3.95% | 3.31% | 5.63% |
| Excess Return | | 3.37% | 5.47% | 4.27% | 1.21% | 4.11% | 7.27% | 5.46% | 2.48% |
| Segall Bryant & Hamill | 1.93% | -4.80% | -10.91% | -7.57% | -2.49% | -0.58% | 8.52% | 8.48% | 7.76% |
| Russell 2000 Index | | -6.82% | -16.69% | -11.60% | -4.45% | -8.56% | 3.95% | 3.31% | 5.63% |
| Excess Return | | 2.02% | 5.78% | 4.03% | 1.96% | 7.98% | 4.57% | 5.18% | 2.12% |
| Wellington | 3.14% | -6.68% | -14.28% | -10.00% | -0.14% | -2.21% | 5.72% | 7.24% | 8.59% |
| Russell 2000 Index | | -6.82% | -16.69% | -11.60% | -4.45% | -8.56% | 3.95% | 3.31% | 5.63% |
| Excess Return | | 0.14% | 2.41% | 1.60% | 4.32% | 6.36% | 1.78% | 3.93% | 2.96% |

(1) The Domestic Equity Benchmark is the Russell 3000 Index as of 7/1/2021.

(2) TSW Blended Benchmark is the Russell 2500 Value Index as of 7/1/2019. Prior to 7/1/2019 it was the Russell 2500.

FYTD Fiscal Year to Date
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The table below details the rates of return for the fund's investment managers over various time periods ended October 31, 2023. Negative manager excess returns are shown in red, positive excess returns in green. Returns for one year or greater are annualized.

| Net of Fees Returns for Periods Ended October 31, 2023 | | | | | | | | | |
|--|---------------------------------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Composite | Total Fund Weighting As of 10/31/2023 | Last Month | Last 3 Months | FYTD | CYTD | LTM | 3-YR | 5-YR | 10-YR |
| Total Non US Equity | 17.61% | -3.43% | -10.06% | -7.80% | 4.80% | 14.60% | 3.87% | 3.87% | 3.03% |
| Non US Equity Benchmark (1) | | -4.13% | -11.35% | -7.74% | 0.99% | 12.07% | 3.03% | 3.46% | 2.54% |
| Excess Return | | 0.69% | 1.29% | -0.06% | 3.80% | 2.53% | 0.84% | 0.41% | 0.48% |
| Core Non US Equity | 10.74% | -3.72% | -9.88% | -7.52% | 5.50% | 15.46% | 6.51% | 3.81% | 2.61% |
| Core Non US Benchmark (2) | | -4.13% | -11.35% | -7.74% | 0.99% | 12.07% | 3.03% | 3.46% | 2.54% |
| Excess Return | | 0.41% | 1.47% | 0.22% | 4.51% | 3.38% | 3.47% | 0.35% | 0.07% |
| Aristotle | 1.39% | -3.67% | -10.82% | -7.97% | 3.76% | 12.39% | - | - | - |
| MSCI EAFE | | -4.05% | -10.88% | -8.00% | 2.74% | 14.40% | - | - | - |
| Excess Return | | 0.38% | 0.06% | 0.03% | 1.02% | -2.01% | - | - | - |
| Artisan Partners | 3.06% | -2.49% | -8.05% | -6.51% | 3.22% | 10.85% | 1.45% | 3.72% | - |
| MSCI EAFE | | -4.05% | -10.88% | -8.00% | 2.74% | 14.40% | 5.73% | 4.10% | - |
| Excess Return | | 1.56% | 2.83% | 1.48% | 0.48% | -3.55% | -4.28% | -0.38% | - |
| BlackRock SuperFund | 1.52% | -4.12% | -11.30% | -7.71% | - | - | - | - | - |
| MSCI ACWI Ex-US | | -4.13% | -11.35% | -7.74% | - | - | - | - | - |
| Excess Return | | 0.00% | 0.05% | 0.03% | - | - | - | - | - |
| Causeway Capital | 3.46% | -4.42% | -10.06% | -7.33% | 11.60% | 26.24% | 14.92% | 6.08% | - |
| MSCI EAFE | | -4.05% | -10.88% | -8.00% | 2.74% | 14.40% | 5.73% | 4.10% | - |
| Excess Return | | -0.37% | 0.82% | 0.67% | 8.86% | 11.84% | 9.19% | 1.98% | - |
| Lazard | 1.30% | -4.27% | -10.92% | -9.64% | 1.39% | 8.37% | - | - | - |
| MSCI EAFE | | -4.05% | -10.88% | -8.00% | 2.74% | 14.40% | - | - | - |
| Excess Return | | -0.21% | -0.03% | -1.64% | -1.34% | -6.03% | - | - | - |
| Emerging Markets | 1.40% | -3.56% | -12.52% | -7.00% | -1.04% | 12.06% | -5.49% | 0.54% | 0.28% |
| MSCI EM | | -3.89% | -12.16% | -6.70% | -2.14% | 10.80% | -3.67% | 1.60% | 1.19% |
| Excess Return | | 0.33% | -0.36% | -0.31% | 1.10% | 1.26% | -1.82% | -1.06% | -0.91% |
| Wellington Emerging Markets | 1.40% | -3.56% | -12.52% | -7.00% | -3.18% | 9.86% | -5.74% | 0.95% | 1.55% |
| MSCI EM | | -3.89% | -12.16% | -6.70% | -2.14% | 10.80% | -3.67% | 1.60% | 1.19% |
| Excess Return | | 0.33% | -0.36% | -0.31% | -1.04% | -0.94% | -2.07% | -0.65% | 0.36% |
| Non US Small Cap | 1.04% | -5.42% | -13.51% | -9.56% | -2.26% | 7.02% | -0.92% | -3.60% | -1.60% |
| MSCI EAFE Small Cap | | -5.87% | -13.03% | -9.18% | -4.16% | 6.47% | 0.26% | 1.58% | 3.36% |
| Excess Return | | 0.46% | -0.48% | -0.39% | 1.90% | 0.55% | -1.18% | -5.18% | -4.95% |
| Wellington Int'l Small Cap Research | 1.04% | -5.42% | -13.51% | -9.56% | -2.26% | 7.02% | - | - | - |
| MSCI EAFE Small Cap | | -5.87% | -13.03% | -9.18% | -4.16% | 6.47% | - | - | - |
| Excess Return | | 0.46% | -0.48% | -0.39% | 1.90% | 0.55% | - | - | - |
| Global Equity | 4.43% | -2.22% | -8.82% | -8.29% | 8.01% | 15.08% | 6.94% | 9.06% | 8.88% |
| MSCI ACWI net | | -3.01% | -9.62% | -6.31% | 6.75% | 10.50% | 6.68% | 7.47% | 6.81% |
| Excess Return | | 0.79% | 0.79% | -1.99% | 1.27% | 4.57% | 0.25% | 1.59% | 2.07% |
| Walter Scott Global Equity | 4.43% | -2.22% | -8.82% | -8.29% | 8.01% | 15.08% | 6.94% | 9.06% | 8.88% |
| Walter Scott Blended Benchmark (3) | | -3.01% | -9.62% | -6.31% | 6.75% | 10.50% | 6.68% | 7.47% | 6.81% |
| Excess Return | | 0.79% | 0.79% | -1.99% | 1.27% | 4.57% | 0.25% | 1.59% | 2.07% |

(1) The Non US Equity Index is the MSCI ACWI ex US Index as of 7/1/2003. Prior to 7/1/2003 it was the MSCI EAFE Index.
 (2) The Core Non US Equity Index is the MSCI ACWI ex US as of 7/1/2007. Prior to 7/1/2007 it was the MSCI EAFE Index.
 (3) The Walter Scott Blended Benchmark is the MSCI ACWI Index as of 5/1/2008. Prior to 5/1/2008 it was the MSCI EAFE Index.

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The table below details the rates of return for the fund's investment managers over various time periods ended October 31, 2023. Negative manager excess returns are shown in red, positive excess returns in green. Returns for one year or greater are annualized.

| Net of Fees Returns for Periods Ended October 31, 2023 | | | | | | | | | |
|--|---------------------------------------|---------------|----------------|----------------|---------------|--------------|---------------|---------------|---------------|
| Composite | Total Fund Weighting As of 10/31/2023 | Last Month | Last 3 Months | FYTD | CYTD | LTM | 3-YR | 5-YR | 10-YR |
| Total Fixed Income | 19.86% | -1.53% | -4.79% | -4.34% | -1.65% | 1.76% | -3.67% | 0.93% | 1.59% |
| <i>Fixed Income Benchmark (1)</i> | | -1.50% | -4.43% | -4.34% | -2.11% | 1.19% | -5.04% | 0.21% | 1.17% |
| <i>Excess Return</i> | | -0.03% | -0.36% | -0.01% | 0.46% | 0.57% | 1.37% | 0.72% | 0.41% |
| BlackRock SIO Bond Fund | 2.32% | -0.32% | -1.51% | -0.49% | 1.49% | 3.34% | 0.47% | - | - |
| <i>BlackRock Custom Benchmark (2)</i> | | 0.47% | 1.37% | 1.81% | 4.27% | 4.95% | 2.03% | - | - |
| <i>Excess Return</i> | | -0.79% | -2.88% | -2.30% | -2.78% | -1.61% | -1.55% | - | - |
| Brandywine Asset Mgmt | 1.90% | -3.00% | -11.79% | -10.12% | -7.19% | 1.51% | -6.75% | -1.39% | -0.07% |
| <i>Brandywine Custom Benchmark (3)</i> | | -1.17% | -5.86% | -5.62% | -3.90% | 0.28% | -9.11% | -2.64% | -1.43% |
| <i>Excess Return</i> | | -1.83% | -5.94% | -4.50% | -3.29% | 1.23% | 2.36% | 1.25% | 1.36% |
| FIAM (Fidelity) Tactical Bond | 3.17% | -1.74% | -4.99% | -4.82% | -1.84% | 1.23% | -2.25% | - | - |
| <i>Bloomberg Aggregate</i> | | -1.58% | -4.69% | -4.76% | -2.77% | 0.36% | -5.57% | - | - |
| <i>Excess Return</i> | | -0.17% | -0.30% | -0.06% | 0.93% | 0.87% | 3.32% | - | - |
| Income Research & Management | 6.70% | -1.44% | -4.27% | -4.32% | -1.68% | 1.20% | -5.39% | 0.69% | 1.46% |
| <i>Bloomberg Gov/Credit</i> | | -1.42% | -4.30% | -4.37% | -2.26% | 0.74% | -5.58% | 0.30% | 1.08% |
| <i>Excess Return</i> | | -0.02% | 0.03% | 0.05% | 0.58% | 0.46% | 0.19% | 0.39% | 0.38% |
| Loomis Sayles | 2.42% | -1.56% | -3.57% | -2.79% | -0.21% | 2.70% | -1.84% | 2.32% | 2.77% |
| <i>Loomis Sayles Custom Benchmark (4)</i> | | -1.43% | -3.78% | -3.36% | -0.22% | 2.39% | -3.22% | 1.10% | 1.97% |
| <i>Excess Return</i> | | -0.12% | 0.21% | 0.56% | 0.01% | 0.31% | 1.38% | 1.22% | 0.80% |
| Manulife Strategic Fixed Income | 1.83% | -1.37% | -4.17% | -3.56% | -0.32% | 2.35% | -2.27% | 1.48% | - |
| <i>Bloomberg Multiverse</i> | | -1.18% | -5.31% | -4.60% | -3.08% | 2.05% | -7.02% | -1.50% | - |
| <i>Excess Return</i> | | -0.20% | 1.14% | 1.04% | 2.76% | 0.29% | 4.74% | 2.98% | - |
| Mellon US Agg Bond Index | 1.52% | -1.59% | -4.71% | -4.77% | - | - | - | - | - |
| <i>Bloomberg Aggregate Bond Index</i> | | -1.58% | -4.69% | -4.76% | - | - | - | - | - |
| <i>Excess Return</i> | | -0.01% | -0.02% | -0.02% | - | - | - | - | - |
| Total Cash | 0.81% | 0.46% | 1.36% | 1.81% | 4.24% | 4.93% | 1.95% | 1.86% | 1.24% |
| <i>3-month Treasury Bill</i> | | 0.45% | 1.36% | 1.77% | 4.06% | 4.77% | 1.85% | 1.77% | 1.16% |
| <i>Excess Return</i> | | 0.01% | 0.00% | 0.04% | 0.18% | 0.15% | 0.10% | 0.08% | 0.08% |
| Total Marketable Assets | 67.99% | -2.90% | -8.52% | -6.29% | 3.04% | 6.01% | 3.77% | 5.05% | 5.36% |
| <i>Total Marketable Index (5)</i> | | -2.66% | -8.15% | -5.81% | 3.32% | 7.09% | 2.68% | 5.23% | 5.61% |
| <i>Excess Return</i> | | -0.23% | -0.36% | -0.48% | -0.27% | -1.08% | 1.09% | -0.18% | -0.25% |

(1) The Fixed Income Benchmark is the Bloomberg Universal Bond Index as of 7/1/2007.

(2) The BlackRock Custom Benchmark is 3 Month SOFR compounded in arrears as of 1/1/2022.

(3) The Brandywine Blended Benchmark is the FTSE WGBI Ex-China Index as of 11/1/2021.

(4) The Loomis Sayles Custom Benchmark is 65% Bloomberg Aggregate and 35% Bloomberg High Yield.

(5) Marketable Assets Index is 40% Russell 3000, 26.7% MSCI ACWI ex US, and 33.3% Bloomberg Universal as of 7/1/2021.

FYTD Fiscal Year to Date
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The table below details the rates of return for the fund's investment managers over various time periods ended October 31, 2023. Negative manager excess returns are shown in red, positive excess returns in green. Returns for one year or greater are annualized.

| Net of Fees Returns for Periods Ended October 31, 2023 | | | | | | | | | |
|--|---------------------------------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|---------------|
| Composite | Total Fund Weighting As of 10/31/2023 | Last Month | Last 3 Months | FYTD | CYTD | LTM | 3-YR | 5-YR | 10-YR |
| Total Real Estate (Q2)* (5) | 11.66% | -0.10% | -1.18% | -0.27% | -8.43% | -7.14% | 11.47% | 8.97% | 10.66% |
| Real Estate Benchmark (1) | | -0.71% | -2.62% | -3.57% | -11.64% | -11.46% | 6.76% | 5.28% | 7.64% |
| Excess Return | | 0.61% | 1.44% | 3.30% | 3.21% | 4.32% | 4.71% | 3.69% | 3.03% |
| Strategic Core Real Estate (Q2)* | 7.26% | -0.06% | -1.31% | -0.15% | -12.60% | -11.12% | 9.03% | 7.43% | 9.27% |
| Real Estate Benchmark (1) | | -0.71% | -2.62% | -3.57% | -11.64% | -11.46% | 6.76% | 5.28% | 7.64% |
| Excess Return | | 0.65% | 1.31% | 3.41% | -0.96% | 0.34% | 2.27% | 2.15% | 1.63% |
| Tactical Non-Core Real Estate (Q2)* | 4.40% | -0.16% | -0.97% | -0.47% | -0.05% | 0.78% | 15.86% | 11.78% | 13.19% |
| Real Estate Benchmark (1) | | -0.71% | -2.62% | -3.57% | -11.64% | -11.46% | 6.76% | 5.28% | 7.64% |
| Excess Return | | 0.55% | 1.66% | 3.10% | 11.59% | 12.24% | 9.10% | 6.50% | 5.55% |
| Total Alternative Assets (Q2)* | 20.36% | 0.00% | 0.07% | -0.03% | 4.80% | 3.61% | 16.23% | 11.10% | 9.51% |
| Alternative Assets Benchmark (2) | | 2.90% | 8.58% | 9.88% | 24.44% | 12.83% | 12.39% | 11.41% | 11.88% |
| Excess Return | | -2.90% | -8.51% | -9.91% | -19.65% | -9.23% | 3.84% | -0.31% | -2.37% |
| Total Private Equity (Q2)* | 15.18% | 0.00% | 0.13% | -0.03% | 5.24% | 3.15% | 19.63% | 13.71% | 12.24% |
| Private Equity Benchmark (3) | | 3.70% | 11.47% | 12.82% | 30.78% | 15.12% | 16.39% | 15.37% | 16.24% |
| Excess Return | | -3.70% | -11.34% | -12.85% | -25.55% | -11.97% | 3.24% | -1.66% | -4.00% |
| Total Private Debt (Q2)* | 5.17% | 0.00% | -0.11% | -0.03% | 3.54% | 4.96% | 8.49% | 5.39% | 6.71% |
| Private Debt Benchmark (4) | | 1.30% | 2.91% | 4.11% | 12.34% | 8.08% | 4.28% | 3.57% | 6.31% |
| Excess Return | | -1.30% | -3.02% | -4.14% | -8.80% | -3.11% | 4.21% | 1.82% | 0.40% |

(1) The Real Estate Benchmark is the NCREIF NFI-ODCE Value Weight Net Index lagged 1 quarter as of 7/1/2015.

(2) The Alternative Assets Benchmark is 66.7% Russell 3000 Index + 2% lagged 1 quarter and 33.3% ((50% S&P LSTA Leveraged Loan 100 Index + 50% Bloomberg High Yield Index) + 1%) lagged 1 quarter as of 7/1/2022.

(3) The Private Equity Benchmark is the Russell 3000 Index + 2% lagged 1 quarter as of 7/1/2022.

(4) The Private Debt Benchmark is (50% MStar LSTA Leveraged Loan 100 Index / 50% Bloomberg High Yield Index) + 1% lagged 1 quarter as of 7/1/2022.

(5) Total Real Estate returns includes Townsend discretionary fee as of 7/1/2022.

*Real Estate and Alternatives market values reflect current custodian valuations, which are typically lagged approximately 1 quarter.

FYTD Fiscal Year to Date
CYTD Calendar Year to Date
LTM Last Twelve Months

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of October 31, 2023, with the distribution as of September 30, 2023. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

Asset Distribution Across Investment Managers

| | October 31, 2023 | | Net New Inv. | Inv. Return | September 30, 2023 | |
|-------------------------------------|-------------------------|---------------|----------------------|------------------------|-------------------------|---------------|
| | Market Value | Weight | | | Market Value | Weight |
| Total Domestic Equity | \$3,223,534,627 | 29.71% | \$0 | \$(118,110,059) | \$3,341,644,686 | 30.18% |
| Large Cap Domestic Equity | \$1,894,964,136 | 17.46% | \$0 | \$(40,648,930) | \$1,935,613,066 | 17.48% |
| Blackrock S&P 500 | 1,894,964,136 | 17.46% | 0 | (40,648,930) | 1,935,613,066 | 17.48% |
| SMid Cap Domestic Equity | \$576,019,670 | 5.31% | \$0 | \$(35,783,998) | \$611,803,668 | 5.53% |
| AllianceBernstein | 350,343,729 | 3.23% | 0 | (23,073,931) | 373,417,661 | 3.37% |
| TSW | 225,675,940 | 2.08% | 0 | (12,710,066) | 238,386,007 | 2.15% |
| Small Cap Domestic Equity | \$752,550,821 | 6.94% | \$0 | \$(41,677,132) | \$794,227,953 | 7.17% |
| Boston Trust | 202,881,075 | 1.87% | 0 | (7,157,893) | 210,038,968 | 1.90% |
| Segall Bryant & Hamill | 209,226,163 | 1.93% | 0 | (10,391,535) | 219,617,698 | 1.98% |
| Wellington | 340,443,583 | 3.14% | 0 | (24,127,704) | 364,571,287 | 3.29% |
| Total Non US Equity | \$1,910,799,119 | 17.61% | \$(25) | \$(67,035,019) | \$1,977,834,164 | 17.86% |
| Core Non US Equity (1) | \$1,164,961,566 | 10.74% | \$(25) | \$(44,474,809) | \$1,209,436,400 | 10.92% |
| Aristotle | 150,846,932 | 1.39% | 0 | (5,686,878) | 156,533,810 | 1.41% |
| Artisan Partners | 332,529,961 | 3.06% | 0 | (8,308,762) | 340,838,723 | 3.08% |
| BlackRock Superfund | 164,773,560 | 1.52% | 0 | (7,082,408) | 171,855,968 | 1.55% |
| Causeway Capital | 375,228,175 | 3.46% | 0 | (17,178,503) | 392,406,678 | 3.54% |
| Lazard | 140,915,346 | 1.30% | 0 | (6,217,152) | 147,132,498 | 1.33% |
| Emerging Markets | \$151,808,557 | 1.40% | \$0 | \$(5,460,193) | \$157,268,749 | 1.42% |
| Wellington Emerging Markets | 151,808,557 | 1.40% | 0 | (5,460,193) | 157,268,749 | 1.42% |
| Non US Small Cap | \$113,162,611 | 1.04% | \$0 | \$(6,402,451) | \$119,565,062 | 1.08% |
| Wellington Int'l Small Cap Research | 113,162,611 | 1.04% | 0 | (6,402,451) | 119,565,062 | 1.08% |
| Global Equity | \$480,866,386 | 4.43% | \$0 | \$(10,697,567) | \$491,563,953 | 4.44% |
| Walter Scott Global Equity | 480,866,386 | 4.43% | 0 | (10,697,567) | 491,563,953 | 4.44% |
| Total Fixed Income | \$2,155,373,748 | 19.86% | \$0 | \$(33,009,682) | \$2,188,383,430 | 19.77% |
| BlackRock SIO Bond Fund | 251,301,405 | 2.32% | 0 | (715,397) | 252,016,802 | 2.28% |
| Brandywine Asset Mgmt | 205,902,190 | 1.90% | 0 | (6,310,697) | 212,212,886 | 1.92% |
| FIAM (Fidelity) Tactical Bond | 344,081,884 | 3.17% | 0 | (6,014,541) | 350,096,425 | 3.16% |
| Income Research & Management | 727,252,611 | 6.70% | 0 | (10,496,554) | 737,749,165 | 6.66% |
| Loomis Sayles | 262,754,661 | 2.42% | 0 | (4,084,528) | 266,839,188 | 2.41% |
| Manulife Strategic Fixed Income | 199,076,386 | 1.83% | 0 | (2,724,741) | 201,801,127 | 1.82% |
| Mellon US Agg Bond Index | 165,004,611 | 1.52% | 0 | (2,663,224) | 167,667,836 | 1.51% |
| Total Cash | \$87,417,681 | 0.81% | \$(1,110,878) | \$417,244 | \$88,111,316 | 0.80% |
| Total Marketable Assets | \$7,377,125,175 | 67.99% | \$(1,110,904) | \$(217,737,517) | \$7,595,973,596 | 68.61% |
| Total Real Estate | \$1,264,736,140 | 11.66% | \$(4,271,227) | \$(760,321) | \$1,269,767,688 | 11.47% |
| Strategic Core Real Estate | 787,720,967 | 7.26% | (5,277,752) | (0) | 792,998,719 | 7.16% |
| Tactical Non-Core Real Estate | 477,015,173 | 4.40% | 1,006,526 | (760,321) | 476,768,969 | 4.31% |
| Total Alternative Assets | \$2,208,952,565 | 20.36% | \$3,351,269 | \$(80,164) | \$2,205,681,460 | 19.92% |
| Private Equity | 1,647,554,715 | 15.18% | (399,858) | (74,387) | 1,648,028,961 | 14.89% |
| Private Debt | 561,397,850 | 5.17% | 3,751,128 | (5,777) | 557,652,500 | 5.04% |
| Total Fund Composite | \$10,850,813,881 | 100.0% | \$(2,030,861) | \$(218,578,002) | \$11,071,422,744 | 100.0% |

-Alternatives market values reflect current custodian valuations, which may not be up to date.

(1) Includes \$667,591 in legacy assets that are not actively managed and in liquidation following the termination of Fisher Investments.

New Hampshire Retirement System

A Component Unit of the State of New Hampshire

Comprehensive Annual Investment Report

For the Fiscal Year Ended June 30, 2023

DRAFT



NHRS

New Hampshire Retirement System

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NHRS Investment Philosophy



December 12, 2023

The Honorable Christopher Sununu, Governor
The Honorable Jeb Bradley, President of the Senate
The Honorable Sherman Packard, Speaker of the House of Representatives

Annual Report for Fiscal Year 2023

The Independent Investment Committee (Investment Committee) of the New Hampshire Retirement System (NHRS, System) is pleased to present the Comprehensive Annual Investment Report for the Fiscal Year ended June 30, 2023, in accordance with the provisions of the Revised Statutes Annotated (RSA) 100-A:15, VII of the State of New Hampshire.

Asset Allocation & Summary of Results

Total assets at the end of Fiscal Year 2023 were \$11.4 billion, reflecting a \$0.7 billion increase compared to \$10.7 billion the prior year. The System's investment portfolio is prudently managed for the long-term in order to generate adequate returns to support benefit payments promised to members. To achieve that goal, investments are broadly diversified across the following asset classes: domestic (U.S.) and non-U.S. stocks, bonds, real estate, and alternative investments.

The target allocation and range for each asset class shown below was adopted by the Board of Trustees on May 14, 2019, based on a recommendation of the Investment Committee.

| Asset Class | Target Allocation | Allocation Range | Actual Allocation at June 30, 2023* |
|-------------------------|--------------------------|-------------------------|--|
| U.S. Equity | 30% | 20 - 40% | 33.0% |
| Non-U.S. Equity | 20% | 15 - 25% | 15.6% |
| Fixed Income | 25% | 20 - 30% | 20.7% |
| Real Estate | 10% | 5 - 20% | 11.3% |
| Alternative Investments | 15% | 5 - 25% | 19.6% |

* U.S. Equity and Non-U.S. Equity have been adjusted to reflect a global equity portfolio which may opportunistically invest in each of these asset classes. Fixed Income includes cash. Refer to Appendix C for additional detail.

As illustrated in the table, as of June 30, 2023 all asset classes were within the allocation ranges.

The NHRS return was 8.2% net of fees for the Fiscal Year ended June 30, 2023 compared to the benchmark return of 9.8%. The five-year annualized net of fees return was 7.1% compared to the benchmark return of 6.9%. The ten-year annualized net of fees return was 7.9% compared to the benchmark return of 7.9%. Note that these benchmarks do not include any management fees which would be incurred if NHRS invested in the underlying indices. Compared to our peers, NHRS ranked in the top 30% and 17% for the five and ten-year trailing periods, respectively. These rankings are based on the Callan Public Fund Large Defined Benefit Gross Universe.

Over the long-term, the 25-year annualized net of fees return was 6.5%. The System's actuarial assumed rate of return is 6.75%.

Please refer to Appendix A for a detailed review of investment performance as well as market commentary.

The Investment Committee

The Investment Committee is responsible for investing in accordance with policies established by the NHRS Board of Trustees (Board), and making recommendations to the Board regarding asset allocation, investment consultants, and other investment policy matters. In addition, the Investment Committee is responsible for selecting investment managers, agents, and custodial banks; and reviewing performance.

The Investment Committee meets monthly and is comprised of six members: three independent voting members and an active non-voting member of the retirement system appointed by the Governor and Executive Council; and two voting members of the Board of Trustees appointed by the Chair of the Board. All members are required by statute to have significant experience in institutional investing or finance. As of June 30, 2023, the independent member was Christine Clinton, CFA; and the active member was Michael McMahon.

The two Board members serving on the Investment Committee were Maureen Kelliher, CFA (Chair); and Paul Provost, CFP®. Brian Bickford was appointed to the Investment Committee as

an independent voting member in June 2023 and began serving in July 2023. One vacancy remains for an independent voting member. Brief biographies and photographs of the Investment Committee members as of June 30, 2023 follow this report.

The Committee would like recognize a prior Committee member, Tim Lesko, for his contributions and dedicated service. Mr. Lesko served on the Committee over 5 years between January 2018 and December 2022. Mr. Lesko continues his service to the New Hampshire Retirement System as Chair of its Board of Trustees.

Investment Manual

The NHRS Investment Manual provides governance and oversight of the pension fund assets and is presented in Appendix C of this report. Highlights are listed below:

- The Investment Policy and Accountability Matrix provide a description of the roles and responsibilities of the Board, the Investment Committee, NHRS Staff, and the System's service providers;
- The Proxy Voting Policy and Securities Lending Policy provide specific guidance on these individual topics;
- The program's benchmarks and asset allocation policy are detailed along with discussions of risk management, liquidity, rebalancing and portfolio monitoring controls;
- Various considerations related to the oversight of investments are described, including the selection of service providers and use of active or passive strategies; and
- Asset class guidelines detail portfolio construction, permissible and prohibited investment vehicles, as well as concentration limits

The Board sets the assumed rate of return based on the recommendations of the System's actuary, NHRS Staff, the Investment Committee, and analysis provided by the investment consultant and other industry experts. A written opinion letter on this subject is included in this report as Appendix B.

Governance, Benchmarks and Measurement of Outcomes

The management and administration of the pension trust is a complex effort involving multiple stakeholders with distinct roles and responsibilities as described in the Investment Manual and in statute. At each regular meeting of the Board or Investment Committee, status reports are provided regarding the outcomes of various investment initiatives. Additionally, performance is reviewed versus benchmarks at the manager-level, asset class-level, and portfolio-level on a monthly and quarterly basis, as appropriate, and over various time-periods since the inception of a particular investment mandate or strategy to continually evaluate the portfolio.

NHRS continuously monitors the investment fees paid to managers and discloses alternative investment fees on an aggregate basis each quarter in compliance with the New Hampshire House Bill (HB) 173 passed in 2021. NHRS has a procedure to monitor Environmental, Social, and Governance factors for all marketable managers.

Administrative Comments

The Investment Committee meets at the System's offices monthly. Notice is provided regarding the time, agenda and location of these meetings pursuant to RSA 91-A:2, II. The Investment Committee promotes transparency regarding the investment program through these public meetings, investment materials and reports. Meeting minutes are posted on the NHRS website. Certain investment matters may require discussion in non-public session in accordance with statute. On a regular basis, the Investment Committee receives presentations from investment managers currently retained by NHRS as well as from prospective managers.

Raynald D. Leveque was the System's Chief Investment Officer for the Fiscal Year ending June 30, 2023. In this capacity, Mr. Leveque served as the primary staff liaison on investment matters. In addition, he directed all aspects of the System's investment program including the development of recommendations regarding the System's overall investment strategy and asset allocation; oversight of external portfolio managers; and promoting productive relationships with investment consultants and service providers. A biography of Mr. Leveque follows this report.

Each fiscal year, NHRS produces an Annual Comprehensive Financial Report (ACFR), which details the operation and financial condition of the retirement system. This report also includes a

financial section which outlines the funded status and unfunded actuarial accrued liability, in addition to other actuarial statistics. ACFR reports are available on the System's website, www.nhrs.org.

Overview of Significant Investment Committee Initiatives during the 2023 Fiscal Year:

- Reviewed capital market expectations and asset allocation in conjunction with an asset/liability study underway
- Hired passive non-U.S. equity and fixed income managers for rebalancing and asset allocation decisions
 - Completed rebalance of the non-U.S. equity and fixed income portfolios by allocating to the passive managers
- Reviewed the long-term performance of all current marketable investment managers against their respective benchmarks and renewed their contracts, where appropriate
 - Updated public market manager contract terms from two years to five years going forward
- Approved NHRS Investment Staff's (Staff's) proposal for a Staff-driven investment manager recommendation process
- Reviewed and renewed, where appropriate, service provider/other contracts:
 - Renewed the custodial bank agreement with BNY Mellon for an additional two-year period and incorporated a private markets transparency service offered through BNY Mellon
- Approved a revised proxy voting policy which was subsequently approved by the NHRS Board of Trustees
- Reviewed and discussed the structure of the public markets portfolio
- Continued the expansion of the alternative investments program; new commitments of \$130 million in aggregate were made to three private equity investment strategies.

- Performed a comprehensive review of all private debt and equity commitments made since the program's restart in 2009 and adopted an annual private debt and equity strategic plan
- Adopted an annual real estate investment plan

The Investment Committee is dedicated to achieving the best long-term investment results possible within acceptable levels of risk and consistent with prudent policies and practices.

Respectfully submitted,

Maureen Kelliher, Chair
Christine Clinton
Paul Provost
Michael McMahon

Jan Goodwin, Executive Director
Raynald Leveque, Chief Investment Officer



Maureen Kelliher has more than four decades of investment management experience. She has served as co-chief and chief investment officer for trust and investment management firms as well as money desk manager for several banks. She holds the Chartered Financial Analyst® (CFA®) designation and is a member of the CFA Institute. She lives in Dover.



Christine Clinton has been working in the investment management industry for more than two decades after cofounding Bluestone Wealth Management LLC. Prior to Bluestone, she worked as a Corporate Controller for several high-tech start-ups in the communications, finance and biotech industries in the Boston area. Christine is a CPA as well as a Chartered Financial Analyst® (CFA) charterholder. She is a member of the CFA Institute and Boston Securities Analysts Society. She lives in Dublin.



Paul Provost is a 30-year veteran of the wealth management and trust business, he has led the wealth management businesses for local community banks in New Hampshire since 2002. He is the president of New Hampshire Trust Company (NHTrust), a subsidiary of New Hampshire Mutual Bancorp headquartered in Concord. Paul earned a bachelor's degree from the University of Vermont and a master's degree in Administrative Management from Saint Michael's College. He is a Certified Financial Planner. He also serves on the boards of the New Hampshire Higher Education Loan Corporation and the Concord Hospital Trust. He previously served as a board chair for the NH Charitable Foundation, Capital Region, and the Central New Hampshire Boys & Girls Club. He lives in Concord.



Mike McMahon has been a member of Hampton Fire Rescue for nearly 30 years, where he currently serves as Fire Chief. During this time, he has served in a variety of financial and investment roles. He has spent over two decades in credit union leadership and is currently a director at Service Credit Union. Mike was a member of the 2017 Decennial Retirement Commission and serves in many other community leadership roles.



Raynald Leveque is the Chief Investment Officer for the New Hampshire Retirement System. Before joining New Hampshire in 2022, Raynald was the Deputy Chief Investment Officer for the State of Connecticut's \$41 billion Retirement Plans and Trust Funds. Prior to the State of Connecticut, Raynald held leadership roles in strategic asset allocation, risk management and quantitative portfolio management at the \$254 billion New York State Common Retirement Fund, and Invesco (formerly OppenheimerFunds). Raynald earned his master's degree in finance from Fordham University and a bachelor's degree in computer engineering from the Rochester Institute of Technology.

Appendix A

Investment Consultant's Letter

Investment Performance Review & Market Commentary

Investment Reports



Callan LLC
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October 31, 2023

Board of Trustees
Investment Committee
Executive Director

The New Hampshire Retirement System

54 Regional Drive
Concord, NH 03301-8507

Dear NHRS Fiduciaries:

Callan LLC (Callan) is pleased to provide an overview of the New Hampshire Retirement System (NHRS) investment program for the fiscal year ended June 30, 2023. Fiscal year 2023 was a very strong performing, yet volatile year for the capital markets due to a variety of factors. Recessionary fears were prevalent as the yield curve remained inverted throughout the majority of the fiscal year and inflation reached levels not seen since the early 1980's. The Federal Reserve hiked interest rates relatively aggressively in an effort to contain inflationary pressures. Investors continue to monitor the potential unintended consequences of the Fed's current Monetary Policy, including its impact on the real economy and the possibility of a recession. The regional banking crisis that took place during the third quarter of the fiscal year (March 2023) serves as an example of some of the unintended consequences of the current policy. In addition, geopolitical events, such as China's decision to move away from "zero-COVID" policies, the ongoing war in Ukraine, and the U.S. debt ceiling, for example, contributed to higher volatility in the capital markets. Despite these events, U.S. GDP rose during each quarter of the fiscal year and the labor market remained robust with unemployment at a generational low. Furthermore, inflation dropped significantly during the second half of the fiscal year, ending at nearly 3%, due mostly to having better balance between supply and demand dynamics in the current environment, falling food and energy prices, and the incremental impact of the Fed's Monetary Policy. The capital markets, particularly broad global equities, were resilient over the fiscal year, rising by double digits. Bond indices produced mixed results, while commodities and other alternatives asset classes fared relatively poorly.

NHRS follows an investment strategy designed to meet its funding requirements over the long-term. Assets are allocated efficiently to ensure that beneficiaries will receive the benefits they were promised. The Fund is managed on a total return basis, while recognizing the importance of capital preservation and prudent risk management. Additionally, the Independent Investment Committee (IIC) administers the Fund in accordance with sound fiduciary standards and industry best practices. The Fund's strategic asset allocation and related objectives, parameters and specific delegation of responsibilities are explicitly defined in the Investment Policy Statement. The IIC manages the investment program pursuant to the investment policy, develops asset class guidelines, monitors and evaluates performance, and makes decisions regarding the retention or termination of asset managers. The investment manual includes all investment policies and asset class guidelines and may be obtained from the NHRS website at www.nhrs.org. The following pages report on the performance and attributes of the investment program for fiscal year 2023.

Market Review for the Year Ended June 30, 2023

The market volatility experienced over the fiscal year reflected fluctuations in risk sentiment amid an array of systemic risk factors, including yields, inflation, China's "zero-COVID" policies, the U.S. debt ceiling, the implications of the war between Russia and Ukraine, as well as other issues impacting the global markets. Risk assets performed poorly over the first quarter of the fiscal year, but rebounded strongly during the final three quarters. U.S. GDP readings were positive throughout the fiscal year, rising 3.2%, 2.6%, 2.0% and 2.4% over the first, second, third, and fourth quarters, respectively. Strong GDP growth results were driven by a robust labor market as well as a significant decline in inflationary pressures. Price reductions have been broad-based in the U.S., but primarily driven by the food and energy sectors. U.S. equities outperformed developed non-U.S. equities over the fiscal year. The S&P 500 Index rose 19.6% over the fiscal year while the MSCI EAFE Index rose 18.8%. Emerging markets equities, as measured by the MSCI Emerging Markets Index, returned 1.8%, underperforming both U.S. and non-U.S. developed markets equities. Within emerging markets, China detracted the most as concerns surrounding China's real estate sector and poor economic data impacted investor sentiment. Fixed income markets were challenged, as inflation drove the 10-year U.S. Treasury yield over 4% for the first time since 2011. The Bloomberg U.S. Aggregate Bond Index returned -0.9% over the fiscal year.

NHRS Investment Portfolio Review

For the fiscal year ended June 30, 2023, the NHRS Total Fund returned 8.2%, net of investment management fees (or "net"), and underperformed the Total Fund Benchmark return of 9.8%. The Fund posted a return of 8.8%, gross of investment management fees (or "gross"), ranking in the 33rd percentile relative to peers in Callan's Large Defined Benefit Public Fund Universe, which consisted of 85 constituents as of June 30, 2023. The Fund's domestic equity and alternatives portfolios underperformed their respective benchmarks. From an asset allocation standpoint, given the "denominator effect" institutional investors experienced over the last fiscal year, an underweight to domestic equity and non-US equity as well as an overweight to real estate detracted from performance. For the trailing three-year period, the Fund returned 9.6% (net), ranking in the 22nd percentile of its peers (peer group rankings are measured gross of investment management fees). For the trailing five-year period, the Fund returned 7.1% (net), ranking in the top third of the peer group (30th percentile). For the trailing ten-year period, the Fund returned 7.9% (net), ranking in the 17th percentile of its peers, and for the trailing twenty-five year period, the Fund returned 6.5% (net), below the current assumed rate of return of 6.75% but ranked in the 32nd percentile of its peers.

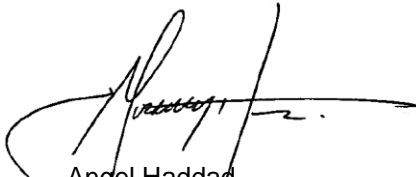
During fiscal year 2023, the IIC engaged in the following activities:

- **Asset Allocation:** Reevaluated the Fund's strategic asset allocation, with an emphasis on understanding the impact of increasing exposure to alternatives given liquidity concerns;
- **Rebalancing:** NHRS Staff worked with the IIC to rebalance the portfolio, with an emphasis on the Fund's fixed income and non-U.S. positions to bring the allocations back within acceptable IPS parameters;
- **Structural modifications:** NHRS Staff introduced two passive exposures (BlackRock Superfund – Non-U.S. Equity and Mellon U.S. Aggregate Bond Index – Fixed Income) and terminated one of the emerging markets active managers due to performance concerns – Neuberger Berman;
- **Alternative Assets Portfolio Pacing and Implementation:** Continued to implement the approved allocations within the Alternative Assets portfolio.


Callan

Callan LLC provides NHRS with strategic planning, implementation, performance monitoring services, and on-going research and education on a variety of relevant topics for institutional investors. The investment performance analysis produced by Callan has been developed using performance evaluation methodologies that are consistent with industry best practices. The performance results presented in this letter are calculated using a time-weighted returns and are reported both net of investment management fees, as well as gross of fees.

Sincerely,



Angel Haddad
Senior Vice President



Britton M. Murdoch
Vice President

Investment Performance Review – Fiscal Year 2023

Overview

For the fiscal year ended June 30, 2023, the NHRS Total Fund returned 8.2%, net of investment management fees (or “net”), and underperformed the Total Fund Benchmark return of 9.8%. The Fund posted a return of 8.8%, gross of investment management fees (or “gross”), ranking in the 33rd percentile relative to peers in Callan’s Large Defined Benefit Public Fund Universe, which consisted of 85 constituents as of June 30, 2023. With the positive momentum experienced in the capital markets, the overall portfolio (the “Fund”) performed well on an absolute basis but underperformed its total fund target. The Fund’s domestic equity and alternatives portfolios underperformed their respective benchmarks. From a strategic asset allocation standpoint, given the “denominator effect” institutional investors experienced over the last fiscal year, an underweight to domestic equity and non-US equity as well as an overweight to real estate detracted from performance.

U.S. Equity Markets

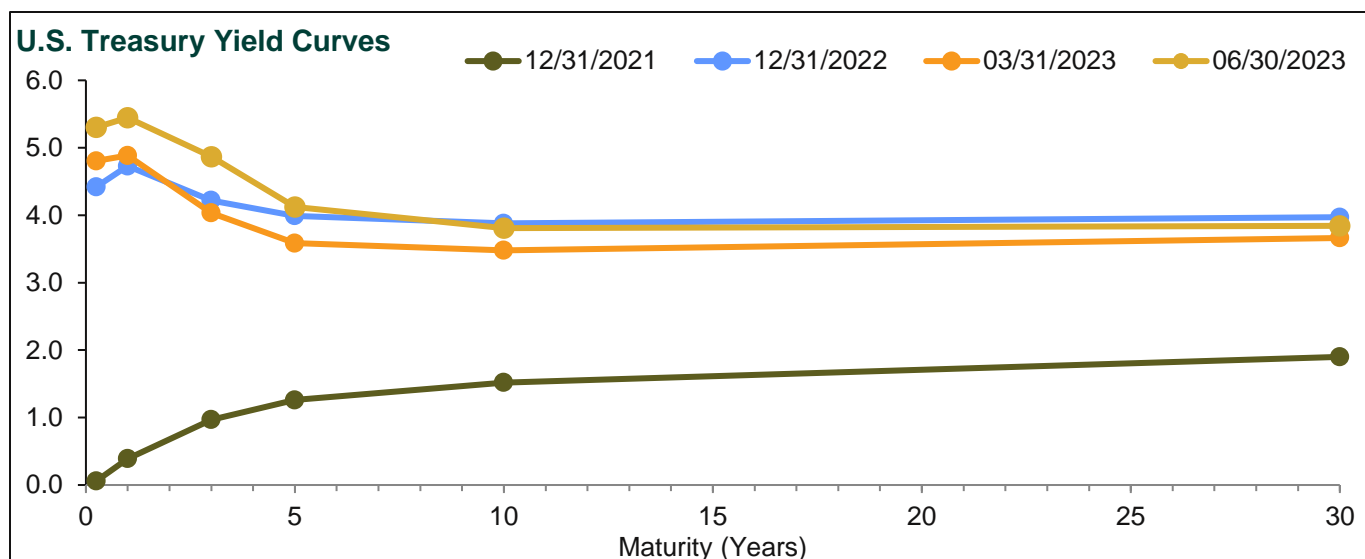
U.S. stocks registered a return of 19.6% over the fiscal year, as measured by the S&P 500 Index. The annualized return over the past 10 years was 12.9%. Most of the sectors represented in the index produced positive returns over the fiscal year, led by the Information Technology, Industrials, and Consumer Discretionary sectors. Real Estate and Utilities were the only sectors to produce negative returns over the fiscal year. Growth stocks outperformed value stocks over the period, with value slightly in favor over the first half of the fiscal year and growth stocks heavily in favor over the second half. Small cap stocks produced strong absolute returns but underperformed large cap stocks over the period, returning 12.3%, as measured by the Russell 2000 Index.

Non-U.S. Equities

Developed non-U.S. equities and emerging market equities produced positive returns during the fiscal year. The strong U.S. dollar began to depreciate versus other currencies starting in September 2022, contributing to strong non-U.S. equity performance. For the fiscal year, developed non-U.S. equities significantly outperformed emerging markets. China posted particularly weak returns over the fiscal year, -16.8% as measured by the MSCI China Index, due to multiple challenges including deteriorating exports, a high youth unemployment rate, a distressed property market, and languishing domestic demand. For the one-year period ended June 30, 2023, developed non-U.S. equity markets, as measured by the MSCI EAFE Index, posted a return of 18.8% and emerging markets, as measured by MSCI Emerging Markets Index, posted a return of 1.8%.

Fixed Income

The fiscal year began with heightened inflation levels near 9%, spurring the Fed to raise interest rates at near historic levels and contributing to systematic issues such as regional banking failures in the U.S. The rising rate environment proved challenging for fixed income investing over the fiscal year with the Bloomberg Aggregate declining 0.9%. However, negative returns were limited to higher quality U.S. securities with high yield and global bond indices producing positive performance. The 10-year U.S. Treasury yield remained at high levels relative to recent history during fiscal year 2023, beginning at 3.01% as of June 30, 2022, and ending at 3.81% as of June 30, 2023. The yield curve remained inverted throughout the vast majority of the fiscal year signaling potential recession.



Real Estate and Alternative Investments

The real estate market returned -10.5% for the fiscal year, as measured by the NCREIF ODCE Index, with depreciation of 13% and income returns of 2.5%. During the fiscal year, ODCE redemption queues steadily increased and transaction volume steadily decreased each quarter. Real estate valuations are reflective of higher interest rates, which have put upward pressure on capitalization rate and discount rate assumptions. Income returns remained positive throughout each quarter of the fiscal year across all sectors. Underperformance was broadly spread across region and property types. The Office sector performed the worst, depreciating close to 20% while Hotels were the only sector to produce positive performance over the fiscal year.

Alternative investments posted positive returns for the fiscal year. After experiencing severe declines in public equity performance during fiscal year 2022, private equity investors were bracing for and experienced a more challenging return environment compared to the public markets. Broad private equity returns were positive for the last two quarters of the fiscal year, with buyout gains offsetting VC losses. Fundraising over the first half of 2023 was behind levels reached during the first half of 2022 by approximately 62% in venture capital and 26% in buyouts.

NHRS Asset Class Highlights

| NHRS Asset Class | FY 2023 Return (Net of Fees) |
|-------------------------------------|------------------------------|
| Total Fund | 8.18% |
| <i>Total Fund Custom Index</i> | 9.81% |
| Total Domestic Equity | 17.25% |
| <i>US Equity Index</i> | 18.95% |
| Total Non-US Equity | 19.01% |
| <i>Non-US Equity Index</i> | 12.72% |
| Total Fixed Income | 1.43% |
| <i>Fixed Income Benchmark</i> | -0.04% |
| Total Real Estate | -7.24% |
| <i>Real Estate Benchmark</i> | -10.73% |
| Total Alternatives | 3.58% |
| <i>Alternative Assets Benchmark</i> | 18.22% |

The NHRS Total Domestic Equity portfolio, comprised of both passive and actively managed portfolios, returned 17.3% (net), underperforming the strategic benchmark (Russell 3000 Index) by 170 basis points over fiscal year

Callan

2023. The Domestic Equity portfolio's passive large cap exposure had a 19.4% return compared to 12.9% for the small/mid-cap composite and 15.2% for the small cap composite. The small/mid-cap composite outperformed its Russell 2500 benchmark and the small cap composite underperformed its Russell 2000 benchmark.

The NHRS Total Non-U.S. Equity portfolio, which is comprised of both passive and actively managed portfolios with exposures to both developed and emerging markets, returned 19.0% (net). The Non-U.S. Equity portfolio outperformed its benchmark by 629 basis points during the fiscal year as all active core non-US equity, emerging market equities, and non-US small cap equity managers outperformed their respective benchmarks.

The NHRS Total Fixed Income portfolio is comprised of passive and broadly diversified actively managed portfolios, including domestic and international exposures. This aggregate portfolio had a 1.4% return (net), outperforming the Total Fixed Income Index return by 147 basis points. An overweight to lower quality and higher yielding issues relative to the Bloomberg Universal Index had a positive impact on relative performance. Exposure to non-U.S. issues also impacted relative performance, as non-U.S. bonds outperformed their U.S. counterparts over the fiscal year.

The NHRS Real Estate portfolio returned -7.2% (net), outperforming its benchmark return of -10.7%. Outperformance was driven by the Tactical Non-Core Real Estate allocation within the portfolio; the Strategic Core portfolio slightly detracted from relative results.

Lastly, for fiscal year 2023, the Alternative Investments portfolio generated a return of 3.6% (net) while its benchmark returned 18.2%. Underperformance was driven by both the private equity and private debt allocations within the portfolio, given more modest valuations for alternative investments in 2023.

Investment Market Update (by asset type)

| Index Summary (6/30/23) | Last Year | Last 3 Years | Last 5 Years | Last 10 Years |
|--|-----------|--------------|--------------|---------------|
| Equity Indices | | | | |
| S&P 500 Index | 19.6% | 14.6% | 12.3% | 12.9% |
| Russell 1000 Index | 19.4% | 14.1% | 11.9% | 12.6% |
| Russell 1000 Growth Index | 27.1% | 13.7% | 15.1% | 15.7% |
| Russell 1000 Value Index | 11.5% | 14.3% | 8.1% | 9.2% |
| Russell 2000 Index | 12.3% | 10.8% | 4.2% | 8.3% |
| Russell 2000 Growth Index | 18.5% | 6.1% | 4.2% | 8.8% |
| Russell 2000 Value Index | 6.0% | 15.4% | 3.5% | 7.3% |
| Russell 2500 Index | 13.6% | 12.3% | 6.6% | 9.4% |
| Russell 3000 Index | 19.0% | 13.9% | 11.4% | 12.3% |
| MSCI ACWI Index | 16.5% | 11.0% | 8.1% | 8.8% |
| MSCI ACWI ex US Index | 12.7% | 7.2% | 3.5% | 4.8% |
| MSCI EAFE Index | 18.8% | 8.9% | 4.4% | 5.4% |
| MSCI EAFE Growth Index | 20.2% | 6.3% | 5.4% | 6.4% |
| MSCI EAFE Value Index | 17.4% | 11.3% | 2.9% | 4.2% |
| MSCI Europe Index | 21.8% | 10.7% | 5.2% | 5.7% |
| MSCI Japan Index | 18.1% | 5.7% | 3.1% | 5.2% |
| MSCI Pacific ex JPN Index | 5.9% | 6.5% | 2.7% | 4.3% |
| MSCI EM Index | 1.8% | 2.3% | 0.9% | 3.0% |
| Fixed Income Indices | | | | |
| Bloomberg Aggregate Index | -0.9% | -4.0% | 0.8% | 1.5% |
| Bloomberg Gov't/Credit Index | -0.7% | -4.1% | 1.0% | 1.7% |
| Bloomberg TIPS Index | -1.4% | -0.1% | 2.5% | 2.1% |
| Bloomberg High Yield Corporate Index | 9.1% | 3.1% | 3.4% | 4.4% |
| S&P LSTA Leveraged Loan 100 Index | 11.8% | 5.4% | 4.0% | 3.7% |
| Bloomberg Global Aggregate Index | -1.3% | -5.0% | -1.1% | 0.2% |
| Bloomberg High Yield Muni Index | 2.9% | 1.8% | 2.8% | 4.2% |
| JPM EMBI Global Diversified Index | 7.4% | -3.1% | 0.6% | 2.8% |
| JPM GBI-EM Global Diversified Index | 11.4% | -1.4% | 0.3% | -0.6% |
| Other Indices | | | | |
| Bloomberg Commodity Price Index | -13.3% | 16.0% | 3.0% | -2.0% |
| S&P GSCI Index | -14.2% | 25.1% | 2.8% | -3.5% |
| Alerian MLP Index | 30.5% | 30.7% | 6.2% | 0.9% |
| FTSE NAREIT Composite Index | -4.3% | 6.2% | 4.4% | 6.6% |
| NCREIF NFI-ODCE Equal Weight Net Index | -10.5% | 7.6% | 6.1% | 8.1% |

Investment Market Update (sorted by best to worst 1-year performance)

| Index Summary (6/30/23) | Last Year | Last 3 Years | Last 5 Years | Last 10 Years |
|--|-----------|--------------|--------------|---------------|
| Alerian MLP Index | 30.5% | 30.7% | 6.2% | 0.9% |
| Russell 1000 Growth Index | 27.1% | 13.7% | 15.1% | 15.7% |
| MSCI Europe Index | 21.8% | 10.7% | 5.2% | 5.7% |
| MSCI EAFE Growth Index | 20.2% | 6.3% | 5.4% | 6.4% |
| S&P 500 Index | 19.6% | 14.6% | 12.3% | 12.9% |
| Russell 1000 Index | 19.4% | 14.1% | 11.9% | 12.6% |
| Russell 3000 Index | 19.0% | 13.9% | 11.4% | 12.3% |
| MSCI EAFE Index | 18.8% | 8.9% | 4.4% | 5.4% |
| Russell 2000 Growth Index | 18.5% | 6.1% | 4.2% | 8.8% |
| MSCI Japan Index | 18.1% | 5.7% | 3.1% | 5.2% |
| MSCI EAFE Value Index | 17.4% | 11.3% | 2.9% | 4.2% |
| MSCI ACWI Index | 16.5% | 11.0% | 8.1% | 8.8% |
| Russell 2500 Index | 13.6% | 12.3% | 6.6% | 9.4% |
| MSCI ACWI ex US Index | 12.7% | 7.2% | 3.5% | 4.8% |
| Russell 2000 Index | 12.3% | 10.8% | 4.2% | 8.3% |
| S&P LSTA Leveraged Loan 100 Index | 11.8% | 5.4% | 4.0% | 3.7% |
| Russell 1000 Value Index | 11.5% | 14.3% | 8.1% | 9.2% |
| JPM GBI-EM Global Diversified Index | 11.4% | -1.4% | 0.3% | -0.6% |
| Bloomberg High Yield Corporate Index | 9.1% | 3.1% | 3.4% | 4.4% |
| JPM EMBI Global Diversified Index | 7.4% | -3.1% | 0.6% | 2.8% |
| Russell 2000 Value Index | 6.0% | 15.4% | 3.5% | 7.3% |
| MSCI Pacific ex JPN Index | 5.9% | 6.5% | 2.7% | 4.3% |
| Bloomberg High Yield Muni Index | 2.9% | 1.8% | 2.8% | 4.2% |
| MSCI EM Index | 1.8% | 2.3% | 0.9% | 3.0% |
| Bloomberg Gov't/Credit Index | -0.7% | -4.1% | 1.0% | 1.7% |
| Bloomberg Aggregate Index | -0.9% | -4.0% | 0.8% | 1.5% |
| Bloomberg Global Aggregate Index | -1.3% | -5.0% | -1.1% | 0.2% |
| Bloomberg TIPS Index | -1.4% | -0.1% | 2.5% | 2.1% |
| FTSE NAREIT Composite Index | -4.3% | 6.2% | 4.4% | 6.6% |
| NCREIF NFI-ODCE Equal Weight Net Index | -10.5% | 7.6% | 6.1% | 8.1% |
| Bloomberg Commodity Price Index | -13.3% | 16.0% | 3.0% | -2.0% |
| S&P GSCI Index | -14.2% | 25.1% | 2.8% | -3.5% |

S&P 500 Sectors (sorted by best to worst 1-year performance)

| Sector | Benchmark Weight (%) as of 6/30/23 | Benchmark Return (%) as of 6/30/23 |
|------------------------|---------------------------------------|---------------------------------------|
| Information Technology | 28.3% | 40.3% |
| Industrials | 8.5% | 25.2% |
| Consumer Discretionary | 10.7% | 24.7% |
| Energy | 4.1% | 18.8% |
| Communication Services | 8.4% | 17.3% |
| Materials | 2.5% | 15.1% |
| Financial | 12.4% | 9.5% |
| Consumer Staples | 6.7% | 6.6% |
| Health Care | 13.4% | 5.4% |
| Utilities | 2.6% | -3.7% |
| Real Estate | 2.5% | -4.1% |

Note: Figures may not add up to exactly 100% due to rounding.

Summary

Consistent with Callan's most recent asset allocation study, we believe that the Fund's current asset allocation target is appropriate to meet its long-term return objectives. However, as part of its on-going monitoring process, NHRS Staff is evaluating opportunities to diversify away from equity beta risk in an effort to enhance risk-adjusted returns going forward. To this end, NHRS Staff is reevaluating the Fund's strategic asset allocation for the Board's review. The overall manager structure of the portfolio is stable and will be evaluated by Staff in the future. Overall, the Fund exhibits competitive performance relative to objectives over the long-term.

INVESTMENT REPORTS

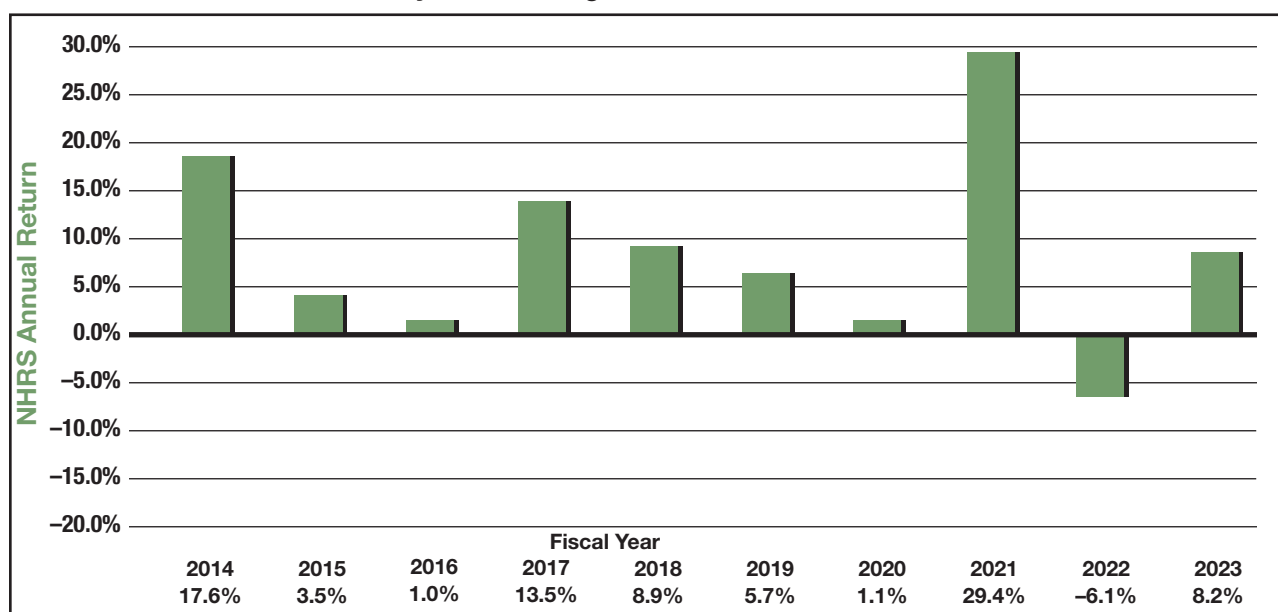
ANNUALIZED INVESTMENT RETURNS—ACTUAL VERSUS INDICES

| | Current Year 2023 | 3 Year | Annualized 5 Year | 10 Year |
|--|----------------------|--------|----------------------|---------|
| Total NHRS Fund | 8.2% | 9.6% | 7.1% | 7.9% |
| Total Fund Custom Index* | 9.8 | 7.4 | 6.9 | 7.9 |
| Domestic Equity | 17.3 | 14.2 | 9.7 | 11.2 |
| Total Domestic Equity Blended Benchmark* | 19.0 | 13.0 | 11.4 | 12.4 |
| Non-U.S. Equity | 19.0 | 7.8 | 4.0 | 5.0 |
| Total Non-U.S. Equity Blended Benchmark* | 12.7 | 7.2 | 3.5 | 4.8 |
| Fixed Income | 1.4 | (1.5) | 1.6 | 2.2 |
| Total Fixed Income Blended Benchmark* | 0.0 | (3.4) | 1.0 | 1.8 |
| Real Estate | (7.2) | 11.6 | 9.0 | 10.8 |
| Total Real Estate Blended Benchmark* | (10.7) | 7.0 | 5.6 | 7.8 |
| Alternative Investments | 3.6 | 16.3 | 11.1 | 9.8 |
| Total Alternative Investments Benchmark* | 18.2 | 13.6 | 11.5 | 12.4 |
| Cash Equivalents | 3.9 | 1.3 | 1.6 | 1.1 |
| 90 Day T-Bills | 3.6 | 1.3 | 1.6 | 1.0 |

Performance returns are calculated on a net-of-fees time-weighted rate of return basis.

*In a dynamic market, strategies and objectives evolve over time. Consequently, these benchmarks are blended due to historical investment strategy decisions. Detailed descriptions of the benchmarks above are available by contacting NHRS.

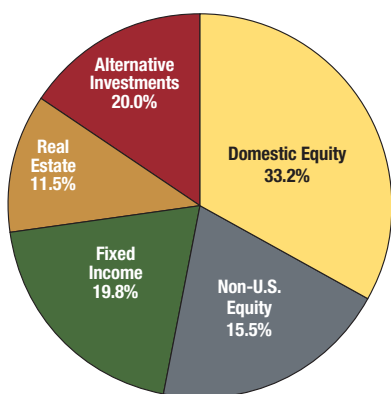
Ten Year History of Time-Weighted Total NHRS Fund Annual Returns



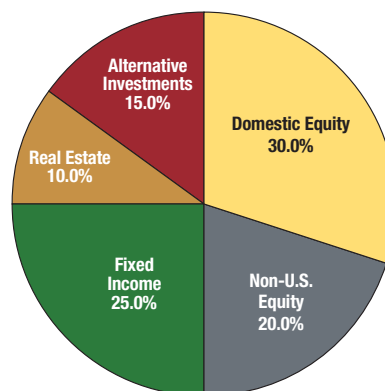
ACTUAL ASSET ALLOCATION VERSUS TARGET ASSET ALLOCATION

| | Actual % | As of June 30, 2023 Target % | Target Range % |
|-------------------------|---------------|---------------------------------|----------------|
| Domestic Equity | 33.2% | 30.0% | 20-40 |
| Non-U.S. Equity | 15.5% | 20.0 | 15-25 |
| Fixed Income | 19.8% | 25.0 | 20-30 |
| Real Estate | 11.5% | 10.0 | 5-20 |
| Alternative Investments | 20.0% | 15.0 | 5-25 |
| TOTAL FUND | 100.0% | 100.0% | |

Actual Asset Allocation as of June 30, 2023



Target Asset Allocation as of June 30, 2023



TEN LARGEST STOCK HOLDINGS BY FAIR VALUE*

(in thousands)

| | Shares | Stock | June 30, 2023 Fair Value |
|----|---------|--------------------------------|-----------------------------|
| 1 | 459,835 | MICROSOFT CORP | \$156,592 |
| 2 | 794,051 | APPLE INC | 154,022 |
| 3 | 585,532 | AMAZON.COM INC | 76,330 |
| 4 | 132,823 | NVIDIA CORP | 56,187 |
| 5 | 382,741 | ALPHABET INC — CLASS C | 46,300 |
| 6 | 319,071 | ALPHABET INC — CLASS A | 38,193 |
| 7 | 144,690 | TESLA INC | 37,876 |
| 8 | 37,517 | LVMH MOET HENNESSY LOUIS VUITT | 35,323 |
| 9 | 218,855 | NOVO NORDISK A/S | 35,255 |
| 10 | 118,807 | META PLATFORMS INC | 34,095 |

TEN LARGEST FIXED INCOME HOLDINGS BY FAIR VALUE*

(in thousands)

| | Par** | Security | June 30, 2023 Fair Value |
|----|------------|---|-----------------------------|
| 1 | 36,439,000 | U.S. Treasury Note — 0.625%, 2026 | \$32,463 |
| 2 | 27,680,000 | U.S. Treasury Note — 3.500%, 2033 | 26,962 |
| 3 | 26,322,000 | U.S. Treasury Note — 3.500%, 2028 | 25,560 |
| 4 | 25,479,000 | U.S. Treasury Bond — 3.000%, 2052 | 21,663 |
| 5 | 29,935,000 | U.S. Treasury Bond — 1.125%, 2040 | 19,247 |
| 6 | 19,349,000 | U.S. Treasury Note — 0.375%, 2026 | 17,372 |
| 7 | 20,013,000 | U.S. Treasury Bond — 2.250%, 2052 | 14,463 |
| 8 | 14,335,000 | U.S. Treasury Note — 2.750%, 2032 | 13,142 |
| 9 | 14,507,000 | U.S. Treasury Bond — 3.000%, 2048 | 12,239 |
| 10 | 10,500,000 | United Kingdom Gilt Regs — 3.250%, 2033 | 12,171 |

**A complete listing of separate account portfolio holdings is available by contacting the NHRS offices. NHRS also invests in various commingled investment vehicles, for which the underlying investments are custodied outside of The Bank of NY Mellon (Master Custodian for NHRS), as reported on the Summary of Investments schedule.

**Par value is denoted in local currency.

SCHEDULE OF INVESTMENT MANAGEMENT AND SERVICE FEES

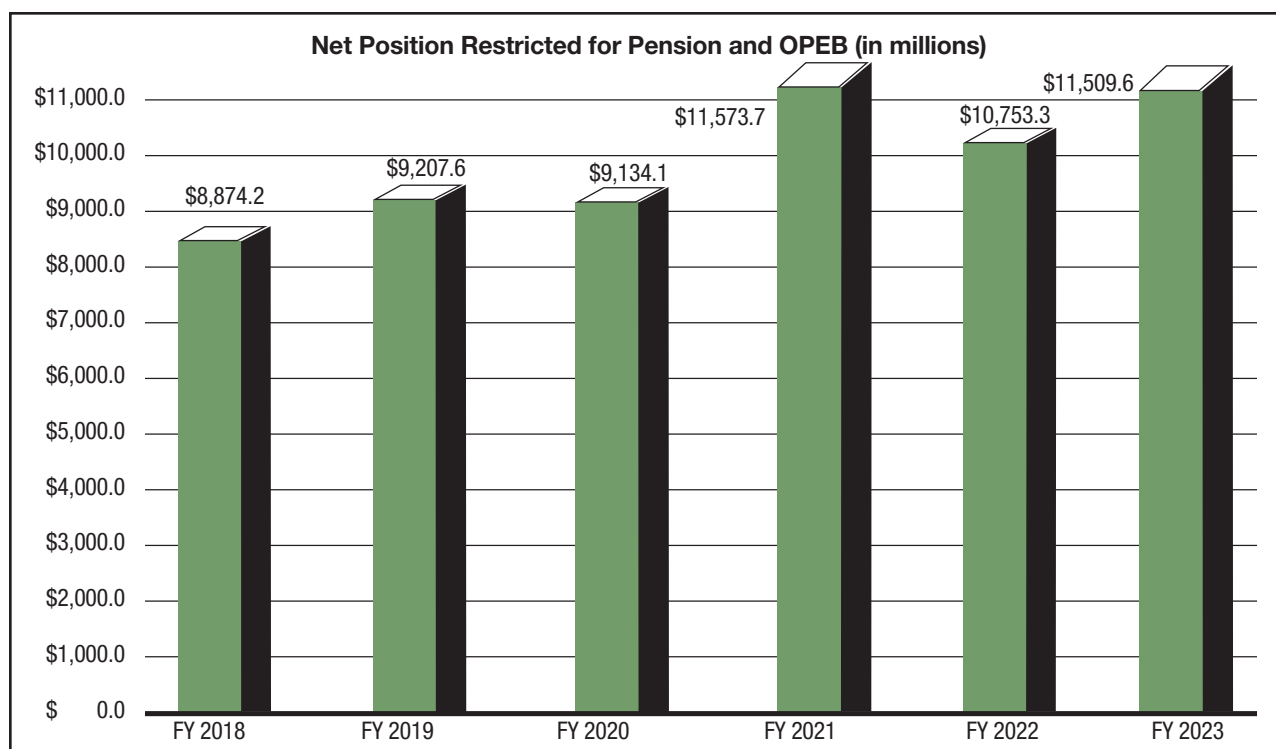
| | YEAR ENDED JUNE 30, 2023 | | |
|---|---|------------------------|----------------------|
| | Assets Under Management (in thousands) | Fees (in thousands) | Average Basis Points |
| INVESTMENT MANAGEMENT FEES | | | |
| Equity Portfolios: | | | |
| Domestic | \$ 3,701,437 | \$ 10,014 | 27 |
| Non-U.S. | 1,722,744 | 9,828 | 57 |
| Fixed Income Portfolios | 2,212,369 | 5,750 | 26 |
| Alternative Investments* | 2,228,344 | 16,072 | 72 |
| Real Estate | 1,281,586 | 13,635 | 106 |
| Cash and Cash Equivalents | 233,910 | — | — |
| TOTAL INVESTMENT MANAGEMENT FEES | \$11,380,390 | \$ 55,299 | 49 |
| INVESTMENT SERVICE FEES | | | |
| Custodial Fees | \$11,380,390 | \$ 737 | 1 |
| Investment Advisor Fees — External | 11,380,390 | 650 | 1 |
| Investment Professional Fees | 11,380,390 | 336 | 1 |
| Investment Administrative Expenses — Internal | 11,380,390 | 863 | 1 |
| TOTAL INVESTMENT MANAGEMENT AND SERVICE FEES | \$11,380,390 | \$ 57,885 | 51 |

*The custodian records all transactions on a net of fee basis.

SCHEDULE OF BROKERAGE COMMISSIONS PAID

| Brokerage Firm | YEAR ENDED JUNE 30, 2023 | | |
|--|---|-------------------------------------|-----------------------|
| | Number of Shares Traded (in thousands) | Total Commissions (in thousands) | Commissions Per Share |
| GOLDMAN SACHS & CO, NY | 7,422 | \$ 85 | 0.01 |
| MORGAN STANLEY AND CO., LLC, NEW YORK | 5,766 | 81 | 0.01 |
| MERRILL LYNCH INTL LONDON EQUITIES | 6,484 | 76 | 0.01 |
| JEFFERIES & CO INC, NEW YORK | 4,680 | 75 | 0.02 |
| J P MORGAN SECS LTD, LONDON | 5,174 | 64 | 0.01 |
| BTIG LLC, NEW YORK | 2,178 | 52 | 0.02 |
| RBC CAPITAL MARKETS LLC, NEW YORK | 3,225 | 46 | 0.01 |
| J.P MORGAN SECURITIES INC, NEW YORK | 1,973 | 44 | 0.02 |
| LIQUIDNET INC, NEW YORK | 2,263 | 41 | 0.02 |
| MERRILL LYNCH PIERCE FENNER SMITH INC NY | 2,802 | 37 | 0.01 |
| UBS EQUITIES, LONDON | 3,044 | 35 | 0.01 |
| BERNSTEIN SANFORD C & CO, NEW YORK | 3,570 | 34 | 0.01 |
| UBS SECURITIES LLC, STAMFORD | 2,566 | 34 | 0.01 |
| BMO CAPITAL MARKETS CORP, NEW YORK | 1,442 | 33 | 0.02 |
| BARCLAYS CAPITAL LE, NEW YORK | 1,271 | 32 | 0.03 |
| CREDIT SUISSE, NEW YORK (CSUS) | 2,350 | 31 | 0.01 |
| WELLS FARGO SECURITIES, LLC, NEW YORK | 1,409 | 29 | 0.02 |
| COWEN AND CO LLC, NEW YORK | 1,704 | 26 | 0.02 |
| PERSHING LLC, JERSEY CITY | 1,410 | 23 | 0.02 |
| All Others (188 not listed separately) | 39,435 | 624 | 0.02 |
| TOTAL BROKERAGE COMMISSIONS PAID | 100,168 | \$ 1,502 | 0.01 |

Commission detail is not included in the schedule above for the commingled funds in which NHRS invests.



SUMMARY OF INVESTMENTS

| TYPE OF INVESTMENT | June 30, 2023 | |
|---|-----------------------------|--------------------------------|
| | Fair Value (in millions) | Percent of Total Fair Value |
| FIXED INCOME | | |
| Collateralized/Asset Backed Securities | \$ 192.3 | 1.7% |
| Corporate Bonds | 505.1 | 4.5% |
| Government and Agency Bonds | 520.0 | 4.7% |
| Blackrock Strategic Income Opportunities | 252.1 | 2.3% |
| Fidelity | 361.1 | 3.2% |
| Manulife | 197.7 | 1.9% |
| Mellon US AG Bond | 173.3 | 1.6% |
| TOTAL FIXED INCOME | \$ 2,210.2 | 19.7% |
| EQUITY | | |
| Consumer Cyclical | \$ 596.9 | 5.4% |
| Consumer Non-Cyclical | 1,151.9 | 10.3% |
| Energy | 183.2 | 1.6% |
| Financial Services | 778.6 | 7.0% |
| Industrial Materials | 634.9 | 5.7% |
| Technology | 901.0 | 8.1% |
| Basic Materials | 192.7 | 1.7% |
| Communications | 394.6 | 3.5% |
| Utilities | 120.3 | 1.1% |
| Blackrock Superfund | 178.5 | 1.6% |
| Wellington NHT | 6.5 | 0.1% |
| Wellington ISCRE | 124.8 | 1.1% |
| Wellington Emerging Markets Local Equity Fund | 162.7 | 1.5% |
| TOTAL EQUITY | \$ 5,426.6 | 48.7% |
| OTHER INVESTMENTS | | |
| Alternative Investments | \$ 2,227.8 | 20.0% |
| Real Estate | 1,281.6 | 11.5% |
| TOTAL INVESTMENTS | \$ 11,146.2 | 100.0% |

Appendix B

Gabriel Roeder Smith & Company Actuarial Opinion Letter



September 29, 2023

Board of Trustees
New Hampshire Retirement System
54 Regional Drive
Concord, New Hampshire 03301

Re: Reasonableness of the Assumed Rate of Return

Dear Board Members:

The purpose of this letter is to provide our actuarial opinion regarding the reasonableness of the assumed rate of return for the New Hampshire Retirement System and to address any differences between the assumed rate of return and the expected rate of return under the System's investment policy statement as required under New Hampshire statute.

Background:

The requirement under New Hampshire statute is as follows:

RSA 100-A:15 VII.

- (c) An annual investment policy statement which shall incorporate the following:
 - (1) A clear statement of investment objectives including the adoption of a reasonable and sound expected rate of return the retirement system is attempting to earn. The expected rate of return utilized for the statement of investment objectives shall bear some reasonable relationship to the assumed rate of return set by the trustees for the biennial actuarial calculation. *The retirement system's actuaries shall issue a written opinion in regard to the reasonableness of the assumed rate of return that shall address any difference between the assumed rate of return and the expected rate of return.*

We understand the current asset allocation targets and ranges, adopted by the Board of Trustees in September 2012, are based on asset liability modeling and asset allocation recommendations from investment consultants. The Independent Investment Committee reviewed, in March of this year, the results of asset/liability and asset allocation studies and confirmed the asset allocation targets and ranges remain appropriate. Based on the 2023 capital market assumptions, Callan has indicated the following expectations for NHRS' current asset allocation:

- During the next 10-year period:
 - The expected rate of return is 7.25% per year;
 - The standard deviation is 13.05% per year; and
 - The implicit price inflation rate is 2.50% per year.

- During the next 30-year period:
 - The expected rate of return is 7.80% per year;
 - The standard deviation is 13.05% per year; and
 - The implicit price inflation rate is 2.50% per year.

In determining the assumed rate of return for the actuarial valuation, we abide by Actuarial Standard of Practice (ASOP) No. 27, Selection of Economic Assumptions for Measuring Pension Obligations, as adopted by the Actuarial Standards Board.

Under ASOP No. 27, we determine a reasonable assumption for each economic assumption. The reasonable assumption must be appropriate for the purpose of the measurement, reflect the actuary's professional judgement, take into account relevant historical and current demographic data, reflect the actuary's estimate of future experience or the estimates inherent in the market data and have no significant bias. For the investment return assumption, our analysis is based on forward-looking measures of expected investment return outcomes for the asset classes in the System's current investment policy.

For purposes of this analysis, we have analyzed the System's investment policy with the capital market assumptions from twelve nationally recognized investment firms and the 2023 GRS Capital Market Assumption Modeler (CMAM). The capital market assumptions in the 2023 CMAM are from the following investment firms (in alphabetical order): Aon Hewitt, Blackrock, BNY Mellon, Callan, Cambridge, JPMorgan, Meketa, Mercer, NEPC, RVK, Verus, and Wilshire. Eleven of these firms provide capital market expectations for a 10-year horizon, seven of them provide expectations for longer horizons of 20-30 years. Capital market expectations can vary significantly from year to year and often are contrarian. The financial markets at the end of 2022 were not particularly strong resulting in higher expectations in 2023 than in prior years. To adjust for year-to-year fluctuations, we also compare results to the three-year average of GRS CMAMs.



Our analysis is based on the GRS 2023 CMAM. The purpose of the CMAM is to assess the reasonability of the assumed rate of return for use in the actuarial valuations for the plan. In our professional judgment, the CMAM has the capability to provide results that are consistent with this purpose. We performed tests to ensure that the model reasonably represents that which is intended to be modeled. We are relying on the GRS actuaries and Internal Software, Training, and Processes Team who developed and maintain the model.

Actuarial Opinion:

For the June 30, 2023 valuation, the actuarial assumed rate of return is made up of a price inflation assumption of 2.00% and a real rate of return assumption of 4.75% for a total of 6.75% per year, net of investment expenses. This assumption was adopted by the Board to be effective in the June 30, 2019 valuation based on the 2015-2019 Experience Study.

Based on our independent analysis using NHRS' target asset allocation and the 2023 CMAM, the median rate of return is 6.60% over a 10-year horizon. As discussed, this year's expectations are higher than prior years. The three-year average median over a 10-year horizon is 5.67%.

Over the longer horizon of 20-30 years, the median rate of return is 6.78%. The 3-year average median over the longer horizon is 6.46%. The current NHRS net investment rate assumption of 6.75% is reasonable when compared to our 2023 CMAM medians of 6.60% - 6.78% and Callan's 7.25% - 7.80% current estimates for the expected rate of return.

It should be noted that due to the methods utilized by the GRS CMAM, differences in the underlying inflation assumption between the actuarial valuation (2.0%) and Callan's (2.50%) result in expected returns that may not be directly comparable. For example, if Callan's inflation assumption of 2.50% was used in our analysis, the expected returns discussed above based on the 2023 GRS CMAM would be approximately 0.50% higher.

Differences between the expected rate of return in the System's Investment Policy and the actuarial assumed rate of return are attributable in part to the different objectives of the measurement. Key differences are:

- The Investment Policy focuses on asset allocation decisions and establishes benchmarks for manager performance. The assumed rate of return is a long-term assumption for funding policy.
- The Investment Horizon of 10 years in the Investment Policy is based on a shorter time frame than used to determine the assumed rate of return which can be 20-30 years or longer. When focusing on the 20- 30-year time horizon, the policy and the actuarial assumption produce similar expected returns.



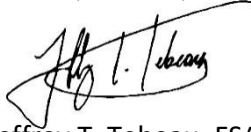
Given the purpose and use of the different assumptions, different results are not uncommon. Under the current actuarial standard of practice, the current assumed rate of return for valuation purposes is reasonable and, therefore, meets the requirements of those standards.

Governmental Accounting Standards Board (GASB) Statement No. 67:

The statutory funding requirements of RSA 100-A:16 and the NHRS' Actuarial Funding Policy call for the NHRS pension unfunded actuarial accrued liability as of June 30, 2017 to be amortized through 2039. Each subsequent change in liability as calculated in odd-numbered years shall be separately amortized over a fixed period of no longer than 20 years. Based on this, the GASB discount rate will be equal to the assumed rate of investment return of 6.75%.

Jeffrey T. Tebeau, Heidi G. Barry, and Casey T. Ahlbrandt-Rains are independent of the plan sponsor, are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,
Gabriel, Roeder, Smith & Company



Jeffrey T. Tebeau, FSA, EA, FCA, MAAA



Heidi G. Barry, ASA, FCA, MAAA



Casey T. Ahlbrandt-Rains, ASA, MAAA

JTT/HGB/CTA:dj



Appendix C

Investment Manual

Changes to the NHRS Investment Policy

NHRS Investment Philosophy

The NHRS Investment Manual can be accessed by clicking [here](#).





Changes to the NHRS Investment Policy

This document outlines changes to the NHRS Investment Policy since the founding of the Independent Investment Committee (IIC) under RSA 100-A:14-b, on January 1, 2009.

Assumed Rate of Return

The Board of Trustees (Board) approved the following based on recommendations of the IIC. All changes were effective starting July 1 of the fiscal year subsequent to approval.

- May 10, 2011: 8.50% to 7.75%
- May 10, 2016: 7.75% to 7.25%
- June 9, 2020: 7.25% to 6.75%

Asset Allocation Targets and Ranges

The Board adopted the following changes based on recommendations of the IIC. All changes were effective at the start of the month subsequent to approval.

- July 13, 2010:
 - Domestic Equity allocation range changed from 26 - 43% to 20 - 50%.
 - Non-U.S. Equity target allocation increased from 15% to 20% and the 5% target allocation to Global Equity was removed. The Non-U.S. Equity allocation range changed from 11 - 19% to 15 - 25%.
 - Fixed Income allocation range changed from 26 - 34% to 25 - 35%.
 - Real Estate range changed from 5 - 15% to 0 - 15%.
- September 11, 2012:
 - Fixed income target allocation was reduced from 30% to 25%. The allocation range changed from 25 - 35% to 20 - 30%.
 - Alternative Investments target allocation was increased from 10% to 15%. The allocation range changed from 0 - 15% to 0 - 20%.
- June 9, 2015:
 - Real Estate allocation range changed from 0 - 15% to 5 - 20%.
 - Alternative Investments allocation range changed from 0 - 20% to 5 - 25%.
- May 14, 2019:
 - U.S. Equity allocation range changed from 20 - 50% to 20 - 40%.

Benchmark Changes

The IIC approved the following changes which were subsequently reviewed by the Board. All changes were effective starting July 1 of the fiscal year subsequent to approval.

- April 24, 2015:
 - The U.S. Equity benchmark changed from the Russell 3000 Index to the S&P 500 Index.
 - The Real Estate benchmark changed from the NCREIF Property Index + 50 basis points to the NCREIF NFI-ODCE Index.
 - The Alternative Investments benchmark changed from the S&P 500 Index + 5% or Consumer Price Index + 5% to the following:
 - 33.3% Private Equity: S&P 500 Index + 3%.
 - 33.3% Private Debt: S&P/LSTA U.S. Leveraged Loan 100 Index.
 - 33.3% Opportunistic: 1-month LIBID + 5%.
- May 14, 2019:
 - The Opportunistic benchmark was eliminated and the Alternative Investments benchmark was changed to the following:
 - 66.7% Private Equity (S&P 500 Index + 3%).
 - 33.3% Private Debt (S&P LSTA Leveraged Loan 100 Index).
- June 18, 2021:
 - The U.S. Equity benchmark changed from the S&P 500 Index to the Russell 3000 Index.
- June 14, 2022:
 - The Private Equity benchmark was updated from the S&P 500 + 3% to the Russell 3000 + 2%.
 - The Private Debt benchmark was updated from the S&P/LSTA U.S. Leveraged Loan 100 Index to a blend of (50% S&P/LSTA 100 Index and 50% Bloomberg High Yield Index) + 1%.

NHRS Investment Philosophy:

Adopted by the Investment Committee at the July 17, 2009 meeting

Purpose: The New Hampshire Retirement System (“NHRS” or “System”) Investment Philosophy sets forth guiding principles for the management of the investment program.

Description of the Fund: The NHRS is a defined-benefit pension plan. Contributions to the plan are made by employees and employers participating in the System. These contributions are invested to support the payment of plan benefits and to pay reasonable expenses of administering the System.

The System’s assets are invested pursuant to the Constitution of the State of New Hampshire and all applicable statutes and are managed in accordance with the NHRS Statement of Investment Policy for the exclusive purpose of providing plan benefits to members and beneficiaries. NHRS plan fiduciaries are beholden to a duty of loyalty and a standard of care as described in RSA 100-A:15. The Board of Trustees (“Board”) and the Investment Committee (“Committee”) seek the advice and assistance of internal and external professionals and shall exercise conscious discretion when making investment decisions. The Committee members recognize their fiduciary duty to invest the System's funds prudently and in continued recognition of the fundamental long-term nature of the System.

The NHRS investment program has a distinctive profile. The objective of supporting plan benefits is one primary differentiator from the goals of other types of institutional investors, for example, endowments or foundations. The NHRS also differs from other public pension plans because each plan has its own distinctive characteristics such as benefit structures and legislative mandates. The System has a high proportion of retirees relative to actively-contributing members. The demographics of a mature plan require more liquidity from the investment program because contributions into the plan do not fully offset the benefits paid. Additionally, the size of the NHRS investment program provides the System with the ability to invest in certain opportunities but may not provide the scale necessary to gain access to other opportunities. All of these factors guide the design of the NHRS investment program.

Investment Objectives: The NHRS pursues an investment strategy designed to support the long-term funding obligations of the plan. The Board adopts an assumed rate of return and sets asset-allocation policy. The Committee manages the components of the investment program with the goal of achieving the plan’s objectives with a comprehensive understanding of risk. This involves designing a program that balances expected return and risk over long time periods through a range of market conditions. For the reasons previously mentioned, peer performance or universe comparisons are not the most appropriate measurements of the effectiveness of the NHRS investment program. Performance comparisons within the context of the stated investment objectives will promote alignment with the System’s mission.

The primary objective of the Committee is to manage the investment program to support the payment of plan benefits over the long-term. A secondary objective is to exceed the policy benchmark on a net-of-fees basis over a three to five-year period.

NHRS Investment Philosophy:

Market View and Context: The Committee believes that financial markets are largely, but not entirely, efficient. This means that there is a central tendency to the markets and that in some developed and accessible segments it is difficult to gain an advantage relative to other investors. However, there are areas of the market in which inefficiencies exist due to more limited access, information, coverage, or other factors; and investors can benefit from participation in these areas. Investment opportunities emerge and evolve over time and the NHRS Committee, staff, and consultants will remain vigilant concerning market developments in order to identify these opportunities and to build a sustainable advantage.

Diversification: The Board and the Committee recognize that it is necessary to maintain broad diversification both among and within various asset classes. The asset allocation of the investment program will be reviewed monthly by staff relative to the asset-class policy targets and ranges established by the Board in the Statement of Investment Policy. Staff shall strive to maintain the System's asset allocation within policy ranges. When rebalancing assets already within ranges, staff will give due consideration to market conditions, costs and risks of implementation, potential impacts on manager-level performance, and other relevant factors.

Portfolio Structure and Implementation: The Committee may utilize a combination of passive and active management strategies. The goal of passive management is to gain diversified exposure to the desired asset class while incurring minimal expense and seeking performance returns comparable to the asset class benchmark. The goal of active management is to exceed the performance of the appropriate benchmark on a net-of-fees basis, measured across market cycles, at a commensurate level of risk. The Committee will structure the program and implement its philosophy through the use of external investment management firms.

Performance Measurement: The ultimate measurement of the pension plan is how well it achieves its funding objectives and supports plan benefits. This is a shared responsibility between the Board who set the assumed rate of return and also determines the contribution rates and the Committee who seek to augment those contributions with investment returns over the long term. Achievement of the plan objectives in absolute terms is contingent on sound return assumptions and the execution of a clear investment process which recognizes that market conditions will vary over time.

Relative investment performance can be an important measurement tool. The Board adopts specific benchmarks which represent the standards of measurement used for the various asset classes utilized by the NHRS. Individual managers are also measured relative to benchmarks. As a model for performance measurement of the investment program, the NHRS uses a plan-level policy benchmark comprised of index returns (or proxy asset returns in the case of illiquid assets) weighted to reflect the asset-allocation policy targets set by the Board. This provides insight into the ways in which the actual portfolio performs relative to a passively-managed representation of plan policy during various market conditions.

Since investment returns will vary under different economic conditions and market cycles, an optimal period for effectively measuring performance would span three to five years or more. NHRS returns are expected to exceed the relevant benchmark on a net-of-fees basis over time.

NHRS Investment Philosophy:

Risk: Risk must be viewed within the context of the total portfolio. Since most risks are not readily quantifiable, defining the appropriate level of risk and creating a portfolio that reflects a reasonable balance between potential risk and return is a matter of judgment. Risk comes in a variety of forms including the risk of the unknown, liquidity risk, valuation risk, regulatory risk, geopolitical risk, and volatility risk as well as excessive diversification, fraud, inconsistency of investment discipline, and the risk of the destruction of capital. The Committee takes a broad view of risk in its oversight and endeavors to mitigate risk through rebalancing, monitoring managers, and conducting strategic reviews of the portfolio.

Date: December 4, 2023

To: Board of Trustees

From: Raynald Leveque, Chief Investment Officer

Re: Strategic Asset Allocation Recommendation

Item: Action: Discussion: Informational:

Recommendation

At its November meeting, the NHRS Independent Investment Committee (IIC) unanimously approved the following asset allocation targets for recommendation to the Board of Trustees (Board):

| Asset Class | Existing Allocation | Proposed Allocation |
|-------------------------|----------------------------|----------------------------|
| Domestic Equity | 30% | N/A* |
| Non-U.S. Equity | 20% | N/A* |
| Global Equity | - | 40% |
| Fixed Income | 25% | 25% |
| Alternative Investments | | |
| Private Equity | 10% | 10% |
| Private Credit | 5% | 10% |
| Real Estate | 10% | 10% |
| Infrastructure | - | 5% |
| Total | 100% | 100% |

Source: NHRS

**Domestic Equity & Non-U.S. Equity to be consolidated into a single Global Equity asset class to allow for better management of overall equity exposure.*

For completeness and transparency, the Board materials include all the same materials from the November IIC meeting titled “2023 Strategic Asset Allocation (SAA) Review,” which includes the several months of analysis performed by the CIO and the NHRS Investment Team, led by Senior Investment Officer Gregory Richard, as well as the collaboration with the fund’s general investment consultant, Callan. Callan assisted NHRS with the SAA review and generated the asset-liability and liquidity study for the proposed recommendation accompanying this recommendation.

The IIC, CIO, and Investment Team recommend that the Board of Trustees approve the recommendation illustrated above as the Long-Term Strategic Asset Allocation, which is labeled as Portfolio B in the 2023 Strategic Asset Allocation (SAA) Review. This portfolio can also be found in staff's recommendation on Page 11.

In summary, the proposal reduces the long-term target allocation to public equity from the current 50% to 40%, with a corresponding 10% increase in Alternative Investments from the current 15% to 25%.

Within Alternative Investments, private credit increases from 5% to 10%, and Infrastructure (**a new asset class**) increases from 0% to 5% (note: no change is recommended to private equity, which remains at 10%).

Callan's expected rate of return and standard deviation of returns for the proposed target allocation are as follows:

| Proposed Return & Risk | |
|---|-------|
| Expected 10-Year Geometric Return | 7.2% |
| Standard Deviation (Risk) of Asset Return | 12.3% |

The proposed asset allocation generates the same expected return of 7.2% compared to the System's long-term assumed rate of return of 6.75%, **but with a lower expected volatility of 12.3% versus the current volatility of 13.0%**.

The proposed asset allocation accomplishes the following goals:

1. **Reduces volatility:** Total Plan standard deviation declines from 13.0% to 12.3%
2. **Further diversification:** reallocates 10% of Total Plan assets from public equity to private credit and infrastructure (**thereby increasing our exposure to cash generative assets**)
3. **More consistent returns:** it is expected that the combination of #1 and #2 will result in better risk-adjusted returns

Regarding the new proposed asset class, infrastructure is being recommended to:

- Provide stable and long-term income and will be structured primarily as core and value-add infrastructure (most conservative and moderate risk, respectively) with limited exposure to opportunistic infrastructure investments.
 - **Core:** defined as mature, operating businesses generating cash yield; bond-like defensive assets
 - **Value-Add:** defined as investments with more opportunity for growth than core, but assets still have visible, contracted cash flows

Our Mission: To provide secure retirement benefits and superior service.

- **Opportunistic:** typically, greenfield (new) assets that require significant expenditures for development. These investments have a higher risk profile for the greater expected return than Value-Add investments
- Act as a complement to existing real assets (real estate); to provide additional inflation protection and as an overall diversifier to the broader portfolio.

If the Board approves the proposed asset allocation targets, Staff will then prepare an implementation plan of the new SAA for the IIC, which will include the pacing of investments (how long will it take to reach the target); revision to the asset class benchmarks; risk-return characteristics of the investments, and specification of the Infrastructure asset class for the NHRS Investment Policy statement among other factors.

I look forward to discussing the Investment Committee's recommended asset allocation targets with you at the December Board meeting and providing highlights of the analysis conducted by staff. Callan will join the discussion to provide an overview of the liquidity analysis and asset-liability study that accompanies the SAA recommendation.

2023 Strategic Asset Allocation Review

NHRS Investment Team
Independent Investment Committee Meeting
November 2023

- The CIO initiated a Strategic Asset Allocation (SAA) review in 2023 for the following reasons:
 - **Macro-economic environment has dramatically shifted in 2022**, resulting in a higher interest rate environment, higher inflationary environment, and increased market volatility due to geopolitical risk events
 - **Next five to ten years are expected to be more uncertain** than the prior period in the global capital markets
 - Staff is focused on improving our funded ratio over the long term and working to **build a robust “all-weather” total plan** to achieve outcomes that **secure retirement benefits**
 - **Arrival of a new CIO in October 2022, prompted a fresh look at the current policy asset allocation**, existing investment managers, and advisors to the NHRS
 - Investment Staff has taken a more active role in managing the portfolio and **led this Strategic Asset Allocation review** for consideration by the IIC and Board of Trustees

Goals of the SAA Review



- The NHRS Investment Office has three main goals for the 2023 Strategic Asset Allocation review:
 1. **Reduce the overall volatility or risk** of the total plan and within asset classes, examining our exposure to public and private markets
 2. **Further diversify our existing stock and bond allocations** of the current allocation, considering where there are opportunities to generate stable performance
 3. **Ensure more consistency in total risk-adjusted return for the total plan over the medium-term horizon**, thinking about the next five years and how we want to be positioned

SAA Background & New Approach



- Background
 - **Asset Allocation** is the largest driver of risk-adjusted performance for any investor
 - Callan, our general consultant, has historically collaborated with Investment Staff and conducted the asset allocation review
- New Approach
 - **CIO and NHRS Investment Team leveraged Callan's tools and resources** to bring this process in-house to conduct a staff-driven analysis of the current SAA
 - Callan assisted with technology and investment analytics
 - Callan performed the stress tests and asset-liability study
 - NHRS utilized **Callan's 2023 Capital Market Assumptions (CMAs)** to evaluate our current policy allocation
 - The Investment Team **developed three potential policy portfolios** for consideration by the IIC
 - **The implementation horizon for these potential policy portfolios is over five years**, with an annual review going forward conducted by Investment Staff and Callan

Evaluation of the CMA Inputs



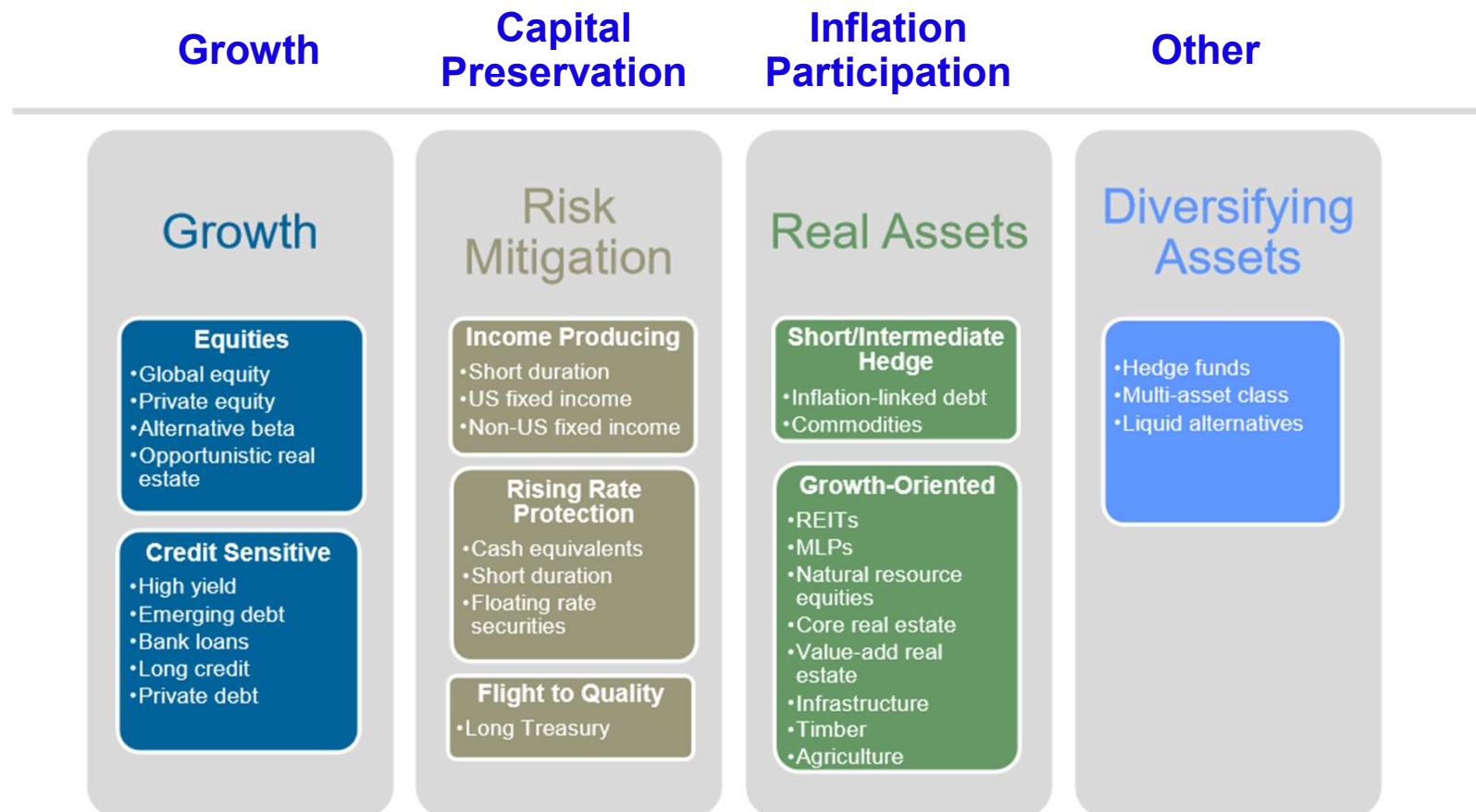
- Investment Team reviewed the CMA inputs to the SAA review
 - Other CMA providers considered in the review of Callan CMAs (e.g., J.P. Morgan)
- Investment Team observations on CMAs
 - Inflation projections
 - Time horizon (10-Year versus 20-Year)
 - Volatility assumptions
 - Correlation assumptions
 - Building blocks
 - Differences with Global Equity vs US and Non-US Equity point estimates
 - Underlying assumption of using Core Fixed Income
 - Underlying assumption for Private Credit projections

Process undertaken by the NHRS Investment Team in 2023...

1. 2023 CMAs from Callan reviewed by Investment Team (*February*)
2. Debated CMAs within Investment Team vs. Third Party CMAs (*March*)
3. Investment Team developed initial portfolios for Callan to run optimizations (*April*)
 - Considered existing and new asset classes
4. Investment Team evaluated the optimizer using unconstrained optimizations (*May*)
5. NHRS refined the parameters for constraints and developed preliminary portfolios for optimization (*June*)
6. NHRS reviewed and refined potential portfolios with Callan (*July*)
7. NHRS evaluated Callan's stress tests and liquidity analysis of potential portfolios (*August*)
8. NHRS finalized proposed allocation for recommendation to the IIC (*September – October*)

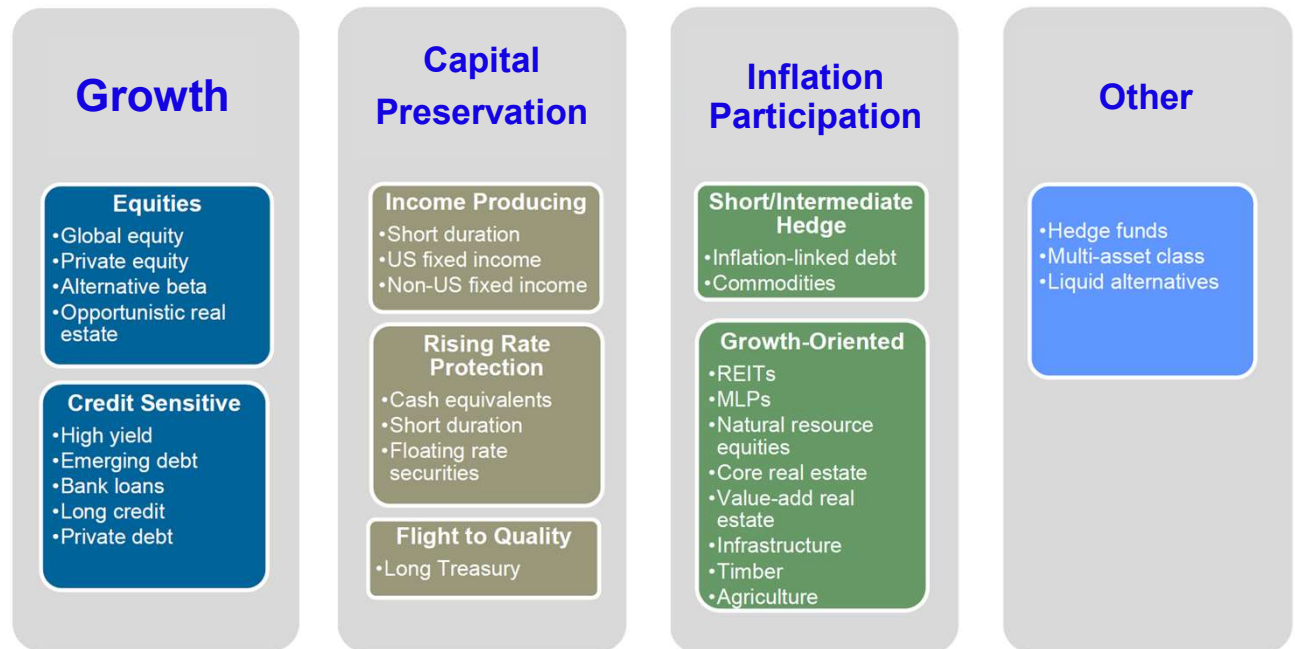
Callan's Thematic Classification

- Callan's framework for themes classification is another way to understand portfolio exposures and where NHRS is taking risk
- NHRS customized these labels toward how NHRS manages and thinks about the policy portfolio exposures...



Thematic Classification Adapted for NHRS

- NHRS portfolio is tilted toward the Growth theme with an estimated 75% exposure, primarily to growth-themed investments
- Capital Preservation accounts for about 15% exposure from credit-sensitive public securities (i.e., duration risk)
- Real Estate accounts for majority of inflation-sensitive allocations in the portfolio



| Current Policy Target | | | NHRS Thematic Buckets | | | |
|--|---------------------|---------------|---|---|-------------------------------------|-----------|
| | Asset Class | Weights | (Growth) | (Capital Preservation) | (Inflation Participation) | (Other) |
| (Public) Equity (Public) Credit (Private) Alternatives | Global Equity | 50.0% | Global Equity 50% Private Equity 10% Credit Sensitive (Public) 10% Credit Sensitive (Private) 5% | Income Producing 15% Cash Equivalents 0% | Core / Value-add Real Estate 10% | None |
| | Global Fixed Income | 25.0% | | | | |
| | Private Credit | 5.0% | | | | |
| | Private Equity | 10.0% | | | | |
| | Real Estate | 10.0% | | | | |
| | Total | 100.0% | 75% | 15% | 10% | 0% |

Callan's 2023 CMA Inputs



| Asset Class | Benchmark | 10-Yr Geometric Return | 20-Yr Geometric Return | 10-Yr Standard Deviation |
|---|------------------------------------|------------------------|------------------------|--------------------------|
| Equities | | | | |
| Global Equity | MSCI ACWI | 7.60% | 7.90% | 18.35% |
| Broad US Equity | Russell 3000 | 7.35% | 7.65% | 18.05% |
| Large Cap US Equity | S&P 500 | 7.25% | 7.50% | 17.75% |
| Small/Mid Cap US Equity | Russell 2500 | 7.45% | 7.85% | 22.15% |
| Global ex-US Equity | MSCI ACWI ex USA | 7.45% | 7.85% | 21.25% |
| Developed ex-US Equity | MSCI World ex USA | 7.25% | 7.50% | 20.15% |
| Emerging Market Equity | MSCI Emerging Markets | 7.45% | 8.00% | 25.70% |
| Fixed Income | | | | |
| Cash Equivalents | 90-Day T-Bill | 2.75% | 2.80% | 0.90% |
| Short Duration Govt/Credit | Bloomberg Barclays 1-3 Yr G/C | 3.80% | 3.85% | 2.30% |
| Core US Fixed | Bloomberg Barclays Aggregate | 4.25% | 4.45% | 4.10% |
| High Yield | Bloomberg Barclays High Yield | 6.25% | 6.30% | 11.75% |
| Bank Loans | S&P/LSTA Leveraged Loan Index | 6.10% | 6.10% | 9.70% |
| EMD | EMBI Global Diversified | 5.85% | 5.95% | 10.65% |
| Private Markets | | | | |
| Core Real Estate | NCREIF ODCE | 5.75% | 6.15% | 14.20% |
| Private Infrastructure | MSCI Glb Infra/FTSE Dev Core 50/50 | 6.15% | 6.60% | 15.45% |
| Private Equity | Cambridge Private Equity | 8.50% | 8.85% | 27.60% |
| Private Credit | N/A | 7.00% | 7.25% | 15.50% |
| Hedge Funds | Callan Hedge FoF Database | 5.55% | 5.60% | 8.45% |
| Inflation | Consumer Price Index - Urban | 2.50% | 2.40% | 1.60% |
| Relative Comparisons (10-Yr Estimates) | | | | |
| Illiquidity Premium (Private Equity minus Global Equity) | | 0.90% | | |
| Equity Volatility Differential (Private Equity minus Global Equity) | | 9.25% | | |
| Credit Risk Premium (Private Credit minus Public High Yield) | | 0.75% | | |
| Credit Volatility Differential (Private Credit minus Public High Yield) | | 3.75% | | |
| Real Return Differential (Cash Equivalents minus Inflation) | | 0.25% | | |

- Staff collaborated with Callan to select the CMAs utilized in the Strategic Asset Allocation review
- Investment Staff reviewed a broader set of assumptions and evaluated a few other CMAs from other investment managers as a robustness check
- Staff decided to make no adjustments to the Callan CMA estimates
- Equity Risk Premium has continued to decline between public and private equities assumptions
- Long-term inflation expectations remain anchored around 2.5% among CMA providers

Three Potential Policy Portfolios



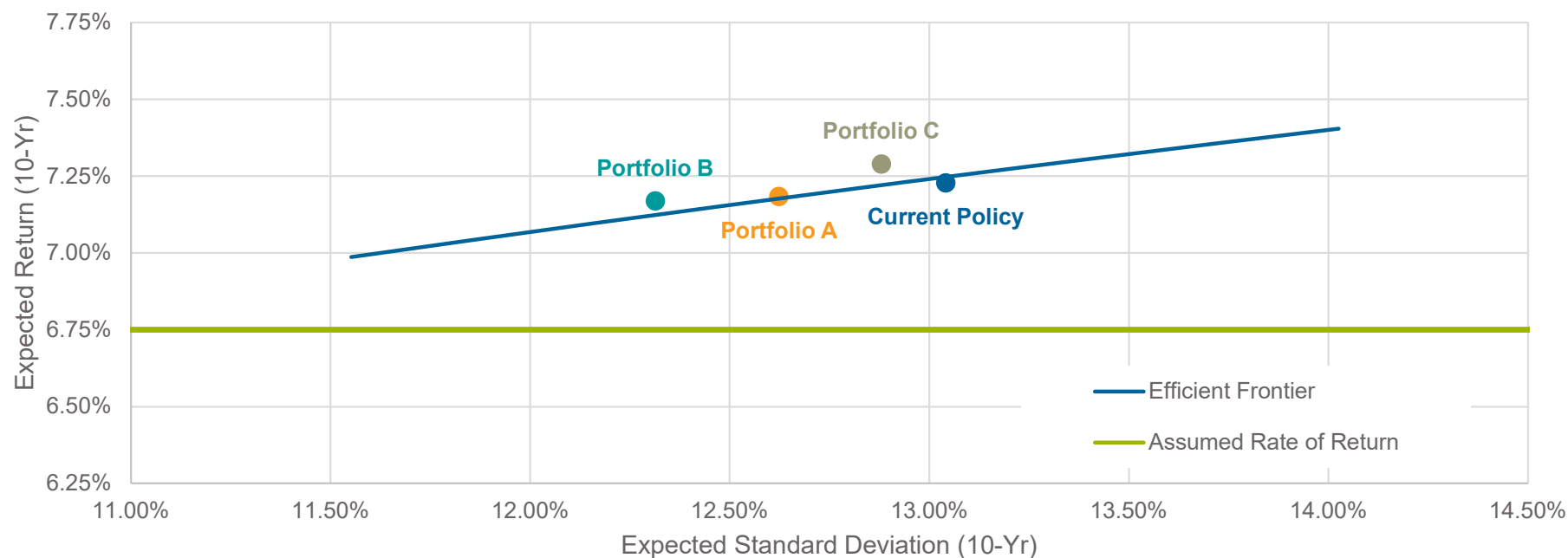
- NHRS determined three potential policy portfolios for the total plan given our goals
- Callan assisted in running mean-variance optimizations (MVOs) across many different asset class allocations

| Asset Class | Current Policy Target | 06/30/23 Actual Allocation | Proposed LT Policy Portfolios | | |
|--|-----------------------|----------------------------|-------------------------------|--------------|--------------|
| | | | Portfolio A | Portfolio B | Portfolio C |
| Global Equity | 50% | 49% | 45% ↓ | 40% ↓ | 40% ↓ |
| Fixed Income | 25% | 20% | 25% | 25% | 20% ↓ |
| Alternatives | | | | | |
| Private Equity | 10% | 14% | 10% | 10% | 10% |
| Private Credit | 5% | 5% | 5% | 10% ↑ | 15% ↑ |
| Core Real Estate | 10% | 11% | 10% | 10% | 10% |
| Private Infrastructure | 0% | 0% | 5% ↑ | 5% ↑ | 5% ↑ |
| Cash Equivalents | 0% | 1% | 0% | 0% | 0% |
| | 100% | 100% | 100% | 100% | 100% |
| Expected Return (10-Year) | 7.2% | 7.4% | 7.2% | 7.2% | 7.3% |
| Expected Standard Deviation | 13.0% | 13.8% | 12.6% | 12.3% | 12.9% |
| Expected Sharpe Ratio (Return / Risk) | 0.33 | 0.32 | 0.34 | 0.35 | 0.34 |
| Total Private Market Allocation | 25% | 30% | 30% | 35% | 40% |

Source: NHRS, Callan

Efficient Frontier for Proposed Portfolios

Efficient Frontier



Source: Callan

- NHRS considered the diversification of the total portfolio, reducing our overall public market volatility, as well as a continued emphasis on active management in developing Portfolios A, B, and C
- All potential portfolios yield above the assumed rate of return (6.75%) while lowering the overall volatility or risk relative to the current policy target to varying degrees

Observations on Proposed Portfolios



- Infrastructure Asset Class
 - Given the NHRS' liquidity position, the total plan can have more investments that **tilt toward yield generation to provide stable and consistent long-term income with some capital appreciation**
 - **Infrastructure asset class exhibits more stable performance** through most economic environments with diverse inflation-sensitive sectors
 - **Staff recommends adding Infrastructure as a new asset class** to reduce the volatility of our existing stock and bond exposures while increasing our diversification to complementary “real” assets
- Increasing Private Credit
 - Private Credit tends to be a more resilient asset class **with lower risk or volatility relative to other risk assets** (i.e., Private Equity) for institutional investors
 - Private Credit produces a better risk-adjusted return in an **environment where global interest rates may remain higher for longer**
 - **Staff believes the opportunity for credit is more attractive in Private Credit** than Public Credit (Global Fixed Income), with more levers to capture the credit beta versus the public market investment strategies

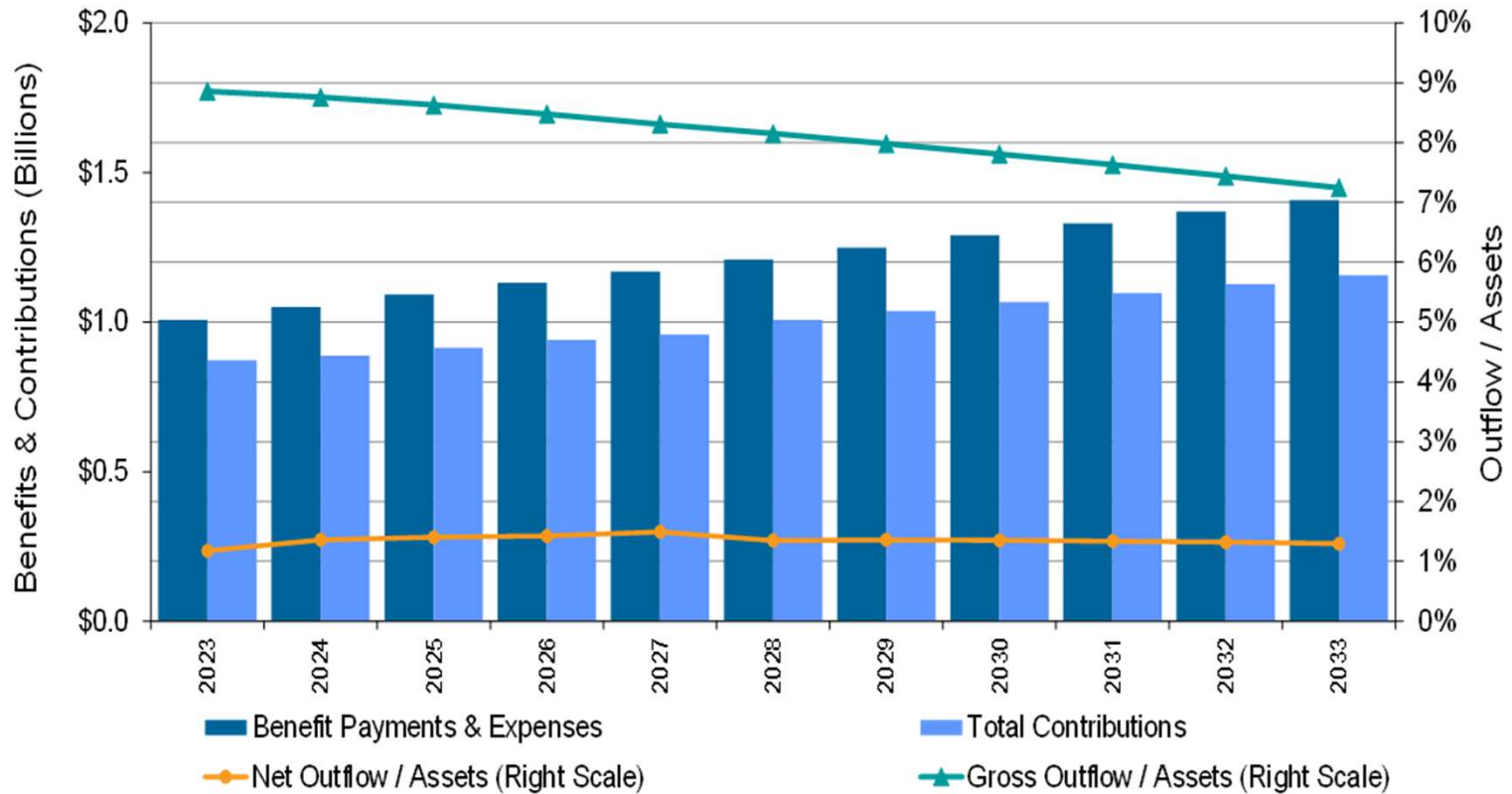
Observations on Proposed Portfolios



- Public Equity Consolidation
 - **Current portfolio separately classifies US Equity and Non-US Equity** with a significant portion of Non-US investment managers investing in the US
 - Staff believes a **Global Equity portfolio will allow better management of the overall equity exposure** that considers a global view of equity opportunities from our managers
 - **Staff proposes moving to a single asset class, “Global Equity”**, consolidating US Equity and Non-US Equity, utilizing the MSCI All-Country World as the policy benchmark
- Fixed Income Rebalancing
 - The majority of the Global Fixed Income asset class is allocated **more towards credit-sensitive investments** (i.e., Corporates, High Yield) rather than duration-sensitive investments (i.e., Treasuries, Sovereign Bonds)
 - **Staff proposes rebalancing the Credit investments** to de-risk the portfolio by **increasing our exposure to duration-sensitive investments**, given the current interest rate environment

Liquidity Analysis

- **Callan forecasts net cash outflows to range between 1 – 2%** based on projections of benefit payments net of contributions (see Appendix for historical data)
- Investment Staff & Callan believe that with a **low net cash need, the total plan can continue to allocate toward Private Markets** and de-risk (lower volatility) the plan via asset allocation



Source: Callan

Scenario Analysis for CMAs



- Investment Staff analyzed Callan’s stress test and historical market scenarios across all CMAs to determine the efficacy of Profit and Loss (P&L) impacts (see Appendix for assumptions used)
- Scenarios and market shocks perform as expected for the various asset class estimates and potential portfolios
- Market shocks assume instantaneous market impact, which differs from actual experience, which happens over time

| Scenario Performance by Asset Class | | | | | | |
|-------------------------------------|--------------|-----------------------|---|---------|---------------------------------|----------|
| Asset Class | Black Monday | 2008 Financial Crisis | 2011 U.S. Debt Ceiling Crisis and Downgrade | CY 2022 | Equities Decline 20% for 1 Year | Baseline |
| US Equity | -22% | -42% | -15% | -19% | -20% | 6.8% |
| Global ex-US Equity | -15% | -48% | -20% | -17% | -20% | 6.8% |
| Fixed Income | 4% | 5% | 4% | -13% | 0% | 6.8% |
| Cash | 1% | 2% | 0% | 1% | 0% | 6.8% |
| Core Real Estate | 0% | -14% | 3% | 7% | 0% | 6.8% |
| Private Equity | -1% | -21% | -6% | -8% | -20% | 6.8% |
| Private Credit | -1% | -20% | -7% | 4% | 0% | 6.8% |
| Private Infrastructure | -1% | -14% | -4% | 8% | 0% | 6.8% |

Source: Callan

Stress Tests for Potential Policy Portfolios



- Investment Staff reviewed both shocks to net cash outflows as % of liquid assets as well as overall total plan shock for each of the proposed portfolios versus current policy
- All potential policy portfolios performed within a range of expected P&L performance, with meaningful downside protection vs the current target in the hypothetical scenarios modeled

Net Outflow % of Liquid Assets Before and After Market Shock

| | Current Target | Actual Allocation | Portfolio A | Portfolio B | Portfolio C |
|---|----------------|-------------------|-------------|-------------|-------------|
| Starting Position | -2.2% | -2.4% | -2.4% | -2.6% | -2.8% |
| Target Private Markets Allocation | 25.0% | 30.0% | 30.0% | 35.0% | 40.0% |
| Black Monday | -2.8% | -3.0% | -3.0% | -3.2% | -3.6% |
| 2008 Financial Crisis | -3.4% | -3.7% | -3.6% | -3.9% | -4.4% |
| 2011 U.S. Debt Ceiling Crisis and Downgrade | -2.7% | -2.9% | -2.9% | -3.2% | -3.5% |
| CY 2022 | -2.9% | -3.1% | -3.2% | -3.5% | -3.8% |
| Equities Decline 20% for 1 Year | -2.8% | -3.0% | -3.1% | -3.3% | -3.6% |
| Baseline | -2.3% | -2.5% | -2.5% | -2.7% | -2.9% |

Projected Portfolio Performance During Market Shock

| | Current Target | Actual Allocation | Portfolio A | Portfolio B | Portfolio C |
|---|----------------|-------------------|-------------|-------------|-------------|
| Black Monday | -8.9% | -9.2% | -7.9% | -7.0% | -7.3% |
| 2008 Financial Crisis | -25.4% | -25.9% | -23.9% | -22.7% | -23.9% |
| 2011 U.S. Debt Ceiling Crisis and Downgrade | -8.2% | -8.2% | -7.5% | -7.0% | -7.5% |
| CY 2022 | -12.3% | -11.8% | -10.9% | -9.8% | -9.0% |
| Equities Decline 20% for 1 Year | -12.0% | -12.6% | -11.0% | -10.0% | -10.0% |
| Baseline | 6.8% | 6.8% | 6.8% | 6.8% | 6.8% |

Source: Callan

Conclusions

- **CIO recommend Portfolio B as the new Policy Allocation** over the next five years for the following reasons:
 - **Overall total plan risk is reduced** by moving allocation from Global Equity into a lower volatility private markets asset classes in a measured way
 - Incorporating **Infrastructure as a new asset class to further diversify our existing stock and bond allocations**
 - Increase our exposure to **Private Credit to generate strong risk-adjusted returns** over public markets investments
 - **Rebalance Global Equity and Global Fixed Income** asset classes to further achieve alignment and reduce risk
 - Forecasted **low net cash outflows allow the current portfolio to continue to invest in the private markets**
- **Staffing at current levels remains a challenge** for the implementation of a new strategic asset allocation – CIO and Investment Team is developing a Strategic Plan to address this
- Upon approval of a policy recommendation by the Board of Trustees, the NHRS **Investment Team will develop an implementation plan in 2024**

APPENDIX

Infrastructure Background



- Background
 - NHRS met with Townsend, our Real Estate advisor, as well as several existing managers to discuss Infrastructure for the NHRS portfolio
 - CIO previously managed the Real Assets portfolio at the State of Connecticut, underwriting and committing approximately \$625M in primary real assets funds in a \$5.2B Real Assets portfolio (Real Estate, Infrastructure, and Nat. Resources)
 - Today, **NHRS has committed an estimated 1% in individual Infrastructure investments** (of Private Equity and Private Credit mandates, including co-investments) but not as a dedicated strategy at the total plan level
- What is Infrastructure, and why should NHRS incorporate this asset class?
 - Alternative asset class that **encompasses investments in sectors that provide physical assets and include services** and installations essential for the economic productivity of society
 - **Infrastructure is regarded as a long-term asset class** suited to investors with long-term liabilities
 - Infrastructure can be comparatively low-risk than other alternative investments, with a **focus on both cash yield and capital appreciation**
 - Infrastructure is often described as **analogous to the Real Estate asset class**

Infrastructure Sector Examples

Transportation & Logistics



Power & Utilities



Environmental



Energy



Telecommunications



Social



Source: BlackRock, 2022

Key Benefits


- **Portfolio Diversification** – low correlation of infrastructure with other asset classes (public markets) over long-term
- **Stabilized Demand** – assets providing essential services with few competitors drive stable demand through various economic environments
- **Longevity** – infrastructure assets typically have long life spans
- **Sector Diversity** – infrastructure has matured as an asset class since the 1990s, with newer sectors being introduced (e.g., telecom)
- **Downside Protection** – stable free cash flow influences downside protection in sub-strategies that focus on income over capital appreciation

Important Considerations

- **Market Breadth** – infrastructure market has expanded to include newer technologies (i.e., broadband, data centers) which tend to be capital intensive and introduce innovation risk
- **Capital Intensive** – infrastructure assets are capital intensive for greenfield assets, due to development costs (similar to real estate)
- **Inflation Linkage** – infrastructure assets are linked to inflation, through regulation, or contracts that adjust to changes in inflation rates. Other sectors may have less sensitivity to inflation (e.g., telecom / internet service)
- **Demand for Core** – infrastructure investors had demanded core (income assets) exposure, driving up acquisition prices, and reducing underwriting returns

Infrastructure Risk and Return

| | Core | Core Plus | Value Add |
|-------------------------|--|---|--|
| Revenue Model | <ul style="list-style-type: none"> ▪ Cash flow underpinned by regulation or concession ▪ None or limited price and volume risk | <ul style="list-style-type: none"> ▪ Cash flow underpinned by medium to long term contracts, strong market position, or concession ▪ Some price/volume risk | <ul style="list-style-type: none"> ▪ Medium term contracts ▪ Some to significant volume and price risk, ramp-up risk ▪ Growth opportunities (add-on, roll-up) ▪ Core/core-plus Greenfield assets |
| Leverage | 70-90%, IG ¹ | 60-80%, IG ¹ | 40-60%, IG or sub-IG ¹ |
| Operating Risk | Low to medium | Low to medium | Medium to high |
| Market Risk | Low | Low to moderate | Moderate to high |
| Yield | High | Medium to high | Low to medium |
| Growth Potential | Low | Low to Medium | High |
| Targeted Returns | 6-8% | 8-10% | 12-15% |

Risk and return 

IG = Investment Grade
Source: Townsend

Historical Net Cash Outflow for NHRS



| Valuation Year | Funded Ratio | | | | Actual Total Payroll / Expected Total Payroll | Net Cash Flow as a Percent of MVA | Ratio of Actives to Retirees ¹ | UAAL Amortization Period | Ratio to Payroll | | | | |
|-------------------|--|--------------------------------|----------------------------------|---------------------------|---|-----------------------------------|---|--------------------------|------------------|------|------|---|---|
| | Percentage of AAL Covered by Net Actuarial Value of Assets Available | | | | | | | | UAAL | AVA | AAL | Standard Deviation of Investment Return | Standard Deviation of Contribution Rate |
| | NHRS in Total | Aggregate Member Contributions | Current Retirees & Beneficiaries | Active & Inactive Members | | | | | | | | | |
| June 30, 2008 | 67.8% | 100% | 83% | 0% | 101% | (1.2)% | 2.2 | 30 | 109% | 230% | 339% | *** | *** |
| June 30, 2009* | 58.3 | 100 | 63 | 0 | 103 | (2.3) | 2.1 | 30 | 145 | 202 | 346 | 23% | 0.3% |
| June 30, 2010 | 58.5 | 100 | 61 | 0 | 98 | (2.8) | 2.0 | 30 | 150 | 211 | 361 | 23 | 0.3% |
| June 30, 2011#* | 57.4 | 100 | 63 | 0 | 98 | (3.1) | 1.8 | 29 | 169 | 228 | 397 | 26 | 0.3% |
| June 30, 2012 | 56.1 | 100 | 58 | 0 | 96 | (2.3) | 1.7 | 28 | 183 | 234 | 417 | 28 | 0.3% |
| June 30, 2013 | 56.7 | 100 | 59 | 0 | 97 | (2.9) | 1.6 | 27 | 185 | 243 | 428 | 29 | 0.3% |
| June 30, 2014 | 60.7 | 100 | 67 | 0 | 97 | (1.7) | 1.6 | 26 | 173 | 267 | 440 | 32 | 0.4% |
| June 30, 2015#^ | 59.2 | 100 | 66 | 0 | 99 | (1.8) | 1.5 | 25 | 195 | 283 | 478 | 33 | 0.4% |
| June 30, 2016 | 60.0 | 100 | 67 | 0 | 98 | (1.7) | 1.5 | 24 | 196 | 294 | 489 | 34 | 0.4% |
| June 30, 2017# | 61.8 | 100 | 72 | 0 | 99 | (2.0) | 1.3 | 23 | 189 | 306 | 495 | 36 | 0.5% |
| June 30, 2018 | 63.6 | 100 | 75 | 0 | 100 | (1.7) | 1.3 | 22 | 181 | 317 | 498 | 37 | 0.5% |
| June 30, 2019#*@^ | 60.8 | 100 | 73 | 0 | 100 | (1.8) | 1.3 | 21 | 209 | 323 | 531 | 40 | 0.6% |
| June 30, 2020 | 61.0 | 100 | 72 | 0 | 100 | (1.9) | 1.3 | 20 | 209 | 326 | 535 | 40 | 0.6% |
| June 30, 2021 | 64.2 | 100 | 78 | 0 | 100 | (2.1) | 1.3 | 19 | 193 | 345 | 538 | 42 | 0.6% |

After reflection of changes in assumptions.

* After reflection of changes in legislation.

@ After reflection of changes in methodology.

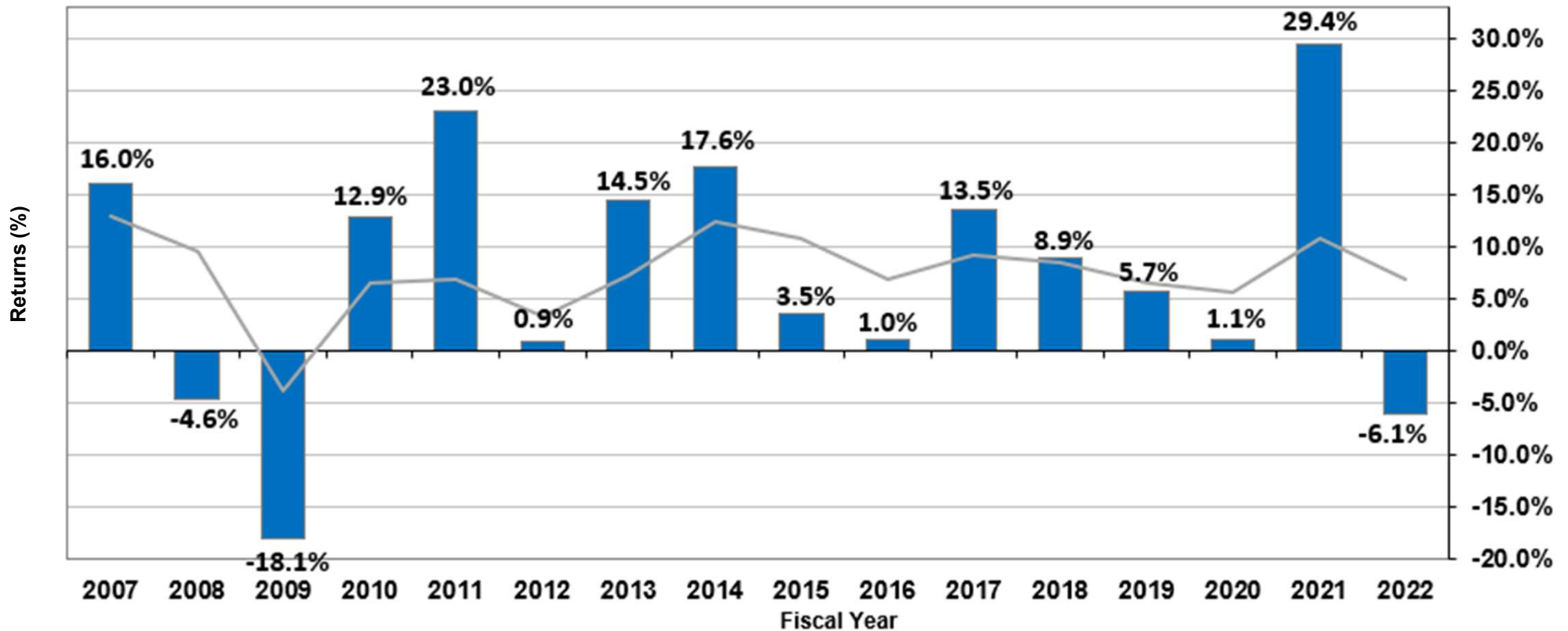
*** Unavailable.

^ The standard deviation of investment return was updated in these years as the result of an experience study.

1 Beginning with the valuation year ended June 30, 2019, the ratio of actives to retirees excludes additional data records which have resulted from additional annuities, survivor benefits, or members having benefits in more than one valuation group. There were 3,543 such records in 2021.

Source: GRS

Historical NHRS Fiscal Year Performance



Grey Line: Smoothed Actuarial Rate of Return (five-year moving average)
Source: Callan, GRS

Historical Scenarios

- 2008 Financial Crisis (October 2007 – February 2009)
- Black Monday (October 1987)
- 2011 US Debt Ceiling Crisis and Rating Downgrade (June – September 2011)
- Calendar Year 2022 (January – December 2022)

Parametric Scenarios

- Equities Decline 20% in 1 year
- Baseline – Plan Earns 6.75% Expected Return

In the historical scenarios we use proxy benchmarks for the expected return of each asset class

- US Equity = Russell 3000
- Global ex-US Equity = MSCI ACWI ex US IMI
- US Fixed Income = Bloomberg Aggregate
- Real Estate = NCREIF NFI-ODCE Value Weight Net
- Private Equity = Cambridge Global Private Equity
- Private Credit = Cambridge Private
- Infrastructure = Cambridge Global Private Infrastructure

November 2023



**2023 Asset-Liability and
Strategic Asset Allocation Study**

New Hampshire
Retirement System

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Important Disclosures regarding the use of this document are included at the end of this document. These disclosures are an integral part of this document and should be considered by the user.

Agenda

Introduction

Asset-Liability Modeling

- Overview of Callan's Asset-Liability Process
- Current Asset Allocation Target
- Alternative Asset Mixes
- Liquidity Analysis and Stress Testing

Strategic Asset Allocation

Appendix

Callan

Introduction

Introduction

This report summarizes key observations and analysis of New Hampshire Retirement System's asset-liability study (AL) and strategic asset allocation (SAA)

The report is the culmination of months of collaboration between NHRS staff and Callan

- Many more scenarios and potential asset allocation mixes were considered before arriving at the final options presented here; NHRS Staff was instrumental in defining the asset mixes tested in this analysis, working closely with the Callan team

We start with asset-liability results, evaluating how the SAA alternatives under consideration are projected to impact the System's ability to meet its obligations

After establishing asset-liability projections we do a deeper dive on asset-only projections for the current SAA and 3 alternative SAA mixes

General Observations

Observations

- This analysis follows the evaluation of the Fund's strategic asset allocation by Callan, the IIC and the Board in 2021 and 2022
- It is important to note that the future financial condition of the Fund, including the scenarios that were tested in this analysis, *is highly dependent on the current contribution policy. Any changes to the contribution policy can have a material impact on expected results*
- Any changes to the current asset allocation policy should consider qualitative judgement to complement the quantitative output contained in this report
- Based on our capital markets expectations, the various asset mixes evaluated in this analysis, including the Current Target, are expected to exceed the Fund's assumed rate of return target of 6.75%
- From a fiduciary perspective, given the results of this analysis and prior studies, increasing the Fund's risk profile, including liquidity risk, needs to be carefully evaluated and well-justified

Investment Policy: Investment Objectives and Risk Management

- NHRS Investment Objectives
 - Efficiently allocate and manage the assets of the Fund so that beneficiaries will receive promised benefits
 - Manage the portfolio on a total return basis, which recognizes the importance of the preservation of capital, as well as the fact that reasonable and varying degrees of investment risk are generally rewarded over the long-term
 - Work towards achieving and then maintaining a fully funded pension status
 - Exceed the Policy Benchmark on a net of fees basis over a full market cycle
- Risk Management
 - Risk is referenced both in terms of absolute risk (risk of loss) and volatility (the variability of returns)
 - The IIC and Board will consider several risk factors in evaluating asset allocation decisions, including, but not limited to: benchmark risk, timing risk, market risk, credit risk, currency risk, and liquidity risk

2023 Study

- The primary consideration between the Current Target and alternative mixes is whether to increase the allocation to private markets
 - Two of the mixes accomplish this by reducing the target allocation to public equity, one mix reduces public equity and fixed income
 - We looked at mixes from 25% private markets (Current Target) to 40% private markets (Portfolio C)
- The Current Target and alternative mixes have similar return expectations; mixes with more private markets have lower expected standard deviation from the increased diversification benefit, albeit with less liquidity
- The tradeoff is the alternative mixes have less liquidity which could put a strain on liquid assets' ability to cover net outflows and require selling liquid assets just after they have declined
 - Net outflows represent 2.2 – 2.8% of liquid assets depending on the target allocation to private markets, under the current funding policy
 - *Net outflows could rise to as much as 4.4% of liquid assets for Portfolio C (which has 40% private markets) in a 2008 Financial Crisis scenario*
 - The System's liquidity tolerance is dependent on adherence to the current contribution policy
 - *Without contributions, net outflows jump to 12.5 – 15.6% of liquid assets before considering a market shock*
 - *After a market shock, net outflows could climb to over 20% of liquid assets for mixes with higher private markets allocations*
- Growth in funded status is also dependent on the current contribution policy
 - If contributions are cut in half starting in 2028, projected funded status at the end of the 10-year forecast drops from 88% to 79%
 - This can impact the objectives set forth in the Statutory Pension Policy that has been established for NHRS, which indicates that the Fund shall achieve 100% funding by June 30, 2039
- Median (50th percentile) and Worse-Case (97.5th percentile) projections for funded status, cumulative contributions, and ultimate net cost show limited difference across mixes due to the similar risk and return projections for the mixes
 - Therefore, the primary decision point is between improved diversification and reduced liquidity

Callan

Asset-Liability Modeling

Overview of Callan's Asset-Liability Process

Goals of the Asset-Liability Study

- The goal of this asset-liability project is to establish a long-term strategic asset allocation target
- An appropriate asset allocation will depend on New Hampshire's investment objectives
 - Minimize costs over the long run (long-term goal)
 - *How much return generation is necessary to lower contributions and/or improve funded status?*
 - Minimize funded status volatility (short-term goal)
 - *How much risk reduction to reduce contribution/funded status volatility?*
- Asset allocation will vary by the unique circumstances
 - No “one-size-fits-all” solution exists
- The asset-liability study will help New Hampshire quantify the impact that different strategies might have on relevant metrics

Factors to consider:

- Liability characteristics
- Funded status
- Contribution policy
- Time horizon
- Liquidity needs
- Risk Tolerance

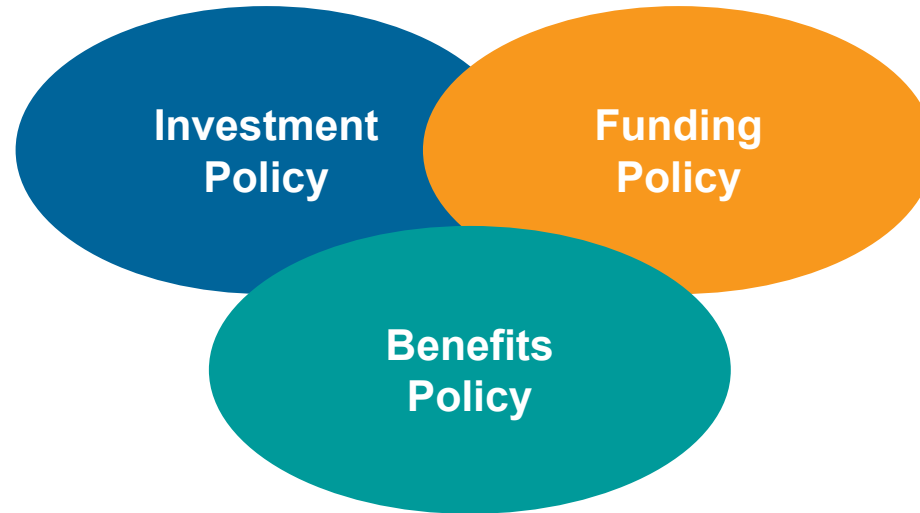
Today's goal is to establish the long-term asset allocation policy

Three Key Strategic Policies

Evaluate the interaction of three key policies to identify an appropriate investment policy

Investment Policy

- How will the assets supporting the benefits be invested?
- What risk and return objectives?
- How to manage cash flows?



Funding Policy

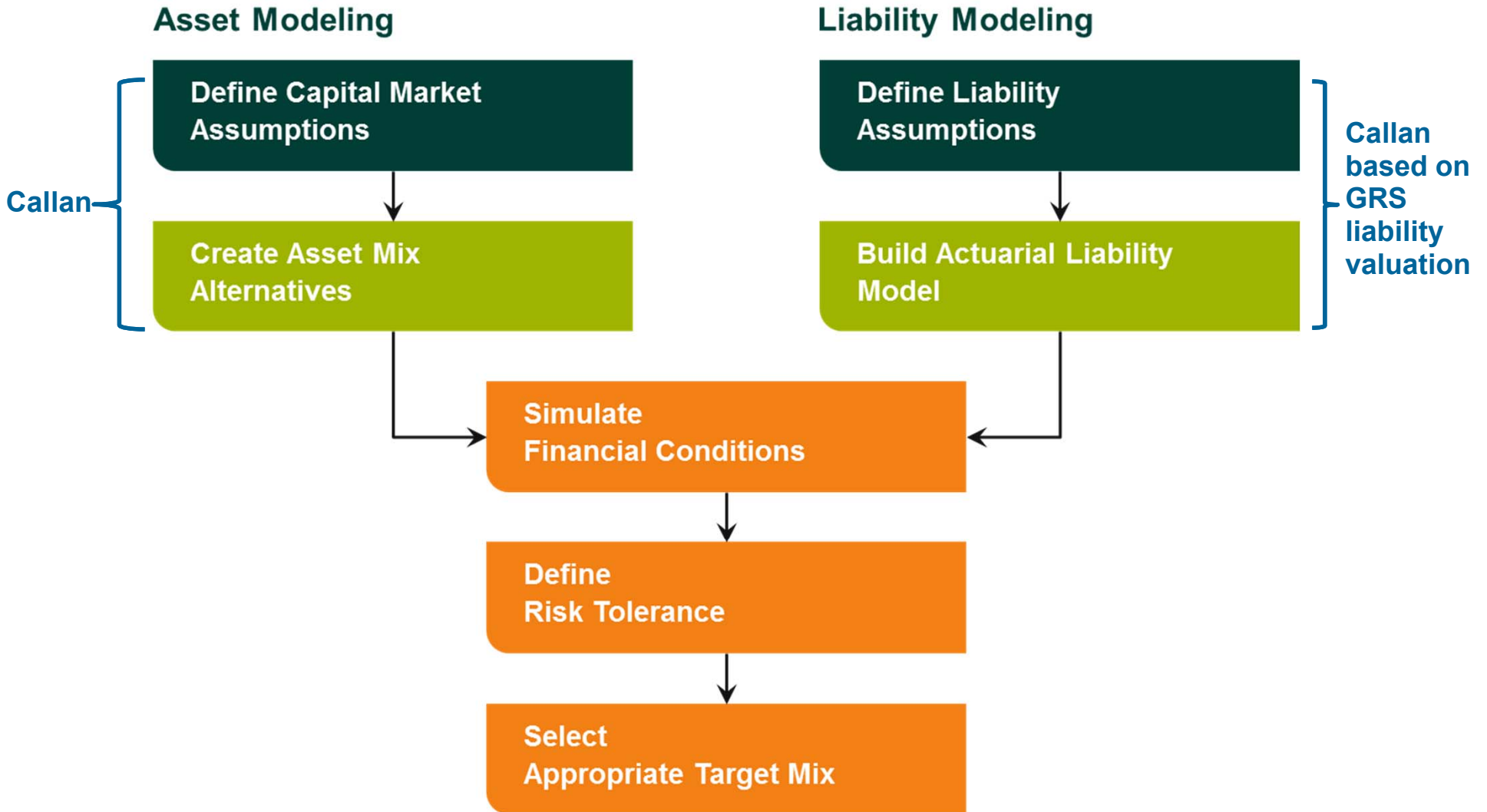
- How will the benefits/deficits be paid for (funded)?
- What is the assumed investment return?
- What are the actuarial assumptions?

Benefits Policy

- What type/kind of benefits?
- What level of benefit?
- When and to whom are they payable?

$$\text{Contributions} + \text{Investment Earnings} = \text{Benefits Paid} + \text{Expenses}$$

Callan Asset-Liability Modeling Process



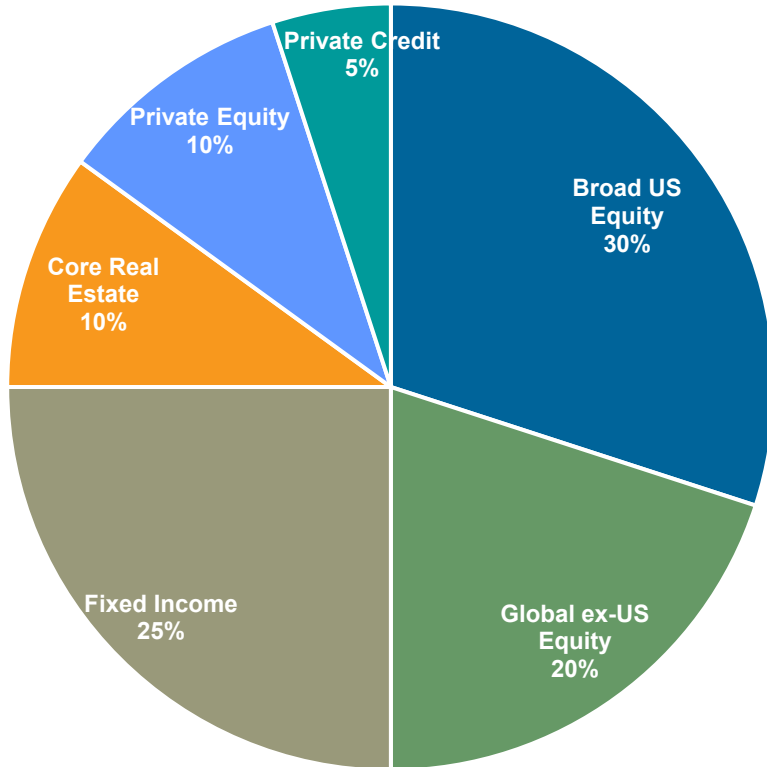
Callan

Asset-Liability Modeling

Current Asset Allocation Target

New Hampshire Asset Allocation

Target Policy



The current target asset allocation is well-diversified with asset class investments across public equity, fixed income, and private markets

In broad terms:

50% Public Equity

25% Fixed Income

25% Private Markets

Current Conditions & Background

- The last study was completed in early 2021 and covered fiscal years 2021 through 2030
 - There was no change to the strategic policy target upon completion of the last study, as the current target is expected to meet the Fund’s strategic return objectives
- For liabilities the July 1, 2023 starting point is based on GRS actuarial data rolled forward from the last study
 - Assets reflect actual experience
- Plan is ongoing and covers State Employees, Teachers, Police, and Fire
- There has been no change to the liability discount rate since the last study
- Plan is currently just under 68% funded on an actuarial basis and is 67% funded on a market basis
- Net outflows are expected to be manageable (~1.5-2%) if contribution policy is maintained
 - Large annual benefit payments are meaningfully offset by contributions

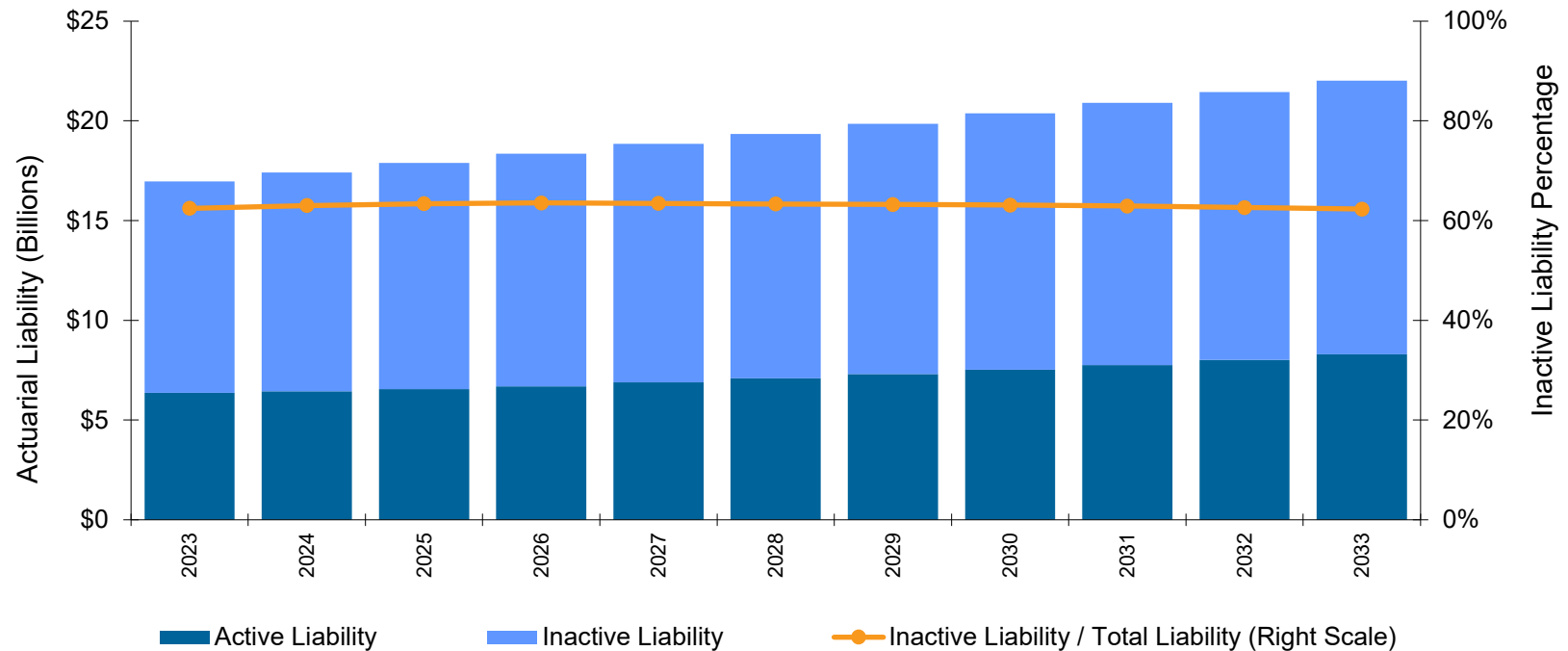
| New Hampshire | July 1, 2023 Actuarial Valuation |
|----------------------------------|----------------------------------|
| Actuarial Accrued Liability (AL) | \$17.0B |
| Actuarial Value of Assets (AVA) | \$11.5B |
| Actuarial Funded Status (AVA/AL) | 67.6% |
| Market Value of Assets (MVA) | \$11.4B |
| Market Funded Status (MVA/AL) | 67.0% |

| Key Assumptions | Actuarial Assumption | Callan 10-year Expectation |
|-------------------|----------------------|----------------------------|
| Investment Return | 6.75% | 7.2%* |
| Price Inflation | 2.0% | 2.5% |

**Based on Callan’s capital market assumptions applied to New Hampshire’s target asset allocation; used throughout the remainder of the study*

Plan Liabilities

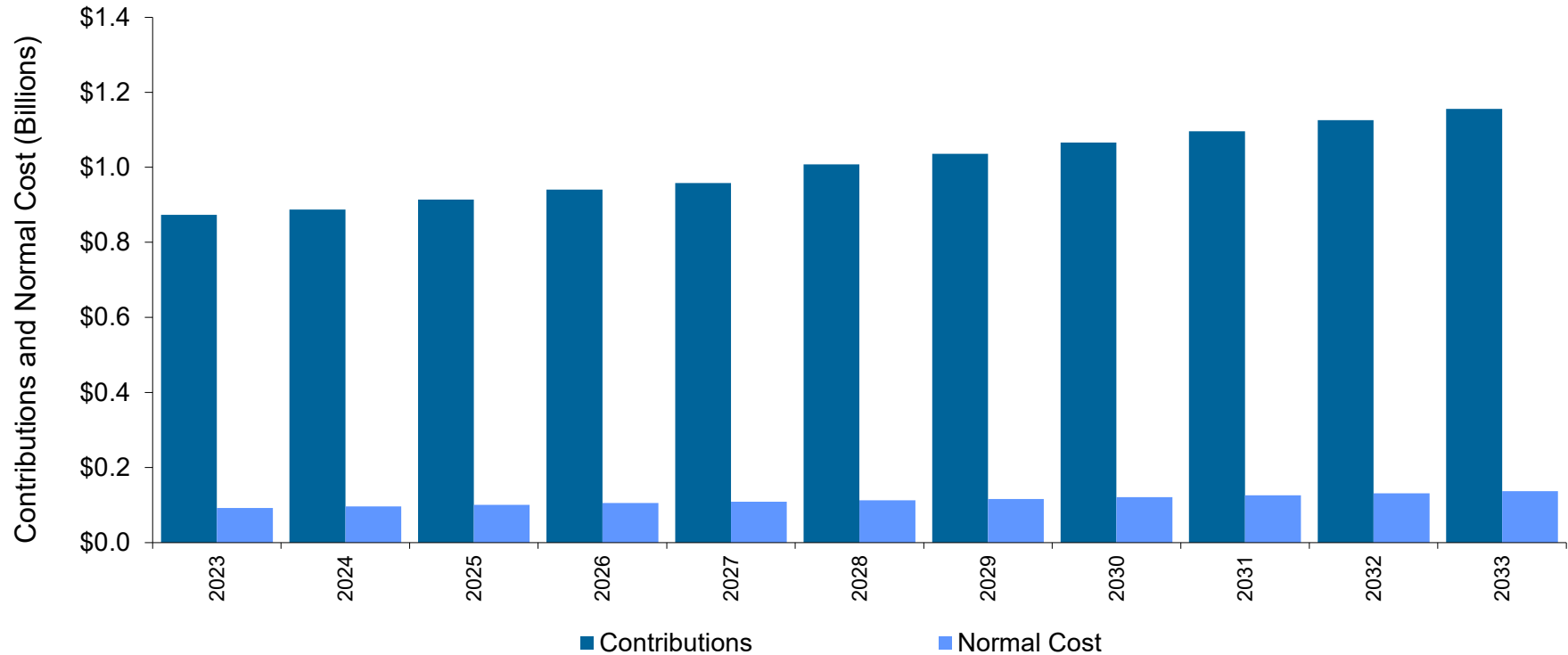
Baseline Projection: 7.23% Return and 2.5% Inflation



- The active and inactive liabilities grow at a similar rate so the inactive liability stays around 62% of the total liability
- The overall liability is expected to grow about 2.5% per year on average over the projection period
 - Normal cost and interest increase the liability while benefit payments reduce the liability

Contributions and Normal Cost

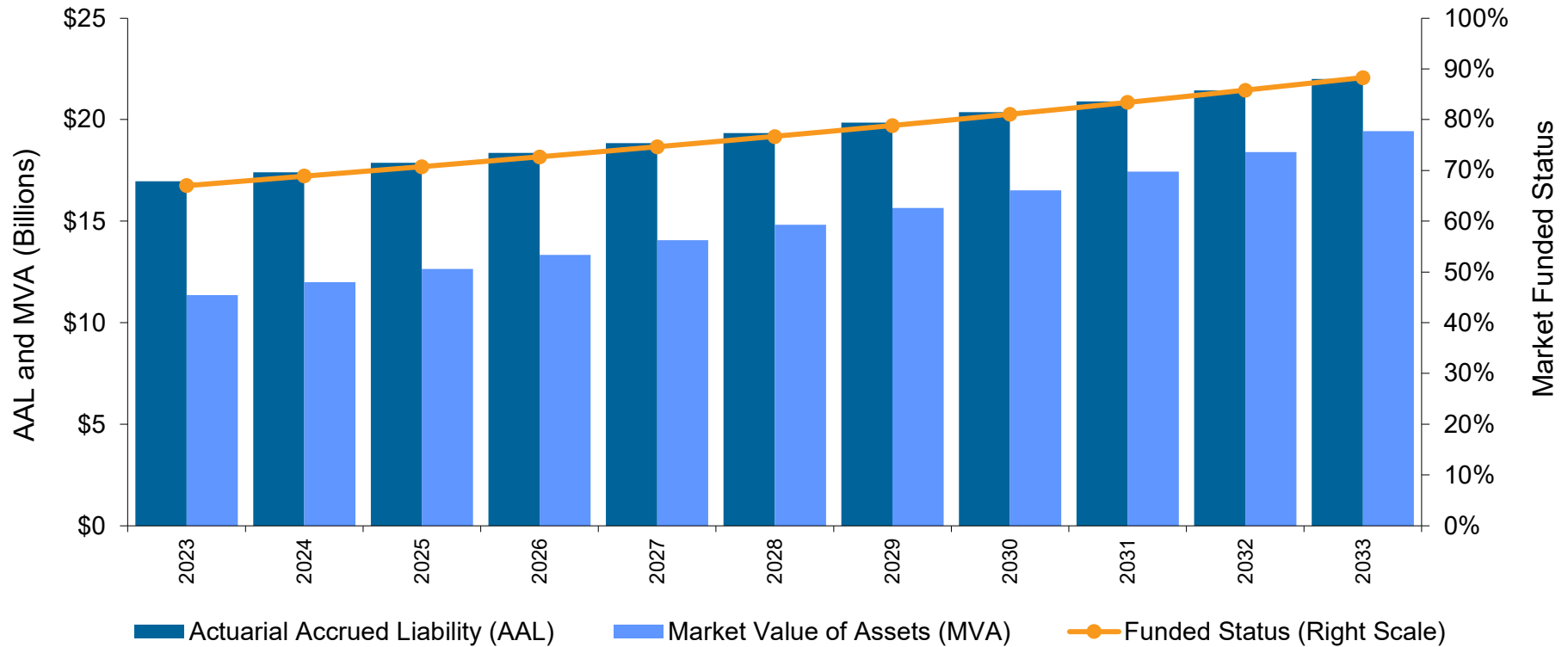
Baseline Projection: 7.23% Return and 2.5% Inflation



- Contributions are projected to exceed normal cost by a wide margin over the ten-year projection period

Market Assets, Liabilities, and Funded Status

Baseline Projection: 7.23% Return and 2.5% Inflation

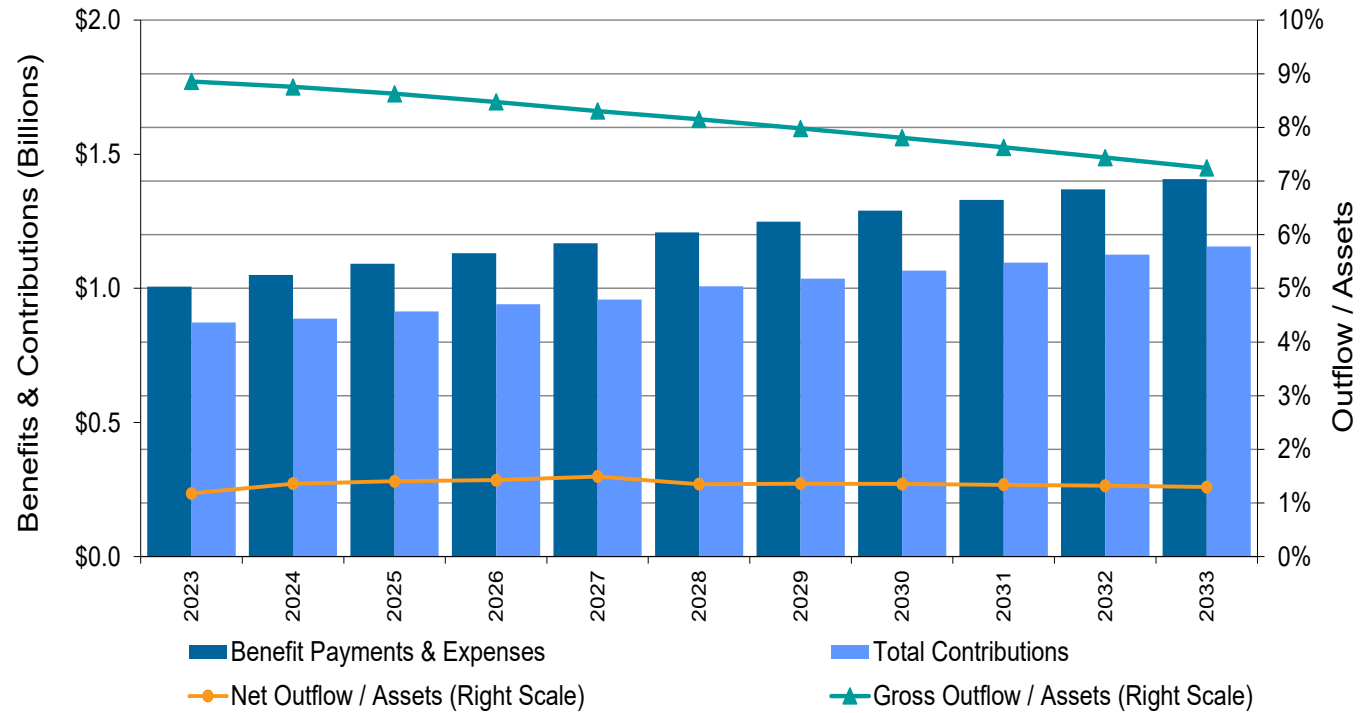


- Growth in assets outpaces liability growth leading to a gradual improvement in the funded status
 - Change in assets considers both investment returns (7.23%) and net cash outflows (contributions net of benefit payments and expenses)
- Projected funding level depends on adherence to the contribution policy

Cash Flows and Liquidity

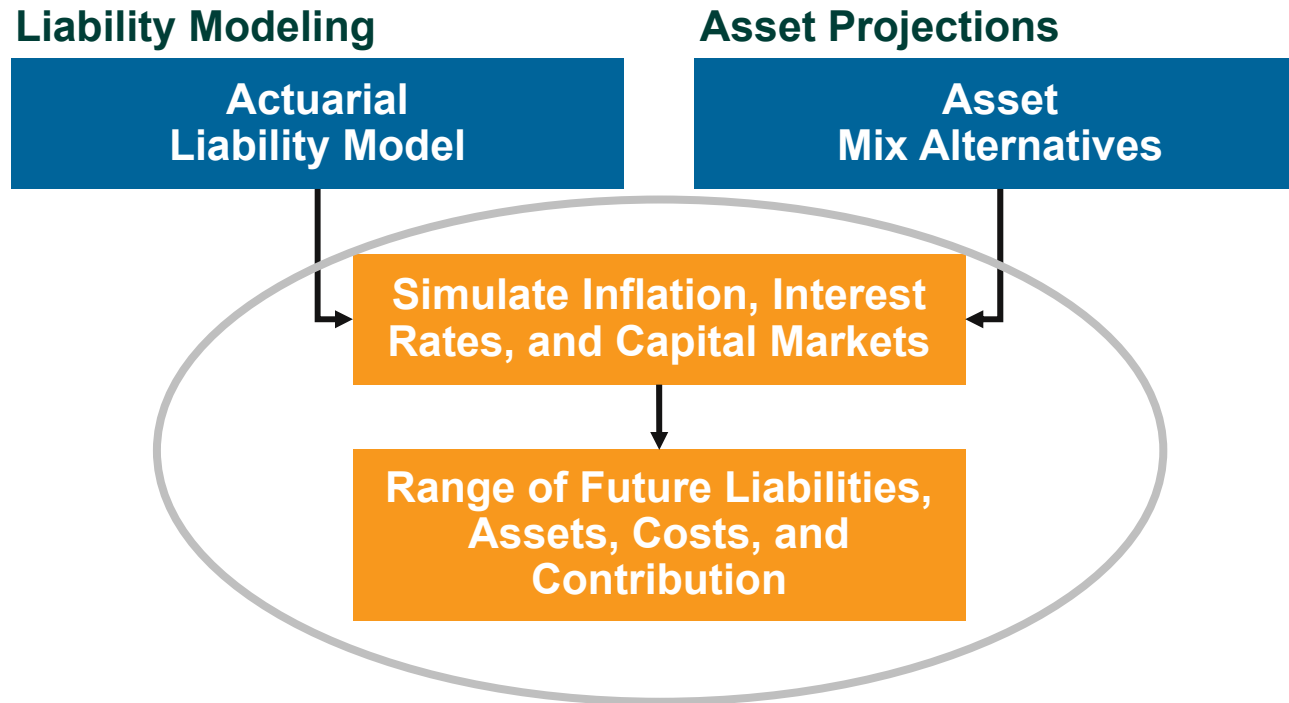
Baseline Projection: 7.23% Return and 2.5% Inflation

- **Gross Outflow = Benefit Payments + Expenses**
 - Gross outflow as a percentage of assets ranges between 7-9%
- **Net Outflow = Benefit Payments + Expenses – Employer Contributions – Employee Contributions**
 - Net outflow as a percentage of assets ranges between 1-2%
- The projection assumes the current contribution policy is maintained



| | | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Projected Market Value of Assets | \$ Billion | \$11.4 | \$12.0 | \$12.7 | \$13.3 | \$14.1 | \$14.8 | \$15.6 | \$16.5 | \$17.4 | \$18.4 | \$19.4 |
| Outflows (Benefit Payments + Expenses) | \$ Billion (% of Assets) | \$1.0 (8.9%) | \$1.1 (8.8%) | \$1.1 (8.6%) | \$1.1 (8.5%) | \$1.2 (8.3%) | \$1.2 (8.1%) | \$1.2 (8.0%) | \$1.3 (7.8%) | \$1.3 (7.6%) | \$1.4 (7.4%) | \$1.4 (7.2%) |
| Inflows (Employer + Employee Contributions) | \$ Billion (% of Assets) | -\$0.9 (-7.7%) | -\$0.9 (-7.4%) | -\$0.9 (-7.2%) | -\$0.9 (-7.1%) | -\$1.0 (-6.8%) | -\$1.0 (-6.8%) | -\$1.0 (-6.6%) | -\$1.1 (-6.5%) | -\$1.1 (-6.3%) | -\$1.1 (-6.1%) | -\$1.2 (-5.9%) |
| Net Outflows | \$ Billion (% of Assets) | \$0.1 (1.2%) | \$0.2 (1.4%) | \$0.2 (1.4%) | \$0.2 (1.4%) | \$0.2 (1.5%) | \$0.2 (1.4%) | \$0.2 (1.4%) | \$0.2 (1.4%) | \$0.2 (1.3%) | \$0.2 (1.3%) | \$0.3 (1.3%) |

Simulate Financial Condition



- Generate 2,000 simulations per year, per asset mix to capture possible future economic scenarios and their effect on the Plan
- The simulation results are then ranked from highest to lowest to develop probability distributions

Understanding Floating Bar Charts

Example of stochastic market value projections on following slide

Interpreting stochastic results

2.5th percentile

- ▶ Exceeds 97.5% of all forecasts
- ▶ Very optimistic outcome

25th percentile

- ▶ Exceeds 75% of all forecasts
- ▶ Optimistic outcome

50th percentile

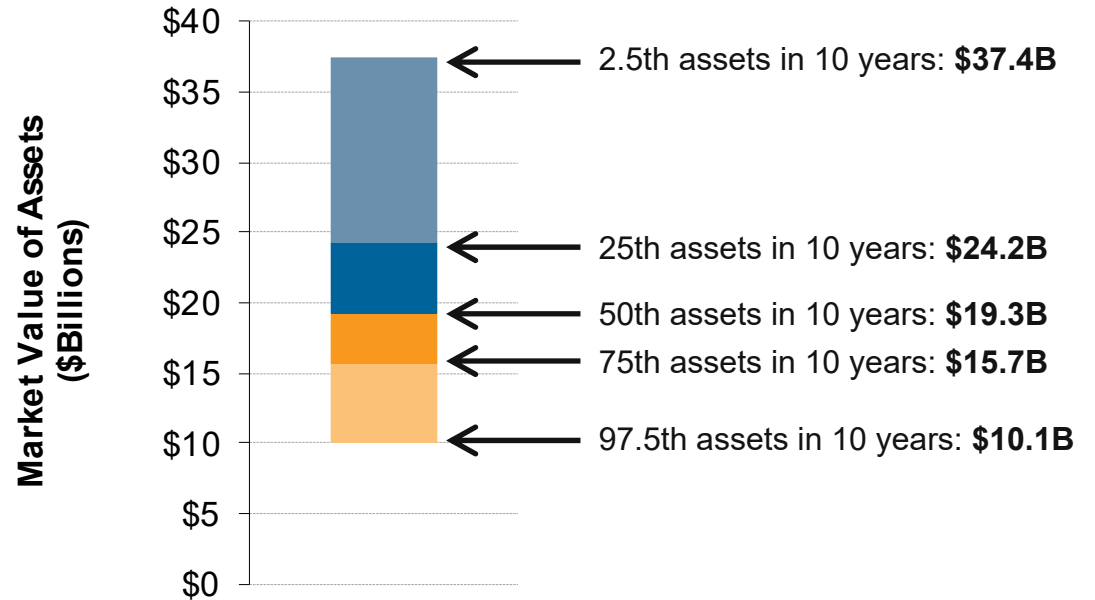
- ▶ Exceeds 50% of all forecasts
- ▶ Median (expected) outcome

75th percentile

- ▶ Exceeds 25% of all forecasts
- ▶ Pessimistic outcome

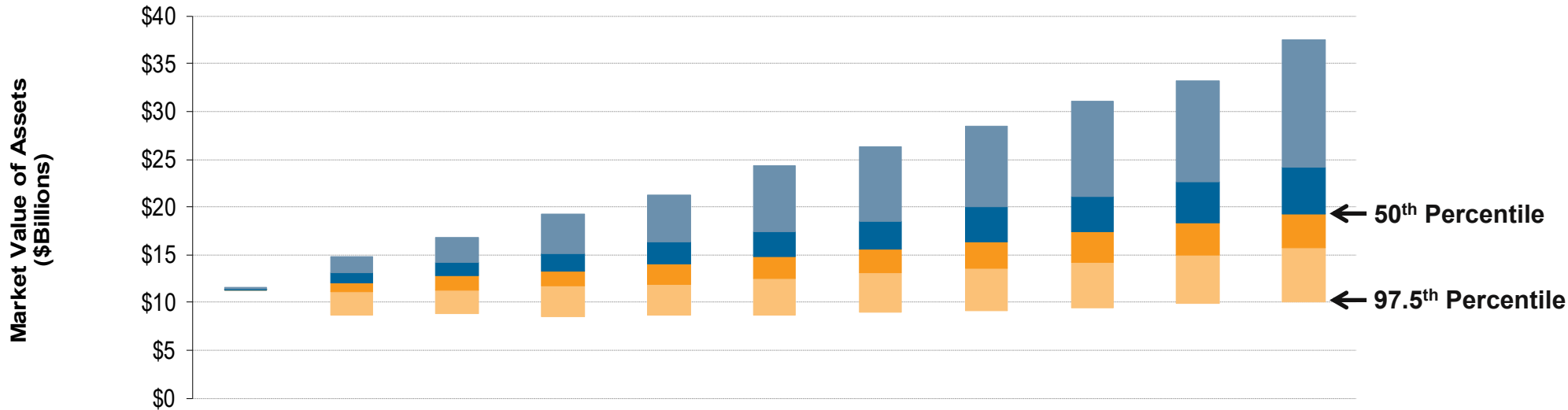
97.5th percentile

- ▶ Exceeds 2.5% of all forecasts
- ▶ Very pessimistic outcome



| Percentile | 2033 MV Projection |
|------------|--------------------|
| 2.5th | \$37.4 |
| 25th | \$24.2 |
| 50th | \$19.3 |
| 75th | \$15.7 |
| 97.5th | \$10.1 |
| Range | \$27.3 |

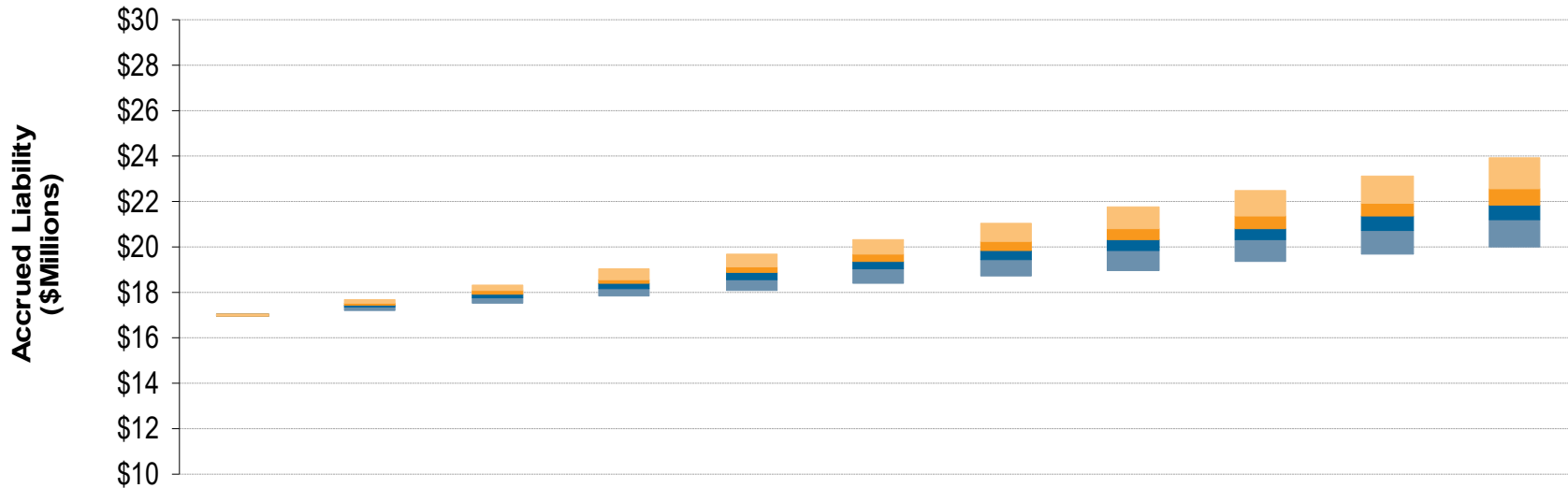
Market Value of Assets – Target Mix



| Percentile | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | Ann. Growth |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------------|
| 2.5th | \$11.4 | \$14.8 | \$16.9 | \$19.2 | \$21.2 | \$24.3 | \$26.4 | \$28.5 | \$31.0 | \$33.3 | \$37.4 | 12.7% |
| 25th | \$11.4 | \$13.1 | \$14.2 | \$15.1 | \$16.4 | \$17.5 | \$18.6 | \$20.0 | \$21.1 | \$22.6 | \$24.2 | 7.8% |
| 50th | \$11.4 | \$12.1 | \$12.8 | \$13.3 | \$14.1 | \$14.8 | \$15.5 | \$16.4 | \$17.4 | \$18.3 | \$19.3 | 5.4% |
| 75th | \$11.4 | \$11.1 | \$11.3 | \$11.7 | \$12.0 | \$12.5 | \$13.1 | \$13.6 | \$14.3 | \$14.9 | \$15.7 | 3.3% |
| 97.5th | \$11.4 | \$8.8 | \$8.8 | \$8.5 | \$8.8 | \$8.7 | \$9.0 | \$9.2 | \$9.4 | \$10.0 | \$10.1 | -1.1% |
| Range | \$0.0 | \$6.0 | \$8.1 | \$10.7 | \$12.4 | \$15.6 | \$17.4 | \$19.3 | \$21.6 | \$23.3 | \$27.3 | |

- The expected (median) outcome is the 50th percentile
 - There is a 50% chance that asset values will be above the value shown and a 50% chance they will be below the value shown
- Plan assets are expected to rise throughout the projection period
 - Change in assets considers both investment returns and cash flows (contributions net of benefit payments and expenses)
- The Worse-Case scenario is the 97.5th percentile
 - There is a 1-in-40 chance (2.5% probability) that the 7/1/2033 market value of assets will be \$10 billion or less

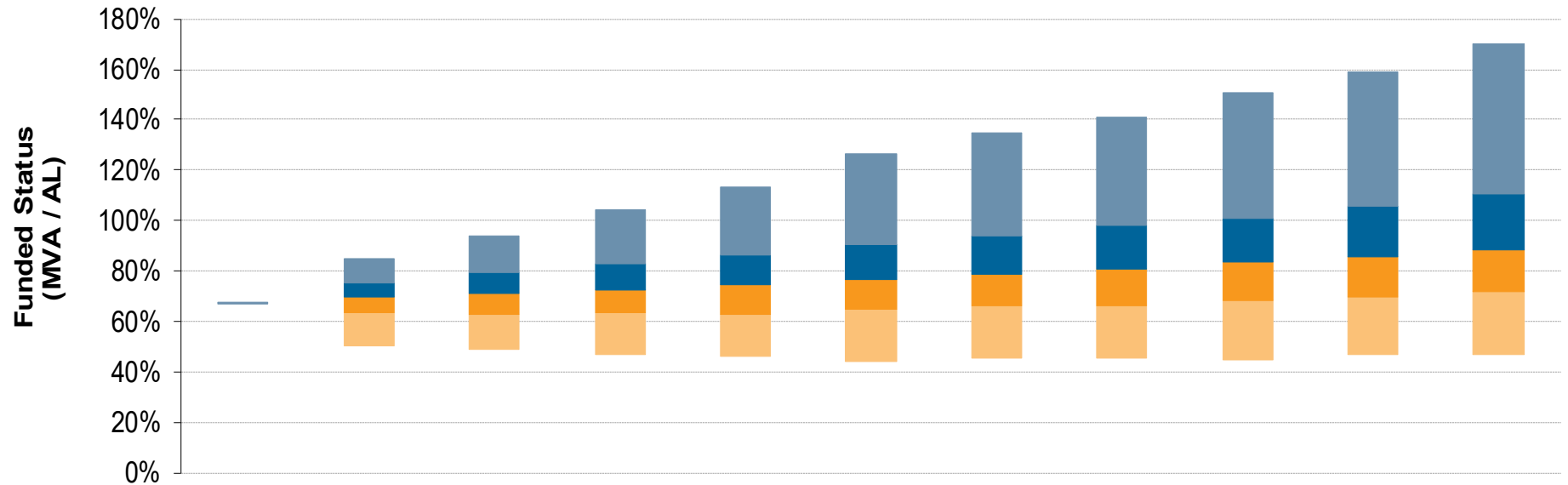
Actuarial Accrued Liability



| Percentile | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | Ann. Growth |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------------|
| 97.5th | \$17.0 | \$17.7 | \$18.3 | \$19.0 | \$19.6 | \$20.3 | \$21.0 | \$21.7 | \$22.4 | \$23.2 | \$23.9 | 3.5% |
| 75th | \$17.0 | \$17.5 | \$18.1 | \$18.6 | \$19.1 | \$19.7 | \$20.2 | \$20.8 | \$21.4 | \$21.9 | \$22.5 | 2.9% |
| 50th | \$17.0 | \$17.4 | \$17.9 | \$18.4 | \$18.9 | \$19.3 | \$19.8 | \$20.3 | \$20.8 | \$21.3 | \$21.9 | 2.6% |
| 25th | \$17.0 | \$17.4 | \$17.8 | \$18.2 | \$18.6 | \$19.0 | \$19.4 | \$19.9 | \$20.3 | \$20.7 | \$21.2 | 2.2% |
| 2.5th | \$17.0 | \$17.2 | \$17.5 | \$17.8 | \$18.1 | \$18.4 | \$18.7 | \$19.0 | \$19.4 | \$19.7 | \$20.0 | 1.7% |
| Range | \$0.0 | \$0.4 | \$0.8 | \$1.2 | \$1.5 | \$1.9 | \$2.3 | \$2.7 | \$3.1 | \$3.5 | \$3.9 | |

- Plan liabilities are much less volatile than Plan assets
 - Limited volatility in the liability is due to volatility in inflation which flows through to member compensation
- Liabilities are expected (50th percentile) to increase over the next 10 years to ~\$22B (2.6% annualized growth)
- Liabilities increase with ongoing benefit accrual and interest cost and are reduced by benefit payments

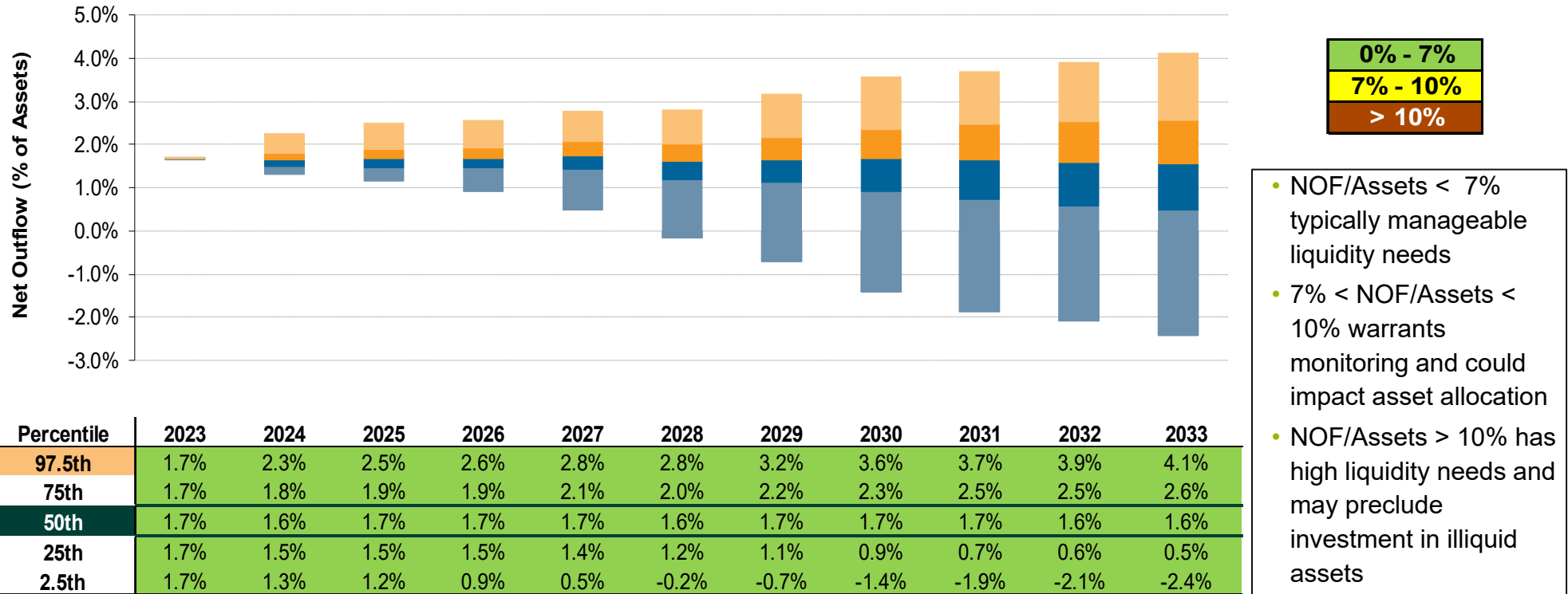
Market Funded Status – Target Mix



| Percentile | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|
| 2.5th | 67% | 85% | 94% | 104% | 113% | 126% | 134% | 141% | 151% | 159% | 170% |
| 25th | 67% | 75% | 79% | 83% | 86% | 90% | 94% | 98% | 101% | 106% | 111% |
| 50th | 67% | 69% | 71% | 73% | 75% | 77% | 79% | 81% | 83% | 86% | 88% |
| 75th | 67% | 64% | 63% | 64% | 63% | 65% | 66% | 67% | 68% | 70% | 72% |
| 97.5th | 67% | 50% | 49% | 47% | 46% | 44% | 46% | 45% | 45% | 47% | 47% |
| Range | 0% | 34% | 45% | 58% | 67% | 82% | 89% | 96% | 106% | 112% | 123% |
| Prob. Full Funding | 0% | 0% | 1% | 4% | 9% | 13% | 18% | 23% | 26% | 31% | 35% |

- With much more variability in assets than liabilities, there is a wide range of potential funded status outcomes
- There is ~35% probability of full funding by 2033 for the current target allocation, up from ~13% probability in the last study

Net Outflow (NOF) as a Percentage of Assets – Target Mix



- Net Outflow = Benefit Payments + Expenses – Contributions
- Positive numbers in the table represent a net outflow while negative numbers represent a net inflow
 - NOF/assets is stable in the median case but can reach up to 4% per year in a Worse-Case (97.5th percentile) outcome when market assets are impaired
- Plan has manageable liquidity needs assuming the contribution policy is maintained

Callan

Asset-Liability Modeling

Alternative Asset Mixes

Alternative Asset Mixes

Decrease in allocation relative to current target

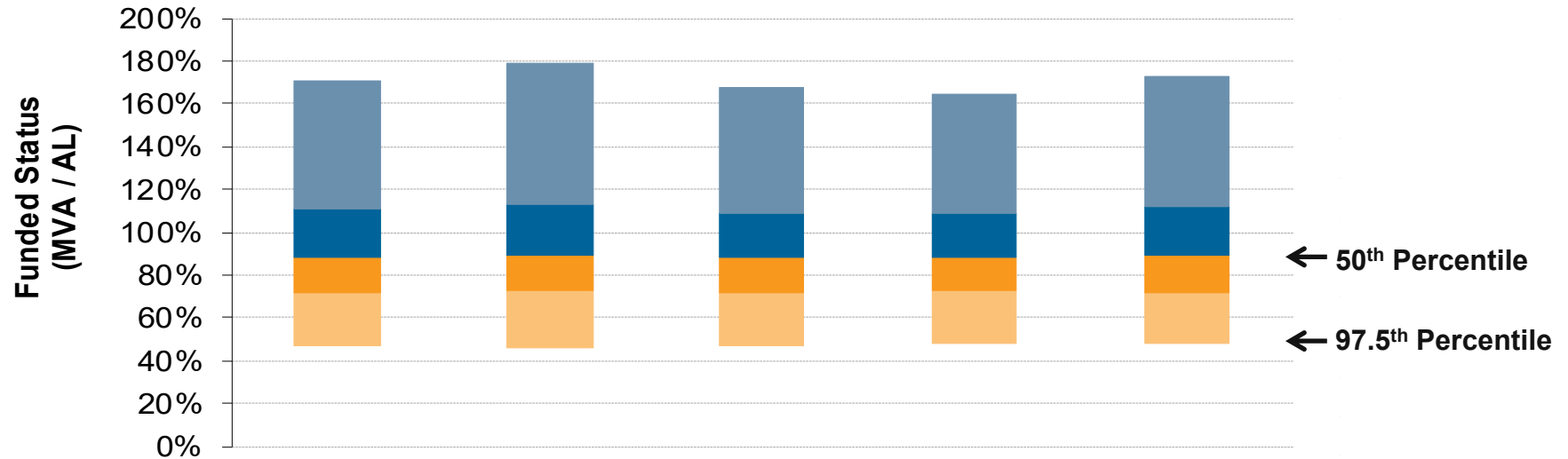
Increase in allocation relative to current target

| Asset Class | Current Target | Actual Allocation | Alternative Mixes | | |
|---|----------------|-------------------|-------------------|-------------|-------------|
| | | | Portfolio A | Portfolio B | Portfolio C |
| Global Equity | 50% | 49% | 45% | 40% | 40% |
| Fixed Income | 25% | 20% | 25% | 25% | 20% |
| Total Private Markets Allocation | 25% | 30% | 30% | 35% | 40% |
| Core Real Estate | 10% | 11% | 10% | 10% | 10% |
| Private Equity | 10% | 14% | 10% | 10% | 10% |
| Private Credit | 5% | 5% | 5% | 10% | 15% |
| Private Infrastructure | 0% | 0% | 5% | 5% | 5% |
| Cash Equivalents | <u>0%</u> | <u>1%</u> | <u>0%</u> | <u>0%</u> | <u>0%</u> |
| | 100% | 100% | 100% | 100% | 100% |

We evaluate the current target, the actual allocation as of 8/31/2023, and 3 alternative mixes that consider increased allocations to private markets, including a new allocation to private infrastructure, which NHRS Staff is reviewing proactively in an effort to enhance the future prospects of the Fund

- Adding private infrastructure is intended to increase the System's inflation participation and improve diversification among asset classes
- Increasing the allocation to private credit is intended to access a less efficient area of the credit markets while lowering the System's equity beta risk and improving diversification among asset classes
 - If a mix with higher private credit is adopted, the current structure of public fixed income could be evaluated to potentially lower credit risk in the public markets

Market Funded Ratio in 2033 (10 Years)

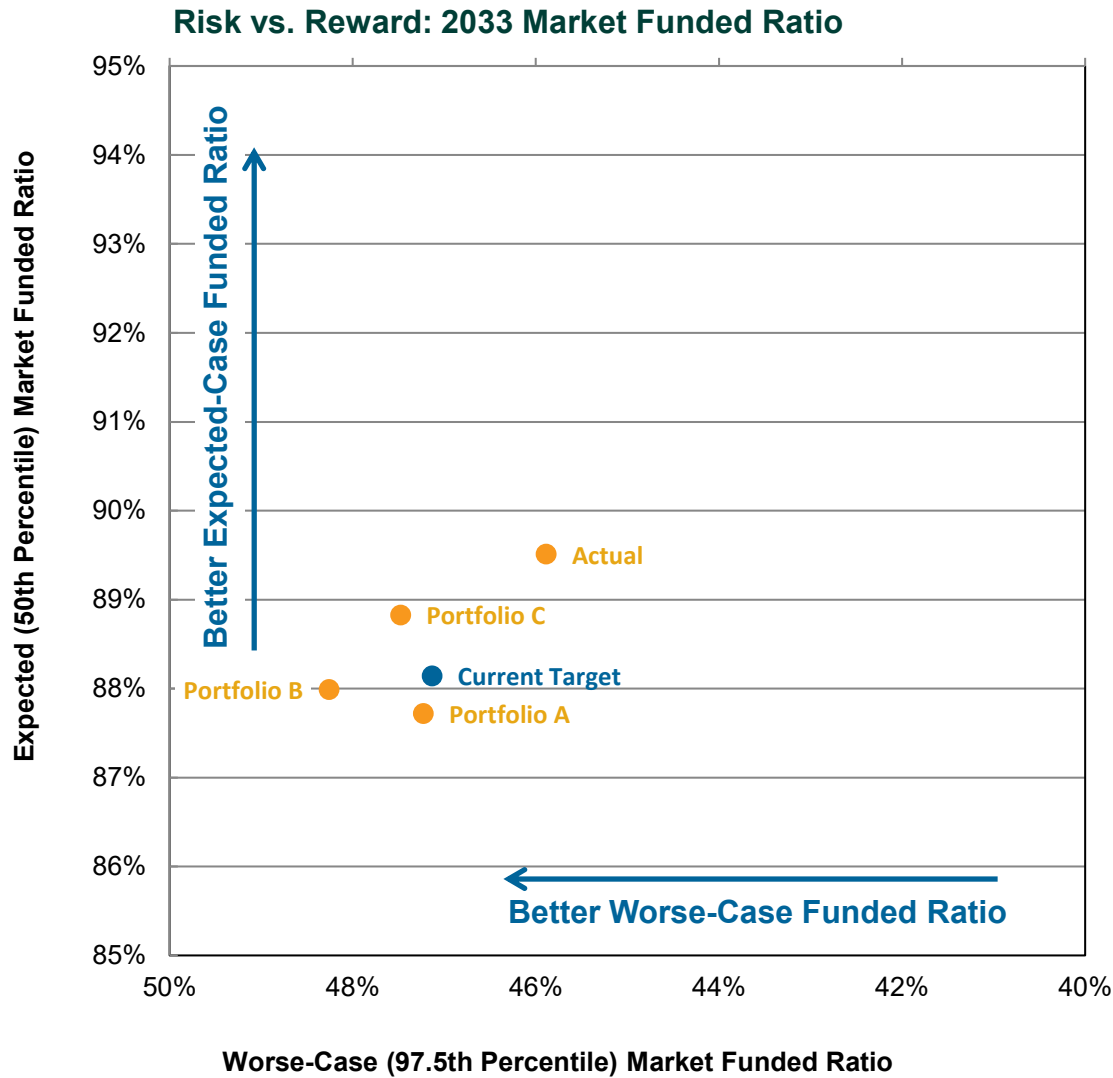


| Percentile | Target | Actual | Portfolio A | Portfolio B | Portfolio C |
|---------------------------|------------|------------|-------------|-------------|-------------|
| 2.5th | 171% | 179% | 168% | 165% | 173% |
| 25th | 111% | 113% | 109% | 109% | 112% |
| 50th | 88% | 90% | 88% | 88% | 89% |
| 75th | 72% | 72% | 72% | 72% | 72% |
| 97.5th | 47% | 46% | 47% | 48% | 47% |
| Expected Return | 7.2% | 7.4% | 7.2% | 7.2% | 7.3% |
| Standard Deviation | 13.0% | 13.8% | 12.6% | 12.3% | 12.9% |
| Prob. Full Funding | 35% | 37% | 34% | 33% | 35% |

We use these two rows to plot each allocation as a single point on the chart on the next page

- Funded status is expected to improve over the next 10 years under all mixes
 - 7/1/2023 starting funded status of 67%
 - Between 33% and 37% probability of full funding in 10 years across mixes
- More aggressive mixes are expected (50th percentile) to have a higher funded ratio but will have a lower funded ratio in a Worse-Case scenario (97.5th percentile)

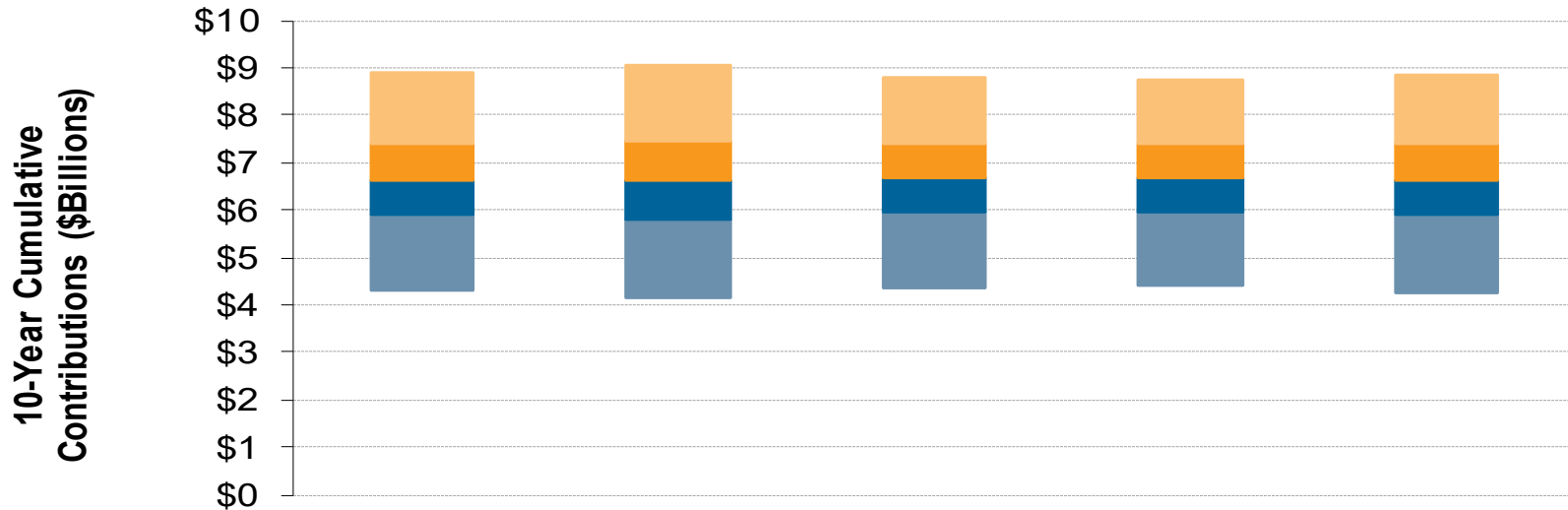
Risk vs. Reward in Market Funded Status at July 1, 2033



Upper left is the desired location

Would mean higher funded ratio in both the expected and Worse-Case scenarios

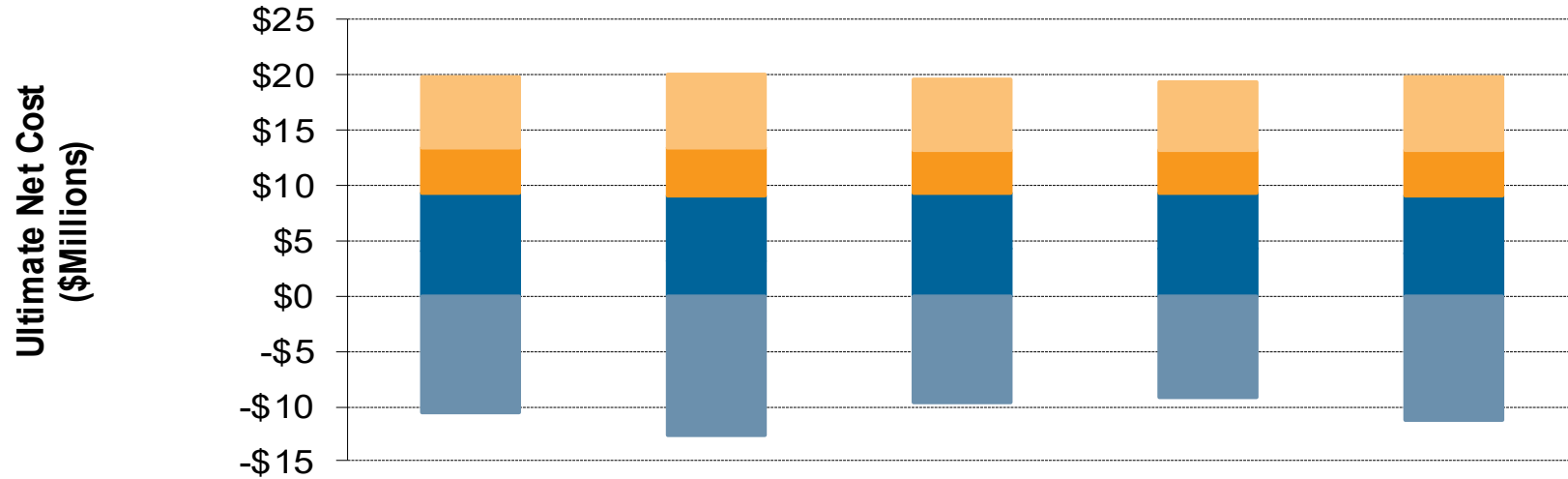
Cumulative Employer Contributions Over 10 Years



| Percentile | Target | Actual | Portfolio A | Portfolio B | Portfolio C |
|--------------------|--------|--------|-------------|-------------|-------------|
| 97.5th | \$8.9 | \$9.0 | \$8.8 | \$8.8 | \$8.8 |
| 75th | \$7.4 | \$7.4 | \$7.4 | \$7.4 | \$7.4 |
| 50th | \$6.6 | \$6.6 | \$6.7 | \$6.7 | \$6.6 |
| 25th | \$5.9 | \$5.8 | \$6.0 | \$6.0 | \$5.9 |
| 2.5th | \$4.3 | \$4.2 | \$4.4 | \$4.4 | \$4.3 |
| Expected Return | 7.2% | 7.4% | 7.2% | 7.2% | 7.3% |
| Standard Deviation | 13.0% | 13.8% | 12.6% | 12.3% | 12.9% |

- The chart illustrates projected total employer contributions over the next 10 years
- Expected contributions are approximately \$6.5B

Ultimate Net Cost (UNC)



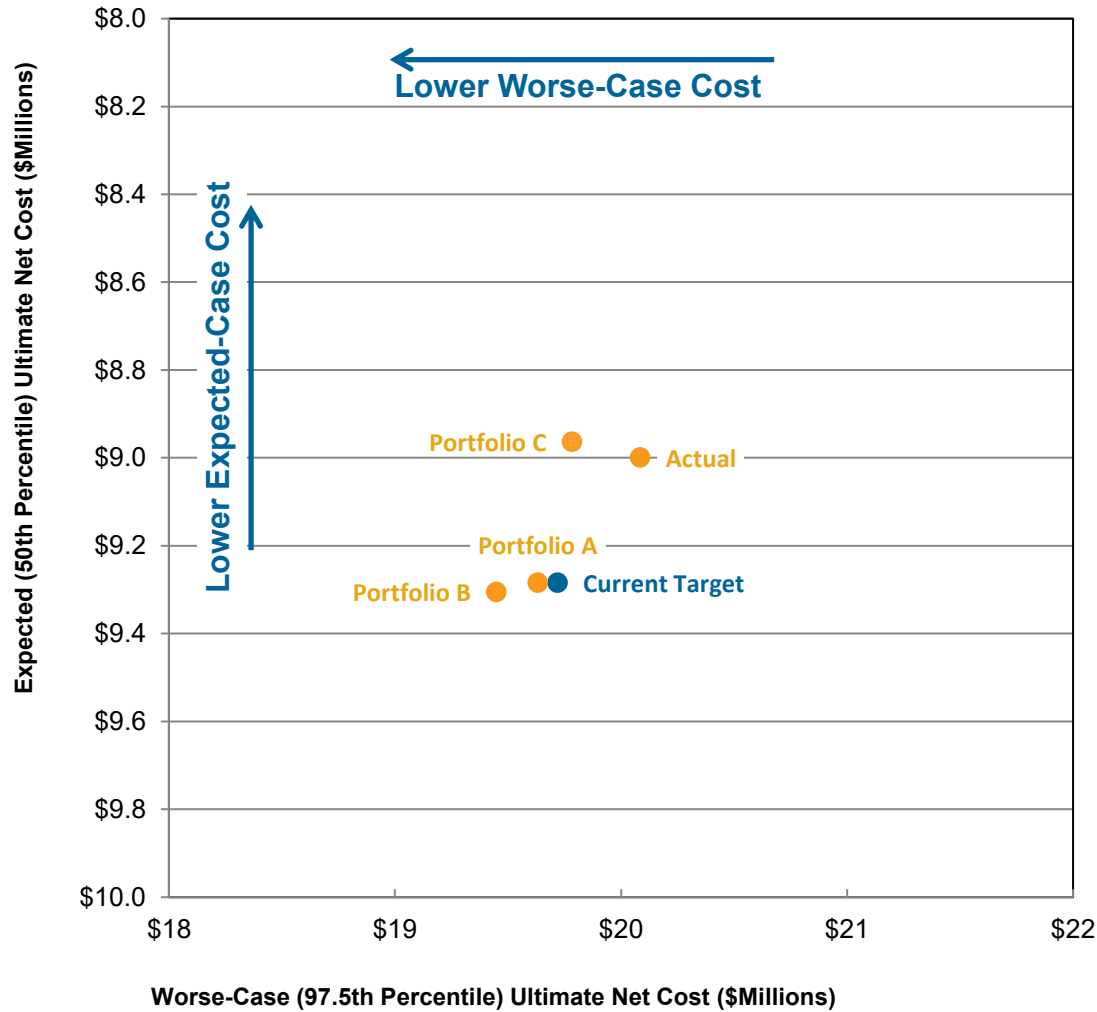
| Percentile | Target | Actual | Portfolio A | Portfolio B | Portfolio C |
|---------------------------|---------|---------|-------------|-------------|-------------|
| 97.5th | \$19.7 | \$20.1 | \$19.6 | \$19.4 | \$19.8 |
| 75th | \$13.3 | \$13.3 | \$13.3 | \$13.3 | \$13.2 |
| 50th | \$9.3 | \$9.0 | \$9.3 | \$9.3 | \$9.0 |
| 25th | \$4.0 | \$3.2 | \$4.3 | \$4.4 | \$3.7 |
| 2.5th | -\$10.5 | -\$12.6 | -\$9.6 | -\$9.3 | -\$11.3 |
| Expected Return | 7.2% | 7.4% | 7.2% | 7.2% | 7.3% |
| Standard Deviation | 13.0% | 13.8% | 12.6% | 12.3% | 12.9% |

We use these two rows to plot each allocation as a single point on the chart on the next page

- UNC = 10-Year Cumulative Contributions + 7/1/2033 Unfunded Actuarial Liability
- UNC captures what is expected to be paid over 10 years plus what is owed at the end of the 10-year period
- Negative numbers indicate plan is in a surplus position at 7/1/2033 that exceeds cumulative contributions

Risk vs. Reward in Ultimate Net Cost

Risk vs. Reward: Ultimate Net Cost Over 10 Years



Upper left is the desired location

Would mean lower cost in both the expected and Worse-Case scenarios

Asset-Liability Modeling

Liquidity Analysis and Stress Testing

Summary

Historical Scenarios

- Black Monday (October 1987)
- 2008 Financial Crisis (October 2007 – February 2009)
- 2011 US Debt Ceiling Crisis and Rating Downgrade (June – September 2011)
- Calendar Year 2022 (January – December 2022)

Parametric Scenarios

- Equities Decline 20% in 1 year
- Baseline – Plan Earns 6.75% Expected Return

In the historical scenarios we use proxy benchmarks for the expected return of each asset class

- US Equity = Russell 3000
- Global ex-US Equity = MSCI ACWI ex US IMI
- US Fixed Income = Bloomberg Aggregate
- Real Estate = NCREIF NFI-ODCE Value Weight Net
- Private Equity = Cambridge Global Private Equity
- Private Credit = Cambridge Private Credit
- Infrastructure = Cambridge Global Private Infrastructure
- Cash = 3-Month T-Bill

Asset Class and Portfolio Expected Returns

| Scenario Performance by Asset Class | | | | | | |
|-------------------------------------|--------------|-----------------------|---|---------|---------------------------------|----------|
| Asset Class | Black Monday | 2008 Financial Crisis | 2011 U.S. Debt Ceiling Crisis and Downgrade | CY 2022 | Equities Decline 20% for 1 Year | Baseline |
| US Equity | -22% | -42% | -15% | -19% | -20% | 6.8% |
| Global ex-US Equity | -15% | -48% | -20% | -17% | -20% | 6.8% |
| Fixed Income | 4% | 5% | 4% | -13% | 0% | 6.8% |
| Cash | 1% | 2% | 0% | 1% | 0% | 6.8% |
| Core Real Estate | 0% | -14% | 3% | 7% | 0% | 6.8% |
| Private Equity | -1% | -21% | -6% | -8% | -20% | 6.8% |
| Private Credit | -1% | -20% | -7% | 4% | 0% | 6.8% |
| Private Infrastructure | -1% | -14% | -4% | 8% | 0% | 6.8% |

| Projected Portfolio Performance During Market Shock | | | | | |
|---|----------------|-------------------|-------------|-------------|-------------|
| | Current Target | Actual Allocation | Portfolio A | Portfolio B | Portfolio C |
| Black Monday | -8.9% | -9.2% | -7.9% | -7.0% | -7.3% |
| 2008 Financial Crisis | -25.4% | -25.9% | -23.9% | -22.7% | -23.9% |
| 2011 U.S. Debt Ceiling Crisis and Downgrade | -8.2% | -8.2% | -7.5% | -7.0% | -7.5% |
| CY 2022 | -12.3% | -11.8% | -10.9% | -9.8% | -9.0% |
| Equities Decline 20% for 1 Year | -12.0% | -12.6% | -11.0% | -10.0% | -10.0% |
| Baseline | 6.8% | 6.8% | 6.8% | 6.8% | 6.8% |

- 2008 Financial Crisis is the most extreme performance scenario for all mixes, with drawdowns ranging from 22.7% for Portfolio B to 25.9% for the Actual Allocation
- Regardless of the length of the historical scenarios tested above, on the following slides we assume the drawdown happens over a single year to assess the impact on liquidity and other metrics

Funded Status and Net Outflows

| Funded Status Before and After Market Shock | | | | | |
|---|----------------|-------------------|-------------|-------------|-------------|
| | Current Target | Actual Allocation | Portfolio A | Portfolio B | Portfolio C |
| Starting Position | 67.0% | 67.0% | 67.0% | 67.0% | 67.0% |
| Black Monday | 58.6% | 58.4% | 59.2% | 59.8% | 59.6% |
| 2008 Financial Crisis | 47.8% | 47.5% | 48.8% | 49.6% | 48.8% |
| 2011 U.S. Debt Ceiling Crisis and Downgrade | 59.0% | 59.0% | 59.4% | 59.8% | 59.4% |
| CY 2022 | 56.4% | 56.7% | 57.2% | 57.9% | 58.5% |
| Equities Decline 20% for 1 Year | 56.5% | 56.1% | 57.2% | 57.8% | 57.8% |
| Baseline | 68.7% | 68.7% | 68.7% | 68.7% | 68.7% |

| Net Outflow % of Total Assets Before and After Market Shock | | | | | |
|---|----------------|-------------------|-------------|-------------|-------------|
| | Current Target | Actual Allocation | Portfolio A | Portfolio B | Portfolio C |
| Starting Position | -1.7% | -1.7% | -1.7% | -1.7% | -1.7% |
| Black Monday | -2.0% | -2.0% | -2.0% | -2.0% | -2.0% |
| 2008 Financial Crisis | -2.5% | -2.5% | -2.4% | -2.4% | -2.4% |
| 2011 U.S. Debt Ceiling Crisis and Downgrade | -2.0% | -2.0% | -2.0% | -2.0% | -2.0% |
| CY 2022 | -2.1% | -2.1% | -2.1% | -2.0% | -2.0% |
| Equities Decline 20% for 1 Year | -2.1% | -2.1% | -2.1% | -2.1% | -2.1% |
| Baseline | -1.7% | -1.7% | -1.7% | -1.7% | -1.7% |

- We used the market value, funded ratio, projected benefit payments, admin expenses, and contributions from our asset/liability model as the starting point for the analysis
 - 2023 benefits and admin expenses are estimated to be ~\$1.1B; 2023 contributions are expected to be ~\$900M
- In addition to projected benefit payments, admin expenses, and contributions, we estimate net cash flows for private markets asset classes to be conservative with cash requirements
 - Estimates based on 2022 pacing study
- In stressed environments the funded status could drop from 67% to below 48% and net outflows could climb from 1.7% to as much as 2.5% of total assets

Net Outflows Supported by Liquid Assets Only

| Net Outflow % of Liquid Assets Before and After Market Shock | | | | | |
|--|----------------|-------------------|-------------|-------------|-------------|
| | Current Target | Actual Allocation | Portfolio A | Portfolio B | Portfolio C |
| Starting Position | -2.2% | -2.4% | -2.4% | -2.6% | -2.8% |
| Target Private Markets Allocation | 25.0% | 30.0% | 30.0% | 35.0% | 40.0% |
| Black Monday | -2.8% | -3.0% | -3.0% | -3.2% | -3.6% |
| 2008 Financial Crisis | -3.4% | -3.7% | -3.6% | -3.9% | -4.4% |
| 2011 U.S. Debt Ceiling Crisis and Downgrade | -2.7% | -2.9% | -2.9% | -3.2% | -3.5% |
| CY 2022 | -2.9% | -3.1% | -3.2% | -3.5% | -3.8% |
| Equities Decline 20% for 1 Year | -2.8% | -3.0% | -3.1% | -3.3% | -3.6% |
| Baseline | -2.3% | -2.5% | -2.5% | -2.7% | -2.9% |

| Net Outflow % of Liquid Assets Before and After Market Shock - Ignoring Contributions | | | | | |
|---|----------------|-------------------|-------------|-------------|-------------|
| | Current Target | Actual Allocation | Portfolio A | Portfolio B | Portfolio C |
| Starting Position | -12.5% | -13.4% | -13.4% | -14.4% | -15.6% |
| Target Private Markets Allocation | 25.0% | 30.0% | 30.0% | 35.0% | 40.0% |
| Black Monday | -14.6% | -15.9% | -15.8% | -17.1% | -18.9% |
| 2008 Financial Crisis | -17.9% | -19.6% | -19.3% | -20.6% | -23.2% |
| 2011 U.S. Debt Ceiling Crisis and Downgrade | -14.3% | -15.5% | -15.6% | -16.8% | -18.5% |
| CY 2022 | -15.4% | -16.6% | -16.9% | -18.3% | -20.0% |
| Equities Decline 20% for 1 Year | -14.9% | -16.1% | -16.2% | -17.4% | -19.3% |
| Baseline | -12.1% | -13.0% | -13.2% | -14.3% | -15.5% |

- In addition to projected benefit payments, admin expenses, and contributions, we estimate net cash flows for private markets asset classes to be conservative with cash requirements; estimates based on 2022 pacing study
- Net outflows represent 2.2 – 2.8% of liquid assets depending on the target allocation to private markets
 - Net outflows could rise to as much as 4.4% of liquid assets for Portfolio C in a 2008 Financial Crisis scenario
 - Importantly, this assumes the current contribution policy is maintained
- Without contributions, net outflows jump to 12.5 – 15.6% of liquid assets before considering a market shock
 - After a market shock, net outflows could climb to over 20% of liquid assets for mixes with higher private markets allocations

Callan

Strategic Asset Allocation

Callan's 2023 Capital Market Assumptions

| Asset Class | Benchmark | Projected 10-Year Annualized Return | Projected 20-Year Annualized Return | Standard Deviation |
|-----------------------------|------------------------------------|-------------------------------------|-------------------------------------|--------------------|
| Equities | | | | |
| Global Equity | MSCI ACWI | 7.60% | 7.90% | 18.35% |
| Broad US Equity | Russell 3000 | 7.35% | 7.65% | 18.05% |
| Large Cap US Equity | S&P 500 | 7.25% | 7.50% | 17.75% |
| Small/Mid Cap US Equity | Russell 2500 | 7.45% | 7.85% | 22.15% |
| Global ex-US Equity | MSCI ACWI ex USA | 7.45% | 7.85% | 21.25% |
| Developed ex-US Equity | MSCI World ex USA | 7.25% | 7.50% | 20.15% |
| Emerging Market Equity | MSCI Emerging Markets | 7.45% | 8.00% | 25.70% |
| Fixed Income | | | | |
| Short Duration Gov't/Credit | Bloomberg Barclays 1-3 Yr G/C | 3.80% | 3.85% | 2.30% |
| Core US Fixed | Bloomberg Barclays Aggregate | 4.25% | 4.45% | 4.10% |
| High Yield | Bloomberg Barclays High Yield | 6.25% | 6.30% | 11.75% |
| Bank Loans | S&P/LSTA Leveraged Loan Index | 6.10% | 6.10% | 9.70% |
| EMD | EMBI Global Diversified | 5.85% | 5.95% | 10.65% |
| Private Markets | | | | |
| Core Real Estate | NCREIF ODCE | 5.75% | 6.15% | 14.20% |
| Private Infrastructure | MSCI Glb Infra/FTSE Dev Core 50/50 | 6.15% | 6.60% | 15.45% |
| Private Equity | Cambridge Private Equity | 8.50% | 8.85% | 27.60% |
| Private Credit | N/A | 7.00% | 7.25% | 15.50% |
| Hedge Funds | Callan Hedge FoF Database | 5.55% | 5.60% | 8.45% |
| Cash Equivalents | | | | |
| | 90-Day T-Bill | 2.75% | 2.80% | 0.90% |
| Inflation | | | | |
| | CPI-U | 2.50% | 2.40% | 1.60% |

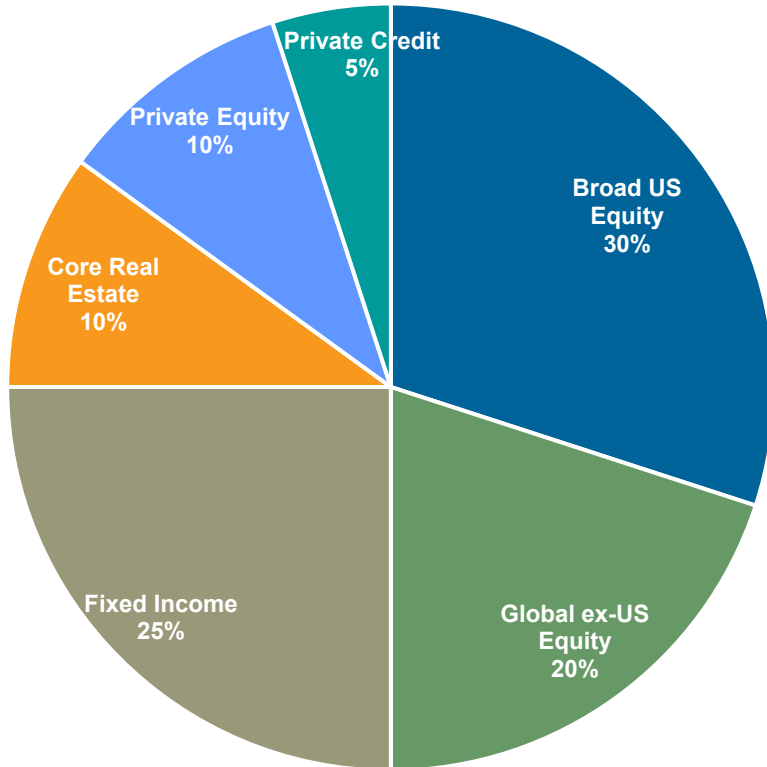
Asset classes shaded in green are part of the System's current target investment allocation

Asset class shaded in orange are potential new asset classes for inclusion

Most capital market expectations represent passive exposure (beta only); however, return expectations for private asset classes represent active management net of fees because no effective market proxies exist

New Hampshire Asset Allocation

Target Policy



Expected Return = 7.2%

Expected Risk = 13.0%

The current target asset allocation is well-diversified with asset class investments across public equity, fixed income, and private markets

In broad terms:

50% Public Equity

25% Fixed Income

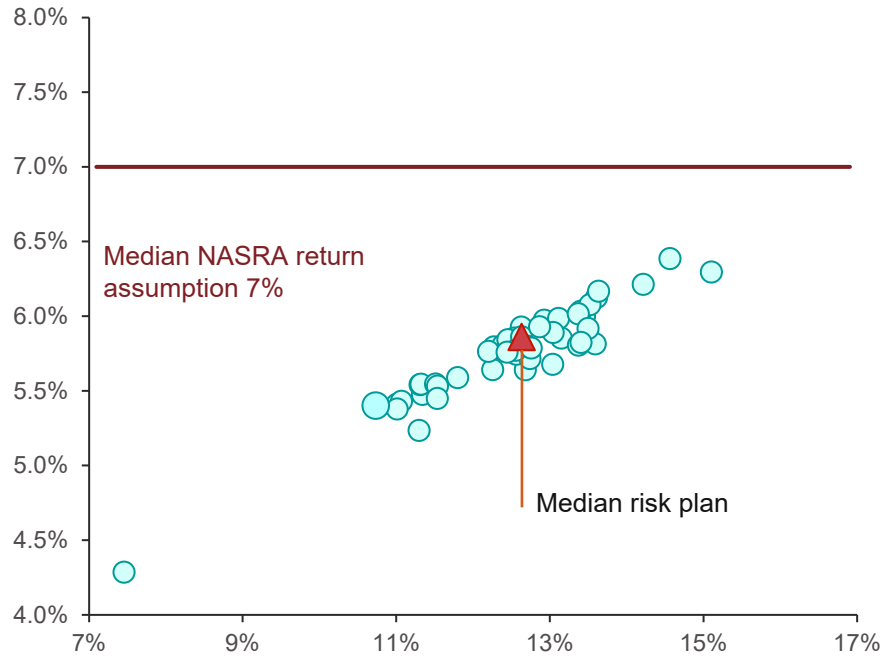
25% Private Markets

Expected return and risk are based on Callan 2023 Capital Market Assumptions. Expected return represents the 10-year annualized return.

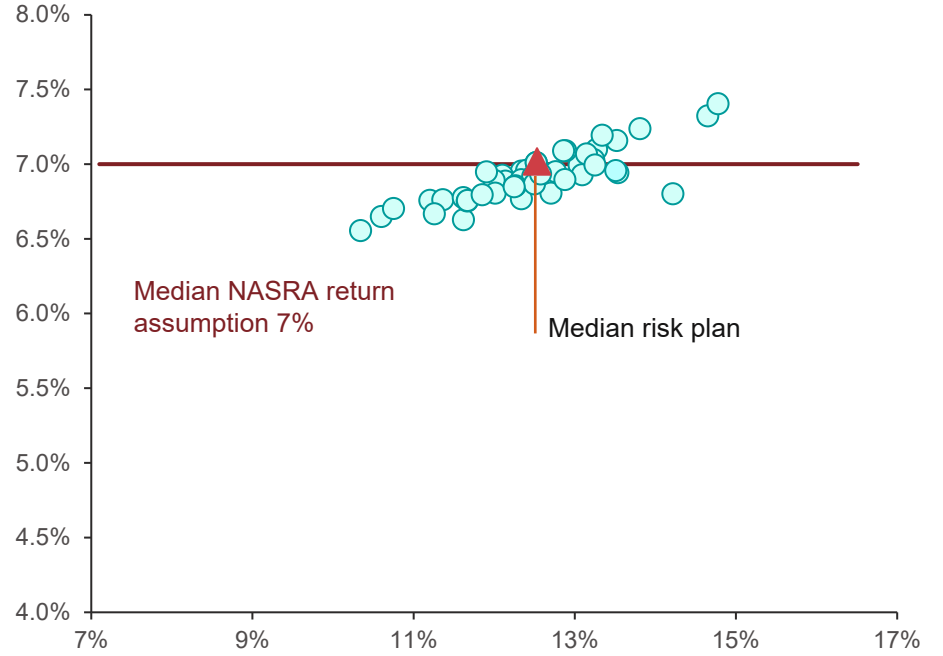
Public Plan Return and Risk – Plans \$1 - \$25 billion

Material increase in projected nominal and real returns across the risk spectrum

2022 10-Year Callan Capital Markets Assumptions



2023 10-Year Callan Capital Markets Assumptions



Return for the median risk fund using 2023 assumptions is 7%, in line with the median return assumption reported by NASRA.

Source: Callan

Alternative Asset Mixes

Decrease in allocation relative to current target

Increase in allocation relative to current target

| Asset Class | Current Target | Actual Allocation | Alternative Mixes | | |
|---|----------------|-------------------|-------------------|-------------|-------------|
| | | | Portfolio A | Portfolio B | Portfolio C |
| Global Equity | 50% | 49% | 45% | 40% | 40% |
| Fixed Income | 25% | 20% | 25% | 25% | 20% |
| Total Private Markets Allocation | 25% | 30% | 30% | 35% | 40% |
| Core Real Estate | 10% | 11% | 10% | 10% | 10% |
| Private Equity | 10% | 14% | 10% | 10% | 10% |
| Private Credit | 5% | 5% | 5% | 10% | 15% |
| Private Infrastructure | 0% | 0% | 5% | 5% | 5% |
| Cash Equivalents | <u>0%</u> | <u>1%</u> | <u>0%</u> | <u>0%</u> | <u>0%</u> |
| | 100% | 100% | 100% | 100% | 100% |
| Expected Return* | 7.23% | 7.37% | 7.18% | 7.17% | 7.29% |
| Expected Standard Deviation | 13.04% | 13.84% | 12.62% | 12.31% | 12.88% |
| Expected Sharpe Ratio | 0.33 | 0.32 | 0.34 | 0.35 | 0.34 |

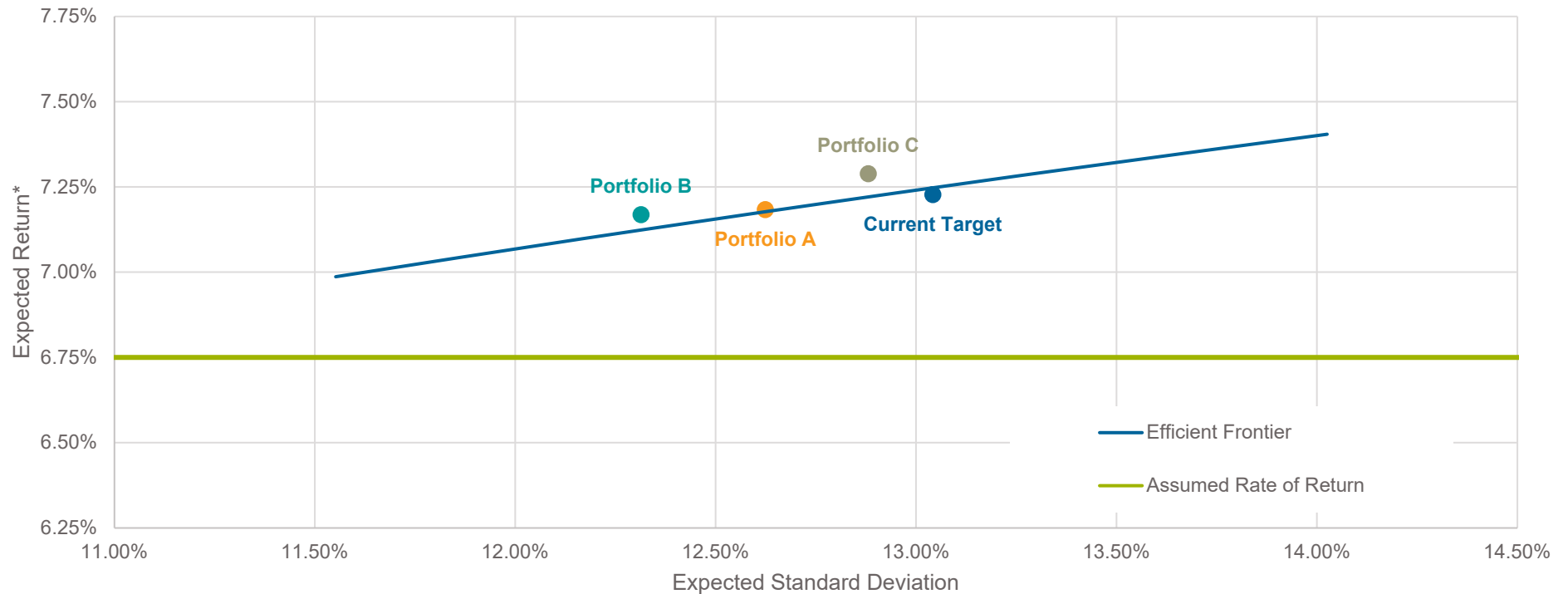
The Current Target and alternative mixes have similar return expectations since they largely keep the allocation to fixed income the same while allocating the remainder among public and private return-seeking assets

Mixes with more private markets have lower expected standard deviation from the increased diversification benefit, albeit with less liquidity

*10-year annualized return

Efficient Frontier

Efficient Frontier



- The line represents the efficient frontier for an opportunity set that allows only the current asset classes with constraints on the allocation to private markets
 - Each point along the efficient frontier represents the highest expected return that can be achieved for each level of expected risk (standard deviation), subject to the asset class opportunity set and other constraints
 - Mixes above the line achieve improved efficiency by expanding the opportunity set
- All mixes are projected to outperform the assumed rate of return by a wide margin

*10-year annualized return

Callan

Appendix

Alternative Asset Mixes – Effect of Strategic Cash Allocation

| Asset Class | Current Target | Current Target w Cash | Portfolio A | Port A w Cash | Portfolio B | Port B w Cash | Portfolio C | Port C w Cash |
|---|----------------|-----------------------|-------------|---------------|-------------|---------------|-------------|---------------|
| Global Equity | 50% | 50% | 45% | 45% | 40% | 40% | 40% | 40% |
| Fixed Income | 25% | 24% | 25% | 24% | 25% | 24% | 20% | 19% |
| Total Private Markets Allocation | 25% | 25% | 30% | 30% | 35% | 35% | 40% | 40% |
| Core Real Estate | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| Private Equity | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| Private Credit | 5% | 5% | 5% | 5% | 10% | 10% | 15% | 15% |
| Private Infrastructure | 0% | 0% | 5% | 5% | 5% | 5% | 5% | 5% |
| Cash Equivalents | 0% | 1% | 0% | 1% | 0% | 1% | 0% | 1% |
| | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Expected Return* | 7.23% | 7.21% | 7.18% | 7.17% | 7.17% | 7.15% | 7.29% | 7.27% |
| Expected Standard Deviation | 13.04% | 13.03% | 12.62% | 12.62% | 12.31% | 12.31% | 12.88% | 12.87% |
| Expected Sharpe Ratio | 0.33 | 0.33 | 0.34 | 0.34 | 0.35 | 0.35 | 0.34 | 0.34 |

Reallocating 1% from fixed income to cash has negligible effect on risk and return projections

*10-year annualized return

2023–2032 Callan Capital Markets Assumptions Correlations

| | | | | | | | | | | | | | | | | | | | | | |
|------------------------|-----------|----------|-------|---------|-----------|------------|----------|-------------|-------|------------|--------------------|-------|------------------|---------------|----------------|----------------|-------------|-------|------------|-----------|--|
| Large Cap U.S. Equity | 1.00 | | | | | | | | | | | | | | | | | | | | |
| Smid Cap U.S. Equity | 0.88 | 1.00 | | | | | | | | | | | | | | | | | | | |
| Dev ex-U.S. Equity | 0.73 | 0.79 | 1.00 | | | | | | | | | | | | | | | | | | |
| Em Market Equity | 0.79 | 0.83 | 0.89 | 1.00 | | | | | | | | | | | | | | | | | |
| Short Dur Gov/Credit | 0.05 | 0.01 | 0.04 | -0.01 | 1.00 | | | | | | | | | | | | | | | | |
| Core U.S. Fixed | 0.02 | -0.02 | 0.00 | -0.04 | 0.80 | 1.00 | | | | | | | | | | | | | | | |
| Long Government | -0.05 | -0.06 | -0.03 | -0.06 | 0.67 | 0.83 | 1.00 | | | | | | | | | | | | | | |
| Long Credit | 0.45 | 0.40 | 0.40 | 0.40 | 0.64 | 0.80 | 0.65 | 1.00 | | | | | | | | | | | | | |
| TIPS | -0.07 | -0.08 | -0.09 | -0.11 | 0.56 | 0.70 | 0.50 | 0.52 | 1.00 | | | | | | | | | | | | |
| High Yield | 0.75 | 0.74 | 0.73 | 0.75 | 0.10 | 0.09 | 0.00 | 0.45 | 0.02 | 1.00 | | | | | | | | | | | |
| Global ex-U.S. Fixed | 0.10 | 0.07 | 0.13 | 0.12 | 0.50 | 0.60 | 0.50 | 0.55 | 0.45 | 0.18 | 1.00 | | | | | | | | | | |
| EM Sovereign Debt | 0.65 | 0.65 | 0.65 | 0.69 | 0.16 | 0.19 | 0.10 | 0.47 | 0.08 | 0.62 | 0.21 | 1.00 | | | | | | | | | |
| Core Real Estate | 0.44 | 0.42 | 0.42 | 0.41 | 0.16 | 0.14 | 0.05 | 0.30 | 0.09 | 0.31 | 0.16 | 0.29 | 1.00 | | | | | | | | |
| Private Infrastructure | 0.48 | 0.47 | 0.46 | 0.46 | 0.14 | 0.15 | 0.10 | 0.33 | 0.08 | 0.34 | 0.18 | 0.32 | 0.76 | 1.00 | | | | | | | |
| Private Equity | 0.79 | 0.77 | 0.76 | 0.75 | -0.01 | -0.09 | -0.13 | 0.30 | -0.11 | 0.61 | 0.08 | 0.51 | 0.55 | 0.60 | 1.00 | | | | | | |
| Private Credit | 0.69 | 0.68 | 0.65 | 0.68 | 0.11 | 0.00 | -0.05 | 0.33 | -0.12 | 0.63 | 0.12 | 0.50 | 0.25 | 0.27 | 0.67 | 1.00 | | | | | |
| Hedge Funds | 0.67 | 0.63 | 0.63 | 0.63 | 0.23 | 0.29 | 0.20 | 0.55 | 0.20 | 0.60 | 0.25 | 0.54 | 0.28 | 0.30 | 0.48 | 0.51 | 1.00 | | | | |
| Commodities | 0.20 | 0.20 | 0.20 | 0.20 | -0.05 | -0.04 | -0.10 | 0.05 | 0.00 | 0.20 | 0.10 | 0.15 | 0.18 | 0.15 | 0.20 | 0.17 | 0.23 | 1.00 | | | |
| Cash Equivalents | -0.06 | -0.08 | -0.10 | -0.10 | 0.30 | 0.15 | 0.12 | 0.00 | 0.12 | -0.09 | 0.05 | -0.06 | 0.00 | -0.04 | 0.00 | -0.04 | -0.04 | -0.02 | 1.00 | | |
| Inflation | -0.02 | 0.02 | 0.00 | 0.03 | -0.21 | -0.23 | -0.30 | -0.20 | 0.25 | 0.00 | -0.15 | -0.04 | 0.20 | 0.10 | 0.06 | -0.05 | 0.05 | 0.35 | 0.05 | 1.00 | |
| | Large Cap | Smid Cap | Dev | Em Mkts | Short Dur | Core Fixed | Long Gov | Long Credit | TIPS | High Yield | Global ex-US Fixed | EM | Core Real Estate | Private Infra | Private Equity | Private Credit | Hedge Funds | Comm | Cash Equiv | Inflation | |

Source: Callan

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Comparative Infrastructure Index Performance – 6/30/23

Net of Fee Returns

for Periods Ended June 30, 2023

| | Quarter Ending June 30, 2023 | Year Ending June 30, 2023 | 3 Years Ending June 30, 2023 | 5 Years Ending June 30, 2023 | 7 Years Ending June 30, 2023 | 10 Years Ending June 30, 2023 | 15 Years Ending June 30, 2023 |
|---------------------------|---------------------------------------|------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|--|--|
| Cambridge:GI Privte Infra | 1.54 | 8.24 | 13.12 | 10.55 | 11.15 | 10.85 | 7.63 |
| Cambridge:US Pvt Infra | 1.28 | 7.38 | 13.19 | 12.21 | 12.71 | 11.84 | 11.14 |
| CPIU + 5% | 2.27 | 7.97 | 10.78 | 8.91 | 8.43 | 7.72 | 7.25 |
| DJB:Gbl Infrastructure | (1.09) | (1.25) | 6.18 | 4.86 | 4.97 | 6.00 | 6.70 |
| FTSE:Dev Core Inf 50/50 N | (0.58) | (1.29) | 6.72 | 4.81 | 5.31 | 6.67 | 6.31 |
| MSCI ACWI Infrastructure | (0.58) | (0.41) | 4.46 | 3.52 | 2.71 | 3.95 | 2.72 |
| MSCI Global Infra Idx | 1.86 | 9.66 | 11.68 | 9.96 | 10.71 | 12.39 | 11.88 |
| S&P:Global Infra Net Idx | (0.42) | 3.25 | 9.75 | 4.42 | 4.91 | 5.77 | 3.56 |

3-Year Rolling Net of Fee Returns

for Periods Ended June 30, 2023

| | 6/30/23 | 6/30/22 | 6/30/21 | 6/30/20 | 6/30/19 |
|---------------------------|---------|---------|---------|---------|---------|
| Cambridge:GI Privte Infra | 13.12 | 11.36 | 10.54 | 8.74 | 11.91 |
| Cambridge:US Pvt Infra | 13.19 | 13.58 | 13.30 | 11.51 | 13.66 |
| CPIU + 5% | 10.78 | 9.98 | 7.55 | 6.72 | 7.05 |
| DJB:Gbl Infrastructure | 6.18 | 4.45 | 7.95 | 2.79 | 7.65 |
| FTSE:Dev Core Inf 50/50 N | 6.72 | 3.88 | 7.17 | 2.47 | 9.08 |
| MSCI ACWI Infrastructure | 4.46 | 2.57 | 6.51 | 1.24 | 3.91 |
| MSCI Global Infra Idx | 11.68 | 8.95 | 7.85 | 9.13 | 12.86 |
| S&P:Global Infra Net Idx | 9.75 | 2.69 | 4.69 | (1.80) | 7.76 |

Comparative Infrastructure Index Performance – 6/30/23

Net of Fee Returns
for Periods Ended June 30, 2023

| | 2 Qtrs. 2023 | 2022 | 2021 | 2020 | 2019 |
|---------------------------|--------------|--------|-------|--------|-------|
| Cambridge:GI Privte Infra | 3.93 | 8.48 | 13.92 | 11.87 | 10.30 |
| Cambridge:US Pvt Infra | 3.78 | 8.22 | 17.02 | 13.74 | 11.15 |
| CPIU + 5% | 5.20 | 11.47 | 12.04 | 6.37 | 7.29 |
| DJB:Glbl Infrastructure | 1.37 | (6.62) | 19.87 | (6.97) | 28.69 |
| FTSE:Dev Core Inf 50/50 N | 0.68 | (5.79) | 15.05 | (3.74) | 25.04 |
| MSCI ACWI Infrastructure | 1.41 | (4.95) | 5.16 | (0.62) | 20.05 |
| MSCI Global Infra Idx | 3.76 | 11.63 | 14.08 | 2.02 | 12.65 |
| S&P:Global Infra Net Idx | 3.30 | (0.99) | 11.04 | (6.49) | 25.75 |

| | 2018 | 2017 | 2016 | 2015 | 2014 |
|---------------------------|---------|-------|-------|---------|-------|
| Cambridge:GI Privte Infra | 7.79 | 20.02 | 9.71 | 8.31 | 6.19 |
| Cambridge:US Pvt Infra | 11.67 | 18.30 | 14.66 | 9.08 | 9.05 |
| CPIU + 5% | 6.91 | 7.11 | 7.08 | 5.73 | 5.76 |
| DJB:Glbl Infrastructure | (7.84) | 15.79 | 12.52 | (14.40) | 16.34 |
| FTSE:Dev Core Inf 50/50 N | (4.63) | 18.18 | 10.63 | (7.56) | 16.02 |
| MSCI ACWI Infrastructure | (6.46) | 11.27 | 7.52 | (8.13) | 6.18 |
| MSCI Global Infra Idx | 12.26 | 13.08 | 15.32 | 17.99 | 15.48 |
| S&P:Global Infra Net Idx | (10.37) | 19.07 | 11.45 | (12.17) | 12.12 |



To: Independent Investment Committee
From: Raynald Leveque, Chief Investment Officer
Date: December 12, 2023
Re: **2024 Investment Committee Meeting Schedule**
Item: Action: Discussion: Informational:

The following schedule for the 2023 Investment Committee meetings was approved by the Investment Committee at their November meeting (all dates below are Tuesdays):

- January 9, 2024
- February 13, 2024
- April 9, 2024
- June 11, 2024
- August 13, 2024
- October 8, 2024
- November 12, 2024
- December 10, 2024

LEGISLATIVE COMMITTEE
Oral Presentation Only

2024 LSR titles

As of 11/30/23

2024-2047-HB

Relative to prohibiting environmental, social, and governance standards in the selection of government investments.

Sponsors: Mike Belcher (Prime), Sandra Panek, Travis Corcoran

2024-2116-HB

Relative to payment by the state of a portion of retirement system contributions of political subdivision employers.

Sponsors: Michael Edgar (Prime), John Cloutier, Jeffrey Goley, Steve Shurtleff, Michael O'Brien, Timothy Soucy, Chris Muns, Rosemarie Rung, Matthew Wilhelm, Jim Maggiore, Cindy Rosenwald, Rebecca Perkins Kwoka, Debra Altschiller

2024-2227-HB

Relative to group II membership in the retirement system for certain firefighter educators.

Sponsors: Douglas Trottier (Prime), Mike Bordes

2024-2262-HB

Providing a supplemental appropriation for members of the retirement system receiving an accidental disability retirement allowance.

Sponsors: Hope Damon (Prime)

2024-2376-HB

Relative to part-time employment of a retirement system retiree.

Sponsors: Mark Proulx (Prime)

2024-2412-HB

Relative to agents for investment services in the New Hampshire retirement system.

Sponsors: Stephen Pearson (Prime)

2024-2565-HB

Relative to retirement system allowances for former spouses of retirees.

Sponsors: Barbara Comtois (Prime)

2024-2637-HB

Relative to mandatory overtime and the calculation of base rate of compensation.

Sponsors: Carol McGuire (Prime)

2024-2668-HB

Relative to average final compensation for certain group II members.

Sponsors: Kevin Pratt (Prime)

2024-2729-HB

Relative to determination of earnable compensation for certain group II retirement system members.

Sponsors: Kevin Pratt (Prime)

2024-3092-SB

Relative to the vesting period for members of the state retirement system.

Sponsors: Donna Soucy (Prime), David Watters, Peter Leishman, Carol McGuire, James Gray

Note: Group II benefit multiplier proposal endorsed by Retirement Benefits Commission has not yet been introduced.

WITHDRAWN

2024-2619-HB: Relative to group II retirement system membership for emergency medical services personnel. Sponsors: (Prime) Anita Burroughs

2024 HOUSE SCHEDULE

Friday, January 5, 2024 – Last day to introduce House Bills

Thursday, February 15, 2024 – Last day to report House Bills going to a second committee

Thursday, February 22, 2024 – Last day to act on House Bills going to a second committee

Thursday, March 21, 2024 – Last day to report House Bills not in a second committee

Thursday, March 28, 2024 – Last day to act on House Bills not in a second committee

Thursday, April 4, 2024 – Last day to report all House Bills

Thursday, April 11, 2024 – CROSSOVER – Last day to act on all House Bills

Thursday, April 25, 2024 – Last day to report Senate Bills going to a second committee

Thursday, May 2, 2024 – Last day to act on Senate Bills going to a second committee

Thursday, May 16, 2024 – Last day to report all Senate Bills

Thursday, May 23, 2024 – Last day to act on all Senate Bills

Thursday, May 30, 2024 – Last day to form committees of conference

Thursday, June 6, 2024 – Last day to sign committee of conference reports (4:00 p.m.)

Thursday, June 13, 2024 – Last day to act on committee of conference reports

Tuesday, September 3, 2024 – First day for incumbents running for re-election to file LSRs with complete information

Friday, September 13, 2024 – Last day prior to the General Election for incumbents running for re-election to file LSRs with complete information

Friday, October 25, 2024 – Last day to file 2024 Interim Study reports

Wednesday, November 6, 2024 – First day for all Representatives to file LSRs with complete information

Friday, November 22, 2024 Last day to file LSRs with complete information (4:00 p.m.) Ten-day signoff begins

Thursday, January 2, 2025 – Last day to sign-off on all LSRs (12:00 p.m.)

Friday, January 24, 2025 – Last day to introduce House Bills; Last day to amend House Rules by majority vote

2024 SENATE SCHEDULE

Thursday, December 14, 2023 – Deadline to report rereferred bills out of committee.

Wednesday, January 3, 2024 – Convening Day

Thursday, March 28, 2024 – Deadline for Policy Committees to act on all Senate bills with a fiscal impact, except bills exempted pursuant to Senate Rule 4-5.

Thursday, April 11, 2024 – CROSSOVER – Deadline to act on all Senate bills.

Thursday, May 9, 2024 – Deadline for Policy Committees to act on all House bills with a fiscal impact, except bills exempted pursuant to Senate Rule 4-5.

Thursday, May 23, 2024 – Deadline to act on all House bills.

Thursday, May 30, 2024 – Deadline to form Committees of Conference.

Thursday, June 6, 2024 – Deadline to sign Committee of Conference Reports. (4:00 p.m.)

Thursday, June 13, 2024 – Deadline to act on Committee of Conference Reports.

BENEFITS COMMITTEE

Oral Presentation Only

PERSONNEL PERFORMANCE & COMPENSATION COMMITTEE

Oral Presentation Only



To: Board of Trustees
From: Jan Goodwin, Executive Director
Date: November 30, 2023
Re: Executive Director Operating Report
Item: Action: Discussion: Informational:

Significant Developments and Priority Issues

- COVID-19 Update: Maintaining status quo.

Current Month Highlights

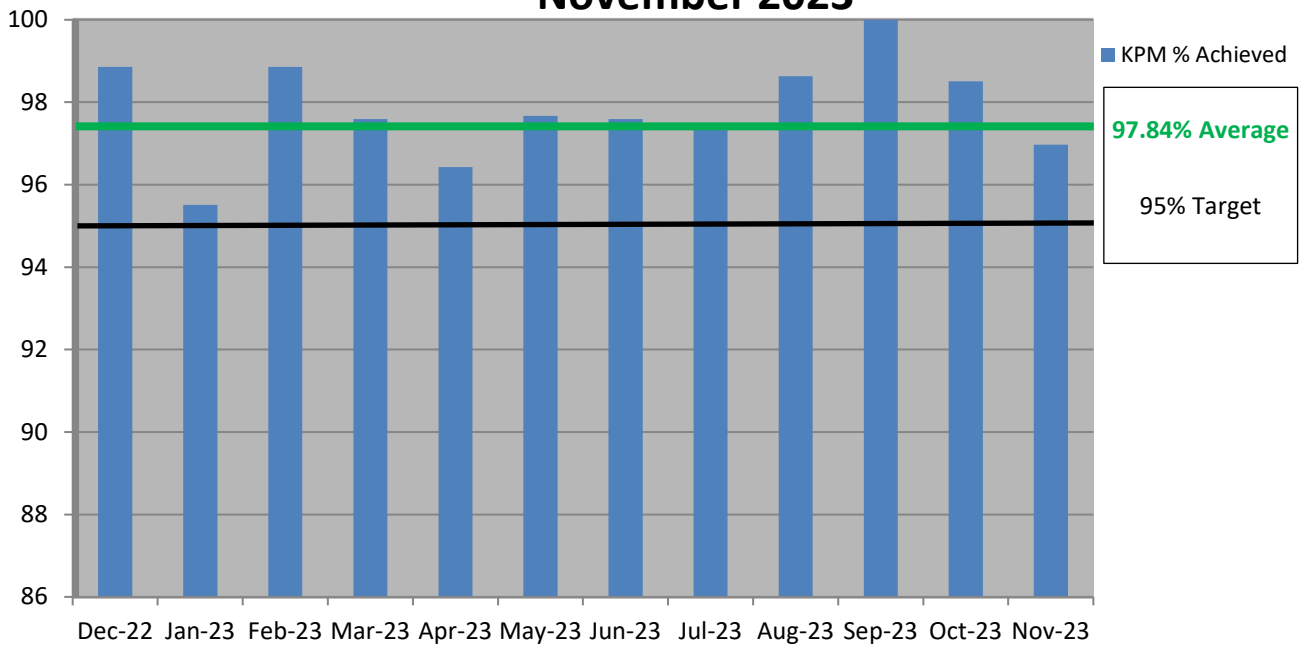
- This month's KPM score was 96.97%. See 12-month rolling average chart, attached.
- PGV3: is 89% completed. We have completed parallel processing one week early and are solely using PGV3, which is now our official system of record. LRS was on-site two weeks this month to assist with troubleshooting. In addition, LRS will be on-site for the first week of December.
- We are finishing up the audit and the draft Annual Comprehensive Financial Report (ACFR) with Plante Moran. We expect final copies to be distributed to the Audit Committee and the full Board, with action expected at the December meetings.
- All three of the ED's KPMs were achieved this month.

Upcoming Plans & Projects

- The NHRS legislative team has developed a plan to implement enacted legislation from the 2023 session that conforms with the PGV3 rollout and related activities.
- Staff has prepared and disseminated messaging materials to retirees, active members, and employers to let them know that some services will take longer than usual to complete due to staff priorities during the initial phase of going live with PGV3. Many of our employers are having issues with PGV3 related to multiple checks in a single pay period and terminated employees. We are working with LRS to resolve these issues. We will schedule meetings with employers to receive their feedback and let them know when their concerns will be addressed.
- As part of going live with PGV3, we will be transitioning from the PGV2 version of MyAccount to the PVG3 version in December.
- The E-Team is in the preliminary stages of reviewing our long-term space needs in advance of our current lease expiring in March 2026.

Our Mission: To provide secure retirement benefits and superior service.

KPM Rolling 12-Month Average November 2023



PGV3 Status as of November 26, 2023

Project Schedule and Completion

| Task | Scheduled Start Date | Scheduled Finish Date | Baseline Finish Date | Actual Finish Date | Percent Complete |
|---|----------------------|-----------------------|----------------------|--------------------|------------------|
| NHRS Version 3 | 1/2/2019 | 12/2/2024 | 12/27/2023 | | 89% |
| Phase 1 - Project Initiating | 1/2/2019 | 1/25/2019 | 1/25/2019 | 1/25/2019 | 100% |
| Phase 2 - Project Planning | 1/2/2019 | 2/14/2019 | 2/14/2019 | 2/14/2019 | 100% |
| Phase 3 - Project Monitoring and Controlling | 1/2/2019 | 12/1/2023 | 12/22/2022 | | 99% |
| Phase 4 - Project Executing | 1/2/2019 | 1/29/2024 | 12/22/2022 | | 97% |
| Infrastructure | 2/14/2019 | 8/10/2023 | 9/9/2022 | | 100% |
| Data Conversion | 5/22/2019 | 11/27/2023 | 12/22/2022 | | 99% |
| Requirements Analysis | 1/9/2019 | 7/12/2019 | 7/12/2019 | 7/12/2019 | 100% |
| D1 - Member Basics and Service Purchases | 6/6/2019 | 12/20/2019 | 12/11/2019 | 12/20/2019 | 100% |
| D2 - Employer Reporting | 10/31/2019 | 11/10/2020 | 9/11/2020 | 11/10/2020 | 100% |
| D3 - Benefit Calculations | 2/26/2020 | 9/28/2022 | 4/23/2021 | 9/28/2022 | 100% |
| D4 - Benefit Maintenance and Insurance | 7/9/2021 | 7/25/2022 | 8/27/2021 | 7/25/2022 | 100% |
| D5 - Benefit Payroll | 2/11/2022 | 7/26/2023 | 12/17/2021 | 7/26/2023 | 100% |
| D6 - Year End Processes, Auditing and Security | 6/13/2022 | 5/11/2023 | 5/11/2022 | 5/11/2023 | 100% |
| D7 - MemberDirect | 12/13/2022 | 10/26/2023 | 10/13/2022 | 10/26/2023 | 100% |
| Parallel Processing (2 Months) | 10/9/2023 | 11/30/2023 | 12/22/2022 | | 81% |
| Phase 5 - Closing | 9/13/2023 | 12/2/2024 | 12/27/2023 | | 1% |
| Warranty Support (12 months) | 12/4/2023 | 12/2/2024 | 12/27/2023 | | 0% |

Our Mission: To provide secure retirement benefits and superior service.

KPM MONTHLY REPORTING

November 2023

“No” answers must include a comment, whereas “Yes” answers can include a comment, but a comment is not required. N/A should be used only in cases where reporting is not required, i.e., task is quarterly (comment must so indicate).

| | ACHIEVED | | | COMMENTS |
|--|----------|----|-----|--|
| | YES | NO | N/A | |
| Overall Score | X | | | We achieved a 96.97% success ratio. We failed on two (2) KPMs. |
| Executive | | | | |
| 1. Distribute weekly email updates to all Trustees on or before the end of business on Friday of every week. | X | | | |
| 2. Distribute weekly email updates to all staff on or before the end of business on Monday of every week. | X | | | |
| 3. Maintain expenditures at or less than Trust Fund Budget. | X | | | |
| IT | | | | |
| 1. All vital servers maintain an uptime of 99% or higher. | X | | | |
| 2. All PensionGold requests are prioritized within thirty-one (31) calendar days. | X | | | |
| 3. All TrackIT (help desk) requests are followed up with a conversation (phone/email) within four (4) business days. | X | | | |
| 4. Maintain help desk survey scores above satisfactory marks of 95% or higher. | X | | | |
| 5. All US-CERT email security advisories are placed into the help desk system to be addressed within two (2) business days. | X | | | |
| 6. Respond to all phone calls within one (1) business day. | X | | | |
| 7. Answer 95% of My Account hunt group (X3508) calls within sixty (60) seconds. | X | | | |
| 8. Maintain expenditures at or less than IT budget as reported by Finance in the most recent manager's report (1-month lag). | X | | | |
| Finance | | | | |
| 1. Prepare the NHRS Annual Comprehensive Financial Report (ACFR): unaudited by October 31, and the audited ACFR by December 31, in accordance with generally accepted accounting principles. | X | | | |
| 2. Reconcile operating bank account within two (2) business days of receipt of bank statements. | | | X | Suspended due to PGV3 implementation. |
| 3. Produce and distribute monthly actual-to-plan-budget reports within ten (10) business days from the end of the prior month. | | | X | Suspended due to PGV3 implementation. |

KPM MONTHLY REPORTING

November 2023

| | ACHIEVED | | | COMMENTS |
|--|----------|----|-----|---------------------------------------|
| | YES | NO | N/A | |
| 4. Produce the monthly financial statements (FS) for the Board of Trustees meeting at least three (3) business days prior to the scheduled Board mailing. | | | X | Suspended due to PGV3 implementation. |
| 5. Post all cash receipts for a month, for which we have received the associated voucher, into the pension benefit system (PensionGold) within ten (10) business days after the close of the month. | | | X | Suspended due to PGV3 implementation. |
| 6. Issue all NHRS annuitant pension payments timely and accurately. | X | | | |
| 7. File annual payroll tax return (form 945) for the annuity payroll by January 31. | | | X | No return due. |
| 8. Reconcile all employer accounts sufficiently to allow for interest posting for the reporting month within ninety (90) days of the end of the reporting month, for which we have received all payments and back-up from employers. | | | X | Suspended due to PGV3 implementation. |
| 9. Process all confirmed post-retirement electronic direct deposit change requests received by the date that the pre-note wizard is run in PensionGold and direct funds accordingly in the same month. | X | | | |
| 10. Deposit all payments received at NHRS offices, with appropriate supporting documents, into local custodial bank within three (3) business days of receipt, with any payments secured on any intervening days. | X | | | |
| 11. Annually for the preceding tax year, post electronic 1099-R forms to MyAccount by January 24 and mail hard copy 1099-R forms by January 31 of the subsequent year. | | | X | No filings due. |
| 12. Answer 95% of Employer Exceptions hunt group (X3532) calls within sixty (60) seconds. | | | X | Suspended due to PGv3 implementation. |
| 13. Maintain expenditures at or less than Finance Budget as reported in the most recent manager's report (1-month lag). | X | | | |
| Investment | | | | |
| 1. Generate investment returns for three (3) and five (5) Year Total Fund Performance greater than the applicable Total Fund Benchmark measured quarterly . | | | X | Reported quarterly. |
| 2. Generate investment returns for the long-term (25 years) Total Fund Performance greater than the applicable Actuarial Assumed Rate of Return (6.75%) measured each June 30 . | | | X | Reported June 30 th . |

KPM MONTHLY REPORTING

November 2023

| | ACHIEVED | | | COMMENTS |
|--|----------|----|-----|---|
| | YES | NO | N/A | |
| 3. Generate investment returns for three (3) and five (5) Year Total Fund Performance greater than the applicable peer universe median measured quarterly. | | | X | Reported quarterly. |
| 4. Complete the IIC's Private Debt & Private Equity Strategic Plan for the calendar year. | | | X | Reported annually in February for CY 2024. |
| 5. Manage cash flow and make funds available for the payment of monthly retirement benefits, expenses and capital calls on or before the last business day of the month. | X | | | |
| 6. Manage continuously the asset allocation within approved ranges and rebalance as appropriate. | X | | | |
| 7. Maintain trading cost at or below median of applicable peer universe. | X | | | |
| 8. Ensure all proxies are voted consistent with the Board approved Proxy Policy. | X | | | |
| 9. Distribute complete and accurate Investment Committee materials to all members of the Investment Committee on the Friday before the regularly scheduled monthly Investment Committee meeting. | X | | | |
| 10. Maintain internal expenditures at or less than Investment Budget as reported by Finance in the most recent manager's report (1-month lag). | X | | | |
| Legal | | | | |
| 1. Assure no instances of statutory or regulatory non-compliance. | | X | | A refund was paid approx. one week outside the 3-month limit due to parallel constraints. |
| 2. Provide disability recommendations to the Board within sixty (60) calendar days of receipt in the Legal Dept. | X | | | |
| 3. Commence an adjudicative proceeding within sixty (60) calendar days of receipt of administrative appeal. | X | | | |
| 4. Present a recommended decision to the Board within seventy-five (75) calendar days after the close of the record in an appeal. | X | | | |
| 5. Perform employer compliance field audits; a rolling average of 2 audits per experienced auditor per month over the prior 12-month period. | | | X | Suspended due to PGV3 implementation. |
| 6. Present one (1) employer education session per quarter. | X | | | |
| 7. Answer 95% of Employer Audit/Compliance hunt group (X3681) calls within sixty (60) seconds. | X | | | |
| 8. Maintain expenditures at or less than Legal Budget as reported by | X | | | |

KPM MONTHLY REPORTING

November 2023

| | ACHIEVED | | | COMMENTS |
|--|----------|----|-----|---|
| | YES | NO | N/A | |
| Finance in the most recent manager's report (1-month lag). | | | | |
| Member Services | | | | |
| 1. Calculate all preliminary retirement benefits within thirty (30) calendar days of member-requested date of retirement. | X | | | |
| 2. Calculate 100% of final retirement benefits (EXCLUDING JULY applications) within seven (7) months of member requested date of retirement provided that all statutorily required documentation has been received and all wages have been reported. | | | X | Suspended due to PGV3 implementation. |
| 3. Calculate 100% of July final retirements within eight (8) months of member requested date of retirement provided that all statutorily required documentation has been received and all wages have been reported. | | | X | Suspended due to PGV3 implementation. |
| 4. Schedule member meetings with Benefit Specialists within ten (10) business days of request. | | | X | Suspended due to PGV3 implementation. |
| 5. Issue all member retirement benefit estimates within thirty (30) business days of receipt of request. | X | | | |
| 6. Enter member enrollment form data into Pension Gold (PG) within fifteen (15) business days of receipt. | | | X | Suspended due to PGV3 implementation. |
| 7. Process member refund requests within ninety (90) calendar days of receipt of written request. | | X | | 1 refund delayed 1 week due to PGV3 implementation. |
| 8. Process service purchases within fifteen (15) business days of request receipt. | | | X | Suspended due to PGV3 implementation. |
| 9. Process additional contribution calculations within ninety (90) calendar days of receipt. | | | X | Suspended due to PGV3 implementation. |
| 10. Process all non-employer audit correction related employer contribution refunds within sixty (60) business days of receipt. | | | X | Suspended due to PGV3 implementation. |
| 11. Post all interest to member accounts within the month that Finance authorized the activity. | X | | | |
| 12. Adhere to payroll "close" schedule for benefit setup balancing purposes. | X | | | |
| 13. Process all pension changes within thirty (30) calendar days of receipt/notification. | | | X | Suspended due to PGV3 implementation. |
| 14. Process retiree death benefit refund payments within sixty (60) calendar days following receipt of all required paperwork. | X | | | |
| 15. Establish survivorship benefit setup for payment within sixty (60) calendar days following receipt of all required death documentation | X | | | |

KPM MONTHLY REPORTING

November 2023

| | ACHIEVED | | | COMMENTS |
|--|----------|----|-----|----------|
| | YES | NO | N/A | |
| and pension recoveries. | | | | |
| 16. Submit new recoupment cases to Recoupment Committee by next committee meeting following discovery. | X | | | |
| 17. Initiate Recoupment/Benefits Committee recoupment decisions within seven (7) business days of decision. | X | | | |
| 18. Review and balance updates submitted by employers and TPAs to PG for insurance rate changes received by the first business day of each month within four (4) business days. | X | | | |
| 19. Complete monthly insurance non-rate changes by processing all authorizations received by the date the annuity payroll is posted with zero carryovers. | X | | | |
| 20. Render QDRO qualification determinations within federal time limit guidelines. | X | | | |
| 21. Maintain expenditures at or less than Member Services Budget as reported by Finance in the most recent manager's report (1-month lag). | X | | | |
| Human Resources | | | | |
| 1. Ensure compliance with all Federal, State and CBA rules and regulations as measured by no notices of violation. | X | | | |
| 2. Respond to all payroll errors within one (1) business day and correct all payroll errors within one pay cycle. | X | | | |
| 3. Reduce recruitment time for open staff positions to no more than forty-five (45) business days and open management/executive positions to no more than ninety (90) business days. | X | | | |
| 4. Maintain expenditures at or less than HR Budget as reported by Finance in the most recent manager's report (1-month lag). | X | | | |
| PIO | | | | |
| 1. Schedule a minimum of thirty (30) member/constituent education sessions in Concord and statewide each year. | X | | | |
| 2. Achieve ninety-five percent (95%) rating of members attending a live education session that the session was "completely/moderately" easy to understand. | X | | | |
| 3. Meet all deadlines in editorial calendar. | X | | | |

KPM MONTHLY REPORTING

November 2023

| | ACHIEVED | | | COMMENTS |
|---|----------|----|-----|--|
| | YES | NO | N/A | |
| 4. Monitor media coverage of NHRS and provide articles to Board, IIC and Staff within two (2) business days. | X | | | |
| 5. Post updated legislative summaries on www.nhrs.org by the end of business every Friday throughout the legislative session. | | | X | |
| 6. Prepare and deliver Quarterly Report to the General Court by January 1, April 1, July 1 and October 1. | X | | | |
| 7. Maintain expenditures at or less than PIO Budget as reported by Finance in the most recent manager's report (1-month lag). | X | | | |
| Internal Audit | | | | |
| 1. Prepare a Risk Assessment and Fiscal Year Audit Plan for the approval of the Audit Committee annually. | | | X | This happens in the spring. |
| 2. Execute and present an assurance audit to the Audit Committee every quarter. | X | | | |
| 3. On behalf of the external auditors, administer the GASB census data audits and provide the completed audits to the external auditors by the established due date. | | | X | Completed for this year. |
| 4. Prepare the updated NHRS Audit Issues Tracking Report for the Audit Committee and Board of Trustees at least three (3) business days prior to the scheduled Board/Committee mailing. | X | | | |
| 5. Distribute complete and accurate Audit Committee materials to all members of the Audit Committee by the Thursday before the monthly meeting. | X | | | |
| 6. Prepare draft Audit Committee Meeting minutes for review within three (3) business day of the meeting. | X | | | |
| 7. Maintain expenditures at or less than Internal Audit Budget as reported by Finance in the most recent manager's report (1-month lag). | X | | | |
| Contact Center | | | | |
| 1. Respond to all incoming emails within 24 business hours. | X | | | |
| 2. Maintain an average speed of answer within two (2) minutes. | X | | | We maintained an average of 0:29:00. |
| 3. Maintain a 95% call satisfaction rating for callers' experience with the Contact Center Representative (CCR). | X | | | We achieved a 98.411% satisfaction rate. |
| Administrative | | | | |
| 1. Prepare and distribute monthly Board materials electronically by the Thursday before the Tuesday meeting. | X | | | |
| 2. Post Board and committee meeting notices according to 91-A:2. | X | | | |
| 3. Prepare minutes of Board and Board Committee meetings according | | | | |

KPM MONTHLY REPORTING

November 2023

| | ACHIEVED | | | COMMENTS |
|--|----------|----|-----|---|
| | YES | NO | N/A | |
| to the timeliness guidelines in 91-A:2 and 91-A:3, with draft minutes for internal review ready by close-of-business on the Friday following the Board meeting. | X | | | |
| 4. Prepare draft MTeam minutes and forward to Executive Director for review within 3 business days of meeting; to managers for review within 5 business days of meeting; and post final minutes to the common drive by the Friday following the meeting. | X | | | |
| 5. Assure that formal complaints are responded to within ten (10) calendar days. | | | X | No complaints were received during the month. |
| 6. Maintain expenditures at or less than Administration Budget as reported by Finance in the most recent manager's report (1-month lag). | X | | | |
| 7. Maintain expenditures at or less than Board of Trustees Budget as reported by Finance in the most recent manager's report (1-month lag). | X | | | |

Contact Center November 2023

Phone Calls

| | Total | Percentage |
|--------------------------------|--------------|----------------|
| Calls addressed by CCRs | 2395 | 96.30% |
| Calls forwarded to SMEs | 86 | 3.46% |
| Calls forwarded to SME Manager | 6 | 0.24% |
| Total | 2,487 | 100.00% |

Post Call Surveys

| | Total |
|----------------------------------|-------|
| Total Calls Handled | 2,487 |
| Surveys Completed | 130 |
| % of Total Calls Completion Rate | 5.23% |

Walk Ins

| | Total |
|--------------------------------|-------|
| Number of Walk-Ins | 195 |
| Total Walk In Time (hours) | 36.5 |
| Average Walk In time (minutes) | 232 |

Emails

| | Total | Percentage |
|--------------------------|--------------|----------------|
| Emails addressed by CCRs | 465 | 43.91% |
| Emails forwarded to SMEs | 594 | 56.09% |
| Total | 1,059 | 100.00% |

Goal: Answer calls within 2 minutes with 5% abandon rate.

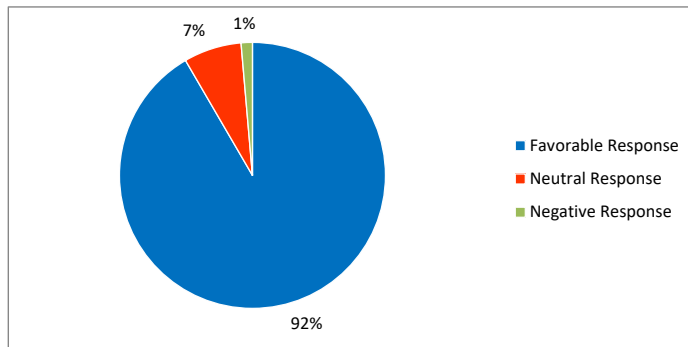
| Queue Name | Calls Presented | Calls Handled | Percentage | Calls Abandoned | Percentage | Average Queue Time | Average Speed of Answer | Average Time to Abandon | Average Handle Time |
|---------------|-----------------|---------------|---------------|-----------------|--------------|--------------------|-------------------------|-------------------------|---------------------|
| Member | 916 | 898 | 98.03% | 18 | 1.97% | 0:28:00 | 0:27:00 | 1:21:00 | 5:29:00 |
| Reception | 590 | 557 | 94.41% | 21 | 3.56% | 0:29:00 | 0:26:00 | 0:52:00 | 4:02:00 |
| Retiree | 1045 | 1032 | 98.76% | 13 | 1.24% | 0:35:00 | 0:34:00 | 1:53:00 | 4:21:00 |
| Totals | 2551 | 2487 | 97.49% | 52 | 2.04% | 0:30:40 | 0:29:00 | 1:22:00 | 4:37:20 |

Average

**NHRS Board Monthly Reporting Package
Process Improvement
November 2023**

Executive Director Telephone Survey Results

| | Number of Names on Call List | Number of Connections Made | Favorable Response (1) | Neutral Response (2) | Negative Response (3) | Left VM No Call Back (4) | Bad Phone Number/Not in Service/No VM (5) |
|--------------------|------------------------------|----------------------------|------------------------|----------------------|-----------------------|--------------------------|---|
| 2023 | | | | | | | |
| November | 40 | 21 | 21 | 0 | 0 | 18 | 1 |
| October | 40 | 19 | 17 | 0 | 2 | 14 | 7 |
| September | 40 | 21 | 19 | 1 | 1 | 18 | 1 |
| August | 50 | 20 | 20 | 0 | 0 | 22 | 8 |
| July | 40 | 17 | 16 | 0 | 1 | 15 | 8 |
| June | 40 | 23 | 21 | 1 | 1 | 15 | 2 |
| May | 50 | 28 | 22 | 6 | 0 | 20 | 2 |
| April | 40 | 23 | 22 | 1 | 0 | 16 | 1 |
| March | 50 | 22 | 18 | 4 | 0 | 22 | 6 |
| February | 30 | 12 | 11 | 1 | 0 | 13 | 5 |
| January | 40 | 18 | 15 | 2 | 1 | 18 | 4 |
| 2022 | | | | | | | |
| January - December | 520 | 291 | 265 | 21 | 5 | 174 | 55 |
| 2021 | | | | | | | |
| January - December | 130 | 73 | 64 | 8 | 1 | 42 | 15 |
| 2020 | | | | | | | |
| January - December | 100 | 50 | 47 | 2 | 1 | 37 | 13 |
| 2019 | | | | | | | |
| January - December | 500 | 228 | 216 | 7 | 5 | 150 | 122 |
| 2018 | | | | | | | |
| January - December | 490 | 227 | 217 | 8 | 2 | 183 | 80 |
| 2017 | | | | | | | |
| January - December | 460 | 214 | 204 | 8 | 2 | 168 | 78 |
| 2016 | | | | | | | |
| January - December | 520 | 258 | 230 | 25 | 3 | 189 | 73 |
| 2015 | | | | | | | |
| January - December | 510 | 273 | 242 | 28 | 3 | 152 | 85 |
| 2014 | | | | | | | |
| October - December | 87 | 36 | 28 | 8 | 0 | 30 | 21 |
| | 3777 | 1874 | 1715 | 131 | 28 | 1316 | 587 |





NHRS

New Hampshire Retirement System

To: NHRS Board of Trustees
From: Jan Goodwin, Executive Director
Date: December 5, 2023
Re: PGV3 addendum
Item: Action: Discussion: Informational:

From inception, Change Requests (CRs) have been an expected and budgeted expense for the PGV3 project. CRs are any changes that impact the cost and/or schedule from the original timeline and/or services. For example, a CR would be necessary to program PGV3 changes due to new legislation.

The FY'23 budget for the total project is \$9,903,490.00, of which \$1,053,864.00 is attributed to CRs. As of November 26, 2023, NHRS has been invoiced \$979,965.00 for CRs, leaving a difference of \$72,899.00, for not only the next 12 months under the warranty period, but also any CRs that would occur after that period. After consulting with LRS, it is expected that CRs and other necessary project work (e.g. application management and training) over the next two years will exceed what is currently budgeted. Therefore, I am requesting that an additional \$1,502,977 be authorized. We will amend the contract with LRS to reflect that this is a "not-to-exceed" amount. The following page contains the proposed expenditure by category.

We have been very conservative in developing this budget. There are a number of reasons why the project is costing more than originally budgeted. The primary reason is that the project was expected to take four years. When I started at NHRS in April 2021, the project duration had been increased to five years. The project duration has not increased during my tenure at NHRS. Other reasons include, but are not limited to, a greater than expected need for support by LRS and implementation of legislation.

As this request exceeds \$50,000 on an annualized basis, it is being submitted for Board consideration in accordance with the Board Procurement Policy.

For the reasons outlined above, I respectfully request that the Board approve this sole source addendum request.

Our Mission: To provide secure retirement benefits and superior service.

Change Request Contract Amendment

| <u>LRS Implementation Services</u> | <u>Estimated Cost</u> | <u>Explanation</u> | <u>Time Frame</u> |
|---|-------------------------------------|--|-------------------|
| Roadmap Items - Estimated | \$541,161.00 | Various workflows, reports, automation not included in contract specifications | 1 year |
| Roadmap Items - Approved | \$9,180.00 | | |
| Enhanced Warranty Services - PM | \$153,918.00 | Project Management for Roadmap items | 6 months |
| Training (Virtual Option) | \$18,360.00 | Additional training for new employees/areas requiring additional expertise | 1 year |
| Enhanced Warranty - Training (Max Cost) | \$104,040.00 | Specialized training for new employees/Application Manager | 1 - 2 years |
| Estimated Implementation Payments | \$826,659.00 | | |
| | | | |
| <u>LRS Consulting</u> | | | |
| Application Manager Consultant | \$134,457.00 | | 6 months |
| Future Roadmap items to be identified | \$540,000.00 | Future automation, reports and workflows yet to be identified. | 2 years |
| Total Estimated Costs | <u><u>\$1,501,116.00</u></u> | | |

Division: Executive

Date: November 30, 2023

Approved: July 1, 2023

FY 2024 Action Plan Summary

| ACTION | PM | DATE | STATUS/COMMENTS |
|---|-----------|-------------|---|
| 1. Complete implementation of data security assessment recommendations and continue to enhance IT security. | JG/JL | 6/30/24 | Note: While most of the recommendations have been implemented, there are a few that are ongoing as part of the PGV3 implementation project. |
| 2. Complete project plan milestones for LRS Pension Gold (PGV3) project. | JG/TK | 6/30/24 | This is a five-year project scheduled for completion in FY 24. Project modifications have added six months to the original completion date. |
| 3. Identify areas for improved efficiencies across the organization, including assessing and improving employee engagement. | JG/All | 6/30/24 | |
| 4. Enhance member, beneficiary, and employer education: identify/review industry best practices for education and engagement; adjust existing education programming, as needed. | JG/MK | 6/30/24 | |
| 5. Implement agreed-upon elements of Vision for NHRS. | JG/All | 6/30/24 | |

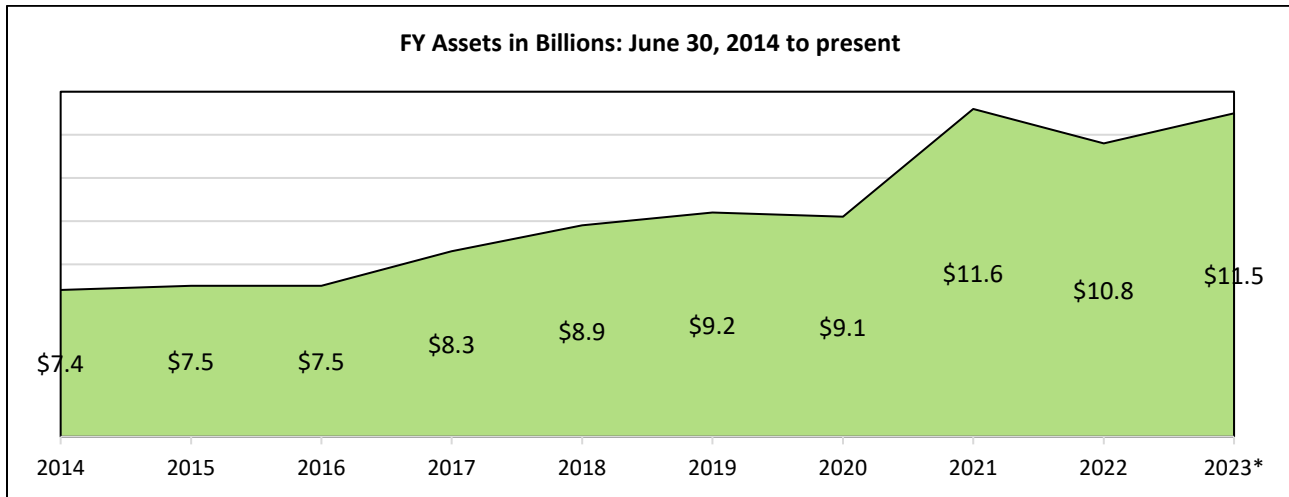
NHRS DASHBOARD: FY 2024 First Quarter

For the period July 1, 2023, to September 30, 2023

Updated: November 2023

TRUST FUND

| | |
|-------------------------------------|--------------------------------------|
| 1st Quarter FY 2023: \$10.3 billion | 1st Quarter FY 2024: \$11.1 billion* |
|-------------------------------------|--------------------------------------|



* Unaudited

INVESTMENT PERFORMANCE

| Net-of-fees returns | FYTD – 9/30/23* | 1 yr. at 6/30/23 | 3 yr. at 6/30/23 | 5 yr. at 6/30/23 | 10 yr. at 6/30/23 |
|------------------------------|-----------------|------------------|------------------|------------------|-------------------|
| Total Fund Composite | -2.5% | 8.2% | 9.6% | 7.1% | 7.9% |
| Peer comparison (percentile) | NA | 33rd | 22nd | 30th | 17th |

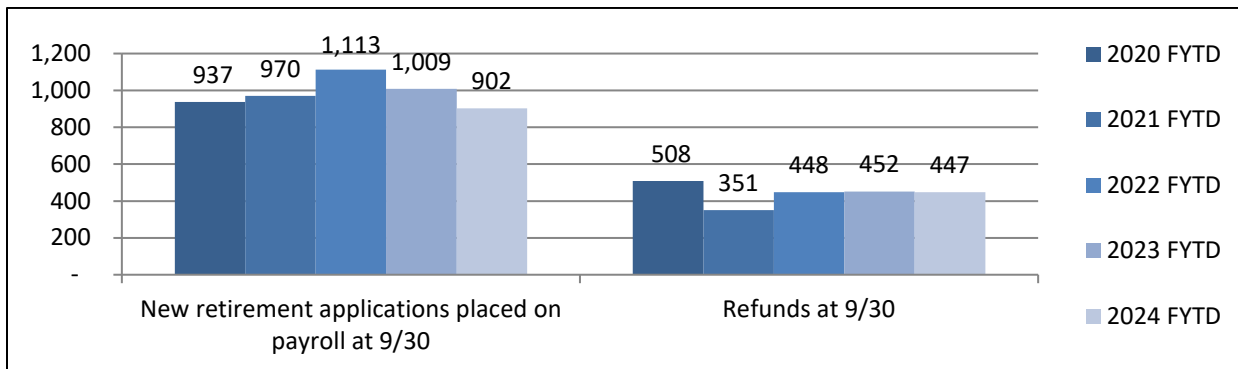
Assumed Rate of Return: 6.75%; * Annualized; valuation of real estate and alternative investments lagged three months.

KEY PERFORMANCE MEASURES

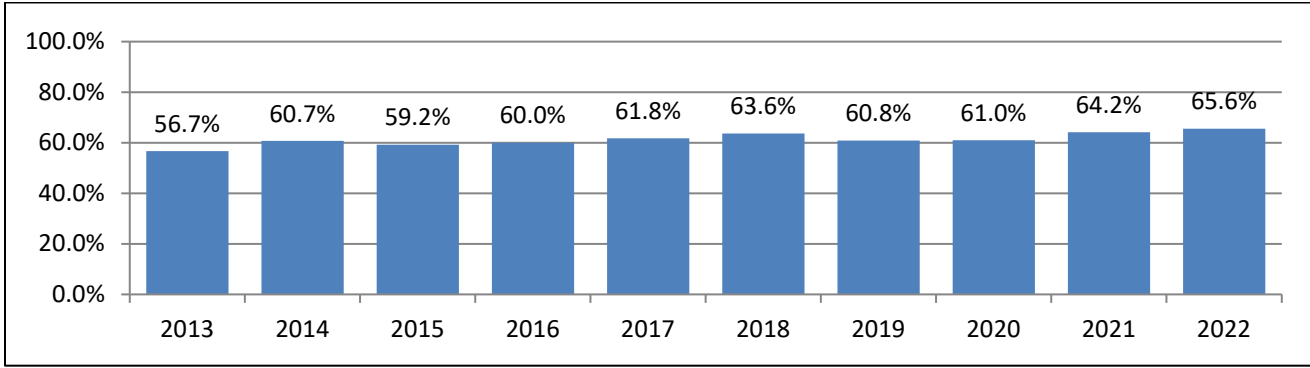
| | | | |
|------------------|--------------------|-------------------|---------------------------------|
| July 2023: 96.4% | August 2023: 94.9% | Sept. 2023: 98.8% | 12-month rolling average: 96.6% |
|------------------|--------------------|-------------------|---------------------------------|

Target: 95%

RETIREMENTS AND REFUNDS

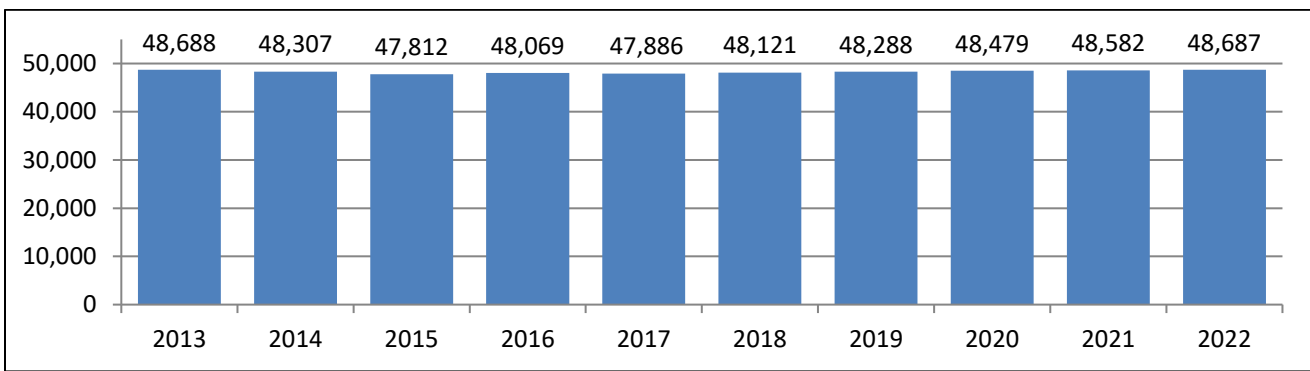


ACTUARIAL FUNDED RATIO

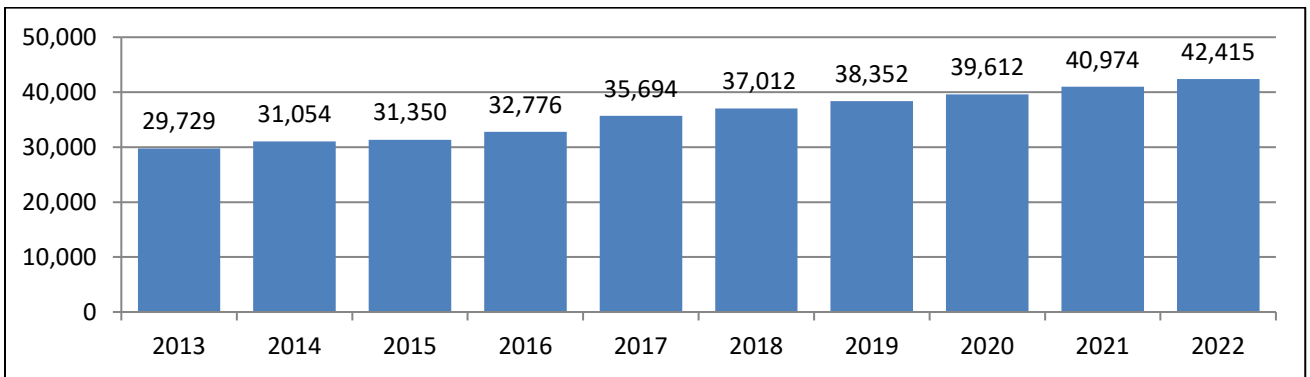


Funded ratio impacted by reductions to assumed rate of return and revised actuarial assumptions effective in 2015 and 2019

ACTIVE MEMBERS



RETIREES & BENEFICIARIES





To: Board of Trustees
From: Tim Crutchfield, Deputy Director and Chief Legal Counsel
Date: November 30, 2023
Re: Legal Team Operating Report
Item: Action: Discussion: Informational:

Significant Developments and Priority Issues

- Staff has drafted a 2024 Board Action Calendar, and it is included in this month's Informational Materials.
- The Employer Auditors continue to assist the Finance Team by reaching out to employers regarding the new reporting functions as part of the PGV3 transition.
- The NH Supreme Court requires a certified copy no later than December 26, 2023, of the record in the Board's initial decision in March and its reconsideration decision in July of this year in the Keene School District case, regarding the exclusion of compensation paid more than 120 days following termination of eight teachers who retired between 2012 and 2018. The Court will provide the schedule for submitting briefs and oral arguments at a later date.

Current Month Highlights

- Over the past 12 months, the Employer Audit Team has completed 24 standard and 23 GASB audits. There are four standard audits in process.
- Legal achieved six of its eight KPMs this month. One KPM was not met because a refund of a member's contributions was issued approximately one week after the three month limit due to competing priorities with parallel processing. The other KPM is on hold due to the PGV3 conversion.
- 445 Gainful Occupation reports were mailed in early March. 424 have been returned and 414 of those have been processed.
- The final report of the annual ethics surveys will be presented to the Board this month.

Upcoming Plans and Projects

- Legal and IT staff are reviewing a possible vendor to streamline the contract administration process.
- The annual request to complete the Statement of Financial Interests form will be sent out following the Board meeting.

Administrative Appeals

| Prior 12 months | Total Cases on Appeal at start of the month | New Appeals | Closed Appeals | Total Cases on Appeal end of the month |
|-----------------|---|-------------|----------------|--|
| Nov. '23 | 8 | 2 | 1 | 9 |
| Oct. '23 | 6 | 2 | 0 | 8 |
| Sept. '23 | 5 | 1 | 0 | 6 |
| Aug. '23 | 6 | 1 | 2 | 5 |
| July '23 | 6 | 1 | 1 | 6 |
| June '23 | 6 | 0 | 0 | 6 |
| May '23 | 7 | 0 | 1 | 6 |
| April '23 | 7 | 0 | 0 | 7 |
| Mar. '23 | 8 | 1 | 2 | 7 |
| Feb. '23 | 10 | 1 | 3 | 8 |
| Jan. '23 | 8 | 3 | 1 | 10 |
| Dec. '22 | 8 | 2 | 2 | 8 |
| Totals | | 14 | 13 | |

Disability Appeals

| Prior 12 months | Total Cases on Appeal at start of the month | New Appeals | Closed Appeals | Total Cases on Appeal end of the month |
|-----------------|---|-------------|----------------|--|
| Nov. '23 | 2 | 0 | 0 | 2 |
| Oct. '23 | 2 | 0 | 0 | 2 |
| Sept. '23 | 2 | 0 | 0 | 2 |
| Aug. '23 | 2 | 0 | 0 | 2 |
| July '23 | 2 | 0 | 0 | 2 |
| June '23 | 2 | 0 | 0 | 2 |
| May '23 | 2 | 0 | 0 | 2 |
| April '23 | 2 | 0 | 0 | 2 |
| Mar. '23 | 1 | 1 | 0 | 2 |
| Feb. '23 | 1 | 0 | 0 | 1 |
| Jan. '22 | 1 | 0 | 0 | 1 |
| Dec. '22 | 1 | 0 | 0 | 1 |
| Totals | | 1 | 0 | |

Our Mission: To provide secure retirement benefits and superior service.

FY 2024 Action Plan Summary

| ACTION | PM | DATE | STATUS/COMMENTS |
|--|-----------|-------------|---------------------------|
| 1. Assist in the PGV3 implementation. | TC | 12/31/23 | In process. |
| 2. Conduct and document annual review of NHRS legal and governance policies, procedures, and manuals to assure best practices. | TC/MC | 12/31/23 | In process. |
| 3. Update the annual compliance calendar to ensure statutory compliance in all organizational areas. | TC | 12/31/23 | Completed. |
| 4. Ensure annual compliance with the Voluntary Correction Program Policy. | TC | 3/31/24 | Scheduled for early 2024. |
| 5. Assure legal compliance with all legislative proposals adopted and effective in 2023. | TC | 6/30/24 | In process. |
| 6. Review NHRS website for legal compliance with updates as needed. | TC/MK | 6/30/24 | In process. |
| 7. Identify, enroll, and complete a professional development program. | TC | 6/30/24 | |



To: Board of Trustees
From: Marty Karlon
Date: November 28, 2023
Re: Communications/Legislative Affairs Operating Report
Item: Action: Discussion: Informational:

Significant Developments and Priority Issues

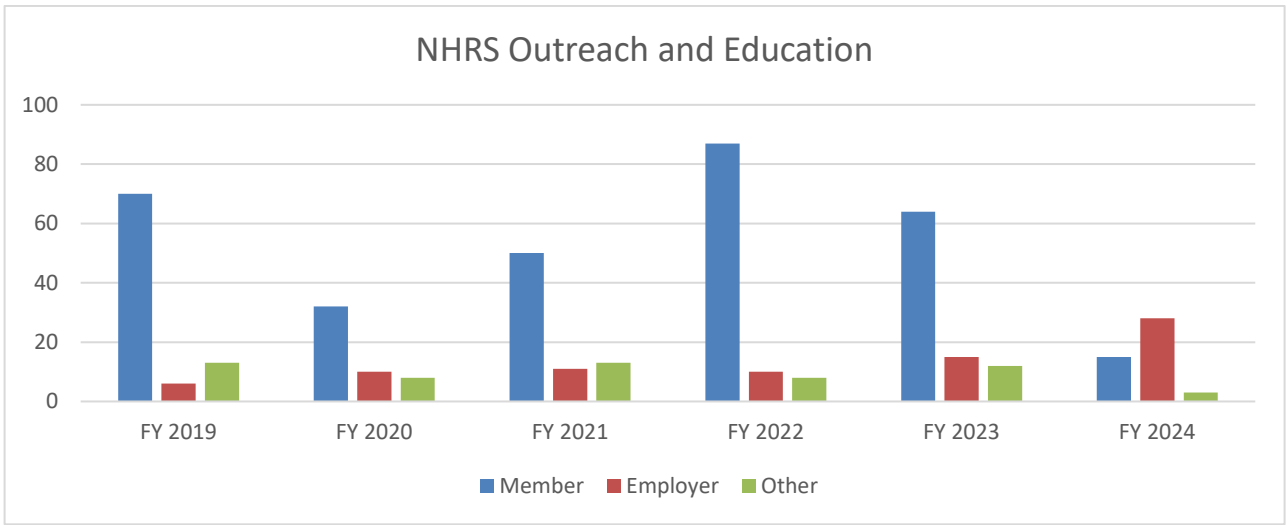
- The Retirement Benefits Commission voted, 8-6, in November to recommend that the legislature introduce a bill that increases the multiplier for Group II Tier B and C members (and future hires) to 2.5% for all years worked in excess of 10 years. This recommendation will be introduced as a 2024 bill. The commission was repealed effective December 1, 2023. NHRS attended all sessions and provided actuarial data and testimony.

Current Month Highlights

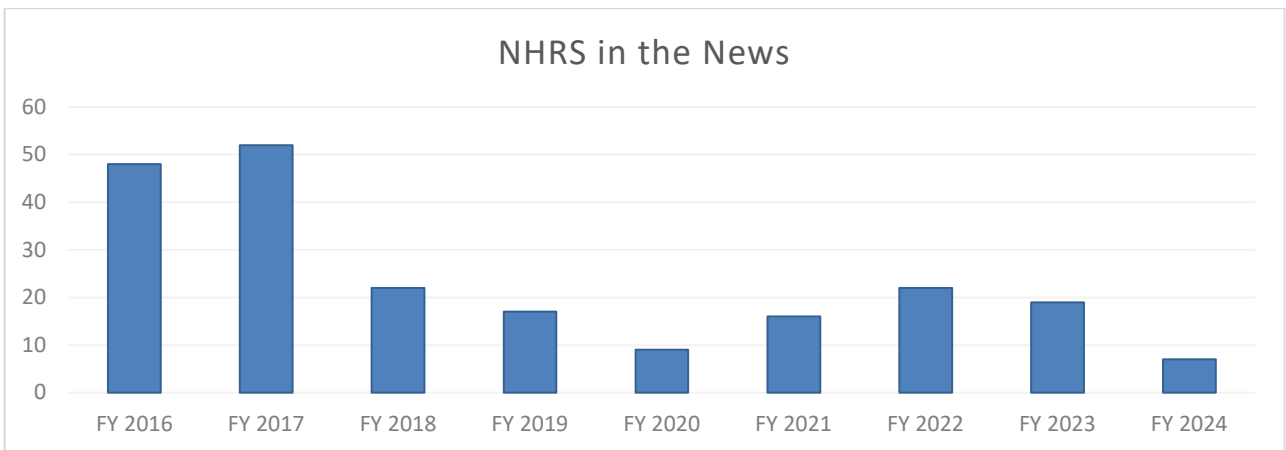
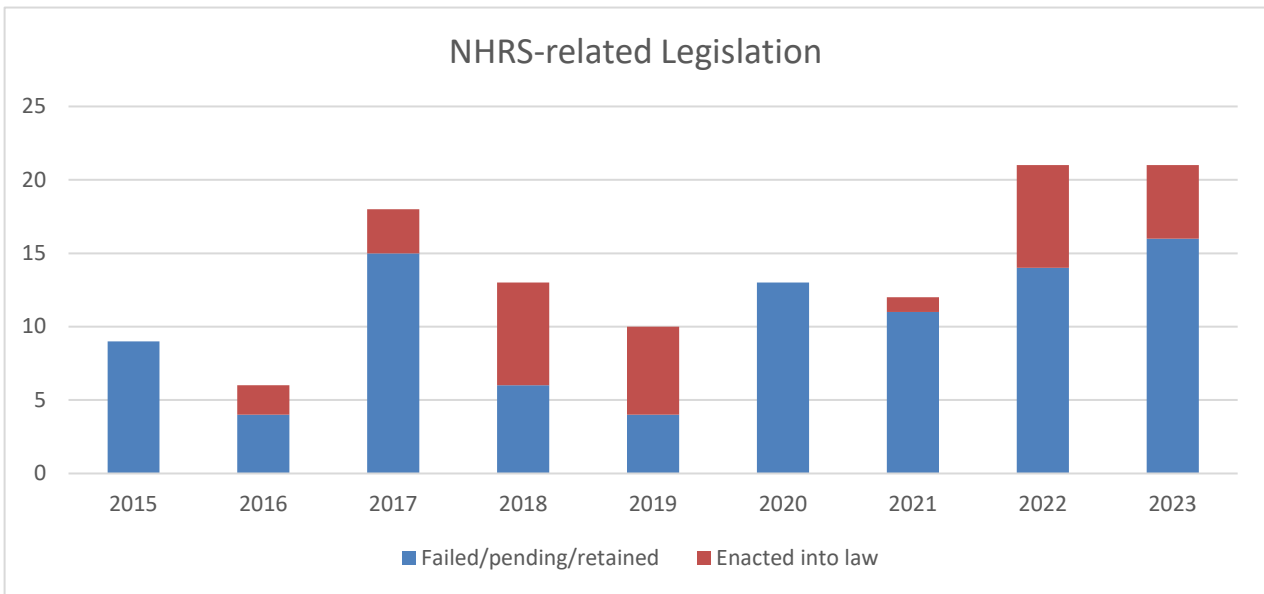
- Developed PGV3 training handouts related to *My Account 2.0* and 2024 retiree reporting.
- Provided ongoing PGV3 employer communications support.
- Hosted or participated in seven member education events, four employer education events and one constituent event.
- Scheduled 30 member education events for 2024.
- PIO met six of seven KPMs this month; one was not applicable.

Upcoming Plans & Projects

- Hosting or participating in three member education events in December.
- Preparing for 2024 legislative session.
- Kicking off *My Account 2.0* promotional campaign in January.



“Other” events include presentations to member, employer, and retiree organizations.



News articles and commentary in NH and national media outlets in which NHRS is the primary subject.

Our Mission: To provide secure retirement benefits and superior service.

FY 2024 Action Plan Summary

| ACTION | PM | DATE | STATUS/COMMENTS |
|--|--------------------------|-------------|---|
| 1. In collaboration with Finance team and PGV3 Project Manager, implement PGV3 employer training and communication plans. * | MK / PIO staff / Finance | 1/31/24 | In progress. |
| 2. Maintain ongoing internal and external communications for overall PGV3 project. * | MK | 3/31/24 | In progress. |
| 3. Develop and implement campaign to encourage members and retirees to sign up for MyAccount 2.0 * | MK / PIO staff | 6/30/24 | In progress. |
| 4. Coordinate NHRS interactions with and prepare materials for statutory commission to study retirement benefits and retention of employees scheduled to meet in the summer of 2023. | MK | 11/30/23 | Completed. |
| 5. Maintain positive and constructive working relationship with the NH Legislature. * | MK | 6/30/24 | In progress. |
| 6. Grow calendar year-over-year audience for social media channels by 10-15%. | MK / PIO staff | 6/30/24 | |
| 7. Develop member surveys assessing knowledge and comfort level with NHRS benefits and preferences for additional education efforts. | MK / PIO staff | 6/30/24 | Note: Survey will be released in FY 25. |
| 8. Update printed and recorded | MK / PIO | 12/31/23 | Completed. |

| | | | |
|--|-------|---------|--|
| member/retiree/employer presentations impacted by recent legislation. | staff | | |
| 9. Identify, enroll and complete a professional development opportunity. | MK | 6/30/24 | Scheduled to attend and present at NCPERS Communications Summit in January 2024. |

* - *Aligns with initiatives listed on NHRS Three-Year Strategic Plan.*



NHRS

New Hampshire Retirement System

To: Board of Trustees

From: John Laferriere, Director of Information Technology

Date: November 29, 2023

Re: Information Technology Operating Report

Item: Action: Discussion: Informational:

Significant Developments and Priority Issues

- Cybersecurity Awareness – Phishing testing continues.
- Scheduled phishing training has started for all NHRS users.
- The security group identified no new security issues in November.
- Implemented Microsoft 365 Encryption to ensure High Availability (HA) for emails requiring encryption.

Current Month Highlights

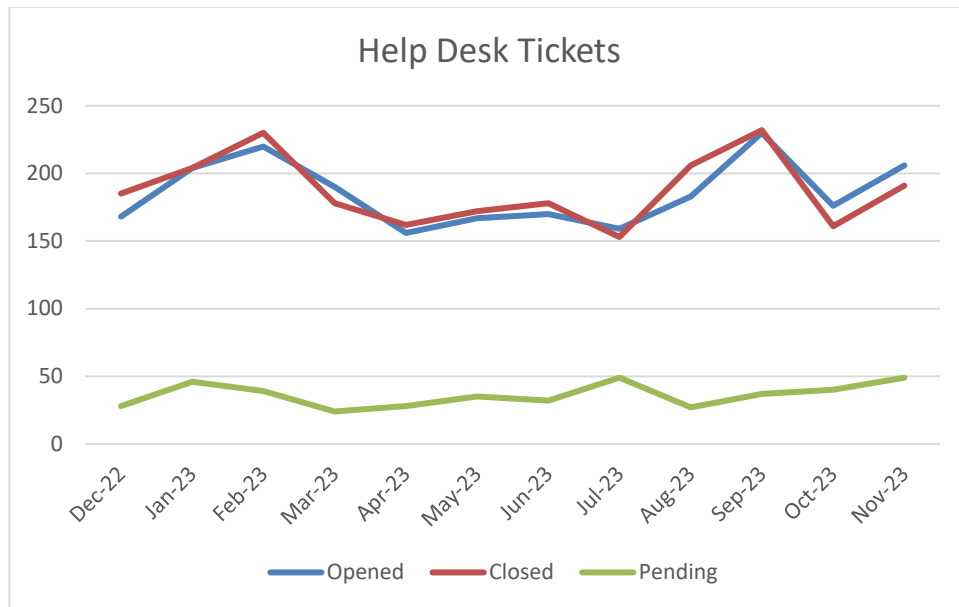
- IT Customer Satisfaction Score – 99%.
- IT met all eight of its KPMs.
- Sixty-six change requests were approved and deployed into the production environment this month, of which fifty-four were PGM3 changes.
- Deployed the new ticket management system into production.
- Completed cloud-based fax system deployment.
- Completed Multi-Factor Authentication (MFA) testing with the Information Technology group.
- Started new Dell laptop testing with the Information Technology group.
- Migrated the Information Technology group to the new network.
- Completed workflow evaluation of the proposed document management system.

Upcoming Plans & Projects

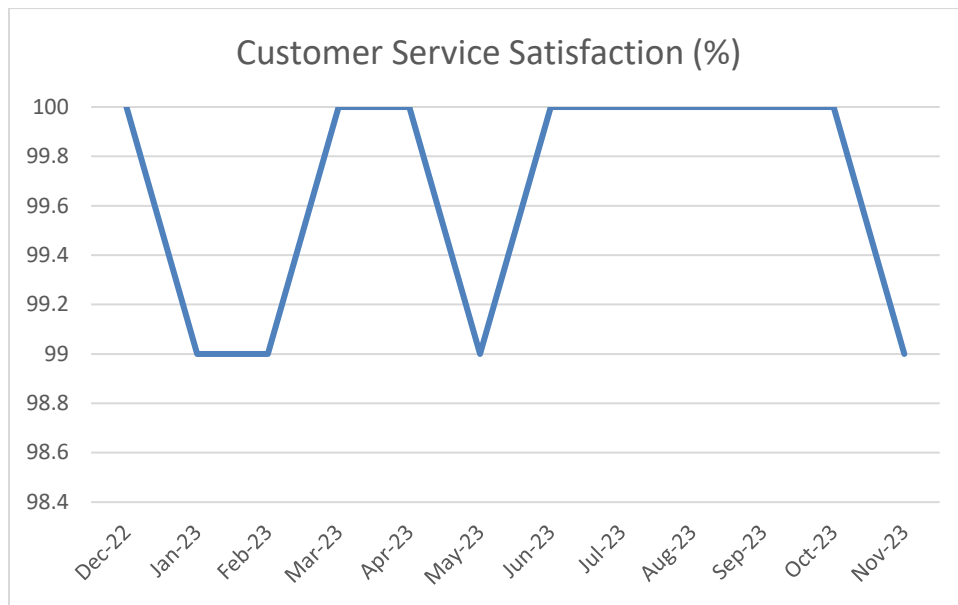
- Continue to migrate users to the new network.
- Finalize the Windows 11 production image for Dell laptops.
- Deployment of new Dell laptops into the call NHRS Contact Center.
- Complete testing of the new VPN.
- Negotiate pricing for the documentation management system.
- Continue testing the new phone system's advanced features.

Our Mission: To provide secure retirement benefits and superior service.

NHRS Helpdesk Ticket Information by Month



NHRS Customer Satisfaction Scores by Month



Our Mission: To provide secure retirement benefits and superior service.

FY 2024 Action Plan Summary

| ACTION | PM | DATE | STATUS/COMMENTS |
|---|----------------|-------------|---|
| 1. Outsource security management to third-party provider. | JL | 10/30/2023 | Completed. |
| 2. Upgrade networking infrastructure. | JL, JO | 12/30/2023 | Ongoing. Expected completion is on time. |
| 3. Perform and complete yearly staff permissions review. | JL | 09/30/2023 | Started. |
| 4. Upgrade firewall hardware. | JL, JO | 09/30/2023 | Completed. |
| 5. Replace desktops and laptops with new laptops. | JL, JV | 06/30/2024 | Ongoing. Deployment to begin January 2. |
| 6. Perform tasks associated with PensionGold Version 3 (PGV3) implementation, as per contractual implementation schedule. | JL, TK, AS, JO | 06/30/2024 | Ongoing. |
| 7. Move 80% of the production applications to the cloud. | JL, JO | 06/30/2024 | Ongoing. Building of cloud environment continues. |
| 8. Move physical data center to new location. | JL, JO | 11/30/2023 | Completed. |
| 9. Replace existing phone system with a cloud-based phone system. | JL | 06/30/2024 | Ongoing. Pre-rollout testing begins January 11. |
| 10. Identify, enroll, and complete a professional development program. | JO | 02/28/2024 | Ongoing. |
| 11. Replace the existing emergency generator. | JL, CM | 08/30/2023 | Completed. |
| 12. Install fault-tolerant internet connection. | JL, JO | 08/30/2023 | Completed. |
| 13. Identify and install an Enterprise document management system. | JL | 06/30/2024 | Ongoing. Workflow testing completed. |
| 14. Develop a secure Enterprise transmissions platform for all file transfers. | JO | 06/30/2024 | Completed. |



To: Board of Trustees
 From: Raynald Leveque, Chief Investment Officer
 Date: December 4, 2023
 Re: Investments Operating Report
 Item: Action: Discussion: Informational:

Significant Developments and Priority Issues

- November Investment Committee (Committee) Meeting Recap:
 - Staff presented an update on the monthly performance of the public market asset classes of the NHRS, rebalancing, holdings, and the Work Plan.
 - The Committee unanimously voted to approve the Proposed 2024 Investment Committee Meeting Schedule.
 - The Committee unanimously voted to approve the Investment Management Agreement with Wellington Management for a five-year term.
 - The Committee heard a Strategic Asset Allocation presentation from NHRS Staff and representatives from Callan. Following this, The Committee unanimously voted to recommend the development and eventual implementation of Portfolio B to the Board of Trustees.
 - The Investment Committee unanimously approved the Comprehensive Annual Investment Report for the Fiscal Year 2023, subject to the inclusion of the investment section from the Annual Comprehensive Financial Report, for submission to the Board at its December meeting with a recommendation for approval.

Current Month Highlights

- Preliminary Performance:

| As of 10/31/2023 | 1 Month | Fiscal Year to Date | 1-YR | 3-YR | 5-YR | 10-YR |
|--|---------|---------------------|--------|--------|--------|--------|
| NHRS Total Fund <u>Net Return</u> | -2.00% | -4.40% | +3.79% | +6.88% | +6.61% | +6.59% |
| Policy Benchmark Return | -1.63% | -3.11% | +6.20% | +4.77% | +6.45% | +6.72% |
| Net Return Minus Benchmark (in basis points) | -37 | -109 | -241 | +211 | +16 | -12 |

Source: Callan, NHRS

- KPM Performance for November 2023:
 - Investments achieved six KPMs; four are not applicable to this month's reporting.

Upcoming Plans & Projects

- December Committee Meeting:
 - Staff will present an update on the monthly performance of the public market asset classes of the NHRS, holdings, and the Work Plan.
 - The Committee will vote on five-year contract renewals for the Abel Noser Trading Cost Analysis Service and Townsend Real Estate Advisory mandates.
 - The Committee will consider a GP fund commitment to the Private Credit portfolio: Sixth Street TAO. Representatives from Sixth Street will present to the Committee their mandate.

Securities Litigation Summary

Staff regularly monitors and participates in class action securities litigation to recover NHRS funds lost through investments in public securities. NHRS engages with our custodian bank to participate in standard US class action litigation (the current custodian is BNY Mellon). NHRS hired ISS in 2018 to provide litigation research and claims filing solutions for non-standard US class action and international securities litigation. The table below reports the annual historical recoveries for the NHRS.

| Calendar Year | Amount |
|-------------------------|----------------------|
| 2005 | \$ 624,261 |
| 2006 | \$ 1,373,631 |
| 2007 | \$ 2,410,390 |
| 2008 | \$ 1,980,702 |
| 2009 | \$ 1,972,216 |
| 2010 | \$ 1,374,754 |
| 2011 | \$ 550,324 |
| 2012 | \$ 835,766 |
| 2013 | \$ 310,321 |
| 2014 | \$ 803,621 |
| 2015 | \$ 627,131 |
| 2016 | \$ 670,404 |
| 2017 | \$ 1,280,969 |
| 2018 | \$ 279,783 |
| 2019 | \$ 675,406 |
| 2020 | \$ 289,418 |
| 2021 | \$ 483,889 |
| 2022 | \$ 265,959 |
| 2023 through October 31 | \$ 529,990 |
| Total: | \$ 17,338,934 |

Source: BNY Mellon, ISS, NHRS, Northern Trust

FY 2024 Action Plan Summary

| ACTION | PM | DATE | STATUS/COMMENTS |
|---|-------------|----------|--|
| 1. Assure compliance with all relevant statutory and regulatory requirements. | CIO/IIC/BOT | 06/30/24 | No exceptions have been identified. |
| 2. Complete Private Debt/Equity Work Plan for Calendar Year (CY) 2024. | CIO/IIC | 12/31/23 | |
| 3. Complete Real Estate Work Plan for CY 2024. | CIO/IIC | 12/31/23 | |
| 4. Maintain investment expenses within budget. | CIO/IIC | 06/30/24 | Investment expenses are within budget. |
| 5. Implement rebalancing as necessary to address deviations from policy targets. | CIO/IIC/BOT | 06/30/24 | |
| 9. Complete a review of the Strategic Asset Allocation and, if necessary, recommend an update to the Strategic Asset Allocation policy. | CIO/IIC/BOT | 12/31/23 | Completed in December 2023. |
| 7. Identify, enroll, and complete a professional development program for the Investment team. | CIO | 12/31/23 | Completed in September 2023. |
| 8. Conduct an internal review of the NHRS total plan portfolio. | CIO/IIC | 03/31/24 | On hold – Staff is deciding on pursuing either a build or buy solution for NHRS total plan data. |
| 9. Complete a five-year Strategic Plan for the Investments division at NHRS for approval by the IIC and the BOT. | CIO/IIC/BOT | 12/31/23 | In process. |



To: Board of Trustees
From: Rosamond Cain, Director of Human Resources
Date: November 29, 2023
Re: HR Operating Report
Item: Action: Discussion: Informational:

Significant Developments and Priority Issues

- NHRS is currently recruiting for one staff opening: an Employer Reporting Specialist. The Executive Assistant and the Investment Officer will start working at NHRS on 12/4 and 12/11, respectively.
- We are using ADP to produce the 1095-C forms (individual forms showing NHRS provides affordable health insurance). These were previously done manually.
- HR is currently reviewing the NHRS Handbook and if any updates are needed, the Board will be informed.

Current Month Highlights

- HR met all four KPMs last month.
- HR is working on calendar year end payroll tasks, including reviewing W-2s and taxation questions.

Upcoming Plans & Projects

- We are continuing to evaluate our new staff training process. All training manuals will need to be updated to reflect processing in PGV3. This project is expected to begin in January 2025.
- Managers' leadership coaching will resume in January for five of our middle managers.
- HR is continuing to create an all-staff training plan for the remainder of FY 2024. It has been two years since we have had a full training schedule. We are planning two all-staff training sessions in the spring of 2024. One will be on communication and a second will focus on biases.
- The 2024 succession planning has been postponed from September 2023 to February 2024 in consideration of the PGV3 implementation.

FY 2024 Action Plan Summary

| ACTION | PM | DATE | STATUS/COMMENTS |
|---|-------------------|-------------|---|
| 1. Plan, schedule, and present two trainings for our staff annual training plan. | RC/ED/ET/MT | 6/30/2024 | In process. |
| 2. Maintain a management development program for middle managers and staff identified as possible managers. | RC/ED/ET/MT | 6/30/2024 | In process. Currently, have five staff members pursuing a degree and we are working with five managers on their leadership development plans. |
| 3. Create, implement, and maintain electronic onboarding utilizing the ADP software. | RC/Janet G. | 6/30/2024 | Completed - November 2023. |
| 4. Assist in monitoring and maintaining PGV3 staffing levels to keep the project on time and budget. | RC/ET/MT | 6/30/2024 | Continuing. |
| 5. Monitor and maintain staffing levels for the NHRS Contact Center. | RC/ED/NC/DH | 6/30/2024 | Continuing. |
| 6. Create, implement, and maintain electronic performance appraisals utilizing the ADP software. | RC/MT | 6/30/2024 | This project started as of 9/15/2023. |
| 7. Ensure compliance with all federal, state and CBA rules and regulations. | RC/Janet G./Legal | 6/30/2024 | Continuing. |
| 8. HR Tech. to identify and enroll in a professional development program. | Janet G./RFC | 12/31/2023 | In process. |
| 9. HR Mgr. to identify, enroll in, and complete a professional development program. | RFC/ED | 12/31/2023 | In process. |

**New Hampshire Retirement System
Board Meeting**

Consent Agenda

Tuesday, December 12, 2023

Disability Application Recommendations

1. P.B. Grant accidental disability retirement (ADR) to this group II member who worked for a political subdivision and has 16 years and 9 months of creditable service, based on medical evidence that supports his claim for permanent incapacity from his work duties due to a medical condition.
2. C.F. Grant accidental disability retirement (ADR) to this group I member who worked for a political subdivision and has 18 years and 6 months of creditable service, based on medical evidence that supports her claim for permanent incapacity from her work duties due to a medical condition.
3. L.G. Grant ordinary disability retirement (ODR) to this group I member who worked for the State of New Hampshire and has 29 years and 6 months of creditable service, based on medical evidence that supports her claim for permanent incapacity from her work duties due to a medical condition.
4. E.G. Grant ordinary disability retirement (ODR) to this group I member who worked for the State of New Hampshire Retirement System and has 30 years and 4 months of creditable service, based on medical evidence that supports his claim for permanent incapacity from his work duties due to a medical condition.
5. M.G. Grant accidental disability retirement (ADR) to this group I member who worked for a political subdivision and has 19 years and 9 months of creditable service, based on medical evidence that supports his claim for permanent incapacity from his work duties due to a medical condition.
6. D.N. Grant accidental disability retirement (ADR) to this group II member who worked for a political subdivision and has 16 years and 9 months of creditable service, based on medical evidence that supports his claim for permanent incapacity from his work duties due to a medical condition.

Trustee Travel

No Travel Requests Submitted



To: NHRS Board of Trustees
From: Jan Goodwin, Executive Director
Date: November 30, 2023
Re: November 14, 2023 - Action Items
Item: Action: Discussion: Informational:

1. Provide long-term fixed income information. RL
Action: Completed.
2. Place the annual ethics results on the December Board agenda. TC
Action: On the December agenda.
3. Update the approved revisions to the Fraud Policy, Benefits Committee Charter, and Governance Committee Charter. MC
Action: Completed.
4. Implement Board disability decision regarding S.D. MC
Action: Decision letter with appeal rights issued 11/20/23.
5. Present the ACFR and CAIR for Board approval in December. MM/RL
Action: On the December agenda.
6. Implement Board decisions on the Consent Agenda. DC
Action: Completed.

BOARD CHECKPOINT DISCUSSION



New Hampshire Retirement System
54 Regional Drive, Concord, NH 03301
Phone: (603) 410-3500 - Fax: (603) 410-3501
Website: www.nhrs.org - Email: info@nhrs.org

TO: Senator Howard Pearl, Chair, Senate Executive Departments & Administration Committee
Representative Carol McGuire, Chair, House Executive Departments & Administration Committee

FROM: New Hampshire Retirement System Board of Trustees
(Prepared by Jan Goodwin, Executive Director)

RE: Quarterly Report to the General Court – January 1, 2024

Dear Senator Pearl and Representative McGuire:

Pursuant to RSA 100-A:14, VII-a, the Board of Trustees of the New Hampshire Retirement System (NHRS, the retirement system) is submitting this quarterly report to the General Court.

Here is a summary of NHRS activities during the quarter ending December 31, 2023:

- For the Fiscal Year (FY) that ended June 30, 2023, NHRS realized an 8.2% return on investments. The three-year, five-year, 10-year, and 25-year returns for the periods ended June 30, 2023, were 9.6%, 7.1%, 7.9%, and 6.5%, respectively. All returns are net of fees. The retirement system's assumed rate of investment return is 6.75%.
- The FY 2023 NHRS funded ratio – the actuarial value of assets divided by the projected value of future benefits – is xx.x%, up from 65.6% in FY 2022. The retirement system's unaudited net position held in trust was \$11.51 billion, an increase of approximately \$750 million from the prior fiscal year, which stood at \$10.75 billion.
- The multi-year upgrade of the NHRS pension administration system (“PGV3”), which began in January 2019, reached a major milestone this quarter with the transition to the new system in late November.
- Xx LSRs related to the retirement system have been introduced, xx in the House and xx in the Senate.
- NHRS was recognized by the Government Finance Officers Association for excellence in financial reporting for its 2022 Annual Comprehensive Financial Report (ACFR).

In addition to this cover letter, the report contains:

- An executive summary of NHRS Board and staff activity from October through December.
- The minutes of the following Board meetings: October 12, 2023; November 14, 2023; December 12, 2023 (draft).
- Final FY 2023 investment performance information.
- Investment information on Total Fund through September 30, 2023, which is the most recent quarterly data available.
- Monthly investment information through November 30, 2023, which is the most recent data available.
- Quarterly Investment Compliance Notice to the Legislative Budget Assistant.
- A list of 2023 LSRs as of December 29, 2023, related to the retirement system.

If you have any questions or would like additional information, please do not hesitate to contact me.

Respectfully,

Jan Goodwin
Executive Director

cc: Office of Governor Christopher Sununu

**Executive Summary of
New Hampshire Retirement System (NHRS)
Board of Trustees Meetings**

October 10, 2023, to December 12, 2023

At the October 10, 2023, regular monthly meeting of the NHRS Board of Trustees, the Board was briefed on the start of parallel processing on October 9, a major milestone in the retirement system's multi-year pension administration system upgrade project (PGV3), which is replacing the current decades-old system (PGV2).

Executive Director Jan Goodwin explained that prior to parallel, NHRS was operating in a 10-day blackout period – which prevented staff from using PGV2 or PGV3, and blocked employers from using the Data Reporting System (DRS) to report to NHRS – while LRS converted 378 million records from PGV2 into PGV3.

Representatives from Callan, the retirement system's investment consultant, presented their long-term capital market assumptions to the Board. This presentation was part of an assessment of NHRS's strategic asset allocation review, which will be presented to the Board at a future meeting.

The Board received an update from NHRS legal staff on the Private Letter Ruling (PLR) request to the IRS pertaining to 2021 legislation regarding the medical subsidy payment process. The IRS declined to make a ruling on the matter after months of inquiries and NHRS providing requested information. As a result, there will be no change to the current order of the medical subsidy payment process without further legislation. NHRS will notify the state that there was no ruling.

Deputy Director and Chief Legal Counsel Tim Crutchfield discussed the possible delegation of the Consent Agenda for approved disability applications to the Benefits Committee to accommodate the Board's new bi-monthly meeting schedule starting in 2024. He conveyed that the legal department had reviewed the statute and consulted with Groom Law, the NHRS outside fiduciary and tax counsel, on what actions are permissible for the Board relative to delegating duties to subcommittees. Groom Law confirmed that the Board has the authority to delegate pursuant to its general powers of administration under RSA 100-A:14.

At the November 14, 2023, regular monthly meeting, the Board received final investment performance data as of June 30, 2023. The total fund net return for Fiscal Year (FY) 2023 was 8.2%. The three-year, five-year, 10-year, and 25-year returns for the periods ended June 30, 2023, were 9.6%, 7.1%, 7.9%, and 6.5%, respectively. All returns are net of fees. The retirement system's assumed rate of investment return is 6.75%.

Representatives from GRS, the retirement system's consulting actuary, presented a comprehensive overview of GRS, its actuarial process specific to the NHRS benefit plan, a new reporting requirement under the Actuarial Standards of Practice which will be included in the next actuarial valuation.

Attorney David Levine of Groom Law Group, the retirement system's external fiduciary counsel, presented an overview of Trustees' fiduciary duties. Attorney Levine explained the retirement system's legal requirements, the fiduciary framework, and discussed current events.

The Board voted to accept the recommendation of the Governance Committee to approve the revisions to the Benefits Committee Charter authorizing the delegation of initial disability applications to the Benefits Committee, as presented, with Trustee Ken Merrifield opposing.

At the December 12, 2023, regular monthly meeting the Board, ... TBD

Additional details regarding actions and discussions of the NHRS Board of Trustees may be found in the archive of meeting minutes posted on www.nhrs.org. The direct link to this page is: <https://www.nhrs.org/about-nhrs/board-of-trustees/meeting-minutes>

CY 2023 BOARD ACTION CALENDAR

JANUARY

| Date | Board Action Item | Requirement | Responsible Party |
|---------|---|---------------|------------------------|
| 1/10/23 | Annual IIC Private Equity/Debt update to the Board | Best Practice | IIC |
| 1/10/23 | Report on Status of Statement of Financial Interests due to Secretary of State (Due Annually – 3 rd Friday in January) | RSA 15-A | Trustees & IIC Members |
| 1/10/23 | Annual Governance Manual revisions | Best Practice | Board of Trustees |
| 1/10/23 | Fiduciary Insurance Renewal | Best Practice | Board of Trustees |

FEBRUARY

| Date | Board Action Item | Requirement | Responsible Party |
|----------|---|---------------|-------------------|
| 2/14 /23 | Board and Audit Committee approval of FY21 GASB 68/75 Reports | Best Practice | Board of Trustees |
| 2/14 /23 | Trustee Education | Best Practice | |

MARCH

| Date | Board Action Item | Requirement | Responsible Party |
|---------|---|----------------------|-------------------|
| 3/14/23 | Quarterly IIC report to the Board | RSA 100-A:15,II-a(c) | IIC |
| 3/14/23 | Quarterly report to chairpersons of House & Senate ED&A Committees describing recent Board actions including any changes to actuarial assumptions and investment returns. Due 4/1/23. | RSA 100-A:14, VII-a | Board of Trustees |

APRIL

| Date | Board Action Item | Requirement | Responsible Party |
|---------|---------------------------------|---------------|-------------------|
| 4/11/23 | No compliance items this month. | | |
| 4/11/23 | Trustee education | Best Practice | |

MAY

| Date | Board Action Item | Requirement | Responsible Party |
|--------|--|---------------|-------------------|
| 5/9/23 | Review annual Trust Fund Budget (non-statutory portion). | Best Practice | Board of Trustees |

JUNE

| Date | Board Action Item | Requirement | Responsible Party |
|---------|--|-----------------------|-------------------|
| 6/13/23 | Approve annual Trust Fund Budget (non-statutory portion). | Best Practice | Board of Trustees |
| 6/13/23 | Quarterly IIC report to the Board | RSA 100-A:15, II-a(c) | IIC |
| 6/13/23 | Approve the Strategic Plan. | Best Practice | Board of Trustees |
| 6/13/23 | Quarterly report to chairpersons of House & Senate ED&A Committees, describing recent Board actions including any changes to actuarial assumptions and investment returns. Due 7/1/23. | RSA 100-A:14, VII-a | Board of Trustees |

JULY

| Date | Board Action Items | Requirement | Responsible Party |
|-------------|--|--------------------|--------------------------|
| 7/11/23 | Annual IIC Real Estate update to the Board | Best Practice | IIC |

AUGUST

| Date | Board Action Items | Requirement | Responsible Party |
|-------------|---------------------------------|--------------------|--------------------------|
| 8/8/23 | No compliance items this month. | RSA 100-A:14, XIII | Board of Trustees |

SEPTEMBER

| Date | Board Action Items | Requirement | Responsible Party |
|-------------|---|---------------------|-----------------------------|
| 9/12/23 | Review charters for Board Committees. | Governance Manual | Appropriate Board Committee |
| 9/12/23 | Annual Independent Medical Examiner (IME) Review | IME Policy | Board of Trustees |
| 9/12/23 | Set Board of Trustees meeting schedule for next calendar year. | Governance Manual | Board of Trustees |
| 9/12/23 | Annual Board Fiduciary Education | Best Practice | Board of Trustees |
| 9/12/23 | Quarterly report to chairpersons of House & Senate ED&A Committees, describing recent Board actions including any changes to actuarial assumptions and investment returns. Due 10/1/23. | RSA 100-A:14, VII-a | Board of Trustees |

OCTOBER

| Date | Board Action Items | Requirement | Responsible Party |
|-------------|---|-----------------------|--------------------------|
| 10/10/23 | Gainful Occupation Report | RSA 100-A:6, III(b) | Board of Trustees |
| 10/10/23 | Office of Foreign Asset Control (OFAC) Compliance Report | Best Practice | Board of Trustees |
| 10/10/23 | Annual Comprehensive Financial Report (ACFR) deadline (within 120 days from 6/30/23). | RSA 100-A:15, VI | Board of Trustees |
| 10/10/23 | Quarterly IIC report to the Board | RSA 100-A:15, II-a(c) | IIC |
| 10/10/23 | Call Firefighter Report | Best Practice | Board of Trustees |

NOVEMBER

| Date | Board Action Items | Requirement | Responsible Party |
|-------------|---|--------------------|--------------------------|
| 11/14/23 | IIC prepares Comprehensive Annual Investment Report (CAIR). | RSA 100-A:15, VII | IIC |

DECEMBER

| Date | Board Action Items | Requirement | Responsible Party |
|-------------|--|---------------------|--------------------------|
| 12/12/23 | Audited ACFR to Audit Committee | RSA 100-A:15, VI(a) | External Auditor |
| 12/12/23 | Audit Committee recommends that the Board approve and accept the audited ACFR. | RSA 100-A:15, VI(a) | Board of Trustees |

| | | | |
|----------|---|----------------------|-------------------|
| 12/12/23 | The IIC recommends that the Board approve and accept the CAIR. | RSA 100-A:15, VII | Board of Trustees |
| 12/12/23 | The IIC recommends that the Board approve and accept the IIC meeting schedule for the next calendar year. | Best Practice | Board of Trustees |
| 12/12/23 | Quarterly report to chairpersons of House & Senate ED&A Committees describing recent Board actions including any changes to actuarial assumptions and investment returns. Due 1/2/23. | RSA 100-A:14, VII-a | Board of Trustees |
| 12/12/23 | Quarterly IIC report to the Board. | RSA 100-A:15,II-a(c) | IIC |
| 12/31/23 | Deadline for issuing member statements for fiscal year ending 6/30/23. | RSA 100-A:14, XI | Board of Trustees |
| 12/31/23 | ACFR and CAIR delivered per statute. | RSA 100-A:15, VI(c) | PIO |

CY 2024 BOARD ACTION CALENDAR**DECEMBER 2023**

| Date | Board Action Item | Requirement | Responsible Party |
|-------------|--|-------------------------|----------------------------|
| 12/12/23 | Approve 2023 Annual Comprehensive Financial Report (ACFR) | RSA 100-A:15, VI | Trustees & Audit Committee |
| 12/12/23 | Recommend Update to the Strategic Asset Allocation | RSA 100-A:15, VII(c)(2) | IIC & Investments |
| 12/12/23 | Statement of Financial Interests due 3 rd Friday in January | RSA 15-A | Trustees & IIC Members |
| 12/12/23 | Annual Ethics Survey Results | Ret. 401 | Legal |

JANUARY 2024 – No Meeting**FEBRUARY**

| Date | Board Action Item | Requirement | Responsible Party |
|-------------|---|-----------------------|--------------------------|
| 2/13/24 | Board and Audit Committee approval of FY23 GASB 68/75 Reports | Best Practice | Board of Trustees |
| 2/13/24 | Annual Governance Manual revisions | Best Practice | Board of Trustees |
| 2/13/24 | Presentation of Capital Markets Assumptions | Best Practice | Investments |
| 2/13/24 | Quarterly IIC Report (Incl Inv. Fees and Sole Interest Statement) | RSA 100-A:15, II-a(c) | IIC |
| 2/13/24 | Trustee Education | Best Practice | ED |
| 2/13/24 | BCP Testing Report | Best Practice | ED |
| 2/13/24 | Initiate Review of Strategic Plan - PAA | Best Practice | Board of Trustees |

MARCH – No Meeting**APRIL**

| Date | Board Action Item | Requirement | Responsible Party |
|-------------|--|---|--------------------------|
| 4/1/24 | Report to chairpersons of House & Senate ED&A Committees describing recent Board actions including any changes to actuarial assumptions and investment returns. Sole Interest Statement Due 4/1/23 | RSA 100-A:14, VII-a & RSA 100-A:15, II-a(c) & VIII(b) | Board of Trustees |
| 4/9/24 | Approve the Strategic Plan | Best Practice | Board of Trustees |

MAY – No Meeting**JUNE**

| Date | Board Action Item | Requirement | Responsible Party |
|-------------|---|-----------------------|--------------------------|
| 6/11/24 | Review and Approve annual Trust Fund Budget (non-statutory portion) | Best Practice | Board of Trustees |
| 6/11/23 | Review and Approve Experience Study and Actuarial Assumptions | RSA 100-A:14, X | Board of Trustees |
| 6/11/24 | Quarterly IIC Report (Incl Inv. Fees) | RSA 100-A:15, II-a(c) | IIC |

JULY – No Meeting**AUGUST**

| Date | Board Action Items | Requirement | Responsible Party |
|-------------|---|--------------------|--------------------------|
| 8/13/24 | Annual IIC Real Estate update to the Board | Best Practice | IIC |
| 8/13/23 | Review and Approve Biennial Administrative Budget | RSA 100-A:14, XIII | Board of Trustees |
| 8/13/24 | Review and Approve Actuarial Valuation and Rate Certification | RSA 100-A:14, X | Board of Trustees |
| 8/13/24 | Office of Foreign Asset Control (OFAC) Compliance Report | Best Practice | Board of Trustees |
| 8/13/24 | Working After Retirement Report | Best Practice | Board of Trustees |

SEPTEMBER – No Meeting**OCTOBER**

| Date | Board Action Items | Requirement | Responsible Party |
|-------------|--|---|-----------------------------|
| 10/1/24 | Quarterly report to chairpersons of House & Senate ED&A Committees, describing recent Board actions including any changes to actuarial assumptions and investment returns. Sole Interest Statement Due 10/1/23 | RSA 100-A:14, VII-a & RSA 100-A:15, II-a(c) & VIII(b) | Board of Trustees |
| 10/8/24 | Gainful Occupation Report | RSA 100-A:6, III(b) | Board of Trustees |
| 10/8/24 | Review charters for Board Committees | Governance Manual | Appropriate Board Committee |
| 10/8/24 | Annual Board Fiduciary Education | Best Practice | Board of Trustees |
| 10/8/23 | Annual Independent Medical Examiner (IME) Review | IME Policy | Board of Trustees |
| 10/8/24 | Set Board of Trustees meeting schedule for next calendar year | Governance Manual | Board of Trustees |
| 10/8/24 | Quarterly IIC Report (Incl Inv. Fees) | RSA 100-A:15, II-a(c) & VIII(b) | IIC |
| 10/8/24 | Call Firefighter Report | Best Practice | Board of Trustees |

NOVEMBER – No Meeting**DECEMBER**

| Date | Board Action Items | Requirement | Responsible Party |
|-------------|--|------------------------------------|--------------------------|
| 12/10/24 | Audited ACFR to Audit Committee and Board for approval | RSA 100-A:15, VI(a) | External Auditor |
| 12/10/24 | Audit Committee recommends that the Board approve the audited ACFR | RSA 100-A:15, VI(a) | Board of Trustees |
| 12/10/24 | RSA 15-A Statement of Financial Interests Reminder – due 3 rd Fri. in Jan | RSA 15-A | Board of Trustees |
| 12/10/24 | The IIC recommends that the Board approve the CAIR | RSA 100-A:15, VII | Board of Trustees |
| 12/10/24 | Present annual ethics survey results | Ret. 401 | Legal |
| 12/10/24 | Quarterly IIC Report (Incl Inv. Fees) | RSA 100-A:15, II-a(c) & VIII(b) | IIC |
| 12/31/24 | Deadline for issuing member statements for fiscal year ending 6/30/24 | RSA 100-A:14, XI | Board of Trustees |
| 12/31/24 | ACFR and CAIR delivered per statute | RSA 100-A:15, VI(c) | PIO |

**NHRS Board of Trustees
Committee Membership List
as of June 2023**

| Committee | Audit | Benefits | Governance | Legislative | PPCC | Investment |
|----------------------|-------------------|--------------------------------------|---------------------|--------------------|---------------|-------------------|
| Staff Liaison | Heather Hoffacker | Timothy Crutchfield/ Nancy Miller | Timothy Crutchfield | Marty Karlon | Rosamond Cain | Raynald Leveque |
| Frederick, Jon | | X | X | X | | |
| Hannan, Sue | | | | X | X-Ch | |
| Henry, Jason | X | X | | | | |
| Kelliher, Maureen | X | | | | | X-Ch |
| Lesko, Tim | X | | | | X | |
| Maloney, Robert | | | X | | X | |
| Martineau, Andrew | | X | | X | | |
| Martins, Germano | X | X-Ch | | | | |
| Merrifield, Ken | | | | X-Ch | X | |
| Mezzapelle, Monica | X-Ch | | X | | | |
| Provost, Paul | | | X | | | X |
| Quigley, Joshua | | | | X | X | |
| Roy, Donald | | X | X-Ch | | | |
| TOTAL MEMBERS | 5/5 | 5/5 | 5/5 | 5/5 | 5/5 | 2/6* |

*Per RSA 100-A:14-b, I, the Independent Investment Committee shall consist of not more than 6 members, and up to 2 of whom shall be Trustees.

**New Hampshire Retirement System Board of Trustees
As of June 26, 2023**

Jon Frederick, Jaffrey
September 21, 2022, to September 5, 2025
NH Municipal Association

Sue Ellen Hannan, Derry
July 27, 2018, to July 1, 2021
NH Education Association

Jason M. Henry, Brentwood
May 17, 2023, to July 13, 2025
Association of Counties

Maureen Kelliher, Dover
June 18, 2014, to July 13, 2025
Non-member Trustee

Tim Lesko, Concord
January 24, 2018, to November 30, 2022
Non-member Trustee

Robert Maloney, Holderness
July 27, 2018, to July 13, 2024
Non-member Trustee

Andrew Martineau, Bow
December 18, 2020, to July 1, 2024
NH State Permanent Firemen's Association

Germano Martins, Hooksett
August 18, 2021, to July 1, 2024
State Employees' Association

Kenneth Merrifield, Franklin
March 24, 2021, to July 13, 2025
NH State Employer

Monica Mezzapelle, Concord
January 6, 2021, to January 7, 2025
State Treasurer

Paul Provost, Concord
November 2, 2022, to November 2, 2025
Non-member Trustee

Joshua Quigley, Bedford
October 19, 2022, to July 1, 2024
NH Police Association

Donald M. Roy, Jr., North Hampton
July 13, 2011, to July 13, 2025
NH School Boards Association

**Educational Seminars for Board Members,
as of November 17, 2023**

| Sponsor | Program | Description |
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| <p>(IFEBP) Int'l Foundation of Employee Benefit Plans www.ifebp.org</p> | <p>Trustees Institute Level I Core Concepts February 12-14, 2024 Orlando, FL</p> <p>Trustees Institute Level II Concepts in Practice February 10-11, 2024 Orlando, FL * (Occurs prior to Advanced Trustees & Administrators Institute)</p> <p>Advanced Trustees & Administrators Institute February 12-14, 2024 Orlando, FL</p> <p>Certificate of Achievement in Public Plan Policy (CAPP) Pensions Part I and II* July 30 – August 2, 2024 Boston, MA</p> | <ul style="list-style-type: none"> ▪ Ideal for new Trustees to learn fiduciary responsibilities, and the technical aspects of serving as a Trustee. ▪ Topics include Trustee responsibility and legal environment, retirement plans, investing health and welfare pension assets, and governance. ▪ Ideal for plan professionals, and for Trustees who've served 3 to 5 years and completed Level I: Core Concepts. ▪ Learn from industry experts on current events and reform initiatives. ▪ Network with peers facing similar challenges – share best practices, ideas, and solutions. ▪ Gain insight and garner resource materials to share with colleagues. ▪ Ideal for Trustees and plan administrators who've served two or more years. Seek to network and learn about the latest industry issues/trends, attend sessions that cover such topics as emerging benefit trends, legal and regulatory update, crisis management, artificial intelligence (AI), and cybersecurity. ▪ For all-level Trustees. ▪ Pension-related topics include actuarial principles, fiduciary responsibility, governance, legal, |

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| | <p><i>*(Completion of Part I <u>and</u> Part II, along with a take-home exam, are required to earn a CAPP in pensions.)</i></p> | <p>legislative, & regulatory developments.</p> <ul style="list-style-type: none"> ▪ Gain comprehensive knowledge of public employee plan management and learn targeted information to aid in policy-making decisions. |
| <p>(NASRA) National Association of State Retirement Administrators www.nasra.org</p> | <p>NASRA Winter Meeting February 24-26, 2024 Washington, DC</p> | <ul style="list-style-type: none"> ▪ Primarily for Executive Directors, but some Trustees attend. ▪ Discussions and presentations in the round and an overview of federal legislative and regulatory affairs. |
| <p>(CII) Council of Institutional Investors www.cii.org</p> | <p>CII Spring Conference & 40th Anniversary Celebration March 4-6, 2024 Washington, DC (Registration opens mid-December)</p> | <ul style="list-style-type: none"> ▪ Agenda TBD. |
| <p>(NCPERS) National Conference on Public Employee Retirement Systems www.ncpers.org</p> | <p>2024 NCPERS Accredited Fiduciary (NAF) & Trustee Educational Seminar (TEDS)* May 18-19, 2024 Seattle, WA <i>*(Runs concurrently with the Annual Conference & Exhibition (ACE), and registration opens in January)</i></p> <p>Modules 1 & 2, 3 & 4 <i>**Trustees who wish to earn their NCPERS Accredited Fiduciary (NAF) accreditation take TEDS first.</i></p> <p>2024 Annual Conference & Exhibition (ACE) May 19-22, 2024 Seattle, WA</p> | <ul style="list-style-type: none"> ▪ For Trustees with at least five years of experience. Trustee Education Seminar (TEDS) is a pre-requisite. ▪ Earn continuing education credits. ▪ Strengthen knowledge of pensions and governance. ▪ Topics include investing principles, understanding actuarial science, board policies and fundamental concepts. ▪ Good for new and experienced Trustees, administrators, public pension plan members, staff, local officials, and financial and union officers. ▪ The new Trustees session occurs immediately before the conference. |
| <p>(NCTR) National Council on Teacher Retirement www.nctr.org</p> | <p>NCTR's 24th Annual Trustee Workshop July 21-24, 2024 Berkeley, CA</p> | <ul style="list-style-type: none"> ▪ Good for all Trustees, new and experienced. ▪ Workshop sessions. |

NHRS Abbreviations and Acronyms

BENEFITS

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|--------|---|
| ADR | = Accidental Disability Retirement (job-related) |
| AFC | = Average Final Compensation |
| COB | = Compensation over base pay |
| COLAs | = Cost of Living Adjustments |
| EDD | = Electronic Direct Deposit |
| ESDP | = Extra or Special Duty Pay |
| GI/GII | = Group I (Employee, Teacher) / Group II (Police, Fire) |
| GO | = Gainful Occupation |
| IME | = Independent Medical Examiner/Examination |
| ODR | = Ordinary Disability Retirement (non-job-related) |
| QDRO | = Qualified Domestic Relations Order |
| Tier A | = Members vested prior to 1/1/12 |
| Tier B | = Members in service prior to 7/1/11 but not vested prior to 1/1/12 |
| Tier C | = Members hired on or after 7/1/11 |
| TPS | = Treating Physician's Statement |
| TSA | = Temporary Supplemental Allowance (a one-time retiree payment) |

BUSINESS OPERATIONS/VENDORS

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| APs | = Action Plans |
| DRAPP | = Data Risk Assessment Project Plan |
| GRS | = Gabriel, Roeder, Smith & Co (NHRS actuary) |
| KPMs | = Key Performance Measures |
| LRS | = Levi, Ray and Shoup, Inc. (PensionGold vendor) |

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| PM | = Plante Moran (NHRS external auditor) |
| PPM | = Policy and Procedure Manager (database software system for NHRS policies/procedures) |
| PIP | = Process Improvement Program |

GENERAL

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| ACFR | = Annual Comprehensive Financial Report |
| AU | = Audit |
| BOT | = Board of Trustees |
| CAIR | = Comprehensive Annual Investment Report |
| EE | = Employee |
| ER | = Employer |
| FA | = Facilities |
| HB 2 | = House Bill 2 (2011 version, which made major changes to NHRS benefits) |
| IIC | = Independent Investment Committee |
| JLMC | = Joint Loss Management Committee (a.k.a. Safety Committee) |
| MS | = Member Services |
| NHRS | = New Hampshire Retirement System |
| OPEB | = Other Post-Employment Benefits (i.e. Medical Subsidy) |
| PIO | = Public Information Office(r) |
| PPCC | = Personnel, Performance and Compensation Committee |
| P. Sub (or "subs") | = Political Subdivision (i.e. any NHRS employer other than the state) |
| RTK | = Right to Know request |
| SAU | = School Administrative Unit |
| SD | = School District |
| UAAL | = Unfunded Actuarial Accrued Liability |

IT

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| CO-LO | = Co-location site for backup servers |
| DRS | = NHRS Data Reporting System (employer portal) |
| PG | = Pension Gold (current pension application from LRS) |
| PGV3 | = Pension Gold Version 3 project |

LEGISLATIVE

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| ED&A | = House (or Senate) Executive Departments and Administration Committee |
| HB | = House Bill |
| ITL | = Inexpedient to Legislate |
| JLCAR | = Joint Legislative Committee on Administrative Rules |
| LOB | = Legislative Office Building |
| LSR | = Legislative Services Request (a request to draft a bill) |
| OTP | = Ought to Pass |
| SB | = Senate Bill |
| SH | = State House |
| VV | = Voice Vote |

OTHER

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|-------|---|
| BCCRR | = Boston College Center for Retirement Research |
| COB | = Close of Business |
| EOB | = End of Business |
| GASB | = Governmental Accounting Standards Board |
| G&C | = Governor & Executive Council |
| JRP | = Judicial Retirement Plan (not affiliated with NHRS) |

NASRA = National Association of State Retirement Administrators
NCPERS = National Council on Public Employee Retirement Systems
NCTR = National Council on Teachers Retirement
NIRS = National Institute for Retirement Security