Board Packet List of Documents

Board of Trustees Meeting
Jan 13, 2025

- Meeting Agenda

- Reports by Staff
  - 2 ERS Operations Report – Dec 2024.
  - 3 Accounting Branch Report.

- New Business
  - 1 2025 Board of Trustees Officers and Committee Assignments (Draft).
  - 2.1 Actuarial Valuation Report by Gabriel, Roeder, Smith & Co. for Year Ending June 30, 2024.
  - 3.1 2025 Legislative Proposals Relating to the Employees' Retirement System; BUF-17(25) "A Bill for an Act Relating to the Employees' Retirement System," proposes to make automatic distributions and ERS federal tax qualification requirements under Chapter 88, Hawaii Revised Statutes, conform to the requirements of the Internal Revenue Code of 1986, as amended, BUF-18(25) "A Bill for an Act Relating to the Employees' Retirement System's Employer Reporting Review," proposes to extend the period for the pre-payment of employer contributions and legislative reporting of non-compliance of employer reporting by one fiscal year from what is currently required.
  - 3.2 Annual Report to the Legislature Required by Act 85/2017 Regarding the Actuarial Asset and Liability Stress Test 2024.
  - 3.3 Annual Report to the Legislature Required by Act 87/2015 Regarding Status of Employer Reporting of Information 2024.
  - 3.4 Annual Report to the Legislature Required by Act 192/2007 Regarding Direct Holdings in Sudan Scrutinized Companies 2024.
  - 3.5 Annual Report to the Legislature Required by Act 260/2007 Regarding the Innovation Economy (Hawaii Targeted Investment Program (HiTIP)).
  - 4.1 Total Fund Performance for Period Ending September 30, 2024.
  - 4.2 Rotating Alternative Asset Class, Real Assets Performance for Period Ending June 30, 2024.
  - 4.3 Annual Benchmarking Review.
  - 4.4 Annual Portfolio Plan Liquidity Target Review.
  - 4.5 Annual Review, Revisions and Updates to the ERS Investment Policy Statement – Sections C and D.

- APPROVAL OF MINUTES – November 12, 2024

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

NOTICE OF REGULAR MEETING

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

DATE: Monday, January 13, 2025; 10:00 a.m.

PLACE: City Financial Tower, 201 Merchant Street, Suite 1200, Honolulu, Hawaii 96813

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

Members of the public may also attend the meeting and provide testimony in person or by teleconference, either audio or video, at the following link or phone number: https://teams.microsoft.com/l/meetup-join/19%3ameeting_ZDBkODAwNWUtYTdkYS00MzEzLTg5YTgtMGNiOWRmNmJhNDM3%40thread.v2/0?context=%7b%22Tid%22%3a%223847dec6-63b2-43f9-a6d0-58a40aaa1a10%22%2c%22Oid%22%3a%228f795840-377f-479d-bb5d-6ec41c4a01bc%22%7d

Or join by entering meeting ID: 243 648 267 002 Passcode: SA6D4mv6

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

Or +1 808-829-4853 United States, Honolulu (Toll)
Conference ID: 527 294 719#

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

AGENDA

QUORUM/CALL TO ORDER

Motion to hold the meeting allowing Trustees and members of the public to participate by interactive conference technology, pursuant to HRS §92-3.7, with at least one meeting location open to the public that has audiovisual connection.

PUBLIC COMMENT

Members of the public may submit written testimony on these agenda items via e-mail or postal mail with receipt recommended by 4:30 p.m. on Friday, January 10, 2025, in order to ensure it is distributed in time for consideration. Please address written testimony if by e-mail to: dale.kanae@hawaii.gov or by postal mail to: Employees' Retirement System of the State of Hawaii, Board of Trustees, 201 Merchant Street, Suite 1400, Honolulu, HI 96813.

REPORTS BY STAFF

1. Executive Director's Report on the Administration of the System with Respect to Significant Developments in Investments, Policy, Potential Legislation, and Regulatory Matters.

2. Deputy Executive Director's Report on the Operations of the System with Respect to Issues Affecting Member Services, Accounting, and Information Systems.

3. Accounting Branch Report on General Duties, Current and Future Projects, Goals, and Achievements.

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

NEW BUSINESS

1. Discuss 2025 Board of Trustees Election of Officers and Committee Assignments.

2. Update Report of Activity by the Administrative & Audit Committee Chair.

   2.1. Annual Actuarial Valuation Report by Gabriel, Roeder, Smith & Company for the Year Ending June 30, 2024.

3. Report by the Legislative Committee.

   3.1. 2025 Legislative Proposals Relating to the Employees' Retirement System.

      3.1.1. BUF-17(25) "A Bill for an Act Relating to the Employees' Retirement System," proposes to make automatic distributions and ERS federal tax qualification requirements under Chapter 88, Hawaii Revised Statutes, conform to the requirements of the Internal Revenue Code of 1986, as amended.

      3.1.2. BUF-18(25) "A Bill for an Act Relating to the Employees' Retirement System's Employer Reporting Review," proposes to extend the period for the pre-payment of employer contributions and legislative reporting of non-compliance of employer reporting by one fiscal year from what is currently required.

   3.2. Annual Report to the Legislature Required by Act 85/2017 Regarding the Actuarial Asset and Liability Stress Test 2024.

   3.3. Annual Report to the Legislature Required by Act 87/2015 Regarding Status of Employer Reporting of Information 2024.

   3.4. Annual Report to the Legislature Required by Act 192/2007 Regarding Direct Holdings in Sudan Scrutinized Companies 2024.

   3.5. Annual Report to the Legislature Required by Act 260/2007 Regarding the Innovation Economy (Hawaii Targeted Investment Program (HiTIP)).

4. Report by the Investment Committee.

   4.1. Review Total Fund Performance for Period Ending September 30, 2024.

   4.2. Review Rotating Alternative Asset Class, Real Assets for Period Ending June 30, 2024.

   4.3. Review Annual Benchmarking.

   4.4. Review Annual Plan Liquidity Target.

   4.5. Review Annual Investment Policy Statement.

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

APPROVAL OF MINUTES – November 12, 2024

EXECUTIVE SESSION

1. Executive Session, pursuant to HRS §92-5(a)(4), to consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities and liabilities with respect to the Trustees' Fiduciary Duties and Immunities, Appeals, and the Sunshine Law.
2. Executive Session, pursuant to HRS §92-5(a)(4), to consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities and liabilities with respect to the Closure of Weiss Asset Management.
3. Executive Session, pursuant to HRS §92-5(a)(8), to Review and Approve Executive Session Minutes of November 12, 2024.
4. Executive Session, pursuant to HRS §92-5(a)(8), to Review and Approve the Confidential Executive Session Minutes of November 12, 2024.

ADJOURNMENT

If you require auxiliary aid/service or other accommodation due to a disability, please contact Dale Kehau Kanae at (808) 586-1706 or dale.kanae@hawaii.gov as soon as possible, preferably by Wednesday, January 8, 2025, and the ERS will try to obtain the auxiliary aid/service or accommodation, but cannot guarantee that the request can be fulfilled.

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

Employees' Retirement System
Monthly Operations Report Highlights – December 2024

- **STAFFING (updated through 1/1/2025)**

	Position Title	**Vacant Date**	**Recruitment Status**
1.	Program Specialist VI	6/1/24	11/18/24 – ARO-HR screening internal applicants.
2.	Program Specialist	New pos.	4/19/24 – draft Position Description (PD) sent to ARO-HR for review and approval.
3.	Account Clerk V	10/17/22	PD in review w/ ARO since 9/26/23.
4.	Account Clerk V	5/1/24	10/7/24 – 89 day hire, nte 2/7/25, 2nd appointment
5.	Account Clerk V	1/1/25	PD needs to be updated.
6.	Administrative Assistant II	7/25/23	11/22/23 – revised PD in review w/ARO-HR
7.	Information Technology Band C (Applications Supervisor)	3/22/23	12/6/24 – one interview conducted; no selection; rqst new Cert list.
8.	Information Technology Band B (Systems)	2/16/24	11/22/24 – multiple rqst for new Cert list since 2/20/24.
9.	Information Technology Band B (Systems)	12/23/22	12/17/24 – three interviews conducted; no selection; rqst new Cert list.
10.	Information Technology Band B (Programmer)	1/1/24	12/26/24 – applicant selected; in process of conducting reference check.
11.	Information Technology Band B (Programmer)	11/1/24	11/5/24 – rqst new Cert list.
12.	Information Technology Band A (Systems)	12/17/24	In process of opening recruitment.
13.	Administrative Assistant II	1/1/24	12/4/24 – selected applicant rqst to start 3/1/25; rqst was denied;rqst new Cert list.
14.	General Professional VI	4/16/24	In process of opening recruitment.
15.	General Professional VI (NIOSS)	5/16/20	12/18/24 – ARO-HR screening internal applicants.
16.	General Professional VI	3/16/22	9/12/24 – applicant not selected, rqst new Cert list.
17.	Retirement Claims Examiner V	1/1/24	Temporary Assignment (TA) approved for period 1/1 – 3/31/25; awaiting ARO-HR to open recruitment.
18.	Retirement Claims Examiner III	5/1/24	9/10/24 – 1 interview conducted; applicant not selected, rqst new Cert list.
19.	Retirement Claims Examiner III	6/17/24	6/20/24 – in process of opening recruitment.
20.	Retirement Claims Examiner III	7/29/24	7/30/24 – in process of opening recruitment.
21.	Office Assistant IV	2/24/24	4/23/24 – rqst sent to ARO-HR to open recruitment.
22.	Office Assistant IV	1/1/24	7/9/24 - awaiting new Cert list.
23.	Office Assistant IV	1/23/24	5/20/24 – selected applicant found other job; rqst new Cert list.
24.	Office Assistant III	2/16/24	Conditional offer given 9/20/24; no clearance from ARO-HR; 12/17/24 applicant found other job.
25.	Investment Officer	New pos.	In process of establishing PD
26.	Senior Investment Officer	9/1/23	In process of revising PD & opening recruitment
27.	Investment Specialist	10/3/23	9/5/24 – no selection made; rqst new Cert list

- **MAJOR ACHIEVEMENTS, etc.**

  A. Retirement Benefits Branch (RBB)

  - Finals – The Team finalized 180 retirees on estimated pension with 512 pending pension adjustments. We have no applications over the 6-month standard. Currently the Team is finalizing July 2024 retirements.

  - Neighbor Island Activities
    - 12/2/2024 New Employee Orientation (Kauai)
    - 12/3/2024 Elected New Employee Orientation (Kauai)
    - 12/16/2024 New Employee Orientation (Kauai)

  B. Accounting Branch

  - Prepared for 2024 Federal Tax Reporting (IRS Form 1099R).

  - Draft valuation received by Gabriel Roeder Smith for submittal to Board in January 2025.

  - FY 2025 priority procurements in progress.

  - In collaboration with Admin & RBB on-going work regarding Employer Reporting issues ("Work Reports Team" led by Supervisor of Accounting's Disbursement and Benefits Section).

  - On-going support for Investment Operations, e.g., capital calls, account openings, tax forms, investment reporting for audit purposes, investment manager payments, etc.

  - Work in progress for Tax Reclaims.

  C. Information Systems Branch (IS)

  - Deployed 4 desktop computers.

  - Class Code Reports – Processed: 159

  - Winter 2025 Holomua Mailing List

  - Web Member Update (posted 12/5/24)

  - Accounting system was patched.

  - Completed Internal Audit Risk Assessment Discussion

  - Participated in 12 Pension Administration Migration Assessment Meetings

  - Participated in 5 interviews for 3 vacant IT positions.

D. Administration

- Completed 5 Uniform Information Practices Act research and responses.
- HRS 88-64 (Act 46, SLH 2023) implementation, process requests to review related cases, tax treatment of reported contributions.
- Attended V3locity Meetings
- Winter 2024 Holomua distributed to members (via HR/Admin) and retirees.
- 2025 Legislation proposals (session starts 1/15/2025), monitoring ERS-related proposals.
- Additional THP agreements and inquiries received.
- ERS office meeting logistics and presentation coordination on 12/12/2024.
- Employer Reporting Act 87 Report to Legislature submitted.
- Hawaii Domestic Relations Order reviews and Requests for Information completed; see attached semi-annual reporting of statistics (July - December 2024)
- ERS Customer Satisfaction Survey Stats; see attached quarterly report (October - December 2024)

E. Staff Support Services Branch (SSS)

- Walk in members: 524 in December, compared to 565 in November.
- Document Scanning and Indexing (on-going) – major backlog (approx. +2 million)

Activities (December)	Documents Completed
Time Sensitive	2,724
Indexed (backlog)	1,932

***Due to V3 upgrade QA count no longer available**

- . **WEB STATISTICS for December 2024**

  - Member Information – Sessions = 14,357
  - General ERS Website – Sessions = 17,215

Top 12 viewed site pages (descending order):

	Page	Page views
1.	Benefits Calculator	**5970**
2.	Members > Planning for Retirement	**5518**
3.	Members > Member Forms	**4084**
4.	Resources > Contact Us	**2922**
5.	Members > Active	**2855**
6.	Resources > All Forms	**2659**
7.	Home > Administration	**1616**
8.	Retirees > Pension Info	**1443**
9.	Retirees > Retirees FAQs	**942**
10.	Members > Leaving Employment	**827**
11.	About-the-ERS	**811**
12.	Members > Member FAQs	**792**

RETIREMENT BENEFITS BRANCH ACTIVITIES – December 2024

Activities	Standard	Completed	Standard Percentage	Pending	Remarks
1. Enrollment	Within 1 month of receipt - Enrollment Forms	181	8% (Nov 38%)	1650	Lead staff out - FMLA extended leave since May 7. 1680 out of the 1830 were outside of the 1month standard. Influx in enrollments from all Employers. Back up staff were also out of leave and unable to assist in Dec.
2. Estimates Requests	Within 6 months of retirement date	190	100% (Nov 100%)	163	
3. Initial Payments	After 1 month of retirement date	164	100% (Nov 100%)	0	
4. Refund Requests	Within 1 month after request, send letter	124	100% (Nov 100%)	12	
5. Refund Payments	Within 2 months after receipt of applications	87	100% (Nov 100%)	68	14 out of 68 pending payments: incomplete applications.
6. Deaths (Active members)	Within 1 month of report of death, send letter	5	69% (Nov 75%)	16	31 of 52 deaths reported – No benefits. Note: Only 1 staff assigned to process Active Deaths. Transition plans to move current staff to Finals so training of another staff is being done eff Nov 2024
7. Death Payment (Active members)	Within 1 month of receipt of death claim form(s)	6	100% (Nov 100%)	0	Pending cases: Claim forms not received/other required documents.
8. Deaths (Retiree/Beneficiary)	Within 1 month of report of death, send letter	159	73% (Nov 79%)	144	
9. Death Payments (Beneficiary)	Within 1 month of receipt of death claim form(s)	54	100% (Nov 100%)	0	266 Pending – No death claims and forms from beneficiaries and estates
10. Ordinary Disability	Within 6 months complete application	10	80% (Nov 88%)	38	8 of 10 met the 6-month standard.
11. Service-Connected Disability/ Death	Within 14 months complete application	6	83% (Nov 85%)	52	5 of met the 14-month standard

Disability Standard – Below are the disability applications completed in December 2024 by the ERS Administration (Executive Director) based on the revised Chapter 23, Hawaii Administrative Rules, on the Preliminary Decisions by the Medical Board (MB). All applications are now reviewed by the Deputy Attorney General (DAG) after staff's review.

Disability	Initials	Date Application Filed	Date Completed	Months	Reason For Delay
Ordinary	JG	3/18/2024	11/4/2024	7	
	CK	7/25/2024	11/4/2024	3	
	ML	9/19/2024	11/4/2024	1	
	KP	7/30/2024	11/4/2024	3	
	MR	9/12/2024	11/4/2024	2	
	CV	9/17/2024	11/4/2024	1	
	JY	9/27/2024	11/4/2024	1	
	EP	7/19/2024	11/15/2024	4	
	EM	9/26/2023	11/18/2024	14	OD & SCD processed simultaneously
	SY	8/31/2023	11/15/2024	15	OD & SCD processed simultaneously
			Average	**5**	
Service-Connected	CC	11/15/2023	11/14/2024	12	
	CJ	6/26/2023	11/14/2024	17	HFD WC delays
	JG	9/29/2023	11/12/2024	14	
	MS	6/11/2024	11/12/2024	5	
	JB	1/9/2024	11/18/2024	11	
	DR	3/12/2024	11/18/2024	9	
			Average	**11**	

Finals Report
Board of Trustees Meeting
December 31, 2024

Finals Production as of December 31, 2024

2024													
Retirements Filed	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Total**
LY Finalized	**150**	**225**	**245**	**269**	**284**	**250**	**273**	**301**	**282**	**270**	**214**	**215**	**2978**
TY Projection	*170*	*180*	*200*	*220*	*220*	*220*	*220*	*230*	*230*	*230*	*230*	*230*	*2580*
Actual (filed)	**242**	**286**	**179**	**185**	**204**	**203**	**275**	**163**	**206**	**180**	**193**	**175**	**2491**
Ord. Death	11	6	0	7	0	5	4	4	3	4	2	5	51
RMD	6	0	1	0	0	0	0	0	0	2	0	0	9
Total Finalized	**259**	**292**	**180**	**192**	**204**	**208**	**279**	**167**	**209**	**186**	**195**	**180**	**2551**
Begin Pending	794	1139	937	847	786	674	741	684	702	633	578	523	
New Retirements	580	83	82	112	86	264	212	174	133	122	136	158	2142
Add'l (BOT & svc adj.)	7	1	7	12	6	6	6	7	4	3	2	6	67
Completion	-242	-286	-179	-185	-204	-203	-275	-163	-206	-180	-193	-175	-2491
End Pending	**1139**	**937**	**847**	**786**	**674**	**741**	**684**	**702**	**633**	**578**	**523**	**512**	

1. Highlights

- o 180 cases were finalized and paid in December.
- o 175 Retirements, including 5 disability retirements and 0 RMD.
- o 5 Active death monthly pension

- 1 case was finalized with Act 134 Interest paid totaling $8.88.
  - o $8.88 average interest paid.
- 25 Anti-spiking (Act 153) cases
- 512 Service and Disability retirements pending finalization.
  - o Continue finalizing July 2024 retirements with 100% of the cases within benchmark.
- Resources are currently at 5 Retirement Claims Examiner IV at full-time status.

2. Aging Status Standard: To finalize pensions within 6 months or interest starts on the 7th month.

Pending Status:
Backlog Cases over 6 months: 0 (0%) including 0 Disability retirements.
Benchmark Cases within 6 months: 512 (100%) including 13 Disability retirements.
512

3. Re-Finalization (On Hold)

- o Pay adjustments due to late HIP reporting and retroactive pay increases per CBA add to backlog.
- o Hazard Pay refinals.

Domestic Relations Orders (DROs) submitted to ERS for review (7/1/2024 - 12/31/2024)

Type of DRO Rec'd

Court-Filed Pre-Retirement	12
Court-Filed Post-Retirement	15
Proposed Pre-Retirement	6
Proposed Post-Retirement	2
Total Rec'd	**35**

Status of DRO

Total Pending Review (Waiting for $300 fee to be cleared)	2
Total Rejected (Court-Filed and Proposed DROs) (Preliminary review does not pass and DRO & payment is returned)	8
Total Qualified (Court-Filed DROs)	21
Total Denied (Court-Filed DROs) (Preliminary review passes but DRO does not meet our ERS requirements, payment is kept)	0
Total Meets Requirements (Proposed DROs)	4
Total Does Not Meet (Proposed DROs) (Preliminary review passes but DRO does not meet our ERS requirements, payment is kept)	0
Total Rescinded/Cancelled by Requestor	0
Total	**35**

DROs qualified and payments processed to Alternate Payees (APs)

Total Processed in 2024 (7/1/2024 - 12/31/2024)	13
Total	**13**

Request for Information (RFI) (7/1/2024 - 12/31/2024)

RFI Submitted by

Submitted by Member/Retirant or Attorney for Member/Retirant	10
Submitted by Alternate Payee (AP) or Attorney for AP	16
Total Rec'd	**26**

Status of RFI

Total Pending Review/Response	1
Total Rejected	13
Total Fulfilled	12
Total	**26**

ERS Customer Satisfaction Survey Feedback for 2024 (October - December 2024)

	Oct	Nov	Dec	TOTAL
TOTAL WALK INS (FROM OPS REPORT)	652	565	524	1741
REASON FOR VISIT				
Questions about benefits & eligibility	28	17	8	53
Filing for retirement	27	32	12	71
Filing for other benefits	2	4	0	6
Pension/tax info	8	6	3	17
Dropping off forms	11	9	7	27
Other	7	3	4	14
TOTAL	**83**	**71**	**34**	188
HAVE AN APPOINTMENT?				
YES	13	9	10	32
NO	46	36	16	98
QUESTIONS ANSWERED CLEARLY?				
Strongly Agree	49	41	26	116
Agree	6	2	0	8
Neither Agree nor Disagree	4	2	0	6
Disagree	0	0	0	0
Strongly Disagree	0	0	0	0
RATE OVERALL EXPERIENCE				
Very Satisifed	54	40	26	120
Satisfied	2	2	0	4
Neither Satisfied nor Dissatisfied	3	2	0	5
Dissatisfied	0	1	0	1
Very Dissatisfied	0	0	0	0

Effective 10/1/2024, ERS implemented the ERS Customer Satisfaction Survey via electronic method (w/paper option) using SurveyMonkey

As of 12.31.2024

ERS Customer Survey Comments
October - December 2024

#	Month	Comment
1	October	Very efficient office in receptionist and advisor.
2	October	Everything was handled quickly and without any hassle. Also received very helpful info over the phone this morning from a different counselor. (Didn't get his name)
3	October	The RCE was able to help me understand my eligibility benefits for my future retirement. She's very knowledgeable. Thank you!
4	October	The RCE was knowledgeable and explained about starting the retirement process. He is caring and comfortable to talk to. He gave me some estimates of my pension benefit and spoke to me about the importance of having a beneficiary in place. Thank you for providing the information to people like me who are used to speaking face-to-face. Aloha and Mahalo.
5	October	Very thorough, efficient and explanatory. Friendly too.
6	October	He was very patient and took the time for any questions or concerns and answered to the best of his knowledge.
7	October	Always excellent service from everyone, from elevator, receptionist and the RCE
8	October	Very informative and courteous!
9	October	They were professional and courtesy!
10	October	Very thorough with the steps to retire
11	October	Thank you, ERS & the RCE for your excellent assistance to your fellow state employees!
12	October	The RCE is very helpful and kind
13	October	Great!
14	October	The receptionist was very friendly and polite
15	October	Very good! Informative! Great service.
16	October	Please take time to listen before answering.
17	October	I have been to ERS twice. The representatives are exceptional from check in to the interview. Excellent customer service!!
18	October	The RCE was so warm and considerate yet full of professionalism and class. Felt like family!
19	October	She was very patient and understanding.
20	October	The RCE was EXCEPTIONAL. I was so nervous and she just calmed me down and was so patient with me and ALL my questions.
21	October	Mahalo for all that ERS does and very cordially at that.
22	October	The receptionist and the RCE were very efficient, empathetic and so helpful. We appreciate their help very much!
23	October	So appreciated for her clear advices.
24	October	Mahalo!
25	October	He was helpful and answered all my question.
26	October	Great service
27	October	Excellent service!
28	October	Excellent
29	October	Mahalo to the RCE for your kokua!
30	October	Awesome, very fast!!!
31	October	The RCE was very patient, kind, and provided great information.
32	October	The RCE is professional and knowledgeable. Moreover I feel he cares about the clients' needs. He listens carefully addressing each situation respectfully as unique. As in the wise parable of the child who helped the starfish on the beach, each life is precious. The RCE is a special staff serving your clients from the heart. Thank you for your service and commitment to the people of Hawai'i.
33	October	The RCE was very helpful in answering all my questions.
34	October	The RCE was very informative and answered my questions.
35	October	Very friendly knowledgeable timely very satisfied
36	October	Grateful for the meeting.
37	October	He was awesome
38	October	The RCE was very helpful in answering my questions. He was patient and didn't make me feel rushed even though I didn't have an appointment. He was easy to talk to and explained things well
39	October	Very thorough with the steps to retire
40	October	The receptionist was great too but I didn't catch her name
41	October	They were professional and courteous
42	October	Great service. Friendly staff.
43	October	The RCE was very informative and helpful. Very engaging and made me feel comfortable.
44	November	The RCE was very thorough and explained everything clearly. Thank You!
45	November	I emailed last minute questions and received prompt and helpful info. My visit today went smoothly and efficiently. very grateful for ERS services.
46	November	Excellent, efficient, friendly service 10 out of 10. Thank you!

ERS Customer Survey Comments
October - December 2024

#	Month	Comment
47	November	Great help 100% all the time.
48	November	Friendly and excellent people and service
49	November	I greatly appreciate the services provided by ERS.
50	November	Excellent service very knowledgeable! ERS rep - Give him a raise!
51	November	The RCEs worked hard to audit my file given two mistakes made by my employer. They were very informative and helped me understand the situation. Both were very responsive and helpful! Thank you!
52	November	The RCE is very clear in the benefits questions that we ask. He was very professional and I would recommend him anytime
53	November	The RCE answered most of my questions. Had a nice time talking to her.
54	November	Very thorough and helpful!
55	November	I was told that ERS staff was very helpful and its true! Mahalo
56	November	The ERS representative answers all my questions with detail. I am very happy with the said service.
57	November	Wonderful office staff
58	November	Both the receptionist and RCE were very helpful and knowledgeable really appreciate their time and assistance mahalo!
59	November	Very good service and communication was very clear.
60	November	I appreciate the RCE for his clear explanations and helping me with my peace of mind.
61	November	Everyone was friendly and knowledgeable. Service was prompt. No line.
62	November	The RCE and the ERS staff were very helpful and hospitable. Thank you!
63	November	There were two ladies that helped me but I can't remember their names. They were both awesome at answering my questions and helping me with the paperwork I had to fill out. Definitely going to my transition into retirement very easy and comfortable knowing that I'm going to be able to get the best help in my decisions. Keep up the great work!!!
64	November	I have made three calls prior to coming in, every call was excellent. Each individual was very patient with my questions and I truly felt they were there for me and happy to help. I did not feel rushed off the phone at all.
65	November	Great job ERS!
66	November	Service was excellent! The RCE helped me to fill out the forms which helped me greatly as I was so apprehensive about doing it myself. She greatly helped me to allay my fears about this process and answered my questions and the questions my husband asked too. She was very, very nice and so helpful!
67	November	The RCE was very knowledgeable, professional and helpful. The front desk staff were very helpful as well.
68	November	Awesome representative
69	November	Great customer service, especially front desk secretary/clerk. Thank you!!
70	November	Such a good operation you guys have over there. I didn't even have an appointment and someone saw me really quickly. The RCE was amazing. I'm gonna say it again. The RCE was amazing. I'm gonna say it again. The RCE was amazing.
71	November	I appreciate the thorough process and the absence of the need to pry into personal matters. Quick process.
72	November	Excellent and very satisfying. Tank you!
73	November	Went in without an appt, serviced quickly, in and out of office within 30 minutes. Everyone was helpful and pleasant.
74	November	I missed the parking lot and had to drive around for a second try.
75	November	The RCE was very helpful and knowledgeable. It was a warm welcoming with an excellent service. She went beyond what was expected. I also thank the person at the reception desk for her service by being helpful, friendly and a warm welcome.
76	December	The RCE has been very helpful with answering my questions. She is very friendly and approachable. Very patient with answering my questions
77	December	Very good. The RCE was very thorough.
78	December	Everyone at ERS has been very helpful I appreciate everyone
79	December	Mahalo to the RCE for giving me peace of mind. Much appreciated!
80	December	Excellent service. The RCE was very professional in assisting me in processing my application. He provided clear answers to my questions on retirement and gave me information that I needed but didn't know about. A very positive meeting for a future retiree to negotiate the at times unclear and somewhat difficult process. I hope meeting the EUTF is made equally as straightforward. Keep up the good work. Thank you.
81	December	Everything went well from the front, she was so helpful and friendly and even the RCE. Answer all the questions I had and helped me, very friendly and helpful. Appreciate all the help.
82	December	The staff is very nice and very professional
83	December	The RCE was very good and thorough.
84	December	The RCE was so helpful and clear in his explanation. He was patient and very pleasant to work with.
85	December	The RCE is very knowledgeable and friendly. I felt he was sincere in helping me file my papers for retirement. Good job. It was nice to be able to speak with someone face to face and the wait time was short.

ERS Customer Survey Comments
October - December 2024

#	Month	Comment
86	December	very good, keep up the good work.
87	December	Great
88	December	Answered all the questions I need. Very knowledgeable in what he does. I would recommend him anytime
89	December	Easy to work with.
90	December	Great Service Hana Hou
91	December	Very helpful with the forms. Really very appreciative of the help!!
92	December	The RCE was very patient with my questions. He was also very knowledgeable and willing to look for the information I asked about. Overall, I feel informed and satisfied
93	December	The RCE was very professional, thorough, was able to answer all my questions, and was helpful and cordial.
94	December	The RCE took my phone call yesterday and was very helpful. He went above and beyond in providing excellent service by taking me in because of my situation. The Maui RCE was also very kind and helpful.
95	December	My husband and I met with the ERS representative and was very impressed with professional demeanor and enthusiastic upbeat personality. He took the time to answer any and all questions I had about the many decisions that I have to make. As far as improvements to the process, you need to find more personnel like the RCE!
96	December	Very welcoming. Plenty aloha. convenient, pleasant atmosphere and environment
97	December	Great service - Happy Holidays

Effective 10/1/2024, ERS implemented the ERS Customer Satisfaction Survey via electronic method (w/paper option) using SurveyMonkey

January 1, 2025

Disability Applications Status Report

I. Total and Pending Disability Applications as of December 23, 2024

The table below provides the (1) Total Applications filed and (2) Total Pending.

Application Types	2024	2023
Ordinary		
Pending	36	1
Applications Filed	82	85
Service-Connected		
Pending	40	12
Applications Filed	56	53
Total Pending	**76**	**13**
Total Applications Filed	**138**	**138**

Note: The total applications filed do not include canceled/withdrawn disability applications.

II. Aging Report- As of December 23, 2024

The table below provides the number of months the disability application is overdue based on the Standard and whether the application is pending with the Medical Board or ERS.

Application Types	Ordinary	Service Connected
Standard	6 months	14 months

	2023	Aging	Pending	
Application Type	**Date Application Filed**	**No. of Months**	**with MB**	**with ERS**
Ordinary	1. 02/17/23	22	x	
Service-Connected	1. 03/24/23	21	x	
	2. 05/17/23	19		x
	3. 05/22/23	19	x	
	4. 07/21/23	17	x	
	5. 07/24/23	17	x	
	6. 08/31/23	16	x	
	7. 09/26/23	15	x	
	8. 09/27/23	15	x	
	9. 10/12/23	14	x	
	10. 10/23/23	14	x	
	11. 10/24/23	14	x	
	12. 11/24/23	13	x	

	2024	Aging		
Application Type	**Date Application Filed**	**No. of Months**	**with MB**	**with ERS**
Ordinary	1. 1/18/2024	11	x	
	2. 3/1/2024	10	x	
	3. 5/7/2024	7		x
	4. 5/10/2024	7	x	
	5. 7/1/2024	5	x	
	6. 7/3/2024	5	x	
	7. 7/10/2024	5	x	
	8. 7/16/2024	5		x
	9. 7/19/2024	5	x	
	10. 7/24/2024	5		x
	11. 7/25/2024	5	x	
	12. 7/26/2024	5	x	
	13. 8/2/2024	4		x
	14. 8/14/2024	4		x
	15. 8/23/2024	4	x	
	16. 8/28/2024	4	x	
	17. 9/3/2024	3		x
	18. 9/3/2024	3	x	
	19. 9/4/2024	3		x
	20. 9/18/2024	3		x
	21. 9/20/2024	3	x	
	22. 9/30/2024	3	x	
	23. 10/8/2024	2		x
	24. 10/17/2024	2		x
	25. 10/18/2024	2		x
	26. 10/18/2024	2	x	
	27. 10/18/2024	2		x
	28. 10/25/2024	2		x
	29. 10/28/2024	2		x
	30. 10/28/2024	2		x
	31. 11/4/2024	1		x
	32. 11/7/2024	1		x
	33. 11/18/2024	1		x
	34. 11/21/2024	1		x
	35. 11/25/2024	1		x
	36. 12/2/2024	1		x
Accidental Death	1. 1/16/2024	11		x
Service-Connected	1. 1/18/2024	11		x
	2. 1/19/2024	11	x	
	3. 2/27/2024	10		x
	4. 3/14/2024	9		x
	5. 3/15/2024	9	x	
	6. 3/21/2024	9	x	
	7. 3/28/2024	9		x
	8. 4/16/2024	8		x
	9. 4/22/2024	8	x	
	10. 4/26/2024	8		x

	2024	Aging		
Application Type	**Date Application Filed**	**No. of Months**	**with MB**	**with ERS**
Service-Connected	11. 5/7/2024	7		x
	12. 6/12/2024	6	x	
	13. 6/27/2024	6		x
	14. 6/28/2024	6		x
	15. 7/16/2024	5		x
	16. 7/16/2024	5		x
	17. 7/17/2024	5		x
	18. 7/18/2024	5	x	
	19. 7/25/2024	5	x	
	20. 7/30/2024	5	x	
	21. 8/14/2024	4		x
	22. 8/26/2024	4	x	
	23. 9/3/2024	3		x
	24. 9/4/2024	3		x
	25. 9/4/2024	3		x
	26. 9/5/2024	3		x
	27. 9/16/2024	3		x
	28. 9/18/2024	3		x
	29. 10/8/2024	2		x
	30. 10/17/2024	2		x
	31. 10/17/2024	2		x
	32. 11/7/2024	1		x
	33. 11/7/2024	1		x
	34. 11/15/2024	1		x
	35. 11/18/2024	1		x
	36. 11/18/2024	1		x
	37. 11/29/2024	1		x
	38. 12/2/2024	1		x
	39. 12/4/2024	1		x

Employees' Retirement System of the State of Hawaii

Accounting Branch

Larry Wolfe, Accounting Manager

January 13, 2025

ERS Accounting Branch Short term and Intermediate Goals:

1. Employer Compliance Testing (Act 87, SLH 2015) Reporting Team
    - Payroll reporting issues - continuing with RBB, Accounting and Chief Compliance Officer
    - KMH LLP contracted to assist Employer Team for first year testing at employers
2. Payroll reporting issues including Temporary Hazard Pay (THP) Payments
    - Work Report Team - continuing with RBB, Accounting and Chief Compliance Officer on issues – posting of THP
3. Financial Auditor – KKDLY LLP
    - Starting Fiscal Year 2024 Audit
4. Procurement
    - Working on Fiscal Year 2025 procurements

ERS Accounting Branch Short term and Intermediate Goals (continued):

5. ERS Policy and Procedures documentation
   - Work on additional accounting policy and procedure documentation
   - Leverage resources from contractors (such as internal auditor and custodian bank).
6. Increase Staff development training and hiring
   - Increase staff training and resources available such as external service providers
   - 4 vacancies (or 20%) in recruitment process
7. Expand investment reporting to include new services with Custodian Bank
   - Expand investment reporting on Custodian Bank contract with Investments Team

2025
BOARD OF TRUSTEES OF THE EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

OFFICERS & COMMITTEE ASSIGNMENTS

BOARD MEMBERS
Emmit Kane, Chair
Lance Mizumoto, Vice Chair
Vincent (Vince) Barfield
Catherine Chan
Genevieve (Genny) Gines Ley
David Louie
Luis Salaveria
Bennett Yap

INVESTMENT COMMITTEE (2/20/24)
Lance Mizumoto, Chair
Bennett Yap, Vice Chair
Vincent (Vince) Barfield
Emmit Kane

ADMINISTRATIVE & AUDIT COMMITTEE (1/31/24)
Catherine Chan, Chair
Vincent (Vince) Barfield, Vice Chair
Genevieve (Genny) Gines Ley
Luis Salaveria

LEGISLATIVE COMMITTEE (2/2/24)
Bennett Yap, Chair
Genevieve (Genny) Gines Ley, Vice Chair
Lance Mizumoto
~~Luis Salaveria~~ David Louie

HUMAN RESOURCES COMMITTEE (2/12/24)
Vincent (Vince) Barfield, Chair
Genevieve (Genny) Gines Ley, Vice Chair
Catherine Chan
~~Luis Salaveria~~ David Louie

GOVERNANCE POLICY COMMITTEE
Emmit Kane, Chair
(Board Chair)
Lance Mizumoto, Vice Chair
(Board Vice Chair & Investment Committee Chair)
Vincent (Vince) Barfield
(Human Resources Committee Chair)
Catherine Chan
(Administrative & Audit Committee Chair)
Bennett Yap
(Legislative Committee Chair)

2024 Chair and Vice Chairs noted until selection for 2025.

Draft: Jan 13, 2025
Accepted:

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LIEUTENANT GOVERNOR

STATE OF HAWAIʻI
EMPLOYEES' RETIREMENT SYSTEM

THOMAS WILLIAMS
EXECUTIVE DIRECTOR

GAIL STROHL
DEPUTY EXECUTIVE DIRECTOR

January 13, 2025

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

FROM: Thomas Williams, Executive Director
Employees' Retirement System of the State of Hawaii

SUBJECT: Annual Actuarial Valuation Report for June 30, 2024

Attached for your review and approval is the Actuarial Valuation Report as of June 30, 2024, as prepared by Gabriel, Roeder, Smith and Company, actuaries for the Employees' Retirement System of the State of Hawaii.

Board Action Requested: Approval of Annual Actuarial Valuation Report for the Year Ending June 30, 2024.

Attachments

Employees' Retirement System
of the State of Hawaii

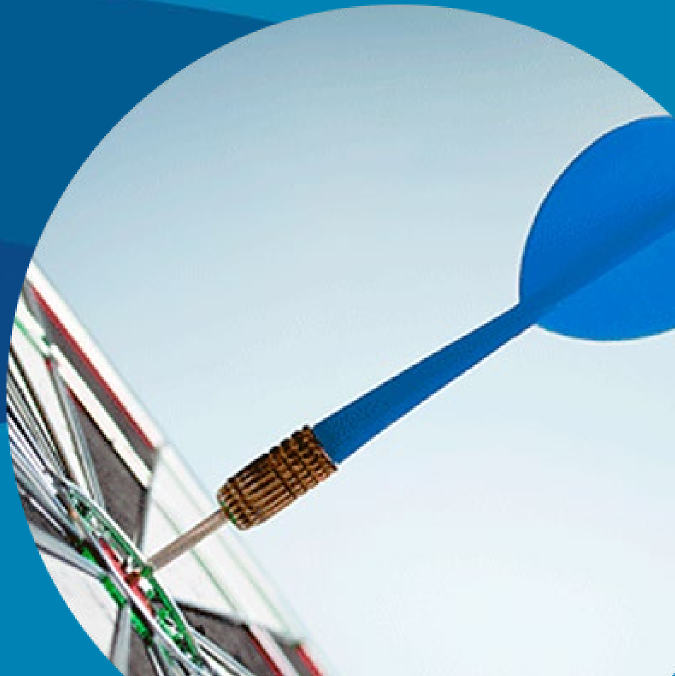
City Financial Tower • 201 Merchant Street, Suite 1400 • Honolulu, Hawaii 96813-2980
Telephone (808) 586-1735 • Fax (808) 586-1677 • http://ers.ehawaii.gov

Employees' Retirement System of the State of Hawaii

Actuarial Valuation Results for Fiscal Year Ending June 30, 2024

January 13, 2025

Prepared by
Joe Newton & Lewis Ward



Purpose of the Actuarial Valuation

- Annual “health checkup” of ERS

- The ***primary*** purpose is to assess the current contribution policy set in statute
  - Determine whether the current contribution rates are expected to fully amortize the unfunded actuarial accrued liability (UAAL) over a period of 25 years or less (Statutory Maximum)
  - Recommend changes if found not adequate
  - Recommend possible improvements in methods or policies

- Funding Period: the estimated number of years it will take to fully extinguish the current UAAL assuming current contributions remain in place and all assumptions are met

GRS

Actuarial Valuation Highlights

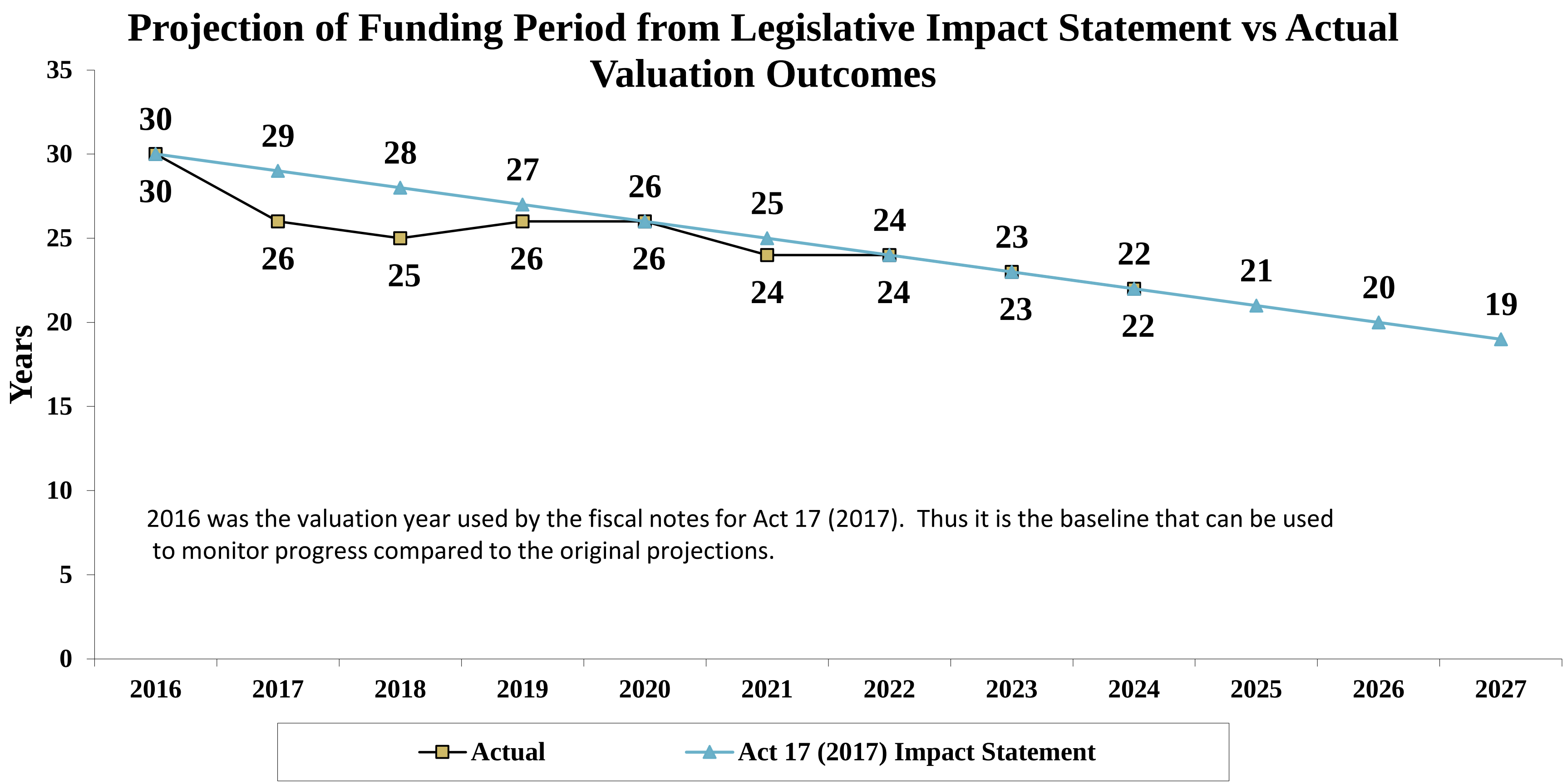
- Results are on track, if not ahead of, original projections from Act 17 (2017)

- The funding period decreased as expected from 23 years to 22 years
  - This is less than the current Statutory Maximum of 25 years for FY 2024

- The funded ratio improved from 62.2% to 63.0%
  - Funded Ratio: is the ratio of the actuarial assets to the actuarial liabilities

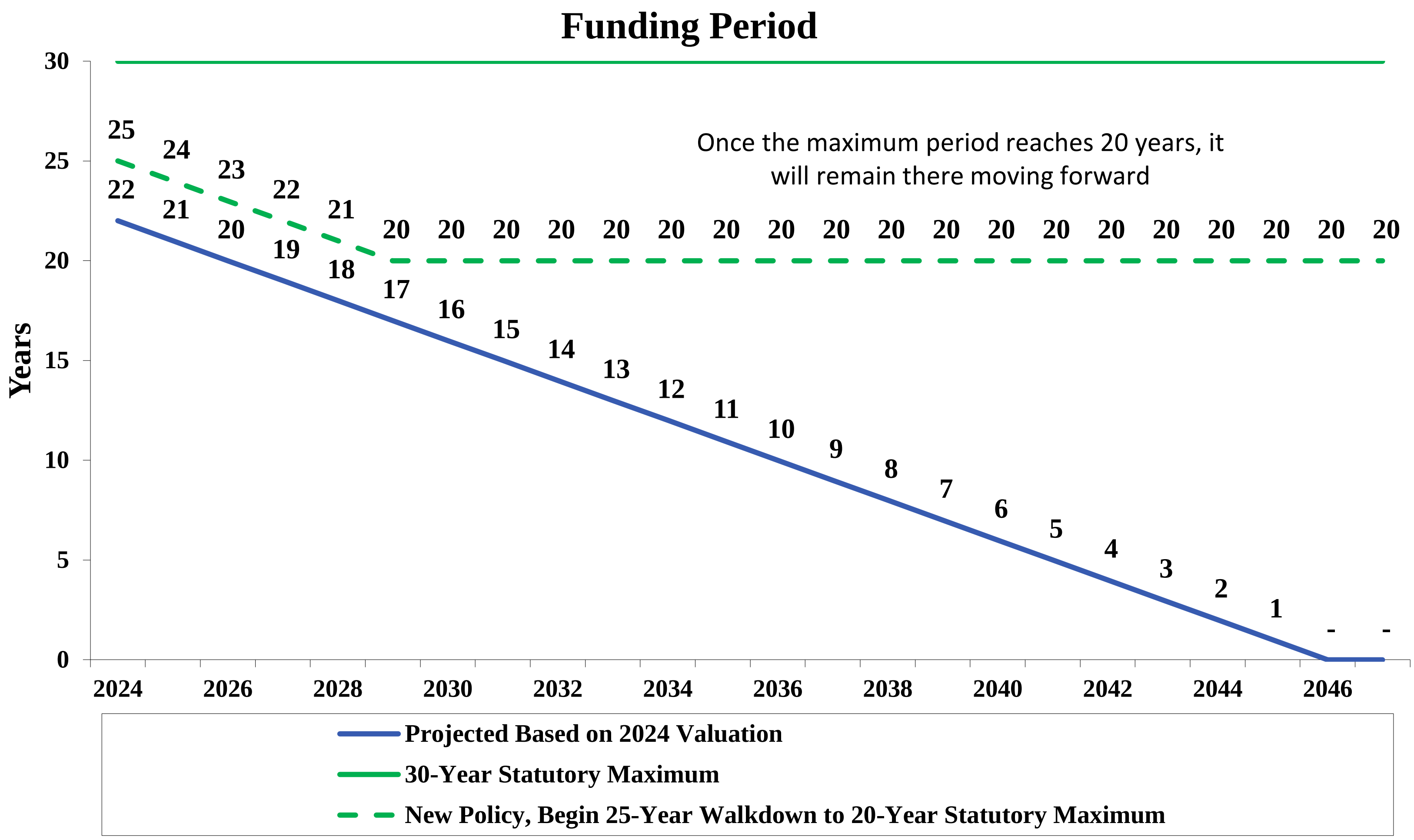
- The UAAL increased by approximately $300 million, from $13.7b to $14.0b
  - UAAL: the difference between the actuarial liabilities and the actuarial assets
  - While the UAAL was expected to increase, this increase was considerably larger than expected
  - Caused by larger than expected salary increases
    - 7.0% on average vs 4.8% expected for All Other Employees
    - 6.2% on average vs 5.7% expected for Police and Fire

The Funding Period as of 2024 continues to track with the original projections from Act 17 (2017)

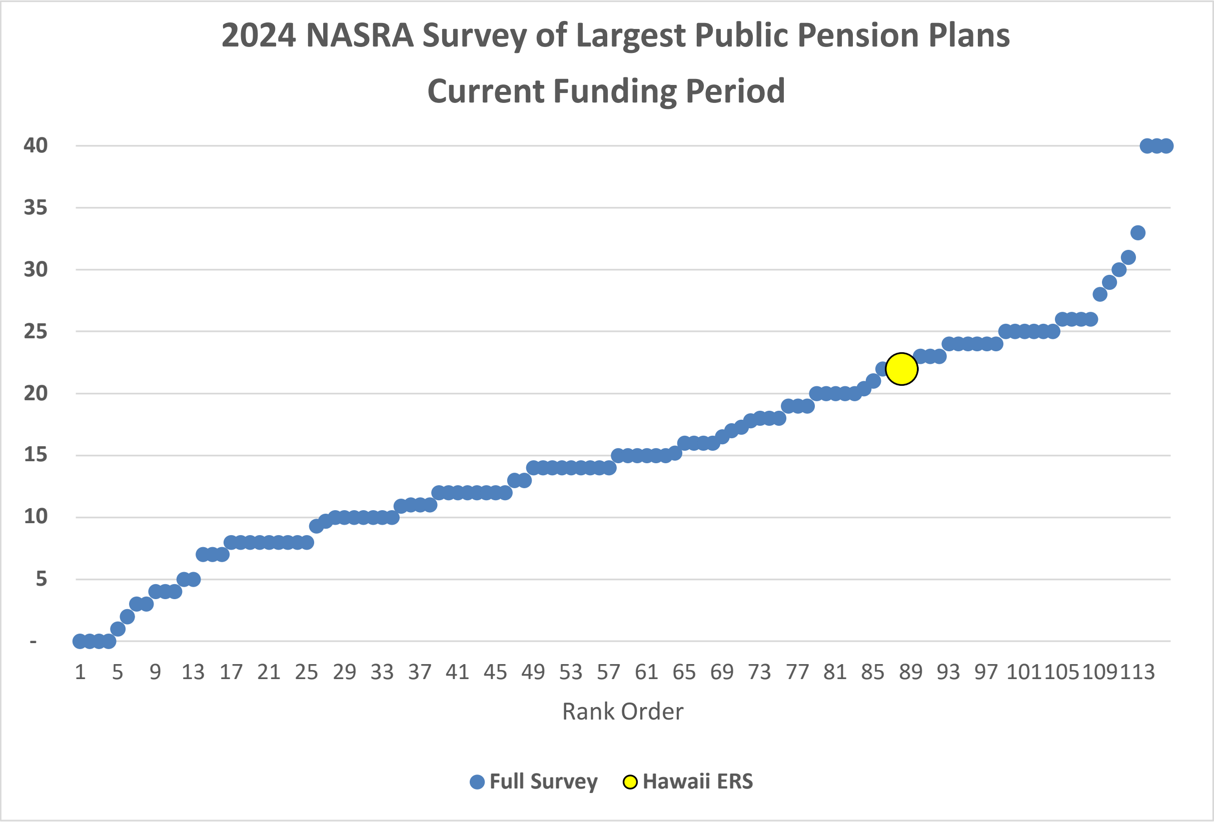


Assumes all assumptions met, including 7.00% return each year on the June 30, 2024 smoothed value of assets

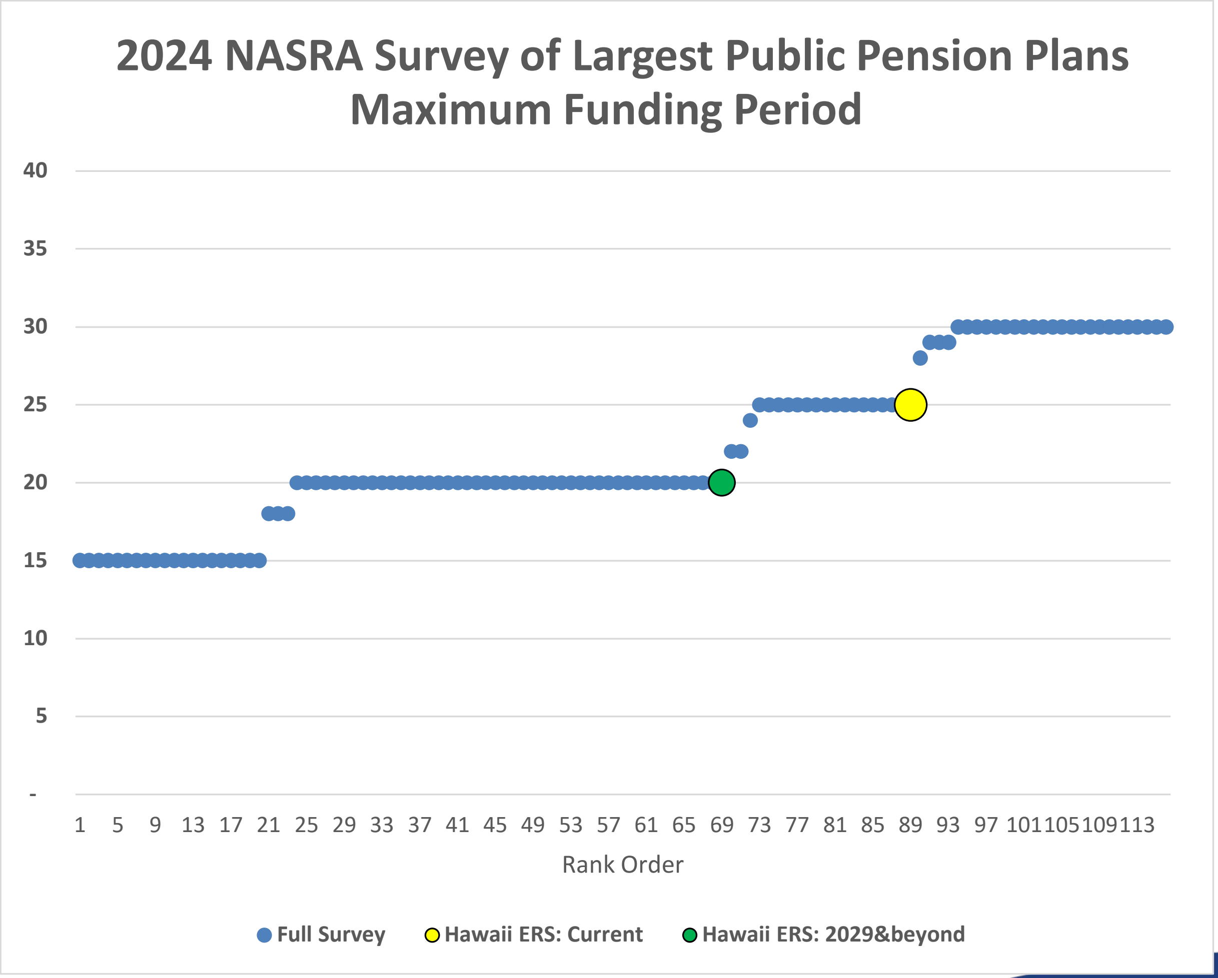
Act 192 (2024) lowered the maximum allowable funding period from 30 to 25 years as of 2024, and begins a process of lowering the maximum period by 1 each year until reaching 20.



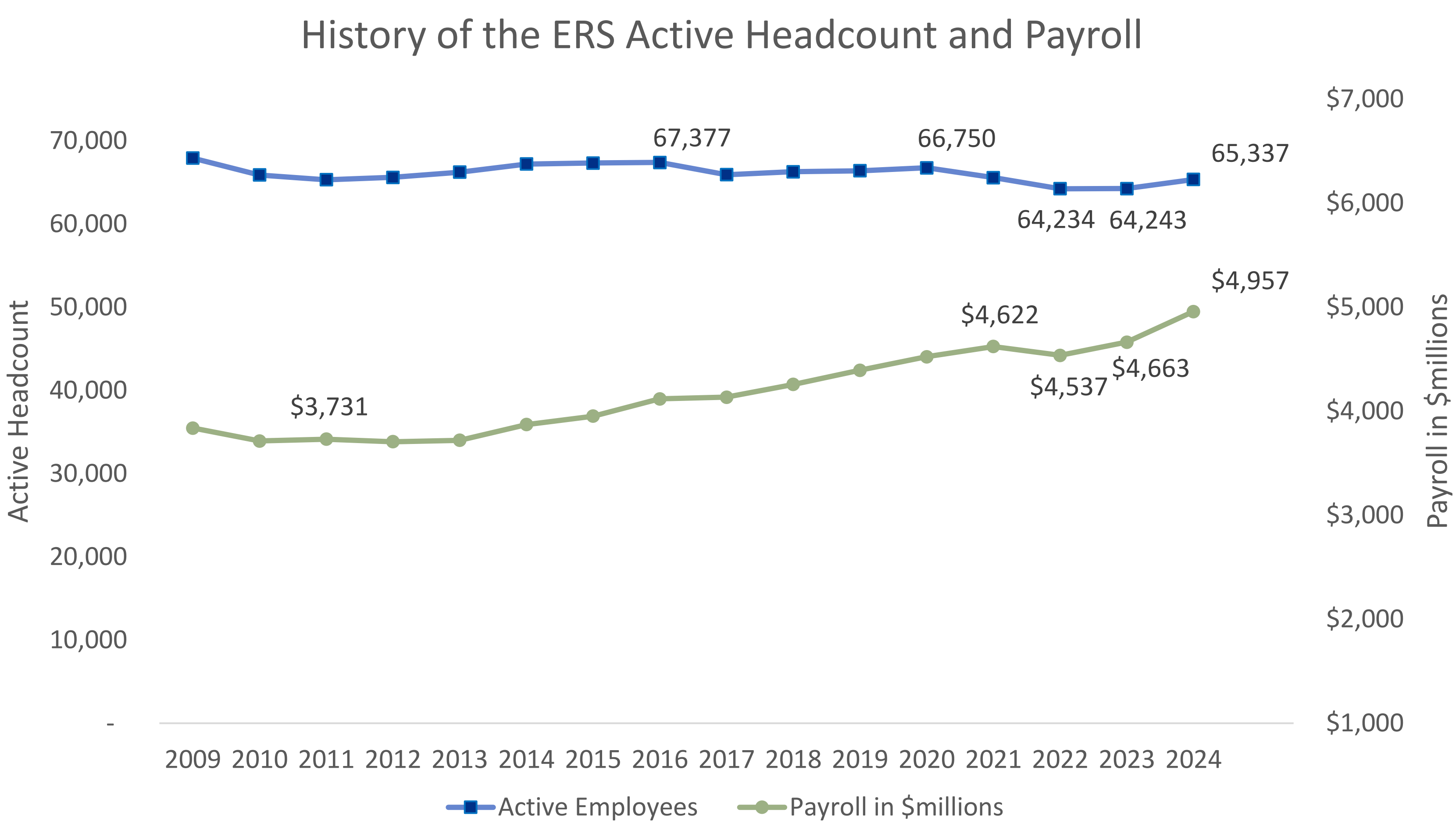
Compared to the 2024 NASRA survey of large public sector retirement systems, the current 22-year funding period is in the 74th percentile



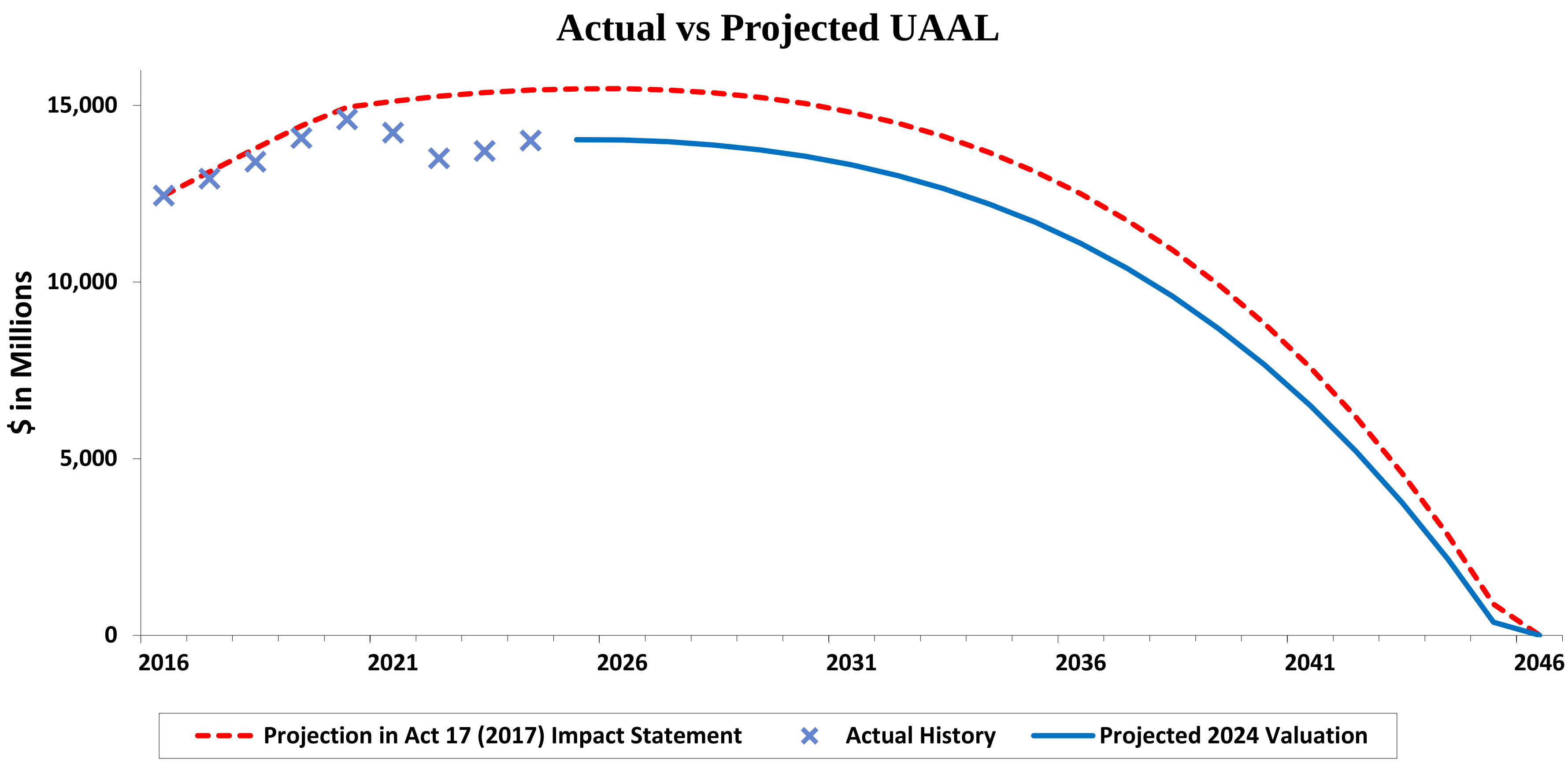
The new 20-year targeted statutory maximum funding period (as of June 30, 2029) is in line with best practices. Like Hawaii, many states with higher maximum funding periods have, or are discussing, lowering towards 20 years



The Headcount grew 1.7% from 2023 to 2024, back close to 2021 levels. This allowed covered payroll to grow and offset some of the impact from the salary increases. However, headcount is still 3% below the 67,377 used in the Act 17 (2017) impact statement.

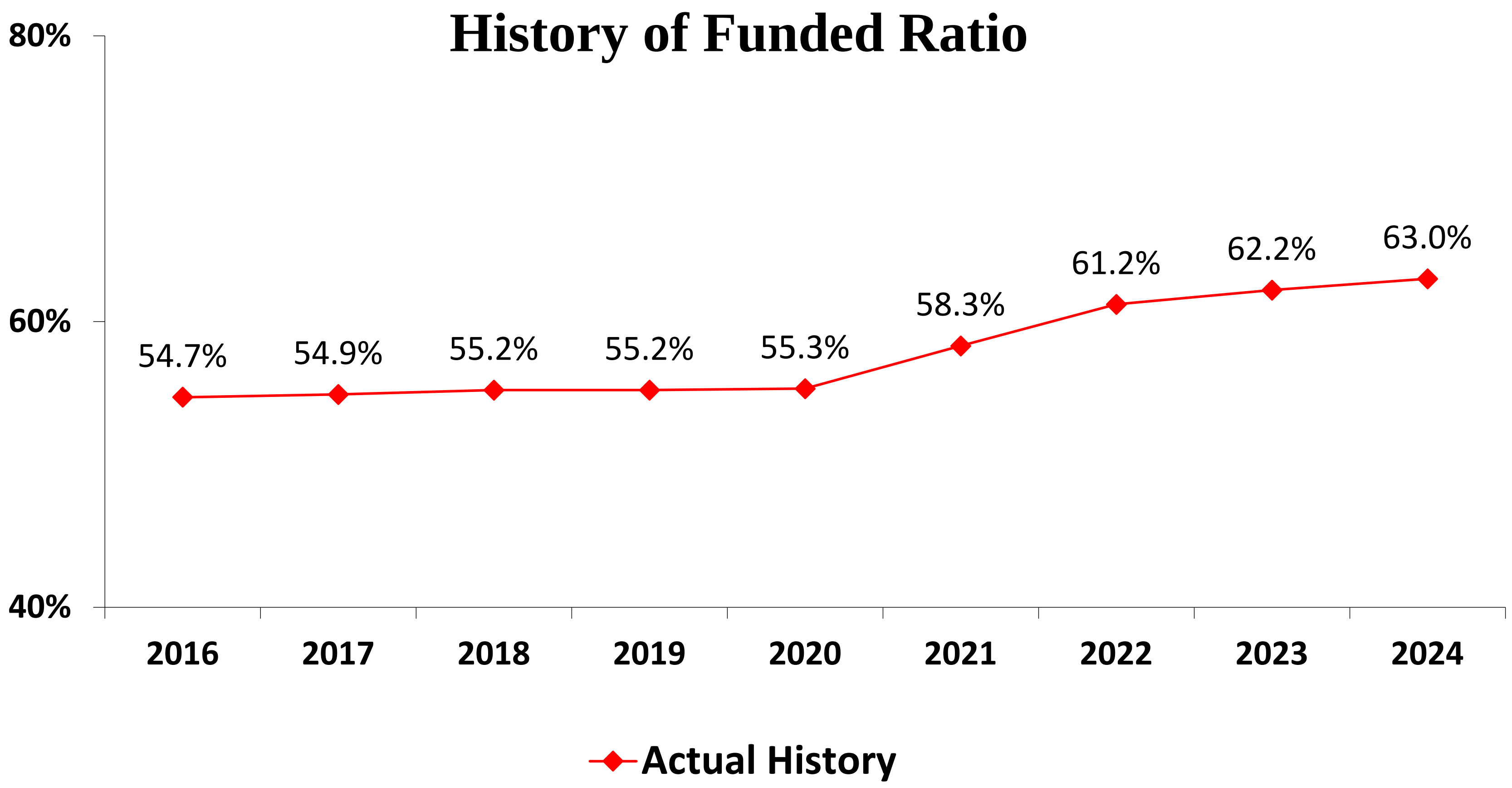


While the financing of the UAAL remains ahead of schedule, the process is still in the timeframe that the UAAL is expected to grow year over year. The UAAL is expected to begin to decline in FY26 or FY27.

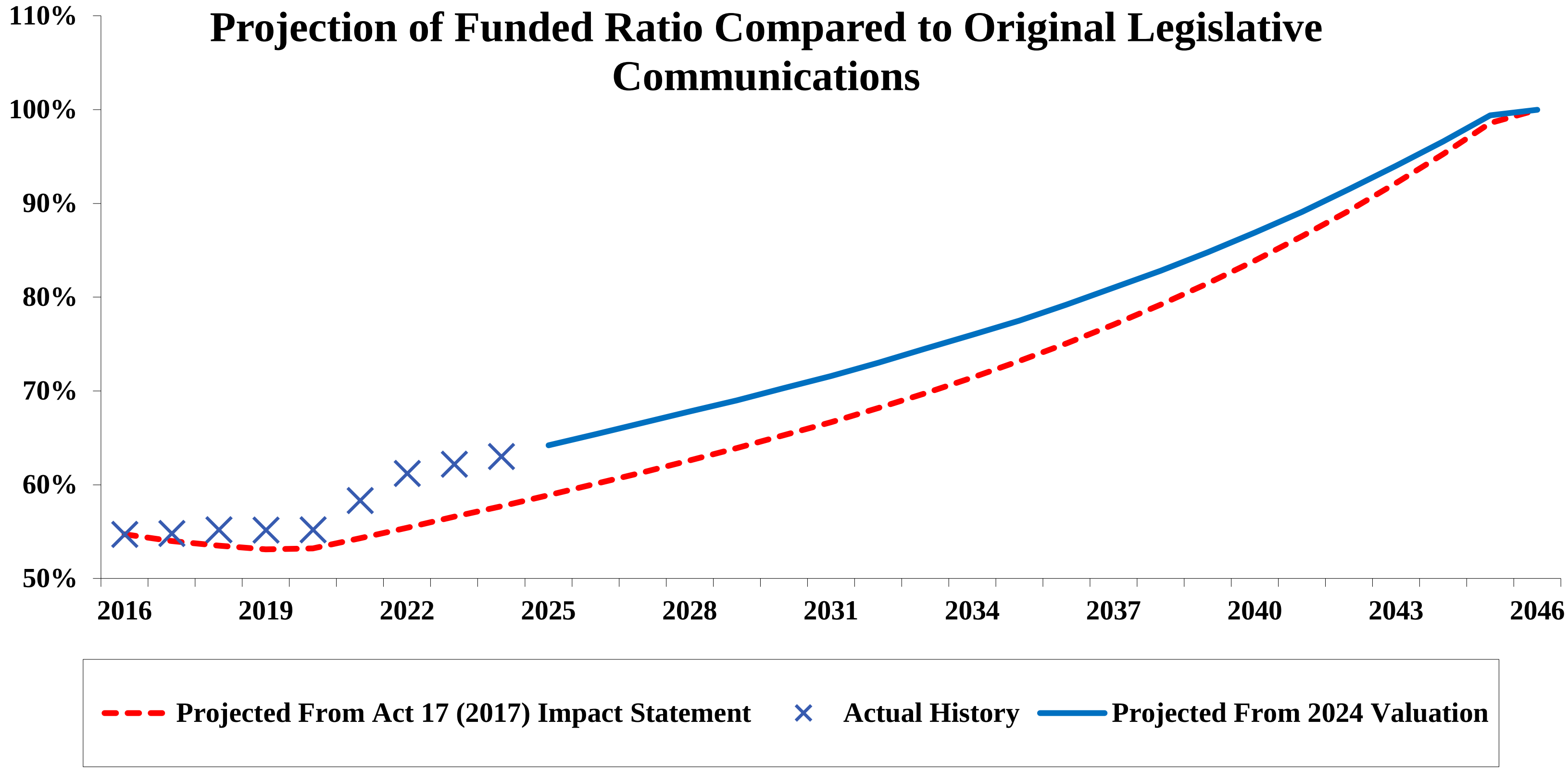


Assumes all assumptions met, including 7.00% return each year on the June 30, 2024 smoothed value of assets

After being relatively flat while the contribution increases were phasing in, the Funded Ratio continues to improve with the disciplined, higher contributions.

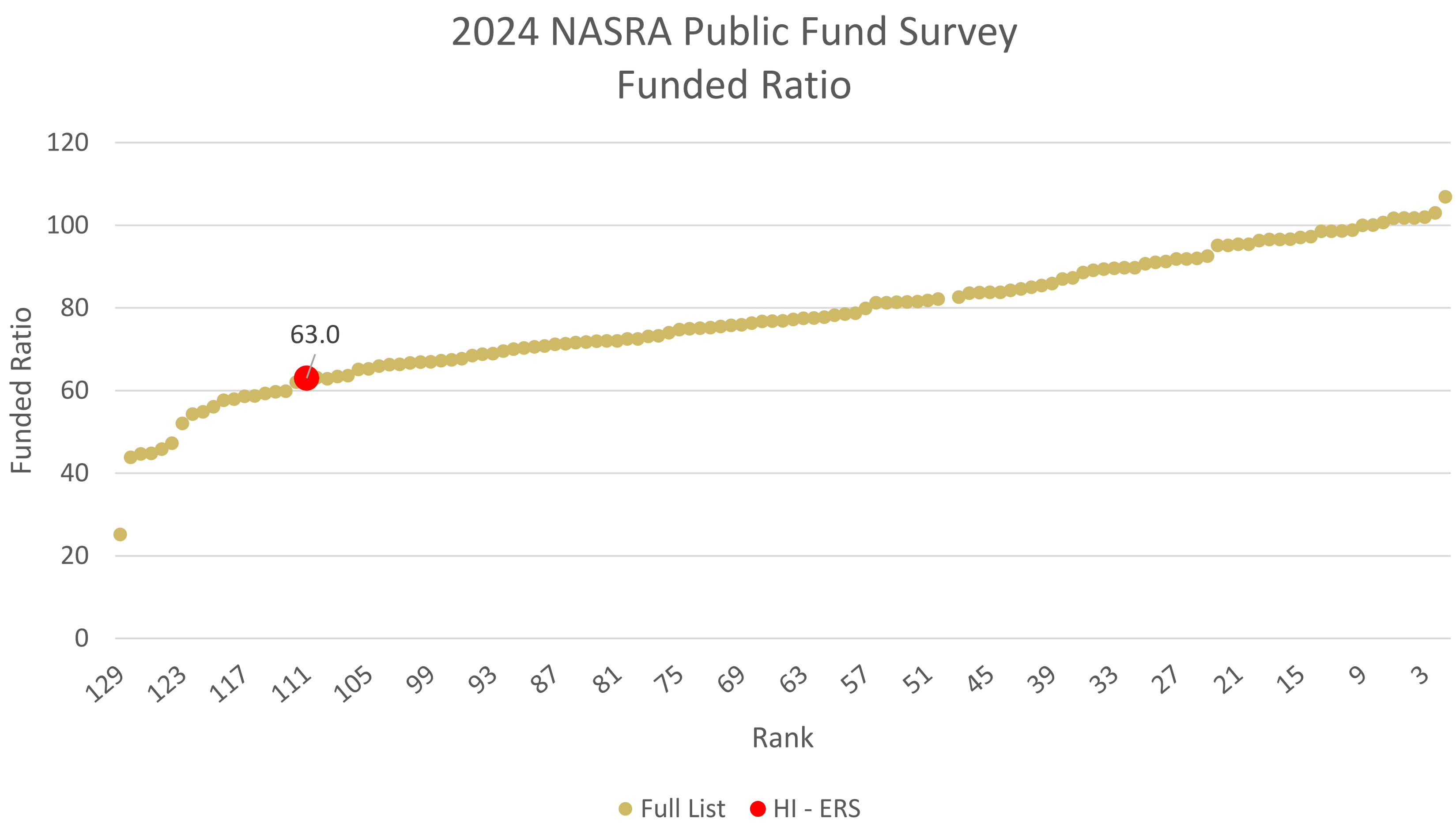


The Funded Ratio is still projected to reach full funding in 2046

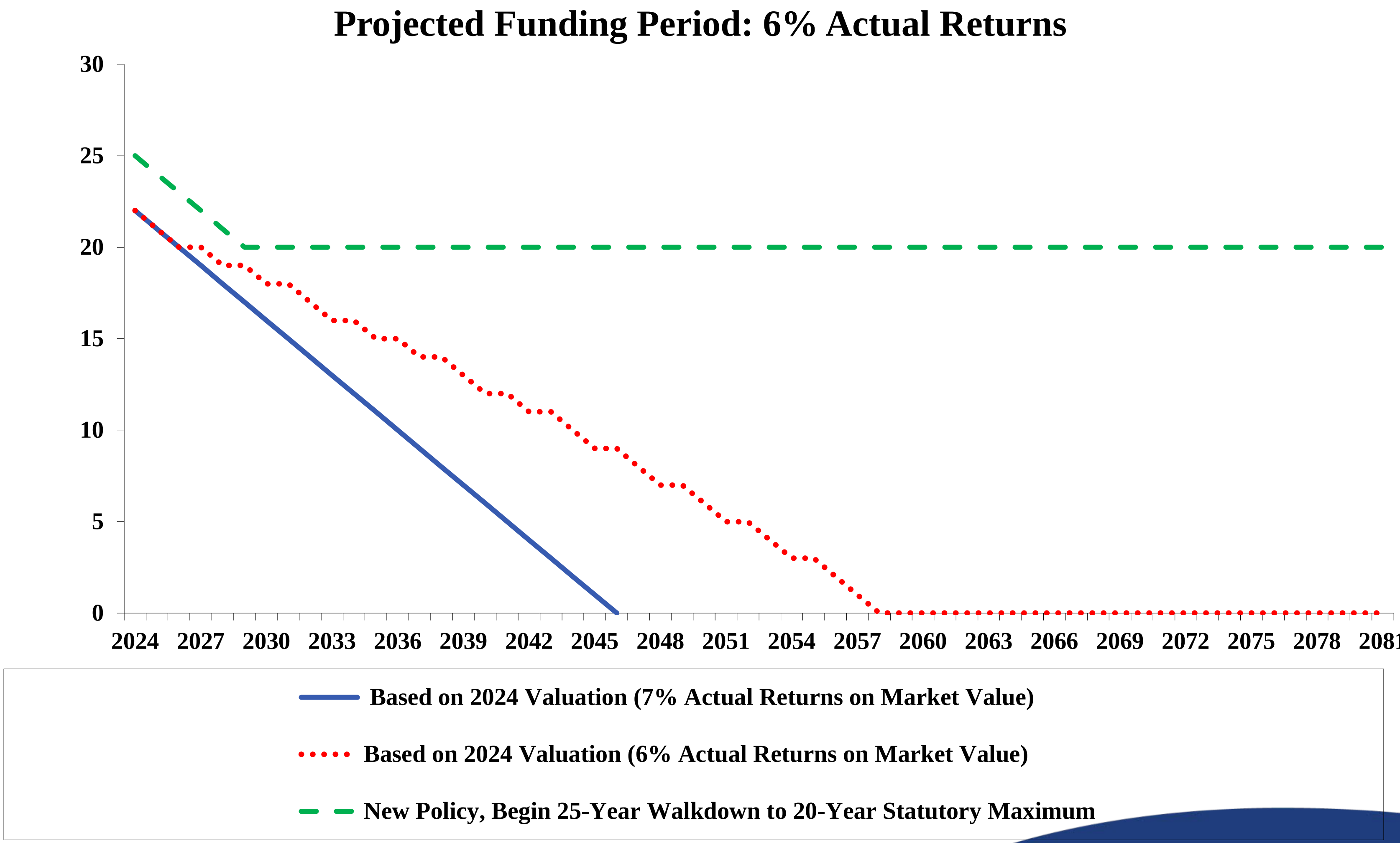


Assumes all assumptions met, including 7.00% return each year on the June 30, 2024 smoothed value of assets

For funded status, HI ERS ranks 110th out of 129 in the 2024 NASRA survey of large public sector retirement systems. The median system has a funded ratio of 77%.



The funding period under the new policy is not expected to breach the Maximum as long as ERS achieves 5.5% returns or better over the next 5 years



GRS

Funding Period Sensitivities

Assumes all other assumptions met

Scenario	Reach Positive Amortization	Reach Full Funding
8.0% Actual Returns	2 years	16 years
7.5% Actual Returns	2 years	19 years
7.0% Actual Returns*	2 years	22 years
6.5% Actual Returns	7 years	27 years
6.0% Actual Returns	14 years	34 years

Scenario	Reach Positive Amortization	Reach Full Funding
1% Annual Population Growth	2 years	20 years
0% Annual Population Growth**	2 years	22 years
1% Annual Population Decline	4 years	25 years

*Expected return assumption
**Expected growth assumption

Temporary Hazard Pay (THP) from 2020 through 2022

- There are ongoing settlements granting back pay for work during the pandemic
- Maui's known settlements are already in the 2024 valuation data and financials
- Employees (and retirees) of other employers will continue to receive payouts after this valuation period
- The total impact to the System is expected to be an increase in the UAAL of between $240 million – $350 million, and an increase of 6 – 12 months on the funding period, but could be less depending on several factors.
- Aside from Maui (whose payments occurred before the valuation date) we have not made an adjustment to the individual liabilities in the 2024 valuation for these payments but will wait and let the actual data develop over the next couple of valuation cycles, because
  - the negotiations are ongoing for some groups
  - the payments are after the valuation date
  - there are unknowns such as the amount of spiking revenue that will be generated
  - the impact could also be minimized by other salary increases
  - the result will not impact the contribution rates

GRS

Valuation Summary

- The disciplined commitment to follow the contribution schedule from Act 17 (2017) continues the process of strengthening the financial outlook for ERS.

- The scheduled employer contribution rates are expected to be adequate to satisfy Hawaii Revised Statutes §88-122(e)(1). The Statutory Stress Test shows this is true even with substantial adverse experience.

- Act 192 (2024), implementing the new maximum amortization period, will better protect the System over the long term

- The reduction in the maximum funding period will be viewed favorably by bond raters and satisfies all of the new Actuarial Standards of Practice

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF HAWAII

REPORT TO BOARD OF TRUSTEES ON THE 99th ANNUAL ACTUARIAL VALUATION
FOR THE YEAR ENDING JUNE 30, 2024

P: 469.524.0000 | www.grsconsulting.com

January 8, 2025

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

Dear Trustees:

SUBJECT: ACTUARIAL VALUATION AS OF JUNE 30, 2024

We certify that the information contained in the 2024 actuarial valuation report is accurate and fairly presents the actuarial position of the Employees' Retirement System of the State of Hawaii (ERS) as of June 30, 2024. There have been no adjustments for events which occurred after this date.

All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice (ASOP) issued by the Actuarial Standards Board. In our opinion, the results presented comply with the requirements of Hawaii statutes and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board. The undersigned are independent actuaries and consultants. One or more of them are an Enrolled Actuary and/or a Member of the American Academy of Actuaries. All are experienced in performing valuations for large public retirement systems.

This report was prepared at the request of the Board and is intended for use by ERS and those designated or approved by the Board. This report may be provided to parties other than ERS only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

ACTUARIAL VALUATIONS

The primary purpose of the valuation report is to determine the adequacy of the current employer contribution rate through measuring the resulting funding period, to describe the current financial condition of ERS, and to analyze changes in ERS's condition. In addition, the report provides various summaries of the data. This report may not be appropriate for other purposes. The information required by ERS in connection with Governmental Accounting Standards Board Statement Numbers 67 and 68 (GASB Nos. 67 and 68) will be provided in a separate report.

Valuations are prepared annually, as of June 30th of each year, the last day of ERS's plan year and fiscal year.

5605 North MacArthur Boulevard | Suite 870 | Irving, Texas 75038-2631

FINANCING OBJECTIVES

The employee and employer contribution rates have been set by Law and are intended to provide for the normal costs of ERS and to amortize the unfunded actuarial accrued liability (UAAL) over a reasonable amount of time, which will ensure benefit security and intergenerational equity. The funding period is the number of years until the unfunded actuarial accrued liability (UAAL) is fully amortized. Hawaii Revised Statutes §88-122(e)(1) state that the employer contribution rates are subject to adjustment when the funding period is greater than the maximum funding period. The statutes were modified by the 2024 Hawaii Legislature to decrease the maximum funding period from 30 years to 25 years in 2024. In addition, the maximum funding period will decrease by 1 each year in the future until the maximum funding period reaches 20 years, at which point it will continue to be 20 years for all future years.

PROGRESS TOWARD REALIZATION OF FINANCING OBJECTIVES

The actuarial accrued liability (AAL), the UAAL, and the determination of the resulting funding period illustrate the progress toward the realization of financing objectives. ERS had a liability experience loss which was caused by individual salary increases being more than expected by the assumptions. On the asset side, ERS experienced an actuarial loss as a result of returns in 2023 and 2024 not achieving the assumed 7%. In addition to these changes, ERS currently experiences negative amortization (interest on the UAAL is greater than the contributions towards the elimination of the UAAL). As a result, the UAAL increased (in dollars) based on this actuarial valuation as of June 30, 2024 and ERS's underfunded status as measured by the UAAL is now $14.01 billion.

The 2017 Legislature passed legislation that made significant changes to the future employer contribution rates. The employer contribution rate for Police and Fire employees increased to 41% and the employer contribution rate for All Other Employees increased to 24%. The funding period assumes that these contribution rates will remain in effect throughout the funding period. Under current law, the contribution rates are expected to stay at these levels until ERS is fully funded. These increases have improved the outlook of ERS. As long as the contributions are made, ERS's funded status should improve and ERS should be able to absorb moderate adverse experience without a need to further increase the contribution rates.

The 2011 Legislature made changes to the benefits and member contribution rates for employees hired after June 30, 2012. Because these changes result in significantly higher contributions towards the unfunded liability in the future than in the current year, we believe it is more appropriate to determine the funding period using an open group projection rather than a static mathematical formula, which would instead assume that all amortization payments in the future will be the same percentage of pay as in the current year.

We have determined that the funding period for paying off the UAAL of ERS (in aggregate) is 22 years. Normally, we would expect the funding period to decrease by one each year if all assumptions are exactly met. Since the prior year's funding period was 23 years, we are at the expected funding period from last year. Given that the System experienced actuarial losses on both its assets and its liabilities, this result may be surprising. However, the UAAL was expected to increase slightly during this portion of the financing process and since the contributions to the System are a fixed percentage of payroll, an increase in the covered payroll that is larger than assumed implies a larger contribution stream in future years, which means larger payments towards the unfunded liabilities of ERS.

Hence, even though the total unfunded liabilities increased from last year, the end period (fiscal year) over which the unfunded liabilities are to be paid off did not change and the funding period decreased to 22 years. Because this period is less than 25 years, the minimum objectives set in State statute are currently being realized. In addition, when the current contribution rates were passed by the Legislature in 2017, it was expected that the funding period would be 22 years as of the 2024 valuation, thus ERS remains on track to achieve full funding in the same timeframe as originally set by the legislation.

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a plan's funded status. The funded status alone is not appropriate for assessing the need for future contributions nor assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations. However, the trend (historical and projected) of the funded ratio is a strong metric to use for assessing the dependability of the current funding policy and its ability to accumulate assets to pay benefits when due. The funded ratio is currently 63.0% compared with the 62.2% funded ratio in the previous valuation. The funded ratio improved due to the sizeable contributions towards the unfunded liabilities of the system as well as the contributions related to the excess pension costs.

Given the plan's current and future contribution rates and the new tier of benefits, if all actuarial assumptions are met (including the assumption of the plan earning 7.00% on the actuarial value of assets), it is expected that:

1. The employer normal cost as a percentage of pay will decrease to the level of the newest tier as the old tier population declines and is replaced by new tier members,

2. The employer contribution will remain level throughout the amortization period,

3. Thus, the net amount available to amortize the UAAL will increase over time,

4. The UAAL will increase in nominal dollars until the net amount for amortization is large enough to cover the interest charges, or approximately 2026, and then begin to decrease,

5. The UAAL will be fully amortized after 22 years, and

6. In the absence of benefit improvements and in consistent financial markets, the funded ratio should increase steadily until it reaches 100%.

The current projections expect the UAAL to begin to decline in FY 2026 (two years from the valuation date) with the annual amount of decline accelerating year over year thereafter. We believe two years is a reasonable amount of time as defined under the ASOP No. 4 (especially given that the UAAL has decreased in two of the last four valuation reports). All other parameters and methods used in the valuation also meet the requirements of a Reasonable Actuarially Determined Contribution (RADC) under the ASOP.

Thus, the employer contribution rates of 41% of payroll for Police and Fire and 24% for All Other Employees meet the requirements of a RADC.

However, it is important to again note that these statements are based on the actual experience meeting the current assumptions. Also, these statements depend upon the employers meeting the contribution requirements established by the 2017 Legislature. Future changes to the actuarial assumptions or future changes to reduce the contribution requirements, or any increase in benefits, could significantly change the outlook of ERS and the expectation on when ERS will reach a 100% funded level.

This valuation assumed the continuing ability of the plan sponsors to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

BENEFIT PROVISIONS AND LEGISLATIVE CHANGES

This is the twelfth valuation with members covered under the new benefit tier.

There have been no changes in the benefit provisions since the prior valuation. See Table 16 of this report for more details on the benefit provisions for members of ERS.

ASSUMPTIONS AND METHODS

The actuarial assumptions used in this valuation were adopted by the Board in August of 2022 based on the recommendations provided by an Experience Study performed by GRS. There were no changes to the actuarial assumptions or methods since the prior valuation.

Further detail on the assumptions and methods may be found in Table 18 of this report and in our Experience Study Report dated June 14, 2022.

The actuarial assumptions represent estimates of future experience and are not market measures. The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. Based on the scope of this engagement, we have not performed analysis on the potential range of future measurements based on other factors. The actuarial calculations are intended to provide information for rational decision making.

In our opinion, the assumptions are internally consistent and are reasonably based on the actual experience of ERS.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

DATA

Member data for retired, active, and inactive participants was supplied as of March 31, 2024, by ERS's staff. We have not subjected this data to any auditing procedures, but have examined the data for reasonableness and consistency with the prior year's data. Asset information was supplied by ERS's staff.

IMPACT OF TEMPORARY HAZARD DUTY PAY

As the reader is probably aware, many of the employees and retirees covered by ERS have or will be receiving Temporary Hazard Duty Pay (THP) for periods worked during March 2020 to March 2022 as a result of the COVID-19 pandemic. With the exception of the Maui employees, payments for known settlement amounts as of November 2024 will be made in fiscal year 2025 (Maui's payments were made in fiscal years 2023 and 2024). These payments will be incorporated into the pensionable earnings for impacted Tier 1 employees (the payments are not included in the pensionable earnings of Tier 2 employees).

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

While not all of the THP payments are yet known as of this date, we have estimated the possible impact of these payments on the UAAL and the funding period. Assuming on average that all of the Tier 1 employees receive a THP payment similar to the payments made to the State employees, the UAAL is expected to increase between \$240 million – \$350 million and the funding period is expected to increase between 6 to 12 months.

RESPONSIBILITY FOR TABLES AND SCHEDULES

The actuary is responsible for the information with respect to years after 1999 in the Required Supplementary Information, and the Notes to Required Supplementary Information in the Financial Section of ERS's Annual Comprehensive Financial Report (ACFR). Information with respect to years prior to 2000 was supplied by ERS.

Tables and schedules in the Actuarial Section of the ACFR were generally prepared directly by the Actuary. However, certain of these tables were prepared by ERS utilizing information from this report. When the tables were prepared by ERS from our report, they were so noted.

The undersigned are independent actuaries and consultants. Mr. Newton is an Enrolled Actuary, a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries. Finally, all of the undersigned are experienced in performing valuations for large public retirement systems.

Sincerely,
Gabriel, Roeder, Smith & Company

Joseph P. Newton, FSA, EA, MAAA	Lewis Ward
Pension Market Leader & Actuary	Consultant

Table of Contents

SECTION A – EXECUTIVE SUMMARY

The following table summarizes the key results of the June 30, 2024 actuarial valuation of the Employees' Retirement System of the State of Hawaii (ERS).

Item	2024	2023
Membership		
• Number of		
- Active members	65,337	64,243
- Retirees and beneficiaries	55,820	54,973
- Inactive, vested	8,847	8,997
- Total	130,004	128,213
• Covered payroll for active members	$4,957 million	$4,663 million
• Actual benefit payments and refunds	$1,907 million	$1,822 million
Assets		
• Actuarial (smoothed) value	$23,841 million	$22,515 million
• Market value	$23,701 million	$22,425 million
• Return on actuarial value	6.8%	6.9%
• Return on market value	6.6%	3.8%
• Employer contributions during fiscal year	$1,396 million	$1,274 million
• External cash flow %	(0.8%)	(1.1%)
Actuarial Information		
• Total normal cost % (employee + employer)	14.51%	14.57%
• Unfunded actuarial accrued liability (UAAL)	$14,008 million	$13,710 million
• Funded ratio (based on smoothed assets)	63.0%	62.2%
• Funded ratio (based on market assets)	62.6%	61.9%
• Funding period (years)*	22	23
• Employer contribution rate		
% of projected payroll		
Police and Firefighters	41.00%	41.00%
All Other Employees	24.00%	24.00%

* Funding Period based on actuarial value of assets, scheduled employer contribution rates, and an open group projection reflecting the adopted changes in benefits and member contribution rates.

Section B – Introduction

The results of the June 30, 2024 actuarial valuation of ERS are presented in this report.

The primary purpose of the valuation report is to determine the adequacy of the current employer contribution rates through measuring the resulting funding period, to describe the current financial condition of ERS, and to analyze changes in ERS's condition.

In preparing this valuation, Gabriel, Roeder, Smith & Company (GRS) has relied on employee data and asset information provided by the staff of ERS. While not verifying the data at their source, GRS has performed such tests for consistency and reasonableness as has been deemed necessary to be satisfied with the appropriateness of using the data supplied.

Section C discusses the funded status of ERS. Section D analyzes the change in the UAAL. Section G discusses the disclosure requirements of GASB No. 67.

Sections E, F, H, and I discuss background information used in the preparation of this report--benefit provisions, actuarial assumptions and methods, financial information, and membership data. Section J contains a discussion about risk and plan maturity measures and a table showing current and historical risk metrics. Section K contains a final summary and some closing comments about this year's valuation and Section L contains the actuarial certification.

All the tables referenced by the other sections appear in Section M.

SECTION C – FUNDED STATUS

Table 1 shows the development of the Plan's liabilities and funded status for the current year and compares it with those of the prior year.

The calculation of the funded status involves the following steps and includes the following comments:

- The actuarial present value of future benefits is determined for the present members, including retired members, beneficiaries, inactive members, and active members. This amounts to $44.28 billion. Table 2 shows the development of this total for the current year and the prior year.

- The individual entry age normal cost method is used to allocate the actuarial present value of future benefits between that portion due for the current year (the normal cost), prior years (the actuarial accrued liability) and future years (the present value of future normal cost). Under the individual entry age normal cost method, the current and future normal costs are determined as a level percentage of payroll. Table 3 shows an analysis of the normal cost for the current year and the prior year. The amount needed to fund the current and future normal costs is 27.12% of pay for Police and Fire employees and 12.93% for All Other Employees. It includes all of the employees' contribution (if any) and the employers' normal cost rate.

- A part of the normal cost is paid by the employee contributions of 12.82% of pay for Police and Firefighters, leaving 14.30% of pay to be funded by the employers. Thus, the current year's employer normal cost for Police and Firefighters is deemed to be 14.30% of the valuation payroll. As for the All Other Employees group, the average weighted effective employee contribution rate is 6.08% of pay, leaving 6.85% of pay to be funded by the employers. This is shown in Line 3 of Table 1.

- The UAAL is $14.01 billion for 2024, an increase from $13.71 billion in 2023. As indicated in Table 1, the UAAL equals the difference between the total actuarial accrued liability (Item 7) and current actuarial assets (Item 8).

- In determining the number of years that will be required to amortize the UAAL, an assumption is made concerning future growth of ERS's covered payroll. Payroll can grow from intrinsic growth in the pay of individual members and it can also grow due to active membership growth. In determining the funding period of ERS, we have assumed that the number of active members will remain constant in our open group projection.

- As shown in Item 10 of Table 1 and on Table 9c, the period to fund the UAAL is 22 years for the Police and Fire and 22 years for the All Other Employees group. When combining both groups, the aggregate funding period for ERS is 22 years (i.e. the UAAL is expected to be paid off in fiscal year 2046). Since the aggregate funding period based on the contribution rates is less than the maximum funding period (25 years), the employer contribution rates are adequate to meet the requirements of Hawaii Revised Statutes §88-122(e)(1). Please note that this statement assumes the current contribution rates will remain in effect throughout the entire funding period.

SECTION C – FUNDED STATUS (CONTINUED)

As of the valuation date, ERS has a funded ratio of 63.0%, based on the actuarial value of assets.

Due to the significant changes in the future contribution rates and benefits for employees hired after June 30, 2012, ERS's funding policy uses an open group projection for determining how many years it will take to eliminate the unfunded liabilities of ERS. ERS is expected to be fully funded in 2046 which is 22 years from now. Therefore, the funding period is equal to 22 years. The open group projection assumes that the number of active members will remain constant and that there will be no actuarial gains or losses on liabilities or investments.

SECTION D – ANALYSIS OF CHANGES

Section C has noted that the unfunded actuarial accrued liability (UAAL) is $14.01 billion as of June 30, 2024 compared to the $13.71 billion UAAL for 2023.

Table 7 develops the estimated yield for the year based on two measures of asset values. Table 9b takes the information contained in Table 6 and develops the expected value of actuarial assets for this valuation, based on the prior year's investment return assumption of 7.00%.

As shown in Item 6 of Table 9b, the expected value of actuarial assets as of June 30, 2024 is $23.90 billion. As developed in Table 6, the actual value of actuarial assets as of the valuation date is $23.84 billion (as repeated in Item 7 of Table 9b). Thus, the loss for the year is the difference between the actual value and the expected value, or $56.8 million (as shown in Item 8 of Table 9b). This asset loss for the year is a direct reflection of the estimated yield for the year based on the value of actuarial assets, namely 6.75% (as shown in Item B4 of Table 7) being less than the assumed rate of return.

The markets returned less than assumed in FY 2024 with a return of 6.55% on the market value of assets, which is below our benchmark of 7.00%. Therefore, the return for the year was less than our expectation. The rate of return for the actuarial value was 6.75%, which is greater than the market return due to the smoothing methodology used in the determination of the actuarial value of assets. The actuarial value of assets exceeds the market value of assets by $140.4 million, so there are $140.4 million in deferred investment losses still to be recognized in the actuarial value of assets.

Table 9a shows the total unanticipated change in the unfunded actuarial accrued liability was $340 million (item 7), this means the UAAL increased $340 million more than expected from all sources for the 2024 fiscal year. As noted above, the actuarial investment loss was equal to $56.8 million. This means that there was a liability experience loss during the year equal to $282.9 million. The liability experience loss is primarily due to higher than expected salary increases for both employee groups. For Tier 1 members, the pensionable earnings include overtime, and it is possible a source of the higher salaries was an increase in overtime during the fiscal year. Note that with the exception of the Maui employees, none of these salary losses are associated with the Temporary Hazard Duty Pay.

Table 9c shows the current year's valuation results plus a 30-year open group projection of ERS's assets and liabilities. As discussed previously, this projection assumes no actuarial gains or losses in the actuarial liabilities or the actuarial value of assets. In addition, the projection assumes the current employer contribution rates will continue and reflects the changes to the benefits and member contribution rates of employees hired after June 30, 2012. As may be seen by examining this table, the unfunded liability of ERS (Column 7) is expected to grow as a dollar amount until 2025 before beginning to decline and finally being eliminated in 2046.

The June 30, 2046 valuation is 22 years from this valuation. Therefore, for the purpose of satisfying Hawaii Revised Statutes §88-122(e)(1) the funding period is considered to be 22 years.

SECTION E – ERS ASSETS

Table 4 presents a summary of the market value of assets held by ERS. About 74% of the total invested assets available for benefits are held in equities (including alternative investments) and real assets compared to about 82% last year. Table 5 shows a reconciliation of the assets from the beginning of the prior year to the valuation date.

Table 6 shows the development of the Actuarial Value of Assets (AVA). An actuarial value is used in order to dampen some of the year-to-year fluctuations which would occur if the market value were used instead. The expected actuarial value of assets is calculated and compared to the actual market value of assets. This difference is then compared with the remaining deferrals from the prior years to determine this year's excess/shortfall. The current year's excess/shortfall is offset directly against any prior years' deferrals of the opposite sign (oldest bases first). Any remaining bases are then recognized over a four-year period from the date the base was established. Any remaining deferrals, after the current year's recognition, are then subtracted from the market value of assets to get the final actuarial value of assets. This method has the advantage of more quickly converging towards the market value in years when the returns go in the opposite direction of the prior years.

Table 7 shows an estimate of ERS's dollar-weighted rate of return for the year. This is shown on (i) the market value of assets (reflecting all realized and unrealized gains and losses), and (ii) the actuarial value of assets. While the dollar-weighted market return this year was 6.55%, the return on the actuarial value was 6.75%. The difference between these is due to the smoothing effect of the AVA valuation method.

Table 9b determines the asset gain or loss for the year, based on the difference between the actual fund return and the actuarial value of assets and the prior year's assumed rate of 7.00%.

Finally, Table 13 shows a history of cash flows for the trust.

SECTION F – BENEFIT AND CONTRIBUTION PROVISIONS

Table 16 summarizes the benefit provisions of ERS used in this valuation. Table 17 is a historical record of prior legislative changes starting with changes effective in 1999. There were significant changes made by the 2011 Legislature to the benefit provisions of ERS for employees hired after June 30, 2012. Because the Board has chosen to use the Individual Entry Age Normal Cost method, the normal cost and the growth of the accrued liabilities will be slowly impacted by the changes in the benefit provisions, as members under the new tier are hired to replace members who are covered under the older tier of benefits.

There have been no changes to the benefit provisions since the last valuation that had an actuarial impact on the valuation. Act 192 was enacted by the 2024 Legislature that decreased the maximum funding period from 30 years to 25 years for the June 30, 2024 actuarial valuation. In future years, the maximum funding period will decrease by 1 each year until the maximum funding period reaches 20 where it will remain in future years.

The 2017 Legislature enacted ACT 017 which increased the employer contribution rates over a four-year period.

The employer contribution rates for Police and Fire employees are 41% of pay in FY 2021 and beyond while the employer contribution rates for All Other Employees are 24% of pay in FY 2021 and beyond.

This valuation reflects benefits promised to members by ERS's statutes. There are no ancillary benefits - retirement type benefits not required by ERS's statutes but which might be deemed an ERS liability if continued beyond the availability of funding by the current funding source.

Act 179/2004 was adopted during FY 2003/2004 and established the new Hybrid class that became effective on July 1, 2006. Current participants had the choice to elect to move to the new class or stay in the current plan. There were 26,228 plan members who elected to transfer. The Hybrid class membership has since grown to approximately 52,100 members.

SECTION G – GASB DISCLOSURE

The Governmental Accounting Standards Board (GASB) has issued Statement No. 67 which provides the manner in which the actuarial condition of a public sector retirement plan is to be disclosed in the system's financial statements. This new standard replaces GASB No. 25, and went into effect for ERS for fiscal years ending on or after June 30, 2014.

Similar to last year, we will provide a separate accounting report with the required disclosures under this new standard.

SECTION H – ACTUARIAL ASSUMPTIONS AND METHODS

In determining costs and liabilities, actuaries use assumptions about the future, such as rates of salary increase, probabilities of retirement, termination, death and disability, and an investment return assumption. ERS's Board adopts the assumptions used, taking into account the actuary's recommendations.

In addition to the actuarial assumptions, the actuary also makes use of an actuarial funding method to allocate costs to particular years. In common with most public sector plans, ERS uses the entry age normal method (individual normal cost). This method produces a relatively level pattern of funding for individual employees over time. We believe this method is appropriate for ERS.

ERS's Board adopted new actuarial assumptions on August 8, 2022 to be used effective with the June 30, 2022 actuarial valuation. For a complete description of the recommended assumption changes please see our experience study report dated June 14, 2022.

Please see Table 18 for a complete description of the actuarial assumptions and methods.

SECTION I – MEMBERSHIP DATA

Membership data was provided in electronic files, via a secured file transfer protocol, by the staff. Data for active members include sex, birthdate, service, pay rate as of March 2024, employer entity and accumulated employee contributions. Data for inactive, nonretired members was similar, but also includes the members' unreduced benefit. For retired members, data includes status (service retiree, disabled retiree or beneficiary), sex, birthdate, pension amount, pension COLA amount, form of payment, beneficiary sex and birthdate if applicable, and date of retirement.

While not verifying the correctness of the data at the source, we performed various tests to ensure the internal consistency of the data and its overall reasonableness. Membership statistics are summarized in Table 12a. Table 12b summarizes certain active member data, and the age/service distribution of active members is shown in Table 19. Tables 30-43 show various distributions of retirees.

Since last year, the number of active members increased by 1,094 members from 64,243 to 65,337. These 65,337 active members are distributed as follows:

Category	Number	% of Total
(1)	(2)	(3)
Police & Fire	4,791	7.3%
Contributory	407	0.6%
Noncontributory	8,015	12.3%
Hybrid	52,124	79.8%
Total	65,337	100.00%

Covered payroll (which is the annualized pay for all active members on the census date) increased by 6.3% since last year. ERS also provided the actual aggregate payroll for fiscal year 2024 on which contributions were received (this includes payroll for members who terminated and retired during the year). The lesser of the covered payroll and the aggregate payroll is adjusted by the payroll growth rate to produce the *projected FY 2025 payroll for contribution purposes*, as shown in Item 1 of Table 1.

Average age of the active members decreased from 48.0 last year to 47.9 this valuation and the average service decreased from 13.1 to 12.9 years.

Section J – Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions

The determination of the accrued liability and an actuarially determined contribution (or funding period) requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and an actuarially determined contribution (or funding period) that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. Investment risk – actual investment returns may differ from the expected returns;
2. Contribution risk – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
3. Salary and Payroll risk – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
4. Longevity risk – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
5. Other demographic risks – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening) increases (or decreases) in cost can be anticipated.

ERS SPECIFIC RELATIONSHIP TO CERTAIN RISKS

While ERS has various levels of exposure to all of the risks listed above, in our opinion the three that warrant the most observation for ERS's Board specifically are assumption change risk and affordability risk.

Assumption Change Risk is the potential for the environment to change such that future valuation assumptions are adjusted to be different than the current assumptions. For example, declines in interest rates or increases in earnings multiples over time may result in a change in the assumed rates of return used in the valuation. A healthier workforce may result in changes in employee behavior such that retirement rates are adjusted to reflect employees working longer. And the difference in changing an assumption versus the other experience related risks listed above is instead of the loss slowly building over time, there is the immediate recognition of the change. Over the past decade, the changing of assumptions has increased the liabilities of ERS more than any other source. While those changes were warranted and put ERS on a stronger path going forward, it did cause a setback in many of the actuarial measurements and at least gives the appearance of a weaker System. We do not currently anticipate any significant changes to assumptions in the future and will continue to communicate with the Board if any issues beginning to show.

Affordability Risk is the simple fact that the contributions into ERS are quite large and in order to achieve the benefit security desired by the Board and the beneficiaries of ERS, they must remain high for quite a number of years. State Law requires the actuarial contribution occur and there has been no requests or attempts to lower the amounts, but it will always be a risk a future decision maker does attempt to do so.

This is also risk in a continued contraction in the headcount of active members. As was realized in the 2022 valuation, the contributions into ERS are directly tied to the covered payroll of the active membership and the projection of that payroll is used in determining the funding period. If the headcount were to decline, it would be difficult for the amount of future revenue to meet the current expectations and thus it would likely take more than 22 years to fully amortize the UAAL.

PLAN MATURITY MEASURES

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Several generally accepted plan maturity measures are described below and are followed by a table showing a 10-year history of the measurements for ERS.

RATIO OF MARKET VALUE OF ASSETS TO PAYROLL

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher/lower or increasing/decreasing level of this maturity measure generally indicates a higher/lower or increasing/decreasing volatility in plan sponsor contributions as a percentage of payroll.

SECTION J – ASSESSMENT AND DISCLOSURE OF RISK ASSOCIATED WITH MEASURING PENSION OBLIGATIONS AND DETERMINING PENSION PLAN CONTRIBUTIONS (CONTINUED)

RATIO OF ACTUARIAL ACCRUED LIABILITY TO PAYROLL

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll (5 to 2 ratio), a change in liability 2% other than assumed would equal 5% of payroll. A higher/lower or increasing/decreasing level of this maturity measure generally indicates a higher/lower or increasing/decreasing volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

RATIO OF ACTIVES TO RETIREES AND BENEFICIARIES

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

RATIO OF NET CASH FLOW TO MARKET VALUE OF ASSETS

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

DURATION OF ACTUARIAL ACCRUED LIABILITY

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the liability would increase approximately 10% if the assumed rate of return were lowered 1%.

ADDITIONAL RISK ASSESSMENT

Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability. While a robust measurement of additional risk assessment is outside the scope of the annual actuarial valuation, some scenario tests and sensitivity tests are included in the valuation summary PowerPoint presentation presented to the Board at the Board's January Board Meeting.

In addition, an annual stress test as prescribed by state law is conducted each year. Please see the stress test report dated December 18, 2023, which was conducted in conjunction with this valuation.

SECTION J – ASSESSMENT AND DISCLOSURE OF RISK ASSOCIATED WITH MEASURING PENSION OBLIGATIONS AND DETERMINING PENSION PLAN CONTRIBUTIONS (CONTINUED)

LOW-DEFAULT RISK OBLIGATION MEASURE

ASOP No. 4 was revised and reissued in December 2021 by the ASB. It includes a new calculation called a low-default-risk obligation measure (LDROM) to be prepared and issued annually for defined benefit pension plans. The transmittal memorandum for ASOP No. 4 includes the following explanation:

"The ASB believes that the calculation and disclosure of this measure provides appropriate, useful information for the intended user regarding the funded status of a pension plan. The calculation and disclosure of this additional measure is not intended to suggest that this is the "right" liability measure for a pension plan. However, the ASB does believe that this additional disclosure provides a more complete assessment of a plan's funded status and provides additional information regarding the security of benefits that members have earned as of the measurement date."

The LDROM estimates the amount of money the plan would need to invest in low risk securities to provide the benefits with greater certainty. The traditional model based on expected portfolio returns expects lower costs but with higher risk, which creates less certainty and a possibility of higher costs. The LDROM model creates higher expected costs but more predictability when compared to the traditional model. Thus, the difference between the two measures (Valuation and LDROM) is one illustration of the possible costs the sponsor could incur if there was a reduction in the investment risk in comparison to the current diversified portfolio. However, the downside risk would be limited in the scenarios where the current portfolio would fail to achieve returns in excess of the low-default-risk discount, in this case 5.32%.

The following information has been prepared in compliance with this new requirement. Unless otherwise noted, the measurement date, actuarial cost methods, and assumptions used are the same as for the funding valuation covered in this actuarial valuation report.

A.	LDROM measure of benefits earned as of the measurement date:	$46,769 million
B.	Valuation liability at 7% on measurement date:	37,850 million
C.	Cost to mitigate investment risk in the System's portfolio:	$ 8,919 million

Disclosures: Discount rate used to calculate LDROM: 5.32% Intermediate FTSE Pension Discount Curve as of June 30, 2024. This measure may not be appropriate for assessing the need for or amount of future contributions as the current portfolio is expected to generate significantly more investment earnings than the low-default-risk portfolio. This measure is also not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligation as this measure includes projections of salary increases and the ability for current members to continue to accrue eligibility and vesting service.

	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Ratio of the market value of assets to payroll	4.66	4.67	4.74	4.59	3.75	3.81	3.79	3.68	3.30	3.48
Ratio of actuarial accrued liability to payroll	7.44	7.54	7.55	7.14	7.06	6.95	6.82	6.72	6.44	5.57
Ratio of actives to retirees and beneficiaries	1.17	1.17	1.19	1.25	1.30	1.33	1.36	1.40	1.48	1.52
Ratio of net cash flow to market value of assets	-0.8%	-1.1%	-1.1%	-0.5%	-1.1%	-1.8%	-2.0%	-2.0%	-1.9%	-1.8%
Duration of the actuarial accrued liability*	14.76	14.77	14.88	14.95	15.03	15.11	NA	NA	NA	NA

*Duration measure not available prior to 2019

SECTION K – SUMMARY AND CLOSING COMMENTS

To summarize the results of the actuarial valuation of the Employees' Retirement System as of June 30, 2024, it is our opinion that if all assumptions are met going forward, the present assets plus future expected contributions will be sufficient to provide the benefits specified in the law.

This year's valuation shows that ERS is expected to be fully funded in 2046 (22 years from this year's valuation date), which is the same year projected in last year's valuation. This is due to the increase in expected future contributions caused by the increase in the covered payroll that occurred in FY 2024. The 22 is consistent with the original impact statement which set the current contribution pattern which projected a 22-year funding period in 2024.

Based on this year's valuation results, the statutory contribution rates are sufficient to eliminate the UAAL over a period of 25 years or less as specified by Hawaii Revised Statute 88-122(e)(1).

Our modeling continues to show that the new contribution levels should be able to absorb material adverse experience without resulting in a need for further contribution rate increases. Moderate adverse experience may result in the date ERS obtains a fully funded status being later than 2046, but it is not expected to result in a requirement for further contribution rate increases.

The results of this valuation are uneven from the financial outlook of the System. While the end date for achieving full funding for the System remained unchanged when compared with last year (2046 for both valuations), ERS saw a larger than expected increase UAAL. This follows a decline in the UAAL in two of the previous three years. In addition, ERS is still deferring $140.4 million in investment losses. If these deferred investment losses are recognized instead of being offset, the end date for achieving full funding could be extended.

Finally, while this valuation saw the date of full funding remain the same as last year, it is important to note that these projections assume the current contribution rates will be maintained throughout the funding period. Any reduction in the contribution rates would increase the length of time until ERS achieves a fully funded status.

SECTION L – ACTUARIAL CERTIFICATION STATEMENT

		Police and Firefighters June 30, 2024		All Other Employees June 30, 2024		All Employees June 30, 2024
		(1)		(2)		(3)
1. Gross normal cost as a percentage of pay		27.12%		12.93%		14.51%
2. Present value of future benefits						
a. Active employees	$	4,343,140,213	$	17,498,115,440	$	21,841,255,653
b. Inactive members		74,514,821		1,155,926,497		1,230,441,318
c. Pensioners and beneficiaries		4,430,844,388		16,779,879,405		21,210,723,793
d. Total	$	8,848,499,422	$	35,433,921,342	$	44,282,420,764
3. Present value of future employee and employer contributions						
a. Present value of future normal costs	$	1,348,751,447	$	5,084,151,582	$	6,432,903,029
b. Present value of future employee contributions		707,209,722		2,701,720,336		3,408,930,058
c. Present value of future employer normal costs (Item 3a - Item 3b)	$	641,541,725	$	2,382,431,246	$	3,023,972,971
4. Actuarial accrued liability (Item 2d - Item 3a)	$	7,499,747,975	$	30,349,769,760	$	37,849,517,735
5. Actuarial value of assets						
a. Annuity Savings Fund	$	1,117,581,315	$	2,872,203,500	$	3,989,784,815
b. Pension Accumulation Fund		4,149,491,978		15,701,762,551		19,851,254,529
c. Total	$	5,267,073,293	$	18,573,966,051	$	23,841,039,344
6. Unfunded actuarial accrued liability	$	2,232,674,682	$	11,775,803,709	$	14,008,478,391
7. Adequacy of contribution rates						
a. Statutory Contribution Rate for Fiscal Year 2025		41.00%		24.00%		25.85%
b. Funding Period in years as of June 30, 2024*		22		22		22

* The Funding Period is calculated using an open group projection which reflects the impact of the benefits and member contribution rates for employees hired after June 30, 2012.
It also assumes the current employer contribution rates will remain in place until the System is fully funded.

The actuarial valuation as of June 30, 2024 is based on the provisions of Chapter 88 of the Hawaii Revised Statutes, as amended. The assumptions used in the cost calculations were those adopted by the Board of Trustees in August of 2022 based on the actuary's actuarial experience investigation report for the period ending June 30, 2021. The actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures.

In our opinion, the comparison of the current contribution policies to ERS's liabilities were calculated in accordance with the provisions of Chapter 88 regarding the funding of the Employees' Retirement System on an actuarial reserve basis.

All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of state law and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board. The undersigned is an independent actuary and consultant. Mr. Newton is an Enrolled Actuary, a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries. Finally, he is experienced in performing valuations for large public retirement systems.

Joseph P. Newton, FSA, EA, MAAA
Pension Market Leader & Actuary

SECTION M – VALUATION TABLES

TABLE 1

Development of Employer Cost

	Police and Firefighters June 30, 2024 (1)	All Other Employees June 30, 2024 (2)	All Employees June 30, 2024 (3)
1. Projected FY 2025 payroll for contribution purposes	$ 553,420,240	$ 4,531,329,081	$ 5,084,749,321
2. Gross normal cost (Table 3)	27.12%	12.93%	14.51%
3. Employer normal cost rate (Table 3)	14.30%	6.85%	7.68%
4. Present value future benefits (Table 2)	$ 8,848,499,422	$ 35,433,921,342	$ 44,282,420,764
5. Present value future employer normal cost	$ 641,541,725	$ 2,382,431,246	$ 3,023,972,971
6. Present value future employee contributions	$ 707,209,722	$ 2,701,720,336	$ 3,408,930,058
7. Actuarial accrued liability (Item 4 - Item 5 - Item 6)	$ 7,499,747,975	$ 30,349,769,760	$ 37,849,517,735
8. Actuarial value of assets	$ 5,267,073,293	$ 18,573,966,051	$ 23,841,039,344
9. Unfunded actuarial accrued liability (UAAL) (Item 7 - Item 8)	$ 2,232,674,682	$ 11,775,803,709	$ 14,008,478,391
10. Funding Period*	22	22	22

	Police and Firefighters June 30, 2023 (1)	All Other Employees June 30, 2023 (2)	All Employees June 30, 2023 (3)
1. Projected FY 2024 payroll for contribution purposes	$ 535,221,890	$ 4,270,054,764	$ 4,805,276,654
2. Gross normal cost (Table 3)	27.21%	12.94%	14.57%
3. Employer normal cost rate (Table 3)	14.43%	7.02%	7.86%
4. Present value future benefits (Table 2)	$ 8,501,067,997	$ 33,833,955,012	$ 42,335,023,009
5. Present value future employer normal cost	$ 646,300,181	$ 2,306,438,576	$ 2,952,738,757
6. Present value future employee contributions	$ 694,547,730	$ 2,463,119,269	$ 3,157,666,999
7. Actuarial accrued liability (Item 4 - Item 5 - Item 6)	$ 7,160,220,086	$ 29,064,397,167	$ 36,224,617,253
8. Actuarial value of assets	$ 4,927,908,748	$ 17,587,022,945	$ 22,514,931,693
9. Unfunded actuarial accrued liability (UAAL) (Item 7 - Item 8)	$ 2,232,311,338	$ 11,477,374,222	$ 13,709,685,560
10. Funding Period*	22	23	23

* The Funding Period is calculated using an open group projection which reflects the impact of the smaller benefits and larger member contribution rates for employees hired after June 30, 2012. Please refer to Table 9c for the full projection.

TABLE 2

Actuarial Present Value of Future Benefits

	Police and Firefighters June 30, 2024 (1)	All Other Employees June 30, 2024 (2)	All Employees June 30, 2024 (3)
1. Active members			
a. Service retirement benefits	$ 4,204,810,942	$ 16,226,987,525	$ 20,431,798,467
b. Temination Benefits	82,386,038	734,647,600	817,033,638
c. Survivor benefits	16,837,855	134,534,005	151,371,860
d. Disability retirement benefits	39,105,378	401,946,310	441,051,688
e. Total	$ 4,343,140,213	$ 17,498,115,440	$ 21,841,255,653
2. Retired members			
a. Service retirement	$ 4,149,994,007	$ 15,444,158,566	$ 19,594,152,573
b. Disability retirement	41,679,985	335,048,849	376,728,834
c. Beneficiaries	239,170,396	1,000,671,990	1,239,842,386
d. Total	$ 4,430,844,388	$ 16,779,879,405	$ 21,210,723,793
3. Inactive members			
a. Vested terminations	$ 63,217,629	$ 925,856,626	$ 989,074,255
b. Nonvested terminations	11,297,192	230,069,871	241,367,063
c. Total	$ 74,514,821	$ 1,155,926,497	$ 1,230,441,318
4. Total actuarial present value of future benefits	$ 8,848,499,422	$ 35,433,921,342	$ 44,282,420,764

	Police and Firefighters June 30, 2023 (1)	All Other Employees June 30, 2023 (2)	All Employees June 30, 2023 (3)
1. Active members			
a. Service retirement benefits	$ 4,058,457,708	$ 15,330,680,665	$ 19,389,138,373
b. Temination Benefits	82,911,291	691,105,278	774,016,569
c. Survivor benefits	16,630,910	128,256,064	144,886,974
d. Disability retirement benefits	38,690,937	374,160,268	412,851,205
e. Total	$ 4,196,690,846	$ 16,524,202,275	$ 20,720,893,121
2. Retired members			
a. Service retirement	$ 3,973,678,601	$ 14,905,264,452	$ 18,878,943,053
b. Disability retirement	40,607,581	323,047,806	363,655,387
c. Beneficiaries	225,641,325	960,403,606	1,186,044,931
d. Total	$ 4,239,927,507	$ 16,188,715,864	$ 20,428,643,371
3. Inactive members			
a. Vested terminations	$ 55,695,619	$ 912,548,153	$ 968,243,772
b. Nonvested terminations	8,754,025	208,488,720	217,242,745
c. Total	$ 64,449,644	$ 1,121,036,873	$ 1,185,486,517
4. Total actuarial present value of future benefits	$ 8,501,067,997	$ 33,833,955,012	$ 42,335,023,009

Table 3

Analysis of Normal Cost

	Police and Firefighters June 30, 2024	All Other Employees June 30, 2024	All Employees June 30, 2024
	(1)	(2)	(3)
1. Normal cost as a percent of pay			
a. Service retirement benefits	24.33%	9.87%	11.47%
b. Deferred termination benefits	0.88%	0.60%	0.63%
c. Refunds	0.84%	1.41%	1.35%
d. Disability retirement benefits	0.49%	0.53%	0.53%
e. Survivor benefits	0.18%	0.12%	0.13%
f. Administrative Expenses	0.40%	0.40%	0.40%
g. Total	27.12%	12.93%	14.51%
2. Employee contribution rate	12.82%	6.08%	6.83%
3. Effective employer normal cost rate (Item 1g - Item 2)	14.30%	6.85%	7.68%

	Police and Firefighters June 30, 2023	All Other Employees June 30, 2023	All Employees June 30, 2023
	(1)	(2)	(3)
1. Normal cost as a percent of pay			
a. Service retirement benefits	24.43%	9.90%	11.55%
b. Deferred termination benefits	0.88%	0.61%	0.65%
c. Refunds	0.84%	1.38%	1.32%
d. Disability retirement benefits	0.48%	0.53%	0.52%
e. Survivor benefits	0.18%	0.12%	0.13%
f. Administrative Expenses	0.40%	0.40%	0.40%
g. Total	27.21%	12.94%	14.57%
2. Employee contribution rate	12.78%	5.92%	6.71%
3. Effective employer normal cost rate (Item 1g - Item 2)	14.43%	7.02%	7.86%

Table 4

Statement of Net Position
(Assets at Market or Fair Value)

Item	Valuation as of June 30, 2024	Valuation as of June 30, 2023
1. Cash and cash equivalents	$ 816,534,332	$ 497,906,509
2. Receivables:		
a. Accounts receivable and others	$ 3,797,764	$ 3,589,353
b. Investment sale proceeds	118,165,686	15,982,313
c. Accrued income	42,228,081	28,989,788
d. Member and employer contributions	146,686,334	151,378,373
e. Subtotal	$ 310,877,865	$ 199,939,827
3. Investments		
a. Equity securities	$ 5,277,362,997	$ 5,288,938,937
b. Fixed income securities	5,199,978,914	3,525,645,635
c. Real assets	4,261,689,706	3,774,821,802
d. Alternative investments	8,027,013,307	9,369,579,364
e. Subtotal	$ 22,766,044,924	$ 21,958,985,738
4. Other		
a. Invested securities lending collateral	$ 765,590,308	$ 491,507,300
b. Equipment at cost, net of depreciation	2,954,114	4,010,465
c. Other assets	-	-
d. Subtotal	$ 768,544,422	$ 495,517,765
5. Total assets	$ 24,662,001,543	$ 23,152,349,839
6. Liabilities		
a. Accounts payable	$ 92,405,819	$ 202,903,305
b. Investment commitments payable	103,373,060	32,554,259
c. Securities lending collateral	765,590,308	491,507,300
d. Notes payable	-	-
e. Total liabilities	$ 961,369,187	$ 726,964,864
7. Total market value of assets available for benefits (Item 5 - Item 6e)	$ 23,700,632,356	$ 22,425,384,975

TABLE 5

Statement of Changes in Net Position

			Year Ending	
			June 30, 2024	June 30, 2023
1.	a.	Value of assets at beginning of year	$ 22,425,384,975	$ 21,854,814,032
	b.	Adjustment due to post valuation changes in ACFR assets	-	-
	c.	Adjusted value of assets at beginning of year	$ 22,425,384,975	$ 21,854,814,032
2.		Revenue for the year		
	a.	Contributions		
		i. Member contributions	$ 342,066,080	$ 309,761,053
		ii. Employer contributions	1,396,331,977	1,274,221,056
		iii. Total	$ 1,738,398,057	$ 1,583,982,109
	b.	Income		
		i. Interest, dividends, and other income	$ 794,784,038	$ 507,203,035
		ii. Investment expenses	(174,112,484)	(153,900,913)
		iii. Net	$ 620,671,554	$ 353,302,122
	c.	Net realized and unrealized gains/(loss)	$ 841,228,583	$ 473,600,753
	d.	Net income/(loss)	$ 1,461,900,137	$ 826,902,875
	e.	Total revenue	$ 3,200,298,194	$ 2,410,884,984
3.		Expenditures for the year		
	a.	Refunds	$ 28,548,843	$ 26,353,782
	b.	Benefit payments	1,878,501,292	1,795,410,787
	c.	Administrative and miscellaneous expenses	18,000,678	18,549,472
	d.	Total expenditures	$ 1,925,050,813	$ 1,840,314,041
4.		Increase/(decrease) in net assets (Item 2e - Item 3d)	$ 1,275,247,381	$ 570,570,943
5.		Value of assets at end of year (Item 1c + Item 4)	$ 23,700,632,356	$ 22,425,384,975

Table 6

Development of Actuarial Value of Assets

	Year Ending June 30, 2024
1. Actuarial value of assets, beginning of year	$ 22,514,931,693
2. Net new investments	
a. Contributions	$ 1,738,398,057
b. Benefits paid and Refunds	(1,907,050,135)
c. Administrative expenses	(18,000,678)
d. Subtotal	(186,652,756)
3. Market value of assets at end of year	$ 23,700,632,356
4. Expected return on actuarial value of assets	$ 1,569,512,372
5. Expected actuarial value of assets, end of year	$ 23,897,791,309
6. Excess/(shortfall) return (Item 3-Item 5)	$ (197,158,953)

7. Development of amounts to be recognized as of June 30, 2024:

Fiscal Year End	Remaining Deferrals of Excess (Shortfall) of Investment Income	Offsetting of Gains/(Losses)	Net Deferrals Remaining	Years Remaining	Recognized for this valuation	Remaining after this valuation
	(1)	(2)	(3) = (1) + (2)	(4)	(5) = (3) / (4)	(6) = (3) - (5)
2021	$ 0	$ 0	$ 0	1	$ 0	$ 0
2022	0	0	0	2	0	0
2023	(89,546,718)	0	(89,546,718)	3	(29,848,906)	(59,697,812)
2024	(107,612,235)	0	(107,612,235)	4	(26,903,059)	(80,709,176)
Total	$ (197,158,953)	$ 0	$ (197,158,953)		$ (56,751,965)	$ (140,406,988)

8. Actuarial value of assets as of June 30, 2024 (Item 3 - Item 7)	$ 23,841,039,344
9. Ratio of actuarial value to market value	100.6%
10. Asset gain/(loss) for year (Item 8 - Item 5)	$ (56,751,965)

TABLE 7

Estimation of Yields

	June 30, 2024 (1)	June 30, 2023 (2)
A. Market value yield		
1. Beginning of year market assets	$ 22,425,384,975	$ 21,854,814,032
2. Investment income		
a. Change in assets (Item 3 - Item 1)	$ 1,275,247,381	$ 570,570,943
b. Cash Flow	(186,652,756)	(256,331,932)
c. Total investment income based on market value (Item 2a less Item 2b)	$ 1,461,900,137	$ 826,902,875
3. End of year market assets	$ 23,700,632,356	$ 22,425,384,975
4. Estimated dollar weighted market value yield (net of investment and administrative expenses)	6.55%	3.81%
B. Actuarial value yield		
1. Beginning of year actuarial assets	$ 22,514,931,693	$ 21,317,835,653
2. Investment income (based on asset valuation method)		
a. Change in assets (Item 3 - Item 1)	$ 1,326,107,651	$ 1,197,096,040
b. Cash Flow	(186,652,756)	(256,331,932)
c. Total investment income based on market value (Item 2a less Item 2b)	$ 1,512,760,407	$ 1,453,427,972
3. End of year actuarial assets	$ 23,841,039,344	$ 22,514,931,693
4. Estimated actuarial value yield (net of investment and administrative expenses)	6.75%	6.86%

TABLE 8

Allocation of Cash and Investments

		June 30, 2024	June 30, 2023
		(1)	(2)
1.	Cash and short-term equivalents	3.5%	2.2%
2.	Fixed income securities	22.1%	15.7%
3.	Equity securities	22.3%	23.6%
4.	Real assets	18.1%	16.8%
5.	Other	34.0%	41.7%
6.	Total investments	100.0%	100.0%

TABLE 9A

Total Experience Gain or Loss

Item	Police and Firefighters	All Other Employees	All Employees
(1)	(2)	(3)	(4)
A. Calculation of total actuarial gain or loss			
1. Unfunded actuarial accrued liability (UAAL), as of June 30, 2023	$ 2,232,311,338	$ 11,477,374,222	$ 13,709,685,560
2. Normal cost for the year (includes admin expense)	$ 150,043,852	$ 621,605,882	$ 771,649,734
3. Less: contributions and assessments for the year	$ (340,908,409)	$ (1,397,489,648)	$ (1,738,398,057)
4. Interest at 7.00%			
a. On UAAL	$ 156,261,794	$ 803,416,196	$ 959,677,990
b. On normal cost	5,251,535	21,756,206	27,007,741
c. On contributions	(11,931,794)	(48,912,138)	(60,843,932)
d. Total	$ 149,581,535	$ 776,260,264	$ 925,841,799
5. Expected UAAL as of June 30, 2024 (Sum of Items 1 - 4)	$ 2,191,028,316	$ 11,477,750,720	$ 13,668,779,036
6. Actual UAAL as of June 30, 2024	$ 2,232,674,682	$ 11,775,803,709	$ 14,008,478,391
7. Total gain/(loss) for the year (Item 5 - Item 6)	$ (41,646,366)	$ (298,052,989)	$ (339,699,355)
B. Source of gains and losses			
8. Asset gain/(loss) for the year (Table 9b)	$ (12,522,566)	$ (44,229,399)	$ (56,751,965)
9. Gain/(loss) due to change in actuarial assumptions	-	-	-
10. Other liability gain/(loss)	(29,123,800)	(253,823,590)	(282,947,390)
11. Change in benefit provisions	-	-	-
12. Total gain/(loss) for the year	$ (41,646,366)	$ (298,052,989)	$ (339,699,355)

TABLE 9B

Investment Experience Gain or Loss

Item	June 30, 2024	June 30, 2023
(1)	(2)	(3)
1. Actuarial assets, beginning of year	$ 22,514,931,693	$ 21,317,835,653
2. Total contributions during year	$ 1,738,398,057	$ 1,583,982,109
3. Benefits and refunds paid	$ (1,907,050,135)	$ (1,821,764,569)
4. Administrative expenses paid	$ (18,000,678)	$ (18,549,472)
5. Assumed net investment income at 7.00%		
a. Beginning of year assets	$ 1,576,045,219	$ 1,492,248,496
b. Contributions	60,843,932	55,439,374
c. Benefits and refunds paid	(66,746,755)	(63,761,760)
d. Administrative expenses paid	(630,024)	(649,232)
e. Total	$ 1,569,512,372	$ 1,483,276,878
6. Expected actuarial assets, end of year (Sum of items 1 through 5)	$ 23,897,791,309	$ 22,544,780,599
7. Actual actuarial assets, end of year	$ 23,841,039,344	$ 22,514,931,693
8. Asset gain/(loss) for year (Item 7 - Item 6)	$ (56,751,965)	$ (29,848,906)
9. Asset gain/(loss) as a percent of actuarial value of assets, end of year (Item 8 / Item 7)	(0.24%)	(0.13%)

TABLE 9C

Projection Results Based on June 30, 2024 Actuarial Valuation

Valuation as of June 30,	Employer Contribution Rate for Fiscal Year Following Valuation Date	Compensation (in Millions)	Employer Contributions (in Millions)	Actuarial Accrued Liability (AAL, in Millions)	Actuarial Value of Assets (AVA, in Millions)	Unfunded Actuarial Accrued Liability (UAAL, in Millions)	Funded Ratio
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2024	25.85%	$ 5,086	$ 1,315	$ 37,850	$ 23,841	$ 14,008	63.0%
2025	25.84%	5,210	1,346	39,170	25,140	14,030	64.2%
2026	25.82%	5,355	1,383	40,479	26,460	14,019	65.4%
2027	25.80%	5,505	1,420	41,784	27,814	13,970	66.6%
2028	25.79%	5,660	1,459	43,083	29,204	13,880	67.8%
2029	25.77%	5,819	1,500	44,380	30,637	13,743	69.0%
2030	25.76%	5,984	1,541	45,673	32,116	13,557	70.3%
2031	25.73%	6,155	1,584	46,962	33,646	13,316	71.6%
2032	25.73%	6,331	1,629	48,247	35,231	13,016	73.0%
2033	25.73%	6,512	1,676	49,526	36,878	12,649	74.5%
2034	25.73%	6,699	1,724	50,801	38,591	12,210	76.0%
2035	25.73%	6,894	1,774	52,073	40,381	11,692	77.5%
2036	25.73%	7,094	1,825	53,342	42,253	11,088	79.2%
2037	25.73%	7,302	1,879	54,609	44,217	10,392	81.0%
2038	25.73%	7,518	1,935	55,877	46,283	9,594	82.8%
2039	25.73%	7,744	1,993	57,150	48,463	8,687	84.8%
2040	25.73%	7,978	2,053	58,431	50,771	7,660	86.9%
2041	25.73%	8,223	2,116	59,728	53,223	6,505	89.1%
2042	25.73%	8,475	2,181	61,043	55,833	5,209	91.5%
2043	25.73%	8,738	2,248	62,380	58,616	3,763	94.0%
2044	25.73%	9,009	2,318	63,744	61,590	2,154	96.6%
2045	25.73%	9,289	2,390	65,140	64,773	367	99.4%
2046	25.73%	9,579	2,465	66,573	68,181	(1,609)	102.4%
2047	25.73%	9,879	2,542	68,047	71,837	(3,789)	105.6%
2048	25.73%	10,190	2,622	69,571	75,761	(6,191)	108.9%
2049	25.73%	10,510	2,704	71,149	79,979	(8,830)	112.4%
2050	25.73%	10,839	2,789	72,785	84,512	(11,727)	116.1%
2051	25.73%	11,179	2,876	74,484	89,383	(14,900)	120.0%
2052	25.73%	11,527	2,966	76,248	94,617	(18,370)	124.1%
2053	25.73%	11,887	3,059	78,080	100,240	(22,160)	128.4%

TABLE 10

Employer Covered Payroll

	Police and Firefighters		All Other Employees		All Employees	
	March 31, 2024	March 31, 2023	March 31, 2024	March 31, 2023	March 31, 2024	March 31, 2023
	(1)	(2)	(3)	(4)	(5)	(6)
State of Hawaii	$ 23,876,807	$ 22,596,296	$ 3,650,856,207	$ 3,424,929,968	$ 3,674,733,014	$ 3,447,526,264
City & County of Honolulu	323,638,244	317,972,053	402,187,451	374,043,550	725,825,695	692,015,603
Board of Water Supply	-	-	40,153,296	39,320,778	40,153,296	39,320,778
County of Hawaii	89,312,550	85,215,972	124,886,400	116,945,043	214,198,950	202,161,015
County of Maui	68,074,377	62,680,822	136,075,991	127,636,344	204,150,368	190,317,166
County of Kauai	29,803,568	28,657,456	68,044,841	63,483,960	97,848,409	92,141,416
Total All Employers	$ 534,705,546	$ 517,122,599	$ 4,422,204,186	$ 4,146,359,643	$ 4,956,909,732	$ 4,663,482,242

Table 11

Schedule of Funding Progress

Valuation Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2)/(3)	Annual Covered Payroll	UAAL as % of Payroll (4)/(6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
June 30, 2006 *	$ 9,529.4	$ 14,661.4	$ 5,132.0	65.0%	$ 3,238.3	158.5%
June 30, 2007 **	10,589.8	15,696.5	5,106.8	67.5%	3,507.0	145.6%
June 30, 2008	11,381.0	16,549.1	5,168.1	68.8%	3,782.1	136.6%
June 30, 2009	11,400.1	17,636.4	6,236.3	64.6%	4,030.1	154.7%
June 30, 2010	11,345.6	18,483.7	7,138.1	61.4%	3,895.7	183.2%
June 30, 2011 **	11,942.8	20,096.9	8,154.2	59.4%	3,916.0	208.2%
June 30, 2012	12,242.5	20,683.4	8,440.9	59.2%	3,890.0	217.0%
June 30, 2013	12,748.8	21,243.7	8,494.9	60.0%	3,906.7	217.4%
June 30, 2014	13,641.8	22,220.1	8,578.3	61.4%	3,991.6	214.9%
June 30, 2015**	14,463.7	23,238.4	8,774.7	62.2%	4,171.4	210.4%
June 30, 2016**	14,998.7	27,439.2	12,440.5	54.7%	4,258.9	292.1%
June 30, 2017	15,720.6	28,648.6	12,928.0	54.9%	4,265.0	303.1%
June 30, 2018	16,512.7	29,917.4	13,404.7	55.2%	4,383.7	305.8%
June 30, 2019**	17,322.2	31,396.4	14,074.3	55.2%	4,519.7	311.4%
June 30, 2020	18,084.4	32,691.8	14,607.4	55.3%	4,630.2	315.5%
June 30, 2021	19,909.8	34,139.2	14,229.4	58.3%	4,783.8	297.5%
June 30, 2022**	21,317.8	34,822.8	13,504.9	61.2%	4,614.0	292.7%
June 30, 2023	22,514.9	36,224.6	13,709.7	62.2%	4,805.3	285.3%
June 30, 2024	23,841.0	37,849.5	14,008.5	63.0%	5,084.7	275.5%

Note : Dollar amounts in millions.

* Assumption changes and new Hybrid class effective June 30, 2006.

** New assumption effective on valuation date.

TABLE 12A

Membership Data

	Police and Firefighters		All Other Employees		All Employees	
	June 30, 2024	June 30, 2023	June 30, 2024	June 30, 2023	June 30, 2024	June 30, 2023
	(1)	(2)	(3)	(4)	(5)	(6)
1. Active members						
a. Number	4,791	4,832	60,546	59,411	65,337	64,243
b. Total salary	$ 534,705,546	$ 517,122,599	$ 4,422,204,186	$ 4,146,359,643	$ 4,956,909,732	$ 4,663,482,242
c. Average salary	$ 111,606	$ 107,020	$ 73,039	$ 69,791	$ 75,867	$ 72,591
d. Average age	42.5	42.5	48.3	48.4	47.9	48.0
e. Average service	14.1	14.0	12.8	13.0	12.9	13.1
2. Inactive members						
a. Number	235	228	8,612	8,769	8,847	8,997
b. Total annual deferred benefits	$ 6,055,757	$ 5,331,907	$ 107,356,266	$ 107,547,445	$ 113,412,023	$ 112,879,352
c. Average annual deferred benefit	$ 25,769	$ 23,386	$ 12,466	$ 12,265	$ 12,819	$ 12,546
3. Service retirees						
a. Number	4,207	4,156	44,413	43,782	48,620	47,938
b. Total annual benefits	$ 306,722,571	$ 293,231,396	$ 1,365,908,147	$ 1,315,364,185	$ 1,672,630,718	$ 1,608,595,581
c. Average annual benefit	$ 72,908	$ 70,556	$ 30,755	$ 30,043	$ 34,402	$ 33,556
4. Disabled retirees						
a. Number	124	124	1,645	1,630	1,769	1,754
b. Total annual benefits	$ 3,692,776	$ 3,573,996	$ 27,749,273	$ 26,638,064	$ 31,442,049	$ 30,212,060
c. Average annual benefit	$ 29,780	$ 28,823	$ 16,869	$ 16,342	$ 17,774	$ 17,225
5. Beneficiaries						
a. Number	429	407	5,002	4,874	5,431	5,281
b. Total annual benefits	$ 20,511,498	$ 18,958,831	$ 97,877,735	$ 93,297,190	$ 118,389,233	$ 112,256,021
c. Average annual benefit	$ 47,812	$ 46,582	$ 19,568	$ 19,142	$ 21,799	$ 21,257

TABLE 12B

Historical Summary of Active Member Data

Year Ending June 30,	Active Members: Number	Active Members: Percent Increase	Total Salaries: Amount in $ Millions	Total Salaries: Percent Increase	Average Salary: $ Amount	Average Salary: Percent Increase	Average Age	Average Service
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2004	62,573	0.5%	$ 2,755.5	1.4%	$ 44,037	0.9%	46.0	13.0
2005	63,073	0.8%	2,924.5	6.1%	46,368	5.3%	46.3	13.0
2006	64,069	1.6%	3,113.7	6.5%	48,599	4.8%	46.4	13.0
2007	65,251	1.8%	3,340.5	7.3%	51,194	5.3%	46.5	13.0
2008	66,589	2.1%	3,601.7	7.8%	54,089	5.7%	46.6	12.9
2009	67,912	2.0%	3,838.0	6.6%	56,514	4.5%	46.8	12.9
2010	65,890	-3.0%	3,713.6	-3.2%	56,360	-0.3%	47.1	13.2
2011	65,310	-0.9%	3,731.4	0.5%	57,133	1.4%	47.4	13.4
2012	65,599	0.4%	3,706.1	-0.7%	56,497	-1.1%	47.6	13.5
2013	66,226	1.0%	3,720.8	0.4%	56,184	-0.6%	47.7	13.5
2014	67,206	1.5%	3,871.0	4.0%	57,600	2.5%	47.8	13.5
2015	67,310	0.2%	3,952.6	2.1%	58,723	1.9%	47.8	13.2
2016	67,377	0.1%	4,118.4	4.2%	61,124	4.1%	47.9	13.3
2017	65,911	-2.2%	4,134.2	0.4%	62,723	2.6%	48.0	13.3
2018	66,271	0.5%	4,257.2	3.0%	64,240	2.4%	47.9	13.2
2019	66,383	0.2%	4,393.0	3.2%	66,176	3.0%	47.9	13.1
2020	66,750	0.6%	4,523.4	3.0%	67,766	2.4%	47.9	13.1
2021	65,561	-1.8%	4,622.0	2.2%	70,499	4.0%	48.0	13.2
2022	64,234	-2.0%	4,537.2	-1.8%	70,635	0.2%	48.0	13.2
2023	64,243	0.0%	4,663.5	2.8%	72,591	2.8%	48.0	13.1
2024	65,337	1.7%	4,956.9	6.3%	75,867	4.5%	47.9	12.9

TABLE 13

History of Cash Flow

Year Ending June 30, (1)	Contributions: Employee (2)	Contributions: Employer (3)	Contributions: Total (4)	Expenditures: Benefit Payments (5)	Expenditures: Refunds (6)	Expenditures: Administrative Expenses[1] (7)	Expenditures: Total (8)	External Cash Flow for the Year[2] (9)	Market Value of Assets (10)	External Cash Flow as Percent of Market Value (11)
2009	$ 184.5	$ 578.6	$ 763.1	$ (839.1)	$ (3.5)	$ (12.3)	$ (854.9)	$ (91.8)	$ 8,818.0	(1.0%)
2010	360.0	547.6	907.6	(906.4)	(7.8)	(12.2)	(926.4)	(18.8)	9,821.6	(0.2%)
2011	231.0	534.9	765.9	(960.2)	(7.9)	(13.3)	(981.4)	(215.5)	11,642.3	(1.9%)
2012	178.8	548.4	727.2	(1,015.4)	(7.2)	(11.6)	(1,034.2)	(307.0)	11,285.9	(2.7%)
2013	185.8	581.4	767.2	(1,060.6)	(7.2)	(12.3)	(1,080.1)	(312.9)	12,357.8	(2.5%)
2014	206.1	653.1	859.2	(1,122.4)	(8.5)	(12.6)	(1,143.5)	(284.3)	14,203.0	(2.0%)
2015	223.5	717.8	941.3	(1,170.7)	(10.5)	(14.0)	(1,195.2)	(253.9)	14,505.5	(1.8%)
2016	236.8	756.6	993.4	(1,232.6)	(12.9)	(14.0)	(1,259.5)	(266.1)	14,070.0	(1.9%)
2017	250.7	781.2	1,031.9	(1,306.8)	(16.3)	(15.0)	(1,338.1)	(306.2)	15,698.3	(2.0%)
2018	259.4	847.6	1,107.0	(1,395.9)	(20.8)	(15.8)	(1,432.5)	(325.5)	16,598.4	(2.0%)
2019	273.2	922.6	1,195.8	(1,469.6)	(16.5)	(13.8)	(1,499.9)	(304.1)	17,227.0	(1.8%)
2020	287.4	1,098.6	1,386.0	(1,545.6)	(22.4)	(17.8)	(1,585.8)	(199.8)	17,385.5	(1.1%)
2021	300.6	1,281.6	1,582.2	(1,651.4)	(23.6)	(19.0)	(1,694.0)	(111.8)	21,935.8	(0.5%)
2022	293.0	1,242.1	1,535.1	(1,738.8)	(24.5)	(17.5)	(1,780.8)	(245.7)	21,854.8	(1.1%)
2023	309.8	1,274.2	1,584.0	(1,795.4)	(26.4)	(18.5)	(1,840.3)	(256.3)	22,425.4	(1.1%)
2024	342.1	1,396.3	1,738.4	(1,878.5)	(28.5)	(18.0)	(1,925.0)	(186.6)	23,700.6	(0.8%)

Amounts in $ millions

[1] Excludes investment expenses

[2] Column (9) = Column (4) + Column (8)

TABLE 14

Solvency Test

	June 30, 2024 (1)	June 30, 2023 (2)
1. Actuarial accrued liability (AAL)		
a. Active member contributions	$ 3,437,939,005	$ 2,290,437,945
b. Retirees and beneficiaries	21,210,723,793	20,428,643,371
c. Active and inactive members	13,200,854,937	13,505,535,937
d. Total	$ 37,849,517,735	$ 36,224,617,253
2. Actuarial value of assets	$ 23,841,039,344	$ 22,514,931,693
3. Cumulative portion of AAL covered		
a. Active member contributions	100%	100%
b. Retirees and beneficiaries	96%	99%
c. Active and inactive members	0%	0%

TABLE 15

Highlights of Last Five Annual Actuarial Valuations

2020 through 2024

Item	Valuation Date: June 30				
	2020	2021	2022	2023	2024
Number of active members	66,750	65,561	64,234	64,243	65,337
Number of inactive members	9,204	9,011	9,031	8,997	8,847
Number of pensioners	46,486	47,724	48,913	49,692	50,389
Number of beneficiaries	4,667	4,894	5,077	5,281	5,431
Average monthly contributory member pension amount	$ 3,293	$ 3,458	$ 3,632	$ 3,807	$ 3,971
Average monthly noncontributory member pension amount	$ 1,773	$ 1,813	$ 1,861	$ 1,909	$ 1,960
Average monthly hybrid member pension amount	$ 2,345	$ 2,416	$ 2,495	$ 2,555	$ 2,625
Average monthly beneficiary amount	$ 1,610	$ 1,668	$ 1,713	$ 1,771	$ 1,817
Total actuarial value of assets ($millions)	$ 18,084	$ 19,910	$ 21,318	$ 22,515	$ 23,841
Unfunded actuarial accrued liability ($millions)	$ 14,607.4	$ 14,229.4	$ 13,504.9	$ 13,709.7	$ 14,008.5
Funding Period (in years) [1]	26	24	24	23	22
Item (Dollar amounts in millions)	**Fiscal Year**				
	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024
Employer contributions[2]	$ 1,098.6	$ 1,281.6	$ 1,242.1	$ 1,274.2	$ 1,396.3

[1] Beginning with the 2011 valuation, the funding period was determined using an open group projection. Prior valuations determined the remaining amortization based on the assumption that the amortization payment would remain constant as a percentage of pay.

[2] Beginning July 1, 2019, the employer contribution rate was 36.0% for Police and Fire, 22.0% for All Other Employees.
Beginning July 1, 2020, the employer contribution rate was 41.0% for Police and Fire, 24.0% for All Other Employees.

TABLE 16

Summary of Benefit Provisions
(For Members Hired Prior to 7/1/2012)

	Noncontributory	Contributory	Hybrid
Employee Contributions	No employee contributions	7.8% of salary	6.0% of salary
Normal Retirement			
Eligibility	Age 62 and 10 years credited service; or Age 55 and 30 years credited service	Age 55 and 5 years credited service	Age 62 and 5 years credited service; or Age 55 and 30 years credited service
Benefit	1 ¼% of average final compensation times years of credited service (Average Final Compensation or AFC is an average of the highest salaries during any three years of credited service, excluding any salary paid in lieu of vacation or if ERS membership occurred prior to 1/1/71, AFC may be an average of the highest salaries during any five years of credited service including any salary paid in lieu of vacation.)	2% of average final compensation times years of credited service (Average Final Compensation or AFC is an average of the highest salaries during any three years of credited service, excluding any salary paid in lieu of vacation or if ERS membership occurred prior to 1/1/71, AFC may be an average of the highest salaries during any five years of credited service including any salary paid in lieu of vacation.)	2% of average final compensation times years of credited service, split formula for unconverted noncontributory service at 1 ¼% (Average Final Compensation or AFC is an average of the highest salaries during any three years of credited service, excluding any salary paid in lieu of vacation or if ERS membership occurred prior to 1/1/71, AFC may be an average of the highest salaries during any five years of credited service including any salary paid in lieu of vacation.)

TABLE 16 (CONTINUED)

	Noncontributory	Contributory	Hybrid
Early Retirement			
Eligibility	Age 55 and 20 years credited service	Any age and 25 years credited service	Age 55 with 20 years credited service
Benefit	Maximum allowance reduced 6% per year under age 62	Maximum allowance reduced 5% per year under age 55 plus 4% per year under age 50	Maximum allowance reduced 5% for each year under age 62
Deferred Vesting			
Eligibility	10 years credited service	5 years credited service and contributions left in ERS	5 years credited service and contributions left in ERS
Benefit	Accrued maximum allowance payable at age 65	Accrued maximum allowance payable at age 55	Accrued maximum allowance payable at age 62
Annuity Savings Account			
Interest	Not applicable	4.5% per annum on employee contributions and accrued interest	4.5% per annum on employee contributions and accrued interest
Eligibility	Not applicable	Requests refund and forfeits future retirement benefit	Requests refund and forfeits future retirement benefit
Benefit			
- Terminates with less than 5 years credited service	Not applicable	Return of member's contributions and accrued interest	Return of member's contributions and accrued interest
- Terminates with 5 or more years of credited service	Not applicable	Return of member's contributions and accrued interest	Return of member's Hybrid contributions and accrued interest, both times 150%. Return of non-Hybrid balance transfers and accrued interest.

TABLE 16 (CONTINUED)

	Noncontributory	Contributory	Hybrid
Ordinary Disability			
Eligibility	10 years credited service	10 years credited service	10 years credited service
Benefit	1 ¼% of AFC times years of credited service, unreduced for age (Minimum is 12.5% of AFC)	1 ¾% of AFC times years of credited service, unreduced for age (Minimum is 30% of AFC)	2% of AFC times years of credited service, unreduced for age, split formula for unconverted noncontributory service at 1 ¼% (Minimum is 25% of AFC)
Service-Connected Disability			
Eligibility	Any age or credited service	Any age or credited service	Any age or credited service
Benefit	Accrued maximum allowance, but not less than 15% AFC. For accidents that occur on or after July 1, 2004, lifetime pension of 35% of AFC.	Totally disabled: lifetime pension of 66 2/3% AFC plus annuity. Occupationally disabled: same benefit (66 2/3% pension plus annuity) paid for 3 years and then pension is reduced to 33 1/3% AFC if not totally disabled. For accidents on or after July 7, 1998, lifetime pension of 50% of AFC plus refund of member's contributions and accrued interest.	Lifetime pension of 35% of AFC plus refund of member's contributions and accrued interest.

TABLE 16 (CONTINUED)

	Noncontributory	Contributory	Hybrid
Ordinary Death			
Eligibility	Active employee at time of death with at least 10 years of credited service	Active employee at time of death with at least 1 year of service	Active employee at time of death with at least 5 years of service
Benefit	Surviving spouse/reciprocal beneficiary and dependent children receive a benefit equal to a percentage of member's accrued maximum allowance unreduced for age; or Option B (100% Joint and Survivor) benefit for surviving spouse if member was eligible for retirement at time of death and a percentage of member's accrued maximum allowance unreduced for age for the dependent children	Lump sum payment of member's contributions and accrued interest plus a percentage of the salary earned in the 12 months preceding death; or Option 3 (50% Joint and Survivor) benefit if member was not eligible for retirement at the time of death, credited with 10 years of service, and one beneficiary designated (benefit calculated using the ordinary disability retirement formula); or Option 2 (100% Joint and Survivor) benefit if member was eligible for retirement at the time of death and one beneficiary designated	Return of member's Hybrid contributions and accrued interest (both times 150%) plus return of non-Hybrid balance transfers and accrued interest; or Option 3 (50% Joint Survivor) lifetime benefit if credited with at least 10 years of service and one beneficiary designated; or Option 2 (100% Joint Survivor) lifetime monthly benefit if member was eligible for service retirement at time of death, and one beneficiary designated

TABLE 16 (CONTINUED)

	Noncontributory	Contributory	Hybrid
Service-Connected Death			
Eligibility	Any age or service	Any age or service	Any age or service
Benefit	Surviving spouse/reciprocal beneficiary receives pension equal to 30% of AFC (until remarriage or re-entry into a new reciprocal beneficiary relationship); additional benefits payable to surviving dependent children (up to age 18)	Lump sum payment of member's contributions and accrued interest, plus pension of 50% AFC to surviving spouse/reciprocal beneficiary (until remarriage or re-entry into a new reciprocal beneficiary relationship);	Lump sum payment of member's contributions and accrued interest, plus pension of 50% AFC to surviving spouse/reciprocal beneficiary (until remarriage or re-entry into a new reciprocal beneficiary relationship);
	If there is no spouse/reciprocal beneficiary or dependent children, no benefit is payable.	If there is no surviving spouse or reciprocal beneficiary, surviving dependent children (up to age 18) or dependent parents shall be eligible for a monthly benefit.	If there is no surviving spouse or reciprocal beneficiary, surviving dependent children (up to age 18) or dependent parents shall be eligible for a monthly benefit.
		If there is no spouse/reciprocal beneficiary or dependent children/parents, the ordinary death benefit shall be payable to the designated beneficiary.	If there is no spouse/reciprocal beneficiary or dependent children/parents, the ordinary death benefit shall be payable to the designated beneficiary.

TABLE 16 (CONTINUED)

For members hired after June 30, 2011, the interest crediting rate on employee contributions and accrued interest is 2.0% per annum.

The plan provisions summarized above apply to teachers and most State and County employees. Special provisions applicable to other groups of employees are outlined below:

A. Police officers, firefighters, investigators of the Department of the Prosecuting Attorney and the Attorney General, narcotic enforcement investigators, and public safety investigators contribute 12.2% of their monthly salary to ERS instead of 7.8%. These members may retire at age 55 with 5 years of credited service or at any age with 25 years of credited service and receive a retirement benefit of 2 ½% of average final compensation (AFC) for each year of such service up to a maximum of 80% AFC, provided the last 5 years of credited service in any of these occupations.

B. Judges, elected officials, and legislative officers may retire at age 55 with at least 5 years of credited service, or at any age with at least 10 years of credited service and receive a pension of 3 ½% of AFC for each year of such service plus an annuity from their contributions allocable to the period of such service. This benefit cannot exceed 75% of the AFC. Judges hired after June 30, 1999 require 25 years of credited service in order to retire before age 55.

C. Sewer workers in specified classifications, water safety officers, and emergency medical technicians (EMTs) may retire at any age if they are credited with 25 years of such service with the last 5 or more years in these occupations. (The 25-year feature is phased in through 7/1/2008 for EMTs.)

D. Sewer workers in specified classifications, water safety officers, and emergency medical technicians (EMTs) that transfer to the Hybrid class contribute 9.75% of their monthly salary to ERS. These members may retire at age 62 with 5 years of credited service or at any age if they are credited with 25 years of such service with the last 5 or more years in these occupations.

TABLE 16 (CONTINUED)

Summary of Benefit Provisions

(For Members Hired After 6/30/2012)

	Contributory (for Police/Fire)	Contributory (for Judges/Elected Officers)	Hybrid
Employee Contributions	14.2% of base pay earnings	9.8% of base pay earnings	8.0% of base pay earnings 11.75% of base pay earnings for Sewer workers, water safety officers, and emergency medical technicians (EMTs)
Normal Retirement Eligibility	Age 60 and 10 years credited service	Age 60 and 10 years credited service	Age 65 and 10 years credited service; or Age 60 and 30 years credited service Sewer workers, water safety officers, and EMTs may retire with 25 years credited service at age 55.
Benefit	2.25% of average final compensation times years of credited service. (Average final compensation or AFC is an average of the highest base pay earnings during any five years of credited service, excluding any salary paid in lieu of vacation.) Maximum is 80% of AFC.	3.0% of average final compensation times years of credited service (Average final compensation or AFC is an average of the highest base pay earnings during any five years of credited service, excluding any salary paid in lieu of vacation.) Maximum is 75% of AFC.	1.75% of average final compensation times years of credited service (Average final compensation or AFC is an average of the highest base pay earnings during any five years of credited service, excluding any salary paid in lieu of vacation.)

TABLE 16 (CONTINUED)

	Contributory (for Police/Fire)	Contributory (for Judges/Elected Officers)	Hybrid
Early Retirement			
Eligibility	Age 55 and 25 years credited service	Age 55 and 25 years credited service Any age with10 years for elected officers	Age 55 with 20 years credited service Sewer workers, water safety officers, and emergency medical technicians (EMTs) may retire with 25 years credited service.
Benefit	Maximum allowance reduced 6% per year under age 60	Maximum allowance reduced 6% per year under age 60	Maximum allowance reduced 5% for each year under age 65
Deferred Vesting Eligibility	10 years credited service and contributions left in ERS	10 years credited service and contributions left in ERS	10 years credited service and contributions left in ERS
Benefit	Accrued maximum allowance payable at age 60	Accrued maximum allowance payable at age 60	Accrued maximum allowance payable at age 65
Annuity Savings Account Interest	2.0% per annum	2.0% per annum	2.0% per annum
Eligibility	Requests refund and forfeits future retirement benefit	Requests refund and forfeits future retirement benefit	Requests refund and forfeits future retirement benefit
Benefit			
- Terminates with less than 10 years credited service	Return of member's contributions and accrued interest	Return of member's contributions and accrued interest	Return of member's contributions and accrued interest
- Terminates with 10 or more years of credited service	Return of member's contributions and accrued interest	Return of member's contributions and accrued interest	Return of member's contributions and accrued interest, both times 120%

TABLE 16 (CONTINUED)

	Contributory (for Police/Fire)	Contributory (for Judges/Elected Officers)	Hybrid
Ordinary Disability			
Eligibility	10 years credited service	10 years credited service	10 years credited service
Benefit	1 ¾% of AFC times years of credited service, unreduced for age (Minimum is 30% of AFC)	3.0% of AFC times years of credited service, unreduced for age (Minimum is 30% of AFC)	1 ¾% of AFC times years of credited service, unreduced for age (Minimum is 25% of AFC)
Service-Connected Disability			
Eligibility	Any age or credited service	Any age or credited service	Any age or credited service
Benefit	Lifetime pension of 50% of AFC plus refund of member's contributions and accrued interest.	Lifetime pension of 50% of AFC plus refund of member's contributions and accrued interest.	Lifetime pension of 35% of AFC plus refund of member's contributions and accrued interest.

TABLE 16 (CONTINUED)

	Contributory (for Police/Fire)	Contributory (for Judges/Elected Officers)	Hybrid
Ordinary Death			
Eligibility	Active employee at time of death with at least 1 years of credited service	Active employee at time of death with at least 1 years of credited service	Active employee at time of death with at least 10 years of service
Benefit	Lump sum payment of member's contributions and accrued interest plus a percentage of the salary earned in the 12 months preceding death; or	Lump sum payment of member's contributions and accrued interest plus a percentage of the salary earned in the 12 months preceding death; or	Return of member's Hybrid contributions and interest; or
	Option 3 (50% Joint Survivor) lifetime benefit if credited with at least 10 years of service and one beneficiary designated; or	Option 3 (50% Joint Survivor) lifetime benefit if credited with at least 10 years of service and one beneficiary designated; or	Option 3 (50% Joint Survivor) lifetime benefit if credited with at least 10 years of service and one beneficiary designated; or
	Option 2 (100% Joint Survivor) lifetime monthly benefit if member was eligible for service retirement at time of death, and one beneficiary designated	Option 2 (100% Joint Survivor) lifetime monthly benefit if member was eligible for service retirement at time of death, and one beneficiary designated	Option 2 (100% Joint Survivor) lifetime monthly benefit if member was eligible for service retirement at time of death, and one beneficiary designated

TABLE 16 (CONTINUED)

	Contributory (for Police/Fire)	Contributory (for Judges/Elected Officers)	Hybrid
Service-Connected Death			
Eligibility	Any age or service	Any age or service	Any age or service
Benefit	Same for all members.		

Lump sum payment of member's contributions and interest, plus pension of 50% AFC to surviving spouse/reciprocal beneficiary (until remarriage or re-entry into a new reciprocal beneficiary relationship);

If there is no surviving spouse or reciprocal beneficiary, surviving dependent children (up to age 18) or dependent parents shall be eligible for a monthly benefit.

If there is no spouse/reciprocal beneficiary or dependent children/parents, the ordinary death benefit shall be payable to the designated beneficiary.

TABLE 16 (CONTINUED)

Post Retirement Benefit

Each retiree's original retirement allowance is increased by 1 ½% (if their membership date is after June 30, 2012) or 2 ½% (if their membership date is before July 1, 2012) on each July 1 beginning the calendar year after retirement. This cumulative benefit is not compounded.

Retirement Options

Contributory or Hybrid Member

Maximum Allowance: The member receives a lifetime maximum allowance and at death the difference between the value of the member's contributions at the time of retirement and the retirement allowance paid prior to death is paid to the designated beneficiary(ies) or estate.

Option One: The member receives a reduced lifetime allowance based on age and at death, the difference between the initial insurance reserve and the retirement allowance paid prior to death is paid to the designated beneficiary(ies) or estate.

Option Two (100% Joint and Survivor with Pop-Up): The member receives a reduced lifetime allowance based on ages of both the member and the sole beneficiary and at death of the member; the same allowance is paid to the designated beneficiary for life. Should the designated beneficiary predecease the retiree, another beneficiary cannot be named, the benefit will revert back to the Maximum Allowance, and all payments will cease at the retiree's death.

Option Three (50% Joint and Survivor with Pop-Up): This allowance is similar to Option Two. The member receives a reduced lifetime allowance which is higher than Option Two and is based on ages of both the member and the sole beneficiary; however, at death of the member one-half of the allowance is paid to the designated beneficiary for life. Like Option Two, should the designated beneficiary predecease the retiree, another beneficiary cannot be named, the benefit will revert back to the Maximum Allowance, and all payments will cease at the retiree's death.

Option Four: This option allows the member to devise an allowance that will provide a benefit according to the member's specifications. It requires certification by the Actuary and approval of the Board of Trustees. The following Option Four allowances have been approved:

Combination of Options Five and Maximum Allowance: The member receives a reduced lifetime allowance and is allowed to withdraw the pre-1987 nontaxable contribution, 50% of accumulated contributions, or 75% of accumulated contributions (Hybrid class members are not allowed the 75% option); at death, the difference between the value of the member's contributions at the time of retirement and the retirement allowance paid prior to death is paid to the designated beneficiary(ies) or estate.

Combination of Options Five and One: The member receives a reduced lifetime allowance and is allowed to withdraw the pre-1987 nontaxable contributions, 50% of accumulated contributions, or 75% of accumulated contributions (Hybrid class members are not allowed the 75% option); at death, the difference between the initial insurance reserve and the retirement allowance paid prior to death is paid to the designated beneficiary(ies) or estate.

<u>Combination of Options Five and Two</u>: The member receives a reduced lifetime allowance based on ages of both member and the sole beneficiary, and is allowed to withdraw the pre-1987 nontaxable contributions, 50% of accumulated contributions, or 75% of accumulated contributions (Hybrid class members are not allowed the 75% option); at death of the member, the same allowance is paid to the designated beneficiary for life. As in the case of Option Two, should the designated beneficiary predecease the retiree, another beneficiary cannot be named, the benefit will revert back to the Maximum Allowance (as adjusted for the contribution withdrawal), and all payments will cease at the retiree's death.

<u>Combination of Options Five and Three</u>: The member receives a reduced lifetime allowance based on ages of both member and the sole beneficiary, and is allowed to withdraw the pre-1987 nontaxable contributions, 50% of accumulated contributions, or 75% of accumulated contributions (Hybrid class members are not allowed the 75% option); at death of the member, one-half of the allowance is paid to the designated beneficiary for life. As in the case of Option Three, should the designated beneficiary predecease the retiree, another beneficiary cannot be named, the benefit will revert back to the Maximum Allowance (as adjusted for the contribution withdrawal), and all payments will cease at the retiree's death.

Option Five: The member receives a reduced lifetime allowance and is allowed to withdraw all accumulated contributions; at death, the retirant is entitled to the pension for the entire month that death occurs.

Option Four and Option Five are restricted to those members with at least ten years of credited service excluding unused sick leave credit.

Regardless of the option selected, should death occur during the first year of retirement, the designated beneficiary may elect to receive benefits as if death had occurred immediately prior to retirement in lieu of the death benefits described above.

<u>Noncontributory Member</u>

Maximum Allowance: The member receives a lifetime pension and at death, the retirant is entitled to the pension for the entire month that death occurs.

Option A (50% Joint and Survivor with Pop-Up): The member receives a reduced lifetime pension and at death of the member, one-half of the pension is paid to the sole designated beneficiary for life. Should the designated beneficiary predecease the retiree, another beneficiary cannot be named, the benefit will revert back to the Maximum Allowance, and all payments will cease at the retiree's death.

Option B (100% Joint and Survivor with Pop-up): The member receives a reduced lifetime pension and at death of the member, the same pension is paid to the sole designated beneficiary for life. Like Option A, should the designated beneficiary predecease the retiree, another beneficiary cannot be named, the benefit will revert back to the Maximum Allowance, and all payments will cease at the retiree's death.

Option C (Ten-Year Guarantee): The member receives a reduced lifetime pension. Should death occur within ten years of retirement, the same pension will be paid to the designated beneficiary for the balance of the ten-year period. Should the designated beneficiary predecease the retiree, another beneficiary can be named.

Regardless of the option selected, should death occur during the first year of retirement, the designated beneficiary may elect to receive benefits as if death had occurred immediately prior to retirement in lieu of the death benefits described above.

TABLE 17

Summary of Plan Changes

Act 65, effective July 1, 1999

Requires judges who enter or re-enter service after June 30, 1999 to be at least 55 years old and five years of service or have 25 years of service to retire.

Act 100, effective June 30, 1999

Uses actuarial investment earnings in excess of a ten percent (10%) actuarial investment yield rate to reduce the employer's contribution requirements by $147.0 million and $50.6 million for fiscal years ending June 30, 2000 and 2001, respectively.

Act 284, effective June 30, 2001

Provide an increase in pension benefits for current retirees with military service who retired prior to July 2, 1989. A retirant who rendered honorable active military service could be granted up to 4 years of military service credits based upon his/her years of credited service under ERS, not to exceed his/her actual years of military service. The years of military service credits granted are based on the following schedule:

- 0 years for retirants with less than 8 years of credited service
- Up to 2 years of retirants with 8 years or more of credited service
- Up to 3 years of retirants with 20 years or more of credited service
- Up to 4 years of retirants with 25 years or more of credited service

For each year of military service credits granted on the schedule above, the retirant will be provided a $36.00 increase in his/her monthly pension or retirement allowance.

Act 199, effective June 30, 2003

Emergency Medical Technicians (EMTs) are allowed to retire with an unreduced benefit after 25 years of service regardless of age, of which the last five or more years prior to retirement must be in that capacity. This feature is phased in one year at a time, July 1, 2003 through June 30, 2008.

Act 177, effective July 1, 2004

This Act allows police officers with a permanent service-connected disability to retain the 2-1/2% benefit multiplier for each year of service as a police officer.

Act 181, effective July 1, 2004

This Act establishes fixed employer contribution rates as a percentage of compensation effective July 1, 2005. Employers will contribute 15.75% for their police officers and firefighters and 13.75% for other employees.

TABLE 17 (CONTINUED)

<u>Act 183, effective July 1, 2004</u>

This Act amends ERS's statutes to comply with the federal tax limits on compensation retroactive to July 1, 1996.

<u>Act 56, effective December 1, 2004</u>

This Act amends ERS's statutes to allow the automatic cost-of-living-adjustment to be reflected when determining actuarial equivalent optional forms of payment.

<u>Act 256, effective July 5, 2007</u>

Legislation was enacted to remove the statutory salary increase assumption from the statutes and to grant ERS's Board of Trustees the authority to set the salary increase assumption. As a result of this legislation, the Board has adopted effective with this valuation the salary increase assumption recommended by GRS as a result of the Experience Study performed in 2006.

Legislation was also enacted to increase the employer contribution rates to ERS. Effective July 1, 2008, the employer contribution rate for Police and Fire employees will increase from 15.75% to 19.70% and the rate for All Other employees will increase from 13.75% to 15.00%.

<u>Act 163, effective June 23, 2011</u>

Legislation was enacted that increased the future employer contribution rates to ERS. Employers of Police and Fire employees will contribute 22% of pay in FY 2013, 23% in FY 2014, 24% in FY 2015, and 25% in FY 2016 and beyond. Employers of All Other Employees will contribute 15.5% of pay in FY 2013, 16.0% in FY 2014, 16.5% in FY 2015, and 17.0% in FY 2016 and beyond.

TABLE 17 (CONTINUED)

Legislation was enacted that made numerous changes to the benefits and member contribution rates for employees hired after June 30, 2012. Key changes are shown below:

Benefit Provision	Police & Fire Employees	All Other Employees
Benefit Multiplier	2.25%	1.75%
Normal Retirement	Age 55 with 25 years of service, or age 60 with 10 years of service	Age 60 with 30 years of service, or age 65 with 10 years of service
Post-Retirement Increase	1.5%	1.5%
Hybrid Match	N/A	120%
Average Final Compensation	Highest 5 annual base salaries	Highest 5 annual base salaries
Eligibility for Deferred Benefit	10 years of service	10 years of service
Member Contribution Rate	14.20%	8.00%

Similar changes were also made to the benefits of Judges, Legislative Officers, etc.

Similar changes were also made to those employees in the All Other Employees group who are eligible to retire at 25 years of service including the addition of a minimum age requirement (55).

Finally, legislation was enacted that set the investment return assumption for the June 30, 2011 valuation at 7.75% (the rate recommended in the Experience Study presented to the Board in December of 2010). In addition, the legislation granted ERS's Board the authority to set this assumption for valuations after 2011.

Act 152, effective June 26, 2012

Legislation was enacted to eliminate most types of non-base pay from the definition of compensation for employees hired after June 30, 2012. For the impacted employees, non-base pay compensation will be excluded in determining both the contributions made by and on behalf of these employees and the benefits they will earn in the System.

Act 153, effective June 26, 2012

Legislation was enacted to require 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.

TABLE 17 (CONTINUED)

Act 017, effective July 1, 2017

Legislation was enacted that increased the future employer contribution rates to ERS. Employers of Police and Fire employees will contribute 28% of pay in FY 2018, 31% in FY 2019, 36% in FY 2020, and 41% in FY 2021 and beyond. Employers of All Other Employees will contribute 18% of pay in FY 2018, 19% in FY 2019, 22% in FY 2020, and 24% in FY 2021 and beyond.

Act 192, effective June 30, 2024

Legislation was enacted by the 2024 Legislature that set the maximum funding period to 25 years for the June 30, 2024 valuation. Furthermore, the funding period will decrease by one year each year in the future until the maximum funding period is 20 years where it will remain for future years. If the maximum funding period is exceed then the contribution rates may be increased to bring the funding period down to the maximum funding period.

TABLE 18

Summary of Actuarial Methods and Assumptions

Basis for assumption setting: The actuarial assumptions were adopted by the Board on August 8, 2022. Rationale for the recommendations are in the most recent experience study dated June 14, 2022.

I. *Valuation Date*

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

II. *Actuarial Cost Method*

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

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

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

III. *Funding of Unfunded Actuarial Accrued Liability*

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

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

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

TABLE 18 (CONTINUED)

IV. *Actuarial Value of Assets*

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

V. New Entrant Profile

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

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

New Entrant Profile for Police & Fire Employees		
Entry Age	# of Employees	Average Salary
15-19	3	$61,201
20-24	269	69,513
25-29	400	68,341
30-34	299	67,827
35-39	130	67,607
40-44	46	69,374
45-49	18	71,265
50-54	8	104,858
55-59	8	84,861
60+	1	64,503
Total	1,182	68,819

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

TABLE 18 (CONTINUED)

New Entrant Profile for All Other Employees		
Entry Age	# of Employees	Average Salary
15-19	22	$43,491
20-24	1,729	53,099
25-29	3,438	56,065
30-34	2,979	58,010
35-39	2,581	59,630
40-44	2,244	59,308
45-49	1,900	58,198
50-54	1,530	58,652
55-59	1,236	58,531
60-64	624	59,685
65+	98	59,896
Total	18,381	57,727

It is assumed that 40% of new hires will be male and Teachers replace Teachers and Non-Teachers replace Non-Teachers

VI. *Actuarial Assumptions*

A. Economic Assumptions

1. Investment return: 7.00% per year, compounded annually, composed of an assumed 2.50% inflation rate and a 4.50% net real rate of return (net of investment expenses).

2. General Wage Inflation: (used to index each year's group of new entrants in the open group projection) 3.50% per annum for Police and Fire Employees and 3.00% per annum for General Employees and Teachers.

TABLE 18 (CONTINUED)

3. Salary increase rates: As shown below

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

TABLE 18 (CONTINUED)

3. Salary increase rates (continued):

	Police & Fire	
Years of Service	Service-Related Component	Total Annual Rate of Increase Including 2.50% Inflation Component and 2.50% General Increase Rate
1	1.00%	6.00%
2	1.00%	6.00%
3	1.00%	6.00%
4	1.00%	6.00%
5	1.00%	6.00%
6	1.00%	6.00%
7	1.00%	6.00%
8	1.00%	6.00%
9	1.00%	6.00%
10	1.00%	6.00%
11	1.00%	6.00%
12	1.00%	6.00%
13	1.00%	6.00%
14	1.00%	6.00%
15	1.00%	6.00%
16	0.75%	5.75%
17	0.75%	5.75%
18	0.75%	5.75%
19	0.50%	5.50%
20	0.50%	5.50%
21	0.50%	5.50%
22	0.25%	5.25%
23	0.25%	5.25%
24	0.25%	5.25%
25 or more	0.00%	5.00%

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

TABLE 18 (CONTINUED)

B. Demographic Assumptions

1. Mortality rates:

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

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

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

Healthy Annuitant Mortality Rates Before Projection (Multiplier Added)

	General Employees		Teachers		Police & Fire	
Age	Male	Female	Male	Female	Male	Female
50	0.2094%	0.1276%	0.1698%	0.0951%	0.2421%	0.1130%
55	0.3215%	0.1687%	0.2883%	0.1596%	0.3473%	0.1633%
60	0.5570%	0.3095%	0.4672%	0.2467%	0.6179%	0.2799%
65	0.8041%	0.4488%	0.7256%	0.4063%	0.8426%	0.4283%
70	1.2621%	0.7066%	1.0762%	0.6015%	1.4172%	0.6565%
75	2.0700%	1.0964%	1.7879%	0.9358%	2.3227%	1.0121%
80	3.5996%	2.1275%	3.0429%	1.6565%	4.1824%	1.8863%
85	6.5891%	4.1569%	5.5564%	3.2698%	7.6513%	3.6977%
90	11.9340%	8.3647%	10.1056%	6.5007%	13.6689%	7.3991%
Multiplier	102%	98%	97%	101%	93%	100%
Setback	0	-1	1	1	-2	0

TABLE 18 (CONTINUED)

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

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

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

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

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

	General Employees	Teachers	Police & Fire
Type	Male & Female	Male & Female	Male & Female
Ordinary	200%	100%	50%
Accidental	60%	8%	120%

TABLE 18 (CONTINUED)

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

	Expected Terminations per 1000 Lives (Male & Female)		
Years of Service	General Employees	Teachers	Police & Fire
0	177.2	0.0	140.0
1	142.2	197.9	52.4
2	114.2	165.2	41.3
3	92.0	134.8	34.8
4	74.8	108.2	30.2
5	61.7	86.3	26.6
6	51.9	69.4	23.7
7	44.7	57.3	21.3
8	39.6	49.4	19.1
9	35.8	44.5	17.2
10	32.8	41.0	15.6
11	30.3	35.8	10.6
12	27.9	32.4	10.0
13	22.6	29.1	9.4
14	19.8	26.1	8.8
15	17.7	23.2	8.2
16	16.1	20.6	7.6
17	14.8	18.1	7.0
18	13.7	15.8	6.4
19	12.8	13.6	5.8
20	11.9	11.7	5.2
21	11.1	10.0	4.6
22	10.2	8.4	4.0
23	9.3	7.0	3.4
24	8.3	5.8	2.8
25	7.1	4.8	0.0
26	6.0	4.0	0.0
27	4.7	3.3	0.0
28	3.5	2.8	0.0
29	2.4	2.6	0.0
30	0.0	2.5	0.0
31 and more	0.0	0.0	0.0

TABLE 18 (CONTINUED)

4. Retirement Rates – separate male and female rates, based on age. Sample rates are shown below:

Contributory Members

	Expected Retirements per 100 Lives								
	General Employees				Teachers				Police & Fire
	Unreduced		Reduced		Unreduced		Reduced		Unreduced
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male & Female
45	0	0	0	0	0	0	0	0	16
46	0	0	0	0	0	0	0	0	16
47	0	0	0	0	0	0	0	0	16
48	0	0	0	0	0	0	0	0	16
49	0	0	0	0	0	0	0	0	16
50	0	0	0	0	0	0	1	0	18
51	0	0	2	1	0	0	1	1	18
52	0	0	2	1	0	0	1	1	18
53	0	0	2	1	0	0	2	2	18
54	0	0	3	2	0	0	3	3	18
55	25	20			20	18			22
56	25	20			15	16			22
57	16	13			15	16			22
58	16	13			15	16			24
59	13	13			15	16			27
60	13	15			14	18			30
61	13	15			14	18			30
62	28	25			14	25			30
63	20	20			14	20			30
64	20	20			14	15			30
65	20	20			20	25			100
66	18	20			15	25			100
67	18	20			15	20			100
68	18	20			15	20			100
69	18	20			15	20			100
70	20	20			15	20			100
71	20	20			15	20			100
72	20	20			15	20			100
73	20	20			15	20			100
74	20	20			15	20			100
75	100	100			100	100			100

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

TABLE 18 (CONTINUED)

Noncontributory Members

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

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

TABLE 18 (CONTINUED)

Hybrid Members

	Expected Retirements per 100 Lives							
	General Employees				Teachers			
	Unreduced		Reduced		Unreduced		Reduced	
Age	Male	Female	Male	Female	Male	Female	Male	Female
55	18	18	1	1	20	16	2	2
56	12	13	1	1	13	10	2	2
57	12	13	1	1	13	10	2	2
58	16	13	2	2	13	12	2	2
59	16	13	2	2	13	12	3	3
60	14	13	4	4	14	14	3	5
61	14	15	4	4	14	18	3	10
62	21	20			22	30		
63	18	20			14	20		
64	18	20			14	20		
65	21	20			20	25		
66	18	18			15	25		
67	18	18			15	25		
68	18	18			15	25		
69	18	18			15	25		
70	20	20			15	25		
71	20	20			15	25		
72	20	20			15	25		
73	20	20			15	25		
74	20	20			15	25		
75	100	100			100	100		

Note: For the 25&out group with membership dates before July 1, 2012, the retirement rates prior to age 55 are 6% for both male and female.

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

TABLE 18 (CONTINUED)

C. Other Assumptions

1. Projected payroll for contributions: The aggregate projected payroll for the fiscal year following the valuation date is calculated taking the lessor of the actual payroll paid during the previous fiscal year and the current annualized pay on the valuation date and increasing this number by the payroll growth rate.

2. Age difference: Male members are assumed to be four years older than their spouses, and female members are assumed to be four years younger than their spouses.

3. Marriage Assumption: While not implicitly used in the valuation, 100% of active members are assumed to be married when setting other benefit election and eligibility assumptions.

4. Percent electing annuity on death for contributory participants (when eligible): All of the spouses of married participants who die after becoming eligible for a retirement benefit are assumed to elect an annuity or a refund, whichever is more valuable at time of participant's death.

5. Payment Option: Future healthy retirees are assumed to choose the life only payment option. 50% of future disabled retirees are assumed to choose the 100% Joint and Survivor option.

6. Percent electing deferred termination benefit: vested terminating members are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.

7. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt when eligible for early retirement.

8. Administrative expenses: Administrative expenses are assumed to be 0.40% of active member payroll.

9. Reemployment, purchase of service, transfers: No recognition is made of (i) future member reimbursements upon reemployment, (ii) future purchase of additional service, or (iii) special transfer provisions.

10. Sick Leave: It is assumed that all members will have their benefit service increased by sick leave and the following loads will be applied by group:

General Employees	3.25%
Teachers	3.75%
Police and Fire	5.00%

TABLE 18 (CONTINUED)

11. COLA delay: It is assumed that the first COLA will be received 9 months after retirement. Teachers are assumed to receive COLA 12 months after retirement,

12. There will be no recoveries once disabled.

13. No surviving spouse will remarry and there will be no children's benefit.

14. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.

15. Decrement timing: Retirements and terminations of Teachers are assumed to occur at the beginning of the year. All other decrements are assumed to occur mid-year.

16. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

17. Decrement relativity: Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

18. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.

19. Benefit Service: All members are assumed to accrue 1 year of service each year. Exact fractional service is used to determine the amount of benefit payable.

20. Police officers, firefighters, investigators of the Department of the Prosecuting Attorney and the Attorney General, narcotic enforcement investigators, and public safety investigators hired prior to June 30, 2012 are not assumed to retire at age 55 unless they have 10 years of service.

VII. <u>Participant Data</u>

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

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

TABLE 18 (CONTINUED)

VIII. <u>Dates of Adoption of Assumptions and Methods</u>

The actuarial assumptions and methods were adopted by the Board of Trustees on August 8, 2022 as recommended by Gabriel, Roeder, Smith & Company (GRS).

IX. <u>Changes in Assumptions and Methods since Prior Valuation</u>

The actuarial assumptions have not been revised since the prior valuation. Please see our Experience Study report dated June 14, 2022 for a more extensive discussion of the actuarial assumptions and the rationale for the current assumptions.

SECTION N – STATISTICAL TABLES

TABLE 19

Distribution of Active Members by Age and by Years of Service - All Employees
As of 06/30/2024

	Years of Credited Service												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Attained Age	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.
Under 25	612	398	96	26	7	1	0	0	0	0	0	0	1,140
	$51,932	$51,456	$51,649	$51,866	$46,114	$36,023	$0	$0	$0	$0	$0	$0	$51,691
25-29	855	980	755	441	375	459	1	0	0	0	0	0	3,866
	$54,457	$53,615	$56,763	$58,627	$59,919	$61,627	$48,036	$0	$0	$0	$0	$0	$56,549
30-34	718	792	627	452	561	2,333	299	1	0	0	0	0	5,783
	$56,540	$54,519	$56,478	$61,308	$62,334	$64,779	$72,454	$94,400	$0	$0	$0	$0	$61,345
35-39	553	619	506	347	476	2,487	1,656	297	0	0	0	0	6,941
	$58,349	$57,594	$59,668	$64,656	$63,236	$67,499	$80,983	$90,391	$0	$0	$0	$0	$69,078
40-44	513	530	445	325	405	2,078	1,788	1,874	297	1	0	0	8,256
	$60,169	$56,580	$60,075	$57,956	$64,741	$66,728	$81,876	$91,644	$96,334	$87,340	$0	$0	$74,871
45-49	405	462	358	257	341	1,695	1,458	1,969	1,734	169	1	0	8,849
	$56,532	$58,691	$60,125	$59,844	$62,566	$66,557	$81,231	$90,765	$101,744	$111,733	$90,084	$0	$80,643
50-54	334	402	299	210	288	1,410	1,133	1,628	1,964	1,508	274	2	9,452
	$60,653	$57,977	$62,888	$59,037	$62,347	$64,840	$76,980	$87,855	$99,357	$108,160	$91,670	$115,368	$84,425
55-59	269	290	253	165	217	1,101	918	1,319	1,371	1,240	1,311	143	8,597
	$61,476	$62,646	$56,782	$62,343	$58,818	$63,289	$72,082	$81,586	$91,890	$101,133	$101,251	$92,131	$82,923
60-64	152	193	169	111	194	937	804	1,159	1,078	738	949	603	7,087
	$62,454	$60,531	$57,601	$63,421	$61,784	$65,198	$73,186	$75,264	$79,403	$91,647	$96,209	$99,199	$79,222
65 & Over	101	102	91	81	123	749	658	761	774	491	599	836	5,366
	$64,189	$65,942	$60,930	$68,629	$65,031	$66,424	$71,836	$77,904	$80,337	$86,624	$97,873	$106,598	$82,197
Total	4,512	4,768	3,599	2,415	2,987	13,250	8,715	9,008	7,218	4,147	3,134	1,584	65,337
	$57,123	$56,384	$58,384	$60,807	$62,311	$65,716	$78,044	$85,985	$93,368	$100,711	$98,237	$102,486	$75,867

TABLE 20

Distribution of Active Members by Age and by Years of Service
Noncontributory Members, All
As of 06/30/2024

Years of Credited Service

Attained Age	0 Count & Avg. Comp.	1 Count & Avg. Comp.	2 Count & Avg. Comp.	3 Count & Avg. Comp.	4 Count & Avg. Comp.	5-9 Count & Avg. Comp.	10-14 Count & Avg. Comp.	15-19 Count & Avg. Comp.	20-24 Count & Avg. Comp.	25-29 Count & Avg. Comp.	30-34 Count & Avg. Comp.	35 & Over Count & Avg. Comp.	Total Count & Avg. Comp.
Under 25	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
25-29	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
30-34	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
35-39	0	0	0	0	0	0	0	6	0	0	0	0	6
	$0	$0	$0	$0	$0	$0	$0	$64,953	$0	$0	$0	$0	$64,953
40-44	0	0	0	0	0	0	3	230	124	1	0	0	358
	$0	$0	$0	$0	$0	$0	$49,094	$85,045	$82,566	$87,340	$0	$0	$83,892
45-49	0	0	0	0	0	0	3	325	640	59	0	0	1,027
	$0	$0	$0	$0	$0	$0	$61,120	$83,318	$91,591	$81,206	$0	$0	$88,288
50-54	0	0	0	0	0	1	0	245	705	535	111	1	1,598
	$0	$0	$0	$0	$0	$58,628	$0	$80,396	$86,633	$96,917	$86,739	$113,275	$89,126
55-59	0	0	0	0	0	0	3	232	576	519	517	75	1,922
	$0	$0	$0	$0	$0	$0	$45,371	$77,384	$83,111	$93,889	$92,677	$85,158	$87,924
60-64	0	0	0	0	0	0	2	170	507	356	417	235	1,687
	$0	$0	$0	$0	$0	$0	$77,417	$66,839	$75,292	$85,378	$90,384	$93,393	$82,823
65 & Over	0	0	0	0	0	0	4	134	354	249	320	356	1,417
	$0	$0	$0	$0	$0	$0	$56,884	$67,762	$74,158	$78,558	$91,912	$101,471	$85,149
Total	0	0	0	0	0	1	15	1,342	2,906	1,719	1,365	667	8,015
	$0	$0	$0	$0	$0	$58,628	$56,608	$78,332	$83,355	$90,409	$91,314	$96,809	$86,449

TABLE 21

Distribution of Active Members by Age and by Years of Service
Noncontributory Members, General Employees
As of 06/30/2024

	Years of Credited Service												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Attained Age	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.
Under 25	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
25-29	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
30-34	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
35-39	0	0	0	0	0	0	0	6	0	0	0	0	6
	$0	$0	$0	$0	$0	$0	$0	$64,953	$0	$0	$0	$0	$64,953
40-44	0	0	0	0	0	0	2	112	83	1	0	0	198
	$0	$0	$0	$0	$0	$0	$42,481	$77,411	$77,025	$87,340	$0	$0	$76,947
45-49	0	0	0	0	0	0	3	186	317	36	0	0	542
	$0	$0	$0	$0	$0	$0	$61,120	$75,633	$84,170	$67,424	$0	$0	$80,000
50-54	0	0	0	0	0	1	0	177	456	258	91	1	984
	$0	$0	$0	$0	$0	$58,628	$0	$74,044	$79,797	$87,610	$80,223	$113,275	$80,862
55-59	0	0	0	0	0	0	3	184	451	329	332	63	1,362
	$0	$0	$0	$0	$0	$0	$45,371	$71,235	$77,475	$88,054	$84,655	$81,247	$81,041
60-64	0	0	0	0	0	0	2	147	404	260	319	173	1,305
	$0	$0	$0	$0	$0	$0	$77,417	$62,990	$67,198	$77,940	$83,681	$88,676	$75,756
65 & Over	0	0	0	0	0	0	2	115	282	196	244	265	1,104
	$0	$0	$0	$0	$0	$0	$39,881	$64,526	$64,980	$69,542	$81,349	$93,628	$76,192
Total	0	0	0	0	0	1	12	927	1,993	1,080	986	502	5,501
	$0	$0	$0	$0	$0	$58,628	$53,253	$71,219	$75,201	$81,465	$83,113	$90,407	$78,515

TABLE 22

Distribution of Active Members by Age and by Years of Service
Noncontributory Members, Teachers
As of 06/30/2024

	Years of Credited Service												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Attained Age	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.
Under 25	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
25-29	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
30-34	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
35-39	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
40-44	0	0	0	0	0	0	1	118	41	0	0	0	160
	$0	$0	$0	$0	$0	$0	$62,322	$92,290	$93,785	$0	$0	$0	$92,486
45-49	0	0	0	0	0	0	0	139	323	23	0	0	485
	$0	$0	$0	$0	$0	$0	$0	$93,601	$98,875	$102,779	$0	$0	$97,549
50-54	0	0	0	0	0	0	0	68	249	277	20	0	614
	$0	$0	$0	$0	$0	$0	$0	$96,932	$99,151	$105,586	$116,389	$0	$102,370
55-59	0	0	0	0	0	0	0	48	125	190	185	12	560
	$0	$0	$0	$0	$0	$0	$0	$100,954	$103,446	$103,992	$107,073	$105,694	$104,664
60-64	0	0	0	0	0	0	0	23	103	96	98	62	382
	$0	$0	$0	$0	$0	$0	$0	$91,438	$107,043	$105,521	$112,201	$106,556	$106,965
65 & Over	0	0	0	0	0	0	2	19	72	53	76	91	313
	$0	$0	$0	$0	$0	$0	$73,887	$87,347	$110,108	$111,898	$125,826	$124,312	$116,744
Total	0	0	0	0	0	0	3	415	913	639	379	165	2,514
	$0	$0	$0	$0	$0	$0	$70,032	$94,218	$101,155	$105,525	$112,651	$116,286	$103,810

Table 23

Distribution of Active Members by Age and by Years of Service
Contributory Members, All
As of 06/30/2024

	Years of Credited Service												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Attained Age	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.
Under 25	38	35	20	6	0	0	0	0	0	0	0	0	99
	$72,039	$68,237	$67,568	$70,115	$0	$0	$0	$0	$0	$0	$0	$0	$69,675
25-29	41	61	71	62	71	79	0	0	0	0	0	0	385
	$67,710	$69,044	$70,615	$72,200	$73,871	$74,751	$0	$0	$0	$0	$0	$0	$71,761
30-34	29	47	49	64	93	280	59	0	0	0	0	0	621
	$70,828	$66,573	$69,185	$71,715	$73,502	$77,053	$88,694	$0	$0	$0	$0	$0	$75,373
35-39	16	25	27	30	54	303	279	75	0	0	0	0	809
	$62,677	$68,296	$72,338	$71,430	$72,408	$77,644	$103,731	$130,092	$0	$0	$0	$0	$90,161
40-44	10	15	12	9	23	149	221	299	66	0	0	0	804
	$79,977	$69,748	$68,753	$71,676	$70,496	$78,612	$102,923	$128,713	$143,655	$0	$0	$0	$108,661
45-49	3	7	6	7	7	60	153	277	301	46	0	0	867
	$62,834	$93,342	$109,354	$73,461	$73,648	$82,226	$108,810	$131,656	$145,837	$166,940	$0	$0	$129,358
50-54	0	2	2	4	4	24	60	174	366	228	15	0	879
	$0	$59,034	$123,911	$143,181	$103,205	$103,436	$103,251	$132,494	$143,140	$164,256	$160,417	$0	$142,581
55-59	3	4	2	1	3	7	16	64	149	108	62	5	424
	$116,110	$70,541	$140,571	$152,167	$116,335	$89,208	$101,609	$138,554	$147,486	$158,312	$171,397	$181,471	$148,909
60-64	1	1	1	3	4	8	9	15	18	26	31	34	151
	$240,061	$217,251	$203,619	$96,071	$145,691	$111,949	$121,844	$139,292	$144,119	$164,547	$162,549	$129,303	$145,173
65 & Over	0	1	2	0	1	13	5	13	8	13	11	92	159
	$0	$73,453	$70,124	$0	$204,735	$131,080	$144,491	$162,083	$114,038	$141,938	$140,934	$113,521	$123,923
Total	141	198	192	186	260	923	802	917	908	421	119	131	5,198
	$71,965	$69,833	$73,241	$74,205	$75,680	$79,480	$103,751	$131,765	$144,547	$162,354	$164,893	$120,211	$112,328

TABLE 24

Distribution of Active Members by Age and by Years of Service
Contributory Members, General Employees
As of 06/30/2024

	Years of Credited Service												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Attained Age	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.
Under 25	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
25-29	0	1	0	2	0	2	0	0	0	0	0	0	5
	$0	$73,453	$0	$54,691	$0	$64,290	$0	$0	$0	$0	$0	$0	$62,283
30-34	0	1	0	2	1	3	2	0	0	0	0	0	9
	$0	$73,453	$0	$74,066	$73,453	$72,094	$67,214	$0	$0	$0	$0	$0	$71,750
35-39	0	4	3	1	1	5	6	1	0	0	0	0	21
	$0	$75,660	$82,755	$73,453	$87,204	$79,279	$88,524	$81,465	$0	$0	$0	$0	$81,932
40-44	2	1	0	0	2	10	7	6	2	0	0	0	30
	$138,199	$73,453	$0	$0	$46,190	$104,395	$88,589	$75,843	$105,412	$0	$0	$0	$92,406
45-49	0	2	2	0	1	3	6	8	10	0	0	0	32
	$0	$139,094	$204,735	$0	$70,828	$117,214	$159,277	$101,785	$110,753	$0	$0	$0	$124,613
50-54	0	0	0	4	1	7	5	13	20	7	0	0	57
	$0	$0	$0	$143,181	$203,906	$148,728	$99,499	$145,345	$117,153	$154,743	$0	$0	$133,877
55-59	1	2	1	0	3	1	3	7	18	9	4	0	49
	$205,325	$74,066	$216,661	$0	$116,335	$73,453	$121,189	$193,915	$139,459	$174,211	$97,855	$0	$146,594
60-64	1	1	1	1	3	6	6	7	3	6	8	17	60
	$240,061	$217,251	$203,619	$59,146	$169,115	$122,310	$137,574	$144,300	$172,553	$164,530	$123,974	$88,953	$130,094
65 & Over	0	1	2	0	1	12	4	10	4	9	4	63	110
	$0	$73,453	$70,124	$0	$204,735	$136,127	$162,108	$174,277	$107,503	$134,870	$160,941	$98,941	$117,855
Total	4	13	9	10	13	49	39	52	57	31	16	80	373
	$180,446	$95,386	$135,362	$96,284	$122,220	$114,669	$117,341	$141,357	$124,901	$156,520	$126,686	$96,818	$120,701

TABLE 25

Distribution of Active Members by Age and by Years of Service
Contributory Members, Teachers
As of 06/30/2024

	Years of Credited Service												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Attained Age	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.
Under 25	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
25-29	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
30-34	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
35-39	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
40-44	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45-49	0	0	0	0	0	0	0	1	1	0	0	0	2
	$0	$0	$0	$0	$0	$0	$0	$78,524	$89,969	$0	$0	$0	$84,247
50-54	0	0	0	0	0	0	0	0	0	2	0	0	2
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$111,089	$0	$0	$111,089
55-59	0	0	0	0	0	0	0	0	0	1	2	0	3
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$110,437	$45,938	$0	$67,438
60-64	0	0	0	0	0	0	0	0	0	0	1	2	3
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$76,808	$114,214	$101,745
65 & Over	0	0	0	0	0	0	0	0	0	1	3	20	24
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$210,669	$115,018	$135,006	$135,660
Total	0	0	0	0	0	0	0	1	1	4	6	22	34
	$0	$0	$0	$0	$0	$0	$0	$78,524	$89,969	$135,821	$85,623	$133,116	$122,178

TABLE 26

Distribution of Active Members by Age and by Years of Service
Contributory Members, Police and Firefighters
As of 06/30/2024

	Years of Credited Service												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Attained Age	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.
Under 25	38	35	20	6	0	0	0	0	0	0	0	0	99
	$72,039	$68,237	$67,568	$70,115	#DIV/0!	$0	$0	$0	$0	$0	$0	$0	$69,675
25-29	41	60	71	60	71	77	0	0	0	0	0	0	380
	$67,710	$68,971	$70,615	$72,784	$73,871	$75,023	$0	$0	$0	$0	$0	$0	$71,886
30-34	29	46	49	62	92	277	57	0	0	0	0	0	612
	$70,828	$66,423	$69,185	$71,639	$73,503	$77,107	$89,448	$0	$0	$0	$0	$0	$75,426
35-39	16	21	24	29	53	298	273	74	0	0	0	0	788
	$62,677	$66,893	$71,036	$71,360	$72,129	$77,617	$104,065	$130,749	$0	$0	$0	$0	$90,380
40-44	8	14	12	9	21	139	214	293	64	0	0	0	774
	$65,422	$69,483	$68,753	$71,676	$72,811	$76,757	$103,392	$129,796	$144,850	$0	$0	$0	$109,291
45-49	3	5	4	7	6	57	147	268	290	46	0	0	833
	$62,834	$75,041	$61,664	$73,461	$74,118	$80,384	$106,750	$132,746	$147,239	$166,940	$0	$0	$129,649
50-54	0	2	2	0	3	17	55	161	346	219	15	0	820
	$0	$59,034	$123,911	$0	$69,638	$84,786	$103,592	$131,456	$144,642	$165,046	$160,417	$0	$143,263
55-59	2	2	1	1	0	6	13	57	131	98	56	5	372
	$71,502	$67,016	$64,481	$152,167	$0	$91,834	$97,090	$131,755	$148,589	$157,340	$181,131	$181,471	$149,871
60-64	0	0	0	2	1	2	3	8	15	20	22	15	88
	$0	$0	$0	$114,533	$75,417	$80,864	$90,384	$134,910	$138,432	$164,552	$180,474	$177,046	$156,935
65 & Over	0	0	0	0	0	1	1	3	4	3	4	9	25
	$0	$0	$0	$0	$0	$70,513	$74,024	$121,438	$120,573	$140,231	$140,363	$167,841	$139,354
Total	137	185	183	176	247	874	763	864	850	386	97	29	4,791
	$68,798	$68,037	$70,186	$72,951	$73,231	$77,507	$103,056	$131,249	$145,929	$163,097	$176,098	$174,952	$111,606

TABLE 27

Distribution of Active Members by Age and by Years of Service
Hybrid Members, All
As of 06/30/2024

	Years of Credited Service												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Attained Age	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.
Under 25	574	363	76	20	7	1	0	0	0	0	0	0	1,041
	$50,601	$49,838	$47,459	$46,392	$46,114	$36,023	$0	$0	$0	$0	$0	$0	$49,981
25-29	814	919	684	379	304	380	1	0	0	0	0	0	3,481
	$53,790	$52,591	$55,325	$56,406	$56,660	$58,899	$48,036	$0	$0	$0	$0	$0	$54,867
30-34	689	745	578	388	468	2,053	240	1	0	0	0	0	5,162
	$55,939	$53,759	$55,401	$59,592	$60,115	$63,104	$68,462	$94,400	$0	$0	$0	$0	$59,657
35-39	537	594	479	317	422	2,184	1,377	216	0	0	0	0	6,126
	$58,220	$57,144	$58,954	$64,015	$62,062	$66,091	$76,374	$77,312	$0	$0	$0	$0	$66,298
40-44	503	515	433	316	382	1,929	1,564	1,345	107	0	0	0	7,094
	$59,776	$56,197	$59,835	$57,565	$64,395	$65,810	$78,965	$84,532	$83,100	$0	$0	$0	$70,586
45-49	402	455	352	250	334	1,635	1,302	1,367	793	64	1	0	6,955
	$56,485	$58,158	$59,285	$59,463	$62,334	$65,982	$78,037	$84,249	$93,202	$100,195	$90,084	$0	$73,442
50-54	334	400	297	206	284	1,385	1,073	1,209	893	745	148	1	6,975
	$60,653	$57,972	$62,477	$57,403	$61,771	$64,176	$75,511	$82,942	$91,459	$99,065	$88,401	$117,461	$76,019
55-59	266	286	251	164	214	1,094	899	1,023	646	613	732	63	6,251
	$60,860	$62,536	$56,114	$61,795	$58,012	$63,123	$71,646	$78,976	$86,895	$97,193	$101,365	$93,341	$76,909
60-64	151	192	168	108	190	929	793	974	553	356	501	334	5,249
	$61,278	$59,714	$56,731	$62,514	$60,018	$64,795	$72,623	$75,748	$81,064	$92,593	$96,952	$100,220	$76,168
65 & Over	101	101	89	81	122	736	649	614	412	229	268	388	3,790
	$64,189	$65,867	$60,724	$68,629	$63,886	$65,282	$71,369	$78,335	$84,991	$92,255	$103,223	$109,660	$79,343
Total	4,371	4,570	3,407	2,229	2,727	12,326	7,898	6,749	3,404	2,007	1,650	786	52,124
	$56,644	$55,801	$57,547	$59,689	$61,036	$64,686	$75,474	$81,287	$88,264	$96,604	$99,157	$104,350	$70,604

TABLE 28

Distribution of Active Members by Age and by Years of Service
Hybrid Members, General Employees
As of 06/30/2024

	Years of Credited Service												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Attained Age	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.
Under 25	368	251	72	20	7	1	0	0	0	0	0	0	719
	$48,703	$48,685	$47,218	$46,392	$46,114	$36,023	$0	$0	$0	$0	$0	$0	$48,441
25-29	540	632	410	196	187	253	1	0	0	0	0	0	2,219
	$52,511	$52,042	$54,874	$54,147	$54,403	$55,467	$48,036	$0	$0	$0	$0	$0	$53,453
30-34	474	574	438	253	312	1,265	156	1	0	0	0	0	3,473
	$53,270	$52,482	$54,841	$58,468	$59,464	$60,067	$63,990	$94,400	$0	$0	$0	$0	$57,242
35-39	363	458	366	228	311	1,572	765	140	0	0	0	0	4,203
	$57,674	$56,227	$57,849	$63,348	$58,450	$63,917	$73,877	$71,639	$0	$0	$0	$0	$63,646
40-44	344	397	339	221	291	1,429	969	732	63	0	0	0	4,785
	$57,180	$53,938	$59,727	$54,596	$61,061	$62,664	$76,613	$80,998	$74,851	$0	$0	$0	$66,657
45-49	282	343	267	197	259	1,235	900	870	385	40	1	0	4,779
	$52,702	$55,601	$57,801	$56,496	$59,502	$61,810	$74,891	$79,830	$85,967	$95,030	$90,084	$0	$68,233
50-54	250	327	227	166	208	1,097	776	843	562	334	111	1	4,902
	$59,188	$57,074	$62,368	$57,250	$58,059	$60,334	$71,109	$77,099	$85,203	$88,875	$81,739	$117,461	$69,832
55-59	213	245	216	132	181	892	706	790	477	362	427	54	4,695
	$60,201	$61,177	$55,471	$60,972	$56,044	$59,945	$66,835	$74,424	$79,399	$89,758	$95,967	$91,393	$71,079
60-64	123	176	148	91	170	782	635	787	427	249	356	225	4,169
	$60,107	$60,194	$55,156	$61,423	$59,260	$62,242	$67,738	$70,835	$74,854	$84,844	$92,619	$93,385	$71,077
65 & Over	74	78	65	69	100	624	534	474	320	163	195	274	2,970
	$63,449	$64,746	$58,357	$66,910	$62,163	$61,948	$67,497	$70,258	$77,974	$79,593	$96,120	$100,115	$72,887
Total	3,031	3,481	2,548	1,573	2,026	9,150	5,442	4,637	2,234	1,148	1,090	554	36,914
	$55,000	$54,803	$56,855	$58,315	$58,696	$61,574	$71,593	$75,848	$80,790	$87,176	$93,447	$96,563	$66,468

TABLE 29

Distribution of Active Members by Age and by Years of Service
Hybrid Members, Teachers
As of 06/30/2024

	Years of Credited Service												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Attained Age	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.
Under 25	206	112	4	0	0	0	0	0	0	0	0	0	322
	$53,992	$52,423	$51,806	$0	$0	$0	$0	$0	$0	$0	$0	$0	$53,419
25-29	274	287	274	183	117	127	0	0	0	0	0	0	1,262
	$56,309	$53,799	$55,999	$58,826	$60,269	$65,736	$0	$0	$0	$0	$0	$0	$57,352
30-34	215	171	140	135	156	788	84	0	0	0	0	0	1,689
	$61,824	$58,046	$57,155	$61,698	$61,417	$67,981	$76,766	$0	$0	$0	$0	$0	$64,623
35-39	174	136	113	89	111	612	612	76	0	0	0	0	1,923
	$59,360	$60,231	$62,532	$65,724	$72,182	$71,676	$79,494	$87,763	$0	$0	$0	$0	$72,093
40-44	159	118	94	95	91	500	595	613	44	0	0	0	2,309
	$65,391	$63,796	$60,224	$64,472	$75,057	$74,801	$82,795	$88,751	$94,912	$0	$0	$0	$78,729
45-49	120	112	85	53	75	400	402	497	408	24	0	0	2,176
	$65,375	$65,989	$63,949	$70,492	$72,111	$78,861	$85,081	$91,985	$100,029	$108,804	$0	$0	$84,882
50-54	84	73	70	40	76	288	297	366	331	411	37	0	2,073
	$65,013	$61,995	$62,832	$58,038	$71,932	$78,808	$87,012	$96,399	$102,080	$107,346	$108,387	$0	$90,648
55-59	53	41	35	32	33	202	193	233	169	251	305	9	1,556
	$63,507	$70,657	$60,080	$65,193	$68,805	$77,156	$89,243	$94,409	$108,051	$107,916	$108,921	$105,034	$94,501
60-64	28	16	20	17	20	147	158	187	126	107	145	109	1,080
	$66,420	$54,442	$68,388	$68,353	$66,456	$78,378	$92,258	$96,425	$102,111	$110,624	$107,591	$114,328	$95,819
65 & Over	27	23	24	12	22	112	115	140	92	66	73	114	820
	$66,216	$69,669	$67,135	$78,513	$71,716	$83,860	$89,345	$105,683	$109,396	$123,528	$122,197	$132,600	$102,729
Total	1,340	1,089	859	656	701	3,176	2,456	2,112	1,170	859	560	232	15,210
	$60,364	$58,993	$59,599	$62,983	$67,800	$73,654	$84,073	$93,228	$102,536	$109,205	$110,272	$122,946	$80,640

TABLE 30

Summary of Pensions in Force by Type of Retirement

Employee Group	Contributory		Noncontributory		Hybrid	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
All Employees	16,019	$ 3,971	18,056	$ 1,960	16,314	$ 2,625
	Service		Service		Service	
Total	15,716	$ 4,009	17,160	$ 2,001	15,744	$ 2,659
General Employees - male	2,777	3,482	5,555	2,026	4,676	2,742
General Employees - female	4,453	2,519	6,961	1,559	6,968	2,286
Teachers - male	937	4,136	1,435	2,799	1,168	3,569
Teachers - female	3,342	3,804	3,209	2,560	2,932	3,050
Police and Firefighters	4,207	6,071	-	-	-	-
	Ordinary Disability		Ordinary Disability		Ordinary Disability	
Total	109	$ 1,277	678	$ 1,164	398	$ 1,723
General Employees - male	32	1,175	308	1,174	176	1,561
General Employees - female	30	921	286	1,016	142	1,657
Teachers - male	4	1,817	31	1,774	18	2,492
Teachers - female	14	1,674	53	1,554	62	2,110
Police and Firefighters	29	1,493	-	-	-	-
	Accidental Disability		Accidental Disability		Accidental Disability	
Total	194	$ 2,371	218	$ 1,183	172	$ 1,631
General Employees - male	62	1,979	113	1,248	84	1,615
General Employees - female	33	1,776	98	1,081	74	1,580
Teachers - male	-	-	1	1,335	2	1,759
Teachers - female	4	4,170	6	1,612	12	2,039
Police and Firefighters	95	2,757	-	-	-	-

TABLE 31

Summary of Pensions in Force by Age and Type

General Employees

Age	Type of Pension			
	Total	Service	Ordinary Disability	Accidental Disability
Total	32,828	31,390	974	464
	Contributory			
Total	7,387	7,230	62	95
30-39	1	1	-	-
40-44	2	2	-	-
45-49	4	4	-	-
50-54	9	7	-	2
55-59	35	33	1	1
60-64	183	173	2	8
65-69	575	554	6	15
70-74	994	975	13	6
75-79	1,289	1,264	9	16
80-84	1,325	1,297	9	19
85-89	1,272	1,253	9	10
90-94	1,080	1,063	7	10
95-99	527	514	6	7
100 & over	91	90	-	1
	Noncontributory			
Total	13,321	12,516	594	211
30-39	-	-	-	-
40-44	-	-	-	-
45-49	4	1	1	2
50-54	31	6	18	7
55-59	323	262	52	9
60-64	1,000	869	100	31
65-69	2,438	2,265	114	59
70-74	3,065	2,878	139	48
75-79	3,033	2,907	104	22
80-84	2,166	2,086	55	25
85-89	934	919	10	5
90-94	276	274	1	1
95-99	48	46	-	2
100 & over	3	3	-	-
	Hybrid			
Total	12,120	11,644	318	158
30-39	3	-	1	2
40-44	3	-	-	3
45-49	11	-	7	4
50-54	28	5	13	10
55-59	434	370	47	17
60-64	1,672	1,554	86	32
65-69	3,469	3,355	76	38
70-74	3,785	3,689	63	33
75-79	2,110	2,077	20	13
80-84	500	491	3	6
85-89	92	90	2	-
90-94	12	12	-	-
95-99	1	1	-	-
100 & over	-	-	-	-

TABLE 32

Summary of Pensions in Force by Age and Type

Teachers

Age	Type of Pension			
	Total	Service	Ordinary Disability	Accidental Disability
Total	13,230	13,023	182	25
	Contributory			
Total	4,301	4,279	18	4
30-39	-	-	-	-
40-44	-	-	-	-
45-49	-	-	-	-
50-54	-	-	-	-
55-59	1	1	-	-
60-64	25	25	-	-
65-69	140	138	2	-
70-74	382	380	2	-
75-79	1,005	998	6	1
80-84	1,020	1,016	3	1
85-89	899	896	3	-
90-94	632	631	-	1
95-99	171	169	1	1
100 & over	26	25	1	-
	Noncontributory			
Total	4,735	4,644	84	7
30-39	-	-	-	-
40-44	-	-	-	-
45-49	-	-	-	-
50-54	3	-	3	-
55-59	89	78	11	-
60-64	264	246	17	1
65-69	517	500	15	2
70-74	930	911	16	3
75-79	1,454	1,439	14	1
80-84	1,028	1,021	7	-
85-89	351	350	1	-
90-94	84	84	-	-
95-99	14	14	-	-
100 & over	1	1	-	-
	Hybrid			
Total	4,194	4,100	80	14
30-39	-	-	-	-
40-44	1	-	1	-
45-49	1	-	1	-
50-54	12	-	11	1
55-59	170	155	14	1
60-64	567	546	16	5
65-69	977	955	17	5
70-74	1,346	1,329	16	1
75-79	862	857	4	1
80-84	211	211	-	-
85-89	40	40	-	-
90-94	7	7	-	-
95-99	-	-	-	-
100 & over	-	-	-	-

TABLE 33

Summary of Pensions in Force by Age and Type

Police and Firefighters

Age	Type of Pension			
	Total	Service	Ordinary Disability	Accidental Disability
Total	4,331	4,207	29	95
30-39	-	-	-	-
40-44	3	-	1	2
45-49	28	25	1	2
50-54	266	255	4	7
55-59	677	662	5	10
60-64	735	722	4	9
65-69	698	686	1	11
70-74	680	655	5	20
75-79	666	644	3	19
80-84	363	348	3	12
85-89	167	164	1	2
90-94	41	39	1	1
95-99	6	6	-	-
100 & over	1	1	-	-

TABLE 34

Noncontributory Service Pensions in Force

by Years of Service

Years of Service	Total		General Employees		Teachers	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	17,160	$ 2,001	12,516	$ 1,766	4,644	$ 2,634
Less than 5	1	1,526	1	1,526	-	-
5-9	10	761	7	791	3	690
10-14	2,939	633	2,348	600	591	763
15-19	2,436	1,061	1,883	988	553	1,310
20-24	2,665	1,418	2,084	1,313	581	1,796
25-29	2,366	2,019	1,813	1,855	553	2,555
30-34	4,166	2,812	2,683	2,586	1,483	3,220
35 and over	2,577	3,732	1,697	3,415	880	4,345

TABLE 35

Noncontributory Service Pensions in Force

by Years Since Retirement

Years Since Retirement	Total		General Employees		Teachers	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	17,160	$ 2,001	12,516	$ 1,766	4,644	$ 2,634
Less than 5	3,742	1,977	2,972	1,815	770	2,604
5-9	3,868	1,808	2,973	1,679	895	2,237
10-14	3,120	1,902	2,306	1,672	814	2,552
15-19	3,033	2,085	2,136	1,806	897	2,747
20-24	2,272	2,249	1,432	1,846	840	2,937
25-29	959	2,283	609	1,946	350	2,869
30 -34	155	2,429	81	2,103	74	2,786
35 and over	11	1,286	7	1,064	4	1,675

TABLE 36-1

Contributory Service Pensions in Force

by Years of Service

Years of Service	Total		General Employees		Teachers		Police and Firefighters	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	15,716	$ 4,009	7,230	$ 2,889	4,279	$ 3,876	4,207	$ 6,071
Less than 5	6	1,181	3	762	2	825	1	3,154
5-9	349	533	255	612	80	264	14	646
10-14	706	1,098	540	1,106	102	828	64	1,463
15-19	982	1,768	747	1,665	137	1,565	98	2,832
20-24	1,502	2,347	1,019	2,002	292	2,394	191	4,114
25-29	5,279	4,311	1,731	2,788	1,063	3,311	2,485	5,800
30-34	4,803	4,806	1,726	3,738	1,868	4,177	1,209	7,303
35 and over	2,089	5,238	1,209	4,606	735	5,775	145	7,795

TABLE 36-2

Hybrid Service Pensions in Force

by Years of Service

Years of Service	Total		General Employees		Teachers	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	15,744	$ 2,659	11,644	$ 2,469	4,100	$ 3,198
Less than 5	1	380	-	-	1	380
5-9	1,234	777	973	775	261	783
10-14	2,323	1,131	1,897	1,086	426	1,330
15-19	2,230	1,654	1,721	1,591	509	1,868
20-24	2,115	2,065	1,524	1,922	591	2,436
25-29	2,056	2,852	1,482	2,670	574	3,321
30-34	3,639	3,783	2,564	3,663	1,075	4,067
35 and over	2,146	4,933	1,483	4,664	663	5,536

TABLE 37-1

Contributory Service Pensions in Force

by Years Since Retirement

Years Since Retirement	Total		General Employees		Teachers		Police and Firefighters	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	15,716	$ 4,009	7,230	$ 2,889	4,279	$ 3,876	4,207	$ 6,071
Less than 5	1,202	6,984	261	5,286	62	5,950	879	7,561
5-9	1,489	6,095	496	4,465	162	5,583	831	7,168
10-14	1,803	5,054	840	3,805	309	5,289	654	6,548
15-19	2,259	4,128	1,128	3,156	607	4,567	524	5,711
20-24	2,771	3,593	1,300	2,794	922	4,118	549	4,603
25-29	2,778	3,237	1,381	2,573	946	3,628	451	4,448
30-34	1,945	2,685	998	2,039	740	3,227	207	3,862
35 -39	1,469	1,998	826	1,589	531	2,431	112	2,959
40-44	-	-	-	-	-	-	-	-
45 and over	-	-	-	-	-	-	-	-

TABLE 37-2

Hybrid Service Pensions in Force

by Years Since Retirement

Years Since Retirement	Total		General Employees		Teachers	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	15,744	$ 2,659	11,644	$ 2,469	4,100	$ 3,198
Less than 5	5,847	2,727	4,504	2,529	1,343	3,388
5-9	5,400	2,572	4,019	2,378	1,381	3,137
10-14	3,541	2,728	2,468	2,564	1,073	3,106
15-19	956	2,477	653	2,254	303	2,957

Table 38

Pensions in Force by Payment Option

General Employees

Type of Option	Total		Service		Ordinary Disability		Accidental Disability		Other	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	32,828	$ 2,243	31,390	$ 2,285	974	$ 1,260	464	$ 1,467	-	$ -
	Contributory									
Total	7,387	$ 2,861	7,230	$ 2,889	62	$ 1,052	95	$ 1,908	-	$ -
Maximum	1,113	3,060	1,093	3,089	10	1,376	10	1,617	-	-
Option 1	378	2,292	359	2,347	11	1,165	8	1,394	-	-
Option 2	591	3,572	569	3,636	7	1,722	15	2,029	-	-
Option 3	313	4,046	310	4,068	2	1,223	1	2,741	-	-
Option 4	3,278	3,025	3,220	3,050	21	907	37	2,057	-	-
Option 5	1,714	2,080	1,679	2,094	11	464	24	1,862	-	-
	Noncontributory									
Total	13,321	$ 1,727	12,516	$ 1,766	594	$ 1,098	211	$ 1,170	-	$ -
Maximum	6,702	1,708	6,375	1,738	232	1,085	95	1,207	-	-
Option A	2,805	1,825	2,680	1,856	85	1,200	40	1,114	-	-
Option B	3,088	1,685	2,776	1,752	246	1,067	66	1,176	-	-
Option C	726	1,706	685	1,741	31	1,152	10	1,008	-	-
	Hybrid									
Total	12,120	$ 2,435	11,644	$ 2,469	318	$ 1,604	158	$ 1,599	-	$ -
Maximum	4,331	2,394	4,199	2,418	76	1,688	56	1,563	-	-
Option 1	809	2,242	786	2,256	16	1,668	7	1,918	-	-
Option 2	2,660	2,525	2,494	2,591	107	1,538	59	1,544	-	-
Option 3	1,642	2,926	1,595	2,964	30	1,666	17	1,628	-	-
Option 4	1,626	2,366	1,562	2,397	56	1,559	8	2,044	-	-
Option 5	1,052	1,864	1,008	1,876	33	1,616	11	1,497	-	-

TABLE 39

Pensions in Force by Payment Option

Teachers

Type of Option	Total		Service		Ordinary Disability		Accidental Disability		Other	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	13,230	$ 3,200	13,023	$ 3,220	182	$ 1,889	25	$ 2,227	-	$ -
	Contributory									
Total	4,301	$ 3,868	4,279	$ 3,876	18	$ 1,706	4	$ 4,170	-	$ -
Maximum	703	4,238	696	4,256	6	2,016	1	5,063	-	-
Option 1	172	3,450	171	3,460	1	1,759	-	-	-	-
Option 2	158	4,011	158	4,011	-	-	-	-	-	-
Option 3	141	4,790	140	4,798	1	3,615	-	-	-	-
Option 4	1,857	4,208	1,849	4,217	6	1,778	2	3,184	-	-
Option 5	1,270	3,101	1,265	3,107	4	641	1	5,249	-	-
	Noncontributory									
Total	4,735	$ 2,615	4,644	$ 2,634	84	$ 1,635	7	$ 1,573	-	$ -
Maximum	2,895	2,667	2,849	2,683	40	1,676	6	1,612	-	-
Option A	835	2,755	826	2,765	8	1,934	1	1,335	-	-
Option B	772	2,313	739	2,350	33	1,485	-	-	-	-
Option C	233	2,470	230	2,477	3	1,946	-	-	-	-
	Hybrid									
Total	4,194	$ 3,175	4,100	$ 3,198	80	$ 2,196	14	$ 1,999	-	$ -
Maximum	1,698	3,085	1,660	3,106	31	2,179	7	1,915	-	-
Option 1	210	3,045	205	3,068	5	2,125	-	-	-	-
Option 2	861	3,157	836	3,175	19	2,687	6	2,039	-	-
Option 3	592	3,605	583	3,628	8	2,132	1	2,343	-	-
Option 4	454	3,302	441	3,347	13	1,767	-	-	-	-
Option 5	379	2,865	375	2,878	4	1,611	-	-	-	-

TABLE 40

Pensions in Force by Payment Option

Police and Firefighters

Type of Option	Total		Service		Ordinary Disability		Accidental Disability		Other	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	4,331	$ 5,968	4,207	$ 6,071	29	$ 1,493	95	$ 2,757	-	$ -
Maximum	231	6,618	216	6,893	-	-	15	2,656	-	-
Option 1	57	5,794	48	6,153	1	2,905	8	3,999	-	-
Option 2	370	6,522	347	6,771	9	2,034	14	3,229	-	-
Option 3	169	7,638	165	7,765	2	1,463	2	3,319	-	-
Option 4	2,613	6,313	2,583	6,357	8	1,503	22	2,915	-	-
Option 5	891	4,252	848	4,371	9	794	34	2,180	-	-

TABLE 41

Pensions in Force by Payment Option

General Employees - New Retirees

Type of Option	Total		Service		Ordinary Disability		Accidental Disability		Other	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	1,609	$ 2,236	1,550	$ 2,265	40	$ 1,387	19	$ 1,692	-	$ -
	Contributory									
Total	32	$ 5,513	31	$ 5,584	-	$ -	1	$ 3,315	-	$ -
Maximum	6	3,908	5	4,027	-	-	1	3,315	-	-
Option 1	1	3,528	1	3,528	-	-	-	-	-	-
Option 2	9	7,554	9	7,554	-	-	-	-	-	-
Option 3	1	4,219	1	4,219	-	-	-	-	-	-
Option 4	9	3,842	9	3,842	-	-	-	-	-	-
Option 5	6	7,108	6	7,108	-	-	-	-	-	-
	Noncontributory									
Total	601	$ 1,770	576	$ 1,776	17	$ 1,579	8	$ 1,749	-	$ -
Maximum	255	1,763	245	1,761	6	1,728	4	1,940	-	-
Option A	131	1,869	129	1,885	2	833	-	-	-	-
Option B	169	1,813	157	1,828	8	1,643	4	1,558	-	-
Option C	46	1,367	45	1,361	1	1,664	-	-	-	-
	Hybrid									
Total	976	$ 2,416	943	$ 2,454	23	$ 1,245	10	$ 1,483	-	$ -
Maximum	355	2,437	345	2,472	4	1,009	6	1,408	-	-
Option 1	72	2,460	70	2,499	2	1,091	-	-	-	-
Option 2	195	2,742	184	2,821	7	1,334	4	1,596	-	-
Option 3	101	2,730	100	2,741	1	1,625	-	-	-	-
Option 4	152	2,345	146	2,392	6	1,186	-	-	-	-
Option 5	101	1,472	98	1,473	3	1,443	-	-	-	-

TABLE 42

Pensions in Force by Payment Option

Teachers - New Retirees

Type of Option	Total		Service		Ordinary Disability		Accidental Disability		Other	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	409	$ 3,072	404	$ 3,078	5	$ 2,543	-	$ -	-	$ -
	Contributory									
Total	2	$ 5,713	2	$ 5,713	-	$ -	-	$ -	-	$ -
Maximum	1	8,006	1	8,006	-	-	-	-	-	-
Option 1	-	-	-	-	-	-	-	-	-	-
Option 2	-	-	-	-	-	-	-	-	-	-
Option 3	-	-	-	-	-	-	-	-	-	-
Option 4	-	-	-	-	-	-	-	-	-	-
Option 5	1	3,421	1	3,421	-	-	-	-	-	-
	Noncontributory									
Total	153	$ 2,601	152	$ 2,602	1	$ 2,434	-	$ -	-	$ -
Maximum	83	2,613	83	2,613	-	-	-	-	-	-
Option A	27	2,826	27	2,826	-	-	-	-	-	-
Option B	36	2,272	35	2,267	1	2,434	-	-	-	-
Option C	7	3,285	7	3,285	-	-	-	-	-	-
	Hybrid									
Total	254	$ 3,335	250	$ 3,347	4	$ 2,570	-	$ -	-	$ -
Maximum	94	3,371	92	3,400	2	2,047	-	-	-	-
Option 1	16	2,883	15	2,949	1	1,904	-	-	-	-
Option 2	41	3,371	40	3,348	1	4,283	-	-	-	-
Option 3	27	3,537	27	3,537	-	-	-	-	-	-
Option 4	45	3,396	45	3,396	-	-	-	-	-	-
Option 5	31	3,145	31	3,145	-	-	-	-	-	-

TABLE 43

Pensions in Force by Payment Option

Police and Firefighters - New Retirees

Type of Option	Total		Service		Ordinary Disability		Accidental Disability		Other	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	164	$ 6,876	160	$ 6,966	2	$ 2,559	2	$ 4,019	-	$ -
Maximum	13	7,345	13	7,345	-	-	-	-	-	-
Option 1	2	6,073	1	7,326	-	-	1	4,821	-	-
Option 2	32	6,901	32	6,901	-	-	-	-	-	-
Option 3	7	7,433	7	7,433	-	-	-	-	-	-
Option 4	79	7,340	77	7,465	2	2,559	-	-	-	-
Option 5	31	5,395	30	5,468	-	-	1	3,217	-	-

SECTION O – DEFINITION OF ACTUARIAL TERMS

1. *Actuarial Accrued Liability* – for benefits payable in the future to present members, it will equal the present value of benefits payable in the future to them less the present value of future normal costs.

2. *Actuarial Assumptions* – assumptions as to future experience under ERS. Current actuarial assumptions are detailed in Table 18 of the current annual valuation report. Assumptions include future fund earnings rate, rates of future salary increases, and rates of death (both before and after retirement), disability, retirement, and withdrawal.

3. *Actuarial Gain or Actuarial Loss* - a measure of the difference between actual experience and assumed experience of ERS. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, actuarial liabilities emerge which may be the same as forecasted, or they may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., ERS's assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results that produce actuarial liabilities which are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.

4. *Actuarial Liabilities* - the actuarially determined present value of future benefits to be provided by ERS. There are separate actuarially determined present values for retired members and non-retired members (either active or inactive). When applied to active members, it takes into account benefits which will be earned through future service and future salary increases.

5. *Actuarial Value of Present Assets* - the value of present ERS assets for valuation purposes. This value is calculated under a four-year phase-in of the excess (shortfall) between expected and actual income return.

6. *Actuarially Determined* - values which have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.

7. *Decrements* - those types of activities by members of ERS which cause them no longer to be members, i.e., death, retirement, disability, and withdrawal. It is a general term referring to any or all of these membership-terminating events.

8. *Defined Benefits* - in a retirement plan, benefits which are defined by a specific formula applied to specific member compensation and/or specific years of service. The amount of the benefit is not a function of contributions or actual earnings on those contributions.

9. *Defined Contributions* - in a retirement plan, periodic contributions to the plan which are defined as a specific percent of compensation.

10. *Experience Study* - a periodic review and analysis of the actual experience of ERS which may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.

11. *Funding Period* - the number of years in the future that will be required to fund (i.e., pay off or eliminate) the unfunded actuarial accrued liability, based on the actuarial assumptions and assuming no future actuarial gains or losses.

12. *Future Benefits* - benefits specified in the law which will become payable at some time in the future when the member satisfies the requirement to receive such benefits.

13. *Future Contributions* - contributions to be made by the member or the employers in the future.

14. *Normal Cost* - the actuarial cost to fund the benefits provided by ERS were the funding to begin at date of hire.

15. *Present Value* - the actuarially determined lump sum value as of the valuation date of a series of payments to be made in the future, where the lump sum value is equal to the sum of the discounted value of each future payment. The discounted value of each payment is the product of (a) the amount of the payment, (b) the probability that the payment will be made (based on the current actuarial assumptions as to future experience), and (c) the time value of money (based on the current assumed interest rate).

16. *Unfunded Actuarial Accrued Liability* - that portion of the actuarial accrued liability (including the present value of benefits presently being paid to retired members) that exceeds the value of current assets.

17. *Covered Payroll* - the total annualized payroll of active members as of the valuation date. Used to project individual members pay and benefits.

18. *Projected Payroll for Contributions Purposes* - The aggregate projected payroll for the fiscal year following the valuation date is calculated by increasing the actual payroll paid during the previous fiscal year by the payroll growth rate and multiplying by the ratio of current active members to the average number of active members during the previous fiscal year.

REVISED: November 20, 2024
1ST DRAFT DATE: September 9, 2024

__.B. NO._____

A BILL FOR AN ACT

RELATING TO THE EMPLOYEES' RETIREMENT SYSTEM.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The purpose of this Act is to maintain the employees' retirement system of the State of Hawaii's (the "system") federal tax qualification requirements by conforming chapter 88, Hawaii Revised Statutes, to updated requirements of the Internal Revenue Code of 1986, as amended, regarding automatic disbursements, including required minimum distributions, by the Setting Every Community Up for Retirement Enhancement 2.0 Act of 2022.

SECTION 2. Section 88-74.7, Hawaii Revised Statutes, is amended to read as follows:

"**§88-74.7 Commencement of benefits on required beginning date.** (a) The purpose of this section is to provide for distribution of benefits in accordance with a reasonable and good faith interpretation of section 401(a)(9) of the Internal Revenue Code. Section 401(a)(9) of the Internal Revenue Code requires that the "entire interest" of a member be distributed or that distribution of the member's benefits begin no later than the member's "required beginning date"~~[.]~~ , as defined in section 401(a)(9) of the Internal Revenue Code of 1986, as amended.

[~~(b) For the purposes of this section, "required beginning date" means April 1 of the calendar year following the calendar year in which a member terminates service or attains age seventy and one-half, whichever is later.~~

~~(c)~~] (b) A member or former member's accumulated contributions or hypothetical account balance, as defined in section 88-311, shall be paid to the member or former member, or payment of the benefits payable under part II, VII, or VIII of this chapter shall commence, no later than the member's or former member's required beginning date. The payment or payments shall be made on, or beginning no later than, the member's or former member's required beginning date even if the member or former member does not apply for payment or file a retirement application.

[~~(d)~~] (c) If, by a member's or former member's required beginning date:

(1) The member or former member's accumulated contributions or hypothetical account balance, as defined in section 88-311, are not paid to the member or former member; or

(2) Payment of the benefits payable under part II, VII, or VIII of this chapter do not commence,

the system shall pay the service retirement benefits for which the member or former member is eligible pursuant to part II, VII, or VIII of this chapter, as applicable, retroactive to the member's or former member's required beginning date with regular interest.

[~~(c)~~] (d) If the system does not receive a written election from the member or former member under section 88-83, 88-283, or 88-333, as applicable, prior to the later of the member's or former member's required beginning date or sixty days following the receipt by the member or former member of notice from the system that the member or former member is required to make an election, the following election shall be deemed to have been made as of the member or former member's required beginning date:

(1) If the member or former member is unmarried or has no reciprocal beneficiary, the member or former member shall be deemed to have elected the maximum retirement allowance; or

(2) If the member or former member is married or has a reciprocal beneficiary, the member or former member

shall be deemed to have elected option 3 under section 88-83, or option A under section 88-283, as applicable, and to have designated the member's or former member's spouse or reciprocal beneficiary as the member's or former member's beneficiary;

provided that if the system receives the written election after the member's or former member's required beginning date, but within sixty days following receipt by the member or former member of notice from the system that the member or former member is required to make the election, the written election shall apply, and the member's or former member's retirement benefit shall be recomputed, based on the written election, retroactive to the member or former member's required beginning date. The amount of any underpayment resulting from recomputing the benefit shall bear regular interest. If recomputing the benefit results in an overpayment, payments shall be adjusted so that the actuarial equivalent of the benefit to which the member or former member was correctly entitled shall be paid.

[~~(f)~~] (e) If the system does not have current information about the member's or former member's marital or reciprocal beneficiary status at the time of a deemed election, the following presumptions shall apply:

(1) If the member or former member was married or had a reciprocal beneficiary at the time the member or former member last provided information to the system about the member's or former member's marital or reciprocal beneficiary status, it shall be presumed that the member or former member is still married to the same spouse or is in the same reciprocal beneficiary relationship. If the system does not have information as to the age of the spouse or reciprocal beneficiary, the spouse or reciprocal beneficiary shall be presumed to be forty years younger than the member or former member for purposes of computing the member's or former member's benefit; and

(2) If the member or former member was unmarried and did not have a reciprocal beneficiary at the time the member or former member last provided information to the system about the member or former member's marital status, it shall be presumed that the member or former member is married and that the spouse of the member or former member is forty years younger than the member or former member.

[~~(g)~~] (f) The presumptions in subsection [~~(f)~~] (e) shall cease to apply when the member or former member provides the system with current information as to the member's or former member's marital or reciprocal beneficiary status and the age of the member or former member's spouse or reciprocal beneficiary, if any, on the member's or former member's required beginning date. The information shall be provided in a form satisfactory to the system. At that time, the member's or former member's retirement allowance shall be recomputed, retroactive to the member's or former member's required beginning date, based on the updated information; provided that, except as provided in subsection [~~(e),~~] (d), the member or former member shall not be permitted to change the member's or former member's retirement allowance option election or beneficiary; provided further that the benefit being paid to any member or former member who, on the member's or former member's required beginning date, was unmarried and did not have a reciprocal beneficiary, but who was deemed to elect option 3 or option A with an assumed spouse or reciprocal beneficiary, shall be converted to the maximum retirement allowance retroactive to the member's or former member's required beginning date. The amount of any underpayment resulting from recomputing the benefit shall bear regular interest. If recomputing the benefit results in an overpayment, payments shall be adjusted so that the actuarial equivalent of the benefit to which the member or former member was correctly entitled shall be paid.

[~~(h)~~] (g) If the system cannot locate the member or former member, the member's or former member's benefit shall be payable only until the end of the member's or former member's life expectancy, as determined at the member's or former member's required beginning date. If the member or former member has not by that time made a claim for benefits, the member or former member shall be deemed to be deceased at that time. Interest under subsection [~~(d)~~] (c) shall cease on benefits presumed to be abandoned property, pursuant to part I of chapter 523A, upon payment of the property to the administrator under part I of chapter 523A.

[~~(i)~~] (h) Rules necessary for the purposes of this section shall be adopted as provided in section 88-22.5."

SECTION 3. Section 88-321, Hawaii Revised Statutes, is amended by amending subsection (b) to read as follows:

"(b) Notwithstanding any other law to the contrary:

(1) A class C member who returns to service after June 30, 2006, and who does not return to service as a class A

or class B member shall become a class H member upon return to service; provided that, if the member is a former class A or class B member who received a refund of contributions picked up and paid by the member's employer pursuant to section 88-46(b), the member may not become a class H member and shall return to service as a class C member, unless the refund was made pursuant to section 88-96 or 88-271(b);

(2) A class A or a class B member, who returns to service after June 30, 2006, but does not have vested benefit status as provided in section 88-96(b) and who does not return to service as a class A or class B member, shall become a class H member upon return to service and the member's credited service as a class A or B member shall be converted to class C credited service. The system shall return to the member the member's accumulated contributions if the member's accumulated contributions are $1,000 or less at the time of distribution. If the member's accumulated contributions for the class A or B credited service that was converted to class C credited service are greater than $1,000 and the member does not make

written application, contemporaneously with the member's return to service, for return of such contributions, the member, except as provided by section 88-341, may not withdraw the member's accumulated contributions for the class A or B credited service that was converted to class C credited service until the member retires or [~~attains age sixty-two;~~] <u>pursuant to sections 88-22.5 and 88-74.7;</u>

(3) A class A member who returns to service after June 30, 2008, with vested benefit status and who does not return to service as a class B member shall return to service as a class A member; and

(4) A class B member who returns to service after June 30, 2008, with vested benefit status and who does not return to service as a class B member shall return to service as a class A member."

SECTION 4. Section 88-341, Hawaii Revised Statutes, is amended by amending subsection (a) to read as follows:

"(a) Any class H member who ceases to be an employee and who became a member before July 1, 2012, and has fewer than five years of credited service, excluding unused sick leave, or who becomes a member after June 30, 2012, and has fewer than ten years of credited service, excluding unused sick leave, shall, upon application to the board, be paid all of the former employee's accumulated contributions, and the former employee's membership shall thereupon terminate and all credited service shall be forfeited; provided that an individual shall not be paid the individual's accumulated contributions if either:

(1) The individual becomes an employee again within fifteen calendar days from the date the individual ceased to be an employee; or

(2) At the time the application for return of accumulated contributions is received by the board, the individual has become an employee again.

Regular interest shall be credited to the former employee's account until the former employee's accumulated contributions are withdrawn; provided that the former employee's membership shall not continue after the fourth full year following the calendar year in which the individual's employment terminates. If the former employee does not become an employee again and has not withdrawn the former employee's accumulated contributions, the system shall return the former employee's accumulated contributions to the former employee [~~as soon as possible after~~

~~the later of: (A) the former employee attaining age sixty-two; or (B) the termination of the former employee's membership.~~] pursuant to sections 88-22.5 and 88-74.7."

SECTION 5. Statutory material to be repealed is bracketed and stricken. New statutory material is underscored.

SECTION 6. This Act shall take effect upon its approval.

INTRODUCED BY: _______________________________

BY REQUEST

__.B. NO.____

Report Title:
Employees' Retirement System; Required Beginning Dates; Automatic Payments

Description:
Amends chapter 88, HRS, to conform to updated required beginning dates and automatic cashout requirements in the Internal Revenue Code of 1986, as amended.

The summary description of legislation appearing on this page is for informational purposes only and is not legislation or evidence of legislative intent.

REVISED:	November 20, 2024
1ST DRAFT DATE:	September 9, 2024

JUSTIFICATION SHEET

DEPARTMENT: Budget and Finance

TITLE: A BILL FOR AN ACT RELATING TO THE EMPLOYEES' RETIREMENT SYSTEM.

PURPOSE: To conform the Employees' Retirement System of the State of Hawaii's (ERS) federal tax qualification requirements to the requirements of the Internal Revenue Code of 1986, as amended, (IRC) regarding automatic disbursements by updating chapter 88, Hawaii Revised Statutes (HRS).

MEANS: Repeal section 88-74.7(b), HRS, and amend sections 88-321(b) and 88-341(a), HRS.

JUSTIFICATION: The Employees' Retirement System of the State of Hawaii is intended to be a tax-qualified retirement plan under section 401(a) of the IRC. As such, the system must maintain compliance with all applicable sections under the IRC. Section 107 of the SECURE 2.0 Act of 2022 implemented changes to section 401(a)(9) of the IRC introduced optional staggered Required Beginning Dates (RBD) based on year of birth when determining Required Minimum Distributions (RMD).

Specifically, the bill proposes to reference the IRC definition of the RBD for the tiered increase in ages for RMD and remove the automatic distribution requirement for non-vested hybrid members so as not to mandate administration of a third-party retirement account vendor as instituted by the Setting Every Community Up for Retirement Enhancement (SECURE) 2.0 Act of 2022.

Section 88-74.7(b), HRS, currently defines the RMD age as 70 1/2, as previously established by the IRC. Subsequent to the enactment of section 88-74.7, HRS, additional RBD ages of 72, 73, and 75, based on various year end effective dates, were introduced into the IRC.

The ERS has chosen to implement these staggered beginning dates by proposing to rely on the "required beginning date", as defined in section 401(a)(9) of the IRC, as amended, and already referenced in section 88-22.5(a)(3), HRS. This is proposed alongside a repeal of section 88-74.7(b) which solely describes the previously existing RBD determination and is no longer accurate nor necessary, and the inclusion of a reference to the "required beginning date" as defined in section 401(a)(9) of the IRC, as amended.

The proposed repeal of the requirement of an automatic disbursement for a non-vested terminated hybrid member under section 88-341 would relieve the ERS of the administrative burden and cost of establishing a default IRA for automatic disbursements that fall under the parameters of section 4975(d) IRC to be transferred into and out of.

The amendment to section 88-321(b)(2) would conform the parameters of a former non-vested class A or B member to receive a refund of their class A or B accumulated contributions to the proposed amendment of section 88-341.

The function of the automatic cashout proposed for repeal is also redundant as it is currently filled by complying with the RMD requirements of section 401(a)(9) of the IRC as well as sections 88-22.5 and 88-74.7, HRS. Repeal of the automatic cashout would allow former members a longer period in which to elect their cashout prior to being subject to the required beginning date under section 401(a)(9) of the IRC.

Impact on the public: Conforms the initiation of RMDs to updated ages under section 401(a)(9) of the IRC, as amended. Defers non-elective disbursements for non-vested hybrid members to the RBD under section 401(a)(9) of the IRC.

Impact on the department and other agencies: Maintains beneficial tax qualification under IRC 401(a) and reduces the administrative burden and cost of instituting and maintaining a default IRA with automatic portability services.

GENERAL FUND:	None.
OTHER FUNDS:	Indeterminate cost savings to the ERS fund.
PPBS PROGRAM DESIGNATION:	BUF-141.
OTHER AFFECTED AGENCIES:	None.
EFFECTIVE DATE:	Upon approval.

REVISED: November 20, 2024
1ST DRAFT DATE: September 9, 2024

__.B. NO.____

A BILL FOR AN ACT

RELATING TO THE EMPLOYEES' RETIREMENT SYSTEM'S EMPLOYER REPORTING REVIEW.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The purpose of this Act is to extend the deadline for the pre-payment and reporting of employer contributions by departments or agencies of the State or counties that failed to provide the information required by the System in the required format.

SECTION 2. Section 88-103.7, Hawaii Revised Statutes, is amended as follows:

1. By amending subsection (c) to read as follows:

"(c) If a department or agency of the State or county fails to furnish the system with the information required pursuant to this section in the format required by the system, the State or county shall pay to the system, on the first day of the fiscal year [~~following~~] one year after the end of the fiscal year in which the failure to furnish the required information occurred, an amount equal to the employer contributions payable by the State or county, relative to the department or agency that is not in compliance with this section, during the fiscal year in which the failure to furnish the required information occurred. This amount shall be applied to contributions required under section 88-124 for the State and section 88-126 for the counties."

2. By amending subsection (f) to read as follows:

"(f) The system shall annually submit to the department of budget and finance and the legislature, not later than twenty days prior to the convening of each regular session, a report that details the following for the [~~current~~] previous fiscal year:

(1) Any department or agency of the state or counties that failed to comply with this section; and

(2) Any amounts required to be paid under subsection (c), including the anticipated amounts payable in the upcoming fiscal year, and identification of any state budget programs that may be affected."

SECTION 3. Statutory material to be repealed is bracketed and stricken. New statutory material is underscored.

SECTION 4. This Act shall take effect upon its approval.

INTRODUCED BY: ______________________________

BY REQUEST

__.B. NO._____

Report Title:
Employees' Retirement System; Employer Reporting

Description:
Adds a year between the review period and the billing due date and changes reporting of review results from the current fiscal year to the previous fiscal year.

The summary description of legislation appearing on this page is for informational purposes only and is not legislation or evidence of legislative intent.

REVISED:	November 20, 2024
1ST DRAFT DATE:	September 9, 2024

JUSTIFICATION SHEET

DEPARTMENT: Budget and Finance

TITLE: A BILL FOR AN ACT RELATING TO THE EMPLOYEES' RETIREMENT SYSTEM'S EMPLOYER REPORTING REVIEW.

PURPOSE: To extend the deadline for the pre-payment and reporting of employer contributions by departments or agencies of the State or counties that failed to provide the information required by the Employees' Retirement System in the required format.

MEANS: Amend section 88-103.7(c) and (f), Hawaii Revised Statutes (HRS).

JUSTIFICATION: Section 88-103.7, HRS, requires that all departments and agencies of the State or counties furnish the System with information in the format required by the System. The review of that information is intended to be completed by fiscal years (July to June).

Failure to furnish the required information requires that the pre-payment of employer contributions be made on the first day of the fiscal year following the fiscal year in which the failure to furnish the required information occurred. This timeline necessitates that the collection of employer reporting, the review process, and the assessment of the pre-payment by the employer be completed in the same fiscal year to provide employers with appropriate notice for pre-payment preparation. This compressed timeframe does not allow a review of information from a full fiscal year to be conducted.

The proposed amendment to section 88-103.7(c), HRS, changes the pre-payment deadline from the first day of the fiscal year following the fiscal year in which the failure to furnish the information occurred, to the first day of the next fiscal year following the fiscal year in which the failure to furnish the information occurred. This change would provide a longer period over which to collect, review, and analyze the reported data, as well as afford a longer period for employers to prepare the pre-payment.

Section 88-103.7(f), HRS, also requires that the System submit an annual report detailing any department or agency that failed to comply with reporting requirements for the current fiscal year, to the Department of Budget and Finance and the Legislature, not later than twenty days prior to the convening of each regular session.

Requiring the System to report for the current fiscal year causes compressed employer reporting and review periods to be employed to timely file the report. In practice, the reporting period starts in July and ends in September, with the review period ending in December.

The proposed amendment to section 88-103.7(f), HRS, changes the report from being on the current fiscal year to the previous fiscal year. This would allow more time for reporting and review of employer compliance with employer reporting requirements.

Impact on the public: None.

Impact on the department and other agencies: Allows a more comprehensive period for the reporting and review of employer compliance with employer reporting requirements and earlier notification of pre-payment amounts required to be pre-paid to the Legislature and employers for budgeting purposes.

GENERAL FUND: None.

OTHER FUNDS: None.

PPBS PROGRAM

DESIGNATION:	BUF-141.
OTHER AFFECTED AGENCIES:	State and counties.
EFFECTIVE DATE:	Upon approval.

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LIEUTENANT GOVERNOR

STATE OF HAWAI'I
EMPLOYEES' RETIREMENT SYSTEM

THOMAS WILLIAMS
EXECUTIVE DIRECTOR

GAIL STROHL
DEPUTY EXECUTIVE DIRECTOR

January 13, 2025

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

FROM: Thomas Williams, Executive Director
Employees' Retirement System of the State of Hawaii

SUBJECT: Actuarial Asset and Liability Stress Test 2024 Report to the Legislature

Attached for your information and review is the 2024 Actuarial Asset and Liability Stress Test of the Employees' Retirement System (ERS) in accordance with the provisions of Act 85, Session Laws of Hawaii 2017.

This report has been forwarded to the Director of Budget and Finance for transmittal to the Legislature.

The 2024 report is attached and can also be found on the ERS web page.
https://ers.ehawaii.gov/resources/reports-to-legislature.

Board Action Required: Receive and file.

Attachment

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LIEUTENANT GOVERNOR

EMPLOYEES' RETIREMENT SYSTEM
HAWAI'I EMPLOYER-UNION HEALTH BENEFITS TRUST FUND
OFFICE OF THE PUBLIC DEFENDER

STATE OF HAWAIʻI
DEPARTMENT OF BUDGET AND FINANCE
Ka ʻOihana Mālama Moʻohelu a Kālā
P.O. BOX 150
HONOLULU, HAWAIʻI 96810-0150

LUIS P. SALAVERIA
DIRECTOR

SABRINA NASIR
DEPUTY DIRECTOR

ADMINISTRATIVE AND RESEARCH OFFICE
BUDGET, PROGRAM PLANNING AND MANAGEMENT DIVISION
FINANCIAL ADMINISTRATION DIVISION
OFFICE OF FEDERAL AWARDS MANAGEMENT

December 24, 2024

The Honorable Ronald D. Kouchi
President and Members
of the Senate
Thirty-Third State Legislature
State Capitol, Room 409
Honolulu, Hawaii 96813

The Honorable Nadine K. Nakamura
Speaker and Members of the
House of Representatives
Thirty-Third State Legislature
State Capitol, Room 431
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Nakamura and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the Actuarial Asset and Liability Stress Test 2024 report, as required by Act 85, Session Laws of Hawaii 2017. In accordance with Section 93-16, Hawaii Revised Statutes, a copy of this report has been transmitted to the Legislative Reference Bureau and the report may be viewed electronically at http://ers.ehawaii.gov/resources/reports-to-legislature.

Sincerely,

/s/

LUIS P. SALAVERIA
Director of Finance

Enclosure

c: Legislative Reference Bureau

ec: Governor's Office: Gov.ReportsDistribution@hawaii.gov
Lieutenant Governor's Office: LtGov.ReportsDistribution@hawaii.gov
Legislative Auditor: auditors2@auditor.state.hi.us
Department of Budget and Finance: DBFLeg.DIR@hawaii.gov

P: 469.524.0000 | www.grsconsulting.com

December 18, 2024

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

Re: Stress Test Annual Report

Dear Members of the Board:

The purpose of this report is to provide the Employees' Retirement System of the State of Hawaii (ERS) with the information it must submit to the legislature as required by ACT – 85 (2017). Act – 85 (2017) requires that the actuary of the ERS perform an annual stress test as defined by the legislation and described below. This stress test us based on the preliminary valuation results of ERS as of July 1, 2024.

Requirements of Annual Stress Test Report

The annual stress test must address the following scenarios:

1. A 30-year projection of the ERS's assets, liabilities, pension debt, service costs, employee contributions, employer contributions, net amortization, benefit payments, payroll, and funded ratio assuming the current actuarial assumptions are met, including a 7% return projected from the actuarial, or smoothed, value of assets. See Stress Test Exhibit 1.

2. Two 30-year projections of the same items above assuming the actual investment performance in future years is 2% less than the assumed rate of return, starting from the market value of assets as of the valuation date, but with two different contribution policies.

    a. The first scenario shows the projected items assuming that the employer contribution rate in future years would increase if necessary to meet the current funding policy. In other words, if the funding period in a future year exceeds maximum funding period under the statute for the given valuation, the contribution rates would be adjusted to bring the funding period down to the maximum funding period (see discussion of maximum funding period later in this report). See Stress Test Exhibit 2A.

    b. The second scenario shows the projected items assuming no change in the current statutory contribution rates. See Stress Test Exhibit 2B.

3. Two 30-year projections of the same items above assuming the actual investment performance in the first year is a negative 20% followed by a 20-year period where investment performance is 2% less than the assumed rate of return, but with two different contribution policies.

   a. The first scenario shows the projected items assuming that the employer contribution rate in future years would increase if necessary to meet the current funding policy. In other words, if the funding period in a future year exceeds maximum funding period under the statute for the given valuation, the contribution rates would be adjusted to bring the funding period down to the maximum funding period (see discussion of maximum funding period later in this report). See Stress Test Exhibit 3A.

   b. The second scenario shows the projected items assuming no change in the current statutory contribution rates. See Stress Test Exhibit 3B.

4. The estimated actuarial accrued liability, the total normal cost for each benefit tier, and the employer normal cost for each benefit tier under the current investment return assumption and using the 10-year average of the 30-year treasuries notes as of the valuation date. See Stress Test Exhibit 4.

Stress Test Summary Results

The information required by the legislation is contained in the tables that follow this letter. The following is some brief commentary concerning the results themselves.

1. As shown in Stress Test Exhibit 1, the ERS is expected to be fully funded (100% funded ratio) in fiscal year ending 2046. **Important Note**: the Statutes governing the ERS contemplate that the employer contribution rates would be changed when the ERS is fully funded. However, because the statutes governing the stress test require the use of the same contribution pattern for Scenario's 1, 2B and 3B, we felt it would be inappropriate to change the contribution rates for Scenario #1 since the contribution rates would not change under the ERS statute in Scenarios 2B and 3B.

2. In past years, Stress Test Exhibits 2A and 2B have been identical. This was because the funding period at future valuation dates under both scenarios was never expected to exceed the maximum funding period. If the All Other Employees Group was shown separately, this would still be the case. The impact of the underperformance is a lengthening of the period of time until the All Other Employees Group is fully funded, but it is never expected that the funding period will be more than the maximum funding period from a future valuation date. However, for the Police and Fire Employees Group, the reduction of the maximum funding period (see discussion about maximum funding period later in this report), does result in the contribution rate for the Police and Fire Employee Group increasing in order to satisfy the maximum funding period after recognizing the underperformance.

Under the first part of the 2nd Stress Test (see Stress Test Exhibit 2A) the employer contribution rates would remain constant at 24.00% of pay for All Other Employees and would gradually increase to 45.50% of pay for Police and Firefighters and remain at that level for the foreseeable future. As shown in Stress Test Exhibit 2B (Employer Contributions remain at statutory rates) the funded ratio would stay relatively stable in the low 60's%, but over the next 30 years there would be no marked improvement in the funded ratio.

3. Under the first part of the 3rd Stress Test (see Stress Test Exhibit 3A) the employer contribution rates would increase over several years to 30.5% of pay and then remain constant for All Other Employees and increase over several years to 60.50% of pay for Police and Firefighters and remain at that level for the foreseeable future. As shown in Stress Test Exhibit 3B (Employer Contributions remain at statutory rates) the funded ratio would decline to the mid 30's% but the trust is never exhausted. The funded ratio would begin to slowly climb once the impact of the 20-year period of 5% returns ends.

4. The 10-year average of the 30-year treasury notes is 2.86% as of July 1, 2024.

Based on the information reviewed for this report, the stress test shows that the System is sustainable in the protracted low return environment of Scenario #2, but would require an increase in the Police and Fire contribution rate and the rates would need to be maintained for a much longer period of time than is currently expected. While we believe the likelihood of Scenario #3 occurring is remote, if it did occur it would require an increase in the employer contribution rates under the current statutes and the higher rates would be required for many years.

Maximum Funding Period

As the Board is aware, Legislation was passed by the Legislature and signed by the Governor that gradually lowers the maximum funding period of ERS. Prior years' stress tests always measured against a 30-year maximum funding period. However, with the new law the maximum funding period for the June 30, 2024 valuation is 25 years and that maximum will decrease by 1 each year in the future until it reaches 20 with the June 30, 2029 valuation. It will then remain at 20 years. While this new law is not expected to impact the ERS in consistent financial markets, it does impact the Stress Test because the Stress Test scenarios have severe underperformance which causes larger increases in the contribution rates than in previous years' tests.

Disclosures

The information contained in this report is based on the liabilities associated with the preliminary valuation results of the ERS as of June 30, 2024. The assets used in this report were estimated based on information provided by ERS. While the actual valuation results may be slightly different, it is not expected that those changes will have any material impact on the information contained herein.

Except as noted, the data, financial information, and actuarial methods and assumptions are those used in the June 30, 2024 actuarial valuation. These assumptions are detailed in the actuarial valuation report dated January 2025. The results of the actuarial valuation and this "Stress Test" are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. Based on the scope of this engagement, we have not performed analysis on the potential range of future measurements based on other factors. The actuarial calculations are intended to provide information for rational decision making.

Temporary Hazardous Duty Pay

We are aware of the settlements between the employers and the employee groups regarding Temporary Hazardous Duty Pay (THDP) as a result of employment during the COVID-19 period. While the settlements will have an impact on the liabilities of the ERS, information is not currently available at an individual level for all of the impacted employees (current and former). Therefore, the impact will not be reflected in the June 30, 2024 actuarial valuation but will instead be reflected in the June 30, 2025 actuarial valuation when individual data should be available. It is not expected that the additional liabilities associated with the THDP will impact the contribution rates of the ERS.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

Joe Newton is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

We look forward to discussing the results of this analysis with the Board.

Sincerely,

Lewis Ward

Lewis Ward
Consultant

Joe Newton

Joseph P. Newton
Pension Market Leader and Actuary
Enclosures

Hawaii Employees Retirement System
Stress Test Projections
(Dollar Amounts in $ Millions)

Valuation Date (1)	Market Value of Assets (2)	Actuarial Value of Assets (3)	Actuarial Accrued Liability (4)	Unfunded Actuarial Accrued Liability (5)	Normal Cost (6)	Projected Employee Contributions (7)	Projected Employer Contributions (8)	Net Amortization (9)	Benefit Payments (10)	Covered Payroll (11)	Funded Ratio (12)
30-Jun-24	$ 23,583	$ 23,648	$ 37,784	$ 14,136	$ 739	$ 349	$ 1,320	$ 27	$ 2,002	$ 5,107	62.6%
30-Jun-25	24,940	24,940	39,103	14,164	753	365	1,351	(5)	2,116	5,232	63.8%
30-Jun-26	26,253	26,253	40,412	14,159	770	382	1,388	(43)	2,225	5,378	65.0%
30-Jun-27	27,600	27,600	41,716	14,116	788	400	1,426	(84)	2,336	5,528	66.2%
30-Jun-28	28,983	28,983	43,015	14,032	807	418	1,465	(130)	2,445	5,683	67.4%
30-Jun-29	30,409	30,409	44,311	13,902	827	436	1,505	(180)	2,555	5,843	68.6%
30-Jun-30	31,882	31,882	45,604	13,723	847	454	1,547	(234)	2,665	6,009	69.9%
30-Jun-31	33,405	33,405	46,894	13,489	868	474	1,590	(293)	2,776	6,181	71.2%
30-Jun-32	34,983	34,983	48,179	13,196	889	494	1,635	(359)	2,889	6,357	72.6%
30-Jun-33	36,622	36,622	49,460	12,838	911	515	1,682	(431)	3,001	6,539	74.0%
30-Jun-34	38,329	38,329	50,736	12,407	934	535	1,730	(509)	3,112	6,727	75.5%
30-Jun-35	40,111	40,111	52,010	11,898	958	557	1,780	(595)	3,224	6,922	77.1%
30-Jun-36	41,976	41,976	53,280	11,304	982	579	1,832	(687)	3,335	7,124	78.8%
30-Jun-37	43,932	43,932	54,550	10,618	1,008	602	1,886	(788)	3,445	7,332	80.5%
30-Jun-38	45,991	45,991	55,821	9,830	1,035	625	1,942	(897)	3,552	7,550	82.4%
30-Jun-39	48,163	48,163	57,097	8,934	1,063	649	2,000	(1,016)	3,657	7,776	84.4%
30-Jun-40	50,463	50,463	58,382	7,919	1,092	674	2,061	(1,144)	3,758	8,012	86.4%
30-Jun-41	52,907	52,907	59,683	6,775	1,123	699	2,124	(1,283)	3,858	8,257	88.6%
30-Jun-42	55,509	55,509	61,002	5,493	1,156	724	2,189	(1,434)	3,957	8,511	91.0%
30-Jun-43	58,283	58,283	62,343	4,060	1,189	750	2,257	(1,596)	4,053	8,774	93.5%
30-Jun-44	61,249	61,249	63,713	2,464	1,224	777	2,327	(1,772)	4,149	9,046	96.1%
30-Jun-45	64,422	64,422	65,115	693	1,260	804	2,399	(1,961)	4,243	9,327	98.9%
30-Jun-46	67,821	67,821	66,553	(1,268)	1,298	831	2,474	(2,165)	4,336	9,619	101.9%
30-Jun-47	71,466	71,466	68,034	(3,432)	1,338	859	2,552	(2,385)	4,427	9,920	105.0%
30-Jun-48	75,380	75,380	69,565	(5,816)	1,379	888	2,632	(2,622)	4,517	10,232	108.4%
30-Jun-49	79,587	79,587	71,150	(8,437)	1,421	918	2,714	(2,878)	4,609	10,554	111.9%
30-Jun-50	84,110	84,110	72,795	(11,315)	1,465	948	2,799	(3,153)	4,703	10,885	115.5%
30-Jun-51	88,969	88,969	74,503	(14,467)	1,511	979	2,887	(3,449)	4,798	11,225	119.4%
30-Jun-52	94,191	94,191	76,276	(17,915)	1,558	1,011	2,977	(3,768)	4,897	11,575	123.5%
30-Jun-53	99,802	99,802	78,119	(21,682)	1,606	1,042	3,070	(4,110)	4,998	11,936	127.8%

Hawaii Employees' Retirement System

Stress Test Exhibit 2A - Actual Returns are 5% (2% Less than Assumed)

Scenario A - Contribution Rates Adjusted if Necessary to Keep Future Valuations' Funding Periods at Maximum Funding Period or Less

(Dollar Amounts in $ Millions)

Valuation Date (1)	Market Value of Assets (2)	Actuarial Value of Assets (3)	Actuarial Accrued Liability (4)	Unfunded Actuarial Accrued Liability (5)	Normal Cost (6)	Projected Employee Contributions (7)	Projected Employer Contributions (8)	Net Amortization (9)	Benefit Payments (10)	Covered Payroll (11)	Funded Ratio (12)
30-Jun-24	$ 23,583	$ 23,648	$ 37,784	$ 14,136	$ 739	$ 349	$ 1,320	$ 27	$ 2,002	$ 5,107	62.6%
30-Jun-25	24,402	24,790	39,103	14,313	753	365	1,351	5	2,116	5,232	63.4%
30-Jun-26	25,194	25,816	40,412	14,596	770	382	1,388	(13)	2,225	5,378	63.9%
30-Jun-27	25,968	26,749	41,716	14,967	788	400	1,426	(25)	2,336	5,528	64.1%
30-Jun-28	26,723	27,549	43,015	15,466	807	418	1,473	(38)	2,445	5,683	64.0%
30-Jun-29	27,471	28,331	44,311	15,980	827	436	1,523	(52)	2,555	5,843	63.9%
30-Jun-30	28,212	29,101	45,604	16,504	847	454	1,575	(68)	2,665	6,009	63.8%
30-Jun-31	28,950	29,863	46,894	17,031	868	474	1,618	(74)	2,776	6,181	63.7%
30-Jun-32	29,673	30,611	48,179	17,568	889	494	1,664	(83)	2,889	6,357	63.5%
30-Jun-33	30,385	31,346	49,460	18,113	911	515	1,711	(93)	3,001	6,539	63.4%
30-Jun-34	31,086	32,071	50,736	18,665	934	535	1,761	(103)	3,112	6,727	63.2%
30-Jun-35	31,780	32,788	52,010	19,222	958	557	1,812	(115)	3,224	6,922	63.0%
30-Jun-36	32,468	33,498	53,280	19,782	982	579	1,865	(127)	3,335	7,124	62.9%
30-Jun-37	33,151	34,205	54,550	20,345	1,008	602	1,919	(142)	3,445	7,332	62.7%
30-Jun-38	33,836	34,912	55,821	20,909	1,035	625	1,976	(157)	3,552	7,550	62.5%
30-Jun-39	34,526	35,625	57,097	21,472	1,063	649	2,035	(175)	3,657	7,776	62.4%
30-Jun-40	35,228	36,349	58,382	22,033	1,092	674	2,097	(194)	3,758	8,012	62.3%
30-Jun-41	35,949	37,093	59,683	22,590	1,123	699	2,161	(215)	3,858	8,257	62.2%
30-Jun-42	36,694	37,861	61,002	23,141	1,156	724	2,228	(238)	3,957	8,511	62.1%
30-Jun-43	37,468	38,659	62,343	23,684	1,189	750	2,297	(264)	4,053	8,774	62.0%
30-Jun-44	38,278	39,495	63,713	24,218	1,224	777	2,368	(292)	4,149	9,046	62.0%
30-Jun-45	39,131	40,373	65,115	24,741	1,260	804	2,441	(322)	4,243	9,327	62.0%
30-Jun-46	40,031	41,301	66,553	25,252	1,298	831	2,518	(354)	4,336	9,619	62.1%
30-Jun-47	40,986	42,285	68,034	25,749	1,338	859	2,597	(389)	4,427	9,920	62.2%
30-Jun-48	42,004	43,334	69,565	26,231	1,379	888	2,678	(427)	4,517	10,232	62.3%
30-Jun-49	43,092	44,455	71,150	26,695	1,421	918	2,762	(468)	4,609	10,554	62.5%
30-Jun-50	44,257	45,655	72,795	27,140	1,465	948	2,849	(512)	4,703	10,885	62.7%
30-Jun-51	45,503	46,938	74,503	27,565	1,511	979	2,938	(560)	4,798	11,225	63.0%
30-Jun-52	46,835	48,309	76,276	27,967	1,558	1,011	3,030	(611)	4,897	11,575	63.3%
30-Jun-53	48,257	49,774	78,119	28,345	1,606	1,042	3,124	(664)	4,998	11,936	63.7%
30-Jun-54	49,774	51,337	80,035	28,698	1,655	1,076	3,221	(723)	5,103	12,306	64.1%

Hawaii Employees' Retirement System

Stress Test Exhibit 2B - Actual Returns are 5% (2% Less than Assumed)

Scenario B - Contribution Rates Kept at Current Statutory Rates

(Dollar Amounts in $ Millions)

Valuation Date (1)	Market Value of Assets (2)	Actuarial Value of Assets (3)	Actuarial Accrued Liability (4)	Unfunded Actuarial Accrued Liability (5)	Normal Cost (6)	Projected Employee Contributions (7)	Projected Employer Contributions (8)	Net Amortization (9)	Benefit Payments (10)	Covered Payroll (11)	Funded Ratio (12)
30-Jun-24	$ 23,583	$ 23,648	$ 37,784	$ 14,136	$ 739	$ 349	$ 1,320	$ 27	$ 2,002	$ 5,107	62.6%
30-Jun-25	24,402	24,790	39,103	14,313	753	365	1,351	5	2,116	5,232	63.4%
30-Jun-26	25,194	25,816	40,412	14,596	770	382	1,388	(13)	2,225	5,378	63.9%
30-Jun-27	25,968	26,749	41,716	14,967	788	400	1,426	(25)	2,336	5,528	64.1%
30-Jun-28	26,723	27,549	43,015	15,466	807	418	1,465	(30)	2,445	5,683	64.0%
30-Jun-29	27,462	28,322	44,311	15,989	827	436	1,505	(34)	2,555	5,843	63.9%
30-Jun-30	28,186	29,073	45,604	16,531	847	454	1,547	(37)	2,665	6,009	63.8%
30-Jun-31	28,893	29,805	46,894	17,088	868	474	1,590	(41)	2,776	6,181	63.6%
30-Jun-32	29,585	30,521	48,179	17,658	889	494	1,635	(47)	2,889	6,357	63.3%
30-Jun-33	30,262	31,221	49,460	18,239	911	515	1,682	(53)	3,001	6,539	63.1%
30-Jun-34	30,927	31,908	50,736	18,828	934	535	1,730	(60)	3,112	6,727	62.9%
30-Jun-35	31,581	32,585	52,010	19,425	958	557	1,780	(68)	3,224	6,922	62.7%
30-Jun-36	32,227	33,252	53,280	20,029	982	579	1,832	(76)	3,335	7,124	62.4%
30-Jun-37	32,865	33,912	54,550	20,638	1,008	602	1,886	(86)	3,445	7,332	62.2%
30-Jun-38	33,502	34,569	55,821	21,252	1,035	625	1,942	(97)	3,552	7,550	61.9%
30-Jun-39	34,140	35,228	57,097	21,869	1,063	649	2,000	(110)	3,657	7,776	61.7%
30-Jun-40	34,786	35,895	58,382	22,487	1,092	674	2,061	(124)	3,758	8,012	61.5%
30-Jun-41	35,447	36,578	59,683	23,105	1,123	699	2,124	(140)	3,858	8,257	61.3%
30-Jun-42	36,128	37,280	61,002	23,722	1,156	724	2,189	(158)	3,957	8,511	61.1%
30-Jun-43	36,835	38,008	62,343	24,335	1,189	750	2,257	(177)	4,053	8,774	61.0%
30-Jun-44	37,572	38,769	63,713	24,944	1,224	777	2,327	(198)	4,149	9,046	60.8%
30-Jun-45	38,347	39,568	65,115	25,547	1,260	804	2,399	(221)	4,243	9,327	60.8%
30-Jun-46	39,165	40,410	66,553	26,143	1,298	831	2,474	(246)	4,336	9,619	60.7%
30-Jun-47	40,032	41,304	68,034	26,731	1,338	859	2,552	(273)	4,427	9,920	60.7%
30-Jun-48	40,956	42,255	69,565	27,309	1,379	888	2,632	(303)	4,517	10,232	60.7%
30-Jun-49	41,944	43,273	71,150	27,877	1,421	918	2,714	(336)	4,609	10,554	60.8%
30-Jun-50	43,002	44,363	72,795	28,432	1,465	948	2,799	(371)	4,703	10,885	60.9%
30-Jun-51	44,135	45,529	74,503	28,973	1,511	979	2,887	(408)	4,798	11,225	61.1%
30-Jun-52	45,345	46,776	76,276	29,500	1,558	1,011	2,977	(449)	4,897	11,575	61.3%
30-Jun-53	46,639	48,109	78,119	30,011	1,606	1,042	3,070	(492)	4,998	11,936	61.6%
30-Jun-54	48,020	49,531	80,035	30,504	1,655	1,076	3,165	(539)	5,103	12,306	61.9%

Hawaii Employees' Retirement System

Stress Test Exhibit 3A - Negative 20% Return Followed by 20-Year Period with 5% Returns

Scenario A - Contribution Rates Adjusted if Necessary to Keep Future Valuations' Funding Periods at Maximum Funding Period or Less

(Dollar Amounts in $ Millions)

Valuation Date (1)	Market Value of Assets (2)	Actuarial Value of Assets (3)	Actuarial Accrued Liability (4)	Unfunded Actuarial Accrued Liability (5)	Normal Cost (6)	Projected Employee Contributions (7)	Projected Employer Contributions (8)	Net Amortization (9)	Benefit Payments (10)	Covered Payroll (11)	Funded Ratio (12)
30-Jun-24	$ 23,583	$ 23,648	$ 37,784	$ 14,136	$ 739	$ 349	$ 1,320	$ 27	$ 2,002	$ 5,107	62.6%
30-Jun-25	18,551	23,327	39,103	15,776	753	365	1,368	90	2,116	5,232	59.7%
30-Jun-26	19,067	22,757	40,412	17,654	770	382	1,527	58	2,225	5,378	56.3%
30-Jun-27	19,677	22,086	41,716	19,630	788	400	1,671	47	2,336	5,528	52.9%
30-Jun-28	20,369	21,282	43,015	21,732	807	418	1,905	(47)	2,445	5,683	49.5%
30-Jun-29	21,242	22,033	44,311	22,278	827	436	1,964	(68)	2,555	5,843	49.7%
30-Jun-30	22,125	22,858	45,604	22,746	847	454	2,018	(89)	2,665	6,009	50.1%
30-Jun-31	23,011	23,737	46,894	23,157	868	474	2,073	(116)	2,776	6,181	50.6%
30-Jun-32	23,904	24,651	48,179	23,528	889	494	2,132	(150)	2,889	6,357	51.2%
30-Jun-33	24,807	25,580	49,460	23,880	911	515	2,193	(187)	3,001	6,539	51.7%
30-Jun-34	25,723	26,524	50,736	24,212	934	535	2,256	(227)	3,112	6,727	52.3%
30-Jun-35	26,656	27,487	52,010	24,523	958	557	2,321	(271)	3,224	6,922	52.8%
30-Jun-36	27,610	28,471	53,280	24,810	982	579	2,389	(318)	3,335	7,124	53.4%
30-Jun-37	28,588	29,480	54,550	25,070	1,008	602	2,459	(369)	3,445	7,332	54.0%
30-Jun-38	29,598	30,521	55,821	25,299	1,035	625	2,532	(424)	3,552	7,550	54.7%
30-Jun-39	30,645	31,602	57,097	25,495	1,063	649	2,608	(485)	3,657	7,776	55.3%
30-Jun-40	31,740	32,730	58,382	25,652	1,092	674	2,687	(551)	3,758	8,012	56.1%
30-Jun-41	32,891	33,917	59,683	25,766	1,123	699	2,769	(621)	3,858	8,257	56.8%
30-Jun-42	34,105	35,168	61,002	25,833	1,156	724	2,854	(698)	3,957	8,511	57.7%
30-Jun-43	35,392	36,494	62,343	25,849	1,189	750	2,942	(780)	4,053	8,774	58.5%
30-Jun-44	36,761	37,904	63,713	25,809	1,224	777	3,034	(869)	4,149	9,046	59.5%
30-Jun-45	38,220	39,407	65,115	25,708	1,260	804	3,128	(964)	4,243	9,327	60.5%
30-Jun-46	40,539	41,202	66,553	25,351	1,298	831	3,226	(1,079)	4,336	9,619	61.9%
30-Jun-47	43,053	43,332	68,034	24,702	1,338	859	3,327	(1,217)	4,427	9,920	63.7%
30-Jun-48	45,781	45,839	69,565	23,725	1,379	888	3,431	(1,381)	4,517	10,232	65.9%
30-Jun-49	48,743	48,768	71,150	22,382	1,421	918	3,539	(1,574)	4,609	10,554	68.5%
30-Jun-50	51,960	51,968	72,795	20,827	1,465	948	3,650	(1,783)	4,703	10,885	71.4%
30-Jun-51	55,450	55,452	74,503	19,050	1,511	979	3,764	(2,010)	4,798	11,225	74.4%
30-Jun-52	59,233	59,234	76,276	17,042	1,558	1,011	3,882	(2,257)	4,897	11,575	77.7%
30-Jun-53	63,333	63,333	78,119	14,786	1,606	1,042	4,003	(2,522)	4,998	11,936	81.1%
30-Jun-54	67,771	67,771	80,035	12,264	1,655	1,076	4,127	(2,811)	5,103	12,306	84.7%

Hawaii Employees' Retirement System

Stress Test Exhibit 3B - Negative 20% Return Followed by 20-Year Period with 5% Returns

Scenario B - Contribution Rates Kept at Current Statutory Rates

(Dollar Amounts in $ Millions)

Valuation Date (1)	Market Value of Assets (2)	Actuarial Value of Assets (3)	Actuarial Accrued Liability (4)	Unfunded Actuarial Accrued Liability (5)	Normal Cost (6)	Projected Employee Contributions (7)	Projected Employer Contributions (8)	Net Amortization (9)	Benefit Payments (10)	Covered Payroll (11)	Funded Ratio (12)
30-Jun-24	$ 23,583	$ 23,648	$ 37,784	$ 14,136	$ 739	$ 349	$ 1,320	$ 27	$ 2,002	$ 5,107	62.6%
30-Jun-25	18,551	23,327	39,103	15,776	753	365	1,351	107	2,116	5,232	59.7%
30-Jun-26	19,050	22,740	40,412	17,672	770	382	1,388	203	2,225	5,378	56.3%
30-Jun-27	19,517	21,924	41,716	19,792	788	400	1,426	313	2,336	5,528	52.6%
30-Jun-28	19,949	20,857	43,015	22,158	807	418	1,465	439	2,445	5,683	48.5%
30-Jun-29	20,349	21,127	44,311	23,184	827	436	1,505	470	2,555	5,843	47.7%
30-Jun-30	20,717	21,425	45,604	24,179	847	454	1,547	498	2,665	6,009	47.0%
30-Jun-31	21,051	21,735	46,894	25,158	868	474	1,590	524	2,776	6,181	46.3%
30-Jun-32	21,351	22,039	48,179	26,140	889	494	1,635	547	2,889	6,357	45.7%
30-Jun-33	21,616	22,312	49,460	27,148	911	515	1,682	571	3,001	6,539	45.1%
30-Jun-34	21,849	22,552	50,736	28,184	934	535	1,730	595	3,112	6,727	44.5%
30-Jun-35	22,049	22,761	52,010	29,249	958	557	1,780	620	3,224	6,922	43.8%
30-Jun-36	22,218	22,936	53,280	30,344	982	579	1,832	646	3,335	7,124	43.0%
30-Jun-37	22,356	23,080	54,550	31,470	1,008	602	1,886	672	3,445	7,332	42.3%
30-Jun-38	22,467	23,196	55,821	32,625	1,035	625	1,942	699	3,552	7,550	41.6%
30-Jun-39	22,553	23,286	57,097	33,811	1,063	649	2,000	726	3,657	7,776	40.8%
30-Jun-40	22,620	23,357	58,382	35,026	1,092	674	2,061	753	3,758	8,012	40.0%
30-Jun-41	22,674	23,412	59,683	36,270	1,123	699	2,124	782	3,858	8,257	39.2%
30-Jun-42	22,716	23,456	61,002	37,545	1,156	724	2,189	810	3,957	8,511	38.5%
30-Jun-43	22,751	23,493	62,343	38,850	1,189	750	2,257	839	4,053	8,774	37.7%
30-Jun-44	22,785	23,528	63,713	40,185	1,224	777	2,327	868	4,149	9,046	36.9%
30-Jun-45	22,821	23,565	65,115	41,549	1,260	804	2,399	899	4,243	9,327	36.2%
30-Jun-46	23,307	23,719	66,553	42,834	1,298	831	2,474	922	4,336	9,619	35.6%
30-Jun-47	23,837	24,009	68,034	44,025	1,338	859	2,552	937	4,427	9,920	35.3%
30-Jun-48	24,417	24,454	69,565	45,111	1,379	888	2,632	943	4,517	10,232	35.2%
30-Jun-49	25,057	25,072	71,150	46,078	1,421	918	2,714	938	4,609	10,554	35.2%
30-Jun-50	25,762	25,767	72,795	47,028	1,465	948	2,799	931	4,703	10,885	35.4%
30-Jun-51	26,537	26,539	74,503	47,964	1,511	979	2,887	921	4,798	11,225	35.6%
30-Jun-52	27,389	27,389	76,276	48,887	1,558	1,011	2,977	908	4,897	11,575	35.9%
30-Jun-53	28,323	28,323	78,119	49,796	1,606	1,042	3,070	893	4,998	11,936	36.3%
30-Jun-54	29,345	29,345	80,035	50,690	1,655	1,076	3,165	874	5,103	12,306	36.7%

Hawaii Employees' Retirement System

Stress Test Exhibit 4 - Comparison of Cost Items at Current Investment Return Assumption (7.00%) and 10-Year Average of 30-Year Treasuries (2.86%)

All Other Employees

	Valuation Assumptions		10-Year Average of 30-Year Treasuries	
Membership Tier	Hired Prior to July 1, 2012	Hired After June 30, 2012	Hired Prior to July 1, 2012	Hired After June 30, 2012
Actuarial Accured Liability	$28,313	$1,974	$48,484	$4,773
Total Normal Cost %	12.79%	12.25%	40.88%	33.54%
Employer Normal Cost %	8.26%	4.17%	36.34%	25.47%

Police and Fire Employees

	Valuation Assumptions		10-Year Average of 30-Year Treasuries	
Membership Tier	Hired Prior to July 1, 2012	Hired After June 30, 2012	Hired Prior to July 1, 2012	Hired After June 30, 2012
Actuarial Accured Liability	$7,236	$261	$12,754	$660
Total Normal Cost %	28.62%	22.45%	85.33%	65.50%
Employer Normal Cost %	16.42%	8.25%	73.13%	51.30%

Dollar Amounts are in $ Millions

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LIEUTENANT GOVERNOR

STATE OF HAWAIʻI
EMPLOYEES' RETIREMENT SYSTEM

THOMAS WILLIAMS
EXECUTIVE DIRECTOR

GAIL STROHL
DEPUTY EXECUTIVE DIRECTOR

January 13, 2025

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

FROM: Thomas Williams, Executive Director
Employees' Retirement System of the State of Hawaii

SUBJECT: 2024 Report on Act 87 (2015) – Employer Reporting

Annually, the Employees' Retirement System of the State of Hawaii provides a publicly available report related to the Status of Employer Reporting of Information in support of Act 87, Session Laws of Hawaii 2015.

This report has been forwarded to the Director of Budget and Finance for transmittal to the Legislature.

The 2024 report is attached and can also be found on the ERS web page.
https://ers.ehawaii.gov/resources/reports-to-legislature.

Board Action Required: Receive and file.

Attachment

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LIEUTENANT GOVERNOR

EMPLOYEES' RETIREMENT SYSTEM
HAWAI'I EMPLOYER-UNION HEALTH BENEFITS TRUST FUND
OFFICE OF THE PUBLIC DEFENDER

STATE OF HAWAIʻI
DEPARTMENT OF BUDGET AND FINANCE
Ka ʻOihana Mālama Moʻohelu a Kālā
P.O. BOX 150
HONOLULU, HAWAIʻI 96810-0150

LUIS P. SALAVERIA
DIRECTOR

SABRINA NASIR
DEPUTY DIRECTOR

ADMINISTRATIVE AND RESEARCH OFFICE
BUDGET, PROGRAM PLANNING AND MANAGEMENT DIVISION
FINANCIAL ADMINISTRATION DIVISION
OFFICE OF FEDERAL AWARDS MANAGEMENT

December 24, 2024

The Honorable Ronald D. Kouchi
President and Members
of the Senate
Thirty-Third State Legislature
State Capitol, Room 409
Honolulu, Hawaii 96813

The Honorable Nadine K. Nakamura
Speaker and Members of the
House of Representatives
Thirty-Third State Legislature
State Capitol, Room 431
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Nakamura and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the Employees' Retirement System's Employer Reporting of Information report for 2024, as required by Act 87, Session Laws of Hawaii 2015. In accordance with Section 93-16, Hawaii Revised Statutes, a copy of this report has been transmitted to the Legislative Reference Bureau and the report may be viewed electronically at http://ers.ehawaii.gov/resources/reports-to-legislature.

Sincerely,

/s/

LUIS P. SALAVERIA
Director of Finance

Enclosure

c: Legislative Reference Bureau

ec: Governor's Office: Gov.ReportsDistribution@hawaii.gov
Lieutenant Governor's Office: LtGov.ReportsDistribution@hawaii.gov
Legislative Auditor: auditors2@auditor.state.hi.us
Department of Budget and Finance: DBFLeg.DIR@hawaii.gov

EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII

ACT 87, SESSION LAWS OF HAWAII 2015
RELATING TO THE EMPLOYEES' RETIREMENT SYSTEM

STATUS OF EMPLOYER REPORTING OF INFORMATION
FOR 2024

The Employees' Retirement System (ERS) hereby submits its report on the progress of employer reporting of personnel and payroll information, as required by Act 87, Session Laws of Hawaii 2015 ("Act 87, SLH 2015") for 2024.

Importance of Employer Reporting

The ERS administers retirement, death, and disability benefits for eligible State and county employees. Because benefits eligibility and entitlement are determined using payroll data (compensation information) and personnel data (service credit information), it is essential that the ERS receive timely and accurate data from State and county employers, who are the sole source of such data.

To that end, Act 87, SLH 2015 requires State and county employers to "furnish the information required by the system pursuant to this section in the format required by the system." Act 87, SLH 2015 further requires State and county employers to pay a penalty to the ERS should they fail to furnish the ERS with the information required in the format required.

Progress of Employer Reporting

In 2024, the ERS Employer Team, comprised of benefits, accounting, information system and administrative support staff members, continued to assist employers in their compliance efforts.

On April 12, 2024, ERS issued a memo providing guidance to employers as to the types of pay that may be reported to ERS as a "recurring differential" for benefit computation purposes.

During August, September, and October, ERS met with State and county employers to discuss the required reporting of the various Temporary Hazard Pay payments paid to their employees.

On November 25, 2024, the ERS finalized contracting with a third-party accounting, consulting, and audit firm to assist with the review and analysis of personnel and payroll data. The contractor is currently being onboarded and employer reporting support activities are expected to begin in Q4 of the Fiscal Year.

In the meantime, ERS is reviewing its reporting requirements and related processing procedures, and developing diagnostic reports so that appropriate controls may be established with the contractor in the analysis of the employer reporting data. Due to the time and resources required to analyze the reporting data, provide subsequent notice and response time, the ERS anticipates that no employers would be subject to the pre-payment of contributions penalty due to failing to report data in the required format in Fiscal Year 2025.

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LIEUTENANT GOVERNOR

STATE OF HAWAIʻI
EMPLOYEES' RETIREMENT SYSTEM

THOMAS WILLIAMS
EXECUTIVE DIRECTOR

GAIL STROHL
DEPUTY EXECUTIVE DIRECTOR

January 13, 2025

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

FROM: Kristin Varela, Chief Investment Officer
Employees' Retirement System of the State of Hawaii

SUBJECT: 2024 Report on Act 192 (2007) — Sudan Holdings

Annually, the Employees' Retirement System of the State of Hawaii provides a publicly available report related to Hawaii venture capital investments in support of Act 192, Session Laws of Hawaii 2007.

This report has been forwarded to the Director of Budget and Finance for transmittal to the Legislature.

The 2024 report is attached and can also be found on the ERS web page.
http://ers.ehawaii.gov/resources/reports-to-legislature.

Board Action Required: Receive and file.

Attachment

Employees' Retirement System
of the State of Hawaii
City Financial Tower • 201 Merchant Street, Suite 1400 • Honolulu, Hawaii 96813-2980
Telephone (808) 586-1735 • Fax (808) 586-1677 • http://ers.ehawaii.gov

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LIEUTENANT GOVERNOR

EMPLOYEES' RETIREMENT SYSTEM
HAWAI'I EMPLOYER-UNION HEALTH BENEFITS TRUST FUND
OFFICE OF THE PUBLIC DEFENDER

STATE OF HAWAIʻI
DEPARTMENT OF BUDGET AND FINANCE
Ka ʻOihana Mālama Moʻohelu a Kālā
P.O. BOX 150
HONOLULU, HAWAIʻI 96810-0150

LUIS P. SALAVERIA
DIRECTOR

SABRINA NASIR
DEPUTY DIRECTOR

ADMINISTRATIVE AND RESEARCH OFFICE
BUDGET, PROGRAM PLANNING AND MANAGEMENT DIVISION
FINANCIAL ADMINISTRATION DIVISION
OFFICE OF FEDERAL AWARDS MANAGEMENT

December 24, 2024

The Honorable Ronald D. Kouchi
President and Members
of the Senate
Thirty-Third State Legislature
State Capitol, Room 409
Honolulu, Hawaii 96813

The Honorable Nadine K. Nakamura
Speaker and Members of the
House of Representatives
Thirty-Third State Legislature
State Capitol, Room 431
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Nakamura and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the Direct Holdings in Sudan Scrutinized Companies 2024 report, as required by Act 192, Session Laws of Hawaii 2007. In accordance with Section 93-16, HRS, a copy of this report has been transmitted to the Legislative Reference Bureau and the report may be viewed electronically at http://ers.ehawaii.gov/resources/reports-to-legislature.

Sincerely,

/s/

LUIS P. SALAVERIA
Director of Finance

Enclosure

c: Legislative Reference Bureau

ec: Governor's Office: Gov.ReportsDistribution@hawaii.gov
Lieutenant Governor's Office: LtGov.ReportsDistribution@hawaii.gov
Legislative Auditor: auditors2@auditor.state.hi.us
Department of Budget and Finance: DBFLeg.DIR@hawaii.gov

EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII
DIRECT HOLDINGS IN SUDAN SCRUTINIZED COMPANIES
2024

Act 192, Session Laws of Hawaii 2007, expresses the State's desire to not participate in ownership of companies that provide significant practical support for genocide activities being conducted by the Sudanese government in the Darfur region.

The Board of Trustees of the Employees' Retirement System recognizes the intent of Act 192 and will abide by its requirements. The Board, however, must also apply a decision framework to act for the exclusive benefit of ERS Plan participants. In this respect, the Board recognized that divestment activities could potentially increase the portfolio's idiosyncratic investment risk. Divestment guidelines and procedures, codified in the ERS's *Sudan Investment Policy* ("Policy"), were therefore developed to minimize the impact of the Sudan divestment policy upon the investment results of the ERS portfolio. The Sudan divestment policy is intended to also avoid:

- Discriminating against companies whose Sudan-related business activities are supported by the U.S. government;
- Discriminating against companies whose Sudan-related business activities do not support genocide activities;
- Unnecessarily harming U.S. companies and jobs; and
- Compromising the Board of Trustees' duties to the beneficiaries of the ERS.

The ERS was required to make its best efforts to identify all of its direct holdings in scrutinized companies within 180 days after July 1, 2007. Those efforts were to include:

- Reviewing publicly available information regarding companies with business operations in Sudan provided by nonprofit organizations and other appropriate parties:
- Contacting ERS's asset managers with investments in scrutinized companies; and
- Contacting other institutional investors that have divested from or engaged with companies that have business operations in Sudan.

Each year thereafter, Act 192 requires the ERS to provide to the legislature a publicly available report that includes activity under section 4, to include: 1) A summary or correspondence with companies engaged by the public fund; 2) All investments sold, redeemed, divested, or withdrawn; 3) All prohibited investments; and 4) Any progress made. The ERS respectfully reports all pertinent activity in 2024 related to Sudan Scrutinized Companies as outlined in Act 192.

The ERS relied on the *Sudan Company Report* prepared by the EIRIS Conflict Risk Network (CRN) to determine “scrutinized companies,” that certain business activities in Sudan may determine their status as a “highest offender.” Highest offenders are subject to possible divestment in accordance with the Policy.

Before taking any action against the company, the ERS Board considers any additional information they may provide. The ERS will send a letter to the scrutinized company to inform them of their Sudan-related activities and encourage them to cease their scrutinized active business operations within 90 days. If the company continues to have scrutinized active business operations after ninety days following the first engagement by ERS, the Board will consider divestment or other corrective actions to the extent possible with due consideration from among other things, return on investment, diversification, and the ERS’s other legal obligations. Failure to respond to the ERS letter may lead to divestment action.

In 2024, there were no identified “scrutinized companies” held in the ERS portfolio.

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LIEUTENANT GOVERNOR

STATE OF HAWAIʻI
EMPLOYEES' RETIREMENT SYSTEM

THOMAS WILLIAMS
EXECUTIVE DIRECTOR

GAIL STROHL
DEPUTY EXECUTIVE DIRECTOR

January 13, 2025

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

FROM: Kristin Varela, Chief Investment Officer
Employees' Retirement System of the State of Hawaii

SUBJECT: 2024 Report on Act 260 (2007) — Hawaii Targeted Investment Program (HiTIP)

Annually, the Employees' Retirement System of the State of Hawaii provides a publicly available report related to Hawaii venture capital investments in support of Act 260, Session Laws of Hawaii 2007.

This report has been forwarded to the Director of Budget and Finance for transmittal to the Legislature.

The 2024 report is attached and can also be found on the ERS web page.
http://ers.ehawaii.gov/resources/reports-to-legislature.

Board Action Required: Receive and file.

Attachment

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LIEUTENANT GOVERNOR

EMPLOYEES' RETIREMENT SYSTEM
HAWAI'I EMPLOYER-UNION HEALTH BENEFITS TRUST FUND
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STATE OF HAWAIʻI
DEPARTMENT OF BUDGET AND FINANCE
Ka ʻOihana Mālama Moʻohelu a Kālā
P.O. BOX 150
HONOLULU, HAWAIʻI 96810-0150

LUIS P. SALAVERIA
DIRECTOR

SABRINA NASIR
DEPUTY DIRECTOR

ADMINISTRATIVE AND RESEARCH OFFICE
BUDGET, PROGRAM PLANNING AND MANAGEMENT DIVISION
FINANCIAL ADMINISTRATION DIVISION
OFFICE OF FEDERAL AWARDS MANAGEMENT

December 24, 2024

The Honorable Ronald D. Kouchi
President and Members
of the Senate
Thirty-Third State Legislature
State Capitol, Room 409
Honolulu, Hawaii 96813

The Honorable Nadine K. Nakamura
Speaker and Members of the
House of Representatives
Thirty-Third State Legislature
State Capitol, Room 431
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Nakamura and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the Innovation Economy 2024 report, as required by Act 260, Session Laws of Hawaii 2007. In accordance with Section 93-16, Hawaii Revised Statutes, a copy of this report has been transmitted to the Legislative Reference Bureau and the report may be viewed electronically at http://ers.ehawaii.gov/resources/reports-to-legislature.

Sincerely,

/s/

LUIS P. SALAVERIA
Director of Finance

Enclosure

c: Legislative Reference Bureau

ec: Governor's Office: Gov.ReportsDistribution@hawaii.gov
Lieutenant Governor's Office: LtGov.ReportsDistribution@hawaii.gov
Legislative Auditor: auditors2@auditor.state.hi.us
Department of Budget and Finance: DBFLeg.DIR@hawaii.gov

EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF HAWAII

ACT 260, SESSION LAWS OF HAWAII 2007
RELATING TO THE INNOVATION ECONOMY

HAWAII VENTURE CAPITAL INVESTMENT
2024

Act 260, Session Laws of Hawaii 2007, expresses the State's desire to increase economic growth through the development of the State's human resources, and employing these highly skilled resources to leverage increases in innovation across the State's economy.

The Board of Trustees of the Employees' Retirement System (ERS) acknowledges the intent of Act 260. Accordingly, the ERS, through its investment policies and an appropriate-sized funding allocation, has demonstrated a commitment to supporting an innovation economy while at the same time pursuing its objectives of achieving attractive venture capital investment return for the benefit of its beneficiaries.

The ERS Board approved the creation of a Hawaii Targeted Investment Program (HiTIP) Policies and Procedures on March 10, 2008, which included the adoption of funding criteria, as required by Act 260. A $25 million program funding allocation and a comprehensive HiTIP operating structure were approved on November 10, 2008, and December 8, 2008, respectively. A $35 million program for HiTIP II was approved on September 12, 2016 and closed in the first quarter of 2017. A $50 million program for HiTIP III was approved on November 12, 2019 and closed in December 2019. In May 2020, the allocation to HiTIP III was increased by $25 million to a total of $75 million. The purpose of the HiTIP is to invest venture capital in locally based early-stage technology companies through a portfolio of local, regional, and national venture capital funds within an institutional investment program structure. Under a competitive search process, the ERS selected a discretionary investment manager to operate and manage the HiTIP, which is projected to have a program lifespan of up to 15 years per fund.

The ERS is required to annually report any Hawaii venture capital investment. For calendar-year 2024, the ERS has supported Act 260 through the following investment measures:

- Since inception, $135.75 million has been committed across three tranches. HiTIP I, at $25.25 million of total capital, is fully committed to eight investments, which include seven private equity funds and one co-investment. HiTIP II, at $35.25 of total capital is fully committed to twelve private equity funds. HiTIP III, a $75.25 million pool, began investing in late 2019 and is fully committed into sixteen private equity funds. Note, two underlying fund investments are split across HiTIP II & HiTIP III so the total number of unique private equity investments across all three HiTIP programs is thirty-four.

- HiTIP seeks to invest in the major industry sectors of the Hawaiian entrepreneurial ecosystem. The sector exposure of HiTIP I, as a percent of remaining value as of September 30, 2024, is 55% Healthcare/Biotechnology/Biopharmaceuticals, 15% Consumer Products and Services, 10% Tech and Software, and 20% Other. For HiTIP II the sector exposure, as a percent of remaining value as of September 30, 2024, is 57% Tech and Software, 14% Healthcare Services, 5% Business Products and Services, 2% Real Estate, and 22% Other. For HiTIP III, the sector exposure, as a percent of remaining value as of September 30, 2024, is 62% Tech and Software, 11% Healthcare Services, 7% Financial Services, 4% Real Estate, and 16% Other.

- Since inception, HiTIP funds have looked at 3,192 investment opportunities with 1,799 Hawaii based companies. Of these companies, 181 are currently being tracked for a potential future investment.

- HiTIP I funds have invested into five companies operating in or that were started in Hawaii. Total direct investment by HiTIP I funds into Hawaiian companies is $35.8 million, 142% of ERS's HiTIP I commitment. Including capital from co-investors, $423 million has been invested into Hawaiian companies, 1,675% of ERS's HiTIP I commitment. HiTIP II funds have invested into eighteen companies operating in or that were started in Hawaii. Total direct investment by HiTIP II funds into Hawaiian companies is $4.4 million, 12.4% of ERS' HiTIP II commitment. Including capital from co-investors, $59.4 million, 168.6% of ERS' HiTIP II commitment. HiTIP III funds, which in aggregate are still in their investment periods, have invested into five companies operating in or that were started in Hawaii. While still early in its investment period, total direct investments by HiTIP III funds into Hawaiian companies is $4.9 million, 6.5% of ERS' HiTIP III commitment. Including capital from co-investors, $15.5 million, 20.5% of ERS' HiTIP III commitment. In total $491.6 million has been invested into twenty-five unique local Hawaii companies, three of these companies are included in both HiTIP II & HiTIP III.

- As of September 2024, the HiTIP I portfolio has distributed 105.4% of invested capital. A major source of the portfolio's liquidity has come from eighteen Initial Public Offerings (IPOs). Over this respective time period, HiTIP I has a gross Internal Rate of Return (IRR) of 6.7% with a Distributed to Paid-In Ratio (DPI) of 1.05x and a Total Value to Paid-In Ratio (TVPI) of 1.47x.

- As of September 2024, a number of the HiTIP II funds are still in the investment stage with only 15.6% of invested capital being distributed. Over this respective time period, HiTIP II has a gross Internal Rate of Return (IRR) of 10.4% with a Distributed to Paid-In Ratio (DPI) of 0.16x and a Total Value to Paid-In Ratio (TVPI) of 1.44x. Since inception a total of 384 investments have been made across these funds.

- As of September 2024, all HiTIP III funds are still in the active investment stage with only 0.5% of invested capital being distributed. Over this respective time period, the gross Internal Rate of Return (IRR) of the HiTIP III fund is 1.9% with a Total Value to Paid-In Ratio (TVPI) of 1.04x. Since inception a total of 383 investments have been made across these funds.

- For the 12 months ended June 30, 2024, HiTIP Fund managers were able to accumulate 36 trips and 198 days to Hawaii. In these sessions, approximately 75% of the reported activity related to instances of one-on-one mentorship for local companies and 10% of the reported activity related to conferences.

- Hawaiian HiTIP fund companies have spent $21.3 million in Hawaii and produced a gross output of $30.0 million in goods and services in the state. These companies employed 400 people in total, 220 of which were based in Hawaii. The companies have also paid $12.6 million in wages and salaries to full-time employees and $691 thousand to part-time employees in Hawaii.

MEKETA

Employees' Retirement System of the State of Hawaii

November 18, 2024

2024 Q3 Performance Report

Agenda

1. Introduction
2. ERS Portfolio Review
3. Plan Sponsor Peer Group Analysis
4. Appendix

Introduction

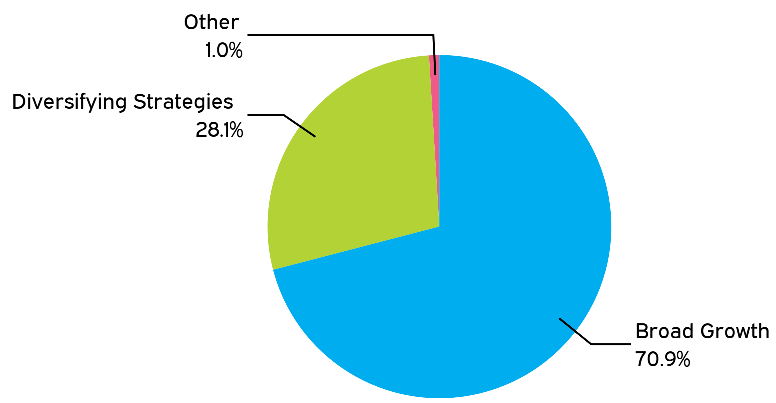
Portfolio Valuation	Quarter-to-Date	Calendar Year-to-Date	One Year
Total Fund			
Beginning Market Value	23,596,065,256	22,880,493,536	22,202,894,595
Net Cash Flow	-99,987,886	26,079,561	-86,458,199
Capital Appreciation	540,100,458	1,129,604,731	1,919,741,432
Ending Market Value	**24,036,177,828**	**24,036,177,828**	**24,036,177,828**

ERS Total Fund Relative Performance	Inception	30 Yrs	20 Yrs	10 Yrs	5 Yrs	3 Yrs	1 Yr	YTD	FYTD	QTD
Total Fund	**7.7**	**7.4**	**7.1**	**7.1**	**7.8**	**4.5**	**9.5**	**5.9**	**2.2**	**2.2**
Return Benchmark	7.7	7.7	7.5	7.1	7.0	7.0	7.0	5.2	1.7	1.7
Excess Return	0.0	-0.3	-0.4	0.0	0.8	-2.5	2.5	0.7	0.5	0.5
Total Fund	**7.7**	**7.4**	**7.1**	**7.1**	**7.8**	**4.5**	**9.5**	**5.9**	**2.2**	**2.2**
Market Benchmark	7.9	7.8	7.2	6.9	8.1	5.8	15.6	12.3	3.2	3.2
Excess Return	-0.2	-0.4	-0.1	0.2	-0.3	-1.3	-6.1	-6.4	-1.0	-1.0
Total Fund	**7.7**	**7.4**	**7.1**	**7.1**	**7.8**	**4.5**	**9.5**	**5.9**	**2.2**	**2.2**
Peer Benchmark	7.9	7.8	7.0	7.0	8.1	4.6	17.5	9.9	4.7	4.7
Excess Return	-0.2	-0.2	0.2	0.2	-0.2	-0.1	-7.9	-4.0	-2.6	-2.6
Total Fund Rank	63	66	39	48	65	56	100	100	100	100

Total Fund performance consists of net of fees returns. Fiscal year begins on July 1. Inception date is June 1, 1990. Current Market Benchmark composition (effective January 1, 2024) is 70% Broad Growth Benchmark and 30% Diversifying Strategies Benchmark. Please see the Appendix for current and historical custom benchmark compositions. Return Benchmark represents the ERS's actuarial assumption rate. Peer Benchmark represents the plan sponsor peer group InvMetrics Public DB >$1B Net universe and includes BNY Mellon Total Public Fund >$1B universe and Investment Metrics client data.

Asset Allocation vs. Target
As of September 30, 2024

	Balance ($)	Current Allocation (%)	Policy (%)	Difference (%)	Policy Range (%)
Broad Growth	**17,052,137,741**	**70.9**	**70.0**	**0.9**	**60.0 - 80.0**
Global Equity	9,746,593,033	40.5	39.0	1.5	19.0 - 59.0
Global Credit	2,761,481,275	11.5	12.0	-0.5	6.0 - 18.0
Real Assets	4,544,063,433	18.9	19.0	-0.1	9.0 - 29.0
Diversifying Strategies	**6,750,637,892**	**28.1**	**30.0**	**-1.9**	**20.0 - 40.0**
Liquid Defensive/Diversifying	5,787,173,633	24.1	26.0	-1.9	15.0 - 30.0
Illiquid Diversifying	963,464,260	4.0	4.0	0.0	0.0 - 9.0
Other	**233,402,194**	**1.0**	**0.0**	**1.0**	**0.0 - 0.0**
Other	233,402,194	1.0	0.0	1.0	0.0 - 0.0
Total	**24,036,177,827**	**100.0**	**100.0**	**0.0**	



Target allocation effective January 1, 2024. "Other" includes ERS Operating Account, Parametric Overlay program, and transitional or residual proceeds from liquidating or terminated accounts.

Hawaii ERS vs. Public Fund Peers

→ On a risk-unadjusted basis, the ERS Total Portfolio outperformed the Median Public Fund Peer Group[1] over the trailing 10- and 20-year periods.

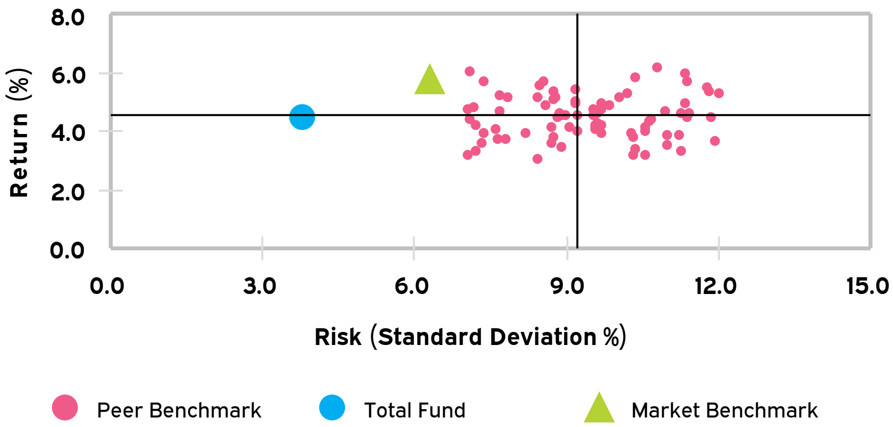
Risk-Adjusted Performance[2] of Hawaii ERS vs. Median Public Fund

	Since Inception	30 Yrs	20 Yrs	10 Yrs	5 Yrs	3 Yrs	1 Yr	CYTD	FYTD	QTD
Total Fund	**7.7**	**7.4**	**7.1**	**7.1**	**7.8**	**4.5**	**9.5**	**5.9**	**2.2**	**2.2**
Risk-Adjusted Peer Median[3]	*7.8*	*7.4*	*6.3*	*5.2*	*4.8*	*1.8*	*7.0*	*4.9*	*2.5*	*2.5*
Excess Return	(0.1)	0.1	0.8	1.9	3.0	2.6	2.5	1.0	(0.3)	(0.3)

→ On a risk-adjusted basis, the ERS Total Portfolio has consistently, and materially, outperformed relative to the Median Public Fund over most time periods. This is indicative of a more efficient (i.e., higher return per unit of risk) portfolio that was explicitly constructed by the ERS over the last several asset-liability studies.

[1] Peer universe data from Investment Metrics (IM) Public Defined Benefit >$1B Net Universe includes Investment Metrics client data and plan sponsor peer group data from BNY Mellon.
[2] Performance shown is net of fees since October 1, 2014, and a mix of net and gross of fees prior to October 1, 2014. Fiscal Year beings on July 1. Inception date is June 1, 1990.
[3] The risk-adjusted median normalizes the median fund to the ERS's exhibited volatility. Calculated as: risk-adjusted median return = unadjusted median return × (ERS volatility ÷ median fund volatility), where volatility is measured as standard deviation. Figures for periods greater than one year are annualized.

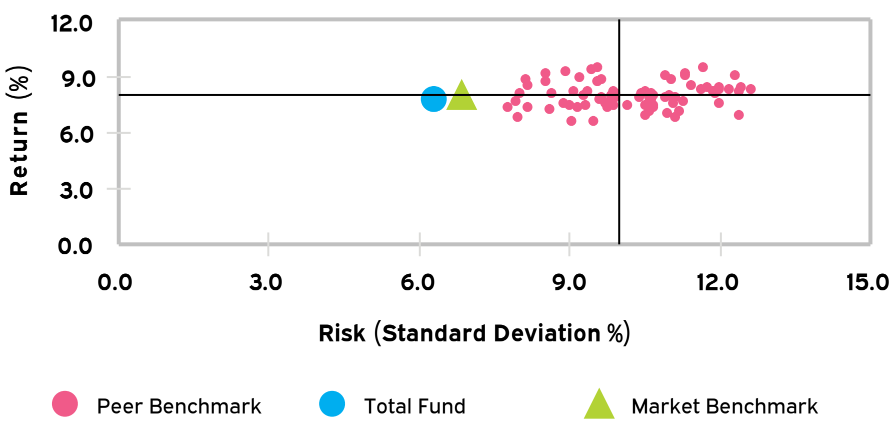
Annualized Return vs. Annualized Standard Deviation
3 Years Ending September 30, 2024



Annualized Risk-Return

	3 Years Return	3 Years Standard Deviation	3 Years Sharpe Ratio
Total Fund	4.5	3.8	0.3
Market Benchmark	5.8	6.3	0.4
Peer Benchmark Median	4.6	9.2	0.2

Annualized Return vs. Annualized Standard Deviation
5 Years Ending September 30, 2024



Annualized Risk-Return

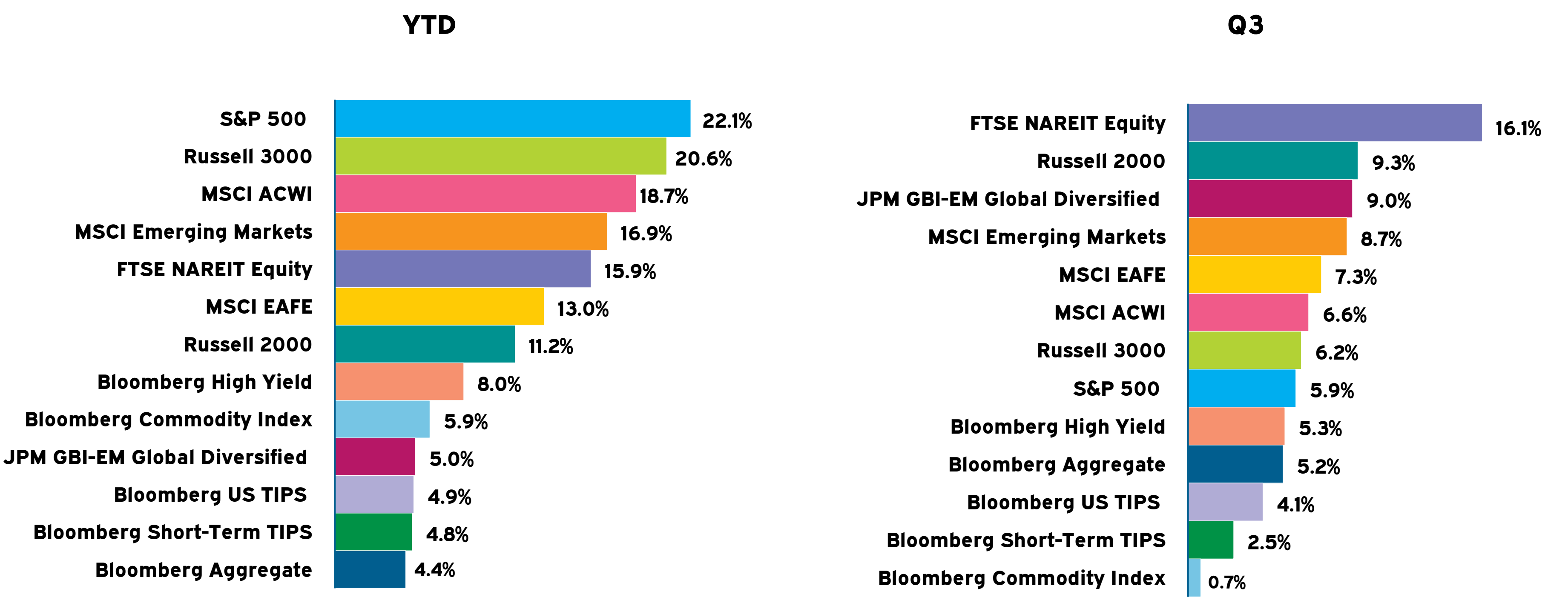
	5 Years Return	5 Years Standard Deviation	5 Years Sharpe Ratio
Total Fund	7.8	6.3	0.8
Market Benchmark	8.1	6.8	0.8
Peer Benchmark Median	8.1	10.0	0.6

Peer Benchmark represents the plan sponsor peer group InvMetrics Public DB >$1B Net universe and includes BNY Mellon Total Public Fund >$1B universe and Investment Metrics client data.

Since Inception Growth of $1

Inception date is June 1, 1990. Return Benchmark represents the ERS's actuarial assumption rate, which is 7.0% since July 2016, 7.65% from July 2015 to July 2016, 7.75% July 2011 to July 2015, 8.00% prior to July 2011.

Index Returns[1]



→ Major markets finished the third quarter in positive territory despite several spikes in volatility. Falling inflation, resilient growth in the US, and dovish central banks supported stocks and bonds. Rate sensitive sectors, like REITs, particularly benefited from lower interest rates.

→ Year-to-date through September, all major asset classes were positive, led by US equities.

[1] Source: Bloomberg. Data is as of September 30, 2024.

Summary

Key Trends:

→ According to the International Monetary Fund's (IMF) July report, global growth this year is expected to match the 2023 estimate at around 3.2% with most major economies predicted to avoid a recession.

→ Key economic data in the US has largely weakened and come in below expectations, causing markets to expect an additional two rate cuts this year after the Fed's initial 0.5% reduction. Uncertainty remains regarding the timing and pace of interest rate cuts in the coming year.

→ US consumers could feel pressure as certain components of inflation (e.g., shelter) remain high, borrowing costs stay elevated, and the job market may weaken further.

→ A focus for US equities going forward will be whether earnings can remain resilient if growth slows. Also, the future paths of the large technology companies that have driven market gains will be important.

→ We have started to see divergences in monetary policy. Some central banks, such as the Fed, European Central Bank, and the Bank of England, have started to cut interest rates and others, like the Bank of Japan, have increased interest rates. This disparity will likely influence capital flows and currencies.

→ China appears to have shifted focus to more policy support for the economy/asset prices with a new suite of policy stimulus and signals for more support ahead. It is still not clear what the long-term impact of these policies will be on the economy and if policy makers will remain committed to these efforts.

Macro Risk Analytics – Key Takeaways

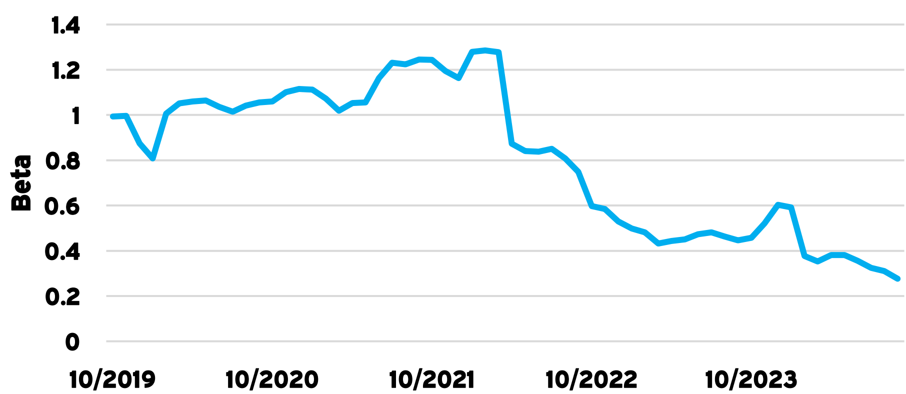
→ Projections for monetary and fiscal policy decisions are front-and-center with respect to market reactions at the moment. Too much stimulus into a healthy economy may inject fragility into the system. While economic activity (i.e., corporate earnings, GDP, income growth, unemployment, etc.) remains relatively resilient, pockets of weakness have begun to show in certain data releases. With strong market moves across liquid markets in recent periods, valuations for several asset classes still exhibit elevated levels.

→ Meketa's Market Sentiment Indicator remained green (i.e., positive) during Q3.

→ The Actual Portfolio's beta (on a 12-month basis relative to the Policy Portfolio) declined in Q3 and is at extremely low levels. Related, trailing 12-month volatility for the Actual Portfolio and Policy Portfolio remain at a relatively wide spread. Of note, a new policy benchmark was implemented on 1/1/2024.

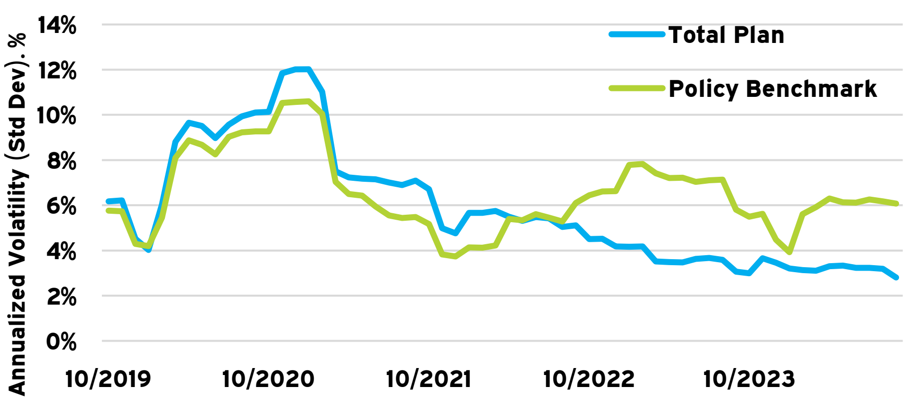
12 Month Rolling Beta vs. Policy Benchmark

Oct 19 - Sep 24



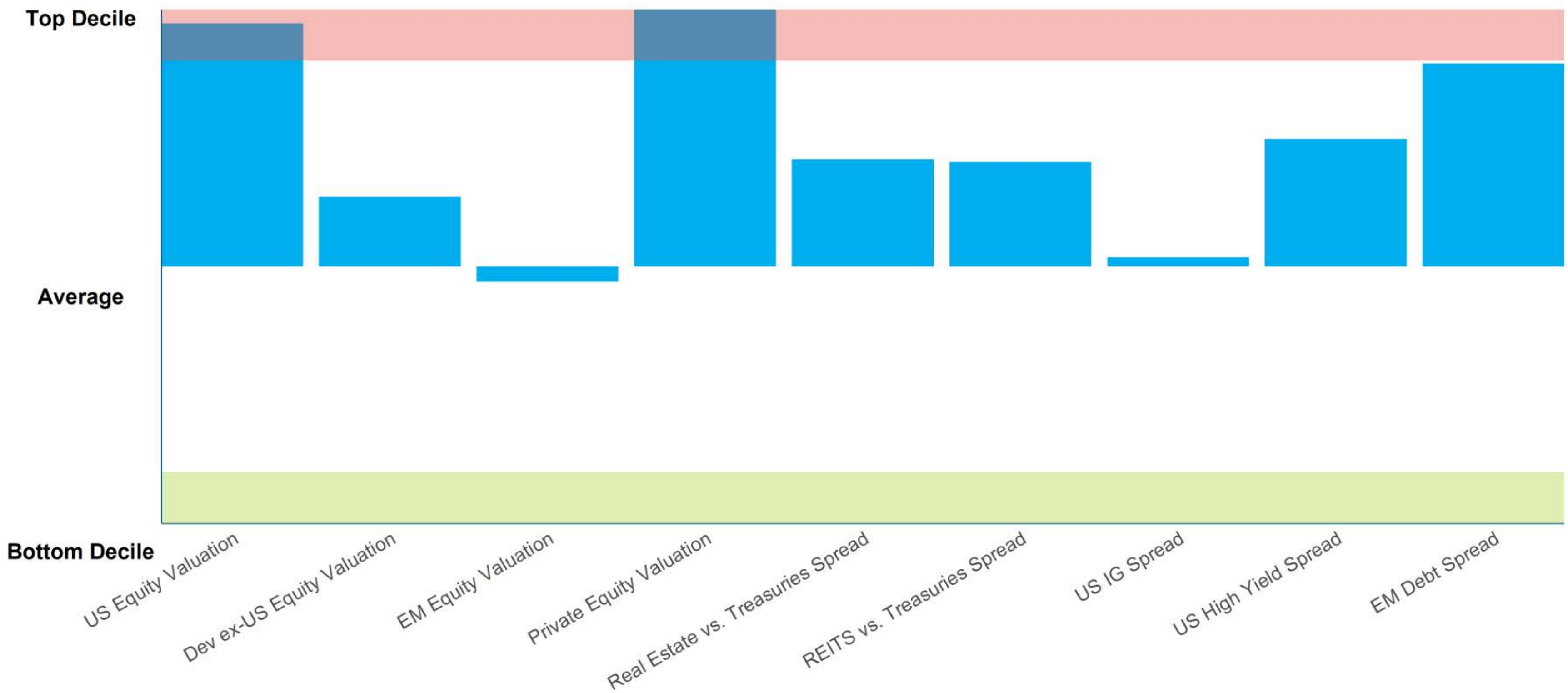
12 Month Rolling Risk

Oct 19 - Sep 24



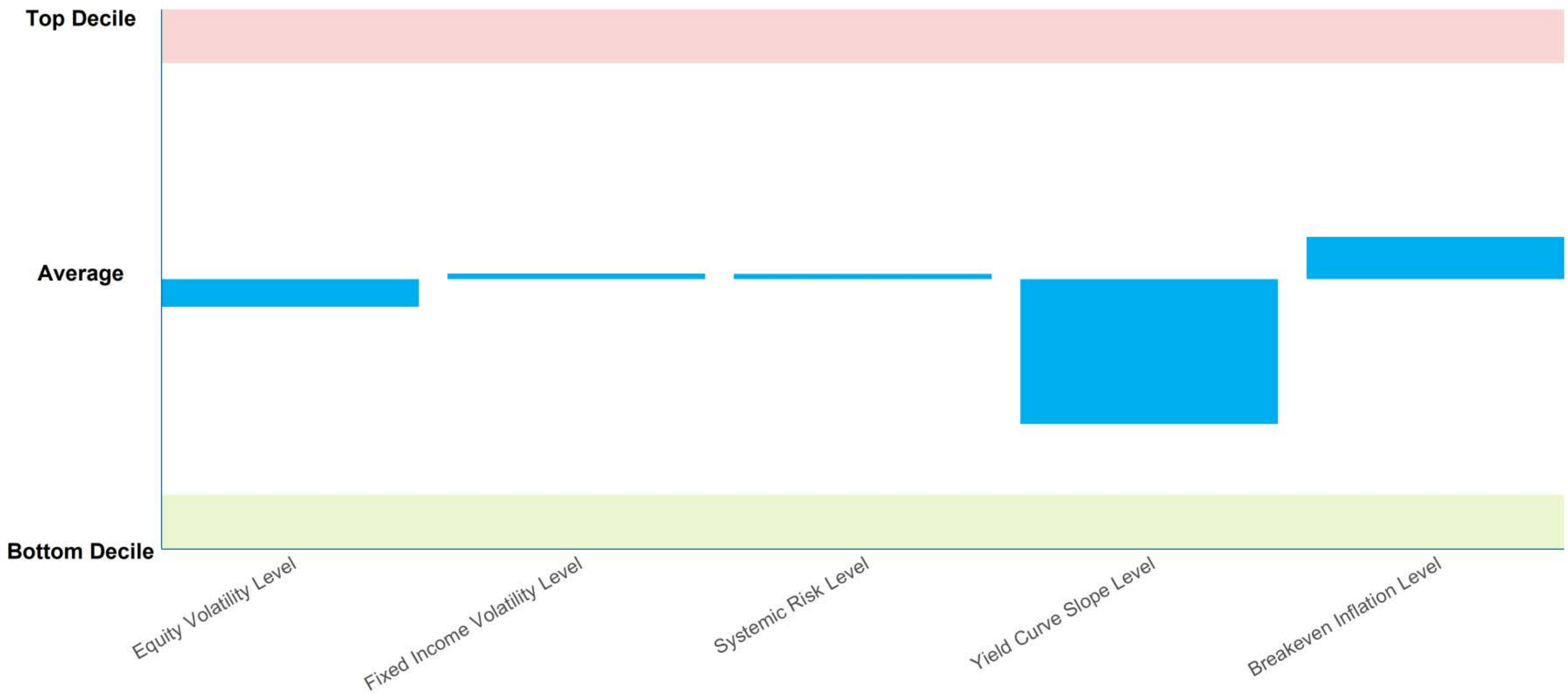
Valuation Metrics Dashboard

(current measures relative to history)

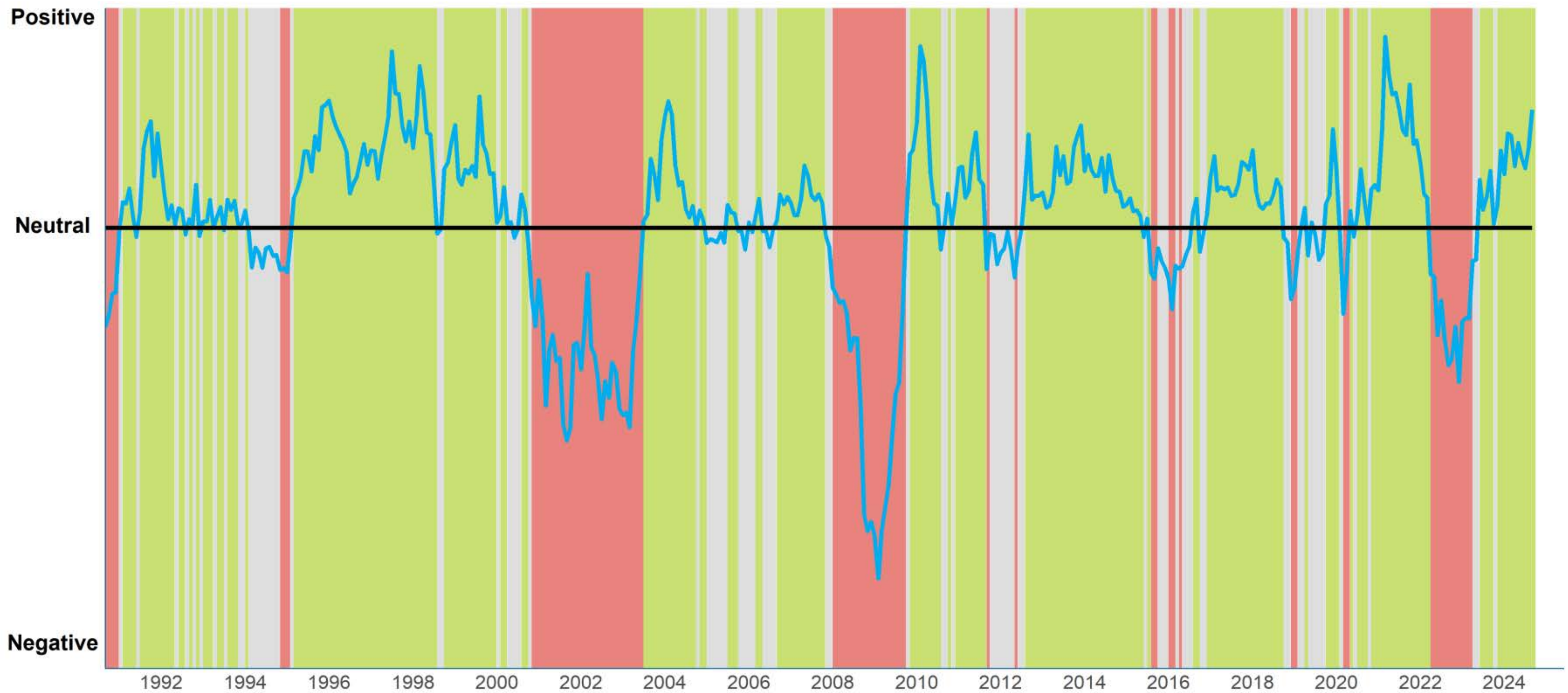


Other Market Metrics Dashboard

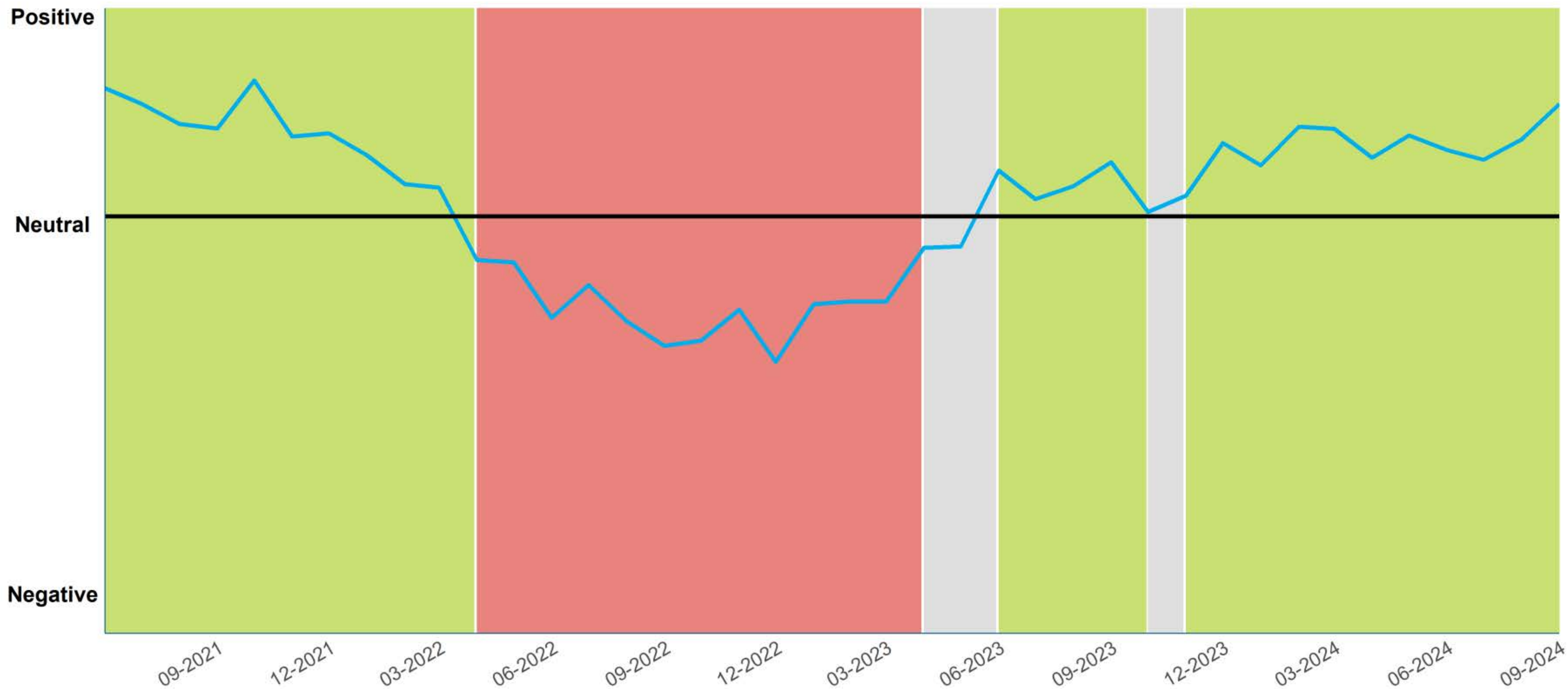
(current measures relative to history)



Market Sentiment Indicator (All History)

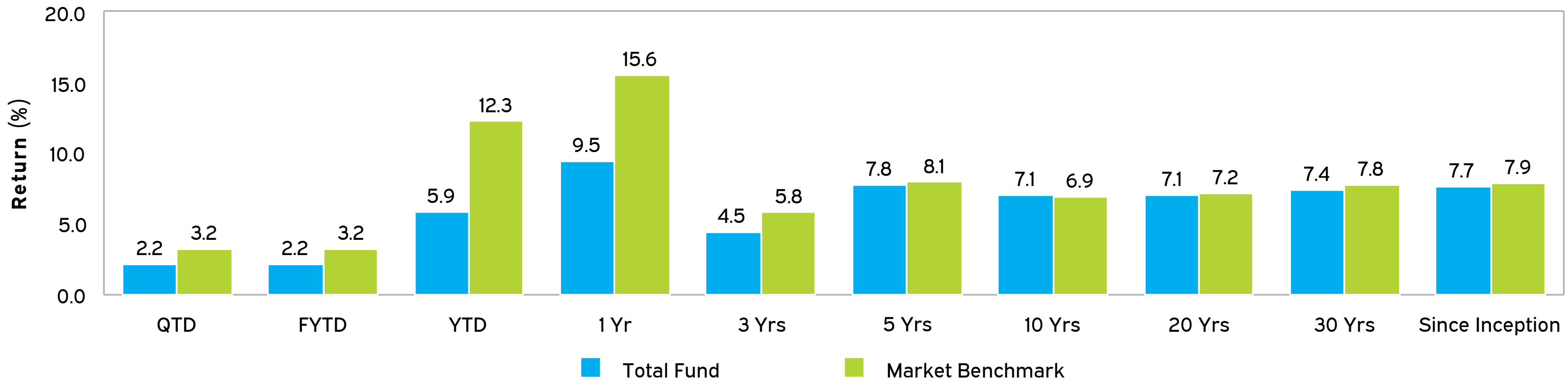


Market Sentiment Indicator (Last Three Years)

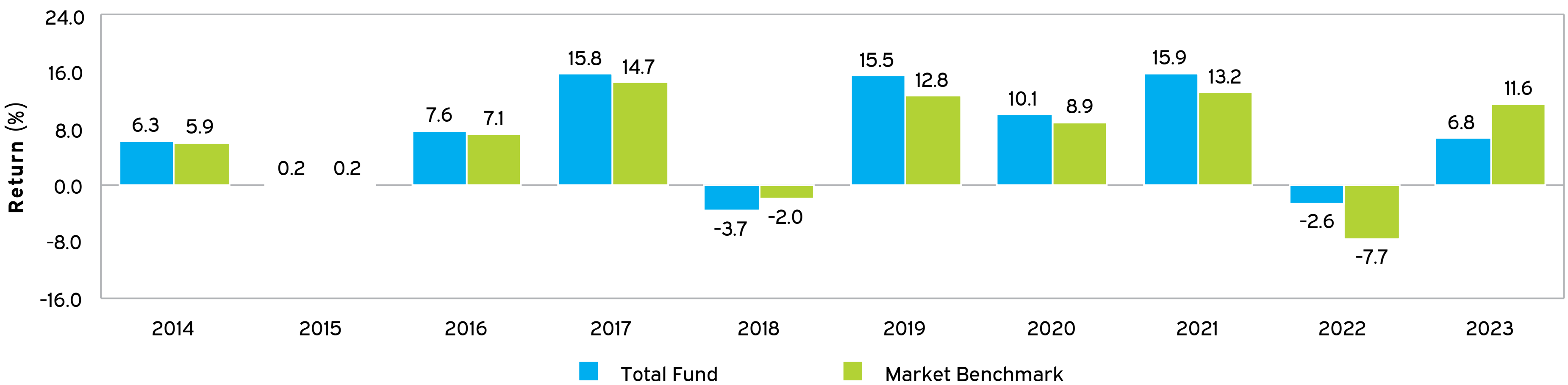


ERS Portfolio Review

Trailing Performance



Calendar Year Performance



Performance shown is net of fees. Inception date is 6/1/1990. Please see the Appendix for the Market Benchmark's composition history.

Performance Attribution[1] vs. Policy Benchmark – Quarter ending September 30, 2024

	Policy		Portfolio		Impact on Return		
	Allocation (%)[2]	Return	Allocation (%)	Return	Weighting	Implementation	Total
Broad Growth	**70.0**	**2.6**	**70.7**	**3.0**	**0.0**	**0.3**	**0.3**
Global Equity	39.2	4.7	40.3	4.0	0.0	(0.3)	(0.3)
Global Credit	11.9	2.3	11.7	2.3	0.0	0.0	0.0
Real Assets	18.9	(1.7)	18.7	1.4	0.0	0.6	0.6
Diversifying Strategies	**30.0**	**4.1**	**28.3**	**0.2**	**0.0**	**(1.2)**	**(1.1)**
Liquid Defensive/Diversifying	26.1	3.7	24.4	(0.1)	0.0	(1.0)	(0.9)
Illiquid Diversifying	3.9	6.8	4.0	1.8	0.0	(0.2)	(0.2)
Other Assets	**0.0**	**1.4**	**0.9**	**1.3**	**0.0**	**0.0**	**0.0**
Total	**100.0**	**3.2**	**100.0**	**2.2**	**0.0**	**(0.3)**	**(0.8)**

[1] Performance attribution is calculated using account performance data from BNY Mellon. Total impacts may not sum to excess return due to rounding, rebalancing, and measurement frequencies.
[2] Policy allocation weights refer to the benchmark composition and may not match the policy target weights at all times.

Performance Attribution[1] vs. Policy Benchmark –Calendar Year-to-Date ending September 30, 2024

	Policy		Portfolio		Impact on Return		
	Allocation (%)[2]	Return	Allocation (%)	Return	Weighting	Implementation	Total
Broad Growth	**70.0**	**15.6**	**67.9**	**7.8**	**(0.1)**	**(5.3)**	**(5.3)**
Global Equity	39.2	20.2	39.3	10.3	0.0	(3.9)	(3.9)
Global Credit	11.9	9.1	10.7	8.2	0.0	(0.1)	(0.1)
Real Assets	18.9	10.3	17.9	2.5	0.0	(1.4)	(1.4)
Diversifying Strategies	**30.0**	**4.1**	**28.2**	**2.4**	**0.1**	**(0.5)**	**(0.3)**
Liquid Defensive/Diversifying	26.1	2.8	23.9	1.8	0.2	(0.2)	0.0
Illiquid Diversifying	3.9	13.0	4.3	5.9	0.0	(0.3)	(0.3)
Other Assets	**0.0**	**4.0**	**3.9**	**0.1**	**(0.3)**	**(0.2)**	**(0.5)**
Total	**100.0**	**12.3**	**100.0**	**5.9**	**(0.2)**	**(5.9)**	**(6.1)**

[1] Performance attribution is calculated using account performance data from BNY Mellon. Total impacts may not sum to excess return due to rounding, rebalancing, and measurement frequencies.
[2] Policy allocation weights refer to the benchmark composition and may not match the policy target weights at all times.

Performance Attribution[1] vs. Policy Benchmark – 1-Year ending September 30, 2024

	Policy		Portfolio		Impact on Return		
	Allocation (%)[2]	Return	Allocation (%)	Return	Weighting	Implementation	Total
Broad Growth	**68.8**	**19.7**	**67.8**	**11.9**	**0.0**	**(5.3)**	**(5.3)**
Global Equity	39.4	26.1	39.6	16.9	0.0	(3.6)	(3.6)
Global Credit	10.6	13.4	10.4	10.9	0.0	(0.3)	(0.3)
Real Assets	17.8	9.1	17.4	1.6	0.0	(1.3)	(1.3)
Diversifying Strategies	**31.3**	**5.8**	**28.9**	**4.1**	**0.2**	**(0.5)**	**(0.2)**
Liquid Defensive/Diversifying	27.0	3.7	24.4	3.4	0.3	(0.1)	0.2
Illiquid Diversifying	4.3	16.2	4.4	8.3	0.0	(0.3)	(0.3)
Other Assets	**0.0**	**5.5**	**3.4**	**11.7**	**(0.3)**	**0.2**	**(0.1)**
Total[3]	**100.0**	**15.6**	**100.0**	**9.5**	**(0.1)**	**(5.5)**	**(5.7)**

[1] Performance attribution is calculated using account performance data from BNY Mellon. Total impacts may not sum to excess return due to rounding, rebalancing, and measurement frequencies. The current plan structure began on January 1, 2024. Global Equity, Global Credit, and Liquid Defensive/Diversifying composites were not use in the current form prior to 2024. To calculate performance attribution for the prior periods, reconstructed or estimated data are used including reconstructed historical benchmark compositions and target allocation weights, and composite asset values as recalculated by BNY Mellon.

[2] Policy allocation weights refer to the benchmark composition and may not match the policy target weights at all times.

[3] Total is the sum of Broad Growth, Diversifying Strategies, and Other Assets; The sum of sub-composites (Global Equity, Global Credit, Real Assets, Liquid Defensive/Diversifying, and Illiquid Diversifying) along with Other Assets may not sum to Total as obsolete sub-composites are excluded and the recalculated composite asset values may not contain the terminated accounts.

Performance Attribution[1] vs. Policy Benchmark – 3-Year ending September 30, 2024

	Policy		Portfolio		Impact on Return		
	Allocation (%)[2]	Return	Allocation (%)	Return	Weighting	Implementation	Total
Broad Growth	**66.9**	**6.5**	**67.8**	**4.5**	**0.0**	**(1.4)**	**(1.4)**
Global Equity	39.3	6.9	39.9	5.5	0.0	(0.5)	(0.5)
Global Credit	8.0	5.0	7.9	5.0	0.0	0.0	0.0
Real Assets	14.3	8.6	14.9	6.0	0.0	(0.4)	(0.4)
Diversifying Strategies	**33.1**	**3.7**	**29.5**	**4.7**	**0.1**	**0.3**	**0.3**
Liquid Defensive/Diversifying	28.8	0.9	25.4	4.6	0.2	0.9	1.1
Illiquid Diversifying	4.5	9.5	4.1	4.4	0.0	(0.2)	(0.2)
Other Assets	**0.0**	**3.5**	**2.7**	**0.7**	**(0.1)**	**(0.1)**	**(0.1)**
Total[3]	**100.0**	**5.8**	**100.0**	**4.5**	**0.0**	**(1.2)**	**(1.2)**

[1] Performance attribution is calculated using account performance data from BNY Mellon. Total impacts may not sum to excess return due to rounding, rebalancing, and measurement frequencies. The current plan structure began on January 1, 2024. Global Equity, Global Credit, and Liquid Defensive/Diversifying composites were not use in the current form prior to 2024. To calculate performance attribution for the prior periods, reconstructed or estimated data are used including reconstructed historical benchmark compositions and target allocation weights, and composite asset values as recalculated by BNY Mellon.

[2] Policy allocation weights refer to the benchmark composition and may not match the policy target weights at all times.

[3] Total is the sum of Broad Growth, Diversifying Strategies, and Other Assets; The sum of sub-composites (Global Equity, Global Credit, Real Assets, Liquid Defensive/Diversifying, and Illiquid Diversifying) along with Other Assets may not sum to Total as obsolete sub-composites are excluded and the recalculated composite asset values may not contain the terminated accounts.

Performance Attribution[1] vs. Policy Benchmark – 5-Year ending September 30, 2024

	Policy		Portfolio		Impact on Return		
	Allocation (%)[2]	Return	Allocation (%)	Return	Weighting	Implementation	Total
Broad Growth	**68.7**	**9.5**	**71.4**	**9.2**	**0.0**	**(0.1)**	**(0.1)**
Global Equity	39.7	12.3	41.1	12.5	0.1	0.1	0.1
Global Credit	7.4	5.9	7.0	6.9	0.0	0.1	0.1
Real Assets	13.2	6.1	12.3	6.7	0.0	0.1	0.1
Diversifying Strategies	**29.5**	**3.9**	**25.7**	**2.8**	**0.2**	**(0.3)**	**(0.1)**
Liquid Defensive/Diversifying	27.0	2.6	22.8	2.6	0.2	0.0	0.2
Illiquid Diversifying	4.0	--	3.3	--	0.1	0.0	0.1
Other Assets	**0.0**	**2.3**	**3.0**	**5.3**	**(0.2)**	**0.1**	**(0.1)**
Total[3]	**100.0**	**8.1**	**100.0**	**7.8**	**0.0**	**(0.4)**	**(0.4)**

[1] Performance attribution is calculated using account performance data from BNY Mellon. Total impacts may not sum to excess return due to rounding, rebalancing, and measurement frequencies. The current plan structure began on January 1, 2024. Global Equity, Global Credit, and Liquid Defensive/Diversifying composites were not use in the current form prior to 2024. To calculate performance attribution for the prior periods, reconstructed or estimated data are used including reconstructed historical benchmark compositions and target allocation weights, and composite asset values as recalculated by BNY Mellon.

[2] Policy allocation weights refer to the benchmark composition and may not match the policy target weights at all times.

[3] Total is the sum of Broad Growth, Diversifying Strategies, and Other Assets; The sum of sub-composites (Global Equity, Global Credit, Real Assets, Liquid Defensive/Diversifying, and Illiquid Diversifying) along with Other Assets may not sum to Total as obsolete sub-composites are excluded and the recalculated composite asset values may not contain the terminated accounts.

Asset Class Performance Summary

	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)
Total Fund	**2.2**	**9.5**	**4.5**	**7.8**	**7.2**
Market Benchmark	*3.2*	*15.6*	*5.8*	*8.1*	*7.3*
Broad Growth	**3.0**	**11.9**	**4.5**	**9.2**	**8.2**
Broad Growth Historical Benchmark	*2.6*	*19.7*	*6.5*	*9.5*	*8.4*
Global Equity	**4.0**	**16.9**	**5.5**	**12.5**	**10.9**
Global Equity Historical Benchmark	*4.7*	*26.1*	*6.9*	*12.3*	*10.5*
Global Credit	**2.3**	**10.9**	**5.0**	**6.9**	**6.0**
Global Credit Historical Benchmark	*2.3*	*13.4*	*5.0*	*5.9*	*5.6*
Real Assets	**1.4**	**1.6**	**6.0**	**6.7**	**7.0**
Real Assets Historical Benchmark	*-1.7*	*9.1*	*8.6*	*6.1*	*6.3*
Diversifying Strategies	**0.2**	**4.1**	**4.7**	**2.8**	**4.2**
Diversifying Strategies Benchmark	*4.1*	*5.8*	*3.7*	*3.9*	*4.2*
Liquid Defensive/Diversifying	**-0.1**	**3.4**	**4.6**	**2.6**	**4.1**
Liquid Defensive Historical Benchmark	*3.7*	*3.7*	*0.9*	*2.6*	*2.9*
Illiquid Diversifying	**1.8**	**8.3**	**4.4**	**--**	**--**
Illiquid Diversifying Historical Benchmark	*6.8*	*16.2*	*9.5*	*--*	*--*

Total Fund performance shown is net of fees.
Relevant valuations may not have been available for all underlying Global Equity, Real Assets, and Diversifying Strategies managers at the time this report was produced; in such cases, most recent available data is used.
Benchmarks for Broad Growth and its underlying components contain lagged index returns. Please see the Appendix for current and historical custom benchmark compositions.

Asset Class Performance Summary

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Global Equity	**9,746,593,033**	**100.0**	**4.0**	**16.9**	**5.5**	**12.5**
Global Equity Historical Benchmark			*4.7*	*26.1*	*6.9*	*12.3*
Public Equity	**5,101,303,846**	**52.3**	**6.9**	**29.5**	**5.8**	**11.6**
MSCI AC World IMI Index (Net)			*6.8*	*31.0*	*7.4*	*11.9*
Active Public Equity	**3,554,549,556**	**36.5**	**7.2**	**28.1**	**4.5**	**11.1**
Alliance Bernstein	674,831,394	6.9	8.3	28.0	6.0	--
Longview	859,714,764	8.8	7.4	27.3	9.0	11.2
Wellington (Mid-Large Cap)	704,438,681	7.2	4.5	33.8	6.3	--
MSCI AC World IMI Index (Net)			*6.8*	*31.0*	*7.4*	*11.9*
Wasatch	549,038,699	5.6	11.5	31.8	-1.4	13.5
Wellington (Small Cap)	545,090,409	5.6	8.1	26.0	4.5	10.4
MSCI ACWI Small Cap (Net)			*8.8*	*24.6*	*2.6*	*9.4*
Hillhouse China A Shares	154,077,912	1.6	-7.3	-2.5	--	--
MSCI China A Onshore Index (Net)			*21.5*	*13.9*	*-7.9*	*4.0*
Passive Public Equity	**1,546,754,290**	**15.9**	**6.2**	**32.9**	**8.8**	**12.9**
BlackRock Alpha Tilt	685,958,273	7.0	5.7	33.7	9.6	13.1
Legal & General	860,796,017	8.8	6.6	32.2	8.3	12.5
Parametric Equity Overlay	67,357,697	0.7	--	--	--	--
MSCI AC World IMI Index (Net)			*6.8*	*31.0*	*7.4*	*11.9*

Performance shown is net of fees. Please see the Appendix for current and historical custom benchmark compositions.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Private Equity	**4,645,289,187**	**47.7**	**1.0**	**4.7**	**6.3**	**14.8**
Private Equity Historical Benchmark			*2.4*	*19.0*	*6.3*	*12.2*
Hamilton Lane	4,278,904,362	43.9	0.9	4.8	6.3	15.0
HITIP I Stafford	10,364,713	0.1	2.1	27.7	-3.4	-1.8
HITIP II Stafford	40,723,679	0.4	-0.9	-7.8	6.2	8.3
HITIP III Stafford	41,481,753	0.4	2.2	-3.8	3.8	--
Other Equity	273,814,679	2.8	3.1	5.3	8.7	13.2

Performance shown is net of fees. Please see the Appendix for current and historical custom benchmark compositions.

Asset Class Performance Summary

	Market Value $	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Global Credit	**2,761,481,275**	**100.0**	**2.3**	**10.9**	**5.0**	**6.9**
Global Credit Historical Benchmark			*2.3*	*13.4*	*5.0*	*5.9*
Private Credit	**1,689,791,439**	**61.2**	**2.2**	**9.9**	**5.6**	**--**
Private Credit Historical Benchmark			*1.7*	*12.3*	*4.9*	*6.2*
Public Credit	**1,071,689,835**	**38.8**	**2.4**	**13.1**	**5.4**	**6.7**
HPS Credit	937,662,793	34.0	2.0	11.1	4.7	7.1
Parametric Credit Overlay	134,027,042	4.9	--	--	--	--
Public Credit Historical Benchmark			*3.7*	*13.7*	*4.8*	*5.6*

Performance shown is net of fees. Please see the Appendix for current and historical custom benchmark compositions.

Asset Class Performance Summary

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Real Assets	**4,544,063,433**	**100.0**	**1.4**	**1.6**	**6.0**	**6.7**
Real Assets Historical Benchmark			*-1.7*	*9.1*	*8.6*	*6.1*
Real Estate	**1,994,990,236**	**43.9**	**-2.5**	**-6.6**	**3.8**	**5.5**
Real Estate Historical Benchmark			*-1.4*	*10.0*	*8.3*	*5.3*
Core Real Estate	**1,060,154,407**	**23.3**	**-1.8**	**-5.2**	**5.1**	**6.9**
Core Real Estate Historical Benchmark			*-1.4*	*9.9*	*8.0*	*6.4*
Non-Core Real Estate	**934,835,830**	**20.6**	**-3.3**	**-8.2**	**2.4**	**4.2**
Non-Core Real Estate Historical Benchmark			*-1.4*	*10.2*	*8.8*	*3.3*
Agriculture	**389,406,895**	**8.6**	**-0.2**	**2.0**	**4.3**	**--**
Agriculture Historical Benchmark			*-5.6*	*-5.7*	*3.8*	*4.1*
Timber	**230,995,384**	**5.1**	**-0.1**	**16.9**	**13.8**	**7.4**
Timber Benchmark			*-5.9*	*8.9*	*10.7*	*7.0*
Infrastructure	**1,928,670,917**	**42.4**	**6.4**	**13.6**	**9.4**	**14.1**
Private Infrastructure	**659,964,914**	**14.5**	**1.4**	**7.0**	**7.2**	**12.8**
Infrastructure Historical Benchmark			*-0.4*	*12.9*	*11.1*	*9.6*
Public Infrastructure	**534,254,677**	**11.8**	**14.5**	**--**	**--**	**--**
Morgan Stanley Infrastructure	534,254,677	11.8	14.5	--	--	--
Dow Jones Brookfield Global Infrastructure			*14.6*	*--*	*--*	*--*
Other Real Assets	**734,451,326**	**16.2**	**5.3**	**8.3**	**--**	**--**
Infrastructure Historical Benchmark			*-0.4*	*12.9*	*11.1*	*9.6*
Parametric Real Assets Overlay	102,461,890	2.3	--	--	--	--

Performance shown is net of fees. Both performance and benchmark data for Real Assets component are sourced from BNY Mellon's time-weighted data. Please see the Appendix for current and historical custom benchmark compositions.

Asset Class Performance Summary

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Liquid Defensive/Diversifying	**5,787,173,633**	**100.0**	**-0.1**	**3.4**	**4.6**	**2.6**
Liquid Defensive Historical Benchmark			*3.7*	*3.7*	*0.9*	*2.6*
Defensive Return Capture	**592,023,270**	**10.2**	**-5.3**	**-9.3**	**0.0**	**--**
P/E Global Macro	188,510,856	3.3	-11.9	-8.7	9.2	-0.7
Saba	189,575,597	3.3	4.3	-11.4	--	--
36 South Cap Adv	213,936,816	3.7	-6.8	-12.4	--	--
Defensive Return Capture Historical Benchmark			*4.0*	*6.3*	*5.5*	*4.5*
Discretionary Alpha	**1,124,210,304**	**19.4**	**1.8**	**9.3**	**6.8**	**2.6**
Aequim Relative Value Arbitrage	304,527,446	5.3	4.0	11.5	10.5	--
Aristeia Relative Value Arbitrage	224,623,277	3.9	0.0	5.3	4.0	--
Melqart Relative Value Arbitrage	238,132,372	4.1	5.8	16.4	--	--
Monashee Relative Value Arbitrage	188,068,825	3.2	-4.3	6.0	-1.0	--
Myam Asian Opportunity	168,858,384	2.9	2.4	18.6	--	--
Discretionary Alpha Benchmark			*4.0*	*6.3*	*5.5*	*4.5*
Intermediate Duration Treasury	**1,762,785,387**	**30.5**	**4.0**	**--**	**--**	**--**
Bank of Hawaii	287,200,298	5.0	4.2	10.0	-0.2	0.9
First Hawaiian Bank	176,396,406	3.0	4.0	9.9	-0.4	0.6
SLC Intermediate Treasury	1,189,746,459	20.6	3.8	--	--	--
Parametric Treasury Overlay	109,442,224	1.9	--	--	--	--
Blmbg. U.S. Treasury: Intermediate			*4.0*	*8.4*	*-0.1*	*0.8*
Long Duration Treasury	**682,086,681**	**11.8**	**7.1**	**9.9**	**-4.4**	**-0.3**
SLC Long Treasury	682,086,681	11.8	7.1	15.5	-7.3	-2.9
Long Treasury Historical Benchmark			*7.8*	*15.4*	*-7.4*	*-3.0*

Performance shown is net of fees. Please see the Appendix for current and historical custom benchmark compositions.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Systematic Trend Following	**1,626,067,991**	**28.1**	**-6.0**	**-4.0**	**8.3**	**7.5**
AlphaSimplex	221,476,150	3.8	-9.6	-8.5	8.7	9.8
Aspect	249,550,605	4.3	-3.6	5.8	16.6	11.0
Brevan Howard Disc Global Macro	261,247,710	4.5	2.3	-5.9	--	--
Broad Reach	196,813,392	3.4	-4.7	-1.3	--	--
Crabel Advanced Trend	224,992,392	3.9	-7.5	-4.5	5.4	5.5
Graham Quant Macro	217,213,571	3.8	-18.6	-4.8	10.5	4.5
Mount Lucas	218,413,275	3.8	1.0	-3.9	-0.3	4.0
Parametric Trend Overlay	36,360,895	0.6	--	--	--	--
MLM Global Index EV Blend 15V			*1.1*	*-5.2*	*2.0*	*4.8*

Performance shown is net of fees. Please see the Appendix for current and historical custom benchmark compositions.

Asset Class Performance Summary

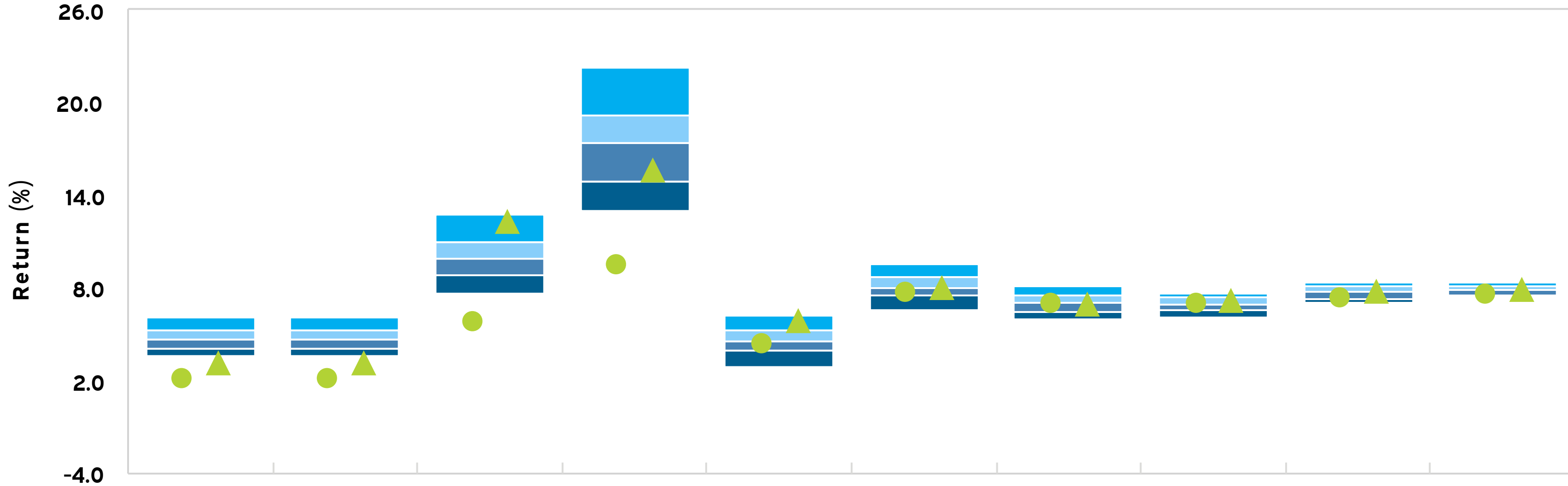
	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)
Illiquid Diversifying	**963,464,260**	**100.0**	**1.8**	**8.3**	**4.4**
Illiquid Diversifying Historical Benchmark			*6.8*	*16.2*	*9.5*
Idiosyncratic Return Capture	**483,264,696**	**50.2**	**0.7**	**5.8**	**4.0**
Idiosyncratic Return Capture Historical Benchmark			*6.8*	*15.6*	*9.2*
Insurance Linked	**480,199,564**	**49.8**	**2.9**	**11.3**	**4.8**
Swiss Re Global Catastrophe Bond Index (Hedged)			*6.8*	*17.3*	*10.2*

Performance shown is net of fees. Please see the Appendix for current and historical custom benchmark compositions.

Plan Sponsor Peer Group Analysis

MEKETA

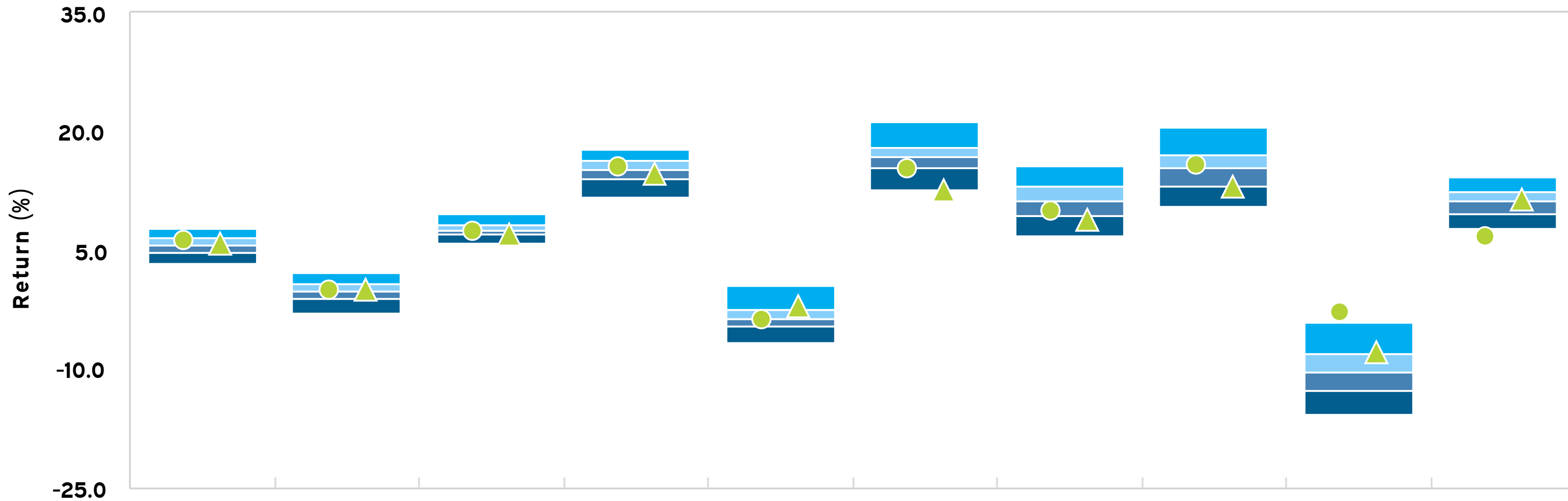
Peer Group Performance Comparison
Trailing Periods Ending September 30, 2024



	QTD	FYTD	YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	30 Yrs	Since Inception
● Total Fund	2.2 (100)	2.2 (100)	5.9 (100)	9.5 (100)	4.5 (56)	7.8 (65)	7.1 (48)	7.1 (39)	7.4 (66)	7.7 (63)
▲ Market Benchmark	3.2 (99)	3.2 (99)	12.3 (9)	15.6 (70)	5.8 (13)	8.1 (50)	6.9 (55)	7.2 (34)	7.8 (49)	7.9 (57)
5th Percentile	6.1	6.1	12.8	22.4	6.3	9.6	8.1	7.7	8.3	8.4
1st Quartile	5.3	5.3	11.0	19.2	5.3	8.8	7.5	7.4	8.1	8.1
Median	4.7	4.7	9.9	17.5	4.6	8.1	7.0	7.0	7.8	7.9
3rd Quartile	4.1	4.1	8.9	14.9	4.0	7.5	6.5	6.5	7.3	7.5
95th Percentile	3.6	3.6	7.7	13.0	2.9	6.6	6.0	6.1	7.1	7.4
Population	108	108	108	108	105	104	100	75	25	15

Calculation based on monthly periodicity. Fiscal year begins on July 1. The plan sponsor peer group, InvMetrics Public DB >$1B Net universe, includes BNY Mellon Total Public Fund >$1B universe and Investment Metrics client data.
Parenthesized numbers represent peer group percentile ranking.

Peer Group Performance Comparison
Calendar Year Returns



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
● Total Fund	6.3 (35)	0.2 (37)	7.6 (50)	15.8 (41)	-3.7 (55)	15.5 (77)	10.1 (71)	15.9 (45)	-2.6 (4)	6.8 (98)
▲ Market Benchmark	5.9 (43)	0.2 (39)	7.1 (71)	14.7 (61)	-2.0 (22)	12.8 (95)	8.9 (83)	13.2 (74)	-7.7 (20)	11.6 (41)
5th Percentile	7.9	2.2	9.6	17.8	0.5	21.2	15.7	20.7	-4.1	14.4
1st Quartile	6.6	0.8	8.3	16.3	-2.3	18.0	13.1	17.2	-8.1	12.5
Median	5.7	-0.2	7.6	15.3	-3.5	16.8	11.3	15.3	-10.3	11.2
3rd Quartile	4.7	-1.1	7.0	14.1	-4.5	15.5	9.4	13.1	-12.6	9.7
95th Percentile	3.4	-2.9	5.9	11.8	-6.7	12.8	6.8	10.5	-15.6	7.8
Population	171	172	176	181	171	194	219	211	179	181

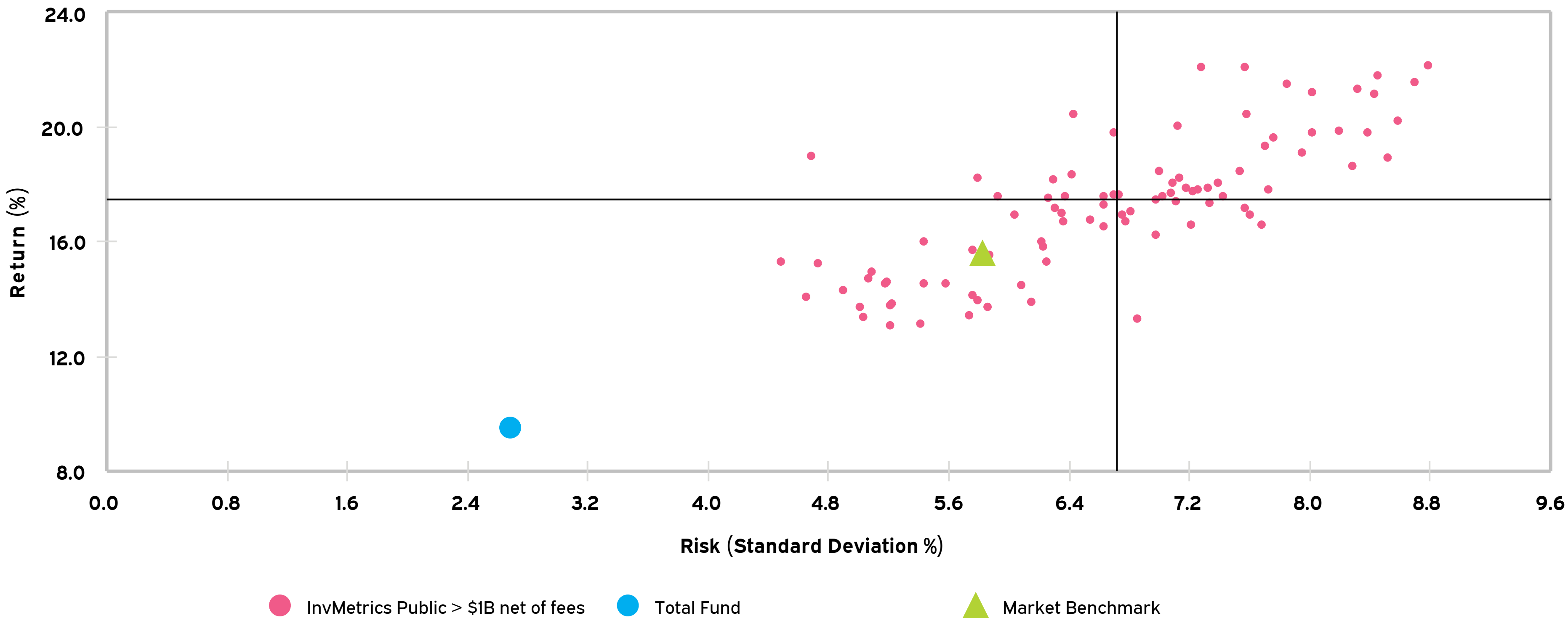
Calculation based on monthly periodicity. The plan sponsor peer group, InvMetrics Public DB >$1B Net universe, includes BNY Mellon Total Public Fund >$1B universe and Investment Metrics client data. Parenthesized numbers represent peer group percentile ranking.

Risk/Return Statistics

	1 Yr		3 Yrs		5 Yrs		7 Yrs		10 Yrs	
	Total Fund	Benchmark	Total Fund	Benchmark	Total Fund	Benchmark	Total Fund	Benchmark	Total Fund	Benchmark
RETURN SUMMARY STATISTICS										
Return	9.5	15.6	4.5	5.8	7.8	8.1	7.2	7.3	7.1	6.9
Excess Performance	-6.1	0.0	-1.4	0.0	-0.3	0.0	0.0	0.0	0.2	0.0
RISK SUMMARY STATISTICS										
Standard Deviation	2.7	5.8	3.8	6.3	6.3	6.8	6.3	6.5	6.4	6.4
Beta	0.3	1.0	0.5	1.0	0.8	1.0	0.9	1.0	0.9	1.0
RISK/RETURN SUMMARY STATISTICS										
Information Ratio	-1.2	-	-0.4	-	-0.1	-	0.0	-	0.1	-
Sharpe Ratio	1.4	1.6	0.3	0.4	0.8	0.8	0.8	0.8	0.8	0.8
Tracking Error	4.7	0.0	4.1	0.0	3.5	0.0	3.2	0.0	2.7	0.0

Net of fees performance is shown or used in calculating the statistics on this page.

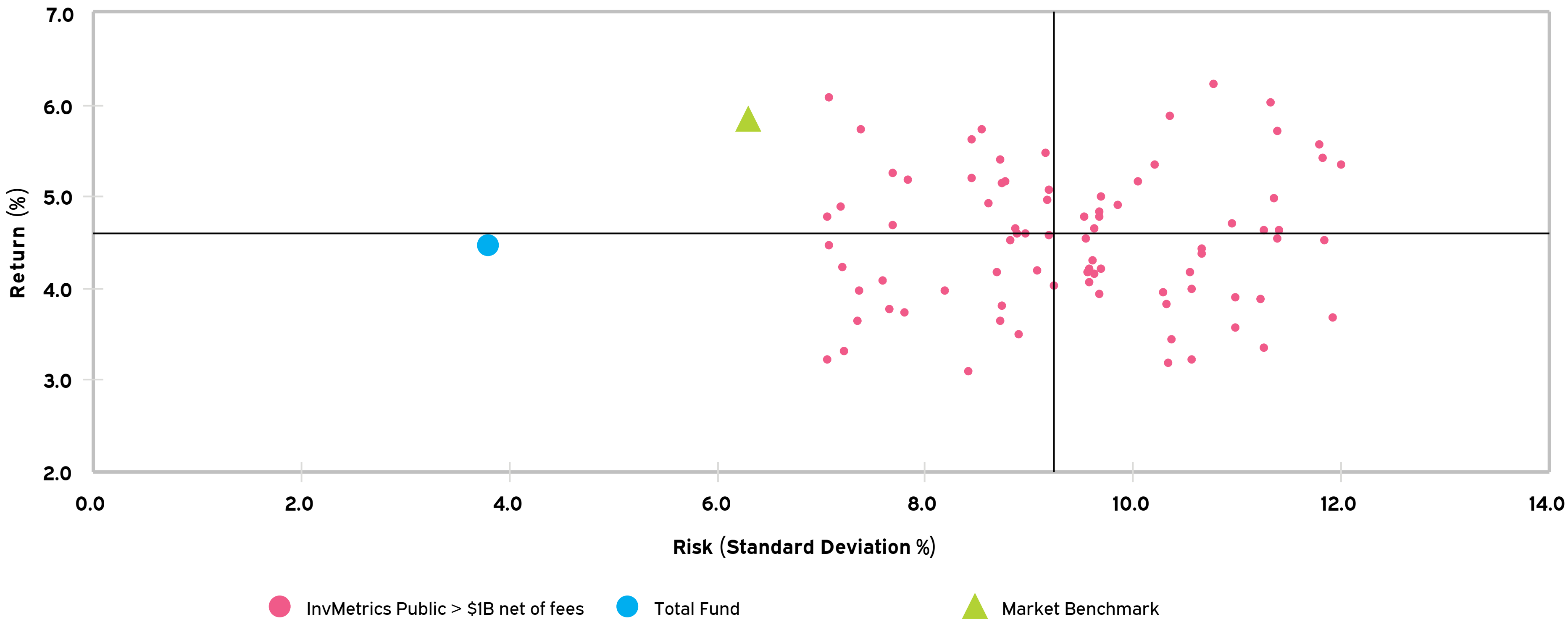
Annualized Return vs. Annualized Standard Deviation
1 Year ending September 30, 2024



	Return	Standard Deviation	Sharpe Ratio	Information Ratio
Total Fund	9.5 (100)	2.7 (1)	1.4 (88)	-1.2 (100)
Market Benchmark	15.6 (70)	5.8 (28)	1.6 (53)	-
Peer Benchmark Median	17.5	6.7	1.6	0.3

Peer Benchmark represents the plan sponsor peer group Peer Benchmark Net universe and includes BNY Mellon Total Public Fund >$1B universe and Investment Metrics client data. Parenthesized numbers represent peer group percentile ranking.

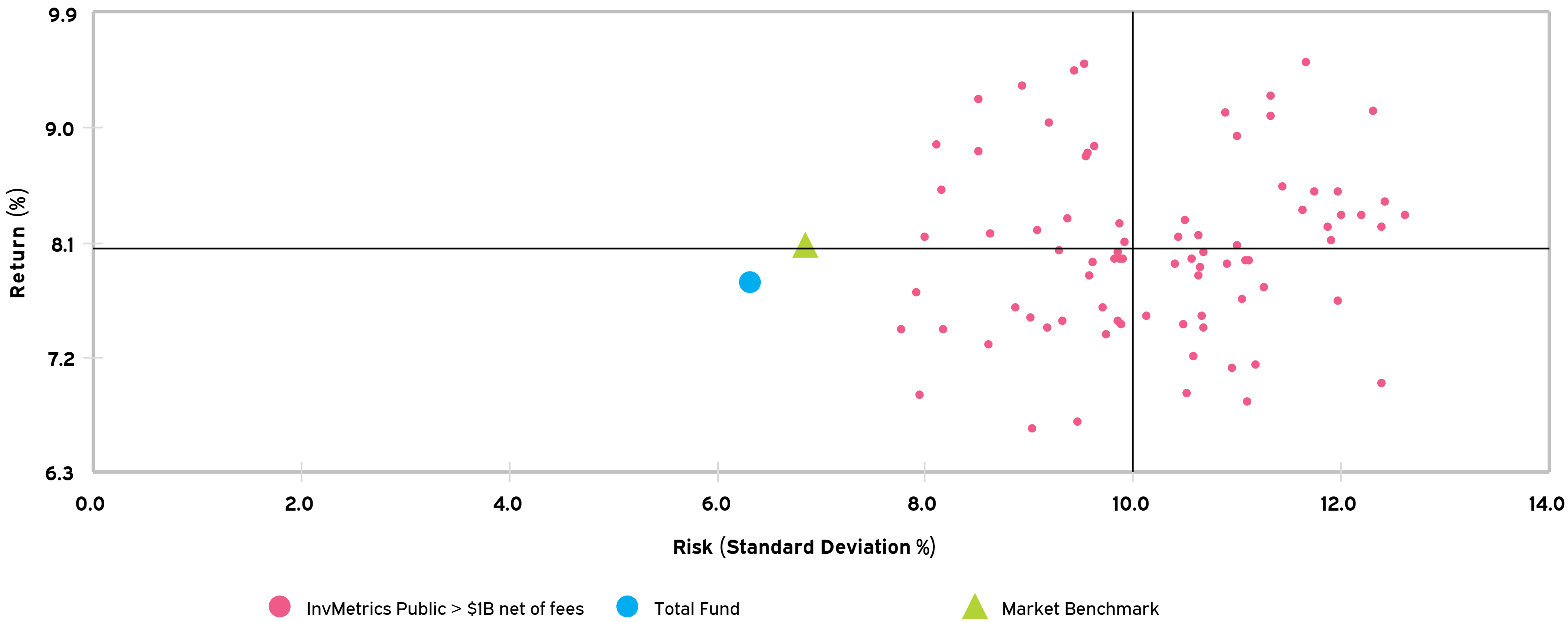
Annualized Return vs. Annualized Standard Deviation
3 Years ending September 30, 2024



	Return	Standard Deviation	Sharpe Ratio	Information Ratio
Total Fund	4.5 (56)	3.8 (1)	0.3 (17)	-0.4 (88)
Market Benchmark	5.8 (13)	6.3 (2)	0.4 (7)	-
Peer Benchmark Median	4.6	9.2	0.2	-0.2

Peer Benchmark represents the plan sponsor peer group Peer Benchmark Net universe and includes BNY Mellon Total Public Fund >$1B universe and Investment Metrics client data. Parenthesized numbers represent peer group percentile ranking.

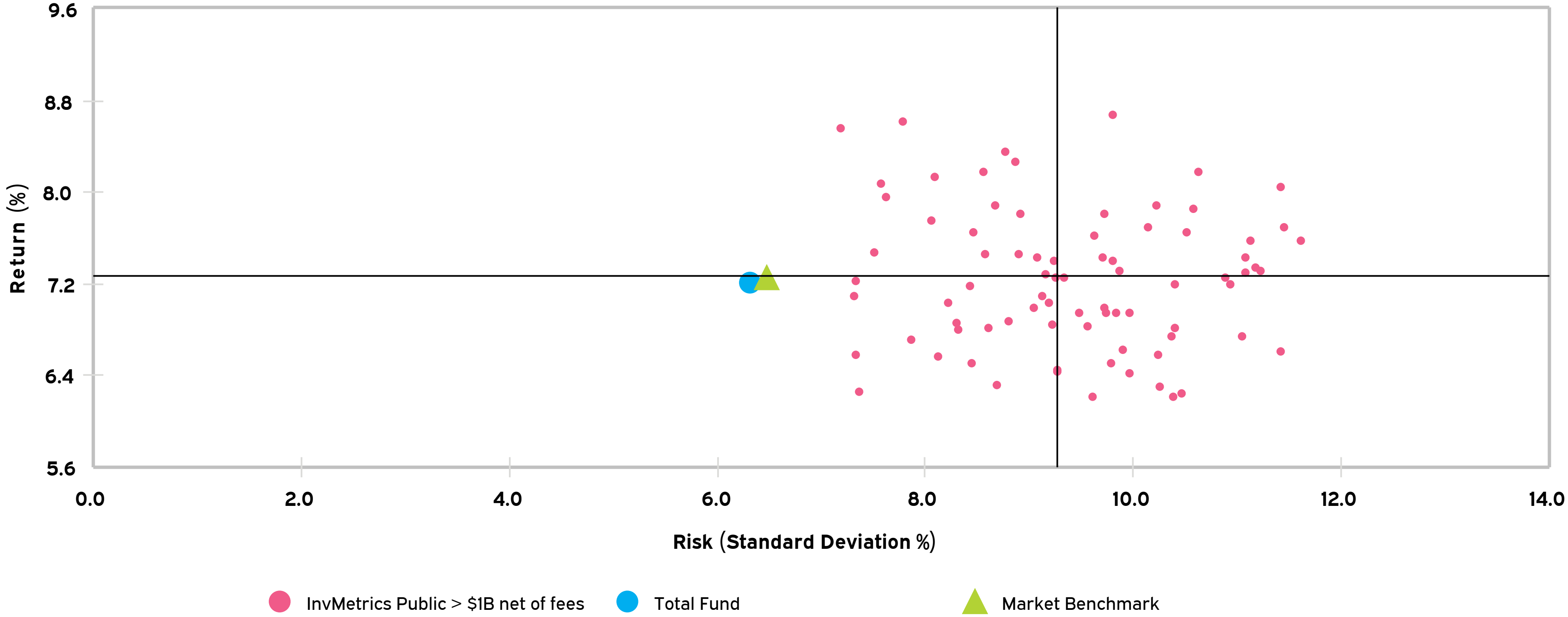
Annualized Return vs. Annualized Standard Deviation
5 Years ending September 30, 2024



	Return	Standard Deviation	Sharpe Ratio	Information Ratio
Total Fund	7.8 (65)	6.3 (1)	0.8 (7)	-0.1 (86)
Market Benchmark	8.1 (50)	6.8 (1)	0.8 (8)	-
Peer Benchmark Median	8.1	10.0	0.6	0.0

Peer Benchmark represents the plan sponsor peer group Peer Benchmark Net universe and includes BNY Mellon Total Public Fund >$1B universe and Investment Metrics client data. Parenthesized numbers represent peer group percentile ranking.

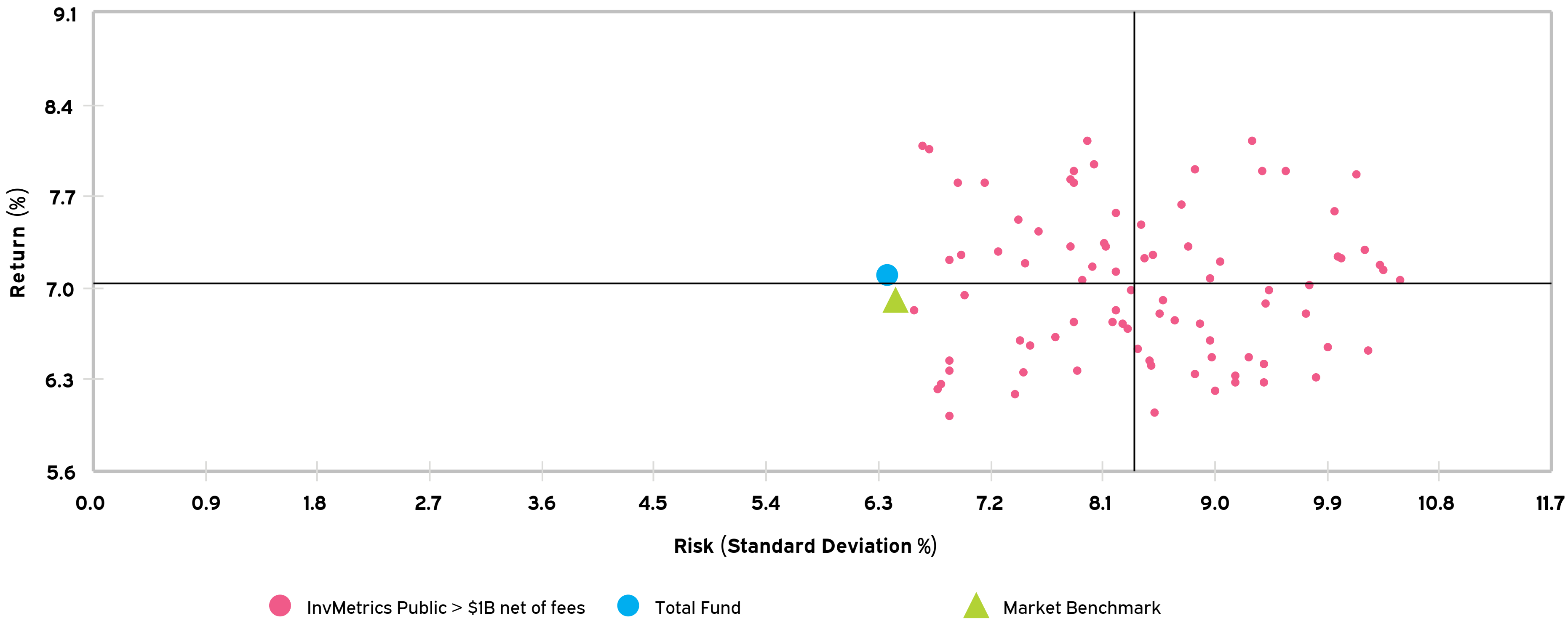
Annualized Return vs. Annualized Standard Deviation
7 Years ending September 30, 2024



	Return	Standard Deviation	Sharpe Ratio	Information Ratio
Total Fund	7.2 (54)	6.3 (1)	0.8 (8)	0.0 (68)
Market Benchmark	7.3 (51)	6.5 (1)	0.8 (8)	-
Peer Benchmark Median	7.3	9.3	0.6	0.1

Peer Benchmark represents the plan sponsor peer group Peer Benchmark Net universe and includes BNY Mellon Total Public Fund >$1B universe and Investment Metrics client data. Parenthesized numbers represent peer group percentile ranking.

Annualized Return vs. Annualized Standard Deviation
10 Years ending September 30, 2024



	Return	Standard Deviation	Sharpe Ratio	Information Ratio
Total Fund	7.1 (48)	6.4 (4)	0.8 (11)	0.1 (52)
Market Benchmark	6.9 (55)	6.4 (4)	0.8 (12)	-
Peer Benchmark Median	7.0	8.3	0.6	0.1

Peer Benchmark represents the plan sponsor peer group Peer Benchmark Net universe and includes BNY Mellon Total Public Fund >$1B universe and Investment Metrics client data. Parenthesized numbers represent peer group percentile ranking.

Appendix

Definition of Benchmarks

Bloomberg Aggregate is an index comprised of approximately 6,000 publicly traded investment-grade bonds including US Government, mortgage-backed, corporate, and yankee bonds with an approximate average maturity of 10 years.

Bloomberg Global High Yield is a multi-currency measure of the global high yield debt market. The Index is comprised of the US High Yield, the Pan-European High Yield, and Emerging Markets Hard Currency High Yield Indices. The high yield and emerging markets sub-components are mutually exclusive.

Bloomberg High Yield covers the universe of fixed rate, non-investment grade debt. Eurobonds and debt issues from countries designated as emerging markets (e.g., Argentina, Brazil, Venezuela, etc.) are excluded, but Canadian and global bonds (SEC registered) of issuers in non-EMG countries are included. Original issue zeroes, step-up coupon structures, 144-As and pay-in-kind bonds (PIKs, as of October 1, 2009) are also included. Must be rated high yield (Ba1/BB+ or lower) by at least two of the following ratings agencies: Moody's, S&P, Fitch. If only two of the three agencies rate the security, the lower rating is used to determine index eligibility. All issues must have at least one year to final maturity regardless of call features and have at least $150 million par amount outstanding.

Bloomberg Multiverse Non-US Hedged provides a broad-based measure of the international fixed-income bond market. The index represents the union of the BC Global Aggregate Index and the BC Global High Yield Index. In this sense, the term "Multiverse" refers to the concept of multiple universes in a single macro index.

Bloomberg US Credit includes publicly issued US corporate and foreign debentures and secured notes that which are rated investment grade or higher by Moody's Investor Services, Standard and Poor's Corporation, or Fitch Investors Service, with all issues having at least one year to maturity and an outstanding par value of at least $250 million. Issues must be publicly issued, dollar-denominated and non-convertible.

Bloomberg Universal includes market coverage by the Aggregate Bond Index fixed rate debt issues, which are rated investment grade or higher by Moody's Investor Services, Standard and Poor's Corporation, or Fitch Investors Service, with all issues having at least one year to maturity and an outstanding par value of at least $100 million) and includes exposures to high yield CMBS securities. All returns are market value weighted inclusive of accrued interest.

Bloomberg World Govt Inflation-Linked Bond (WGILB) measures the performance of the major government inflation-linked bond markets. The index is designed to include only those markets in which a global government linker fund is likely and able to invest. To be included a market must have aggregate issuance of $4 billion or more and have minimum rating of A3/A- for G7 and euro-zone issuers, Aa3/AA- otherwise, using the middle rating from Moody's, S&P and Fitch ("two out of three" rule). The index is available in local currency and in most major currencies hedged or un-hedged.

Definition of Benchmarks (continued)

CBOE S&P 500 Buy Write Index (BXM) is a benchmark index designed to track the performance of a hypothetical buy-write strategy on the S&P 500 Index. Announced in April 2002, the BXM Index was developed by the CBOE in cooperation with Standard & Poor's. To help in the development of the BXM Index, the CBOE commissioned Professor Robert Whaley to compile and analyze relevant data from the time period from June 1988 through December 2001. Data on daily BXM prices now is available from June 30, 1986, to the present time (see below). The BXM is a passive total return index based on (1) buying an S&P 500 stock index portfolio, and (2) "writing" (or selling) the near-term S&P 500 Index (SPXSM) "covered" call option, generally on the third Friday of each month. The SPX call written will have about one month remaining to expiration, with an exercise price just above the prevailing index level (i.e., slightly out of the money). The SPX call is held until expiration and cash settled, at which time a new one-month, near-the-money call is written. Please visit the BXM FAQ for more information about the construction of the index.

CBOE S&P 500 Put Write Index (PUT) is a benchmark index designed to track the performance of a hypothetical cash-secured put-write strategy on the S&P 500 Index. Announced in June 2007, the PUT strategy is designed to sell a sequence of one-month, at-the-money, S&P 500 Index puts and invest cash at one- and three-month Treasury Bill rates. The number of puts sold varies from month to month, but is limited so that the amount held in Treasury Bills can finance the maximum possible loss from final settlement of the S&P 500 Index puts.

ICE BofA 3-Month US Treasury Bills (90-Day T-bills) tracks the performance of US Treasury bills with 3-month maturity.

MLM Global Index is the first passive index of returns to futures investing. The objective of the Index strategy is to provide pure systematic trending following exposure in a consistent, efficient, and cost effective manner which captures the price risk premium offered by those who seek price certainty.

MSCI ACWI is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets. The Index captures large and mid-cap representation across 47 country indices comprising 23 developed and 24 emerging market country indices. The developed market country indices included are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States. The emerging market country indices included are: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Russia, Qatar, South Africa, Taiwan, Thailand, Turkey, and the United Arab Emirates.

MSCI ACWI ex US ND comprises both developed and emerging markets less the United States. The index consisted of 22 counties classified as developed markets and 24 classified as emerging markets. This series approximates the minimum possible dividend reinvestment. The dividend is reinvested after deduction of withholding tax, applying the rate to non-resident individuals who do not benefit from double taxation treaties. MSCI uses withholding tax rates applicable to Luxembourg holding companies, as Luxembourg applies the highest rates.

MSCI ACWI IMI captures large, mid, and small cap representation across 23 developed markets and 24 emerging markets countries. The Index is comprehensive, covering approximately 99% of the global equity investment opportunity set.

MSCI ACWI Minimum Volatility is a global equity (developed and emerging markets) index constructed by MSCI that utilizes an estimated security co-variance matrix to produce an index that has the lowest absolute volatility for a given set of constraints. The estimated security co-variance matrix is based on the relevant Barra multi-factor equity model.

Definition of Benchmarks (continued)

MSCI ACWI Small Cap is a free float-adjusted market capitalization weighted index captures the small cap representation across 23 developed markets and 24 emerging markets countries.

MSCI EAFE Free (Europe, Australasia, Far East) ND is a free float-adjusted market capitalization index that is designed to measure developed market equity performance, excluding the US & Canada. This series approximates the minimum possible dividend reinvestment. The dividend is reinvested after deduction of withholding tax, applying the rate to non-resident individuals who do not benefit from double taxation treaties. MSCI Barra uses withholding tax rates applicable to Luxembourg holding companies, as Luxembourg applies the highest rates.

MSCI EM (Emerging Markets) GD is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. This series approximates the maximum possible dividend reinvestment. The amount reinvested is the entire dividend distributed to individuals resident in the country of the company, but does not include tax credits.

MSCI Europe is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of the developed markets in Europe. As of June 2007, this index consisted of the following 16 developed market country indices: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

MSCI Pacific is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of the developed markets in the Pacific region. As of June 2007, this index consisted of the following 5 Developed Market countries: Australia, Hong Kong, Japan, New Zealand, and Singapore.

MSCI USA is a free float adjusted market capitalization index that is designed to measure large- and mid-cap US equity market performance. The MSCI USA Index is member of the MSCI Global Equity Indices and represents the US equity portion of the global benchmark MSCI ACWI Index.

MSCI World ex US ND is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. The MSCI World Index consists of the following 22 developed market country indices: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the United Kingdom.

Morningstar Leveraged Loan (formerly **S&P Leveraged Loan**) is a capitalization-weighted syndicated loan index based upon market weightings, spreads, and interest payments. The Index covers the US market back to 1997.

NAREIT Index consists of all tax-qualified REITs listed on the New York Stock Exchange, American Stock Exchange, and the NASDAQ National Market System. The data is market weighted.

NCREIF Property Index (NPI) the NPI contains investment-grade, non-agricultural, income-producing properties which may be financed in excess of 5% gross market value; were acquired on behalf of tax exempt institutions; and are held in a fiduciary environment. Returns are gross of fees; including income, realized gains/losses, and appreciation/depreciation; and are market value weighted.

NCREIF Timberland Index is a quarterly time series composite return measure of investment performance of a large pool of individual timber properties acquired in the private market for investment purposes only. All properties in the Timberland Index have been acquired, at least in part, on behalf of tax-exempt institutional investors - the great majority being pension funds. As such, all properties are held in a fiduciary environment.

Definition of Benchmarks (continued)

Russell 1000 measures the performance of the 1,000 largest securities in the Russell 3000 Index. Russell 1000 is highly correlated with the S&P 500 Index and capitalization weighted.

Russell 1000 Growth measures the performance of those Russell 1000 securities with a greater-than-average growth orientation. Securities in this index tend to exhibit higher price-to-book and price-earnings ratios, lower dividend yields and higher forecasted growth values than the Value universe.

Russell 1000 Value measures the performance of those Russell 1000 securities with a less-than-average growth orientation. Securities in this index tend to exhibit lower price-to-book and price-earnings ratios, higher dividend yields and lower forecasted growth values than the Growth universe.

Russell 2000 measures the performance of the 2,000 smallest companies in the Russell 3000 Index, which represents approximately 8% of the total market capitalization of the Russell 3000 Index.

Russell 2000 Growth measures the performance of those Russell 2000 securities with a greater-than-average growth orientation. Securities in this index tend to exhibit higher price-to-book and price-to-earnings ratios.

Russell 2000 Value measures the performance of those Russell 2000 securities with a less-than-average growth orientation. Securities in this index tend to exhibit lower price-to-book and price-to-earnings ratios.

Russell 3000 represents the largest 3,000 US companies based on total market capitalization, representing approximately 98% of the investable US equity market.

S&P 500 is an index of 500 stocks chosen for market size, liquidity and industry grouping, among other factors. The S&P 500 is designed to be a leading indicator of U.S. equities and is meant to reflect the risk/return characteristics of the large cap universe.

Plan Structure Evolution

Prior to 10/2014, Employees' Retirement System of the State of Hawaii ("ERS" or "Plan") had an allocation policy based asset classes (such as US Large Cap Equity, Developed International Equity, Real Estate). Since 10/2014, the ERS has adopted a risk-based, functional framework which uses strategic/functional classes designed to achieve a certain goal and/or be exposed to a specific set of macroeconomic risks through various underlying asset classes and strategies. Since then, the plan structure and the nomenclature of its components have evolved over time to fit the ERS's needs. This page summarizes this evolution since 10/2014 on a high level.

<table>
<tr><th>10/2014-06/2016</th><th>07/2016-03/2017</th><th>04/2017-06/2020</th><th>07/2020-12/2023</th><th>01/2024-Current</th></tr>
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<td>Total Fund
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<td>Total Fund
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<tr>
<td>Broad Growth
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<td rowspan="2">Diversifying Strategies
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</tr>
<tr>
<td></td>
<td></td>
<td>Crisis Risk Offset (CRO)
→ Treasury Duration Capture
→ Systematic Trend Following
→ Alternative Return Capture</td>
</tr>
</table>

Custom Benchmarks

This section includes the compositions of custom benchmarks currently in use. Policy Benchmarks for Total Fund, Broad Growth, and Diversifying Strategies are presented first, followed by the benchmarks of their lower-level composites sorted according to the Plan structure. Discontinued custom benchmarks are listed separately afterward and are noted as such when they appear in this section.

Total Fund Policy Benchmark

From	To	Total Fund Policy Benchmark
01/01/2024	Current	70% Broad Growth Benchmark, 30% Diversifying Strategies Benchmark
07/01/2022	12/31/2023	65% Broad Growth Benchmark, 35% Diversifying Strategies Benchmark
07/01/2021	06/30/2022	67.5% Broad Growth Benchmark, 32.5% Diversifying Strategies Benchmark
07/01/2020	06/30/2021	72% Broad Growth Benchmark, 28% Diversifying Strategies Benchmark
01/01/2019	06/30/2020	68% Broad Growth Benchmark, 16% Crisis Risk Offset Benchmark, 8% Principal Protection Benchmark, 8% Real Return Benchmark
01/01/2018	12/31/2018	72% Broad Growth Benchmark, 13% Crisis Risk Offset Benchmark, 8% Principal Protection Benchmark, 7% Real Return Benchmark
04/01/2017	12/31/2017	76% Broad Growth Benchmark, 10% Crisis Risk Offset Benchmark, 9% Principal Protection Benchmark, 5% Real Return Benchmark
07/01/2016	03/31/2017	83% Broad Growth Benchmark, 12% Principal Protection Benchmark, 5% Real Return Benchmark
10/01/2014	06/30/2016	76% Broad Growth Benchmark, 12% Principal Protection Benchmark, 5% Real Return Benchmark, 7% NCREIF Property Index (Qtr Lagged)

From	To	Total Fund Asset-Based Policy Benchmarks (prior to the Functional Allocation Framework)
07/01/2013	09/30/2014	30% Russell 3000, 26% MSCI AC World ex US (Net), 15% Bloomberg Universal, 5% Bloomberg Multiverse ex US (Hedged), 7% NCREIF Property Index (Qtr Lagged), 7% ERS Private Equity Performance, 5% ERS Real Return Performance, 5% CBOE S&P 500 BuyWrite (BXM)
07/01/2012	06/30/2013	30% Russell 3000, 26% MSCI AC World ex US (Net), 15.75% Bloomberg Universal, 5.25% Bloomberg Multiverse ex US (Hedged), 7% NCREIF Property Index (Qtr Lagged), 6% ERS Private Equity Performance, 5% ERS Real Return Performance, 5% CBOE S&P 500 BuyWrite (BXM)
10/01/2011	06/30/2012	35% Russell 3000, 18% MSCI World ex US, 3% MSCI Emerging Markets, 18% Bloomberg Universal, 6% Bloomberg Multiverse ex US (Hedged), 7% NCREIF Property Index (Qtr Lagged), 5% ERS Private Equity Performance, 5% ERS Real Return Performance, 3% CBOE S&P 500 BuyWrite (BXM)
07/01/2011	09/30/2011	41% Russell 3000, 14.5% MSCI World ex US, 2.5% MSCI Emerging Markets (Net), 21% Bloomberg Universal, 7% Bloomberg Multiverse ex US (Hedged), 9% NCREIF Property Index (Qtr Lagged), 5% ERS Alternative Investments Performance
01/01/2009	06/30/2011	41% Russell 3000, 14.5% MSCI EAFE Free, 2.5% MSCI Emerging Markets (Net), 21% Bloomberg Universal, 7% Bloomberg Multiverse ex US (Hedged), 9% NCREIF Property Index (Qtr Lagged), 5% ERS Alternative Investments Performance
06/01/1990	12/31/2008	34.9% S&P 500, 4.5% S&P 400 MidCap, 4.5% Russell 2000, 14.5% MSCI EAFE Free, 2.5% MSCI Emerging Markets, 21% Bloomberg Aggregate, 7% Bloomberg Multiverse ex US (Hedged), 7.5% NCREIF Property Index (Qtr Lagged), 3.6% ERS Alternative Investments Performance

Custom Benchmarks: Immediate Sub-Composites of Total Fund

Broad Growth Benchmark

From	To	Broad Growth Benchmark
01/01/2024	Current	56% Global Equity Benchmark, 17% Global Credit Benchmark, 27% Real Assets Benchmark
07/01/2022	12/31/2023	50% Public Growth Benchmark, 28% Private Growth Benchmark, 22% Real Assets Benchmark
07/01/2021	06/30/2022	66% Public Growth Benchmark, 20% Private Growth Benchmark, 14% Real Assets Benchmark
07/01/2020	06/30/2021	70% Public Growth Benchmark, 16% Private Growth Benchmark, 14% Real Assets Benchmark
01/01/2019	06/30/2020	41% Traditional Growth Benchmark, 41% Stabilized Growth Benchmark, 18% Private Growth Benchmark
01/01/2018	12/31/2018	43% Traditional Growth Benchmark, 43% Stabilized Growth Benchmark, 14% Private Growth Benchmark
07/01/2016	12/31/2017	45% Traditional Growth Benchmark, 45% Stabilized Growth Benchmark, 10% Private Growth Benchmark
01/01/2016	06/30/2016	77% Traditional Growth Benchmark, 17% Stabilized Growth Benchmark, 6% Private Growth Benchmark
10/01/2014	12/31/2015	78% Traditional Growth Benchmark, 17% Stabilized Growth Benchmark, 5% Private Growth Benchmark

For the historical components Traditional Growth Benchmark and Private Growth Benchmark please refer to Public Equity Benchmark and Private Equity Benchmark respectively.

Public Growth Benchmark and Stabilized Growth Benchmark are no longer in use. Please see their historical compositions in the "Discontinued Custom Benchmarks" section.

Diversifying Strategies Benchmark

From	To	Diversifying Strategies Benchmark
01/01/2024	Current	87% Liquid Defensive Benchmark, 13% Illiquid Diversifying Benchmark
07/01/2022	12/31/2023	45% Liquid Defensive Benchmark, 40% Liquid Diversifying Benchmark, 15% Illiquid Diversifying Benchmark
04/01/2017	06/30/2022	50% Liquid Defensive Benchmark, 40% Liquid Diversifying Benchmark, 10% Illiquid Diversifying Benchmark

Liquid Diversifying Benchmark is no longer in use. Please see its historical compositions in the "Discontinued Custom Benchmarks" section.

Custom Benchmarks: Global Equity Composite

Global Equity Policy Benchmark

Global Equity composite was created effective on 01/01/2024 to aggregate the Public and Private Equity components which had previously existed within separate higher-level composites. Accordingly, the Global Equity Policy Benchmark was retroactively reconstructed for periods prior to 01/01/2024 reflecting the historical policy targets for the underlying Public and Private Equity components.

From	To	Global Equity Policy Benchmark
01/01/2024	Current	51.3% Public Equity Benchmark, 48.7% Private Equity Benchmark
07/01/2022	12/31/2023	54.3% Public Equity Benchmark, 45.7% Private Equity Benchmark
07/01/2021	06/30/2022	64.7% Public Equity Benchmark, 35.3% Private Equity Benchmark
07/01/2020	06/30/2021	70.8% Public Equity Benchmark, 29.2% Private Equity Benchmark
01/01/2019	06/30/2020	69.5% Public Equity Benchmark, 30.5% Private Equity Benchmark
01/01/2018	12/31/2018	75.4% Public Equity Benchmark, 24.6% Private Equity Benchmark
07/01/2016	12/31/2017	81.8% Public Equity Benchmark, 18.2% Private Equity Benchmark
01/01/2016	06/30/2016	92.8% Public Equity Benchmark, 7.2% Private Equity Benchmark
10/01/2014	12/31/2015	94.0% Public Equity Benchmark, 6.0% Private Equity Benchmark
07/01/2013	09/30/2014	88.9% Public Equity Benchmark, 11.1% Private Equity Benchmark

Public Equity Benchmark

From 10/2014 through 12/2023, public equity assets have resided within the Broad Growth strategic class with names such as "Traditional Growth" or "Traditional Equity". Thus, Public Equity Benchmark may be considered the successor of Traditional Growth and Traditional Equity Benchmarks. Please note that Public Equity Benchmark is different from the discontinued Public Growth Benchmark; its historical benchmark composition is included in the "Discontinued Custom Benchmarks" section.

From	To	Public Equity Benchmark
10/01/2014	Current	100% MSCI All Country World Investable Market Index (Net)
07/01/2012	09/30/2014	53.6% Russell 3000, 46.4% MSCI All Country World ex US (Net)
10/01/2011	06/60/2014	62.5% Russell 3000, 32.1% MSCI World ex US (Net), 5.4% MSCI Emerging Markets (Net)
07/01/2011	09/30/2011	70.7% Russell 3000, 25.0% MSCI World ex US (Net), 4.3% MSCI Emerging Markets (Net)
01/01/2009	06/30/2011	70.7% Russell 3000, 25.0% MSCI EAFE (Net), 4.3% MSCI Emerging Markets (Net)
03/01/2008	12/31/2008	57.3% S&P 500, 7.4% S&P Mid Cap 400, 7.4% Russell 2000, 23.8% MSCI EAFE (Net), 4.1% MSCI Emerging Markets (Net)

Custom Benchmarks: Global Equity Composite (Continued)

Private Equity Benchmark

From 10/2014 through 12/2023, private equity assets have resided within the Broad Growth strategic class as "Private Growth". Thus, Private Equity Benchmark may be considered the successor of Private Growth Benchmark.

From	To	Private Equity Benchmark
01/01/2024	Current	100% MSCI ACWI IMI (Net) (Quarter Lagged)
10/01/2014	12/31/2023	100% MSCI ACWI IMI (Net) +2% (Quarter Lagged)
10/01/2011	09/30/2014	Private Equity Actual Performance

Custom Benchmarks: Global Credit Composite

Global Credit Policy Benchmark

From	To	Global Credit Benchmark
01/01/2024	Current	33.3% Public Credit Benchmark, 66.7% Private Credit Benchmark
07/01/2021	12/31/2023	50% Public Credit Benchmark, 50% Private Credit Benchmark
07/01/2020	06/30/2021	25% Public Credit Benchmark, 75% Private Credit Benchmark
10/01/2014	06/30/2020	100% Public Credit Benchmark

Public Credit Policy Benchmark

From	To	Public Credit Benchmark
07/01/2021	Current	50% Bloomberg Global High Yield (Hedged), 50% Morningstar LSTA US Leveraged Loan 100 Index
07/01/2020	06/30/2021	50% Bloomberg Global High Yield (Hedged), 50% Morningstar LSTA US Leveraged Loan 100 Index*
10/01/2014	06/30/2020	50% Bloomberg Global Credit (Hedged) 33.3% Bloomberg Global High Yield (Hedged), 16.7% Morningstar LSTA US Leveraged Loan 100 Index*

Private Credit Policy Benchmark

From	To	Private Credit Benchmark
01/01/2024	Current	50% Bloomberg Global High Yield (Hedged) (Quarter Lagged), 50% Morningstar LSTA US Leveraged Loan 100 Index (Quarter Lagged)
07/01/2021	12/31/2023	25% Bloomberg Global High Yield (Hedged) +1% (Month Lagged), 25% Morningstar LSTA US Leveraged Loan 100 Index +1% (Month Lagged), 25% Bloomberg Global High Yield (Hedged) +1% (Quarter Lagged), 25% Morningstar LSTA US Leveraged Loan 100 Index +1% (Quarter Lagged)
07/01/2020	06/30/2021	50% Bloomberg Global High Yield (Hedged) +1% (Month Lagged), 50% Morningstar LSTA US Leveraged Loan 100 Index +1% (Month Lagged)*
11/01/2019	06/30/2020	100% Public Credit Benchmark

From 11/2019 to 06/2020, Private Credit Benchmark is the same as Public Credit Benchmark.

Notes on Component Indices

Historically, prior to 07/01/2021, Morningstar LSTA US Leveraged Loan Index (formerly known as "S&P LSTA US Leveraged Loan Index") was used in the places where Morningstar LSTA US Leveraged Loan 100 Index occurs on this page. Due to licensing issues, Morningstar LSTA US Leveraged Loan 100 Index is applied retroactively to periods prior to 07/2021. Compositions which historically used Morningstar LSTA US Leveraged Loan Index are marked on this page with an asterisk (*).

Custom Benchmarks: Real Assets Composite

Real Assets Policy Benchmark

Real Assets composite contains the following asset classes: Real Estate (Core and Non-Core), Agriculture (or Farmland), Timberland, Infrastructure (Private and Public), and Other Real Assets. They existed separately under various higher level composites at different points in the Plan's history prior to the Real Asset composite's inception in 07/2020.

Prior to 07/2016, **Real Estate** was an immediate sub-composite of Total Fund. From 07/2016 through 06/2020, Core Real Estate and Non-Core Real Estate were separately subsumed into Stabilized Growth and Private Growth categories respectively (which were both contained within Broad Growth). From 10/2014 to 07/2020, **Agriculture, Timber, and Infrastructure** constituted the Private Inflation-Linked component within Real Return, an immediate subordinate of Total Fund.

The Real Assets Policy Benchmark for periods prior to 07/2020 were retroactively reconstructed using the historical policy allocation targets for the underlying components.

From	To	Real Assets Policy Benchmark
01/01/2024	Current	47% Real Estate Benchmark, 7% Agriculture Benchmark, 9% Timber Benchmark, 37% Infrastructure Benchmark
07/01/2022	12/31/2023	70% Real Estate Benchmark, 10% Agriculture Benchmark, 10% Timber Benchmark, 10% Infrastructure Benchmark
07/01/2021	06/30/2022	70% Real Estate Benchmark, 8% Agriculture Benchmark, 12% Timber Benchmark, 10% Infrastructure Benchmark
07/01/2020	06/30/2021	75% Real Estate Benchmark, 5% Agriculture Benchmark, 12.5% Timber Benchmark, 7.5% Infrastructure Benchmark
01/01/2019	06/30/2020	52% Real Estate Policy Benchmark, 48% Real Return Benchmark
01/01/2018	12/31/2018	57% Real Estate Policy Benchmark, 43% Real Return Benchmark
04/01/2017	12/31/2017	70% Real Estate Policy Benchmark, 30% Real Return Benchmark
07/01/2016	06/30/2017	75% Real Estate Policy Benchmark, 25% Real Return Benchmark
01/01/2016	06/30/2016	80% Real Estate Policy Benchmark, 20% Real Return Benchmark
10/01/2014	12/31/2015	83% Real Estate Policy Benchmark, 17% Real Return Benchmark

Custom Benchmarks: Real Assets Composite (Continued)

Real Estate Policy Benchmark

Real Estate composite became effective in 01/2024 as an aggregate of the Core and Non-Core Real Estate components. The Real Estate Policy Benchmark was retroactively reconstructed for periods prior to 01/2024 reflecting the historical policy allocation targets for the underlying Core and Non-Core components.

From	To	Real Estate Policy Benchmark
01/01/2024	Current	100% FTSE EPRA NAREIT Global REITs Index (Gross) (Quarter Lagged)
07/01/2022	12/31/2023	57.1% Core Real Estate Benchmark, 42.9% Non-Core Real Estate Benchmark
07/01/2021	06/30/2022	55.7% Core Real Estate Benchmark, 44.3% Non-Core Real Estate Benchmark
07/01/2020	06/30/2021	53.3% Core Real Estate Benchmark, 46.7% Non-Core Real Estate Benchmark
07/01/2019	06/30/2020	60% Core Real Estate Benchmark, 40% Non-Core Real Estate Benchmark
07/01/2018	06/30/2019	66% Core Real Estate Benchmark, 34% Non-Core Real Estate Benchmark
07/01/2017	06/30/2018	73% Core Real Estate Benchmark, 27% Non-Core Real Estate Benchmark
07/01/2016	06/30/2017	80% Core Real Estate Benchmark, 20% Non-Core Real Estate Benchmark
07/01/2013	06/30/2016	100% Core Real Estate Benchmark

Core Real Estate Benchmark

From	To	Core Real Estate Benchmark
01/01/2024	Current	100% FTSE EPRA NAREIT Global REITs Index (Gross) (Quarter Lagged)
01/01/2018	12/31/2023	100% NCREIF ODCE (Net) (Quarter Lagged)
07/01/2013	12/31/2017	100% NCREIF Property Index (Net) (Quarter Lagged)

Non-Core Real Estate Benchmark

From 07/2016-06/2020, this composite sat within Private Growth segment and was benchmarked against Private Equity Benchmark (formerly, "Private Growth Benchmark").

From	To	Non-Core Real Estate Benchmark
01/01/2024	Current	100% FTSE EPRA NAREIT Global REITs Index (Gross) (Quarter Lagged)
07/01/2020	12/31/2023	100% NCREIF ODCE (Net) +1% (Quarter Lagged)
07/01/2016	06/30/2020	100% Private Equity Benchmark
07/01/2013	06/30/2016	100% NCREIF Property Index (Net) (Quarter Lagged)

Custom Benchmarks: Real Assets Composite (Continued)

Agriculture Benchmark

From	To	Agriculture Benchmark
01/01/2024	Current	100% S&P GCSI Agriculture Index (Quarter Lagged)
10/01/2021	12/31/2023	100% NCREIF Farmland Index (Quarter Lagged)

Timber Benchmark

From	To	Timber Benchmark
01/01/2024	Current	100% S&P Global Timber & Forestry Index (Net) (Quarter Lagged)
09/01/1999	12/31/2023	100% NCREIF Timberland Index (Quarter Lagged)

Infrastructure Benchmark

From	To	Infrastructure Benchmark
01/01/2024	Current	100% Dow Jones Brookfield Global Infrastructure Index (Net) (Quarter Lagged)
12/01/2014	12/31/2023	100% Consumer Price Index (Seasonally Adjusted) +4%

Custom Benchmarks: Diversifying Strategies Composite

Liquid Defensive Benchmark

From	To	Liquid Defensive Benchmark
01/01/2024	Current	31% MLM Global Index EV (Blend), 15% Bloomberg US Treasury: Long Index, 54% Bloomberg US Treasury: Intermediate Index
07/01/2022	12/31/2023	40% MLM Global Index EV (Blend), 40% 90-Day T-Bill +2.5%, 15% Bloomberg US Treasury: Long Index, 5% Bloomberg US Intermediate Aggregate ex Credit Index
07/01/2021	06/30/2022	35% MLM Global Index EV (Blend), 20% 90-Day T-Bill+2.5%, 15% Bloomberg US Treasury: Long Index, 15% Bloomberg US Intermediate Aggregate ex Credit Index, 15% Bloomberg US TIPS 5+ Year Index
07/01/2016	06/30/2021	40% MLM Global Index EV (Blend), 30% Bloomberg US Treasury: Long Index, 30% Bloomberg US Intermediate Aggregate ex Credit Index

Defensive Return Capture Benchmark

Defensive Return Capture and Discretionary Alpha Benchmarks have the same underlying components since 07/01/2020.

From	To	Defensive Return Capture Benchmark
01/01/2024	Current	100% Bloomberg US Treasury: Intermediate Index
07/01/2020	12/31/2023	100% 90-Day T-Bill +2.5%

Discretionary Alpha Benchmark

Defensive Return Capture and Discretionary Alpha Benchmarks have the same underlying components since 07/01/2020.

From	To	Discretionary Alpha Benchmark
01/01/2024	Current	100% Bloomberg US Treasury: Intermediate Index
07/01/2020	12/31/2023	100% 90-Day T-Bill +2.5%

Intermediate Duration Treasury Policy Benchmark

From	To	Intermediate Duration Treasury Policy Benchmark
01/01/2024	Current	100% Bloomberg US Treasury: Intermediate Index
04/01/2017	12/31/2023	100% Bloomberg US Intermediate Aggregate ex Credit

Custom Benchmarks: Diversifying Strategies Composite (Continued)

Long Duration Treasury Policy Benchmark

From	To	Long Duration Treasury Policy Benchmark
04/01/2022	Current	100% Bloomberg US Treasury: Long Index
02/01/2021	03/31/2022	50% Bloomberg US Treasury: Long Index, 50% Bloomberg TIPS 5+ Year Index
04/01/2017	01/31/2021	100% Bloomberg US Treasury: Long Index

MLM Global Index EV (Blend)

MLM Global Index EV (Blend) is used as the benchmark for the Systematic Trend Following composite and as a component of other custom benchmarks.

From	To	MLM Global Index EV (Blend)
04/01/2019	Current	100% MLM Global Index EV (15V)
04/01/2017	03/31/2019	100% MLM Global Index LT 15V

Illiquid Diversifying Benchmark

From	To	Illiquid Diversifying Benchmark
01/01/2024	Current	100% Swiss RE Global Catastrophe Bond Hedged Index
07/01/2022	12/31/2023	65% 90-Day T-Bills +3.5%, 35% Swiss RE Global Catastrophe Bond Hedged Index
07/01/2021	06/30/2022	50% 90-Day T-Bills +3.5%, 50% Swiss RE Global Catastrophe Bond Hedged Index
04/01/2014	06/30/2021	65% 90-Day T-Bills +3.5%, 35% Swiss RE Global Catastrophe Bond Hedged Index

Idiosyncratic Return Capture Benchmark

From	To	Idiosyncratic Return Capture Benchmark
01/01/2024	Current	100% Swiss RE Global Catastrophe Bond Hedged Index
07/01/2020	12/31/2023	100% 90-Day T-Bills +3.5%

Discontinued Custom Benchmarks

This section includes only the discontinued custom benchmarks which have been a component of current custom benchmarks' history and does not include all the discontinued historical custom benchmarks. The items in this section are ordered alphabetically.

Crisis Risk Offset (CRO) Benchmark

Crisis Risk Offset (CRO) Benchmark was a component of Total Fund Policy Benchmark from 2017 to 2020. The composite consisted of Systematic Trend Following, Alternative Return Capture, and Treasury Duration Capture (in the form of long duration treasuries) components.

From	To	Crisis Risk Offset (CRO) Benchmark
04/01/2019	06/30/2020	35% MLM Global Index EV (Blend), 40% 90-day T-Bills +2.5%, 25% Bloomberg US Treasury: Long Index
04/01/2017	03/31/2019	45% MLM Global Index EV (Blend), 30% 90-day T-Bills +5%, 25% Bloomberg US Treasury: Long Index

Liquid Diversifying Benchmark

Liquid Diversifying Benchmark was a component of Diversifying Strategies Benchmark from 2017 through 2023.

From	To	Liquid Diversifying Benchmark
04/01/2017	12/31/2023	100% 90-Day T-Bills +2.5%

Options-Based Equity Benchmark

Options-Based Equity Benchmark was a component of Public Growth Benchmark from 2020 to 2022.

From	To	Options-Based Equity Benchmark
07/01/2020	06/30/2022	50% CBOE S&P 500 PutWrite (PUT), 35% CBOE MSCI EAFE PutWrite (PXEA), 15% CBOE MSCI Emerging Markets PutWrite (PXEF)

Principal Protection Benchmark

Principal Protection Benchmark was a component of Total Fund Policy Benchmark from 2014 to 2020. The composite primarily consisted of intermediate duration bonds.

From	To	Principal Protection Benchmark
01/01/2018	06/30/2020	55% Bloomberg US Intermediate ex Credit Index, 45% Bloomberg Global Intermediate ex Credit Index (Hedged)
10/01/2014	12/31/2017	100% Bloomberg Global Intermediate ex Credit Index (Hedged)

Discontinued Custom Benchmarks (Continued)

Public Growth Benchmark

Public Growth Benchmark was a component of Broad Growth Benchmark from 2020 through 2023. Please see Global Credit Benchmark and Traditional Growth Benchmark in the Current Custom Benchmarks section under Global Credit Benchmark and Public Equity Benchmark respectively.

From	To	Public Growth Benchmark
07/01/2022	12/31/2023	66.5% Traditional Growth Benchmark, 20% Global Credit Benchmark, 8% MSCI ACWI Minimum Volatility (Net), 5.5% ICE BofA All US Convertibles All Qualities (VXA0)
07/01/2021	06/30/2022	55.5% Traditional Growth Benchmark, 16% Options-Based Equity Benchmark, 15.5% Global Credit Benchmark, 9% MSCI ACWI Minimum Volatility (Net), 4% ICE BofA All US Convertibles All Qualities (VXA0)
07/01/2020	06/30/2021	55.5% Traditional Growth Benchmark, 20% Options-Based Equity Benchmark, 15.5% Global Credit Benchmark, 9% MSCI ACWI Minimum Volatility (Net)

Real Return Benchmark

Real Return Benchmark was a component of Total Fund Policy Benchmark from 2014 to 2020.

From	To	Real Return Benchmark
10/01/2014	06/30/2020	100% Consumer Price Index (Seasonally Adjusted) +3%

Stabilized Growth Benchmark

Stabilized Growth Benchmark was a component of Broad Growth Benchmark from 2014 to 2020.

From	To	Stabilized Growth Benchmark
01/01/2018	06/30/2020	8.5% Bloomberg Global Credit (Hedged), 5.67% Bloomberg Global High Yield (Hedged), 17% CBOE S&P 500 BuyWrite (BXM), 17% CBOE S&P 500 PutWrite (PUT), 2.83% Morningstar LSTA Leveraged Loan, 8.5% MSCI ACWI ex US (Net), 8.5% 90-day T-Bills, 17% MSCI ACWI Minimum Volatility (Net), 15% NCREIF ODCE Index (Net) (Quarter Lagged)
07/01/2016	12/31/2017	8.5% Bloomberg Global Credit (Hedged), 5.67% Bloomberg Global High Yield (Hedged), 17% CBOE S&P 500 BuyWrite (BXM), 17% CBOE S&P 500 PutWrite (PUT), 2.83% Morningstar LSTA Leveraged Loan, 8.5% MSCI ACWI ex US (Net), 8.5% 90-day T-Bills, 17% MSCI ACWI Minimum Volatility (Net), 15% NCREIF Property Index (Net) (Quarter Lagged)
10/01/2014	06/30/2016	30% Bloomberg Global Credit (Hedged), 20% Bloomberg Global High Yield (Hedged), 40% CBOE S&P 500 BuyWrite (BXM), 10% Morningstar LSTA Leveraged Loan Index

Performance Attribution Glossary

Performance Attribution is the process of comparing a portfolio's performance with its benchmark identifying and quantifying the sources of differential returns (also called active returns).

Differential Returns / Active Returns / Value Added are the difference between the return on a portfolio and the return on the benchmark.

Impact on Return

Attribution Segment	Definition	Formula	Where:
Weighting (also called allocation, sector allocation, or pure sector allocation)	The effects of portfolio manager decisions to over/underweight each sector	$(w_i - W_i) \times (b_i - b)$	w_i = portfolio segment weight W_i = benchmark segment weight b_i = benchmark segment return b = total benchmark return
Selection (also called within-sector selection)	The effects of portfolio manager decision to buy specific securities	$(r_i - b_i) \times W_i$	r_i = portfolio segment return b_i = benchmark segment return W_i = benchmark segment weight
Interaction (also called allocation/selection interaction)	The effects of portfolio managers decisions to security selection can inadvertently cause sector over/underweighting	$(r_i - b_i) \times (w_i - W_i)$	r_i = portfolio segment return b_i = benchmark segment return w_i = portfolio segment weight W_i = benchmark segment weight

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TOWNSEND® GROUP

Employees' Retirement System of the State of Hawai'i
Second Quarter 2024 Real Assets Performance Review

PROPRIETARY & CONFIDENTIAL

November 2024

HIERS Client Team Biographies:
Jeff Leighton, Kathryn Finneran, & D'metrius Grier

Jeff Leighton

- Partner in Townsend's real estate investment consulting group
- Leads consulting assignments for a select number of real estate retainer and project clients
- Has over 19 years of professional experience, including 11 years of institutional real estate experience
- Previously Jeff worked in structured finance for the Debt Capital Markets group at Banc of America Securities
- BBA in Finance from Radford University

Kathryn Finneran

- Associate in Townsend's real estate investment consulting group
- Supports consulting assignments for a select number of real estate retainer and project clients
- Has over 6 years of professional experience, including 4 years of institutional real estate experience
- Previously Kathryn worked for SITE Centers (formerly known as DDR Corp.) with the Corporate and Transactions Legal team
- BA in Political Science from John Carroll University

D'metrius Grier

- Analyst in Townsend's real estate investment consulting group
- Supports consulting assignments for a select number of real estate retainer and project clients
- Has over 3 years of professional experience, including 1 year of institutional real estate experience
- Previously, D'metrius worked for Rocket Mortgage as a Mortgage Loan Originator
- MSM in Finance from the Weatherhead School of Management of Case Western Reserve University

Table of Contents

A. Executive Summary

Real Assets Markets Performance and Overview

TOWNSEND® GROUP

As of 06/30/2024

Current HIERS' Benchmarks	Quarter (%)		1 Year (%)		3 Year (%)		5 Year (%)		10 Year (%)	
Public Market Benchmarks	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET
Total Real Assets Benchmark*	-0.8		5.0		2.6		3.7		4.7	
Public Market Benchmarks										
FTSE EPRA NAREIT Global REITs Index	-1.5		7.4		0.9		1.4		4.5	
Dow Jones Brookfield Global Infrastructure Index		-0.4		1.6		3.4		3.8		4.7
S&P Global Timber & Forestry Index		4.1		21.2		2.1		8.2		7.5
S&P GSCI Agriculture Index	-4.4		-12.8		6.5		9.1		-2.2	
Private Market Benchmarks										
NFI-ODCE Value Weight	-0.4	-0.7	-9.3	-10.0	1.9	1.0	3.2	2.3	6.4	5.5
NCREIF Property Index "NPI"	-0.3		-5.5		2.3		3.4		6.1	
NCREIF Farmland Property Index "NFI"	-0.2		2.5		6.8		5.8		6.9	
NCREIF Timberland Property Index "NTI"	1.7		9.8		11.0		7.2		5.9	

- As of First Quarter 2024, the Total Real Assets Benchmark reflects a blend of public indices. Because ERS' private investments are being compared against a blended benchmark of public indices, a significant amount of "tracking error" is expected. This can lead to periods of out-performance or under-performance over the short or medium term. Focus is on longer-term performance.
- The Total Real Assets Benchmark generated a -0.8% gross return, down -13.4% from the previous quarter. Public market indices are typically more volatile than private market indices, especially in short-term time periods.
- Across the private real estate, timber, and agriculture benchmarks, performance was flat to slightly positive during the current quarter. Private real estate valuations have seemed to bottom across most property types, except office. NFI generated a -0.2% gross return, with row crops continuing to outperform permanent crops. NTI continued to generate positive performance with a one-quarter return of 1.7%.

*Total Real Assets Benchmark combines the historical Real Assets Benchmark (comprised of 40% NFI-ODCE Value Weight (net), 30% NFI-ODCE Value Weight +100 BPS (net), 10% NCREIF Timberland Property Index (gross), 10% NCREIF Farmland Property Index (gross), and 10% CPI + 400 BPS (gross)) with the new public Real Assets Benchmark (comprised of 47% FTSE EPRA NAREIT Global Index (gross), 37% Dow Jones Brookfield Global Infrastructure Index (net), 9% S&P Global Timber & Forestry Index (net), and 7% S&P GSCI Agriculture Index (gross)). Current HIERS' Benchmarks lag the portfolio's performance data by one quarter throughout this presentation.

Total Real Asset Portfolio Funding Status and Composition

Portfolio Overview As of June 30, 2024 ($ in Millions)	
Number of Investments	82
Active Investments	67
Liquidated Investments	15
Number of Active GP Relationships	28
Total Commitments	6,299.5
Unfunded Commitments	1,124.3
Total Paid-In Capital	6,563.5
Total Distributions	4,130.7
Net Asset Value	4,375.8
Gross Asset Value	6,482.6
Total Exposure	5,500.1
DPI[4]	0.6x
TVPI[4]	1.3x
Since Inception IRR[4]	7.6%
Active and Liquidated	

- Recent infrastructure, agriculture, and real estate commitments should help the portfolio continue to move towards its target allocation irrespective of liquidating investments.
- In general, the portfolio is in compliance with its Investment Policy Statement with the following exceptions:
  - Timber exceeds the largest asset as a percent of Timber maximum due to the Timber Separate Account's sale of a large property in December 2017 for roughly $36M.

PORTFOLIO COMPOSITION TO TARGETS (%)
(As of June 30, 2024)[1,3]

	Target (Range) Total Fund	Actual Funded Total Fund
Strategic Asset Allocation		
Real Estate	9.00	8.42
Core	--	4.48
Non-Core	--	3.94
Timber/Agriculture	3.00	2.62
Timber	--	0.98
Agriculture	--	1.65
Infrastructure	7.00	7.51
Total Real Asset	19.00 (9.00 - 29.00)	18.54

PORTFOLIO COMPOSITION TO TARGETS (%)
Olomana Disaggregated into Various Components
(As of June 30, 2024)[2,3]

	Target (Range) Total Fund	Actual Funded Total Fund
Strategic Asset Allocation		
Real Estate	9.00	8.52
Core	--	4.48
Non-Core	--	4.04
Timber/Agriculture	3.00	2.78
Timber	--	0.98
Agriculture	--	1.80
Infrastructure	7.00	7.25
Total Real Assets	19.00 (9.00 - 29.00)	18.54

[1]Olomana: entire NAV (liquid & illiquid investments) is included in Infrastructure.
[2]Olomana: liquid markets NAV is included in Infrastructure, illiquid markets NAV is included in their respective components of Core Real Estate, Non-Core Real Estate, Timber, Agriculture, Infrastructure. Illiquid investments that don't fall under one of these components is in Infrastructure.
[3]Parametric: entire NAV (liquid & illiquid investments) is included in Infrastructure.
[4]Excludes Parametric Real Assets Overlay Portfolio within these calculations.

Private Performance vs. Public Benchmark

TOWNSEND® GROUP

- Effective in First Quarter 2024, HIERS changed its real assets benchmark to a blend of public indices. Because ERS' private investments are being compared against a blended benchmark of public indices, a significant amount of "tracking error" is expected. This can lead to periods of out-performance or under-performance over the short or medium term. Focus is on longer-term performance.

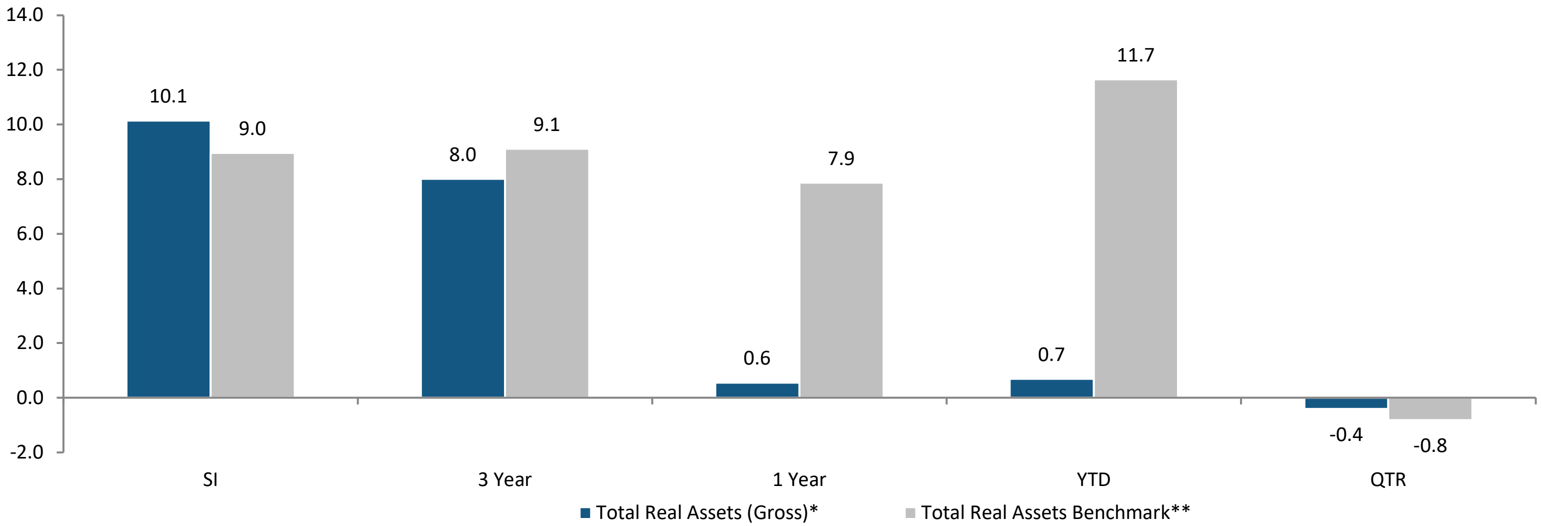
Total Real Assets Portfolio Performance Summary

TOWNSEND GROUP

As of 6/30/2024

Returns (%)	Inception				3 Year				1 Year				YTD				Quarter			
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET
Real Assets																				
Total Real Assets[1]*	3.8	6.2	10.1	7.6	3.3	4.6	8.0	6.5	1.9	-1.3	0.6	0.1	0.8	-0.1	0.7	0.5	0.4	-0.8	-0.4	-0.3
Total Real Assets Benchmark**			9.0				9.1				7.9				11.7				-0.8	

Inception Date: 7/1/2020



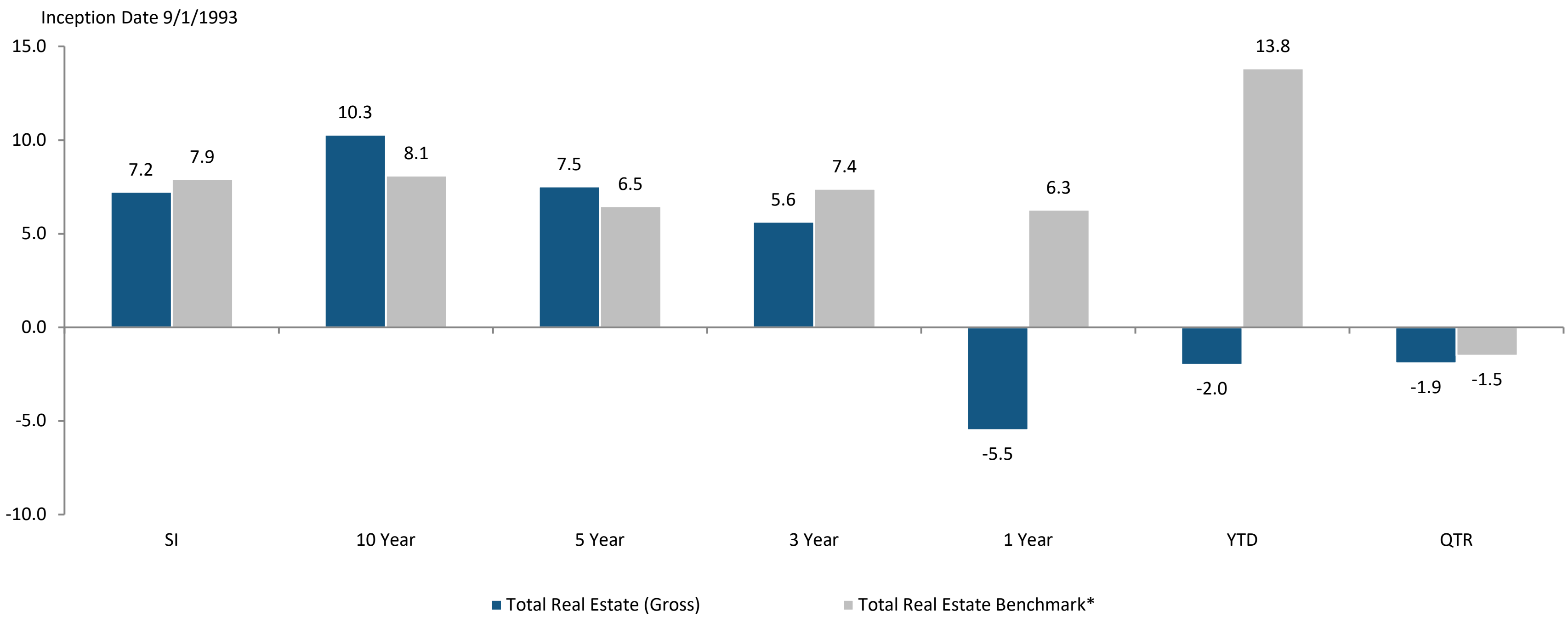
- The table shows the time-weighted returns for HIERS' Total Real Assets.
- The portfolio is outperforming the benchmark over the current quarter and since inception period. The portfolio is underperforming the Real Assets Blended Benchmark on a gross of fee basis over the one-year and three-year time periods.

The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.
*As of 07/01/2023, certain real estate debt funds with ~100% debt (or mostly debt) were reclassified/moved from the Real Assets Composite to the Global Credit Composite. For performance reporting purposes, these were included in the Real Assets composite historically, up to the 07/01/2023 transfer date.
**Total Real Assets Benchmark combines the historical Real Assets Benchmark (comprised of 40% NFI-ODCE Value Weight (net), 30% NFI-ODCE Value Weight +100 BPS (net), 10% NCREIF Timberland Property Index (gross), 10% NCREIF Farmland Property Index (gross), and 10% CPI + 400 BPS (gross)) with the new public Real Assets Benchmark (comprised of 47% FTSE EPRA NAREIT Global Index (gross), 37% Dow Jones Brookfield Global Infrastructure Index (net), 9% S&P Global Timber & Forestry Index (net), and 7% S&P GSCI Agriculture Index (gross)). This blend begins 01/01/2024. Additionally, performance data for the new public benchmark is based on a quarter-lagged calculation of time-weighted returns.
[1]Excludes Parametric Real Asset Overlay returns.

HIERS Real Estate Performance Summary

As of 6/30/2024

Returns (%)	Inception				10 Year				5 Year				3 Year				1 Year				YTD				Quarter			
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET
Real Estate																												
Total Real Estate	6.7	0.5	7.2	6.0	5.3	4.9	10.3	8.4	4.2	3.3	7.5	5.8	3.8	1.9	5.6	4.2	2.3	-7.6	-5.5	-5.5	1.2	-3.2	-2.0	-1.9	0.6	-2.6	-1.9	-1.5
Total Real Estate Benchmark*			7.9				8.1				6.5				7.4				6.3				13.8				-1.5	



- The table shows the time-weighted returns for HIERS' Total Real Estate.
- Overall, the portfolio is performing well over the long-term, outperforming the blended benchmark on a gross of fee basis over the five-year and ten-year periods.
- The real estate portfolio has generated a 7.6% net IRR and 1.4x net equity multiple since inception.

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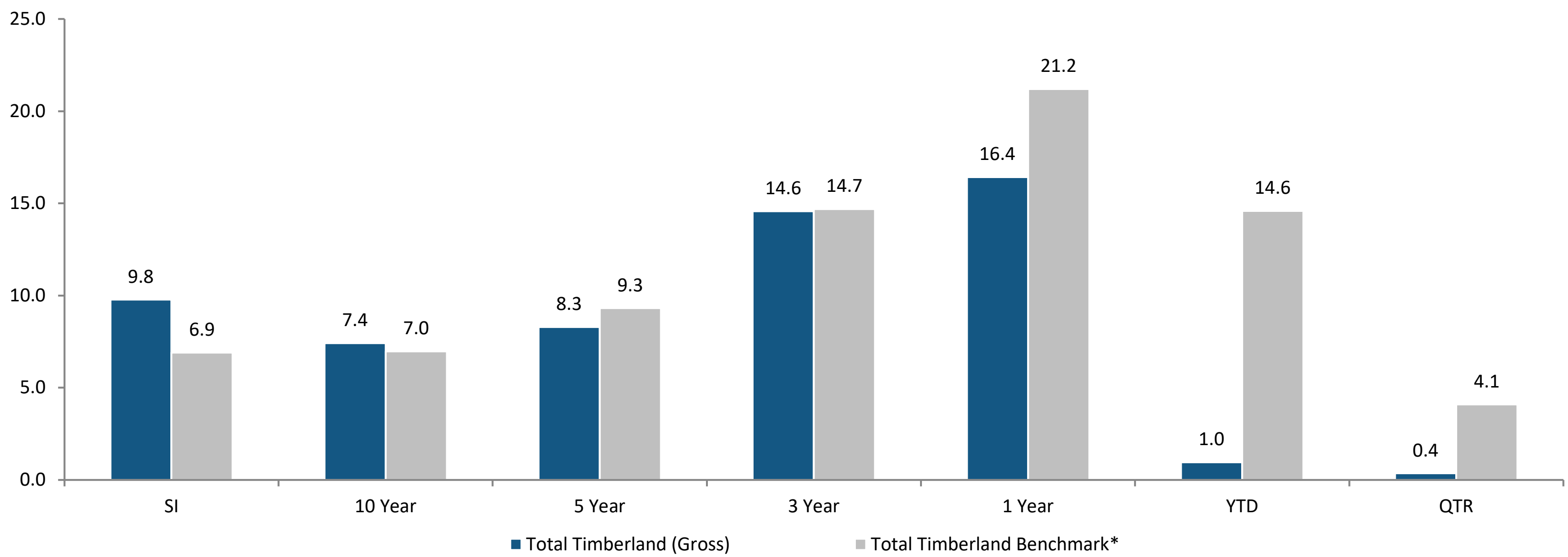
*Total Real Estate Benchmark combines the NFI-ODCE benchmark with the FTSE EPRA/NAREIT Global REITs Index benchmark. This blend begins starting on 01/01/2024. The FTSE EPRA/NAREIT Global REITs Index performance data is based on a quarter-lagged calculation of time-weighted returns.

HIERS Timber Performance Summary

As of 6/30/2024

Returns (%)	Inception				10 Year				5 Year				3 Year				1 Year				YTD				Quarter			
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET
Timber																												
Total Timberland	1.1	8.6	9.8	8.9	1.8	5.5	7.4	6.5	2.1	6.0	8.3	7.4	2.8	11.5	14.6	13.6	1.9	14.3	16.4	15.5	1.0	0.0	1.0	0.5	0.4	0.0	0.4	0.1
Total Timberland Benchmark*			6.9				7.0				9.3				14.7				21.2				14.6				4.1	

Inception Date 9/1/1999



- The table shows the time-weighted returns for HIERS' Timberland.
- The portfolio is underperforming the blended benchmark on a gross of fee basis over most periods due in large part to public market volatility.
- The timber portfolio has generated an 8.4% net IRR and 3.1x net equity multiple since inception.

The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.

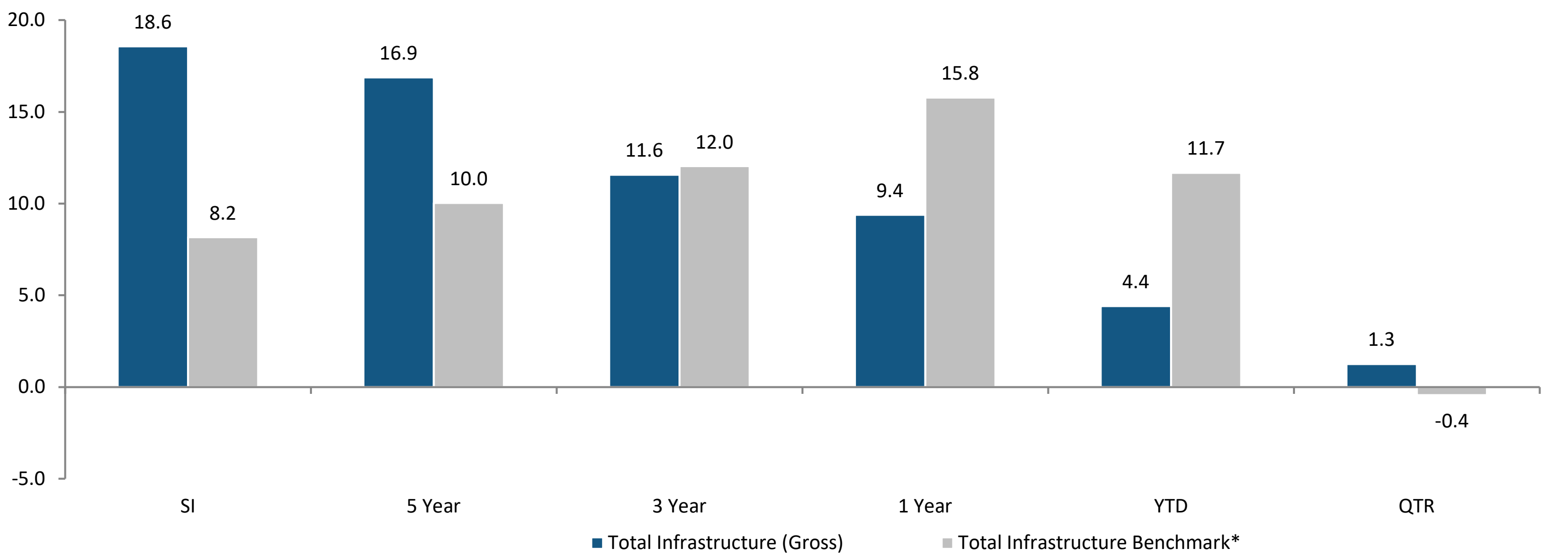
*Total Timberland Benchmark combines the NCREIF Timberland Property Index benchmark with the S&P Global Timber & Forestry Index benchmark. This blend begins starting on 01/01/2024. Additionally, the performance data for the index is based on a quarter-lagged calculation of time-weighted returns.

HIERS Infrastructure Performance Summary

As of 6/30/2024

Returns (%)	Inception				5 Year				3 Year				1 Year				YTD				Quarter			
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET
Infrastructure																								
Total Infrastructure	4.4	13.3	18.6	13.9	8.7	7.1	16.9	13.9	4.9	6.3	11.6	9.2	3.1	6.1	9.4	7.7	0.4	4.0	4.4	3.6	0.2	1.1	1.3	1.0
Total Infrastructure Benchmark*			8.2				10.0				12.0				15.8				11.7				-0.4	

Inception Date 6/1/2015



- The table shows the time-weighted returns for HIERS' Infrastructure.
- The portfolio continues to outperform the benchmark over the longer-term periods.
- The infrastructure portfolio has generated a 10.6% net IRR and 1.1x net equity multiple since inception.

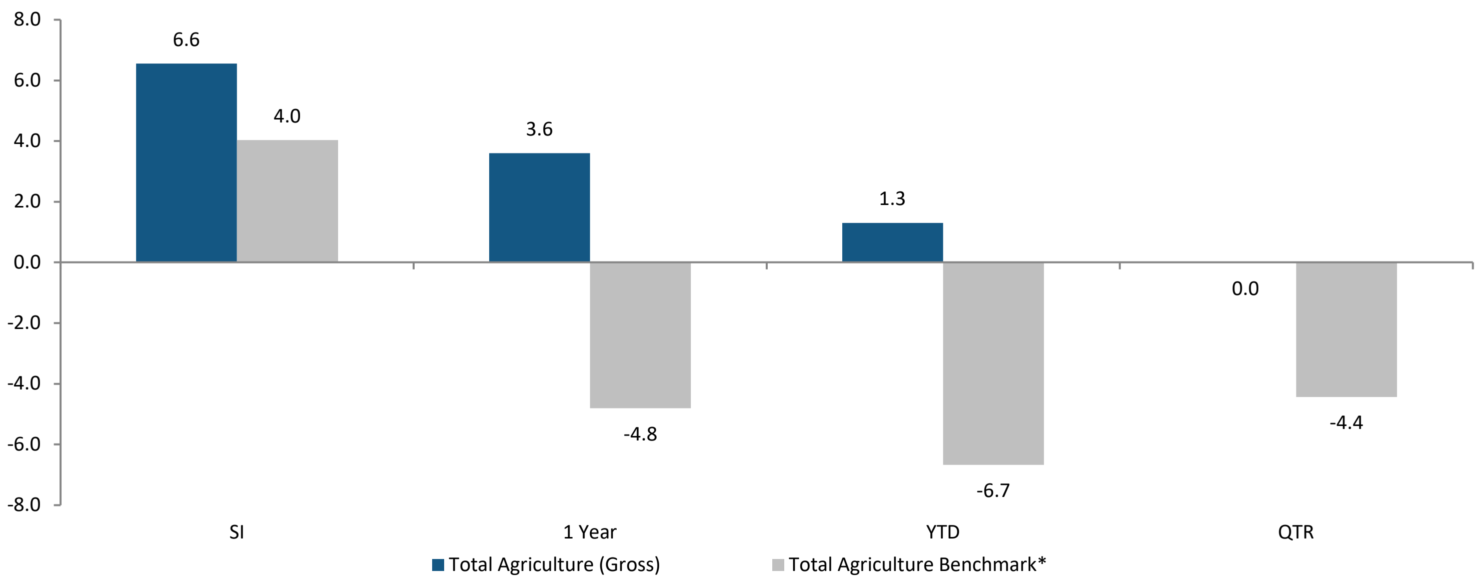
The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.
Data excludes Olomana.
*Total Infrastructure Benchmark combines the CPI +400 bps benchmark with the Dow Jones Brookfield Global Infrastructure Index benchmark. This blend begins starting on 01/01/2024. The Dow Jones Brookfield Global Infrastructure Index performance data is based on a quarter-lagged calculation of time-weighted returns.

HIERS Agriculture Performance Summary

As of 6/30/2024

Returns (%)	Inception				1 Year				YTD				Quarter			
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET
Agriculture																
Total Agriculture	2.5	4.0	6.6	5.3	1.6	2.0	3.6	2.2	0.7	0.6	1.3	0.6	0.2	-0.2	0.0	-0.3
Total Agriculture Benchmark*			4.0				-4.8				-6.7				-4.4	

Inception Date 10/01/2021



- The table shows the time-weighted returns for HIERS' Agriculture.
- Overall, the portfolio has outperformed the blended benchmark over all observable periods.
- The Agriculture portfolio has generated a 2.9% net IRR and 1.0x net equity multiple since inception.

The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.

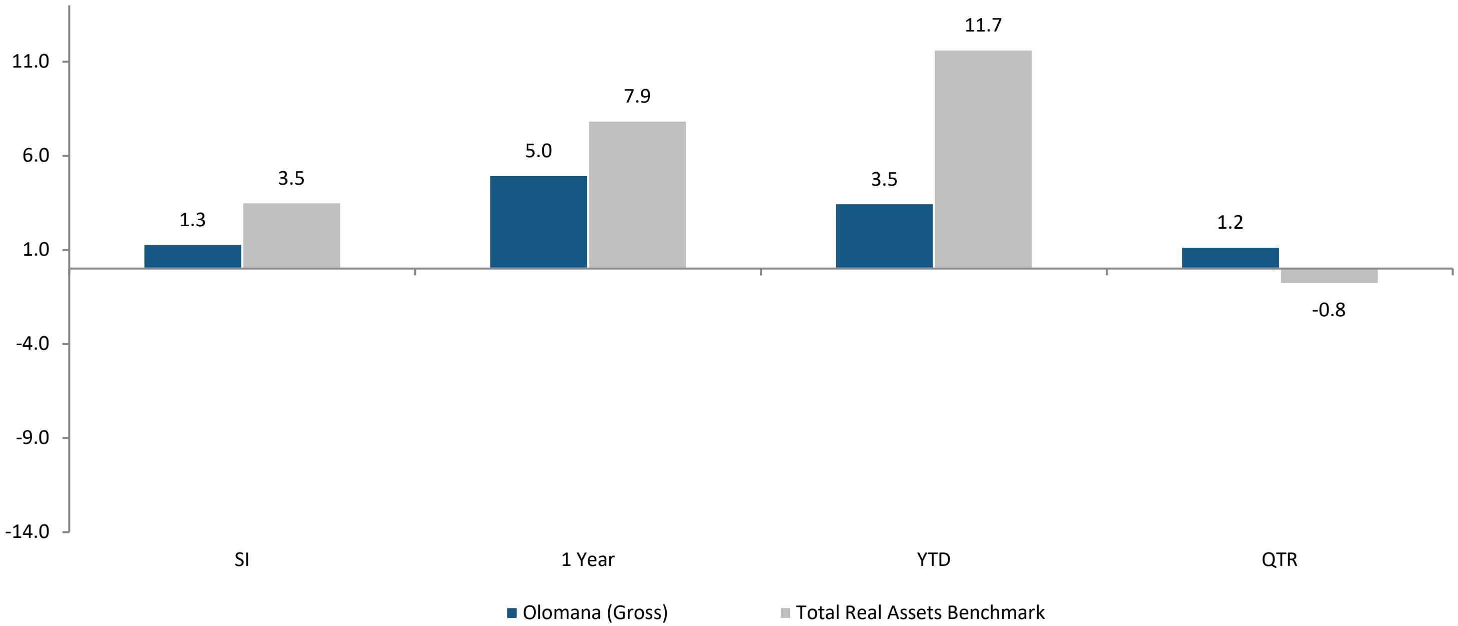
*Total Agriculture Benchmark combines the NCREIF Farmland Property Index benchmark with the S&P GSCI Agriculture Index benchmark. This blend begins starting on 01/01/2024. The S&P GSCI Agriculture Index performance data is based on a quarter-lagged calculation of time-weighted returns.

HIERS Olomana Performance Summary

As of 6/30/2024

Returns (%)	Inception				1 Year				YTD				Quarter			
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET
Olomana																
Total Olomana	0.0	1.3	1.3	1.0	0.0	5.0	5.0	4.7	0.0	3.5	3.5	3.4	0.0	1.2	1.2	1.1
Olomana: Aggregate Benchmark*			-2.4				2.3				2.2				0.9	
Total Real Assets Benchmark			3.5				7.9				11.7				-0.8	

Inception Date 04/01/2022



- The table shows the time-weighted returns for HIERS' Olomana portfolio.
- The Olomana portfolio has generated a 1.0% net IRR and 1.0x net equity multiple since inception.

The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.
*Olomana Aggregate Benchmark (as of 6/30/24) is used by Olomana Manager for reporting purposes. The components/weights are dynamic to match the evolution of actual Olomana construct. The Olomana Aggregate Benchmark consists of 13.7% (MSCI World Defensive), 6.8% (DJ Brookfield North America Infrastructure), 6.8% (FTSE EPRA/NAREIT Developed Real Estate), 27.4% (Bloomberg 1-5Y TIPS), 13.7% (Bloomberg Commodity), 22.2% (NCREIF Property Index), 4.0% (NCREIF Property Index), 5.4% (50% NCREIF Farmland / 50% NCREIF Timberland).

B. Market Overview

Global Economic Conditions

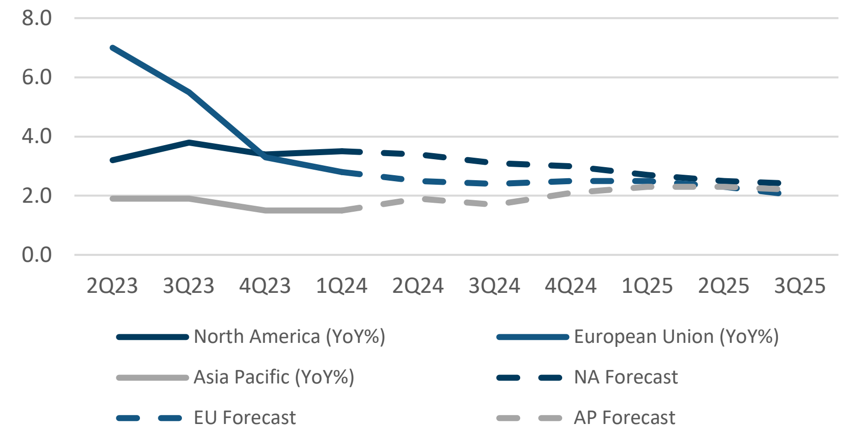
ECONOMIC GROWTH OUTLOOK REMAINS POSITIVE

Real GDP Forecasts (YoY%) – 6/13/2024

Major Regions	2023	2024	2025	2026
North America	2.5	2.3	1.8	2.0
European Union	0.5	1.0	1.7	1.8
Asia Pacific	4.3	4.3	4.1	3.9
Selected Markets	**2023**	**2024**	**2025**	**2026**
United States	2.5	2.4	1.8	2.0
United Kingdom	0.1	0.6	1.2	1.4
Germany	-0.2	0.2	1.2	1.3
China	5.2	4.9	4.5	4.2
Japan	1.9	0.4	1.1	0.9
Australia	2.0	1.3	2.2	2.5

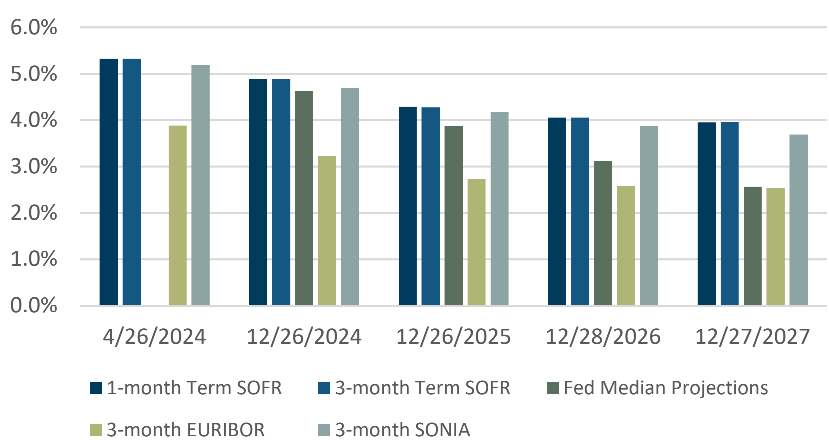
INFLATION IS PROJECTED TO STABILIZE

CPI Quarterly



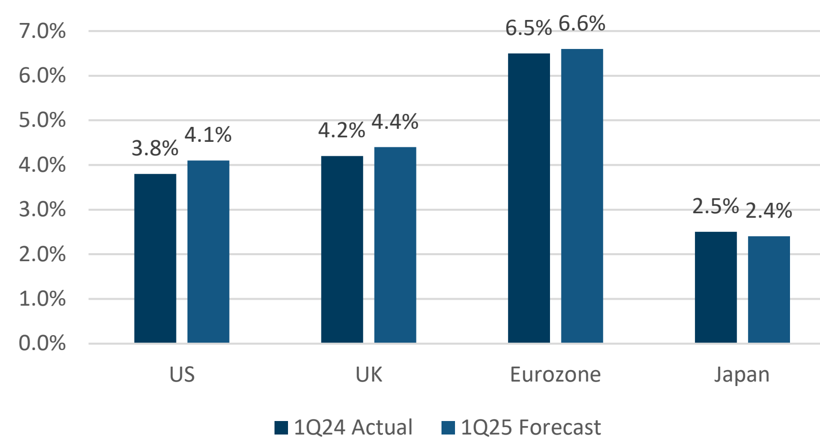
FORWARD CURVES INDICATING DECLINE IN RATES

Forward Curves



UNEMPLOYMENT RATES REMAIN LOW

Unemployment Rate (%)

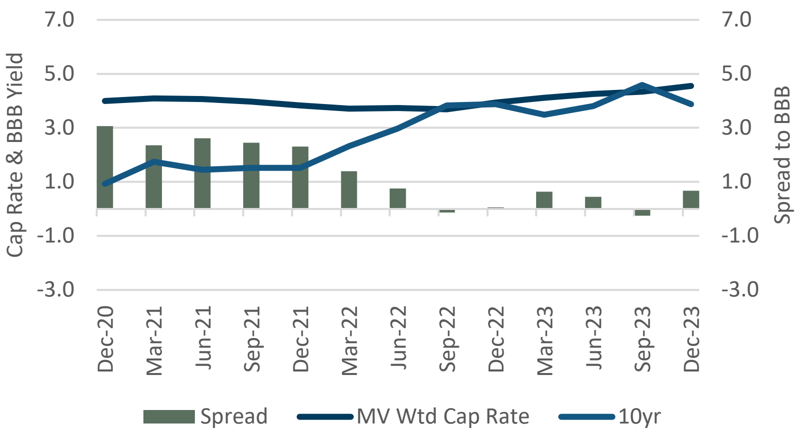


- Source: The Townsend Group, Bloomberg, Chatham Financial.
- Townsend's views are as of the date of this publication and may be changed or modified at any time and without notice. Past performance is not indicative of future results. Actual results and developments may differ materially from those expressed or implied herein.

US Real Estate Market Conditions

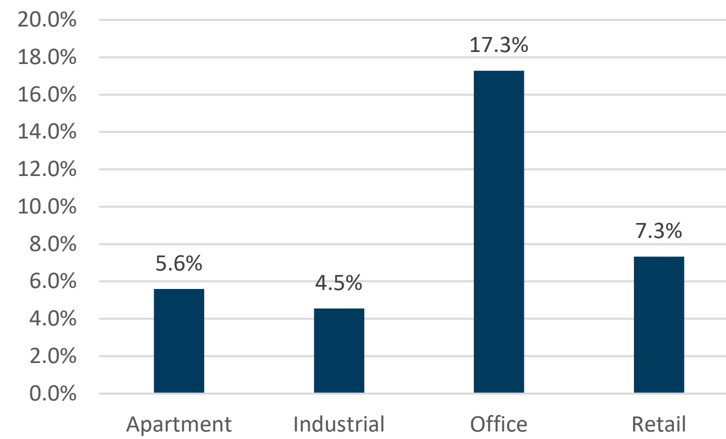
PRIVATE REAL ESTATE SPREADS COMPRESSING

NPI Current Value Cap Rate versus 10yr Treasury



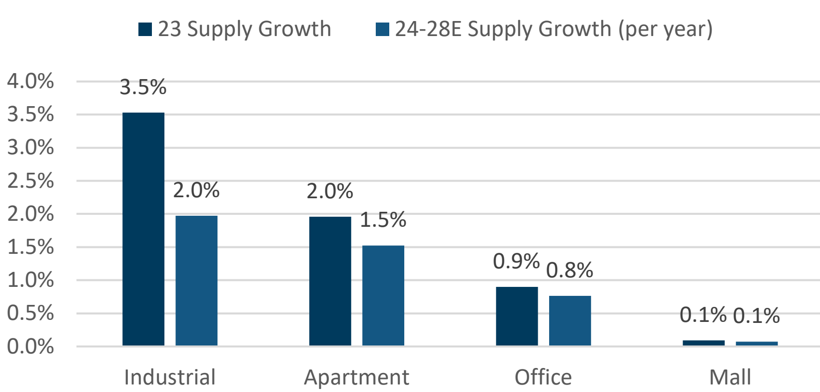
- But Vacancy rates remain low

Vacancy Rates by Property Sector



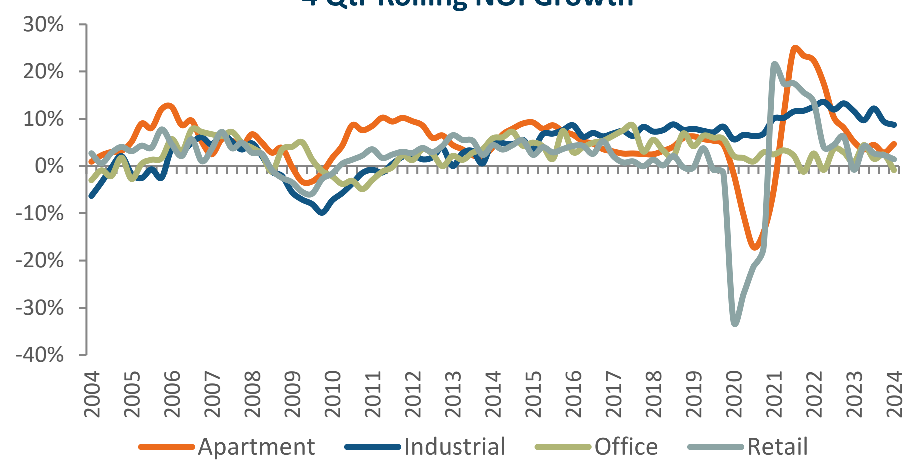
SUPPLY GROWTH CONTRACTING MEANINGFULLY

Annual Completions as % of Existing Stock



NCREIF NOI GROWTH

4 Qtr Rolling NOI Growth



- Source: The Townsend Group, MSCI Real Assets, NCREIF.
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United States Property Matrix (2Q24)

TOWNSEND® GROUP

INDUSTRIAL

- In 2Q24, industrial properties returned 0.20% and outperformed the NPI by 46 bps.
- Transaction volumes increased to $21 billion in the second quarter of the year, resulting in a 12% decrease year-over-year. Individual asset sales decreased 12% year-over-year, while portfolio purchases turned in a year-over-year volume decrease of 30%. At $21 billion, the industrial sector decreased by $3.6 billion quarter-over-quarter.
- The industrial sector turned in NOI growth of 8.7% over the past year. NOI continues to reach all time highs for the sector.
- Vacancy increased by 110 bps year-over-year to 2.9%. Vacancy in the sector increased 31 bps from the prior quarter. E-commerce continues to drive demand across the sector.
- Industrial cap rates expanded approximately 27 bps from a year ago, to 4.2%. Industrial overall fundamentals still top all property sectors.

MULTIFAMILY

- The apartment sector delivered a 0.15% return during the quarter, outperforming the NPI by 41 bps.
- Transaction volume in the second quarter of 2024 increased to $40 billion, resulting in an increase of 25% year-over-year. Transaction volume for the sector increased from the first quarter by $19 billion. This volume continues to make multifamily the most actively traded sector for the twenty-fifth straight quarter.
- Cap rates increased to 4.4% quarter-over-quarter, increasing 42 bps year-over-year. Multifamily cap rates remain at low levels relative to prior years, driven by continued investor demand.
- The multifamily sector saw increasing vacancy rates throughout the entirety of 2020 due to the global pandemic. Throughout 2021 and 2022, the sector appeared to have shaken that trend although vacancy rates remained steady. Vacancy rates decreased quarter over quarter to 6.0% as of the second quarter of 2024. The aging millennials have begun shifting their desires to suburban living, but continued home price appreciation has deterred the full effect of this migratory trend.

OFFICE

- The office sector returned -2.36% in 2Q24, 210 bps below the NPI return over the period.
- Transaction volumes decreased by 15% year-over-year in the second quarter. Transaction volume equated to $12 billion for the quarter, slightly decreasing quarter-over-quarter. Office transaction levels have regressed since 4Q21 and are at levels seen during the COVID-19 pandemic.
- Office sector vacancy rates have expanded since the beginning of the pandemic due to a shift to work-from-home and resulting uncertainty revolving around the future of office space. Office continues to be the highest vacancy property type at 14.8%, increasing by 50 bps from last quarter.
- NOI growth in the office sector decreased quarter-over-quarter by 370 bps to -1.4% and is still experiencing volatility given the current market environment.
- Office cap rates expanded from a year ago, sitting at approximately 6.2%. Office-using job growth was stunted significantly throughout 2020 due to work-from-home orders. Though we are observing a slow but steady flow back to in-office work, there is still uncertainty in the sector.

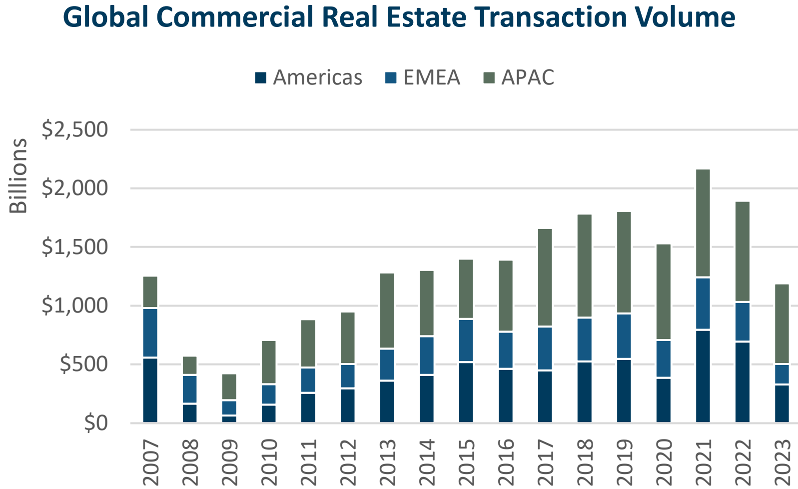
RETAIL

- As of 2Q24, the retail sector delivered a quarterly return of 0.89%, outperforming 115 bps compared to the NPI.
- Transaction volumes totaled $11 billion in the second quarter, decreasing 1% year-over-year. Single asset transactions accounted for just over 87% of all sales volume for the quarter.
- Cap rates have remained fairly steady within the sector over the last year but have slightly increased as of the second quarter at 5.6%. Current valuation cap rates slightly expanded quarter-over-quarter by 1 bps due to valuation adjustments made across the sector in general.
- NOI growth decreased from the prior quarter to -3.4% as of the second quarter. Retail has begun its slow recovery but has continued to experience volatility due to the current market environment.
- Retail vacancy rates remained steady over the quarter at 7.6%, remaining flat over the past year. Many big box stores have closed as the need for retail space shrinks, translating to a negative outlook for rent growth. Paired with the global economic crisis, which has had a significant negative impact on this sector.

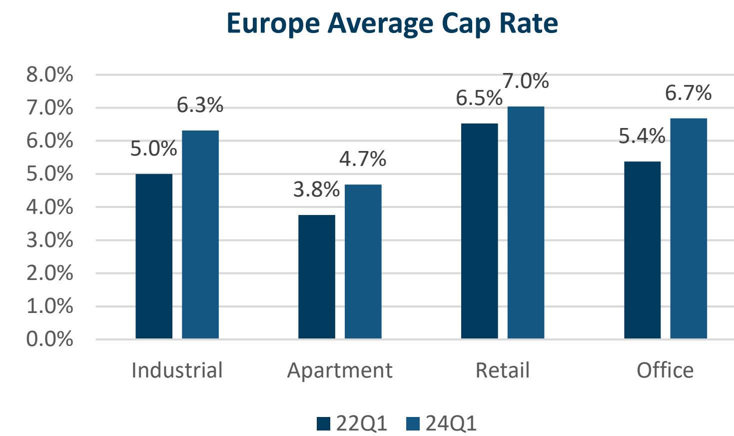
Sources: Real Capital Analytics, Green Street, NCREIF

Global Real Estate Market Conditions

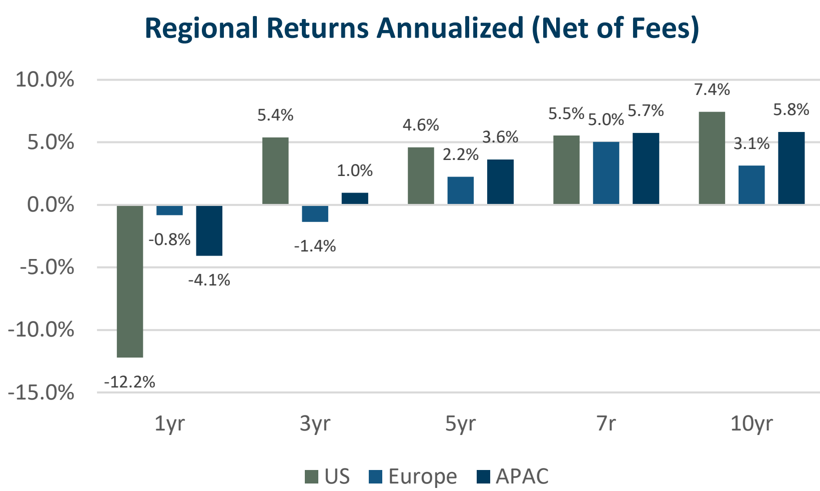
TRANSACTION VOLUME DOWN BUT SIGNS OF PICKUP



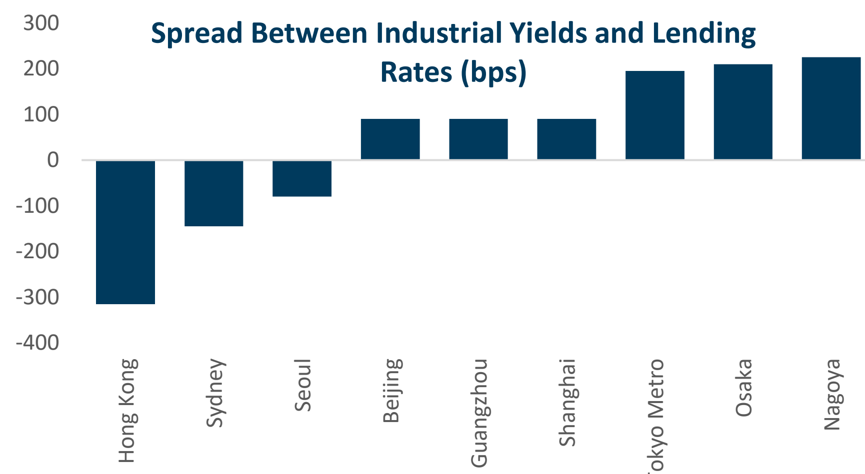
VALUATIONS HAVE RESET CONSIDERABLY FROM ‘22 LOWS



REAL ESTATE RETURNS DECLINED GLOBALLY IN 2023



INDUSTRIAL SPREADS POSITIVE IN JAPAN; NEGATIVE IN AUSTRALIA



- Source: The Townsend Group, NCREIF, MSCI Real Assets, St. Louis Fed, CBRE (June 2024), DWS (June 2024), Dexus Research (June 2024).
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Infrastructure – Second Quarter 2024 Market Update

General

- In 2Q 2024, Infrastructure managers completed 431 deals for an aggregate deal value of $65.4 billion compared to 563 deals totaling $92.3 billion in 2Q 2023. Europe and North America led the industry in the location of deal volume, accounting for 40.1% and 29.0% of total deals, respectively, followed by APAC which accounted for 15.8% of total deals completed in 2Q.

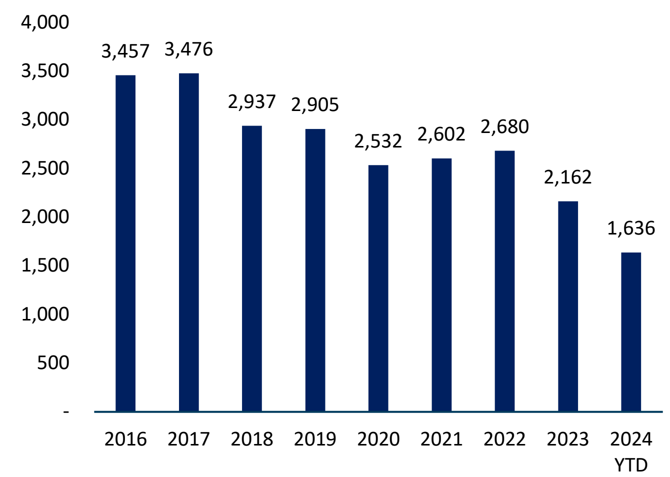
Opportunity

- Mid-market core+ and value-add infrastructure as well as a platform investing approach continue to offer the best relative value.
- Assess funds with pre-specified assets with caution due to possible lag in and uncertainty around valuation impact.
- Blind-pool funds may be better positioned to take advantage of the market dislocation in certain sub-sectors, however careful review of such strategies is required.
- Build-to-core greenfield strategies particularly in the social / PPP infrastructure space offer a premium for investors willing to take on construction / development risk.

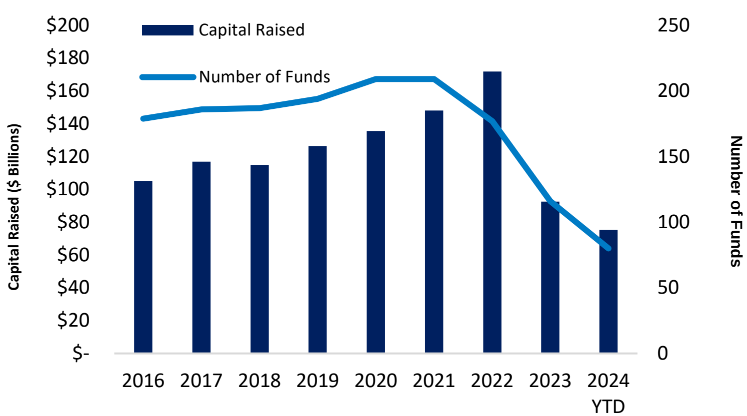
Fundraising

- $75.3 billion of capital was raised by 80 funds year-to date compared to $171.8 billion of capital raised by 116 funds in 2023. 2024 is expected to realize a five-year low in overall funds raised. Infrastructure funds are staying in market longer. Funds in market are reporting the longest timelines to conclude fundraising in the past two decades, averaging 2.3 years to reach final close.
  - European Diversified Infrastructure Fund III was the largest fund raised during 2Q 2024, closing on $4.4 billion.
- To date, there are an estimated 649 funds in the market seeking roughly $561.6 billion.
  - The largest funds in market, Global Infrastructure Partners V and ALTÉRRA Acceleration, each had target fund sizes of $25.0 billion.
  - The ten largest funds are each seeking $10.0 billion or more of LP commitments.
- Continuing concerns surrounding the relative availability and pricing of assets remain. Despite fundraising slowdowns, fundraising remains competitive given the number of funds and aggregate target level of funds in market. Investor appetite for the asset class remains strong despite the high levels of dry powder and increased investment activity from strategic and corporate buyers as well as institutional investors.

Number of Infrastructure Deals Completed



Global Infrastructure Fundraising



TOWNSEND® GROUP

FARMLAND MARKETS

- Agricultural markets remained pressured during the quarter, as value write-downs continued within permanent crops, most notably in the tree nut complex, and row crops continued to moderate off recent outperformance. Farm incomes remain above long-term averages but have softened significantly, as elevated production levels, U.S. dollar strength, and reduced export volumes will continue to pressure markets throughout 2024/25. Tight credit conditions and elevated interest rates are also adding to the challenges, particularly for permanent crop valuations and operating margins.
- Row crop prices generally trended sideways during 2Q24, reflecting stable but softer market conditions, while farmer margins remain under pressure from reduced commodity prices, though declines in input costs for fuel and fertilizer have helped stabilize profitability, with fertilizer prices declining 17% YoY.
- Many permanent crops remain challenged from ongoing weakness, high water risks, and discounted valuatior appraisers. The tree nut segment, particularly almonds pistachios, continues to be hit hardest.
- Farmland values in the U.S. remained firm but have starte moderate due to tighter credit conditions and incre borrowing costs. Farm real estate values increased by 4.7% y over-year, though growth has slowed considerably compare the rapid pace of the past two years. Despite market headw cropland cash rents rose slightly offering some stabilit landowners despite softening markets.

FIG 1: **Major Global Crop Prices Quarterly % Change**

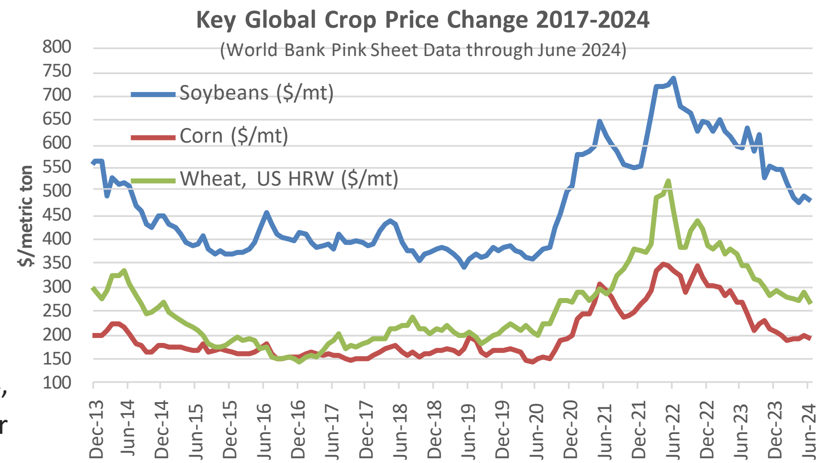
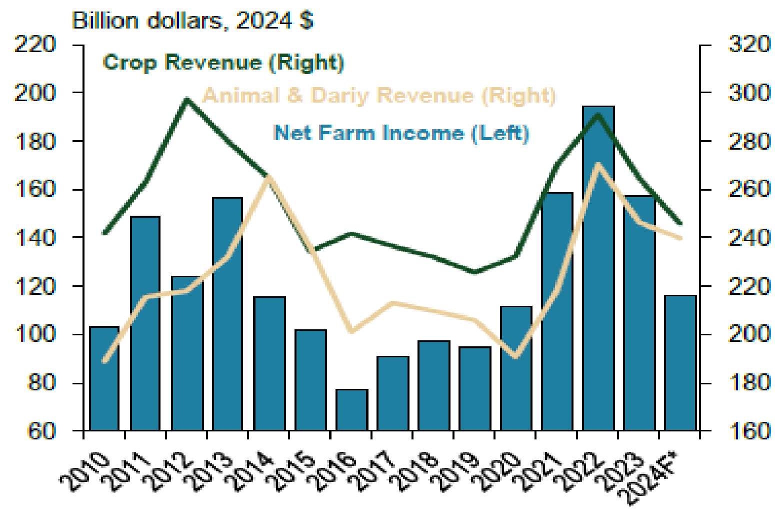


FIG 2: **U.S. Farm Income and Revenue**

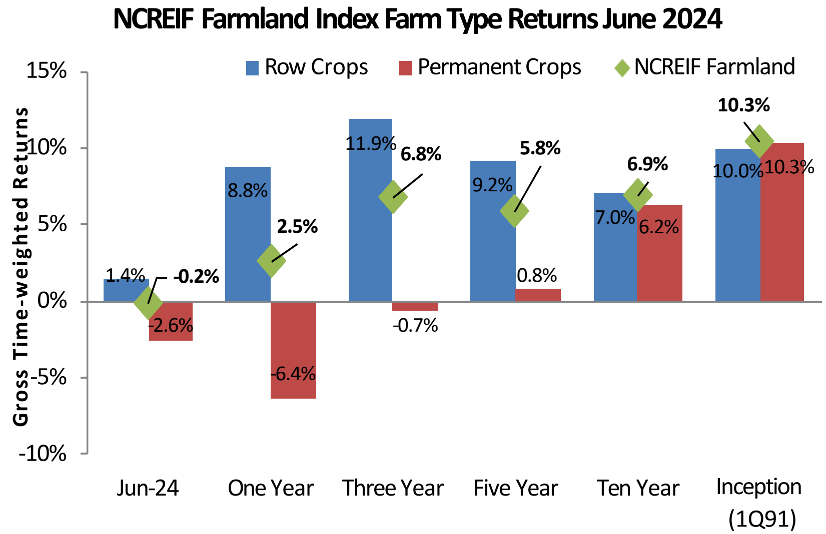


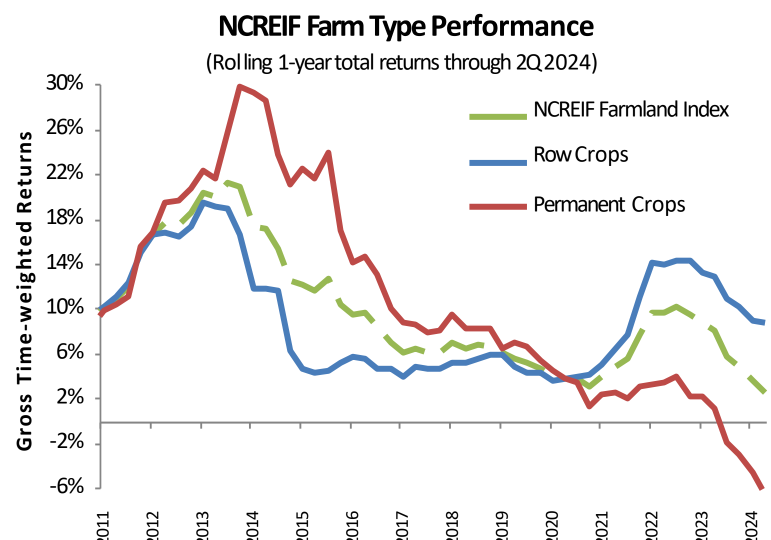
Sources by Figure: (1) World Bank Pink Sheet Monthly Data – March 2024; Figure (2) Federal Reserve Bank of Kansas City Ag Bulletin; USDA

Farmland – Second Quarter 2024 Performance Update

FARMLAND INDEX COMMENTARY 2Q24

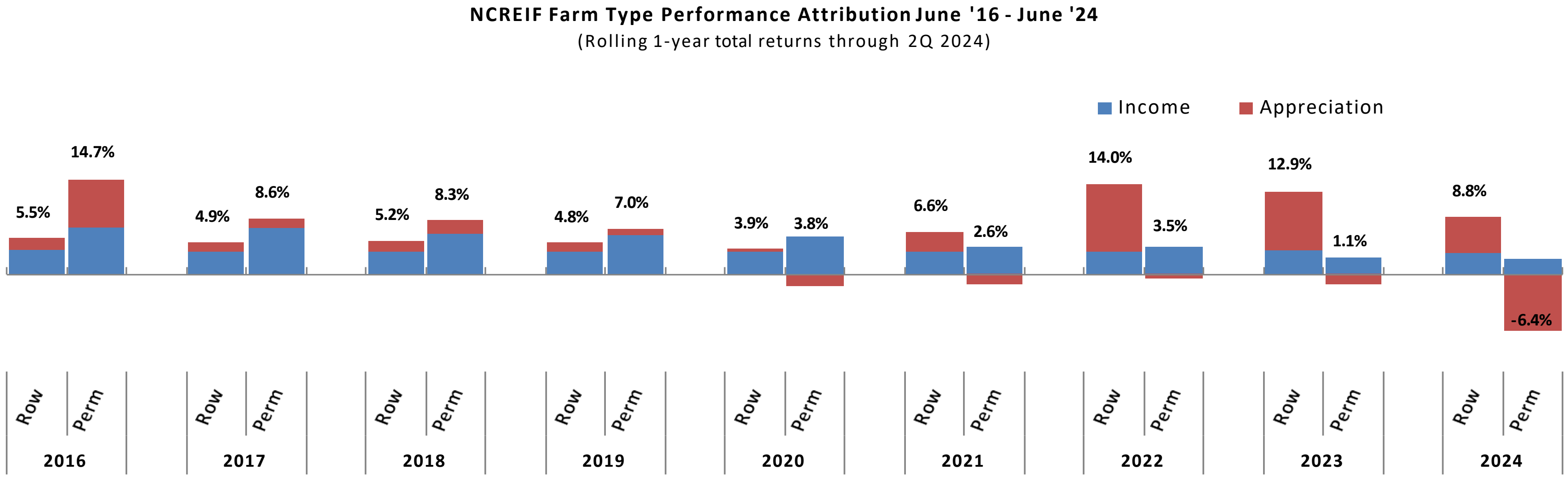
- The NCREIF Farmland Index ("NFI") reported a slightly negative return of -0.21% in Q2 2024, reflecting a notable shift from the 0.7% gain last quarter. This quarter's performance is largely attributed to the ongoing divergence between row crops and permanent crop returns.
- The total return was composed of 0.5% income and -0.7% depreciation. Over the trailing 12 months (TTM), the NFI posted a 2.54% total return, composed of 2.89% income and -0.33% depreciation. The results illustrate that row crops have remained a stabilizing factor, while permanent crops continue to experience negative returns due to challenging market conditions in tree nuts.
- Row crops returned 1.5%, split evenly at 0.7% of appreciation and 0.7% of income during the quarter. Permanent crop performance was negative for the fifth consecutive quarter returning -2.6% comprised of -2.7% appreciation and 0.1% income.
- Over the TTM, Row crops returned 8.8% while permanent crops posted a -6.4% return, marking the new lowest return (over last quarter's TTM period) over any 12-month period as both almonds and pistachios continuing to experience write-downs as pricing in the tree nut segment has been under pressure due to a period of oversupply initially driven by COVID-19 supply-chain disruptions and has led to multiple bankruptcies within the nut sector.
- Australian farmland has faced similar pressure as the ANREV Australian Farmland Index ("AFI") has hit its lowest point on an annualized basis, returning -1.7% through 2Q24. Similar to the U.S., the sharp divide between row and permanent crops remained as row crops generated 5.3% over the TTM period, while permanent crops generated a -9.5% return.

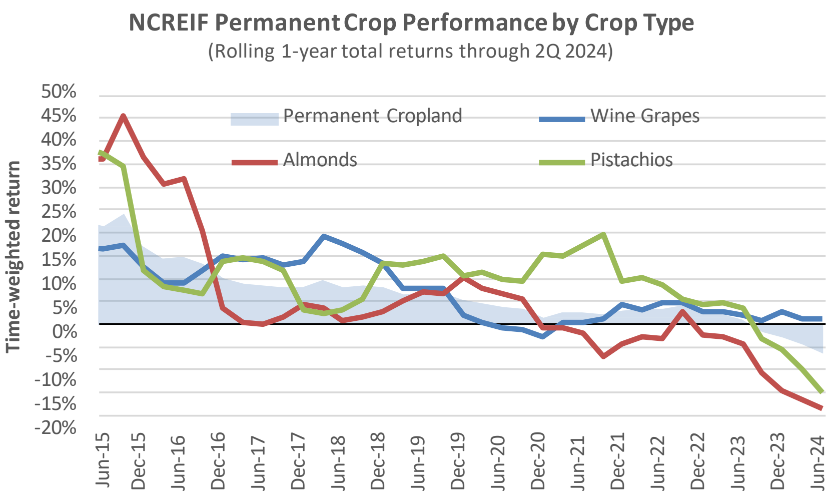


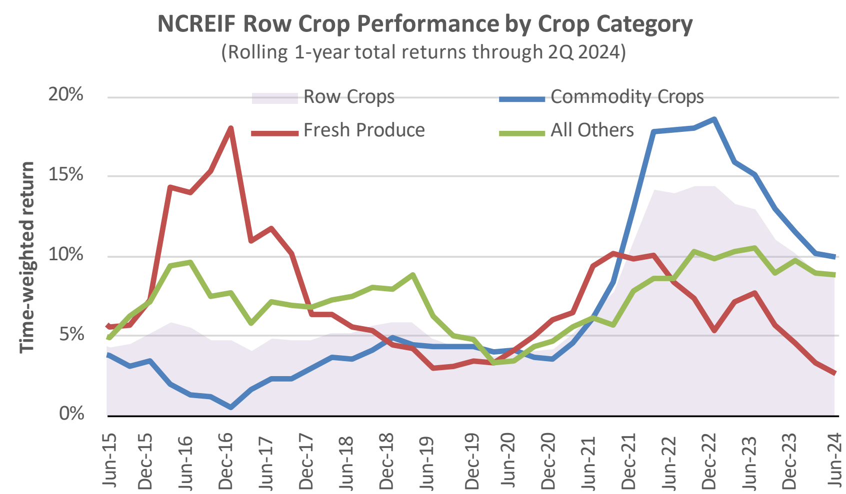


Farmland – Second Quarter 2024 Performance Update

NCREIF FARMLAND INDEX 2Q24



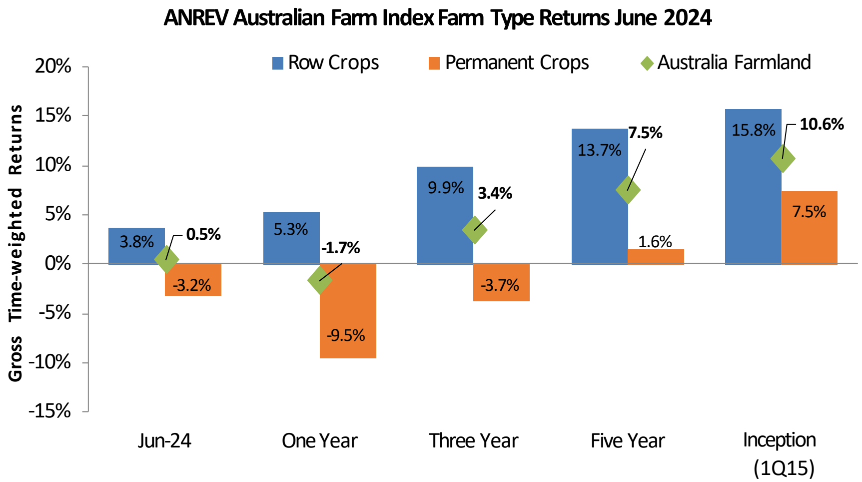


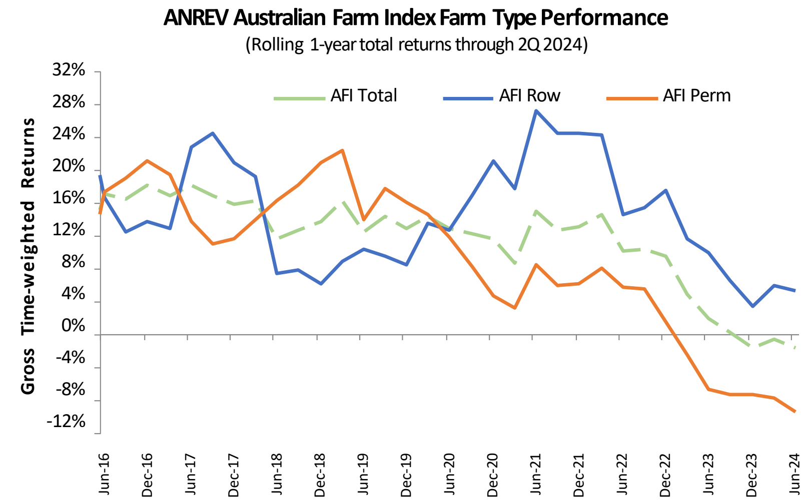


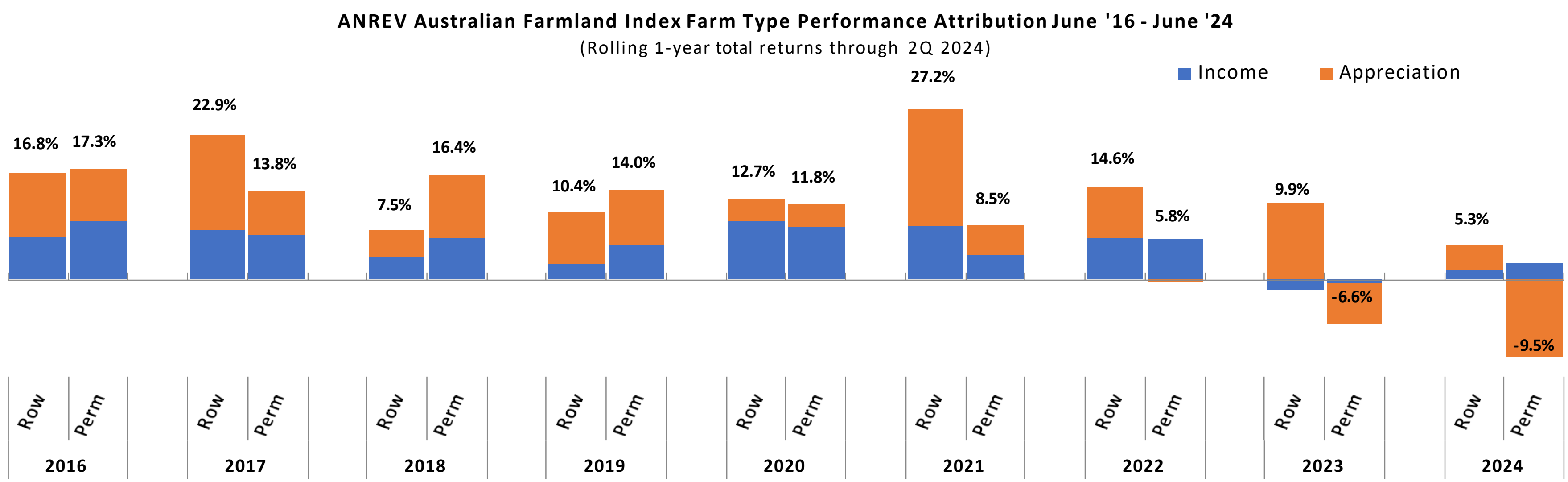
Source: NCREIF; Permanent Crop Types included in chart above (bottom left) account for approximately 70% of the NFI by market value as of March 31, 2024.

Farmland – Second Quarter 2024 Performance Update

ANREV AUSTRALIAN FARMLAND INDEX 2Q24







Source: ANREV

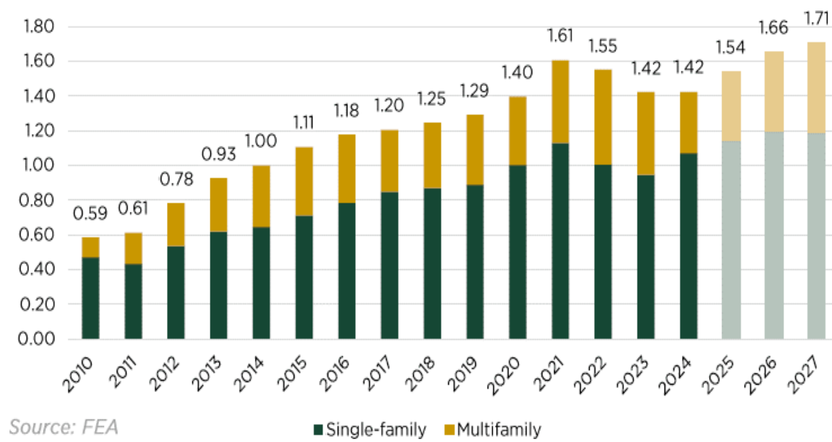
Timberland – Second Quarter 2024 Market Update

TOWNSEND® GROUP

TIMBERLAND MARKETS

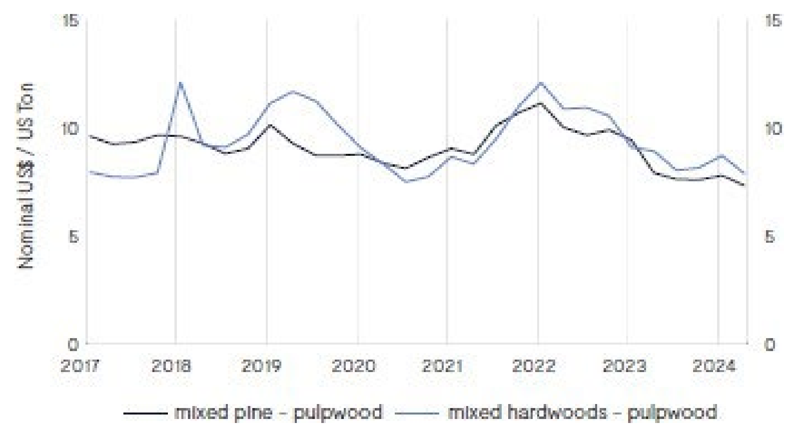
- Timberland markets relatively stable in 2Q24, although China's weak property sector continues to weigh on global lumber and log markets, despite slight improvements in market activity. The growing focus on natural capital investments and ESG-related opportunities continues to attract investor interest, with timberland serving as a key asset for carbon sequestration and biodiversity enhancement.
- U.S. housing starts remained stable above the 1.3 million mark, driven by pent-up demographic demand and an aging U.S. housing stock. However, starts declined by 4% YoY, reflecting some economic uncertainty and higher borrowing costs.
- In the U.S. south, stumpage prices softened, driven by improved logging conditions increasing supply. Sawtimber prices declined by 8.3%, while pulpwood prices declined 14.2%, reflecting lower short-term demand and operational shifts at pulp mills. In the Northwest, Douglas-fir prices decreased slightly, but remain competitive due to steady export demand from Japan. However, whitewoods saw a 7.0% decline as demand from China and other Pacific Rim countries remained weak.
- New Zealand softwood log prices began stabilizing after earlier declines driven by China's economic slowdown. Log inventories in China remained high but have started to contract, suggesting potential price support for export markets later in the year.
- Brazil's timber markets exhibited mixed but stable conditions with pulp markets elevated, driven by steady demand for paperboard and packaging materials.

FIGURE 1: U.S. Housing Starts, SAAR (millions)



Source: FEA

FIGURE 2: U.S. South Mixed Hardwood/Softwood Pulpwood Prices



Sources by Figure: (1) FEA; RMS (2) TimberMart South, as of June 2024

Timberland – Second Quarter 2024 Performance Update

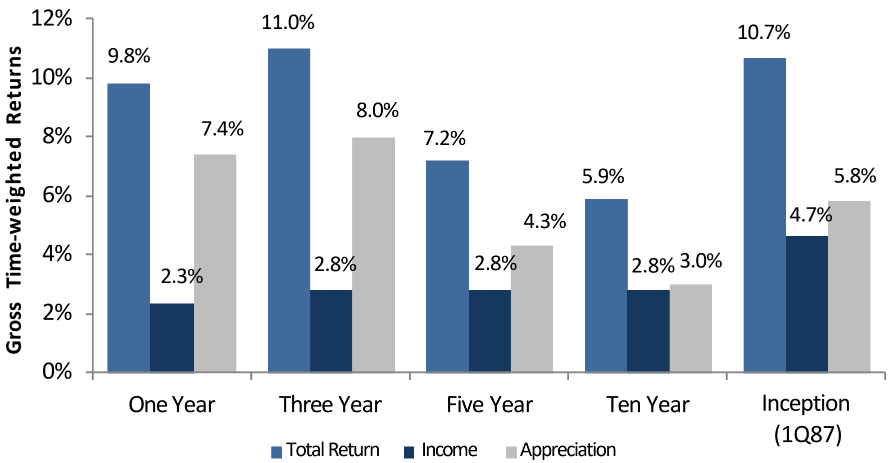
TOWNSEND® GROUP

TIMBERLAND INDEX COMMENTARY 2Q24

- The NTI returned 1.7% for the quarter, slightly down from last quarter's 2.1% and the same return from last year's 1Q return; performance was comprised of 0.5% income and 1.2% appreciation.
- The NTI's trailing twelve-month ("TTM") return of 9.8% consisted of appreciation of 7.4% and income of 2.3% - and was unchanged over last quarter's TTM of 9.8% but below last year's same TTM period return of 11.1% as the market continues to moderate off recent performance highs not reached in over ten years.
- Returns for the quarter were positive across all regions except the Northeast as hardwood markets remained pressured by persistent softness in export demand. The U.S. South and Northwest, the largest regions, had quarterly returns of 1.9% and 1.7%, respectively, down from last quarter's returns, respectively, of 2.1% and 2.7%. The South's return was comprised of 0.5% income and 1.5% appreciation, while the Northwest consisted of a 0.5% income return and 1.2% appreciation.
- Market values (per acre) were up a slight 1.1% over last quarter, at $2,186/ac; all regions except the Northeast increased in value on a per acre basis. Discount rates, which have declined over the last few quarters, have appeared to stabilize keeping values relatively flat during the quarter.

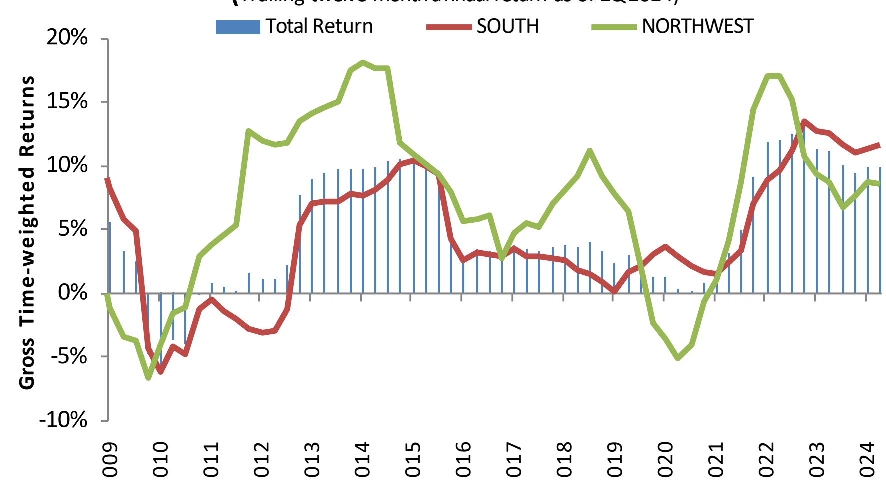
NCREIF Timberlndex Total Returns

(Gross time-weighted returns as of 2Q 2024)



Total Returns by Major Region

(Trailing twelve-month annual return as of 2Q 2024)



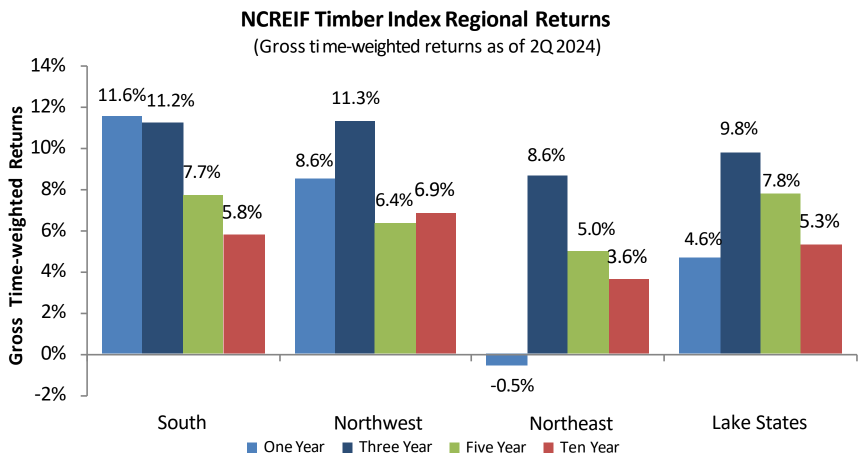
Second Quarter 2024

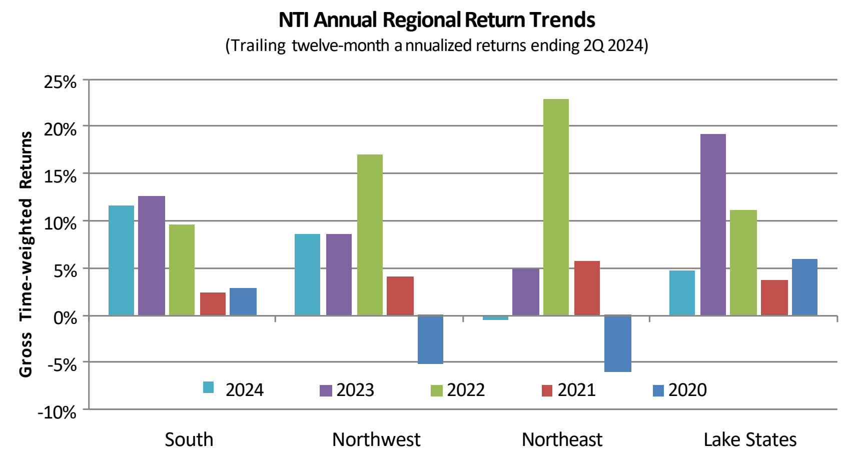
Sources: NCREIF

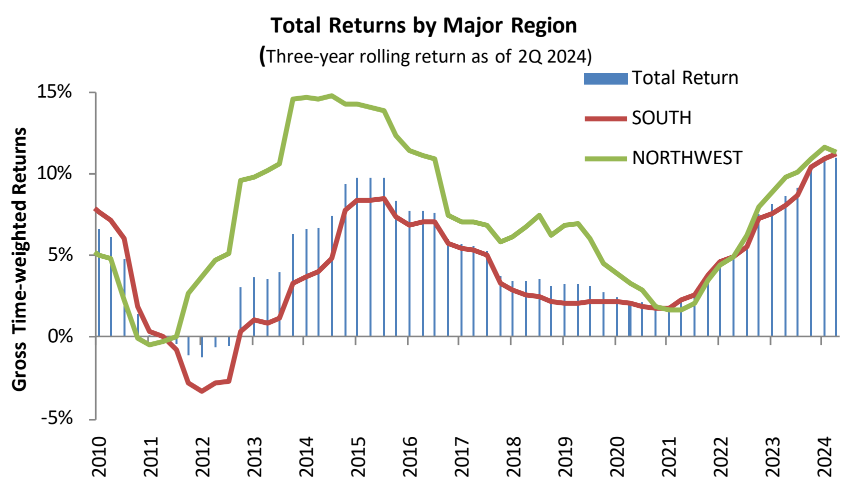
Timberland – Second Quarter 2024 Performance Update

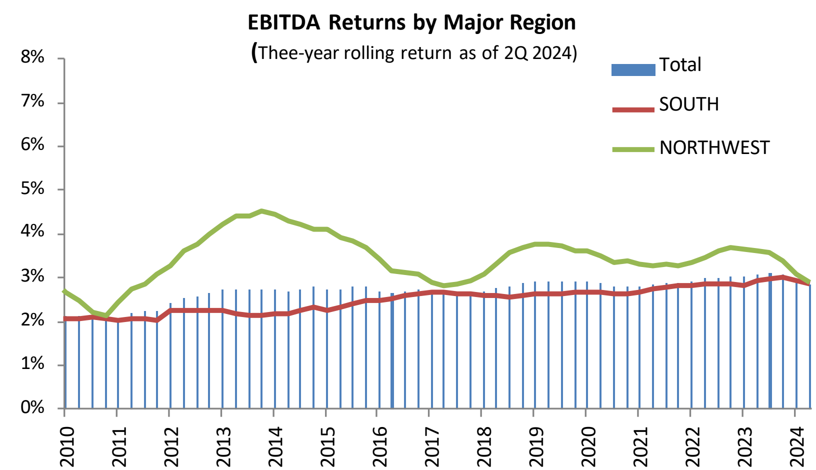
TOWNSEND® GROUP

NCREIF TIMBERLAND INDEX 2Q24









Sources: NCREIF

C. Real Estate Portfolio

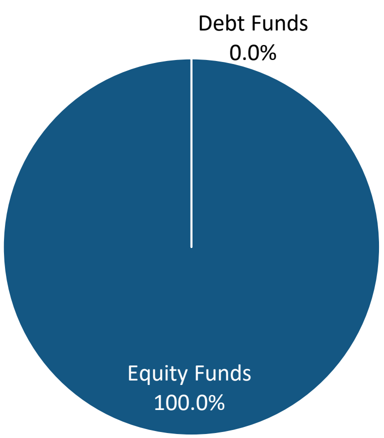
Real Estate Portfolio Funding Status and Composition

Portfolio Overview As of June 30, 2024 ($ in Millions)	
Number of Investments	65
Active Investments	50
Liquidated Investments	15
Number of Active GP Relationships	22
Total Commitments	3,829.7
Unfunded Commitments	747.9
Total Paid-In Capital	4,093.7
Total Distributions	3,595.9
Net Asset Value	1,985.9
Gross Asset Value	3,704.2
Total Exposure	2,733.7
DPI	0.9x
TVPI	1.4x
Since Inception IRR	7.6%

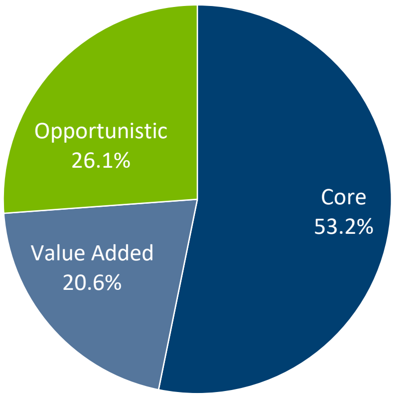
Portfolio Composition To Targets
As of June 30, 2024

	Target	Unfunded Commitments + Funded (NAV)	Funded (NAV)
Core	N/A	4.7	4.5
Non-Core	N/A	6.9	3.9
Total Real Estate	9.0	11.6	8.4
Max Leverage	50.0	N/A	46.4

Structure Diversification
(As of June 30, 2024)



Style Diversification by Net Asset Value
(As of June 30, 2024)



The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.

Core Real Estate Portfolio Funding Status & Returns

As of 6/30/2024

Funding Status ($)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)	LTV (%)
Core									
Core	**1993**	**970,000,000**	**1,517,501,638**	**44,531,571**	**1,063,533,928**	**1,056,620,776**	**53.2**	**40.3**	**31.1**

Returns (%)	Quarter				1 Year				3 Year				5 Year				10 Year				Inception		TWR Calculation Inception	Net IRR	DPI	Equity Multiple
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	TGRS	TNET				
Core																										
Core	**1.1**	**-4.0**	**-2.8**	**-1.7**	**4.7**	**-10.0**	**-5.7**	**-4.9**	**5.0**	**1.0**	**6.0**	**5.5**	**5.3**	**2.5**	**7.9**	**7.3**	**5.4**	**3.8**	**9.4**	**8.6**	**6.7**	**5.9**	**4Q93**	**7.3**	**0.7**	**1.4**
Total Real Estate Benchmark*			-1.5				6.3				7.4				6.5				8.1							
FTSE EPRA/NAREIT Global REITs Index**			-1.5				7.4				0.9				1.4				4.5							
NFI-ODCE Index	1.0	-1.5	-0.4	-0.7	3.9	-12.8	-9.3	-10.0	3.7	-1.8	1.9	1.0	3.8	-0.6	3.2	2.3	4.1	2.2	6.4	5.5	8.0	7.0	4Q93			

Notes
Traditional performance measurement time weighted returns are depicted for the core portfolio as core real estate portfolios use of time weighted returns is a commonly accepted practice.

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*Total Real Estate Benchmark combines the NFI-ODCE Index with the FTSE EPRA/NAREIT Global REITs Index. This blend begins starting on 01/01/2024. The FTSE EPRA/NAREIT Global REITs Index performance data is based on a quarter-lagged calculation of time-weighted returns.
**The FTSE EPRA/NAREIT Global REITs Index performance data is based on a quarter-lagged calculation of time-weighted returns.

Non-Core Real Estate Portfolio Funding Status

TOWNSEND® GROUP

As of 6/30/2024

Funding Status ($)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)	LTV (%)
Value Added	**2007**	**880,000,000**	**638,368,626**	**286,531,230**	**321,980,252**	**409,960,619**	**20.6**	**25.5**	**56.9**
Opportunistic	**2010**	**1,045,466,821**	**706,461,700**	**416,808,389**	**387,998,013**	**519,291,657**	**26.1**	**34.2**	**57.5**
Non-Core	**2007**	**1,925,466,821**	**1,344,830,326**	**703,339,619**	**709,978,265**	**929,252,276**	**46.8**	**59.7**	**57.2**

Returns (%)	Quarter				1 Year				3 Year				5 Year				Inception		TWR Calculation	Net IRR	DPI	Equity Multiple
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	TGRS	TNET	Inception			
Value Added	**0.0**	**-1.9**	**-1.8**	**-2.2**	**-0.1**	**-8.5**	**-8.6**	**-9.9**	**2.9**	**0.4**	**3.1**	**1.0**	**3.8**	**0.9**	**4.7**	**2.4**	**9.7**	**6.8**	**4Q07**	**7.9**	**0.5**	**9.7**
Opportunistic	**0.0**	**-0.1**	**-0.1**	**-0.4**	**-0.9**	**-1.6**	**-2.5**	**-3.1**	**1.7**	**5.4**	**7.1**	**4.7**	**2.6**	**7.0**	**9.6**	**6.6**	**23.8**	**16.5**	**3Q10**	**11.3**	**0.5**	**1.3**
Non-Core	**0.0**	**-0.9**	**-0.9**	**-1.2**	**-0.5**	**-4.8**	**-5.3**	**-6.2**	**2.2**	**3.1**	**5.3**	**3.0**	**3.1**	**4.3**	**7.4**	**4.7**	**12.4**	**8.6**	**4Q07**	**9.3**	**0.5**	**1.2**
Total Real Estate Benchmark*			-1.5				6.3				7.4				6.5							
FTSE EPRA/NAREIT Global REITs Index**			-1.5				7.4				0.9				1.4							
NFI-ODCE +100 BPS			-0.2	-0.4			-2.3	-2.7			-8.3	-9.1			2.9	2.0	5.8	4.8	4Q07			

Notes

While time-weighted returns are commonly used as a standard measure of performance in traditional asset classes and core real estate portfolios, time-weighted returns ignores both the timing and magnitude of cash flows into and out of the portfolio. Hence, the Internal Rate of Return ("IRR") is a better and more common measure of Non Core real estate performance

The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.

NM = Not Meaningful. Returns are not meaningful as a result of minimal or negative reported Average Invested Capital (AIC).

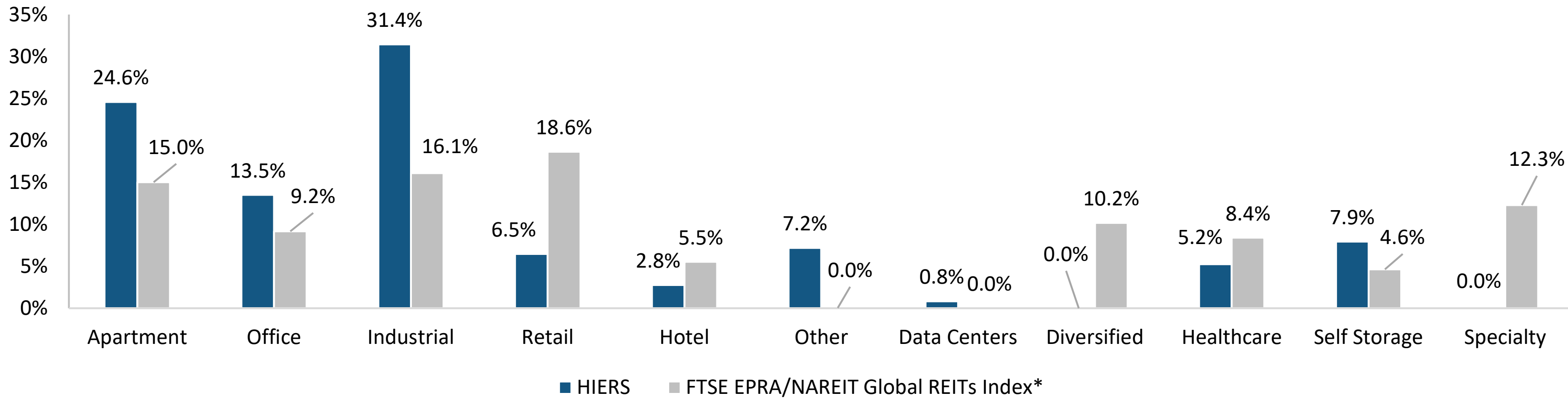
*Total Real Estate Benchmark combines the NFI-ODCE Index with the FTSE EPRA/NAREIT Global REITs Index. This blend begins starting on 01/01/2024. The FTSE EPRA/NAREIT Global REITs Index performance data is based on a quarter-lagged calculation of time-weighted returns.

**The FTSE EPRA/NAREIT Global REITs Index performance data is based on a quarter-lagged calculation of time-weighted returns.

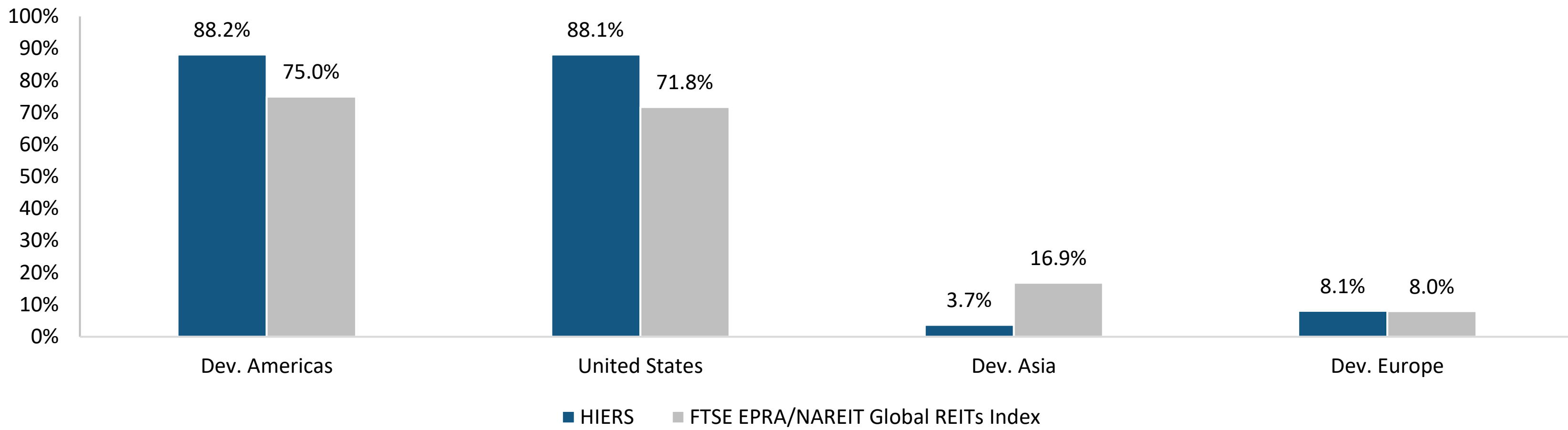
Real Estate Diversification vs. FTSE EPRA/NAREIT Global REITs Index

TOWNSEND® GROUP

Property Diversification v FTSE EPRA/NAREIT Global REITs Index
(As of June 30, 2024)



Geographic Diversification v FTSE EPRA/NAREIT Global REITS Index
(As of June 30, 2024)

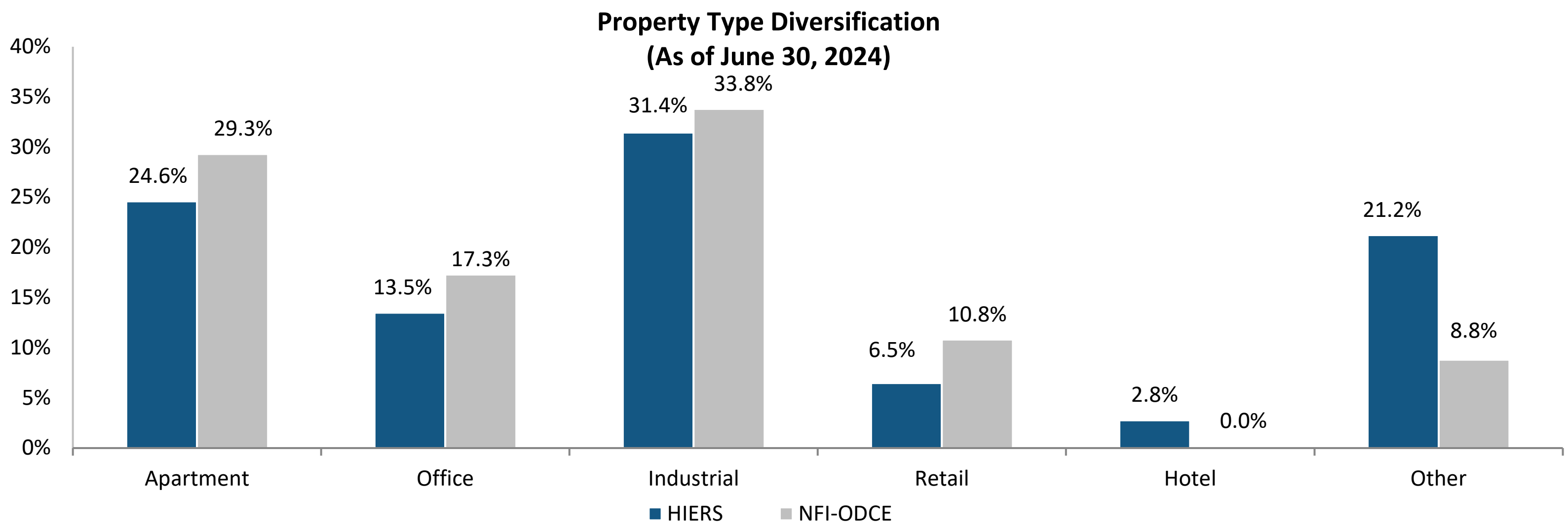


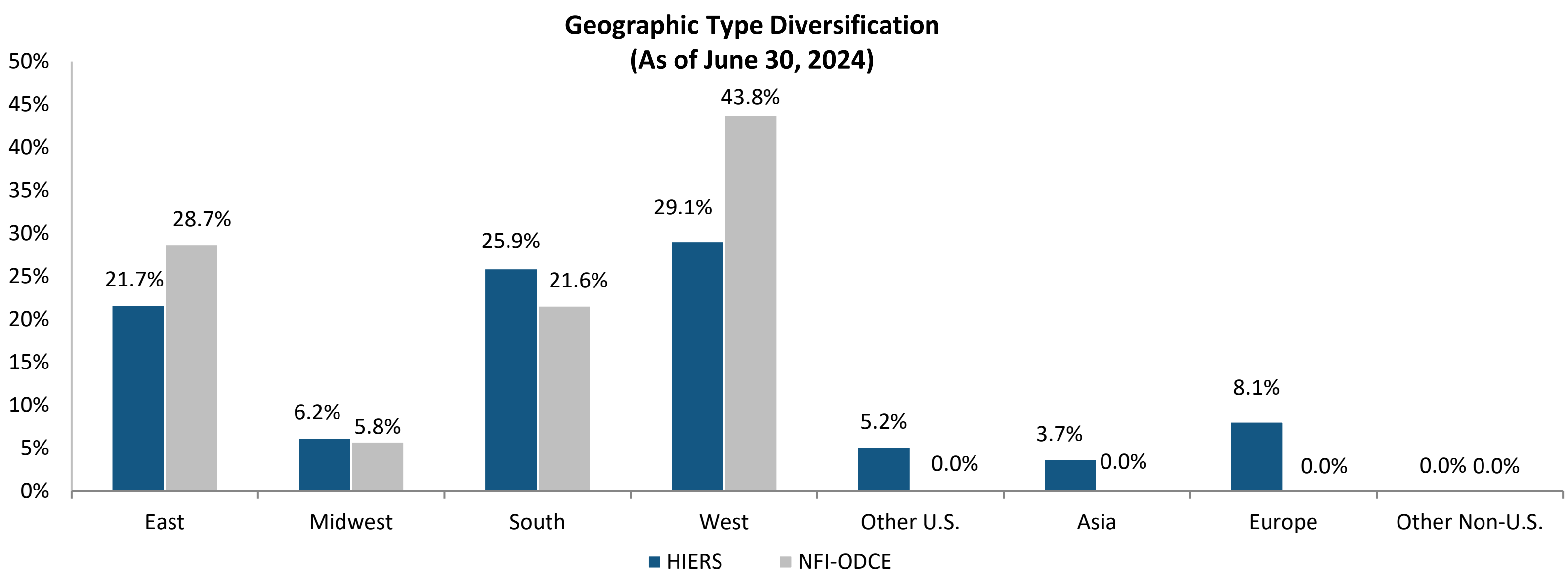
*For HIERS' portfolio, Healthcare includes Healthcare, Medical Office, Life Science, and Senior Housing. As industry standards for property type classifications are changing, some managers have classified Life Science assets in Other as opposed to Healthcare.

**The FTSE EPRA/NAREIT Global REITs Index classifies Apartments as a part of a broader "Residential" property type. Additionally, Health Care includes Health Care, Life Science, and Senior Housing. As industry standards for property type classifications are changing, some managers have classified Life Science assets in Other as opposed to Healthcare.

***Geographic exposures less than 1% have been excluded for formatting purposes.

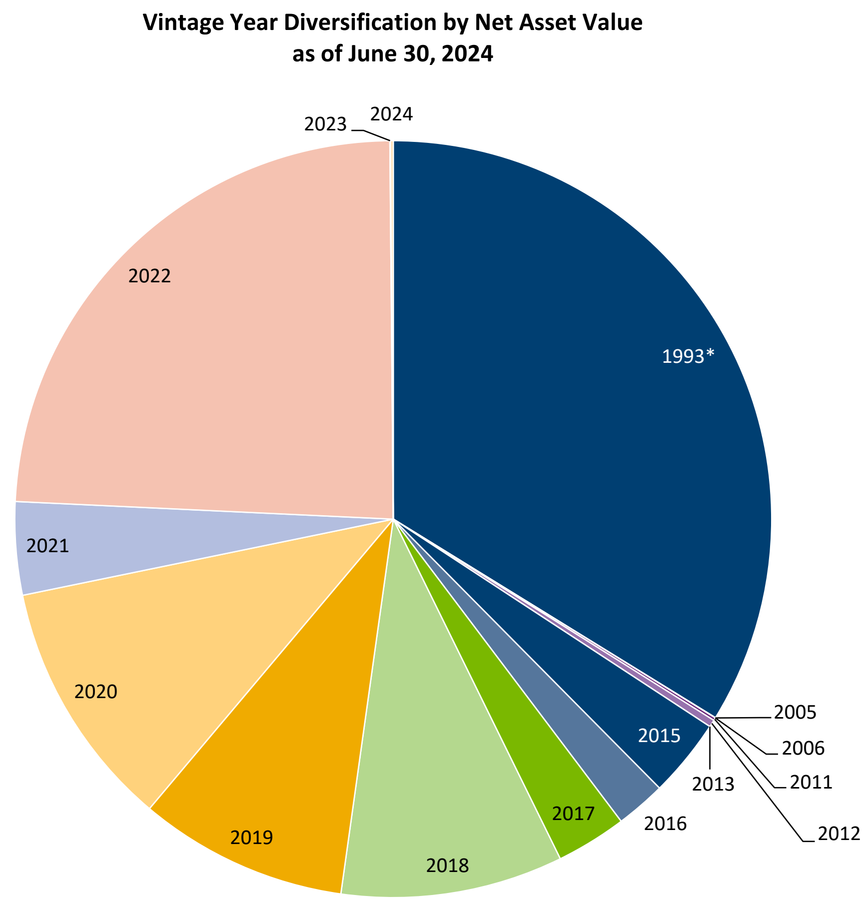
Real Estate Diversification vs. NFI-ODCE





The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.
Effective in early 2020, NCREIF changed its methodology in reporting diversification from net real estate assets to gross real estate assets for the NFI-ODCE.
Other Property Types are comprised of self storage (7.9%), student housing (1.7%), senior housing (4.4%), data centers (0.4%), health care (0.8%), entertainment (0.2%), for sale residential (1.0%), parking (0.0%), and land (0.5%), along with non-traditional property types (4.2%).

Real Estate Portfolio Diversification



The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.

*The 1993 vintage year is composed solely of a Separate Account Portfolio which includes investments that span other vintage years. The 1993 labeling indicates the start of the partnership.
**The 2022 vintage year's relative size can be attributed to anchor commitments in two open-end vehicles, aimed at establishing Core commingled fund exposure within the portfolio. These commitments will have sustained exposure over time.

D. Private Infrastructure Portfolio (ex-Olomana)

Private Infrastructure Portfolio (ex-Olomana) Funding Status and Composition

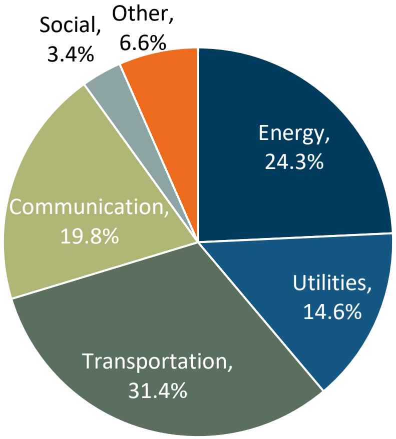
TOWNSEND® GROUP

Portfolio Overview As of June 30, 2024 $ in Millions	
Number of Investments	10
Active Investments	10
Liquidated Investments	0
Number of Active GP Relationships	6
Total Commitments	761.7
Unfunded Commitments	204.4
Total Paid-In Capital	614.5
Total Distributions	151.8
Net Asset Value	603.8
Gross Asset Value	991.5
Total Exposure	808.3
DPI	0.2x
TVPI	1.2x
Since Inception IRR	10.8%

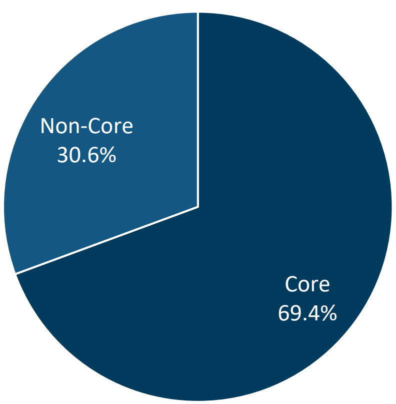
PORTFOLIO COMPOSITION TO TARGETS (%)
As of June 30, 2024

	Unfunded Commitments + Funded (NAV)	Funded (NAV)
Infrastructure*	3.4	2.6
Leverage	N/A	39.1

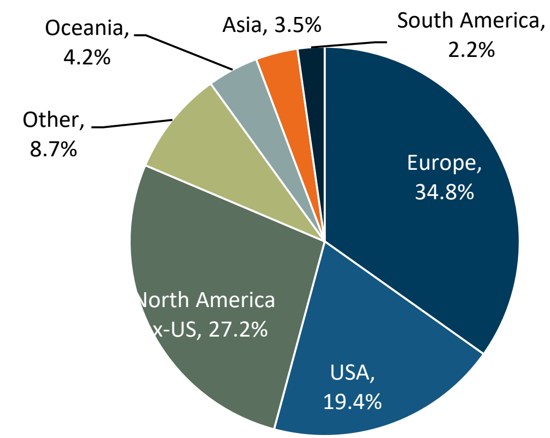
Industry Diversification by Value (As of June 30, 2024)



Structure Diversification (As of June 30, 2024)

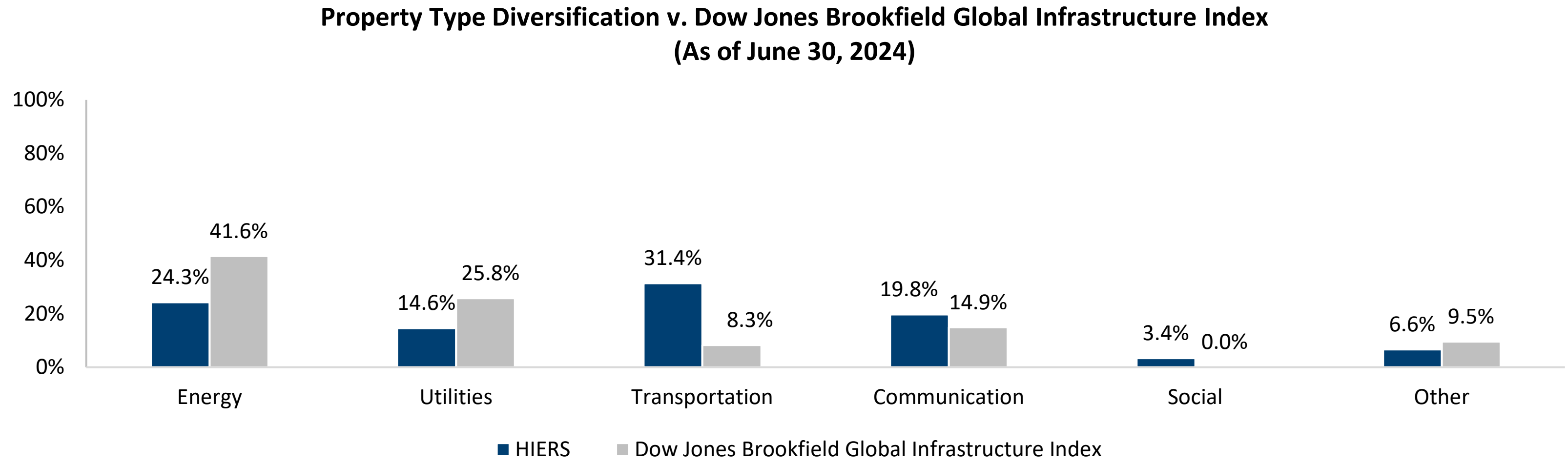


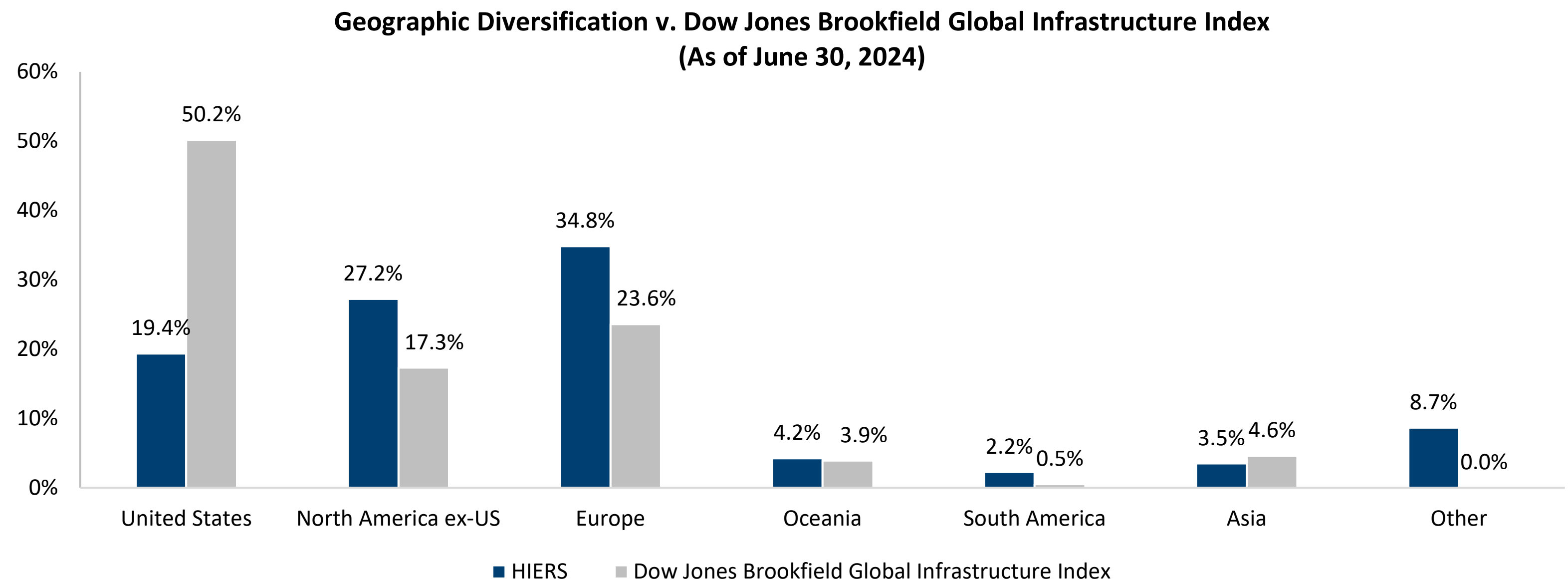
Geographic Diversification by Value (As of June 30, 2024)



The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.
*Excludes Olomana, Morgan Stanley Listed Infrastructure Portfolio, and Real Assets Overlay.

Private Infrastructure (ex-Olomana) Diversification vs. Public Benchmark



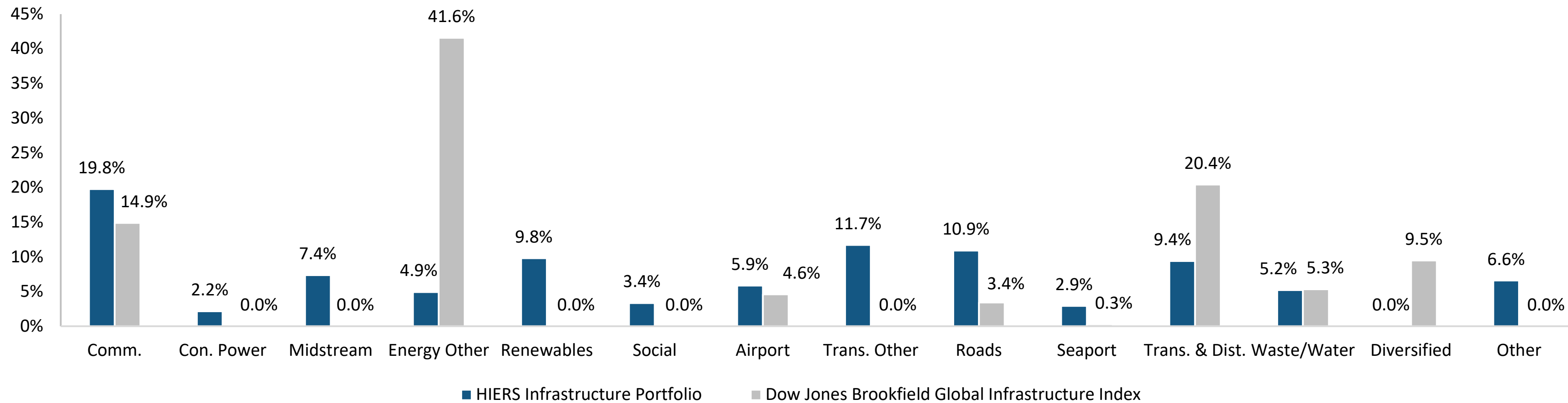


The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.
Excludes Olomana, Morgan Stanley Listed Infrastructure Portfolio, and Real Assets Overlay.

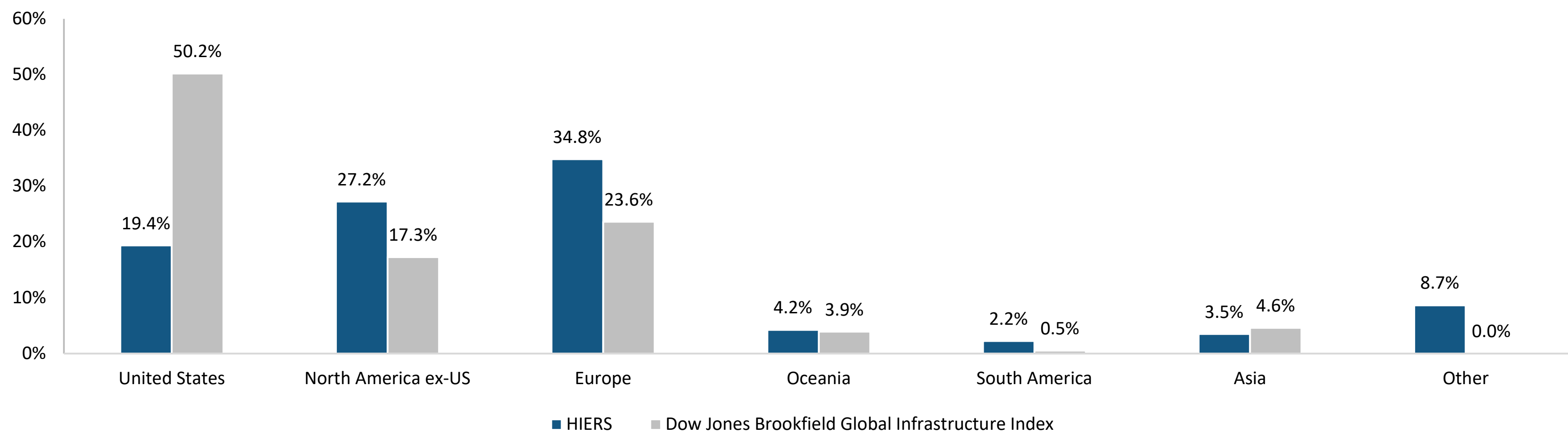
Private Infrastructure (ex-Olomana) vs. Public Benchmark (Detail)

TOWNSEND® GROUP

Property Type Diversification v. Dow Jones Brookfield Global Infrastructure Index
(As of June 30, 2024)



Geographic Diversification v. Dow Jones Brookfield Global Infrastructure Index
(As of June 30, 2024)



The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.
Excludes Olomana, Morgan Stanley Listed Infrastructure Portfolio, and Real Assets Overlay.
Both various energy investments and 'Oil & Gas Storage & Transportation', as classified by the public benchmark, are included in "Energy Other".

Private Infrastructure (ex-Olomana) Performance

TOWNSEND® GROUP

As of 6/30/2024

Funding Status ($)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)	LTV (%)
Infrastructure									
Core Infrastructure	**2022**	**400,000,000**	**382,207,215**	**33,613,247**	**17,718,201**	**418,985,909**	**69.4**	**56.0**	**39.4**
Non-Core Infrastructure	**2015**	**361,650,000**	**232,302,808**	**170,831,916**	**134,094,443**	**184,846,495**	**30.6**	**44.0**	**38.4**
Total Private Infrastructure	**2015**	**761,650,000**	**614,510,023**	**204,445,163**	**151,812,644**	**603,832,404**	**100.0**	**100.0**	**39.1**

Returns (%)	Quarter				1 Year				3 Year				5 Year				Inception		TWR Calculation Inception	Net IRR	DPI	Equity Multiple
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	TGRS	TNET				
Infrastructure																						
Core Infrastructure	**0.5**	**1.9**	**2.4**	**2.2**	**3.1**	**3.9**	**7.2**	**6.5**									**8.4**	**7.5**	**2Q22**	**7.5**	**0.0**	**1.1**
Non-Core Infrastructure	**0.0**	**2.3**	**2.4**	**1.4**	**4.0**	**9.4**	**13.6**	**7.5**	**5.4**	**8.3**	**14.1**	**9.5**	**9.0**	**8.3**	**18.5**	**14.1**	**19.5**	**14.0**	**3Q15**	**13.7**	**0.6**	**1.4**
Total Private Infrastructure	**0.4**	**2.0**	**2.4**	**1.9**	**3.4**	**5.5**	**9.1**	**6.8**	**5.0**	**6.1**	**11.5**	**8.9**	**8.8**	**7.0**	**16.8**	**13.7**	**18.5**	**13.8**	**3Q15**	**10.8**	**0.0**	**1.2**
Total Infrastructure Benchmark*			-0.4				15.8				12.0				10.0		8.2		3Q15			
Dow Jones Brookfield Global Infrastructure Index**				-0.4				1.6				3.4				3.8		4.2	3Q15			
CPI + 400 BPS			1.3				7.2				9.2				8.3		7.2		3Q15			

The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.

*Total Infrastructure Benchmark combines the CPI +400 bps Index with the Dow Jones Brookfield Global Infrastructure Index. This blend begins starting on 01/01/2024. The Dow Jones Brookfield Global Infrastructure Index performance data is based on a quarter-lagged calculation of time-weighted returns.

**The Dow Jones Brookfield Global Infrastructure Index performance data is based on a quarter-lagged calculation of time-weighted returns.

E. Olomana

TOWNSEND® GROUP

Olomana Portfolio Funding Status and Composition

TOWNSEND GROUP

Portfolio Overview As of June 30, 2024 $ in Millions	
Number of Investments	6
Active Investments	6
Liquidated Investments	0
Number of Active GP Relationships [a]	1
Total Initially Funded to Olomana [b]	600.1
Total Private Commitments [b]	642.4
Unfunded Commitments	146.9
Total Paid-In Capital	809.3
Total Distributions	208.8
Net Asset Value	614.8
Gross Asset Value	614.8
Total Exposure	761.7
DPI	0.3x
TVPI	1.0x
Since Inception IRR	1.0%

PORTFOLIO COMPOSITION TO TARGETS (%)
As of June 30, 2024

	Target	Unfunded Commitments + Funded (NAV)	Funded (NAV)
Core Real Estate	N/A	0.0	0.0
Non-Core Real Estate	N/A	6.0	3.8
Core Timber	N/A	0.0	0.0
Non-Core Timber	N/A	0.0	0.0
Core Infrastructure	N/A	6.7	8.4
Non-Core Infrastructure	N/A	28.6	16.5
Core Agriculture	N/A	0.0	0.0
Non-Core Agriculture	N/A	6.0	6.0
Liquid Alternatives	N/A	52.7	65.3
Other Real Assets	N/A	0.0	0.0

(a) Represented by the GP responsible for the management of Olomana, in this case, Morgan Stanley

(b) Total Private Commitments represent private market commitments made by Olomana. A total of $600.1 million was funded to Olomana between ERS and MSIM. ERS funded Olomana with $598.6 million ($433.6 million in TIPS and $165.0 million in cash), and MSIM funded $1.5 million in cash. The MSIM share of the investment is included in the committed value, as the accrued incentive for the manager.

The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.

Olomana Performance

TOWNSEND® GROUP

As of 6/30/2024

Funding Status ($)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)	LTV (%)
Olomana	**2022**	**642,409,765**	**809,326,125**	**146,928,116**	**208,799,211**	**614,783,614**	**100.0**	**100.0**	**0.0**

Returns (%)	Quarter				1 Year				Inception		TWR Calculation Inception	Net IRR	DPI	Equity Multiple
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	TGRS	TNET				
Olomana	**0.0**	**1.2**	**1.2**	**1.1**	**0.0**	**5.0**	**5.0**	**4.7**	**1.3**	**1.0**	**2Q22**	**1.0**	**0.3**	**1.0**
Olomana: Aggregate Benchmark			**0.9**				**2.3**		**-2.4**		**2Q22**			

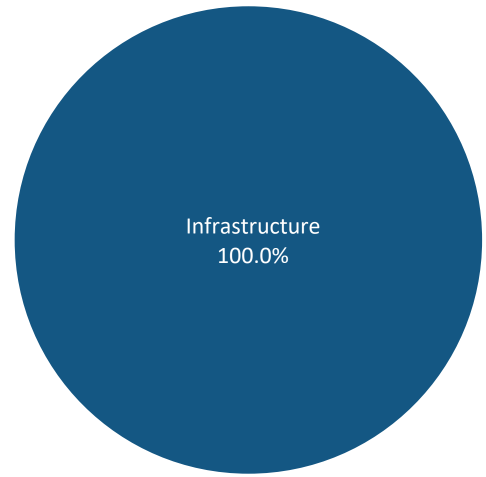
The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.
*ERS funded a total, approximate amount of $589.6 million to Olomana through liquid alternatives. As private investment opportunities arise, capital will be re-allocated from liquid alternatives to those private market investments. The total commitment figure for Olomana represents the full amount funded by ERS to Olomana. As capital is moved to private market investments, the commitment amount for liquid alternatives will shift to private market investments. Total commitment and liquid alternatives commitment figures are approximations until full data is available.

F. Listed Infrastructure Portfolio

Listed Infrastructure Portfolio

Portfolio Overview As of June 30, 2024 $ in Millions	
Number of Investments	1
Active Investments	1
Liquidated Investments	0
Number of Active GP Relationships	1
Total Commitments	450.0
Unfunded Commitments	0
Total Paid-In Capital	450.0
Total Distributions	0
Net Asset Value	466.5
Leverage	0.0%
DPI	0.0x
TVPI	1.0x
Since Inception IRR	3.7%

Sector Diversification
(As of June 30, 2024)



Funding Status ($)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)	LTV (%)
Listed Infrastructure									
Listed Infrastructure Portfolio	2024	450,000,000	450,000,000	0	0	466,456,311	100.0	100.0	0.0

Returns (%)	Quarter				Inception		TWR Calculation Inception	Net IRR	DPI	Equity Multiple
	INC	APP	TGRS	TNET	TGRS	TNET				
Listed Infrastructure										
Listed Infrastructure Portfolio	0.0	-0.2	-0.2	-0.2	-0.2	-0.2	2Q24	3.7	0.0	**1.0**
Dow Jones Brookfield Global Infrastructure Index*				12.2		12.2	1Q24			

The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.
*The performance data for the index is based on a quarter-lagged calculation of time-weighted returns.

G. Timber Portfolio

TOWNSEND® GROUP

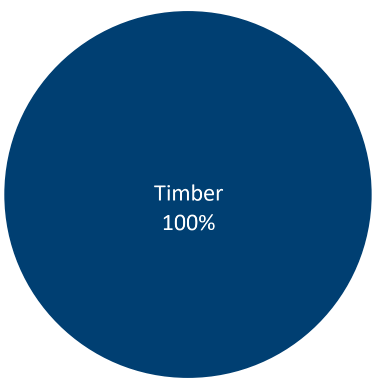
Timber Separate Account Funding Status and Composition

As of 6/30/2024

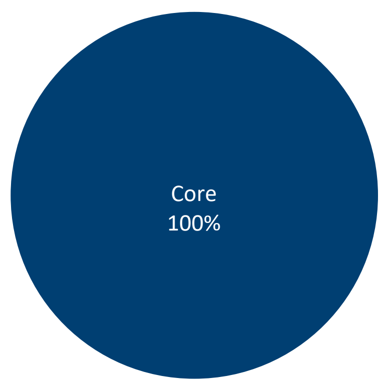
Funding Status ($)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)	LTV (%)
Timber									
Timberland Separate Account	1999	130,000,000	129,259,500	0	169,175,680	230,069,902	100.0	100.0	0.0

Returns (%)	Quarter				1 Year				3 Year				5 Year				10 Year				Inception***		TWR Calculation Inception	Net IRR	DPI	Equity Multiple
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	TGRS	TNET				
Timber																										
Timberland Separate Account	0.4	0.0	0.4	0.1	1.9	14.3	16.4	15.5	2.8	11.5	14.6	13.6	2.1	6.0	8.3	7.4	1.8	5.5	7.4	6.5	9.8	8.9	4Q99	8.4	1.3	3.1
Net Real TWR				-0.4				12.1				8.2				3.0				3.6		6.1	4Q99			
Total Timber Benchmark*			4.1				21.2				14.7				9.3				7.0		6.9		4Q99			
S&P Global Timber & Forestry Index**				4.1				21.2				2.1				8.2				7.5						
NCREIF Timberland Property Index "NTI"	0.5	1.2	1.7		2.3	7.4	9.8		2.8	8.0	11.0		2.8	4.3	7.2		2.8	3.0	5.9		6.5		4Q99			

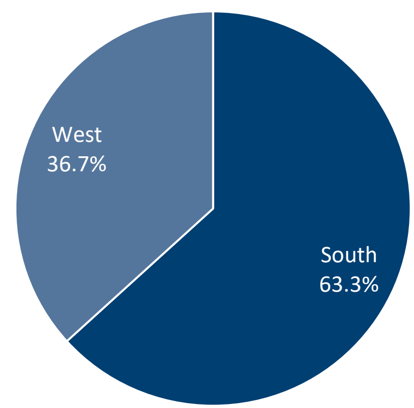
Property Type Diversification
(As of June 30, 2024)



Style Diversification
(As of June 30, 2024)



Geographic Type Diversification
(As of June 30, 2024)

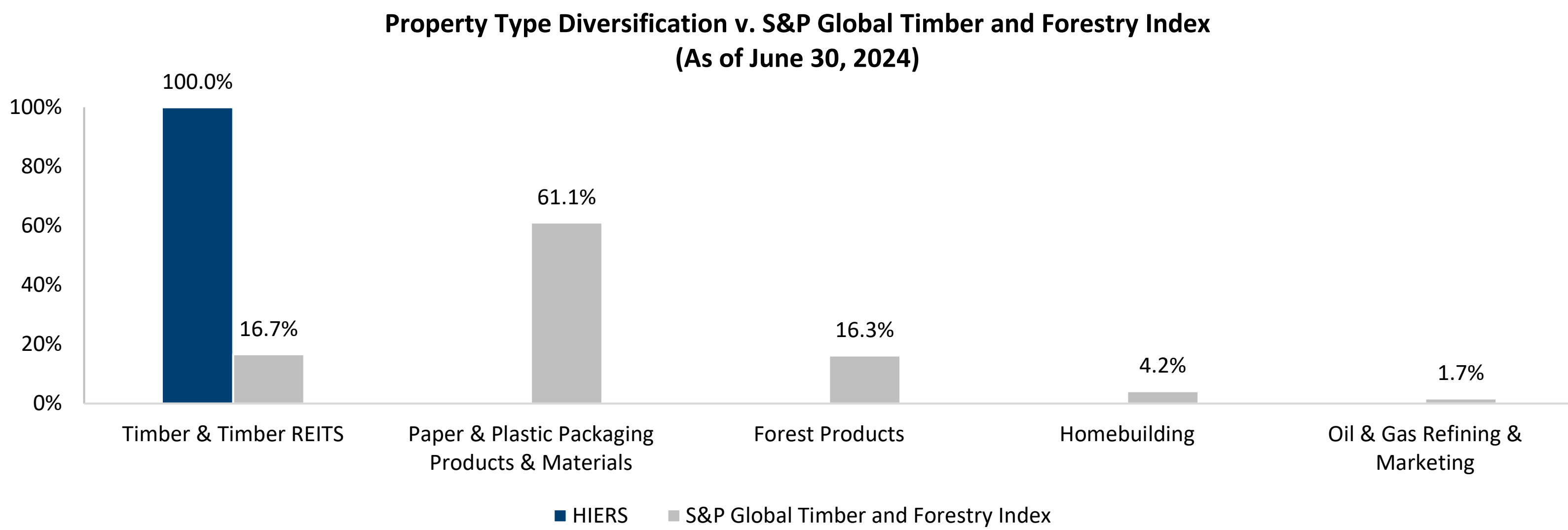


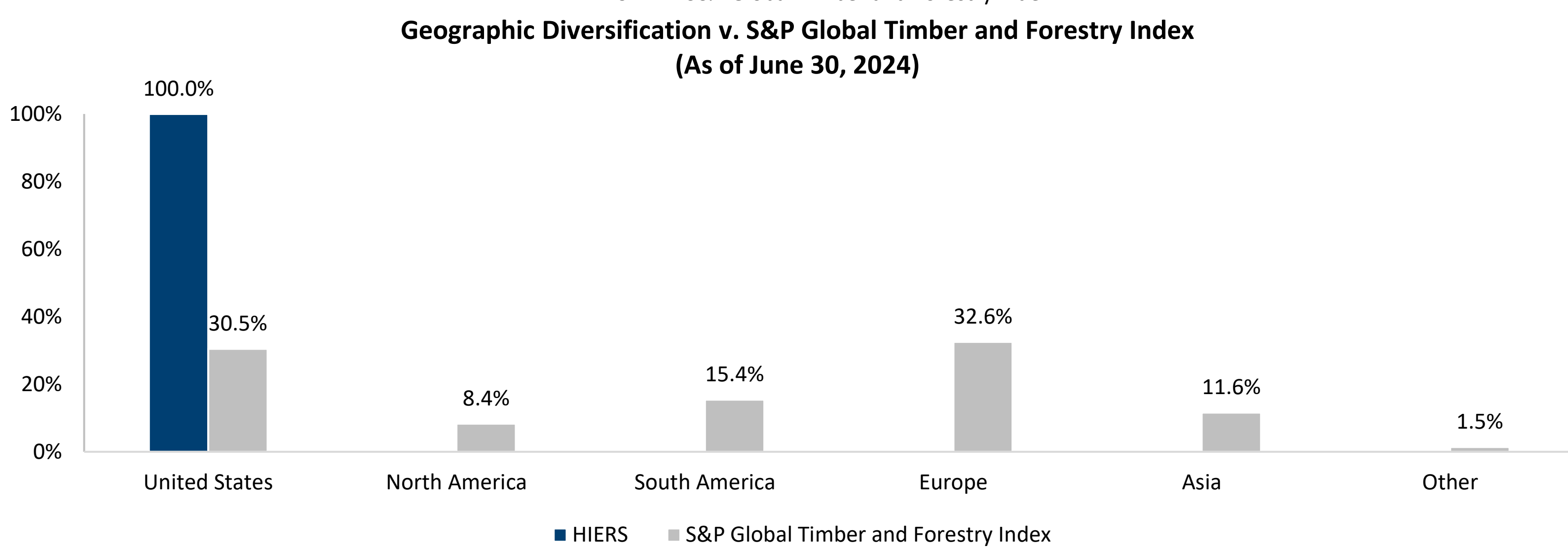
The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.

*Total Timberland Benchmark combines the NCREIF Timberland Property Index with the S&P Global Timber & Forestry Index. This blend begins starting on 01/01/2024. The performance data for the S&P Global Timber & Forestry Index is based on a quarter-lagged calculation of time-weighted returns.
**The performance data for the S&P Global Timber & Forestry Index is based on a quarter-lagged calculation of time-weighted returns.
***The S&P Global Timber & Forestry Index Since Inception calculation is excluded as the index launched in 2007, whereas the Timber portfolio dates back to 1999.

Timber Diversification vs. S&P Global Timber & Forestry Index

As of 6/30/2024





The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.

H. Agriculture Portfolio

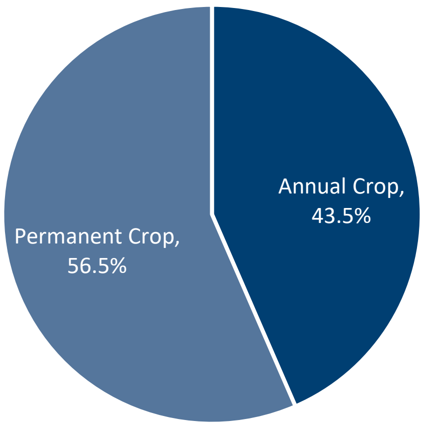
Agriculture Portfolio Funding Status and Composition

Portfolio Overview As of June 30, 2024 $ in Millions	
Number of Investments	3
Active Investments	3
Liquidated Investments	0
Number of Active GP Relationships	3
Total Commitments	400.0
Unfunded Commitments	25.1
Total Paid-In Capital	381.0
Total Distributions	5.0
Net Asset Value	388.3
Gross Asset Value	388.3
Total Exposure	413.3
DPI	0.0x
TVPI	1.0x
Since Inception IRR	2.9%

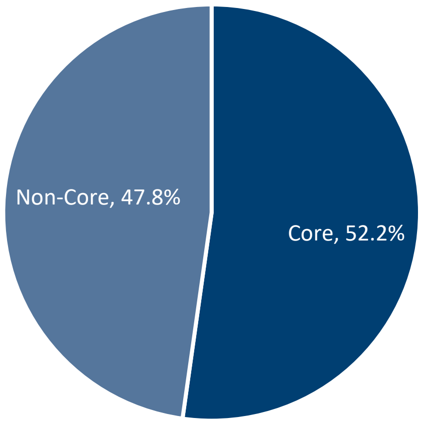
PORTFOLIO COMPOSITION TO TARGETS (%)
As of June 30, 2024

	Target	Unfunded Commitments + Funded (NAV)	Funded (NAV)
Agriculture	N/A	1.8	1.6
Leverage	N/A	N/A	0.0

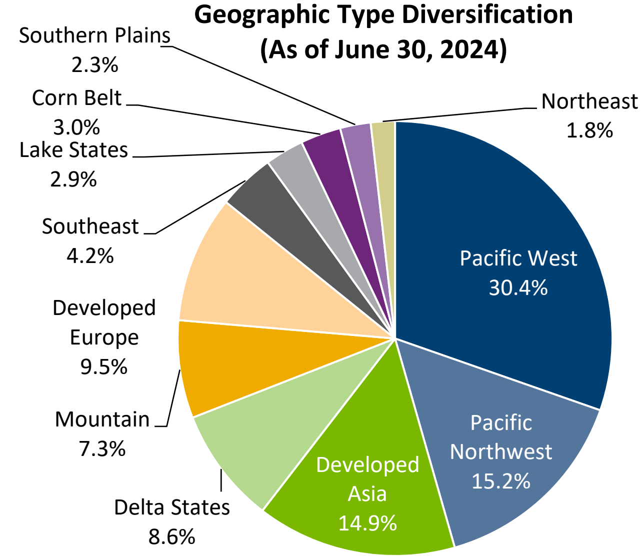
Crop Type Diversification (As of June 30, 2024)



Style Diversification (As of June 30, 2024)



Geographic Type Diversification (As of June 30, 2024)

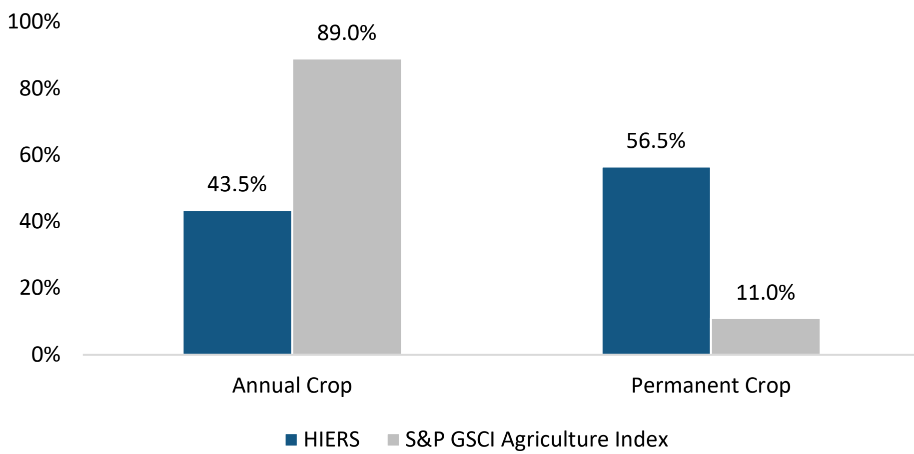


The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.

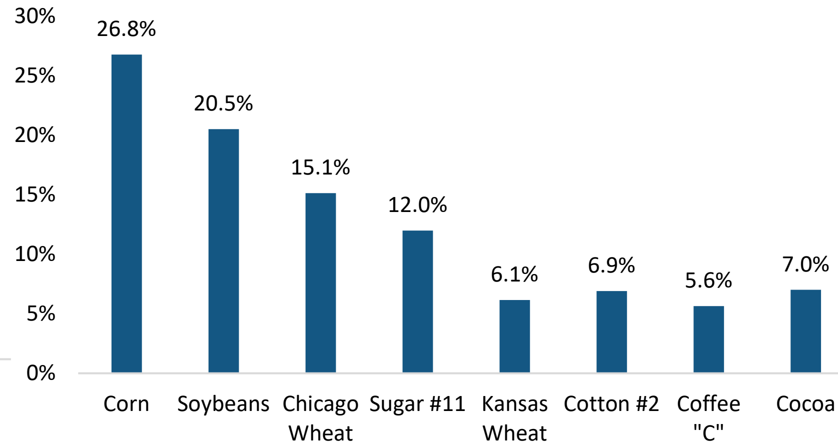
Agriculture Crop Diversification vs. S&P GSCI Agriculture Index

TOWNSEND® GROUP

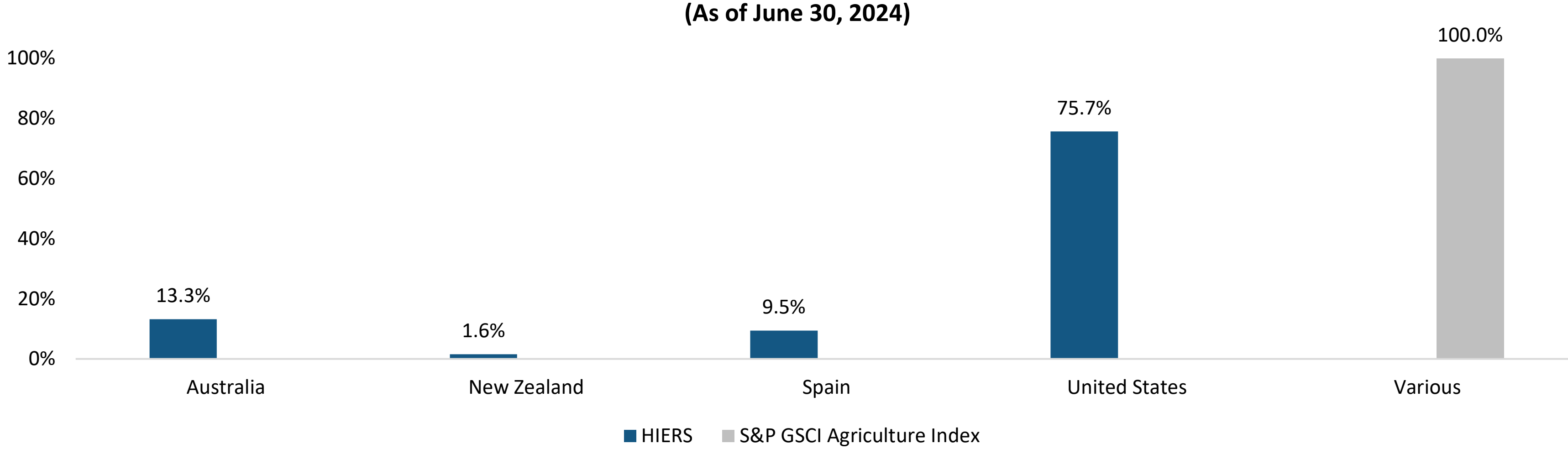
Crop Type Diversification v. S&P GSCI Agriculture Index
(As of June 30, 2024)



S&P GSCI Agriculture Index Crop Diversification (Detail)
(As of June 30, 2024)



Geographic Diversification v. S&P GSCI Agriculture Index)
(As of June 30, 2024)



The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.
Detailed geographic diversification for the S&P GSCI Agriculture Index is not currently available.

Agriculture Performance

As of 6/30/2024

Funding Status ($)	Investment Vintage Year	Commitment Amount	Funded Amount	Unfunded Commitments	Capital Returned	Market Value	Market Value (%)	Market Value + Unfunded Commitments (%)	LTV (%)
Total Agriculture	**2021**	**400,000,000**	**380,999,647**	**25,059,729**	**5,016,395**	**388,286,789**	**100.0**	**100.0**	**0.0**

Returns (%)	Quarter				1 Year				Inception		TWR Calculation Inception	Net IRR	DPI	Equity Multiple
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	TGRS	TNET				
Total Agriculture	**0.2**	**-0.2**	**0.0**	**-0.3**	**1.6**	**2.0**	**3.6**	**2.2**	**6.6**	**5.3**	**4Q21**	**2.9**	**0.0**	**1.0**
Total Agriculture Benchmark*			-4.4				-4.8		8.3		4Q21			
S&P GSCI Agriculture Index**			-4.4				-12.8		8.3		4Q21			
NCREIF Farmland Property Index "NFI"	0.5	-0.7	-0.2		2.9	-0.3	2.5		6.9		4Q21			

The information provided is from the ERS' custodial bank and/or its consultants and has not been provided or approved by any of the Funds' General Partners or members.

*Total Agriculture Benchmark combines the NCREIF Farmland Property Index with the S&P GSCI Agriculture Index. This blend begins starting on 01/01/2024. The S&P GSCI Agriculture Index performance data is based on a quarter-lagged calculation of time-weighted returns.
**The S&P GSCI Agriculture Index performance data is based on a quarter-lagged calculation of time-weighted returns.

I. Glossary

Glossary of Terms

- Catch-up – The provision that dictates how cash flows from the fund will be allocated between the investors and the manager in order for the manager to receive their performance fee. This allocation of cash flows occurs once the investors have collected their capital and preferred return
- Core – The most conservative institutional real estate investing style
- Core-Plus – A style whereby investments have a slightly higher level of risk and expected return than Core, primarily through use of leverage
- Custom Public Index – Currently the FTSE EPRA/NAREIT Global Developed REIT Index. Prior to July 2008, the benchmark was the Dow Jones U.S. Select REIT Index
- Development – The construction of buildings from breaking the ground through building completion. This may also include entitlement of the land and the pursuit of permits prior to construction
- DPI – Distributions to Paid In; the ratio of distributions from investments to total invested capital
- First Closing – The point at which a manager receives and executes the subscription documents and can begin drawing capital from investors
- Final Closing – The final date at which new investors can subscribe to a fund
- Internal Rate of Return (IRR) - A method of measuring the performance of a portfolio from inception through a particular point in time. This method weights returns according to the dollars invested at each point in time. Hence, this is known as dollar-weighted return. This is a better measure when the manager controls when dollars must be invested and is the most commonly used method of real estate performance evaluation; Gross IRR is gross of fee and Net IRR is net of fee
- NFI-ODCE – NCREIF Fund Index Open-end Diversified Core Equity Index is an index of investment returns reporting on both a historical and current basis the results of 24 open-end commingled funds pursuing a core investment strategy; underlying funds are leveraged with gross and net returns available
- NPI – NCREIF Property Index is a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only; it is reported unlevered and gross of fee
- FTSE-NAREIT Equity REIT – An unmanaged capitalization-weighted index of all equity real estate investment trusts
- FTSE EPRA/NAREIT Global REIT – An unmanaged market-weighted total return index, which consists of many companies from Global markets whose floats are larger than $100 million and derive more than half of their revenue from property-related activities

Glossary of Terms (cont'd)

- Opportunistic – A style that is the riskiest form of real estate investing. The name derives from when such funds were formed after the early 1990s real estate market crash to take advantage of opportunities in unwanted properties. Such investments include ground-up development, highly-leveraged purchases, or transactions involving highly complicated legal or environmental situations
- Private Market Equivalent (PME) Analysis – The private market equivalent ("PME") analysis seeks to answer the question of whether a portfolio's non-Core investments are providing alpha over the lower-risk Core alternatives. Non-Core performance is best measured through dollar weighted performance metrics (i.e. IRR) while Core indices have traditionally been provided in time-weighted return ("TWR") methodologies. The PME analysis converts the Core indices from TWRs to IRRs by taking the cash flows from the non-Core portfolio and making hypothetical investments into the Core indices. This exercise allows for a like-kind comparison on performance
- Policy Benchmark – Blended benchmark reflecting private and public nature of portfolio where private real estate benchmark is weighted 90% and public real estate benchmark is weighted 10%; private real estate benchmark is NFI-ODCE + 50bps, public real estate benchmark is Wilshire REIT 1Q1997 through 2Q08 and EPRA/NAREIT Global Developed Index from 3Q08 to present
- Pre-Specified Deals – Investments that are purchased for a fund before its final close. The assets are typically warehoused on a line of credit
- Promote (Carried Interest) – The performance fee a manager receives once the investors have received their return of capital and the preferred return (return promised by the manager)
- RVPI – Residual Value to Paid In; the ratio of the residual value of an investment to total invested capital
- Time-Weighted Return - A method of measuring the performance of a portfolio over a particular period of time. Effectively, it is the return of one dollar invested in the portfolio at the beginning of the measurement period. This is a better return measure when the manager does not control when the dollars must be invested
- TVPI – Total value to paid-in ratio; the ratio of total value from an investment, including distributions, to total invested capital
- Value-Added – A style that represents moderate-risk real estate. A manager typically increases the future value of the investment by undertaking activities such as leasing, improving an existing building, or taking some risk through operating intensive assets, such as hotels or self-storage
- Vintage Year – The year in which a fund has its final closing. Typically coincides with the year a fund begins making investments

Disclosures

About Townsend Group

Founded in 1983, The Townsend Group ("Townsend") provides a core set of investment skills exclusively focused on global real estate and real asset classes. The firm offers these capabilities to institutional investors as an investment advisor and consultant.

Townsend has been advising and managing real estate portfolios for over three decades and across multiple market cycles. As of September 30, 2023, Townsend had assets under management of approximately $22.1 billion. As of September 30, 2023, Townsend provided advisory services to clients who had real estate/real asset allocations exceeding $122.9 billion. We believe, through our global investment platform, fiduciary culture, asset class expertise and client capital scale, we are able to deliver clients unique information, while providing a sourcing and execution advantage.

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MEKETA INVESTMENT GROUP

Employees' Retirement System of the State of Hawaii

November 18, 2024

Annual Benchmark Review

Introduction

→ Four major events occurred in the last ~17 months:

- 2022/2023 Asset-Liability Study & new long-term allocation targets *(June 2023)*
- Approval of new asset class and Total Fund benchmarks *(August 2023)*
- Implementation of new long-term allocation targets *(January 2024)*
- Reconfiguration of asset class composites *(Q1 2024)*
- Audit of historical benchmark composites *(Q2/Q3 2024)*

→ As a result of these events, the reporting structure of performance results has meaningful changed.

→ This presentation seeks to provide a quick review of the new policy structure, utilized benchmarks, and confirmation of benchmark suitability going forward.

Asset-Liability Results and Corresponding Benchmarks

→ In June 2023, the ERS Board adopted a new long-term policy portfolio.

→ In August 2023, the ERS Board approved the new asset class and Total Fund benchmarks.

→ On January 1, 2024, the new policy structure and associated benchmarks went into effect.

		Long-term Asset Class Policy Weight	Corresponding Benchmark
Global Equity	Public Equity	20%	MSCI ACWI IMI
	Private Equity	19%	MSCI ACWI IMI (qtr lag)
Global Credit	Liquid Credit	4%	Bloomberg Global High Yield Index (hedged) S&P LSTA Leveraged Loan 100 Index
	Private Credit	8%	Bloomberg Global High Yield Index (qtr lag) (hedged) S&P LSTA Leveraged Loan 100 Index (qtr lag)
Real Assets	Real Estate	9%	FTSE EPRA NAREIT Global REITS Index GD (qtr lag)
	Infrastructure	7%	Dow Jones Brookfield Global Infrastructure Index (qtr lag)
	Timberland and Agriculture	3%	S&P Global Timber & Forestry Index (qtr lag) S&P GSCI Agriculture Index (qtr lag)
Liquid Defensive	Systematic Trend Following	8%	Mount Lucas Global Index EV 15 Vol
	Long US Treasuries	4%	Bloomberg US Treasury: Long Index
	Intermediate Duration Government Bonds	14%	Bloomberg US Treasury: Intermediate Index
	Diversifying	---	---
Illiquid Diversifying	Reinsurance/similar	4%	Swiss Re Global Catastrophe Bonds Index (hedged)

Overview of 1/1/24 Benchmark Changes

→ Policy benchmark now reflects the following:

- Better alignment between benchmarks and betas/market risks of corresponding asset classes
- Improved investability (i.e., opportunity cost and/or alternative implementation)
- Elimination of artificial illiquidity premiums (e.g., + 2%)
- Elimination of "riskless" indices (e.g., 90-day T-Bill)

→ Reasoning :

- Better reflection of Board-directed market risk (as an outcome of A/L study)
- Improved ability to measure/attribute performance between policy and implementation
- More streamlined structure reduces complexity
- Stronger fulfillment of "ideal" benchmark characteristics

Benchmark Characteristics

→ **Bailey Criteria[1]:**

- Unambiguous – well-defined identities and weights;
- Investable – one can own the benchmark's constituents;
- Measurable – can calculate performance at reasonable intervals;
- Appropriate – consistent with the investment approach/style;
- Reflective of current investment options – representative of the segment; and
- Specified in advance – constructed before evaluation period.

→ **Other example characteristics**

- Accessible - difficult-to-produce benchmarks should be avoided;
- Transparent – understandable constituency of the benchmark;
- Independent – a manager's performance should not impact the benchmark return; and
- Relevant – correlation between a portfolio and a benchmark influences its relevance but is not sufficient due to potential spurious relationships.

[1] The Bailey Criteria: Financial Analysts Journal, CFA Institute, 1992.

Future Changes and Conclusion

- Meketa and ERS Staff continually review the ERS's effective benchmarks, the broader universe of potential benchmarks, as well as industry trends/practices.
- Future benchmark modifications may occur for several reasons: 1) Board-directed asset allocation changes, 2) Changes to existing benchmark constructs (including data issues/costs) and/or new benchmark availability, and 3) Alterations in benchmarking philosophy by the ERS or in accordance with changes in industry best practices.
- <u>Meketa and ERS Staff believe that the ERS's current benchmarks remain appropriate for the ERS Total Portfolio and corresponding asset classes, and thus no changes are proposed.</u>
- Benchmark reviews will continue to occur on a recurring basis with potential changes proposed to the ERS Board/IC when appropriate.

Important Notice

MEKETA INVESTMENT GROUP

Employees' Retirement System of the State of Hawaii

November 18, 2024

Total Portfolio Liquidity – Annual Review

Introduction

- → In November 2023, the ERS received education on "Total Portfolio Liquidity" and approved a minimum allocation for liquidity purposes – defined as 5% of the Total Portfolio in *Tier 1* assets.
  - The list/definitions of tiers is provided later in this presentation.

- → This presentation seeks to quickly review the process that was used to determine the liquidity minimum as well as the historical amounts of *Tier 1* assets held by the ERS in 2024 YTD (as of 9/30).

- → Additionally, this presentation concludes with liquidity guidance for calendar year 2025.

Liquidity for Public Pensions

→ The liquidity needs of public pensions are different than other investors:

- Consistent benefit payment outflows.
  - For the average public pension of similar size as the ERS, benefit payment outflows exceed contribution inflows (average peer is roughly -2.5%* for net cash flow as a percent of the total portfolio).
- Private markets capital calls.
- For certain closed systems, the portfolio may not have any contributions and will eventually be entirely liquidated.

→ Additionally, liquidity is important from an investment perspective in order to rebalance and take advantage of investment opportunities.

*Source: Boston College Center for Retirement Research

Liquidity Tiers

→ Investments can often be classified into liquidity tiers/categories.

Tier 1	- Assets with either low-to-moderate volatility or a negative equity beta. - Must be accessible within days. - Ex: cash, short-to-intermediate Treasuries, long volatility strategies, etc.

Tier 2	- Assets that are expected to be uncorrelated to public equity but exhibit one or more of the following characteristics:
	    - High volatility (i.e., 10% or more annual standard deviation).
	    - Liquidity that isn't accessible for one month or more.
	- Ex: systematic trend following, liquidity restricted commingled funds, etc.

Tier 3	- Assets that are liquid (days-to-weeks) but with high correlations to public equity. - Ex: public equity, public credit, public real assets, etc.
Tier 4	- Illiquid assets/private markets. - Ex: private equity, private credit, private real assets, etc.

Methodology for Determining *Tier 1* Minimum

→ The ERS conducts a comprehensive evaluation of the total portfolio's ability to meet liquidity requirements over long-horizons during asset-liability studies (conducted every 3-5 years).

- Liquidity requirements typically include projected benefit payments over a ~20-year horizon and private markets commitments/distributions over the first five years (with cash flow neutrality assumed thereafter).

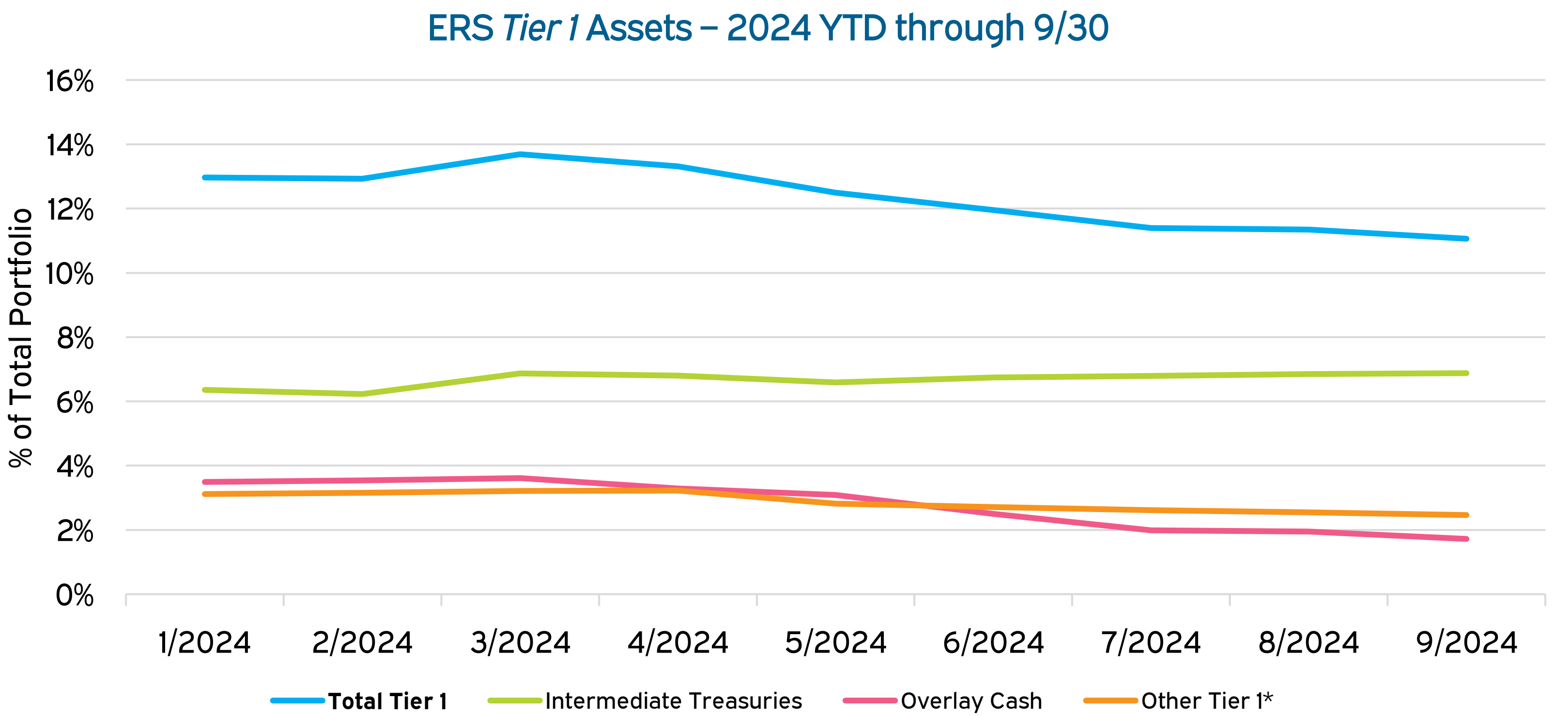
→ Moreover, portfolios are examined under severe liquidity stress tests in order to evaluate the ERS's ability to meet liquidity requirements.

→ As it relates to methods for determining a *Tier 1* minimum, there is no industry standard.

→ In 2023, Meketa and ERS Staff examined expectations for portfolio drawdown lengths and determined the amount of *Tier 1* assets required to meet liquidity needs during such drawdowns.

- This is where the 5% minimum (i.e., 2.5 years of net cash outflows) came from.

ERS – 2024 YTD Experience



→ ERS has maintained sufficient exposure in *Tier 1* assets throughout 2024 – well above the 5% minimum (e.g., ~11-14% of Total Portfolio throughout the year).

→ The amount of cash in the Overlay program has declined over the year but has been increased in Q4 2024 to begin 2025 near $750 million (~7 months of cash flow needs).

- This process follows the plan presented by ERS Staff and Meketa in November 2023.

*Other Tier 1 assets are primarily long volatility strategies.

Note: figures do not include cash held in the "ERS Operating Account" which ranged from roughly $90-$290 million in 2024 YTD ending 9/30, based on month-end data.

Conclusion

→ Mature public pension systems require an explicit consideration of liquidity.

→ Liquidity is a multifaceted attribute, and it is important to examine each asset class's liquidity under periods of market stress.

→ During periods of market stress, liquidity should primarily be accessed from asset classes exhibiting stable/improving values and low transaction costs.

- The primary reason why it is not advisable to obtain liquidity from assets experiencing drawdowns is because that is the exact time that their forward-looking returns are the most attractive.

→ Throughout 2024 YTD, ERS has maintained a high level of exposure in *Tier 1* assets that well exceeded the 5% minimum.

→ Based on current market values and actuarial projections, Meketa and ERS Staff recommend that the 5% minimum remain unchanged for calendar year 2025.

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Certain information contained in this document constitutes "forward-looking statements," which can be identified by the use of forward-looking terminology such as "may", "will", "should", "expect", "anticipate", "target", "project", "estimate", "intend", "continue" or "believe" or the negatives thereof or other variations thereon or comparable terminology. Due to various risks and uncertainties, actual events or results or the actual performance of the Funds and investments may differ materially from those reflected or contemplated in such forward-looking statements."

MEMORANDUM

November 18, 2024

TO:	The Investment Committee of the Board of Trustees Employees' Retirement System of the State of Hawaiʻi ("ERS")
THROUGH:	Thomas Williams, Executive Director ("ED") Employees' Retirement System of the State of Hawaiʻi
FROM:	Kristin Varela, Chief Investment Officer ("CIO") Employees' Retirement System of the State of Hawaiʻi
SUBJECT:	Revisions and Updates to the ERS Investment Policy Statement (IPS) – Sections C and D

Summary of Recommended Revisions:

The recommended revisions to the Responsible Investing policy in Section C of the IPS places greater emphasis on broader fiduciary considerations, going beyond traditional ESG considerations and incorporating other factors into investment decision-making. Edits include:

SECTION C. ERS GENERAL INVESTMENT OVERVIEW

- SECTION C.7: Responsible Investing
  Action: Update definition and language for "Responsible Investing" to account for systemic risk factors.
  Reasoning: To align with ERS goals and objectives.

- SECTION C.7.1:
  Action: Update language to delete specific references to the proxy voting administrator by name and redundancy and include guidance for ERS investment managers with delegated proxy authority.
  Reasoning: To eliminate reference to vendor by name in IPS and for clarity.

SECTION D. BROAD GROWTH PROGRAM

The Real Assets Component in Section D has been aligned with the strategic allocation approved by the Board in 2023 and streamlined to ensure clarity and consistency in the management of real assets investments. Edits include:

- BROAD GROWTH APPENDIX: REAL ASSETS COMPONENT
  - REAL ASSETS COMPONENT – VARIOUS SECTIONS
    Action: Updated reference to selection consultant, from Real Estate Consultant to Real Assets Consultant.
    Reasoning: To align with contracted responsibilities of selection consultant, covering total Real Asset portfolio.

- REAL ESTATE SUB-COMPONENT 1.b, 2.a, 2.c

  Action: Update language and to align with current practice.

  Reasoning: To consolidate the naming convention of Core and Non-Core Real Estate into Real Estate, align Separate Account Tactical Plan with current practice, and broaden leverage expectations in alignment with market implementation.

- REAL ESTATE SUB-COMPONENT 3.c.iv, 3.c.vi, 3.d.viii

  Action: Update language of Value Add and Opportunistic Real Estate general characteristics.

  Reasoning: To streamline IPS and ensure alignment with Infrastructure and Agriculture Sub-Component policies.

- REAL ESTATE SUB-COMPONENT 4.c

  Action: Elimination of Section C, Target Portfolio.

  Reasoning: Removing target portfolio references to legacy benchmark, no longer utilized by ERS. Specific guidelines are no longer relevant.

All changes to become effective on January 1, 2025.

ERS GENERAL INVESTMENT OVERVIEW

SECTION: C

TABLE OF CONTENTS

C. 1. ERS INVESTMENT PLAN SUMMARY

1. Primary Goal

The preservation of capital is of primary concern of the Employees' Retirement System of the State of Hawaii ("ERS" or "Plan"). The Board of Trustees of the ERS ("Board of Trustees" or "Board") seeks preservation of capital with a consistent, positive return for the Plan. Although pure speculation is to be avoided, the Board recognizes that a return in-line with the actuarial rate is associated with a certain degree of risk. Risk to be assumed must be considered appropriate for the return anticipated and consistent with the total diversification of the Plan.

2. Structure

The ERS implements a risk-based, functional framework for allocating capital within the total portfolio. This framework 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., Diversifying Strategies class) and/or be exposed to a specific set of macroeconomic risks that are common amongst 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. Each program's policy section contains a list of the relevant macroeconomic risks. Definitions for each of these macroeconomic risks can be found in Appendix B of this Manual.

a. *Current Strategic Allocation Target Ranges (effective 01/01/2024)*

The ERS will be invested according to the following strategic class targets and ranges:

	Lower Limit	Target	Upper Limit
Broad Growth	60%	70%	80%
Diversifying Strategies	20%	30%	40%
Opportunities	0%	0%	0%

The Chief Investment Officer of the ERS ("CIO") may set the actual class levels anywhere within the upper and lower limits above. For deviations in excess of +/- 3%, the CIO shall provide regular ongoing justifications for the deviations. Adjustments in the above targets may be reviewed in conjunction with the annual strategic allocation review. The general consultant should conduct a formal strategic allocation study at least every three years for the Board of Trustees to verify or amend the strategic targets and ranges.

b. *Total Investment Portfolio Evaluation Benchmark*

To monitor the total investment portfolio result, a custom benchmark is constructed to measure the target mix. This target benchmark mix will evolve over time, but it is based on historical evolving allocation targets, the above-highlighted strategic allocation targets, and the broad benchmarks listed below (i.e., evolving weights x benchmark return).

- Broad Growth Blended Benchmark[1]
- Diversifying Strategies Blended Benchmark[1]

[1] Refer to program section for detailed description of benchmark, and possible evolving benchmark timeline.

Individual ERS investment managers ("Investment Managers" or "investment managers") will not be measured against this total investment portfolio objective. However, it is expected that the sum of their efforts will exceed the objective over time.

C. 2. INVESTMENT MANAGEMENT POLICY

1. Manager Discretion

The investment managers shall be given full discretion to manage the assets under their supervision subject to this Investment Policy, Guidelines, and Procedures manual ("Manual"), their assigned mandate, the laws of the State of Hawaiʻi ("State"), and their investment management agreements with the ERS.

2. Manager Evaluation

Individual investment managers will be measured against an appropriate benchmark, index and peer group as appropriate. Relevant manager evaluation benchmarks are stated in investment management agreements with the ERS.

3. Policy on Local Managers

The Board of Trustees wishes to utilize qualified local firms in the management of a portion of the ERS's assets. Due to the size of the ERS's portfolio and the fiduciary responsibility of the board members to select qualified firms in accordance with overall Board investment strategy, the following guidelines have been established for the identification, selection and evaluation of Hawaiʻi-based investment management firms.

a. It shall be the policy of the Board to allocate assets to local investment managers in accordance with the Board's strategic allocation and long-term investment policies.

b. The asset mix of the combined local investment managers' portfolios shall be determined under a fiduciary framework with respect to the overall portfolio and relevant strategic classes.

c. Evaluation of Local Firms

   i. All local firms retained by the Board of Trustees shall be evaluated in a similar fashion as all other investment managers within the same strategic class.

C. 3. REPORTING REQUIREMENTS FOR INVESTMENT MANAGERS

1. Investment Managers of Liquid Mandates

Investment managers of liquid mandates must abide by the reporting requirements stated within their investment management agreements.

2. Investment Managers of Illiquid Mandates

Investment managers of illiquid mandates must abide by the reporting requirements stated within their partnership agreements.

C. 4. SECURITIES LENDING GUIDELINES

The policies and guidelines governing the securities lending program shall pertain to the Custodian, unless such services are contracted otherwise. A *separate contract*, distinct from the custody relationship, detailing the type of securities lending relationship and program is both mandatory and essential in the treatment of securities lending as, foremost, an investment function with the associated risks and return implications, and fiduciary responsibility.

On an annual basis, the Custodian shall provide a detailed report of the ERS's securities lending activities. This summary shall be the basis for verification that the Custodian is complying with these securities lending guidelines. After reviewing the report provided by the Custodian, the General Investment Consultant shall prepare a report summarizing the ERS's securities lending activity and compliance with the ERS's policies.

1. Objective

The Custodian, as the ERS's securities lending agent, receives cash or government securities (defined below) as collateral for loans of their securities to approved borrowers. On an ongoing basis, the securities lending agent identifies eligible collateral and, in the case of cash collateral, the opportunity for a market rate of return consistent with allowed investment latitude and thereby seek to generate positive program spreads.

The securities lending agent must exercise investment discretion consistent with the overall objective of preserving principal; providing a liquidity level consistent with market conditions and the lending and trading activities of the ERS; and maintaining full compliance with stated guidelines and statutory provisions. The securities lending agent shall exercise prudence and expertise in managing the cash collateral reinvestment function.

2. Program Guidelines

Maintenance of the integrity and operational functionality of the securities lending program shall be pursued with utmost diligence. The securities lending agent shall have documented policies and procedures in place detailing the following if not stipulated in the securities lending contract for both domestic and international securities.

a. *Borrower Limits/Creditworthiness*

b. *Acceptable Collateral*

c. *Marking to Market*

d. *Corporate Actions/Distributions*

e. *Proxy Voting Limitations*

f. *Recall of Loaned Securities*

g. *Revenue Splits*

h. *Valuation and Reporting of Loaned Securities and Cash Collateral Reinvestments*

i. *Borrower Risk (Default)*

j. *Cash Collateral Reinvestment Risk*

k. *Operational Negligence*

l. *Counterparty Indemnification*

m. *Other relevant policies*

The securities lending agent shall at all times exercise prudence and due care and shall comply at all times with Section 88-121.5, Hawaiʻi Revised Statutes and all other applicable laws, rules and regulations of federal, state, and local entities or agencies having jurisdiction, including but not limited to banking and securities regulatory bodies, taxation authorities and the US Department of Labor.

3. Collateral Management

The securities lending agent shall exercise prudence and reasonable care in discharging its discretion in the investment management of cash and non-cash collateral, including asset/liability (gap) management that is appropriate relative to the market environment or conditions that the securities lending agent is operating in. Provided that the management of collateral, specifically cash, imposes the greater risk, the securities lending agent shall adhere to the overall investment objective of ERS. Policies regarding issuer, credit, exposure and rating limits utilized in the securities lending program per investment vehicle shall be under the full discretion of the provider, and appropriate and consistent with the stated general guideline. Issues such as exposure guidelines, prohibited securities for cash investment, duration strategies, and matched and mismatched book are both strategic and tactical investment functions and shall be consistent with the above objective.

Initial Collateral levels will not be less than 102% of the Market Value of the Borrowed Securities, or not less than 105% if the borrowed securities and the Collateral are denominated in different currencies. Marking-to-market is performed every business day subject to de minimis rules of change in value, and the Borrower is required to deliver additional Collateral when necessary so that the total Collateral held by the securities lending agent for all loans to the Borrower of all participating lenders will at least equal the market value of all the borrowed securities of all participating lenders loaned to the Borrower.

Listed below are the cash and non-cash Collateral guidelines specifying eligible investments, credit quality standards, and diversification, maturity and liquidity requirements. Except for Prior Purchased Assets[2], all requirements listed in these guidelines are effective at the time of purchase of any security or instrument as a cash Collateral investment and at the time of receipt of any non-cash Collateral. Agent will make use of market standard settlement methods for cash investments and non-cash collateral including the use of a tri-party custodian as approved by Agent's appropriate risk committee. Settlement through a tri-party custodian may result in cash collateral being held on deposit at the tri-party custodian.

[2] There may be certain assets held as Collateral that complied with the requirements of a prior version of these guidelines then in effect at the time of purchase of such assets, but that may not meet these latest guidelines (such assets termed "Prior Purchased Assets"). Such Prior Purchased Assets may continue to impact the overall securities lending portfolio accordingly. The securities lending agent may, at its sole discretion, hold such Prior Purchased Assets until maturity, or as otherwise determined by it.

a. *Cash Collateral Guidelines*

i. Investment Objectives

Cash Collateral of the Collateral Account is invested to seek the following objectives:

1. preservation of capital
2. maintenance of liquidity, and
3. maximization of current income to the extent consistent with (a), and (b), above by investing cash Collateral in accordance with the guidelines stated below. Within quality, maturity, and market sector diversification guidelines, investments are made in those securities Agent judges to offer the most attractive relative yields.

ii. Investment Guidelines

A separate cash Collateral account shall be maintained for each currency, subject to the eligibility rules below. Cash Collateral shall be denominated in either U.S. Dollars or Euro currency, and shall be invested in securities or instruments managed under the following guidelines:

b. *Eligible Investments:*

i. Securities and Exchange Commission (SEC) Rule 2a-7 money market mutual funds.

ii. Securities issued or guaranteed as to principal and interest by the Government of the United States or issued or guaranteed by agencies or instrumentalities thereof.

iii. High-grade commercial paper and commercial paper master notes, whether or not registered under the Securities Act of 1933, as amended, and promissory notes. Obligor shall have a short-term rating not lower than "A-1, P-1 or F-1", at time of purchase.

iv. Corporate obligations, including the banking industry, which are marketable and rated high-grade. At the time of purchase, either the long-term rating shall not be lower than "AA-, Aa3", or the equivalent thereof, or the short-term rating shall not be lower than "A-1, P-1, or F-1" if less than one year remaining until maturity. Obligations may include fixed, floating and variable rate notes and bonds.

v. Asset backed securities, at the time of purchase, shall have either a long-term rating of "AAA, Aaa" or the equivalent thereof, or a short-term rating not lower than "A-1, P-1, or F-1" if less than one year remaining until maturity. Mortgage-backed securities are not considered asset backed securities for purposes of this restriction. Asset backed securities must be collateralized by credit cards, auto receivables, equipment trusts or student loans.

vi. Certificates of deposit and other bank deposit obligations of U.S. banks or U.S. branches or subsidiaries of foreign banks. At the time of purchase, the issuing bank must have either a short-term issuer debt rating not lower than "A-1, P-1, or F-1" or a long-term issuer debt rating not lower than "AA-, Aa3", or the equivalent thereof.

vii. Bankers' acceptances issued by U.S. banks or issued in the U.S. by branches or subsidiaries of foreign banks. At the time of purchase, the issuing bank must have either a short-term issuer debt rating not lower than "A-1, P-1, or F-1" or a long-term issuer debt rating not lower than "AA-, Aa3", or the equivalent thereof.

viii. Repurchase agreements with respect to the following types of collateral and repo counterparties:

ix. U.S. government securities, agencies, sovereigns, supranationals, commercial paper, municipal bonds, asset-backed securities, mortgage-backed securities (only pass-throughs), corporate bonds (investment grade and high yield), and equities.

x. The credit worthiness of the repurchase agreement counterparties shall be monitored by Agent's internal risk committee.

xi. Sovereign debt obligations (other than U.S. Government obligations). At the time of purchase, either the long-term rating shall not be lower than "AA-, Aa3" or the equivalent thereof, or the short-term rating shall not be lower than "A-1, P-1, or F-1" if less than one year remaining until maturity.

xii. Interests or units in any short-term investment fund (including, without limitation, such funds of the ERS's Custodian Bank and any of its affiliates) that invests in any or of the types of investments approved above.

xiii. Capped floaters, provided that Agent shall notify Lender of the usage of such securities and shall employ appropriate risk assessment and manage expertise as specified by the Office of the Comptroller of the Currency.

xiv. Constant Maturity Treasury ("CMT") floaters, provided that Agent shall notify Lender of the usage of such securities and shall employ appropriate risk assessment and manage expertise as specified by the Office of the Comptroller of the Currency.

c. *Maturity/Liquidity*

The "maturity" of a security or instrument (or "maturities" for more than one security or instrument) shall be defined as follows:

i. The shorter of the date on which the principal amount is ultimately required to be paid or the put date under a demand feature, or

ii. Variable rate eligible U.S. Government and U.S. Agency obligations shall have a maturity equal to the date of the next readjustment of the interest rate, or

iii. The maturity of a pooled investment fund shall be the number of days required to liquidate an investment in the fund under normal market conditions, or

iv. Asset-backed securities shall have a maturity equal to such security's weighted average life (i.e., the average time to receipt of expected cash flows on the security).

A minimum of 60% of the cash portion of the Collateral Account shall be invested in securities which have a maturity (as herein defined) of 97 days or less.

A minimum of 20% of the cash portion of the Collateral Account shall be available each business day. This may be satisfied by maturities (as herein defined), or demand features.

The rate sensitivity or weighted average maturity, as measured to the shorter of the remaining time until the interest rate reset (if applicable) or maturity, of the cash portion of the Collateral Account will be limited to 60 days.

The weighted average maturity, as measured to maturity (as herein defined), of the cash portion of the Collateral Account shall not exceed 120 days.

The maturity of fixed rate investments may not exceed 13 months from the date of purchase. The maturity of floating rate Eligible Investments, including the maturity of variable rate eligible U.S. Government and U.S. Agency securities (as measured to final maturity date, not the next readjustment of interest rate), may not exceed 2 years.

d. Diversification

Subject to the following exceptions, a maximum of 5% of the cash portion of the Collateral Account may be invested in securities or instruments of any one issuer or obligor. Exceptions are as follows:

i. 100% of the cash portion of the Collateral Account may be invested in obligations issued or guaranteed by the U.S. Government or its agencies/instrumentalities.

ii. 25% of the cash portion of the Collateral Account may be invested with any one counterparty in repurchase agreements collateralized by U.S. Government or U.S. Government agency securities.

iii. 10% of the cash portion of the Collateral Account may be invested with any one counterparty in repurchase agreements collateralized by eligible securities other than U.S. Government or U.S. Government agency securities.

iv. Residual cash balances, which cannot be invested into the marketplace, shall not be subject to diversification limits.

e. General Ratings Provisions:

The ratings above must be designated by at least two Nationally Recognized Statistical Rating Organizations ("NRSROs"), or if only rated by one NRSRO, then rated at the time of purchase in the minimum rating category specified by that NRSRO, as above. For the avoidance of doubt, if all three NRSROs rate the obligation, then the obligation is eligible as long as two NRSRO ratings meet the minimum criteria. In the event that the obligation is not rated, the issuer rating shall be considered with respect to the class of comparable short-term obligation or long-term obligation.

f. Prohibited Transactions and Securities

The following transactions and securities are not permitted as direct investments of Cash Collateral:

i. Additional leverage, which shall mean that Lender may not further lend Eligible Investments in the Collateral Account.

ii. Highly leveraged, structured notes.

iii. Range floaters, COFI floaters, Dual Index floaters inverse floaters and leveraged floaters.

g. Non-Cash Collateral Guidelines

Listed below are the non-cash Collateral investment guidelines for eligible Collateral.

i. <u>Investment Guidelines</u>

Non-cash eligible instruments may consist of the following:

ii. <u>Eligible Investments</u>

1. Obligations issued or guaranteed by the U.S. Government or its agencies or instrumentalities thereof.

2. Obligations issued or guaranteed by OECD (Organization for Economic Cooperation and Development) member states or their local governments, agencies or authorities.

3. Canadian Provincial Debt

4. Equity securities, which are part of U.S. and non-U.S. indices (including, but not limited to U.S., U.K., EMU, Japan, Canadian and Australian markets), as approved by Agent's internal risk committee from time to time; and

5. Such other Collateral as the parties may agree to in writing from time to time.

iii. Credit Quality

1. Eligible Instruments as named above may be accepted without limit.

iv. Diversification

1. Eligible Instruments as named above may be accepted without limit.

h. Operation of the Collateral Account

i. Income

Income earned from the investment of cash Collateral, net of (i) expenses, including but not limited to, transaction accounting and reporting expenses, auditing fees, brokerage fees and other commissions, and any miscellaneous expenses, (ii) any applicable withholding of tax, (iii) loan rebate fees paid or accrued to the borrowers, and (iv) any adjustments to provide for regular returns, together with loan fees for loans Collateralized by non-cash Collateral, are distributed to Lender of the Collateral Account on a monthly basis.

On a monthly basis, a portion of the income earned by Lender on a loan on any business day may be withheld by Agent and transferred to income earned on a different loan for that Lender on any other business day if on that day one or more rebates due or accrued to borrowers with respect to one or more loans should exceed the income earned from the cash Collateral supporting those loans. If, despite such transfers, during any month total rebates payable exceed total revenues with respect to any loan or loans of Lender, the net shortfall shall be charged against positive undistributed earnings from other loans of Lender to the extent thereof, and any remaining shortfall shall be allocated between the Lender and the Agent in the same proportions as positive securities lending revenues. Any amounts thereby payable by the Lender shall be the personal obligation of Lender and shall be due and payable upon the Lender's receipt of Agent's invoice for such amounts. Agent may withhold (and Lender is deemed to grant to Agent a lien upon) future loan revenues, and any other property of the Lender then or thereafter in the possession of Agent, to secure the payment of such obligation. Notwithstanding the foregoing, however, all other Collateral losses shall not be shared between the Lender and the Agent to any extent but shall be allocated as provided in the Agreement or these guidelines.

Incidental expenses, (e.g., negative float due to payment advances) incurred in the administration of the Collateral Account are recovered against incidental receipts, (e.g., positive float from pending balances) similarly arising and any remaining balance is added to the lending revenues for the benefit of Lender. Net realized short-term capital gains or losses (if any) may be distributed (or charged) from time to time.

ii. Net Asset Value

Lender hereby directs Agent to maintain the cash portion of the Collateral Account as a fund comprised of units having a constant net asset value of $1.00 per unit and to value the fund using the amortized cost method (acquisition cost as adjusted for amortization of premium or accretion of discount) for that purpose. Agent will not determine or monitor the fair market value of the investments as a means of comparing the unit value with the market value of its investments. Lender hereby represents and confirms on a continuing basis throughout the term of this Agreement that such a method of valuation and account maintenance is consistent with all laws, rules, regulations and accounting procedures applicable to Lender.

The cash portion of the Collateral Account intends to maintain a constant net asset value within minimum tolerances established by Agent's senior management. There is no guarantee, however, that the cash portion of the Collateral Account will be able to attain that objective. The Collateral Account is not registered under the Investment Company Act of 1940 as a money market fund, is not subject to regulation by the Securities and Exchange Commission and does not comply with federal regulations governing registered money market mutual funds.

In no event shall Agent be personally liable to restore any loss within the Collateral Account, unless the loss was directly caused by the negligence or intentional misconduct of Agent.

iii. Trading Policy

Although the Collateral Account will generally not engage in short-term trading, the Agent may dispose of any portfolio security prior to its maturity if, on the basis of a revised credit evaluation of the issuer or other considerations, Agent believes such disposition is advisable. Subsequent to its purchase, a portfolio security or issuer thereof may be assigned a lower rating or cease to be rated. Such an event would not necessarily require the disposition of the security, if the continued holding of the security is determined to be in the best interest of the Lender. In any event, Agent will notify Lender as soon as reasonably practicable if any security is downgraded after initial purchase below the minimum requirements set forth in these investment guidelines.

C. 5. STRATEGIC ALLOCATION REBALANCING GUIDELINES

1. Rebalancing Assets within the Strategic Allocation

One essential component of a strategic allocation policy is the development and use of rebalancing ranges for the target allocation. According to several studies, systematic rebalancing should reduce portfolio volatility and increase a portfolio's risk-adjusted return. Using the ERS's long-term strategic target allocation, the greatest enhancement to investment performance (i.e., enhancing the annualized return while lowering the risk) is achieved by the rebalancing within the ranges described in C.1. ERS Investment Plan Summary.

The Investment Staff will maintain the classes within their target ranges primarily by using cash flows, although the actual allocations will be rebalanced whenever a class is outside of its strategic target range. The Board of Trustees should review the targets and ranges annually for reasonableness relative to significant economic and market changes, and relative to changes in the ERS's long-term goals and objectives.

If the Plan has positive cash flow (i.e., contributions exceeding disbursements), Investment Staff has the discretion to rebalance by directing new moneys to the under allocated strategic classes on a pro-rata basis. If the Plan has negative cash flow, Investment Staff has the discretion to withdraw moneys to be disbursed from over allocated strategic classes. In each case, the CIO shall keep the Executive Director and the Board of Trustees apprised of current asset movements. Managing strategic allocations in this manner should not incur any additional transaction cost beyond what would have been normally incurred to liquidate or invest assets.

Certain strategic classes have more subjective rebalancing ranges relative to their target allocations. Concerns of liquidity and the long-term horizon for these investments suggest a more infrequent rebalancing schedule. Accordingly, other more qualitative considerations (e.g., transaction costs, liquidity needs, investment time horizons, etc.) regarding the timing of rebalancing certain elements within certain asset classes will be important to consider with the guidelines shown above.

2. Rebalancing Investment Style/Mandate Allocations Within Strategic Classes

Investment Staff is responsible for maintaining appropriate style and mandate weightings, consistent with the respective strategic classes' risk profile(s). Investment Staff and/or the applicable investment consultant shall regularly report style and mandate weightings, and their deviations from policy, to the Board. Any adjustments that cause a material change to a strategic class's risk profile requires Board approval.

3. Single Manager Portfolio and Firm Allocation Limits for Active Mandates

In order to minimize any potential risk associated with large concentrations of the ERS's portfolio assets being managed in a single manager portfolio or by a single firm, the following limits have been put in place:

a. No single equity manager portfolio shall represent more than 5% of the total ERS portfolio and

b. No single manager/firm, when all active mandates associated with that manager/firm are aggregated, shall represent more than 10% of the total ERS portfolio.

If any single manager portfolio or manager/firm's active assets exceed these limitations, Investment Staff shall provide the Board its solution to reallocate funds from that portfolio or manager/firm within the portfolio to reduce the concentration within a reasonable time period.

The Board may exclude certain firms from these limits.

Exemptions:

Gateway Investment Advisers, the ERS's covered calls manager, was granted a temporary exemption from the single manager portfolio limit at the September 14, 2015 Board meeting.

C. 6. PORTFOLIO TRANSITIONS

From time to time, the ERS will have a need to restructure its portfolios as a result of manager performance or strategic allocation changes. The Board of Trustees, acting on recommendations and suggestions of the Investment Staff and investment consultants, will decide to undertake actions to allocate assets to maintain optimal strategic class weightings and/or to individual managers. Investment Staff will maintain desktop procedures that detail the asset transition decision process and will follow the asset transition steps. Investment Staff will maintain coordination and communication throughout the transition process with other ERS staff and outside parties. During the trade and post-trade processes Investment Staff will evaluate the performance of manager(s) by means of various reports. The CIO will report transition highlights to the Executive Director and the Board when appropriate.

C. 7. RESPONSIBLE INVESTING

The ERS strives to ~~integrate and consider Responsible Investing practices~~be a prudent and responsible investor in overseeing the System's assets.

~~This practice aims for a balance between the System's financial goals and needs and the investment's impact on society by~~ This means that the ERS, as a fiduciary to its members, is responsible for achieving financial return and positive impact on our members through oversight of the actions of the corporations or entit~~y~~ies in which ~~the~~ investments ~~is~~ are made.

~~Falling within the realm of Responsible Investing is the consideration of environmental, social, and corporate governance (ESG) factors, where ESG describes the three main areas of concern that have developed as the central factors in measuring the sustainability and ethical impact of an investment in a company or business. Within these three areas are a broad set of concerns that are increasingly being included in the nonfinancial factors that figure in the valuation of equity, real estate, infrastructure, and fixed income investments. Examples include but are not limited to, a company's carbon footprint, human rights, employee gender and ethnic diversity and non-discrimination, climate change, and effective board oversight. ESG factors have the potential to affect the economic value and performance of an investment now and in the future. Sound corporate governance policies and practices play an important role in protecting economic value while enhancing value for long-term plan participants and beneficiaries. The ERS strives to incorporate ESG into its investment process to identify and select investment partners that share in its alignment of utilizing ESG factors when evaluating the value and risk of portfolio companies.~~ There are a broad set of factors that are not found in financial statements which nevertheless can have significant impact on the financial valuation of an investment. These factors have always been a part of a comprehensive due diligence process and are becoming increasingly important to finding opportunities and avoiding risks. These factors affect the valuation of investments across various asset classes. Examples include but are not limited to: a company's ability to adapt to systemic changes; effective board oversight; degradation or contribution to its surroundings, including the local populations; human rights; employee non-discrimination. These factors have the potential to affect the economic value and performance of an investment. Sound corporate policies and practices, to ensure accountability, play an important role in protecting and enhancing long-term economic value for plan participants and beneficiaries.

The ERS strives to be a prudent and responsible investor by incorporating all relevant factors into its investment process and seeks to identify and select investment partners that are aligned with our mission to fulfill our fiduciary duty to our members.

~~Upon the~~The ERS will be mindful of the encouragement by the House of Representatives of the Twenty-sixth Legislature of the State of Hawai'i, Regular Session of 2012~~, the ERS will continue to apply the principles of Responsible Investing in investment practices and decisions where possible, and encourages other investment counselors and money managers to apply Responsible Investing to their investment portfolios. The ERS believes that these considerations align with its goal to provide strong long-term investment results to the System.~~, and adhere to all applicable state and federal statue in making investments.

The following sections outline the ERS's policies and efforts that pertain and support the practice of Responsible Investing:

1. Proxy Voting
2. The Global Sullivan Principles

3. Anti-Terrorism Policies
4. Sudan Policies
5. United Nations – Supported Principles for Responsible Investment (PRI)
6. HiTIP Policies and Procedures (Created by the ERS to fulfill the mandate of Act 260, "A Bill For An Act Relating To The Innovation Economy.")

1. Proxy Voting

The ERS has a fiduciary responsibility to act solely in the best interest of its members and beneficiaries and ~~the right to vote~~voting proxies is considered by the ERS as an important part of its fiduciary duty~~. Proxy voting can be a powerful tool to affect company behavior and is preferable to divestment, which is a tool that reduces the size of the investible universe and gives up the~~

~~influence inherent in the rights of equity ownership~~ as it maximizes the rights of equity ownership. Proxies have economic value and must be voted in the interest of the ultimate shareholder of plan beneficiary. The ERS will use its rights as an active shareholder to manage risks and hold companies in which they invest accountable for the business decisions the companies make.

The ERS shall retain a proxy voting administrator to aggregate, research, and vote the ERS's proxies related to the Plan's applicable public markets separate accounts. The proxy voting administrator shall have delegated authority to vote the ERS's proxies according to guidelines selected/customized by the ERS. On an ongoing basis the proxy voting administrator shall review the ERS's proxy voting guidelines and annually, or more frequently, if necessary, update the guidelines if needed. The proxy voting guidelines are designed to ensure compliance with the fiduciary responsibilities of public plan sponsors voting proxies on behalf of the Plan's participants. The proxy voting administrator shall report to the ERS the proxies voted on behalf of the Plan at least annually, or more frequently upon request.

Proxy Voting Guidance for ERS Investment Managers with Delegated Proxy Authority ~~The ERS has established comprehensive proxy voting and reporting guidelines that are aligned with the System's specific interests.~~

~~The ERS has elected to utilize a customized version of the ESG Policy established by Glass Lewis as the guidelines for voting decisions. Glass Lewis is the proxy voting administrator for the ERS, and votes on behalf of the ERS for companies in the Public Growth portfolio. Glass Lewis offers various "policies" which are templates that guide vote decisions. These guidelines are compliant with the fiduciary responsibilities of public pension plan sponsors in voting proxies on behalf of the Plan's participants and are suitable for investors with extremely long-term investment horizons. In addition, these guidelines support direct action by companies, linking executive compensation to prescribed responsible investing metrics, and more strongly support increased or improved disclosure relative to other voting policies. The ERS has added customization to ensure this policy is at least as stringent on governance-related board practices as other voting policies. These guidelines reflect analysis and identification of both financial and corporate governance risk and include consideration of stakeholders and affected parties in making proxy voting decisions. These guidelines encourage increased reporting and disclosure on the part of portfolio companies on executive compensation, governance, labor practices, and~~

~~the environment. Glass Lewis evaluates its policy guidelines on an ongoing basis and formally updates them on an annual basis. Additionally, the ERS can further adjust the voting policy to reflect the System's specific preferences and beliefs.~~

The ERS reserves the right to delegate proxy voting authority to any managers ~~not able to adhere to the proxy guidelines selected by the ERS~~, where proxy voting authority cannot be delegated to the Plan's proxy voting administrator (i.e., public equity commingled funds), or where the manager votes proxies only on rare occurrence (i.e., fixed income mandates). Any investment manager voting proxies on behalf of the Board will do so with the primary objective of maintaining and advancing the economic value and interests of ERS members. ERS also requests these investment managers, as part of their investment discretion and fiduciary responsibility, to take into consideration the importance of the Corporate Governance Policies promulgated by the Council of Institutional Investors, proxy voting guidance available through the CFA Institute, and the Global Sullivan Principles. Investment Staff, with the assistance of the applicable investment consultants, shall poll these managers annually as to their proxy voting policies. A letter affirming compliance with the manager's proxy voting guidelines will be requested from these applicable managers on an annual basis. The ERS may request from each manager reports of the proxy votes cast on the ERS's behalf for review.

To meet their fiduciary duty with regard to corporate governance, investment managers must follow adequate procedures concerning the voting of proxies. When ERS managers are given the responsibility to vote proxies, they must adopt procedures to ensure that issues are noted, analyzed, and considered before voting. Investment managers must be thoroughly familiar with the issues that arise in proxies. Proxies have economic value and must be voted in the interest of the ultimate shareholder or plan beneficiary. Investment managers cannot simply vote without adequate examination of the underlying issues. Managers of this type may refer to the CFA Institute for general proxy voting guidance. The skills and experience of the professional investment community, particularly the research and analytic skills, can be used effectively in corporate governance issues, which will ultimately benefit corporations and shareholders alike and enhance the competitiveness of business in global markets. Good corporate governance and good investment decisions go hand in hand.

Corporate Governance Policies,
Council of Institutional Investors
(reprinted from www.cii.org)

The ERS ~~believes in~~understands that ~~carrying forward the Council of Institutional Investors' (CII) goal of~~ instituting strong governance standards at public companies and strong shareholder rights can be supportive of positive investment outcomes. The Council of Institutional Investors (CII) ~~believes~~ works to enhance effective corporate governance and disclosure, which serves the best long-term interests of companies, shareholders, and other stakeholders. CII supports shareholders' discretion to employ a variety of stewardship tools to improve corporate governance and disclosure at the companies they own, which includes casting well-informed proxy votes. The ERS encourages its investment managers and proxy voting provider to use the Corporate Governance Policies established by the CII to guide proxy voting decisions when casting votes on behalf of the ERS.

The Council expects that corporations will comply with all applicable federal and state laws and regulations and stock exchange listing standards.

The Council believes every company should also have written disclosed governance procedures and policies, an ethics code that applies to all employees and directors, and provisions for its strict enforcement. The Council posts its corporate governance policies on its web site (www.cii.org); it hopes corporate boards will meet or exceed these standards and adopt similarly appropriate additional policies to best protect shareholders' interests.

In general, the Council believes that corporate governance structures and practices should protect and enhance accountability to, and ensure equal financial treatment of, shareholders. An action should not be taken if its purpose is to reduce accountability to shareholders.

The Council also believes shareholders should have meaningful ability to participate in the major fundamental decisions that affect corporate viability, and meaningful opportunities to suggest or nominate director candidates and to suggest processes and criteria for director selection and evaluation.

The Council believes companies should adhere to responsible business practices and practice good corporate citizenship. Promotion, adoption and effective implementation of guidelines for the responsible conduct of business and business relationships are consistent with the fiduciary responsibility of protecting long-term investment interests.

The Council believes good governance practices should be followed by publicly traded companies, private companies and companies in the process of going public. As such, the Council believes that consistent with their fiduciary obligations to their limited partners, the general members of venture capital, buyout and other private equity funds should use appropriate efforts to encourage companies in which they invest to adopt long-term corporate governance provisions that are consistent with the Council's policies.

The Council believes that U.S. companies should not reincorporate offshore because corporate governance structures there are weaker and therefore reduce management accountability to shareholders.

Council policies neither bind members nor corporations. They are designed to provide guidelines that the Council has found to be appropriate in most situations.

~~2. Proxy Voting Guidance for ERS Investment Managers with Delegated Proxy Authority~~

~~To meet their fiduciary duty with regard to corporate governance, investment managers must follow adequate procedures concerning the voting of proxies. When ERS managers are given the responsibility to vote proxies, they must adopt procedures to ensure that issues are noted, analyzed, and considered before voting. Investment managers must be thoroughly familiar with the issues that arise in proxies. Proxies have economic value and must be voted in the interest of the ultimate shareholder or plan beneficiary. Investment managers cannot simply vote without adequate examination of the underlying issues. Managers of this type may refer to the CFA Institute for general proxy voting guidance. The skills and experience of the professional investment community, particularly the research and analytic skills, can be used effectively in corporate governance issues, which will ultimately benefit corporations and shareholders alike and enhance the competitiveness of business in global markets. Good corporate governance and good investment decisions go hand in hand.~~

~~3.~~2. The Global Sullivan Principles

a. *Preamble*

The objectives of the Global Sullivan Principles are to support economic, social and political justice by companies where they do business; to support human rights and to encourage equal opportunity at all levels of employment, including racial and gender diversity on decision making committees and boards; to train and advance disadvantaged workers for technical, supervisory and management opportunities; and to assist with greater tolerance and understanding among peoples; thereby, helping to improve the quality of life for communities, workers and children with dignity and equality. I urge companies large and small in every part of the world to support and follow the Global Sullivan Principles of corporate social responsibility wherever they have operations.

Feb. 1, 1999
The Rev. Leon H. Sullivan

b. *Principles*

As a company which endorses the Global Sullivan Principles we will respect the law, and as a responsible member of society we will apply these Principles with integrity consistent with the legitimate role of business. We will develop and implement company policies, procedures, training and internal reporting structures to ensure commitment to these principles throughout our organization. We believe the application of these Principles will achieve greater tolerance and better understanding among peoples, and advance the culture of peace.

Accordingly, we will:

i. Express our support for universal human rights and, particularly, those of our employees, the communities within which we operate, and parties with whom we do business.

ii. Promote equal opportunity for our employees at all levels of the company with respect to issues such as color, race, gender, age, ethnicity or religious beliefs, and operate without unacceptable worker treatment such as the exploitation of children, physical punishment, female abuse, involuntary servitude, or other forms of abuse.

iii. Respect our employees' voluntary freedom of association.

iv. Compensate our employees to enable them to meet at least their basic needs and provide the opportunity to improve their skill and capability in order to raise their social and economic opportunities.

v. Provide a safe and healthy workplace; protect human health and the environment; and promote sustainable development.

vi. Promote fair competition including respect for intellectual and other property rights, and not offer, pay or accept bribes.

vii. Work with governments and communities in which we do business to improve the quality of life in those communities – their educational, cultural, economic and social well-being – and seek to provide training and opportunities for workers from disadvantaged backgrounds.

viii. Promote the application of these principles by those with whom we do business.

We will be transparent in our implementation of these principles and provide information which demonstrates publicly our commitment to them.

5/26/99
Source of Global Sullivan Principles: mallenbaker.net,
http://www.mallenbaker.net/csr/CSRfiles/gsprinciples.html, 11/05/03

ERS has a fiduciary responsibility to act solely in the interest of its members and beneficiaries. Therefore investment managers voting proxies for the board will do so with the primary goal of maintaining or increasing the economic interests of ERS.

~~4.~~3. Anti-Terrorism Policy

a. *Introduction*

Since 9/11, attention has been focused on the potential security threats certain countries and specific companies pose to the United States of America. The ERS Board of Trustees recognize the heightened awareness of security risks and the fact that public pension funds have come under increased pressure from the general public to divest from companies that do business in countries that support terrorism. On the surface this issue may appear simple and straightforward, but in reality it is very complex and requires information that is not currently available to public pension funds. A policy as simple as requiring divestiture from all companies that do business in certain countries may actually work to the detriment of US foreign policy objectives and needlessly damage US companies and jobs. The Board maintains its fiduciary obligations to the members of the System as its top priority. This requires the Board to act prudently and in the exclusive interest of participants in the management of System assets. In an effort to balance their fiduciary obligations with their moral and ethical responsibility as citizens of the United States of America, the Board of Trustees is hereby establishing this Anti-Terrorism Investment Policy.

b. *Background on US Foreign Policy Related to Countries Supporting Terrorism*

In the area of foreign policy, regulations and sanctions are complex and continually changing to address the needs of US national security. The US State Department maintains an official list of countries that the US deems to be supporting international terrorism. The countries included on this list and the regulations and sanctions that apply in these countries change frequently. Unfortunately, a list of companies that are deemed to be supporting terrorism is not publicly available at this time. The fact that a company may have a business link to a listed country does not mean that the US government believes the company is supporting terrorism. In many cases, the US government allows business relationships because they believe they further US policy goals via the contracts and leverage that trade and other business connections create. Placing investment restrictions that would discourage business relationships in these countries could actually run counter to US anti-terrorism initiatives in some instances. As a result of the complexities and lack of public information in this area, ERS must rely upon federal agencies such as the Securities and Exchange Commission and the State, Commerce, Justice and Treasury Departments to provide factual information regarding companies that are supporting terrorism. To date, this information has not been available to ERS or any other public pension fund. Quite simply, factual information that ERS would need to prudently divest from these companies is not available.

This policy is intended to avoid 1) discriminating against companies whose activities abroad are supported by the US government; 2) discriminating against companies whose activities abroad do not further terrorism; 3) unnecessarily harming US companies and jobs; and 4) compromising the Board's fiduciary duties to the beneficiaries of the System. Recognizing the dynamic nature of the issue, annually Investment Staff will evaluate this policy to determine if changes need to be made to reflect recent developments in this area. In the event that Investment

Staff believes changes to this policy are warranted, they will bring the issue to the attention of the Board of Trustees for consideration.

~~5.~~4. Sudan Investment Policy

Act 192, Session Laws of Hawai'i 2007, expresses the State's desire to not participate in ownership of companies that provide "significant practical support" for genocide activities as currently being conducted by the Sudanese government in the Darfur region. The ERS Board of Trustees wishes to recognize its agreement with the intent of Act 192 and to abide by its requirements. The Board, however, also applies a decision framework of acting for the exclusive benefit of ERS Plan participants. In this respect, the Board recognizes that divestment activities could potentially increase the portfolio's idiosyncratic investment risk. Therefore, divestment guidelines and procedures should seek to minimize the impact of a specific divestment policy (such as Sudan divestment) upon the investment results of the portfolio.

The Board has determined to use the following procedures to comply with Act 192 by requiring the CIO, or another designated member of Investment Staff, to:

a. *Assemble a list of all direct holdings in "scrutinized companies"[3];*

b. *Review publicly available information regarding companies with business operations in the Sudan provided by nonprofit organizations (e.g., the Sudan Divestment Taskforce) and other appropriate parties;*

c. *Send written notice informing companies of their scrutinized company status and the possibility that they may become subject to divestment;*

d. *Monitor other institutional investors that have divested from or engaged with companies that have business operations in Sudan;*

e. *Consider divestment or other corrective actions to the extent reasonable with due consideration for among other things, return on investment, diversification, and the System's other legal obligations;*

f. *Inform the ERS's equity investment managers of Board decisions as related to the above processes; and*

g. *Review and update progress of scrutinized companies on a quarterly basis.*

This policy is intended to avoid: 1) discriminating against companies whose Sudan-related business activities are supported by the U.S. government; 2) discriminating against companies whose Sudan-related business activities do not support genocide activities; 3) unnecessarily harming U.S. companies and jobs; and 4) compromising the Board's duties to the beneficiaries of the ERS.

~~6.~~5. United Nations – Supported Principles for Responsible Investment ("PRI")

In May 2018, the ERS became a signatory of the United Nations – *Supported Principles for Responsible Investment.* The six *Principles for Responsible Investment* are a voluntary and aspirational set of investment principles that offer a selection of possible actions for incorporating environmental, social, and corporate governance issues into investment practice. The signatories' commitment is as follows:

[3] Reference Act 192, Section 2. Definitions of "Scrutinized Company."

"As institutional investors, we have a duty to act in the best long-term interests of our beneficiaries. In this fiduciary role, we believe that environmental, social, and corporate governance (ESG) issues can affect the performance of investment portfolios (to varying degrees across companies, sectors, regions, asset classes and through time).

We also recognize that applying these Principles may better align investors with broader objectives of society. Therefore, where consistent with our fiduciary responsibilities, we commit to the following:

- *Principle 1: We will incorporate ESG issues into investment analysis and decision-making processes.*
- *Principle 2: We will be active owners and incorporate ESG issues into our ownership policies and practices*
- *Principle 3: We will seek appropriate disclosure on ESG issues by the entities in which we invest.*
- *Principle 4: We will promote acceptance and implementation of the Principles within the investment industry.*
- *Principle 5: We will work together to enhance our effectiveness in implementing the Principles.*
- *Principle 6: We will each report on our activities and progress towards implementing the Principles.*

The Principles for Responsible Investment were developed by an international group of institutional investors reflecting the increasing relevance of environmental, social and corporate governance issues to investment practices. The process was convened by the United National Secretary-General.

In signing the Principles, we as investors publicly commit to adopt and implement them, where consistent with our fiduciary responsibilities. We also commit to evaluate the effectiveness and improve the content of the Principles over time. We believe this will improve our ability to meet commitments to beneficiaries as well as better align our investment activities with the broader interests of society.

We encourage other investors to adopt the Principles."

Source: https://unpri.org

As part of its commitment to the PRI, the ERS shall report on an annual basis its progress in implementing the PRI's Six Principles.

~~7.~~6. Hawaiian Targeted Investment Program (HiTIP)

HiTIP was initiated to fulfill the mandate of Act 260, "A Bill For An Act Relating To The Innovation Economy" passed by the Legislature and signed by the Governor in July 2007. The stated purpose of Act 260 is "to encourage the employees' retirement system to invest in Hawai'i venture capital…"

The legislation pertains to HiTIP in that HiTIP targets investments that are directly a part of the Hawaiian community.

A full account of the Hawaiian Targeted Investment Program can be found in Section H Hawaiʻi Targeted Investment Program Policies and Procedures.

C. 8. POLICY FOR THE USE OF PLACEMENT AGENTS

The ERS shall require the specific and timely disclosure of payments and compensation to Placement Agents[4] in connection with the ERS's investments. This Placement Agent Policy is intended to apply broadly to all investment contracts made by the ERS. The goal of this Placement Agent Policy is to provide transparency into actual payments and help ensure that the ERS investment decisions are made solely on the merits of the investment opportunity in accordance with the Board of Trustees' fiduciary responsibility, and to avoid the appearance of undue influence on the Board or Staff or illegal pay-to-play practices in the award of investment related contracts. Each investment manager shall provide information to determine if any such pay-to-play practices exist. Such information shall be provided prior to the closing of an investment opportunity.

1. Investment Manager Placement Agent Disclosures

Each investment manager shall provide to the ERS the required information listed below. The investment manager must notify the Investment Staff of any changes to any of the information required.

a. Required Disclosure of Payments Made to Placement Agents

i. A written statement of whether the investment manager or any of its principals, employees, agents or affiliates has compensated or agreed to compensate any person or entity to act as a Placement Agent in connection with the ERS's investments.

ii. The name of the Placement Agent and resumes of the relevant Placement Agent(s) involved with ERS' investment.

iii. Description of any and all compensation paid or agreed to be paid to the Placement Agent, including payment to employees of the investment manager who are retained in order to solicit, or who are paid based in whole or in part upon, an investment from the ERS.

iv. Description of the services rendered or the services expected to be performed by the Placement Agent.

v. Name of the regulatory agencies the Placement Agent or any of its affiliates are registered with, such as The Securities and Exchange Commission (SEC), the Financial Industry Regulatory Association (FINRA), or any similar regulatory agency; proof and details of such registration shall be included, or an explanation as to why no registration is required.

b. Required Disclosure of Relationships to the Board and; Campaign Contributions

i. To the best of their knowledge, full disclosure of any connection between the Placement Agent or the investment manager and the ERS, including whether anyone receiving compensation or who will receive compensation with respect to

[4] "Placement Agent" includes any person or entity hired, engaged, retained by, acting on behalf of or serving for the benefit of an investment manager or on behalf of another Placement Agent as a third-party marketer, finder, solicitor, marketer, consultant, broker, or other intermediary to market, solicit, obtain access to the ERS, and/or raise money or investments either directly or indirectly from the ERS. Notwithstanding the foregoing, an individual who is an employee, officer, director, equity holder, partner, member or trustee of an investment manager and who spends one-third or more of his or her time, during a calendar year, managing the securities or assets owned, controlled, invested or held by the investment manager is not a Placement Agent.

an investment from the ERS from the Placement Agent or the fund manager is: a current or former ERS Board Member, ERS employee, or ERS consultant; a member of the immediate family of anyone connected to or formerly connected to the ERS; a current or former elected or appointed official of the State and/or cities and counties of the State, a current or former employee of the State and/or cities and counties of the State; or anyone seeking to be elected to public office of the State and/or cities and counties of the State or a member of his/her campaign organization or a political action committee.

ii. To the best of their knowledge, full disclosure of the donations made by the Placement Agent or the investment manager during the prior 24-month period to any organization (including contributions to political campaign funds and donations to non-profits) in which any person listed in Paragraph 2.a is an officer, employee, or member of the Board or Advisory Board (or similar body). Additionally, any subsequent donations made by the Placement Agent or the investment manager to any such organization during the time the Placement Agent or the investment manager is receiving compensation in connection with a the ERS investment shall also be disclosed.

iii. To the best of their knowledge, full disclosure of the names of any current or former members of the Board, ERS employees or investment consultants who suggested the retention of the Placement Agent to the investment manager.

c. *Responsibilities of Staff and Consultants*

At the time that investment discussions between an investment manager and the ERS for a prospective investment commence, Investment Staff is responsible for providing investment managers and Placement Agents with a copy of this Placement Agent Policy.

Investment Staff and investment consultants must confirm that the applicable Placement Agent disclosures have been received prior to the completion of due diligence and completion of any recommendation to proceed with the decision to invest with the investment manager. For new contracts and amendments to existing contracts, the ERS will:

i. Stop investment negotiations with an investment manager who refuses to disclose the required information;

ii. Decline the opportunity to retain or invest with an investment manager who has used or intends to use a Placement Agent who is not registered with the SEC, FINRA, or any similar regulatory agency and cannot provide an explanation as to why no registration is required; and

iii. Investment Staff and investment consultants will assist legal counsel as necessary to secure in the final contract terms and side letter agreements between the ERS and the investment manager, including but not limited to, the following:

iv. The investment manager's agreement that it has complied with and will continue to comply with this Placement Agent Policy.

v. The investment manager's representation and warranty that it will notify the Investment Staff of any changes to any of the information required above.

At any meeting where an investment decision with an investment manager will be considered, Investment Staff and the applicable investment consultants must notify the Board of the name(s) of any Placement Agent(s) used by the investment manager in connection with the proposed investment, and any campaign contributions or gifts reported by each Placement Agent.

Staff must maintain records of all information disclosed to the ERS in accordance with this policy and provide the Board with notice of any violation of this policy as soon as practicable.

d. Responsibilities of Counsel

Legal counsel to the ERS must secure in the final contract terms and side letter agreements between the ERS and the investment manager all requisite agreements and representations and warranties by the investment manager for compliance in accordance with this Placement Agent Policy.

e. Responsibilities of the Board

The Board must review all violations of this Placement Agent Policy reported by Investment Staff, consider whether each violation is material, and consider recommendations from Investment Staff and the Executive Director whether to prohibit that investment manager and/or Placement Agent from soliciting new investments from the ERS for a certain period from the date of the determination.

C. 9. BOARD OF TRUSTEES DISCRETIONARY ACCOUNT GUIDELINES

The ERS Investment Staff shall only hold U.S. Dollar cash in the Board of Trustees (BOT) Discretionary account; the cash shall be swept into the BNY Mellon Short-Term Investment Fund on a daily basis.

1. Investment Objectives

Assets held in the BOT Discretionary account shall be invested to seek the following objectives:

a. preservation of capital

b. maintenance of liquidity, and

c. maximization of current income to the extent consistent with (i), and (ii), above by investing assets in accordance with the guidelines stated below.

2. Investment Guidelines

Funds shall be denominated in U.S. Dollars and shall be invested in securities or instruments managed under the following guidelines:

a. Eligible Investments:

i. Securities and Exchange Commission (SEC) Rule 2a-7 money market mutual funds of institutional grade[5].

ii. Interests or units in any short-term investment fund (including, without limitation, such funds of the Custodial Bank and any of its affiliates) that invests in any of the types of investments approved above.

b. Liquidity

i. A minimum of 95% of the available cash portion of the BOT Discretionary account shall be invested in Eligible Investments (1) and/or (2) above.

[5] Rule 2a-7 of the act restricts the quality, maturity and diversity of investments by money market funds. Under this act, a money fund mainly buys the highest rated debt, which matures in under 397 days. The portfolio must maintain a weighted average maturity of 60 days or less and not invest more than 5% in any one issuer, except for government securities and repurchase agreements

BROAD GROWTH PROGRAM

SECTION: D

TABLE OF CONTENTS

D. 1. OVERVIEW

1. General Description

The Broad Growth class consists of investment strategies and assets that are largely exposed and/or susceptible to changes in global economic growth and corporate profitability. Such investments typically contain relatively high degrees of risk and exhibit more volatility than other strategic classes.

The Broad Growth class consists of three major components: Global Equity, Global Credit, and Real Assets. The Global Equity component consists largely of global public and private equity and other similar-risk investments. The Global Credit component consists of public and private credit opportunities that are largely exposed to various collateral types, focused on income generation and Broad Growth diversification. The Real Assets component consists of public and private real assets that can help diversify the Broad Growth class during normal economic environments but that are also sensitive to material changes in economic growth during crisis periods.

2. Purpose

The Broad Growth class provides the bulk of the total portfolio's investment return due its exposure to the equity risk (and similar) premium. The equity risk premium, while volatile, is the reward associated with bearing economic and corporate risk – it is the highest risk premium available to investors. In addition, over long investment horizons (i.e., greater than 10 years), the equity risk premium is generally significantly positive after accounting for inflation. Due to this feature, the Broad Growth class is expected to increase the purchasing power of the total portfolio's assets over time.

By diversifying into the three major Broad Growth components, the Broad Growth class seeks to moderate its risk profile versus investing solely in any one component. This approach seeks to capture the entirety of the equity risk premium as well as capture premiums associated with other risk factors that are closely related to the equity risk premium.

3. Risk Factor Exposures

Major

- *Growth Risk*

Minor

- *Interest Rate Risk*
- *Liquidity Risk*

D. 2. CLASS STRUCTURE

1. Components

The Broad Growth class consists of public and private market components, as described below:

a. Public Equity

Public Equity is a sub-component of Global Equity. In general, this sub-component can include any strategy that exhibits similar risk exposures and risk/return expectations as the publicly traded global equity market opportunity set. While individual strategies can vary, the aggregate Public Equity sub-component should exhibit a high correlation to global equity market indices when examined over full market cycles (e.g., 10-year periods).

b. Private Equity

Public Equity is a sub-component of Global Equity. This sub-component includes a spectrum of private markets investment strategies that are primarily exposed to economic growth risk and can exhibit high levels of measured investment risk. This component will largely consist of Private Equity and similar strategies.

c. Global Credit

This component consists of liquid and illiquid 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 Global Credit portfolio's investment return.

d. Real Assets

This component includes a spectrum of liquid and illiquid investment strategies that represent interests directly in or derived from physical, real assets. In aggregate, this component will tend to produce returns in-line with a lower volatility growth exposure, but the characteristics will vary from strategy to strategy and the component bears the unique attributes of private markets investments (e.g., pacing studies, lagged reporting, etc.).

2. Modifications to Component Structure

Modifications to the Broad Growth class's component structure can take four forms:

a. Adding or deleting a specific investment strategy within a specific component;
b. Establishing allocation levels among the components;
c. Adding or deleting a specific component;
d. Establishing allocation ranges among the components;

Staff shall have the discretion to implement items a. and b. above, whereas items c. and d. will only occur with approval of the Board of Trustees or designee (e.g., Investment Committee).

3. Components' Allocations and Allocation Ranges

The Broad Growth class's allocation targets and allocation ranges among its three major components are as follows (as a percent of total Plan assets):

Component	Target	Ranges
Global Equity	39%	+/- 20%
Global Credit	12%	+/- 6%
Real Assets	19%	+/- 10%

If the actual allocations fall outside of the above-stated ranges, ERS Staff shall provide a written report to the Board of Trustees as to the cause, and if relevant, the planned route for shifting the portfolio back in-line with the policy range.

4. Components' Managers and Managers' Allocations

To manage the assets allocated to each strategic class and its underlying components, the Board delegates investment authority to external investment managers ("investment managers"). ERS Investment Staff has the authority to select the investment managers and their corresponding mandate sizes so long as the components retain their expected characteristics individually and the Broad Growth class maintains its expected characteristics as a whole.

D. 3. RETURN OBJECTIVES & RISK PROFILE

1. Class Return Benchmarks

The ERS utilizes the weighted target benchmark below to monitor the performance results of the Broad Growth Class:

BROAD GROWTH BENCHMARK
56% GLOBAL EQUITY BENCHMARK
27% REAL ASSETS BENCHMARK
17% GLOBAL CREDIT BENCHMARK
GLOBAL EQUITY BENCHMARK
51% MSCI ACWI IMI
49% MSCI ACWI IMI (qtr. lag)
REAL ASSETS BENCHMARK
47% FTSE EPRA NAREIT Global REITS Index GD (qtr. lag)
37% Dow Jones Brookfield Global Infrastructure Index (qtr. lag)
9% S&P Global Timber & Forestry Index (qtr. lag)
7% S&P GSCI Agriculture Index (qtr. lag)
GLOBAL CREDIT BENCHMARK
17% Bloomberg Global High Yield Index (hedged)
17%S&P LSTA Leveraged Loan 100 Index
33% Bloomberg Global High Yield (hedged) (qtr. lag)
33% S&P LSTA Leveraged Loan 100 Index (qtr. lag)

The Broad Growth Class portfolio is expected to outperform the above blended benchmark, net of fees, over a full investment cycle. An appropriate measure of an investment cycle would be rolling 5-year periods. The Broad Growth Class portfolio should outperform its benchmark, net of fees, over the majority of rolling 5-year periods.

2. Class Risk Profile

In aggregate, the Broad Growth Class is the ERS's most volatile investment class and is the class that is most sensitive to economic growth trends.

The true risk levels of the various components are expected to be ordered as follows (highest risk to lowest): Global Equity, Real Assets, Global Credit. Due to the diverse nature of strategies within the Real Assets component, its true risk level is expected to generally fall in between Global Equity and Global Credit, but it may vary over time. Considering this attribute, it is expected that ERS Staff will notify the Board of material changes in the risk profile of the Real Assets component. Moreover, it is important to note that statistical measures of risk (e.g., performance volatility) are not indicative of the true levels of risk when examined for private markets strategies.

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BROAD GROWTH: APPENDIX

DERIVATIVES POLICY[1]

Derivatives may be used in the ERS portfolio as a substitute for a cash market security, risk control, income (e.g., Covered Calls), cost reduction, or liquidity management. Derivatives are not permitted for purposes of speculation. Any derivative investment not explicitly authorized below is prohibited.

1. Where derivatives are used as substitutes for a specific cash security or set of cash securities, the return volatility of the combination of the derivative and associated cash position shall be equivalent to the unleveraged cash security or securities underlying the derivative instrument.
2. When options are used for income and risk control (e.g., Covered Calls), the notional value of the options may not exceed the total value of the underlying securities.
3. Managers shall mark-to-market their derivative positions daily.
4. Permitted Instruments:
    - *a.* *Futures* – stock index futures, stock and bond futures, money market futures, and currency futures where the manager has the authority to invest in the underlying or deliverable cash market security.
    - *b.* *Options* – options on stocks, indices, ETFs, and bonds (including interest rate caps and floors). Options on futures, swaps, and currencies are allowed for those managers who have permission to invest in the comparable cash instruments.
    - *c.* *Currency forwards* – only those managers who have the authority to invest in the underlying cash market instrument.
    - *d.* *Swaps (Global Credit managers)* – where the manager has the authority to invest in the underlying cash market instrument. Minimum counterparty rating: A-
5. Futures contracts must be CTFC (Commodity Futures Trading Commission) approved and exchange traded.
6. Options may be either exchange traded or over-the-counter (OTC) subject to counterparty guidelines as noted.
7. Managers may purchase back options in order to close out positions.
8. Counterparties to OTC traded instruments (options and forwards) must be rated investment grade or better as determined by at least one major rating agency.
9. Cross-hedging is not permitted by international equity managers; however, as it is a standard practice for non-U.S. bond managers, it is allowed for Extended Global Credit managers. These credit managers may also use certain developed-market currencies as proxies for otherwise illiquid emerging-market currencies. In such cases, use of such proxies will be disclosed through the ongoing reporting process. The counterparties for foreign currency derivatives must be rated A- or equivalent.
10. On an annual basis, all investment managers shall provide a summary of the derivatives used and the reasons for their use. This summary shall be the basis for verification that the investment managers are generally complying with the objectives and constraints of the investment policy. The investment consultant shall elicit responses on each manager's policy in the form of a letter.
11. On a daily basis the custodian bank shall examine all manager derivatives purchases for prohibited derivatives. Should any prohibited derivatives be found, the custodian bank should promptly notify Staff and instruct the manager to sell the prohibited derivatives. The custodian bank will also value and monitor all derivatives and the trades from which they emanate.

[1] Performance-related criteria for the Private Growth component is specified within the corresponding component section.

REAL ASSETS COMPONENT

1. Program Management

The Real Assets program shall be implemented and monitored through the coordinated efforts of the Board of Trustees ("Board of Trustees" or "Board") of the Employees' Retirement System of the State of Hawaii ("ERS"), the ERS investment staff ("Investment Staff"), and the ERS's investment consultants ("Investment Consultants"). The ERS Investment Staff shall maintain the day-to-day management and implementation responsibilities of the program while leveraging the expertise of the ERS's Investment Consultants where applicable. The Board of Trustees or designee shall provide high-level oversight and approve the long-term, strategic direction of the program during asset-liability studies and/or component structure reviews.

2. Investment Parameters

a. Portfolio Construction

The ERS has determined that, over the long-term, the inclusion of a Real Assets component can enhance the ERS's expected total portfolio investment characteristics. Specifically, investments in Real Assets strategies provide unique exposures and return drivers relative to public market securities and other private markets strategies (e.g., private equity). Moreover, Real Assets strategies are expected to increase the purchasing power of the total portfolio's assets over time, while buffering drawdowns during inflation-oriented crises. As a component of the Broad Growth strategic class, the Real Assets component is expected to produce returns similar to other Broad Growth components but commensurate with its relative level of risk.

Real Assets investments of the ERS shall be made in a manner consistent with the fiduciary standards of the prudent expert rule: (1) for the sole interest of the ERS's participants and their beneficiaries; and (2) to safeguard and diversify the Real Asset portfolio. The selection and management of Real Assets investments will be guided to preserve investment capital and to maintain prudent diversification of assets and management responsibility. The diversification objective is required to manage overall market risk and the specific risks inherent in any single investment or management selection.

b. Aggregate Target Allocation

The allocation of ERS assets to Real Assets investments shall remain within the limits authorized by the Board of Trustees or designee. The long-term target allocation is 19% of the ERS's Total portfolio (based on net asset value of invested capital).

	Long-term Total Portfolio Target *(effective 01/01/2024)*
Real Assets	19%

As a private markets class, the Board of Trustees understands that it is unlikely the ERS will ever be perfectly in-line with the target allocation. However, the Board of Trustees expects the program to be implemented in a prudent and diversified manner with a relatively consistent risk profile. In order to avoid concentration risks, the Board expects the program to incorporate relatively even vintage year and strategy diversification over time (subject to the component target allocations detailed below).

c. *Sub-Component Target Allocations*

The ERS's Real Assets component consist of several sub-components:

i. Real Estate (Core and Non-Core)

ii. Timber

iii. Agriculture

iv. Infrastructure

v. Other Real Assets

Each of the components are expected to be implemented with private markets assets, although public market proxies may be used for transitory purposes. The *Other Real Assets* sub-component is not expected to be used without prior notification of the Board or designee. The following table provides the long-term sub-component-level target allocations and respective ranges within the Real Assets component.

Sub-Component	**Long-Term Total Portfolio Target**
Real Estate	9%
Timber/Agriculture	3%
Infrastructure	7%
Other Real Assets	---
Total	**19%**

Due to the unpredictability in the timing of capital calls and distributions, the Board understands that the portfolio is unlikely to ever be perfectly in-line with these targets. Moreover, the ERS Investment Staff maintains discretion around the sub-component targets and can modify the implementation of the actual portfolio subject to the risk management policy (see following section).

d. *Risk Management*

The construction and management of the Real Assets program will be designed to generate an attractive level of return with prudent diversification that is additive to the total portfolio. The specific risk/return objective of the program is an outcome of the Board's or designee's selection of a target portfolio during asset-liability studies.

As a component of the Broad Growth strategic class, it is expected that the Real Assets program will share some commonalities (i.e., drawdown and positive return periods) with other growth-related strategies, however, the ERS Investment Staff seeks to implement the program in as complementary of a manner as possible.

With Real Assets investments, there is an inherent risk that the actual return of capital, gains, and income will vary from the amounts expected. The ERS shall manage the investment risk associated with Real Assets investments in several ways:

i. Strategic Structure

1. Allocation by sub-component. The ERS Investment Staff can manage allocations to the sub-components with a certain level of flexibility in order to adjust for market dynamics, opportunities, and private market-specific challenges. The ERS Board expects the Investment Staff to maintain a holistic view of the portfolio's aggregate risk posture across all strategic classes, components, and sub-components.

2. Commitment pacing into each segment over time. It is expected that the Real Assets component will be implemented via measured and consistent commitment pacing. However, certain annual commitment amounts among these sub-components may vary significantly, depending upon the capital investment opportunities within each component.

ii. Manager Selection / Institutional Quality

1. All assets must be of institutional investment quality. Institutional quality will be defined as being of a quality whereby the investment would be considered acceptable by other prudent institutional investors (e.g., endowments, foundations, insurance companies, commercial banks and savings institutions, public employee retirement systems, corporate employee benefit plans, and other tax-exempt institutions).

iii. Leverage

1. Leverage levels will be an explicit consideration when examining and monitoring investments. For a given fund, the utilized leverage must be consistent with the objectives of the respective strategy and industry-wide practices.

e. Benchmarks

The aggregate Real Assets component will utilize a blended benchmark based on the underlying sub-component benchmarks and corresponding total portfolio target allocations. As a private markets class, the ERS Board understands that perfect benchmarks do not exist and there will be variances/mismatches over periods of time. The success of the Real Assets program will primarily be examined over rolling 10-year windows.

	Sub-Component Benchmark
Real Estate	FTSE EPRA NAREIT Global REIT Index GD (qtr. lag)
Timber/Agriculture	S&P GSCI Agriculture Index (qtr. lag) S&P Global Timber & Forestry Index (qtr. lag)
Infrastructure	Dow Jones Brookfield Global Infrastructure Index (qtr. lag)
Other Real Assets	---

f. Monitoring and Reporting

The performance of private Real Assets investments will be calculated on both a time-weighted and dollar-weighted (internal rate of return or IRR) basis. The rate of return calculations will be net of all partnership/LLC fees and expenses.

The ERS's Real Assets ~~(or Real Estate)~~ Consultant will be responsible for calculating and reporting net IRRs on the individual investments as well as at various composite levels as requested by the ERS. The ERS's General Consultant, in conjunction with the ERS's custodian, will produce time-weighted returns on the aggregate Real Assets composite.

The ERS's Investment Staff and/or the appropriate designated retained consultant will provide additional performance measurement information, if requested by the ERS Board or designee.

REAL ESTATE SUB-COMPONENT

1. Investment Objectives

a. Investments In Real Estate

The Employees' Retirement System of the State of Hawaii ("ERS") Board of Trustees has determined that the inclusion of Core and Non-Core Real Estate can enhance the portfolio's structure.

While safety of principal is given primary consideration, the ERS recognizes the need to use active asset management strategies in order to obtain the highest attainable total investment return (income plus appreciation) within the ERS's framework of prudence and managed risk.

The selection of investment managers and development of investment policy will be guided to enhance diversification within the portfolio of the ERS's real estate investment program ("Real Estate Investment Program") thereby limiting exposure to any one investment, organization, real estate property type and geographic region (Refer to Section II: Program Management).

i. Real Estate Defined - Real estate assets are defined as those investments that are unleveraged or leveraged, equity or debt positions in private and public real property. Investments in private and public real estate companies are also permissible. The ownership structure(s) should be consistent with any rules, regulations, or law, as applicable, governing the ERS. The ERS will pursue both discretionary separate account investment management and discretionary commingled fund investment management for its real estate allocation.

b. Strategic Allocation

The ERS allocation to real estate shall remain within the limits authorized by the ERS Board of Trustees or designee. ~~Core and Non-Core~~ R~~r~~eal estate allocations should be in line with those that are detailed in Section D: Broad Growth Program. ~~Core and Non-Core~~ R~~r~~eal estate allocations will be established and managed via scheduled annual commitment pacing approved as a result of the annual strategic plan (see item 2.C. below).

c. Portfolio Return Objectives

The real estate return objectives and benchmarks will follow their respective assignments as detailed in Section D.3. Return Objectives & Risk Profile.

2. Program Management

a. Overview

In compliance with current ERS investment philosophy, the Real Estate Investment Program will primarily utilize discretionary separate account relationships and discretionary commingled fund investment vehicles that are sponsored by real estate investment managers ("Investment Managers"). Under this program, the Investment Managers acquire, operate and dispose of real estate assets in accordance with a work assignment that is outlined in their investment management contract with the ERS (the "Contract") and in the Annual Tactical Plan for separate accounts and the fund documents for commingled funds. The Contract describes the acceptable property types, geographic restrictions, investment structures, leverage and other specific investment parameters. For Separate Accounts, The Annual Tactical Plan is the Investment Manager's "working plan" for each fiscal year and must be reviewed by Investment Staff and Real Assets~~Estate~~ Consultant. Such planning will be incorporated into the Real Assets Strategic Plan and approved by the Board of Trustees or designee, annually. For commingled funds, documents typically refer to the fund's offering memorandum or private placement memorandum, limited partnership or LLC membership agreement, and subscription agreement.

b. Participant Roles and Responsibilities

The ERS's Real Estate Investment Program shall be implemented and monitored through the coordinated efforts of the Board of Trustees or designee(s). Specific responsibilities that fall outside the general responsibilities highlighted in Section B.5. are listed below:

i. Investment Manager - Qualified real estate organizations, registered as Investment Advisors under the 1940 Act that provide institutional real estate investment management services to the ERS. ERS may invest in commingled fund vehicles that are not registered, however, it is preferred that the commingled fund be sponsored and/or managed by a Registered Investment Advisor.

ii. Separate Account Manager Responsibilities - The separate account Investment Manager, acting as a fiduciary on behalf of ERS, acquires, manages and disposes of real estate properties and/or originates or acquires, manages, and realizes upon real estate debt investments in accordance with the annual Tactical Plan and Contract.

iii. Commingled Fund Manager Responsibilities – The commingled fund Investment Manager, acting as a fiduciary on behalf of ERS, acquires, manages and disposes of real estate properties and/or originates or acquires, manages, and realizes upon real estate debt investments in accordance with the terms of the investment vehicle documents.

c. Annual Real Assets~~Estate~~ Strategic Plan

i. Annually, the Investment Staff, with the Real Assets~~Estate~~ Consultant as requested, will prepare a Strategic Plan which reviews the current status of the portfolio, recent historical and prospective market conditions, and proposes the actions to be taken over the next approximately twelve-month period. This document will recommend general capital allocations to the ~~Core and Non-Core~~ Real Estate Program and the rationale and expectations for inclusion.

ii. The annual Strategic Plan will then be presented to the Board of Trustees or designee for approval.

3. Portfolio Composition

a. *Core Portfolio* - Core investments include equity or debt investments on existing, substantially leased income-producing traditional property types located principally in metropolitan areas that exhibit reasonable economic diversification. Core investments typically exhibit one or more of the following characteristics:

   i. Traditional institutional quality property types including office, industrial, retail and multifamily; also included are medical office, senior housing, storage, and student housing properties that demonstrate core characteristics;

   ii. Operating and stabilized properties that demonstrate predictable income flows with a high proportion of anticipated total return arising from current income and cash flow;

   iii. Well-leased upon purchase of the asset;

   iv. Located in institutional markets and in economically diversified metropolitan areas;

   v. High credit quality tenants and a staggered lease maturity schedule;

   vi. Quality construction and design features;

   vii. Reasonable assurance of a broad pool of potential purchasers upon disposition;

   viii. Properties requiring quality asset and portfolio management but not requiring specialized operating expertise which is not readily available in the market;

b. *Non-Core Portfolio* - Non Core real estate investments represent equity or debt investments in those properties and/or investment strategies that require specialized acquisition and management expertise or skill to mitigate the business and leasing risk that may be associated with individual investments. Non-Core investments which may be referred to as Value Added or Opportunistic have greater volatility and leverage compared to core investments and as such are expected to provide yields higher than those associated with core investments.

c. *Value Added* – Value Added investments include equity, debt, or real estate company investments of institutional quality that offer the opportunity to enhance value through rehabilitation, redevelopment, development, lease-up or repositioning. A significant portion of return is from appreciation and includes moderately higher leverage than core. Value added investments typically exhibit one or more of the following characteristics:

   i. Properties located in primary as well as secondary and tertiary markets which may not be economically diversified and may have accompanying susceptibility to imbalance of demand and supply;

   ii. Traditional as well as non-traditional property types including, but not limited to, hotels, motels, senior housing, student housing, manufactured and residential housing;

   iii. Properties that are undermanaged with specific problems that require specialized management skills;

   iv. Properties well leased ~~that are less than 70% leased~~ upon purchase or ~~where more than 30% of leases expire~~ within in the first three years of purchase;

   v. Properties involving significant appreciation, lease-up, development and/or redevelopment risks;

   vi. Properties using moderate leverage; ~~between 50% and 65%;~~

   vii. Investments in institutional quality properties located in mature real estate markets showing high levels of market transparency outside of the United States and Canada;

d. *Opportunistic* – Opportunistic investments include equity or debt investments in real estate properties, real estate operating companies and other investment vehicles that offer the opportunity to capitalize on the disequilibrium of the real estate markets caused by dramatic shifts in capital flows or other fundamental real estate characteristics. Opportunistic investments not only include distressed assets in need of lease up but also assets that provide returns from financial restructuring. Opportunistic investments typically exhibit one or more of the following characteristics:

i. Strategies that seek to exploit inefficiencies in the capital and real estate markets

ii. Strategies that involve financing or acquisition of real estate assets, operating companies, portfolio of real estate assets

iii. Strategies that focus on major development or redevelopment

iv. Properties with substantial leasing, development and entitlement risk

v. Distressed assets

vi. Distressed debt

vii. Major financial re-structuring required

viii. Higher utilization of leverage ~~of between 65% and 90%~~

ix. Investments in real estate markets driven by growth and continued improvements in market transparency, located outside of the United States and Canada

4. Investments and Risk Management

The ERS shall manage the investment risk associated with real estate in several ways:

a. Institutional Quality

All assets within the Real Estate portfolio must be of institutional investment quality as evidenced by a history of institutional investment in similar properties; expert analysis which supports the economic viability of the market; high quality construction and design features; and a current or potentially competitive position within the property's immediate market area.

b. Diversification

The real estate portfolio shall be diversified by geographic region and property type. Diversification reduces the impact on the portfolio of any one investment or any single Investment Manager's style to the extent that an adversity affecting any one particular area will not impact a disproportionate share of the total portfolio.

c. ~~Target Portfolio~~

~~The long-term real estate strategy is for the ERS real estate portfolio to be diversified taking into account the following diversification guidelines:~~

~~Property Type - The real estate portfolio shall be diversified with the majority of investments comprised of the four traditional property types: office, industrial, retail, and multifamily (apartment). No single traditional property type shall account for greater than 50% of the portfolio. In addition, the range of property type allocations are generally expected to be 0.5x - 1.5x the NFI-ODCE's weight in each property type. Other property types, as defined by NFI-ODCE, are allowed but (on a combined basis) should generally not exceed 20% of the real estate portfolio.~~

~~*Geographic - Within the United States, the range of geographic allocations are generally expected to be 0.5x – 1.5x the NFI-ODCE weight in each region. International Investments (Non US and Canada) will generally range between 0-20% of the core real estate portfolio.*~~

Ownership Structure

The ownership structure for real estate investments may include leveraged and unleveraged equity and debt investments owned directly via separate accounts or through commingled funds. For separate accounts, directly owned investments may be 100% owned by ERS or owned jointly with Suitable Investment Partners. "Suitable Investment Partners" include public, corporate and union pension plans, foundations and endowments, insurance company general accounts or separate accounts, and other tax-exempt institutions, having the same or greater standards of fiduciary care and responsibility as those imposed by ERS guidelines. When dealing with non-core investments that are directly owned, Operating Partners shall be added to the list of "Suitable Investment Partners." The ownership structure of non-core assets within commingled funds will be governed by the fund documents.

~~j.~~d. Leverage

The use of leverage is a prudent tool for enhancing returns and diversifying equity investments, though it does raise the risk profile of the portfolio. As such, ERS has approved leverage targets in order to enhance returns to the total portfolio. The availability and cost of leverage will be factors considered in determining its use. For the total real estate portfolio, the ERS has established a leverage maximum of fifty percent (50%). Third party debt should primarily be non-recourse. At no time shall the origination of new leverage cause the portfolio to exceed the established limits on a loan-to-value basis. In the event that either the portfolio level and/or style level leverage constraint is breached due to a contraction in market values, the Staff and Consultant will notify the Board of Trustees or designee and make a recommendation for action or exception if appropriate.

~~k.~~e. Manager Concentration

ERS shall limit its exposure to any single manager. No single Investment Manager shall be permitted to manage more than 35% of the total allocation to real estate at the time of investment (i.e., purchase) without prior approval from the Board of Trustees or its designee. In the case of the Separate Account Manager(s), concentrations are likely to exist, and be allowed, during build up or wind down periods of such accounts.

~~l.~~f. Investment Size

There is no minimum investment size. The maximum net investment in a single property within a separate account shall be limited to 15% of the allocation to the core real estate program at the time of investment. The ERS's investments in a single commingled fund shall not exceed 20% of the total net market value of the commingled fund at the time of investment. If the commingled fund is in the process raising assets (versus being an open-ended fund), the 20% threshold will be based on target fund size.

5. Investment Process (Separate Accounts)

a. Manager Selection Process

ERS Investment Staff, assisted by the Real Estate Consultant as requested, shall have responsibility for sourcing managers. ERS, assisted by the Real Estate Consultant as requested, shall screen and review the managers and arrange interviews and final presentations if necessary. The Real Estate Consultant will assist Investment Staff in negotiating and closing manager agreements, including final fee structures.

b. Leverage

The total level of debt for any single core separate account investment will generally not exceed fifty percent (50%).

c. *Monitoring and Reporting*

The ERS expects its Separate Account managers to generally act in accordance with the most recent version of the Reporting Standards established jointly by the National Council of Real Estate Investment Fiduciaries ("NCREIF") and the Pension Real Estate Association ("PREA") ("Reporting Standards"). The Reporting Standards were developed with a mission to establish, manage and promote transparent and consistent reporting standards for the real estate industry to facilitate informed investment decision-making.

6. Investment Process (Commingled Funds)

a. *Manager Selection Process*

In an effort to maintain program simplicity and ensure appropriate underwriting of investment management organizations, the ERS Staff shall utilize only ERS approved real estate investment management firms for the acquisition, asset management and disposition of property and origination, management, and realization of debt investments. In addition to the existing separate account Investment Managers, the ERS has approved a program of commingled fund investing.

The following steps shall be followed in order for the ERS to commit to any prospective commingled real estate investment opportunity:

i. Investment Staff, with assistance from the Real Estate Consultant, sources and performs comprehensive due diligence on attractive investment opportunities consistent with criteria set forth in the annual Strategic Plan.

ii. If, as a fiduciary of the ERS, the Real Estate Consultant determines that the investment merits a commitment from the ERS, the Real Estate Consultant will take the following steps:

1. Discuss with Investment Staff the key findings during due diligence, including investment merits, risks and key conclusions;
2. Follow-up with Investment Staff on additional requests for information based on this discussion and complete an Investment Disclosure Form;
3. In conjunction with the ERS's legal review process, assist legal negotiation and closing into the investment opportunity.

iii. Upon successful review of the investment by Investment Staff, the investment shall be recommended to the Board of Trustees or designee for approval. This recommendation shall contain a summary of the due diligence and a prospective commitment level for the investment.

b. *Monitoring and Reporting*

i. <u>Reporting System</u> - There shall be a comprehensive reporting and monitoring system for the entire portfolio, Real Estate Consultant, Investment Manager(s) of commingled funds, and individual investments. Situations of underperforming investments, portfolio diversification deficiencies from the Policies & Procedures, and conflicts of interest can then be identified, facilitating active portfolio management.

TIMBER SUB-COMPONENT

1. Investment Objectives

a. Investments in Timberland Assets

Timber investments involve the privately negotiated purchase and, to a lesser degree, leasing of forestland tracts, upon which trees are grown for commercial sale. Investments in timber will primarily be made directly through a separate account or indirectly through a multi-investor structure (i.e., two or more investors investing in a specific timber asset as a limited liability company ["LLC"] or other investment vehicle, as appropriate) in which ERS's separate account is an investor. When applicable and consistent with the objectives of the Real Assets program, commingled funds may also be used to achieve exposure to timberland investments. All timber investments will be managed by a qualified timberland investment manager ("timberland manager" or "manager").

Timber investments of the ERS shall be made in a manner consistent with the fiduciary standards of the prudent expert rule: (1) for the sole interest of the ERS's participants and their beneficiaries; and, (2) to safeguard and diversify the timber portfolio. The timber portfolio will be constructed to preserve investment capital and to maintain prudent diversification of assets.

b. Strategic Allocation

The ERS's allocation to timber investments shall remain within the limits authorized by the Board of Trustees or designee as described in the Real Assets component of this Investment Policy Statement.

c. Portfolio Return Objectives

The timber return objectives and benchmarks will follow their respective assignments as detailed in Section D.3. Return Objectives & Risk Profile.

At a high-level, the timber investments portfolio's rate of return is expected to be generated primarily from biological growth, sale of timber inventory, and purchases and sales of properties. Additionally, value-added investments may be used to enhance timberland investments, and may include recreation leases, carbon sequestration, wetland mitigation, and other ecosystem services.

2. Program Management

a. Overview

In compliance with current ERS investment philosophy, the Timber program will primarily utilize discretionary separate account relationships and discretionary commingled fund investment vehicles that are sponsored by timberland investment managers ("Investment Managers"). Under this program, the Investment Managers acquire, operate and dispose of timberland assets in accordance with a work assignment that is outlined in their investment management contract with the ERS (the "Contract") and in the Annual Tactical Plan for separate accounts and the fund documents for commingled funds. The Contract describes the acceptable property types, geographic restrictions, investment structures, leverage, and other specific investment parameters. For Separate Accounts, the Annual Tactical Plan is the Investment Manager's "working plan" for each fiscal year and must be reviewed by Investment Staff and Real Assets~~Estate~~ Consultant. For commingled funds, documents typically refer to the fund's offering memorandum or private placement memorandum, limited partnership or LLC membership agreement, and subscription agreement.

b. Participant Roles and Responsibilities

The ERS's Timber Investment Program shall be implemented and monitored through the coordinated efforts of the Board of Trustees or designee; through the Investment Staff; the ERS's general investment consultant ("General Investment Consultant"); the ERS's R~~r~~eal Assets~~estate~~ consultant ("Real Assets~~Estate~~ Consultant"); and the Investment Manager(s). Specific responsibilities that fall outside the general responsibilities highlighted in Section B.5. are listed below:

i. Investment Manager - Qualified organizations, registered as Investment Advisors under the 1940 Act, that provide institutional timberland investment management services to the ERS. ERS may invest in commingled fund vehicles that are not registered, however, it is preferred that the commingled fund be sponsored and/or managed by a Registered Investment Advisor.

ii. Separate Account Manager Responsibilities - The separate account Investment Manager, acting as a fiduciary on behalf of ERS, acquires, manages and disposes of timberland properties in accordance with the Annual Tactical Plan and Contract.

1. Annual Tactical Plan

Annually, the separate account timberland manager will prepare an Annual Tactical Plan which reviews the current status of the portfolio, recent historical and prospective market conditions, and proposes the steps to be taken to further implement the long-term strategic plan. The Annual Tactical Plan will be reviewed by the Real Assets~~Estate~~ Consultant and Investment Staff

The format of the Annual Tactical Plan is expected to include: (1) a review of the current status of the portfolio, (2) perceived investment environment, (3) the types and amount of property investments to be sought and underlying rationale, (4) goals for other management responsibilities such as situations being monitored and adding value, and (5) outline the steps anticipated toward portfolio development over the course of the coming year, and (6) any other items requested by the ERS.

iii. Commingled Fund Manager Responsibilities – The commingled fund Investment Manager, acting as a fiduciary on behalf of ERS, acquires, manages and disposes of timberland investments in accordance with the terms of the investment vehicle documents.

3. Strategic Plan

The Timber program is expected to be managed and monitored as a sub-component of the broader Real Assets component. Separate account timberland mandates will contain their own *Annual Tactical Plans* as highlighted above.

a. Portfolio Composition

With timber investments, there exists an inherent risk that the actual return of capital, income and gains will vary from the amounts expected. The composition of the portfolio and its key program management parameters are as follows:

i. Institutional Quality

All assets must be of institutional investment quality. Institutional quality will be defined as being of a quality whereby the investment would be considered acceptable by other prudent expert institutional timber market participants and corporate forest product industry investors.

ii. Diversification

The timber portfolio shall be diversified by:

1. regional geographical location (South, Northeast, West, Other, and International)
2. non-contiguous tract and parcel locations
3. type and species of tree (e.g., softwood "conifer," such as pine, fir redwood, etc., and hardwood "deciduous," such as oak, maple, etc.)
4. end-use market of forest product (building and construction, pulp and paper, furniture and decorative wood)
5. potential purchasers of inventory (mills and processing plants)
6. stage of tree growth (seedling through mature)
7. timing of investment

When fully invested, no one timberland investment should represent in excess of twenty-five percent (25%) of the total market value of the portfolio. These limits are subject to waiver on a case-by-case basis by the Trustees. It is also recognized that during the portfolio development and wind-down stages the full investment parameters may not, of necessity, be met.

iii. Ownership Structure

Account and Investment Structure: The ERS's ownership structure will comprise an arrangement whereby separate account relationships will be established with one or more fiduciary timberland managers. The separate account timberland manager will in turn purchase, on a discretionary basis, timber assets for the ERS's account. When applicable and consistent with the objectives of the Real Assets program, commingled funds may also be used to achieve exposure to timberland investments. Commingled fund investments will be governed by their fund-specific documentation, and any corresponding side letters, which may vary from the separate account guidelines presented below.

b. Investment Process (Separate Accounts)

i. Eligible Investments

In general, the timberland manager will have discretion to purchase forest tracts that are expected to meet or exceed the ERS's rate of return objectives for timber investment. The rate of return must be appropriate after the consideration of any risk measures employed by the manager. Multi-investor structures and lease holdings may be made, however, the majority of the fully invested portfolio should be made up of fee simple investments. The timberland manager is allowed to enter into joint ventures with forest product companies for up to 20% of the portfolio. However, the structure of the joint venture must not impede, at any time, either the sale of the holding or the ability of the ERS to replace the timberland manager. Also, the manager will minimize the concentration of holdings in areas known to be frequented by natural disasters, for example coastal tracts known to be frequent hurricane paths, flood zones, etc.

Without compromising the geographical diversification targets, the timberland manager will use reasonable efforts to mitigate the incurrence of unrelated business taxable income in the portfolio.

Leverage may be used, on a nonrecourse basis, up to 20% of the timberland market value of the portfolio, with no more than 50% leverage on any one timber investment. The single investment debt level will be measured for compliance at the time leverage is added to the portfolio. Leverage for the total portfolio will be measured for compliance at the time the leverage is added to the portfolio, or a portfolio asset is purchased or sold. Leverage may not be added to any investments held as of September 15, 2010.

4. Geographical Location Diversification

Over the long-term, the ERS portfolio should seek portfolio diversification with regard to major timber growing regions. The currency exposure to the ERS from any non-U.S. dollar aspect of the allocation is expected to be negligible over the long-term.

The following ranges set forth the geographic diversification targets for the timberland manager to fulfill:

Region	Range
South	45% - 65%
West	25% - 45%
Northeast	0% - 20%
Other/International	0% - 20%

5. Tree Maturity Diversification

The ERS portfolio will seek to diversify by maturity of timber ranging from immature, pre-merchantable trees through mature, merchantable timber. The timberland manager will create a sustainable timberland portfolio where tree seeding, planting, growth and purchases will replace trees harvested and properties sold.

6. Tree Species Diversification

The portfolio will be diversified by timber type and include both hardwoods and softwoods.

7. End Use Diversification

The ERS portfolio will be structured to sell into several commercial industries, such as paper goods and cardboard, various building and construction materials markets, and finished carpentry and furniture. The timberland manager will also take into account the number of regional processors or purchasers of timber inventory.

8. Tract And Parcel Diversification

The portfolio will be composed of numerous non-contiguous tracts with the goal of diversifying the risk of natural disasters such as fire, disease, pests, etc.

9. Manager Responsibilities

a. Investment Management

Timberland managers are directly accountable for the following investment management responsibilities. This section designates certain investment responsibilities that the timberland manager will perform or cause to be performed.

i. Acquisition – The manager will be responsible for sourcing, evaluating and selecting, on a discretionary basis with fiduciary responsibility, timber investments to be made on behalf of the ERS.

ii. The acquisition process will be made with a view to maximize the ERS's risk adjusted rate of return subject to portfolio management/diversification parameters.

iii. Ongoing Operations – The timberland manager shall manage or cause to be managed, the portfolio and individual properties such as to enhance the ERS's value in the investment. This includes silvicultural/forest management, property valuations/appraisals, and cash-flow management.

iv. Disposition – Ongoing, and based on timber market circumstances, the timberland manager shall review the managed investments with respect to continued timely return of capital, income and gains, including both planned and opportunistic sales of timber inventory and properties. The manager shall identify qualified buyers, solicit and evaluate offers, and negotiate property sales.

b. Monitoring and Reporting

The ERS expects its Separate Account managers to generally act in accordance to the most recent version of the Reporting Standards established by the National Council of Real Estate Investment Fiduciaries ("NCREIF") and US GAAP.

10. Investment Process (Commingled Funds)

When applicable and consistent with the objectives of the Real Assets program, commingled funds may be used to achieve exposure to timberland investments. The commingled fund Investment Manager, acting as a fiduciary on behalf of ERS, acquires, manages and disposes of timberland investments in accordance with the terms of the investment vehicle documents.

INFRASTRUCTRE SUB-COMPONENT

1. Program Management

a. General Description

The Infrastructure Portfolio is long term in nature, and for time-diversification purposes, investment commitments may be drawn down over several years throughout a defined investment period with respect to certain investment vehicles (e.g., closed-end pooled funds). Accordingly, the ERS Investment Staff and Investment Consultants may recommend total investment commitments that reasonably exceed the total Infrastructure Portfolio allocation authorized for Portfolio investment (e.g., 150% of the authorized allocation amount) to build and maintain the allocation. The Infrastructure program is expected to be managed and monitored as a sub-component of the broader Real Assets component.

b. Investment Structure

The Infrastructure Portfolio may include private equity and private debt investments in closed-end and open-end pooled funds. Private equity fund investments may include equity interests in Infrastructure assets, including energy, communications, transportation, and other types of assets. Private debt fund investments may include structured investments, which provide for stated preferred returns, which may be accrued or paid on a current basis.

c. Diversification

The Infrastructure Portfolio diversification is important in reducing portfolio risk and accomplishing risk-adjusted return expectations in the context of the larger Real Assets component that includes the Infrastructure sub-component. The impact of Infrastructure investments on the Real Assets portfolio's diversification, portfolio risk, and risk-adjusted returns shall be considered when evaluating prospective investments.

d. Leverage

Leverage can be a significant risk factor, impacting the risk / return profile of the Infrastructure Portfolio. The ERS Investment Staff and the investment consultants will monitor closely the leverage level of each Infrastructure fund investment seek to maintain a risk/return level consistent with the ERS's investment objectives.

e. Portfolio Risk and Liquidity Attributes

Infrastructure investments are expected to be private; therefore, on-demand liquidity outside of income is not anticipated. Investments are expected to primarily be "core" investments, equity or debt investment in high-quality infrastructure assets with lower risk/return attributes. Core investments are often regulated or contracted essential assets that may be characterized by a low correlation to GDP growth (e.g., regulated utilities). Volatility levels are anticipated to be reduced by this focus on income-oriented investing.

AGRICULTURE SUB-COMPONENT

1. Program Management

a. General Description

The Agriculture Portfolio target is long term in nature, and for time-diversification purposes, investment commitments may be drawn down over several years throughout a defined investment period with respect to certain investment vehicles (e.g., closed-end pooled funds). Accordingly, the ERS Investment Staff and the investment consultants may recommend total investment commitments that reasonably exceed the total Agriculture Portfolio allocation authorized for Portfolio investment (e.g., 150% of the authorized allocation amount) to build and maintain the allocation. The Agriculture program is expected to be managed and monitored as a sub-component of the broader Real Assets component.

b. Investment Structure

The Agriculture Portfolio may include private equity and private debt investments in closed-end and open-end pooled funds. Private equity fund investments may include equity interests in Agriculture assets, including farmland, delivery, storage, and other types of assets. Private debt fund investments may include structured investments, which provide for stated preferred returns, which may be accrued or paid on a current basis.

c. Diversification

The Agriculture Portfolio diversification is important in reducing portfolio risk and accomplishing risk-adjusted return expectations in the context of the larger Real Assets component that includes the Agriculture sub-component. The impact of Agriculture investments on the Real Assets portfolio's diversification, portfolio risk, and risk-adjusted returns shall be considered when evaluating prospective investments.

d. Leverage

Leverage can be a significant risk factor, impacting the risk / return profile of the Agriculture Portfolio. The ERS Investment Staff and the investment consultants will monitor closely the leverage level of each Agriculture fund investment and seek to maintain a risk/return level consistent with the ERS's investment objectives.

e. Portfolio Risk and Liquidity Attributes

Agriculture investments are expected to be private; therefore, on-demand liquidity outside of income is not anticipated. Investments are expected to primarily be "core" investments, equity or debt investment in high-quality Agriculture assets with lower risk/return attributes. Core investments may be characterized by a low correlation to GDP growth. Volatility levels are anticipated to be reduced by this focus on income-oriented investing.

GLOBAL CREDIT COMPONENT

1. Investment Objectives & Structure of the Credit Portfolio

a. *General Description*

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.

b. *Strategic Objective*

The objective of the ERS Credit Portfolio is to complement other Broad Growth components by generating a consistent return by pursuing an opportunistic non-benchmark focused approach across global public and private credit markets.

c. *Long-Term Investment Return Objective*

The ERS shall use the following rate of return tests to evaluate the performance of the Credit Portfolio:

i. Total Return

1. Over rolling 3-year periods, the total Credit Portfolio is expected to generate a minimum total dollar-weighted rate of return (internal rate of return or IRR) that exceeds an absolute return of 3-month SOFR (or equivalent short-term interest rate) + 4-6%, net of all investment management fees and expenses.
2. The Credit Portfolio's risk and return characteristics will also be measured against the investable credit indices as specified in the ERS Broad Growth Benchmark.

d. *Investment Strategies*

The following credit strategies and investment types will be considered eligible for the ERS's portfolio:

i. Corporate Credit. Partnerships/Fund of Ones ("FOOs") 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.

ii. Mortgage Credit. Partnerships/FOOs or commingled funds which invest in liquid and less liquid mortgage credit as well as opportunistically provide private financing. Investment instruments and/or strategies include but are not limited to the purchase and/or origination of legacy non-agency residential mortgage-backed securities, ABS CDOs, agency risk transfer, FNMA/Freddie preferreds, non-qualified mortgage origination, re-performing loans, legacy CMBS, CRE CDOs, credit tenant leases and bridge financings.

iii. Specialty Finance. Partnerships/FOOs or commingled funds which invest in liquid and less liquid specialty finance as well as opportunistically provide private financing. Investment instruments and/or strategies include but are not limited to the purchase and/or origination of marketplace lending, equipment leasing, consumer loans, student loans, auto loan, aircraft finance and regulatory capital relief.

iv. Hedging. Partnerships/FOOs or commingled funds which seek to opportunistically hedge beta exposures through derivative exposures. Derivatives may be used for managing interest rate, volatility, term structure, country, currency and sector exposures and will be employed defensively.

e. Investment Structure

The ERS may utilize commingled funds, separate accounts, or funds of one specifically tailored to meet the needs of the ERS for primary, secondary, and co-investments. The Credit component is expected to be allocated 100% to active management.

2. Implementation

a. Investment Approval Process

The investment approval process (i.e., the selection of investment managers for this component) will be consistent with ERS's manager selection and retention processes as discussed under Section C of this policy manual. Any selected mandates will also be subject to the policies put forth under Section D (Broad Growth class policy) of this manual.

b. Reporting

Time-weighted investment performance results for Credit mandates will be reported in a manner consistent with results produced for other account mandates under the Broad Growth class and consistent with general reporting requirements found in Section C of this policy manual. In addition, in order to assess whether the component is meeting its objectives as discussed above in paragraph 1.C. (Long-term Investment Return Objective), the Staff will provide an annual update of the Credit program.

In addition to the return metrics highlighted above, Investment Staff may develop additional metrics to assess the progress of the Credit program. Such metrics may include, but not be limited to:

- Yields based upon cash income produced by the related portfolio(s);
- Default rates and/or impairment rates exhibited by the portfolio(s);
- Sector and/or collateral concentration levels within the portfolios;
- Other measures.

PRIVATE EQUITY SUB-COMPONENT

1. Program Management

a. Responsibilities

The Private Equity program shall be implemented and monitored through the coordinated efforts of the Board of Trustees ("Board of Trustees" or "Board") of the Employees' Retirement System of the State of Hawaii ("ERS"), the ERS investment staff ("Investment Staff"), the ERS private equity consultant ("Private Equity Consultant"), and the ERS specialty managers ("Specialty Managers"). Specific responsibilities that fall outside the general responsibilities highlighted in Section B.5. are listed below:

b. Specific Responsibilities: Board of Trustees

i. Investment Selection

1. Evaluate all proposed activities or investments that may fall outside the parameters and direction of the annual Strategic Plans.
2. Mediate any disputes regarding investment selection that may take place between Investment Staff, the Private Equity Consultant(s) and/or Specialty Managers.

2. Investment Objectives

a. Portfolio Construction

The ERS has determined that, over the long term, inclusion of private markets investments (private equity, certain private debt opportunities, etc.) would enhance the ERS's expected portfolio investment characteristics. Specifically, as a result of the possibility of enhanced rates of return over publicly traded securities and returns that have low-to-moderate correlation with those associated with other major strategic class components, the use of private equity investments tends to increase the portfolio's overall long-term expected real return and reduce year-to-year portfolio volatility.

Private equity investments of the ERS shall be made in a manner consistent with the fiduciary standards of the prudent expert rule: (1) for the sole interest of the ERS's participants and their beneficiaries; and (2) to safeguard and diversify the Private Equity portfolio. The selection and management of Private Equity assets will be guided to preserve investment capital and to maintain prudent diversification of assets and management responsibility. The diversification objective is required to manage overall market risk and the specific risks inherent in any single investment or management selection.

b. Target Allocation

The allocation of ERS assets to Private Equity investments shall remain within the limits authorized by the Board of Trustees. Allocated capital will be defined as invested capital (based on market value). The Board of Trustees recognizes that it will be necessary to make capital commitments in excess of the target allocation in order to achieve and maintain progress toward its long-term target.

The goal of the ERS is to spread out the timing of new commitments so as to avoid an undue concentration of commitments in any one year. Over the long-term, it is expected that barring any unforeseen events approximately equal amounts of new funding will be committed each fiscal year to garner the benefits of vintage year diversification.

c. *Benchmarking / Return Targets*

The ERS shall use the following rate of return tests to evaluate the performance of the Private Equity portfolio:

i. Total Return (Realized and Unrealized Gain/Loss plus Income)

1. Over rolling 10-year periods, the total Private Equity portfolio is expected to generate a minimum total dollar-weighted rate of return (internal rate of return or IRR) that exceeds an equivalent public global equity return (MSCI ACWI IMI) by 200 basis points ("bps") per year, net of all investment management fees and expenses
2. Any individual fund investment is expected to produce a commensurate return that contributes to the overall Private Equity portfolio return objectives

d. *Risk Management*

The selection and management of assets in the Private Equity portfolio will be guided to generate a high level of risk adjusted return, to provide minimal amounts of current income, and to maintain prudent diversification of assets and specific investments.

With private equity investments, there is an inherent risk that the actual return of capital, gains and income will vary from the amounts expected. The ERS shall manage the investment risk associated with private growth investments in several ways:

i. Strategic Structure

1. Allocation by strategic component.

   The Private Equity component consists of two segments: (i) private equity and (ii) other private investments. Descriptions and characteristics of these segments are discussed in the appendix to this section.

2. Commitment pacing into each segment over time.

   It is expected that the private equity component will have scheduled annual commitments. However, certain annual commitment amounts among these segments may vary significantly, depending upon the capital investment opportunities within each component.

ii. Manager Selection / Institutional Quality

1. All assets must be of institutional investment quality. Institutional quality will be defined as being of a quality whereby the investment would be considered acceptable by other prudent institutional investors.
2. It shall be expected that "foundation managers" to the ERS private equity portfolio (that is, are expected to comprise a significant subset of total ERS private growth assets) periodically report to the Board of Trustees and/or Investment Staff as requested on the progress of ERS investments under their management.

e. Investment Structures

The following are considered allowable investment structures for the private equity program. It shall be noted that the Private Equity Consultant or Specialty Manager are expected to act as fiduciaries on behalf of the ERS and the investment structures mentioned below must be within accordance of the investment policies set forth in this Manual and the annual Strategic Plan. Such investment activity is subject to active review by Investment Staff on a regular basis.

i. Co/Direct Investments

Co-investments may be sourced by the Private Equity Consultant or Specialty Manager, or Investment Staff, and must be approved by the Board of Trustees or designee.

ii. Primary Investments in Private Equity Funds

Capital commitments to limited partnerships and/or limited liability companies established for the purpose of private equity investment are managed through the Private Equity Consultant or a Specialty Manager.

iii. Secondary Investments

Purchasing an existing interest in a private equity fund is managed through the Private Equity Consultant or a Specialty Manager.

iv. Separate Accounts

Investment vehicles typically set up for a single limited partner where the investment manager constructs a diversified portfolio of private market investments that are tailored specifically to the needs and objectives of the investor. Separate accounts should offer the ERS access to economics that are below generally prevailing rates and/or target strategies that are traditionally difficult for the ERS to access directly (e.g., Venture Capital).

f. Investment Strategies

The following private equity strategies and investment types will be considered eligible for the ERS's portfolio:

i. Corporate Finance/Buyout:

Partnerships/LLCs which provide funding to acquire majority or controlling interests in a business or product lines from either a public or private company. Buyout sub-strategies are classified by total capital commitments and include Small, Mid, Large and Mega buyouts

ii. Fund-of-Funds

Blind pool partnerships/LLCs that evaluate, select and monitor investments in other limited partnership/LLC investments

iii. Mezzanine Debt

Partnerships/LLCs which invest in unsecured or junior obligations in financings. These generally take the form of subordinated debentures or preferred stock. They typically earn a current coupon or dividend and have warrants on common stock or conversion features

iv. Distressed Debt

Partnerships/LLCs which invest in non-investment grade privately placed debt securities. Common sub-strategies include Distressed For Control, Non-Control and Trading

v. Project Finance

Partnerships/LLCs which invest in industrial leveraged or unleveraged lease or project financings. These can include participation in equity, mezzanine, or senior debt investments. Investments should be made after the development phase, as part of the project's permanent financing, when projects are going operational

vi. Special Situations

Partnerships/LLCs with investment strategies which have gained an institutional following, but where sporadic opportunities do not justify a separate long-term strategic allocation. Categories includes partnerships/LLCs which make strategic block investments, have very broad mandates, focus on restructuring/recovery or focus on specific industries or which seek to exploit opportunities created by changing industry trends or governmental regulations

vii. Venture Capital

Investments in start-up companies generally exhibiting promising potential and/or high-growth characteristics. Such investments generally exhibit minimal leverage and can consist of the following stages: Seed/Early, Middle, Late-Stage and Growth Equity

viii. Other

Partnerships/LLCs which invest in publicly traded securities or which employ strategies different from those cited above such as, hedge fund strategies, commodity trading, post-venture equities, investments in commercial leases, and other non-traditional strategies. The purchase of secondary partnership/LLC interests is also allowed.

g. *Diversification Requirements*

The private equity portfolio shall, to the extent possible[2] be diversified as to investment strategy, timing of investment, size and life cycle of investment, industry sector, investment sponsor organization (e.g., general partner group), capital structure and geographical location. Diversification reduces the impact on the portfolio of any one investment or any single investment style to the extent that an adversity affecting any one particular area will not impact a disproportionate share of the total portfolio.

It is also recognized that during the portfolio development and wind-down stages the full investment parameters may not, of necessity, be met.

The scope and size of the ERS program is such that significant investments in fewer, more concentrated "foundation" managers are preferred to smaller, more numerous managers. While ERS has not set a minimum dollar amount per partnership/LLC, the Private Equity Consultant and/or Specialty Manager will be charged with deploying the capital efficiently, such that funding targets are achieved with a minimal number of partnership/LLC holdings. Long-term diversification targets among eligible investment strategies will be set forth in the annual Strategic Plan document, and reviewed and updated as necessary.

i. Geographic

[2] Investments will be primarily in "blind pool" funds where there is limited control over the diversification process.

Over the long-term, the ERS portfolio should seek portfolio diversification with regard to major regional areas both domestically, and internationally.

The portfolio shall primarily target investments domiciled within North America. In line with the ERS's total international allocation, the portfolio shall seek to limit international investments (outside of North America) by targeting no more than 35% of the private equity investment allocation to such investments. The currency exposure to the ERS from the non-dollar aspect of the allocation is expected to be negligible.

ii. Industry

The ERS portfolio will seek to diversify by industry sector (as outlined through the Global Industry Classification Standard) and shall target that no one industry classification represents more than 35% of the private equity portfolio.

iii. Life Cycle

Commitments to partnership/LLC investments generally will be staged over time. It is the long-term goal of ERS to spread out investment timing such that new commitments will be made each fiscal year. This policy will have the effect of dollar cost averaging the ERS's portfolio over business cycles to help insulate the portfolio from event risk.

h. General Partner

The ERS portfolio will seek to diversify by issuer of limited partnership/LLC securities, and other specific investments sponsors. No more than 20% of the ERS's private equity portfolio net asset value will be invested with any one investment sponsor organization.

i. Single Investment

No single private equity commitment shall comprise more than 100bps of total ERS assets under management. An exception to this limitation may be offered for separate accounts, subject to approval by the Board of Trustees.

ii. Limited Partner

The ERS is permitted to own up to 20% of any particular partnership/LLC subject to the General Partner limitation (item 4) above.

3. Implementation of Private Equity Program

a. Annual Strategic Plan

i. Annually, the Private Equity Consultant and Specialty Managers (if applicable), in conjunction with Investment Staff, will prepare a Strategic Plan which reviews the current status of the portfolio, recent historical and prospective market conditions, and proposes the actions to be taken over the next approximately twelve-month period.

ii. The annual Strategic Plan will then be presented to the Board of Trustees for approval

b. Investment Approval Process

The following steps shall be followed in order for the ERS to commit to any prospective private equity investment opportunity:

i. Private Equity Consultant sources and performs comprehensive due diligence on attractive investment opportunities consistent with criteria set forth in the annual Strategic Plan

ii. If, as a fiduciary of the ERS, the Private Equity Consultant determines that the investment merits a commitment from the ERS, the Private Equity Consultant will take the following steps:

1. Discuss with Investment Staff the key findings during due diligence, including investment merits, risks and key conclusions
2. Follow-up with Investment Staff on additional requests for information based on this discussion and complete a due diligence memorandum.
3. In conjunction with the ERS's legal review process, facilitate legal negotiation and closing into the investment opportunity

iii. The Board of Trustees shall be notified in the event of a disagreement between Investment Staff and the Private Equity Consultant on an investment recommendation

iv. The Specialty Manager (if applicable) will be expected to operate on a discretionary basis

1. The Specialty Manager is to operate under the oversight of and provide regular updates to Staff.

c. *Monitoring and Reporting*

i. Reporting System

There shall be a quarterly reporting and monitoring system for the entire portfolio by the Private Equity Consultant. The monitoring shall include asset/risk allocation and portfolio performance in sufficient detail to identify situations of underperformance, diversification deficiencies and conflicts of interest. Due to the large number of funds, the ERS investment staff will employ a sampling methodology to verify that the Private Equity Consultant is adequately executing the monitoring program and detecting major performance issues within the private equity portfolio.

ii. Performance Measurement

The Private Equity Consultant and Specialty Manager(s) will provide cash flow, valuation, and any other requested information to Investment Staff and the Private Equity Consultant quarterly, and the ERS's custodian bank ("custodian") on a monthly basis, and will notify Investment Staff of any instances of materially different carrying values from those reported by general partners.

Performance may be calculated on a time-weighted and/or dollar-weighted (internal rate of return or IRR) basis, as applicable, with primary emphasis being placed on the internal rate of return. The rate of return calculations will be net of all partnership/LLC fees and expenses, but gross of Private Equity Consultant and/or Specialty Manager fees and expenses. The manager and/or Private Equity Consultant will be responsible for reviewing the custodian's figures as to timing, amount, value of in-kind securities at distribution and reported net asset value, and reconciling and explaining any discrepancies.

MEMORANDUM

November 18, 2024

TO:	The Investment Committee of the Board of Trustees Employees' Retirement System of the State of Hawaiʻi ("ERS")
THROUGH:	Thomas Williams, Executive Director ("ED") Employees' Retirement System of the State of Hawaiʻi
FROM:	Kristin Varela, Chief Investment Officer (CIO") Employees' Retirement System of the State of Hawaiʻi
SUBJECT:	Revisions and Updates to the ERS Investment Policy Statement (IPS) – Sections C and D

<u>Summary of Original Recommended Revisions (posted 11/13/2024):</u>

The recommended revisions to the Responsible Investing policy in Section C of the IPS places greater emphasis on broader fiduciary considerations, going beyond traditional ESG considerations and incorporating other factors into investment decision-making. Edits include:

<u>SECTION C. ERS GENERAL INVESTMENT OVERVIEW</u>

- SECTION C.7: Responsible Investing
  Action: Update definition and language for "Responsible Investing" to account for systemic risk factors.
  Reasoning: To align with ERS goals and objectives.

- SECTION C.7.1:
  Action: Update language to delete specific references to the proxy voting administrator by name and redundancy and include guidance for ERS investment managers with delegated proxy authority.
  Reasoning: To eliminate reference to vendor by name in IPS and for clarity.

<u>SECTION D. BROAD GROWTH PROGRAM</u>

The Real Assets Component in Section D has been aligned with the strategic allocation approved by the Board in 2023 and streamlined to ensure clarity and consistency in the management of real assets investments. Edits include:

- BROAD GROWTH APPENDIX: REAL ASSETS COMPONENT

  - REAL ASSETS COMPONENT – VARIOUS SECTIONS
    Action: Updated reference to selection consultant, from Real Estate Consultant to Real Assets Consultant.
    Reasoning: To align with contracted responsibilities of selection consultant, covering total Real Asset portfolio.

  - REAL ESTATE SUB-COMPONENT 1.b, 2.a, 2.c
    Action: Update language and to align with current practice.

Reasoning: To consolidate the naming convention of Core and Non-Core Real Estate into Real Estate, align Separate Account Tactical Plan with current practice, and broaden leverage expectations in alignment with market implementation.

- REAL ESTATE SUB-COMPONENT 3.c.iv, 3.c.vi, 3.d.viii

  Action: Update language of Value Add and Opportunistic Real Estate general characteristics.

  Reasoning: To streamline IPS and ensure alignment with Infrastructure and Agriculture Sub-Component policies.

- REAL ESTATE SUB-COMPONENT 4.c

  Action: Elimination of Section C, Target Portfolio.

  Reasoning: Removing target portfolio references to legacy benchmark, no longer utilized by ERS. Specific guidelines are no longer relevant.

Summary of Further Recommended Revisions (proposed 11/18/2024):

Upon review of original recommended revisions Staff and Committee Chair identified areas to further revise, focused on consistency of terminology, correction of administrative typos, and streamlining processes. Recommended edits include:

SECTION D. BROAD GROWTH PROGRAM

- SECTION D.2 CLASS STRUCTURE, 1. COMPONENTS, a. PRIVATE EQUITY, PG. 3
  Action: changing introductory language to reference private equity, instead of public equity.
  Reasoning: correcting typo.

SECTION D. BROAD GROWTH APPENDIX

- DERIVATIVES POLICY, PG. 8
  Action: Delete prohibitive language in first paragraph
  Reasoning: Section 4. Permitted Instruments allows for the full investable universe of derivative instruments.

- REAL ESTATE SUB-COMPONENT, SECTION 1.a, PG. 12
  Action: Update language to align with current practice.
  Reasoning: To consolidate the naming convention of Core and Non-Core Real Estate into Real Estate.

- REAL ESTATE SUB-COMPONENT, SECTION 3.c.iv, PG. 14
  Action: Update language of Value-Add Real Estate general characteristics.
  Reasoning: To streamline IPS and ensure alignment with Infrastructure and Agriculture Sub-Component policies.

- REAL ESTATE SUB-COMPONENT, SECTION 5.a, 6.a.i, 6.a.iii, 6.b.i, PG. 16-17
- TIMBER SUB-COMPONENT, SECTION 2.a, 2.b, 2.b.ii

  Action: Updated reference to selection consultant, from Real Estate Consultant to Real Assets Consultant.

  Reasoning: To align with contracted responsibilities of selection consultant, covering total Real Asset portfolio.

All changes to become effective on January 1, 2025.

ERS GENERAL INVESTMENT OVERVIEW

SECTION: C

TABLE OF CONTENTS

C. 1. ERS INVESTMENT PLAN SUMMARY

1. Primary Goal

The preservation of capital is of primary concern of the Employees' Retirement System of the State of Hawaii ("ERS" or "Plan"). The Board of Trustees of the ERS ("Board of Trustees" or "Board") seeks preservation of capital with a consistent, positive return for the Plan. Although pure speculation is to be avoided, the Board recognizes that a return in-line with the actuarial rate is associated with a certain degree of risk. Risk to be assumed must be considered appropriate for the return anticipated and consistent with the total diversification of the Plan.

2. Structure

The ERS implements a risk-based, functional framework for allocating capital within the total portfolio. This framework 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., Diversifying Strategies class) and/or be exposed to a specific set of macroeconomic risks that are common amongst 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. Each program's policy section contains a list of the relevant macroeconomic risks. Definitions for each of these macroeconomic risks can be found in Appendix B of this Manual.

a. *Current Strategic Allocation Target Ranges (effective 01/01/2024)*

The ERS will be invested according to the following strategic class targets and ranges:

	Lower Limit	Target	Upper Limit
Broad Growth	60%	70%	80%
Diversifying Strategies	20%	30%	40%
Opportunities	0%	0%	0%

The Chief Investment Officer of the ERS ("CIO") may set the actual class levels anywhere within the upper and lower limits above. For deviations in excess of +/- 3%, the CIO shall provide regular ongoing justifications for the deviations. Adjustments in the above targets may be reviewed in conjunction with the annual strategic allocation review. The general consultant should conduct a formal strategic allocation study at least every three years for the Board of Trustees to verify or amend the strategic targets and ranges.

b. *Total Investment Portfolio Evaluation Benchmark*

To monitor the total investment portfolio result, a custom benchmark is constructed to measure the target mix. This target benchmark mix will evolve over time, but it is based on historical evolving allocation targets, the above-highlighted strategic allocation targets, and the broad benchmarks listed below (i.e., evolving weights x benchmark return).

- Broad Growth Blended Benchmark[1]
- Diversifying Strategies Blended Benchmark[1]

[1] Refer to program section for detailed description of benchmark, and possible evolving benchmark timeline.

Individual ERS investment managers ("Investment Managers" or "investment managers") will not be measured against this total investment portfolio objective. However, it is expected that the sum of their efforts will exceed the objective over time.

C. 2. INVESTMENT MANAGEMENT POLICY

1. Manager Discretion

The investment managers shall be given full discretion to manage the assets under their supervision subject to this Investment Policy, Guidelines, and Procedures manual ("Manual"), their assigned mandate, the laws of the State of Hawai‘i ("State"), and their investment management agreements with the ERS.

2. Manager Evaluation

Individual investment managers will be measured against an appropriate benchmark, index and peer group as appropriate. Relevant manager evaluation benchmarks are stated in investment management agreements with the ERS.

3. Policy on Local Managers

The Board of Trustees wishes to utilize qualified local firms in the management of a portion of the ERS's assets. Due to the size of the ERS's portfolio and the fiduciary responsibility of the board members to select qualified firms in accordance with overall Board investment strategy, the following guidelines have been established for the identification, selection and evaluation of Hawai‘i-based investment management firms.

a. It shall be the policy of the Board to allocate assets to local investment managers in accordance with the Board's strategic allocation and long-term investment policies.

b. The asset mix of the combined local investment managers' portfolios shall be determined under a fiduciary framework with respect to the overall portfolio and relevant strategic classes.

c. Evaluation of Local Firms

    i. All local firms retained by the Board of Trustees shall be evaluated in a similar fashion as all other investment managers within the same strategic class.

C. 3. REPORTING REQUIREMENTS FOR INVESTMENT MANAGERS

1. Investment Managers of Liquid Mandates

Investment managers of liquid mandates must abide by the reporting requirements stated within their investment management agreements.

2. Investment Managers of Illiquid Mandates

Investment managers of illiquid mandates must abide by the reporting requirements stated within their partnership agreements.

C. 4. SECURITIES LENDING GUIDELINES

The policies and guidelines governing the securities lending program shall pertain to the Custodian, unless such services are contracted otherwise. A *separate contract*, distinct from the custody relationship, detailing the type of securities lending relationship and program is both mandatory and essential in the treatment of securities lending as, foremost, an investment function with the associated risks and return implications, and fiduciary responsibility.

On an annual basis, the Custodian shall provide a detailed report of the ERS's securities lending activities. This summary shall be the basis for verification that the Custodian is complying with these securities lending guidelines. After reviewing the report provided by the Custodian, the General Investment Consultant shall prepare a report summarizing the ERS's securities lending activity and compliance with the ERS's policies.

1. Objective

The Custodian, as the ERS's securities lending agent, receives cash or government securities (defined below) as collateral for loans of their securities to approved borrowers. On an ongoing basis, the securities lending agent identifies eligible collateral and, in the case of cash collateral, the opportunity for a market rate of return consistent with allowed investment latitude and thereby seek to generate positive program spreads.

The securities lending agent must exercise investment discretion consistent with the overall objective of preserving principal; providing a liquidity level consistent with market conditions and the lending and trading activities of the ERS; and maintaining full compliance with stated guidelines and statutory provisions. The securities lending agent shall exercise prudence and expertise in managing the cash collateral reinvestment function.

2. Program Guidelines

Maintenance of the integrity and operational functionality of the securities lending program shall be pursued with utmost diligence. The securities lending agent shall have documented policies and procedures in place detailing the following if not stipulated in the securities lending contract for both domestic and international securities.

- *a. Borrower Limits/Creditworthiness*
- *b. Acceptable Collateral*
- *c. Marking to Market*
- *d. Corporate Actions/Distributions*

e. *Proxy Voting Limitations*

f. *Recall of Loaned Securities*

g. *Revenue Splits*

h. *Valuation and Reporting of Loaned Securities and Cash Collateral Reinvestments*

i. *Borrower Risk (Default)*

j. *Cash Collateral Reinvestment Risk*

k. *Operational Negligence*

l. *Counterparty Indemnification*

m. *Other relevant policies*

The securities lending agent shall at all times exercise prudence and due care and shall comply at all times with Section 88-121.5, Hawai‘i Revised Statutes and all other applicable laws, rules and regulations of federal, state, and local entities or agencies having jurisdiction, including but not limited to banking and securities regulatory bodies, taxation authorities and the US Department of Labor.

3. Collateral Management

The securities lending agent shall exercise prudence and reasonable care in discharging its discretion in the investment management of cash and non-cash collateral, including asset/liability (gap) management that is appropriate relative to the market environment or conditions that the securities lending agent is operating in. Provided that the management of collateral, specifically cash, imposes the greater risk, the securities lending agent shall adhere to the overall investment objective of ERS. Policies regarding issuer, credit, exposure and rating limits utilized in the securities lending program per investment vehicle shall be under the full discretion of the provider, and appropriate and consistent with the stated general guideline. Issues such as exposure guidelines, prohibited securities for cash investment, duration strategies, and matched and mismatched book are both strategic and tactical investment functions and shall be consistent with the above objective.

Initial Collateral levels will not be less than 102% of the Market Value of the Borrowed Securities, or not less than 105% if the borrowed securities and the Collateral are denominated in different currencies. Marking-to-market is performed every business day subject to de minimis rules of change in value, and the Borrower is required to deliver additional Collateral when necessary so that the total Collateral held by the securities lending agent for all loans to the Borrower of all participating lenders will at least equal the market value of all the borrowed securities of all participating lenders loaned to the Borrower.

Listed below are the cash and non-cash Collateral guidelines specifying eligible investments, credit quality standards, and diversification, maturity and liquidity requirements. Except for Prior Purchased Assets[2], all requirements listed in these guidelines are effective at the time of purchase of any security or instrument as a cash Collateral investment and at the time of receipt of any non-cash Collateral. Agent will make use of market standard settlement methods for cash investments and non-cash collateral including the use of a tri-party custodian as approved by Agent's appropriate risk committee. Settlement through a tri-party custodian may result in cash collateral being held on deposit at the tri-party custodian.

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[2] There may be certain assets held as Collateral that complied with the requirements of a prior version of these guidelines then in effect at the time of purchase of such assets, but that may not meet these latest guidelines (such assets termed "Prior Purchased Assets"). Such Prior Purchased Assets may continue to impact the overall securities lending portfolio accordingly. The securities lending agent may, at its sole discretion, hold such Prior Purchased Assets until maturity, or as otherwise determined by it.

a. Cash Collateral Guidelines

i. Investment Objectives

Cash Collateral of the Collateral Account is invested to seek the following objectives:

1. preservation of capital
2. maintenance of liquidity, and
3. maximization of current income to the extent consistent with (a), and (b), above by investing cash Collateral in accordance with the guidelines stated below. Within quality, maturity, and market sector diversification guidelines, investments are made in those securities Agent judges to offer the most attractive relative yields.

ii. Investment Guidelines

A separate cash Collateral account shall be maintained for each currency, subject to the eligibility rules below. Cash Collateral shall be denominated in either U.S. Dollars or Euro currency, and shall be invested in securities or instruments managed under the following guidelines:

b. Eligible Investments:

i. Securities and Exchange Commission (SEC) Rule 2a-7 money market mutual funds.

ii. Securities issued or guaranteed as to principal and interest by the Government of the United States or issued or guaranteed by agencies or instrumentalities thereof.

iii. High-grade commercial paper and commercial paper master notes, whether or not registered under the Securities Act of 1933, as amended, and promissory notes. Obligor shall have a short-term rating not lower than "A-1, P-1 or F-1", at time of purchase.

iv. Corporate obligations, including the banking industry, which are marketable and rated high-grade. At the time of purchase, either the long-term rating shall not be lower than "AA-, Aa3", or the equivalent thereof, or the short-term rating shall not be lower than "A-1, P-1, or F-1" if less than one year remaining until maturity. Obligations may include fixed, floating and variable rate notes and bonds.

v. Asset backed securities, at the time of purchase, shall have either a long-term rating of "AAA, Aaa" or the equivalent thereof, or a short-term rating not lower than "A-1, P-1, or F-1" if less than one year remaining until maturity. Mortgage-backed securities are not considered asset backed securities for purposes of this restriction. Asset backed securities must be collateralized by credit cards, auto receivables, equipment trusts or student loans.

vi. Certificates of deposit and other bank deposit obligations of U.S. banks or U.S. branches or subsidiaries of foreign banks. At the time of purchase, the issuing bank must have either a short-term issuer debt rating not lower than "A-1, P-1, or F-1" or a long-term issuer debt rating not lower than "AA-, Aa3", or the equivalent thereof.

vii. Bankers' acceptances issued by U.S. banks or issued in the U.S. by branches or subsidiaries of foreign banks. At the time of purchase, the issuing bank must have either a short-term issuer debt rating not lower than "A-1, P-1, or F-1" or a long-term issuer debt rating not lower than "AA-, Aa3", or the equivalent thereof.

viii. Repurchase agreements with respect to the following types of collateral and repo counterparties:

ix. U.S. government securities, agencies, sovereigns, supranationals, commercial paper, municipal bonds, asset-backed securities, mortgage-backed securities (only pass-throughs), corporate bonds (investment grade and high yield), and equities.

x. The credit worthiness of the repurchase agreement counterparties shall be monitored by Agent's internal risk committee.

xi. Sovereign debt obligations (other than U.S. Government obligations). At the time of purchase, either the long-term rating shall not be lower than "AA-, Aa3" or the equivalent thereof, or the short-term rating shall not be lower than "A-1, P-1, or F-1" if less than one year remaining until maturity.

xii. Interests or units in any short-term investment fund (including, without limitation, such funds of the ERS's Custodian Bank and any of its affiliates) that invests in any or of the types of investments approved above.

xiii. Capped floaters, provided that Agent shall notify Lender of the usage of such securities and shall employ appropriate risk assessment and manage expertise as specified by the Office of the Comptroller of the Currency.

xiv. Constant Maturity Treasury ("CMT") floaters, provided that Agent shall notify Lender of the usage of such securities and shall employ appropriate risk assessment and manage expertise as specified by the Office of the Comptroller of the Currency.

c. *Maturity/Liquidity*

The "maturity" of a security or instrument (or "maturities" for more than one security or instrument) shall be defined as follows:

i. The shorter of the date on which the principal amount is ultimately required to be paid or the put date under a demand feature, or

ii. Variable rate eligible U.S. Government and U.S. Agency obligations shall have a maturity equal to the date of the next readjustment of the interest rate, or

iii. The maturity of a pooled investment fund shall be the number of days required to liquidate an investment in the fund under normal market conditions, or

iv. Asset-backed securities shall have a maturity equal to such security's weighted average life (i.e., the average time to receipt of expected cash flows on the security).

A minimum of 60% of the cash portion of the Collateral Account shall be invested in securities which have a maturity (as herein defined) of 97 days or less.

A minimum of 20% of the cash portion of the Collateral Account shall be available each business day. This may be satisfied by maturities (as herein defined), or demand features.

The rate sensitivity or weighted average maturity, as measured to the shorter of the remaining time until the interest rate reset (if applicable) or maturity, of the cash portion of the Collateral Account will be limited to 60 days.

The weighted average maturity, as measured to maturity (as herein defined), of the cash portion of the Collateral Account shall not exceed 120 days.

The maturity of fixed rate investments may not exceed 13 months from the date of purchase. The maturity of floating rate Eligible Investments, including the maturity of variable rate eligible U.S. Government and U.S. Agency securities (as measured to final maturity date, not the next readjustment of interest rate), may not exceed 2 years.

d. *Diversification*

Subject to the following exceptions, a maximum of 5% of the cash portion of the Collateral Account may be invested in securities or instruments of any one issuer or obligor. Exceptions are as follows:

i. 100% of the cash portion of the Collateral Account may be invested in obligations issued or guaranteed by the U.S. Government or its agencies/instrumentalities.

ii. 25% of the cash portion of the Collateral Account may be invested with any one counterparty in repurchase agreements collateralized by U.S. Government or U.S. Government agency securities.

iii. 10% of the cash portion of the Collateral Account may be invested with any one counterparty in repurchase agreements collateralized by eligible securities other than U.S. Government or U.S. Government agency securities.

iv. Residual cash balances, which cannot be invested into the marketplace, shall not be subject to diversification limits.

e. *General Ratings Provisions:*

The ratings above must be designated by at least two Nationally Recognized Statistical Rating Organizations ("NRSROs"), or if only rated by one NRSRO, then rated at the time of purchase in the minimum rating category specified by that NRSRO, as above. For the avoidance of doubt, if all three NRSROs rate the obligation, then the obligation is eligible as long as two NRSRO ratings meet the minimum criteria. In the event that the obligation is not rated, the issuer rating shall be considered with respect to the class of comparable short-term obligation or long-term obligation.

f. *Prohibited Transactions and Securities*

The following transactions and securities are not permitted as direct investments of Cash Collateral:

i. Additional leverage, which shall mean that Lender may not further lend Eligible Investments in the Collateral Account.

ii. Highly leveraged, structured notes.

iii. Range floaters, COFI floaters, Dual Index floaters inverse floaters and leveraged floaters.

g. *Non-Cash Collateral Guidelines*

Listed below are the non-cash Collateral investment guidelines for eligible Collateral.

i. <u>Investment Guidelines</u>

Non-cash eligible instruments may consist of the following:

ii. <u>Eligible Investments</u>

1. Obligations issued or guaranteed by the U.S. Government or its agencies or instrumentalities thereof.

2. Obligations issued or guaranteed by OECD (Organization for Economic Cooperation and Development) member states or their local governments, agencies or authorities.

3. Canadian Provincial Debt

4. Equity securities, which are part of U.S. and non-U.S. indices (including, but not limited to U.S., U.K., EMU, Japan, Canadian and Australian markets), as approved by Agent's internal risk committee from time to time; and

5. Such other Collateral as the parties may agree to in writing from time to time.

iii. Credit Quality

1. Eligible Instruments as named above may be accepted without limit.

iv. Diversification

1. Eligible Instruments as named above may be accepted without limit.

h. *Operation of the Collateral Account*

i. Income

Income earned from the investment of cash Collateral, net of (i) expenses, including but not limited to, transaction accounting and reporting expenses, auditing fees, brokerage fees and other commissions, and any miscellaneous expenses, (ii) any applicable withholding of tax, (iii) loan rebate fees paid or accrued to the borrowers, and (iv) any adjustments to provide for regular returns, together with loan fees for loans Collateralized by non-cash Collateral, are distributed to Lender of the Collateral Account on a monthly basis.

On a monthly basis, a portion of the income earned by Lender on a loan on any business day may be withheld by Agent and transferred to income earned on a different loan for that Lender on any other business day if on that day one or more rebates due or accrued to borrowers with respect to one or more loans should exceed the income earned from the cash Collateral supporting those loans. If, despite such transfers, during any month total rebates payable exceed total revenues with respect to any loan or loans of Lender, the net shortfall shall be charged against positive undistributed earnings from other loans of Lender to the extent thereof, and any remaining shortfall shall be allocated between the Lender and the Agent in the same proportions as positive securities lending revenues. Any amounts thereby payable by the Lender shall be the personal obligation of Lender and shall be due and payable upon the Lender's receipt of Agent's invoice for such amounts. Agent may withhold (and Lender is deemed to grant to Agent a lien upon) future loan revenues, and any other property of the Lender then or thereafter in the possession of Agent, to secure the payment of such obligation. Notwithstanding the foregoing, however, all other Collateral losses shall not be shared between the Lender and the Agent to any extent but shall be allocated as provided in the Agreement or these guidelines.

Incidental expenses, (e.g., negative float due to payment advances) incurred in the administration of the Collateral Account are recovered against incidental receipts, (e.g., positive float from pending balances) similarly arising and any remaining balance is added to the lending revenues for the benefit of Lender. Net realized short-term capital gains or losses (if any) may be distributed (or charged) from time to time.

ii. Net Asset Value

Lender hereby directs Agent to maintain the cash portion of the Collateral Account as a fund comprised of units having a constant net asset value of $1.00 per unit and to value the fund using the amortized cost method (acquisition cost as adjusted for amortization of premium or accretion of discount) for that purpose. Agent will not determine or monitor the fair market value of the investments as a means of comparing the unit value with the market value of its investments. Lender hereby represents and confirms on a continuing basis throughout the term of this Agreement that such a method of valuation and account maintenance is consistent with all laws, rules, regulations and accounting procedures applicable to Lender.

The cash portion of the Collateral Account intends to maintain a constant net asset value within minimum tolerances established by Agent's senior management. There is no guarantee, however, that the cash portion of the Collateral Account will be able to attain that objective. The Collateral Account is not registered under the Investment Company Act of 1940 as a money market fund, is not subject to regulation by the Securities and Exchange Commission and does not comply with federal regulations governing registered money market mutual funds.

In no event shall Agent be personally liable to restore any loss within the Collateral Account, unless the loss was directly caused by the negligence or intentional misconduct of Agent.

iii. Trading Policy

Although the Collateral Account will generally not engage in short-term trading, the Agent may dispose of any portfolio security prior to its maturity if, on the basis of a revised credit evaluation of the issuer or other considerations, Agent believes such disposition is advisable. Subsequent to its purchase, a portfolio security or issuer thereof may be assigned a lower rating or cease to be rated. Such an event would not necessarily require the disposition of the security, if the continued holding of the security is determined to be in the best interest of the Lender. In any event, Agent will notify Lender as soon as reasonably practicable if any security is downgraded after initial purchase below the minimum requirements set forth in these investment guidelines.

C. 5. STRATEGIC ALLOCATION REBALANCING GUIDELINES

1. Rebalancing Assets within the Strategic Allocation

One essential component of a strategic allocation policy is the development and use of rebalancing ranges for the target allocation. According to several studies, systematic rebalancing should reduce portfolio volatility and increase a portfolio's risk-adjusted return. Using the ERS's long-term strategic target allocation, the greatest enhancement to investment performance (i.e., enhancing the annualized return while lowering the risk) is achieved by the rebalancing within the ranges described in C.1. ERS Investment Plan Summary.

The Investment Staff will maintain the classes within their target ranges primarily by using cash flows, although the actual allocations will be rebalanced whenever a class is outside of its strategic target range. The Board of Trustees should review the targets and ranges annually for reasonableness relative to significant economic and market changes, and relative to changes in the ERS's long-term goals and objectives.

If the Plan has positive cash flow (i.e., contributions exceeding disbursements), Investment Staff has the discretion to rebalance by directing new moneys to the under allocated strategic classes on a pro-rata basis. If the Plan has negative cash flow, Investment Staff has the discretion to withdraw moneys to be disbursed from over allocated strategic classes. In each case, the CIO shall keep the Executive Director and the Board of Trustees apprised of current asset movements. Managing strategic allocations in this manner should not incur any additional transaction cost beyond what would have been normally incurred to liquidate or invest assets.

Certain strategic classes have more subjective rebalancing ranges relative to their target allocations. Concerns of liquidity and the long-term horizon for these investments suggest a more infrequent rebalancing schedule. Accordingly, other more qualitative considerations (e.g., transaction costs, liquidity needs, investment time horizons, etc.) regarding the timing of rebalancing certain elements within certain asset classes will be important to consider with the guidelines shown above.

2. Rebalancing Investment Style/Mandate Allocations Within Strategic Classes

Investment Staff is responsible for maintaining appropriate style and mandate weightings, consistent with the respective strategic classes' risk profile(s). Investment Staff and/or the applicable investment consultant shall regularly report style and mandate weightings, and their deviations from policy, to the Board. Any adjustments that cause a material change to a strategic class's risk profile requires Board approval.

3. Single Manager Portfolio and Firm Allocation Limits for Active Mandates

In order to minimize any potential risk associated with large concentrations of the ERS's portfolio assets being managed in a single manager portfolio or by a single firm, the following limits have been put in place:

a. No single equity manager portfolio shall represent more than 5% of the total ERS portfolio and

b. No single manager/firm, when all active mandates associated with that manager/firm are aggregated, shall represent more than 10% of the total ERS portfolio.

If any single manager portfolio or manager/firm's active assets exceed these limitations, Investment Staff shall provide the Board its solution to reallocate funds from that portfolio or manager/firm within the portfolio to reduce the concentration within a reasonable time period.

The Board may exclude certain firms from these limits.

Exemptions:

Gateway Investment Advisers, the ERS's covered calls manager, was granted a temporary exemption from the single manager portfolio limit at the September 14, 2015 Board meeting.

C. 6. PORTFOLIO TRANSITIONS

From time to time, the ERS will have a need to restructure its portfolios as a result of manager performance or strategic allocation changes. The Board of Trustees, acting on recommendations and suggestions of the Investment Staff and investment consultants, will decide to undertake actions to allocate assets to maintain optimal strategic class weightings and/or to individual managers. Investment Staff will maintain desktop procedures that detail the asset transition decision process and will follow the asset transition steps. Investment Staff will maintain coordination and communication throughout the transition process with other ERS staff and outside parties. During the trade and post-trade processes Investment Staff will evaluate the performance of manager(s) by means of various reports. The CIO will report transition highlights to the Executive Director and the Board when appropriate.

C. 7. RESPONSIBLE INVESTING

The ERS strives to ~~integrate and consider Responsible Investing practices~~be a prudent and responsible investor in overseeing the System's assets.

~~This practice aims for a balance between the System's financial goals and needs and the investment's impact on society by~~ This means that the ERS, as a fiduciary to its members, is responsible for achieving financial return and positive impact on our members through oversight of the actions of the corporations or entit~~y~~ies in which ~~the~~ investments ~~is~~ are made.

~~Falling within the realm of Responsible Investing is the consideration of environmental, social, and corporate governance (ESG) factors, where ESG describes the three main areas of concern that have developed as the central factors in measuring the sustainability and ethical impact of an investment in a company or business. Within these three areas are a broad set of concerns that are increasingly being included in the nonfinancial factors that figure in the valuation of equity, real estate, infrastructure, and fixed income investments. Examples include but are not limited to, a company's carbon footprint, human rights, employee gender and ethnic diversity and non-discrimination, climate change, and effective board oversight. ESG factors have the potential to affect the economic value and performance of an investment now and in the future. Sound corporate governance policies and practices play an important role in protecting economic value while enhancing value for long-term plan participants and beneficiaries. The ERS strives to incorporate ESG into its investment process to identify and select investment partners that share in its alignment of utilizing ESG factors when evaluating the value and risk of portfolio companies.~~ There are a broad set of factors that are not found in financial statements which nevertheless can have significant impact on the financial valuation of an investment. These factors have always been a part of a comprehensive due diligence process and are becoming increasingly important to finding opportunities and avoiding risks. These factors affect the valuation of investments across various asset classes. Examples include but are not limited to: a company's ability to adapt to systemic changes; effective board oversight; degradation or contribution to its surroundings, including the local populations; human rights; employee non-discrimination. These factors have the potential to affect the economic value and performance of an investment. Sound corporate policies and practices, to ensure accountability, play an important role in protecting and enhancing long-term economic value for plan participants and beneficiaries.

The ERS strives to be a prudent and responsible investor by incorporating all relevant factors into its investment process and seeks to identify and select investment partners that are aligned with our mission to fulfill our fiduciary duty to our members.

~~Upon the~~The ERS will be mindful of the encouragement by the House of Representatives of the Twenty-sixth Legislature of the State of Hawai'i, Regular Session of 2012~~, the ERS will continue to apply the principles of Responsible Investing in investment practices and decisions where possible, and encourages other investment counselors and money managers to apply Responsible Investing to their investment portfolios. The ERS believes that these considerations align with its goal to provide strong long-term investment results to the System.~~, and adhere to all applicable state and federal statue in making investments.

The following sections outline the ERS's policies and efforts that pertain and support the practice of Responsible Investing:

1. Proxy Voting
2. The Global Sullivan Principles

3. Anti-Terrorism Policies
4. Sudan Policies
5. United Nations – Supported Principles for Responsible Investment (PRI)
6. HiTIP Policies and Procedures (Created by the ERS to fulfill the mandate of Act 260, "A Bill For An Act Relating To The Innovation Economy.")

1. Proxy Voting

The ERS has a fiduciary responsibility to act solely in the best interest of its members and beneficiaries and ~~the right to vote~~voting proxies is considered by the ERS as an important part of its fiduciary duty~~. Proxy voting can be a powerful tool to affect company behavior and is preferable to divestment, which is a tool that reduces the size of the investible universe and gives up the~~

~~influence inherent in the rights of equity ownership~~ as it maximizes the rights of equity ownership. Proxies have economic value and must be voted in the interest of the ultimate shareholder of plan beneficiary. The ERS will use its rights as an active shareholder to manage risks and hold companies in which they invest accountable for the business decisions the companies make.

The ERS shall retain a proxy voting administrator to aggregate, research, and vote the ERS's proxies related to the Plan's applicable public markets separate accounts. The proxy voting administrator shall have delegated authority to vote the ERS's proxies according to guidelines selected/customized by the ERS. On an ongoing basis the proxy voting administrator shall review the ERS's proxy voting guidelines and annually, or more frequently, if necessary, update the guidelines if needed. The proxy voting guidelines are designed to ensure compliance with the fiduciary responsibilities of public plan sponsors voting proxies on behalf of the Plan's participants. The proxy voting administrator shall report to the ERS the proxies voted on behalf of the Plan at least annually, or more frequently upon request.

Proxy Voting Guidance for ERS Investment Managers with Delegated Proxy Authority ~~The ERS has established comprehensive proxy voting and reporting guidelines that are aligned with the System's specific interests.~~

~~The ERS has elected to utilize a customized version of the ESG Policy established by Glass Lewis as the guidelines for voting decisions. Glass Lewis is the proxy voting administrator for the ERS, and votes on behalf of the ERS for companies in the Public Growth portfolio. Glass Lewis offers various "policies" which are templates that guide vote decisions. These guidelines are compliant with the fiduciary responsibilities of public pension plan sponsors in voting proxies on behalf of the Plan's participants and are suitable for investors with extremely long-term investment horizons. In addition, these guidelines support direct action by companies, linking executive compensation to prescribed responsible investing metrics, and more strongly support increased or improved disclosure relative to other voting policies. The ERS has added customization to ensure this policy is at least as stringent on governance-related board practices as other voting policies. These guidelines reflect analysis and identification of both financial and corporate governance risk and include consideration of stakeholders and affected parties in making proxy voting decisions. These guidelines encourage increased reporting and disclosure on the part of portfolio companies on executive compensation, governance, labor practices, and~~

~~the environment. Glass Lewis evaluates its policy guidelines on an ongoing basis and formally updates them on an annual basis. Additionally, the ERS can further adjust the voting policy to reflect the System's specific preferences and beliefs.~~

The ERS reserves the right to delegate proxy voting authority to any managers ~~not able to adhere to the proxy guidelines selected by the ERS~~, where proxy voting authority cannot be delegated to the Plan's proxy voting administrator (i.e., public equity commingled funds), or where the manager votes proxies only on rare occurrence (i.e., fixed income mandates). Any investment manager voting proxies on behalf of the Board will do so with the primary objective of maintaining and advancing the economic value and interests of ERS members. ERS also requests these investment managers, as part of their investment discretion and fiduciary responsibility, to take into consideration the importance of the Corporate Governance Policies promulgated by the Council of Institutional Investors, proxy voting guidance available through the CFA Institute, and the Global Sullivan Principles. Investment Staff, with the assistance of the applicable investment consultants, shall poll these managers annually as to their proxy voting policies. A letter affirming compliance with the manager's proxy voting guidelines will be requested from these applicable managers on an annual basis. The ERS may request from each manager reports of the proxy votes cast on the ERS's behalf for review.

To meet their fiduciary duty with regard to corporate governance, investment managers must follow adequate procedures concerning the voting of proxies. When ERS managers are given the responsibility to vote proxies, they must adopt procedures to ensure that issues are noted, analyzed, and considered before voting. Investment managers must be thoroughly familiar with the issues that arise in proxies. Proxies have economic value and must be voted in the interest of the ultimate shareholder or plan beneficiary. Investment managers cannot simply vote without adequate examination of the underlying issues. Managers of this type may refer to the CFA Institute for general proxy voting guidance. The skills and experience of the professional investment community, particularly the research and analytic skills, can be used effectively in corporate governance issues, which will ultimately benefit corporations and shareholders alike and enhance the competitiveness of business in global markets. Good corporate governance and good investment decisions go hand in hand.

Corporate Governance Policies,
Council of Institutional Investors
(reprinted from www.cii.org)

The ERS ~~believes in~~understands that ~~carrying forward the Council of Institutional Investors' (CII) goal of~~ instituting strong governance standards at public companies and strong shareholder rights can be supportive of positive investment outcomes. The Council of Institutional Investors (CII) ~~believes~~ works to enhance effective corporate governance and disclosure, which serves the best long-term interests of companies, shareholders, and other stakeholders. CII supports shareholders' discretion to employ a variety of stewardship tools to improve corporate governance and disclosure at the companies they own, which includes casting well-informed proxy votes. The ERS encourages its investment managers and proxy voting provider to use the Corporate Governance Policies established by the CII to guide proxy voting decisions when casting votes on behalf of the ERS.

The Council expects that corporations will comply with all applicable federal and state laws and regulations and stock exchange listing standards.

The Council believes every company should also have written disclosed governance procedures and policies, an ethics code that applies to all employees and directors, and provisions for its strict enforcement. The Council posts its corporate governance policies on its web site (www.cii.org); it hopes corporate boards will meet or exceed these standards and adopt similarly appropriate additional policies to best protect shareholders' interests.

In general, the Council believes that corporate governance structures and practices should protect and enhance accountability to, and ensure equal financial treatment of, shareholders. An action should not be taken if its purpose is to reduce accountability to shareholders.

The Council also believes shareholders should have meaningful ability to participate in the major fundamental decisions that affect corporate viability, and meaningful opportunities to suggest or nominate director candidates and to suggest processes and criteria for director selection and evaluation.

The Council believes companies should adhere to responsible business practices and practice good corporate citizenship. Promotion, adoption and effective implementation of guidelines for the responsible conduct of business and business relationships are consistent with the fiduciary responsibility of protecting long-term investment interests.

The Council believes good governance practices should be followed by publicly traded companies, private companies and companies in the process of going public. As such, the Council believes that consistent with their fiduciary obligations to their limited partners, the general members of venture capital, buyout and other private equity funds should use appropriate efforts to encourage companies in which they invest to adopt long-term corporate governance provisions that are consistent with the Council's policies.

The Council believes that U.S. companies should not reincorporate offshore because corporate governance structures there are weaker and therefore reduce management accountability to shareholders.

Council policies neither bind members nor corporations. They are designed to provide guidelines that the Council has found to be appropriate in most situations.

~~2. Proxy Voting Guidance for ERS Investment Managers with Delegated Proxy Authority~~

~~To meet their fiduciary duty with regard to corporate governance, investment managers must follow adequate procedures concerning the voting of proxies. When ERS managers are given the responsibility to vote proxies, they must adopt procedures to ensure that issues are noted, analyzed, and considered before voting. Investment managers must be thoroughly familiar with the issues that arise in proxies. Proxies have economic value and must be voted in the interest of the ultimate shareholder or plan beneficiary. Investment managers cannot simply vote without adequate examination of the underlying issues. Managers of this type may refer to the CFA Institute for general proxy voting guidance. The skills and experience of the professional investment community, particularly the research and analytic skills, can be used effectively in corporate governance issues, which will ultimately benefit corporations and shareholders alike and enhance the competitiveness of business in global markets. Good corporate governance and good investment decisions go hand in hand.~~

~~3.~~2. The Global Sullivan Principles

a. Preamble

The objectives of the Global Sullivan Principles are to support economic, social and political justice by companies where they do business; to support human rights and to encourage equal opportunity at all levels of employment, including racial and gender diversity on decision making committees and boards; to train and advance disadvantaged workers for technical, supervisory and management opportunities; and to assist with greater tolerance and understanding among peoples; thereby, helping to improve the quality of life for communities, workers and children with dignity and equality. I urge companies large and small in every part of the world to support and follow the Global Sullivan Principles of corporate social responsibility wherever they have operations.

Feb. 1, 1999
The Rev. Leon H. Sullivan

b. *Principles*

As a company which endorses the Global Sullivan Principles we will respect the law, and as a responsible member of society we will apply these Principles with integrity consistent with the legitimate role of business. We will develop and implement company policies, procedures, training and internal reporting structures to ensure commitment to these principles throughout our organization. We believe the application of these Principles will achieve greater tolerance and better understanding among peoples, and advance the culture of peace.

Accordingly, we will:

i. Express our support for universal human rights and, particularly, those of our employees, the communities within which we operate, and parties with whom we do business.

ii. Promote equal opportunity for our employees at all levels of the company with respect to issues such as color, race, gender, age, ethnicity or religious beliefs, and operate without unacceptable worker treatment such as the exploitation of children, physical punishment, female abuse, involuntary servitude, or other forms of abuse.

iii. Respect our employees' voluntary freedom of association.

iv. Compensate our employees to enable them to meet at least their basic needs and provide the opportunity to improve their skill and capability in order to raise their social and economic opportunities.

v. Provide a safe and healthy workplace; protect human health and the environment; and promote sustainable development.

vi. Promote fair competition including respect for intellectual and other property rights, and not offer, pay or accept bribes.

vii. Work with governments and communities in which we do business to improve the quality of life in those communities – their educational, cultural, economic and social well-being – and seek to provide training and opportunities for workers from disadvantaged backgrounds.

viii. Promote the application of these principles by those with whom we do business.

We will be transparent in our implementation of these principles and provide information which demonstrates publicly our commitment to them.

5/26/99
Source of Global Sullivan Principles: mallenbaker.net,
http://www.mallenbaker.net/csr/CSRfiles/gsprinciples.html, 11/05/03

ERS has a fiduciary responsibility to act solely in the interest of its members and beneficiaries. Therefore investment managers voting proxies for the board will do so with the primary goal of maintaining or increasing the economic interests of ERS.

~~4.~~3. Anti-Terrorism Policy

a. Introduction

Since 9/11, attention has been focused on the potential security threats certain countries and specific companies pose to the United States of America. The ERS Board of Trustees recognize the heightened awareness of security risks and the fact that public pension funds have come under increased pressure from the general public to divest from companies that do business in countries that support terrorism. On the surface this issue may appear simple and straightforward, but in reality it is very complex and requires information that is not currently available to public pension funds. A policy as simple as requiring divestiture from all companies that do business in certain countries may actually work to the detriment of US foreign policy objectives and needlessly damage US companies and jobs. The Board maintains its fiduciary obligations to the members of the System as its top priority. This requires the Board to act prudently and in the exclusive interest of participants in the management of System assets. In an effort to balance their fiduciary obligations with their moral and ethical responsibility as citizens of the United States of America, the Board of Trustees is hereby establishing this Anti-Terrorism Investment Policy.

b. Background on US Foreign Policy Related to Countries Supporting Terrorism

In the area of foreign policy, regulations and sanctions are complex and continually changing to address the needs of US national security. The US State Department maintains an official list of countries that the US deems to be supporting international terrorism. The countries included on this list and the regulations and sanctions that apply in these countries change frequently. Unfortunately, a list of companies that are deemed to be supporting terrorism is not publicly available at this time. The fact that a company may have a business link to a listed country does not mean that the US government believes the company is supporting terrorism. In many cases, the US government allows business relationships because they believe they further US policy goals via the contracts and leverage that trade and other business connections create. Placing investment restrictions that would discourage business relationships in these countries could actually run counter to US anti-terrorism initiatives in some instances. As a result of the complexities and lack of public information in this area, ERS must rely upon federal agencies such as the Securities and Exchange Commission and the State, Commerce, Justice and Treasury Departments to provide factual information regarding companies that are supporting terrorism. To date, this information has not been available to ERS or any other public pension fund. Quite simply, factual information that ERS would need to prudently divest from these companies is not available.

This policy is intended to avoid 1) discriminating against companies whose activities abroad are supported by the US government; 2) discriminating against companies whose activities abroad do not further terrorism; 3) unnecessarily harming US companies and jobs; and 4) compromising the Board's fiduciary duties to the beneficiaries of the System. Recognizing the dynamic nature of the issue, annually Investment Staff will evaluate this policy to determine if changes need to be made to reflect recent developments in this area. In the event that Investment

Staff believes changes to this policy are warranted, they will bring the issue to the attention of the Board of Trustees for consideration.

~~5.~~4. Sudan Investment Policy

Act 192, Session Laws of Hawai'i 2007, expresses the State's desire to not participate in ownership of companies that provide "significant practical support" for genocide activities as currently being conducted by the Sudanese government in the Darfur region. The ERS Board of Trustees wishes to recognize its agreement with the intent of Act 192 and to abide by its requirements. The Board, however, also applies a decision framework of acting for the exclusive benefit of ERS Plan participants. In this respect, the Board recognizes that divestment activities could potentially increase the portfolio's idiosyncratic investment risk. Therefore, divestment guidelines and procedures should seek to minimize the impact of a specific divestment policy (such as Sudan divestment) upon the investment results of the portfolio.

The Board has determined to use the following procedures to comply with Act 192 by requiring the CIO, or another designated member of Investment Staff, to:

a. *Assemble a list of all direct holdings in "scrutinized companies"[3];*

b. *Review publicly available information regarding companies with business operations in the Sudan provided by nonprofit organizations (e.g., the Sudan Divestment Taskforce) and other appropriate parties;*

c. *Send written notice informing companies of their scrutinized company status and the possibility that they may become subject to divestment;*

d. *Monitor other institutional investors that have divested from or engaged with companies that have business operations in Sudan;*

e. *Consider divestment or other corrective actions to the extent reasonable with due consideration for among other things, return on investment, diversification, and the System's other legal obligations;*

f. *Inform the ERS's equity investment managers of Board decisions as related to the above processes; and*

g. *Review and update progress of scrutinized companies on a quarterly basis.*

This policy is intended to avoid: 1) discriminating against companies whose Sudan-related business activities are supported by the U.S. government; 2) discriminating against companies whose Sudan-related business activities do not support genocide activities; 3) unnecessarily harming U.S. companies and jobs; and 4) compromising the Board's duties to the beneficiaries of the ERS.

~~6.~~5. United Nations – Supported Principles for Responsible Investment ("PRI")

In May 2018, the ERS became a signatory of the United Nations – *Supported Principles for Responsible Investment.* The six *Principles for Responsible Investment* are a voluntary and aspirational set of investment principles that offer a selection of possible actions for incorporating environmental, social, and corporate governance issues into investment practice. The signatories' commitment is as follows:

[3] Reference Act 192, Section 2. Definitions of "Scrutinized Company."

"As institutional investors, we have a duty to act in the best long-term interests of our beneficiaries. In this fiduciary role, we believe that environmental, social, and corporate governance (ESG) issues can affect the performance of investment portfolios (to varying degrees across companies, sectors, regions, asset classes and through time).

We also recognize that applying these Principles may better align investors with broader objectives of society. Therefore, where consistent with our fiduciary responsibilities, we commit to the following:

- *Principle 1: We will incorporate ESG issues into investment analysis and decision-making processes.*
- *Principle 2: We will be active owners and incorporate ESG issues into our ownership policies and practices*
- *Principle 3: We will seek appropriate disclosure on ESG issues by the entities in which we invest.*
- *Principle 4: We will promote acceptance and implementation of the Principles within the investment industry.*
- *Principle 5: We will work together to enhance our effectiveness in implementing the Principles.*
- *Principle 6: We will each report on our activities and progress towards implementing the Principles.*

The Principles for Responsible Investment were developed by an international group of institutional investors reflecting the increasing relevance of environmental, social and corporate governance issues to investment practices. The process was convened by the United National Secretary-General.

In signing the Principles, we as investors publicly commit to adopt and implement them, where consistent with our fiduciary responsibilities. We also commit to evaluate the effectiveness and improve the content of the Principles over time. We believe this will improve our ability to meet commitments to beneficiaries as well as better align our investment activities with the broader interests of society.

We encourage other investors to adopt the Principles."

Source: https://unpri.org

As part of its commitment to the PRI, the ERS shall report on an annual basis its progress in implementing the PRI's Six Principles.

~~7.~~6. Hawaiian Targeted Investment Program (HiTIP)

HiTIP was initiated to fulfill the mandate of Act 260, "A Bill For An Act Relating To The Innovation Economy" passed by the Legislature and signed by the Governor in July 2007. The stated purpose of Act 260 is "to encourage the employees' retirement system to invest in Hawai'i venture capital…"

The legislation pertains to HiTIP in that HiTIP targets investments that are directly a part of the Hawaiian community.

A full account of the Hawaiian Targeted Investment Program can be found in Section H Hawaiʻi Targeted Investment Program Policies and Procedures.

C. 8. POLICY FOR THE USE OF PLACEMENT AGENTS

The ERS shall require the specific and timely disclosure of payments and compensation to Placement Agents[4] in connection with the ERS's investments. This Placement Agent Policy is intended to apply broadly to all investment contracts made by the ERS. The goal of this Placement Agent Policy is to provide transparency into actual payments and help ensure that the ERS investment decisions are made solely on the merits of the investment opportunity in accordance with the Board of Trustees' fiduciary responsibility, and to avoid the appearance of undue influence on the Board or Staff or illegal pay-to-play practices in the award of investment related contracts. Each investment manager shall provide information to determine if any such pay-to-play practices exist. Such information shall be provided prior to the closing of an investment opportunity.

1. Investment Manager Placement Agent Disclosures

Each investment manager shall provide to the ERS the required information listed below. The investment manager must notify the Investment Staff of any changes to any of the information required.

a. Required Disclosure of Payments Made to Placement Agents

i. A written statement of whether the investment manager or any of its principals, employees, agents or affiliates has compensated or agreed to compensate any person or entity to act as a Placement Agent in connection with the ERS's investments.

ii. The name of the Placement Agent and resumes of the relevant Placement Agent(s) involved with ERS' investment.

iii. Description of any and all compensation paid or agreed to be paid to the Placement Agent, including payment to employees of the investment manager who are retained in order to solicit, or who are paid based in whole or in part upon, an investment from the ERS.

iv. Description of the services rendered or the services expected to be performed by the Placement Agent.

v. Name of the regulatory agencies the Placement Agent or any of its affiliates are registered with, such as The Securities and Exchange Commission (SEC), the Financial Industry Regulatory Association (FINRA), or any similar regulatory agency; proof and details of such registration shall be included, or an explanation as to why no registration is required.

b. Required Disclosure of Relationships to the Board and; Campaign Contributions

i. To the best of their knowledge, full disclosure of any connection between the Placement Agent or the investment manager and the ERS, including whether anyone receiving compensation or who will receive compensation with respect to

[4] "Placement Agent" includes any person or entity hired, engaged, retained by, acting on behalf of or serving for the benefit of an investment manager or on behalf of another Placement Agent as a third-party marketer, finder, solicitor, marketer, consultant, broker, or other intermediary to market, solicit, obtain access to the ERS, and/or raise money or investments either directly or indirectly from the ERS. Notwithstanding the foregoing, an individual who is an employee, officer, director, equity holder, partner, member or trustee of an investment manager and who spends one-third or more of his or her time, during a calendar year, managing the securities or assets owned, controlled, invested or held by the investment manager is not a Placement Agent.

an investment from the ERS from the Placement Agent or the fund manager is: a current or former ERS Board Member, ERS employee, or ERS consultant; a member of the immediate family of anyone connected to or formerly connected to the ERS; a current or former elected or appointed official of the State and/or cities and counties of the State, a current or former employee of the State and/or cities and counties of the State; or anyone seeking to be elected to public office of the State and/or cities and counties of the State or a member of his/her campaign organization or a political action committee.

ii. To the best of their knowledge, full disclosure of the donations made by the Placement Agent or the investment manager during the prior 24-month period to any organization (including contributions to political campaign funds and donations to non-profits) in which any person listed in Paragraph 2.a is an officer, employee, or member of the Board or Advisory Board (or similar body). Additionally, any subsequent donations made by the Placement Agent or the investment manager to any such organization during the time the Placement Agent or the investment manager is receiving compensation in connection with a the ERS investment shall also be disclosed.

iii. To the best of their knowledge, full disclosure of the names of any current or former members of the Board, ERS employees or investment consultants who suggested the retention of the Placement Agent to the investment manager.

c. Responsibilities of Staff and Consultants

At the time that investment discussions between an investment manager and the ERS for a prospective investment commence, Investment Staff is responsible for providing investment managers and Placement Agents with a copy of this Placement Agent Policy.

Investment Staff and investment consultants must confirm that the applicable Placement Agent disclosures have been received prior to the completion of due diligence and completion of any recommendation to proceed with the decision to invest with the investment manager. For new contracts and amendments to existing contracts, the ERS will:

i. Stop investment negotiations with an investment manager who refuses to disclose the required information;

ii. Decline the opportunity to retain or invest with an investment manager who has used or intends to use a Placement Agent who is not registered with the SEC, FINRA, or any similar regulatory agency and cannot provide an explanation as to why no registration is required; and

iii. Investment Staff and investment consultants will assist legal counsel as necessary to secure in the final contract terms and side letter agreements between the ERS and the investment manager, including but not limited to, the following:

iv. The investment manager's agreement that it has complied with and will continue to comply with this Placement Agent Policy.

v. The investment manager's representation and warranty that it will notify the Investment Staff of any changes to any of the information required above.

At any meeting where an investment decision with an investment manager will be considered, Investment Staff and the applicable investment consultants must notify the Board of the name(s) of any Placement Agent(s) used by the investment manager in connection with the proposed investment, and any campaign contributions or gifts reported by each Placement Agent.

Staff must maintain records of all information disclosed to the ERS in accordance with this policy and provide the Board with notice of any violation of this policy as soon as practicable.

d. Responsibilities of Counsel

Legal counsel to the ERS must secure in the final contract terms and side letter agreements between the ERS and the investment manager all requisite agreements and representations and warranties by the investment manager for compliance in accordance with this Placement Agent Policy.

e. Responsibilities of the Board

The Board must review all violations of this Placement Agent Policy reported by Investment Staff, consider whether each violation is material, and consider recommendations from Investment Staff and the Executive Director whether to prohibit that investment manager and/or Placement Agent from soliciting new investments from the ERS for a certain period from the date of the determination.

C. 9. BOARD OF TRUSTEES DISCRETIONARY ACCOUNT GUIDELINES

The ERS Investment Staff shall only hold U.S. Dollar cash in the Board of Trustees (BOT) Discretionary account; the cash shall be swept into the BNY Mellon Short-Term Investment Fund on a daily basis.

1. Investment Objectives

Assets held in the BOT Discretionary account shall be invested to seek the following objectives:

a. preservation of capital

b. maintenance of liquidity, and

c. maximization of current income to the extent consistent with (i), and (ii), above by investing assets in accordance with the guidelines stated below.

2. Investment Guidelines

Funds shall be denominated in U.S. Dollars and shall be invested in securities or instruments managed under the following guidelines:

a. Eligible Investments:

i. Securities and Exchange Commission (SEC) Rule 2a-7 money market mutual funds of institutional grade[5].

ii. Interests or units in any short-term investment fund (including, without limitation, such funds of the Custodial Bank and any of its affiliates) that invests in any of the types of investments approved above.

b. Liquidity

i. A minimum of 95% of the available cash portion of the BOT Discretionary account shall be invested in Eligible Investments (1) and/or (2) above.

[5] Rule 2a-7 of the act restricts the quality, maturity and diversity of investments by money market funds. Under this act, a money fund mainly buys the highest rated debt, which matures in under 397 days. The portfolio must maintain a weighted average maturity of 60 days or less and not invest more than 5% in any one issuer, except for government securities and repurchase agreements

BROAD GROWTH PROGRAM

SECTION: D

TABLE OF CONTENTS

D. 1. OVERVIEW

1. General Description

The Broad Growth class consists of investment strategies and assets that are largely exposed and/or susceptible to changes in global economic growth and corporate profitability. Such investments typically contain relatively high degrees of risk and exhibit more volatility than other strategic classes.

The Broad Growth class consists of three major components: Global Equity, Global Credit, and Real Assets. The Global Equity component consists largely of global public and private equity and other similar-risk investments. The Global Credit component consists of public and private credit opportunities that are largely exposed to various collateral types, focused on income generation and Broad Growth diversification. The Real Assets component consists of public and private real assets that can help diversify the Broad Growth class during normal economic environments but that are also sensitive to material changes in economic growth during crisis periods.

2. Purpose

The Broad Growth class provides the bulk of the total portfolio's investment return due its exposure to the equity risk (and similar) premium. The equity risk premium, while volatile, is the reward associated with bearing economic and corporate risk – it is the highest risk premium available to investors. In addition, over long investment horizons (i.e., greater than 10 years), the equity risk premium is generally significantly positive after accounting for inflation. Due to this feature, the Broad Growth class is expected to increase the purchasing power of the total portfolio's assets over time.

By diversifying into the three major Broad Growth components, the Broad Growth class seeks to moderate its risk profile versus investing solely in any one component. This approach seeks to capture the entirety of the equity risk premium as well as capture premiums associated with other risk factors that are closely related to the equity risk premium.

3. Risk Factor Exposures

Major

- *Growth Risk*

Minor

- *Interest Rate Risk*
- *Liquidity Risk*

D. 2. CLASS STRUCTURE

1. Components

The Broad Growth class consists of public and private market components, as described below:

a. *Public Equity*

Public Equity is a sub-component of Global Equity. In general, this sub-component can include any strategy that exhibits similar risk exposures and risk/return expectations as the publicly traded global equity market opportunity set. While individual strategies can vary, the aggregate Public Equity sub-component should exhibit a high correlation to global equity market indices when examined over full market cycles (e.g., 10-year periods).

b. *Private Equity*

Private ~~Public~~ Equity is a sub-component of Global Equity. This sub-component includes a spectrum of private markets investment strategies that are primarily exposed to economic growth risk and can exhibit high levels of measured investment risk. This component will largely consist of Private Equity and similar strategies.

c. *Global Credit*

This component consists of liquid and illiquid 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 Global Credit portfolio's investment return.

d. *Real Assets*

This component includes a spectrum of liquid and illiquid investment strategies that represent interests directly in or derived from physical, real assets. In aggregate, this component will tend to produce returns in-line with a lower volatility growth exposure, but the characteristics will vary from strategy to strategy and the component bears the unique attributes of private markets investments (e.g., pacing studies, lagged reporting, etc.).

2. Modifications to Component Structure

Modifications to the Broad Growth class's component structure can take four forms:

a. Adding or deleting a specific investment strategy within a specific component;
b. Establishing allocation levels among the components;
c. Adding or deleting a specific component;
d. Establishing allocation ranges among the components;

Staff shall have the discretion to implement items a. and b. above, whereas items c. and d. will only occur with approval of the Board of Trustees or designee (e.g., Investment Committee).

3. Components' Allocations and Allocation Ranges

The Broad Growth class's allocation targets and allocation ranges among its three major components are as follows (as a percent of total Plan assets):

Component	Target	Ranges
Global Equity	39%	+/- 20%
Global Credit	12%	+/- 6%
Real Assets	19%	+/- 10%

If the actual allocations fall outside of the above-stated ranges, ERS Staff shall provide a written report to the Board of Trustees as to the cause, and if relevant, the planned route for shifting the portfolio back in-line with the policy range.

4. Components' Managers and Managers' Allocations

To manage the assets allocated to each strategic class and its underlying components, the Board delegates investment authority to external investment managers ("investment managers"). ERS Investment Staff has the authority to select the investment managers and their corresponding mandate sizes so long as the components retain their expected characteristics individually and the Broad Growth class maintains its expected characteristics as a whole.

D. 3. RETURN OBJECTIVES & RISK PROFILE

1. Class Return Benchmarks

The ERS utilizes the weighted target benchmark below to monitor the performance results of the Broad Growth Class:

BROAD GROWTH BENCHMARK
56% GLOBAL EQUITY BENCHMARK
27% REAL ASSETS BENCHMARK
17% GLOBAL CREDIT BENCHMARK
GLOBAL EQUITY BENCHMARK
51% MSCI ACWI IMI
49% MSCI ACWI IMI (qtr. lag)
REAL ASSETS BENCHMARK
47% FTSE EPRA NAREIT Global REITS Index GD (qtr. lag)
37% Dow Jones Brookfield Global Infrastructure Index (qtr. lag)
9% S&P Global Timber & Forestry Index (qtr. lag)
7% S&P GSCI Agriculture Index (qtr. lag)
GLOBAL CREDIT BENCHMARK
17% Bloomberg Global High Yield Index (hedged)
17%S&P LSTA Leveraged Loan 100 Index
33% Bloomberg Global High Yield (hedged) (qtr. lag)
33% S&P LSTA Leveraged Loan 100 Index (qtr. lag)

The Broad Growth Class portfolio is expected to outperform the above blended benchmark, net of fees, over a full investment cycle. An appropriate measure of an investment cycle would be rolling 5-year periods. The Broad Growth Class portfolio should outperform its benchmark, net of fees, over the majority of rolling 5-year periods.

2. Class Risk Profile

In aggregate, the Broad Growth Class is the ERS's most volatile investment class and is the class that is most sensitive to economic growth trends.

The true risk levels of the various components are expected to be ordered as follows (highest risk to lowest): Global Equity, Real Assets, Global Credit. Due to the diverse nature of strategies within the Real Assets component, its true risk level is expected to generally fall in between Global Equity and Global Credit, but it may vary over time. Considering this attribute, it is expected that ERS Staff will notify the Board of material changes in the risk profile of the Real Assets component. Moreover, it is important to note that statistical measures of risk (e.g., performance volatility) are not indicative of the true levels of risk when examined for private markets strategies.

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BROAD GROWTH: APPENDIX

DERIVATIVES POLICY[1]

Derivatives may be used in the ERS portfolio as a substitute for a cash market security, risk control, income (e.g., Covered Calls), cost reduction, or liquidity management. Derivatives are not permitted for purposes of speculation. ~~Any derivative investment not explicitly authorized below is prohibited~~.

1. Where derivatives are used as substitutes for a specific cash security or set of cash securities, the return volatility of the combination of the derivative and associated cash position shall be equivalent to the unleveraged cash security or securities underlying the derivative instrument.
2. When options are used for income and risk control (e.g., Covered Calls), the notional value of the options may not exceed the total value of the underlying securities.
3. Managers shall mark-to-market their derivative positions daily.
4. Permitted Instruments:
    a. *Futures* – stock index futures, stock and bond futures, money market futures, and currency futures where the manager has the authority to invest in the underlying or deliverable cash market security.
    b. *Options* – options on stocks, indices, ETFs, and bonds (including interest rate caps and floors). Options on futures, swaps, and currencies are allowed for those managers who have permission to invest in the comparable cash instruments.
    c. *Currency forwards* – only those managers who have the authority to invest in the underlying cash market instrument.
    d. *Swaps (Global Credit managers)* – where the manager has the authority to invest in the underlying cash market instrument. Minimum counterparty rating: A-
5. Futures contracts must be CTFC (Commodity Futures Trading Commission) approved and exchange traded.
6. Options may be either exchange traded or over-the-counter (OTC) subject to counterparty guidelines as noted.
7. Managers may purchase back options in order to close out positions.
8. Counterparties to OTC traded instruments (options and forwards) must be rated investment grade or better as determined by at least one major rating agency.
9. Cross-hedging is not permitted by international equity managers; however, as it is a standard practice for non-U.S. bond managers, it is allowed for Extended Global Credit managers. These credit managers may also use certain developed-market currencies as proxies for otherwise illiquid emerging-market currencies. In such cases, use of such proxies will be disclosed through the ongoing reporting process. The counterparties for foreign currency derivatives must be rated A- or equivalent.
10. On an annual basis, all investment managers shall provide a summary of the derivatives used and the reasons for their use. This summary shall be the basis for verification that the investment managers are generally complying with the objectives and constraints of the investment policy. The investment consultant shall elicit responses on each manager's policy in the form of a letter.
11. On a daily basis the custodian bank shall examine all manager derivatives purchases for prohibited derivatives. Should any prohibited derivatives be found, the custodian bank should promptly notify Staff and instruct the manager to sell the prohibited derivatives. The custodian bank will also value and monitor all derivatives and the trades from which they emanate.

[1] Performance-related criteria for the Private Growth component is specified within the corresponding component section.

REAL ASSETS COMPONENT

1. Program Management

The Real Assets program shall be implemented and monitored through the coordinated efforts of the Board of Trustees ("Board of Trustees" or "Board") of the Employees' Retirement System of the State of Hawaii ("ERS"), the ERS investment staff ("Investment Staff"), and the ERS's investment consultants ("Investment Consultants"). The ERS Investment Staff shall maintain the day-to-day management and implementation responsibilities of the program while leveraging the expertise of the ERS's Investment Consultants where applicable. The Board of Trustees or designee shall provide high-level oversight and approve the long-term, strategic direction of the program during asset-liability studies and/or component structure reviews.

2. Investment Parameters

a. *Portfolio Construction*

The ERS has determined that, over the long-term, the inclusion of a Real Assets component can enhance the ERS's expected total portfolio investment characteristics. Specifically, investments in Real Assets strategies provide unique exposures and return drivers relative to public market securities and other private markets strategies (e.g., private equity). Moreover, Real Assets strategies are expected to increase the purchasing power of the total portfolio's assets over time, while buffering drawdowns during inflation-oriented crises. As a component of the Broad Growth strategic class, the Real Assets component is expected to produce returns similar to other Broad Growth components but commensurate with its relative level of risk.

Real Assets investments of the ERS shall be made in a manner consistent with the fiduciary standards of the prudent expert rule: (1) for the sole interest of the ERS's participants and their beneficiaries; and (2) to safeguard and diversify the Real Asset portfolio. The selection and management of Real Assets investments will be guided to preserve investment capital and to maintain prudent diversification of assets and management responsibility. The diversification objective is required to manage overall market risk and the specific risks inherent in any single investment or management selection.

b. *Aggregate Target Allocation*

The allocation of ERS assets to Real Assets investments shall remain within the limits authorized by the Board of Trustees or designee. The long-term target allocation is 19% of the ERS's Total portfolio (based on net asset value of invested capital).

	Long-term Total Portfolio Target *(effective 01/01/2024)*
Real Assets	19%

As a private markets class, the Board of Trustees understands that it is unlikely the ERS will ever be perfectly in-line with the target allocation. However, the Board of Trustees expects the program to be implemented in a prudent and diversified manner with a relatively consistent risk profile. In order to avoid concentration risks, the Board expects the program to incorporate relatively even vintage year and strategy diversification over time (subject to the component target allocations detailed below).

c. Sub-Component Target Allocations

The ERS's Real Assets component consist of several sub-components:

i. Real Estate (Core and Non-Core)
ii. Timber
iii. Agriculture
iv. Infrastructure
v. Other Real Assets

Each of the components are expected to be implemented with private markets assets, although public market proxies may be used for transitory purposes. The *Other Real Assets* sub-component is not expected to be used without prior notification of the Board or designee. The following table provides the long-term sub-component-level target allocations and respective ranges within the Real Assets component.

Sub-Component	**Long-Term Total Portfolio Target**
Real Estate	9%
Timber/Agriculture	3%
Infrastructure	7%
Other Real Assets	---
Total	**19%**

Due to the unpredictability in the timing of capital calls and distributions, the Board understands that the portfolio is unlikely to ever be perfectly in-line with these targets. Moreover, the ERS Investment Staff maintains discretion around the sub-component targets and can modify the implementation of the actual portfolio subject to the risk management policy (see following section).

d. Risk Management

The construction and management of the Real Assets program will be designed to generate an attractive level of return with prudent diversification that is additive to the total portfolio. The specific risk/return objective of the program is an outcome of the Board's or designee's selection of a target portfolio during asset-liability studies.

As a component of the Broad Growth strategic class, it is expected that the Real Assets program will share some commonalities (i.e., drawdown and positive return periods) with other growth-related strategies, however, the ERS Investment Staff seeks to implement the program in as complementary of a manner as possible.

With Real Assets investments, there is an inherent risk that the actual return of capital, gains, and income will vary from the amounts expected. The ERS shall manage the investment risk associated with Real Assets investments in several ways:

i. Strategic Structure

1. Allocation by sub-component. The ERS Investment Staff can manage allocations to the sub-components with a certain level of flexibility in order to adjust for market dynamics, opportunities, and private market-specific challenges. The ERS Board expects the Investment Staff to maintain a holistic view of the portfolio's aggregate risk posture across all strategic classes, components, and sub-components.

2. Commitment pacing into each segment over time. It is expected that the Real Assets component will be implemented via measured and consistent commitment pacing. However, certain annual commitment amounts among these sub-components may vary significantly, depending upon the capital investment opportunities within each component.

ii. Manager Selection / Institutional Quality

1. All assets must be of institutional investment quality. Institutional quality will be defined as being of a quality whereby the investment would be considered acceptable by other prudent institutional investors (e.g., endowments, foundations, insurance companies, commercial banks and savings institutions, public employee retirement systems, corporate employee benefit plans, and other tax-exempt institutions).

iii. Leverage

1. Leverage levels will be an explicit consideration when examining and monitoring investments. For a given fund, the utilized leverage must be consistent with the objectives of the respective strategy and industry-wide practices.

e. Benchmarks

The aggregate Real Assets component will utilize a blended benchmark based on the underlying sub-component benchmarks and corresponding total portfolio target allocations. As a private markets class, the ERS Board understands that perfect benchmarks do not exist and there will be variances/mismatches over periods of time. The success of the Real Assets program will primarily be examined over rolling 10-year windows.

	Sub-Component Benchmark
Real Estate	FTSE EPRA NAREIT Global REIT Index GD (qtr. lag)
Timber/Agriculture	S&P GSCI Agriculture Index (qtr. lag) S&P Global Timber & Forestry Index (qtr. lag)
Infrastructure	Dow Jones Brookfield Global Infrastructure Index (qtr. lag)
Other Real Assets	---

f. Monitoring and Reporting

The performance of private Real Assets investments will be calculated on both a time-weighted and dollar-weighted (internal rate of return or IRR) basis. The rate of return calculations will be net of all partnership/LLC fees and expenses.

The ERS's Real Assets~~ (or Real Estate)~~ Consultant will be responsible for calculating and reporting net IRRs on the individual investments as well as at various composite levels as requested by the ERS. The ERS's General Consultant, in conjunction with the ERS's custodian, will produce time-weighted returns on the aggregate Real Assets composite.

The ERS's Investment Staff and/or the appropriate designated retained consultant will provide additional performance measurement information, if requested by the ERS Board or designee.

REAL ESTATE SUB-COMPONENT

1. Investment Objectives

a. Investments In Real Estate

The Employees' Retirement System of the State of Hawaii ("ERS") Board of Trustees has determined that the inclusion of ~~Core and Non-Core ~~Real Estate can enhance the portfolio's structure.

While safety of principal is given primary consideration, the ERS recognizes the need to use active asset management strategies in order to obtain the highest attainable total investment return (income plus appreciation) within the ERS's framework of prudence and managed risk.

The selection of investment managers and development of investment policy will be guided to enhance diversification within the portfolio of the ERS's R~~r~~eal E~~e~~state investment program ("Real Estate Investment Program") thereby limiting exposure to any one investment, organization, real estate property type and geographic region (Refer to Section II: Program Management).

i. Real Estate Defined - Real estate assets are defined as those investments that are unleveraged or leveraged, equity or debt positions in private and public real property. Investments in private and public real estate companies are also permissible. The ownership structure(s) should be consistent with any rules, regulations, or law, as applicable, governing the ERS. The ERS will pursue both discretionary separate account investment management and discretionary commingled fund investment management for its real estate allocation.

b. Strategic Allocation

The ERS allocation to real estate shall remain within the limits authorized by the ERS Board of Trustees or designee. ~~Core and Non-Core ~~R~~r~~eal E~~e~~state allocations should be in line with those that are detailed in Section D: Broad Growth Program. ~~Core and Non-Core ~~R~~r~~eal E~~e~~state allocations will be established and managed via scheduled annual commitment pacing approved as a result of the annual strategic plan (see item 2.C. below).

c. Portfolio Return Objectives

The real estate return objectives and benchmarks will follow their respective assignments as detailed in Section D.3. Return Objectives & Risk Profile.

2. Program Management

a. Overview

In compliance with current ERS investment philosophy, the Real Estate Investment Program will primarily utilize discretionary separate account relationships and discretionary commingled fund investment vehicles that are sponsored by real estate investment managers ("Investment Managers"). Under this program, the Investment Managers acquire, operate and dispose of real estate assets in accordance with a work assignment that is outlined in their investment management contract with the ERS (the "Contract") and in the Annual Tactical Plan for separate accounts and the fund documents for commingled funds. The Contract describes the acceptable property types, geographic restrictions, investment structures, leverage and other specific investment parameters. For Separate Accounts, The Annual Tactical Plan is the Investment Manager's "working plan" for each fiscal year and must be reviewed by Investment Staff and Real Assets~~Estate~~ Consultant. Such planning will be incorporated into the Real Assets Strategic Plan and approved by the Board of Trustees or designee, annually. For commingled funds, documents typically refer to the fund's offering memorandum or private placement memorandum, limited partnership or LLC membership agreement, and subscription agreement.

b. Participant Roles and Responsibilities

The ERS's Real Estate Investment Program shall be implemented and monitored through the coordinated efforts of the Board of Trustees or designee(s). Specific responsibilities that fall outside the general responsibilities highlighted in Section B.5. are listed below:

i. Investment Manager - Qualified real estate organizations, registered as Investment Advisors under the 1940 Act that provide institutional real estate investment management services to the ERS. ERS may invest in commingled fund vehicles that are not registered, however, it is preferred that the commingled fund be sponsored and/or managed by a Registered Investment Advisor.

ii. Separate Account Manager Responsibilities - The separate account Investment Manager, acting as a fiduciary on behalf of ERS, acquires, manages and disposes of real estate properties and/or originates or acquires, manages, and realizes upon real estate debt investments in accordance with the annual Tactical Plan and Contract.

iii. Commingled Fund Manager Responsibilities – The commingled fund Investment Manager, acting as a fiduciary on behalf of ERS, acquires, manages and disposes of real estate properties and/or originates or acquires, manages, and realizes upon real estate debt investments in accordance with the terms of the investment vehicle documents.

c. Annual Real Assets~~Estate~~ Strategic Plan

i. Annually, the Investment Staff, with the Real Assets~~Estate~~ Consultant as requested, will prepare a Strategic Plan which reviews the current status of the portfolio, recent historical and prospective market conditions, and proposes the actions to be taken over the next approximately twelve-month period. This document will recommend general capital allocations to the ~~Core and Non-Core~~ Real Estate Program and the rationale and expectations for inclusion.

ii. The annual Strategic Plan will then be presented to the Board of Trustees or designee for approval.

3. Portfolio Composition

a. *Core Portfolio* - Core investments include equity or debt investments on existing, substantially leased income-producing traditional property types located principally in metropolitan areas that exhibit reasonable economic diversification. Core investments typically exhibit one or more of the following characteristics:

i. Traditional institutional quality property types including office, industrial, retail and multifamily; also included are medical office, senior housing, storage, and student housing properties that demonstrate core characteristics;

ii. Operating and stabilized properties that demonstrate predictable income flows with a high proportion of anticipated total return arising from current income and cash flow;

iii. Well-leased upon purchase of the asset;

iv. Located in institutional markets and in economically diversified metropolitan areas;

v. High credit quality tenants and a staggered lease maturity schedule;

vi. Quality construction and design features;

vii. Reasonable assurance of a broad pool of potential purchasers upon disposition;

viii. Properties requiring quality asset and portfolio management but not requiring specialized operating expertise which is not readily available in the market;

b. *Non-Core Portfolio* - Non Core real estate investments represent equity or debt investments in those properties and/or investment strategies that require specialized acquisition and management expertise or skill to mitigate the business and leasing risk that may be associated with individual investments. Non-Core investments which may be referred to as Value Added or Opportunistic have greater volatility and leverage compared to core investments and as such are expected to provide yields higher than those associated with core investments.

c. *Value Added* – Value Added investments include equity, debt, or real estate company investments of institutional quality that offer the opportunity to enhance value through rehabilitation, redevelopment, development, lease-up or repositioning. A significant portion of return is from appreciation and includes moderately higher leverage than core. Value added investments typically exhibit one or more of the following characteristics:

i. Properties located in primary as well as secondary and tertiary markets which may not be economically diversified and may have accompanying susceptibility to imbalance of demand and supply;

ii. Traditional as well as non-traditional property types including, but not limited to, hotels, motels, senior housing, student housing, manufactured and residential housing;

iii. Properties that are undermanaged with specific problems that require specialized management skills;

~~iv. Properties that are less than 70% leased upon purchase or where more than 30% of leases expire in the first three years of purchase;~~

~~v.~~iv. Properties involving significant appreciation, lease-up, development and/or redevelopment risks;

~~vi.~~v. Properties using moderate leverage; ~~between 50% and 65%;~~

~~vii.~~vi. Investments in institutional quality properties located in mature real estate markets showing high levels of market transparency outside of the United States and Canada;

d. *Opportunistic* – Opportunistic investments include equity or debt investments in real estate properties, real estate operating companies and other investment vehicles that offer the opportunity to capitalize on the disequilibrium of the real estate markets caused by dramatic shifts in capital flows or other fundamental real estate characteristics. Opportunistic investments not only include distressed assets in need of lease up but also assets that provide returns from financial restructuring. Opportunistic investments typically exhibit one or more of the following characteristics:

i. Strategies that seek to exploit inefficiencies in the capital and real estate markets

ii. Strategies that involve financing or acquisition of real estate assets, operating companies, portfolio of real estate assets

iii. Strategies that focus on major development or redevelopment

iv. Properties with substantial leasing, development and entitlement risk

v. Distressed assets

vi. Distressed debt

vii. Major financial re-structuring required

viii. Higher utilization of leverage ~~of between 65% and 90%~~

ix. Investments in real estate markets driven by growth and continued improvements in market transparency, located outside of the United States and Canada

4. Investments and Risk Management

The ERS shall manage the investment risk associated with real estate in several ways:

a. Institutional Quality

All assets within the Real Estate portfolio must be of institutional investment quality as evidenced by a history of institutional investment in similar properties; expert analysis which supports the economic viability of the market; high quality construction and design features; and a current or potentially competitive position within the property's immediate market area.

b. Diversification

The real estate portfolio shall be diversified by geographic region and property type. Diversification reduces the impact on the portfolio of any one investment or any single Investment Manager's style to the extent that an adversity affecting any one particular area will not impact a disproportionate share of the total portfolio.

c. ~~Target Portfolio~~

~~The long-term real estate strategy is for the ERS real estate portfolio to be diversified taking into account the following diversification guidelines:~~

~~Property Type – The real estate portfolio shall be diversified with the majority of investments comprised of the four traditional property types: office, industrial, retail, and multifamily (apartment). No single traditional property type shall account for greater than 50% of the portfolio. In addition, the range of property type allocations are generally expected to be 0.5x – 1.5x the NFI-ODCE's weight in each property type. Other property types, as defined by NFI-ODCE, are allowed but (on a combined basis) should generally not exceed 20% of the real estate portfolio.~~

~~*Geographic - Within the United States, the range of geographic allocations are generally expected to be 0.5x – 1.5x the NFI-ODCE weight in each region. International Investments (Non US and Canada) will generally range between 0-20% of the core real estate portfolio.*~~

Ownership Structure

The ownership structure for real estate investments may include leveraged and unleveraged equity and debt investments owned directly via separate accounts or through commingled funds. For separate accounts, directly owned investments may be 100% owned by ERS or owned jointly with Suitable Investment Partners. "Suitable Investment Partners" include public, corporate and union pension plans, foundations and endowments, insurance company general accounts or separate accounts, and other tax-exempt institutions, having the same or greater standards of fiduciary care and responsibility as those imposed by ERS guidelines. When dealing with non-core investments that are directly owned, Operating Partners shall be added to the list of "Suitable Investment Partners." The ownership structure of non-core assets within commingled funds will be governed by the fund documents.

d. Leverage

The use of leverage is a prudent tool for enhancing returns and diversifying equity investments, though it does raise the risk profile of the portfolio. As such, ERS has approved leverage targets in order to enhance returns to the total portfolio. The availability and cost of leverage will be factors considered in determining its use. For the total real estate portfolio, the ERS has established a leverage maximum of fifty percent (50%). Third party debt should primarily be non-recourse. At no time shall the origination of new leverage cause the portfolio to exceed the established limits on a loan-to-value basis. In the event that either the portfolio level and/or style level leverage constraint is breached due to a contraction in market values, the Staff and Consultant will notify the Board of Trustees or designee and make a recommendation for action or exception if appropriate.

e. Manager Concentration

ERS shall limit its exposure to any single manager. No single Investment Manager shall be permitted to manage more than 35% of the total allocation to real estate at the time of investment (i.e., purchase) without prior approval from the Board of Trustees or its designee. In the case of the Separate Account Manager(s), concentrations are likely to exist, and be allowed, during build up or wind down periods of such accounts.

f. Investment Size

There is no minimum investment size. The maximum net investment in a single property within a separate account shall be limited to 15% of the allocation to the core real estate program at the time of investment. The ERS's investments in a single commingled fund shall not exceed 20% of the total net market value of the commingled fund at the time of investment. If the commingled fund is in the process raising assets (versus being an open-ended fund), the 20% threshold will be based on target fund size.

5. Investment Process (Separate Accounts)

a. Manager Selection Process

ERS Investment Staff, assisted by the Real Assets ~~Real Estate~~ Consultant as requested, shall have responsibility for sourcing managers. ERS, assisted by the Real Assets ~~Real Estate~~ Consultant as requested, shall screen and review the managers and arrange interviews and final presentations if necessary. The Real Assets ~~Real Estate~~ Consultant will assist Investment Staff in negotiating and closing manager agreements, including final fee structures.

b. Leverage

The total level of debt for any single core separate account investment will generally not exceed fifty percent (50%).

c. *Monitoring and Reporting*

The ERS expects its Separate Account managers to generally act in accordance with the most recent version of the Reporting Standards established jointly by the National Council of Real Estate Investment Fiduciaries ("NCREIF") and the Pension Real Estate Association ("PREA") ("Reporting Standards"). The Reporting Standards were developed with a mission to establish, manage and promote transparent and consistent reporting standards for the real estate industry to facilitate informed investment decision-making.

6. Investment Process (Commingled Funds)

a. *Manager Selection Process*

In an effort to maintain program simplicity and ensure appropriate underwriting of investment management organizations, the ERS Staff shall utilize only ERS approved real estate investment management firms for the acquisition, asset management and disposition of property and origination, management, and realization of debt investments. In addition to the existing separate account Investment Managers, the ERS has approved a program of commingled fund investing.

The following steps shall be followed in order for the ERS to commit to any prospective commingled real estate investment opportunity:

i. Investment Staff, with assistance from the Real Assets ~~Real Estate~~ Consultant, sources and performs comprehensive due diligence on attractive investment opportunities consistent with criteria set forth in the annual Strategic Plan.

ii. If, as a fiduciary of the ERS, the Real Assets ~~Real Estate~~ Consultant determines that the investment merits a commitment from the ERS, the Real Assets ~~Real Estate~~ Consultant will take the following steps:

1. Discuss with Investment Staff the key findings during due diligence, including investment merits, risks and key conclusions;
2. Follow-up with Investment Staff on additional requests for information based on this discussion and complete an Investment Disclosure Form;
3. In conjunction with the ERS's legal review process, assist legal negotiation and closing into the investment opportunity.

iii. Upon successful review of the investment by Investment Staff, the investment shall be recommended to the Board of Trustees or designee for approval. This recommendation shall contain a summary of the due diligence and a prospective commitment level for the investment.

b. *Monitoring and Reporting*

i. Reporting System - There shall be a comprehensive reporting and monitoring system for the entire portfolio, Real Assets ~~Real Estate~~ Consultant, Investment Manager(s) of commingled funds, and individual investments. Situations of underperforming investments, portfolio diversification deficiencies from the Policies & Procedures, and conflicts of interest can then be identified, facilitating active portfolio management.

TIMBER SUB-COMPONENT

1. Investment Objectives

a. Investments in Timberland Assets

Timber investments involve the privately negotiated purchase and, to a lesser degree, leasing of forestland tracts, upon which trees are grown for commercial sale. Investments in timber will primarily be made directly through a separate account or indirectly through a multi-investor structure (i.e., two or more investors investing in a specific timber asset as a limited liability company ["LLC"] or other investment vehicle, as appropriate) in which ERS's separate account is an investor. When applicable and consistent with the objectives of the Real Assets program, commingled funds may also be used to achieve exposure to timberland investments. All timber investments will be managed by a qualified timberland investment manager ("timberland manager" or "manager").

Timber investments of the ERS shall be made in a manner consistent with the fiduciary standards of the prudent expert rule: (1) for the sole interest of the ERS's participants and their beneficiaries; and, (2) to safeguard and diversify the timber portfolio. The timber portfolio will be constructed to preserve investment capital and to maintain prudent diversification of assets.

b. Strategic Allocation

The ERS's allocation to timber investments shall remain within the limits authorized by the Board of Trustees or designee as described in the Real Assets component of this Investment Policy Statement.

c. Portfolio Return Objectives

The timber return objectives and benchmarks will follow their respective assignments as detailed in Section D.3. Return Objectives & Risk Profile.

At a high-level, the timber investments portfolio's rate of return is expected to be generated primarily from biological growth, sale of timber inventory, and purchases and sales of properties. Additionally, value-added investments may be used to enhance timberland investments, and may include recreation leases, carbon sequestration, wetland mitigation, and other ecosystem services.

2. Program Management

a. Overview

In compliance with current ERS investment philosophy, the Timber program will primarily utilize discretionary separate account relationships and discretionary commingled fund investment vehicles that are sponsored by timberland investment managers ("Investment Managers"). Under this program, the Investment Managers acquire, operate and dispose of timberland assets in accordance with a work assignment that is outlined in their investment management contract with the ERS (the "Contract") and in the Annual Tactical Plan for separate accounts and the fund documents for commingled funds. The Contract describes the acceptable property types, geographic restrictions, investment structures, leverage, and other specific investment parameters. For Separate Accounts, the Annual Tactical Plan is the Investment Manager's "working plan" for each fiscal year and must be reviewed by Investment Staff and Real Assets~~Estate~~ Consultant. For commingled funds, documents typically refer to the fund's offering memorandum or private placement memorandum, limited partnership or LLC membership agreement, and subscription agreement.

b. Participant Roles and Responsibilities

The ERS's Timber Investment Program shall be implemented and monitored through the coordinated efforts of the Board of Trustees or designee; through the Investment Staff; the ERS's general investment consultant ("General Investment Consultant"); the ERS's R~~r~~eal Assets~~estate~~ consultant ("Real Assets~~Estate~~ Consultant"); and the Investment Manager(s). Specific responsibilities that fall outside the general responsibilities highlighted in Section B.5. are listed below:

i. Investment Manager - Qualified organizations, registered as Investment Advisors under the 1940 Act, that provide institutional timberland investment management services to the ERS. ERS may invest in commingled fund vehicles that are not registered, however, it is preferred that the commingled fund be sponsored and/or managed by a Registered Investment Advisor.

ii. Separate Account Manager Responsibilities - The separate account Investment Manager, acting as a fiduciary on behalf of ERS, acquires, manages and disposes of timberland properties in accordance with the Annual Tactical Plan and Contract.

1. Annual Tactical Plan

Annually, the separate account timberland manager will prepare an Annual Tactical Plan which reviews the current status of the portfolio, recent historical and prospective market conditions, and proposes the steps to be taken to further implement the long-term strategic plan. The Annual Tactical Plan will be reviewed by the Real Assets~~Estate~~ Consultant and Investment Staff

The format of the Annual Tactical Plan is expected to include: (1) a review of the current status of the portfolio, (2) perceived investment environment, (3) the types and amount of property investments to be sought and underlying rationale, (4) goals for other management responsibilities such as situations being monitored and adding value, and (5) outline the steps anticipated toward portfolio development over the course of the coming year, and (6) any other items requested by the ERS.

iii. Commingled Fund Manager Responsibilities – The commingled fund Investment Manager, acting as a fiduciary on behalf of ERS, acquires, manages and disposes of timberland investments in accordance with the terms of the investment vehicle documents.

3. Strategic Plan

The Timber program is expected to be managed and monitored as a sub-component of the broader Real Assets component. Separate account timberland mandates will contain their own *Annual Tactical Plans* as highlighted above.

a. Portfolio Composition

With timber investments, there exists an inherent risk that the actual return of capital, income and gains will vary from the amounts expected. The composition of the portfolio and its key program management parameters are as follows:

i. Institutional Quality

All assets must be of institutional investment quality. Institutional quality will be defined as being of a quality whereby the investment would be considered acceptable by other prudent expert institutional timber market participants and corporate forest product industry investors.

ii. Diversification

The timber portfolio shall be diversified by:

1. regional geographical location (South, Northeast, West, Other, and International)
2. non-contiguous tract and parcel locations
3. type and species of tree (e.g., softwood "conifer," such as pine, fir redwood, etc., and hardwood "deciduous," such as oak, maple, etc.)
4. end-use market of forest product (building and construction, pulp and paper, furniture and decorative wood)
5. potential purchasers of inventory (mills and processing plants)
6. stage of tree growth (seedling through mature)
7. timing of investment

When fully invested, no one timberland investment should represent in excess of twenty-five percent (25%) of the total market value of the portfolio. These limits are subject to waiver on a case-by-case basis by the Trustees. It is also recognized that during the portfolio development and wind-down stages the full investment parameters may not, of necessity, be met.

iii. Ownership Structure

Account and Investment Structure: The ERS's ownership structure will comprise an arrangement whereby separate account relationships will be established with one or more fiduciary timberland managers. The separate account timberland manager will in turn purchase, on a discretionary basis, timber assets for the ERS's account. When applicable and consistent with the objectives of the Real Assets program, commingled funds may also be used to achieve exposure to timberland investments. Commingled fund investments will be governed by their fund-specific documentation, and any corresponding side letters, which may vary from the separate account guidelines presented below.

b. Investment Process (Separate Accounts)

i. Eligible Investments

In general, the timberland manager will have discretion to purchase forest tracts that are expected to meet or exceed the ERS's rate of return objectives for timber investment. The rate of return must be appropriate after the consideration of any risk measures employed by the manager. Multi-investor structures and lease holdings may be made, however, the majority of the fully invested portfolio should be made up of fee simple investments. The timberland manager is allowed to enter into joint ventures with forest product companies for up to 20% of the portfolio. However, the structure of the joint venture must not impede, at any time, either the sale of the holding or the ability of the ERS to replace the timberland manager. Also, the manager will minimize the concentration of holdings in areas known to be frequented by natural disasters, for example coastal tracts known to be frequent hurricane paths, flood zones, etc.

Without compromising the geographical diversification targets, the timberland manager will use reasonable efforts to mitigate the incurrence of unrelated business taxable income in the portfolio.

Leverage may be used, on a nonrecourse basis, up to 20% of the timberland market value of the portfolio, with no more than 50% leverage on any one timber investment. The single investment debt level will be measured for compliance at the time leverage is added to the portfolio. Leverage for the total portfolio will be measured for compliance at the time the leverage is added to the portfolio, or a portfolio asset is purchased or sold. Leverage may not be added to any investments held as of September 15, 2010.

4. Geographical Location Diversification

Over the long-term, the ERS portfolio should seek portfolio diversification with regard to major timber growing regions. The currency exposure to the ERS from any non-U.S. dollar aspect of the allocation is expected to be negligible over the long-term.

The following ranges set forth the geographic diversification targets for the timberland manager to fulfill:

Region	Range
South	45% - 65%
West	25% - 45%
Northeast	0% - 20%
Other/International	0% - 20%

5. Tree Maturity Diversification

The ERS portfolio will seek to diversify by maturity of timber ranging from immature, pre-merchantable trees through mature, merchantable timber. The timberland manager will create a sustainable timberland portfolio where tree seeding, planting, growth and purchases will replace trees harvested and properties sold.

6. Tree Species Diversification

The portfolio will be diversified by timber type and include both hardwoods and softwoods.

7. End Use Diversification

The ERS portfolio will be structured to sell into several commercial industries, such as paper goods and cardboard, various building and construction materials markets, and finished carpentry and furniture. The timberland manager will also take into account the number of regional processors or purchasers of timber inventory.

8. Tract And Parcel Diversification

The portfolio will be composed of numerous non-contiguous tracts with the goal of diversifying the risk of natural disasters such as fire, disease, pests, etc.

9. Manager Responsibilities

a. Investment Management

Timberland managers are directly accountable for the following investment management responsibilities. This section designates certain investment responsibilities that the timberland manager will perform or cause to be performed.

i. Acquisition – The manager will be responsible for sourcing, evaluating and selecting, on a discretionary basis with fiduciary responsibility, timber investments to be made on behalf of the ERS.

ii. The acquisition process will be made with a view to maximize the ERS's risk adjusted rate of return subject to portfolio management/diversification parameters.

iii. Ongoing Operations – The timberland manager shall manage or cause to be managed, the portfolio and individual properties such as to enhance the ERS's value in the investment. This includes silvicultural/forest management, property valuations/appraisals, and cash-flow management.

iv. Disposition – Ongoing, and based on timber market circumstances, the timberland manager shall review the managed investments with respect to continued timely return of capital, income and gains, including both planned and opportunistic sales of timber inventory and properties. The manager shall identify qualified buyers, solicit and evaluate offers, and negotiate property sales.

b. Monitoring and Reporting

The ERS expects its Separate Account managers to generally act in accordance to the most recent version of the Reporting Standards established by the National Council of Real Estate Investment Fiduciaries ("NCREIF") and US GAAP.

10. Investment Process (Commingled Funds)

When applicable and consistent with the objectives of the Real Assets program, commingled funds may be used to achieve exposure to timberland investments. The commingled fund Investment Manager, acting as a fiduciary on behalf of ERS, acquires, manages and disposes of timberland investments in accordance with the terms of the investment vehicle documents.

INFRASTRUCTRE SUB-COMPONENT

1. Program Management

a. *General Description*

The Infrastructure Portfolio is long term in nature, and for time-diversification purposes, investment commitments may be drawn down over several years throughout a defined investment period with respect to certain investment vehicles (e.g., closed-end pooled funds). Accordingly, the ERS Investment Staff and Investment Consultants may recommend total investment commitments that reasonably exceed the total Infrastructure Portfolio allocation authorized for Portfolio investment (e.g., 150% of the authorized allocation amount) to build and maintain the allocation. The Infrastructure program is expected to be managed and monitored as a sub-component of the broader Real Assets component.

b. *Investment Structure*

The Infrastructure Portfolio may include private equity and private debt investments in closed-end and open-end pooled funds. Private equity fund investments may include equity interests in Infrastructure assets, including energy, communications, transportation, and other types of assets. Private debt fund investments may include structured investments, which provide for stated preferred returns, which may be accrued or paid on a current basis.

c. *Diversification*

The Infrastructure Portfolio diversification is important in reducing portfolio risk and accomplishing risk-adjusted return expectations in the context of the larger Real Assets component that includes the Infrastructure sub-component. The impact of Infrastructure investments on the Real Assets portfolio's diversification, portfolio risk, and risk-adjusted returns shall be considered when evaluating prospective investments.

d. *Leverage*

Leverage can be a significant risk factor, impacting the risk / return profile of the Infrastructure Portfolio. The ERS Investment Staff and the investment consultants will monitor closely the leverage level of each Infrastructure fund investment seek to maintain a risk/return level consistent with the ERS's investment objectives.

e. *Portfolio Risk and Liquidity Attributes*

Infrastructure investments are expected to be private; therefore, on-demand liquidity outside of income is not anticipated. Investments are expected to primarily be "core" investments, equity or debt investment in high-quality infrastructure assets with lower risk/return attributes. Core investments are often regulated or contracted essential assets that may be characterized by a low correlation to GDP growth (e.g., regulated utilities). Volatility levels are anticipated to be reduced by this focus on income-oriented investing.

AGRICULTURE SUB-COMPONENT

1. Program Management

a. General Description

The Agriculture Portfolio target is long term in nature, and for time-diversification purposes, investment commitments may be drawn down over several years throughout a defined investment period with respect to certain investment vehicles (e.g., closed-end pooled funds). Accordingly, the ERS Investment Staff and the investment consultants may recommend total investment commitments that reasonably exceed the total Agriculture Portfolio allocation authorized for Portfolio investment (e.g., 150% of the authorized allocation amount) to build and maintain the allocation. The Agriculture program is expected to be managed and monitored as a sub-component of the broader Real Assets component.

b. Investment Structure

The Agriculture Portfolio may include private equity and private debt investments in closed-end and open-end pooled funds. Private equity fund investments may include equity interests in Agriculture assets, including farmland, delivery, storage, and other types of assets. Private debt fund investments may include structured investments, which provide for stated preferred returns, which may be accrued or paid on a current basis.

c. Diversification

The Agriculture Portfolio diversification is important in reducing portfolio risk and accomplishing risk-adjusted return expectations in the context of the larger Real Assets component that includes the Agriculture sub-component. The impact of Agriculture investments on the Real Assets portfolio's diversification, portfolio risk, and risk-adjusted returns shall be considered when evaluating prospective investments.

d. Leverage

Leverage can be a significant risk factor, impacting the risk / return profile of the Agriculture Portfolio. The ERS Investment Staff and the investment consultants will monitor closely the leverage level of each Agriculture fund investment and seek to maintain a risk/return level consistent with the ERS's investment objectives.

e. Portfolio Risk and Liquidity Attributes

Agriculture investments are expected to be private; therefore, on-demand liquidity outside of income is not anticipated. Investments are expected to primarily be "core" investments, equity or debt investment in high-quality Agriculture assets with lower risk/return attributes. Core investments may be characterized by a low correlation to GDP growth. Volatility levels are anticipated to be reduced by this focus on income-oriented investing.

GLOBAL CREDIT COMPONENT

1. Investment Objectives & Structure of the Credit Portfolio

a. General Description

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.

b. Strategic Objective

The objective of the ERS Credit Portfolio is to complement other Broad Growth components by generating a consistent return by pursuing an opportunistic non-benchmark focused approach across global public and private credit markets.

c. Long-Term Investment Return Objective

The ERS shall use the following rate of return tests to evaluate the performance of the Credit Portfolio:

i. Total Return

1. Over rolling 3-year periods, the total Credit Portfolio is expected to generate a minimum total dollar-weighted rate of return (internal rate of return or IRR) that exceeds an absolute return of 3-month SOFR (or equivalent short-term interest rate) + 4-6%, net of all investment management fees and expenses.
2. The Credit Portfolio's risk and return characteristics will also be measured against the investable credit indices as specified in the ERS Broad Growth Benchmark.

d. Investment Strategies

The following credit strategies and investment types will be considered eligible for the ERS's portfolio:

i. Corporate Credit. Partnerships/Fund of Ones ("FOOs") 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.

ii. Mortgage Credit. Partnerships/FOOs or commingled funds which invest in liquid and less liquid mortgage credit as well as opportunistically provide private financing. Investment instruments and/or strategies include but are not limited to the purchase and/or origination of legacy non-agency residential mortgage-backed securities, ABS CDOs, agency risk transfer, FNMA/Freddie preferreds, non-qualified mortgage origination, re-performing loans, legacy CMBS, CRE CDOs, credit tenant leases and bridge financings.

iii. Specialty Finance. Partnerships/FOOs or commingled funds which invest in liquid and less liquid specialty finance as well as opportunistically provide private financing. Investment instruments and/or strategies include but are not limited to the purchase and/or origination of marketplace lending, equipment leasing, consumer loans, student loans, auto loan, aircraft finance and regulatory capital relief.

iv. Hedging. Partnerships/FOOs or commingled funds which seek to opportunistically hedge beta exposures through derivative exposures. Derivatives may be used for managing interest rate, volatility, term structure, country, currency and sector exposures and will be employed defensively.

e. Investment Structure

The ERS may utilize commingled funds, separate accounts, or funds of one specifically tailored to meet the needs of the ERS for primary, secondary, and co-investments. The Credit component is expected to be allocated 100% to active management.

2. Implementation

a. Investment Approval Process

The investment approval process (i.e., the selection of investment managers for this component) will be consistent with ERS's manager selection and retention processes as discussed under Section C of this policy manual. Any selected mandates will also be subject to the policies put forth under Section D (Broad Growth class policy) of this manual.

b. Reporting

Time-weighted investment performance results for Credit mandates will be reported in a manner consistent with results produced for other account mandates under the Broad Growth class and consistent with general reporting requirements found in Section C of this policy manual. In addition, in order to assess whether the component is meeting its objectives as discussed above in paragraph 1.C. (Long-term Investment Return Objective), the Staff will provide an annual update of the Credit program.

In addition to the return metrics highlighted above, Investment Staff may develop additional metrics to assess the progress of the Credit program. Such metrics may include, but not be limited to:

- Yields based upon cash income produced by the related portfolio(s);
- Default rates and/or impairment rates exhibited by the portfolio(s);
- Sector and/or collateral concentration levels within the portfolios;
- Other measures.

PRIVATE EQUITY SUB-COMPONENT

1. Program Management

a. Responsibilities

The Private Equity program shall be implemented and monitored through the coordinated efforts of the Board of Trustees ("Board of Trustees" or "Board") of the Employees' Retirement System of the State of Hawaii ("ERS"), the ERS investment staff ("Investment Staff"), the ERS private equity consultant ("Private Equity Consultant"), and the ERS specialty managers ("Specialty Managers"). Specific responsibilities that fall outside the general responsibilities highlighted in Section B.5. are listed below:

b. Specific Responsibilities: Board of Trustees

i. Investment Selection

1. Evaluate all proposed activities or investments that may fall outside the parameters and direction of the annual Strategic Plans.
2. Mediate any disputes regarding investment selection that may take place between Investment Staff, the Private Equity Consultant(s) and/or Specialty Managers.

2. Investment Objectives

a. Portfolio Construction

The ERS has determined that, over the long term, inclusion of private markets investments (private equity, certain private debt opportunities, etc.) would enhance the ERS's expected portfolio investment characteristics. Specifically, as a result of the possibility of enhanced rates of return over publicly traded securities and returns that have low-to-moderate correlation with those associated with other major strategic class components, the use of private equity investments tends to increase the portfolio's overall long-term expected real return and reduce year-to-year portfolio volatility.

Private equity investments of the ERS shall be made in a manner consistent with the fiduciary standards of the prudent expert rule: (1) for the sole interest of the ERS's participants and their beneficiaries; and (2) to safeguard and diversify the Private Equity portfolio. The selection and management of Private Equity assets will be guided to preserve investment capital and to maintain prudent diversification of assets and management responsibility. The diversification objective is required to manage overall market risk and the specific risks inherent in any single investment or management selection.

b. Target Allocation

The allocation of ERS assets to Private Equity investments shall remain within the limits authorized by the Board of Trustees. Allocated capital will be defined as invested capital (based on market value). The Board of Trustees recognizes that it will be necessary to make capital commitments in excess of the target allocation in order to achieve and maintain progress toward its long-term target.

The goal of the ERS is to spread out the timing of new commitments so as to avoid an undue concentration of commitments in any one year. Over the long-term, it is expected that barring any unforeseen events approximately equal amounts of new funding will be committed each fiscal year to garner the benefits of vintage year diversification.

c. *Benchmarking / Return Targets*

The ERS shall use the following rate of return tests to evaluate the performance of the Private Equity portfolio:

i. Total Return (Realized and Unrealized Gain/Loss plus Income)

1. Over rolling 10-year periods, the total Private Equity portfolio is expected to generate a minimum total dollar-weighted rate of return (internal rate of return or IRR) that exceeds an equivalent public global equity return (MSCI ACWI IMI) by 200 basis points ("bps") per year, net of all investment management fees and expenses
2. Any individual fund investment is expected to produce a commensurate return that contributes to the overall Private Equity portfolio return objectives

d. *Risk Management*

The selection and management of assets in the Private Equity portfolio will be guided to generate a high level of risk adjusted return, to provide minimal amounts of current income, and to maintain prudent diversification of assets and specific investments.

With private equity investments, there is an inherent risk that the actual return of capital, gains and income will vary from the amounts expected. The ERS shall manage the investment risk associated with private growth investments in several ways:

i. Strategic Structure

1. Allocation by strategic component.

   The Private Equity component consists of two segments: (i) private equity and (ii) other private investments. Descriptions and characteristics of these segments are discussed in the appendix to this section.

2. Commitment pacing into each segment over time.

   It is expected that the private equity component will have scheduled annual commitments. However, certain annual commitment amounts among these segments may vary significantly, depending upon the capital investment opportunities within each component.

ii. Manager Selection / Institutional Quality

1. All assets must be of institutional investment quality. Institutional quality will be defined as being of a quality whereby the investment would be considered acceptable by other prudent institutional investors.
2. It shall be expected that "foundation managers" to the ERS private equity portfolio (that is, are expected to comprise a significant subset of total ERS private growth assets) periodically report to the Board of Trustees and/or Investment Staff as requested on the progress of ERS investments under their management.

e. *Investment Structures*

The following are considered allowable investment structures for the private equity program. It shall be noted that the Private Equity Consultant or Specialty Manager are expected to act as fiduciaries on behalf of the ERS and the investment structures mentioned below must be within accordance of the investment policies set forth in this Manual and the annual Strategic Plan. Such investment activity is subject to active review by Investment Staff on a regular basis.

i. <u>Co/Direct Investments</u>

Co-investments may be sourced by the Private Equity Consultant or Specialty Manager, or Investment Staff, and must be approved by the Board of Trustees or designee.

ii. <u>Primary Investments in Private Equity Funds</u>

Capital commitments to limited partnerships and/or limited liability companies established for the purpose of private equity investment are managed through the Private Equity Consultant or a Specialty Manager.

iii. <u>Secondary Investments</u>

Purchasing an existing interest in a private equity fund is managed through the Private Equity Consultant or a Specialty Manager.

iv. <u>Separate Accounts</u>

Investment vehicles typically set up for a single limited partner where the investment manager constructs a diversified portfolio of private market investments that are tailored specifically to the needs and objectives of the investor. Separate accounts should offer the ERS access to economics that are below generally prevailing rates and/or target strategies that are traditionally difficult for the ERS to access directly (e.g., Venture Capital).

f. *Investment Strategies*

The following private equity strategies and investment types will be considered eligible for the ERS's portfolio:

i. <u>Corporate Finance/Buyout</u>:

Partnerships/LLCs which provide funding to acquire majority or controlling interests in a business or product lines from either a public or private company. Buyout sub-strategies are classified by total capital commitments and include Small, Mid, Large and Mega buyouts

ii. <u>Fund-of-Funds</u>

Blind pool partnerships/LLCs that evaluate, select and monitor investments in other limited partnership/LLC investments

iii. <u>Mezzanine Debt</u>

Partnerships/LLCs which invest in unsecured or junior obligations in financings. These generally take the form of subordinated debentures or preferred stock. They typically earn a current coupon or dividend and have warrants on common stock or conversion features

iv. <u>Distressed Debt</u>

Partnerships/LLCs which invest in non-investment grade privately placed debt securities. Common sub-strategies include Distressed For Control, Non-Control and Trading

v. Project Finance

Partnerships/LLCs which invest in industrial leveraged or unleveraged lease or project financings. These can include participation in equity, mezzanine, or senior debt investments. Investments should be made after the development phase, as part of the project's permanent financing, when projects are going operational

vi. Special Situations

Partnerships/LLCs with investment strategies which have gained an institutional following, but where sporadic opportunities do not justify a separate long-term strategic allocation. Categories includes partnerships/LLCs which make strategic block investments, have very broad mandates, focus on restructuring/recovery or focus on specific industries or which seek to exploit opportunities created by changing industry trends or governmental regulations

vii. Venture Capital

Investments in start-up companies generally exhibiting promising potential and/or high-growth characteristics. Such investments generally exhibit minimal leverage and can consist of the following stages: Seed/Early, Middle, Late-Stage and Growth Equity

viii. Other

Partnerships/LLCs which invest in publicly traded securities or which employ strategies different from those cited above such as, hedge fund strategies, commodity trading, post-venture equities, investments in commercial leases, and other non-traditional strategies. The purchase of secondary partnership/LLC interests is also allowed.

g. *Diversification Requirements*

The private equity portfolio shall, to the extent possible[2] be diversified as to investment strategy, timing of investment, size and life cycle of investment, industry sector, investment sponsor organization (e.g., general partner group), capital structure and geographical location. Diversification reduces the impact on the portfolio of any one investment or any single investment style to the extent that an adversity affecting any one particular area will not impact a disproportionate share of the total portfolio.

It is also recognized that during the portfolio development and wind-down stages the full investment parameters may not, of necessity, be met.

The scope and size of the ERS program is such that significant investments in fewer, more concentrated "foundation" managers are preferred to smaller, more numerous managers. While ERS has not set a minimum dollar amount per partnership/LLC, the Private Equity Consultant and/or Specialty Manager will be charged with deploying the capital efficiently, such that funding targets are achieved with a minimal number of partnership/LLC holdings. Long-term diversification targets among eligible investment strategies will be set forth in the annual Strategic Plan document, and reviewed and updated as necessary.

i. Geographic

[2] Investments will be primarily in "blind pool" funds where there is limited control over the diversification process.

Over the long-term, the ERS portfolio should seek portfolio diversification with regard to major regional areas both domestically, and internationally.

The portfolio shall primarily target investments domiciled within North America. In line with the ERS's total international allocation, the portfolio shall seek to limit international investments (outside of North America) by targeting no more than 35% of the private equity investment allocation to such investments. The currency exposure to the ERS from the non-dollar aspect of the allocation is expected to be negligible.

ii. Industry

The ERS portfolio will seek to diversify by industry sector (as outlined through the Global Industry Classification Standard) and shall target that no one industry classification represents more than 35% of the private equity portfolio.

iii. Life Cycle

Commitments to partnership/LLC investments generally will be staged over time. It is the long-term goal of ERS to spread out investment timing such that new commitments will be made each fiscal year. This policy will have the effect of dollar cost averaging the ERS's portfolio over business cycles to help insulate the portfolio from event risk.

h. General Partner

The ERS portfolio will seek to diversify by issuer of limited partnership/LLC securities, and other specific investments sponsors. No more than 20% of the ERS's private equity portfolio net asset value will be invested with any one investment sponsor organization.

i. Single Investment

No single private equity commitment shall comprise more than 100bps of total ERS assets under management. An exception to this limitation may be offered for separate accounts, subject to approval by the Board of Trustees.

ii. Limited Partner

The ERS is permitted to own up to 20% of any particular partnership/LLC subject to the General Partner limitation (item 4) above.

3. Implementation of Private Equity Program

a. Annual Strategic Plan

i. Annually, the Private Equity Consultant and Specialty Managers (if applicable), in conjunction with Investment Staff, will prepare a Strategic Plan which reviews the current status of the portfolio, recent historical and prospective market conditions, and proposes the actions to be taken over the next approximately twelve-month period.

ii. The annual Strategic Plan will then be presented to the Board of Trustees for approval

b. Investment Approval Process

The following steps shall be followed in order for the ERS to commit to any prospective private equity investment opportunity:

i. Private Equity Consultant sources and performs comprehensive due diligence on attractive investment opportunities consistent with criteria set forth in the annual Strategic Plan

ii. If, as a fiduciary of the ERS, the Private Equity Consultant determines that the investment merits a commitment from the ERS, the Private Equity Consultant will take the following steps:

1. Discuss with Investment Staff the key findings during due diligence, including investment merits, risks and key conclusions
2. Follow-up with Investment Staff on additional requests for information based on this discussion and complete a due diligence memorandum.
3. In conjunction with the ERS's legal review process, facilitate legal negotiation and closing into the investment opportunity

iii. The Board of Trustees shall be notified in the event of a disagreement between Investment Staff and the Private Equity Consultant on an investment recommendation

iv. The Specialty Manager (if applicable) will be expected to operate on a discretionary basis

1. The Specialty Manager is to operate under the oversight of and provide regular updates to Staff.

c. Monitoring and Reporting

i. Reporting System

There shall be a quarterly reporting and monitoring system for the entire portfolio by the Private Equity Consultant. The monitoring shall include asset/risk allocation and portfolio performance in sufficient detail to identify situations of underperformance, diversification deficiencies and conflicts of interest. Due to the large number of funds, the ERS investment staff will employ a sampling methodology to verify that the Private Equity Consultant is adequately executing the monitoring program and detecting major performance issues within the private equity portfolio.

ii. Performance Measurement

The Private Equity Consultant and Specialty Manager(s) will provide cash flow, valuation, and any other requested information to Investment Staff and the Private Equity Consultant quarterly, and the ERS's custodian bank ("custodian") on a monthly basis, and will notify Investment Staff of any instances of materially different carrying values from those reported by general partners.

Performance may be calculated on a time-weighted and/or dollar-weighted (internal rate of return or IRR) basis, as applicable, with primary emphasis being placed on the internal rate of return. The rate of return calculations will be net of all partnership/LLC fees and expenses, but gross of Private Equity Consultant and/or Specialty Manager fees and expenses. The manager and/or Private Equity Consultant will be responsible for reviewing the custodian's figures as to timing, amount, value of in-kind securities at distribution and reported net asset value, and reconciling and explaining any discrepancies.

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

NOVEMBER 12, 2024

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

Trustees present: (by teleconference)	Mr. Emmit Kane, Chair (in person)* Mr. Lance Mizumoto, Vice Chair* Mr. Vincent Barfield* Dr. Catherine Chan* Dr. Genevieve Ley*
Trustees absent:	Mr. Luis Salaveria Mr. Bennett Yap
Staff present: (City Financial Tower by teleconference)	Mr. Thomas Williams, Executive Director* Mr. Kona Mann, Chief Compliance Officer* Mr. James Greubel, Program Specialist* Ms. Shanna Sakagawa, Program Specialist* Mr. Keith Miyamoto, Information Services Branch Manager* Ms. Lori Kobayashi, Retirement Benefits Branch Manager* Ms. Kristin Varela, Chief Investment Officer* Mr. Anthony Goo, Deputy Chief Investment Officer* Mr. Aaron Au, Investment Officer – Private Equity Ms. Christine Chang, Investment Officer – Diversifying Strategies Mr. Andrew Chen, Investment Officer – Credit Markets Ms. Lynn Kamimoto, Investment Officer – Risk Mr. Ian Wetzel, Investment Officer – Real Assets Ms. Gerri Konishi, Member Home Loan Assistant Ms. Dale Kehau Kanae, Recording Secretary/Administrative Assistant* Ms. Lori Kim, Administrative Assistant* Ms. Andrea Gasper, Administrative Assistant* Ms. Diana Gomes, Administrative Assistant
Attorney present: (by teleconference)	Ms. Jenny Nakamoto, Deputy Attorney General* Ms. Lori Tanigawa, Deputy Attorney General* Ms. Elmira Tsang, Deputy Attorney General* Ms. Diane Wong, Deputy Attorney General*
Guests present: (by teleconference)	Mr. Peter Hanashiro, KMH LLP* Mr. Tyson Suehiro, KMH LLP* Mr. Dave Collins, RSM US LLP* Mr. Alfred Ko, RSM US LLP*
Public present: (by teleconference)	Mr. Douglas Appell, Pensions & Investments Mr. Joe Ebisa, With Intelligence
	*Attended Executive Session.

QUORUM/CALL TO ORDER

A quorum being present (Chair Kane, Vice Chair Mizumoto, Trustees Barfield, Chan, and Ley), Chair Kane called the regular meeting of the Board of Trustees (Board) of the Employees' Retirement System of the State of Hawaii (ERS) to order at 10:03 a.m. and requested each Trustee identify themselves and confirm that they are the only ones present at their remote location while attending the meeting. Each of the Trustees present confirmed same.

On a motion made by Vice Chair Mizumoto, seconded by Trustee Barfield, and unanimously carried, to be able to hold a meeting allowing Trustees and members of the public to participate by interactive conference technology, pursuant to HRS §92-3.7, with at least one meeting location open to the public that has audiovisual connection.

PUBLIC COMMENT	Chair Kane called for public comment. There was no public present in person, however, two (2) members of the public were present by teleconference, but they had no public comment. Also, no written testimony was received for this meeting.
EXECUTIVE DIRECTOR'S REPORT ON THE OPERATIONS AND ADMINISTRATION OF THE SYSTEM WITH RESPECT TO ISSUES AFFECTING MEMBER SERVICES, ACCOUNTING, AND INFORMATION TECHNOLOGY SYSTEMS, TO INCLUDE SIGNIFICANT DEVELOPMENTS IN INVESTMENTS, POLICY, STAFFING, POTENTIAL LEGISLATION, AND REGULATORY MATTERS	Executive Director (ED) Williams gave an oral report to the Board on the Operations and Administration of the System with Respect to Issues Affecting Members Services, Accounting, and Information Technology Systems, to Include Significant Developments in Investments, Policy, Staffing, Potential Legislation, and Regulatory Matters as follows:

- Last month's ERS Investment Education Summit was well received and next year's ERS Investment Education Summit will be held at the Grand Hyatt Kauai Resort & Spa from September 23 to 26, 2025, and ERS' 100-year anniversary will be celebrated.
- Reminder to continue to utilize the BoardSmart application. The latest of the B-SMRT microlearning series, Shift Happens Fast.
- Discussions with Marie Kumabe of Kumabe HR for potential services regarding recruitment of executive leadership. Details will be discussed in Executive Session.
- Shared information from a news video about the Honolulu Police Department proposed drop program, a supplemental plan aside of the ERS program. No official information has been presented to the ERS.
- ERS Investments are performing well and has recently been reported at the ERS Investment Education Summit. Assets exceed $24B.
- The customer satisfaction survey has been digitized and is available using a QR code.
- Temporary Hazard Pay and the affects to the ERS such as potential spiking, and recalculations of recent Tier 1 retiree's benefits for eligible contributions. GRS preliminary calculations showed a possible increase to ERS' unfunded liability by $350M, an extension of the funding period by a year, and lowering the funding ratio by a half percent. ERS should consider ways to prevent this from reoccurring. The Board suggested bringing awareness to government leaders and the public of the negative financial impacts to the ERS of the Temporary Hazard Pay by a letter to the editor before considering introducing legislation.
- The five-year vesting bill may be re-introduced next session. Reviewed past ERS bills introduced this year such as, compliance with IRS requirements of changes in dates of required minimum distribution, and employer reporting and its penalties for non-compliance.
- KMH LLP and RSM US LLP'S Virtual Chief Information Security Officer Project to be discussed in Executive Session.
- Attended a Vitech advisory meeting in New York in October regarding their committed continued support to the ERS on the transition to the V3locity module that is scheduled to take up to 18 months but could take two- to three-years or more.
- Kristin Varela was named by CIO Magazine as a member of the Power 100. She is also a finalist for their Industry Innovation Awards to be presented at the Influential Investor Forum in December in New York.
- Discussions with the supervisor of the Deputy Attorneys General of the Department of the Attorney General regarding Dr. Patricia Chen's concern with their support for the Medical Board.

- Met with a potential candidate for ERS Trustee to be suggested to the Governor for appointment, can be discussed in Executive Session.
- Completed an orientation with the House Legislature by ERS RBB staff and Program Specialist.
- Staff vacancies and major achievements by Branches, as presented in the monthly operations report of October 2024.

COMPLIANCE SUPPORT STAFF REPORT ON GENERAL DUTIES INCLUDING SIGNIFICANT CURRENT AND FUTURE PROJECTS

Chief Compliance Officer Kona Mann presented an oral report to the Board on the Compliance Support Staff Report on General Duties Including Significant Current and Future Projects. A quarterly update report to the Board was deferred from July 8, 2024.

CCO Mann discussed with the Board as a part of the Compliance Support Staff Report a quarterly update that included Business Continuity, Code of Ethics with segments related to Cyber Security, Third-Party Risk Management that involved procurement, and further administrative guidance for policies on policy, as previously reported, as well as identifying and monitoring the regulatory environment and landscape for ERS.

CCO Mann further reported that the Business Continuity and Policies on Policy have been finalized and are in place and the Code of Ethics and Third-Party Risk Management policies are currently being worked on. Other activities being worked on to help bridge gaps within the ERS are, employer reporting, procurement, vCISO, work and planning with accounting, as well as being active with outside organizations such as ETS and with a national AI and CCO groups. Part of accounting's plans include procurement of a governance risk and compliance platform that would include ERS' entire data and projects, and external data such as the Internal Audit from KMH LLP. CCO Mann is also currently working on an ER and assessment and noted that other projects mentioned would be discussed in Executive Session.

There was no action required of the Board for this agenda item.

UPDATE REPORT OF ACTIVITY BY THE ADMINISTRATIVE & AUDIT COMMITTEE CHAIR

Administrative & Audit Committee (Committee) Chair Chan reported to the Board that the Committee met on October 23, 2024, and discussed the Internal Audit Update and Follow-Up Review Reports by KMH LLP, Implementation of the ADOBE Experience Manager, and in Executive Session discussed the Virtual Chief Information Security Officer (vCISCO) Project, Update on the Implementation of ERS" Compliance Program on Risk Assessment, Policies & Procedures, and Third-Party Risk Management, and Cyber Security Updates, also to be presented in Executive Session.

INTERNAL AUDIT UPDATE REPORT BY KMH LLP ON THE CURRRENT STATUS OF ACTIVITIES COMPLETED DURING Q3 2024, AND AN UPDATE ON THE COMPLETION STATUS OF MANAGEMENT ACTION PLANS FOR PAST INTERNAL AUDIT OBSERVATIONS AND RECOMMENDATIONS

KMH LLP's Peter Hanashiro and Tyson Suehiro attended the meeting by teleconference and presented a high-level summary of the Internal Audit Update Report on the Current Status of Activities Completed During Q3 2024, and an Update on the Completion Status of Management Action Plans for Past Internal Audit Observations and Recommendations and the Follow-Up Review Report on the Current Status of Previously "Cleared" Internal Audit Observation and Recommendations that was presented at the Administrative & Audit Committee meeting and discussed in part:

<u>INTERNAL AUDIT UPDATE REPORT</u>
EXECUTIVE SUMMARY
Administrative and Other Matters
Status on Current Projects

- Follow-Up Review
- Continuous Monitoring Tool Development – Part 2
- Investment Manager Selection and Evaluation Review

FOLLOW-UP REVIEW REPORT BY KMH LLP ON THE CURRENT STATUS OF PREVIOUSLY "CLEARED" INTERNAL AUDIT OBSERVATION AND RECOMMENDATIONS

- Risk Assessment Re-Evaluation and Audit Plan

The Board shared concerns and agreed that findings with multiple extensions of overdue targeted completion dates are unacceptable and it seems with no consequences and to what degree are the completion dates a priority. In particular, policies and procedures do not seem in alignment with current practices. Executive Director Thomas Williams assured the Board that steps are being taken to clear overdue targeted completion dates and policies and procedures will be reviewed and made in alignment with current practices.

On a motion made by Committee Chair Chan, seconded by Committee Vice Chair Barfield, and unanimously carried, the Board approved the Follow-Up Review Report by KMH LLP on the Current Status of Previously "Cleared" Internal Audit Observations and Recommendations as accepted and recommended by the Administrative and Audit Committee.

REPORT BY PROGRAM SPECIALIST ON THE IMPLEMENTATION OF THE ADOBE EXPERIENCE MANAGER FOR PURPOSES OF IMAGING EFFICIENCY

Program Specialist (PS) James Greubel presented an oral and written report to the Board on the Implementation of the Adobe Experience Manager for Purposes of Imaging Efficiency that was presented at the Administrative & Audit Committee meeting and discussed:

PROJECT RECAP & EXECUTIVE SUMMARY
PROCESS DISCOVERY FOR ERS
ROADMAP & RECOMMENDATIONS
DEMONSTRATION
ESTIMATED COST
NEXT STEPS

There was no action required of the Board for this agenda item.

DISCUSS THE 2025 BOARD OF TRUSTEES ELECTION OF OFFICERS AND COMMITTEE ASSIGNMENTS AND APPROVE THE SCHEDULE OF MEETINGS

Chair Kane presented to the Board a proposed 2025 Schedule of Meetings for approval.

On a motion made by Vice Chair Mizumoto, seconded by Trustee ley, and unanimously carried, the Board approved the Employees' Retirement System's Board of Trustees 2025 Schedule of Meetings as presented.

Chair Kane discussed the 2025 Board of Trustees Election of Officers and Committee Assignments and requested the Trustees submit to him their preferences on Committees they would like to serve on. Election of Officers and Committee Assignments will be determined and approved by the Board at the next meeting in January.

APPROVAL OF MINUTES
– SEPTEMBER 9, 2024
– OCTOBER 15-18, 2024

On a motion made by Trustee Barfield, seconded by Trustee Ley, and unanimously carried, the Board approved the Minutes of September 9, 2024, and October 15-18, 2024, as presented.

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

Chair Kane provided the reason to enter into Executive Session:

> Executive Session, pursuant to HRS §92-5(a)(4), (6), and (8), to consider and to consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities, and where consideration of matters affecting privacy will be involved, and to deliberate and make a decision upon matters that require the consideration of information that must be kept confidential pursuant to state law, and with respect to sensitive matters related to the Roadmap Report prepared as part

of the Internal Audit's Virtual Chief Information Security Officer Project; Cyber Security Updates; an Update on the Implementation of ERS' Compliance Program on Risk Assessment, Policies & Procedures, and Third-Party Risk Management; an Update on Ongoing Litigation; Recruitment and Search for Executive Leadership; and to discuss and to make a decision on the approval of Executive Session Minutes of September 9, 2024, and October 16, 2024.

ENTER EXECUTIVE SESSION

On a motion made by Trustee Ley, seconded by Trustee Chan, and unanimously carried, the Board entered into Executive Session at 11:08 a.m.

(Public participation concluded by ending the teleconference link.)

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

EXECUTIVE SESSION

- Pursuant to §92-5(a)(4), and (6), to consider and consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities, and to consider sensitive matters related to the Roadmap Report prepared as part of the Internal Audit's Virtual Chief Information Security Officer (vCISO) Project.
- Pursuant to HRS §92-5(a)(4) and (6), to consider and consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities, and to consider sensitive matters related to Cyber Security Updates.
- Pursuant to HRS §92-5(a)(4) and (6), to consider and consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities, and to consider sensitive matters related to an Update on the Implementation of ERS' Compliance Program on Risk Assessment, Policies & Procedures, and Third-Party Risk Management.
- Pursuant to HRS §92-5(a)(4) and (8), to consider and consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities, and to consider information that must be kept confidential pursuant to state law, with respect to an Update on Ongoing Litigation for Cynthia Giebink vs. ERS, Civil No. 2CCV-23-0000113.
- Pursuant to HRS § 92-5(a)(2), (4), and (8), to consider and consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities, and where consideration of matters affecting privacy will be involved, and to deliberate and make a decision upon matters that require the consideration of information that must be kept confidential pursuant to state law, with respect to Recruitment and Search for Executive Leadership.
- Pursuant to HRS §92-5(a)(8), to Review and Approve Executive Session Minutes of September 9, 2024.
- Pursuant to HRS §92-5(a)(8), to Review and Approve Executive Session Minutes of the Special Board Meeting of October 16, 2024.

EXECUTIVE SESSION, PURSUANT TO §92-5(a)(4), AND (6), TO CONSIDER AND CONSULT WITH THE BOARD'S ATTORNEYS ON QUESTIONS AND ISSUES PERTAINING TO THE BOARD'S POWERS, DUTIES, PRIVILEGES, IMMUNITIES, AND LIABILITIES, AND TO CONSIDER SENSITIVE MATTERS RELATED TO THE ROADMAP REPORT PREPARED AS PART OF THE INTERNAL AUDIT'S VIRTUAL CHIEF

INFORMATION SECURITY OFFICER (vCISO) PROJECT

EXECUTIVE SESSION, PURSUANT TO HRS §92-5(a)(4) AND (6), TO CONSIDER AND CONSULT WITH THE BOARD'S ATTORNEYS ON QUESTIONS AND ISSUES PERTAINING TO THE BOARD'S POWERS, DUTIES, PRIVILEGES, IMMUNITIES, AND LIABILITIES, AND TO CONSIDER SENSITIVE MATTERS RELATED TO CYBER SECURITY UPDATES

EXECUTIVE SESSION, PURSUANT TO HRS §92-5(a)(4) AND (6), TO CONSIDER AND CONSULT WITH THE BOARD'S ATTORNEYS ON QUESTIONS AND ISSUES PERTAINING TO THE BOARD'S POWERS, DUTIES, PRIVILEGES, IMMUNITIES, AND LIABILITIES, AND TO CONSIDER SENSITIVE MATTERS RELATED TO AN UPDATE ON THE IMPLEMENTATION OF ERS' COMPLIANCE PROGRAM ON RISK ASSESSMENT, POLICIES & PROCEDURES, AND THIRD-PARTY RISK MANAGEMENT

EXECUTIVE SESSION, PURSUANT TO HRS §92-5(a)(4) AND (8), TO CONSIDER AND CONSULT WITH THE BOARD'S ATTORNEYS ON QUESTIONS AND ISSUES PERTAINING TO THE BOARD'S POWERS, DUTIES, PRIVILEGES, IMMUNITIES, AND LIABILITIES, AND TO CONSIDER INFORMATION THAT MUST BE KEPT CONFIDENTIAL PURSUANT TO STATE LAW, WITH RESPECT TO AN UPDATE ON ONGOING LITIGATION FOR CYNTHIA GIEBINK VS. ERS, CIVIL NO. 2CCV-23-0000113

EXECUTIVE SESSION, PURSUANT TO HRS § 92-5(a)(2), (4), AND (8), TO CONSIDER AND CONSULT WITH THE BOARD'S ATTORNEYS ON QUESTIONS AND ISSUES PERTAINING TO THE BOARD'S POWERS, DUTIES, PRIVILEGES, IMMUNITIES, AND LIABILITIES, AND WHERE CONSIDERATION OF MATTERS

AFFECTING PRIVACY WILL BE INVOLVED, AND TO DELIBERATE AND MAKE A DECISION UPON MATTERS THAT REQUIRE THE CONSIDERATION OF INFORMATION THAT MUST BE KEPT CONFIDENTIAL PURSUANT TO STATE LAW, WITH RESPECT TO RECRUITMENT AND SEARCH FOR EXECUTIVE LEADERSHIP

EXECUTIVE SESSION, PURSUANT TO HRS §92-5(a)(8), TO REVIEW AND APPROVE EXECUTIVE SESSION MINUTES OF SEPTEMBER 9, 2024

EXECUTIVE SESSION, PURSUANT TO HRS §92-5(a)(8), TO REVIEW AND APPROVE EXECUTIVE SESSION MINUTES OF THE SPECIAL BOARD MEETING OF OCTOBER 16, 2024

EXIT EXECUTIVE SESSION

On a motion made by Trustee Barfield, seconded by Trustee ley, and unanimously carried, the Board exited Executive Session at 12:55 p.m.

Chair Kane announced that while in Executive Session, the Board discussed the Roadmap Report prepared as part of the Internal Audit's Virtual Chief Information Security Officer Project, sensitive matters related to Cyber Security Updates, and an Update on the Implementation of ERs' Compliance Program on Risk Assessment, Policies & Procedures, and Third-Party Risk Management, an Update on Ongoing Litigation for Cynthia Giebink vs. ERS, Civil No. 2CCV-23-0000113, and Search and Recruitment for Executive Leadership, and the Board also approved Executive Session Minutes of September 9, 2024, and October 16, 2024.

ADJOURNMENT

On a motion made by Trustee Barfield, seconded by Trustee Ley, and unanimously carried, Chair Kane adjourned the meeting at 12:56 p.m.

REDACTED SIGNATURE

Thomas Williams
Executive Director

TW:dkik

2025 DEPT. OF ATTORNEY GENERAL OVERVIEW FOR ERS TRUSTEES

- Fiduciary Duties
- Standards of Conduct
- Immunities
- Sunshine Law
- Contested Cases

Presented By: Deputy Attorney General Lori Tanigawa

ERS TRUSTEE FIDUCIARY DUTIES

The System is a 401(a) tax qualified governmental plan

- Duty to administer the System in accordance with HRS Chapter 88 <u>and</u> Internal Revenue Code 401(a)
- The corpus and System's income must be used for the exclusive benefit of the members and their beneficiaries

Akin to those of board of directors of private corporation

- Duty of loyalty
- Duty to exercise ordinary care, skill and diligence
- Duty to preserve trust property and make it productive
- Duty to enforce claims of trust and defend actions against the trust

STANDARDS OF CONDUCT

GIFTS

- Nominal gifts of Aloha (e.g. lei, cookies) are OK to accept
- Anything reasonably inferred to influence official action should be declined
- Disclosure statement required for gifts to Trustee or immediate family over $200 if the source may be affected by Board business (unless an exception applies)

CONFLICTS/ETHICS

- Disqualified from voting if have a substantial financial interest in business affected by official action
- Prohibited from having a direct interest in any gains or profits from ERS investments, or receiving pay or emoluments for service
- Prohibited from using or disclosing confidential information

TRUSTEE IMMUNITY & INDEMNITY

IF A TRUSTEE IS PERSONALLY NAMED IN A CIVIL ACTION PERTAINING TO ERS BOARD WORK:

- Trustees will <u>NOT</u> be held liable for damages resulting from actions or omissions taken as part of their official duties and may request representation by the Attorney General
- <u>EXCEPT</u> if act with malicious or improper purpose OR when the State is the plaintiff

IF A TRUSTEE IS NAMED IN HIS/HER OFFICIAL CAPACITY AS A BOARD MEMBER:

- Actual defendant is the ERS/State
- The Attorney General will undertake representation unless ERS elects to obtain outside counsel

SUNSHINE LAW

What is the Sunshine Law?

- Hawaii's open meetings law which governs the manner in which State boards conduct business
- Unless an exception applies, generally requires:
  1. 6-days advance meeting notice;
  2. Quorum to hold a meeting and conduct business (majority of total members of Board or Committee);
  3. Public access to Board's discussions, deliberations and decisions;
  4. Opportunity for public testimony; and
  5. Public access to Board minutes.
- Failure to comply may render Board action invalid

EXECUTIVE SESSIONS

- **HR matters** (consider the hire, evaluation, dismissal, or discipline of an employee, where consideration of maters affecting privacy will be involved – except if individual concerned requests open meeting)

- **Legal counsel** (consult with the Board's attorney on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities)

- **Confidential investments or prospective investments** (consider and take action regarding information and records that are proprietary or confidential business information)

WHAT'S ALLOWED OUTSIDE A SUNSHINE MEETING?

TRUSTEE INTERACTIONS	2 TRUSTEES	3 OR 4 TRUSTEES	5 TRUSTEES (QUORUM)
Discuss "Board business" in person or via text/messaging, email, or phone (specific matters over which Board has supervision, control, jurisdiction, or advisory power that are pending or reasonably anticipated to arise before the Board in the future)	**Yes***	**No**	**No**
Discuss non-Board matters (e.g., past Board business not subject to reconsideration, ministerial matters, such as scheduling meetings, what appears on the agenda, logistical arrangements, members' travel)	**Yes**	**Yes**	**Yes**
Discuss the selection of the Board's officers	**Yes**	**Yes**	**No**
Attend an informational meeting, presentation, or legislative hearing where matters relating to Board business are discussed (provided it is not exclusively organized or directed toward members of the Board)	**Yes****	**Yes****	**No**
Attend "informal gatherings" (e.g. lunches, social and ceremonial events) (where Board business is NOT discussed, deliberated or decided upon)	**Yes**	**Yes**	**Yes**
Participate in a permitted interaction group (PIG) (either to investigate a matter relating to Board business or to present/discuss/negotiate a position the Board adopted at a meeting of the Board)	**Yes**	**Yes**	**No**
Discussions with the Governor (the discussion cannot relate to a matter over which the Board is exercising its adjudicatory function, such as Chapter 91 contested cases)	**Yes***	**Yes***	**Yes***
Discussions with the Director of Finance (provided the discussion is limited to the administrative matters specified in HRS § 26-35, such as the agency's budget, purchases of supplies/equipment/furniture, and allocation of office space)	**Yes**	**Yes**	**Yes**

*No commitment to vote can be made/solicited. **No commitment to vote can be made/solicited and must report attendance at next meeting.

SUNSHINE LAW UPDATES

BOARD PACKETS (Act 11, SLH 2024)

- At the time the board packet is distributed to the Board, but no later than 2 business days prior to the meeting, the packet must be made available for public inspection and posted on the agency's website

RECORDING MEETINGS (Act 125, SLH 2023)

- Boards shall record meetings open to the public *when practicable* and make the recording available until meeting minutes are posted (Boards are encouraged, but not required, to keep recordings available on their website)

PUBLIC COMMENTS (Act 264, SLH 2022)

- Comments to be solicited throughout meeting, not just at the beginning

REMOTE MEETINGS (Act 220, SLH 2021)

- Board members must have both audio & visual capability
- If the meeting connection fails, the meeting must be recessed until it's restored

PERMITTED INTERACTION GROUPS vs. COMMITTEES

ACTIVITY	INVESTIGATIVE PIG	NEGOTIATING PIG	COMMITTEE
FIRST Sunshine meeting with full Board (to define scope of assignment and each member's authority)	Yes	Yes	Yes
SECOND Sunshine meeting with full Board (report findings/recommendations or present to full Board)	Yes	Yes	Yes
THIRD Sunshine meeting with full Board (deliberation/decision on the matter investigated must occur in separate, subsequent meeting after reporting findings)	Yes	No	No
Members meet and/or communicate outside a Sunshine Meeting	Yes	Yes	No
Continue work after loss of member	Yes	Yes	Yes
Fill vacancy after loss of member or change membership	No	No	Yes
Amend scope of assignment after formation	No	No	Yes
Allow non-PIG or non-Committee members to engage in discussion or deliberation at PIG/Committee meetings	No	No	No

HRS CHAPTER 91 CONTESTED CASES

- Adjudicatory proceedings **exempt** from Sunshine Law
- Triggered when person contests staff decision re: claim for ERS benefits (includes both disability and non-disability cases)
- Referred to Hearings Officer, who conducts evidentiary hearing and issues Recommended Decision
- ERS Board issues Proposed Decision (adopting or adopting with modifications the Recommended Decision, or rejecting Recommended Decision and issuing its own Proposed Decision)
- Petitioner afforded opportunity file exceptions to Proposed Decision
  - If Petitioner files → Board to issue Final Decision
  - If Petitioner doesn't file → Proposed Decision becomes Final

HAR CHAPTER 6-23 CONTESTED CASES

SUBCHAPTER 1
(OD & SDC disability cases)

- Parties are: (1) Petitioner and (2) Respondent Medical Board
- Labor Division DAG serves as counsel for Medical Board during contested case hearing
- ERS DAG serves as counsel for the ERS Board for decision making

SUBCHAPTER 2
(service & death benefits)

- Parties are: (1) Petitioner and (2) ERS staff
- 2 *separate* ERS DAGs will be assigned – 1 serves as counsel for ERS staff during the contested case hearing, and 1 serves as counsel for the ERS Board for decision making

QUESTIONS?

CONFIDENTIAL MATERIAL – NOT TO BE RELEASED IN WHOLE OR IN PART, UNTIL THE NEED TO KEEP CONFIDENTIAL NO LONGER EXISTS

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

NOVEMBER 12, 2024

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

Trustees present: (by teleconference)	Mr. Emmit Kane, Chair (in person) Mr. Lance Mizumoto, Vice Chair Mr. Vincent Barfield Dr. Catherine Chan Dr. Genevieve Ley
Trustees absent:	Mr. Luis Salaveria Mr. Bennett Yap
Staff present: (City Financial Tower by teleconference)	Mr. Thomas Williams, Executive Director Mr. Kona Mann, Chief Compliance Officer Mr. James Greubel, Program Specialist Ms. Shanna Sakagawa, Program Specialist Mr. Keith Miyamoto, Information Services Branch Manager Ms. Lori Kobayashi, Retirement Benefits Branch Manager Ms. Kristin Varela, Chief Investment Officer Mr. Anthony Goo, Deputy Chief Investment Officer Ms. Dale Kehau Kanae, Recording Secretary/Administrative Assistant Ms. Lori Kim, Administrative Assistant Ms. Andrea Gasper, Administrative Assistant
Attorney present: (by teleconference)	Ms. Jenny Nakamoto, Deputy Attorney General Ms. Lori Tanigawa, Deputy Attorney General Ms. Elmira Tsang, Deputy Attorney General Ms. Diane Wong, Deputy Attorney General
Guests present: (by teleconference)	Mr. Peter Hanashiro, KMH LLP Mr. Tyson Suehiro, KMH LLP Mr. Dave Collins, RSM US LLP Mr. Alfred Ko, RSM US LLP

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

Chair Kane provided the reason to enter into Executive Session:

> Executive Session, pursuant to HRS §92-5(a)(4), (6), and (8), to consider and to consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities, and where consideration of matters affecting privacy will be involved, and to deliberate and make a decision upon matters that require the consideration of information that must be kept confidential pursuant to state law, and with respect to sensitive matters related to the Roadmap Report prepared as part of the Internal Audit's Virtual Chief Information Security Officer Project; Cyber Security Updates; an Update on the Implementation of ERS' Compliance Program on Risk Assessment, Policies & Procedures, and Third-Party Risk Management; an Update on Ongoing Litigation; Recruitment and Search for Executive Leadership; and to discuss and to

make a decision on the approval of Executive Session Minutes of September 9, 2024, and October 16, 2024.

ENTER EXECUTIVE SESSION

On a motion made by Trustee Ley, seconded by Trustee Chan, and unanimously carried, the Board entered into Executive Session at 11:08 a.m.

(Public participation concluded by ending the teleconference link.)

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

EXECUTIVE SESSION

- Pursuant to §92-5(a)(4), and (6), to consider and consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities, and to consider sensitive matters related to the Roadmap Report prepared as part of the Internal Audit's Virtual Chief Information Security Officer (vCISO) Project.
- Pursuant to HRS §92-5(a)(4) and (6), to consider and consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities, and to consider sensitive matters related to Cyber Security Updates.
- Pursuant to HRS §92-5(a)(4) and (6), to consider and consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities, and to consider sensitive matters related to an Update on the Implementation of ERS' Compliance Program on Risk Assessment, Policies & Procedures, and Third-Party Risk Management.
- Pursuant to HRS §92-5(a)(4) and (8), to consider and consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities, and to consider information that must be kept confidential pursuant to state law, with respect to an Update on Ongoing Litigation for Cynthia Giebink vs. ERS, Civil No. 2CCV-23-0000113.
- Pursuant to HRS § 92-5(a)(2), (4), and (8), to consider and consult with the Board's attorneys on questions and issues pertaining to the Board's powers, duties, privileges, immunities, and liabilities, and where consideration of matters affecting privacy will be involved, and to deliberate and make a decision upon matters that require the consideration of information that must be kept confidential pursuant to state law, with respect to Recruitment and Search for Executive Leadership.
- Pursuant to HRS §92-5(a)(8), to Review and Approve Executive Session Minutes of September 9, 2024.
- Pursuant to HRS §92-5(a)(8), to Review and Approve Executive Session Minutes of the Special Board Meeting of October 16, 2024.

EXECUTIVE SESSION, PURSUANT TO §92-5(a)(4), AND (6), TO CONSIDER AND CONSULT WITH THE BOARD'S ATTORNEYS ON QUESTIONS AND ISSUES PERTAINING TO THE BOARD'S POWERS, DUTIES, PRIVILEGES, IMMUNITIES, AND LIABILITIES, AND TO CONSIDER SENSITIVE MATTERS RELATED TO THE ROADMAP REPORT PREPARED AS PART OF THE INTERNAL AUDIT'S VIRTUAL CHIEF INFORMATION SECURITY OFFICER (vCISO) PROJECT

KMH LLP's Peter Hanashiro and RSM US LLP's Dave Collins and Alfred Ko attended the meeting by teleconference and presented an oral and written report to the Board of the Roadmap Report prepared as part of the Internal Audit's Virtual Chief Information Security Officer (vCISO) Project that was presented at the Administrative & Audit Committee meeting and discussed in part:

BACKGROUND
vCISO INITIATIVE
KEY TAKEAWAYS
INITIAL FINDINGS AND OPPORTUNITIES FOR IMPROVEMENT
RECOMMENDATIONS AND ROADMAP

Although there was no action needed by the Board, in order to support ER staff, the Board decided to adopt the report but requested to rename it to the IT Enhancement Strategy and Roadmap Report and on a motion made by Administrative & Audit Committee Vice Chair Barfield, seconded by Trustee Ley, and unanimously carried, the Board approved the newly named IT Enhancement Strategy and Roadmap Report as presented.

EXECUTIVE SESSION, PURSUANT TO HRS §92-5(a)(4) AND (6), TO CONSIDER AND CONSULT WITH THE BOARD'S ATTORNEYS ON QUESTIONS AND ISSUES PERTAINING TO THE BOARD'S POWERS, DUTIES, PRIVILEGES, IMMUNITIES, AND LIABILITIES, AND TO CONSIDER SENSITIVE MATTERS RELATED TO CYBER SECURITY UPDATES

Information Services (IS) Branch Manager Keith Miyamoto presented an oral report to the Board Related to Cyber Security Updates that was presented at the Administrative & Audit Committee meeting.

IS Branch Manager Miyamoto discussed current staffing, vendor assistance, ETS phishing tests, cyber security projects, cyber security threats impacting ERS, and risks to the ERS. IS Branch Manager Miyamoto emphasized to the Board that position vacancies, insufficient training for ERS staff, underperformance of current staff, insufficient comprehensive Cyber Security monitoring, replacement of and inability to procure equipment (hardware and software) in a timely manner, and excessive number of projects requiring IS involvement are contributing factors to the risks to ERS. He also noted that due to the lack of staff, current staff are experiencing burnout.

There was no action required of the Board for this agenda item.

After the presentation, Mr. Miyamoto left the meeting.

EXECUTIVE SESSION, PURSUANT TO HRS §92-5(a)(4) AND (6), TO CONSIDER AND CONSULT WITH THE BOARD'S ATTORNEYS ON QUESTIONS AND ISSUES PERTAINING TO THE BOARD'S POWERS, DUTIES, PRIVILEGES, IMMUNITIES, AND LIABILITIES, AND TO CONSIDER SENSITIVE MATTERS RELATED TO AN UPDATE ON THE IMPLEMENTATION OF ERS' COMPLIANCE PROGRAM ON RISK ASSESSMENT, POLICIES & PROCEDURES, AND THIRD-PARTY RISK MANAGEMENT

Chief Compliance Officer (CCO) Kona Mann explained to the Board that implementation of a Compliance Program is in addition to and in tandem with strategies of executive management, branches, and internal auditors. Initiatives forthcoming have been strategically discussed throughout the organization. The presentation is an opportunity for ERS to think through where and how risks will be managed and reported. Managing and resolving risks reported by internal auditors have created challenges for branches, as work needs to be processed through executive management, however, traditionally it would be through a Chief Risk Officer, which there is none.

CCO Mann presented an oral and written report to the Board on an Update on the Implementation of ERS' Compliance Program on Risk Assessment, Policies & Procedures, and Third-Party Risk Management that was presented at the Administrative & Audit Committee meeting and discussed in summary:

COMPREHENSIVE OVERVIEW OF ENTERPRISE RISK MANAGEMENT (ERM)
MAJOR BUSINESS RISKS MANAGED BY ERM
LEADING PRACTICES TO CREATE AND IMPLEMENT ERM
REASON FOR IMPLEMENTING ERM
UNDERSTANDING THE DIFFERENCE BETWEEN ERM AND TRM
ENTERPRISE RISK MANAGEMENT KEY METRICS DASHBOARD

There was no action required of the Board for this agenda item.

EXECUTIVE SESSION, PURSUANT TO HRS §92-5(a)(4) AND (8), TO CONSIDER AND CONSULT WITH THE BOARD'S ATTORNEYS ON QUESTIONS AND ISSUES PERTAINING TO THE BOARD'S POWERS, DUTIES, PRIVILEGES, IMMUNITIES, AND LIABILITIES, AND TO CONSIDER INFORMATION THAT MUST BE KEPT CONFIDENTIAL PURSUANT TO STATE LAW, WITH RESPECT TO AN UPDATE ON ONGOING LITIGATION FOR CYNTHIA GIEBINK VS. ERS, CIVIL NO. 2CCV-23-0000113

Deputy Attorney General (DAG) Diane Wong presented an oral report to the Board on an Update on Ongoing Litigation for Cynthia Giebink vs. ERS, Civil No. 2CCV-23-0000113 and discussed, for their information, the status of the appeal.

EXECUTIVE SESSION, PURSUANT TO HRS § 92-5(a)(2), (4), AND (8), TO CONSIDER AND CONSULT WITH THE BOARD'S ATTORNEYS ON QUESTIONS AND ISSUES PERTAINING TO THE BOARD'S POWERS, DUTIES, PRIVILEGES, IMMUNITIES, AND LIABILITIES, AND WHERE CONSIDERATION OF MATTERS AFFECTING PRIVACY WILL BE INVOLVED, AND TO DELIBERATE AND MAKE A DECISION UPON MATTERS THAT REQUIRE THE CONSIDERATION OF INFORMATION THAT MUST BE KEPT CONFIDENTIAL PURSUANT TO STATE LAW, WITH RESPECT TO RECRUITMENT AND SEARCH FOR EXECUTIVE LEADERSHIP	(See DAG Lori Tanigawa's Confidential Executive Session Minutes for this portion of the meeting.)
EXECUTIVE SESSION, PURSUANT TO HRS §92-5(a)(8), TO REVIEW AND APPROVE EXECUTIVE SESSION MINUTES OF SEPTEMBER 9, 2024	On a motion made by Trustee Barfield, seconded by Trustee Ley, and unanimously carried, the Board approved the Executive Session Minutes of September 9, 2024, as presented.
EXECUTIVE SESSION, PURSUANT TO HRS §92-5(a)(8), TO REVIEW AND APPROVE EXECUTIVE SESSION MINUTES OF THE SPECIAL BOARD MEETING OF OCTOBER 16, 2024	On a motion made by Trustee Barfield, seconded by Trustee Ley, and unanimously carried, the Board approved the Executive Session Minutes of October 16, 2024, as presented.
EXIT EXECUTIVE SESSION	On a motion made by Trustee Barfield, seconded by Trustee ley, and unanimously carried, the Board exited Executive Session at 12:55 p.m.

REDACTED SIGNATURE

Thomas Williams
Executive Director

TW:dkik