

Board Packet List of Documents

Board of Trustees Meeting
September 8, 2025

- Meeting Agenda
- New Business
 - 1.1 Three-Year Actuarial Experience Study Summary
 - 1.1.1 Three-Year Actuarial Experience Study (Draft)
 - 1.2 Funding Policy Including Amortization Reserve Funding
 - 1.3 Presentation of Financial Audit of ERS Year Ending June 30, 2024, by KKDLY LLC
 - 1.3.1 Financial Statements and Supplementary Information
 - 1.3.2 Schedule of Employer Allocations and Schedule of Pension Amounts by Employer
 - 1.3.3 ERS Management Letter
 - 1.3.4 2024 Communications Letter
 - 2.1 Proposed Employer Contribution Rate Increase from the 2025 Experience Study
- APPROVAL OF MINUTES – July 14, 2025

Board Packet Documents are available for public for inspection on the Employees' Retirement System's Website: <https://ers.ehawaii.gov/board-and-committee-agendas-and-meeting-packets>; and in the Employees' Retirement System's Office, 201 Merchant Street, Suite 1400, Honolulu, HI 96813

NOTICE OF REGULAR MEETING

AGENCY: Board of Trustees of the Employees' Retirement System of the State of Hawaii
DATE: Monday, September 8, 2025; 7:00 a.m.
PLACE: City Financial Tower, 201 Merchant Street, Suite 1200, Honolulu, Hawaii 96813

The meeting will be conducted pursuant to HRS §92-3.7, under which Members of the Board of Trustees may participate via interactive conference technology; and members of the public may also participate via interactive conference technology or in person at the meeting place stated above.

Members of the public may also attend the meeting and provide testimony in person or by teleconference, either audio or video, at the following link or phone number:

https://teams.microsoft.com/l/meetup-join/19%3ameeting_YWFlNjI0NGMtNTA1My00YmM2LWEzYmEtNmJiYmU1MWIxODFi%40thread.v2/0?context=%7b%22Tid%22%3a%223847dec6-63b2-43f9-a6d0-58a40aaa1a10%22%2c%22Oid%22%3a%22e8f0b873-923c-44ce-9dd5-b951be2213c6%22%7d

Or join by entering meeting ID: 242 321 292 440 5 Passcode: Tw3ga6Lp

Individuals testifying at the meeting are requested to limit their testimony to three (3) minutes or an amount of time otherwise designated by the Chairperson.

Or +1 808-829-4853 United States, Honolulu (Toll)
Conference ID: 829 209 353#

In the event audiovisual communication cannot be maintained with participating Trustees and quorum is lost, the meeting shall be automatically recessed for up to 30 minutes, during which time, an attempt to restore audiovisual communication will be made. If such attempt is unsuccessful, all Trustees, members of the public, staff and other interested individuals may continue to participate in the meeting via telephone using the above-listed telephone and conference ID numbers, whereby audio-only communication will be established for all participants and the meeting will continue. If reconvening the meeting is not possible because neither audiovisual nor audio-only communication can be re-established, the meeting will be terminated.

AGENDA

QUORUM/CALL TO ORDER

PUBLIC COMMENT

Members of the public may submit written testimony on these agenda items via e-mail or postal mail with receipt recommended by 4:30 p.m. on Friday, September 5, 2025, in order to ensure it is distributed in time for consideration. Please address written testimony if by e-mail to: dale.kanae@hawaii.gov or by postal mail to: Employees' Retirement System of the State of Hawaii, Board of Trustees, 201 Merchant Street, Suite 1400, Honolulu, HI 96813.

EXECUTIVE SESSION

1. Executive Session, pursuant to HRS§ 92-5(a)(2), and (4), to consider the hiring of a new ERS Executive Director, where consideration of matters affecting privacy will be involved, and to consult with the Board's attorneys on questions and issues pertaining to the Committee's powers, duties, privileges, immunities, and liabilities; appropriate action.
2. Executive Session, pursuant to HRS §92-5(a)(4) and (8), to consider information that must be kept confidential pursuant to State law, and to consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities with respect to a proposed correction pursuant to HRS §88-106 and appropriate action.
3. Executive Session, pursuant to HRS §92-5(a)(8), to Review and Approve Executive Session Minutes of July 14, 2025.

4. Executive Session, pursuant to HRS §92-5(a)(8), to Review and Approve the Confidential Executive Session Minutes of July 14, 2025.

NEW BUSINESS

1. Report of Activity by the Administrative & Audit Committee.
 - 1.1. Three-Year Actuarial Experience Study Results Including Preliminary Impact on the 2025 Annual Actuarial Valuation Report by Gabriel Roeder Smith & Company for the Year Ending June 30, 2024.
 - 1.2. Discuss Funding Policy Including Amortization Reserve Funding by Gabriel Roeder Smith & Company.
 - 1.3. Draft Auditor's Report and Financial Statements of the Employees' Retirement System by KKDLY LLC.
2. Report of Activity by Legislative Committee.
 - 2.1. Discuss Potential Employees' Retirement System (ERS) Legislative Proposals for the 2026 Legislative Session.
 - 2.1.1. Proposed Employer Contribution Rate Increase for the Police Officer's, Firefighter's, and Corrections Officer's Group of the ERS to Address Exceeding the Maximum Funding Period as Preliminarily Projected in the Actuarial Valuation Report by Gabriel Roeder Smith & Company for the Year Ending June 30, 2025.
 - 2.1.2. Proposed Exemption of the ERS Deputy Executive Director and ERS Chief Compliance Officer Positions from Civil Service.
3. Report of Activity by Human Resources Committee.
 - 3.1. Employees' Retirement System (ERS) Executive Director Search and Recruitment Update.

Pursuant to HRS §92-5(a)(4), the Board of Trustees may enter into Executive Session to consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities with respect to these matters.

APPROVAL OF MINUTES – July 14, 2025

ADJOURNMENT

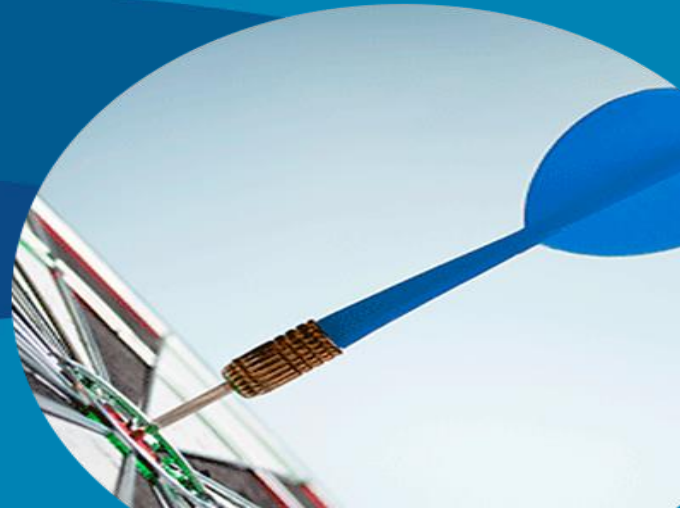
If you require auxiliary aid/service or other accommodation due to a disability, please contact Dale Kehau Kanae at (808) 586-1706 or dale.kanae@hawaii.gov as soon as possible, preferably by Wednesday, September 3, 2025, and the ERS will try to obtain the auxiliary aid/service or accommodation, but cannot guarantee that the request can be fulfilled.

Upon request, this notice can be made available in large print.



Employees' Retirement System of the State of Hawaii

2025 Experience Study Summary



The role of Actuarial Valuations and Assumptions

- The **primary** purpose of each year's actuarial valuation is to assess the appropriateness of the current contribution levels
 - For ERS, the funding policy is a fixed contribution rate from members and employers set in Statute
- The valuation process helps us set expectations for stakeholders, allows a framework for decision making and budgeting, and track trends over time

Assumptions

- The inputs used to derive those assessments are based on estimates of future:
 - benefit payments that will be made from the trust
 - investment earnings that may be available to help finance those benefit payments
 - the expected career of the members, which provides the time-period available to accumulate the assets
- These inputs are “assumptions”
 - Assumption: something that you accept as true without question or proof (Cambridge English Dictionary)
 - To Assume: to take for granted
 - They are not predictions

Experience Study

- Assumptions are not static; they should occasionally change to reflect
 - New information
 - Mortality improvement
 - Changing patterns of retirements, terminations, etc.
 - Changing knowledge and technology
 - Changes in best practices
- An Experience Study is a process to examine the current assumptions
- Statute requires an Experience Study every three years
- General process for setting assumptions and methods
 - Actuary gathers data and performs the analysis
 - Actuary makes recommendations
 - Board considers actuary's recommendations and makes the final decision for the ERS valuations

Types of Assumptions

Category 1	Category 2	Category 3	Category 4
Things you know	High correlation between recent data and future expectations	Less correlation between recent data and future expectations	Educated Guess
Benefit Provisions How contributions are received How service is earned Etc.	Current mortality Employee turnover Retirement patterns Disability incidence	Inflation Wage inflation	Investment Return Future mortality improvement
Potential Risk: NA High impact if wrong	Potential Risk: Low	Potential Risk: Moderate, usually short term	Potential Risk: High



Uncertainty

Generally, the current assumptions are reasonable with only minor tweaks necessary. The exception is increasing the salary increases for Police and Fire late in the members' career.

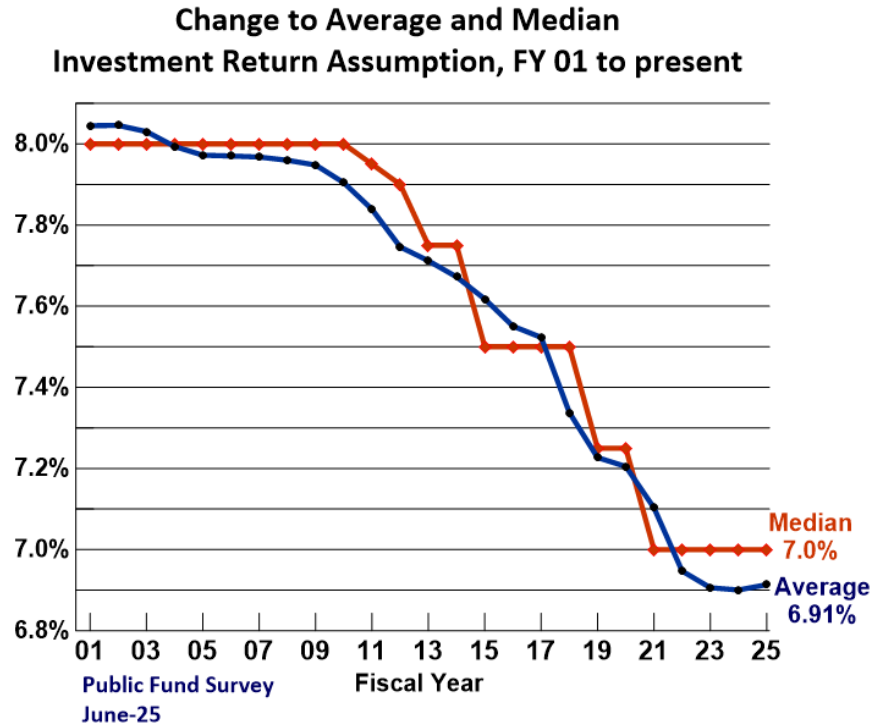
Summary of Recommendations

	Current Assumption	Proposed Assumption	Impact on Funding Period
Investment Return	7.00%	No Change	-
General Inflation	2.50%	No Change	-
Average Career Salary Increase: General Employees	4.66%	4.66%	No Impact
Average Career Salary Increase: Teachers	4.66%	4.76%	Small Increase
Average Career Salary Increase: Police and Fire	5.74%	5.85%	2 year increase
Post-Retirement Mortality (Base Table)	ERS Specific Table, data through 2021	No change	-
Post-Retirement Mortality (Projected Improvement)	Ultimate Scale MP2021 (1.0%-1.35% per year)	No change	-
Patterns of Retirement		PF: Add 2% per year below age 55	1 year increase for PF
Patterns of Termination		Increase rate of Turnover for most years of service	Small Decrease
Patterns of Disability		Small adjustments	No Impact
Sick Leave Conversion		Small adjustment to assumed amount of sick leave converted	No Impact

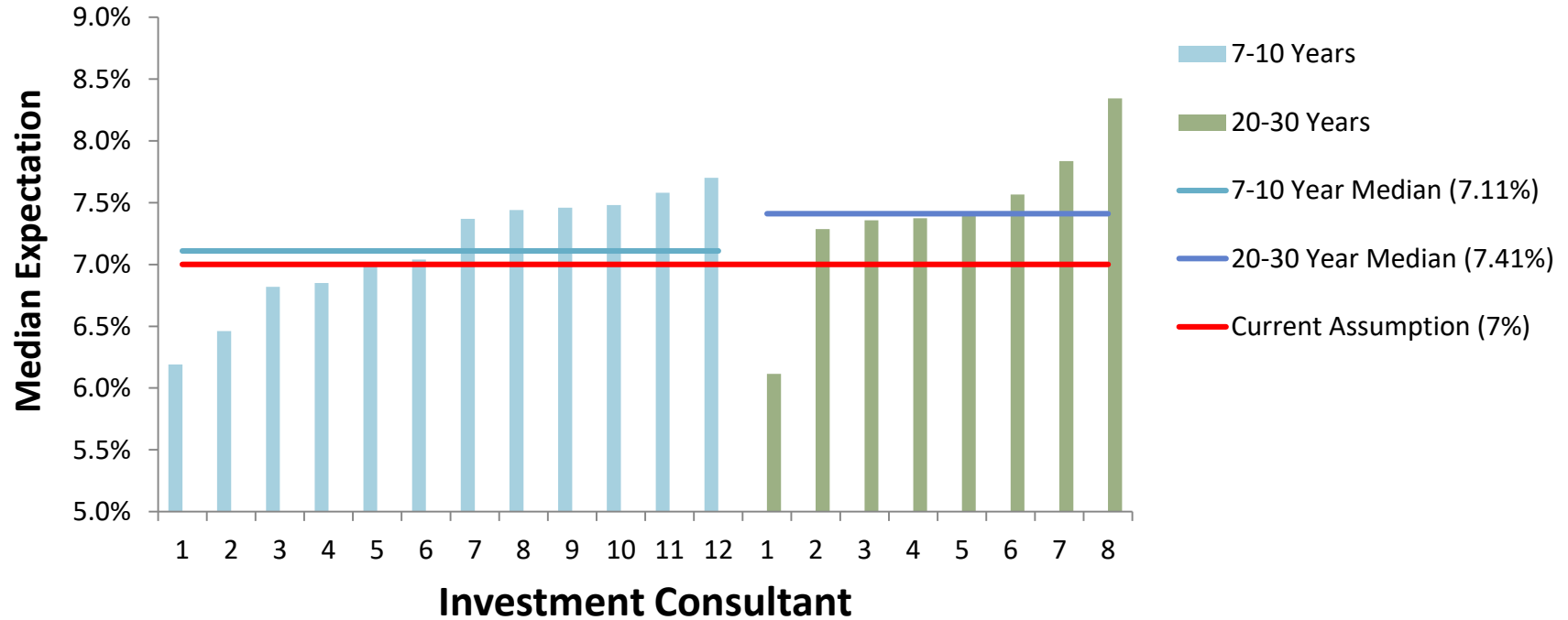
Investment Return Assumption

- Used to discount future benefit payments to determine liabilities
- Currently 7.00%
- Net of investment related fees

Investment Return Assumption – National Trends



GRS Survey mapped onto ERS target portfolio: Distribution of Forward-Looking Returns Expectations



Individual Salary Increases

- Used to project compensation at retirement for individual members to determine:
 - Benefits
 - Compensation during career to collect contributions
- Schedule based on service of the member

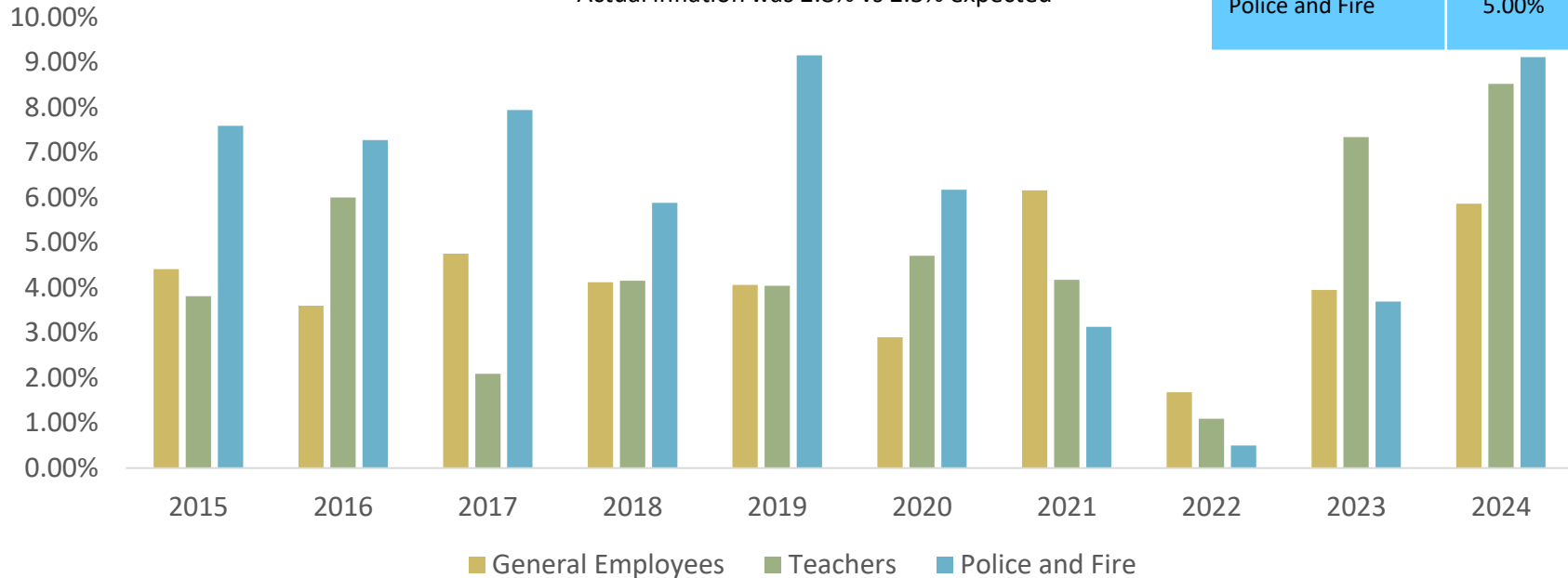
ERS Experience: Long Service Members by Fiscal Year

(Annual Change in Base Pay last 10 years)

Average	Expected	Actual
General Employees	3.50%	3.60%
Teachers	3.75%	4.59%
Police and Fire	5.00%	6.04%

Members with 25 or more years of service

Actual inflation was 2.8% vs 2.5% expected



ERS Experience: Long Service Members by Fiscal Year

(Annual Change in Base Pay Last 20 years)

Average	Expected	Actual
General Employees	3.50%	3.62%
Teachers	3.75%	3.92%
Police and Fire	5.00%	5.48%

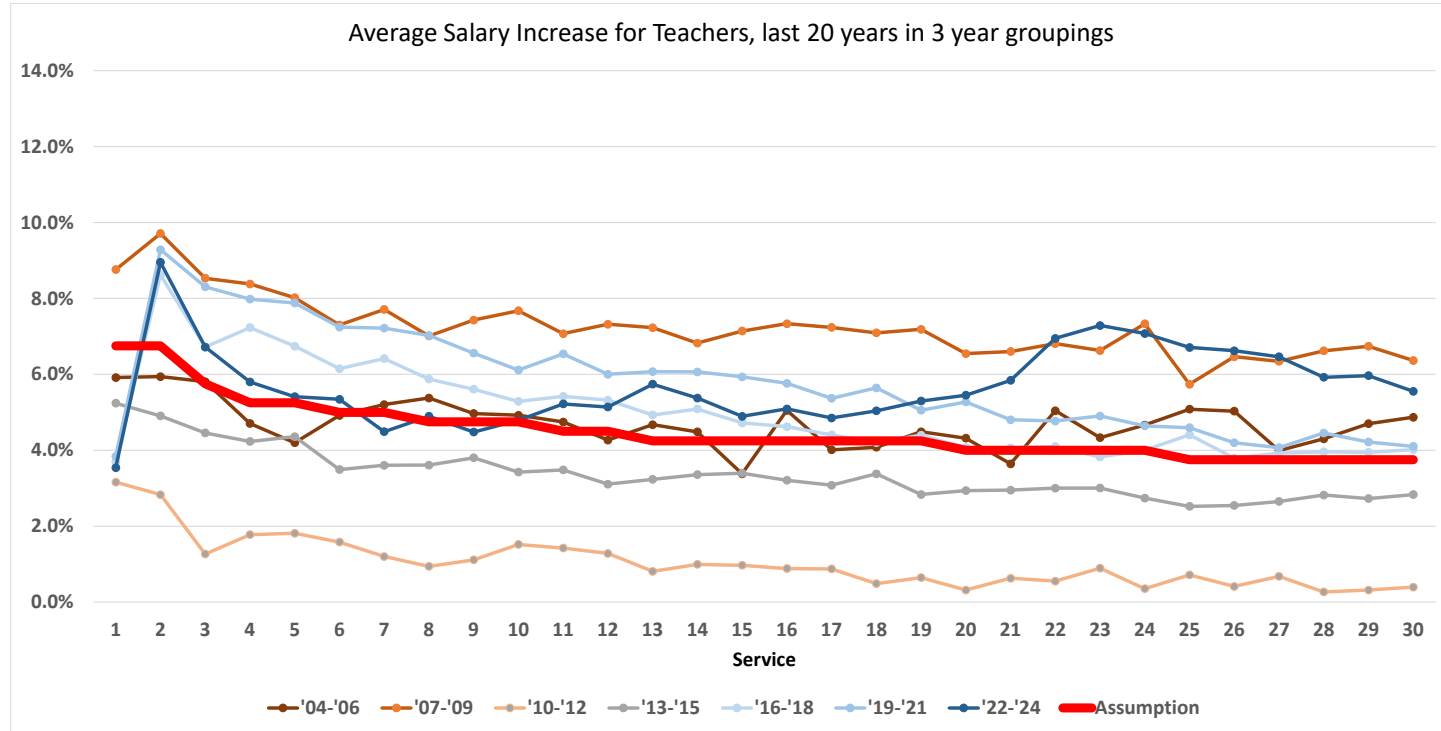
Members with 25 or more years of service

Actual inflation was 2.55% vs 2.50% expected

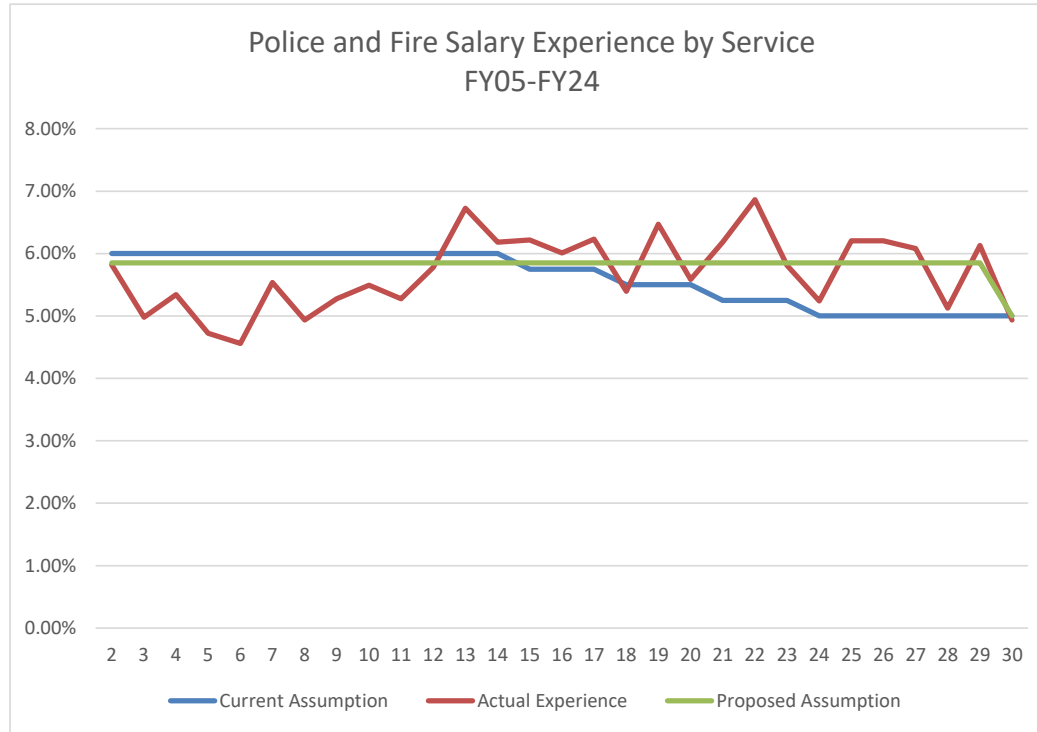


■ Police and Fire

Using more data to see longer cycles, the experience is closer to the assumption



Police and Fire Recommendations: extend the higher assumptions further

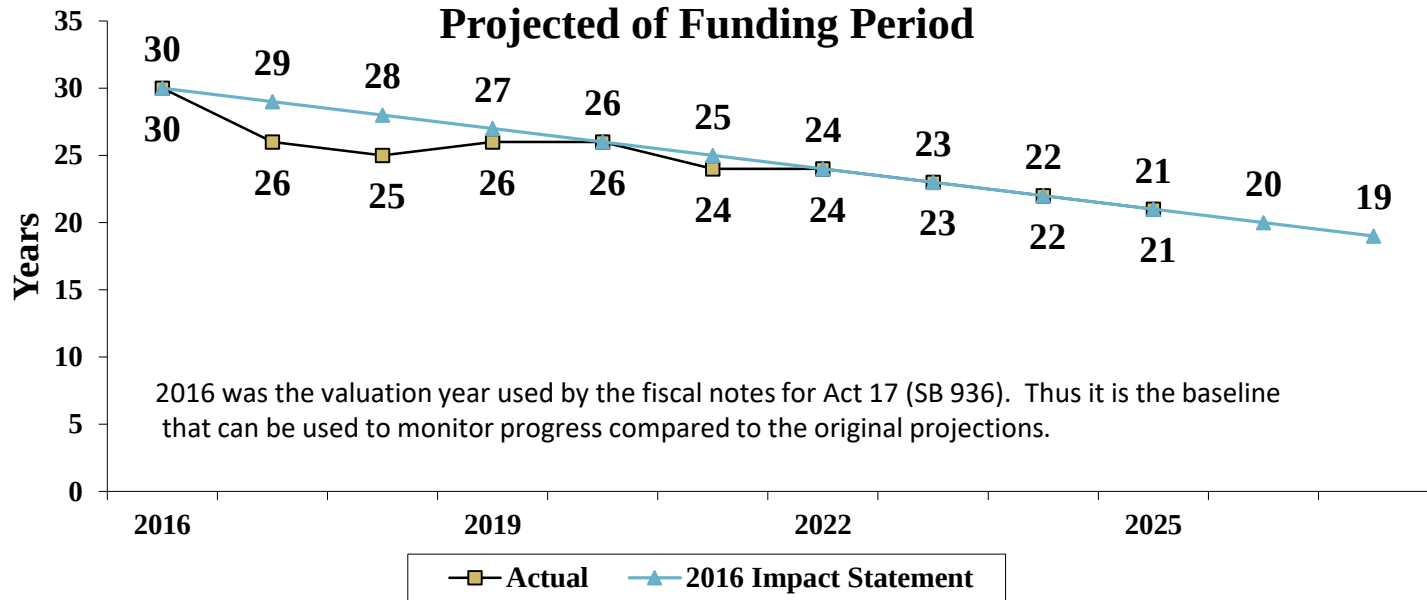


Average Career Increase	25 year career	30 year career
Current Assumption	5.74%	5.62%
Actual	5.84%	5.84%
Proposed	5.85%	5.82%

The impact on Police and Fire is enough to increase the funding period 2 years. The impact on All Other Employees is minimal.

		Projected June 30, 2025 Results	
Item	June 30, 2024 Results	Current Assumptions	Proposed Assumptions
Unfunded Accrued Liability (\$ in billions)	\$14.0	\$14.1	\$14.3
Funded ratio	63.1%	63.9%	63.6%
Funding Period	22 Years	21 Years	21 Years
Police and Fire Employees			
Unfunded Accrued Liability (\$ in billions)	\$2.2	\$2.3	\$2.4
Funding Period	22 years	22 years	24 years
All Other Employees			
Unfunded Accrued Liability (\$ in billions)	\$11.7	\$11.9	\$11.9
Funding Period	22 years	21 years	21 years

The Funding Period in total is projected to continue to be in line with the original impact statement from 2017, but as shown on the previous slide, this is not true for Police and Fire



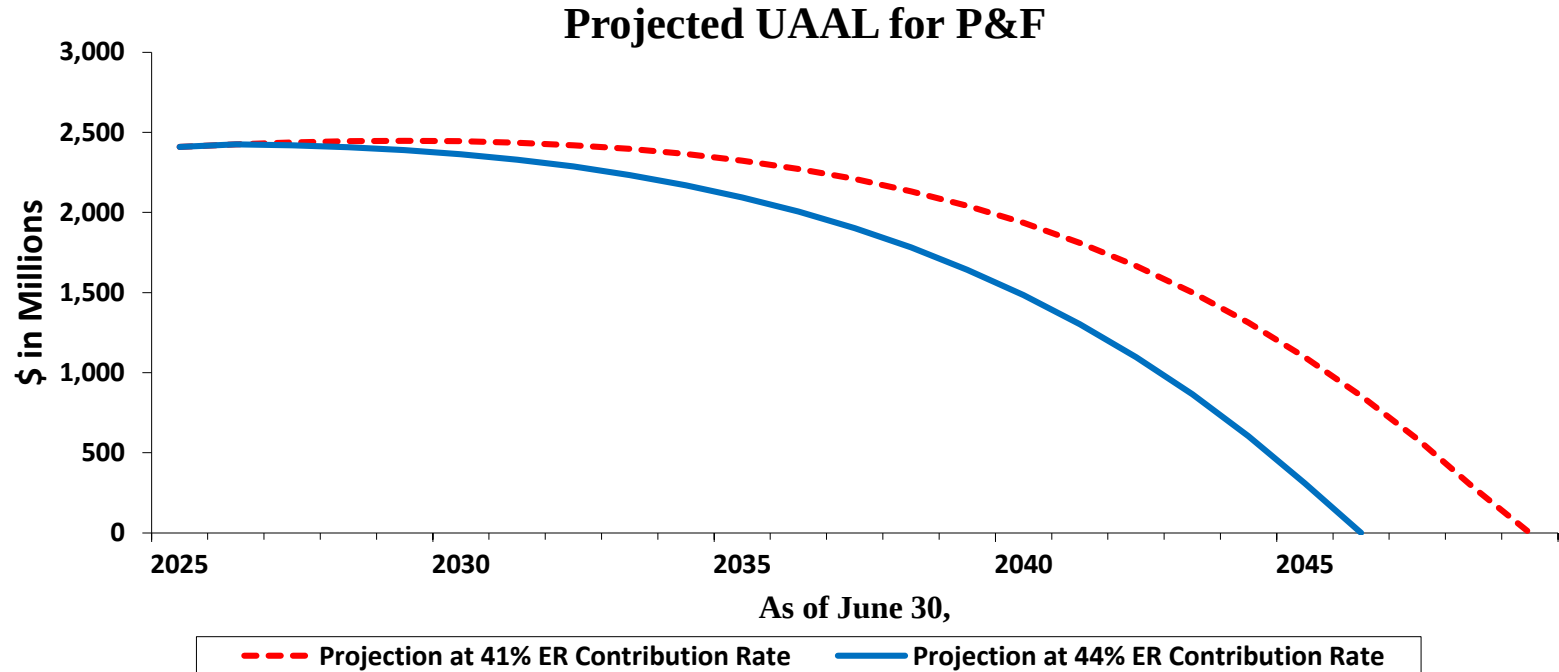
Assumes all assumptions met, including 7.00% return each year on the projected June 30, 2025
smoothed value of assets assuming a 5.5% FY25 market return

Possible changes to P&F contribution rate to bring Funding Period back to 21 years for their group

Scenario	FY27 ER Contribution	FY28 ER Contribution	FY29 ER Contribution	FY30 ER Contribution	Total UAAL contributions over Funding Period
Current (41%)	\$235	\$239	\$244	\$249	\$5,449
3% increase FY27 (44%)	252	257	262	267	4,926
Difference	17	18	18	18	-523
1% incr for 3 years to 44%	241	251	262	267	4,982
Difference (barely 22 years)	6	12	18	18	-524
3% increase FY28 (44%)	235	257	262	267	4,983
Difference (barely 22 years)	0	18	18	18	-466

\$ in millions, current UAAL \$2.4 billion

The difference between a 24 year period and a 21 year period is the difference between expecting positive amortization (UAAL to begin to decrease) in FY27 vs FY30



Assumes all assumptions met, including 7.00% return each year on the projected June 30, 2025 *smoothed* value of assets assuming a 5.5% FY25 market return

Closing Comments

- Consideration be given to increasing the contribution rate for Police and Fire to bring their Funding Period in line with the All Other Employees Group and the path from the original impact statement
 - Either 3% of payroll beginning July 1, 2026 or 1% per year for three years will suffice
- Full Listing of Recommendations in Section II of Experience Study Report
 - Includes Detailed information and Rationale for each assumption
- Approved assumptions to be used in the June 30, 2025 valuation

Disclaimers

- This presentation is intended to be used in conjunction with the 2025 Actuarial Experience Study. This presentation should not be relied on for any purpose other than the purpose described in the report.
- Readers are cautioned to examine original source materials and to consult with subject matter experts before making decisions related to the subject matter of this presentation.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.

Employees' Retirement System of the State of Hawaii

Actuarial Experience Study
for the period ending June 30, 2024

DRAFT





August 5, 2025

Board of Trustees
Employees' Retirement System of
The State of Hawaii
City Financial Tower
201 Merchant St., Ste. 1400
Honolulu, HI 96813-2980

Subject: Results of 2025 Experience Study

We are pleased to present our report on the results of the 2025 Experience Study for the Employees' Retirement System of the State of Hawaii (ERS). It includes our recommendations for new actuarial assumptions to be effective for the June 30, 2025 actuarial valuation, and it describes the actuarial impact produced by these recommendations as though they had been effective for the June 30, 2024 actuarial valuation.

With the Board's approval of the recommendations in this report, we believe the actuarial condition of the System will be more accurately portrayed. The Board's decisions should be based on the appropriateness of each recommendation, not on their effect on the funding period or the unfunded liability.

We wish to thank the ERS staff for their assistance in providing data for this study.

Sincerely,
Gabriel, Roeder, Smith & Company

A handwritten signature in black ink, appearing to read "Joe Newton".

Joseph P. Newton, FSA
Pension Market Leader

A handwritten signature in black ink, appearing to read "Lewis Ward".

Lewis Ward
Consultant

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SECTION I

EXECUTIVE SUMMARY

Executive Summary

In general, the current assumption set portrayed a reasonable estimate of the future liabilities of ERS, and we are recommending only minor changes. The most significant recommendation is the increase in the salary scale assumption for Police and Fire Employees. Our recommended changes to the current actuarial assumptions may be summarized as follows:

Economic Assumptions

- No change to the current nominal investment return assumption of 7.00%. Based on the current capital market assumptions from ERS' investment consultant and the System's target asset allocation, a 7.00% investment return is very close to the median expected geometric return. We have verified this result against a blending of the current capital market assumptions from twelve shorter term and eight longer term independent sources.
- No change to the assumption that administrative expenses will be 0.40% of covered payroll.
- No change to the inflation assumption of 2.50%.
- No change to the general productivity component of the general wage inflation assumption for General Employees and Teachers or 0.50% or the 1.00% for Police and Fire. This yields a nominal wage inflation assumption of 3.00% and 3.50%, respectively. This assumption represents the average increase in wages in the general economy and is used to index salaries for each cohort of new entrants in projections.
- The assumed salary increase schedules include an ultimate component for general wage inflation that may add on additional increases for individual merit (which would include promotions) and then an additional component for step rates based on service. For all three groups, the salary increases over the past decade have been higher than the current assumptions, but that was during a period when actual inflation was higher than the current 2.50% assumption. If inflation is closer to the 2.50% prospectively, it is reasonable to assume that the actual salary increases will be closer to current assumptions. Also, using a longer period of 20 years yields experience much closer to the current assumptions. Thus, we have the following recommendations to the salary increase schedule.
 - No change to the assumption for General Employees.
 - For Teachers, recommend an 0.1% increase for all years.
 - For Police and Fire Employees, the current assumption approximates the average annual salary increase received by the member over their career, from all sources, to be 5.78%. The proposed assumption set would increase that to 5.84%, a small increase. However, the current assumption set includes much higher increases early in the member's career with more modest increases later in the member's career. Based on the last 20 years of experience, the increases appear to be consistent across the entire career. We have recommended a flat 5.85% for the first 30 years and then 5.00% thereafter.

Mortality Assumptions

- For post-retirement mortality, no changes to the base mortality tables or the improvement scale used to project future improvement.
- For pre-retirement mortality, move to the most recent published table for public sector employees (Pub-2016).

Other Demographic Assumptions

- We recommend updating the termination patterns to reflect recent experience. In general, the new tables have slightly higher rates of turnover.
- We recommend small changes to the retirement patterns for all groups based on experience. The most significant change is adding 2% to the annual probability of retirement for Police and Fire members before age 55.
- We recommend minor changes to the disability patterns for members consistent with experience and future expectations.
- For members that become disabled in the future, we will continue to assume 50% of them will choose the 100% joint and survivor annuity option.
- We recommend slight increases to the assumed amount of sick leave converted to service at retirement for Teachers and Police and Fire.

Actuarial Methods and Policies

- We recommend no change to the current process of estimating the valuation payroll for the upcoming fiscal year.
- We recommend no change to the use of a 4-year smoothing technique to determine the actuarial value of assets, used for determining the funding period.
- We recommend no change to the current funding method. The Entry Age Normal cost method (EAN) is the current funding method being used to allocate the actuarial costs of the System. The Entry Age Normal method will generally produce relatively level contribution amounts as a percentage of payroll from year to year, and allocates costs among various generations of taxpayers in a reasonable manner. It is by far the most commonly used actuarial cost method for large public retirement systems.

- **Impact of all recommended changes:**

All values are illustrated based on the valuation as of June 30, 2024.

Item	Current Assumptions	Proposed Assumptions
(1)	(2)	(3)
Total System		
Unfunded Actuarial Accrued Liability (\$ in Millions)	\$14,008	\$14,130
Funded Ratio	63.0%	62.8%
Funding Period	22	22
Police and Fire Only		
Unfunded Actuarial Accrued Liability (\$ in Millions)	\$2,233	\$2,361
Total Normal Cost %	27.12%	27.91%
Funding Period based on current 41% employer contribution rate (years)	22	25
All Other Employees		
Unfunded Actuarial Accrued Liability (\$ in Millions)	\$11,776	\$11,770
Total Normal Cost %	12.93%	12.94%
Funding Period based on current 24% employer contribution rate (years)	22	22

SECTION II

INTRODUCTION

Introduction

A periodic review and selection of the actuarial assumptions is one of many important components of understanding and managing the financial aspects of ERS. Use of outdated or inappropriate assumptions can result in understated costs which will lead to higher future contribution requirements or perhaps an inability to pay benefits when due; or, on the other hand, produce overstated costs which place an unnecessarily large burden on the current generation of members, employers, and taxpayers.

A single set of assumptions is typically not expected to be suitable forever. As the actual experience of the retirement system changes, the assumptions should be reviewed and adjusted accordingly.

It is important to recognize that the impact from various outcomes and the ability to adjust from experience deviating from the assumption are not symmetric. Due to compounding economic forces, legal limitations, and moral obligations, outcomes from underestimating future liabilities are much more difficult to manage than outcomes of overestimates, and that un-symmetric risk should be considered when the assumption set, investment policy and funding policy are created. As such, the assumption set used in the valuation process needs to represent the best estimate of the future experience of the System and be at least as likely, if not more than likely, to overestimate the future liabilities versus underestimate them.

Changes in certain assumptions and methods are suggested upon this comparison to remove any bias that may exist and to perhaps add in a slight margin for future adverse experience where appropriate. Next, the assumption set as a whole was analyzed for consistency and to ensure that the projection of liabilities was reasonable and consistent with historical trends.

The following report provides our recommended changes to the current actuarial assumptions.

Summary of Process

In determining liabilities, contribution rates, and funding periods for retirement plans, actuaries must make assumptions about the future. Among the assumptions that must be made are:

- Retirement rates
- Mortality rates
- Turnover rates
- Disability rates
- Investment return rate
- Salary increase rates
- Inflation rate

For some of these assumptions, such as the mortality rates, recent past experience provides important evidence about the future. For other assumptions, such as the investment return rate, the link between past and future results is much weaker. In either case, though, actuaries should review their assumptions periodically and determine whether these assumptions are consistent with actual past experience and with anticipated future experience.

For this purpose we have reviewed and analyzed ERS's data for the period ending June 30, 2024. We used multiple lengths of time for various assumptions. Sometimes using a 3-6 year period gives too much weight to such short-term effects. Alternatively, sometimes using a longer period would water down real changes that may be occurring, such as mortality improvement or a change in the ages at which members retire.

In an experience study, we first determine the number of deaths, retirements, etc. that occurred during the period. Then we determine the number expected to occur, based on the current actuarial assumptions. Finally we calculate the A/E ratio, where "A" is the actual number (of retirements, for example) and "E" is the expected number. If the current assumptions were "perfect", the A/E ratio would be 100%. When it varies much from this figure, it is a sign that new assumptions may be needed. Of course we not only look at the assumptions as a whole, but we also review how well they fit the actual results by sex, by age, and by service.

Finally, if the data leads the actuary to conclude that new tables are needed, the actuary "graduates" or smoothes the results, since the raw results can be quite uneven from age to age or from service to service.

Please bear in mind that, while the recommended assumption set represents our best estimate, there are other reasonable assumption sets that could be supported. Some reasonable assumption sets would show higher or lower liabilities or costs.

Organization of Report

Section I of this report summarizes our recommended changes. Section III contains our findings and a more detailed analysis of our recommendation for each actuarial assumption. The impact of adopting our recommendations on liabilities and contribution rates is shown in Section IV. Section V shows a summary of the recommended assumptions for the System.

Experience Analysis Exhibits

Throughout Section IV you will see exhibits showing the analysis of the System’s experience. For the most part, the exhibits should generally be self-explanatory. For example, on page 43, we show the exhibit analyzing the police service-based termination rates (liability weighted). The second column shows the total liability of members who terminated during the study period. This excludes members who died, became disabled or retired. Column (3) shows the total liability of those employees “exposed” to the termination assumption. This is the liability of members who could have terminated during any of the years. In this exhibit, the exposures exclude anyone eligible for retirement. A member is counted in each year they could have terminated, so the total shown is the total exposures for the study period. Column (4) shows the probability of termination based on the raw data. That is, it is the result of dividing the actual liability of terminations (col. 2) by the total liability exposed (col. 3). Column (5) shows the current termination rates and column (6) shows the new recommended termination rates. Columns (7) and (8) show the expected liability of terminations based on the current and proposed termination assumptions. Columns (9) and (10) show the Actual-to-Expected ratios under the current and proposed termination assumptions.

SECTION III

ANALYSIS OF EXPERIENCE AND RECOMMENDATIONS

Analysis of Experience and Recommendations

We will begin by discussing the economic assumptions: inflation, the investment return rate, the general wage increase assumption, and the salary increase assumption. Then we will discuss the demographic assumptions: mortality, disability, termination and retirement. Finally, we will discuss the actuarial methods used.

ECONOMIC ASSUMPTIONS

Actuaries are guided by the Actuarial Standards of Practice (ASOP) adopted by the Actuarial Standards Board (ASB). One of these standards is ASOP No. 27, Selection of Economic Assumptions for Measuring Pension Obligations. This standard provides guidance to actuaries giving advice on selecting economic assumptions for measuring obligations under defined benefit plans.

As no one knows what the future holds, it is necessary for an actuary to estimate possible future economic outcomes. Recognizing that there is not one right answer, the current standard calls for an actuary to develop a reasonable economic assumption. A reasonable assumption is one that:

1. Is appropriate for the purpose of the measurement,
2. reflects the actuary's professional judgment,
3. takes into account historical and current economic data that is relevant as of the measurement date,
4. is an estimate of future experience; an observation of market data; or a combination thereof, and
5. has no significant bias except when provisions for adverse deviation or plan provisions that are difficult to measure are included.

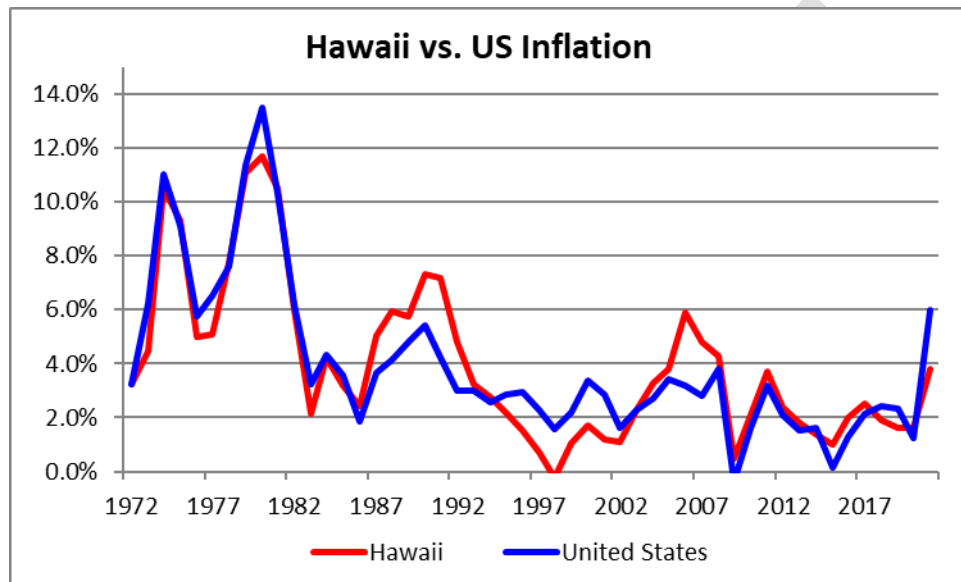
However, the standard explicitly advises an actuary not to give undue weight to recent experience.

Each economic assumption should individually satisfy this standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period. Nevertheless, the economic assumptions are much more subjective in nature than the demographic assumptions, which in itself can still create a difference in opinion among individuals in the actuarial profession and possibly stakeholders of the Retirement Systems.

Inflation Assumption

By "inflation," we mean price inflation as measured by annual increases in the Consumer Price Index (CPI). This inflation assumption underlies most of the other economic assumptions. It impacts investment return, salary increases, and the rate of payroll growth for amortizing the unfunded actuarial accrued liability. The current annual inflation assumption is 2.50%.

However, because Hawaii's economy is separated from the Mainland and may not trend at the same rate, there could be a need for separate inflation assumptions: one underlying the investment return and one underlying the wage increases. We compared the CPI-U over the last fifty years for Honolulu to All-US. The data showed that while for given periods of time of the economic cycle the two rates may differ, over the long term, the two rates trend very closely. The following graph shows the annual rates of inflation for both sets of data.

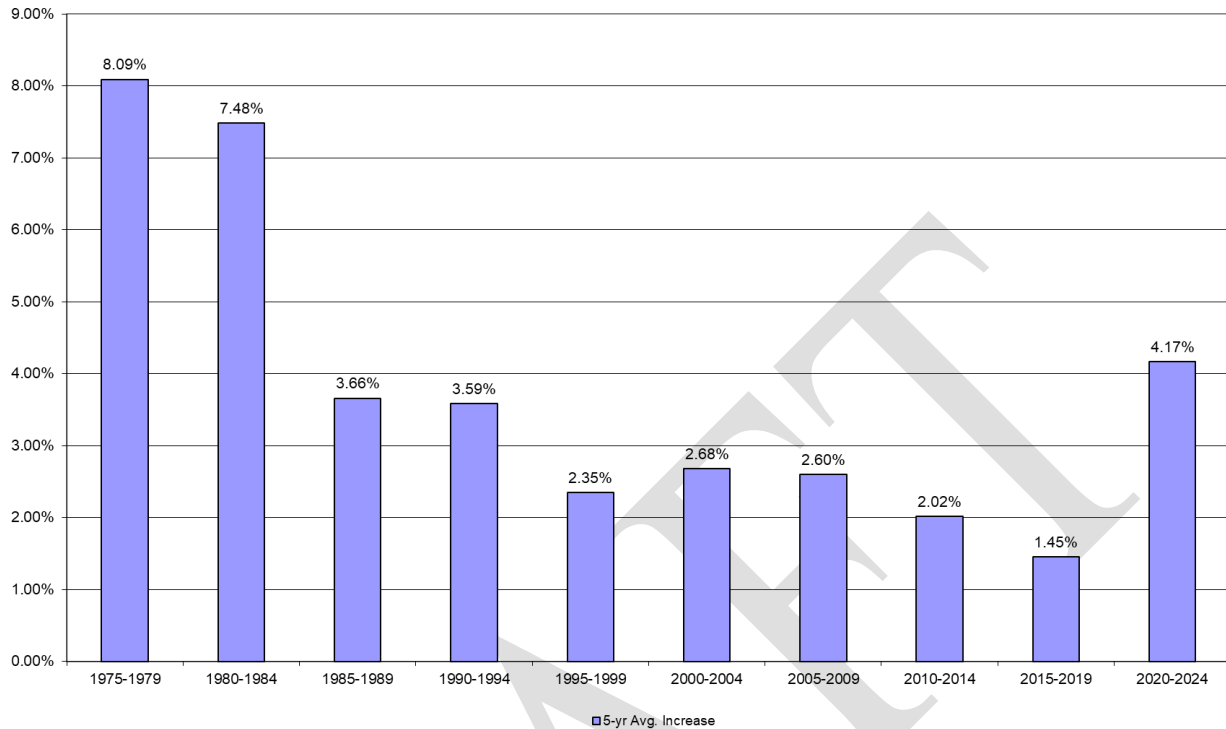


Over the long term, when the state economy booms relative to the Mainland, Hawaii's inflation is usually higher and when it is depressed relative to the Mainland, the inflation is usually lower. However, the average Hawaii inflation over the past fifty years has been 3.93%, and the average all-US inflation has been 3.91%. We believe the two inflation measurements will track closely over time and we have developed and recommend one inflation assumption. In addition, if there are differences, the only real place it would impact the valuation results would be in the wage assumptions, in which the difference would naturally be incorporated in the net increases above general inflation.

Actual Change in CPI-U

The chart below shows the average annual inflation in each of the ten consecutive five-year periods over the last fifty years:

Average Annual Inflation
CPI-U, Five Fiscal Year Averages



The following table shows the average inflation over various periods, ending June 30, 2024:

Periods Ending June 30, 2024	Average Annual Increase in CPI-U
Last five (5) years	4.17%
Last ten (10) years	2.80%
Last fifteen (15) years	2.54%
Last twenty (20) years	2.55%
Last twenty-five (25) years	2.58%
Last thirty (30) years	2.54%
Since 1913 (first available year)	3.17%

Source: Bureau of Labor Statistics, CPI-U, all items, not seasonally adjusted

As you can see, inflation has higher than the current 2.50% assumption over the past five years, but has been reasonably close to the current assumption over longer time frames.

Expectations Implied in the Bond Market

Another source of information about future inflation is the market for US Treasury bonds. As of March 31, 2025, the 20-Year Breakeven Inflation was 2.47% based on the difference between inflation indexed and non-indexed bonds. The difference in yield for 30-year bonds implies 2.30%

inflation over the next 30 years. This analysis is known to be imperfect as it ignores the inflation risk premium that buyers of US Treasury bonds often demand as well as possible differences in liquidity between US Treasury bonds and TIPS, but has historically been a reasonable estimator of future inflation.

Forecasts from Social Security Administration

In the Social Security Administration's 2024 Trustees Report, the Office of the Chief Actuary is projecting a long-term average annual inflation rate of 2.4% under the intermediate cost assumption and the low cost and high cost scenarios are 1.8% and 3.0%, respectively.

Survey of Professional Forecasters and Fed Policy

The Philadelphia Federal Reserve conducts a quarterly survey of the Society of Professional Forecasters. Their forecast for the first quarter of 2025 was for inflation over the next ten years (2025 to 2034) to average 2.30%. Additionally, the Fed has openly stated that they have a target 2.00% inflation rate.

Comparison of Inflation Expectations from 2021 to 2024

Finally, the table below provides a comparison of the inflation expectations documented in the 2021 experience study report and the current inflation expectations.

Source	Inflation Expectations		Change
	2021	2024	
(1)	(2)	(3)	(4)
ERS' Investment Consultant	2.20%	2.25%	+0.05%
Implied Inflation 20-Year Treasuries	2.42%	2.47%	+0.05%
SSA Trustees Report	2.40%	2.40%	0.00%
Survey of Professional Forecasters	2.55%	2.30%	-0.25%

Recommendation

The inflation assumption is not explicitly used in the valuation but instead is used as a building block into other economic assumptions. As shown, the current 2.50% is slightly higher than a majority of the reported sources, but much closer to the long term averages. As such, we are not recommending a change at this time as 2.50% is still in the reasonable range.

Investment and Administrative Expenses

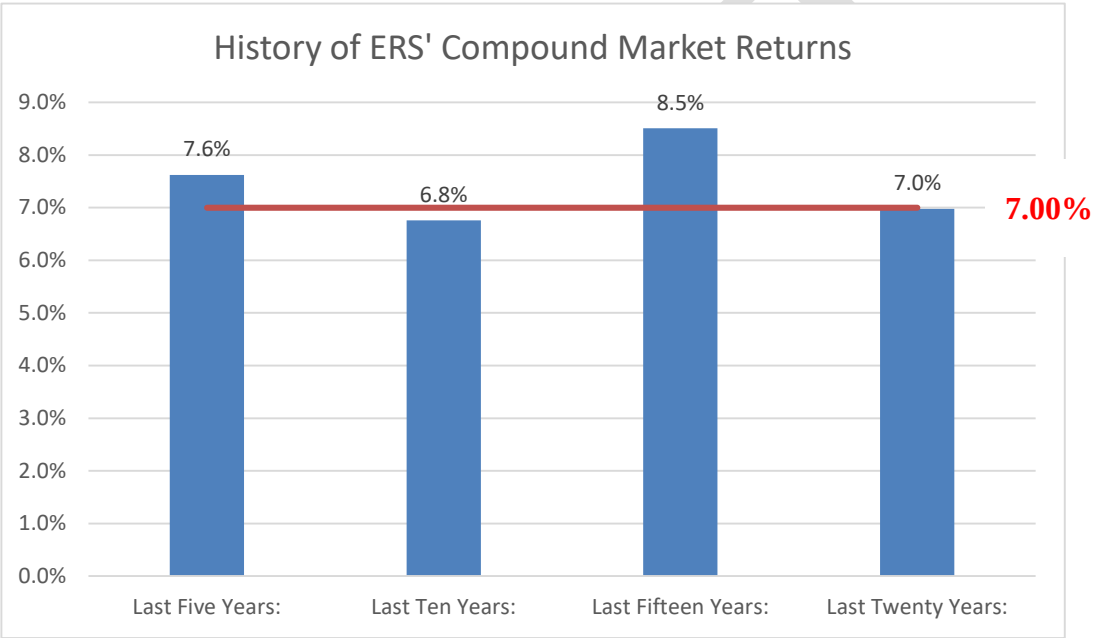
The trust fund pays expenses in addition to member benefits and refunds so we must make some assumption about these. For ERS, current practice has been to have an explicit administrative expense assumption that is a percentage of payroll and include it in the normal cost rate. The current

assumption is 0.40% of payroll. Over the last six years the average was 0.38%. We are recommending no change to the assumption.

Investment Return

ERS assumes an investment return rate of 7.00%, net of investment expenses. This is the rate used in discounting future payments in calculating the actuarial present value of those payments. Even a small change to this assumption can produce significant changes to the liabilities and contribution rates.

The following chart shows a history of ERS’ market returns through FY 2024.

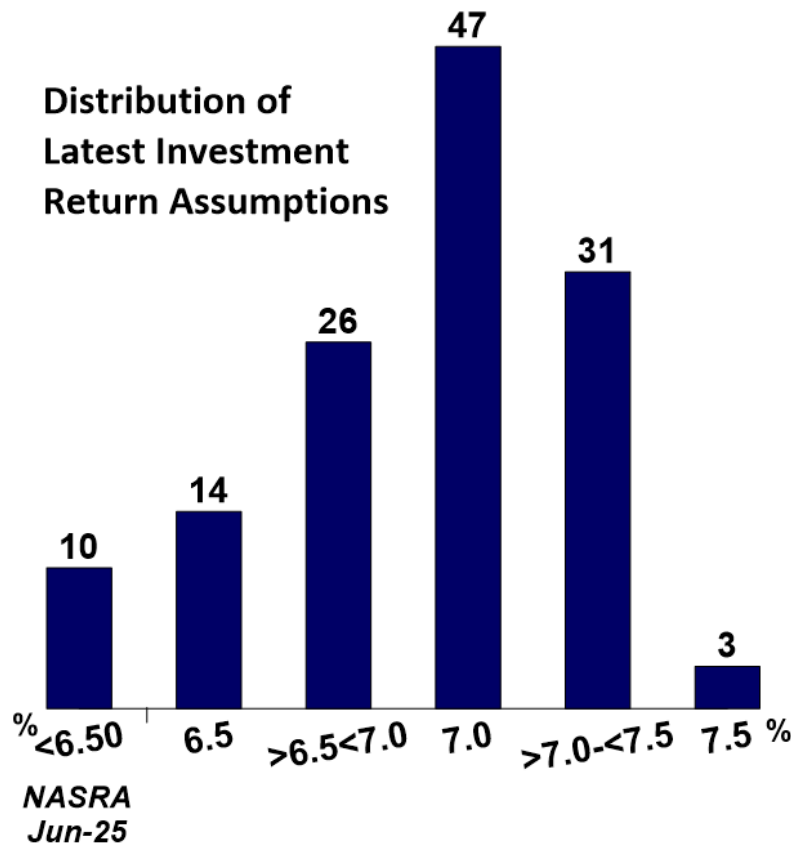


The returns in the chart above are market returns as reporting in the performance report as of June 30, 2024. As shown, ERS has exceeded or generally met the currently expected 7.00% return assumption over all timeframes.

However, past performance, even averaged over a twenty-year period, is not a reliable indicator of future performance for this assumption. The actual asset allocation of the trust fund will significantly impact the overall performance, so returns achieved under a different allocation are not meaningful. More importantly, the real rates of return for many asset classes, especially equities, vary so dramatically from year to year that even a twenty-year period is not long enough to provide reasonable guidance.

Comparison to Peers

We do not recommend the selection of an investment return assumption based on prevalence information. However, it is still informative to identify where the investment return assumption for ERS is compared to its peers. The chart on the following page shows the distribution of the investment return assumptions in the Public Plans Data as of June 2025.



Source: Public Plans Database. Median investment return assumption: 7.00% nominal return.

As shown, the median assumption is 7.00%.

Forecasts Developed by ERS' Investment Consultant

We believe a more appropriate approach to selecting an investment return assumption is to identify expected returns developed by mapping the investment policy to forward-looking capital market assumptions that are developed by investment consulting firms.

Because GRS is a benefits consulting firm and does not provide investment consulting advice, we do not develop or maintain our own forecasts of capital market expectations. Instead, we utilized the forward-looking return expectations developed by Meketa (ERS' investment consultant). Meketa regularly updates their capital market expectations (i.e. estimates of expected returns, volatility, and correlations) as the economy and financial markets evolve.

We requested from Meketa the current return expectations and target portfolio of ERS. The following is a summary of the information they provided.

Strategic Class	Long-Term Target Asset Allocation	Expected 20-year Compound Return
(1)	(2)	(3)
Public Equity	20.0%	6.7%
Private Equity	19.0%	9.8%
Liquid Credit	4.0%	6.3%
Private Credit	8.0%	8.7%
Real Estate	9.0%	7.2%
Infrastructure	7.0%	7.3%
Timberland and Agriculture	3.0%	4.6%
Systematic Trend Following	8.0%	3.4%
Long US Treasuries	4.0%	5.0%
Intermediate Government Bonds	14.0%	4.4%
Reinsurance	4.0%	4.8%
Expected Portfolio Geometric Return		7.3%
Expected Portfolio Volatility		11.1%

As you can see, the 2025 capital market assumptions developed by Meketa would result in a twenty-year expected compound return of approximately 7.0%.

Comparison of Meketa's Return Expectations to Other Investment Consultants

As we previously mentioned, most investment consulting firms develop forecasts regarding future investment returns. Meketa's return expectations are one opinion among many different opinions in the professional investment community. In addition to Meketa's return expectations, we utilized 2025 forward-looking capital market return expectations developed by several investment consulting firms. The primary purpose of performing this analysis using multiple investment consulting firms is to quantify possible differences in forward looking return expectations within the professional investment community.

The survey included 12 investment consultants and each provided forward-looking return expectations for next 7 to 10 years. Additionally, seven of these firms develop return expectations over a longer, 20- to 30-year period, although for some of the firms the expectations aren't necessarily for the next 20-30 years, but more of a generic 20-30 year period. There was also one firm that only provided expectations for the longer period.

The short-term expectations range from 6.19% to 7.70%, with an average of 7.11%. This compares to Meketa's 7.3%. It is typical in this process for the expectations from the System's investment consultant to be slightly higher than our survey as the consultant will have a much more specific allocation and understanding of the strategies, while we have to make subjective mapping between

asset classes in many cases and we try to be conservative in any subjective decisions between the classes.

The longer term expectations range from 6.11% to 8.34%, with an average of 7.41% and a 54% probability of achieving 7.00% over the next 20 years.

When developing the expected return for each assumption set we normalized the expected portfolio return for any difference between the investment consultant's price inflation assumption and the 2.50% price inflation assumption used in the actuarial valuation.

Recommendation

We believe the compilation of these sources of data support the current 7.00% long term investment return assumption.

We believe this recommendation satisfies the reasonable assumption requirement under ASOP No. 27. Also, this recommendation is consistent with the recommendations, regarding the use of an investment return assumption that is estimated to be realizable at least 50% of the time, from a report released by the Society of Actuaries Blue Ribbon Panel on public pension plan funding in February 2014.

General Wage Inflation

The valuation currently assumes that General Wage Inflation (GWI) will be 0.50% above price inflation for General Employees and Teachers and 1.00% above price inflation for Police and Fire. The 1.00% represents the real wage growth over time in the general economy, or, is the assumption on how much the pay scales themselves will change year to year, not necessarily how much the pay increases received by individuals are. This assumption is used primarily to index each cohort of new entrants used in the projections to determine the funding period.

The following table provides various averages of annual change for the three groups of employees over the last decade.

ERS Specific General Wage Statistics					
	Actual Inflation	Change in Average Base Salary	Net of Inflation	Current Assumption Net of Inflation	Proposed Assumption Net of Inflation
General Employees	2.80%	3.04%	0.24%	0.50%	0.50%
Teachers	2.80%	3.31%	0.51%	0.50%	0.50%
Police and Fire	2.80%	3.42%	0.62%	1.00%	1.00%

As shown, the Police and Fire group, in total and for new hires, has been lower than the assumption on net of inflation terms for the past decade. However, this was when inflation was very high, so it is likely

the 3.50% nominal assumption continues to be reasonable and we are recommending no change. For Teachers, the assumption appears to be right on and the General Employees, there is a similar situation as Police and Fire. Due to current salary pressure for new employees in the economy as a whole, it is likely that new entrant salaries will see increases, especially over the short term, so an assumption above inflation is reasonable.

Salary increase rates

In order to project future benefits, the actuary must project future salary increases. Salaries may increase for a variety of reasons:

- Across-the-board increases for all employees;
- Across-the-board increases for a given group of employees;
- Increases to a minimum salary schedule;
- Additional pay for additional duties;
- Step or service-related increases;
- Increases for acquisition of advanced degrees or specialized training;
- Promotions;
- Overtime;
- Bonuses, if available; or
- Merit increases, if available.

Our salary increase assumption is meant to reflect all of these kinds of increases to the extent that they are included in the pay used to determine contributions or plan benefits.

The actuary should not look at the overall increases in payroll in setting this assumption, because payroll can grow at a rate different from the average pay increase for individual members. There are two reasons for this. First, when older, longer-service employees terminate, retire or die, they are generally replaced with new employees who have a lower salary. Because of this, in most populations that are not growing in size, the growth in total payroll is smaller than the average pay increase for members. Second, payroll can change due to an increase or decrease in the size of the group. Therefore, to analyze salary increases, we examine the actual increase in salary for each member who is active in two consecutive fiscal years. We focused on the base pay rate provided in the raw data as it appeared to be the most consistent from year to year and would not be impacted by furloughs.

Salary increases for employees of state government tend to vary significantly from year to year. In particular, when the state's tax revenues stall or increase slowly, salary increases often are small or nonexistent. Also, increases may be granted through biennial legislative sessions or through labor negotiations that do not occur every year. In this instance, salary increases were very low for several years following the great recession, and then have been very high these last few years during the period of high inflation. Therefore, a longer period for measuring salary increase rates usually provides a more accurate picture, by allowing us to smooth out short-term effects.

For this assumption, we looked at the salaries provided for all members who were active in the start and the end of an experience year, for the twenty-year study period, beginning July 1, 2004 and ending June 30, 2024.

Most actuaries recommend salary increase assumptions that include an element that depends on the member's age or service, especially for large, state-wide retirement systems. They assume larger pay increases for younger or shorter-service employees. This is done in order to reflect pay increases that accompany changes in job responsibility, promotions, demonstrated merit, etc. The experience shows salaries continue to be more closely correlated to service (rather than age), as promotions and productivity increases tend to be greater in the first few years of a career, even if the new employee is older than the average new hire. For this reason, we will continue to use salary scales based on service.

Historically, the data also shows differences in salary increases for Teachers, Police & Fire, and General Employees. Therefore, the salary scales have been derived separately for these three groups.

The current salary increase assumption varies based on years of service, with an ultimate salary increase assumption used for all employees who have attained 25 years of service. For Police and Fire, this ultimate rate does not appear to be met until 30 years of service, so we have extended that definition out. The table below shows the actual average long-service increases for each year of the study. Note that these actual average rates of increase include average actual inflation, not our inflation assumption.

Average "Long-Service" Increase				
Actual Experience 2005-2024				
Year Ending	Inflation	Police & Fire	Teachers	General Employees
2005-2009	2.63%	4.99%	5.55%	5.15%
2010-2014	2.02%	2.87%	1.08%	1.06%
2015-2019	1.45%	7.57%	4.02%	4.19%
2020-2024	4.21%	4.52%	5.17%	4.11%
Average	2.55%	4.94%	3.92%	3.60%
Current Assumption	2.50%	5.00%	3.75%	3.75%
Proposed Assumption	2.50%	5.00%	3.85%	3.75%

As shown, the experience (using 30 years as a definition for 'long-service') for Police and Fire has been very close to the current assumption over the past 20 years. Teachers have been 0.17% higher and General Employees have been slightly lower. We have made recommended adjustments to Teachers, but recommend not decreasing the General Employee group because more recent experience has outpaced the current assumptions.

The ultimate salary increase assumption above incorporates general price inflation, a component for general productivity, and individual merit and promotion. There is also a service-based step-rate

component. The following table shows the average increase over the ten-year period parsed out in five-year service bands for each group:

Average Pay Increase			
Service	Police & Fire	Teachers	General Employees
1 to 5 Years	6.17%	5.84%	5.69%
6 to 10 Years	5.16%	4.94%	4.42%
11 to 15 Years	6.04%	4.60%	4.13%
16 to 20 Years	5.94%	4.26%	3.93%
21 to 24 Years	5.93%	4.22%	3.75%
25 Years or More	5.56%	3.92%	3.60%

Interestingly, the Police and Fire steps are quite flat, with members between 6 and 10 years of service actually receiving smaller increases than those with more than 25 years of service. We have modified the step portion of the schedule to be 0.85% each year through year 30. The schedules for General Employees and Teachers are very close to the current assumption and we have recommended no change.

The full schedule for each group is shown in Section VI of this report.

Career Average Salary Increase Assumptions				
	Actual Inflation	Actual Increase FY 2005 - FY2024	Current Assumption	Proposed Assumption
General Employees	2.55%	4.38%	4.66%	4.66%
Teachers	2.55%	4.77%	4.76%	4.76%
Police and Fire	2.55%	5.84%	5.74%	5.85%

These changes will increase the normal cost and the liabilities for Police and Fire specifically, but will also increase the amount of expected contributions to be received over the funding period.

DEMOGRAPHIC ASSUMPTIONS

Analysis of Post-Retirement Mortality

The most critical demographic assumption used in pension valuations is post-retirement mortality. Rates of mortality affect our estimate of how long each individual is expected to live and consequently

how long each individual is expected to receive a pension. Life expectancy in turn has a direct impact on pension plan liabilities.

Mortality rates have generally decreased over time in the U.S., meaning that life expectancies have generally increased over time. The assumption for future decreases in mortality is referred to as the mortality improvement assumption. In general, the current rates of mortality and mortality improvement are two separate assumptions. Thus, we will discuss this in two parts, the recommended base mortality assumption, and the recommended mortality improvement assumption.

The relevant ASOP, ASOP 35, and published practice notes require pension actuaries to make and disclose an assumption as to expected mortality improvement after the valuation date. To meet this standard, the best practice actuarial model is to use mortality tables that explicitly incorporate projected mortality improvements over time. This type of table (or series of tables) is called “generational mortality.” Specifically, mortality rates are assumed to decline each year in the future so that life expectancies for each annual cohort of retirees will be slightly higher than the previous year’s. Therefore, the life expectancy at age 60 for someone reaching 60 now will not be as long as the life expectancy for someone reaching 60 in 2030, and their life expectancy will not be as long as someone reaching 60 in 2040, etc.

Because of this assumption of continuous improvement, life expectancies for today’s younger active members are expected to be longer than those of today’s retirees. By utilizing generational mortality, the improvement over time is built into the contributions for individual members while they are employed. Below is a table with the projected life expectancy (including future improvement) for a retired member who attains age 65 based on the current assumptions.

Current Mortality Assumption – Projected Life Expectancy for an Age 65 Retiree in Years					
Group	Year of Retirement				
	2025	2030	2035	2040	2045
General Employee – Male	22.8	23.2	23.5	23.9	24.2
General Employee – Female	26.4	26.7	27.0	27.3	27.6
Teachers – Male	24.1	24.4	24.8	25.1	25.4
Teachers – Female	27.9	28.2	28.5	28.8	29.1
Public Safety – Male	21.9	22.2	22.6	23.9	23.3
Public Safety – Female	27.1	27.4	27.7	28.0	28.3

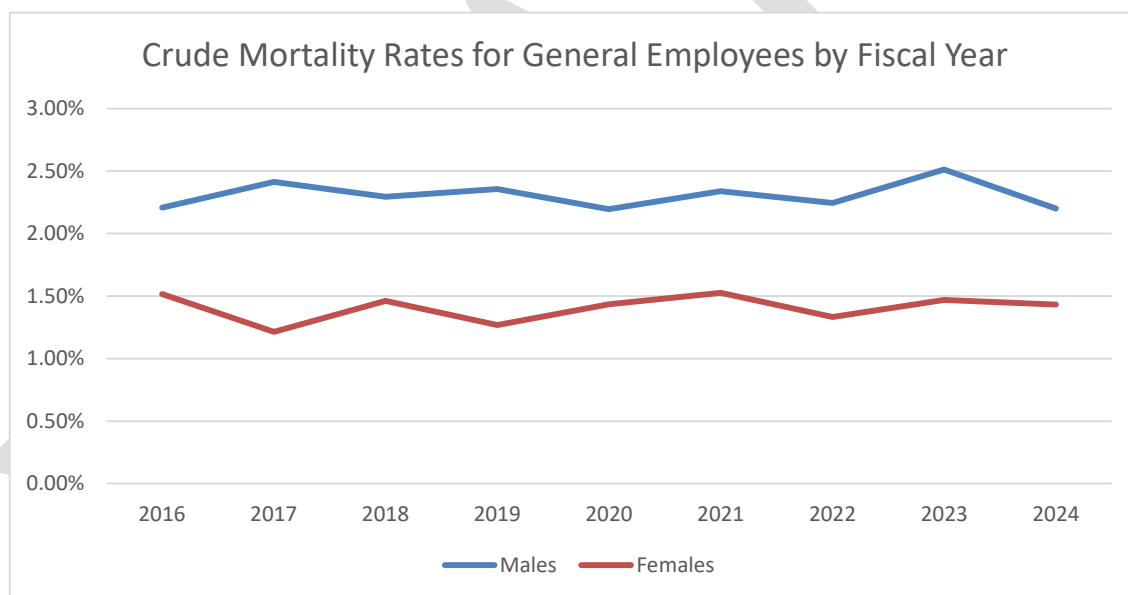
The mortality table currently being used for non-disabled retirees and for beneficiaries receiving benefits is the Hawaiian Retired Public Employees mortality table as of 2022, which is an ERS specific table created in the 2022 Experience Study. The table has separate rates for males and females. Our strategy is to update this table with each experience study to ensure that our Base tables are as current as possible, while leaving the projected improvement unchanged to the extent possible. This strategy allows for making minor, frequent adjustments instead of large adjustment every decade or so and minimizes the volatility that can come from changing mortality assumptions.

Approach and Data

Based on experience observed in prior experience studies, we currently adjust the tables to reflect differences for the three groups of members (Teachers, Public Safety, and General Employees). This is a fairly common practice and is appropriate because individual employee groups may have measurably different rates of mortality. The individual groups are variations of the core Base table, created by combining data from all of the groups, so the first step is to create the core Base table.

We have utilized nine years of experience to increase the credibility of the analysis and minimize any variance created by timing of data collection from year to year. During this time, mortality improvement may have occurred and thus a general procedure is to adjust the actual experience for mortality improvements during the study period to the central year, in this case 2019.

This study does include all years, including data during the pandemic. That is one of the reasons we utilize several years of data, to dampen the potential impact from one year, and it is at least potentially likely mortality will be higher going forward because of either direct impact from post-COVID mobility or indirect impacts from the lockdowns, etc. Also, Hawaii was not impacted by the pandemic to the same extent as other states. In fact, the increase in the crude rates in fiscal year 2020 and 2021 could just as easily be explained by the increase in the average age of the retiree. The following is the crude rate of mortality by year for General Employees during the study period.



The analysis uses only the retirees, not the beneficiaries, joint annuitants, or survivors as the vast majority of the liability is based on this group of members and data from the beneficiaries can often have a survivorship bias which would skew the results. We will use a liability-weighted analysis by weighting members by the amount of their annuity. There are two reasons for using a liability-weighted approach. First, mortality experience across the U.S. has been shown to vary depending on income level. Liability-weighting takes into account differing benefit levels. Second, selecting an assumption based on headcount-weighting is consistent with estimating expected deaths, but selecting an assumption based on liability-weighting is consistent with minimizing the actuarial gains and losses associated with expected deaths. By weighting the data by annuity amounts, we are giving more weight to members who have larger annuities (and thus have larger liabilities).

Credibility

When choosing an appropriate mortality assumption, actuaries typically use standard mortality tables, unlike when choosing other demographic assumptions. They may choose to adjust these standard mortality tables, however, to reflect various characteristics of the covered group, and to provide for expectations of future mortality improvement (both up to and after the measurement date). If the plan population has sufficient credibility to justify its own mortality table, then the use of such a table also could be appropriate. Factors that may be considered in selecting and/or adjusting a mortality table include the demographics of the covered group, the size of the group, the statistical credibility of its experience, and the anticipated rate of future mortality improvement.

We first measured the credibility of the dataset to determine whether standard, unadjusted tables should be used or if statistical analysis of ERS specific data was warranted. The method for this approach can be found in the article *"Selecting Mortality Tables: A Credibility Approach"* October 2008. Statistical analysis suggests 1,082 deaths per gender is sufficient to be considered fully credible, as at that amount of experience we are 90% confident that the observed experience is within +/- 5% of the actual pattern. However, when weighting on benefit amounts, it should be even higher. The following table gives the number of deaths needed by gender to have a given level of confidence that the data is +/- X% of the actual pattern.

Standard Score	Confidence	99% – 101%	97% – 103%	95% – 105%	90% – 110%	80% – 120%
0.674	75%	4,543	505	182	45	11
1.282	80%	16,435	1,826	657	164	41
1.645	90%	27,060	3,007	1,082	271	68
1.96	95%	38,416	4,268	1,537	384	96
2.576	99%	66,358	7,373	2,654	664	166

ERS had 5,640 male and 5,373 female observed deaths during the period analyzed. As shown by the statistical credibility table, we are 97% confident that we are within 3% of the true mortality experience. The following provides the full details with p=95% and r=5%.

Group	All Retirees	
	Male	Female
Actual Deaths	5,690	5,391
Deaths needed for full credibility		
Based on Count	1,537	1,537
Based on Annuity Amount	2,982	3,069
Z Factor		
Based on Count	100.0%	100.0%

Based on Annuity Amount	100.0%	100.0%
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In addition, to consider a national table, there would need to be one with expectations reasonably close to ERS experience to use as a baseline. The following table shows the life expectancy in years for female retirees ages 60, 65, & 70 based on occupation compared to the life expectancies created by three versions of the recently published PUB (10) mortality tables.

	Females - Life Expectancy in Years (2016 Central Age)				
Current Age	HI Teachers	HI General Employees	PUB(10) Teachers - Median	PUB(10) Teachers – Above Median	PUB(10) General – Above Median
60	30.5	29.5	28.6	28.8	27.2
65	26.0	25.0	24.0	24.2	22.9
70	21.5	20.7	19.6	19.7	18.7

As shown, even compared to the above median versions of the PUB (10) tables, the life expectancy of ERS female retirees far exceeds the expectation from the industry table. It would take material adjustments to the industry tables to mimic ERS experience. Based on this information and the level of credibility discussed above, we conclude it is appropriate for ERS to use non-standard, System specific mortality tables.

Recommended Base Mortality Assumption

As discussed earlier, our preferred approach would be to create new base tables using the latest data possible. However, given the pandemic and the fact that mortality experience was higher than the current table would expect, we would rather not make any significant changes to the base mortality assumptions as this time. The A/E ratios for the current analysis is shown in the tables below:

Actual to Expected Ratios: Current Assumptions			
	General Employee	Teacher	Public Safety
Male	102%	101%	95%
Female	103%	103%	121%

Summary of Experience and Adjustments for Occupation

There are then age adjustments and multipliers applied to this base table based on the occupation. Higher multipliers mean higher rates of mortality and thus shorter life expectancies. The following table provides the multipliers for each gender and occupation combination. Please note that for Public Safety females, we have used the Base table unadjusted. This is because (1) there is not enough data to analyze the female Public Safety members on their own and (2) most of the female mortality liability in the valuation of Public Safety group is in the beneficiary liability, which will look more like the general population. The only recommended change is for Public Safety males, which increases the multiplier but lowers the setback. The net impact is not significant, but does appear to have a better fit across the ages and does produce an A/E ratio closer to 100%.

Mortality Adjustments – Setbacks/Multipliers			
	General Employee	Teacher	Public Safety
Male	0/102%	1/97%	-1/100%
Female	-1/98%	1/101%	0/100%

The setbacks were selected to produce the multiplier closest to 100% possible in each case. In addition, adjustments continued until the total of the individual groups approximately equaled the results based on the Base table alone. Thus, the process of creating more precise life expectancies by occupation should have no impact on the overall conservatism or aggressiveness of the assumption.

Recommended Mortality Improvement Assumption

We use a fully generational approach to this assumption. Because of this strategy of building in continuous improvement, life expectancies for today's younger active members are expected to be materially longer than those of today's retirees, and this provides substantial stability and dependability on costs and liabilities. We currently use Scale MP-2021 with immediate convergence, which was published in 2021.

This scale was based on 100 years of trends in national data. Specifically, the pattern is 1.35% rate for ages 62 and younger, decreasing linearly to 1.10% at age 80, further decreasing linearly to 0.40% at age 95, and then decreasing linearly to 0.00% at age 115 (and thereafter).

Given the material increase in healthcare costs it has required over the last few decades to allow for the rates of improvement that have existed, and the general worsening in morbidity factors in the United States, we find it reasonable to assume the future improvement would be approximate to or less than it has been historically across most ages. We recommend no change to this assumption.

The following is a table with the life expectancy for a retired member who attains age 65 based on the proposed assumption set, by calendar year. As shown, the life expectancy is expected to increase into the future. The subsequent exhibits show the healthy mortality experience analysis for the different employee groups.

Proposed Mortality Assumption - Life Expectancy for an Age 65 Retiree in Years					
Group	Year of Retirement				
	2025	2030	2035	2040	2045
General Employee – Male	22.8	23.2	23.5	23.9	24.2
General Employee - Female	26.3	26.6	26.9	27.2	27.5
Teachers - Male	24.1	24.5	24.9	25.2	25.5
Teachers - Female	28.0	28.3	28.6	28.9	29.2
Public Safety - Male	22.1	22.4	22.8	23.1	23.5
Public Safety - Female	27.1	27.4	27.7	28.0	28.3

GENERAL EMPLOYEES
POST-RETIREMENT MORTALITY - HEALTHY MALE
*Weighted by Annual Benefits in \$000s

Age (1)	Actual Deaths* (2)	Total Exposed* (3)	Actual Rate (4)	Assumed Rate		Expected Deaths*		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
55-59	\$ 65	\$ 13,113	0.0050	0.0040	0.0040	\$ 52	\$ 52	125%	125%
60-64	379	46,988	0.0081	0.0071	0.0071	332	332	114%	114%
65-69	844	87,408	0.0097	0.0096	0.0096	840	840	101%	101%
70-74	1,353	83,503	0.0162	0.0161	0.0161	1,346	1,346	101%	101%
75-79	1,406	52,674	0.0267	0.0264	0.0264	1,389	1,389	101%	101%
80-84	1,364	27,781	0.0491	0.0473	0.0473	1,314	1,314	104%	104%
85-89	1,222	13,948	0.0876	0.0859	0.0859	1,198	1,198	102%	102%
90-94	744	4,849	0.1535	0.1524	0.1524	739	739	101%	101%
95-99	248	941	0.2638	0.2522	0.2522	237	237	105%	105%
Totals	\$ 7,626	\$ 331,204	0.0230	0.0225	0.0225	\$ 7,446	\$ 7,446	102%	102%

GENERAL EMPLOYEES
POST-RETIREMENT MORTALITY - HEALTHY FEMALE
*Weighted by Annual Benefits in \$000s

Age (1)	Actual Deaths* (2)	Total Exposed* (3)	Actual Rate (4)	Assumed Rate		Expected Deaths*		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
55-59	\$ 55	\$ 10,870	0.0051	0.0022	0.0022	\$ 27	\$ 27	205%	205%
60-64	167	51,175	0.0033	0.0038	0.0038	203	203	82%	82%
65-69	625	104,946	0.0060	0.0055	0.0055	591	591	106%	106%
70-74	949	93,489	0.0102	0.0087	0.0087	807	807	118%	118%
75-79	770	54,657	0.0141	0.0145	0.0145	785	785	98%	98%
80-84	838	27,547	0.0304	0.0287	0.0287	774	774	108%	108%
85-89	782	14,610	0.0535	0.0563	0.0563	808	808	97%	97%
90-94	653	6,397	0.1021	0.1146	0.1146	697	697	94%	94%
95-99	262	1,455	0.1799	0.1927	0.1927	266	266	98%	98%
Totals	\$ 5,102	\$ 365,145	0.0140	0.0136	0.0136	\$ 4,959	\$ 4,959	103%	103%

TEACHERS
POST-RETIREMENT MORTALITY - HEALTHY MALE
***Weighted by Annual Benefits in \$000s**

Age (1)	Actual Deaths* (2)	Total Exposed* (3)	Actual Rate (4)	Assumed Rate		Expected Deaths*		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
55-59	\$ -	\$ 2,473	0.0000	0.0034	0.0034	\$ 8	\$ 8	0%	0%
60-64	38	9,938	0.0038	0.0062	0.0062	61	61	62%	62%
65-69	190	23,159	0.0082	0.0085	0.0085	196	196	97%	97%
70-74	390	33,138	0.0118	0.0139	0.0139	459	459	85%	85%
75-79	601	26,864	0.0224	0.0225	0.0225	605	605	99%	99%
80-84	645	16,120	0.0400	0.0398	0.0398	642	642	100%	100%
85-89	701	8,423	0.0832	0.0724	0.0724	610	610	115%	115%
90-94	374	2,649	0.1410	0.1293	0.1293	343	343	109%	109%
95-99	105	362	0.2889	0.2194	0.2194	79	79	132%	132%
Totals	\$ 3,042	\$ 123,125	0.0247	0.0244	0.0244	\$ 3,004	\$ 3,004	101%	101%

TEACHERS
POST-RETIREMENT MORTALITY - HEALTHY FEMALE
***Weighted by Annual Benefits in \$000s**

Age (1)	Actual Deaths* (2)	Total Exposed* (3)	Actual Rate (4)	Assumed Rate		Expected Deaths*		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
55-59	\$ 5	\$ 5,952	0.0008	0.0018	0.0018	\$ 12	\$ 12	39%	39%
60-64	89	24,596	0.0036	0.0033	0.0033	86	86	104%	104%
65-69	277	66,266	0.0042	0.0048	0.0048	330	330	84%	84%
70-74	541	91,067	0.0059	0.0076	0.0076	689	689	78%	78%
75-79	897	68,282	0.0131	0.0117	0.0117	798	798	112%	112%
80-84	815	34,306	0.0238	0.0226	0.0226	755	755	108%	108%
85-89	743	15,630	0.0475	0.0438	0.0438	664	664	112%	112%
90-94	462	4,756	0.0970	0.0876	0.0876	391	391	118%	118%
95-99	147	808	0.1825	0.1729	0.1729	128	128	115%	115%
Totals	\$ 3,976	\$ 311,664	0.0128	0.0124	0.0124	\$ 3,854	\$ 3,854	103%	103%

POLICE & FIRE EMPLOYEES
POST-RETIREMENT MORTALITY - HEALTHY MALE
***Weighted by Annual Benefits in \$000s**

Age (1)	Actual Deaths* (2)	Total Exposed* (3)	Actual Rate (4)	Assumed Rate		Expected Deaths*		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
55-59	\$ 245	\$ 54,399	0.0045	0.0047	0.0044	\$ 254	\$ 239	97%	103%
60-64	325	58,504	0.0056	0.0072	0.0074	424	432	77%	75%
65-69	437	51,650	0.0085	0.0107	0.0104	554	535	79%	82%
70-74	617	38,887	0.0159	0.0178	0.0174	691	676	89%	91%
75-79	686	20,913	0.0328	0.0302	0.0289	631	604	109%	114%
80-84	491	8,112	0.0606	0.0549	0.0523	445	424	110%	116%
85-89	238	2,091	0.1137	0.0992	0.0948	207	198	115%	120%
90-94	67	401	0.1681	0.1732	0.1670	69	67	97%	101%
95-99	16	48	0.3347	0.2693	0.2683	13	13	124%	125%
Totals	\$ 3,122	\$ 235,005	0.0133	0.0140	0.0136	\$ 3,290	\$ 3,189	95%	98%

POLICE & FIRE EMPLOYEES
POST-RETIREMENT MORTALITY - HEALTHY FEMALE
***Weighted by Annual Benefits in \$000s**

Age (1)	Actual Deaths* (2)	Total Exposed* (3)	Actual Rate (4)	Assumed Rate		Expected Deaths*		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
55-59	\$ -	\$ 3,908	0.0000	0.0020	0.0020	\$ 8	\$ 8	0%	0%
60-64	31	3,658	0.0086	0.0036	0.0036	13	13	242%	242%
65-69	17	2,009	0.0086	0.0051	0.0051	10	10	169%	169%
70-74	2	853	0.0028	0.0082	0.0082	7	7	35%	35%
75-79	0	274	0.0000	0.0130	0.0130	3	3	0%	0%
80-84	6	60	0.0926	0.0256	0.0256	2	2	356%	356%
85-89	0	35	0.0000	0.0500	0.0500	2	2	0%	0%
90-94	0	17	0.0000	0.1005	0.1005	2	2	0%	0%
95-99	0	3	0.0000	0.1860	0.1860	0	0	0%	0%
Totals	\$ 57	\$ 10,817	0.0052	0.0043	0.0043	\$ 47	\$ 47	121%	121%

ALL EMPLOYEES
POST-RETIREMENT MORTALITY - HEALTHY MALE
***Weighted by Annual Benefits in \$000s**

Age (1)	Actual Deaths* (2)	Total Exposed* (3)	Actual Rate (4)	Assumed Rate		Expected Deaths*		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
55-59	\$ 310	\$ 69,985	0.0044	0.0039	0.0039	\$ 272	\$ 272	114%	114%
60-64	742	115,430	0.0064	0.0069	0.0069	799	799	93%	93%
65-69	1,471	162,217	0.0091	0.0094	0.0094	1,528	1,528	96%	96%
70-74	2,360	155,528	0.0152	0.0158	0.0158	2,458	2,458	96%	96%
75-79	2,693	100,450	0.0268	0.0258	0.0258	2,597	2,597	104%	104%
80-84	2,500	52,012	0.0481	0.0464	0.0464	2,411	2,411	104%	104%
85-89	2,161	24,461	0.0883	0.0842	0.0842	2,060	2,060	105%	105%
90-94	1,185	7,899	0.1501	0.1494	0.1494	1,180	1,180	100%	100%
95-99	369	1,351	0.2730	0.2473	0.2473	334	334	110%	110%
Totals	\$ 13,791	\$ 689,334	0.0200	0.0198	0.0198	\$ 13,639	\$ 13,639	101%	101%

ALL EMPLOYEES
POST-RETIREMENT MORTALITY - HEALTHY FEMALE
***Weighted by Annual Benefits in \$000s**

Age (1)	Actual Deaths* (2)	Total Exposed* (3)	Actual Rate (4)	Assumed Rate		Expected Deaths*		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
55-59	\$ 60	\$ 20,730	0.0029	0.0020	0.0020	\$ 46	\$ 46	132%	132%
60-64	287	79,429	0.0036	0.0036	0.0036	298	298	96%	96%
65-69	919	173,221	0.0053	0.0051	0.0051	918	918	100%	100%
70-74	1,493	185,409	0.0081	0.0082	0.0082	1,507	1,507	99%	99%
75-79	1,667	123,213	0.0135	0.0130	0.0130	1,596	1,596	104%	104%
80-84	1,659	61,913	0.0268	0.0256	0.0256	1,549	1,549	107%	107%
85-89	1,525	30,276	0.0504	0.0500	0.0500	1,474	1,474	103%	103%
90-94	1,115	11,170	0.0998	0.1005	0.1005	1,064	1,064	105%	105%
95-99	409	2,265	0.1806	0.1860	0.1860	391	391	105%	105%
Totals	\$ 9,135	\$ 687,626	0.0133	0.0129	0.0129	\$ 8,844	\$ 8,844	103%	103%

Disabled mortality rates

This is a minor assumption, and it has little impact on the liabilities of ERS. We are recommending keeping the prior procedure to assume members that live past normal retirement age will use the same



table as healthy retirees, but with a set-forward of 3 years, meaning a disabled member age 70 will use the same mortality rate as a healthy member age 73. For ages prior to normal retirement age, we will assume the same 3-year set-forward, but we are applying a minimum mortality rate of 3.5% for males and 2.5% for females to reflect impaired mortality during those ages.

Active mortality rates

A separate mortality table is used for active members. It is typical for active mortality to be much lower than the retiree mortality. We are recommending updating to the new Pub2016 mortality tables for active employees, grouped by occupation. This assumption has basically no impact.

Disability rates

Disability is also a minor assumption, with little effect on the liabilities. However, the experience appears to be higher than expected from the current assumptions, especially for duty related disabilities. To determine the actual experience, we counted the actual number of new disability records in the retiree data over the six-year period 2018-2023. This allows the experience to account for the normal delay in processing disability claims. Based on this information, we are recommending changing the percentages of the client table to match the experience of the groups.

	Ordinary Disability			Duty Related Disability		
	Expected	Actual	Proposed	Expected	Actual	Proposed
General Employees	266	245	252	140	149	152
Teachers	57	46	51	7	11	12
Police and Fire	6	5	6	16	16	16

For future members who become disabled, we currently assume 50% will choose a 100% Joint and Survivor option to reflect any subsidy that exists in the option factors. We recommend no change to this assumption.

Retirement rates

For this assumption, an A/E ratio between 90% and 100% is desirable for slight conservatism. We currently use retirement rates that vary by group, age, and sex. The retirement tables also vary by contributory vs. noncontributory. The analysis was completed weighting by liability instead of counts as individuals with higher benefits are more likely to retire earlier. The analysis studied all of the groups separately. Data from the prior experience study was taken into consideration when changes were recommended to the assumptions.

The following sections give a brief description of the findings for unreduced retirement for each group for the “core ages” of 55-69. We are recommending slight changes to some of the retirement patterns, most notably adding 2% below age 55 for Police and Fire. This is followed by the full details of the experience analysis.

Hybrid (\$ in 000s of liability)					
		Old Assumptions		Proposed Assumptions	
Group	Actual Retirements	Expected Retirements	Actual/Expected	Expected Retirements	Actual/Expected
General Male	\$781,747	\$782,494	100%	\$811,370	96%
General Female	1,074,874	1,037,347	104%	1,062,608	101%
Teacher Male	214,439	\$227,315	94%	225,534	95%
Teacher Female	619,240	623,052	99%	627,030	99%
Non-Contributory (\$ in 000s of liability)					
		Old Assumptions		Proposed Assumptions	
Group	Actual Retirements	Expected Retirements	Actual/Expected	Expected Retirements	Actual/Expected
General Male	\$423,972	\$426,541	99%	\$426,541	99%
General Female	354,139	391,823	90%	396,596	89%
Teacher Male	92,064	86,729	106%	91,204	101%
Teacher Female	207,028	220,175	94%	232,202	89%
Police & Fire Employees – Males and Females (\$ in 000s of liability)					
		Old Assumptions		Proposed Assumptions	
Age Range	Actual Retirements	Expected Retirements	Actual/Expected	Expected Retirements	Actual/Expected
45-49	\$133,391	\$113,312	118%	\$127,476	105%
50-54	639,272	520,274	123%	578,082	111%
55-59	585,389	597,071	98%	597,071	98%
60-61	94,649	118,284	80%	118,284	80%
Sub-Total	\$1,452,701	\$1,348,941	108%	\$1,420,914	102%
62-64	81,013	99,193	82%	99,193	82%
Total (including ages 62-64)	\$1,533,715	\$1,448,134	106%	\$1,520,106	101%

GENERAL EMPLOYEES - CONTRIBUTORY
MALE NORMAL RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	155,712	533,268	0.292	0.250	0.250	133,317	133,317	117%	117%
56	160,662	471,007	0.341	0.250	0.250	117,752	117,752	136%	136%
57	77,341	403,797	0.192	0.160	0.160	64,607	64,607	120%	120%
58	37,000	440,676	0.084	0.160	0.160	70,508	70,508	52%	52%
59	72,920	484,503	0.151	0.130	0.130	62,985	62,985	116%	116%
60	78,702	511,422	0.154	0.130	0.130	66,485	66,485	118%	118%
61	88,587	529,706	0.167	0.130	0.130	68,862	68,862	129%	129%
62	109,926	617,756	0.178	0.280	0.280	172,972	172,972	64%	64%
63	80,044	596,352	0.134	0.200	0.200	119,270	119,270	67%	67%
64	136,622	606,142	0.225	0.200	0.200	121,228	121,228	113%	113%
65	66,472	527,030	0.126	0.200	0.200	105,406	105,406	63%	63%
66	148,461	493,509	0.301	0.180	0.180	88,832	88,832	167%	167%
67	64,337	345,597	0.186	0.180	0.180	62,207	62,207	103%	103%
68	67,845	302,710	0.224	0.180	0.180	54,488	54,488	125%	125%
69	62,450	253,940	0.246	0.180	0.180	45,709	45,709	137%	137%
Subtotal	1,407,081	7,117,413	0.198			1,354,629	1,354,629	104%	104%
70-74	186,747	698,579	0.267	0.200	0.200	139,716	139,716	134%	134%
Subtotal	1,593,828	7,815,992	0.204			1,494,344	1,494,344	107%	107%
75 & Over	62,893	371,557	0.169	1.000	1.000	371,557	371,557	17%	17%
Total	1,656,721	8,187,548	0.202			1,865,901	1,865,901	89%	89%

GENERAL EMPLOYEES - CONTRIBUTORY
FEMALE NORMAL RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	38,239	192,464	0.199	0.200	0.200	38,493	38,493	99%	99%
56	34,897	277,473	0.126	0.200	0.200	55,495	55,495	63%	63%
57	57,140	408,755	0.140	0.130	0.130	53,138	53,138	108%	108%
58	38,161	530,356	0.072	0.130	0.130	68,946	68,946	55%	55%
59	85,453	663,399	0.129	0.130	0.130	86,242	86,242	99%	99%
60	84,058	706,229	0.119	0.150	0.150	105,934	105,934	79%	79%
61	104,301	831,236	0.125	0.150	0.150	124,685	124,685	84%	84%
62	166,588	828,204	0.201	0.250	0.250	207,051	207,051	80%	80%
63	101,106	761,357	0.133	0.200	0.200	152,271	152,271	66%	66%
64	119,139	740,270	0.161	0.200	0.200	148,054	148,054	80%	80%
65	143,589	652,765	0.220	0.200	0.200	130,553	130,553	110%	110%
66	181,579	617,224	0.294	0.200	0.200	123,445	123,445	147%	147%
67	105,148	437,207	0.240	0.200	0.200	87,441	87,441	120%	120%
68	84,837	374,293	0.227	0.200	0.200	74,859	74,859	113%	113%
69	42,555	299,006	0.142	0.200	0.200	59,801	59,801	71%	71%
Subtotal	1,386,791	8,320,237	0.167			1,516,409	1,516,409	91%	91%
70-74	120,818	956,633	0.126	0.200	0.200	191,327	191,327	63%	63%
Subtotal	1,507,609	9,276,870	0.163			1,707,735	1,707,735	88%	88%
75 & Over	93,051	425,573	0.219	1.000	1.000	425,573	425,573	22%	22%
Total	1,600,660	9,702,443	0.165			2,133,308	2,133,308	75%	75%

GENERAL EMPLOYEES - CONTRIBUTORY
MALE EARLY RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 45	-	-	N/A	0.000	0.000	-	-	N/A	N/A
45	-	-	N/A	0.000	0.000	-	-	N/A	N/A
46	-	3,876	0.000	0.000	0.000	-	-	N/A	N/A
47	-	4,223	0.000	0.000	0.000	-	-	N/A	N/A
48	-	8,376	0.000	0.000	0.000	-	-	N/A	N/A
49	-	9,713	0.000	0.000	0.000	-	-	N/A	N/A
50	-	4,970	0.000	0.020	0.020	99	99	0%	0%
51	-	57,689	0.000	0.020	0.020	1,154	1,154	0%	0%
52	-	113,343	0.000	0.020	0.020	2,267	2,267	0%	0%
53	4,915	170,941	0.029	0.030	0.030	5,128	5,128	96%	96%
54	4,071	317,480	0.013	0.030	0.030	9,524	9,524	43%	43%
Total	8,985	690,611	0.013			18,173	18,173	49%	49%

GENERAL EMPLOYEES - CONTRIBUTORY
FEMALE EARLY RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 45	-	-	N/A	0.000	0.000	-	-	N/A	N/A
45	-	-	N/A	0.000	0.000	-	-	N/A	N/A
46	-	-	N/A	0.000	0.000	-	-	N/A	N/A
47	-	-	N/A	0.000	0.000	-	-	N/A	N/A
48	-	-	N/A	0.000	0.000	-	-	N/A	N/A
49	-	-	N/A	0.000	0.000	-	-	N/A	N/A
50	-	7,245	0.000	0.000	0.000	-	-	N/A	N/A
51	-	30,118	0.000	0.010	0.010	301	301	0%	0%
52	10,935	48,057	0.228	0.010	0.010	481	481	2275%	2275%
53	-	37,370	0.000	0.010	0.010	374	374	0%	0%
54	15,756	88,997	0.177	0.020	0.020	1,780	1,780	885%	885%
Total	26,691	211,786	0.126			2,935	2,935	909%	909%

**GENERAL EMPLOYEES - NONCONTRIBUTORY
MALE NORMAL RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)**

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 55	4,654	59,242	0.079	0.150	0.150	8,886	8,886	52%	52%
55	14,865	116,974	0.127	0.200	0.200	23,395	23,395	64%	64%
56	20,488	134,387	0.152	0.180	0.180	24,190	24,190	85%	85%
57	19,226	145,449	0.132	0.130	0.130	18,908	18,908	102%	102%
58	14,216	165,958	0.086	0.100	0.100	16,596	16,596	86%	86%
59	26,182	178,788	0.146	0.100	0.100	17,879	17,879	146%	146%
60	18,407	172,939	0.106	0.100	0.100	17,294	17,294	106%	106%
61	24,526	180,722	0.136	0.110	0.110	19,879	19,879	123%	123%
62	66,023	327,639	0.202	0.200	0.200	65,528	65,528	101%	101%
63	51,254	261,469	0.196	0.200	0.200	52,294	52,294	98%	98%
64	25,332	216,934	0.117	0.120	0.120	26,032	26,032	97%	97%
65	27,983	197,892	0.141	0.140	0.140	27,705	27,705	101%	101%
66	33,044	178,466	0.185	0.200	0.200	35,693	35,693	93%	93%
67	27,978	143,782	0.195	0.200	0.200	28,756	28,756	97%	97%
68	28,920	123,030	0.235	0.200	0.200	24,606	24,606	118%	118%
69	20,875	94,498	0.221	0.200	0.200	18,900	18,900	110%	110%
Subtotal	423,972	2,698,169	0.157			426,541	426,541	99%	99%
70-74	45,491	251,588	0.181	0.200	0.200	50,318	50,318	90%	90%
Subtotal	469,462	2,949,756	0.159			476,858	476,858	98%	98%
75 & Over	18,946	108,680	0.174	1.000	1.000	108,680	108,680	17%	17%
Total	488,409	3,058,437	0.160			585,539	585,539	83%	83%

**GENERAL EMPLOYEES - NONCONTRIBUTORY
FEMALE NORMAL RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)**

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 55	-	11,189	0.000	0.110	0.110	1,231	1,231	0%	0%
55	10,990	84,563	0.130	0.110	0.120	9,302	10,148	118%	108%
56	14,198	93,500	0.152	0.110	0.120	10,285	11,220	138%	127%
57	8,522	91,001	0.094	0.110	0.120	10,010	10,920	85%	78%
58	12,054	98,241	0.123	0.110	0.120	10,807	11,789	112%	102%
59	12,629	109,973	0.115	0.110	0.120	12,097	13,197	104%	96%
60	15,284	121,006	0.126	0.140	0.140	16,941	16,941	90%	90%
61	15,731	115,621	0.136	0.180	0.180	20,812	20,812	76%	76%
62	48,350	298,733	0.162	0.200	0.200	59,747	59,747	81%	81%
63	52,135	276,007	0.189	0.200	0.200	55,201	55,201	94%	94%
64	31,753	235,662	0.135	0.200	0.200	47,132	47,132	67%	67%
65	35,964	199,449	0.180	0.200	0.200	39,890	39,890	90%	90%
66	29,513	167,015	0.177	0.200	0.200	33,403	33,403	88%	88%
67	30,936	135,713	0.228	0.200	0.200	27,143	27,143	114%	114%
68	20,959	102,828	0.204	0.200	0.200	20,566	20,566	102%	102%
69	15,122	86,289	0.175	0.200	0.200	17,258	17,258	88%	88%
Subtotal	354,139	2,226,790	0.159			391,823	396,596	90%	89%
70-74	55,465	246,430	0.225	0.250	0.200	49,286	49,286	113%	113%
Subtotal	409,604	2,473,220	0.166			441,109	445,882	93%	92%
75 & Over	20,963	106,317	0.197	1.000	1.000	106,317	106,317	20%	20%
Total	430,567	2,579,537	0.167			547,426	552,199	79%	78%



**GENERAL EMPLOYEES - NONCONTRIBUTORY
MALE EARLY RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)**

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 55	-	-	N\A	0.000	0.000	-	-	N\A	N\A
55	3,165	165,076	0	0.010	0.020	1,651	3,302	192%	96%
56	3,012	158,842	0.019	0.010	0.020	1,588	3,177	190%	95%
57	2,030	158,958	0.013	0.010	0.020	1,590	3,179	128%	64%
58	3,647	149,662	0.024	0.020	0.020	2,993	2,993	122%	122%
59	3,959	142,032	0.028	0.020	0.020	2,841	2,841	139%	139%
60	4,077	135,480	0.030	0.040	0.040	5,419	5,419	75%	75%
61	3,143	122,172	0.026	0.040	0.040	4,887	4,887	64%	64%
Total	23,033	1,032,222	0.022			20,969	25,797	110%	89%

**GENERAL EMPLOYEES - NONCONTRIBUTORY
FEMALE EARLY RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)**

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 55	-	-	N\A	N\A	0.000	-	-	N\A	N\A
55	1,506	144,623	0	0.010	0.020	1,446	2,892	104%	52%
56	2,698	142,682	0.019	0.010	0.020	1,427	2,854	189%	95%
57	2,800	144,471	0.019	0.010	0.020	1,445	2,889	194%	97%
58	4,579	146,139	0.031	0.020	0.020	2,923	2,923	157%	157%
59	4,897	146,999	0.033	0.020	0.020	2,940	2,940	167%	167%
60	5,755	141,319	0.041	0.040	0.040	5,653	5,653	102%	102%
61	4,959	145,438	0.034	0.040	0.040	5,818	5,818	85%	85%
Total	27,194	1,011,670	0.027			21,651	25,969	126%	105%

GENERAL EMPLOYEES - HYBRID
FEMALE NORMAL RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Under 45	-	3,154	0.000	0.060	0.100	189	315	0%	0%
55	33,940	245,304	0.138	0.180	0.180	44,155	44,155	77%	77%
56	40,558	272,792	0.149	0.130	0.130	35,463	35,463	114%	114%
57	34,000	304,932	0.112	0.130	0.130	39,641	39,641	86%	86%
58	46,054	328,683	0.140	0.130	0.130	42,729	42,729	108%	108%
59	49,171	335,860	0.146	0.130	0.130	43,662	43,662	113%	113%
60	55,368	318,907	0.174	0.130	0.130	41,458	41,458	134%	134%
61	45,947	321,534	0.143	0.150	0.150	48,230	48,230	95%	95%
62	136,055	798,504	0.170	0.200	0.200	159,701	159,701	85%	85%
63	148,371	708,345	0.209	0.200	0.200	141,669	141,669	105%	105%
64	100,731	572,904	0.176	0.200	0.200	114,581	114,581	88%	88%
65	99,597	498,276	0.200	0.200	0.200	99,655	99,655	100%	100%
66	91,694	428,674	0.214	0.180	0.200	77,161	85,735	119%	107%
67	83,259	351,992	0.237	0.180	0.200	63,359	70,398	131%	118%
68	63,843	267,411	0.239	0.180	0.200	48,134	53,482	133%	119%
69	46,286	208,670	0.222	0.180	0.200	37,561	41,734	123%	111%
Subtotal	1,074,874	5,965,944	0.180			1,037,347	1,062,608	104%	101%
70-74	111,521	526,124	0.212	0.200	0.200	105,741	105,225	105%	106%
Subtotal	1,186,395	6,492,068	0.183			1,143,088	1,167,833	104%	102%
75 & Over	23,277	124,043	0.188	1.000	1.000	124,043	124,043	19%	19%
Total	1,209,672	6,616,112	0.183			1,267,132	1,291,877	95%	94%

GENERAL EMPLOYEES - HYBRID
MALE EARLY RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	6,513	234,078	0.028	0.010	0.030	2,341	7,022	278%	93%
56	8,779	227,106	0.039	0.010	0.030	2,271	6,813	387%	129%
57	5,515	221,538	0.025	0.010	0.030	2,215	6,646	249%	83%
58	6,997	222,156	0.031	0.020	0.030	4,443	6,665	157%	105%
59	6,227	212,940	0.029	0.020	0.030	4,259	6,388	146%	97%
60	8,260	201,094	0.041	0.040	0.050	8,044	10,055	103%	82%
61	10,690	190,376	0.056	0.040	0.050	7,615	9,519	140%	112%
62	-	-	N/A	0.000	0.000	-	-	0%	0%
63	-	-	N/A	0.000	0.000	-	-	0%	0%
64	-	-	N/A	0.000	0.000	-	-	0%	0%
Total	52,981	1,509,289	0.035			31,188	53,108	170%	100%

GENERAL EMPLOYEES - HYBRID
FEMALE EARLY RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	5,390	325,610	0.017	0.010	0.030	3,256	9,768	166%	55%
56	11,360	307,876	0.037	0.010	0.030	3,079	9,236	369%	123%
57	4,418	288,198	0.015	0.010	0.030	2,882	8,646	153%	51%
58	10,057	274,931	0.037	0.020	0.030	5,499	8,248	183%	122%
59	11,393	268,674	0.042	0.020	0.030	5,373	8,060	212%	141%
60	15,668	266,493	0.059	0.040	0.050	10,660	13,325	147%	118%
61	11,354	245,909	0.046	0.040	0.050	9,836	12,295	115%	92%
62	-	-	N/A	0.000	0.000	-	-	0%	0%
63	-	-	N/A	0.000	0.000	-	-	0%	0%
64	-	-	N/A	0.000	0.000	-	-	0%	0%
Total	69,640	1,977,691	0.035			40,585	69,579	172%	100%

TEACHERS - CONTRIBUTORY
MALE NORMAL RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	-	42,311	0.000	0.200	0.200	8,462	8,462	0%	0%
56	6,708	80,237	0.084	0.150	0.150	12,035	12,035	56%	56%
57	14,724	99,307	0.148	0.150	0.150	14,896	14,896	99%	99%
58	19,127	125,779	0.152	0.150	0.150	18,867	18,867	101%	101%
59	-	161,214	0.000	0.150	0.150	24,182	24,182	0%	0%
60	15,158	168,604	0.090	0.140	0.140	23,605	23,605	64%	64%
61	15,689	168,939	0.093	0.140	0.140	23,651	23,651	66%	66%
62	41,207	181,824	0.227	0.140	0.140	25,455	25,455	162%	162%
63	35,982	176,799	0.204	0.140	0.140	24,752	24,752	145%	145%
64	28,180	137,220	0.205	0.140	0.140	19,211	19,211	147%	147%
65	30,846	108,573	0.284	0.200	0.200	21,715	21,715	142%	142%
66	26,263	131,596	0.200	0.150	0.150	19,739	19,739	133%	133%
67	63,268	137,958	0.459	0.150	0.150	20,694	20,694	306%	306%
68	47,887	94,900	0.505	0.150	0.150	14,235	14,235	336%	336%
69	6,570	68,382	0.096	0.150	0.150	10,257	10,257	64%	64%
Subtotal	351,607	1,883,644	0.187			281,757	281,757	125%	125%
70-74	117,925	433,645	0.272	0.150	0.150	65,047	65,047	181%	181%
Subtotal	469,533	2,317,289	0.203			346,804	346,804	135%	135%
75 & Over	9,788	277,487	0.035	1.000	1.000	277,487	277,487	4%	4%
Total	479,320	2,594,776	0.185			624,291	624,291	77%	77%

TEACHERS - CONTRIBUTORY
FEMALE NORMAL RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	18,220	82,053	0.222	0.180	0.180	14,770	14,770	123%	123%
56	17,595	148,388	0.119	0.160	0.160	23,742	23,742	74%	74%
57	58,990	209,675	0.281	0.160	0.160	33,548	33,548	176%	176%
58	16,989	230,163	0.074	0.160	0.160	36,826	36,826	46%	46%
59	41,199	335,112	0.123	0.160	0.160	53,618	53,618	77%	77%
60	90,122	416,242	0.217	0.180	0.180	74,924	74,924	120%	120%
61	70,332	433,101	0.162	0.180	0.180	77,958	77,958	90%	90%
62	120,030	505,529	0.237	0.250	0.250	126,382	126,382	95%	95%
63	149,391	544,409	0.274	0.200	0.200	108,882	108,882	137%	137%
64	67,234	479,909	0.140	0.150	0.150	71,986	71,986	93%	93%
65	140,709	460,364	0.306	0.250	0.250	115,091	115,091	122%	122%
66	116,444	353,316	0.330	0.250	0.250	88,329	88,329	132%	132%
67	96,559	255,264	0.378	0.200	0.200	51,053	51,053	189%	189%
68	35,915	188,196	0.191	0.200	0.200	37,639	37,639	95%	95%
69	31,281	146,291	0.214	0.200	0.200	29,258	29,258	107%	107%
Subtotal	1,071,009	4,788,011	0.224			944,006	944,006	113%	113%
70-74	146,854	600,403	0.245	0.200	0.200	120,081	120,081	122%	122%
Subtotal	1,217,862	5,388,414	0.226			1,064,086	1,064,086	114%	114%
75 & Over	42,628	140,883	0.303	1.000	1.000	140,883	140,883	30%	30%
Total	1,260,491	5,529,297	0.228			1,204,969	1,204,969	105%	105%

TEACHERS - NONCONTRIBUTORY
MALE NORMAL RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	3,490	20,632	0.169	0.100	0.120	2,063	2,476	169%	141%
56	3,894	28,133	0.138	0.100	0.120	2,813	3,376	138%	115%
57	5,488	31,534	0.174	0.100	0.120	3,153	3,784	174%	145%
58	4,045	34,324	0.118	0.100	0.120	3,432	4,119	118%	98%
59	3,994	35,510	0.112	0.100	0.120	3,551	4,261	112%	94%
60	5,448	35,807	0.152	0.100	0.120	3,581	4,297	152%	127%
61	2,250	37,778	0.060	0.100	0.120	3,778	4,533	60%	50%
62	12,385	75,435	0.164	0.160	0.160	12,070	12,070	103%	103%
63	7,115	60,398	0.118	0.120	0.120	7,248	7,248	98%	98%
64	6,268	57,962	0.108	0.100	0.100	5,796	5,796	108%	108%
65	8,144	58,288	0.140	0.200	0.200	11,658	11,658	70%	70%
66	7,029	54,547	0.129	0.150	0.150	8,182	8,182	86%	86%
67	6,112	46,163	0.132	0.150	0.150	6,924	6,924	88%	88%
68	7,250	41,954	0.173	0.150	0.150	6,293	6,293	115%	115%
69	9,151	41,246	0.222	0.150	0.150	6,187	6,187	148%	148%
Subtotal	92,064	659,711	0.140			86,729	91,204	106%	101%
70-74	21,937	137,299	0.160	0.150	0.150	20,595	20,595	107%	107%
Subtotal	114,001	797,010	0.143			107,324	111,799	106%	102%
75 & Over	10,530	87,675	0.120	1.000	1.000	87,675	87,675	12%	12%
Total	124,530	884,684	0.141			194,999	199,473	64%	62%

TEACHERS - NONCONTRIBUTORY
FEMALE NORMAL RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	9,494	87,120	0.109	0.130	0.150	11,326	13,068	84%	73%
56	14,311	100,747	0.142	0.070	0.090	7,052	9,067	203%	158%
57	9,012	99,525	0.091	0.080	0.100	7,962	9,952	113%	91%
58	14,230	94,752	0.150	0.100	0.120	9,475	11,370	150%	125%
59	14,390	83,943	0.171	0.200	0.220	16,789	18,467	86%	78%
60	14,456	73,789	0.196	0.110	0.130	8,117	9,593	178%	151%
61	9,744	61,486	0.158	0.160	0.180	9,838	11,067	99%	88%
62	25,593	131,228	0.195	0.250	0.250	32,807	32,807	78%	78%
63	16,404	107,652	0.152	0.200	0.200	21,530	21,530	76%	76%
64	13,701	94,605	0.145	0.150	0.150	14,191	14,191	97%	97%
65	15,911	89,291	0.178	0.250	0.250	22,323	22,323	71%	71%
66	19,332	72,834	0.265	0.250	0.250	18,209	18,209	106%	106%
67	10,401	61,307	0.170	0.250	0.250	15,327	15,327	68%	68%
68	13,883	57,338	0.242	0.250	0.250	14,335	14,335	97%	97%
69	6,167	43,582	0.142	0.250	0.250	10,896	10,896	57%	57%
Subtotal	207,028	1,259,200	0.164			220,175	232,202	94%	89%
70-74	26,310	138,545	0.190	0.250	0.250	34,636	34,636	76%	76%
Subtotal	233,337	1,397,746	0.167			254,811	266,838	92%	87%
75 & Over	10,892	47,762	0.228	1.000	1.000	47,762	47,762	23%	23%
Total	244,229	1,445,508	0.169			302,573	314,600	81%	78%

TEACHERS - HYBRID
MALE NORMAL RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	10,411	56,198	0.185	0.200	0.200	11,240	11,240	93%	93%
56	7,704	56,225	0.137	0.130	0.150	7,309	8,434	105%	91%
57	9,174	77,571	0.118	0.130	0.150	10,084	11,636	91%	79%
58	11,535	82,359	0.140	0.130	0.150	10,707	12,354	108%	93%
59	15,399	82,126	0.188	0.130	0.150	10,676	12,319	144%	125%
60	11,407	70,577	0.162	0.140	0.150	9,881	10,587	115%	108%
61	10,797	76,692	0.141	0.140	0.150	10,737	11,504	101%	94%
62	27,785	171,698	0.162	0.220	0.150	37,773	25,755	74%	108%
63	19,224	150,165	0.128	0.140	0.150	21,023	22,525	91%	85%
64	11,989	129,822	0.092	0.140	0.150	18,175	19,473	66%	62%
65	19,461	124,914	0.156	0.200	0.200	24,983	24,983	78%	78%
66	24,785	115,041	0.215	0.150	0.150	17,256	17,256	144%	144%
67	11,142	93,458	0.119	0.150	0.150	14,019	14,019	79%	79%
68	12,768	83,740	0.152	0.150	0.150	12,561	12,561	102%	102%
69	10,860	72,605	0.150	0.150	0.150	10,891	10,891	100%	100%
Subtotal	214,439	1,443,192	0.149			227,315	225,534	94%	95%
70-74	36,523	193,147	0.189	0.150	0.200	28,972	38,629	126%	95%
Subtotal	250,962	1,636,339	0.153			256,287	264,164	98%	95%
75 & Over	23,305	118,280	0.197	1.000	1.000	118,280	118,280	20%	20%
Total	274,266	1,754,619	0.156			374,567	382,444	73%	72%

TEACHERS - HYBRID
FEMALE NORMAL RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	36,083	198,405	0.182	0.160	0.180	31,745	35,713	114%	101%
56	35,286	226,332	0.156	0.100	0.120	22,633	27,160	156%	130%
57	26,793	237,733	0.113	0.100	0.120	23,773	28,528	113%	94%
58	37,615	241,568	0.156	0.120	0.140	28,988	33,820	130%	111%
59	33,347	228,529	0.146	0.120	0.140	27,423	31,994	122%	104%
60	35,972	202,991	0.177	0.140	0.140	28,419	28,419	127%	127%
61	31,904	180,858	0.176	0.180	0.180	32,554	32,554	98%	98%
62	87,541	373,457	0.234	0.300	0.250	112,037	93,364	78%	94%
63	61,568	302,317	0.204	0.200	0.200	60,463	60,463	102%	102%
64	44,765	269,739	0.166	0.200	0.200	53,948	53,948	83%	83%
65	44,489	241,788	0.184	0.250	0.250	60,447	60,447	74%	74%
66	58,218	206,058	0.283	0.250	0.250	51,515	51,515	113%	113%
67	41,113	147,898	0.278	0.250	0.250	36,974	36,974	111%	111%
68	26,056	114,624	0.227	0.250	0.250	28,656	28,656	91%	91%
69	18,492	93,902	0.197	0.250	0.250	23,475	23,475	79%	79%
Subtotal	619,240	3,266,199	0.190			623,052	627,030	99%	99%
70-74	53,380	256,229	0.208	0.250	0.250	64,057	64,057	83%	83%
Subtotal	672,620	3,522,429	0.191			687,109	691,088	98%	97%
75 & Over	11,174	63,764	0.175	1.000	1.000	63,764	63,764	18%	18%
Total	683,795	3,586,193	0.191			750,874	754,852	91%	91%

TEACHERS - HYBRID
MALE EARLY RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	1,016	97,609	0.010	0.020	0.020	1,952	1,952	52%	52%
56	1,636	96,693	0.017	0.020	0.020	1,934	1,934	85%	85%
57	2,473	76,329	0.032	0.020	0.020	1,527	1,527	162%	162%
58	481	66,386	0.007	0.020	0.020	1,328	1,328	36%	36%
59	1,215	60,156	0.020	0.030	0.030	1,805	1,805	67%	67%
60	700	61,145	0.011	0.030	0.030	1,834	1,834	38%	38%
61	2,544	56,708	0.045	0.030	0.030	1,701	1,701	150%	150%
62	-	-	N/A	0.000	0.000	-	-	0%	0%
63	-	-	N/A	0.000	0.000	-	-	0%	0%
64	-	-	N/A	0.000	0.000	-	-	0%	0%
Total	10,064	515,026	0.020			12,081	12,081	83%	83%

TEACHERS - HYBRID
FEMALE EARLY RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
55	4,508	242,882	0.019	0.020	0.020	4,858	4,858	93%	93%
56	2,781	191,848	0.014	0.020	0.020	3,837	3,837	72%	72%
57	1,154	158,895	0.007	0.020	0.020	3,178	3,178	36%	36%
58	6,473	146,567	0.044	0.020	0.020	2,931	2,931	221%	221%
59	4,635	137,018	0.034	0.030	0.030	4,111	4,111	113%	113%
60	6,035	135,171	0.045	0.050	0.050	6,759	6,759	89%	89%
61	8,856	130,330	0.068	0.100	0.100	13,033	13,033	68%	68%
62	-	-	N/A	0.000	0.000	-	-	0%	0%
63	-	-	N/A	0.000	0.000	-	-	0%	0%
64	-	-	N/A	0.000	0.000	-	-	0%	0%
Total	34,442	1,142,711	0.030			38,706	38,706	89%	89%

POLICE & FIRE EMPLOYEES
RETIREMENT EXPERIENCE - AGE BASED (LIABILITY WEIGHTED*)

Age	Actual Retirements*	Total Exposed*	Actual Rate	Assumed Rate		Expected Retirements*		Actual/Expected	
				Current	Proposed	Current (3) * (5)	Proposed (3) * (6)	Current (2) / (7)	Proposed (2) / (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
45	2,881	8,413	0.342	0.160	0.180	1,346	1,514	214%	43%
46	2,436	31,575	0.077	0.160	0.180	5,052	5,684	48%	80%
47	12,517	87,083	0.144	0.160	0.180	13,933	15,675	90%	123%
48	51,631	232,614	0.222	0.160	0.180	37,218	41,870	139%	102%
49	63,926	348,516	0.183	0.160	0.180	55,763	62,733	115%	85%
50	78,943	465,126	0.170	0.180	0.200	83,723	93,025	94%	84%
51	94,076	562,388	0.167	0.180	0.200	101,230	112,478	93%	124%
52	159,276	641,066	0.248	0.180	0.200	115,392	128,213	138%	110%
53	137,314	625,424	0.220	0.180	0.200	112,576	125,085	122%	142%
54	169,664	596,408	0.284	0.180	0.200	107,353	119,282	158%	91%
55	159,818	801,278	0.199	0.220	0.220	176,281	176,281	91%	101%
56	143,550	645,147	0.223	0.220	0.220	141,932	141,932	101%	101%
57	107,783	485,622	0.222	0.220	0.220	106,837	106,837	101%	101%
58	94,054	386,339	0.243	0.240	0.240	92,721	92,721	101%	101%
59	80,185	293,701	0.273	0.270	0.270	79,299	79,299	101%	75%
60	49,882	221,729	0.225	0.300	0.300	66,519	66,519	75%	86%
61	44,768	172,551	0.259	0.300	0.300	51,765	51,765	86%	43%
Subtotal	1,452,701	6,604,980	0.220			1,348,941	1,420,914	108%	102%
62-64	81,013	330,642	0.245	0.300	0.300	99,193	99,193	82%	82%
Subtotal	1,533,715	6,935,622	0.221			1,448,134	1,520,106	106%	101%
65 & Over	38,948	123,885	0.314	1.000	1.000	123,885	123,885	31%	31%
Total	1,572,663	7,059,507	0.223			1,572,019	1,643,991	100%	96%

Termination rates

Termination rates reflect members who leave for any reason other than death, disability or service retirement. They apply whether the termination is voluntary or involuntary, whether the member is vested or non-vested, and whether the member takes a refund or keeps his/her account balance on deposit and takes a deferred benefit. For this analysis, we utilized 10 years of data to capture a longer economic cycle and have based the analysis weighted by salary instead of count.

We found that while in general the current assumptions may do a reasonable job of estimating the total number of terminations, they tend to underestimate the turnover experience early in the career. However, some of this experience could have been influenced by the COVID pandemic, thus we have made only partial adjustments. For this assumption, the targeted A/E ratio is 100-105% to allow for rehiring at a later date after an initial termination. The following tables show selected information.

Termination Experience, in \$000's of Liability					
		Old Assumptions		Proposed Assumptions	
	Actual Terminations	Expected Terminations	A/E	Expected Terminations	A/E
10 years of service or less					
Teachers	\$8,898	\$8,347	107%	\$8,433	106%
General Employees	18,000	16,859	107%	17,196	105%
Police & Fire	2,626	2,228	118%	2,450	107%
11 years of service or more					
Teachers	\$4,296	\$4,339	99%	\$4,373	98%
General Employees	7,935	7,865	101%	7,986	99%
Police & Fire	5,752	5,205	110%	5,560	103%

GENERAL EMPLOYEES
***SERVICE BASED WITHDRAWAL EXPERIENCE - LIABILITY WEIGHTED in \$000s**

Service (1)	Actual Terminations* (2)	Total Exposed* (3)	Actual Rate (4)	Assumed Rate		Expected Terminations*		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
1	2,595	13,754	0.1887	0.1772	0.1807	2,437	2,486	106%	104%
2	2,807	18,820	0.1492	0.1422	0.1450	2,676	2,730	105%	103%
3	2,365	19,778	0.1196	0.1142	0.1165	2,259	2,304	105%	103%
4	2,091	21,427	0.0976	0.0920	0.0938	1,971	2,011	106%	104%
5	1,760	21,926	0.0803	0.0748	0.0763	1,640	1,673	107%	105%
6	1,679	22,614	0.0742	0.0617	0.0629	1,395	1,423	120%	118%
7	1,279	24,025	0.0532	0.0519	0.0529	1,247	1,272	103%	101%
8	1,358	25,729	0.0528	0.0447	0.0456	1,150	1,173	118%	116%
9	1,059	27,331	0.0388	0.0396	0.0404	1,082	1,104	98%	96%
10	1,007	27,966	0.0360	0.0358	0.0365	1,001	1,021	101%	99%
11	1,158	28,346	0.0409	0.0328	0.0335	930	948	125%	122%
12	1,003	28,526	0.0352	0.0303	0.0309	864	882	116%	114%
13	871	28,768	0.0303	0.0279	0.0285	803	819	109%	106%
14	760	29,786	0.0255	0.0226	0.0231	673	687	113%	111%
15	647	31,211	0.0207	0.0198	0.0202	618	630	105%	103%
16	689	30,911	0.0223	0.0177	0.0181	547	558	126%	124%
17	589	29,110	0.0202	0.0161	0.0164	469	478	126%	123%
18	358	27,061	0.0132	0.0148	0.0151	401	409	89%	88%
19	378	25,962	0.0146	0.0137	0.0140	356	363	106%	104%
20	235	24,841	0.0094	0.0128	0.0131	318	324	74%	72%
21	268	24,655	0.0109	0.0119	0.0119	293	295	91%	91%
22	170	24,284	0.0070	0.0111	0.0111	270	270	63%	63%
23	184	24,202	0.0076	0.0102	0.0102	247	248	74%	74%
24	161	24,523	0.0066	0.0093	0.0093	228	228	71%	71%
25	126	25,247	0.0050	0.0083	0.0083	210	209	60%	61%
26	104	26,019	0.0040	0.0071	0.0071	185	186	56%	56%
27	96	26,486	0.0036	0.0060	0.0060	159	158	60%	60%
28	79	27,373	0.0029	0.0047	0.0047	129	130	62%	61%
29	58	28,379	0.0020	0.0035	0.0035	99	100	58%	58%
30	0	28,389	0.0013	0.0024	0.0024	68	67	56%	57%
Totals	25,974	767,450				24,724	25,183	105%	103%

TEACHERS
***SERVICE BASED WITHDRAWAL EXPERIENCE - LIABILITY WEIGHTED in \$000s**

Service (1)	Actual Terminations* (2)	Total Exposed* (3)	Actual Rate (4)	Assumed Rate		Expected Terminations*		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
1	1,292	6,343	0.2037	0.1979	0.1999	1,255	1,268	103%	102%
2	1,231	6,970	0.1766	0.1652	0.1669	1,151	1,163	107%	106%
3	1,159	7,962	0.1455	0.1348	0.1362	1,073	1,084	108%	107%
4	946	8,759	0.1080	0.1082	0.1094	948	958	100%	99%
5	900	9,415	0.0956	0.0863	0.0872	813	821	111%	110%
6	848	10,219	0.0830	0.0694	0.0701	709	716	120%	118%
7	673	11,083	0.0607	0.0573	0.0579	635	641	106%	105%
8	607	12,200	0.0498	0.0494	0.0499	603	609	101%	100%
9	642	13,150	0.0489	0.0445	0.0450	585	592	110%	109%
10	599	14,022	0.0427	0.0410	0.0414	575	581	104%	103%
11	571	14,657	0.0390	0.0358	0.0361	525	529	109%	108%
12	482	15,167	0.0318	0.0324	0.0327	491	496	98%	97%
13	530	15,543	0.0341	0.0291	0.0294	452	457	117%	116%
14	449	16,061	0.0279	0.0261	0.0264	419	423	107%	106%
15	422	16,811	0.0251	0.0232	0.0235	390	395	108%	107%
16	329	16,398	0.0201	0.0206	0.0208	338	341	97%	97%
17	272	15,860	0.0171	0.0181	0.0183	287	290	95%	94%
18	265	15,616	0.0170	0.0158	0.0159	247	249	107%	107%
19	185	15,789	0.0117	0.0136	0.0138	215	218	86%	85%
20	195	15,565	0.0125	0.0117	0.0118	182	184	107%	106%
21	132	15,479	0.0086	0.0100	0.0100	155	154	85%	86%
22	67	15,582	0.0043	0.0084	0.0084	131	131	51%	51%
23	74	15,269	0.0048	0.0070	0.0070	107	107	69%	69%
24	62	15,451	0.0040	0.0058	0.0058	90	90	69%	69%
25	71	15,610	0.0046	0.0048	0.0048	75	75	95%	95%
26	58	15,865	0.0037	0.0040	0.0040	63	63	92%	92%
27	69	15,979	0.0043	0.0033	0.0033	53	53	131%	131%
28	24	15,629	0.0015	0.0028	0.0028	44	45	55%	54%
29	25	14,693	0.0017	0.0026	0.0026	38	38	66%	66%
30	12	14,102	0.0009	0.0026	0.0025	37	35	34%	36%
Totals	13,194	411,250				12,686	12,806	104%	103%

POLICE & FIRE EMPLOYEES
***SERVICE BASED WITHDRAWAL EXPERIENCE - LIABILITY WEIGHTED in \$000s**

Service (1)	Actual Terminations* (2)	Total Exposed* (3)	Actual Rate (4)	Assumed Rate		Expected Terminations*		Actual/Expected	
				Current (5)	Proposed (6)	Current (3) * (5) (7)	Proposed (3) * (6) (8)	Current (2) / (7) (9)	Proposed (2) / (8) (10)
1	548	3,268	0.1678	0.1400	0.1540	458	503	120%	109%
2	278	5,105	0.0544	0.0524	0.0576	267	294	104%	94%
3	249	5,570	0.0448	0.0413	0.0454	230	253	108%	99%
4	214	6,064	0.0353	0.0348	0.0383	211	232	101%	92%
5	284	6,264	0.0453	0.0302	0.0332	189	208	150%	137%
6	214	6,763	0.0316	0.0266	0.0293	180	198	119%	108%
7	233	7,323	0.0318	0.0237	0.0261	174	191	134%	122%
8	202	8,144	0.0249	0.0213	0.0234	173	191	117%	106%
9	228	9,195	0.0248	0.0191	0.0210	176	193	130%	118%
10	176	9,874	0.0178	0.0172	0.0189	170	187	104%	94%
11	209	10,597	0.0197	0.0156	0.0172	165	182	126%	115%
12	152	11,152	0.0136	0.0106	0.0117	118	130	129%	117%
13	134	11,845	0.0113	0.0100	0.0110	118	130	113%	103%
14	145	12,340	0.0117	0.0094	0.0103	116	128	125%	113%
15	246	14,030	0.0175	0.0088	0.0097	123	136	199%	181%
16	120	14,756	0.0081	0.0082	0.0082	121	121	99%	99%
17	109	15,469	0.0070	0.0076	0.0076	118	118	93%	92%
18	65	15,846	0.0041	0.0070	0.0070	111	111	59%	59%
19	98	16,123	0.0061	0.0064	0.0064	103	103	95%	96%
20	62	16,251	0.0038	0.0058	0.0058	94	94	66%	66%
21	70	16,842	0.0041	0.0052	0.0052	88	88	80%	79%
22	61	17,285	0.0035	0.0046	0.0046	80	80	77%	76%
23	14	17,898	0.0008	0.0040	0.0040	72	72	20%	20%
24	78	18,164	0.0043	0.0034	0.0034	62	62	126%	125%
Totals	4,189	276,166				3,716	4,005	113%	105%

Sick Leave

We currently assume that each member has their service increased at retirement for unused sick leave. The current assumption varies the percentage increase by employee group. Data shows the amount of sick leave is proportional to the amount of service at retirement. Data also shows the amount differs by General Employees, Teachers, and Police and Fire. We are recommending small increases to the assumption. The following is the experience from 2019-2024 based on actual retirements showing the average months of service.

	Credited Service at Retirement	Credited Sick Leave	% Increase	Current Assumption	Proposed Assumption
Teachers	313.7	12.2	3.89%	3.75%	3.85%
General Employees	288.0	9.3	3.21%	3.25%	3.25%
Police & Fire	328.6	16.9	5.14%	5.00%	5.10%

Other assumptions

There are other assumptions made in the course of a valuation, such as the age difference between husbands and wives, the likelihood that a terminating employee will take a refund, timing of decrements, etc. We reviewed these, and decided to recommend no changes to these other assumptions.

Actuarial methods

We have reviewed the actuarial cost method being used—the Entry Age Normal cost method (EAN)—and we continue to believe that this is the method of choice for this plan, since this method usually does the best job of keeping costs level as a percentage of payroll.

Actuarial Value of Assets

Actuaries generally recommend using a smoothed actuarial value of assets (AVA), rather than market value (MVA), in order to dampen the fluctuations in measurements such as the required contribution amount and the funded status of the Plan. Currently, the actuarial value of assets is based on the market value of assets with four-year smoothing applied. We recommend no change to this method.

SECTION IV

ACTUARIAL IMPACT OF RECOMMENDATIONS

Actuarial Impact of Recommendations

All values are based on the illustrated valuation as of June 30, 2024.

Item	Current Assumptions	Proposed Assumptions
(1)	(2)	(3)
Total System		
Unfunded Actuarial Accrued Liability (\$ in Millions)	\$14,008	\$14,130
Funded Ratio	63.0%	62.8%
Funding Period	22	22
Police and Fire Only		
Unfunded Actuarial Accrued Liability (\$ in Millions)	\$2,233	\$2,361
Total Normal Cost %	27.12%	27.91%
Funding Period based on current 41% employer contribution rate (years)	22	25
All Other Employees		
Unfunded Actuarial Accrued Liability (\$ in Millions)	\$11,776	\$11,770
Total Normal Cost %	12.93%	12.94%
Funding Period based on current 24% employer contribution rate (years)	22	22

Shown above is a table that compares key statistics from the June 30, 2024 actuarial valuation before and after taking into account the recommended new assumptions. The net result of making all the recommended changes makes a very small change in the picture of ERS's actuarial status.

The Board's decisions should be based on the appropriateness of each recommendation not on their effect on the funding period or the unfunded liability.

SECTION V

SUMMARY OF ASSUMPTIONS AND METHODS INCORPORATING THE RECOMMENDED ASSUMPTIONS

Summary of Assumptions and Methods Incorporating the Recommended Assumptions

The following assumptions were developed and recommended based on an experience study performed in 2025. All of the assumptions are based on a combination of anticipated future experience and market observations. We believe all of the assumptions are reasonable and appropriate for this measurement.

I. Valuation Date

The valuation date is June 30th of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

II. Actuarial Cost Method

The normal cost and actuarial accrued liability are determined using the Entry Age Actuarial Cost Method. The actuarial accrued liability is assigned to years prior to the valuation, and the normal cost is assigned to the year following the valuation. The remaining costs are assigned to future years. The normal cost and accrued liability are determined on an individual basis.

The normal cost is the level percentage of payroll contribution required to accumulate the needed funds to pay all expected benefits. This percentage of payroll is then applied to the total compensation for the prior year for all active members, and is then adjusted for the payroll growth assumption.

The actuarial accrued liability is the difference between the total present value of future benefits and the actuarial present value of future normal costs. The unfunded actuarial accrued liability (UAAL) is the excess of the actuarial accrued liability over the actuarial value of assets.

III. Funding of Unfunded Actuarial Accrued Liability

Since the State statutes governing the System establish the employee and employer contribution rates, the actuarial valuation determines the number of years required to amortize (or fund) the UAAL. Because of the legislated increases in future employer contribution rates and the new tier of benefits for employees hired after June 30, 2012, an open group projection of liabilities and assets was used to determine the length of time until the UAAL is eliminated. The open group projection assumed that the number of active members would remain static (i.e. each active employee who leaves employment due to termination, retirement, death or disability, would be replaced by exactly one new employee).

Because of this methodology for determining the funding period, any change in the unfunded actuarial accrued liability due to (i) actuarial gains and losses, (ii) changes in actuarial assumptions, or (iii) amendments, affects the funding period.

Please see Section V of this table for a description of the new entrant profile used in the open group projection.

IV. Actuarial Value of Assets

The actuarial value of assets is based on the market value of assets with a four-year phase-in of actual investment return in excess of (less than) expected investment income. Offsetting unrecognized gains and losses are immediately recognized, with the shortest remaining bases recognized first and the net remaining bases continue to be recognized on their original timeframe. The expected actuarial value of assets is calculated net of investment expenses, and the expected investment return is equal to the assumed investment return rate multiplied by the prior year's actuarial value of assets, adjusted for contributions, benefits paid, and refunds.

V. New Entrant Profile

For the purposes of determining the funding period, an open group projection is used which replaces on a one-to-one basis each active member who leaves employment with an average new hire. The average new hire is determined based on a new entrant profile, which is created from the valuation data by determining the entry age and entry pay for anyone with seven or less years of service as of the valuation date. Each group of new hires' salaries is assumed to grow at the General Wage Inflation of 3.50% over the salaries of the previous year's group.

The new entrant profile for members assumed to be hired during the year following the valuation date for the Police and Fire Employees and the All Other Employees are shown in the table below.

New Entrant Profile for Police & Fire Employees		
Entry Age	# of Employees	Average Salary
15-19	3	\$61,386
20-24	269	69,440
25-29	400	68,335
30-34	299	67,853
35-39	130	67,634
40-44	46	69,375
45-49	18	71,047
50-54	8	104,673
55-59	8	84,947
Total	1,182	68,806

It is assumed that 90% of new hires will be male.

New Entrant Profile for All Other Employees		
Entry Age	# of Employees	Average Salary
15-19	22	\$43,491
20-24	1,729	53,040
25-29	3,438	56,007
30-34	2,979	57,958
35-39	2,581	59,577
40-44	2,244	59,256
45-49	1,900	58,151
50-54	1,530	58,615
55-59	1,236	58,496
60-64	624	59,653
65-69	98	59,848
Total	18,381	57,678

It is assumed that 40.0% of new hires will be male and Teachers replace Teachers and Non-Teachers replace Non-Teachers.

VI. Actuarial Assumptions

A. Economic Assumptions

1. Investment return: 7.00% per year, compounded annually, composed of an assumed 2.50% inflation rate and a 4.50% net real rate of return.
2. General Wage Inflation: 3.50% per annum for Police & Fire, 3.00% per annum for the other groups.

3. Salary increase rates: As shown below

Years of Service	General Employees		Teachers	
	Service-related Component	Total Rate Including 2.50% Inflation Component and 1.25% Productivity Component	Service-related Component	Total Rate Including 2.50% Inflation Component and 1.35% Productivity Component
1	3.00%	6.75%	3.00%	6.85%
2	3.00%	6.75%	3.00%	6.85%
3	2.00%	5.75%	2.00%	5.85%
4	1.50%	5.25%	1.50%	5.35%
5	1.50%	5.25%	1.50%	5.35%
6	1.25%	5.00%	1.25%	5.10%
7	1.25%	5.00%	1.25%	5.10%
8	1.00%	4.75%	1.00%	4.85%
9	1.00%	4.75%	1.00%	4.85%
10	1.00%	4.75%	1.00%	4.85%
11	0.75%	4.50%	0.75%	4.60%
12	0.75%	4.50%	0.75%	4.60%
13	0.50%	4.25%	0.50%	4.35%
14	0.50%	4.25%	0.50%	4.35%
15	0.50%	4.25%	0.50%	4.35%
16	0.50%	4.25%	0.50%	4.35%
17	0.50%	4.25%	0.50%	4.35%
18	0.50%	4.25%	0.50%	4.35%
19	0.50%	4.25%	0.50%	4.35%
20	0.25%	4.00%	0.25%	4.10%
21	0.25%	4.00%	0.25%	4.10%
22	0.25%	4.00%	0.25%	4.10%
23	0.25%	4.00%	0.25%	4.10%
24	0.25%	4.00%	0.25%	4.10%
25 or more	0.00%	3.75%	0.00%	3.85%

3. Salary increase rates (continued):

Years of Service	Police & Firefighters	
	Service-related Component	Total Annual Rate of Increase Including 2.50% Inflation Component and 2.50% General Increase Rate
1	0.85%	5.85%
2	0.85%	5.85%
3	0.85%	5.85%
4	0.85%	5.85%
5	0.85%	5.85%
6	0.85%	5.85%
7	0.85%	5.85%
8	0.85%	5.85%
9	0.85%	5.85%
10	0.85%	5.85%
11	0.85%	5.85%
12	0.85%	5.85%
13	0.85%	5.85%
14	0.85%	5.85%
15	0.85%	5.85%
16	0.85%	5.85%
17	0.85%	5.85%
18	0.85%	5.85%
19	0.85%	5.85%
20	0.85%	5.85%
21	0.85%	5.85%
22	0.85%	5.85%
23	0.85%	5.85%
24	0.85%	5.85%
25	0.85%	5.85%
26	0.85%	5.85%
27	0.85%	5.85%
28	0.85%	5.85%
29	0.85%	5.85%
30	0.85%	5.85%
31 or more	0.00%	5.00%

Salary increases are assumed to occur once a year, on July 1. Therefore the pay used for the period between the valuation date and the first anniversary of the valuation date is equal to the reported pay for the prior year, annualized if necessary, and then increased by the salary increase assumption. To adjust the pays received as of March 31st to the June 30th valuation date, the reported pay for each member is increased by 1%.

B. Demographic Assumptions

1. Mortality rates:

Active Members: Multiples of the Pub-2016, Employee Tables for active employees based on the occupation of the member as follows:

	General Employees	Teachers	Police and Fire
Type	Male & Female	Male & Female	Male & Female
Ordinary	95%	95%	80%
% of Ordinary	41%	52%	24%
Choosing Annuity			
Duty Related	5%	5%	20%

Healthy Retirees: The 2022 Public Retirees of Hawaii mortality tables. The rates are projected on a fully generational basis by the long-term rates of scale UMP from the year 2022 and with multipliers and setbacks based on plan and group experience. The following are sample rates of the base table with the corresponding multipliers:

Healthy Annuitant Mortality Rates Before Projection (Multiplier Applied)

	General Employees		Teachers		Police and Fire	
Age	Male	Female	Male	Female	Male	Female
50	0.2094%	0.1276%	0.1698%	0.0951%	0.2344%	0.1130%
55	0.3215%	0.1687%	0.2883%	0.1596%	0.3391%	0.1633%
60	0.5570%	0.3095%	0.4672%	0.2467%	0.6090%	0.2799%
65	0.8041%	0.4488%	0.7256%	0.4063%	0.8386%	0.4283%
70	1.2621%	0.7066%	1.0762%	0.6015%	1.3768%	0.6565%
75	2.0700%	1.0964%	1.7879%	0.9358%	2.2442%	1.0121%
80	3.5996%	2.1275%	3.0429%	1.6565%	3.9844%	1.8863%
85	6.5891%	4.1569%	5.5564%	3.2698%	7.2903%	3.6977%
90	11.9340%	8.3647%	10.1056%	6.5007%	13.1174%	7.3991%
Multiplier	102%	98%	97%	101%	100%	100%
Setback	0	-1	1	1	-1	0

The following table provides the life expectancy for individuals retiring in future years based on the assumption with full generational projection:

Life Expectancy for an Age 65 Retiree in Years					
Gender	Year of Retirement				
	2025	2030	2035	2040	2045
General Retirees					
Male	22.8	23.2	23.5	23.9	24.2
Female	26.3	26.6	26.9	27.2	27.5
Teachers					
Male	24.1	24.5	24.9	25.2	25.5
Female	28.0	28.3	28.6	28.9	29.2
Police and Fire					
Male	22.1	22.4	22.8	23.1	23.5
Female	27.1	27.4	27.7	28	28.3

Disabled retirees: Base Table for healthy retirees' occupation, set forward 3 years, generational projection using the UMP projection table from the year 2022. Minimum mortality rate of 3.5% for males and 2.5% for females.

- Disability rates – The assumed total disability rates at select ages are multiples of the client specific table that follows:

Age	Male & Female
25	0.000%
30	0.001%
35	0.008%
40	0.026%
45	0.064%
50	0.146%
55	0.198%
60	0.212%

Note: The disability rates project the percentage of employees at each age that is assumed to become disabled before retiring. Multiples of the rates above are assumed to be ordinary disability or accidental disability, and varies by employee group as follows:

Type	General Employees	Teachers	Police and Fire
	Male & Female	Male & Female	Male & Female
Ordinary	190%	90%	50%
Accidental	65%	15%	120%

3. Termination Rates - Same male and female rates, based solely on the member's service. Rates reflect terminations for causes other than death, disability or retirement. Employees eligible for retirement are assumed to have no probability of termination. Sample rates are shown below:

Years of Service	Expected Terminations per 1000 Lives (Male & Female)		
	General Employees	Teachers	Police & Fire
0	180.7	0.0	154.0
1	145.0	199.9	57.6
2	116.5	166.9	45.4
3	93.8	136.1	38.3
4	76.3	109.3	33.2
5	62.9	87.2	29.3
6	52.9	70.1	26.1
7	45.6	57.9	23.4
8	40.4	49.9	21.0
9	36.5	44.9	18.9
10	33.5	41.4	17.2
11	30.9	36.2	11.7
12	28.5	32.7	11.0
13	23.1	29.4	10.3
14	20.2	26.4	9.7
15	18.1	23.4	9.0
16	16.4	20.8	7.6
17	15.1	18.3	7.0
18	14.0	16.0	6.4
19	13.1	13.7	5.8
20	12.1	11.8	5.2
21	11.1	10.0	4.6
22	10.2	8.4	4.0
23	9.3	7.0	3.4
24	8.3	5.8	2.8
25	7.1	4.8	0.0
26	6.0	4.0	0.0
27	4.7	3.3	0.0
28	3.5	2.8	0.0
29	2.4	2.6	0.0
30 and more	0.0	0.0	0.0

4. Retirement rates - Separate male and female rates, based on age. Sample rates are shown below:

Contributory Members

Expected Retirements per 100 Lives									
Age	General Employees				Teachers				Police/Fire
	Unreduced Retirement		Reduced Retirement		Unreduced Retirement		Reduced Retirement		Unreduced Retirement
	Male	Female	Male	Female	Male	Female	Male	Female	Male & Female
45	0	0	0	0	0	0	0	0	17.5
46	0	0	0	0	0	0	0	0	17.5
47	0	0	0	0	0	0	0	0	17.5
48	0	0	0	0	0	0	0	0	17.5
49	0	0	0	0	0	0	0	0	17.5
50	0	0	0	0	0	0	1	0	20.0
51	0	0	2	1	0	0	1	1	20.0
52	0	0	2	1	0	0	1	1	20.0
53	0	0	2	1	0	0	2	2	20.0
54	0	0	3	2	0	0	3	3	20.0
55	25	20			20	18			22.0
56	25	20			15	16			22.0
57	16	13			15	16			22.0
58	16	13			15	16			24.0
59	13	13			15	16			27.0
60	13	15			14	18			30.0
61	13	15			14	18			30.0
62	28	25			14	25			30.0
63	20	20			14	20			30.0
64	20	20			14	15			30.0
65	20	20			20	25			100.0
66	18	20			15	25			
67	18	20			15	20			
68	18	20			15	20			
69	18	20			15	20			
70	20	20			15	20			
71	20	20			15	20			
72	20	20			15	20			
73	20	20			15	20			
74	20	20			15	20			
75	100	100			100	100			

Noncontributory Members

Expected Retirements per 100 Lives										
	General Employees						Teacher			
	Unreduced		25 & Out		Reduced		Unreduced		Reduced Retirement	
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
55	20	12	15	11	2	2	12	13	1	2
56	18	12	23	11	2	2	12	7	1	2
57	13	12	18	11	2	2	12	8	1	2
58	10	12	15	11	2	2	12	10	2	2
59	10	12	15	11	2	2	12	20	3	3
60	10	14	15	14	4	4	12	11	5	5
61	11	18	16	18	4	4	12	16	7	5
62	20	20	25	20			16	25		
63	20	20	25	20			12	20		
64	12	20	17	20			10	15		
65	14	20	19	20			20	25		
66	20	20	25	20			15	25		
67	20	20	25	20			15	25		
68	20	20	25	20			15	25		
69	20	20	25	20			15	25		
70	20	20	25	20			15	25		
71	20	20	25	20			15	25		
72	20	20	25	20			15	25		
73	20	20	25	20			15	25		
74	20	20	25	20			15	25		
75	100	100	100	100			100	100		

Note: Retirement rates for the 25&out group prior to age 55 are 15% for male and 11% for female.

Hybrid Members

	Expected Retirements per 100 Lives							
	General Employees				Teachers			
	Unreduced		Reduced		Unreduced		Reduced	
Age	Male	Female	Male	Female	Male	Female	Male	Female
55	20	18	3	3	20	18	2	2
56	15	13	3	3	15	12	2	2
57	15	13	3	3	15	12	2	2
58	15	13	3	3	15	14	2	2
59	18	13	3	3	15	14	3	3
60	20	13	5	5	15	14	3	5
61	16	15	5	5	15	18	3	10
62	20	20			15	25		
63	16	20			15	20		
64	16	20			15	20		
65	20	20			20	25		
66	20	20			15	25		
67	20	20			15	25		
68	20	20			15	25		
69	20	20			15	25		
70	20	20			15	25		
71	20	20			15	25		
72	20	20			15	25		
73	20	20			15	25		
74	20	20			15	25		
75	100	100			100	100		

Note: For the 25 and out group with membership dates before July 1, 2012, the retirement rates prior to age 55 are 10% for both male and female.

For members hired after June 30, 2012 the retirement rates for members once they reach unreduced retirement eligibility are increased 10% (multiplicative) for each year the member is beyond the age the member would have been eligible under the Hybrid provisions for members hired prior to June 30, 2012.

C. Other Assumptions

1. Projected payroll for contributions: The aggregate projected payroll for the fiscal year following the valuation date is calculated taking the lesser of the actual payroll paid during the previous fiscal year and the current annualized pay on the valuation date and increasing this number by the payroll growth rate.
2. Age difference: Male members are assumed to be four years older than their spouses, and female members are assumed to be four years younger than their spouses.
3. Marriage Assumption: While not implicitly used in the valuation, 100% of active members are assumed to be married when setting other benefit election and eligibility assumptions.
4. Percent electing annuity on death for contributory participants (when eligible): All of the spouses of married participants who die after becoming eligible for a retirement benefit are assumed to elect an annuity or a refund, whichever is more valuable at time of participant's death.
5. Payment Option: Future healthy retirees are assumed to choose the life only payment option. 50% of future disabled retirees are assumed to choose the 100% Joint and Survivor option.
6. Percent electing deferred termination benefit: vested terminating members are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.
7. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt when eligible for early retirement.
8. Administrative expenses: Administrative expenses are assumed to be 0.35% of active member payroll.
9. Reemployment, purchase of service, transfers: No recognition is made of (i) future member reimbursements upon reemployment, (ii) future purchase of additional service, or (iii) special transfer provisions.
10. Sick Leave: It is assumed that all members will have their benefit service increased by sick leave and the following loads will be applied by group:

General Employees	3.25%
Teachers	3.85%
Police and Fire	5.10%

11. COLA delay: It is assumed that the first COLA will be received 9 months after retirement. Teachers are assumed to receive COLA 12 months after retirement,
12. There will be no recoveries once disabled.
13. No surviving spouse will remarry and there will be no children's benefit.
14. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
15. Decrement timing: Retirements and terminations of Teachers are assumed to occur at the beginning of the year. All other decrements are assumed to occur mid-year.
16. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
17. Decrement relativity: Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
18. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
19. Benefit Service: All members are assumed to accrue 1 year of service each year. Exact fractional service is used to determine the amount of benefit payable.
20. Police officers, firefighters, investigators of the Department of the Prosecuting Attorney and the Attorney General, narcotic enforcement investigators, and public safety investigators hired prior to June 30, 2012 are not assumed to retire at age 55 unless they have 10 years of service.

VI. Participant Data

Participant data was supplied in electronic files for (i) active members, (ii) inactive vested members, who are entitled to a future deferred benefit, (iii) members and beneficiaries receiving benefits.

Salary supplied for the current year was based on the actual pensionable earnings for the 12-month period ending the March preceding the valuation date. This pay was increased by 1% to reflect the three month difference from March to June. For members with less than one year of service, the base pay rate provided in the data was used.

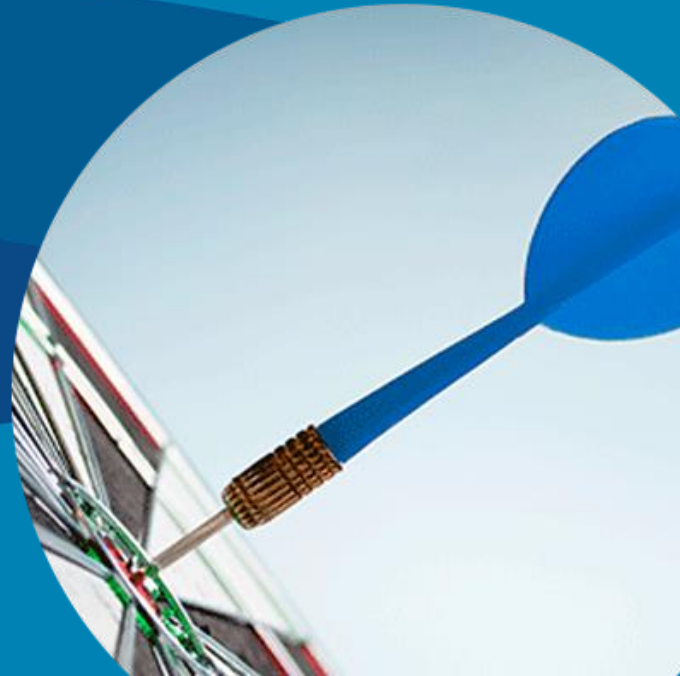
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DRAFT



Employees' Retirement System of the State of Hawaii

Funding Policy Discussion



What is a Funding Policy?

- Similar to an Investment Policy, the “Funding Policy” of a pension plan is a systematic set of procedures used to determine the annual contributions to be made by the employer in a specific year and *series* of years
- Under a “typical” funding policy the total contribution requirement equals:
 - Normal Cost (new accruals), plus
 - Amortization of Unfunded Liability
- The policy will usually detail how the annual contributions will be determined, when they will change, etc.

Difference in this Case

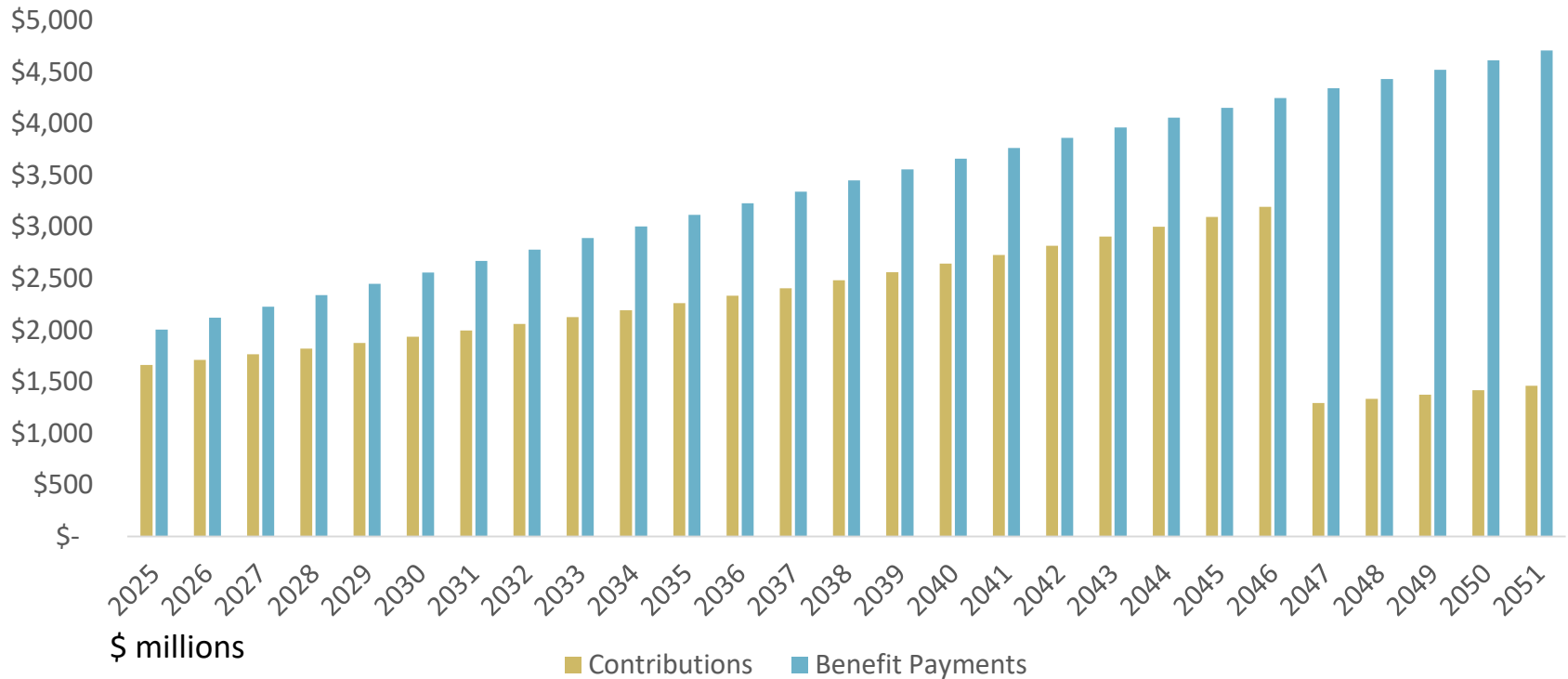
- The typical funding policy details every step on how to determine the employer contribution, in either dollars or percentages of payroll
 - Clearly, this would need to be a comprehensive document
- However, in ERS' case, only the Legislature has authority to set the amount of contributions (or contribution rates), thus the policy should be more general

The Purpose for a Funding Policy Adopted by the ERS Board

- A written funding policy can provide a mechanism for the ERS Board to communicate to stakeholders and publicly state their goals:
 - Help stakeholders better understand the principles and best practices that help sustain benefits over the long-term
 - Provide stakeholders a standard to measure against
 - Provide stakeholders expectations of future policy decisions
- The policy will be more concise and goal-oriented

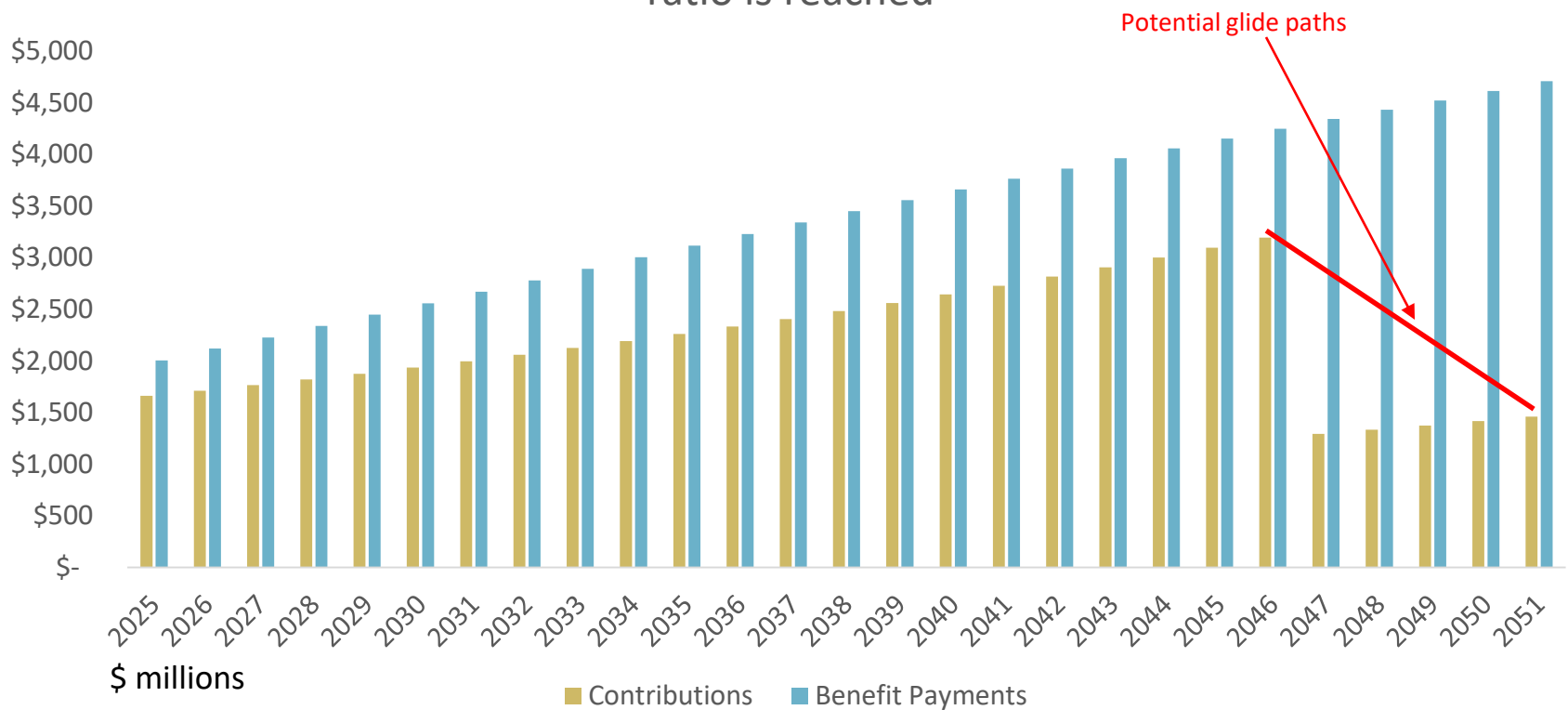
Once the plan reaches full funding, there could be a significant decrease in the net cash flow if the contributions were lowered in one year

Projected Cashflows in \$millions
Assuming contributions drop to normal cost when 100% funded ratio is reached



Would be better to have this happen at a moderate pace, mainly for liquidity and cash flow management in the portfolio

Projected Cashflows in \$millions
Assuming contributions drop to normal cost when 100% funded ratio is reached



Example: – Utah Retirement Systems

Summary of Contribution Rate Management Plan

Funded Ratio (FR) on an AVA Basis	Maximum Effective Funding Period ¹	Change in Actuarially Determined Contribution Rate	Margin in Contribution Rate ²	Decrease in Board Certified Contribution Rate
(1)	(2)	(3)	(4)	(5)
FR < 90%	----- No Reduction in Contribution Rate -----			N/A
90% < FR < 95%	13 Years	Decrease	> 2.00%	Max 0.50%
95% < FR < 105%	10 Years	Decrease	> 1.00%	Max 1.00%
105% < FR < 110%	N/A	May not increase by more than 0.5%	N/A	Max 2.00%
110% < FR	N/A	N/A	N/A	Maintain 110% FR

¹ The maximum effective funding period must be maintained after the contribution rate is reduced.

² The contribution rate margin is the difference between the Board certified contribution rate and the actuarially determined contribution rate.

Source: URS Actuarial Valuation Report

Potential starting point

- The ERS Board supports contribution and benefit policies that would be expected to achieve and maintain full funding
- Once full funding is achieved, the contributions as a rate of payroll need to decrease in an orderly fashion, with limited decreases each year:
 - So that the asset portfolio would not be burdened by significant changes in the cash flows
 - And to build in margin to protect the System from a need to increase contributions in the future
 - To accomplish this, the Board recommends the contribution rates as a percentage of payroll not decrease more than 5% per year for Police and Fire Employee and 3% per year for All Other Employees.
- Over the long term, the Board recommends the contribution rates be set in a way to target a 110% funded ratio to enhance benefit security and minimize the risk to employers for increasing contribution rates

Recommendation

- We recommend the ERS Board adopt a policy to communicate to stakeholders its goals, how it will monitor progress, and its preferred approach to unwind the high contribution rates when appropriate
- Increases transparency to stakeholders (employers and active members) and gets everyone on the same page
 - Gives ERS opportunity to identify the desired target funded ratio (e.g. 100%, 105%, 110%)
 - If ERS can eventually get buy in from Legislature, will help in future asset allocation studies to know approach to cash flow projections
 - Cautious approach will be slower in reducing contribution requirements but decrease the likelihood of an increase in the contribution requirement in a future year

***Presentation to the Administrative and
Audit Committee of the
Employees' Retirement System
of the State of Hawaii***

*Financial Audit of the ERS
Year Ended June 30, 2024*

August 21, 2025



Financial Audit of the ERS

Agenda

- ▶ Presenters:
 - Robyn Kawamura, Partner
 - YeeYan Lim, Manager
- ▶ Scope of Services and Reports Delivered
- ▶ Information on the Conduct of Our Audit
- ▶ Management Letter Comment
- ▶ Open Discussion

Scope of Services and Reports Delivered Year Ended June 30, 2024

Scope of Services

- ▶ Audit of the financial statements of the Employees' Retirement System of the State of Hawaii (the ERS) as of and for the year ended June 30, 2024.
- ▶ Audit of the schedule of employer allocations and schedule of pension amounts by employer as of and for the year ended June 30, 2024.

Reports Delivered

- ▶ Independent auditors' report on the ERS' financial statements
 - Auditing Standards Generally Accepted in the United States of America
 - Government Auditing Standards
 - Unmodified opinion on financial statements

Scope of Services and Reports Delivered, cont. Year Ended June 30, 2024

Reports Delivered, continued

- ▶ Independent auditors' report on internal control over financial reporting and on compliance
 - No material weaknesses in internal control over financial reporting
 - No instances of noncompliance or other matters noted
- ▶ Required communications letter to the State Auditor and the Board of Trustees of the ERS
- ▶ Independent accountants' report on the schedule of employer allocations and schedule of pension amounts by employer
 - Unmodified opinion on the schedules
- ▶ Management letter

Information on the Conduct of Our Audit Year Ended June 30, 2024

Qualitative Aspects of Accounting Policies

Management has the responsibility for the selection and use of appropriate accounting policies. The significant accounting policies used by the ERS are described in Note B to the financial statements.

There were no new significant accounting policies adopted and the application of existing policies was not changed during 2024.

We noted no transactions entered into by the ERS during the year for which there is a lack of authoritative guidance or consensus.

All significant transactions have been recognized in the financial statements in the proper period.

Information on the Conduct of Our Audit, cont. Year Ended June 30, 2024

No Significant Difficulties Encountered in Performing the Audit

We encountered no significant difficulties in dealing with management in performing and completing our audit.

No Disagreements with Management

There were no disagreements with management on financial accounting, reporting, or auditing matters that, if not satisfactorily resolved, would have caused a modification of our report.

Accounting Estimates

Accounting estimates are an integral part of the financial statements prepared by management. The more significant accounting estimates affecting the ERS' financial statements include:

- Valuation of investments
- Actuarial valuation of total pension liability

We evaluated the key factors and assumptions used by management to develop the estimates and determined that they are reasonable in the relation to the financial statements taken as a whole.

Information on the Conduct of Our Audit, cont. Year Ended June 30, 2024

Corrected and Uncorrected Misstatements

Professional standards require us to accumulate and communicate all significant audit adjustments identified during the audit.

No corrected or uncorrected misstatements were identified during our audit.

Independence

Our professional standards and other regulatory requirements specify that we communicate to you in writing at least annually all independence-related relationships between our firm and the ERS.

We hereby confirm that we are independent accountants with respect to the ERS under all relevant professional and regulatory standards.

Management Letter Comment

Year Ended June 30, 2024

Delayed Reporting of Eligible Compensation Adjustments by Participating Employers

Employer and member pension contributions are calculated based on eligible compensation. Effective January 1, 2023, temporary assignment pay is no longer considered eligible compensation for members hired after June 30, 2012.

We were informed that participating employers experienced delays in updating their payroll systems to exclude temporary assignment pay from eligible compensation by the effective date of January 1, 2023. Between February and May 2023, these system adjustments were gradually implemented. However, as of August 2025, participating employers have not reported the necessary corrections to the ERS to facilitate reimbursement of overpaid employer and member contributions between January 1, 2023, and the date each participating employer implemented the corrections.

We recommend that the participating employers submit the necessary adjustments to the ERS as soon as possible to ensure the proper refund of overpaid pension contributions to both participating employers and members. We also recommend that the ERS continue to communicate with participating employers to resolve any identified adjustments to eligible compensation.

The ERS has contracted for professional internal compliance testing services of employer payroll and personnel reporting to the ERS. This will support the testing of baseline reporting requirements set forth by the ERS and will further determine employers' adherence to payroll and personnel data reporting requirements.

We were also informed that the ERS, in partnership with contracted vendors, is currently developing and implementing an employer reporting manual.

Employees' Retirement System of the State of Hawaii

Financial Statements and Supplementary Information
(With Independent Auditors' Report)

June 30, 2024

DRAFT - 08.13.2025

Submitted by
THE AUDITOR
STATE OF HAWAII

**EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII**

Financial Statements and Supplementary Information

June 30, 2024

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**EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII**

Financial Statements and Supplementary Information

June 30, 2024

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PART I
INTRODUCTION SECTION

September __, 2025

The Auditor
State of Hawaii:

Board of Trustees
Employees' Retirement System of the State of Hawaii:

We have completed our audit of the financial statements of the Employees' Retirement System of the State of Hawaii (the ERS), as of and for the year ended June 30, 2024. We transmit herewith our independent auditors' report containing our opinion on those financial statements and our independent auditors' report on internal control over financial reporting and on compliance and other matters based on an audit of financial statements performed in accordance with *Government Auditing Standards*.

Audit Objectives

The objectives of the audit were as follows:

1. To provide an opinion on the fair presentation of the ERS' financial statements in accordance with accounting principles generally accepted in the United States of America.
2. To consider the ERS' internal control over financial reporting in order to determine our auditing procedures for the purpose of expressing our opinion on the financial statements.
3. To perform tests of the ERS' compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts.

Scope of Audit

We performed our audit of the ERS' financial statements as of and for the year ended June 30, 2024, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States.

As part of the audit of the ERS' financial statements, we considered the ERS' internal control over financial reporting to determine our auditing procedures for the purpose of expressing our opinion on the financial statements. We also performed tests of the ERS' compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the financial statements.

Organization of Report

This report has been organized into three parts as follows:

1. The Introduction Section describes briefly the objectives and scope of our audit and the organization and contents of this report.
2. The Financial Section includes management's discussion and analysis (unaudited), the ERS' financial statements and the related notes, required supplementary information (unaudited), and other supplementary information as of and for the year ended June 30, 2024, and our independent auditors' report thereon.
3. The Internal Control and Compliance Section contains our independent auditors' report on the ERS' internal control over financial reporting and on compliance and other matters based on an audit of financial statements performed in accordance with *Government Auditing Standards*.

* * * * *

We would like to take this opportunity to express our appreciation for the courtesy and assistance extended to us by the personnel of the ERS during the course of our engagement. Should you wish to discuss any of the matters contained herein, we will be pleased to meet with you at your convenience.

Very truly yours,

PART II
FINANCIAL SECTION

Independent Auditors' Report

The Auditor
State of Hawaii:

Board of Trustees
Employees' Retirement System of the State of Hawaii:

Report on the Audit of the Financial Statements

Opinion

We have audited the statement of fiduciary net position of the Employees' Retirement System of the State of Hawaii (the ERS) as of June 30, 2024, and the related statement of changes in fiduciary net position for the year then ended, and the related notes to financial statements, which collectively comprise the ERS' basic financial statements as listed in the table of contents.

In our opinion, the accompanying financial statements referred to above present fairly, in all material respects, the fiduciary net position of the ERS as of June 30, 2024, and the changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States (*Government Auditing Standards*). Our responsibilities under those standards are further described in the *Auditors' Responsibilities for the Audit of the Financial Statements* section of our report. We are required to be independent of the ERS and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the ERS' ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with auditing standards generally accepted in the United States of America and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with auditing standards generally accepted in the United States of America and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the ERS' internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the ERS' ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, the schedule of changes in the employers' net pension liability and related ratios, the schedule of the employers' net pension liability, and the schedule of investment returns (collectively the required supplementary information) be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements,

is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Supplementary Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the ERS' basic financial statements. The supplementary information included in Schedules 1 through 4 as listed in the table of contents is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information included in Schedules 1 through 3 has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the supplementary information included in Schedules 1 through 3 is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

The information included in Schedule 4 has not been subjected to the auditing procedures applied in the audit of the financial statements, and accordingly, we do not express an opinion or provide any assurance on it.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated September __, 2025, on our consideration of the ERS' internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the ERS' internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the ERS' internal control over financial reporting and compliance.

Honolulu, Hawaii
September __, 2025

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Management's Discussion and Analysis (Unaudited)

June 30, 2024

This Management's Discussion and Analysis (MD&A) of the Employees' Retirement System of the State of Hawaii (the ERS) provides highlights and comparisons of the financial position and performance of the ERS as of and for the year ended June 30, 2024. The MD&A is presented as a narrative overview and analysis in conjunction with the Letter of Transmittal, which is included in the Introductory Section of the separately issued ERS Annual Comprehensive Financial Report (the ACFR). For more detailed information pertaining to the ERS' financial activities, the reader should also review the actual financial statements, including the notes and supplementary information.

Overview of the Financial Statements

The ERS is responsible for administering a defined-benefit pension plan for state government, local government, and public education employees in the State of Hawaii (the State).

The ERS' financial statements include fiduciary type funds that are used to account for resources held for the benefit of parties outside of the ERS. The primary fund is defined as a Pension Trust Fund as these assets are held for the benefit of its members and their beneficiaries for the payment of pension benefits. Throughout this discussion and analysis, units of measure (i.e., billions, millions, and thousands) are approximate, being rounded up or down to the nearest tenth of the respective unit value.

This discussion and analysis is intended to serve as an introduction to the ERS' financial reporting, which comprises the following components:

- The two main basic financial statements include the statement of fiduciary net position as of June 30, 2024, and the related statement of changes in fiduciary net position during the fiscal year from July 1, 2023 to June 30, 2024 (FY 2024). These provide a snapshot of the resources available at the end of the fiscal year and a summary of changes in resources available to pay pension benefits to members, retirees, and beneficiaries.
- The related notes to financial statements are an integral part of the basic financial statements and include detailed information that is essential to a full understanding of the data provided in the basic financial statements.
- The Required Supplementary Information, which includes the schedules of changes in the employers' net pension liability and related ratios, employers' net pension liability, and investment returns, and the related notes to required supplementary information, are required to be presented to supplement the basic financial statements for placing the financial statements in an appropriate operational, economic, or historical context.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Management's Discussion and Analysis (Unaudited)

June 30, 2024

- The Other Supplementary Information is derived from and relates directly to the underlying accounting and other records used to prepare the financial statements, and provides additional detailed information concerning the changes in operating reserves established by legislation, and the operating and investment related expenses of the ERS. The Other Supplementary Information also includes a report on employer social security contribution amounts for the State that are paid directly to the Internal Revenue Service (IRS). This information is separate from the financial information of the Pension Trust Fund.

Financial Highlights

- The fiduciary net position increased to \$23.7 billion as of June 30, 2024, with an increase in funded status during the fiscal year to 62.6%. The ERS' fiduciary net position was \$22.4 billion, for a 61.9% funded status as of June 30, 2023.
- The ERS investment return (net of fees, and contains lagged and non-lagged components) was 7.2% for the 2024 fiscal year compared to 1.9% for the 2023 fiscal year, using the time-weighted rate of return methodologies that are generally accepted by the Global Investment Performance Standards (GIPS) (that is shown in the *Investment Section* of the ACFR). The investment program outperformed its actuarial and investment goal of 7.0% that was effective June 30, 2024. Under Governmental Accounting Standards Board (GASB) Statement No. 67, *Financial Reporting for Pension Plans – an amendment of GASB Statement No. 25*, the annual money-weighted return on ERS' pension plan investments, net of pension plan investment expense, was 6.6% and 3.8% for FY 2024 and FY 2023, respectively.

Effective October 1, 2014, the Board of Trustees of the ERS (the Board) approved the adoption of a change in its asset allocation policy from the asset-class policy to a new risk-based asset allocation framework (with four major asset classes: Broad Growth, Principal Protection, Real Return, and Crisis Risk Offset). Following the completion of the 2019 Asset Liability Study, the Board adopted a new long-term strategic allocation policy, in July 2020, that established two major asset classes of Broad Growth and Diversifying Strategies. Most prevailing classes and sub-classes were renamed and/or reorganized allocations to better align with risk allocations, while a few classes were eliminated as part of this policy update.

The Board initiated and completed an asset-liability study during fiscal year 2023. As a result of the 2023 Asset-Liability Study, the Board adopted a new long-term strategic allocation policy which became effective on January 1, 2024. In addition, the strategic class framework incorporated new naming conventions and improved definitions of sub-asset classes to better align with the ERS risk allocation and restructured certain invested opportunities to better align with their characteristics. Please refer to Note E.1, Investment Policy, for more detailed information on the asset allocation policy.

- During 2024 and 2023, there was no significant legislation passed that significantly affects the operations or provisions of the pension trust.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Management's Discussion and Analysis (Unaudited)

June 30, 2024

- Total pension liability as of June 30, 2024 increased to \$37.8 billion from \$36.2 billion as of June 30, 2023, while the corresponding net pension liability increased to \$14.1 billion as of June 30, 2024 from \$13.8 billion as of June 30, 2023. Covered payroll for the ERS increased in FY 2024 to \$4.9 billion compared to FY 2023 of \$4.7 billion for a 5.9% increase.
- The fiduciary net position as a percentage of total pension liability increased to 62.6% from 61.9% as of June 30, 2024 and June 30, 2023, respectively, while the funded ratio on an actuarial basis increased to 63.0% from 62.2%, respectively. The main difference between the two methods is under GASB Statement No. 67 for financial reporting purposes, the fiduciary net position is based only on the market value of assets while under actuarial value for the net assets for funding purposes allows for a four-year market smoothing of assets of net appreciation.
- Contributions from members and employers increased by a total of \$154.4 million during FY 2024, or 9.7% from FY 2023. The increase is primarily an increase in covered payroll from an increase in active members and pay increases, more active members being required to contribute, and new employees contributing at higher contribution rates. The historical summary of legislation impacting the ERS actuarial valuations is discussed in more detail in the "Summary of Plan Changes" in the Actuarial Section of the ACFR.
- Total benefit payments increased by \$83.1 million, or 4.6% in FY 2024 from FY 2023. Pension benefits continue to increase due to 1.5% more retirees and beneficiaries (55,820 in 2024 compared to 54,973 in 2023), an increase in the average pension benefit for new retirees, and the annual 2.5% or 1.5% postretirement increase paid to most retirees.
- Administrative expenses decreased by \$0.5 million to \$18.0 million in FY 2024 from \$18.5 million in FY 2023. The decrease in administrative expenses is primarily the result of a decrease in computer related (equipment, cloud, and maintenance) costs, and to a lesser extent a decrease in salaries and wages (from increased vacancies), professional services, and postage costs. These costs were offset by an increase in fringe benefit assessment costs and the liability increase for vacation accruals. Administrative expenses for all years were within the ERS' budgeted amounts.

**EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII**

Management's Discussion and Analysis (Unaudited)

June 30, 2024

Analysis of Fiduciary Net Position

Summary of Fiduciary Net Position

June 30, 2024 and 2023

(Dollars in millions)

	2024	2023	FY 2024 % Change
Assets:			
Cash and cash equivalents and short-term investments	\$ 816.5	\$ 497.9	64.0 %
Receivables	352.3	199.9	76.2 %
Investments	22,740.8	21,959.0	3.6 %
Invested securities lending collateral	765.6	491.5	55.8 %
Equipment, net	3.0	4.0	(25.0) %
Total assets	<u>24,678.2</u>	<u>23,152.3</u>	6.6 %
Liabilities:			
Securities lending collateral	765.6	491.5	55.8 %
Investment accounts and other payables	212.0	235.4	(9.9) %
Total liabilities	<u>977.6</u>	<u>726.9</u>	34.5 %
Fiduciary net position restricted for pensions	<u><u>\$ 23,700.6</u></u>	<u><u>\$ 22,425.4</u></u>	5.7 %

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Management's Discussion and Analysis (Unaudited)

June 30, 2024

Summary of Changes in Fiduciary Net Position Years Ended June 30, 2024 and 2023 (Dollars in millions)

	2024	2023	FY 2024 % Change
Additions:			
Contributions	\$ 1,738.4	\$ 1,584.0	9.7 %
Net investment income	1,461.9	826.9	76.8 %
Total additions, net	<u>3,200.3</u>	<u>2,410.9</u>	32.7 %
Deductions:			
Benefit payments	1,878.5	1,795.4	4.6 %
Refunds of member contributions	28.6	26.4	8.3 %
Administrative expenses	18.0	18.5	(2.7) %
Total deductions	<u>1,925.1</u>	<u>1,840.3</u>	4.6 %
Increase in fiduciary net position restricted for pensions	1,275.2	570.6	123.5 %
Fiduciary net position restricted for pensions:			
Beginning	<u>22,425.4</u>	<u>21,854.8</u>	
Ending	<u>\$ 23,700.6</u>	<u>\$ 22,425.4</u>	

Investments, Investment Income, and Investment Expense

The ERS is a long-term investor and manages its pension assets with long-term objectives in mind. A primary element of the ERS' investment philosophy is diversification among various asset classes. The ERS makes estimates of long-term market returns and establishes an asset allocation strategy taking into account the risks associated with each asset class.

Investments for the risk-based allocation policy approved in FY 2015, as revised, based on the type of security for financial reporting are listed below. In 2016, the ERS began using this framework with four major asset classes that shifts the portfolio asset allocation from a return-based process to a risk-based process that makes use of strategic/functional classes that in-turn utilize underlying asset classes and strategies. Each of these classes is designed to achieve a certain goal (e.g., Real Return class) and/or be exposed to a specific set of macroeconomic risks that are common among the different strategy types and/or assets within the class (e.g., Broad Growth class). As a result of this structure, each strategic class is expected to be exposed to a set of major and minor macroeconomic risks. Following a 2019 Asset Liability Study that was completed in FY 2020, the Board adopted a new long-term strategic allocation policy. As part of the long-term strategic policy, the portfolio transitioned to two major asset classes (rather than four). Prevailing classes and sub-classes were remapped to the two major strategic classes

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Management's Discussion and Analysis (Unaudited)

June 30, 2024

where applicable as part of the FY 2020 implementation. As a result of the 2023 Asset-Liability Study, the strategic class framework incorporated new naming conventions and improved definitions of sub-asset classes to better align with the ERS risk allocation and restructured certain invested opportunities to better align with their characteristics. These revisions became effective during the 2024 fiscal year on January 1, 2024. Information about ERS' investment program is available on the ERS website at <https://ers.hawaii.gov/investments/program>.

The asset distribution of the ERS' investment securities for the pension trust, excluding pending trade settlements and securities lending collateral, at June 30, 2024 and 2023 are presented below at fair value. Fluctuations will occur based on the trading activity and timing of the settlements. Investment balances between the asset classes will change over time based on market sectors' performance and our rebalancing efforts to maintain asset allocation targets. Please refer to the Investment Section of this ACFR for a discussion on the risk-based methodology, asset allocation plan targets, and investments by investment strategy.

Asset Class June 30, 2024 and 2023 (Dollars in millions)				
	2024	%	2023	%
Cash and cash equivalents and short term investments	\$ 816.5	3.5%	\$ 497.9	2.2%
Equity securities	5,277.4	22.4%	5,288.9	23.6%
Fixed income securities	5,200.0	22.1%	3,525.7	15.7%
Real assets investments	4,261.7	18.1%	3,774.8	16.8%
Alternative investments	8,001.7	33.9%	9,369.6	41.7%
Total investment assets	<u>\$ 23,557.3</u>	<u>100.0%</u>	<u>\$ 22,456.9</u>	<u>100.0%</u>

The rate of return (net of fees time-weighted rate of returns¹) on the ERS investment portfolio was 7.2% in the unpredictable investment markets in FY 2024, outperformed the overall ERS investment target of 7.0%. The Broad Growth asset class returned 8.5% during the fiscal year while the Diversifying Strategies asset class returned 4.7%. This compares to an overall return on the portfolio of 1.9% in FY 2023. Total net investment income increased to \$1.461.9 million in FY 2024 from \$826.9 million in FY 2023.

¹ Effective July 1, 2023 (FY 2024), investment performance returns are presented net-of-fees and annualized for periods longer than one year. (Note that in prior years reports, investment performance returns were presented gross-of-fees performance data).

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Management's Discussion and Analysis (Unaudited)

June 30, 2024

The ERS had positive returns of 8.5% in the Broad Growth asset class including positive returns in global equity (+11.9%) and global credit (+11.8%), that was offset by negative returns in real assets (-0.2%). During the FY 2024 the Diversifying Strategies returned 4.7% lead by positive returns in illiquid diversifying (+10.8%), followed by liquid defensive/diversifying (+3.7%). A summary of investment returns (by sub-component of the risk-based allocation) is included within the *Report on Investment Activity by Investment Consultant* that is located in the Investment Section of the ACFR.

The ERS participates in a securities lending program through its global custodian as a way to earn incremental income to enhance the investment portfolio yield.

Investment expenses includes investment management fees paid to external investment advisor firms that oversee the ERS' investment portfolio. Total investment management fees earned by external investment advisors decreased slightly in FY 2024 from FY 2023 due to the elimination of incentive investment fees that were accrued in previous fiscal years with the reduction of cumulative excess earnings on certain private market investments above the corresponding investment benchmark for those investments. Investment advisor fees include incentive fees for superior investment returns by the manager above their corresponding benchmark, while maintaining an acceptable level of investment risk. The ERS requires external managers to provide the ERS with a "most favored nations" contract clause that guarantees the ERS with the lowest management fees the managers offer their clients for investment accounts with similar investment mandates and similar account size.

Contributions

Contributions from employers and employees totaled \$1,738.4 million and \$1,584.0 million in FY 2024 and FY 2023, respectively. During FY 2024, total contributions increased by \$154.4 million, or 9.7%, primarily from pay raises that resulted in an increase in covered payroll that contributions are assessed on.

Pension Plan Benefits and Expenses

Pension benefit payments continue to be the primary deduction of the ERS with payments increasing to \$1,878.5 million in FY 2024 from \$1,795.4 million in FY 2023. The pension benefits increase is attributed to the continued net increase in the number of retirees being paid, higher pension benefits for recent retirees, and the annual postretirement increase for ERS' retirees.

Refunds to terminating hybrid and contributory class members increased to \$28.6 million in FY 2024 from \$26.4 million in FY 2023.

Administrative expenses were down to \$18.0 million in FY 2024 from \$18.5 million in FY 2023 as a result of a decrease in computer related (cloud, equipment, and repairs) costs, auditing and tax consulting services, and salaries and wages (resulting from an increase in staff vacancies). This was partially offset by an increase in employees' fringe benefit assessment costs plus an increase in the accrual of unused vacation credits which was partially offset by a decrease in depreciation expense.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Management's Discussion and Analysis (Unaudited)

June 30, 2024

Pension Plan Changes

There was no significant legislation passed in 2024 and 2023 that affects pension plan provisions. Pension plan changes, including legislative and the Board's actions, are summarized in the Introductory Section and Actuarial Section of the ACFR.

Actuarial Valuations and Measurement of Net Pension Liability

The funding status increased during FY 2024 on the fiduciary net position (market asset basis) to 62.6% as of June 30, 2024 from 61.9% as of June 30, 2023, as a result of meeting the expected investment returns.

During FY 2024, the ERS' investment portfolio earned 7.2% based on the market value of assets. This compares to rate of return for the actuarial value of 6.6% in FY 2024, which is different than the market return calculation due to the smoothing methodology used in the determination of the actuarial value of assets.

The total pension liability for fiscal year ended June 30, 2024 is based on the actuarial valuation performed as of June 30, 2024 and a measurement date of June 30, 2024.

Per the valuation as of June 30, 2024, the ERS' total pension liability was \$37.8 billion, covered payroll was \$4.9 billion and the ERS' fiduciary net position was \$23.7 billion, resulting in a net pension liability of \$14.1 billion. The ERS' fiduciary net position as a percentage of total pension liability was 62.6% and 61.9% as of June 30, 2024 and 2023, resulting in the net pension liability as a percentage of covered payrolls of 285.9% and 295.2%, respectively. The increase in pension liabilities is the result of overall payroll growth and individual salary increases.

Based on the results of the actuarial valuation as of June 30, 2024, including existing statutory employer contribution rates, the ERS actuary determined that the funding period for paying off the unfunded actuarial accrued liability (UAAL) of the ERS Pension Trust decreased to 22 years from 23 years as of June 30, 2023. Because this period is less than the 25 years, the objectives set in Hawaii Revised Statutes (HRS) are currently being realized. HRS§88-122(e)(1) state that the employer contribution rates are subject to adjustment when the funding period is in excess of the statutory requirement, currently 25 years for June 30, 2024. (Per Act 192, SLH 2024, decreased the maximum funding period from 30 years to 25 years effective June 30, 2024. In addition, the maximum funding period will decrease by 1 each year in the future until the maximum funding period reaches 20 years effective June 30, 2029, at which point it will continue to be 20 years for all future years.)

The actuarial assumptions and changes to the assumptions are discussed in Note F, Pension Liability, and in the Required Supplementary Information – Unaudited section. The Actuarial Section in the ACFR contains more information on changes to the actuarial assumptions.

**EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII**

Management's Discussion and Analysis (Unaudited)

June 30, 2024

Requests for Information

This financial report is designed to provide a general overview of the ERS' finances. For questions concerning any information in this report or for additional information, contact the Employees' Retirement System of the State of Hawaii, 201 Merchant Street, Suite 1400, Honolulu, Hawaii 96813.

DRAFT - 08.13.2025

**EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII**

Statement of Fiduciary Net Position

June 30, 2024

Assets:

Cash and cash equivalents and short-term investments:

Cash and cash equivalents	\$ 67,023,479
Short-term investments	749,510,853
	<u>816,534,332</u>

Receivables:

Employer and member contributions	162,873,096
Investment sales proceeds	143,416,440
Accrued investment income	42,228,081
Accounts receivable and other	3,797,764
	<u>352,315,381</u>

Investments, at fair value:

Equity securities	5,277,362,997
Fixed income securities	5,199,978,914
Real assets investments	4,261,689,706
Alternative investments	8,001,762,553
	<u>22,740,794,170</u>

Other assets:

Invested securities lending collateral	765,590,308
Equipment, at cost, net of depreciation	2,954,114
	<u>768,544,422</u>

Total assets

24,678,188,305

Liabilities:

Accounts and other payables	108,592,581
Payable for securities purchased	103,373,060
Securities lending collateral	765,590,308
	<u>977,555,949</u>

Fiduciary net position restricted for pensions

\$ 23,700,632,356

See accompanying notes to financial statements.

**EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII**

Statement of Changes in Fiduciary Net Position

Year Ended June 30, 2024

Additions:

Contributions:

Employers contributions	\$ 1,396,331,977
Members contributions	<u>342,066,080</u>
Total contributions	<u>1,738,398,057</u>

Investment income:

From investing activities:

Net appreciation in fair value of investments	841,228,583
Interest on fixed income securities	318,489,194
Alternative investment income	302,406,196
Income on real assets investments	81,796,812
Dividends on equity securities	68,885,815
Interest on short-term investments	20,204,165
Miscellaneous	<u>299,636</u>
	1,633,310,401

Less investment expenses	<u>174,112,484</u>
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Net investment income from investing activities	<u>1,459,197,917</u>
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From securities lending activities:

Securities lending income	31,364,960
Less: securities lending expenses, net	<u>28,662,740</u>

Net investment income from securities lending	<u>2,702,220</u>
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Total net investment income	<u>1,461,900,137</u>
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Total additions, net	<u>3,200,298,194</u>
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Deductions:

Benefit payments	1,878,501,292
Refunds of member contributions	28,548,843
Administrative expenses	<u>18,000,678</u>

Total deductions	<u>1,925,050,813</u>
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Net increase in fiduciary net position	1,275,247,381
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Fiduciary net position restricted for pensions:

Beginning of year	<u>22,425,384,975</u>
End of year	<u><u>\$ 23,700,632,356</u></u>

See accompanying notes to financial statements.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Financial Statements

June 30, 2024

Note A – Description of the ERS

1. General

The Employees' Retirement System of the State of Hawaii (the ERS) began operations on January 1, 1926, having been established by the Territorial Legislature in the preceding year. The provisions of the ERS are contained in Chapter 88 of the Hawaii Revised Statutes (HRS) and applicable provisions of the federal Internal Revenue Code. The ERS is a cost-sharing, multiple-employer public employee retirement system established as a defined benefit pension plan to administer a pension benefits program for all State and county employees, including teachers, professors, police officers, firefighters, correction officers, judges, and elected officials.

The ERS is a qualified defined-benefit pension plan under Section 401(a) of the Internal Revenue Code. Since January 1, 1988, member contributions have been tax deferred under Section 414(h)(2) of the Internal Revenue Code, and Chapter 88 of the HRS (Chapter 88, HRS) mandates that employers pick up the employee contributions. These contributions are classified as member contributions in the financial statements. As a public entity, the ERS is not required to file a federal income tax return with the Internal Revenue Service. As a defined-benefit pension plan, the ERS is required to withhold federal income tax from member and benefit recipient payments in accordance with the Internal Revenue Code.

The ERS Pension Trust is comprised of three pension classes for membership purposes and considered to be a single plan for accounting purposes because all assets of the ERS may legally be used to pay the benefits of any of the ERS members or beneficiaries, as defined by the terms of the ERS. The ERS provides retirement, survivor, and disability benefits for three membership classes known as the contributory, hybrid, and noncontributory members.

Generally, all full-time employees of State and counties of Hawaii are required to be members of the ERS. Some positions of the State and counties of Hawaii are not eligible for ERS membership and may be covered by another separate retirement program. Membership of the plan and the benefits provided are based on the individual's employment group and ERS membership date. A member may belong to only one class based on their latest employment. A member may change classes in certain situations due to a change in their employment date or job classification. If a member earns service in different classes or benefit structures, the member's retirement benefit is bifurcated based on the applicable membership service earned (such as service credits and benefit multiplier percentage of such service).

The two major employment groups applicable to employer and member contribution rates, vesting requirements, and benefit provisions are (a) police and fire and (b) all other employees. There are four major benefit structures for contributory class members based on employment group and membership date while there are two benefit structures for hybrid class members based on their membership date as discussed below. The noncontributory class has one benefit structure.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Financial Statements

June 30, 2024

Employer, pensioner, and employee membership data as of March 31, 2024 are as follows:

Employers:	
State	1
County	<u>4</u>
Total employers	<u><u>5</u></u>
Pensioners and beneficiaries currently receiving benefits:	
Pensioners currently receiving benefits:	
Police and fire	4,331
All other employees	<u>46,058</u>
Total pensioners	<u>50,389</u>
Beneficiaries currently receiving benefits:	
Police and fire	429
All other employees	<u>5,002</u>
Total beneficiaries	<u>5,431</u>
Total pensioners and beneficiaries currently receiving benefits	<u>55,820</u>
Terminated vested members entitled to benefits but not yet receiving benefits:	
Police and fire	235
All other employees	<u>8,612</u>
Total terminated vested members	<u>8,847</u>
Inactive members:	
Police and fire	1,061
All other employees	<u>27,495</u>
Total inactive members	<u>28,556</u>
Total terminated vested and inactive members	<u>37,403</u>
Active members:	
Vested:	
Police and fire	2,963
All other employees	<u>30,670</u>
Total vested members	<u>33,633</u>
Nonvested:	
Police and fire	1,828
All other employees	<u>29,876</u>
Total nonvested members	<u>31,704</u>
Total active members	<u>65,337</u>
Total membership	<u><u>158,560</u></u>

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Financial Statements

June 30, 2024

2. *The Financial Reporting Entity*

As required by accounting principles generally accepted in the United States of America (GAAP), these financial statements present the ERS (the primary government) as a separate reporting entity from the State of Hawaii (the State). The ERS is not part of the State's financial reporting entity because it is a separate legal entity that is fiscally independent of the State. The ERS was established by Chapter 88, HRS and is governed by a Board of Trustees (the Board) as discussed below.

The Board administers the ERS on behalf of public employees of both the State and county governments. Except for limited administrative functions, the State does not have the power to supervise or control the Board in the exercise of its functions, duties, and powers. The Board consists of eight members. The State Director of Finance is a statutory member of the Board. Four members of the Board are elected by members and retirants of the ERS and the other three members of the Board are appointed by the Governor. Decisions are made with the concurring vote of five members of the Board. The Board appoints the Executive Director and Chief Investment Officer and engages actuarial and other services required to transact the business of the ERS.

3. *Class Descriptions and Funding Policy*

Members of the ERS are contributory, hybrid, or noncontributory members. All assets of the ERS (in the Pension Trust) may be used to pay benefits to any member of the ERS. Contribution rates are determined by state law as a percentage-of-payroll.

The statutory employer contribution rate includes the normal cost and accrued liability contribution and is determined separately for two groups of employees: (a) police and fire and (b) all other employees. Employer contribution rates are subject to adjustment in certain situations based on the Pension Trust's funded status or actuarial investigations. The ERS performs an actuarial investigation of the experience at least once every three years, plus an annual actuarial valuation of the assets and liabilities of the funds of the Pension Trust. The Board adopts mortality, service, and other assumptions, factors, and tables as deemed appropriate and necessary, based on the actuarial investigation and actuary recommendation. Generally, actuarial assumptions and methods were adopted by the Board on August 8, 2022 as recommended by Gabriel, Roeder, Smith and Company (GRS) (from the experience study as of June 30, 2021, with most of the assumptions based on the period from July 1, 2016, through June 30, 2021) while the investment return assumption was adopted beginning with the 2016 valuation. See the Actuarial Section in the separately issued ERS Annual Comprehensive Financial Report (the ACFR) for all actuarial assumptions used.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Financial Statements

June 30, 2024

Effective July 1, 2008, the statutory employer contribution rate for employees in the police and fire group (Police and Fire) increased from 15.75% to 19.70%, and the rate for employees in the all other employees group (All Other Employees) increased from 13.75% to 15.00%. Per legislation passed in 2011, the rate for Police and Fire increased to 22.00% on July 1, 2012; 23.00% on July 1, 2013; 24.00% on July 1, 2014; and 25.00% on July 1, 2015, and the rate for All Other Employees increased to 15.50% effective July 1, 2012; 16.00% effective July 1, 2013; 16.50% effective July 1, 2014; and 17.00% effective July 1, 2015. These employer contribution rates are applied to the total covered payroll in each respective group to determine the required employer contributions. Administration of the Pension Trust is financed through contributions from the employers and employees (if applicable) and investment earnings.

Per Act 17 (SLH 2017), employer contribution rates from the State and counties are expected to increase pursuant to a phased-in contribution rate increase over four years beginning July 1, 2017. The rate for Police and Fire increased to 28.00% on July 1, 2017; 31.00% on July 1, 2018; 36.00% on July 1, 2019; and 41.00% on July 1, 2020; and the rate for All Other Employees increased to 18.00% on July 1, 2017; 19.00% on July 1, 2018; 22.00% on July 1, 2019; and 24.00% on July 1, 2020.

Effective July 1, 2012, employers may be required to make additional employer contributions to the ERS in certain situations. This legislation requires employers to pay additional contributions if a retiring employee, who was first employed prior to July 1, 2012 and who was last employed by the employer, has significant non-base pay increases included in their average final compensation. The additional contribution is equal to the actuarial present value of the additional benefits earned due to the "excessive" non-base pay increases.

Until June 30, 1984, all employees were required to be contributory members. Employees covered by Social Security on June 30, 1984 were given the option of changing to a noncontributory member or remain a contributory member. All new employees hired after June 30, 1984 and before July 1, 2006, who are covered by Social Security, were generally required to be noncontributory members. Qualified employees that were contributory or noncontributory members were given the option to change to a hybrid class benefits structure effective July 1, 2006, or remain in their existing class. Starting July 1, 2006, all new employees covered by Social Security are required to be hybrid members, unless they are required to be contributory members. Most employees not covered by Social Security (primarily Police and Fire employees) are required to be contributory members.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Financial Statements

June 30, 2024

The three membership classes provide a monthly retirement allowance (maximum allowance) equal to the benefit multiplier % (generally 1.25% to 2.25%), multiplied by the average final compensation (the AFC), multiplied by years of credited service. If a member earns service in a different benefit structure, the member's retirement benefit is bifurcated based on the applicable membership service earned (such as service credits and benefit multiplier percentage of such service). In lieu of the maximum allowance, the member may elect to receive an actuarially equivalent alternate retirement option with a reduced lifetime allowance (such as survivor benefit).

The AFC is the average salary earned during the five highest paid years of service, including the payment of salary in lieu of vacation, or three highest paid years of service, excluding the payment of salary in lieu of vacation, if the employee became a member prior to January 1, 1971. The AFC for members hired on or after this date, and before July 1, 2012, is based on the three highest paid years of service excluding the payment of salary in lieu of vacation. For new members hired after June 30, 2012, the AFC is based on the five highest paid years of service excluding the payment of salary in lieu of vacation.

For postretirement increases, every retiree's original retirement allowance is increased by 2.50% on each July 1 following the calendar year of retirement, if the retiree became an ERS member prior to July 1, 2012. This cumulative benefit is not compounded and increases each year by 2.50% of the original retirement allowance without a ceiling (2.50% of the original retirement allowance the first year, 5.00% the second year, 7.50% the third year, etc.). For new members hired after June 30, 2012, the postretirement annuity increase was decreased to 1.50% per year of the original retirement allowance without a ceiling (1.50% of the original retirement allowance the first year, 3.00% the second year, 4.50% the third year, etc.).

The following summarizes the provisions relevant to the largest employee groups of the respective membership class. Retirement benefits for certain groups, such as sewer workers, judges, and elected officials, vary from general employees.

All contributions, benefits, and eligibility requirements are governed by Chapter 88, HRS. For a more detailed summary of benefits for employees and a description of special provisions to groups of employees, refer to the Summary of Retirement Benefit Plan Provisions contained in the Introductory Section of the ACFR. All of the statutory member contributions discussed in this section are classified as "member contributions" with the adoption of GASB Statement No. 82, *Pension Issues – an amendment of GASB Statements No. 67, No. 68, and No. 73*.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Financial Statements

June 30, 2024

Contributory

Police officers, firefighters, and certain other members that are not covered by Social Security first hired prior to July 1, 2012 contribute 12.20% of their salary and receive a retirement benefit using the benefit multiplier of 2.50% for qualified service, up to a maximum of 80% of the AFC. These members may retire at age 55 with 5 years of credited service or at any age with 25 years of credited service, provided the last 5 years of credited service is any of the qualified occupations.

Police officers, firefighters, and certain other members that are not covered by Social Security first hired after June 30, 2012 contribute 14.20% of their salary and receive a retirement benefit using the benefit multiplier of 2.25% for qualified service, up to a maximum of 80% of the AFC. These members may retire at age 60 with 10 years of credited service or at age 55 with 25 years of credited service, provided the last 5 years of credited service is any of the qualified occupations.

All other employees hired prior to July 1, 2012 are required to contribute 7.80% of their salary and are fully vested for benefits upon receiving 5 years of credited service. Contributory members may retire with full benefits at age 55 and 5 years of credited service. They may take early retirement at any age with at least 25 years of credited service and receive benefits reduced 5.00% per year under age 55 plus 4.00% per year under age 50. The benefit multiplier is 2.00% for employees covered by Social Security.

All other employees in the contributory class hired after June 30, 2012 are required to contribute 9.80% of their salary and are fully vested for benefits upon receiving 10 years of credited service. These members may retire with full benefits at age 60 and 10 years of credited service. Members may take early retirement at age 55 with 25 years of credited service and receive benefits reduced by 5.00% per year under age 60. The benefit multiplier is 1.75% for employees covered by Social Security.

Hybrid

All other employees hired before July 1, 2012 are required to contribute 6.00% of their salary and are fully vested for benefits upon receiving 5 years of credited service. Employees may retire with full benefits at age 62 and 5 years of credited service or at age 55 and 30 years of credited service. Early retirement benefits are available at age 55 and 20 years of credited service with benefits reduced by 5.00% per year under age 62. The benefit multiplier used to calculate retirement benefits is 2.00%. Hybrid members are covered by Social Security.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Financial Statements

June 30, 2024

All other employees hired after June 30, 2012 are required to contribute 8.00% of their salary and are fully vested for benefits upon receiving 10 years of credited service. Employees may retire with full benefits at age 65 and 10 years of credited service or at age 60 and 30 years of credited service. Early retirement is available at age 55 and 20 years of credited service with benefits reduced 5.00% per year under age 65. The benefit multiplier used to calculate retirement benefits is 1.75%. Hybrid members are covered by Social Security.

Noncontributory

All other employees are fully vested upon receiving 10 years of credited service and are covered by Social Security. The employer is required to make all contributions for these members. Employees may retire with full benefits at age 62 years and 10 years of credited service or age 55 and 30 years of credited service. Early retirement is available at age 55 years and 20 years of credited service with benefits reduced by 6.00% per year under age 62. The benefit multiplier used to calculate retirement benefits is 1.25%.

Ordinary disability retirement benefits require a minimum of 10 years of service, whereas service-connected disability resulting from a job-related accident does not have any service requirement. There is no age requirement to qualify for disability benefits.

Ordinary death benefits for contributory and noncontributory members require at least one year and 10 years of service, respectively. Ordinary death benefits for hybrid members require five years of service if hired prior to July 1, 2012 or 10 years of service if hired after June 30, 2012. There is no service requirement to qualify for service-connected death benefits.

4. *The ERS as Employer*

As an employer, the ERS participates in its pension benefits program, through the State. The ERS provides benefits for all of its full-time employees as contributory, hybrid, or noncontributory membership. Contributions are calculated as part of the State's total contribution requirements and are reimbursed to the State's General Fund as part of the fringe benefit rate on the ERS' employees' actual salaries.

5. *Other Post Employment Benefits (OPEB)*

In addition to the retirement benefits provided by the ERS Pension Trust, the participating employers, pursuant to Chapter 87A, HRS, provide certain healthcare and life insurance benefits for State and county qualified employees and retirees. The Hawaii Employer-Union Health Benefits Trust Fund (the EUTF) was established on July 1, 2003 to design, provide, and administer health benefits plans and a group life insurance benefits program for State and county employees and retirees.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Financial Statements

June 30, 2024

Under Section 87A-33 of the HRS, the participating employers pay the EUTF a base monthly contribution for the health benefits plans of certain retired employees, including those who were hired before July 1, 1996 and retired after June 30, 1984, with 10 or more years of credited service.

Under Section 87A-34 of the HRS, the participating employers pay the EUTF one-half of the base monthly contribution for the health benefits plans of retired employees who were hired before June 30, 1996, and retired after June 30, 1984, with fewer than 10 years of credited service.

Under Sections 87A-35 and 87A-33(a)(6) of the HRS, the participating employers pay the EUTF for the health benefits plans of retired employees who were hired after June 30, 1996 but before July 1, 2001: (a) one-half of the base monthly contribution if the employee retired with between 10 and 15 years of credited service; (b) 75% of the base monthly contribution if the employee retired with between 15 and 25 years of credited service; and (c) 100% of the base monthly contribution if the employee retired with 25 or more years of credited service.

Under Section 87A-36 of the HRS, the participating employers pay the EUTF for the health benefits plans of retired employees who were hired after June 30, 2001: (a) one-half of the base monthly contribution for a self-only plan if the employee retired with between 10 and 15 years of credited service; (b) 75% of the base monthly contribution for a self-only plan if the employee retired with between 15 and 25 years of credited service; and (c) 100% of the base monthly contribution for a self-only plan if the employee retired with 25 or more years of credited service.

The net assets of the EUTF are not included in the ERS Pension Trust net assets. The EUTF issues a financial report that includes financial statements and required supplementary information.

Note B – Summary of Significant Accounting Policies

A summary of the significant accounting policies consistently applied in the preparation of the accompanying financial statements follows:

1. Basis of Accounting

Fiduciary funds are used to account for assets held by the ERS in a trustee capacity or as an agent for other governments, and/or other funds. The fiduciary fund type used by the ERS is a Pension Trust Fund. The fiduciary fund is considered a separate fiscal and accounting entity with a self-balancing set of accounts that comprise its assets, liabilities, equity, revenues and expenditures, or expenses, as appropriate. The accounting and reporting treatment applied to a fund is determined by its measurement focus. The Pension Trust Fund is accounted for on a flow of economic resources measurement focus.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Financial Statements

June 30, 2024

The financial statements are prepared in conformity with GAAP using the accrual basis of accounting. Administrative expenses are financed exclusively with investment income.

2. *Cash Equivalents*

All highly liquid investments with an original maturity of three months or less when purchased are considered to be cash equivalents.

3. *Investments*

The ERS' investment policy, including the legal authority, is discussed in Note E.1, Investment Policy. Investments are reported at fair value. Refer to Note E.3, Investments, for the ERS' fair value disclosures.

Purchases and sales of securities are recorded on a trade-date basis. Interest income is recorded on the accrual basis. Dividend income is recorded on the ex-dividend date.

Realized and unrealized gains and losses are recorded in the accompanying financial statements based on the difference between the fair value of assets at the beginning of the fiscal year, or at the time of purchase for assets purchased during the fiscal year, and the related fair value on the day investments are sold with respect to realized gains and losses, or on the last day of the fiscal year for unrealized gains and losses.

4. *Revenue Recognition - Contributions*

Contributions from employers and members are recognized in the period in which the contributions are legally due.

5. *Payment of Benefits*

Benefits and refunds are recognized when due and payable in accordance with the terms of the Pension Trust.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Financial Statements

June 30, 2024

6. *Securities Lending*

The ERS records collateral received under securities lending agreements where the ERS has the ability to spend, pledge, or sell the collateral without borrower default. Liabilities resulting from these transactions are also recorded. Additionally, costs associated with securities transactions, broker commissions paid, and lending agent management fees are reported as investment expenses in the accompanying financial statements. The statement of fiduciary net position does not include detailed holdings of securities lending collateral by investment classification.

7. *Interest and Earnings Allocation*

Pursuant to Sections 88-21 and 88-107 of the HRS, the Board shall annually allocate interest and other earnings of the Pension Trust Fund, as follows:

- a. *Annuity Savings Reserves* – Fixed at 4.50% regular interest rate for employees hired before July 1, 2011 and 2.00% regular interest rate for employees hired after June 30, 2011.
- b. *Expense Reserves* – To be credited with all money to pay the administrative expenses of the ERS.
- c. *Pension Accumulation Reserves* – To be credited with any remaining investment earnings.

8. *Risk Management*

The ERS reports liabilities, as discussed in Note G, Risk Management, related to certain types of losses (including torts, theft of, damage to, or destruction of assets, errors or omissions, workers' compensation, and acts of terrorism) when it is probable that the losses have occurred and the amount of those losses can be reasonably estimated.

9. *Use of Estimates*

In preparing financial statements in conformity with GAAP, management is required to make estimates and assumptions that affect certain reported amounts and disclosures. Actual results could differ from those estimates.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Financial Statements

June 30, 2024

Investments in limited partnerships and other alternative investments are illiquid and the underlying assets are generally not publicly traded companies. Because of the inherent uncertainty in valuing privately held securities, the fair value may differ from the values that would have been used had a ready market for such securities existed, and the difference can be material. Accordingly, the realized value received upon the sale of the asset may differ from the recorded fair value.

The total pension liability is based on calculations that incorporate various actuarial and other assumptions, including discount rate, mortality, investment rate of return, inflation and payroll growth. The actuarial assumptions were based on the results of an experience study as of June 30, 2021, with most of the assumptions based on the period from July 1, 2016, through June 30, 2021.

10. *Recently Issued Accounting Policies*

GASB Statement No. 99

The GASB issued Statement No. 99, *Omnibus*. The primary objectives of this statement are to enhance comparability in accounting and financial reporting and to improve the consistency of authoritative literature by addressing practice issues that have been identified during implementation and application of certain GASB statements. Certain requirements of this statement were effective immediately while other requirements are effective for reporting periods beginning after June 15, 2022 and June 15, 2023, respectively. The requirements of this statement did not have a material impact on the ERS' financial statements.

GASB Statement No. 100

The GASB issued Statement No. 100, *Accounting Changes and Error Corrections – an amendment of GASB Statement No. 62*. The primary objective of this statement is to enhance accounting and financial reporting requirements for accounting changes and error corrections to provide more understandable, reliable, relevant, consistent, and comparable information for making decisions or assessing accountability. The requirements of this statement were effective for the fiscal year ended June 30, 2024 and did not have a material effect on the ERS' financial statements.

GASB Statement No. 101

The GASB issued Statement No. 101, *Compensated Absences*. The primary objective of this statement is to better meet the information needs of financial statement users by updating the recognition and measurement guidance for compensated absences. The requirements of this statement are effective for reporting periods beginning after December 15, 2023. The ERS is currently evaluating the impact that this statement will have on its financial statements.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Financial Statements

June 30, 2024

GASB Statement No. 102

The GASB issued Statement No. 102, *Certain Risk Disclosures*. The primary objective of this statement is to provide users of government financial statements with information about risks related to a government's vulnerabilities due to certain concentrations or constraints that is essential to their analyses for making decisions or assessing accountability. The requirements of this statement are effective for reporting periods beginning after June 15, 2024. The ERS is currently evaluating the impact that this statement will have on its financial statements.

GASB Statement No. 103

The GASB issued Statement No. 103, *Financial Reporting Model Improvements*. The primary objective of this statement is to improve key components of the financial reporting model to enhance its effectiveness in providing information that is essential for decision making and assessing a government's accountability. The requirements of this statement are effective for reporting periods beginning after June 15, 2025. The ERS is currently evaluating the impact that this statement will have on its financial statements.

GASB Statement No. 104

The GASB issued Statement No. 104, *Disclosure of Certain Capital Assets*. The primary objective of this statement is to provide users of government financial statements with essential information about certain types of capital assets. The requirements of this statement are effective for reporting periods beginning after June 15, 2025. The ERS is currently evaluating the impact that this statement will have on its financial statements.

Note C – Description of Reserves

Section 88-109 of the HRS requires the establishment and maintenance of specific reserves within the ERS. The reserves in the Pension Trust Fund and their purposes are described hereunder:

1. Pension Accumulation Reserves

To accumulate contributions made by the State and counties (except member contributions "picked up" as employer contributions pursuant to IRC Section 414(h)(2)), transfers of retired members' contributions plus related interest income from the Annuity Savings Reserves and income from investments. All pension benefits, including the pensioners' bonus, are paid through this reserve.

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2. *Annuity Savings Reserves*

To accumulate members' contributions (including member contributions "picked up" as employer contributions pursuant to IRC Section 414(h)(2)) and related interest income. Upon a member's retirement, the accumulated contributions and related interest income are transferred to the Pension Accumulation Reserves or refunded to the member upon termination.

3. *Expense Reserves*

To pay all the expenses necessary in connection with the administration and operation of the ERS, the Board estimates the amount of money necessary to be paid into the expense reserve for the ensuing biennium to provide for the expense of operation of the ERS, and pays that amount into the expense account from the investment earnings of the ERS, subject to review by the legislature and approval by the Governor.

Fiduciary net position restricted for pensions as of June 30, 2024 are as follows:

Pension accumulation reserves	\$ 19,697,793,542
Annuity savings reserves	3,989,784,815
Expense reserves	<u>13,053,999</u>
Total fiduciary net position restricted for pensions	<u><u>\$ 23,700,632,356</u></u>

Note D – Contributions

The ERS' funding policy provides for periodic employer contributions expressed as a percentage of annual covered payrolls. The funding method used to calculate the total employer contribution required is the entry age normal actuarial cost method. Employer contributions are governed by Chapter 88, HRS. The actuarially determined contribution rates may differ from the statutory contribution rates.

Employer rates are set by statute based on the recommendation of the ERS actuary resulting from an experience study conducted every three years. Employer contribution rates are a fixed percentage of compensation, including the normal cost plus amounts required to pay for the unfunded actuarial accrued liabilities. See Note A.3, Class Descriptions and Funding Policy, for the effective statutory employer contribution rates.

The employer normal cost is the level percentage of payroll contribution required to pay all benefits. Actuarial gains and losses resulting from differences between actual and assumed experience are reflected in the employer unfunded accrued liability.

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Effective July 1, 2012, the last employer is required to make "additional contributions" to the ERS for employees that first became ERS members before July 1, 2012 and retire after June 30, 2012, if the member has "excessive" non-base pay during the last 10 years of employment. The additional contributions are based on the increased costs of the actuarial equivalent increase in pension benefits the member will be paid in retirement compared to the pension benefits that would be paid if the member did not have excess non-base pay in their AFC amount.

Member contributions rates are statutorily established in accordance with Chapter 88, HRS, and are discussed in Note A.3, Class Descriptions and Funding Policy. Since 1989, participating employers "pick up" ERS member contributions made by payroll deduction as "employer contributions" for tax purposes under IRC section 414(h)(2). These contributions are classified as member contributions being paid by the member for ERS purposes.

Note E – Deposits and Investment Disclosures

1. *Investment Policy*

Investments are governed pursuant to Sections 88-119 and 88-119.5 of the HRS. The Pension Trust Fund may invest in real estate loans and mortgages; preferred and common stocks; government obligations; corporate obligations; certain other debt obligations (such as obligations secured by collateral of certain other authorized securities listed here, obligations issued or guaranteed by certain development banks, and insurance company obligations); real property; alternative investments; and other securities and futures contracts. Investments in the securities lending collateral pool are limited to investment grade, short-term marketable securities.

The investment decisions are further dictated by the Investment Policy Statement, internal investment policies and asset allocation established by the Board. As a long-term investor, the ERS has established through its investment policy that preservation of capital is the primary goal of the ERS. Preservation of capital is to be attained with a consistent, positive return for the fund by diversifying the investment portfolio. The ERS recognizes risk associated with individual securities or asset classes may be reduced through diversification. Investments will be prudent and consistent with the best investment practices, in accordance with the Board's asset allocation strategy, assigned investment mandate, and in compliance with Chapter 88, HRS, as amended.

Use of leverage is restricted to certain asset classes in order to enhance yields of approved investments and/or to facilitate diversification of the portfolio. The use of debt must result in positive leverage where cash flow is in excess of debt service. Plan assets are managed on a total return with the long-term objective of achieving and maintaining a fully funded status basis (when combined with receiving the required employer and member contribution requirements) for the benefits provided through the Pension Trust. As part of the investment policy, the Board reviews the asset allocation annually and should perform a formal asset allocation study at least every three years to verify or amend the targets.

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A formal asset-liability study is conducted every three-to-five years to verify or amend the plan's policy targets. The targets are designed to achieve a certain level of return, and associated level of risk, that is aligned with the plan's goals and objectives. The targets are evaluated on the basis of assets designated to each strategic class by the Board, rather than on a current invested position. The targets are pursued primarily by cash flow on a long-term basis and if significant changes occur within the economic and/or capital market environment according to the rebalancing guidelines. The targets are to be reviewed annually for reasonableness relative to significant economic and market changes.

The Board initiated and completed an asset-liability study during fiscal year 2023. As a result of the 2023 Asset-Liability Study, the Board adopted a new long-term strategic allocation policy which became effective on January 1, 2024. The new long-term strategic allocation policy maintained the two major strategic classes that were adopted as a result of the asset-liability study that began in fiscal year 2019 and have been in place since July 2020. In addition, the strategic class framework incorporated new naming conventions and improved definitions of sub-asset classes to better align with the ERS risk allocation and restructured certain invested opportunities to better align with their characteristics, while a few sub-classes were eliminated.

As of June 30, 2024, the ERS was strategically invested in the following classes:

	Strategic Allocation (functional/risk-based classes)^{1, 2, 3}
Broad Growth	70.0%
Diversifying Strategies	30.0%
Total	100.0%

¹ Uses an expected inflation of 2.4%.

² The strategic allocation is supported by a multitude of underlying sub-asset classes.

³ Actual allocations varied.

The ERS utilizes two high-level strategic classes (Broad Growth and Diversifying Strategies) for allocating assets and managing risk within the total portfolio. Both of these strategic classes contain sub-components that in-turn utilize asset classes and/or specific strategies for implementation. The Broad Growth class utilizes three sub-components (Global Equity, Global Credit, and Real Assets) which are ultimately invested in public and private equity, public and private credit, real estate, agriculture, timber, and infrastructure. The Diversifying Strategies class is designed to be uncorrelated to the Broad Growth class and it utilizes two sub-components (Liquid Defensive/Diversifying and Illiquid Diversifying). The Diversifying Strategies class utilizes a multitude of asset classes and strategies, including defensive return capture,

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discretionary alpha, intermediate and long duration treasury, systematic trend following, idiosyncratic return capture, and insurance linked assets, among others. The ERS may also hold opportunities and other investments if they are determined to be additive to the portfolio's risk/return posture.

Based on the 2023 asset-liability study and updated capital markets assumptions (as of June 30, 2024), the total fund was positioned to achieve a long-term return of approximately 7.4% with an annualized volatility of approximately 11.1% over a horizon of 10-20 years. The resulting new long-term strategic allocation policy came into effect in January 2024. The ERS will strategically invest in the following strategic asset classes:

Strategic Allocation (risk-based classes)	Strategic Class Weights	Expected Long- Term Geometric Average Return¹	Expected Volatility
Broad Growth	70.0%	8.4%	15.8%
Diversifying Strategies	30.0%	4.4%	5.3%
Total portfolio	100.0%	7.4%	11.1%

¹ Uses an expected inflation of 2.4%

The implementation plan for the most recent long-term strategic policy was completed by the end of FY 2024 as follows:

Implementation Plan for Long-Term Strategic Policy					
	6/30/2020	7/1/2020	7/1/2021	7/1/2022	1/1/2024
Broad Growth	68.0%	72.0%	67.5%	65.0%	70.0%
Principal Protection	8.0%	--	--	--	--
Real Return	8.0%	--	--	--	--
Crisis Risk Offset	16.0%	--	--	--	--
Diversifying Strategies	--	28.0%	32.5%	35.0%	30.0%
Total portfolio	100.0%	100.0%	100.0%	100.0%	100.0%

Rate of Return

For the year ended June 30, 2024, the annual money-weighted return on pension plan investments, net of pension plan investment expense, was 6.6%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for changing amounts actually invested.

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2. *Cash and Cash Equivalents*

Cash and cash equivalents include amounts in demand deposits for operations and invested funds held by ERS investment managers. The deposits are held in several financial institutions, including the custodian bank for processing investment transactions. Per State statute, deposits held by banks located in the State, in excess of Federal Deposit Insurance Corporation (FDIC) coverage are guaranteed by securities pledged as collateral by the bank with the State Director of Finance. Uninsured and uncollateralized amounts are primarily cash held by the investment custodian for settlement of investment transactions. Deposits are presented in the basic financial statements at cost, which represent market or fair value.

Custodial credit risk for deposits is the risk that in the event of a bank failure, the ERS' deposits may not be returned to them. The ERS has not adopted a formal policy specific to custodial credit risk. The ERS' policy is to deposit cash in excess of operating requirements in income producing investments to maximize investment income.

At June 30, 2024, the carrying amount of deposits totaled \$67,023,479, and the corresponding bank balance was \$74,991,189, all of which was exposed to custodial credit risk.

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3. Investments

The following table shows the ERS' investments by investment type at fair value as of June 30, 2024:

Short-term investments:	
Pooled and others	\$ 749,512,823
Equity securities:	
Common stocks	4,099,651,543
Equity funds	1,168,192,573
Preferred shares and others	9,518,881
Fixed income securities:	
U.S. Treasury bonds and notes	1,701,682,127
U.S. government agencies bonds	20,571,184
U.S. government agency mortgage backed	373,208,120
U.S. government-sponsored agency mortgage backed	56,728,380
U.S. corporate bonds	38,447,624
Non-U.S. corporate bonds	2,962,860
Fixed income funds	2,992,572,377
Derivative financial instruments:	
Forwards - cash and short-term instruments	(1,970)
Futures - debt securities	479,061
Swaps - debt securities	13,327,181
Real assets investments	4,261,689,706
Alternative investments	8,001,762,553
Total investments	<u>\$ 23,490,305,023</u>
Short-term investments for securities lending collateral pool	
	<u>\$ 765,590,308</u>

Investments are measured at fair value. The ERS categorizes its fair value measurements within the fair value hierarchy established by GAAP. Fair value is a market-based measurement of the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. A fair value measurement assumes that a transaction to sell an asset or transfer a liability takes place in either the principal market or most advantageous market (after taking into account transaction costs and transportation costs).

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The fair value hierarchy categorizes the inputs to valuation techniques used to measure fair value into three levels. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and give the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (level 1 measurements) and the lowest priority to unobservable inputs (level 3 measurements).

- *Level 1* – Unadjusted quoted prices for identical instruments in active markets.
- *Level 2* – Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.
- *Level 3* – Valuations derived from valuation techniques in which significant inputs are unobservable.

If the fair value of an asset or a liability is measured using inputs from more than one level of the fair value hierarchy, the measurement is considered to be based on the lowest priority level input that is significant to the entire measurement. The categorization of investments within the hierarchy is based upon the pricing transparency of the instrument and should not be perceived as the particular investment's risk.

Fair Value Hierarchy Levels

Equity securities classified in level 1 of the fair value hierarchy are valued using prices quoted in active markets for those securities based on published market prices, quotations from national security exchanges, and security pricing services as of each month-end closing of the New York Stock Exchange. Short-term investments and fixed income securities classified as Level 1 include U.S. Treasuries. Derivative financial instruments classified in Level 1 include certain options and futures which are valued using prices quoted in active markets for those securities.

Fixed income securities, credit default swaps, and invested securities lending collateral classified in Level 2 have non-proprietary information that was readily available to market participants from multiple independent sources, which are known to be actively involved in the market. Pricing inputs may include market quotations, yields, maturities, call features and ratings.

Preferred shares classified in Level 3 are private investments, thinly traded securities, where input data is sourced from instruments whose values are estimated, out of necessity, using unobservable inputs due to lack of comparable securities in the market place or are valued using discounted cash flows.

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Real assets investments – real estate (direct investment) classified as Level 3 are individual properties valued internally by the investment companies at least annually, in accordance with standard industry practice, and are adjusted as frequently as quarterly if material market or operational changes have occurred. Properties are generally valued every one to three years by external third-party appraiser(s). The valuation techniques vary based on investment type and involve a certain degree of expert judgment.

Investments Measured at the Net Asset Value (NAV)

Investments measured at NAV are not required to be categorized in the fair value hierarchy levels. The fair value of investments in certain fixed income funds, equity funds, real assets and alternative investments are based on the investments' NAV per share (or its equivalent).

Short-term investment funds, equity funds (not publicly traded), and fixed income funds (not publicly traded) are reported on their respective NAV. Fair value for these investments are based on the ERS' pro rata ownership percentage of the fund reported by the fund manager based on the fair value of the underlying assets that is determined by published market prices, or quotations from national security exchanges. Annual audits of the investments include a review of compliance with the investment company's valuation policies.

Real assets and alternative investments (pooled or commingled funds) are measured at their respective NAV and are generally audited annually. The most significant element of NAV is the fair value of the investment holdings. These holdings are valued by the general partners using valuation assumptions based on both market and property specific inputs, which are not observable and involve a certain degree of expert judgment. The valuation techniques vary based on investment type and involve a certain degree of expert judgment.

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The following table shows the fair value hierarchy by investment type as of June 30, 2024:

		Fair Value Measurement Using		
		Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	Total			
Investments Measured by Fair Value Level:				
Equity securities:				
Common stocks	\$ 4,099,651,543	\$ 4,099,651,543	\$ -	\$ -
Preferred shares and other	9,518,881	9,476,041	-	42,840
Total equity securities	4,109,170,424	4,109,127,584	-	42,840
Fixed income securities:				
U.S. Treasury bonds and notes	1,701,682,127	1,690,801,037	10,881,090	-
U.S. government agencies bonds	20,571,184	-	20,571,184	-
U.S. government agency mortgage backed	373,208,120	-	373,208,120	-
U.S. government-sponsored agency mortgage backed	56,728,380	-	56,728,380	-
U.S. corporate bonds	38,447,624	-	38,447,624	-
Non-U.S. corporate bonds	2,962,860	-	2,962,860	-
Total fixed income securities	2,193,600,295	1,690,801,037	502,799,258	-
Real assets investments - real estate (direct investment)	52,300,000	-	-	52,300,000
Total investments (excluding derivatives), measured by fair value level	6,355,070,719	5,799,928,621	502,799,258	52,342,840
Derivative financial instruments:				
Currency purchases forwards	(1,970)	-	-	(1,970)
Index fixed income futures	479,061	479,061	-	-
Credit default swaps	13,327,181	-	13,327,181	-
Total derivative financial instruments	13,804,272	479,061	13,327,181	(1,970)
Total investments measured by fair value level	\$ 6,368,874,991	\$ 5,800,407,682	\$ 516,126,439	\$ 52,340,870
Invested Securities Lending Collateral:				
Short-term investments:				
Certificate of deposits	\$ 158,247,976	\$ -	\$ 158,247,976	\$ -
Repurchase agreements	434,934,282	-	434,934,282	-
Global corporate notes	172,408,050	-	172,408,050	-
Total invested securities lending collateral	\$ 765,590,308	\$ -	\$ 765,590,308	\$ -

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Investments Measured at NAV:

Short-term investments - pooled and other	\$ 749,512,823
Equity funds	1,168,192,573
Fixed income funds	2,992,572,377
Real assets investments - real estate	2,172,212,285
Real assets investments - other	2,037,177,421
Alternative investments - diversifying strategies	3,228,096,951
Alternative investments - other	<u>4,773,665,602</u>
Total investments measured at NAV	<u><u>\$ 17,121,430,032</u></u>

	<u>June 30, 2024</u>	<u>Unfunded Commitments</u>	<u>Redemption Frequency (If Currently Eligible)</u>	<u>Redemption Notice Period (Days)</u>
Short-term investments - pooled and other (a)	\$ 749,512,823	\$ -	Daily	1 day
Equity funds (b)	1,168,192,573	-	Daily	2 days
Fixed income funds (c)	2,992,572,377	817,120,000	Various	Various
Real assets investments - real estate (d)	2,172,212,285	843,872,000	Not eligible	n/a
Real assets investments - other (d)	2,037,177,421	479,401,000	Not eligible	n/a
Alternative investments - div. strategies (e)	3,228,096,951	-	Daily	1-2 days
Alternative investments - traditional (f)	<u>4,773,665,602</u>	<u>2,330,816,000</u>	Not eligible	n/a
Total investments measured at NAV	<u><u>\$ 17,121,430,032</u></u>	<u><u>\$ 4,471,209,000</u></u>		

- (a) Short-term investments – pooled and other primarily consist of four pooled funds, including two pooled funds to invest excess cash at the ERS' custodian, The Bank of New York Mellon. NAV is based on the ERS' pro rata ownership percentage of the fund reported by the fund manager based on the fair value of the underlying assets that is determined by published market prices, or quotations from national security exchanges.
- (b) Equity funds consist of five funds, including one fund that invests based on the all country world index. NAV is based on the ERS' pro rata ownership percentage of the fund reported by the fund manager based on the fair value of the underlying assets that is determined by published market prices, or quotations from national security exchanges.

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- (c) Fixed income funds consist of 17 private market limited partnerships or limited liability companies to capitalize in multiple strategies that target investments on a global basis including, but not limited to, obligations of leveraged, financially troubled, or liquidating businesses or entities, bank loans, high yield bonds, securitized credit (including debt issued by asset-backed security offerings), derivatives (such as swap agreements), etc. NAV is based on the ERS' pro rata ownership percentage of the fund reported by the fund manager based on the fair value of the underlying assets that is determined by published market prices or quotations from national security exchanges.
- (d) Real assets investments (real estate and other) consist of limited partnerships, limited liability companies, or corporations, that are deemed to be investments, include 74 funds that primarily invest in U.S. real estate and 17 that invest in other real assets such as infrastructure, agriculture or other assets. The most significant element of NAV is the fair value of the investment holdings. These holdings are valued by the general partners using valuation assumptions based on both market and property specific inputs, which are not observable and involve a certain degree of expert judgment and are generally audited annually.
- (e) Alternative investments – diversifying strategies consist of 15 limited partnerships or limited liability companies to provide stability, diversification, and liquidity complements to the Broad Growth strategic asset class that produce uncorrelated returns during both crisis and non-crisis periods for Broad Growth assets. These investments focus on capital efficiency and employ certain financial mechanisms to target specific levels of volatility (e.g., derivatives-based leverage). This approach emphasizes capital efficiency thereby enabling the relatively small capital base of the Diversifying Strategies strategic asset class to offset a meaningful level of volatility inherent in the Broad Growth strategic asset class. The most significant element of NAV is the fair value of the investment holdings. These holdings are valued using valuation assumptions based on both market and property specific inputs, which are not observable and involve a certain degree of expert judgment and are generally audited annually. The ERS determines when redemptions and/or contributions are made.
- (f) Alternative investments – traditional consist of 249 limited partnerships or limited liability companies that invest in venture capital, growth equity, corporate finance/buyout, special situations, mezzanine debt, distressed debt, co/direct investments or specialty investments. The most significant element of NAV is the fair value of the investment holdings. These holdings are valued by the general partners using valuation assumptions based on both market and property specific inputs, which are not observable and involve a certain degree of expert judgment and are generally audited annually. Redemptions are controlled by the general partner/investment manager.

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Reconciliation of Investments Measured by Fair Value Level and by NAV to the Statement of Fiduciary Net Position

	Investments Measured by Fair Value Level	Investments Measured by NAV	Derivative Investments Measured by Fair Value Level	Statement of Fiduciary Net Position
Short-term investments	\$ -	\$ 749,512,823	\$ (1,970)	\$ 749,510,853
Equity securities	4,109,170,424	1,168,192,573	-	5,277,362,997
Fixed income securities	2,193,600,295	2,992,572,377	13,806,242	5,199,978,914
Real assets investments	52,300,000	4,209,389,706	-	4,261,689,706
Alternative investments	-	8,001,762,553	-	8,001,762,553
	<u>\$ 6,355,070,719</u>	<u>\$ 17,121,430,032</u>	<u>\$ 13,804,272</u>	<u>\$ 23,490,305,023</u>
Invested securities lending collateral	<u>\$ 765,590,308</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 765,590,308</u>

4. Credit Risk

Credit risk is defined as the risk that an issuer or other counterparty to an investment will not fulfill its obligations. Information regarding ERS' credit risk for derivative financial instruments is discussed in Note E.10, Derivative Financial Instruments, while policies related to credit risk for the securities lending program are discussed in Note E.9, Securities Lending.

Risk Based Asset Class

The credit portfolio consists of investment strategies and assets that are largely exposed and/or susceptible to various collateral types (corporate cash flows, mortgages, various credit receivables, etc.) that produce relatively high levels of income. These investments may be traded in public markets or sourced through private issuance. Such investments typically contain relatively lower levels of risk and exhibit lower volatility than other Broad Growth components but do have exposure to growth-related characteristics. In addition, periodic income will likely be a material portion of the credit portfolio's investment return. The overall objectives of the Diversifying Strategies strategic asset class are to provide stability, diversification, and liquidity complements to the Broad Growth strategic asset class. This class can help diversify the Broad Growth strategic asset class during challenging periods, such as material equity market drawdowns. Individual investment managers have specific investment policy guidelines, limits, and/or requirements for their portfolio, that may include limits on, but not limited to, security type, sectors, currency, duration, credit rating and issue amounts.

The ERS may invest, across the Broad Growth and Diversifying Strategies asset classes, in directly held securities, partnerships/fund of ones or commingled funds which invest in liquid and less liquid corporate credit across the capital structure as well as opportunistically provide private financing. Investment instruments and/or strategies include but are not limited to the purchase and/or origination of investment grade, broadly syndicated high yield bonds, broadly syndicated leveraged loans, narrowly syndicated private debt ("club deals"), collateralized loan obligations ("CLO") debt and equity, municipal securities, capital solutions and convertibles. Other

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investment instruments and/or strategies include but are not limited to U.S. Treasuries and government-backed, high-quality, very liquid agencies, the purchase and/or origination of legacy non-agency residential mortgage-backed securities, asset backed securities, agency risk transfer, FNMA/Freddie preferred equity, non-qualified mortgage, origination, re-performing loans, credit tenant leases, bridge financings, and other types. Derivative financial instruments may be used for managing interest rate, volatility, term structure, country, currency, sector exposures, etc. as authorized by their mandate.

A table of the ERS' fixed income securities as of June 30, 2024 is below. All directly held fixed income investment securities (excluding funds) are rated at investment grade of Baa or better (average rating by S&P, Moody's and/or Fitch) All short-term investments, not held in a pooled investment, are rated A1/P1 or better.

Credit Ratings – Average rating by S&P, Moody's and Fitch as of June 30, 2024

Ratings	US Govt Agency	US Govt Agency Mortgage Backed	US Corporate Bonds	Non-US Corporate Bonds	Total
AAA	\$ -	\$ -	\$ 218,117	\$ -	\$ 218,117
AA1	20,571,184	373,208,120	710,603	-	394,489,907
AA3	-	-	2,422,630	-	2,422,630
A1	-	-	8,038,703	2,962,860	11,001,563
A2	-	-	8,454,628	-	8,454,628
A3	-	-	13,209,070	-	13,209,070
BAA1	-	-	4,260,393	-	4,260,393
BAA2	-	-	1,133,480	-	1,133,480
	<u>\$ 20,571,184</u>	<u>\$ 373,208,120</u>	<u>\$ 38,447,624</u>	<u>\$ 2,962,860</u>	<u>435,189,788</u>
					US Treasury bonds and notes 1,701,682,127
					US government agency - Government National
					Mortgage Association (GNMAs) mortgage backed 56,728,380
					Subtotal directly held investments 2,193,600,295
					Fixed income funds 2,992,572,377
					Derivative financial instruments (debt securities) 13,806,242
					<u>Total fixed income securities in investments \$ 5,199,978,914</u>

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5. *Custodial Credit Risk*

Custodial credit risk for investments is the risk that, in the event of a failure of the counterparty, the ERS will not be able to recover the value of the investment or collateral securities that are in the possession of an outside party. All securities, except certain pooled funds, are registered in the name of the ERS and are held in the possession of the ERS' custodial bank, The Bank of New York Mellon. Pooled funds not held by the custodial bank, such as certain equity investments, are registered in the name of the ERS. The ERS had \$74,991,189 in cash and securities exposed to custodial credit risk as of June 30, 2024.

6. *Concentrations of Credit Risk*

The ERS' debt securities managers are expected to maintain diversified portfolios by sector, quality, and maturity as discussed in the Credit Risk section above.

Equity securities shall be diversified by industry and in number. An investment manager may not hold more than 5% of an individual company's stock if that company's securities represent less than 3% of the investment manager's respective benchmark. (If those securities constitute more than 3% of the respective benchmark the manager shall not hold more than the benchmark weight plus 2 percentage points.)

At June 30, 2024, there was no single issuer exposure within the ERS' portfolio that comprises over 5% of the overall portfolio, or an investment that exceeded the above manager guidelines, and therefore, there is no concentration of credit risk to report.

7. *Interest Rate Risk*

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. The ERS has not adopted a formal policy that limits investment maturities as a means of managing its exposure to fair value changes arising from changing interest rates. External investment managers are given full discretion within their operational guidelines and are expected to maintain a diversified portfolio between and within sectors, quality, and maturity.

Duration is a measure of a debt investment's exposure to fair value changes arising from changes in interest rates. It uses the present value of cash flows, weighted for those cash flows as a percentage of the investment's full price. At June 30, 2024, the table below shows fixed income investment securities by investment type, amount, and the effective weighted duration for the ERS' total portfolio. Interest rate risk associated with swaps and other derivative instruments are discussed in the derivatives disclosure below.

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The effective duration of fixed income investments by security type (excluding derivatives and fixed income funds) are as follows:

	Fair Value	Weighted Modified Duration (Years)
Fixed income investments:		
U.S. Treasury bonds and notes	\$ 1,701,682,127	7.8
U.S. government agencies bonds	20,571,184	2.0
U.S. government agency mortgage backed	373,208,120	4.6
U.S. government-sponsored agency mortgage backed	56,728,380	6.0
U.S. corporate bonds	38,447,624	5.5
Non-U.S. corporate bonds	2,962,860	6.8
Total	<u>\$ 2,193,600,295</u>	7.1

8. Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of an investment. The foreign currency risk exposure to the ERS arises from the international fixed income and international equity investment holdings. Board policy limits the use of foreign currency as a defensive measure to protect the portfolio value of non-U.S. equity and non-U.S. fixed income investments. External investment managers authorized to invest in these securities are given full discretion regarding their respective portfolio's foreign currency exposures, including using currency forward contracts, as established by their investment mandate. Cross-hedging is only allowed in non-U.S. fixed income portfolios. Counterparties for foreign currency derivative financial instruments must be rated A or equivalent. Derivative financial instruments are discussed in more detail in Note E.10, Derivative Financial Instruments.

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The following table summarizes the ERS' exposure to foreign currency risk in U.S. dollars as of June 30, 2024. (securities denominated in U.S. dollars are not presented):

	Cash and Short Term Instruments	Derivatives	Equities	Grand Total
Australian dollar	\$ 164,304	\$ 38,631	\$ 31,124,244	\$ 31,327,179
Brazilian real	7,386	-	16,221,638	16,229,024
Canadian dollar	660,889	(293,738)	111,453,074	111,820,225
Chilean peso	4,075	-	3,600,156	3,604,231
Chinese yuan renminbi	-	-	3,691,836	3,691,836
Czech koruna	-	-	208,699	208,699
Danish krone	83,136	(27,603)	35,066,035	35,121,568
Euro currency unit	303,377	(130,416)	334,046,610	334,219,571
Hong Kong dollar	186,377	(99,084)	53,757,264	53,844,557
Hungarian forint	-	-	293,310	293,310
Indian rupee	7,805	-	91,351,206	91,359,011
Indonesian rupiah	1,000	-	1,027,085	1,028,085
Israeli shekel	391	-	210,041	210,432
Japanese yen	505,566	818,535	177,841,262	179,165,363
Malaysian ringgit	426	-	1,700,167	1,700,593
Mexican peso	321,975	24,464	4,335,893	4,682,332
New Taiwan dollar	561,562	-	103,374,363	103,935,925
New Zealand dollar	-	-	2,649,063	2,649,063
Norwegian krone	(6)	(38,007)	1,833,504	1,795,491
Polish zloty	-	-	593,024	593,024
Pound sterling	472,069	(141,018)	239,070,368	239,401,419
Russian ruble	-	-	44	44
Singapore dollar	12,467	-	1,480,175	1,492,642
South African rand	39,678	-	1,955,191	1,994,869
South Korean won	480	-	20,168,444	20,168,924
Swedish krona	92,230	-	18,536,310	18,628,540
Swiss franc	120,130	62,912	53,429,732	53,612,774
Thai baht	-	-	364,580	364,580
Turkish lira	-	(22,547)	1,136,479	1,113,932
Total	\$ 3,545,317	\$ 192,129	\$ 1,310,519,797	\$ 1,314,257,243

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9. *Securities Lending*

The ERS participates in a securities lending program administered by its bank custodian, The Bank of New York Mellon. Under this program, which is permissible under Chapter 88, HRS, certain equity and fixed-income securities of the ERS are lent to participating broker-dealers and banks (borrowers). In return, the ERS receives cash, securities issued or guaranteed by the U.S. government, securities issued or guaranteed by OECD (Organization for Economic Cooperation and Development) member states or their local authorities, Canadian Provincial debt, equity securities that are part of the U.S. and non U.S. indices, and/or letters of credit as collateral. The ERS does not have the ability to pledge or sell collateral securities absent of borrower default, thus only cash received as collateral is reported on the financial statements in accordance with accounting standards. Risk is mitigated by the investment policies and operational procedures regarding issuer, credit, exposure and rating limits utilized in the securities lending program. Borrowers are required to deliver collateral for each loan equal to: (a) in the case of loaned fixed-income securities and loaned equity securities denominated in U.S. dollars or whose primary trading market was located in the U.S., 102% of the market value of the loaned securities; and (b) in the case of loaned equity securities not denominated in U.S. dollars or whose primary trading market was not located in the U.S., 105% of the market value of the loaned securities. The collateral is marked to market daily. If the market value of the collateral falls below the minimum collateral requirements, additional collateral is provided. In addition, the bank custodian indemnifies the ERS by agreeing to purchase replacement securities or return cash collateral in the event the borrower fails to return the loaned security or fails to pay the ERS for income distributions by the securities' issuers while the securities are on loan.

The ERS does not impose any restrictions on the amount of loans the bank custodian made on behalf of the ERS. Also, the ERS and the borrowers maintain the right to terminate securities lending transactions on demand. The Bank of New York Mellon invests the cash collateral related to the ERS' loaned securities in a separate account in accordance with the ERS investment policies and procedures as discussed in Note E.1, Investment Policy. As such, the maturities of the investments made with cash collateral generally do not match the maturities of the securities loans. The extent of such mismatch as of June 30, 2024 was 117 days.

At June 30, 2024, there was no credit risk exposure to borrowers since the ERS was collateralized as discussed above. The total securities on loan and collateral received are shown below.

Securities Lent for Collateral	Fair Value of Underlying Securities	Cash	Noncash
U.S. fixed income	\$ 1,220,469,091	\$ 475,834,867	\$ 834,870,514
U.S. equities	252,335,968	242,227,115	16,537,406
International equities	141,598,871	47,528,326	105,922,882
	<u>\$ 1,614,403,930</u>	<u>\$ 765,590,308</u>	<u>\$ 957,330,802</u>

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10. *Derivative Financial Instruments*

Derivatives are financial instruments (securities or contracts) whose value is dependent on such things as stock or bond prices, interest rate levels, or currency exchange rates. These are financial arrangements between two parties whose payments are based on or “derived” from the performance of some agreed-upon benchmark. As with any investment, derivative contracts are subject to various types of credit and market risks. Notably, these would include the possible inability of the counterparty to meet the terms of the contract, changes in the market value of the underlying collateral, changes in the interest rate environment, and fluctuation in foreign currency rates. The ERS enters into various derivative investment contracts to hedge, for the minimization of transaction costs and as a means of implementing value added strategies to enhance returns as authorized by Board policy, as discussed below.

Generally, derivatives are subject both to market risk and counterparty risk. The derivatives utilized by the ERS typically have no greater risk than their physical counterparts, and in many cases are offset by exposures elsewhere in the portfolio. Counterparty risk, the risk that the “other party” to a contract will default, is managed by utilization of exchange-traded futures and options where practicable (in which case the futures exchange is the counterparty and guarantees performance) and by careful screening of counterparties where use of exchange-traded products is impractical or uneconomical. ERS investment managers seek to control this risk through counterparty credit evaluations and approvals, counterparty credit limits, posting collateral, and exposure monitoring procedures. The ERS anticipates that counterparties will be able to satisfy their obligations under the contracts.

Derivative securities are priced and accounted for at their fair value. For exchange-traded securities such as futures and options, closing prices from the securities exchanges are used. Foreign exchange contracts are valued at the price at which the transaction could be settled by offset in the forwards markets.

The tables below summarize the ERS' investments in derivative securities and contracts held at June 30, 2024 and their associated risks. The various risks associated with these investments are included in the tables expressed in terms of market values, summarized by the type of contract as follows: credit, equity, foreign exchange, interest, and other. Due to the level of risk associated with certain derivative investment securities, it is reasonably possible that changes in the values of investment securities will occur in the near term, and such changes could affect the amounts reported in the financial statements. ERS could be exposed to risk if the counterparties to the contracts are unable to meet the terms of the contracts. ERS investment managers seek to control this risk through counterparty credit evaluations and approvals, counterparty credit limits, posting collaterals, and exposure monitoring procedures.

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The notional amount is the nominal or the underlying face amount that is used to calculate payments made on that instrument or contract. Changes in the market value of all derivative contracts are recorded as net appreciation (depreciation) in fair value of investments in the statement of changes in fiduciary net position.

The following table summarizes the ERS' investments in derivative securities and contracts held at June 30, 2024 with the related maturity information:

<u>Asset Categories</u>	<u>Notional Value</u>	<u>Market Value</u>	<u>Maturity (Range From)</u>
Forwards - Currency purchases	\$ -	\$ (1,970)	0.0 years
Futures - Fixed income contracts	626,416,384	479,061	0.1 to 0.5 years
Swaps - Credited default swaps	-	13,327,181	5.0 years
Total	<u>\$ 626,416,384</u>	<u>\$ 13,804,272</u>	

Forward Currency Exchange Contracts and To-Be-Announced (TBA) Securities

The ERS enters into various forward currency exchange contracts to manage exposure to changes in foreign currency exchange rates and to facilitate the settlement of foreign security transactions. A forward contract is an agreement to buy or sell a specific amount of currency at a specific delivery or maturity date for an agreed-upon price. Risks associated with such contracts include movements in the value of the foreign currency relative to the U.S. dollar and the ability of the counterparty to perform in accordance with the terms of the contract.

The TBA market that ERS invests in as part of its toolkit to manage interest rates and liquidity includes the forward trading of mortgage-backed securities (MBS) issued by federal agencies and federally sponsored agencies (commonly known as pass-through securities issued by Freddie Mac, Fannie Mae, and Ginnie Mae). The TBA market is one of the most liquid, and consequently the most important secondary market for mortgage loans as one MBS pool can be considered to be interchangeable with another pool.

Futures

Futures represent commitments to purchase (asset) or sell (liability) securities at a future date and at a specified price. Futures contracts are traded on organized exchanges (exchange traded) thereby minimizing the ERS' credit risk. The net change in the futures contracts value is settled daily in cash with the exchanges. Net gains or losses arising from the daily settlements are included in the net appreciation/(depreciation) in fair value of securities in the statement of changes in fiduciary net position. Refer to the table above for the net notional value of futures contracts at June 30, 2024.

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Options

Options represent or give the buyers the right, but not the obligation, to buy or sell an asset at a preset price over a specified period. The option's price is usually a small percentage of the underlying asset's value. As a writer of financial options, the ERS receives a premium at the outset of the agreement and bears the risk of an unfavorable change in the price of the financial instrument underlying the option. As a purchaser of financial options, the ERS pays a premium at the outset of the agreement and the counterparty bears the risk of an unfavorable instrument underlying the option.

Swaps

Swaps represent an agreement between two or more parties to exchange sequences of cash flows over a period in the future. In the most common type of interest rate swap arrangement, one party agrees to pay fixed-interest payments on designated dates to a counterparty who, in turn, agrees to make return interest payments that float with some reference rate. Credit default swaps are the most common global credit market derivative that allows flexibility as an active portfolio management tool based on its ability to customize the exposure to corporate credit such as credit spreads and default risks. Credit default spreads and total return swaps are also used to gain access to global markets that do not have the transparency or efficiency of the U.S. credit markets. Gains and losses from swaps are determined on market values and are included in the net appreciation/(depreciation) in fair value of securities in the statement of changes in fiduciary net position.

Derivatives, such as interest rate swaps, total return swaps, and credit default swaps, are a tool or instrument used to manage interest rate, credit quality, and yield curve exposures of the investments. In certain situations, derivatives may result in a lower overall cost to the portfolio than owning individual securities underlying the derivatives. When evaluating securities, risk, and return are measured at the security and portfolio levels.

On June 30, 2024, credit ratings of the counterparty for ERS' investments in derivatives were as follows:

<u>Counterparty</u>	<u>S&P's Rating</u>	<u>Fair Value</u>
Intercontinental Exchange Inc.	A-	\$ 13,327,181
Exchange traded derivatives	n/a	477,091
		<u>\$ 13,804,272</u>

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Note F – Pension Liability

1. Net Pension Liability

The components of the net pension liability of the ERS at June 30, 2024, were as follows:

Total pension liability	\$ 37,849,517,735
Less: plan fiduciary net position	<u>23,700,632,356</u>
Net pension liability	<u><u>\$ 14,148,885,379</u></u>
Plan fiduciary net position as a percentage of total pension liability	62.62%
Net pension liability as a percentage of covered payroll	285.94%

Multi-year trend information regarding whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liabilities for benefits can be found in the Required Supplementary Information section, which follows the notes to financial statements.

2. Summary of Actuarial Assumptions

The total pension liability was determined using the provisions of the GASB Statements No. 67 and No. 82 actuarial valuation as of June 30, 2024. These GASB rules only define pension liability for financial reporting purposes. The actuarial assumptions were based on the results of an experience study as of June 30, 2021, with most of the assumptions based on the period from July 1, 2016, through June 30, 2021.

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A summary of the actuarial valuation as of June 30, 2024 follows:

Valuation date	June 30, 2024
Actuarial cost method	Entry age normal
Amortization method	Level percent, open
Actuarial assumptions:	
Inflation assumption	2.50%
Investment rate of return, including inflation at 2.50%	7.00%
Payroll growth rate	3.50%
Projected salary increases, including inflation at 2.50%	
- Police and fire employees	5.00% to 6.00%
- General employees	3.75% to 6.75%
- Teachers	3.75% to 6.75%
Cost of living adjustments (COLAs):	
- COLAs are not compounded; and are based on original pension amounts.	
- Membership date prior to July 1, 2012	2.5%
- Membership date after June 30, 2012	1.5%

Mortality rate assumptions include the effects of the retirement status of members.

Active Members Mortality Rates:

Multiples of the Pub-2010, Employee Tables for active employees based on the occupation of the member as follows:

Type	General Employees	Teachers	Police and Fire
	Male and Female	Male and Female	Male and Female
Ordinary	94%	92%	80%
% of Ordinary Choosing Annuity	41%	52%	24%
Duty Related	6%	8%	20%

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Post-Retirement Mortality Rates:

Healthy retirees: The 2022 Public Retirees of Hawaii mortality tables. The rates are projected on a fully generational basis by Scale MP from the year 2022 (with immediate convergence) and with multiplier and setbacks based on plan and group experience. The following are sample rates of the base table as of 2022 with the corresponding multipliers:

Healthy Annuitant Mortality Rates Before Projection (Multiplier Applied)						
	General Employees		Teachers		Police and Fire	
Age	Male	Female	Male	Female	Male	Female
50	0.2094%	0.1276%	0.1698%	0.0951%	0.2421%	0.1130%
55	0.3215%	0.1687%	0.2883%	0.1596%	0.3473%	0.1633%
60	0.5570%	0.3095%	0.4672%	0.2467%	0.6179%	0.2799%
65	0.8041%	0.4488%	0.7256%	0.4063%	0.8426%	0.4283%
70	1.2621%	0.7066%	1.0762%	0.6015%	1.4172%	0.6565%
75	2.0700%	1.0964%	1.7879%	0.9358%	2.3227%	1.0121%
80	3.5996%	2.1275%	3.0429%	1.6565%	4.1824%	1.8863%
85	6.5891%	4.1569%	5.5564%	3.2698%	7.6513%	3.6977%
90	11.9340%	8.3647%	10.1056%	6.5007%	13.6689%	7.3991%
Multiplier	102%	98%	97%	101%	93%	100%
Setback	---	(1)	1	1	(2)	---

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The following table provides the life expectancy for individuals retiring in future years based on the assumption with full generational projection:

Life Expectancy for an Age 65 Retiree in Years					
Year of Retirement					
Gender	2025	2030	2035	2040	2045
General Retirees					
Male	22.8	23.2	23.5	23.9	24.2
Female	26.3	26.6	26.9	27.2	27.5
Teachers					
Male	24.1	24.5	24.9	25.2	25.5
Female	28.0	28.3	28.6	28.9	29.2
Police and Fire					
Male	21.8	22.1	22.4	22.8	23.1
Female	27.1	27.4	27.7	28.0	28.3

Disabled retirees: Base table for healthy retiree's occupation, set forward three years, generational projection using the MP projection table from the year 2022 with immediate convergence. Minimum mortality rate of 3.5% for males and 2.5% for females.

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The long-term expected rate of return on pension plan investments was determined using a "top down approach" of the Client-Constrained Simulation-based Optimization Model (a statistical technique known as "resampling with replacement" that directly keys in on specific plan-level risk factors as stipulated by the ERS Board) in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are then combined to produce the long-term expected rate of return by weighting the expected future nominal rates of return (real returns + inflation) by the target asset allocation percentage. The rate of returns based on ERS' investment consultant as of June 30, 2024, are summarized in the following table (a new asset/liability study for the ERS was completed in June 2023 that is effective for FY 2024):

Classes	Strategic Class Weights	Long-Term Expected Geometric Rate of Return	Volatility
Broad Growth:			
Public equity	20.00%	7.20%	17.00%
Private equity	19.00%	9.90%	25.00%
Liquid credit	4.00%	6.50%	10.00%
Private credit	8.00%	9.20%	15.00%
Real estate	9.00%	6.30%	16.20%
Infrastructure	7.00%	7.30%	17.80%
Timber/agriculture/infrastructure	3.00%	5.30%	11.40%
Diversifying Strategies:			
Systematic trend following	8.00%	3.80%	15.00%
Long US treasuries	4.00%	4.30%	12.00%
Intermediate government bonds	14.00%	4.00%	3.00%
Reinsurance	4.00%	5.30%	7.00%
	<u>100.00%</u>		

Discount Rate

A single discount rate of 7.00% was used to measure the total pension liability as of June 30, 2024 and was based on the expected rate of return on pension plan investments of 7.00%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

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3. *Sensitivity of the Net Pension Liability to Changes in Discount Rate*

The following presents the ERS' net pension liability as of June 30, 2024, calculated using a single discount rate of 7.00%, as well as what the ERS' net pension liability would be if it were calculated using a single discount rate that is 1–percentage-point lower (6.00%) or 1–percentage-point higher (8.00%) than the current discount rate.

1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
<u>\$ 19,104,950,116</u>	<u>\$ 14,148,885,379</u>	<u>\$ 10,043,774,393</u>

Note G – Risk Management

The ERS is exposed to various risks of loss related to torts; theft of, damage to, or destruction of assets; errors or omissions; workers' compensation; and acts of terrorism. As required by state law, the ERS participates in coverage with the State. The State retains various risks and insures certain excess layers with commercial insurance policies. The excess layers are consistent with the prior fiscal year. Settled claims for the State did not exceed the coverage provided by commercial insurance policies during the year ended June 30, 2024. Losses not covered by insurance are generally paid from legislative appropriations.

1. *Torts*

The ERS is involved in various litigation and claims, including claims regarding retirement benefits, the outcome of which cannot be presently determined. In the opinion of management, the outcome of these actions will not have a material adverse effect on the ERS' financial position.

2. *Property and Liability Insurance*

The ERS also purchased property and liability insurance for all real estate owned from outside carriers. During the past three fiscal years, no loss settlements exceeded insurance coverages.

3. *Workers' Compensation Policy*

The State has a self-insured workers' compensation policy. Workers' compensation claims are paid from legislative appropriations.

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Note H – Commitments

In the normal course of business, the ERS enters into commitments with associated risks. The ERS adheres to the same credit policies, financial and administrative controls, and risk limiting and monitoring procedures for these commitments as for all investments.

The ERS has future financial commitments of up to \$4,471,209,000 as of June 30, 2024, consisting of \$817,120,000 for fixed income funds, \$1,323,273,000 for real assets investments, and \$2,330,816,000 for alternative investments.

Note I – Deferred Compensation Plan

The ERS does not sponsor a deferred compensation program. The ERS' employees are eligible to participate in the deferred compensation plan sponsored by the State. The State-sponsored plan was created in accordance with Internal Revenue Code Section 457. The plan, available to all ERS employees, permits them to defer a portion of their salaries. The deferred compensation is not available to the employees until termination, retirement, death, or an unforeseeable emergency. All compensation deferred under the plan is held in trust by a custodian for the exclusive benefit of participants and beneficiaries.

Note J – Subsequent Events

Between March 4, 2020, and March 25, 2022, State and county employers declared COVID-19 Emergencies (dates vary by employer agency) to control the spread of COVID-19 and provide for the health, safety, and welfare of the people of the State. Union and employee organizations, representing individuals employed by the State and county employers, requested Temporary Hazard Pay (THP) on behalf of State and county employees (Affected Employees) designated to perform essential functions during the COVID-19 pandemic. Subsequently, arbitration/litigation was initiated by these parties to settle claims for THP. Some of the State and county employer agencies/employees reached settlement/arbitration agreements, that represents only a portion of the total number of employees during COVID-19 Emergencies.

Pursuant to HRS §88-21.5, only THP payments to Affected Employees whose ERS membership dates were before July 1, 2012, are considered ERS eligible compensation that are subject to ERS employer and member contributions. THP payments are not considered eligible compensation for individuals whose ERS membership date is after June 30, 2012.

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For those employees (and retirees) who have not settled and/or received their payments as of March 31, 2024, no adjustments have been made by the actuary to their individual liabilities as of the valuation date. The impact of the THP payments will be incorporated into their liabilities in the 2025 (and future) valuations. However, because the ERS has accrued the contributions for the known fiscal year 2025 THP payments in ERS' 2024 financial statements, the actuary incorporated an offsetting liability equal to those accrued contributions in the actuarial valuation (as a minimum impact).

ERS accrued the employer and member contributions in ERS' 2024 financial statements for the fiscal year 2025 THP payments, known as of November 2024. THP claims/litigations for most county and several State employer agencies/employees have not been settled. The ERS is currently unable to predict with reasonable certainty the magnitude of (a) ERS' potential liability and (b) amount of contributions due to the ERS as a result of the remaining THP claims/litigations.

While not all of the THP payments were known as of the actuarial valuation report dated January 14, 2025, the ERS' actuary has estimated that the possible impact of these payments will be to increase the pension liability by \$240 million and increase the funding period between 6 to 12 months.

The ERS has evaluated subsequent events through September __, 2025, the date at which the financial statements were available to be issued, and determined there are no other items to disclose.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

**EMPLOYEES' RETIREMENT SYSTEM
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Required Supplementary Information (Unaudited)

Schedule of Changes in the Employers' Net Pension Liability and Related Ratios

As of and for the Years Ended June 30, 2015 to 2024

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
A. Total pension liability										
1. Service cost	\$ 437,901,029	\$ 484,278,499	\$ 576,724,568	\$ 584,470,193	\$ 619,504,278	\$ 626,699,489	\$ 642,140,242	\$ 613,550,345	\$ 665,262,225	\$ 753,649,057
2. Interest on the total pension liability	1,693,252,684	1,748,619,873	1,894,622,190	1,976,275,120	2,063,885,936	2,164,804,653	2,252,271,074	2,349,503,644	2,397,116,921	2,495,354,170
3. Changes of benefit terms	-	-	-	-	-	-	-	-	-	-
4. Difference between expected and actual experience of the total pension liability	(192,816,757)	297,534,219	61,179,390	124,753,379	221,473,495	71,837,371	228,048,119	(361,275,093)	161,224,056	282,947,390
5. Changes of assumptions	261,213,541	2,915,922,677	-	-	60,320,037	-	-	(154,960,000)	-	-
6. Benefit payments	(1,170,744,770)	(1,232,589,353)	(1,306,788,954)	(1,395,881,342)	(1,469,634,809)	(1,545,589,761)	(1,651,431,372)	(1,738,751,492)	(1,795,410,787)	(1,878,501,292)
7. Refunds	(10,507,888)	(12,927,672)	(16,340,290)	(20,846,500)	(16,502,635)	(22,443,593)	(23,618,435)	(24,454,256)	(26,353,782)	(28,548,843)
8. Net change in total pension liability	1,018,297,839	4,200,838,243	1,209,396,904	1,268,770,850	1,479,046,302	1,295,308,159	1,447,409,628	683,613,148	1,401,838,633	1,624,900,482
9. Total pension liability - beginning	22,220,097,547	23,238,395,386	27,439,233,629	28,648,630,533	29,917,401,383	31,396,447,685	32,691,755,844	34,139,165,472	34,822,778,620	36,224,617,253
10. Total pension liability - ending	23,238,395,386	27,439,233,629	28,648,630,533	29,917,401,383	31,396,447,685	32,691,755,844	34,139,165,472	34,822,778,620	36,224,617,253	37,849,517,735
B. Plan fiduciary net position										
1. Contributions - employer	717,792,981	756,558,222	781,244,218	847,595,466	922,635,334	1,098,589,013	1,281,558,696	1,242,139,095	1,274,221,056	1,396,331,977
2. Contributions - employer (picked-up employee contributions)	221,909,859	235,079,968	249,211,751	257,294,033	270,764,670	284,142,994	299,473,128	292,422,087	309,509,309	341,769,694
2. Contributions - employee	1,595,560	1,721,893	1,492,316	2,133,901	2,458,908	3,255,037	1,153,318	605,473	251,744	296,386
3. Net investment income	556,436,475	(169,368,110)	1,934,512,507	1,225,572,599	932,696,412	358,282,664	4,662,225,761	164,559,035	826,902,875	1,461,900,137
4. Benefit payments	(1,170,744,770)	(1,232,589,353)	(1,306,788,954)	(1,395,881,342)	(1,469,634,809)	(1,545,589,761)	(1,651,431,372)	(1,738,751,492)	(1,795,410,787)	(1,878,501,292)
5. Refunds	(10,507,888)	(12,927,672)	(16,340,290)	(20,846,500)	(16,502,635)	(22,443,593)	(23,618,435)	(24,454,256)	(26,353,782)	(28,548,843)
6. Pension plan administrative expense	(14,032,964)	(13,960,587)	(14,986,159)	(15,784,490)	(13,798,866)	(17,782,865)	(19,049,861)	(17,497,621)	(18,549,472)	(18,000,678)
7. Other	-	-	-	-	-	-	-	-	-	-
8. Net change in plan fiduciary net position	302,449,253	(435,485,639)	1,628,345,389	900,083,667	628,619,014	158,453,489	4,550,311,235	(80,977,679)	570,570,943	1,275,247,381
9. Fiduciary net position - beginning	14,203,015,303	14,505,464,556	14,069,978,917	15,698,324,306	16,598,407,973	17,227,026,987	17,385,480,476	21,935,791,711	21,854,814,032	22,425,384,975
10. Fiduciary net position - ending	14,505,464,556	14,069,978,917	15,698,324,306	16,598,407,973	17,227,026,987	17,385,480,476	21,935,791,711	21,854,814,032	22,425,384,975	23,700,632,356
C. Net pension liability ending	\$ 8,732,930,830	\$ 13,369,254,712	\$ 12,950,306,227	\$ 13,318,993,410	\$ 14,169,420,698	\$ 15,306,275,368	\$ 12,203,373,761	\$ 12,967,964,588	\$ 13,799,232,278	\$ 14,148,885,379
D. Fiduciary net position as a percentage of the total pension liability	62.42%	51.28%	54.80%	55.48%	54.87%	53.18%	64.25%	62.76%	61.91%	62.62%
E. Covered payroll	\$ 3,995,447,345	\$ 4,112,227,306	\$ 4,243,521,876	\$ 4,256,052,840	\$ 4,376,216,753	\$ 4,481,443,808	\$ 4,667,346,006	\$ 4,483,686,505	\$ 4,674,478,467	\$ 4,948,188,592
F. Net pension liability as a percentage of covered payroll	218.57%	325.11%	305.18%	312.94%	323.78%	341.55%	261.46%	289.23%	295.20%	285.94%

**EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII**

Required Supplementary Information (Unaudited)

Schedule of the Employers' Net Pension Liability

June 30, 2015 to June 30, 2024

Fiscal Year	Total Pension Liability	Fiduciary Net Position	Net Pension Liability	Fiduciary Net Position as a % of Total Pension Liability	Covered Payroll	Net Pension Liability as a Percentage of Covered Payroll
2015	\$ 23,238,395,386	\$ 14,505,464,556	\$ 8,732,930,830	62.42%	\$ 3,995,447,345	218.57%
2016	27,439,233,629	14,069,978,917	13,369,254,712	51.28%	4,112,227,306	325.11%
2017	28,648,630,533	15,698,324,306	12,950,306,227	54.80%	4,243,521,876	305.18%
2018	29,917,401,383	16,598,407,973	13,318,993,410	55.48%	4,256,052,840	312.94%
2019	31,396,447,685	17,227,026,987	14,169,420,698	54.87%	4,376,216,753	323.78%
2020	32,691,755,844	17,385,480,476	15,306,275,368	53.18%	4,481,443,808	341.55%
2021	34,139,165,472	21,935,791,711	12,203,373,761	64.25%	4,667,346,006	261.46%
2022	34,822,778,620	21,854,814,032	12,967,964,588	62.76%	4,483,686,505	289.23%
2023	36,224,617,253	22,425,384,975	13,799,232,278	61.91%	4,674,478,467	295.20%
2024	37,849,517,735	23,700,632,356	14,148,885,379	62.62%	4,948,188,592	285.94%

See accompanying notes to required supplementary information and independent auditors' report.

**EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII**

Required Supplementary Information (Unaudited)

Schedule of Investment Returns

Years Ended June 30, 2015 to 2024

Fiscal Year	Annual Money-Weighted Rate of Return
2015	4.0%
2016	-1.2%
2017	13.7%
2018	7.8%
2019	5.7%
2020	2.1%
2021	26.9%
2022	0.8%
2023	3.8%
2024	6.6%

See accompanying notes to required supplementary information and independent auditors' report.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Required Supplementary Information (Unaudited)

June 30, 2024

Note A - Description

There have been no changes in benefit terms or actuarial assumptions since the last valuation.

Note B – Significant Factors Affecting Trends in Actuarial Information

2022 Changes in Actuarial Assumptions

The following changes were made to the actuarial assumptions as of June 30, 2021 to June 30, 2022:

- The administrative expenses assumption was increased from 0.35% to 0.40%.
- The general wage inflation assumption represents the average increase in wages in the general economy and is used to index salaries for each cohort of new entrants in projections. The general productivity component of the general wage inflation assumption for General Employees and Teachers decreased from 1.00% to 0.50%, that now yields a nominal assumption of 3.00%. There was no change to the assumption for Police and Firefighters employees.
- The assumed salary increase schedules increased for all employees. These schedules include an ultimate component for general wage inflation that may add on additional increases for individual merit (which would include promotions) and then an additional component for step rates based on service. The schedules of assumed salary increase, that are the same, for General Employees and Teachers increased to 4.66%, from 4.41% for General Employees and from 4.37% for Teachers; while Police and Firefighters Employees schedules increased to 5.78% from 5.57%.
- Pre-retirement mortality rates increased for Police and Firefighters Employees.
- Retiree mortality is updated to the 2022 Public Retirees of Hawaii mortality tables. The rates are projected on a fully generational basis by the long-term rates of scale UMP from the year 2022 and with multiplier and setbacks based on plan and group experience.
- While there is no change to the assumption that mortality rates will continue to improve in the future using a fully generational approach, the improvement scale used to project future improvement is updated to the ultimate values of the most recently published Scale MP2021. Further adjustments are applied to this set of base tables based on occupation (General Employees, Teachers, and Public Safety).

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Required Supplementary Information (Unaudited)

June 30, 2024

2019 Changes in Actuarial Assumptions

The following changes were made to the actuarial assumptions as of June 30, 2018 to June 30, 2019:

- The assumed salary increase schedules continues to include an ultimate component for general wage inflation that may add on additional increases for individual merit (which would include promotions) and then an additional component for step rates based on service. There were no changes for General Employees and Teachers. The overall impact increased for salary rate increase rates received for most Police and Firefighters over their career due to extending the 2-year step schedule to 25-years.
- Mortality rates generally decreased due to the continued improvements in using a fully generational approach and Scale BB (published by the Society of Actuaries), although mortality rates increased in certain age groups across all employment groups.
- The rates of disability of active employees increased for all General Employees and Teachers, and for Police and Firefighters from duty-related reasons.
- There were minor increases in the retirement rates for members in certain groups based on age, employment group and/or membership class.

2016 Changes in Actuarial Assumptions

The following changes were made to the actuarial assumptions as of June 30, 2015 to June 30, 2016:

- The investment rate of return assumption was decreased from 7.65% to 7.00%.
- Change the investment return assumption from net of all expenses to net of only investment expenses, add explicit charge for administrative expenses (0.35% of pay).
- The inflation assumption was decreased from 3.00% to 2.50%.
- Decrease the wage inflation (or employer budget growth) assumption from 4.00% to 3.50%.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Required Supplementary Information (Unaudited)

June 30, 2024

- The inflation component of salary increase rates decreased for all groups. The salary increase rates were changed to reflect a smaller productivity component for Teachers and Police and Firefighters. The service based component generally increased for most General Employees, decreased for most Teachers, and remain unchanged for most Police and Firefighters. The overall impact decreased assumed salary rate increase rates for all General Employees and Teachers, while remaining unchanged for almost all Police and Firefighters.
- The rates of mortality for active employees were decreased.
- The rates of mortality for healthy retirees and beneficiaries for most employee groups were decreased, adding an explicit assumption for continued future mortality improvement (generational approach).
- The rates of mortality for disabled retirees for most employee groups were decreased.
- The rates of disability of active employees increased for all General Employees, for Police and Firefighters from duty-related reasons and for Teachers from non-duty-related reasons.
- The rates of termination assumption for all employee groups was changed from separate male and female by employee group to a combined male and female by employee group. The rate of terminations for Police and Firefighters was increased. The rate of terminations for General Employees in the first six years of service decreased, and remains unchanged for other General Employees. After six years of service, the rates of termination generally increased for Teachers, and remained unchanged for other Teachers.

2015 Changes in Actuarial Assumptions

The investment rate of return assumption was decreased from 7.75% as of June 30, 2014 to 7.65% as of June 30, 2015.

OTHER SUPPLEMENTARY INFORMATION

DRAFT - 08.13.2025

**EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII**

Combining Schedule of Changes in Fiduciary Net Position - All Trust Funds

Year Ended June 30, 2024

	Pension Accumulation Reserves	Annuity Savings Reserves	Expense Reserves	Total
Additions:				
Appropriations and contributions:				
Employers	\$ 1,396,331,977	\$ -	\$ -	\$ 1,396,331,977
Members	-	342,066,080	-	342,066,080
Net investment income	1,461,900,137	-	-	1,461,900,137
Total additions	<u>2,858,232,114</u>	<u>342,066,080</u>	<u>-</u>	<u>3,200,298,194</u>
Deductions:				
Benefit payments	1,878,501,292	-	-	1,878,501,292
Refunds of member contributions	-	28,548,843	-	28,548,843
Administrative expenses	-	-	18,000,678	18,000,678
Total deductions	<u>1,878,501,292</u>	<u>28,548,843</u>	<u>18,000,678</u>	<u>1,925,050,813</u>
Other changes in net position restricted for pension benefits:				
Transfer due to retirement of members	192,611,301	(192,611,301)	-	-
Transfer of interest allocation	(139,630,256)	139,630,256	-	-
Transfer to pay administrative expenses	(20,677,825)	-	20,677,825	-
Return of unrequired funds due to savings in administrative expenses	<u>757,003</u>	<u>-</u>	<u>(757,003)</u>	<u>-</u>
	<u>33,060,223</u>	<u>(52,981,045)</u>	<u>19,920,822</u>	<u>-</u>
Net increase	1,012,791,045	260,536,192	1,920,144	1,275,247,381
Fiduciary net position restricted for pensions:				
Beginning of year	18,685,002,497	3,729,248,623	11,133,855	22,425,384,975
End of year	<u>\$ 19,697,793,542</u>	<u>\$ 3,989,784,815</u>	<u>\$ 13,053,999</u>	<u>\$ 23,700,632,356</u>

See accompanying independent auditors' report.

**EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII**

Schedule of Administrative Expenses

Year Ended June 30, 2024

Personnel services:	
Salaries and wages	\$ 7,494,199
Fringe benefits	4,686,023
Net change in unused vacation credits	461,262
Total personnel services	<u>12,641,484</u>
Professional services:	
Actuarial	124,900
Auditing and tax consulting	327,020
Disability hearing expenses	67,353
Legal services	807,166
Medical	393,995
Other services	50,375
Total professional services	<u>1,770,809</u>
Communication:	
Postage	197,443
Printing and binding	74,436
Telephone	85,838
Travel	165,546
Total communication	<u>523,263</u>
Rentals:	
Rental of equipment	87,955
Rental of premises	21,555
Total rentals	<u>109,510</u>
Other:	
Equipment and cloud costs	116,044
Repairs and maintenance	1,605,958
Office and other administrative costs	177,259
Total other	<u>1,899,261</u>
Depreciation	<u>1,056,351</u>
	<u><u>\$ 18,000,678</u></u>

See accompanying independent auditors' report.

**EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII**

Schedule of Investment Expenses

Year Ended June 30, 2024

Real estate and alternative investment expenses:	
Operating expenses	\$ 6,721,599
Investment expenses:	
Investment manager/advisor fees	101,385,239
Bank custodian fees	300,019
Other investment expenses	65,705,627
Total investment expenses	167,390,885
Securities lending expenses:	
Borrower rebates	28,242,569
Management fees	420,171
Total securities lending expenses	28,662,740
	<u>\$ 202,775,224</u>

See accompanying independent auditors' report.

**EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII**

Statement of Changes in Assets and Liabilities
Social Security Contribution Fund - (Unaudited)

Year Ended June 30, 2024

	Beginning Balance	Additions	Deductions	Ending Balance
Assets:				
Receivable from employers	\$ -	\$ 279,384,012	\$ 279,384,012	\$ -
Total assets	<u>\$ -</u>	<u>\$ 279,384,012</u>	<u>\$ 279,384,012</u>	<u>\$ -</u>
Liabilities:				
Due to employers	\$ -	\$ 279,384,012	\$ 279,384,012	\$ -
Total liabilities	<u>\$ -</u>	<u>\$ 279,384,012</u>	<u>\$ 279,384,012</u>	<u>\$ -</u>

Note A - Social Security Contribution Fund

The Social Security Contribution Fund (Contribution Fund) was established under Section 88-224 of the HRS for the following purposes:

1. To receive all federal Social Security employers' contributions from the State and interest and penalties on unpaid amounts;
2. To receive any appropriations to the Contribution Fund;
3. To pay amounts required to be paid to the Internal Revenue Service (the IRS); and
4. To invest and collect income on resources held by the Contribution Fund.

All other non-State governmental agencies remit Social Security contributions directly to the IRS. Social Security contributions withheld from employees are remitted directly to the IRS by the employers. At June 30, 2024, the ERS held no amounts in the Contribution Fund as all employer contribution amounts from the State were paid directly to the IRS.

See accompanying independent auditors' report.

PART III

INTERNAL CONTROL AND COMPLIANCE SECTION

**Independent Auditors' Report on Internal Control Over Financial Reporting and on Compliance
and Other Matters Based on an Audit of Financial Statements Performed in Accordance With
Government Auditing Standards**

The Auditor
State of Hawaii:

Board of Trustees
Employees' Retirement System of the State of Hawaii:

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States (*Government Auditing Standards*), the financial statements of the Employees' Retirement System of the State of Hawaii (the ERS) as of and for the year ended June 30, 2024, and the related notes to financial statements, and have issued our report thereon dated September __, 2025.

Report on Internal Control Over Financial Reporting

In planning and performing our audit of the financial statements, we considered the ERS' internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the ERS' internal control. Accordingly, we do not express an opinion on the effectiveness of the ERS' internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that were not identified.

Report on Compliance and Other Matters

As part of obtaining reasonable assurance about whether the ERS' financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the ERS' internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the ERS' internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Honolulu, Hawaii
September __, 2025

Employees' Retirement System of the State of Hawaii

Schedule of Employer Allocations and Schedule of Pension
Amounts by Employer
(With Independent Auditors' Report Thereon)

June 30, 2024

DRAFT - 08.13.2025

Submitted by
THE AUDITOR
STATE OF HAWAII

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Schedule of Employer Allocations and Schedule of Pension Amounts by Employer

June 30, 2024

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Independent Auditors' Report

The Auditor
State of Hawaii:

Board of Trustees
Employees' Retirement System of the State of Hawaii:

Opinions

We have audited the schedule of employer allocations of the Employees' Retirement System of the State of Hawaii (the ERS) for the year ended June 30, 2024, and the related notes. We have also audited the total for all entities of the columns titled net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense (specified column totals) included in the accompanying schedule of pension amounts by employer (collectively the Schedules) of the ERS as of and for the year ended June 30, 2024, and the related notes.

In our opinion, the accompanying Schedules referred to above present fairly, in all material respects, the employer allocations and net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense for the total of all participating entities for the ERS as of and for the year ended June 30, 2024, in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Our responsibilities under those standards are further described in the *Auditors' Responsibilities for the Audit of the Schedules* section of our report. We are required to be independent of the ERS and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Responsibilities of Management for the Schedules

Management is responsible for the preparation and fair presentation of the Schedules in accordance with accounting principles generally accepted in the United States of America; and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the Schedules that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibilities for the Audit of the Schedules

Our objectives are to obtain reasonable assurance about whether the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with auditing standards generally accepted in the United States of America will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer.

In performing an audit in accordance with auditing standards generally accepted in the United States of America, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts in the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer and the related disclosures.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the ERS' internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Other Matter

We have audited, in accordance with auditing standards generally accepted in the United States of America, the financial statements of the ERS as of and for the year ended June 30, 2024, and our report thereon, dated September __, 2025, expressed an unmodified opinion on those financial statements.

Restriction on Use

Our report is intended solely for the information and use of the Auditor, State of Hawaii, the Board of Trustees and management of the ERS, and the participating employers of the ERS and their auditors, and is not intended to be and should not be used by anyone other than these specified parties.

Honolulu, Hawaii
September __, 2025

DRAFT - 08.13.2025

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Schedule of Employer Allocations

Year Ended June 30, 2024

Employer	Employer Contributions	Allocation Percentage
Employer contributions, excluding contributions attributable to Temporary Hazard Pay:		
Police and fire group:		
State of Hawaii	\$ 12,874,393	4.81%
City and County of Honolulu	166,497,559	62.17%
County of Hawaii	41,498,853	15.50%
County of Maui	32,865,539	12.27%
County of Kauai	14,076,457	5.25%
Total police and fire group	267,812,801	100.00%
All other employees group:		
State of Hawaii	742,808,171	68.08%
City and County of Honolulu	101,348,108	9.29%
County of Hawaii	28,467,424	2.61%
County of Maui	34,067,069	3.12%
County of Kauai	15,365,856	1.41%
Board of Water Supply, City and County of Honolulu	11,273,854	1.03%
Department of Water Supply, County of Hawaii	2,636,219	0.24%
Department of Water, County of Kauai	1,804,043	0.17%
Honolulu Authority for Rapid Transportation	954,728	0.09%
University of Hawaii	152,354,832	13.96%
Total all other employees group	1,091,080,304	100.00%
Employer contributions attributable to Temporary Hazard Pay	37,438,872	
Total employer contributions	\$ 1,396,331,977	

See accompanying notes to schedule of employer allocations and schedule of pension amounts by employer.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Schedule of Pension Amounts by Employer

As of and for the Year Ended June 30, 2024

Employer	Deferred Outflows of Resources					Deferred Inflows of Resources					Pension Expense		
	Net Pension Liability	Differences Between Expected and Actual Experience	Changes in Assumptions	Net Difference Between Projected and Actual Earnings on Pension Plan Investments	Changes in Proportion	Total Deferred Outflows of Resources	Differences Between Expected and Actual Experience	Changes in Assumptions	Changes in Proportion	Total Deferred Inflows of Resources	Proportionate Share of Allocable Plan Pension Expense	Net Amortization of Deferred Amounts from Changes in Proportion	Total Pension Expense
Police and fire group:													
State of Hawaii	\$ 108,821,844	\$ 1,961,118	\$ 326,073	\$ 3,699,142	\$ 12,859,988	\$ 18,846,321	\$ 3,603,700	\$ -	\$ 2,226,617	\$ 5,830,317	\$ 9,850,364	\$ 4,197,592	\$ 14,047,956
City and County of Honolulu	1,407,334,023	25,362,078	4,216,922	47,838,999	11,594,848	89,012,847	46,604,706	-	40,672,118	87,276,824	127,389,427	(885,654)	126,503,773
County of Hawaii	350,772,396	6,321,397	1,051,051	11,923,680	16,344,385	35,640,513	11,616,037	-	3,919,021	15,535,058	31,751,307	141,661	31,892,968
County of Maui	277,798,613	5,006,310	832,393	9,443,108	13,254,734	28,536,545	9,199,467	-	8,080,104	17,279,571	25,145,847	(808,686)	24,337,161
County of Kauai	118,982,386	2,144,225	356,518	4,044,526	6,377,812	12,923,081	3,940,173	-	5,533,907	9,474,080	10,770,078	(2,644,913)	8,125,165
Total police and fire group	2,263,709,262	40,795,128	6,782,957	76,949,455	60,431,767	184,959,307	74,964,083	-	60,431,767	135,395,850	204,907,023	-	204,907,023
All other employees group:													
State of Hawaii	8,091,435,518	235,349,773	-	187,637,111	76,805,547	499,792,431	54,352,127	47,621,501	8,825,590	110,799,218	767,448,456	26,744,394	794,192,850
City and County of Honolulu	1,103,988,504	32,110,921	-	25,601,047	8,768,539	66,480,507	7,415,757	6,497,437	26,501,123	40,414,317	104,710,007	(828,542)	103,881,465
County of Hawaii	310,096,653	9,019,559	-	7,191,016	11,926,971	28,137,546	2,082,994	1,825,049	2,191,404	6,099,447	29,411,740	4,235,153	33,646,893
County of Maui	371,093,778	10,793,738	-	8,605,514	21,180,472	40,579,724	2,492,727	2,184,043	15,203,081	19,879,851	35,197,135	5,539,658	40,736,793
County of Kauai	167,380,813	4,868,485	-	3,881,493	1,617,445	10,367,423	1,124,337	985,106	3,987,767	6,097,210	15,875,569	663,467	16,539,036
Board of Water Supply, City and County of Honolulu	122,806,482	3,571,984	-	2,847,833	3,483,392	9,903,209	824,921	722,768	8,129,755	9,677,444	11,647,827	237,225	11,885,052
Department of Water Supply, County of Hawaii	28,716,428	835,254	-	665,923	110,260	1,611,437	192,895	169,008	3,353,430	3,715,333	2,723,667	(940,106)	1,783,561
Department of Water, County of Kauai	19,651,509	571,589	-	455,711	3,026,802	4,054,102	132,004	115,657	2,102,970	2,350,631	1,863,887	(222,315)	1,641,572
Honolulu Authority for Rapid Transportation	10,399,886	302,494	-	241,169	27,297	570,960	69,859	61,208	7,331,070	7,462,137	986,398	(3,063,209)	(2,076,811)
University of Hawaii	1,659,606,546	48,271,784	-	38,485,604	-	86,757,388	11,147,978	9,767,483	49,320,535	70,235,996	157,408,716	(32,365,725)	125,042,991
Total all other employees group	11,885,176,117	345,695,581	-	275,612,421	126,946,725	748,254,727	79,835,599	69,949,260	126,946,725	276,731,584	1,127,273,402	-	1,127,273,402
Total	\$ 14,148,885,379	\$ 386,490,709	\$ 6,782,957	\$ 352,561,876	\$ 187,378,492	\$ 933,214,034	\$ 154,799,682	\$ 69,949,260	\$ 187,378,492	\$ 412,127,434	\$ 1,332,180,425	\$ -	\$ 1,332,180,425

See accompanying notes to schedule of employer allocations and schedule of pension amounts by employer.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Schedule of Employer Allocations and Schedule of Pension Amounts by Employer

June 30, 2024

(1) Plan Description

The Employees' Retirement System of the State of Hawaii (the ERS) began operations on January 1, 1926, having been established by the Territorial Legislature in the preceding year. The provisions of the ERS are contained in Chapter 88 of the Hawaii Revised Statutes (HRS) and applicable provisions of the federal Internal Revenue Code. The ERS is a cost-sharing, multiple-employer public employee retirement system established as a defined benefit pension plan to administer a pension benefits program for all State and county employees, including teachers, professors, police officers, firefighters, correction officers, judges, and elected officials.

The ERS Pension Trust is comprised of three pension classes for membership purposes and considered to be a single plan for accounting purposes because all assets of the ERS may legally be used to pay the benefits of any of the ERS members or beneficiaries, as defined by the terms of the ERS. The ERS provides retirement, survivor, and disability benefits for three membership classes known as contributory, hybrid, and noncontributory members.

Generally, all full-time employees of the State and counties of Hawaii are required to be members of the ERS. Some positions of the State and counties of Hawaii are not eligible for ERS membership and may be covered by another separate retirement program. Membership of the plan and the benefits provided are based on the individual's employment group and ERS membership date. A member may belong to only one class based on their latest employment. A member may change classes in certain situations due to a change in their employment date or job classification. If a member earns service in different classes or benefit structures, the member's retirement benefit is bifurcated based on the applicable membership service earned (such as service credits and benefit multiplier percentage of such service).

The two major employment groups applicable to employer and member contribution rates, vesting requirements, and benefit provisions are (a) police and fire and (b) all other employees. There are four major benefit structures for contributory class members based on employment group and membership date while there are two benefit structures for hybrid class members based on their membership date. The noncontributory class has one benefit structure.

(2) Basis of Presentation

The accompanying schedule of employer allocations and schedule of pension amounts by employer (the Schedules) present amounts that are considered elements of the financial statements of the ERS or its participating employers. Accordingly, they do not purport to be a complete presentation of the fiduciary net position or changes in fiduciary net position of the ERS or its participating employers. The Schedules are prepared on the accrual basis of accounting in accordance with

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Schedule of Employer Allocations and Schedule of Pension Amounts by Employer

June 30, 2024

accounting principles generally accepted in the United States of America. Such preparation requires management of the ERS to make a number of estimates and assumptions relating to the reported amounts. Due to the inherent nature of these estimates, actual results could differ from those estimates.

(3) Allocation Methodology

Governmental Accounting Standards Board Statement No. 68, *Accounting and Financial Reporting for Pensions*, requires participating employers to recognize their proportionate share of the collective net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total pension expense.

Although the ERS administers one cost-sharing multiple-employer defined benefit pension plan, separate (sub) actuarial valuations are prepared to determine the actuarial determined contribution rate by group. Following this method, the measurement of the net pension liability, deferred outflows of resources, deferred inflows of resources, and pension expense are determined separately for the police and fire group and all other employees group of the plan.

To facilitate the separate (sub) actuarial valuations, the ERS maintains separate accounts to identify additions and deductions applicable to each group. The allocation percentages presented for each group in the schedule of employer allocations are applied to amounts presented in the schedule of pension amounts by employer. The allocation percentages for each group as of June 30, 2024, are based on the ratio of each employer's contributions to total employer contributions, excluding contributions attributable to Temporary Hazard Payments (THP) for each group for the fiscal year ended June 30, 2024 (see Note 8). Employer allocation percentages have been rounded for presentation purposes, therefore amounts presented in the schedule of pension amounts by employer may result in immaterial differences.

(4) Employer Contributions

The ERS' funding policy provides for periodic employer contributions expressed as a percentage of annual covered payrolls. The funding method used to calculate the total employer contribution required is the entry age normal actuarial cost method. Employer contributions are governed by Chapter 88 of the HRS. The actuarially determined contribution rates may differ from the statutory contribution rates.

Employer rates are set by statute based on the recommendations of the ERS actuary resulting from an experience study conducted every three years. Employer contribution rates are a fixed percentage of compensation, including the normal cost plus amounts required to pay for the unfunded actuarial accrued liabilities. The contribution rates were 41% for police and fire and 24% for all other employees for the year ended June 30, 2024.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Schedule of Employer Allocations and Schedule of Pension Amounts by Employer

June 30, 2024

Effective July 1, 2012, the last employer is required to make "additional contributions" to the ERS for employees that first became ERS members before July 1, 2012 and retire after June 30, 2012, if the member has "excessive" nonbase pay during the last 10 years of employment. The additional contributions are based on the increased costs of the actuarial equivalent increase in pension benefits the member will be paid in retirement compared to the pension benefits that would be paid if the member did not have excess nonbase pay in their Average Final Compensation amount.

(5) Collective Net Pension Liability

The components of the collective net pension liability of the ERS at June 30, 2024, were as follows:

	Police and Fire Group	All Other Employees Group	Total
Total pension liability	\$ 7,499,747,975	\$ 30,349,769,760	\$ 37,849,517,735
Less: plan fiduciary net position	(5,236,038,713)	(18,464,593,643)	(23,700,632,356)
Collective net pension liability	<u>\$ 2,263,709,262</u>	<u>\$ 11,885,176,117</u>	<u>\$ 14,148,885,379</u>

Actuarial Assumptions

The total pension liability reported as of June 30, 2024, was based on an actuarial valuation as of June 30, 2024. The actuarial assumptions were based on the results of an experience study as of June 30, 2021. The actuarial assumptions have not been revised since the prior valuation.

The following actuarial assumptions were used in the actuarial valuation:

Inflation assumption	2.50%
Investment rate of return, including inflation at 2.50%	7.00%
Projected salary increases, including inflation at 2.50%:	
Police and fire employees	5.00% to 6.00%
General employees	3.75% to 6.75%
Teachers	3.75% to 6.75%

Mortality rate assumptions include the effects of the retirement status of members.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Schedule of Employer Allocations and Schedule of Pension Amounts by Employer

June 30, 2024

Active Members Mortality rates are:

Multiples of the Pub-2010, Employee Tables for active employees based on the occupation of the member as follows:

	<u>General Employees</u>	<u>Teachers</u>	<u>Police and Fire</u>
<u>Type</u>	<u>Male and Female</u>	<u>Male and Female</u>	<u>Male and Female</u>
Ordinary	94%	92%	80%
% of Ordinary			
Choosing Annuity	41%	52%	24%
Duty Related	6%	8%	20%

Post-Retirement Mortality rates are:

Healthy retirees: The 2022 Public Retirees of Hawaii mortality tables. The rates are projected on a fully generational basis by Scale MP from the year 2022 (with immediate convergence) and with multiplier and setbacks based on plan and group experience. The following are sample rates of the base table as of 2022 with the corresponding multipliers:

<u>Healthy Annuitant Mortality Rates Before Projection (Multiplier Applied)</u>						
	<u>General Employees</u>		<u>Teachers</u>		<u>Police and Fire</u>	
<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
50	0.2094%	0.1276%	0.1698%	0.0951%	0.2421%	0.1130%
55	0.3215%	0.1687%	0.2883%	0.1596%	0.3473%	0.1633%
60	0.5570%	0.3095%	0.4672%	0.2467%	0.6179%	0.2799%
65	0.8041%	0.4488%	0.7256%	0.4063%	0.8426%	0.4283%
70	1.2621%	0.7066%	1.0762%	0.6015%	1.4172%	0.6565%
75	2.0700%	1.0964%	1.7879%	0.9358%	2.3227%	1.0121%
80	3.5996%	2.1275%	3.0429%	1.6565%	4.1824%	1.8863%
85	6.5891%	4.1569%	5.5564%	3.2698%	7.6513%	3.6977%
90	11.9340%	8.3647%	10.1056%	6.5007%	13.6689%	7.3991%
Multiplier	102%	98%	97%	101%	93%	100%
Setback	-	(1)	1	1	(2)	-

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Schedule of Employer Allocations and Schedule of Pension Amounts by Employer

June 30, 2024

The following table provides the life expectancy for individuals retiring in future years based on the assumption with full generational projection:

Gender	Life Expectancy for an Age 65 Retiree in Years				
	Year of Retirement				
	2025	2030	2035	2040	2045
General Retirees					
Male	22.8	23.2	23.5	23.9	24.2
Female	26.3	26.6	26.9	27.2	27.5
Teachers					
Male	24.1	24.5	24.9	25.2	25.5
Female	28.0	28.3	28.6	28.9	29.2
Police and Fire					
Male	21.8	22.1	22.4	22.8	23.1
Female	27.1	27.4	27.7	28.0	28.3

Disabled retirees: Base table for healthy retiree's occupation, set forward three years, generational projection using the MP projection table from the year 2022 with immediate convergence. Minimum mortality rate of 3.5% for males and 2.5% for females.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Schedule of Employer Allocations and Schedule of Pension Amounts by Employer

June 30, 2024

Long-Term Expected Rate of Return

The long-term expected rate of return on pension plan investments was determined using a “top down approach” of the Client-Constrained Simulation-based Optimization Model (a statistical technique known as “resampling with replacement” that directly keys in on specific plan-level risk factors as stipulated by the ERS Board) in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are then combined to produce the long-term expected rate of return by weighting the expected future nominal rates of return (real returns + inflation) by the target asset allocation percentage. The rate of returns based on ERS’s investment consultant as of June 30, 2024, are summarized in the following table (a new asset/liability study for the ERS was completed in June 2023 that is effective for FY 2024):

Classes	Strategic Class Weights	Long-Term Expected Geometric Geometric Rate of Return	Volatility
Broad Growth:			
Public equity	20.00%	7.20%	17.00%
Private equity	19.00%	9.90%	25.00%
Liquid credit	4.00%	6.50%	10.00%
Private credit	8.00%	9.20%	15.00%
Real estate	9.00%	6.30%	16.20%
Infrastructure	7.00%	7.30%	17.80%
Timber/agriculture/infrastructure	3.00%	5.30%	11.40%
Diversifying Strategies:			
Systematic trend following	8.00%	3.80%	15.00%
Long US treasuries	4.00%	4.30%	12.00%
Intermediate government	14.00%	4.00%	3.00%
Reinsurance	4.00%	5.30%	7.00%
	100.00%		

The ERS utilizes two high-level strategic classes (Broad Growth and Diversifying Strategies) for allocating assets and managing risk within the total portfolio. Both of these strategic classes contain sub-components that in-turn utilize asset classes and/or specific strategies for implementation. The Broad Growth class utilizes three sub-components (Global Equity, Global Credit, and Real Assets) which are ultimately invested in public and private equity, public and private credit, real estate, agriculture, timber, and infrastructure. The Diversifying Strategies class is designed to be uncorrelated to the Broad Growth class and it utilizes two sub-components (Liquid Defensive/Diversifying and Illiquid Diversifying). The Diversifying Strategies class utilizes a

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Schedule of Employer Allocations and Schedule of Pension Amounts by Employer

June 30, 2024

multitude of asset classes and strategies, including defensive return capture, discretionary alpha, intermediate and long duration treasury, systematic trend following, idiosyncratic return capture, and insurance linked assets, among others. The ERS may also hold opportunities and other investments if they are determined to be additive to the portfolio's risk/return posture.

Discount Rate

A single discount rate of 7.00% was used to measure the total pension liability as of June 30, 2024 and was based on the expected rate of return on pension plan investments of 7.00%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the Collective Net Pension Liability to Changes in Discount Rate

The following table presents the ERS' collective net pension liability as of June 30, 2024, calculated using a single discount rate of 7.00%, as well as what the ERS' collective net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower (6.00%) or 1-percentage-point higher (8.00%) than the current discount rate.

	1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
Police and fire group	\$ 3,245,735,948	\$ 2,263,709,262	\$ 1,450,296,050
All other employees group	15,859,214,168	11,885,176,117	8,593,478,343
Collective net pension liability	<u>\$ 19,104,950,116</u>	<u>\$ 14,148,885,379</u>	<u>\$ 10,043,774,393</u>

(6) Collective Deferred Outflows of Resources and Deferred Inflows of Resources

Annual changes to the collective net pension liability resulting from differences between expected and actual experience with regard to economic and demographic factors and from changes in assumptions about future economic or demographic factors or other inputs are deferred and amortized over the average of the expected remaining service life of active and inactive members. Differences between projected and actual earnings on pension plan investments are amortized over a closed period of five years. The following presents a summary of changes in the collective deferred outflows of resources and deferred inflows of resources (excluding employer specific amounts) for the year ended June 30, 2024:

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Schedule of Employer Allocations and Schedule of Pension Amounts by Employer

June 30, 2024

	Year of Deferral	Amortization Period	Beginning of Year Balance	Additions	Deductions	End of Year Balance
Police and fire group:						
Deferred outflows (inflows) of resources:						
Differences between expected and actual experience	2019	5.3135 years	\$ 7,648,916	\$ -	\$ (7,648,916)	\$ -
	2020	5.2047 years	14,049,279	-	(11,662,060)	2,387,219
	2021	5.1542 years	(14,060,009)	-	6,526,790	(7,533,219)
	2022	5.0644 years	(100,094,528)	-	32,663,664	(67,430,864)
	2023	5.1703 years	19,895,210	-	(4,770,690)	15,124,520
	2024	4.9866 years	-	29,123,801	(5,840,412)	23,283,389
Subtotal			(72,561,132)	29,123,801	9,268,376	(34,168,955)
Changes in assumptions						
	2019	5.3135 years	(243,434)	-	243,434	-
	2022	5.0644 years	10,068,638	-	(3,285,681)	6,782,957
Subtotal			9,825,204	-	(3,042,247)	6,782,957
Net difference between projected and actual earnings on pension plan investments						
	2020	5 years	35,143,675	-	(35,143,675)	-
	2021	5 years	(292,253,742)	-	146,126,872	(146,126,870)
	2022	5 years	172,100,741	-	(57,366,914)	114,733,827
	2023	5 years	120,365,102	-	(30,091,276)	90,273,826
	2024	5 years	-	22,585,841	(4,517,169)	18,068,672
Subtotal			35,355,776	22,585,841	19,007,838	76,949,455
Group total			(27,380,152)	51,709,642	25,233,967	49,563,457
All other employees group:						
Deferred outflows (inflows) of resources:						
Differences between expected and actual experience	2019	5.3135 years	5,418,159	-	(5,418,159)	-
	2020	5.2047 years	2,578,470	-	(2,140,345)	438,125
	2021	5.1542 years	109,372,817	-	(50,771,895)	58,600,922
	2022	5.0644 years	(118,508,145)	-	38,672,546	(79,835,599)
	2023	5.1703 years	110,146,121	-	(26,412,038)	83,734,083
	2024	4.9866 years	-	253,823,589	(50,901,138)	202,922,451
Subtotal			109,007,422	253,823,589	(96,971,029)	265,859,982
Changes in assumptions						
	2019	5.3135 years	3,802,356	-	(3,802,356)	-
	2022	5.0644 years	(103,832,840)	-	33,883,580	(69,949,260)
Subtotal			(100,030,484)	-	30,081,224	(69,949,260)
Net difference between projected and actual earnings on pension plan investments						
	2020	5 years	132,979,365	-	(132,979,365)	-
	2021	5 years	(1,087,409,910)	-	543,704,956	(543,704,954)
	2022	5 years	645,310,817	-	(215,103,607)	430,207,210
	2023	5 years	434,804,889	-	(108,701,223)	326,103,666
	2024	5 years	-	78,758,124	(15,751,625)	63,006,499
Subtotal			125,685,161	78,758,124	71,169,136	275,612,421
Group total			134,662,099	332,581,713	4,279,331	471,523,143
Total			\$ 107,281,947	\$ 384,291,355	\$ 29,513,298	\$ 521,086,600

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Schedule of Employer Allocations and Schedule of Pension Amounts by Employer

June 30, 2024

Amounts reported as deferred outflows of resources and deferred inflows of resources (excluding employer specific amounts) related to pensions will be recognized in pension expense as follows:

Year Ending June 30:	Police and Fire Group	All Other Employees Group	Total
2025	\$ (77,057,961)	\$ (148,181,434)	\$ (225,239,395)
2026	72,202,048	352,142,519	424,344,567
2027	43,327,604	197,093,409	240,421,013
2028	11,091,766	70,468,649	81,560,415
	<u>\$ 49,563,457</u>	<u>\$ 471,523,143</u>	<u>\$ 521,086,600</u>

Changes in Proportion

The previous amounts do not include employer specific deferred outflows of resources and deferred inflows of resources related to changes in proportion. These amounts should be recognized (amortized) by each employer over the average of the expected remaining service lives of all plan members, which are 4.9866 years, 5.1703 years, 5.0644 years, 5.1542 years, 5.2047 years, and 5.3135 years for the 2024, 2023, 2022, 2021, 2020, and 2019 amounts, respectively.

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Schedule of Employer Allocations and Schedule of Pension Amounts by Employer

June 30, 2024

(7) Collective Pension Expense

The components of allocable pension expense for the fiscal year ending June 30, 2024, are as follows:

	Police and Fire Group	All Other Employees Group	Total
Service cost	\$ 146,916,974	\$ 606,732,083	\$ 753,649,057
Interest on the total pension liability	494,762,849	2,000,591,321	2,495,354,170
Employee contributions	(70,856,350)	(271,209,730)	(342,066,080)
Projected earnings on plan investments	(343,809,361)	(1,219,434,741)	(1,563,244,102)
Pension plan administrative expense	3,126,878	14,873,800	18,000,678
Recognition of deferred outflows and deferred inflows of resources:			
Differences between expected and actual experiences	(9,268,376)	96,971,029	87,702,653
Changes in assumptions	3,042,247	(30,081,224)	(27,038,977)
Differences between projected and actual earnings on pension plan investments	(19,007,838)	(71,169,136)	(90,176,974)
Total collective pension expense	<u>\$ 204,907,023</u>	<u>\$ 1,127,273,402</u>	<u>\$ 1,332,180,425</u>

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

Notes to Schedule of Employer Allocations and Schedule of Pension Amounts by Employer

June 30, 2024

(8) Temporary Hazard Pay

Between March 4, 2020 and March 25, 2022, State and county employers declared COVID-19 Emergencies (dates vary by employer agency) to control the spread of COVID-19 and provide for the health, safety, and welfare of the people of the State. Union and employee organizations, representing individuals employed by the State and county employers, requested THP on behalf of State and county employees designated to perform essential functions during the COVID-19 pandemic. Subsequently, arbitration/litigation was initiated by these parties to settle claims for THP. In February, July, and September 2024, some of the State and county employers entered into settlement agreements regarding the THP to eligible employees pursuant to the HRS.

THP claims/litigations for most county and several State employer agencies/employees have not been settled. The ERS is currently unable to predict with reasonable certainty the magnitude of (a) ERS' potential liability and (b) amount of contributions due to the ERS as a result of the remaining THP claims/litigations.

While not all of the THP payments were known as of the actuarial valuation report dated January 14, 2025, the ERS' actuary has estimated that the possible impact of these payments will be to increase the pension liability by \$240 million and increase the funding period between 6 to 12 months.

THP was included as eligible compensation for employees whose ERS membership date was prior to July 1, 2012. THP payments were made subsequent to June 30, 2024 and are reflected as accrued contributions in the ERS' fiscal year 2024 financial statements. Known employer contributions attributable to THP at June 30, 2024 amounted to \$37,438,872.

The breakdown of employer contributions relating to the THP are as follows:

Employer	Employer Contributions
Police and fire group:	
County of Maui	\$ 2,239,258
All other employees group:	
State of Hawaii	35,041,770
County of Maui	157,844
	<u>\$ 37,438,872</u>

Employees' Retirement System of the State of Hawaii

Management Letter

June 30, 2024

DRAFT - 08.14.2025

Submitted by
THE AUDITOR
STATE OF HAWAII

September __, 2025

The Auditor
State of Hawaii:

Board of Trustees
Employees' Retirement System of the State of Hawaii:

In planning and performing our audit of the financial statements of the Employees' Retirement System of the State of Hawaii (the ERS) as of and for the year ended June 30, 2024, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, we considered the ERS' internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the ERS' internal control. Accordingly, we do not express an opinion on the effectiveness of the ERS' internal control.

However, during our audit, we became aware of a certain matter that is an opportunity for strengthening internal control and operating efficiency. Our comment and recommendation is summarized below. This letter does not affect our report dated September __, 2025, on the financial statements of the ERS. We have already discussed this comment and recommendation with the management of the ERS, and will be pleased to discuss them in further detail at your convenience.

Delayed Reporting of Eligible Compensation Adjustments by Participating Employers

Criteria

Employer and member pension contributions to the ERS are calculated based on eligible compensation, as defined in Chapter 88, Section 21.05 of the Hawaii Revised Statutes, and reported by participating employers to the ERS. Eligible compensation is also a significant element of census data reported by the ERS to its actuary, which is used to calculate the actuarial valuation of the total pension liability as of June 30, 2024. Effective January 1, 2023, temporary assignment pay is no longer considered eligible compensation for members hired after June 30, 2012.

Condition

We were informed that participating employers experienced delays in updating their payroll systems to exclude temporary assignment pay from eligible compensation by the effective date of January 1, 2023. Between February and May 2023, these system adjustments were gradually implemented. However, as of August 2025, participating employers have not reported the necessary corrections to the ERS to facilitate reimbursement of overpaid employer and member contributions for the period between January 1, 2023, and the date each participating employer implemented the corrections.

As part of our audit, we selected a sample of 80 employees to assess the accuracy of eligible compensation used for calculating both employer and member pension contributions, as well as for the actuarial valuation of the total pension liability. We identified four instances where temporary assignment pay was improperly included in eligible compensation by the respective participating employer. As a result, eligible compensation reported to the ERS actuary was overstated by \$4,334, and employer and member contributions were overstated by \$1,040 and \$418, respectively.

Cause

Participating employers have not yet gathered and reported the necessary information to determine the amount of overpaid employer and member contributions resulting from the improper inclusion of temporary assignment pay in eligible compensation.

Effect

Employer and member contributions and related remittances were incorrectly calculated and received. Additional effort will be required to identify, reconcile, and resolve amounts due to participating employers and members. Additionally, the actuarial valuation of the total pension liability at June 30, 2024 was impacted due to the incorrect census data reported to the ERS' actuary.

Management of the ERS has determined that the effect on employer and member contributions reported in the 2024 financial statements and on the actuarial valuation of the total pension liability was not material based on their assessment of the pervasiveness of the nature of the identified discrepancies.

Recommendation

We recommend that participating employers submit the necessary adjustments to the ERS as soon as possible to ensure the proper refund of overpaid pension contributions to both participating employers and members.

We also recommend that the ERS continue to communicate with participating employers to resolve any identified adjustments to eligible compensation, including the effect on related employer and member contributions, in a timely manner.

Views of Responsible Officials and Planned Corrective Action

- The responsibility for timely and accurate reporting of payroll and personnel information to the ERS lies with all State and county employers. Employers should have documented processes in place for ERS' review.
- ERS has regularly communicated with employers on this issue through memos, emails, and briefings and has been in communication with employers concerning issues related to untimely and inaccurate reporting of payroll and personnel information. Further, ERS has written policies and procedures in place for employer reporting requirements.
 - The baseline reporting requirements memo to employers, dated October 31, 2023, for FY2025 includes the requirements number 8, *Corrections Submission Timing* that states that corrections" shall be reported within sixty (60) days following submission of the initial file".
- In November 2024, ERS contracted for professional internal compliance testing services of employer payroll and personnel reporting to the ERS. These resources support ERS staff in the testing of baseline reporting requirements set forth by the ERS.
 - Assistance for baseline reporting requirements, set forth by the ERS is underway currently for the initial period of September 15, 2024, to June 30, 2025 (i.e. FY 2025), and is expected to be completed by December 2025. Testing of following periods will follow.
 - ERS anticipates the following outcomes:
 - Enhanced governance of employer reporting.
 - Consistency in reporting agencies adherence to established requirements.
 - Improved accuracy, timeliness of reporting, productivity and processing of retirement, disability and death benefits for pensioners.
 - ERS, in partnership with contracted vendors, is currently arranging and refining strategies, logic, documentation and procedures toward the development and implementation of an employer reporting manual.

Very truly yours,

Employees' Retirement System of the State of Hawaii

Communication with Those Charged with Governance

June 30, 2024

DRAFT - 08.14.2025

Submitted by

THE AUDITOR
STATE OF HAWAII

September __, 2025

The Auditor
State of Hawaii:

Board of Trustees
Employees' Retirement System of the State of Hawaii:

We have audited the financial statements of the Employees' Retirement System of the State of Hawaii (the ERS) as of and for the year ended June 30, 2024. Professional standards require that we provide you with information about our responsibilities under auditing standards generally accepted in the United States of America and *Government Auditing Standards*, as well as certain information related to the planned scope and timing of our audit. We have communicated such information in our letter to you dated January 21, 2025. Professional standards also require that we communicate to you the following information related to our audit.

Significant Audit Matters

Qualitative Aspects of Accounting Practices

Management is responsible for the selection and use of appropriate accounting policies. The significant accounting policies used by the ERS are described in Note B to the financial statements. No new accounting policies were adopted and the application of existing policies was not changed during the year ended June 30, 2024. We noted no transactions entered into by the ERS during the year for which there is a lack of authoritative guidance or consensus. All significant transactions have been recognized in the financial statements in the proper period.

Accounting estimates are an integral part of the financial statements prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected.

The most sensitive estimates affecting the ERS' financial statements are the valuation of investments and the actuarial valuation of total pension liability as of June 30, 2024.

Management's estimate of the valuation of its investments is based on the following:

Short-term investments – Pooled and other funds are valued at net asset value (NAV) based on the pro rata ownership percentage of the fund reported by the fund manager. Certain derivative financial instruments (currency purchase forwards) are valued using quoted market prices.

Equity securities – Common stocks and certain preferred shares are valued using prices quoted in active markets for those securities based on published market prices, quotations from national security exchanges, and security pricing services. Other preferred shares are valued using non-proprietary information that are readily available to market participants from independent sources, as well as estimates for private investments and thinly traded securities. Equity funds are valued at NAV based on the fair value of the underlying assets that is determined by published market prices or quotations from national security exchanges.

Fixed income securities – U.S. treasury bonds are valued using published market prices or quotations from national security exchanges. Other U.S. government and agency securities and corporate bonds are valued using non-proprietary information that are readily available to market participants from independent sources. Fixed income funds are valued at NAV based upon the fair value of the underlying assets that is determined by published market prices or quotations from national security exchanges.

Real assets investments – Investments in individual properties are valued by the investment companies at least annually based on investment type in accordance with standard industry practice. Investments in limited partnerships, limited liability companies, and corporations are valued at NAV using valuation assumptions based on both market and specific inputs.

Alternative investments (traditional and diversifying strategies) – Investments in limited partnerships and limited liability companies are valued at NAV using valuation assumptions based on both market and properly specific inputs as reported by the general partners.

Invested securities lending collateral – Investments are valued using non-proprietary information that are readily available to market participants from independent sources.

We evaluated the key methods, assumptions, and data used in the valuation of investments and determined that they were reasonable in relation to the financial statements taken as a whole.

Management's estimate of the total pension liability as of June 30, 2024 is based on a third party actuarial valuation. We evaluated the key actuarial assumptions, methodology, and data used to develop the total pension liability in determining that it is reasonable in relation to the financial statements taken as a whole.

The financial statement disclosures are neutral, consistent, and clear.

Difficulties Encountered in Performing the Audit

We encountered no significant difficulties in dealing with management in performing and completing our audit.

Corrected and Uncorrected Misstatements

Professional standards require us to accumulate all known and likely misstatements identified during the audit, other than those that are clearly trivial, and communicate them to the appropriate level of management. There were no corrected or uncorrected misstatements identified during our audit.

Disagreements with Management

For purposes of this letter, a disagreement with management is a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements or the auditors' report. We are pleased to report that no such disagreements arose during the course of our audit.

Management Representations

We have requested certain representations from management that are included in the management representation letter dated September __, 2025.

Management Consultations with Other Independent Accountants

In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a "second opinion" on certain situations. If a consultation involves application of an accounting principle to the ERS' financial statements or a determination of the type of auditors' opinion that may be expressed on those statements, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

Other Audit Findings or Issues

We generally discuss a variety of matters, including the application of accounting principles and auditing standards, with management each year prior to retention as the ERS' auditors. However, these discussions occurred in the normal course of our professional relationship and our responses were not a condition to our retention.

Independence

Our professional standards and other regulatory requirements specify that we communicate to you in writing, at least annually, confirmation that we are independent accountants with respect to the ERS. We hereby confirm that as of September __, 2025, we are independent accountants with respect to the ERS under all relevant professional and regulatory standards.

Other Matters

We applied certain limited procedures to the management's discussion and analysis, the schedule of changes in the employers' net pension liability and related ratios, the schedule of the employers' net pension liability, and the schedule of investment returns, which are required supplementary information (RSI) that supplements the basic financial statements. Our procedures consisted of inquiries of management regarding the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We did not audit the RSI and do not express an opinion or provide any assurance on the RSI.

We were engaged to report on other supplementary information, which accompany the basic financial statements but are not RSI. With respect to the supplementary information included in the combining schedule of changes in fiduciary net position – all trust funds, the schedule of administrative expenses, and the schedule of investment expenses, we made certain inquiries of management and evaluated the form, content, and methods of preparing the information to determine that the information complies with accounting principles generally accepted in the United States of America, the method of preparing it has not changed from the prior period, and the information is appropriate and complete in relation to our audit of the basic financial statements. We compared and reconciled the supplementary information to the underlying accounting records used to prepare the basic financial statements or to the basic financial statements themselves.

We were not engaged to report on the statement of changes in assets and liabilities – social security contribution fund, which accompany the basic financial statements but is not RSI. Such information has not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on it.

Restriction on Use

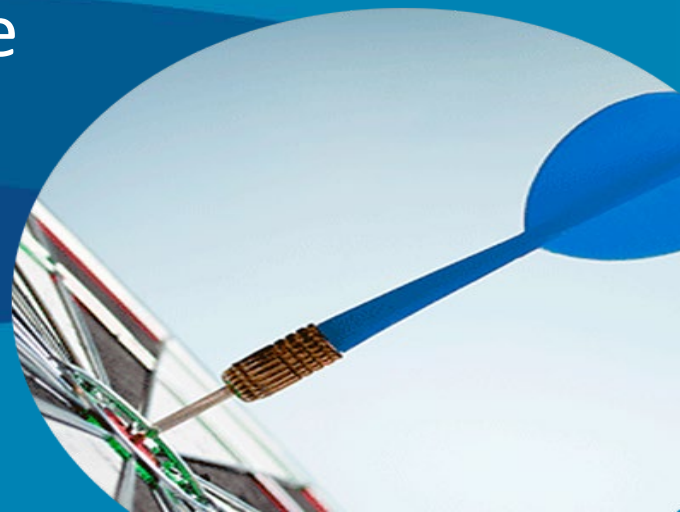
This information is intended solely for the information and use of the Auditor, State of Hawaii, and the Board of Trustees and management of the ERS and is not intended to be, and should not be, used by anyone other than these specified parties.

Very truly yours,



Employees' Retirement System of the State of Hawaii

Salary Increase Information from the
2025 Experience Study Summary



The role of Actuarial Valuations and Assumptions

- The **primary** purpose of each year's actuarial valuation is to assess the appropriateness of the current contribution levels
 - For ERS, the funding policy is a fixed contribution rate from members and employers set in Statute
- The valuation process helps us set expectations for stakeholders, allows a framework for decision making and budgeting, and track trends over time



Generally, the current assumptions are reasonable with only minor tweaks necessary. The exception is increasing the salary increases for Police and Fire late in the members' career.

Summary of Recommendations

	Current Assumption	Proposed Assumption	Impact on Funding Period
Investment Return	7.00%	No Change	-
General Inflation	2.50%	No Change	-
Average Career Salary Increase: General Employees	4.66%	4.66%	No Impact
Average Career Salary Increase: Teachers	4.66%	4.76%	Small Increase
Average Career Salary Increase: Police and Fire	5.74%	5.85%	2 year increase
Post-Retirement Mortality (Base Table)	ERS Specific Table, data through 2021	No change	-
Post-Retirement Mortality (Projected Improvement)	Ultimate Scale MP2021 (1.0%-1.35% per year)	No change	-
Patterns of Retirement		PF: Add 2% per year below age 55	1 year increase for PF
Patterns of Termination		Increase rate of Turnover for most years of service	Small Decrease
Patterns of Disability		Small adjustments	No Impact
Sick Leave Conversion		Small adjustment to assumed amount of sick leave converted	No Impact

Individual Salary Increases

- Used to project compensation at retirement for individual members to determine:
 - Benefits
 - Compensation during career to collect contributions
- Schedule based on service of the member

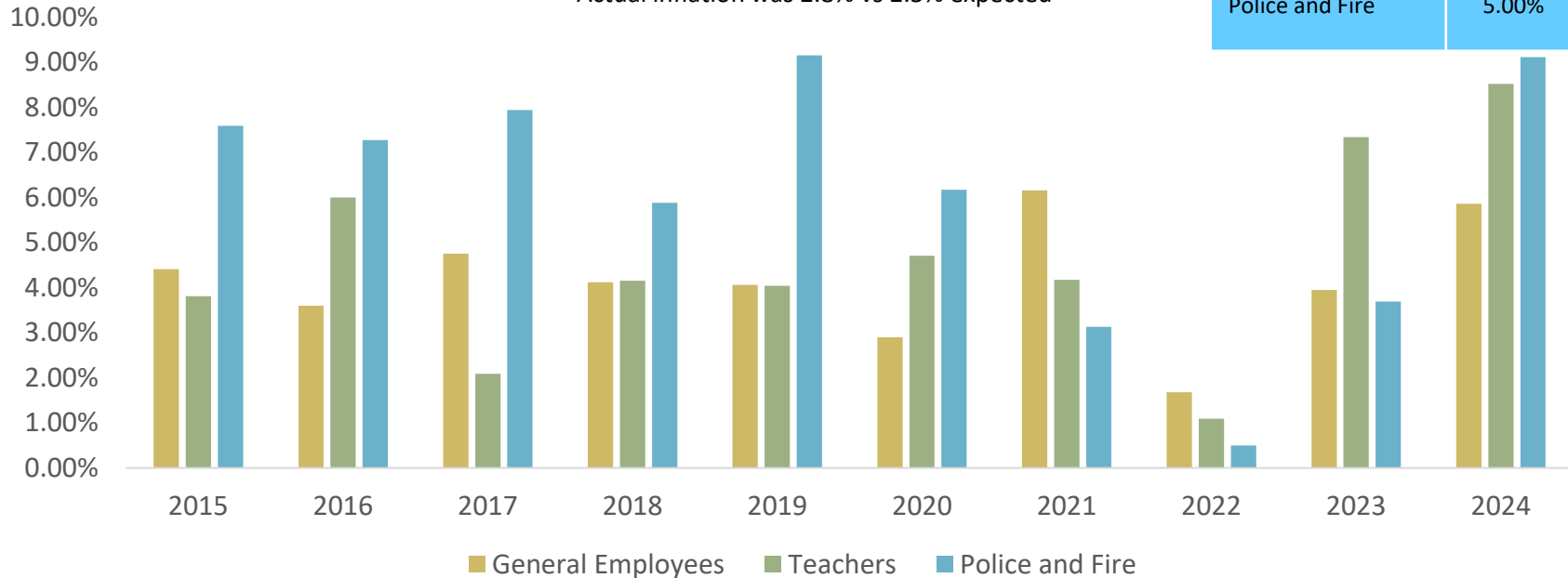
ERS Experience: Long Service Members by Fiscal Year

(Annual Change in Base Pay last 10 years)

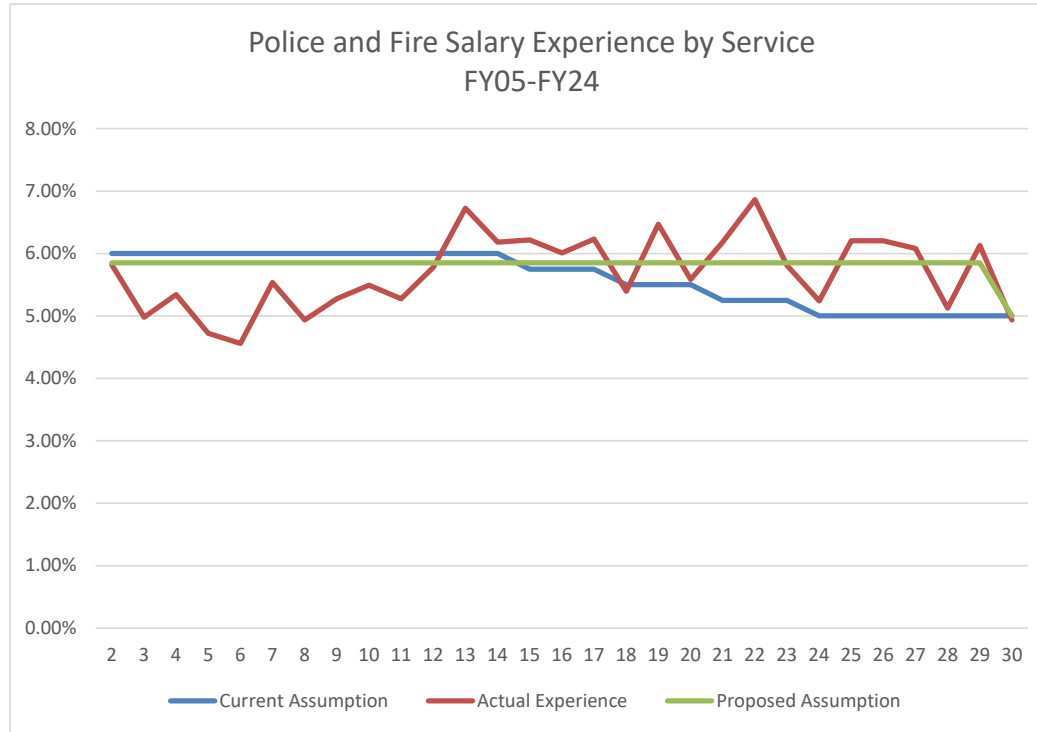
Average	Expected	Actual
General Employees	3.50%	3.60%
Teachers	3.75%	4.59%
Police and Fire	5.00%	6.04%

Members with 25 or more years of service

Actual inflation was 2.8% vs 2.5% expected



Police and Fire Recommendations: extend the higher assumptions further



Average Career Increase	25 year career	30 year career
Current Assumption	5.74%	5.62%
Actual	5.84%	5.84%
Proposed	5.85%	5.82%

The impact on Police and Fire is enough to increase the funding period 3 years. The impact on All Other Employees is minimal.

		Projected June 30, 2025 Results	
Item	June 30, 2024 Results	Current Assumptions	Proposed Assumptions
Unfunded Accrued Liability (\$ in billions)	\$13.97	\$14.19	\$14.37
Funded ratio	63.1%	63.7%	63.4%
Funding Period	22 Years	21 Years	21 Years
Police and Fire Employees			
Unfunded Accrued Liability (\$ in billions)	\$2.23	\$2.28	\$2.42
Funding Period	22 years	22 years	25 years
All Other Employees			
Unfunded Accrued Liability (\$ in billions)	\$11.73	\$11.91	\$11.95
Funding Period	22 years	21 years	21 years

Closing Comments

- We recommend the contribution rate for Police and Fire be increased to bring their Funding Period in line with the All Other Employees Group and the path from the original impact statement
 - Either 3% of payroll immediately or 1% per year for three years will suffice
- Full Listing of Recommendations in Section II of Experience Study Report
 - Includes Detailed information and Rationale for each assumption
- Approved assumptions to be used in the June 30, 2025 valuation

Disclaimers

- This presentation is intended to be used in conjunction with the 2025 Actuarial Experience Study. This presentation should not be relied on for any purpose other than the purpose described in the report.
- Readers are cautioned to examine original source materials and to consult with subject matter experts before making decisions related to the subject matter of this presentation.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.

MINUTES OF THE REGULAR MEETING OF THE
BOARD OF TRUSTEES OF THE EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII

JULY 14, 2025

CITY FINANCIAL TOWER
201 MERCHANT STREET, SUITE 1200
HONOLULU, HAWAII 96813

Trustees present: Mr. Emmit Kane, Chair (in person)*
(by teleconference) Mr. Lance Mizumoto, Vice Chair*
Mr. Vincent Barfield*
Dr. Genevieve Ley (in person)*
Mr. David Louie (in person)*
Mr. Luis Salaveria (in person)*
Mr. Bennett Yap*

Trustee absent: Dr. Catherine Chan

Staff present: Mr. Thomas Williams, Executive Director*
(City Financial Tower Ms. Gail Strohl, Deputy Executive Director*
by teleconference) Mr. Kona Mann, Chief Compliance Officer
Mr. James Greubel, Program Specialist*
Ms. Shanna Sakagawa, Program Specialist
Ms. Lori Kobayashi, Retirement Benefits Branch Manager*
Mr. Keith Miyamoto, Information Services Branch Manager*
Ms. Kristin Varela, Chief Investment Officer*
Mr. Anthony Goo, Deputy Chief Investment Officer
Mr. Aaron Au, Investment Officer – Private Equity
Ms. Christine Chang, Investment Officer – Diversifying Strategies
Mr. Andrew Chen, Investment Officer – Credit Markets
Ms. Lynn Kamimoto, Investment Officer – Risk
Mr. Ian Wetzel, Investment Officer – Real Assets
Ms. Gerri Konishi, Member Home Loan Assistant
Ms. Masayo Zabinski, Accountant
Mr. Allen James Senaga, Investment Office Intern
Ms. Diana Gomes, Recording Secretary/Administrative Assistant*
Ms. Lori Kim, Administrative Assistant*
Ms. Andrea Gasper, Administrative Assistant*

Attorneys present: Ms. Lori Tanigawa, Deputy Attorney General*
(by teleconference) Ms. Nietzsche Tolan, Deputy Attorney General*
Ms. Diane Wong, Deputy Attorney General*

Guests present: Mr. Owen Burns, Hamilton Lane Advisors, LLC
(by teleconference) Mr. Paul Yett, Hamilton Lane Advisors, LLC
Mr. Colin Bebee, Meketa Investment Group, Inc.

Public present: Mr. Douglas Appell, Pensions & Investments
(by teleconference) Mr. Kevin Balaod, With Intelligence
Mr. Alfie Crooks, Private Equity International
Ms. Phyllis Ida, HSTA Representative (retired)
Mr. Brett Johnson, Private Equity International

*Attended Executive Session.

QUORUM/CALL TO ORDER

A quorum being present (Chair Kane, Vice Chair Mizumoto, Trustees Barfield, Ley, Louie, Salaveria and Yap), Chair Kane called the regular meeting of the Board of Trustees (Board) of the Employees' Retirement System of the State of

Hawaii (ERS) to order at 10:04 a.m. and requested each Trustee identify themselves and confirm that they are the only ones present at their remote location while attending the meeting. Each of the Trustees present confirmed same.

PUBLIC COMMENT

Chair Kane called for public comment. There was no public present in person, however, five (5) members of the public were present by teleconference, but they had no public comment. Also, no written testimony was received for this meeting.

EXECUTIVE DIRECTOR'S REPORT ON THE ADMINISTRATION OF THE SYSTEM WITH RESPECT TO SIGNIFICANT DEVELOPMENTS IN INVESTMENTS, POLICY, POTENTIAL LEGISLATION, AND REGULATORY MATTERS

Executive Director (ED) Williams gave an oral report to the Board on the Administration of the System with Respect to Significant Developments in Investments, Policy, Potential Legislation, and Regulatory Matters as follows:

- Although the Legislative session has ended, ERS staff continue to monitor bills passed and whether or not they will be vetoed, signed by the Governor, or passed without signing.
 - Specific to the Board is Act 169 (SB 1651) signed by the Governor effective June 3, 2025, regarding a change in when Board packets are to be made available to the public and to those requesting notification, from two business days to three business days prior to a meeting.
 - The Governor also signed effective July 1, 2025, Act 250 (HB 300), the State Budget of \$19.8B for FY 2026 and \$19.7B for 2027. From that budget, ERS has been allocated \$30.1M for FY 2026 and \$25.7M for FY 2027.
 - The Governor also signed effective July 1, 2025, Act 290 (SB 935), Legislation that amends the retirement allowance for a member who first earns credited service as a judge after June 30, 2031, to 1.75 % of the member's average final compensation for each year of credited service as a judge. The Act also requires the Department of Human Resources Development to study the impacts and benefits of reducing, from 10 years to 5 years, the minimum number of years of credited service that qualified Class H, Tier 2 members of the Employees' Retirement System must have to be eligible for vested benefit status for service retirement allowance purposes.
- Congratulations to Chair Kane and Trustee Yap being deemed re-elected as they both ran unopposed. A Trustee election update will be provided in the Operations Report by the Deputy Executive Director (DED). Also, beginning January 2, 2026, an appointed Trustee seat will become vacant and any potential candidates are welcomed by the Board. Meetings with potential candidates are currently being conducted and any information for consideration will be presented to the Board for their action.
- Although faced with yearly procurement challenges, thanks to the Budget & Finance (B&F) Director and Administrative & Research Office (ARO) for assisting ERS staff, all procurements were secured by the fiscal year end in particular, project manager contracts such as V3locity the pension administration system migration and upgrade and an Enterprise Risk Management System to help with compliance and other matters.
- Relating to ERS staff vacancies, as presented at the previous Board meeting by B&F ARO, Human Resources (HR) Officer Anna Scott and her staff have helped with making significant progress. Also, with thanks to the B&F Director, Trustee Salaveria who has taken internal steps to be more efficient by having HR report directly to his office to provide timely decision making, compared to the previous multi-step process. Specifics of the vacancies will be provided in the Operations Report by the DED.

- In Executive Session, Human Resources Committee Chair Barfield will report on and discuss the search for executive staff. The search has been announced to ERS staff, nationally advertised, and a press release has been issued.
- Renovations are being done on the 15th Floor to accommodate for new staff of the Investment Office, and on the 12th Floor a community space for all staff to gather, have lunch, etc., will be done by this fall.
- The Investment Summit in September is taking shape and next year's 2026 Investment Summit will be held at the Ritz-Carlton Oahu, Turtle Bay from October 6-9, 2026.
- Will attend with ERS staff later today a Leadership and Professional Development Program presented by Goldman Sachs.

DEPUTY EXECUTIVE
DIRECTOR'S REPORT ON
THE OPERATIONS OF THE
SYSTEM WITH RESPECT
TO ISSUES AFFECTING
MEMBER SERVICES,
ACCOUNTING, AND
INFORMATION SYSTEMS

Deputy Executive Director (DED) Gail Strohl gave an oral and written report to the Board, as presented, on the June 2025 Monthly Operations Report and highlighted the status of staffing recruitment and major achievements for the branches.

DED Strohl also congratulated Chair Kane and Trustee Yap on their re-elections reaffirming that they were both unopposed.

DED Strohl also noted from the report, a request on the ERS Website from members to submit stories on how ERS has impacted their lives as a part of the 100th Celebration of ERS.

PUBLIC COMMENT

Chair Kane called for public comment. There were no public comments from public members attending.

REPORT OF ACTIVITY BY
THE ADMINISTRATIVE &
AUDIT COMMITTEE

In the absence of Administrative & Audit Committee (Committee) Chair Chan, ED Williams reported to the Board that the Committee last met on February 18, 2025, prior to the last Board meeting.

UPDATE ON THE
TRUSTEE ELECTION

ED Williams noted, that he and DED Strohl previously reported on the Trustee Election.

COMPLIANCE SUPPORT
STAFF QUARTERLY
UPDATE REPORT ON THE
IMPLEMENTATION OF
ERS' COMPLIANCE
PROGRAM ON RISK
ASSESSMENT,
GOVERNANCE RISK AND
COMPLIANCE
PLATFORM, VIRTUAL
INFORMATION
SECURITY OFFICER, AND
THIRD-PARTY RISK
MANAGEMENT

Chief Compliance Officer (CCO) Kona Mann presented an oral report to the Board on the Quarterly Update Report on the Implementation of ERS' Compliance Program on Risk Assessment, Governance Risk and Compliance Platform, Virtual Information Security Officer, and Third-Party Risk Management.

CCO Mann reported that progress continues towards development of ERS' Enterprise Risk Management (ERM) and implementation of the Governance Risk and Compliance (GRC) Platform which are fundamental to the operational enhancement of risk awareness and visibility, as well as the alignment and implementation of compliance activities.

CCO Mann further reported that meetings on ERM with ERS management to discuss and integrate risk management into strategic planning and operations. The next steps are to establish an internal cross-functional risk committee that aligns risk tolerance with strategy, standardizes terms and definitions, and also implements risks, registers, monitors action plans, and mitigates risk.

CIO Mann further reported that AuditBoard was selected as the vendor for the GRC Platform and meetings are scheduled with ERS Branches to define the scope and desired outcomes. The projected build out is twelve weeks and will provide the Board and ERS executive management oversight, dashboard

COMPLIANCE SUPPORT
STAFF QUARTERLY
UPDATE REPORT ON THE
IMPLEMENTATION OF
ERS' COMPLIANCE
PROGRAM ON RISK
ASSESSMENT,
GOVERNANCE RISK AND
COMPLIANCE
PLATFORM, VIRTUAL
INFORMATION
SECURITY OFFICER, AND
THIRD-PARTY RISK
MANAGEMENT (CONT'D)

reporting, and to automate and manage ERS activities. Challenges with the ERM and GRC Platform are insuring adoption and continuation of management of risk activities within the branches.

CIO Mann is currently managing several initiatives such as working with the virtual Information Security Officer (vISO) Ty Smith in partnership on security initiatives, roadmap activities, and recommendations allowing for guidance of the IT program, as well as strategic alignment and oversight for the foundational pieces of building an IT security program. Meetings are scheduled with vISO, ERS stakeholders, and executive management. vISO, ERS stakeholders and ETS met to define roles and responsibilities and to look at existing opportunities between the two agencies. Current activities being worked on are policy revisions and to continue looking for opportunities to cross-out roadmap initiatives. Linea Solutions was the vendor selected as the program manager for the migration of the pension administration system. Initial meetings and pre-migration activities with V3locity have been scheduled.

In summary, these activities highlight not only ERS' commitment to improve the organization's transformation but transformation for risk governance.

This quarterly report was provided to the Board as an update and no action was required.

REPORT OF ACTIVITY BY
THE HUMAN RESOURCES
COMMITTEE

Human Resources Committee (Committee) Chair Barfield reported to the Board that the Committee last met on April 28, 2025, prior to the last Board meeting. However, reported that the consultant assisting with the recruitment process of advertising the replacement of the Chapter 76, HRS exempt Executive Director made public was on schedule and details were to be discussed in Executive Session.

REPORT BY THE
INVESTMENT COMMITTEE

Investment Committee (Committee) Vice Chair Yap reported to the Board that the Committee last met on June 5, 2025, and fund performance and quarterly reviews were presented.

REVIEW TOTAL FUND
PERFORMANCE FOR
PERIOD ENDING
MARCH 31, 2025

Meketa Investment Group Inc.'s Colin Bebee joined the meeting by teleconference and presented an oral and written report to the Board, as previously presented to the Investment Committee, on the Total Fund Performance for period ending March 31, 2025, and highlighted:

INTRODUCTION

Executive Summary

Portfolio Valuation

ERS Total Fund Relative Performance

Asset Allocation vs. Target

Annualized Return vs. Annualized Standard Deviation, and Annualized Risk-Return

- 3-Years Ending, and 5-Years Ending, March 31, 2025

ERS PORTFOLIO REVIEW

Performance Attribution vs. Policy Benchmarks

- 1 -Year Ending March 31, 2025

Asset Class Performance Summary

This report was provided for the Board's information, and no action was required.

ROTATING
ALTERNATIVE ASSET
CLASS REVIEW:
PRIVATE EQUITY
QUARTERLY REVIEW
FOR PERIOD ENDING
DECEMBER 2024

Investment Officer – Private Equity Aaron Au presented an oral and written report to the Board on the Rotating Alternative Asset Class Review: Private Equity Quarterly Review for Period Ending December 2024, and discussed a Summary (Scorecard) developed at the request of the Board to easily identify performance across categories of Market Value, Asset Allocation, Long-Term Appreciation, Absolute Returns vs. Benchmarks, and Liquidity Management.

Trustees requested, as discussed in the Investment Committee meeting, to add a Risk Assessment component to the Scorecard with an emphasis on how the asset class strategically fits within the overall strategy, what is the risk associated with that fit, and its risk as a stand-alone asset class.

Hamilton Lane Advisors LLC’s Owen Burns and Paul Yett joined the meeting by teleconference and presented an oral and written report to the Board on the Private Equity Quarterly Review for Period Ending December 31, 2024, and highlighted:

PORTFOLIO REVIEW

PE Portfolio Highlights

- Performance
- *PE Portfolio Returns*
- *PE Portfolio Value Created*

Portfolio Snapshot

Quarterly Performance

Performance Against Benchmarks

Cash Flow Activity

MARKET UPDATE

This report was provided for the Board’s information, and no action was required.

APPROVAL OF MINUTES
– MAY 13, 2025

On a motion made by Trustee Salaveria, seconded by Trustee Louie, and unanimously carried, the Board approved the Minutes of May 13, 2025, as presented.

PUBLIC COMMENT

Chair Kane called for public comment. There were no public comments from public members attending.

Chair Kane identified all the participants in Executive Session, the Board, staff members, Deputy Attorneys general, and Guests are identified with an asterisk on these minutes and listed on the Executive Session Minutes.

Chair Kane provided the reason to enter into Executive Session:

Executive Session, pursuant to HRS §92-5(a)(2), (4), (6), and (8), to consult with the Board’s attorneys on questions and issues pertaining to the Board’s powers, duties, privileges, immunities, and liabilities, with respect to: an Update on an Ongoing Litigation Cases; the Recruitment of Exempt Staff; and to discuss and to make a decision on the approval of Executive Session and Confidential Executive Session Minutes of May 13, 2025, which are confidential under State law.

ENTER EXECUTIVE
SESSION

On a motion made by Trustee Salaveria, seconded by Trustee Ley, and unanimously carried, the Board entered into Executive Session at 11:43 a.m.

(Public participation concluded by ending the teleconference link.)

All attendees participating by teleconference affirmed that no other persons were in their rooms or able to listen in on their audio or audiovisual connection. Recording Secretary Dale Kehau Kanae confirmed that no unauthorized persons were in the conference room or able to listen in via audio or audiovisual connection while on the teleconference.

EXECUTIVE SESSION

- Pursuant to HRS §92-5(a)(4) and (8), to consider information that must be kept confidential pursuant to State law, and to consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities with respect to an Update on Ongoing Litigation for: (1) Robin J. Benedict, Civil No. 19-1-0253; (2) Kirk L. Flores, Sr., Civil No. 3CCV-24-0000028; and (3) Cynthia Giebink vs. ERS, Civil No. 2CCV-23-0000113.
- Pursuant to HRS § 92-5(a)(2) and (4), to discuss the hiring of Chapter 76, HRS exempt staff, where matters affecting privacy will be involved, and to consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities; appropriate action.
- Pursuant to HRS §92-5(a)(8), to Review and Approve Executive Session Minutes of May 13, 2025.
- Pursuant to HRS §92-5(a)(8), to Review and Approve the Confidential Executive Session Minutes of May 13, 2025.

EXECUTIVE SESSION,
PURSUANT TO HRS §92-5(a)(4)
AND (8), TO CONSIDER
INFORMATION THAT MUST BE
KEPT CONFIDENTIAL
PURSUANT TO STATE LAW,
AND TO CONSULT WITH THE
BOARD'S ATTORNEYS ON
QUESTIONS AND ISSUES
PERTAINING TO THE BOARD'S
POWERS, DUTIES, PRIVILEGES,
IMMUNITIES, AND LIABILITIES
WITH RESPECT TO AN UPDATE
ON ONGOING LITIGATION FOR:
(1) ROBIN J. BENEDICT, CIVIL
NO. 19-1-0253; (2) KIRK L.
FLORES, SR., CIVIL NO. 3CCV-24-
0000028; AND (3) CYNTHIA
GIEBINK VS. ERS, CIVIL NO.
2CCV-23-0000113

EXECUTIVE SESSION, HRS § 92-
5(A)(2) AND (4), TO DISCUSS THE
HIRING OF CHAPTER 76, HRS
EXEMPT STAFF, WHERE
MATTERS AFFECTING PRIVACY
WILL BE INVOLVED, AND TO
CONSULT WITH THE BOARD'S
ATTORNEYS ON QUESTIONS
AND ISSUES PERTAINING TO
THE BOARD'S POWERS, DUTIES,
PRIVILEGES, IMMUNITIES, AND
LIABILITIES; APPROPRIATE
ACTION

EXECUTIVE SESSION,
PURSUANT TO HRS §92-5(a)(8),
TO REVIEW AND APPROVE
EXECUTIVE SESSION MINUTES
OF MAY 13, 2025

EXECUTIVE SESSION,
PURSUANT TO HRS §92-5(a)(8),
TO REVIEW AND APPROVE THE

CONFIDENTIAL EXECUTIVE
SESSION MINUTES OF
MAY 13, 2025

EXIT EXECUTIVE SESSION

On a motion made by Trustee Ley, seconded by Trustee Louie, and unanimously carried, the Board exited Executive Session at 12:02 p.m.

Chair Kane announced that while in Executive Session, the Board received an update on the results of litigation matters, reviewed the status of the search for a new Executive Director, and approved the Executive Session and Confidential Executive Session Minutes of May 13, 2025.

ADJOURNMENT

On a motion made by Trustee Salaveria, seconded by Trustee Louie, and unanimously carried, Chair Kane adjourned the meeting at 12:03 p.m.

REDACTED SIGNATURE

Thomas Williams
Executive Director

TW:dkik