Financial Statements
June 30, 2022

Employees' Retirement System of the State of Hawaii

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Independent Auditor's Report

To the Auditor
State of Hawaii

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

Report on the Audit of the Financial Statements

Opinion

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, 2022, and the related notes to the 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 respective fiduciary net position of the Employees' Retirement System of the State of Hawaii, as of June 30, 2022, and the respective 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 (GAAS) 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 Auditor's 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.

Auditor's 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 auditor's 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 GAAS 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 GAAS 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 and the schedule of changes in the employers' net pension liability and related ratios, schedule of the employers' net pension liability, and 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 GAAS, 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.

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 identified as Schedule 1 through Schedule 3 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 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 GAAS. In our opinion, the other supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other Information

Management is responsible for the other information included in the annual report. The other information is comprised of Schedule 4, as identified in the table of contents, but does not include the basic financial statements and our auditor's report thereon. Our opinion on the basic financial statements does not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated March 15, 2024, 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.

Eide Bailly LLP

Boise, Idaho
March 15, 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, 2022. 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 ERS Comprehensive Annual Financial Report (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 reports on the federal Social Security employer contributions for the State in the Social Security Contribution Fund (Contribution Fund) in Other Information at the end of this section.

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, 2022, and the related statement of changes in fiduciary net position during the fiscal year from July 1, 2021 to June 30, 2022 (FY 2022). 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 FY 2022 statement of fiduciary net position includes reclassification of how certain assets are reported as of June 30, 2022. The FY 2021 summary presentation in this section reflect this reclassification.

- 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 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.

- The remaining supplementary information are derived from and relate 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.
- Other information includes a report on employer social security contribution amounts for the State that are paid directly to the Internal Revenue Service. This information is separate from the financial information of the Pension Trust Fund.

Financial Highlights

- The fiduciary net position remained relatively constant at $21.9 billion as of June 30, 2022, resulting in a decrease in funded status during the fiscal year to 62.8%. The ERS's fiduciary net position for pension benefits was $21.9 billion, for a 64.3% funded status as of June 30, 2021.

- The ERS investment return (net and gross of fees, and contains lagged and non-lagged components) was 4.0% for the 2022 fiscal year compared to 26.6% for the 2021 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 this ACFR). The investment program underperformed its actuarial and investment goal of 7.0% that was effective June 30, 2022 Under 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 0.8% and 26.9% for FY 2022 and FY 2021, respectively.

  Effective October 1, 2014, the Board of Trustees of the System approved the adoption of a change in its asset allocation policy from the asset-class policy to a new risk-based asset allocation framework. Following the completion of the 2019 Asset Liability Study the Board adopted a new long-term strategic allocation policy that established two major asset classes of broad growth and diversifying strategies (rather than four Broad Growth, Principal Protection, Real Return and Crisis Risk Offset) that was completed during the 2022 fiscal year. Please refer to Note F1 later in Notes to Financial Statements and the Investment Section of this ACFR for more detailed information on the asset allocation policy.

- During 2022 and 2021, there was no significant legislation passed that significantly affects the operations or provisions of the pension trust.
- Total pension liability as of June 30, 2022 increased to $34.9 billion from $34.1 billion on June 30, 2021, while the corresponding net pension liability increased to $13.0 billion as of June 30, 2022 from $12.2 billion as of June 30, 2021. Covered payroll for the ERS decreased in FY 2022 to $4.5 billion compared to FY 2021 to $4.7 billion for a 3.9% decrease.

- The fiduciary net position as a percentage of total pension liability decreased to 62.8% from 64.3% as of June 30, 2022 and June 30, 2021, respectively, while the funded ratio on an actuarial basis increased to 61.2% from 58.3%, 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 decreased by a total of $47.0 million during FY 2022, or 3.0% from FY 2021. The decrease is primarily from the decrease in covered payroll resulting in a decrease in the number of active members. This was offset by member 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.
- Total retirement benefit payments increased by $87.4 million, or 5.3% in FY 2022 from FY 2021. Pension benefits continues to increase due to 2.6% more retirees and beneficiaries (53,990 in 2022 compared to 52,618 in 2021), an increase in the average pension benefit for new retirees, and the annual 2.5% postretirement increase paid to most retirees.
- Administrative expenses decreased by $1.6 million to $17.5 million in FY 2022 from $19.1 million in FY 2021. The decrease in administrative expenses is primarily the result of a decrease in depreciation of computer systems, and to a lesser extent a decrease in legal, auditing, accounting, and information technology related charges. These were offset by an increase in the employee fringe benefit assessment, and medical board related expenses. Administrative expenses for all years were within the ERS' budgeted amounts.

Analysis of Fiduciary Net Position

Summary of Fiduciary Net Position
June 30, 2022 and 2021
(Dollars in millions)

	2022	2021	FY 2022 % change
Assets:			
Cash and cash equivalents and short-term investments	$ 1,008.3	$ 1,977.6	(49.0) %
Receivables	155.9	164.8	(5.4)
Investments	20,821.5	19,926.1	4.5
Invested securities lending collateral	735.9	1,003.7	(26.7)
Equipment	5.0	6.0	(16.7)
Total assets	22,726.6	23,078.2	(1.5)
Liabilities			
Securities lending liability	735.9	1,003.7	(26.7)
Investment accounts and other payables	135.9	138.7	(2.0)
Total liabilities	871.8	1,142.4	(23.7)
Fiduciary net position	$ 21,854.8	$ 21,935.8	(0.4)

Summary of Changes in Fiduciary Net Position
June 30, 2022 and 2021
(Dollars in millions)

	2022	2021	FY 2022 % change
Additions:			
Contributions	$ 1,535.2	$ 1,582.2	(3.0) %
Net investment income	164.6	4,662.2	(96.5)
Total additions	1,699.8	6,244.4	(72.8)
Deductions:			
Retirement benefit payments	1,738.8	1,651.4	5.3
Refund of contributions	24.5	23.6	3.8
Administrative expenses	17.5	19.1	(8.4)
Total deductions	1,780.8	1,694.1	5.1
Increase/(decrease) in fiduciary net position	$ (81.0)	$ 4,550.3	(101.8)
Fiduciary net position			
Beginning	21,935.8	17,385.5	
Ending	$ 21,854.8	$ 21,935.8	

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 based on the type of security for financial reporting are listed below. This framework 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. Since 2016 the ERS has been transitioning towards these new targets. Following the 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 where applicable. As expected, the ERS transitioned into adopting its long-term strategic allocation plan starting July 1, 2022. A subsequent asset liability study was completed in FY 2023 that will impact the strategic allocation over time.

The asset distribution of the ERS' investment securities for the pension trust, excluding pending trade settlements and securities lending collateral, at June 30, 2022 and 2021 are presented below at fair value (reflecting the change in classification of assets as of June 30, 2022 discussed above). 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 the ACFR for a discussion on the risk-based methodology, asset allocation plan targets, and investments by investment strategy.

Asset Class
June 30, 2022 and 2021
(Dollars in millions)

	2022	%	2021	%
Short term investments and cash	$ 1,008.3	4.6 %	$ 1,977.6	9.0 %
Equity securities	5,360.4	24.6	7,352.7	33.6
Fixed income	3,263.0	14.9	4,287.7	19.6
Real assets	3,372.2	15.4	1,798.7	8.2
Alternative investments	8,825.9	40.5	6,487.0	29.6
Total investment assets	21,829.8	100.0	21,903.7	100.0

The rate of return (gross of fees time-weighted rate of returns) on the ERS investment portfolio was 4.0% from the challenging investment markets in FY 2022 underperforming the overall ERS investment target of 7.0%. Diversifying Strategies asset class outperformed with a return of 11.4% during the fiscal year, while the Broad Growth asset class return was a return of 0.9%. This compares to an overall return on the portfolio of 26.6% in FY 2021. Total net investment income was $164.6 million in FY 2022 compared to $4,662.2 million in FY 2021.

The ERS had positive returns of 11.4% in the diversifying strategies lead by liquid defensive (+17.3%), liquid diversifying (+6.7%), and illiquid diversifying (+2.7%) segments. In comparison, the broad growth retuned returns of 0.9% comprised of positive returns in private growth (+29.7%) and real assets (+18.0%) offset by negative returns in public growth (-13.3%). 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 Investment Section of this 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 increased in FY 2022 from FY 2021 due to long-term risk-based asset investment strategy with a larger percentage of assets in private markets that earn higher fees than the public securities markets. 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. Incentive fees for certain investment managers are recognized on the accrual basis of accounting for the change in real estate values during the year, and are only paid upon the sale of the asset if the asset has "excess earnings" when the real estate asset is actually sold. 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 $1,535.2 million and $1,582.2 million in FY 2022 FY 2021, respectively. During FY 2022, total contributions decreased by $47.0 million, or 3.0%, primarily from a decrease in the number of active employees and corresponding decrease 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 $1,738.8 in FY 2022 from $1,651.4 million in FY 2021. 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 $24.5 million in FY 2022 from $23.6 million in FY 2021.

Administrative expenses decreased to $17.5 million in FY 2022 from $19.1 million in FY 2021 due primarily from the decrease in equipment depreciation expense and to a lesser extent a smaller decrease in legal, accounting and computer maintenance related expenses. This was partially offset by a slight increase in employee fringe benefit assessment.

Pension Plan Changes

There was no significant legislation passed in 2022 and 2021 that affects pension plan provisions. Pension plan changes, including legislative and Board of Trustees' actions, are summarized in the Introductory Section and Actuarial Section of the ACFR.

Actuarial Valuations and Measurement of Net Pension Liability

The funding status decreased during FY 2022 on the fiduciary net position (market asset basis) to 61.2% as of June 30, 2022 from to 64.3% as June 30, 2021, as a result of the sizeable decrease in covered payroll for active members that contributions are assessed on and the decrease in investment returns.

During a challenging investment environment of FY 2022, the ERS's investment portfolio earned 4.0% based on the market value of assets. This compares to rate of return for the actuarial value of 0.8% in FY 2022, 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, 2022 is based on the actuarial valuation performed as of June 30, 2022 and a measurement date of June 30, 2022.

Per the valuation as of June 30, 2022, the ERS's total pension liability was $34.8 billion, covered payroll totaled $4.5 billion, and the ERS's fiduciary net position of $21.9 billion resulting in a net pension liability of $12.9 billion. The June 30, 2021 valuation results include the ERS's total pension liability of $34.1 billion, covered payroll totaled $4.7 billion, and the ERS' fiduciary net position was $21.9 billion resulting in a net pension liability of $12.2 billion. The ERS' fiduciary net position as a percentage of total pension liability was 62.8% and 64.3% on June 30, 2022 and 2021, resulting in the net pension liability as a percentage of covered payrolls of 289.2% and 261.5%, 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, 2022, 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 remained unchanged at 24 years from June 30, 2021. Because this period is less than the 30 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 30 years.)

The actuarial assumptions, and changes to the assumptions are discussed later in the *Note G., Pension Liability* to the financial statements and in the Required Supplementary Information – Unaudited section. The Actuarial Section of this ACFR contains for more information on changes to the Actuarial Assumptions.

Requests for Information

This financial report is designed to provide a general overview of the Employees' Retirement System of the State of Hawaii's 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.

Assets		
Cash and cash equivalents and short-term investments		
Cash and cash equivalents	$	99,095,482
Short-term investments		909,222,390
		1,008,317,872
Receivables		
Accounts receivable and others		2,622,869
Investment sales proceeds		39,940,051
Accrued investment income		28,852,378
Employer and member contributions		84,468,296
		155,883,594
Investments, at fair value		
Equity securities		5,360,412,415
Fixed income securities		3,262,952,343
Real assets investments		3,372,222,912
Alternative investments		8,825,905,906
		20,821,493,576
Other		
Invested securities lending collateral		735,926,602
Equipment, at cost, net of depreciation		4,984,223
		740,910,825
Total assets		22,726,605,867
Liabilities		
Accounts and other payables		111,219,287
Payable for securities purchased		24,645,946
Securities lending collateral		735,926,602
Total liabilities		871,791,835
Fiduciary net position restricted for pensions	$	21,854,814,032

Additions		
Contributions		
Employers contributions	$	1,242,139,095
Members contributions		293,027,560
Total contributions		1,535,166,655
Investment income		
From investing activities:		
Net depreciation in fair value of investments		(409,456,733)
Interest on fixed income securities		129,062,358
Dividends on equity securities		118,701,094
Income on real asset investments		101,363,262
Interest on short-term investments		824,820
Alternative investment income		432,926,112
Miscellaneous		463,087
		373,884,000
Less investment expenses		212,785,041
Net investment income from investing activities		161,098,959
From securities lending activities:		
Securities lending income		4,836,033
Less: securities lending expenses, net		1,375,957
Net investment income from securities lending		3,460,076
Total net investment income		164,559,035
Total additions, net		1,699,725,690
Deductions		
Benefit payments		1,738,751,492
Refunds of member contributions		24,454,256
Administrative expenses		17,497,621
Total deductions		1,780,703,369
Net decrease in fiduciary net position		(80,977,679)
Fiduciary net position restricted for pensions		
Beginning of year		21,935,791,711
End of year	$	21,854,814,032

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 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 Firefighters 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.

Note A – Description of the ERS (continued)

1. General (continued)

Employer, pensioner, and employee membership data as of March 31, 2022 are as follows:

Employers:	
State	1
County	4
Total employers	5
Pensioners and beneficiaries currently receiving benefits:	
Pensioners currently receiving benefits:	
Police and firefighters	4,231
All other employees	44,682
Total pensioners	48,913
Beneficiaries currently receiving benefits:	
Police and firefighters	389
All other employees	4,688
Total beneficiaries	5,077
Total pensioners and beneficiaries	53,990
Terminated vested members entitled to benefits but not yet receiving benefits:	
Police and firefighters	242
All other employees	8,789
Total terminated vested members	9,031
Inactive members	
Police and firefighters	969
All other employees	23,903
Total inactive members	24,872
Total terminated vested and inactive members	33,903
Active members:	
Vested:	
Police and firefighters	3,007
All other employees	31,580
Total vested members	34,587
Nonvested:	
Police and firefighters	1,863
All other employees	27,784
Total nonvested members	29,647
Total active members	64,234
Total membership	152,127

Note A – Description of the ERS (continued)

2. The Financial Reporting Entity

As required by U.S. generally accepted accounting principles, 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 of the 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 officers and firefighters and (b) all other employees. Employer contribution rates are subject to adjustment in certain situations based on the plan'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 of Trustees 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 Board of Trustees 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 for all actuarial assumptions used.

Note A – Description of the ERS (continued)

3. Class Descriptions and Funding Policy (continued)

Effective July 1, 2008, the statutory employer contribution rate for employees in the Police and Firefighters category increased from 15.75% to 19.70%, and the rate for employees in the All Other category increased from 13.75% to 15.00%. Per legislation passed in 2011, the rate for Police and Firefighters 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 category 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 Firefighters 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 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 Firefighters employees) are required to be Contributory members.

Note A – Description of the ERS (continued)

3. Class Descriptions and Funding Policy (continued)

The three membership classes provide a monthly retirement allowance (maximum allowance) equal to the benefit multiplier % (generally 1.25% or 2%), multiplied by the average final compensation (AFC), multiplied by years of credited service. The benefit multiplier decreased by 0.25% for new hybrid and contributory members hired after June 30, 2012. 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 2.5% 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 2.5% of the original retirement allowance without a ceiling (2.5% of the original retirement allowance the first year, 5.0% the second year, 7.5% the third year, etc.). For new members hired after June 30, 2012, the postretirement annuity increase was decreased to 1.5% per year of the original retirement allowance without a ceiling (1.5% of the original retirement allowance the first year, 3.0% the second year, 4.5% 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.

Note A – Description of the ERS (continued)

3. Class Descriptions and Funding Policy (continued)

All contributions, benefits, and eligibility requirements are governed by Chapter 88 of the Hawaii Revised Statutes. 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 this report. 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.

Contributory

Police officers, firefighters, and certain other members that are not covered by Social Security first hired prior to July 1, 2012 contribute 12.2% of their salary and receive a retirement benefit using the benefit multiplier of 2.5% for qualified service, up to a maximum of 80% of 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 14.2% 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 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 7.8% 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% per year under age 55 plus 4% per year under age 50. The benefit multiplier is 2% for employees covered by Social Security.

All other employees in the contributory class hired after June 30, 2012 are required to contribute 9.8% 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% per year under age 60. The benefit multiplier is 1.75% for employees covered by Social Security.

Note A – Description of the ERS (continued)

3. Class Descriptions and Funding Policy (continued)

Hybrid

All other employees hired before July 1, 2012 are required to contribute 6% 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% per year under age 62. The benefit multiplier used to calculate retirement benefits is 2%. Hybrid members are covered by Social Security.

All other employees hired after June 30, 2012 are required to contribute 8% 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% 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 services. Early retirement is available at age 55 years and 20 years of credited service with benefits reduced by 6% 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 ten years of service, respectively. Ordinary death benefits for hybrid members require five years of service if hired prior to July 1, 2012 or ten 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

Note A – Description of the ERS (continued)

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 HRS Chapter 87A, provide certain healthcare and life insurance benefits for State and county qualified employees and retirees. The Hawaii Employer-Union Health Benefits Trust Fund (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.

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 ten 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 ten 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 ten and fifteen years of credited service; (b) seventy-five percent of the base monthly contribution if the employee retired with between fifteen and twenty-five years of credited service; and (c) one hundred percent of the base monthly contribution if the employee retired with twenty-five or more years of credited service.

Under HRS § 87 A-36, 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 ten and fifteen years of credited service; (b) seventy-five percent of the base monthly contribution for a self-only plan if the employee retired with between fifteen and twenty-five years of credited service; and (c) one hundred percent of the base monthly contribution for a self-only plan if the employee retired with twenty-five or more years of credited service.

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

Note B – Social Security Contribution Fund (Other Information - Unaudited)

The Social Security Contribution Fund (Contribution Fund), reported in Other Information Schedule 4, 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 (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, 2022, the ERS held no amounts in the Contribution Fund as all employer contribution amounts from the State were paid directly to the IRS.

Note C – 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 types used by the ERS are a Pension Trust Fund. Each of the fiduciary funds 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.

The financial statements are prepared in conformity with U.S. generally accepted accounting principles (GAAP) using the accrual basis of accounting. Administrative expenses are financed exclusively with investment income.

Note C – Summary of Accounting Policies (continued)

2. Method Used to Value Cash and Cash Equivalents and Investments

The ERS' investment policy for cash and cash equivalents and investments, including the legal authority, are discussed below in Note F. Notes C and F below include a comprehensive discussion on fair value including the disclosure requirements of fair value required by GASB Statement No. 72, *Fair Value Measurement and Application*.

Cash and cash equivalents, and investments in the Pension Trust are reported at fair value. The definition of fair value is 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. Unrealized gains and losses are included as investment income in the statement of changes in fiduciary net position. The investments of the Pension Trust Fund are valued on a monthly basis.

3. Revenue Recognition

Interest and dividend income is recognized when earned. Capital gains and losses are recognized on a trade-date basis. Purchases and sales of investments are also recorded on a trade-date basis.

Employers and members contributions are recognized in the period in which the contributions are legally due.

4. Payment of Benefits

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

5. 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.

6. 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:

Note C – Summary of Accounting Policies (continued)

6. Interest and Earnings Allocation (continued)

a. Annuity Savings Reserve – Fixed at 4-1/2% regular interest rate for employees hired before July 1, 2011 and 2% regular interest rate for employees hired after June 30, 2011.

b. Expense Reserve – To be credited with all money to pay the administrative expenses of the ERS.

c. Pension Accumulation Reserve – To be credited with any remaining investment earnings.

7. Risk Management

The ERS reports liabilities, as discussed in note H, related to certain types of losses (including torts, theft of, damage to, or destruction of assets, errors or omissions, natural disasters, and injuries to employees) when it is probable that the losses have occurred and the amount of those losses can be reasonably estimated.

8. Use of Estimates

In preparing financial statements in conformity with accounting principles generally accepted in the United States, management is required to make estimates and assumptions that affect certain reported amounts and disclosures. Actual results could differ from those estimates.

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.

9. Recently Issued Accounting Policies

In May 2020, GASB issued Statement No. 96, *Subscription-based Information Technology Arrangements (SBITAs)* (Statement No. 96). Statement No. 96 defines a SBITA; establishes criteria for identifying when a SBITA results in a right-to-use subscription asset—an intangible asset—and a corresponding subscription liability; provides the capitalization criteria for outlays other than subscription payments; including implementation costs; and requires note disclosures regarding a SBITA. To the extent relevant, the standards for SBITAs are based on the standards

Note C – Summary of Accounting Policies (continued)

9. Recently Issued Accounting Policies (continued)

established in Statement No. 87, *Leases*, as amended. The requirements of this Statement No. 96 are effective for fiscal years beginning after June 15, 2022. ERS has not yet determined the impact of this standard on its financial statements and disclosures.

Note D – 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 under pursuant to IRC Section 414(h)(2)), transfers of retired members' contributions plus related interest income from the Annuity Savings Reserve and income from investments. All pension benefits, including the pensioners' bonus, are paid through this reserve.

2. Annuity Savings Reserves

To accumulate members' contributions (including member contributions "picked up" as employer contributions under 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 Reserve 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 as of June 30, 2022 are as follows:

		2022
Pension Accumulation Reserve	$	18,333,677,177
Annuity Savings Reserve		3,506,654,625
Expense Reserve		14,482,230
Total fiduciary net position	$	21,854,814,032

Note E – Contributions (continued)

3. Expense Reserves (continued)

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 recommendation of the ERS actuary resulting from an experience study conducted every five years. Since July 1, 2005, employer contribution rates are a fixed percentage of compensation, including the normal cost plus amounts required to pay for the unfunded actuarial accrued liability. 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.

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 Average Final Compensation amount.

Member contributions rates are statutorily established in accordance with Chapter 88 of the HRS, and are discussed in note A.3, Class Descriptions and Funding Policy above. 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 F – Deposit 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.

Note F – Deposit and Investment Disclosures (continued)

1. Investment Policy (continued)

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.

At the end of the fiscal year, June 30, 2022, the ERS was strategically invested in the following classes:

	Strategic Allocation (functional/risk-based classes)
Broad Growth	67.5%
Diversifying Strategies	32.5%
Total	100%

During FY 2022, the Broad Growth strategic asset class includes sub-asset classes or components of Public Growth (Traditional Equity, Stabilized Equity, and Global Credit), Private Growth, and Real Assets (Core Real Estate, Non-Core Real Estate, Other Real Assets, Infrastructure, Timber and Agriculture). The Diversifying Strategies asset class includes Illiquid Diversifying (Idiosyncratic Return Capture, and Insurance Linked), Liquid Defensive (Systematic Trend Following, Defensive Return Capture and Treasury Agency Duration Capture), and Liquid Diversifying (Relative Value Arbitrage and Alternative Return Capture Strategies). The ERS may also hold Opportunities and Other Investments.

Note F – Deposit and Investment Disclosures (continued)

1. Investment Policy (continued)

As a result of the formal asset-liability study that began in fiscal year 2019 and was completed in fiscal year 2020, the Board adopted a new long-term strategic allocation policy. As part of this new long-term strategic policy, the portfolio transitioned to two major strategic classes (rather than four). Prevailing classes and sub-classes were remapped to the two major strategic classes where applicable. As planned, the final allocations across the new long-term strategic allocation policy was largely completed by the end of the 2022 fiscal year, and the transition into adoption of the new long-term strategic allocation began on July 1, 2022. A subsequent asset study was completed in FY 2023 that will impact the strategic allocation over time.

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 (Public Growth, Private Growth, and Real Assets) which are ultimately invested in public equity, options-based equity, credit fixed income, private real assets, and private equity. The Diversifying Strategies class is designed to be uncorrelated to the Broad Growth class and it utilizes three sub-components (Liquid Defensive, Liquid Diversifying, and Illiquid Diversifying). The Diversifying Strategies class utilizes a multitude of asset classes and strategies, including US treasury and agency bonds, inflation-linked treasury bonds, systematic trend following, alternative risk premia, global macro, insurance-linked securities, relative value strategies, and niche private 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.

The Board manages the expected return/risk posture of the Plan as part of the formal asset-liability studies that are completed every three-to-five years. Based on the 2021 asset-liability study the Total Fund was repositioned to achieve a long-term report of approximately 7.0% with an annualized volatility of approximately 9.4%-11.4% (dependent on modeling approach) over a horizon of 20-30 years. It is expected that a new asset-liability study will commence in the 2023 fiscal year. ERS will strategically invest in the following strategic asset classes:

Strategic Allocation (risk-based classes)	Strategic Class Weights	Expected Long-term Geometric Average Return[1]	Expected Volatility
Broad Growth	62.5%	8.0%	15.8%
Diversifying Strategies	37.5%	5.1%	8.5%
Total Portfolio	100.0%	7.2%	10.7%

[1] Uses an expected inflation of 2.1%

Note F – Deposit and Investment Disclosures (continued)

1. Investment Policy (continued)

The implementation plan for long-term strategic policy established in 2020 is expected to be completed by the end of the FY 2022 as follows.

Implementation Plan for Long-term Strategic Policy				
	(6/30/2020)	7/1/2020	Long-Term 7/1/2021	Long-Term 7/1/2022
Broad Growth	68%	72%	67.5%	65%
Principal Protection	8%	--	--	--
Real Return	8%	--	--	--
Crisis Risk Offset	16%	--	--	--
Diversifying Strategies	--	28%	32.5%	35%
Total Portfolio	100%	100%	100%	100%

Rate of Return

For the year ended June 30, 2022, the annual money-weighted return on pension plan investments, net of pension plan investment expense, was 0.8%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for changing amounts actually invested.

2. Deposits

Cash and cash equivalents includes 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, 2022, the carrying amount of deposits totaled approximately $99,095,482 and the corresponding bank balance was $106,454,881, all of which was exposed to custodial credit risk.

Note F – Deposit and Investment Disclosures (continued)

3. Investments and Fair Value

The following table shows the investments of the ERS by investment type as of June 30, 2022.

Investments at fair value		
Cash and cash equivalents and short-term instruments		
Cash and cash equivalents	$	99,095,482
Short-term bills and notes		441,351,385
Pooled and others		467,870,219
Fixed income securities		
U.S. Treasury bonds and notes		754,136,759
U.S. government agencies bonds		16,806,837
U.S. government agency mortgage backed		150,260,517
U.S. government-sponsored agency mortgage backed		12,547,247
U.S. corporate bonds		40,456,633
Non-U.S. corporate bonds		756,860
Convertible and Others		287,668,471
Fixed income funds		1,998,139,629
Derivatives		
Forwards - Cash and short-term instruments		786
Futures - Debt securities		2,179,390
Options - Equities		(24,193,131)
Equities		
Common stock		4,157,708,423
Preferred shares and other		67,233,310
Equity funds		1,159,663,813
Real assets		3,372,222,912
Alternative investments		8,825,905,906
Total investments	$	21,829,811,448
Short-term instruments for securities lending collateral pool	$	735,926,602

Note F – Deposit and Investment Disclosures (continued)

3. Investments and Fair Value (continued)

Investments are measured at fair value. The ERS categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. 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).

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 securities classified in Level 1 include certain options and futures which are valued using prices quoted in active markets for those securities.

Short-term investments, preferred shares, fixed income securities, 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

Note F – Deposit and Investment Disclosures (continued)

3. Investments and Fair Value (continued)

ratings. Derivative securities classified in level 2 are securities whose values are derived daily from associated traded securities.

Preferred shares and common stock are 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.

Real Asset- 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. The fair value for these investments could differ significantly if a readily accessible market values for these assets existed.

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' net asset value (NAV) per share (or its equivalent).

Short-Term Investment Funds, Equity Funds (not publicly traded), and Fixed Income (not publicly traded) are reported on their respective net asset value (NAV). Fair value 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 asset and alternative investments (pooled or commingled funds) 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. The fair value for these investments could differ significantly if a readily accessible market values for these assets existed.

Note F – Deposit and Investment Disclosures (continued)

3. Investments and Fair Value (continued)

The following table shows the fair value hierarchy by investment type as of June 30, 2022.

Investments, Derivative Instruments and Invested Securities Lending Collateral Measured at Fair Value

		Fair Value Measurement Using		
	Total	Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Investments by Fair Value Level 6/30/2022				
Short-term investments				
Short-term bills and notes	$ 441,351,385	$ 440,351,385	$ 1,000,000	$ -
Equity securities				
Common stocks	4,157,708,423	4,157,707,661	-	762
Preferred shares and other	67,233,310	62,090,347	5,100,123	42,840
Total equity securities	4,224,941,733	4,219,798,008	5,100,123	43,602
Fixed income securities				
U.S. Treasury bonds and notes	754,136,759	754,136,759	-	-
U.S. government agencies bonds	16,806,837	-	16,806,837	-
U.S. government agency mortgage backed	150,260,517	-	150,260,517	-
U.S. government-sponsored agency mortgage	12,547,247	-	12,547,247	-
U.S. corporate bonds	40,456,633	-	40,456,633	-
Non-U.S. corporate bonds	756,860	-	756,860	-
Convertible and Others	287,668,471	-	287,668,471	-
Total fixed income securities	1,262,633,324	754,136,759	508,496,565	-
Real asset - real estate (direct investment)	61,500,000	-	-	61,500,000
Total investments (excluding derivatives), measured by fair value level	$ 2,586,766,648	$ 1,508,273,518	$ 1,016,993,130	$ 61,500,000
Investment derivative instruments				
Currency purchases forwards	$ 786	$ -	$ -	$ 786
Index fixed income futures	2,179,390	2,179,390	-	-
Options	(24,193,131)	(6,299,773)	(17,893,358)	-
Total investment derivative instruments	$ (22,012,955)	$ (4,120,383)	$ (17,893,358)	$ 786

Note F – Deposits and Investment Disclosures (continued)

3. Investments and Fair Value (continued)

Investments, Derivative Instruments and Invested Securities Lending Collateral Measured at Fair Value (continued)

		Fair Value Measurement Using		
	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Invested securities lending collateral				
Short-term instruments				
Repurchase agreements	$ 191,750,674	$ -	$ 191,750,674	$ -
Global corporate notes	544,175,928	-	544,175,928	-
Total invested securities lending collateral	$ 735,926,602	$ -	$ 735,926,602	$ -

Investments measured at net asset value (NAV)	
Short-term investments	$ 467,870,219
Equity securities	1,159,663,813
Fixed income	1,998,139,629
Real assets - real estate	2,078,441,837
Real assets - other	1,232,281,075
Alternative investments - diversify strategy	4,866,526,300
Alternative investments - other	3,959,379,606
Total investments measured at NAV	$15,762,302,479

	June 30, 2022	Unfunded Commitments	Redemption Frequency (If Currently Eligible)	Redemption Notice Period (Days)
Short-term investments (a)	$ 467,870,219	$ -	Daily	1 day
Equity securities (b)	1,159,663,813	-	Daily	2 days
Fixed income (c)	1,998,139,629	313,891,000	Various	Various
Real assets - real estate (d)	2,078,441,837	680,260,000	Not eligible	n/a
Real assets - other (d)	1,232,281,075	448,666,000	Not eligible	n/a
Alternative investments - traditional (e)	3,959,379,606	1,852,552,000	Not eligible	n/a
Alternative investments - div. strategies (f)	4,866,526,300	-	Daily	1-2 days
Total investments measured at NAV	$ 15,762,302,479	$ 3,295,369,000		

Note F – Deposits and Investment Disclosures (continued)

3. Investments and Fair Value (continued)

(a) Short-term investments primarily consist of three 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 securities consist of three 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.

(c) Fixed income consists of ten 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 (real estate and other) limited partnerships, limited liability companies, or corporations, that are deemed to be investments, include 64 funds that primarily invest in U.S. real estate and 12 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 - traditional consist of 227 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.

Note F – Deposits and Investment Disclosures (continued)

3. Investments and Fair Value (continued)

(f) Alternative investments – diversifying strategies consists of 18 limited partnerships or limited liability companies to provide stability, diversification, and liquidity complements to the Broad Growth strategic 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 DS strategic class to offset a meaningful level of volatility inherent in the Broad Growth strategic 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.

Reconciliation of Investment Level Disclosure to the Statement of Fiduciary Net Position

	Investments by Fair Value Level	Investments Measured by the NAV	Derivative Investments by Fair Value Level	Invested Securities Lending Collateral by Fair Value Level	Statement of Fiduciary Net Postion
Assets					
Short-term investments	$ 441,351,385	$ 467,870,219	$ 786	$ -	$ 909,222,390
Equity securities	4,224,941,733	1,159,663,813	(24,193,131)	-	5,360,412,415
Fixed income securities	1,262,633,324	1,998,139,629	2,179,390	-	3,262,952,343
Real asset investments	61,500,000	3,310,722,912	-	-	3,372,222,912
Alternative investments	-	8,825,905,906	-	-	8,825,905,906
Invested securities lending collateral	-	-	-	735,926,602	735,926,602
	$ 5,990,426,442	$15,762,302,479	$ (22,012,955)	$ 735,926,602	$ 22,466,642,568

Note F – Deposits and Investment Disclosures (continued)

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 on derivative investments is discussed below in derivative disclosures note F10 while policies related to credit risk for securities lending program are discussed in note F9 below.

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 Strategy strategic class are to provide stability, diversification, and liquidity complements to the Broad Growth strategic class. This class can help diversify the Broad Growth 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 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. Derivatives may be used for managing interest rate, volatility, term structure, country, currency, sector exposures, etc. as authorized by their mandate.

Note F – Deposits and Investment Disclosures (continued)

4. Credit Risk (continued)

A table of the ERS' fixed income securities as of June 30, 2022 is below. Securities below investment grade of Baa and non-rated issues (average rating by S&P, Moody's and/or Fitch) amounted to $257,470,838 or 20.4% of directly held fixed income investments (excluding funds). All short-term investments, not held in a pooled investment, are rated A1/P1or better.

Credit Ratings - Average rating by S&P, Moodys and Fitch as of June 30, 2022

Ratings	US Govt Agency	US Govt sponsored-agency mortgage-backed	US corporate bonds	Non-US corporate bonds	Convertible & others	Total
AAA	$ 16,806,837	$ 150,159,660	$ 222,660	$ -	$ -	$ 167,189,157
AA1	-	100,857	1,153,859	-	-	1,254,716
AA2	-	-	243,439	-	-	243,439
AA3	-	-	1,378,060	-	-	1,378,060
A1	-	-	5,654,762	256,424	-	5,911,186
A2	-	-	8,325,515	-	-	8,325,515
A3	-	-	6,683,943	-	-	6,683,943
BAA1	-	-	6,096,421	498,550	6,637,340	13,232,311
BAA2	-	-	9,348,762	-	4,636,581	13,985,343
BAA3	-	-	1,349,212	-	18,925,598	20,274,810
BA1	-	-	-	-	2,150,935	2,150,935
BA2	-	-	-	-	16,440,242	16,440,242
B2	-	-	-	-	4,644,008	4,644,008
Not rated	-	-	-	1,886	234,233,767	234,235,653
	$ 16,806,837	$ 150,260,517	$ 40,456,633	$ 756,860	$ 287,668,471	495,949,318
			US Treasury Bonds and Notes			754,136,759
			US Government agency - Government National Mortgage Association (GNMAs) mortgage-backed			12,547,247
			Subtotal directly held investments			1,262,633,324
			Fixed income funds			1,998,139,629
			Derivatives (debt securities)			2,179,390
			Total fixed income securities in Investments			$ 3,262,952,343

Note F – Deposits and Investment Disclosures (continued)

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 $99,095,482 in cash and securities exposed to custodial credit risk as of June 30, 2022.

6. Concentrations of Credit Risk

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

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, 2022, 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.

Note F – Deposits and Investment Disclosures (continued)

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, 2022, 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:

Effective duration of fixed income assets by security type (excluding derivatives and fixed income funds)

		Fair Value	Weighted Modified Duration (years)
Fixed Income Securities			
U.S. Treasury bonds and notes	$	754,136,759	8.9
U.S. government agencies bonds		16,806,837	2.8
U.S. government agency mortgage-backed		150,260,517	6.0
U.S. government-sponsored agency mortgage-backed		12,547,247	5.9
U.S. corporate bonds		40,456,633	4.2
Non-U.S. corporate bonds		756,860	2.4
Convertible and Others		287,668,471	4.2
Total	$	1,262,633,324	7.2

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 derivatives must be rated A or equivalent. Derivatives investments are discussed in more detail in Note F10.

Note F – Deposits and Investment Disclosures (continued)

8. Foreign Currency Risk (continued)

The following table summarizes the ERS' exposure to foreign currency risk in U.S. dollars as of June 30, 2022. (Securities denominated in U.S. dollars are not presented.)

	Cash and Short Term Instruments	Derivatives	Equities	Grand Total
Australian dollar	$ 171,336	$ (58,219)	$ 46,726,112	$ 46,839,229
Brazilian real	128,860	(124,442)	22,729,461	22,733,879
Canadian dollar	(15,704)	(740,882)	107,711,725	106,955,139
Chilean peso	-	-	3,275,645	3,275,645
Chinese Yuan Renminbi	-	-	4,533,028	4,533,028
Colombian peso	33,899	-	234,607	268,506
Czech koruna	13,326	-	2,914,829	2,928,155
Danish krone	20,021	3,911	11,506,707	11,530,639
Euro currency unit	455,565	(1,986,881)	333,720,042	332,188,726
Hong Kong dollar	489,324	(525,450)	126,097,115	126,060,989
Hungarian forint	-	-	2,958,163	2,958,163
Indian Rupee	2,119	-	101,857,836	101,859,955
Indonesian rupiah	42,852	(36,040)	3,936,680	3,943,492
Israeli shekel	60,295	-	3,253,757	3,314,052
Japanese yen	(43,634)	(326,495)	206,974,945	206,604,816
Malaysian ringgit	-	-	7,070,584	7,070,584
Mexican peso	37,610	-	6,269,086	6,306,696
New Taiwan dollar	662,272	-	100,996,200	101,658,472
New Zealand dollar	42,527	-	2,489,294	2,531,821
Norwegian krone	35,225	(36,979)	7,231,720	7,229,966
Philippine peso	5,307	(5,306)	3,565,417	3,565,418
Polish zloty	46,287	-	712,264	758,551
Pound sterling	488,856	2,811,081	231,082,115	234,382,052
Russian ruble	77,207	-	638,143	715,350
Singapore dollar	63,189	-	7,540,915	7,604,104
South African rand	10,687	-	8,709,105	8,719,792
South Korean won	892	-	27,495,234	27,496,126
Swedish krona	101,081	(854,108)	32,450,896	31,697,869
Swiss franc	309,001	739,515	94,435,602	95,484,118
Thai baht	-	-	7,871,839	7,871,839
Turkish lira	3,117	(29,533)	615,594	589,178
Total	$ 3,241,517	$ (1,169,828)	$ 1,517,604,660	$ 1,519,676,349

Note F – Deposits and Investment Disclosures (continued)

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 of the 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, according to the ERS investment policies and procedures as discussed above in notes C2 and F1. 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, 2022 was 132 days.

Note F – Deposits and Investment Disclosures (continued)

9. Securities Lending (continued)

At June 30, 2022, 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	$ 381,469,936	$ 53,474,872	$ 423,475,694
U.S. equities	303,307,672	14,411,681	310,702,322
International equities	51,148,994	158,965,922	183,074,998
	$ 735,926,602	$ 226,852,475	$ 917,253,014

10. Derivative Financial Instruments

Derivatives are 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.

Note F – Deposits and Investment Disclosures (continued)

10. Derivative Financial Instruments (continued)

The tables below summarize the ERS' investments in derivative securities and contracts held at June 30, 2022 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.

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, 2022 with the related maturity information:

Asset categories		Notional values	Market value	Maturity (Range from)
Forwards	Currency purchases	$ -	$ 786	0.0 yrs
Futures	Interest rate contracts	592,821,122	2,179,390	0.3 yrs
Options	Options	-	(24,193,131)	0.0 yrs to 0.2 yrs
	Grand Total	$ 592,821,122	$ (22,012,955)	

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.

Note F – Deposits and Investment Disclosures (continued)

10. Derivative Financial Instruments (continued)

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, 2022.

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.

Note F – Deposits and Investment Disclosures (continued)

10. Derivative Financial Instruments (continued)

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, 2022, credit ratings of the counterparty for ERS' investments in derivatives were as follows:

Counterparty	S&P's Rating	Fair Value
Exchange traded derivatives	n/a	$ (22,012,955)
Total		$ (22,012,955)

Note G – Pension Liability

1. Net Pension Liability

The components of the net pension liability of the ERS at June 30, 2022 were as follows:

Total Pension Liability	$34,822,778,620
Plan Fiduciary Net Position	21,854,814,032
Net Pension Liability	$12,967,964,588
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	62.8%
Net Pension Liability as a Percentage of Covered Payroll	289.2%

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 following the *Notes to the Financial Statements.*

Note G – Pension Liability (continued)

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, 2022. 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.

Summary of Actuarial Valuation as of June 30, 2022 follows:

Valuation date	June 30, 2022
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 Firefighters	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%

Note G – Pension Liability (continued)

2. Summary of Actuarial Assumptions (continued)

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

Pre-retirement mortality rates are:

Multiples of the Pub-2010 mortality table for active employees based on the occupation of the member as follows:

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

Note G – Pension Liability (continued)

2. Summary of Actuarial Assumptions (continued)

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 the long-term rates of scale UMP (which is the immediate convergence to the ultimate rates of MP-2021) from the year 2022 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 Firefighters	
Age	Males	Females	Males	Females	Males	Females
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	---

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 Firefighters					
Male	21.8	22.1	22.4	22.8	23.1
Female	27.1	27.4	27.7	28.0	28.3

Note G – Pension Liability (continued)

2. Summary of Actuarial Assumptions (continued)

Disabled retirees: Base Table for healthy retiree's 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.

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 "re-sampling 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, 2022, are summarized in the following table (a new asset/liability study for the ERS is to be completed in FY 2023):

Classes	Strategic class weights	Long-term expected geometric rate of return	Volatility
Broad growth:			
Private Equity	13.5%	11.0%	28.0%
Global Equity	20.0%	8.5%	18.0%
Low Volatility Equity	4.0%	7.8%	14.0%
Global Options	4.0%	6.4%	13.0%
Credit	6.0%	7.7%	12.5%
Core Real Estate	6.0%	6.4%	12.0%
Non-Core Real Estate	4.5%	9.5%	23.5%
Timber/Agriculture/Infrastructure	5.0%	8.3%	12.4%
Diversifying Strategies:			
TIPs	2.0%	3.3%	7.0%
Global Macro	4.0%	5.4%	15.0%
Reinsurance	4.0%	6.4%	12.0%
Alternative Risk Premia	8.0%	5.4%	10.0%
Long Treasuries	5.0%	3.8%	12.0%
Intermediate Government	4.0%	3.2%	3.0%
Systematic Trend Following	10.0%	6.2%	18.0%

Note G – Pension Liability (continued)

2. Summary of Actuarial Assumptions (continued)

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 (Public Growth, Private Growth, and Real Assets) which are ultimately invested in public equity, options-based equity, credit fixed income, private real assets, and private equity. The Diversifying Strategies class is designed to be uncorrelated to the Broad Growth class and it utilizes three sub-components (Liquid Defensive, Liquid Diversifying, and Illiquid Diversifying). The Diversifying Strategies class utilizes a multitude of asset classes and strategies, including US treasury and agency bonds, inflation-linked treasury bonds, systematic trend following, alternative risk premia, global macro, insurance-linked securities, relative value strategies, and niche private 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.

Single Discount Rate

A single discount rate of 7.00% was used to measure the total pension liability. This single discount rate 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.

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

The following presents the ERS' net pension liability 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 rate.

1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
$17,561,685,932	$12,967,964,588	$9,165,239,778

Note H – 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; natural disasters; and injuries to employees. 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, 2022. 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.

Note I – 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 $3,295,369,000 as of June 30, 2022, consisting of $313,891,000 in fixed income, $1,128,926,000 in real asset investments, and $1,852,552,000 in alternative investments.

Note J – 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.

Required Supplementary Information
June 30, 2022

Employees' Retirement System of the State of Hawaii

	2014	2015	2016	2017	2018	2019	2020	2021	2022
A. Total pension liability									
1. Service Cost	$421,956,129	$437,901,029	$484,278,499	$576,724,568	$584,470,193	$619,504,278	$626,699,489	$642,140,242	$613,550,345
2. Interest on the Total Pension Liability	1,618,917,776	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
3. Changes of benefit terms	-	-	-	-	-	-	-	-	-
4. Difference between expected and actual									
experienceof the Total Pension Liability	66,400,876	(192,816,757)	297,534,219	61,179,390	124,753,379	221,473,495	71,837,371	228,048,119	(361,275,093)
5. Changes of assumptions	-	261,213,541	2,915,922,677	-	-	60,320,037	-	-	(154,960,000)
6. Benefit payments, including refunds									(1,738,751,492)
of employee contributions	(1,130,921,611)	(1,181,252,658)	(1,245,517,025)	(1,323,129,244)	(1,416,727,842)	(1,486,137,444)	(1,568,033,354)	(1,675,049,807)	(24,454,256)
7. Net change in total pension liability	$976,353,170	$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
8. Total pension liability – beginning	21,243,744,377	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
9. Total pension liability – ending	$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
B. Plan fiduciary net position									
1. Contributions – employer	$653,127,697	$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
2. Contributions – employer (picked-up									
employee contributions)	204,821,010	221,909,859	235,079,968	249,211,751	257,294,033	270,764,670	284,142,994	299,473,128	292,422,087
2. Contributions – employee	1,306,327	1,595,560	1,721,893	1,492,316	2,133,901	2,458,908	3,255,037	1,153,318	605,473
3. Net investment income	2,175,479,960	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
4. Benefit payments, including refunds									(1,738,751,492)
of employee contributions	(1,130,921,611)	(1,181,252,658)	(1,245,517,025)	(1,323,129,244)	(1,416,727,842)	(1,486,137,444)	(1,568,033,354)	(1,675,049,807)	(24,454,256)
5. Pension Plan Administrative Expense	(12,626,030)	(14,032,964)	(13,960,587)	(14,986,159)	(15,784,490)	(13,798,866)	(17,782,865)	(19,049,861)	(17,497,621)
6. Other	-	-	-	-	-	-	-	-	-
7. Net change in plan fiduciary net position	$1,891,187,353	$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)
8. Fiduciary net position – beginning	12,311,827,950	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
9. Fiduciary net position – ending	$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
C. Net pension liability	$8,017,082,244	$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
D. Fiduciary net position as a percentage									
of the total pension liability	63.92%	62.42%	51.28%	54.80%	55.48%	54.87%	53.18%	64.25%	62.76%
E. Covered payroll	$3,829,002,983	$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
F. Net pension liability as a percentage									
of covered payroll	209.38%	218.57%	325.11%	305.18%	312.94%	323.78%	341.55%	261.46%	289.23%

* Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Fiscal year ended June 30,:	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
2014	$22,220,097,547	$14,203,015,303	$8,017,082,244	63.92%	$3,829,002,983	209.38%
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%

* Schedule is intended to show information for 10 years. Additional years will be included prospectively as data becomes available.

For fiscal year ended June 30,:	Annual Money-Rate of Return
2014	17.9%
2015	4.0%
2016	-1.2%
2017	13.7%
2018	7.8%
2019	5.7%
2020	2.1%
2021	26.9%
2022	0.8%

* Schedule is intended to show information for 10 years. Additional years will be included prospectively as data becomes available.

Note A - Description

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

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

- 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 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).

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.

Note B – Significant Factors Affecting Trends in Actuarial Information (Continued)

2022 Changes in Actuarial Assumptions (continued)

- 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 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).

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.

Note B – Significant Factors Affecting Trends in Actuarial Information (Continued)

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%
- 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 & 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 Teachers, and remain 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.

Note B – Significant Factors Affecting Trends in Actuarial Information (Continued)

2011 Changes in Plan Provisions Since 2010

The following changes were made to the actuarial assumptions:

- The investment rate of return assumption decreased from 8.00% to 7.75%.
- The salary increase rates were changed to reflect a larger productivity component for Police and Firefighters. Small changes also made to service-based components for all groups. The overall impact increased assumed salary increase rates for all employees.
- The rates of mortality for healthy retirees and beneficiaries for most employee groups were decreased.
- The rates of mortality for disabled retirees for most employee groups were increased.
- The rates of mortality for active employees for most employee groups were increased.
- The rates of disability for active employees for most general employees and teachers were decreased.
- The rates of retirement for most employees were increased.
- The rates of termination in the first six years of service for males generally increased, and remained mostly unchanged for females. After six years of service, the rates of termination generally increased for younger employees and decreased for employees from the age of 50.

Other Supplementary Information
June 30, 2022

Employees' Retirement System of the State of Hawaii

Schedule 1

	2022			
	Pension Accumulation Reserves	**Annuity Savings Reserves**	**Expense Reserves**	**Total**
Additions				
Appropriations and contributions:				
Employers	$ 1,242,139,095	$ -	$ -	$ 1,242,139,095
Members	-	293,027,560	-	293,027,560
Net investment income	164,559,035	-	-	164,559,035
Total additions	1,406,698,130	293,027,560	-	1,699,725,690
Deductions				
Benefit payments	1,738,751,492	-	-	1,738,751,492
Refunds of member contributions	-	24,454,256	-	24,454,256
Administrative expenses	-	-	17,497,621	17,497,621
Total deductions	1,738,751,492	24,454,256	17,497,621	1,780,703,369
Other changes in net position restricted for pension benefits:				
Transfer due to retirement of members	228,003,601	(228,003,601)	-	-
Transfer of interest allocation	(128,230,778)	128,230,778	-	-
Transfer to pay administrative expenses	(18,954,519)	-	18,954,519	-
Return of unrequired funds due to savings in administrative expenses	10,370,073	-	(10,370,073)	-
	91,188,377	(99,772,823)	8,584,446	-
Net increase/(decrease)	(240,864,985)	168,800,481	(8,913,175)	(80,977,679)
Fiduciary net position restricted for pensions:				
Beginning of year	18,574,542,162	3,337,854,144	23,395,405	21,935,791,711
End of year	$ 18,333,677,177	$ 3,506,654,625	$ 14,482,230	$ 21,854,814,032

Schedule 2

		2022
Personnel services		
Salaries and wages	$	7,365,517
Fringe benefits		3,848,782
Net change in unused vacation credits		71,857
Total personnel services		11,286,156
Professional services		
Actuarial		191,899
Auditing and tax consulting		500,590
Disability hearing expenses		28,711
Legal services		569,898
Medical		410,816
Other services		88,141
Total professional services		1,790,055
Communication		
Postage		234,986
Printing and binding		56,476
Telephone		86,741
Travel		40,753
Total communication		418,956
Rentals		
Rental of equipment		88,381
Rental of premises		33,643
Total rentals		122,024
Other		
Armored car service		1,077
Computer and office automation systems		87,450
Repairs and maintenance		2,580,845
Stationery and office supplies		33,194
Miscellaneous		98,561
Total other		2,801,127
Depreciation		1,079,303
	$	17,497,621

Schedule 3

	2022
Real estate and alternative investment expenses	
Operating expenses	$ 33,242,751
Total real estate and alternative investment expenses	33,242,751
Investment expenses	
Investment manager/advisor fees	105,520,189
Bank custodian fees	326,784
Other investment expenses	73,695,317
Total investment expenses	179,542,290
Securities lending expenses	
Borrower rebates	792,204
Management fees	583,753
Total securities lending expenses	1,375,957
	$ 214,160,998

Other Information
June 30, 2022

Employees' Retirement System of the State of Hawaii

Schedule 4

	2022			
	Beginning Balance	**Additions**	**Deductions**	**Ending Balance**
Assets				
Receivable from employers	$ -	$ 248,589,427	$ 248,589,427	$ -
Total assets	$ -	$ 248,589,427	$ 248,589,427	$ -
Liabilities				
Due to employers	$ -	$ 248,589,427	$ 248,589,427	$ -
Total liabilities	$ -	$ 248,589,427	$ 248,589,427	$ -